**3GPP TSG-RAN WG4 Meeting #103-e R4-22xxxxx**

**Online Meeting, 16 – 27 May 2022**

**Third Generation Partnership Project (3GPP™)**

**DRAFT Meeting Report  
for  
TSG RAN WG4  
meeting: 102-e**

**Electronic Meeting, Online, 21/02/2022 to 03/03/2022**

Report generated on Tuesday, 2022-02-15 02:41 UTC

Contents:

1 Opening of the E-meeting 13

2 Approval of the agenda 13

3 Letters / reports from other groups / meeting 13

4 Rel-15 and previous release maintenance for LTE and NR 16

4.1 NR WIs (up to Rel-15) 16

4.1.1 UE RF requirements 16

4.1.1.1 FR1 (38.101-1) 16

4.1.1.2 FR2 (38.101-2) 23

4.1.1.3 Requirements for 38.101-3 24

4.1.2 UE EMC requirements 26

4.1.3 BS RF requirements 26

4.1.3.1 General 26

4.1.3.2 TX/RX requirements (38.104) 26

4.1.3.3 MSR specifications 26

4.1.4 BS conformance testing 27

4.1.4.1 General 27

4.1.4.2 Conducted conformance testing (38.141-1) 28

4.1.4.3 Radiated conformance testing (38.141-2) 29

4.1.4.4 eAAS specifications 30

4.1.5 BS EMC requirements 32

4.1.6 RRM core requirements (38.133/36.133) 34

4.1.7 RRM performance requirements (38.133/36.133) 41

4.1.8 Demodulation and CSI requirements (38.101-4/38.104) 49

4.1.8.1 UE demodulation requirements 49

4.1.8.2 CSI requirements 49

4.1.8.3 BS demodulation requirements 50

4.1.9 Positioning specifications (36.171, 37.171 and 38.171) 51

4.1.10 Testability (38.810) 51

4.2 LTE WIs (up to Rel-15) 51

4.2.1 UE RF requirements 51

4.2.2 BS RF requirements 52

4.2.3 RRM requirements 54

4.2.4 Demodulation performance requirements 56

4.2.4.1 UE demodulation and CSI requirements 56

4.2.4.2 BS demodulation requirements 57

5 Rel-16 maintenance for LTE and NR 57

5.1 NR WIs and TEI 57

5.1.1 NR-based access to unlicensed spectrum 57

5.1.1.1 System parameter 57

5.1.1.2 UE RF requirement 58

5.1.1.3 RRM requirements 58

5.1.1.4 Others 62

5.1.2 Enhancements on MIMO for NR 64

5.1.2.1 RRM requirements 64

5.1.2.2 Demodulation performance requirements 66

5.1.3 NR Positioning Support 66

5.1.3.1 RRM core requirement 66

5.1.3.2 RRM performance requirements 68

5.1.4 NR RRM requirements for CSI-RS based L3 measurement 71

5.1.5 Other NR WIs and Rel-16 NR TEI 72

5.1.5.1 BS RF requirements 72

5.1.5.2 UE RF requirements 73

5.1.5.2.1 FR1 38.101-1 73

5.1.5.2.2 FR2 38.101-2 77

5.1.5.2.3 Requirements for 38.101-3 78

5.1.5.3 RRM requirements 82

5.1.5.3.1 RRM core requirements 82

5.1.5.3.2 RRM performance requirements 86

5.1.5.4 Demodulation and CSI requirements 90

5.1.5.4.1 UE demodulation requirements 90

5.1.5.4.2 CSI requirements 92

5.1.5.4.3 BS demodulation requirements 93

5.1.5.5 NR MIMO OTA test methods (38.827) 93

5.2 LTE WIs and TEI 93

5.2.1 BS RF requirements 93

5.2.2 UE RF requirements 93

5.2.3 RRM requirements 93

5.2.4 Demodulation and CSI requirements 95

6 Rel-17 maintenance for LTE and NR 95

6.1 Introduction of FR2 FWA UE with maximum TRP of 23dBm for band n259 95

6.1.1 UE RF requirements 95

6.1.2 RRM requirements 95

6.1.3 Demodulation 95

6.2 Other WIs and Rel-17 TEI 95

6.2.1 BS RF requirements 95

6.2.2 UE RF requirements 96

6.2.3 RRM requirements 98

6.2.4 Demodulation and CSI requirements 98

7 LS response to ITU 99

7.1 Generic unwanted emission (IMT-2020) 99

7.2 Test methods for OTA total radiated power 99

8 Rel-17 feature list 99

9 Rel-17 spectrum related WIs for NR 101

9.1 Introduction of lower 6GHz NR unlicensed operation for Europe 101

9.1.1 General 101

9.1.2 Band definition and channel arrangement 101

9.1.3 UE RF requirements 101

9.1.4 BS RF requirements 102

9.1.5 Others 103

9.2 Introduction of operation in full unlicensed band 5925-7125MHz for NR 103

9.2.1 General 103

9.2.2 Regulatory requirements and evaluation for re-using existing NS 103

9.2.3 UE RF requirements 103

9.2.4 BS RF requirements 105

9.2.5 Others 105

9.3 Introduction of 6GHz NR licensed bands 105

9.3.1 General 105

9.3.2 System parameters 106

9.3.3 UE RF requirements 107

9.3.4 BS RF requirements 109

9.3.5 Others 111

9.4 Introduction of 900 MHz spectrum to 5G NR applicable for Rail Mobile Radio 111

9.4.1 General 111

9.4.2 UE RF requirements 112

9.4.3 BS RF requirements 112

9.5 Introduction of 1900 MHz spectrum to 5G NR applicable for Rail Mobile Radio 114

9.5.1 General 114

9.5.2 UE RF requirements 115

9.5.3 BS RF requirements 115

9.6 Issues arising from basket WIs but not subject to block approval 115

9.6.1 UE RF requirements 115

9.6.2 NR-U intra-band contiguous UL CA 119

9.6.3 Low MSD for CA and DC 120

9.7 NR intra band Carrier Aggregation for xCC DL/yCC UL including contiguous and non-contiguous spectrum (x>=y) 120

9.7.1 Rapporteur Input (WID/TR/CR) 120

9.7.2 UE RF requirements for FR1 121

9.7.3 UE RF requirements for FR2 121

9.8 NR inter-band Carrier Aggregation/Dual Connectivity for 2 bands DL with x bands UL (x=1, 2) 121

9.8.1 Rapporteur Input (WID/TR/CR) 122

9.8.2 NR inter band CA requirements without any FR2 band(s) 122

9.8.3 NR inter band CA requirements with at least one FR2 band 126

9.9 NR Inter-band Carrier Aggregation for 3 bands DL with 1 band UL 126

9.9.1 Rapporteur Input (WID/TR/CR) 126

9.9.2 UE RF requirements 127

9.10 NR Inter-band Carrier Aggregation for 4 bands DL with 1 band UL 127

9.10.1 Rapporteur Input (WID/TR/CR) 127

9.10.2 UE RF requirements 128

9.11 NR Inter-band Carrier Aggregation/Dual connectivity for 3 bands DL with 2 bands UL 129

9.11.1 Rapporteur Input (WID/TR/CR) 129

9.11.2 UE RF requirements 130

9.12 NR inter-band Carrier Aggregation and Dual connectivity for DL 4 bands and 2UL bands 132

9.12.1 Rapporteur Input (WID/TR/CR) 132

9.12.2 UE RF requirements 133

9.13 NR inter-band CA for 5 bands DL with x bands UL (x=1, 2) 136

9.13.1 Rapporteur Input (WID/TR/CR) 136

9.13.2 UE RF requirements 137

9.14 DC of 1 LTE band and 1 NR band 138

9.14.1 Rapporteur Input (WID/TR/CR) 138

9.14.2 EN-DC requirements without FR2 band 139

9.14.3 EN-DC requirements with FR2 band 139

9.15 DC of 2 LTE band and 1 NR band 139

9.15.1 Rapporteur Input (WID/TR/CR) 139

9.15.2 EN-DC requirements without FR2 band 140

9.15.3 EN-DC requirements with FR2 band 141

9.16 DC of 3 LTE band and 1 NR band 141

9.16.1 Rapporteur Input (WID/TR/CR) 141

9.16.2 EN-DC requirements without FR2 band 142

9.16.3 EN-DC requirements with FR2 band 147

9.17 DC of 4 LTE band and 1 NR band 147

9.17.1 Rapporteur Input (WID/TR/CR) 147

9.17.2 EN-DC requirements without FR2 band 148

9.17.3 EN-DC requirements with FR2 band 152

9.18 DC of 5 bands LTE inter-band CA (5DL/1L) and 1 NR band (1DL/1UL) 152

9.18.1 Rapporteur Input (WID/TR/CR) 152

9.18.2 UE RF requirements 153

9.19 DC of x bands (x=1,2, 3, 4) LTE inter-band CA and 2 bands NR inter-band CA 154

9.19.1 Rapporteur Input (WID/TR/CR) 154

9.19.2 EN-DC requirements including NR inter CA without FR2 band 154

9.19.3 EN-DC requirements including NR inter CA with FR2 band 158

9.20 DC of x bands (x=1,2) LTE inter-band CA (xDL/xUL) and y bands (y=3-x) NR inter-band CA 159

9.20.1 Rapporteur Input (WID/TR/CR) 159

9.20.2 UE RF requirements 159

9.21 DC of x bands (x=1,2,3) LTE inter-band CA (xDL/1UL) and 3 bands NR inter-band CA (3DL/1UL) 160

9.21.1 Rapporteur Input (WID/TR/CR) 160

9.21.2 UE RF requirements 160

9.22 DC of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL) 162

9.22.1 Rapporteur Input (WID/TR/CR) 162

9.22.2 UE RF requirements 162

9.23 DC of x bands (x=1,2,3) LTE inter-band CA (xDL/1UL) and 4 bands NR inter-band CA (4DL/1UL) 162

9.23.1 Rapporteur Input (WID/TR/CR) 162

9.23.2 UE RF requirements 163

9.24 Band combinations for SA NR supplementary uplink (SUL) NSA NR SUL, NSA NR SUL with UL sharing from the UE perspective (ULSUP) 163

9.24.1 Rapporteur Input (WID/TR/CR) 163

9.24.2 UE RF requirements 164

9.25 Band combinations for Uu and V2X con-current operation 164

9.25.1 Rapporteur Input (WID/TR/CR) 164

9.25.2 UE RF requirements 165

9.26 Adding channel bandwidth support to existing NR bands 165

9.26.1 Rapporteur Input (WID/TR/CR) 165

9.26.2 UE RF requirements 166

9.26.2.1 Addition of bandwidth and Tx/Rx requirements 166

9.26.2.2 NR-U 100MHz bandwidth 167

9.26.3 BS RF requirements 167

9.27 Introduction of bandwidth combination set 4 (BCS4) for NR 168

9.27.1 Rapporteur Input (WID/TR/CR) 168

9.27.2 UE RF requirements for BCS4/BCS5 168

9.27.3 Discussion of LS on NR CA capability for BCS5 (R2-2109073) 169

9.28 Addition of MSD (Maximum Sensitivity Degradation) for inter-band EN-DC combinations due to added channel bandwidths 169

9.28.1 Rapporteur Input (WID/TR/CR) 169

9.28.2 UE RF requirements 170

9.29 High-power UE operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, Band 13, Band n5, Band n13, and Band n71 170

9.29.1 General 170

9.29.2 Feasibility study 170

9.29.2.1 Coexistence study between B5 and adjacent bands 170

9.29.2.2 Coexistence study between B13/n13 and adjacent bands 170

9.29.2.3 Filter with smaller duplex for B13, n13 and n71 170

9.29.2.4 PA related to MPR and A-MPR for B13, n13, and n71 171

9.29.3 UE RF requirements 171

9.29.3.1 UE REFSENS 171

9.29.3.2 UE Tx requirements (MOP, MPR, A-MPR, and ACLR) 171

9.30 High power UE (power class 2) for NR inter-band Carrier Aggregation with 2 bands downlink and 2 bands uplink 171

9.30.1 Rapporteur Input (WID/TR/CR) 172

9.30.2 UE RF requirements 172

9.31 High power UE (power class 2) for EN-DC with 1 LTE band + 1 NR TDD band 174

9.31.1 Rapporteur Input (WID/TR/CR) 174

9.31.2 UE RF requirements 175

9.32 Power Class 2 UE for NR inter-band CA and SUL configurations with x (x>2) bands DL and y (y=1, 2) bands UL 175

9.32.1 Rapporteur Input (WID/TR/CR) 175

9.32.2 UE RF requirements 175

9.33 Power Class 2 for EN-DC with xLTE band + yNR DL with 1LTE+1(TDD) NR UL band (x= 2, 3, 4, y=1; x=1, 2, y=2) 177

9.33.1 Rapporteur Input (WID/TR/CR) 177

9.33.2 UE RF requirements 178

9.34 High power UE for NR TDD intra-band carrier aggregation in frequency range FR1 180

9.34.1 Rapporteur Input (WID/TR/CR) 180

9.34.2 UE RF requirements 180

9.35 Increasing UE power high limit for CA and DC 180

9.35.1 General 180

9.35.2 Feasibility and impact study 180

9.35.3 UE RF requirements 181

9.36 High power UE (power class 2) for NR FDD band 182

9.36.1 General 182

9.36.2 UE RF requirements 183

9.36.2.1 UE maximum output power and power tolerance 183

9.36.2.2 A-MPR requirements 183

9.36.2.3 PC2 MSD requirements (investigation for HD-FDD) 183

9.37 Additional NR bands for UL-MIMO 185

9.37.1 Rapporteur Input (WID/TR/CR) 185

9.37.2 UE RF requirements 185

9.38 Downlink interruption for band combinations to conduct dynamic Tx Switching 186

9.38.1 Rapporteur Input (WID/TR/CR) 186

9.38.2 Determination of inter-band uplink CA and EN-DC combinations for which DL interruption is not allowed 186

9.39 Simultaneous Rx/Tx band combinations for CA, SUL, MR-DC and NR-DC 186

9.39.1 Rapporteur Input (WID/TR/CR) 187

9.39.2 MSD threshold principle 188

9.39.3 FR2 band combinations with simultaneous Rx/Tx 189

9.40 4Rx support for NR band n8 189

9.40.1 UE RF requirements (delta\_R\_IB,4Rx) 189

9.40.2 Release independency 189

10 Rel-17 non-spectrum related work items for NR 190

10.1 Multiple Input Multiple Output (MIMO) Over-the-Air (OTA) requirements for NR UEs 190

10.1.1 General 190

10.1.2 Performance requirements 191

10.1.2.1 Performance Requirements for FR1 191

10.1.2.2 Performance Requirements for FR2 191

10.1.2.3 MU assessment for FR1 and FR2 192

10.1.3 Testing methodologies 192

10.1.3.1 Testing parameters for Performance 192

10.1.3.2 Optimization of test methodologies 192

10.1.3.3 Channel model validation 192

10.2 Introduction of UE TRP (Total Radiated Power) and TRS (Total Radiated Sensitivity) requirements and test methodologies for FR1 (NR SA and EN-DC) 194

10.2.1 General and work plan 194

10.2.2 Test methodology 195

10.2.2.1 SA test methodology 196

10.2.2.2 EN-DC test methodology 197

10.2.2.3 UE with multiple antennas test methodology 197

10.2.2.4 Test time reduction 198

10.2.3 Performance requirements 198

10.2.3.1 Framework for lab alignment and requirements 198

10.2.3.2 SA requirements 199

10.2.3.3 EN-DC requirements 199

10.3 RF requirements enhancement for NR frequency range 1 (FR1) 199

10.3.1 General 199

10.3.2 RF core requirements 200

10.3.2.1 UL MIMO configuration for SUL band configurations 200

10.3.2.2 HPUE for TDD intra-band contiguous UL CA 200

10.3.2.3 HPUE for TDD intra-band non-contiguous UL CA 200

10.3.2.4 Intra-band UL contiguous CA for UL MIMO (n41C and n78C) 201

10.3.2.5 Solution preventing transmission power dropping on cell with lower priority 201

10.3.2.5.1 FR1 related 201

10.3.2.5.2 FR2 related 202

10.3.3 RRM core requirements 202

10.3.4 RRM performance requirements 203

10.4 NR RF requirement enhancements for frequency range 2 (FR2) 203

10.4.1 General 203

10.4.2 UE RF requirements for inter-band CA 203

10.4.2.1 Inter-band DL CA requirements 203

10.4.2.1.1 CA configurations within the same frequency group based on CBM 203

10.4.2.1.2 CA configurations between different frequency groups based on CBM 205

10.4.2.1.3 Feasibility study for DL inter-band CA for IBM within the same frequency group 206

10.4.2.1.4 Rx beam switch value 206

10.4.2.2 Inter-band UL CA requirements 206

10.4.2.2.1 Inter-band UL CA for two bands 206

10.4.2.2.2 CA configuration CA\_n257A-n259A based on IBM 207

10.4.3 UL gaps for self-calibration and monitoring 207

10.4.3.1 UE Tx power management 208

10.4.3.2 Coherent UL-MIMO 208

10.4.4 DC location for intra-band UL CA with > 2 CCs for both FR2 and FR1 209

10.4.5 CA BW classes 210

10.4.5.1 New FR2 CA BW classes 210

10.4.5.2 Fallback group 211

10.4.6 RRM core requirements 211

10.4.6.1 Inter-band DL CA requirements for CBM 212

10.4.6.1.1 MRTD requirements 212

10.4.6.1.2 Other RRM requirements 213

10.4.6.2 Inter-band UL CA for IBM 215

10.4.6.3 UL gaps for self-calibration and monitoring 216

10.5 NR repeater 217

10.5.1 General 217

10.5.1.1 System parameters 217

10.5.1.2 Repeater Class/Type 218

10.5.1.3 TDD repeater switching requirements 218

10.5.1.4 Others 219

10.5.2 Conductive RF core requirements 219

10.5.2.1 Transmitted power related requirements 219

10.5.2.2 Emission requirements 220

10.5.2.3 Others 220

10.5.3 Radiated RF core requirements 222

10.5.3.1 Transmitted power related requirements 222

10.5.3.2 Emission requirements 222

10.5.3.3 Others 223

10.5.4 EMC core requirements 224

10.6 Introduction of DL 1024QAM for NR FR1 224

10.6.1 General 224

10.6.2 UE RF requirements maintenance 224

10.6.3 BS TX RF requirements maintenance 224

10.6.4 BS RF conformance testing 224

10.6.5 Demodulation and CSI requirements 225

10.6.5.1 General 226

10.6.5.2 PDSCH requirements 226

10.6.5.3 SDR requirements 227

10.6.5.4 CQI requirements 227

10.7 UE RF requirements for Transparent Tx Diversity (TxD) for NR 228

10.7.1 General 228

10.7.2 UE RF requirements for phase 1 (38.101-1) 229

10.7.2.1 UL MIMO requirement for TxD except ULFPTx 229

10.7.3 UE RF requirements for phase 2 (38.101-1) 229

10.7.3.1 SRS antenna switching related 229

10.7.3.2 ULFPTx related 230

10.7.4 Release independency 232

10.8 Enhancement for NR high speed train scenario in FR1 232

10.8.1 General 232

10.8.2 RRM core requirements 232

10.8.2.1 Intra-frequency measurements 232

10.8.2.2 Inter-frequency measurements 232

10.8.2.3 L1-SINR measurements 232

10.8.2.4 Others 233

10.8.3 UE demodulation requirements (38.101-4) 234

10.8.3.1 General 234

10.8.3.2 PDSCH requirements for CA scenarios 234

10.9 NR support for high speed train scenario in FR2 236

10.9.1 General 236

10.9.2 UE RF core requirements 236

10.9.2.1 UE Tx requirements 236

10.9.2.1.1 UE RF framework and power class 236

10.9.2.1.2 Spherical coverage requirements 236

10.9.2.1.3 Beam correspondence 237

10.9.2.2 UE Rx requirements 237

10.9.3 RRM core requirements 237

10.9.3.1 General 237

10.9.3.2 RRC Idle/Inactive and connected state mobility requirements 239

10.9.3.3 Timing requirements 240

10.9.3.4 Signalling characteristics requirements 241

10.9.3.5 Measurement procedure requirements 242

10.9.4 Demodulation requirements 243

10.9.4.1 General 243

10.9.4.2 UE demodulation requirements 243

10.9.4.2.1 PDSCH requirements under Uni-directional scenario 244

10.9.4.2.2 PDSCH requirements under Bi-directional scenario 245

10.9.4.3 BS demodulation requirements 245

10.9.4.3.1 PUSCH requirements 245

10.9.4.3.2 PUSCH with UL timing adjustment requirements 247

10.9.4.3.3 PRACH requirements 248

10.10 Further RRM enhancement for NR and MR-DC 249

10.10.1 General 249

10.10.2 RRM core requirements 249

10.10.2.1 SRS antenna port switching 249

10.10.2.2 HO with PSCell 251

10.10.2.3 PUCCH SCell activation/deactivation 253

10.11 NR and MR-DC measurement gap enhancements 255

10.11.1 General 255

10.11.2 RRM core requirements 255

10.11.2.1 Pre-configured MG pattern(s) 255

10.11.2.2 Multiple concurrent and independent MG patterns 258

10.11.2.3 Network Controlled Small Gap 261

10.12 Further enhancement on NR demodulation performance 263

10.12.1 General 263

10.12.2 UE demodulation and CSI requirements 263

10.12.2.1 MMSE-IRC receiver for inter-cell interference 263

10.12.2.1.1 PDSCH requirements 263

10.12.2.1.2 CQI requirements 266

10.12.2.2 MMSE-IRC receiver for intra-cell inter-user interference 268

10.12.2.3 CRS-IM receiver in scenarios with overlapping spectrum for LTE and NR 270

10.12.2.3.1 General 270

10.12.2.3.2 Network assistant signaling 271

10.12.2.3.3 Test set-up 272

10.12.3 BS demodulation requirements 273

10.12.3.1 PUSCH demodulation requirements for FR1 256QAM 273

10.13 Solutions for NR to support non-terrestrial networks (NTN) 275

10.13.1 General 275

10.13.1.1 System parameters 275

10.13.1.2 NTN Satellite Access Node Class/Type 275

10.13.1.3 Regulatory information 276

10.13.1.4 Others 277

10.13.2 Coexistence aspects 278

10.13.2.1 NTN coexistence scenarios and simulations 279

10.13.2.2 HAPS coexistence scenarios and simulations 280

10.13.2.3 ACLR/ACS proposals 280

10.13.3 Satellite Access Node RF requirements 281

10.13.3.1 TX requirements for radiated characteristics 282

10.13.3.2 RX requirements for radiated characteristics 284

10.13.3.3 Tx requirements for conducted characteristics 286

10.13.3.4 Rx requirements for conducted characteristics 288

10.13.4 UE RF requirements 291

10.13.4.1 TX requirements 292

10.13.4.2 RX requirements 295

10.13.5 RRM core requirements 296

10.13.5.1 General 296

10.13.5.2 GNSS-related requirements 298

10.13.5.3 Mobility requirements 298

10.13.5.4 Timing requirements 300

10.13.5.5 Measurement procedure requirements 302

10.13.6 Demodulation requirements 303

10.13.6.1 General 303

10.13.6.2 Satellite Access Node demodulation requirements 304

10.13.6.2.1 PUSCH requirements 304

10.13.6.2.2 PUCCH requirements 304

10.13.6.2.3 PRACH requirements 305

10.13.6.3 UE demodulation requirements 305

10.13.6.3.1 PDSCH requirements 305

10.13.6.3.2 PDCCH/PBCH requirements 305

10.13.6.4 CSI requirements 306

10.14 UE Power Saving Enhancements for NR 306

10.14.1 General 306

10.14.2 RRM core requirements 307

10.14.3 RRM performance requirements 310

10.14.4 Demodulation performance requirements 310

10.15 NR Sidelink enhancement 311

10.15.1 General 311

10.15.2 UE RF requirements for NR SL enhancement 311

10.15.2.1 Configured Tx power requirements 312

10.15.2.2 REFSENS requirements 312

10.15.2.3 Other RF requirements 312

10.15.3 Intra-band con-current operation between NR SUL and NR Uu 313

10.15.3.1 RF requirements for intra-band V2X con-current (including MPR) 313

10.15.3.2 Synchronous operation between SL and Uu (including switching time mask, SL transmission timing) 314

10.15.4 High power UE(PC2) for SL 315

10.15.4.1 TX requirements (Power class) 315

10.15.4.2 Coexistence study 315

10.15.4.3 Others 316

10.15.5 RRM core requirements 316

10.15.5.1 Intra-band con-current V2X operation 316

10.15.5.2 SL-DRX 317

10.15.5.3 Others 318

10.15.6 RRM performance requirements 318

10.15.7 Demodulation performance requirements 319

10.16 Extending current NR operation to 71GHz 319

10.16.1 General 319

10.16.2 Operation bands and system parameters (channelization, raster, CBW, etc) 320

10.16.3 UE RF requirements 322

10.16.3.1 TX requirements 322

10.16.3.2 RX requirements 324

10.16.4 BS RF requirements 326

10.16.4.1 TX requirements 326

10.16.4.2 RX requirements 327

10.16.5 BS RF conformance testing 328

10.16.6 Co-existence simulations 329

10.16.7 FR1+FR2-2 DC/CA band combinations 329

10.16.8 RRM core requirements 329

10.16.8.1 General 329

10.16.8.2 Timing requirements 331

10.16.8.3 Interruption requirements 332

10.16.8.4 Active BWP switching delay requirements 332

10.16.8.5 Measurement gap interruption requirements 333

10.16.8.6 LBT impacts on RRM requirements 333

10.16.9 Others 334

10.16.10 Demodulation and CSI requirements 335

10.16.10.1 General 335

10.16.10.2 UE Demodulation and CSI requirements 336

10.16.10.3 BS demodulation requirements 337

10.17 Enhancements to Integrated Access and Backhaul (IAB) for NR 337

10.17.1 General 337

10.17.2 RF requirements 337

10.17.2.1 Impact for Simultaneous operation of IAB child and parent links 337

10.17.2.2 Impact for Timing enhancement 338

10.17.2.3 Others 339

10.17.3 RF conformance testing 339

10.17.4 RRM core requirements 340

10.17.5 Demodulation requirements 340

10.18 NR coverage enhancements 341

10.18.1 General and CR structure 341

10.18.2 UE RF requirements 342

10.18.2.1 Requirements for non-scheduled gap 342

10.18.2.2 Tolerance for power consistency/phase continuity 342

10.18.2.3 Maximum duration for joint channel estimation 343

10.18.2.4 Others 344

10.18.3 BS demodulation requirements 344

10.18.3.1 PUSCH requirements 344

10.18.3.2 PUCCH requirements 345

10.19 Further enhancements on MIMO for NR 346

10.19.1 General 346

10.19.2 UE RF requirements 347

10.19.2.1 Additional requirement for multi-panel reception 347

10.19.2.2 Impact of MPE enhancements 347

10.19.2.3 SRS related impact 348

10.19.3 RRM core requirements 348

10.19.3.1 Unified TCI for DL and UL 348

10.19.3.2 Inter-cell beam management 350

10.19.3.3 Others 352

10.19.4 UE Demodulation and CSI requirements 354

10.19.4.1 General 354

10.19.4.2 Demodulation requirements 354

10.19.4.2.1 Enhancement on HST-SFN scenario 354

10.19.4.2.2 Enhancement on Multi-TRP 355

10.19.4.3 CSI requirements 355

10.19.4.3.1 CSI reporting for Multi-TRP transmission 355

10.19.4.3.2 Rel-17 eType II port selection codebook 356

10.19.4.3.3 Others 357

10.20 Support of reduced capability NR devices 357

10.20.1 General 357

10.20.2 UE RF requirements 357

10.20.2.1 FR1 357

10.20.2.1.1 Tx requirements (power class) 358

10.20.2.1.2 Rx requirements (REFSENS, etc) 359

10.20.2.2 FR2 359

10.20.2.2.1 Tx requirements (power class, UE type) 360

10.20.2.2.2 Rx requirements 361

10.20.2.3 Others 361

10.20.3 RRM core requirements 362

10.20.3.1 Impacts from UE complexity reduction 362

10.20.3.1.1 General 362

10.20.3.1.2 Mobility requirements 364

10.20.3.1.3 Timing requirements 366

10.20.3.1.4 Signalling characteristics 367

10.20.3.1.5 Measurement procedure 369

10.20.3.2 Extended DRX enhancements 371

10.20.3.3 RRM measurement relaxations 372

10.20.3.4 Others 373

10.20.4 UE demodulation and CSI requirements 375

10.20.4.1 General 375

10.20.4.2 Demodulation requirements 376

10.20.4.2.1 PDSCH/SDR requirements 376

10.20.4.2.2 PDCCH/PBCH requirements 376

10.20.4.3 CSI requirements 377

10.20.4.3.1 CQI requirements 377

10.20.4.3.2 PMI/RI requirements 378

10.21 Positioning enhancements for NR 378

10.21.1 General 378

10.21.2 RRM core requirements 379

10.21.2.1 UE Rx/Tx and/or gNB Rx/Tx timing delay mitigation 379

10.21.2.2 Latency reduction of positioning measurement 380

10.21.2.3 Measurement in RRC\_INACTIVE state 383

10.21.2.4 Impact on existing UE positioning and RRM requirements 385

10.21.2.5 Enhancements of A-GNSS positioning 385

10.21.2.6 Others 385

10.22 Multi-Radio Dual-Connectivity enhancements 386

10.22.1 General 386

10.22.2 RRM core requirements 387

10.22.2.1 Efficient activation/de-activation mechanism for SCells 387

10.22.2.2 Efficient activation/de-activation mechanism for one SCG 388

10.22.2.3 Conditional PSCell change and addition 390

10.22.2.4 Others 390

10.23 Enhanced IIoT and URLLC support 391

10.23.1 General 391

10.23.2 RRM core requirements 391

10.23.2.1 Propagation delay compensation enhancements 391

10.23.2.2 Reference point for Te requirements 392

10.23.2.3 Others 393

10.24 NR Sidelink Relay 393

10.24.1 General 393

10.24.2 RRM core requirements 393

10.25 NR small data transmissions in INACTIVE state 394

10.25.1 General and work plan 394

10.25.2 RRM core requirements 394

10.26 Support for Multi-SIM devices for LTE/NR 396

10.26.1 General and work plan 396

10.26.2 RRM core requirements 396

11 Rel-17 Study Items for NR 397

11.1 Study on enhanced test methods for FR2 in NR 397

11.1.1 Maintenance on objectives 1~6 397

11.1.2 OTA test methods for UE RF, RRM and demodulation for 52.6~71GHz 397

11.1.2.1 General 397

11.1.2.1.1 Test system assumption 398

11.1.2.1.2 UE types 398

11.1.2.1.3 MU assessment 398

11.1.2.1.4 Others 398

11.1.2.2 Test methodology for UE RF 398

11.1.2.3 Test methodology for RRM 399

11.1.2.4 Test methodology for UE demodulation and CSI 399

11.2 Study on Efficient utilization of licensed spectrum that is not aligned with existing NR channel bandwidths 399

11.2.1 General and TR 399

11.2.2 Evaluation of use of larger channel bandwidths than licensed bandwidth 400

11.2.2.1 Channel filter assumptions and RB blanking with impacts on UE (ACS, blocking) 401

11.2.2.2 Signaling and configuration (RAN1/RAN2 impacts) aspects 401

11.2.2.3 Other aspects such as detailed solution, complexity, legacy UE, etc 402

11.2.3 Evaluation of use of overlapping UE channel bandwidths 402

11.2.3.1 Overlapping CBWs from network perspective 402

11.2.3.1.1 Signaling and configuration (RAN1/RAN2 impacts) aspects 402

11.2.3.1.2 Other aspects such as detailed solution, complexity, legacy UE, etc 402

11.2.3.2 Combined UE CBWs (one cell) 402

11.2.3.2.1 Signaling and configuration (RAN1/RAN2 impacts) aspects 402

11.2.3.2.2 Other aspects such as detailed solution, complexity, legacy UE, etc 402

11.2.3.3 Overlapping CA (two cells) 402

11.2.3.3.1 Signaling and configuration (RAN1/RAN2 impacts) aspects 403

11.2.3.3.2 Other aspects such as detailed solution, complexity, legacy UE, etc 403

11.2.3.4 Overall method comparisons 403

11.3 Study on band combination handling in RAN4 403

11.3.1 General and TR 403

11.3.2 Information of rules and guidelines of specifying band combinations (TP format, notation, band configurations, BCS) 403

11.3.3 Improving RAN4 specification structures and reducing redundant contents 404

11.3.3.1 Optimization of delta TIB and delta RIB 404

11.3.3.2 Optimizations for other redundancy 405

11.4 Optimizations of pi/2 BPSK uplink power in NR 405

11.4.1 General and TR 405

11.4.2 UE Tx power and related issues 405

11.4.3 Evaluation of filter requirements applicable to identified new UE power capability 406

11.4.4 Link level simulations 406

11.4.5 SAR analysis 407

11.4.6 Identify RAN4 requirements 407

12 Rel-17 Work Items for LTE 407

12.1 LTE inter-band Carrier Aggregation for 2 bands DL with 1 band UL 407

12.1.1 Rapporteur Input (WID/TR/CR) 407

12.1.2 UE RF with harmonic, close proximity and isolation issues 408

12.1.3 UE RF without specific issues 408

12.2 LTE inter-band Carrier Aggregation for 3 bands DL with 1 band UL 408

12.2.1 Rapporteur Input (WID/TR/CR) 408

12.2.2 UE RF with harmonic, close proximity and isolation issues 408

12.2.3 UE RF without specific issues 408

12.3 LTE inter-band Carrier Aggregation for x bands DL (x=4, 5) with 1 band UL 408

12.3.1 Rapporteur Input (WID/TR/CR) 408

12.3.2 UE RF with 4 LTE bands CA 409

12.3.3 UE RF with 5 LTE bands CA 409

12.4 LTE inter-band Carrier Aggregation for 2 bands DL with 2 band UL 409

12.4.1 Rapporteur Input (WID/TR/CR) 409

12.4.2 UE RF with harmonic, close proximity and isolation issues 410

12.4.3 UE RF without specific issues 410

12.5 LTE inter-band Carrier Aggregation for x bands DL (x= 3, 4, 5) with 2 band UL 410

12.5.1 Rapporteur Input (WID/TR/CR) 410

12.5.2 UE RF with MSD 411

12.5.3 UE RF without MSD 411

12.6 RRM for LTE CA basket WIs 411

12.6.1 RRM Core (36.133) 411

12.6.2 RRM Perf (36.133) 411

12.7 New WID on Additional LTE bands for UE category M1&M2 and/or NB1&NB2 in Rel-17 411

12.7.1 Rapporteur Input (WID/TR/CR) 411

12.7.2 RF requirements 411

12.7.3 Others 411

12.8 Upper 700MHz A Block new E-UTRA band in US 411

12.8.1 General 411

12.8.2 Study for co-existence requirements 411

12.8.3 UE RF requirements 411

12.8.4 BS RF requirements 412

12.8.5 Others 413

12.9 Additional enhancements for NB-IoT and LTE-MTC 414

12.9.1 General 414

12.9.2 Support of 16QAM in NB-IoT 414

12.9.2.1 BS RF requirements 414

12.9.2.2 UE RF requirements 414

12.9.3 Support of power reduction for PRACH, PUCCH, and full-PRB PUSCH in MTC 414

12.9.3.1 UE RF requirements 414

12.9.4 RRM core requirements 414

12.9.4.1 Neighbour cell measurement in RRC Connected state for NB-IoT 414

12.9.5 Others 415

12.9.6 Demodulation requirements 416

12.9.6.1 General 416

12.9.6.2 Demodulation requirements for NB-IoT 416

12.9.6.2.1 UE demodulation requirements 416

12.9.6.2.2 BS demodulation requirements 416

12.9.6.3 Demodulation requirements for MTC 417

13 Liaison and output to other groups 417

13.1 R17 related 417

13.1.1 LS reply for beam correspondence with SDT in RRC\_INACTIVE 417

13.1.2 RAN5 response LS on LTE REFSENS exception simplification (R5-215803) 417

13.1.3 Others 418

13.2 R15, R16 related 418

13.2.1 FR2 power control for NR-DC 418

13.2.2 FR2 requirement applicability over ETC 419

13.2.3 FR2 UE relative power control tolerance requirements 419

13.2.4 Clarification on exception requirements for IMD 420

13.2.5 Ambiguity issue in deciding TL,C 420

13.2.6 RAN2 LS on RRM relaxation for Rel-16 power saving (R2-2108877) 420

13.2.7 RAN2 LS on L3 filter configuration (R2-2111590) 421

13.2.8 Others 422

14 Revision of the Work Plan 423

14.1 R17 new proposals 423

14.2 R18 new proposals 423

15 Any other business 427

16 Close of the E-meeting 427

## 1 Opening of the E-meeting

The Chairman Xizeng Dai (Huawei) opened the meeting on RAN4 reflector on 21/02/2022.

Intellectual Property Rights Declaration Policy

The attention of the delegates to the meeting of this Technical Specification Group was drawn to the fact that 3GPP Individual Members have the obligation under the IPR Policies of their respective Organizational Partners to inform their respective Organizational Partners of Essential IPRs they become aware of.

The delegates were asked to take note that they were thereby invited:

- to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.

- to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Information Statement and the Licensing declaration forms.

Statement regarding competition law

The attention of the delegates to the meeting was drawn to the fact that 3GPP activities were subject to all applicable antitrust and competition laws and that compliance with said laws was therefore required by any participant of the meeting, including the Chairman and Vice-Chairmen and were invited to seek any clarification needed with their legal counsel. The leadership would conduct the present meeting with impartiality and in the interests of 3GPP. Delegates were reminded that timely submission of work items in advance of TSG/WG meetings was important to allow for full and fair consideration of such matters.

Meeting arrangements

The meeting was conducted on three parallel sessions; Main session, RRM session and BS RF Test Demod session. The Main session was chaired by RAN4 Chair Xizeng Dai (Huawei), RRM session was chaired by RAN4 Vice Chair Andrey Chervyakov (Intel) and BS RF Test Demod session was chaired by RAN4 ViceChair Haijie Qiu (Samsung). The sessions were further broken down into separate email threads to address specific technical topics lead by assigned discussion moderators. Webinar sessions were used to summarize progress, resolve controversial issues and decide way forward.

## 2 Approval of the agenda

**R4-2203500 RAN4#101-bis-e Meeting Report**

*Type: report For: Approval  
 Source: ETSI MCC*

**Decision: Revised to R4-2206144 (from R4-2203500).**

**R4-2206144 RAN4#101-bis-e Meeting Report**

*Type: report For: Approval  
 Source: ETSI MCC*

**Decision: Approved.**

**R4-2203501 Agenda for RAN4#102-e**

*Type: agenda For: Approval  
 Source: RAN4 Chair (Huawei)*

**Decision: Approved.**

**R4-2203502 RAN4#102-e E-Meeting Arrangements and Guidelines**

*Type: other For: Approval  
 Source: RAN4 Chair (Huawei)*

**Decision: Approved.**

## 3 Letters / reports from other groups / meeting

R4-2203503 LS on updated Rel-17 NR higher-layers parameter list RAN1 (R1-2200700)

R4-2203504 LS on DMRS bundling for PUSCH and PUCCH RAN1 (R1-2200773)

R4-2203505 LS on updated Rel-17 RAN1 UE features list for NR RAN1 (R1-2200781)

R4-2203506 LS on a minimum guard period between two SRS resources for antenna switching RAN1 (R1-2200796)

R4-2203507 LS on efficient activation/de-activation mechanism for one SCG RAN2 (R2-2201711)

R4-2203508 LS to RAN4 on RAN2 agreement for MUSIM gaps RAN2 (R2-2201717)

R4-2203509 Reply LS on the use of NCD-SSB or CSI-RS in DL BWPs for RedCap UEs RAN2 (R2-2201759) Response to: R1-2112802

R4-2203510 LS on RSRP measurement before Msg1 or MsgA retransmission RAN2 (R2-2201760)

R4-2203511 Response LS on the reporting of the Tx TEG association information RAN2 (R2-2201776) Response to: R1-2112968;

R4-2203512 Reply LS on Multiple SMTCs for NR NTN RAN2 (R2-2201883) Response to: R4-2120308

R4-2203513 Reply LS on NR NTN Neighbor Cell and Satellite Information RAN2 (R2-2201884) Response to: R4-2120309

R4-2203514 Reply LS on HO with PSCell from NR SA to EN-DC RAN2 (R2-2201902) Response to: R4-2120298

R4-2203515 Reply LS to RAN4 on NCSG RAN2 (R2-2201935) Response to: R4-2120306

R4-2203516 LS on PDC for Time Synchronization RAN2 (R2-2201976)

R4-2203517 Reply LS on DC location for >2CC RAN2 (R2-2201978) Response to: R4-2119965

R4-2203518 LS to RAN4 on RLM/BFD relaxation for ePowSav RAN2 (R2-2201989)

R4-2203519 LS on feMIMO RRC parameters RAN2 (R2-2202202) To: RAN1

R4-2203520 Reply LS on latency improvement for PRS measurement with MG RAN2 (R2-2202052) Response to: R1-2112784

R4-2203521 Reply LS on energy efficiency as guiding principle for new solutions SA5 (S5-221501) Response to: SP-211621

**R4-2203503 LS on updated Rel-17 NR higher-layers parameter list (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2200700, to RAN2, RAN3, cc RAN4***Decision: Noted.**

**R4-2203504 LS on DMRS bundling for PUSCH and PUCCH (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2200773, to RAN4, cc -***Decision: Noted.**

**R4-2203505 LS on updated Rel-17 RAN1 UE features list for NR (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2200781, to RAN2, cc RAN4***Decision: Noted.**

**R4-2203506 LS on a minimum guard period between two SRS resources for antenna switching (RAN1)**

*Type: LS in For: Information  
 Original outgoing LS: R1-2200796, to RAN4, cc -***Decision: Noted.**

**R4-2203507 LS on efficient activation/de-activation mechanism for one SCG (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201711, to RAN4, cc -***Decision: Noted.**

**R4-2203508 LS to RAN4 on RAN2 agreement for MUSIM gaps (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201717, to RAN4, cc -***Decision: Noted.**

**R4-2203509 Reply LS on the use of NCD-SSB or CSI-RS in DL BWPs for RedCap Ues (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201759, to RAN1, cc RAN4***Decision: Noted.**

**R4-2203510 LS on RSRP measurement before Msg1 or MsgA retransmission (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201760, to RAN1, RAN4, cc -***Decision: Noted.**

**R4-2203511 Response LS on the reporting of the Tx TEG association information (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201776, to RAN1, cc RAN3, RAN4***Decision: Noted.**

**R4-2203512 Reply LS on Multiple SMTCs for NR NTN (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201883, to RAN4, cc -*

**Decision: Noted.**

**R4-2203513 Reply LS on NR NTN Neighbor Cell and Satellite Information (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201884, to RAN1, RAN4, cc -***Decision: Noted.**

**R4-2203514 Reply LS on HO with PSCell from NR SA to EN-DC (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201902, to RAN4, cc -***Decision: Noted.**

**R4-2203515 Reply LS to RAN4 on NCSG (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201935, to RAN4, cc -***Decision: Noted.**

**R4-2203516 LS on PDC for Time Synchronization (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201976, to RAN3, cc RAN1, RAN4***Decision: Noted.**

**R4-2203517 Reply LS on DC location for >2CC (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201978, to RAN4, cc -***Decision: Noted.**

**R4-2203518 LS to RAN4 on RLM/BFD relaxation for ePowSav (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2201989, to RAN4, cc RAN1***Decision: Noted.**

**R4-2203519 LS on feMIMO RRC parameters (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2202202, to RAN1, cc RAN3, RAN4***Decision: Noted.**

**R4-2203520 Reply LS on latency improvement for PRS measurement with MG (RAN2)**

*Type: LS in For: Information  
 Original outgoing LS: R2-2202052, to RAN1, RAN4, cc RAN3***Decision: Noted.**

**R4-2203521 Reply LS on energy efficiency as guiding principle for new solutions (SA5)**

*Type: LS in For: Information  
 Original outgoing LS: S5-221501, to SA, cc RAN, CT, SA1, SA2, SA3, SA4, SA6, RAN1, RAN2, RAN3, RAN4, RAN5, CT1, CT3, CT4, CT6***Decision: Noted.**

## 4 Rel-15 and previous release maintenance for LTE and NR

**Big CRs for main session**

**R4-2206610 Big CR for TS 38.101-1 Maintenance Part-1 (Rel-15)**

*Type: CR For: Agreement  
 38.101-1 v15.16.0 CR-XXX rev Cat: F (Rel-15)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206611 Big CR for TS 38.101-1 Maintenance Part-1 (Rel-16)**

*Type: CR For: Agreement  
 38.101-1 v16.10.0 CR-XXX rev Cat: F (Rel-16)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206612 Big CR for TS 38.101-1 Maintenance Part-1 (Rel-17)**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-XXX rev Cat: F (Rel-17)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206613 Big CR for TS 38.101-2 Maintenance (Rel-15)**

*Type: CR For: Agreement  
 38.101-2 v15.16.0 CR-XXX rev Cat: F (Rel-15)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206614 Big CR for TS 38.101-2 Maintenance (Rel-16)**

*Type: CR For: Agreement  
 38.101-2 v16.10.0 CR-XXX rev Cat: F (Rel-16)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206615 Big CR for TS 38.101-2 Maintenance (Rel-17)**

*Type: CR For: Agreement  
 38.101-2 v17.4.0 CR-XXX rev Cat: F (Rel-17)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206616 Big CR for TS 38.101-3 Maintenance (Rel-15)**

*Type: CR For: Agreement  
 38.101-3 v15.16.0 CR-XXX rev Cat: F (Rel-15)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206617 Big CR for TS 38.101-3 Maintenance (Rel-16)**

*Type: CR For: Agreement  
 38.101-3 v16.10.0 CR-XXX rev Cat: F (Rel-16)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206618 Big CR for TS 38.101-3 Maintenance (Rel-17)**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-XXX rev Cat: F (Rel-17)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206619 Big CR for TS 38.307 Maintenance (Rel-15)**

*Type: CR For: Agreement  
 38.307 v15.9.0 CR-XXX rev Cat: F (Rel-15)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206620 Big CR for TS 38.307 Maintenance (Rel-16)**

*Type: CR For: Agreement  
 38.307 v16.9.0 CR-XXX rev Cat: F (Rel-16)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206621 Big CR for TS 38.307 Maintenance (Rel-17)**

*Type: CR For: Agreement  
 38.307 v17.4.0 CR-XXX rev Cat: F (Rel-17)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206622 Big CR for TS 36.101 Maintenance (Rel-14)**

*Type: CR For: Agreement  
 36.101 v14.21.0 CR-XXX rev Cat: F (Rel-14)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206623 Big CR for TS 36.101 Maintenance (Rel-15)**

*Type: CR For: Agreement  
 36.101 v15.17.0 CR-XXX rev Cat: F (Rel-15)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206624 Big CR for TS 36.101 Maintenance (Rel-16)**

*Type: CR For: Agreement  
 36.101 v16.12.0 CR-XXX rev Cat: F (Rel-16)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206625 Big CR for TS 36.101 Maintenance (Rel-17)**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-XXX rev Cat: F (Rel-17)  
  
 Source: MCC, TBD*

**Decision: Return to.**

### 4.1 NR WIs (up to Rel-15)

#### 4.1.1 UE RF requirements

**[102-e][101] R15\_Maintenance, AI 4.1.1, 4.2.1 ------ Aijun Cao**

**R4-2206301 Email discussion summary for [102-e][101] R15\_Maintenance**

*Type: other For: Information  
 Source: Moderator (ZTE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206401 (from R4-2206301).**

**R4-2206401 Email discussion summary for [102-e][101] R15\_Maintenance**

*Type: other For: Information  
 Source: Moderator (ZTE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206295 WF on FR1 UL coherent MIMO | Anritsu | Approved |
| R4-2206296 Draft reply LS in Power class issues for Rel-15 | Vivo | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2203991  Revised to [R4-2206589](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203991.zip) | Draft   CR to TS 38.307 on NR intra-band CA BW class within FR1 (Rel-15) | ZTE Corporation | Endorsed |
| [R4-2203678](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203678.zip)  Revised to R4-2206285 | draft CR to 38.101-1 on AMPR edge RB allocation for NS R15 | Apple | Endorsed |
| R4-2203679 | draft CR to 38.101-1 on AMPR edge RB allocation for NS R16 | Apple | Endorsed |
| R4-2203680 | draft CR to 38.101-1 on AMPR edge RB allocation for NS R17 | Apple | Endorsed |
| [R4-2203999](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203999.zip)  Revised to R4-2206286 | Draft CR to TS 38.101-1 on removal the bracket for the note of NS\_01 | ZTE Corporation | Endorsed |
| R4-2204000 | Draft CR to TS 38.101-1 on removal the bracket for the note of NS\_01 (R16\_CAT\_A) | ZTE Corporation | Endorsed |
| R4-2204001 | Draft CR to TS 38.101-1 on removal the bracket for the note of NS\_01 (R17\_CAT\_A) | ZTE Corporation | Endorsed |
| [R4-2204070](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204070.zip)  Revised to R4-2206287 | draft CR for the procedure of introducing release independent features | CHTTL, ZTE | 4070 Endorsed  6287 withdrawn |
| R4-2204071 | draft CR for the procedure of introducing release independent features | CHTTL, ZTE | Endorsed |
| R4-2204072 | draft CR for the procedure of introducing release independent features | CHTTL, ZTE | Endorsed |
| [R4-2204175](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204175.zip)  Revised to R4-2206288 | n1 NS\_05 ineqaulity error fix Cat F rel 15 | Qualcomm Incorporated | Endorsed |
| R4-2204176 | n1 NS\_05 ineqaulity error fix Cat A rel 16 | Qualcomm Incorporated | Endorsed |
| R4-2204177 | n1 NS\_05 ineqaulity error fix Cat A rel 17 | Qualcomm Incorporated | Endorsed |
| [R4-2204596](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204596.zip) | Correction to Pcmax: application of p-NR-FR1 for one CG with one uplink serving cell | Ericsson | Not pursued |
| R4-2204597 | Correction to Pcmax: application of p-NR-FR1 for one CG with one uplink serving cell | Ericsson | Withdrawn |
| R4-2204598 | Correction to Pcmax: application of p-NR-FR1 for one CG with one uplink serving cell | Ericsson | Withdrawn |
| [R4-2205220](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205220.zip)  Revised to R4-2206289 | DraftCR for TS 38.101-1 on correction on IL for SRS antenna switching | ZTE Wistron Telecom AB | Endorsed |
| R4-2205221 | DraftCR for TS 38.101-1 on correction on IL for SRS antenna switching | ZTE Wistron Telecom AB | Endorsed |
| R4-2205222 | DraftCR for TS 38.101-1 on correction on IL for SRS antenna switching | ZTE Wistron Telecom AB | Endorsed |
| [R4-2205294](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205294.zip)  Revised to R4-2206290 | Draft CR for 38.101-1 to align the UL channel bandwidth between clause 6.5.3.3 and 6.2.3.1 for n74(R15) | Huawei, HiSilicon | Endorsed |
| R4-2205295 | Draft CR for 38.101-1 to align the UL channel bandwidth between clause 6.5.3.3 and 6.2.3.1 for n74(R16) | Huawei, HiSilicon | Endorsed |
| R4-2205296 | Draft CR for 38.101-1 to align the UL channel bandwidth between clause 6.5.3.3 and 6.2.3.1 for n74(R17) | Huawei, HiSilicon | Endorsed |
| [R4-2205614](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205614.zip)  Revised to R4-2206291 | Draft CR to correct the output power in EN-DC Rx tests | Anritsu Limited | Endorsed |
| R4-2205615 | Draft CR to correct the output power in EN-DC Rx tests | Anritsu Limited | Endorsed |
| R4-2205616 | Draft CR to correct the output power in EN-DC Rx tests | Anritsu Limited | Endorsed |
| [R4-2205662](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205662.zip)  Revised to R4-2206292 | Draft CR for 36.101 Correction to Bands for NB-IoT in the USA | Dish Network | 5662 not pursued  6292 withdrawn |
| R4-2205663 | Draft CR for 36.101 Correction to Bands for NB-IoT in the USA | Dish Network | Withdrawn |
| R4-2205664 | Draft CR for 36.101 Correction to Bands for NB-IoT in the USA | Dish Network | Withdrawn |
| R4-2205665 | Draft CR for 36.101 Correction to Bands for NB-IoT in the USA | Dish Network | Withdrawn |
| [R4-2205705](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205705.zip)  Revised to R4-2206293 | draft Rel-15 CR 38101-3-fg0 to align spurious emission between R15 and R16 | Ericsson | Endorsed |
| [R4-2206063](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2206063.zip)  Revised to R4-2206294 | Draft CR to 38.101-2: missing image location for CA IBE (cat. F) | Qualcomm Incorporated | Endorsed |
| R4-2206064 | Draft CR to 38.101-2: missing image location for CA IBE (cat. A) | Qualcomm Incorporated | Endorsed |
| R4-2206065 | Draft CR to 38.101-2: missing image location for CA IBE (cat. A) | Qualcomm Incorporated | Endorsed |

**R4-2206295 WF on FR1 UL coherent MIMO**

*Type: other For: Approval  
 Source: Anritsu*

**Decision: Approved.**

**R4-2206296 Draft reply LS in Power class issues for Rel-15**

*Type: other For: Approval  
 Source: VIVO*

**Decision: Approved.**

-----------------------------------------------------------------------------------------------------------------

**R4-2204069 Discussion on the common UE RF requirement tables for the release independent features in TS 36.307 and TS 38.307**

*Type: discussion For: Approval  
 Source: CHTTL, ZTE*

**Decision: Noted.**

**R4-2204070 draft CR for the procedure of introducing release independent features**

*Type: draftCR For: Endorsement  
 38.307 v15.9.0 CR- rev Cat: (Rel-15)  
  
 Source: CHTTL, ZTE*

**Decision: Endorsed.**

**R4-2206287 draft CR for the procedure of introducing release independent features**

*Type: draftCR For: Endorsement  
 38.307 v15.9.0 CR- rev Cat: (Rel-15)  
  
 Source: CHTTL, ZTE*

**Decision: Withdrawn.**

**R4-2204071 draft CR for the procedure of introducing release independent features**

*Type: draftCR For: Endorsement  
 38.307 v16.9.0 CR- rev Cat: A (Rel-16)  
  
 Source: CHTTL, ZTE*

**Decision: Endorsed.**

**R4-2204072 draft CR for the procedure of introducing release independent features**

*Type: draftCR For: Endorsement  
 38.307 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: CHTTL, ZTE*

**Decision: Endorsed.**

##### 4.1.1.1 FR1 (38.101-1)

**R4-2203605 Correction to FR1 UL RMCs**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203606 Correction to FR1 UL RMCs**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203607 Correction to FR1 UL RMCs**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203670 draftCR for TS 38.101-1 Rel-15: Corrections on single bands for UE co-existence**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2203671 draftCR for TS 38.101-1 Rel-16: Corrections on single bands for UE co-existence**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2203672 draftCR for TS 38.101-1 Rel-17: Corrections on single bands for UE co-existence**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2203678 draft CR to 38.101-1 on AMPR edge RB allocation for NS R15**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision: Revised to R4-2206285 (from R4-2203678).**

**R4-2206285 draft CR to 38.101-1 on AMPR edge RB allocation for NS R15**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2203679 draft CR to 38.101-1 on AMPR edge RB allocation for NS R16**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2203680 draft CR to 38.101-1 on AMPR edge RB allocation for NS R17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2203999 Draft CR to TS 38.101-1 on removal the bracket for the note of NS\_01**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206286 (from R4-2203999).**

**R4-2206286 Draft CR to TS 38.101-1 on removal the bracket for the note of NS\_01**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204000 Draft CR to TS 38.101-1 on removal the bracket for the note of NS\_01 (R16\_CAT\_A)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204001 Draft CR to TS 38.101-1 on removal the bracket for the note of NS\_01 (R17\_CAT\_A)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204165 CR CatA n74 AMPR**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

re submission due to Cat-A upload error from RAN4#101-e

**Decision: Endorsed.**

**R4-2204167 CR CatA n74 AMPR**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Re-submission due to Cat-A upload error in RAN4#101-e

**Decision: Endorsed.**

**R4-2204175 n1 NS\_05 ineqaulity error fix Cat F rel 15**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2206288 (from R4-2204175).**

**R4-2206288 n1 NS\_05 ineqaulity error fix Cat F rel 15**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2204176 n1 NS\_05 ineqaulity error fix Cat A rel 16**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2204177 n1 NS\_05 ineqaulity error fix Cat A rel 17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2204596 Correction to Pcmax: application of p-NR-FR1 for one CG with one uplink serving cell**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the configured maximum output power: the UE-specific P-max limits of the cell-group power p-NR-FR1 and p-UE-FR1 should also be applied to the PCMAX,f,c for a serving cell c and carrier frequency f to cover the case of one CG (MCG) cont

**Decision: Not pursued.**

**R4-2204597 Correction to Pcmax: application of p-NR-FR1 for one CG with one uplink serving cell**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the configured maximum output power: the UE-specific P-max limits of the cell-group power p-NR-FR1 and p-UE-FR1 should also be applied to the PCMAX,f,c for a serving cell c and carrier frequency f to cover the case of one CG (MCG) cont

**Decision: Withdrawn.**

**R4-2204598 Correction to Pcmax: application of p-NR-FR1 for one CG with one uplink serving cell**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the configured maximum output power: the UE-specific P-max limits of the cell-group power p-NR-FR1 and p-UE-FR1 should also be applied to the PCMAX,f,c for a serving cell c and carrier frequency f to cover the case of one CG (MCG) cont

**Decision: Withdrawn.**

**R4-2204599 Correction to relative power tolerance**

*Type: draftCR For: Endorsement  
 38.101-2 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the relative power tolerance requirements to make the 1 dB testable (other requirements not testable)

**Decision: Not pursued.**

**R4-2204600 Correction to relative power tolerance**

*Type: draftCR For: Endorsement  
 38.101-2 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the relative power tolerance requirements to make the 1 dB testable (other requirements not testable)

**Decision: Withdrawn.**

**R4-2204601 Correction to relative power tolerance**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the relative power tolerance requirements to make the 1 dB testable (other requirements not testable)

**Decision: Withdrawn.**

**R4-2204967 On draft reply LS in Power class issues for Rel-15**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2205220 DraftCR for TS 38.101-1 on correction on IL for SRS antenna switching**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: (Rel-15)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Revised to R4-2206289 (from R4-2205220).**

**R4-2206289 DraftCR for TS 38.101-1 on correction on IL for SRS antenna switching**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: (Rel-15)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Endorsed.**

**R4-2205221 DraftCR for TS 38.101-1 on correction on IL for SRS antenna switching**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: (Rel-16)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Endorsed.**

**R4-2205222 DraftCR for TS 38.101-1 on correction on IL for SRS antenna switching**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Endorsed.**

**R4-2205294 Draft CR for 38.101-1 to align the UL channel bandwidth between clause 6.5.3.3 and 6.2.3.1 for n74(R15)**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206290 (from R4-2205294).**

**R4-2206290 Draft CR for 38.101-1 to align the UL channel bandwidth between clause 6.5.3.3 and 6.2.3.1 for n74(R15)**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205295 Draft CR for 38.101-1 to align the UL channel bandwidth between clause 6.5.3.3 and 6.2.3.1 for n74(R16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205296 Draft CR for 38.101-1 to align the UL channel bandwidth between clause 6.5.3.3 and 6.2.3.1 for n74(R17)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205301 Draft CR for 38.101-1 to add spurious response exception for intra-band CA(R15)**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205302 Draft CR for 38.101-1 to add spurious response exception for intra-band CA(R16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205303 Draft CR for 38.101-1 to add spurious response exception for intra-band CA(R17)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205610 FR1 UL coherent MIMO**

*Type: discussion For: Approval  
 Source: Anritsu Limited*

**Decision: Noted.**

**R4-2205617 General SE requirements for n41**

*Type: discussion For: Approval  
 Source: Anritsu Limited*

**Decision: Noted.**

**R4-2205618 Draft CR to correct the general SE requirements for n41**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Anritsu Limited*

**Decision: Endorsed.**

**R4-2205619 Draft CR to correct the general SE requirements for n41**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Anritsu Limited*

**Decision: Endorsed.**

**R4-2205620 Draft CR to correct the general SE requirements for n41**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Anritsu Limited*

**Decision: Endorsed.**

**R4-2206099 MIMO EVM Measurement for FR1**

*Type: discussion For: Approval  
 Source: Lenovo*

**Decision: Noted.**

##### 4.1.1.2 FR2 (38.101-2)

**R4-2203608 Correction to Rel-15 FR2 RMCs**

*Type: draftCR For: Endorsement  
 38.101-2 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203609 Correction to Rel-15 FR2 RMCs**

*Type: draftCR For: Endorsement  
 38.101-2 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203610 Correction to Rel-15 FR2 RMCs**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203811 Correction of FR2 UE configured transmitted power**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Not pursued.**

**R4-2204002 Draft CR to TS 38.101-2 on corrections to UE maximum output power with additional requirements**

*Type: draftCR For: Endorsement  
 38.101-2 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204003 Draft CR to TS 38.101-2 on corrections to UE maximum output power with additional requirements (R16\_CAT\_A)**

*Type: draftCR For: Endorsement  
 38.101-2 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204004 Draft CR to TS 38.101-2 on corrections to UE maximum output power with additional requirements (R17\_CAT\_A)**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2206063 Draft CR to 38.101-2: missing image location for CA IBE (cat. F)**

*Type: draftCR For: Endorsement  
 38.101-2 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Image location detail is present in the single CC IBE requiement, but not present for CA cases.

**Decision: Revised to R4-2206294 (from R4-2206063).**

**R4-2206294 Draft CR to 38.101-2: missing image location for CA IBE (cat. F)**

*Type: draftCR For: Endorsement  
 38.101-2 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Image location detail is present in the single CC IBE requiement, but not present for CA cases.

**Decision: Endorsed.**

**R4-2206064 Draft CR to 38.101-2: missing image location for CA IBE (cat. A)**

*Type: draftCR For: Endorsement  
 38.101-2 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Image location detail is present in the single CC IBE requiement, but not present for CA cases.

**Decision: Endorsed.**

**R4-2206065 Draft CR to 38.101-2: missing image location for CA IBE (cat. A)**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Image location detail is present in the single CC IBE requiement, but not present for CA cases.

**Decision: Endorsed.**

##### 4.1.1.3 Requirements for 38.101-3

**R4-2203991 Draft CR to TS 38.307 on NR intra-band CA BW class within FR1 (Rel-15)**

*Type: draftCR For: Endorsement  
 38.307 v15.9.0 CR- rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206589 (from R4-2203991).**

**R4-2206589 Draft CR to TS 38.307 on NR intra-band CA BW class within FR1 (Rel-15)**

*Type: draftCR For: Endorsement  
 38.307 v15.9.0 CR- rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2205304 Draft CR for 38.101-3 to add spurious response exception for intra-band EN-DC (R15)**

*Type: draftCR For: Endorsement  
 38.101-3 v15.16.0 CR- rev Cat: (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205305 Draft CR for 38.101-3 to add spurious response exception for intra-band EN-DC (R16)**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205306 Draft CR for 38.101-3 to add spurious response exception for intra-band EN-DC (R17)**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205614 Draft CR to correct the output power in EN-DC Rx tests**

*Type: draftCR For: Endorsement  
 38.101-3 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Anritsu Limited*

**Decision: Revised to R4-2206291 (from R4-2205614).**

**R4-2206291 Draft CR to correct the output power in EN-DC Rx tests**

*Type: draftCR For: Endorsement  
 38.101-3 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Anritsu Limited*

**Decision: Endorsed.**

**R4-2205615 Draft CR to correct the output power in EN-DC Rx tests**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: Anritsu Limited*

**Decision: Endorsed.**

**R4-2205616 Draft CR to correct the output power in EN-DC Rx tests**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Anritsu Limited*

**Decision: Endorsed.**

**R4-2205705 draft Rel-15 CR 38101-3-fg0 to align spurious emission between R15 and R16**

*Type: draftCR For: Endorsement  
 38.101-3 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

draft Rel-15 CR 38101-3-fg0 to align spurious emission between R15 and R16

**Decision: Revised to R4-2206293 (from R4-2205705).**

**R4-2206293 draft Rel-15 CR 38101-3-fg0 to align spurious emission between R15 and R16**

*Type: draftCR For: Endorsement  
 38.101-3 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

draft Rel-15 CR 38101-3-fg0 to align spurious emission between R15 and R16

**Decision: Endorsed.**

#### 4.1.2 UE EMC requirements

#### 4.1.3 BS RF requirements

##### 4.1.3.1 General

##### 4.1.3.2 TX/RX requirements (38.104)

##### 4.1.3.3 MSR specifications

#### 4.1.4 BS conformance testing

##### 4.1.4.1 General

##### 4.1.4.2 Conducted conformance testing (38.141-1)

##### 4.1.4.3 Radiated conformance testing (38.141-2)

##### 4.1.4.4 eAAS specifications

#### 4.1.5 BS EMC requirements

#### 4.1.6 RRM core requirements (38.133/36.133)

#### 4.1.7 RRM performance requirements (38.133/36.133)

#### 4.1.8 Demodulation and CSI requirements (38.101-4/38.104)

##### 4.1.8.1 UE demodulation requirements

##### 4.1.8.2 CSI requirements

##### 4.1.8.3 BS demodulation requirements

#### 4.1.9 Positioning specifications (36.171, 37.171 and 38.171)

#### 4.1.10 Testability (38.810)

### 4.2 LTE WIs (up to Rel-15)

#### 4.2.1 UE RF requirements

**R4-2205307 Draft CR for 36.101 to clarify the restriction of band 28 for CA\_20-28(R14)**

*Type: draftCR For: Endorsement  
 36.101 v14.21.0 CR- rev Cat: (Rel-14)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205308 Draft CR for 36.101 to clarify the restriction of band 28 for CA\_20-28(R15)**

*Type: draftCR For: Endorsement  
 36.101 v15.17.0 CR- rev Cat: (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205309 Draft CR for 36.101 to clarify the restriction of band 28 for CA\_20-28(R16)**

*Type: draftCR For: Endorsement  
 36.101 v16.12.0 CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205310 Draft CR for 36.101 to clarify the restriction of band 28 for CA\_20-28(R17)**

*Type: draftCR For: Endorsement  
 36.101 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205662 Draft CR for 36.101 Correction to Bands for NB-IoT in the USA**

*Type: draftCR For: Endorsement  
 36.101 v14.21.0 CR- rev Cat: F (Rel-14)  
  
 Source: Dish Network*

**Decision: Not pursued.**

**R4-2206292 Draft CR for 36.101 Correction to Bands for NB-IoT in the USA**

*Type: draftCR For: Endorsement  
 36.101 v14.21.0 CR- rev Cat: F (Rel-14)  
  
 Source: Dish Network*

**Decision: Withdrawn.**

**R4-2205663 Draft CR for 36.101 Correction to Bands for NB-IoT in the USA**

*Type: draftCR For: Endorsement  
 36.101 v15.17.0 CR- rev Cat: A (Rel-15)  
  
 Source: Dish Network*

**Decision: Withdrawn.**

**R4-2205664 Draft CR for 36.101 Correction to Bands for NB-IoT in the USA**

*Type: draftCR For: Endorsement  
 36.101 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 Source: Dish Network*

**Decision: Withdrawn.**

**R4-2205665 Draft CR for 36.101 Correction to Bands for NB-IoT in the USA**

*Type: draftCR For: Endorsement  
 36.101 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Dish Network*

**Decision: Withdrawn.**

#### 4.2.2 BS RF requirements

#### 4.2.3 RRM requirements

#### 4.2.4 Demodulation performance requirements

##### 4.2.4.1 UE demodulation and CSI requirements

##### 4.2.4.2 BS demodulation requirements

## 5 Rel-16 maintenance for LTE and NR

**Big CRs for main session**

**R4-2206626 Big CR for TS 38.101-1 Maintenance Part-2 (Rel-16)**

*Type: CR For: Agreement  
 38.101-1 v16.10.0 CR-XXX rev Cat: F (Rel-16)  
  
 Source: MCC, TBD*

**Decision: Return to.**

**R4-2206627 Big CR for TS 38.101-1 Maintenance Part-2 (Rel-17)**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-XXX rev Cat: F (Rel-17)  
  
 Source: MCC, TBD*

**Decision: Return to.**

### 5.1 NR WIs and TEI

#### 5.1.1 NR-based access to unlicensed spectrum

##### 5.1.1.1 System parameter

**[102-e][102] R16\_Maintenance, AI 5.1.1.1, 5.1.5.2, 5.2.2 – Jinqiang Xing**

**R4-2206302 Email discussion summary for [102-e][102] R16\_Maintenance**

*Type: other For: Information  
 Source: Moderator (OPPO)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206402 (from R4-2206302).**

**R4-2206402 Email discussion summary for [102-e][102] R16\_Maintenance**

*Type: other For: Information  
 Source: Moderator (OPPO)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206299 WF on Transient period capability | Huawei | Approved |
| R4-2206344 WF on IntrabandENDC-Support | Xiaomi | Approved |

**Existing tdocs for 38.307**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2203988  R4-2203989 (CAT-A) | Draft CR to TS 38.307 on NR UE power class | ZTE | Postponed  3989 withdrawn |
| R4-2203992 | Draft CR to TS 38.307 on NR intra-band CA BW class within FR1 (Rel-16) | ZTE | Not pursued |

**Existing tdocs for 38.101-1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2204602  R4-2204603 (CAT-A) | Correction to the note on the use of operating bands for shared spectrum access | Ericsson | Endorsed |
| R4-2203676  R4-2203677 (CAT-A) | draftCR to 38.101-1 on new NS for Canadian WCS regulation R16 | Apple | Postponed  3677 withdrawn |
| R4-2206573  (Rev of R4-2204737)  R4-2204738 (CAT-A) | Draft CR to TS38.101-1: Corrections on REFSEN for CA | ZTE | Endorsed |
| R4-2205184  Revised to R4-2206345  R4-2205185 (CAT-A) | Draft CR for 38.101-1 updating note in MSD tables (Rel-16) | Huawei, HiSilicon | Endorsed |
| R4-2205186  Revised to R4-2206346  R4-2205187 (CAT-A) | Draft CR for 38.101-1 updating references in V2X test cases (Rel-16) | Huawei, HiSilicon | Endorsed |
| R4-2205881  Revised to R4-2206347  R4-2206093 (CAT-A) | Corrections on carrier leakage requirement | Qualcomm | Endorsed |
| R4-2204208  Revised to R4-2206348  R4-2204209 (CAT-A) | n65 AMPR discrepancies rel 16 CR Cat-F rel 16 | Qualcomm | Endorsed |
| R4-2206125  Revised to R4-2206349 | CR to R16 TS38.101-1 on transient period capability | Skyworks | Endorsed  Not to be included in the big CR |

**Existing tdocs for 38.101-2**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2204739  Revised to R4-2206350  R4-2204740 (CAT-A) | Draft CR to TS38.101-2: Add default power class for NR inter-band CA combination | ZTE | 6350 Postponed  4740 withdrawn |

**Existing tdocs for 38.101-3**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205115  Revised to R4-2206351 | Draft CR for 38.101-3 Rel-16 to modify the notes and correct the configurations for inter-band EN-DC configurations | Xiaomi | Endorsed |
| R4-2205182  Revised to R4-2206352  R4-2205183 (CAT-A) | Draft CR for 38.101-3 updating note in MSD tables (Rel-16) | Huawei | Endorsed |
| R4-2205273  Revised to R4-2206353  R4-2205274 (CAT-A) | Draft CR for 38.101-3 to specify type 2 UE requirements(Rel-16) | Huawei | Endorsed |
| R4-2205612  R4-2205613 (CAT-A) | Draft CR to correct DC\_3A\_n38A test frequencies | Anritsu | Endorsed |

**R4-2206299 WF on Transient period capability**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved.**

**R4-2206344 WF on Intra-band EN-DC Support**

*Type: other For: Approval  
 Source: Xiaomi*

**Decision: Approved.**

------------------------------------------------------------------------------------------------------------------------------

**R4-2203613 Correction to n46 channel raster**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203614 Correction to n46 channel raster**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203615 Correction to n46 channel raster**

*Type: draftCR For: Endorsement  
 38.104 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203616 Correction to n46 channel raster**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2204602 Correction to the note on the use of operating bands for shared spectrum access**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the note on use of operating bands for shared spectrum access

**Decision: Endorsed.**

**R4-2204603 Correction to the note on the use of operating bands for shared spectrum access**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the note on use of operating bands for shared spectrum access

**Decision: Endorsed.**

##### 5.1.1.2 UE RF requirement

##### 5.1.1.3 RRM requirements

##### 5.1.1.4 Others

#### 5.1.2 Enhancements on MIMO for NR

##### 5.1.2.1 RRM requirements

##### 5.1.2.2 Demodulation performance requirements

#### 5.1.3 NR Positioning Support

##### 5.1.3.1 RRM core requirement

##### 5.1.3.2 RRM performance requirements

#### 5.1.4 NR RRM requirements for CSI-RS based L3 measurement

#### 5.1.5 Other NR WIs and Rel-16 NR TEI

##### 5.1.5.1 BS RF requirements

##### 5.1.5.2 UE RF requirements

**R4-2204065 draft CR to TS 38.307 on Release independence of FDD-TDD EN-DC High Power UE**

*Type: draftCR For: Endorsement  
 38.307 v16.9.0 CR- rev Cat: F (Rel-16)  
  
 Source: CHTTL, China Unicom, ZTE*

**Decision: Endorsed.**

**R4-2204066 draft CR to TS 38.307 on Release independence of FDD-TDD EN-DC High Power UE**

*Type: draftCR For: Endorsement  
 38.307 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: CHTTL, China Unicom, ZTE*

**Decision: Endorsed.**

###### 5.1.5.2.1 FR1 38.101-1

**R4-2203676 draftCR to 38.101-1 on new NS for Canadian WCS regulation R16**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Postponed.**

**R4-2203677 draftCR to 38.101-1 on new NS for Canadian WCS regulation R17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Withdrawn.**

**R4-2203686 On Transient period capability**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2203687 Discussion on Rel-16 guard period for SRS antenna switching**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2204199 n1 and n65 coexistence fix CR Cat-F rel 16**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2204200 n1 and n65 coexistence fix CR Cat-A rel 17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2204201 AMPR rel 16 fixes from previous endorsed CRs and inequality fix Cat-A rel 16**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **withdrawn**.

**R4-2204202 AMPR rel 16 fixes from previous endorsed CRs and inequality fix Cat-A rel 17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **withdrawn**.

**R4-2204208 n65 AMPR discrepancies rel 16 CR Cat-F rel 16**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2206348 (from R4-2204208).**

**R4-2206348 n65 AMPR discrepancies rel 16 CR Cat-F rel 16**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2204209 n65 AMPR discrepancies rel 16 CR Cat-A rel 17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2204210 n65 AMPR discrepancies**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204512 Draft CR to 38.101-1 Correction on UE maximum output power for intra-band CA (R16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: China Telecom Corporation Ltd.*

**Abstract:**

Note: The mirror changes for R17 spec are coverd in R4-2203631 with other changes in WI NR\_PC2\_CA\_R17\_2BDL\_2BUL

**Decision: Endorsed.**

**R4-2204518 Short Transient Period**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204521 n65 AMPR corrections rel 16 CR Cat-F rel 16**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **withdrawn**.

**R4-2204737 Draft CR to TS38.101-1: Corrections on REFSEN for CA**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206573 (from R4-2204737).**

**R4-2206573 Draft CR to TS38.101-1: Corrections on REFSEN for CA**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204738 Draft CR to TS38.101-1: Corrections on REFSEN for CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204823 On transient period capability**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205184 Draft CR for 38.101-1 updating note in MSD tables (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Adding transmit power limit to MSD requirements

**Decision: Revised to R4-2206345 (from R4-2205184).**

**R4-2206345 Draft CR for 38.101-1 updating note in MSD tables (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Adding transmit power limit to MSD requirements

**Decision: Endorsed.**

**R4-2205185 Draft CR for 38.101-1 updating note in MSD tables (Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Adding transmit power limit to MSD requirements

**Decision: Endorsed.**

**R4-2205186 Draft CR for 38.101-1 updating references in V2X test cases (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Updating references for V2X requirements

**Decision: Revised to R4-2206346 (from R4-2205186).**

**R4-2206346 Draft CR for 38.101-1 updating references in V2X test cases (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Updating references for V2X requirements

**Decision: Endorsed.**

**R4-2205187 Draft CR for 38.101-1 updating references in V2X test cases (Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Updating references for V2X requirements

**Decision: Endorsed.**

**R4-2205297 Draft CR for 38.101-1 to correct configured transmit power for V2X(R16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205298 Draft CR for 38.101-1 to correct configured transmit power for V2X(R17)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205881 Corrections on carrier leakage requirement**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2206347 (from R4-2205881).**

**R4-2206347 Corrections on carrier leakage requirement**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2206011 n30 NS for Canada Regulation**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2206093 Corrections on carrier leakage requirement**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incoporated*

**Decision: Endorsed.**

**R4-2206125 CR to R16 TS38.101-1 on transient period capability**

*Type: CR For: Agreement  
 38.101-1 v16.10.0 CR-1029 rev Cat: F (Rel-16)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Revised to R4-2206349 (from R4-2206125).**

**R4-2206349 CR to R16 TS38.101-1 on transient period capability**

*Type: CR For: Agreement  
 38.101-1 v16.10.0 CR-1029 rev Cat: F (Rel-16)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Endorsed.**

###### 5.1.5.2.2 FR2 38.101-2

**R4-2203611 Correction to Rel-16 FR2 RMCs**

*Type: draftCR For: Endorsement  
 38.101-2 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2203612 Correction to Rel-16 FR2 RMCs**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Endorsed.**

**R4-2204739 Draft CR to TS38.101-2: Add default power class for NR inter-band CA combination**

*Type: draftCR For: Endorsement  
 38.101-2 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206350 (from R4-2204739).**

**R4-2206350 Draft CR to TS38.101-2: Add default power class for NR inter-band CA combination**

*Type: draftCR For: Endorsement  
 38.101-2 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Postponed.**

**R4-2204740 Draft CR to TS38.101-2: Add default power class for NR inter-band CA combination**

*Type: draftCR For: Endorsement  
 38.101-2 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Withdrawn.**

###### 5.1.5.2.3 Requirements for 38.101-3

**R4-2203673 draftCR for TS 38.101-3 Rel-16: Corrections on UE co-existence**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2203674 draftCR for TS 38.101-3 Rel-17: Corrections on UE co-existence**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2203988 Draft CR to TS 38.307 on NR UE power class**

*Type: draftCR For: Endorsement  
 38.307 v16.9.0 CR- rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Postponed.**

**R4-2203989 Draft CR to TS 38.307 on NR UE power class (R17\_CAT\_A)**

*Type: draftCR For: Endorsement  
 38.307 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Withdrawn.**

**R4-2203992 Draft CR to TS 38.307 on NR intra-band CA BW class within FR1 (Rel-16)**

*Type: draftCR For: Endorsement  
 38.307 v16.9.0 CR- rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Not pursued.**

**R4-2203995 Draft CR to TS 38.101-3 on corrections to inter-band EN-DC configurations including FR1 and FR2**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2203996 Draft CR to TS 38.101-3 on corrections to inter-band EN-DC configurations including FR1 and FR2 (R17\_CAT\_A)**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204975 Resubmission of CR to TS 38.307 on Release independence of FDD-TDD EN-DC High Power UE**

*Type: draftCR For: Endorsement  
 38.307 v16.9.0 CR- rev Cat: F (Rel-16)  
  
 Source: vivo*

**Decision: Not pursued.**

**R4-2204976 Resubmission of CR to TS 38.307 on Release independence of FDD-TDD EN-DC High Power UE**

*Type: draftCR For: Endorsement  
 38.307 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: vivo*

**Decision: Withdrawn.**

**R4-2205112 Discussion on intrabandENDC-Support**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205113 Draft CR for 38.101-3 Rel-16 to correct band combination for intra-band ENDC**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Xiaomi*

**Decision: Not pursued.**

**R4-2205114 Draft CR for 38.101-3 Rel-17 to correct band combination for intra-band ENDC**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Xiaomi*

**Decision: Withdrawn.**

**R4-2205115 Draft CR for 38.101-3 Rel-16 to modify the notes and correct the configurations for inter-band EN-DC configurations**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2206351 (from R4-2205115).**

**R4-2206351 Draft CR for 38.101-3 Rel-16 to modify the notes and correct the configurations for inter-band EN-DC configurations**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Xiaomi*

**Decision: Endorsed.**

**R4-2205182 Draft CR for 38.101-3 updating note in MSD tables (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Adding transmit power limit to MSD requirements

**Decision: Revised to R4-2206352 (from R4-2205182).**

**R4-2206352 Draft CR for 38.101-3 updating note in MSD tables (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Adding transmit power limit to MSD requirements

**Decision: Endorsed.**

**R4-2205183 Draft CR for 38.101-3 updating note in MSD tables (Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Adding transmit power limit to MSD requirements

**Decision: Endorsed.**

**R4-2205273 Draft CR for 38.101-3 to specify type 2 UE requirements(Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206353 (from R4-2205273).**

**R4-2206353 Draft CR for 38.101-3 to specify type 2 UE requirements(Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205274 Draft CR for 38.101-3 to specify type 2 UE requirements(Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205299 Draft CR for 38.101-3 to add MOP for band combination related to band 3C(R16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205300 Draft CR for 38.101-3 to add MOP for band combination related to band 3C(R17)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205311 Draft CR for 38.101-3 to delete the MSD frequency test points for DC\_1A\_n5A(R16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205312 Draft CR for 38.101-3 to delete the MSD frequency test points for DC\_1A\_n5A(R17)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205612 Draft CR to correct DC\_3A\_n38A test frequencies**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Anritsu Limited*

**Decision: Endorsed.**

**R4-2205613 Draft CR to correct DC\_3A\_n38A test frequencies**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Anritsu Limited*

**Decision: Endorsed.**

**R4-2205706 draft Rel-16 CR 38101-3-ga0 to align spurious emission between R15 and R16**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

draft Rel-16 CR 38101-3-ga0 to align spurious emission between R15 and R16

**Decision: Endorsed.**

**R4-2205879 Discussion on Intra-Band EN-DC support**

*Type: discussion For: Approval  
 Source: Google Inc.*

**Decision: Noted.**

**R4-2206009 draft CR for Type II UE Cat-F rel 16**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn.**

**R4-2206010 draft CR for Type II UE Cat-A rel 17**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Withdrawn.**

##### 5.1.5.3 RRM requirements

###### 5.1.5.3.1 RRM core requirements

###### 5.1.5.3.2 RRM performance requirements

##### 5.1.5.4 Demodulation and CSI requirements

###### 5.1.5.4.1 UE demodulation requirements

###### 5.1.5.4.2 CSI requirements

###### 5.1.5.4.3 BS demodulation requirements

##### 5.1.5.5 NR MIMO OTA test methods (38.827)

### 5.2 LTE WIs and TEI

#### 5.2.1 BS RF requirements

#### 5.2.2 UE RF requirements

**R4-2206012 DraftCR 36.101 Missing UL CA Configurations**

*Type: draftCR For: Endorsement  
 36.101 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 Source: AT&T*

**Decision: Endorsed.**

**R4-2206013 DraftCR 36.101 Missing UL CA Configurations**

*Type: draftCR For: Endorsement  
 36.101 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: AT&T*

**Decision: Endorsed.**

#### 5.2.3 RRM requirements

#### 5.2.4 Demodulation and CSI requirements

## 6 Rel-17 maintenance for LTE and NR

### 6.1 Introduction of FR2 FWA UE with maximum TRP of 23dBm for band n259

#### 6.1.1 UE RF requirements

#### 6.1.2 RRM requirements

#### 6.1.3 Demodulation

### 6.2 Other WIs and Rel-17 TEI

#### 6.2.1 BS RF requirements

#### 6.2.2 UE RF requirements

**[102-e][103] R17\_Maintenance, AI 6.2.2 – Dominique Evereare**

**R4-2206303 Email discussion summary for [102-e][103] R17\_Maintenance**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206403 (from R4-2206303).**

**R4-2206403 Email discussion summary for [102-e][103] R17\_Maintenance**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2203675  Revised to R4-2206354 | CR for TS 38.101-3 Rel-17: Corrections on UE co-existence | Apple | Agreed |
| R4-2203993 | CR to TS 38.307 on NR intra-band CA BW class within FR1 (Rel-17) | ZTE Corporation | Not pursued |
| R4-2204086  Revised to R4-2206355 | CR to TS38101-1 Addition of DC configurations | Huawei, HiSilicon, BT | Agreed |
| R4-2204140  Revised R4-2206356 | CR to 38.101-1: Clarification of A-MPR/NS applicability for inter-band NR-DC | SoftBank Corp. | Agreed |
| R4-2204605 | Introduction of TX switching for non-collocated UL CA | Ericsson | Not pursued |
| R4-2205116  Revised to R4-2206357 | Draft CR for 38.101-3 Rel-17 to modify the notes and correct the superscripts for inter-band EN-DC configurations | Xiaomi | Endorsed |
| R4-2205180  Revised to R4-2206358 | CR for TS 38.101-1 Rel-17: Corrections on UE co-existence | Apple | Agreed |
| R4-2206130 | CR R17 TS38.101-1 on TDD REFSENS and MSDs | Skyworks Solutions Inc., Apple | Agreed |
| R4-2203708  Revised to R4-2206585 | Draft CR 38.101-3: Rel-17 Correction of bugs in combinations tables | Apple | Agreed |

--------------------------------------------------------------------------------------------------------------------------------

**R4-2203675 CR for TS 38.101-3 Rel-17: Corrections on UE co-existence**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0676 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Revised to R4-2206354 (from R4-2203675).**

**R4-2206354 CR for TS 38.101-3 Rel-17: Corrections on UE co-existence**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0676 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Agreed.**

**R4-2203708 Draft CR 38.101-3: Rel-17 Correction of bugs in combinations tables**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0677 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Abstract:**

Correcting multiple sorts of bugs in the band combinations tables

**Decision: Revised to R4-2206585 (from R4-2203708).**

**R4-2206585 CR 38.101-3: Rel-17 Correction of bugs in combinations tables**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0677 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Abstract:**

Correcting multiple sorts of bugs in the band combinations tables

**Decision: Agreed.**

**R4-2203993 CR to TS 38.307 on NR intra-band CA BW class within FR1 (Rel-17)**

*Type: CR For: Agreement  
 38.307 v17.4.0 CR-0086 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Not pursued.**

**R4-2204086 CR to TS38101-1 Addition of DC configurations**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1000 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon, BT*

**Decision: Revised to R4-2206355 (from R4-2204086).**

**R4-2206355 CR to TS38101-1 Addition of DC configurations**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1000 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon, BT*

**Decision: Agreed.**

**R4-2204087 CR to TS38101-3 Addition of UL configurations for EN-DC**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0682 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon, BT*

**Decision: Not pursued.**

**R4-2204140 Clarification of A-MPR/NS applicability for inter-band NR-DC**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1001 rev Cat: F (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

Agreement on A-MPR/NS for inter-band NR-CA is extended to inter-band NR-DC. Note trhat relevant combos are only in R17.

**Decision: Revised to R4-2206356 (from R4-2204140).**

**R4-2206356 Clarification of A-MPR/NS applicability for inter-band NR-DC**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1001 rev Cat: F (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

Agreement on A-MPR/NS for inter-band NR-CA is extended to inter-band NR-DC. Note trhat relevant combos are only in R17.

**Decision: Agreed.**

**R4-2204604 Extending the deployment scenarios for UE TX switching: completing the RAN4 specification for non-colocation**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

Background to changes needed in 38.101-1 for accommodating UE TX switching with multiple TAG and review of RAN1 and RAN2 specifications of UE TX switching

**Decision: Noted.**

**R4-2204605 Introduction of TX switching for non-collocated UL CA and EN-DC**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to modify the time mask for UE TX switching with multiple TAG (non-collocation)

**Decision: Not pursued.**

**R4-2205116 Draft CR for 38.101-3 Rel-17 to modify the notes and correct the superscripts for inter-band EN-DC configurations**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2206357 (from R4-2205116).**

**R4-2206357 Draft CR for 38.101-3 Rel-17 to modify the notes and correct the superscripts for inter-band EN-DC configurations**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision: Endorsed.**

**R4-2205180 CR for TS 38.101-1 Rel-17: Corrections on UE co-existence**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1016 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Revised to R4-2206358 (from R4-2205180).**

**R4-2206358 CR for TS 38.101-1 Rel-17: Corrections on UE co-existence**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1016 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Agreed.**

**R4-2205293 CR for 38.101-1 to correct the REFSENS errors due to the new format(n41 n77 n78) (R17)**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1020 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2206105 Clarification of modifiedMPR-Behavior for PC1.5**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1027 rev Cat: F (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2206130 CR R17 TS38.101-1 on TDD REFSENS and MSDs**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1030 rev Cat: F (Rel-17)  
  
 Source: Skyworks Solutions Inc., Apple*

**Decision: Agreed.**

**R4-2204313 draft CR for n74 related CA co-existence requirements for TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: KDDI Corporation*

**Decision:** The document was **revised to R4-2204331**.

**R4-2204331 draft CR for n74 related CA co-existence requirements for TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: KDDI, NTT DoCoMo, Softbank*

(Replaces R4-2204313)

**Decision: Endorsed.**

#### 6.2.3 RRM requirements

#### 6.2.4 Demodulation and CSI requirements

## 7 LS response to ITU

### 7.1 Generic unwanted emission (IMT-2020)

### 7.2 Test methods for OTA total radiated power

## 8 Rel-17 feature list

**[102-e][143] R17\_feature\_list, AI 8 – Xiaoran Zhang**

**R4-2206343 Email discussion summary for [102-e][143] R17\_feature\_list**

*Type: other For: Information  
 Source: Moderator (CMCC)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206443 (from R4-2206343).**

**R4-2206443 Email discussion summary for [102-e][143] R17\_feature\_list**

*Type: other For: Information  
 Source: Moderator (CMCC)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**R4-2206282 LS on Rel-17 RAN4 feature list**

*Type: LSout For: Approval  
 Source: CMCC*

**Abstract:**

This tdoc provide the feature list agreed in the first week of RAN4#102-e to RAN2

* Chair: The content was discussed during the GTW and agreeable.

**Decision: Approved.**

**R4-2206283 RAN4 Rel-17 features list**

*Type: other For: Approval  
 Source: CMCC*

**Decision: Approved.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206571 Rel-17 UE feature list (update) | CMCC | Approved |
| R4-2206572 LS on Rel-17 RAN4 UE feature list for NR | CMCC | Approved |

**R4-2206571 Rel-17 UE feature list (update)**

*Type: other For: Approval  
 Source: CMCC*

**Abstract:**

Update of feature list in the send week.

**Decision: Approved.**

**R4-2206572 LS on Rel-17 RAN4 UE feature list for NR**

*Type: other For: Approval  
 Source: CMCC*

**Abstract:**

Update of LS for feature list in the second week.

**Decision: Approved.**

------------------------------------------------------------------------------------------------------------------------------

**R4-2203657 UE features for enhanced IIoT and URLLC**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision:** The document was **withdrawn**.

**R4-2203809 Further discussion on R17 feature list**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2203851 A new Rel-17 per-FR MG capability based on Per BC**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204054 Inputs to Rel-17 NR UE features for measurement gap enhancement and UE power saving enhancement**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision: Noted.**

**R4-2204428 Discussion on Rel-17 RAN4 UE feature list**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2204479 Continue discussion on capability signaling for HPUE NR DC**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision: Noted.**

**R4-2204484 draft LS to RAN2 for NR CA\_DC power class**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision: Noted.**

**R4-2204651 Update on Rel-17 RAN4 UE feature list for NR**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2204687 Discussion on Fs\_inter for FR2-1 inter-band DL CA based on CBM within same frequency group**

*Type: discussion For: (not specified)  
 Source: LG Electronics*

**Abstract:**

It provides Fs\_inter as UE feature list for FR2-1 inter-band DL CA based on CBM within same frequency group.

**Decision: Noted.**

**R4-2205191 On Rel-17 feature list**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2206051 On rel-17 UE features**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2206098 R17 UE feature list proposal**

*Type: discussion For: Approval  
 Source: Qualcomm communications-France*

**Decision: Noted.**

## 9 Rel-17 spectrum related WIs for NR

### 9.1 Introduction of lower 6GHz NR unlicensed operation for Europe

**[102-e][105] NR\_6GHz\_unlic\_EU, AI 9.1 – Johannes Hejselbaek**

**R4-2206305 Email discussion summary for [102-e][105] NR\_6GHz\_unlic\_EU**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206405 (from R4-2206305).**

**R4-2206405 Email discussion summary for [102-e][105] NR\_6GHz\_unlic\_EU**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206359 WF on NSs for n102 | Apple | Withdrawn |
| R4-2206360 CR to TS 36.104 the introduction of EU unlicensed band n102 | ZTE | Agreed |
| R4-2206361 CR to TS 38.141-2 the introduction of EU unlicensed band n102 | ZTE | Agreed |
| R4-2206362 CR to 37.145-1 - adding band n102  Revised to R4-2206592 | Huawei | Agreed |
| R4-2206363 CR to 37.145-2 - adding band n102 | Huawei | Agreed |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2203659](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203659.zip)  Revised R4-2206364 | CR for introduction of the lower 6GHz unlicensed band | Apple, Skyworks Solutions Inc., MediaTek Inc. | Agreed |
| [R4-2204607](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204607.zip)  Revised to R4-2206365 | Unwanted emissions requirements for Band n102 | Ericsson | Merged |
| [R4-2205561](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205561.zip)  Revised to R4-2206366 | CR for 38.104 to introduce n102 | Nokia, Nokia Shanghai Bell | Agreed |
| [R4-2203660](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203660.zip)  Revised to R4-2206367 | TP for TR 38.849 | Apple | Approved |

**R4-2206359 WF on NSs for n102**

*Type: other For: Approval  
 Source: Apple*

**Decision: Withdrawn.**

**R4-2206360 CR to TS 36.104 the introduction of EU unlicensed band n102**

*Type: CR For: Agreement  
 36.1xx-0y v1x.x.0 CR- rev Cat: F (Rel-1x)  
  
 Source: ZTE*

**Decision: Agreed.**

**R4-2206361 CR to TS 38.141-2 the introduction of EU unlicensed band n102**

*Type: CR For: Agreement  
 38.1xx-0y v1x.x.0 CR- rev Cat: F (Rel-1x)  
  
 Source: ZTE*

**Decision: Agreed.**

**R4-2206362 CR to 37.145-1 - adding band n102**

*Type: CR For: Agreement  
 37.1xx-0y v1x.x.0 CR- rev Cat: F (Rel-1x)  
  
 Source: Huawei*

**Decision: Revised to R4-2206592 (from R4-2206362).**

**R4-2206592 CR to 37.145-1 - adding band n102**

*Type: CR For: Agreement  
 37.1xx-0y v1x.x.0 CR- rev Cat: F (Rel-1x)  
  
 Source: Huawei*

**Decision: Agreed.**

**R4-2206363 CR to 37.145-2 - adding band n102**

*Type: CR For: Agreement  
 37.1xx-0y v1x.x.0 CR- rev Cat: F (Rel-1x)  
  
 Source: Huawei*

**Decision: Agreed.**

* Chair: the following is the Chair’s understanding of the WI status
* WI on Introduction of lower 6GHz NR unlicensed operation for Europe: to be

#### 9.1.1 General

**R4-2203658 Overview of the Region 1 countries implementing lower 6GHz unlicensed band**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2205559 draft TR 38.849 v0.7.0**

*Type: draft TR For: Approval  
 38.849 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

[draft TR] TR 38.849 Inclusion of agreements and TPs provided at RAN4#102

**Decision:** The document was **for email approval**.

#### 9.1.2 Band definition and channel arrangement

**R4-2205560 On band definition for the lower 6GHz NR unlicensed operation**

*Type: discussion For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

#### 9.1.3 UE RF requirements

**R4-2203659 CR for introduction of the lower 6GHz unlicensed band**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0990 rev Cat: B (Rel-17)  
  
 Source: Apple, Skyworks Solutions Inc., MediaTek Inc.*

**Decision: Revised to R4-2206364 (from R4-2203659).**

**R4-2206364 CR for introduction of the lower 6GHz unlicensed band**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0990 rev Cat: B (Rel-17)  
  
 Source: Apple, Skyworks Solutions Inc., MediaTek Inc.*

**Decision: Agreed.**

**R4-2204606 Unwanted emissions requirements for lower 6GHz NR unlicensed operation for Europe**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we discuss the unwanted emissions requirements for operations in 5925-6425 MHz

**Decision: Noted.**

**R4-2204607 Unwanted emissions requirements for Band n102**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to introduce unwanted emissions requirements for Band n102

**Decision: Revised to R4-2206365 (from R4-2204607).**

**R4-2206365 Unwanted emissions requirements for Band n102**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to introduce unwanted emissions requirements for Band n102

**Decision: Merged (with R4-2206364).**

#### 9.1.4 BS RF requirements

**R4-2205561 CR for 38.104 to introduce n102**

*Type: CR For: Agreement  
 38.104 v17.4.0 CR-0369 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

CR based on endorsed draftCR R4-2202252

**Decision: Revised to R4-2206366 (from R4-2205561).**

**R4-2206366 CR for 38.104 to introduce n102**

*Type: CR For: Agreement  
 38.104 v17.4.0 CR-0369 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

CR based on endorsed draftCR R4-2202252

**Decision: Agreed.**

**R4-2205944 CR to 37.104 on introduction of n102 co-existence requirements**

*Type: CR For: Agreement  
 37.104 v17.4.0 CR-0958 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Agreed.**

**R4-2205946 CR to 37.141 on introduction of n102 co-existence requirements**

*Type: CR For: Agreement  
 37.141 v17.4.0 CR-1000 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Agreed.**

**R4-2205947 CR to 36.141 on introduction of n102 co-existence requirements**

*Type: CR For: Agreement  
 36.141 v17.4.0 CR-1327 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Agreed.**

**R4-2205950 CR to 38.141-1 on introduction of n102 requirements**

*Type: CR For: Agreement  
 38.141-1 v17.4.0 CR-0261 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Agreed.**

**R4-2206041 CR for 37.105 on Introduction of lower 6GHz NR unlicensed operation for Europe**

*Type: CR For: Agreement  
 37.105 v17.4.0 CR-0249 rev Cat: B (Rel-17)  
  
 Source: Ericsson GmbH, Eurolab*

**Decision: Agreed.**

#### 9.1.5 Others

**R4-2203660 TP for TR 38.849**

*Type: pCR For: Approval  
 38.849 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Abstract:**

Text proposal with an updated summary of which NS values are applicable to Region 1 countries.

**Decision: Revised to R4-2206367 (from R4-2203660).**

**R4-2206367 TP for TR 38.849**

*Type: pCR For: Approval  
 38.849 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Abstract:**

Text proposal with an updated summary of which NS values are applicable to Region 1 countries.

**Decision: Approved.**

### 9.2 Introduction of operation in full unlicensed band 5925-7125MHz for NR

**[102-e][106] NR\_6GHz\_unlic\_full, AI 9.2 – Alexander Sayenko**

**R4-2206306 Email discussion summary for [102-e][106] NR\_6GHz\_unlic\_full**

*Type: other For: Information  
 Source: Moderator (Apple)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206406 (from R4-2206306).**

**R4-2206406 Email discussion summary for [102-e][106] NR\_6GHz\_unlic\_full**

*Type: other For: Information  
 Source: Moderator (Apple)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206368 WF on introduction of the full unlicensed band | Apple | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2204733  Revised to R4-2206369 | A-MPR analysis results for NR-U(VLP) considering regulatory parameters in Korea | LGE | Approved |
| R4-2203663  Revised to R4-2206370 | CR for introduction of operation in full unlicensed band 5925-7125MHz | Apple | Agreed |

**R4-2206368 WF on introduction of the full unlicensed band**

*Type: other For: Approval  
 Source: Apple*

**Decision: Approved.**

**VLP**

Discussion:

Qualcomm: VLP should be included. LGE and other companies proposed to include VLP in Korea. There are pretty alignment from 4 companies’ results.

Apple: Those results are expected to captured in the TR. We do not have enough time for harmonization. FCC still works on VLP.

Charter: Agree with Apple. We would like to wait until other countries to finalize the regulation especially FCC.

Qualcomm: What is the point to capture the result for A-MPR for VLP in the TR? About waiting for the regulation is clear, it is not feasible.

LGE: We support Qualcomm comment. South Korea has done the regulation. The simulation results have been provided according to that regulation. Why should we wait for other counties regulation?

Apple: There was no agreement to include Qualcomm restuls half a year ago. We can remove all the results from TR.

Charter: The problem to do the piece wise regulation is that it will run out of NS values.

Ericsson: NS value can be extended and it is RAN2 issue.

Apple: RAN2 can do the extension, which will contained in the Rel-18.

Ericsson: you can use the new band numbers instead. It is useful to send LS to RAN2 to ask for extension of NS values.

**Agreement:**

* Agree R4-2206370 with common requirements for VLP, and introduce A-MPR requirements based on South Korean regulation in TEI.
* Chair: the following is the Chair’s understanding of the WI status
* WI on Introduction of operation in full unlicensed band 5925-7125MHz for NR: to be closed

#### 9.2.1 General

**R4-2205562 On band definition for 6GHz NR unlicensed operation**

*Type: discussion For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

#### 9.2.2 Regulatory requirements and evaluation for re-using existing NS

**R4-2203661 Applicability of band n96**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

#### 9.2.3 UE RF requirements

**R4-2203662 On the VLP mode for the NR-U operation**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2203663 CR for introduction of operation in full unlicensed band 5925-7125MHz**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0991 rev Cat: B (Rel-17)  
  
 Source: Apple*

**Abstract:**

Based on draft running CR for endorsed during the previous meeting.

**Decision: Revised to R4-2206370 (from R4-2203663).**

**R4-2206370 CR for introduction of operation in full unlicensed band 5925-7125MHz**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0991 rev Cat: B (Rel-17)  
  
 Source: Apple*

**Abstract:**

Based on draft running CR for endorsed during the previous meeting.

**Decision: Agreed.**

**R4-2204091 Discussion on NR-U MPR and A-MPR for type 1 waveforms**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

.In this contribution, we make a high level analysis of the type 1 waveforms with respect to the PC5 NR-U SEM and ACLR requirements.

**Decision: Noted.**

**R4-2204729 Draft CR on NR-U A-MPR for PC5 VLP in South Korea**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics Inc.*

**Abstract:**

In this contribution, we provide Draft CR on NR-U A-MPR for PC5 VLP in South Korea.

**Decision:** The document was **withdrawn**.

**R4-2204733 A-MPR analysis results for NR-U(VLP) considering regulatory parameters in Korea**

*Type: pCR For: Approval  
 38.849 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics Inc.*

**Abstract:**

In this contribution, we provide A-MPR analysis results for NR-U(VLP) considering regulatory parameters in Korea.

**Decision: Revised to R4-2206369 (from R4-2204733).**

**R4-2206369 A-MPR analysis results for NR-U(VLP) considering regulatory parameters in Korea**

*Type: pCR For: Approval  
 38.849 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics Inc.*

**Abstract:**

In this contribution, we provide A-MPR analysis results for NR-U(VLP) considering regulatory parameters in Korea.

**Decision: Approved.**

**R4-2204991 Draft CR\_NR-U A-MPR for PC5 VLP in South Korea**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics Inc.*

**Abstract:**

In this contribution, we provide Draft CR on NR-U A-MPR for PC5 VLP in South Korea.

**Decision: Noted.**

**R4-2206066 A-MPR related to in-band PSD for n96 UE in Korea**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we provide A-MPR for LPI and VLP modes in Korea for channels that are not limited by OOB emissions. We also provide our view on the definition of a lower power class than PC5 for NR-U.

**Decision: Noted.**

**R4-2205179 Text proposal for TR 38.849 (background results for the existing A-MPR values)**

*Type: pCR For: Approval  
 38.849 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Abstract:**

This TP just provides additional background information on the simulated scenarios and obtained results for existing A-MPR values.

**Decision: Approved.**

#### 9.2.4 BS RF requirements

#### 9.2.5 Others

**R4-2203664 TP for TR 38.849**

*Type: pCR For: Approval  
 38.849 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Abstract:**

Text proposal with further details for existing A-MPR values.

**Decision: Approved.**

### 9.3 Introduction of 6GHz NR licensed bands

**[102-e][107] NR\_6 GHz\_licensed, AI 9.3 – Liehai Liu**

**R4-2206307 Email discussion summary for [102-e][107] NR\_6 GHz\_licensed**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206407 (from R4-2206307).**

**R4-2206407 Email discussion summary for [102-e][107] NR\_6 GHz\_licensed**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206371 WF on general aspects | Huawei | Approved |
| R4-2206372 WF on system parameters | Ericsson | Approved |
| R4-2206373 WF on UE RF requirements | Qualcomm | Approved |
| R4-2206374 WF on BS RF requirements | Nokia | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2203666](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203666.zip)  Revised to R4-2206375 | [Draft] Further Reply LS on inclusion of the 6425-7125 MHz frequency band in the 3GPP specification for 5G-NR/IMT-2000 systems | Apple | Approved |
| [R4-2205456](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205456.zip)  Revised to R4-2206376 | draft CR to TS38.104 the introduction of 6425-7125MHz | ZTE Corporation | Endorsed |
| [R4-2206104](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2206104.zip)  Revised to R4-2206576 | Introduction of NR licensed band 6425 – 7125 MHz | Qualcomm Incorporated | Endorsed |

**R4-2206371 WF on general aspects**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved.**

**R4-2206372 WF on system parameters**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

**R4-2206373 WF on UE RF requirements**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

**R4-2206374 WF on BS RF requirements**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved.**

=> Chair: the following is the Chair’s understanding of the WI status

* WI on Introduction of operation in full unlicensed band 5925-7125MHz for NR: to be extended.

#### 9.3.1 General

**R4-2203665 Initial considerations on requirements for the licensed operation in the upper 6GHz frequency range**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2203666 [Draft] Further Reply LS on inclusion of the 6425-7125 MHz frequency band in the 3GPP specification for 5G-NR/IMT-2000 systems**

*Type: LS out For: Approval  
 to RCC Commission on Spectrum and Satellite Orbits, cc TSG RAN  
 Source: Apple*

**Decision: Revised to R4-2206375 (from R4-2203666).**

**R4-2206375 [Draft] Further Reply LS on inclusion of the 6425-7125 MHz frequency band in the 3GPP specification for 5G-NR/IMT-2000 systems**

*Type: LS out For: Approval  
 to RCC Commission on Spectrum and Satellite Orbits, cc TSG RAN  
 Source: Apple*

**Decision: Approved.**

**R4-2203868 On RCC recommendation and coexistence in 6GHz licensed band**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we further discuss coexistence aspects in view of sharing a common understanding on RCC recommendations within the group, while potentially seek for further clarification from RCC

**Decision: Noted.**

**R4-2203918 General issues for 6GHz licensed band**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2204564 Discussion about the LS to RCC**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2205059 General aspects - n104**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution is further analyzing the RCC Recommendation to address the coexistence concerns raised in last meeting

**Decision: Noted.**

**R4-2205143 Clarification on RCC Recommendation**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205144 Draft LS on futher clarification on RCC Recommendation 1/21**

*Type: LS out For: Approval  
 to RCC Commission on Spectrum and Satellite Orbits, cc TSG RAN  
 Source: Huawei, HiSilicon*

**Decision: Merged.**

**R4-2205452 Discussion on general aspects for licensed 6GHz**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2206129 6GHz licensed band coexistence aspects**

*Type: discussion For: Discussion  
 Source: MediaTek (Chengdu) Inc.*

**Decision: Noted.**

#### 9.3.2 System parameters

**R4-2203919 System parameters for 6GHz licensed band**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2204565 Discussion on system parameters for 6GHz licensed spectrum**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2205120 Discussion the remaining issues on system parameters for 6G license band**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205145 System parameters for 6GHz NR licensed band**

*Type: other For: Approval  
 Source: Huawei, HiSilicon, China Unicom*

**Decision: Noted.**

**R4-2205453 Discussion on system parameters for 6425-7125MHz**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2206102 Channel raster and sync raster for the 6 GHz licensed band**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2206127 6GHz licensed band system parameters**

*Type: discussion For: Discussion  
 Source: MediaTek (Chengdu) Inc.*

**Decision: Noted.**

#### 9.3.3 UE RF requirements

**R4-2203653 REFSENS for 6GHz licensed band**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we discuss the 6GHz licensed band REFSENS requirement by comparing it to existing >2GHz NR bands and unlicensed band n46 and n96 cases.

**Decision: Noted.**

**R4-2203654 MPR versus ACLR and SEM for 6GHz licensed band**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution, we discuss the links between MPR and SEM and ACLR, and the difference if those from FR1 NR general requirement of TS 31.101-1 or the relaxed ones from the earlier study are used.

**Decision: Noted.**

**R4-2203920 UE RF requirements for 6GHz licensed band**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2204073 Discussion on UE RX REFSENS for 6GHz licensed band**

*Type: discussion For: Approval  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

**R4-2204566 Discussion on UE requirements for 6GHz licensed spectrum**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2205121 Discussion on UE Rx requirements for 6G license band**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205146 UE TX RF requirements**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205147 UE RX RF requirements**

*Type: other For: Approval  
 Source: Huawei, HiSilicon, China Unicom*

**Decision: Noted.**

**R4-2205454 Discussion on UE RF requirements for 6425-7125MHz**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2206103 UE RF requirements for the 6 GHz licensed band**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2206104 Introduction of NR licensed band 6425 – 7125 MHz**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2206576 (from R4-2206104).**

**R4-2206576 Introduction of NR licensed band 6425 – 7125 MHz**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

#### 9.3.4 BS RF requirements

**R4-2203646 Proposals on BS RF requirements for introduction of 6GHz licensed band**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution provides further proposals on BS RF requirements for the new 6GHz licensed band (6425 – 7125 MHz), focusing on the FFS aspects in the approved WF.

**Decision: Noted.**

**R4-2203961 Remaining issue on RF requirements for BS operating in 6GHz band**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2203962 Introduction of 6GHz licensed band for 37.105**

*Type: CR For: Agreement  
 37.105 v17.4.0 CR-0247 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Not pursued.**

**R4-2203963 Introduction of 6GHz licensed band for 38.174**

*Type: CR For: Agreement  
 38.174 v16.5.0 CR-0023 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Not pursued.**

**R4-2204567 Discussion on BS requirements for 6GHz licensed spectrum**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2205060 Remaining BS RF open issues and MU - n104**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining BS RF open issues for band n104

**Decision: Noted.**

**R4-2205062 CR to TS 38.141-2 - introduction of band n104**

*Type: CR For: Agreement  
 38.141-2 v17.4.0 CR-0382 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a CR to TS 38.141-2 introducing band n104

**Decision: Not pursued.**

**R4-2205063 CR to TS 38.176-2 - introduction of band n104**

*Type: CR For: Agreement  
 38.176-2 v16.2.0 CR-0004 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a CR to TS 38.176-2 introducing band n104

**Decision: Not pursued.**

**R4-2205148 BS RF requirements**

*Type: other For: Approval  
 Source: Huawei, HiSilicon, China Unicom*

**Decision: Noted.**

**R4-2205455 Discussion on BS RF requirements for 6425-7125MHz**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205456 draft CR to TS38.104 the introduction of 6425-7125MHz**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206376 (from R4-2205456).**

**R4-2206376 draft CR to TS38.104 the introduction of 6425-7125MHz**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2205457 draft CR to TS36.104 the introduction of coexistence requirements of licensed band 6425-7125MHz**

*Type: draftCR For: Endorsement  
 36.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Not pursued.**

**R4-2205458 draft CR to TS36.141 the introduction of coexistence requirements of licensed band 6425-7125MHz**

*Type: draftCR For: Endorsement  
 36.141 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Not pursued.**

**R4-2205954 draft CR to 37.104 on introduction of n104 co-existence requirements**

*Type: draftCR For: Endorsement  
 37.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Not pursued.**

**R4-2205955 draft CR to 37.141 on introduction of n104 co-existence requirements**

*Type: draftCR For: Endorsement  
 37.141 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Not pursued.**

#### 9.3.5 Others

**R4-2203647 Draft CR to TR 38.176-1 on introduction of 6GHz licensed band**

*Type: draftCR For: Endorsement  
 38.176-1 v16.2.0 CR- rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Required changes to clauses 9.1 to 9.5 for extending current NR operation to 71 GHz

**Decision: Not pursued.**

**R4-2205061 CR to TS 38.133 - introduction of band n104**

*Type: CR For: Agreement  
 38.133 v17.4.0 CR-2256 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This contribution is a CR to TS 38.133 introducing band n104

**Decision: Not pursued.**

### 9.4 Introduction of 900 MHz spectrum to 5G NR applicable for Rail Mobile Radio

#### 9.4.1 General

**[102-e][108] RAIL\_900\_1900MHz, AI 9.4.1, 9.4.2, 9.5.1, 9.5.2 – Ingo Wendler**

**R4-2206308 Email discussion summary for [102-e][108] RAIL\_900\_1900MHz**

*Type: other For: Information  
 Source: Moderator (Union Inter. Chemins de Fer)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206408 (from R4-2206308).**

**R4-2206408 Email discussion summary for [102-e][108] RAIL\_900\_1900MHz**

*Type: other For: Information  
 Source: Moderator (Union Inter. Chemins de Fer)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206281 WF on sync raster redesign to enable operation of CBW<5MHz | Moderator (UIC) | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205141  Revised to R4-2206280 | TP 900MHz RMR band – conclusion- TR 38.853 | Union Inter. Chemins de Fer | Postponed  6280 withdrawn |
| R4-2206049  Revised to R4-2206377 | Synchronization raster design for n100 | Nokia, Nokia Shanghai Bell | Noted  6377 withdrawn |
| R4-2204791  Revised to R4-2206284 | 38.101-1: Introduction of 900 MHz to 5G NR for RMR | Nokia, Union Inter. Chemins de Fer | Postponed  6248 withdrawn |
| R4-2205140  Revised to R4-2206279 | TP 1900MHz RMR band – conclusion – TR 38.852 | Union Inter. Chemins de Fer | Approved |

**R4-2206281 WF on sync raster redesign to enable operation of CBW <5MHz**

*Type: other For: Approval  
 Source: Union Inter. Chemins de Fer*

**Decision: Approved.**

* Chair:

WI on Introduction of 900 MHz spectrum to 5G NR applicable for Rail Mobile Radio: to be extended

WI on Introduction of 1900 MHz spectrum to 5G NR applicable for Rail Mobile Radio: to be closed.

------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2204551 Version update TR\_38.853-0.3.0**

*Type: draft TR For: Approval  
 38.853 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Abstract:**

[draft TR] TR 38.853

**Decision: Agreed.**

**R4-2205141 TP 900MHz RMR band – conclusion- TR 38.853**

*Type: pCR For: Approval  
 38.853 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Decision: Postponed.**

**R4-2206280 TP 900MHz RMR band – conclusion- TR 38.853**

*Type: pCR For: Approval  
 38.853 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Decision: Withdrawn.**

**R4-2206049 Synchronization raster design for n100**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2206377 Synchronization raster design for n100**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Withdrawn.**

#### 9.4.2 UE RF requirements

**R4-2204791 38.101-1: Introduction of 900 MHz to 5G NR for RMR**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1010 rev Cat: B (Rel-17)  
  
 Source: Nokia, UIC*

**Decision: Postponed.**

**R4-2206284 38.101-1: Introduction of 900 MHz to 5G NR for RMR**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1010 rev Cat: B (Rel-17)  
  
 Source: Nokia, UIC*

**Decision: Withdrawn.**

#### 9.4.3 BS RF requirements

### 9.5 Introduction of 1900 MHz spectrum to 5G NR applicable for Rail Mobile Radio

#### 9.5.1 General

**R4-2204550 Version update TR\_38.852-0.3.0**

*Type: draft TR For: Approval  
 38.852 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Abstract:**

[draft TR] TR 38.852

**Decision: Agreed.**

**R4-2205140 TP 1900MHz RMR band – conclusion – TR 38.852**

*Type: pCR For: Approval  
 38.852 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Decision: Revised to R4-2206279 (from R4-2205140).**

**R4-2206279 TP 1900MHz RMR band – conclusion – TR 38.852**

*Type: pCR For: Approval  
 38.852 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Union Inter. Chemins de Fer*

**Decision: Approved.**

#### 9.5.2 UE RF requirements

**R4-2204792 38.101-1: Introduction of 1900 MHz to 5G NR for RMR**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1011 rev Cat: B (Rel-17)  
  
 Source: Nokia, UIC*

**Decision: Agreed.**

#### 9.5.3 BS RF requirements

### 9.6 Issues arising from basket WIs but not subject to block approval

**[102-e][109] NR\_Baskets\_Part\_1, AI 9.6 – Dominique Brunel**

**R4-2206309 Email discussion summary for [102-e][109] NR\_Baskets\_Part\_1**

*Type: other For: Information  
 Source: Moderator (Skyworks)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206409 (from R4-2206309).**

**R4-2206409 Email discussion summary for [102-e][109] NR\_Baskets\_Part\_1**

*Type: other For: Information  
 Source: Moderator (Skyworks)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206389 TP for TR 37.717-21-11 for DC\_8-28\_n3 | VODAFONE Group Plc | Approved |
| R4-2206390 TP for TR 37.717-21-11 for DC\_8-28\_n78 | VODAFONE Group Plc | Approved |
| R4-2206391 TP for TR 37.717-21-11 for DC\_8-32\_n78 | VODAFONE Group Plc | Approved |
| R4-2206392 TP for TR 37.717-21-11 for DC\_20-28\_n78 | VODAFONE Group Plc | Approved |
| R4-2206393WF on missing fall back list for 36.101 and 38.101-1 and -3 | Apple | Approved |
| R4-2206394 WF on capturing triple beat MSD in 38.101-1 and 38.101-3 | Skyworks, Qualcomm | Approved |
| R4-2206395 CR to 38.101-3 to add triple beat MSD | Qualcomm Incorporated | Agreed |
| R4-2206396 WF on NR-U contiguous ULCA MPR | Skyworks, Qualcomm | Approved |
| R4-2206397 CR to 38.101-1 to add NR-U contiguous UL CA MPR | Qualcomm, Skyworks | Agreed |
| R4-2206398 WF on MSD for DC\_(n)3AA | Huawei Technologies France | Withdrawn |
| R4-2206399 WF on IMD4 MSD for CA\_n28A-n40A-n41A | ZTE Corporation | Approved |
| R4-2206584 WF on CA\_n18- n28 and DC\_18-n28 low MSD second test point | Meidatek, Skyworks, Qualcomm, Samsung, KDDI | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2204680](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204680.zip)  Revised to R4-2206378 | Draft Correction CR to R17 TS38.101-1 on MSD for CA\_n18-n28 | Samsung, KDDI, Skyworks Solutions Inc., Qualcomm | Endorsed |
| [R4-2204681](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204681.zip)  Revised toR4-2206379 | Draft Correction CR to R17 TS38.101-3 on MSD for DC\_18\_n28 | Samsung, KDDI, Skyworks Solutions Inc., Qualcomm | Endorsed |
| [R4-2203626](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203626.zip)  Revised to R4-2206387 | Discussion on UE RF requirements for DC\_20-28\_n78 | VODAFONE Group Plc | Noted  6387 withdrawn |
| [R4-2203627](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203627.zip)  Revised to R4-2206388 | Discussion on UE RF requirements for DC\_20-38\_n8 | VODAFONE Group Plc | Noted  6388 withdrawn |
| [R4-2203538](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203538.zip)  Revised to R4-2206380 | TP to TR 38.717.02-01 for CA\_n46-n96 | Charter Communications, Inc | Approved |
| [R4-2205669](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205669.zip)  Revised to R4-2206381 | TP to TR 38.717.02-01 for CA\_n48-n96 and DC\_n48-n96 | Charter Communications, Inc | Approved |
| [R4-2203539](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203539.zip)  Revised to R4-2206382 | TP to TR TR38.717-03-01 for CA\_n46-n48-n96 | Charter Communications, Inc | Approved |
| [R4-2203540](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203540.zip)  Revised to R4-2206383 | TP to TR 38.717.03-02 for CA\_n46-n48--n96 | Charter Communications, Inc | Approved |
| [R4-2205701](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205701.zip)  Revised to R4-2206384 | TP for TR 37.717-11-11 to include DC\_2\_n25 | Ericsson, Bell Mobility, Qualcomm | Approved |
| [R4-2205702](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205702.zip) | TP for TR 37.717-21-11 to include DC\_2-7\_n25 | Ericsson, Bell Mobility | Approved |
| [R4-2205703](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205703.zip) | TP for TR 37.717-31-11 to include DC\_2-7-66\_n25 | Ericsson, Bell Mobility | Approved |
| [R4-2205704](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205704.zip) | TP for TR 37.717-31-11 to include DC\_2-7-13\_n25 | Ericsson, Bell Mobility | Approved |
| [R4-2204483](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204483.zip)  Revised to R4-2206385 | draft CR to 38101-1-h40 missing MSD for CA\_n5-n77(2A) | MediaTek Inc., Skyworks, AT&T, Apple | Endorsed |
| [R4-2204736](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.3gpp.org_ftp_TSG-5FRAN_WG4-5FRadio_TSGR4-5F102-2De_Docs_R4-2D2204736.zip&d=DwMFAg&c=VYRDWu-sKuQrybEAJ2u-dYX_FK6X1lTrDf-PKXUa2P4&r=pRthG0xxDB77vg4aSNBQn5JOtJLs0OZjgw-oylT0McK0oow-yPNwujyHTOyyY1lN&m=uE9t9EWjm3Hp_Yu5s-oMj-nXaj_nNRTHfJzmaXf15d4gn376zd-r55EIHVpdO2fA&s=aI3O6RoNmm_RK8I1x-o8PFGg5l_d4sNKJx2fjthPw-s&e=)  Revised to R4-2206386 | TP for TR 37.717-11-11: Update MSD analysis of DC\_(n)3AA | Huawei Technologies France | Postponed |
| [R4-2204806](https://urldefense.proofpoint.com/v2/url?u=https-3A__www.3gpp.org_ftp_TSG-5FRAN_WG4-5FRadio_TSGR4-5F102-2De_Docs_R4-2D2204806.zip&d=DwMGaQ&c=VYRDWu-sKuQrybEAJ2u-dYX_FK6X1lTrDf-PKXUa2P4&r=pRthG0xxDB77vg4aSNBQn5JOtJLs0OZjgw-oylT0McK0oow-yPNwujyHTOyyY1lN&m=3rqdM2cc8eo63pKn64kld_twtkZQib_hWe_3De8j6IKQziPp25b2c1Z79eyB8veb&s=45TSvyHMRc6PGaVzmXBtYCJU_Eu-ygBbKVD-b3-DesU&e=) | TP for TR 37.717-21-11: Update DC\_1A\_(n)3AA | Huawei Technologies France | Postponed |
| [R4-2204754](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204754.zip)  Revised to R4-2206250 | TP for TR38.717-03-02: CA\_n28A-n40A-n41A | ZTE Corporation, Qualcomm | Postponed |

**R4-2206389 TP for TR 37.717-21-11 for DC\_8-28\_n3**

*Type: pCR For: Approval  
 38.717-21-11 v0.x.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Decision: Approved.**

**R4-2206390 TP for TR 37.717-21-11 for DC\_8-28\_n78**

*Type: pCR For: Approval  
 38.717-21-11 v0.x.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Decision: Approved.**

**R4-2206391 TP for TR 37.717-21-11 for DC\_8-32\_n78**

*Type: pCR For: Approval  
 38.717-21-11 v0.x.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Decision: Approved.**

**R4-2206392 TP for TR 37.717-21-11 for DC\_20-28\_n78**

*Type: pCR For: Approval  
 38.717-21-11 v0.x.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Decision: Approved.**

**R4-2206393 WF on missing fall back list for 36.101 and 38.101-1 and -3**

*Type: other For: Approval  
 Source: Apple*

**Decision: Approved.**

**R4-2206394 WF on capturing triple beat MSD in 38.101-1 and 38.101-3**

*Type: other For: Approval  
 Source: Skyworks, Qualcomm*

**Decision: Approved.**

**R4-2206395 CR to 38.101-3 to add triple beat MSD**

*Type: CR For: Agreement  
 38.101-3 v x.x.0 CR- rev Cat: F (Rel-17)  
 Source: Skyworks, Qualcomm*

**Abstract:**

**Decision: Agreed.**

**R4-2206396 WF on NR-U contiguous ULCA MPR**

*Type: other For: Approval  
 Source: Skyworks, Qualcomm*

**Decision: Approved.**

**R4-2206397 CR to 38.101-1 to add NR-U contiguous UL CA MPR**

*Type: CR For: Agreement  
 38.101-1 v1x.x.0 CR- rev Cat: F (Rel-17)  
 Source: Qualcomm, Skyworks*

**Decision: Agreed.**

**R4-2206398 WF on MSD for DC\_(n)3AA**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Withdrawn.**

**R4-2206399 WF on IMD4 MSD for CA\_n28A-n40A-n41A**

*Type: other For: Approval  
 Source: ZTE*

**Decision: Approved.**

**R4-2206584 WF on CA\_n18- n28 and DC\_18-n28 low MSD second test point**

*Type: other For: Approval  
 Source: Mediatek, Skyworks, Qualcomm, Samsung, KDDI*

**Decision: Approved.**

#### 9.6.1 UE RF requirements

**R4-2203538 TP to TR 38.717.02-01 for CA\_n46-n96**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Charter Communications, Inc*

**Decision: Revised to R4-2206380 (from R4-2203538).**

**R4-2206380 TP to TR 38.717.02-01 for CA\_n46-n96**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Charter Communications, Inc*

**Decision: Approved.**

**R4-2203539 TP to TR TR38.717-03-01 for CA\_n46-n48-n96**

*Type: pCR For: Approval  
 38.717-03-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Charter Communications, Inc*

**Decision: Revised to R4-2206382 (from R4-2203539).**

**R4-2206382 TP to TR TR38.717-03-01 for CA\_n46-n48-n96**

*Type: pCR For: Approval  
 38.717-03-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Charter Communications, Inc*

**Decision: Approved.**

**R4-2203540 TP to TR 38.717.03-02 for CA\_n46-n48--n96**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Charter Communications, Inc*

**Decision: Revised to R4-2206383 (from R4-2203540).**

**R4-2206383 TP to TR 38.717.03-02 for CA\_n46-n48--n96**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Charter Communications, Inc*

**Decision: Approved.**

**R4-2203623 Discussion on UE RF requirements for DC\_8-28\_n3**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a draft text proposal for TR 37.717-21-11 to include DC\_8-28\_n3. Since this is a combination with two low bands and has an IMD2 issue, discussion is required to determine the appropriate UE RF requirements.

**Decision: Noted.**

**R4-2203624 Discussion on UE RF requirements for DC\_8-28\_n78**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a draft text proposal for TR 37.717-21-11 to include DC\_8-28\_n78. Since this is a combination with two low bands and has both IMD4 and IMD5 issues, discussion is required to determine the appropriate UE RF requirements.

**Decision: Noted.**

**R4-2203625 Discussion on UE RF requirements for DC\_8-32\_n78**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a draft text proposal for TR 37.717-21-11 to include DC\_8-32\_n78. Since this combination has an IMD3 hit in B32 as highlighted in section 5.x.4, input is needed on a suitable MSD test point.

**Decision: Noted.**

**R4-2203626 Discussion on UE RF requirements for DC\_20-28\_n78**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a draft text proposal for TR 37.717-21-11 to include DC\_20-28\_n78. Since this is a combination with two low bands and has both IMD4 and IMD5 issues, discussion is required to determine the appropriate UE RF requirements.

**Decision: Noted.**

**R4-2206387 Discussion on UE RF requirements for DC\_20-28\_n78**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a draft text proposal for TR 37.717-21-11 to include DC\_20-28\_n78. Since this is a combination with two low bands and has both IMD4 and IMD5 issues, discussion is required to determine the appropriate UE RF requirements.

**Decision: Withdrawn.**

**R4-2203627 Discussion on UE RF requirements for DC\_20-38\_n8**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a draft text proposal for TR 37.717-21-11 to include DC\_20-38\_n8. Since this is a combination with two low bands and has IMD3 issues, discussion is required to determine the appropriate UE RF requirements.

**Decision: Noted.**

**R4-2206388 Discussion on UE RF requirements for DC\_20-38\_n8**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a draft text proposal for TR 37.717-21-11 to include DC\_20-38\_n8. Since this is a combination with two low bands and has IMD3 issues, discussion is required to determine the appropriate UE RF requirements.

**Decision: Withdrawn.**

**R4-2203709 Issue of many missing fallbacks in 38.101 specifications**

*Type: discussion For: Approval  
 Source: Apple*

**Abstract:**

There are hundreds of fallback combinations missing in the 38.101 specification. RAN4 needs to decide how to address this issue.

**Decision: Noted.**

**R4-2204090 On simultaneous Tx/Rx for constituents of CA\_n46-n48-n96**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution we provide justification for non-simultaneous Tx/RX operation for CA\_n46-n96.

**Decision: Noted.**

**R4-2204213 CA\_n18-n28 and DC\_18\_n28 LB\_LB\_MSD**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204214 CA\_n46-n48-n96\_Async\_MSD**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204216 DC\_2\_n25\_Fallback\_MSD**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204217 Triple\_Beat\_MSD\_update**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204680 Draft Correction CR to R17 TS38.101-1 on MSD for CA\_n18-n28**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Samsung, KDDI, Skyworks Solutions Inc., Qualcomm*

**Decision: Revised to R4-2206378 (from R4-2204680).**

**R4-2206378 Draft Correction CR to R17 TS38.101-1 on MSD for CA\_n18-n28**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Samsung, KDDI, Skyworks Solutions Inc., Qualcomm, MediaTek*

**Decision: Endorsed.**

**R4-2204681 Draft Correction CR to R17 TS38.101-3 on MSD for DC\_18\_n28**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Samsung, KDDI, Skyworks Solutions Inc., Qualcomm, MediaTek*

**Decision: Revised to R4-2206379 (from R4-2204681).**

**R4-2206379 Draft Correction CR to R17 TS38.101-3 on MSD for DC\_18\_n28**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Samsung, KDDI, Skyworks Solutions Inc., Qualcomm*

**Decision: Endorsed.**

**R4-2205669 TP to TR 38.717.02-01 for CA\_n48-n96 and DC\_n48-n96**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Charter Communications, Inc*

**Decision: Revised to R4-2206381 (from R4-2205669).**

**R4-2206381 TP to TR 38.717.02-01 for CA\_n48-n96 and DC\_n48-n96**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Charter Communications, Inc*

**Decision: Approved.**

**R4-2205701 TP for TR 37.717-11-11 to include DC\_2\_n25**

*Type: pCR For: Approval  
 37.717-11-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

TP for TR 37.717-11-11 to include DC\_2\_n25

**Decision: Revised to R4-2206384 (from R4-2205701).**

**R4-2206384 TP for TR 37.717-11-11 to include DC\_2\_n25**

*Type: pCR For: Approval  
 37.717-11-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility, Qualcomm*

**Abstract:**

TP for TR 37.717-11-11 to include DC\_2\_n25

**Decision: Approved.**

**R4-2205702 TP for TR 37.717-21-11 to include DC\_2-7\_n25**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

Depending on the approval of fallback DC\_2\_n25, see TP for TR 37.717-11-11 to include DC\_2\_n25

**Decision: Approved.**

**R4-2205703 TP for TR 37.717-31-11 to include DC\_2-7-66\_n25**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

Depending on the approval of fallback DC\_2\_n25, see TP for TR 37.717-11-11 to include DC\_2\_n25

**Decision: Approved.**

**R4-2205704 TP for TR 37.717-31-11 to include DC\_2-7-13\_n25**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Bell Mobility*

**Abstract:**

Depending on the approval of fallback DC\_2\_n25, see TP for TR 37.717-11-11 to include DC\_2\_n25

**Decision: Approved.**

**R4-2206134 CR to R17 TS38.101-1 on MSD for CA\_n5-n28**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1031 rev Cat: F (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Agreed.**

**R4-2206136 Guidelines on MSD due to Cross-band Isolation and Harmonic Interference**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Withdrawn.**

**R4-2206140 Corrections for CA\_n18-n28, DC\_18\_n18 MSD**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted.**

**R4-2206141 Corrections for CA\_n5-n28 MSD**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted.**

#### 9.6.2 NR-U intra-band contiguous UL CA

**R4-2206076 Proposals for NR-U Intraband Contiguous UL-CA requirements**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2206138 MPR proposal for NR-U UL-CA**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted.**

#### 9.6.3 Low MSD for CA and DC

**R4-2204088 On low MSD for CA and DC**

*Type: discussion For: Agreement  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

### 9.7 NR intra band Carrier Aggregation for xCC DL/yCC UL including contiguous and non-contiguous spectrum (x>=y)

**[102-e][110] NR\_Baskets\_Part\_2, AI 9.7, 9.14, 9.15, 9.16, 9.17, 9.18 – Iwo Angelow**

**R4-2206310 Email discussion summary for [102-e][110] NR\_Baskets\_Part\_2**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

#### 9.7.1 Rapporteur Input (WID/TR/CR)

**R4-2205674 Revised WID NR Intra-band Rel-17**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

Revised WID NR Intra-band Rel-17

**Decision:** The document was **for email approval**.

**R4-2205678 Big CR 38.101-1 new combinations Rel-17 NR Intra-band**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1025 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Big CR 38.101-1 new combinations Rel-17 NR Intra-band

**Decision:** The document was **for email approval**.

**R4-2205679 Big CR 38.101-2 new combinations Rel-17 NR Intra-band**

*Type: CR For: Agreement  
 38.101-2 v17.4.0 CR-0440 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Big CR 38.101-2 new combinations Rel-17 NR Intra-band

**Decision:** The document was **for email approval**.

**R4-2205684 TR 38.717-01-01 v0.8.0 Rel-17 NR Intra-band**

*Type: draft TR For: Approval  
 38.717-01-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

[draft TR] TR 38.717-01-01 v0.8.0 Rel-17 NR Intra-band

**Decision:** The document was **for email approval**.

#### 9.7.2 UE RF requirements for FR1

**R4-2205176 Draft CR for TS 38.101-1: Correction for intra-band non-contiguous CA operating bands table**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2205253 Draft CR for 38.101-1 To configuration CA\_n3(2A)\_BCS1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205254 TP for TR 38.717-01-01 CA\_n3B\_BCS0**

*Type: pCR For: Approval  
 38.717-01-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206270 (from R4-2205254).**

**R4-2206270 TP for TR 38.717-01-01 CA\_n3B\_BCS0**

*Type: pCR For: Approval  
 38.717-01-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2205255 TP for TR 38.717-01-01 CA\_n38B\_BCS0**

*Type: pCR For: Approval  
 38.717-01-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206271 (from R4-2205255).**

**R4-2206271 TP for TR 38.717-01-01 CA\_n38B\_BCS0**

*Type: pCR For: Approval  
 38.717-01-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

#### 9.7.3 UE RF requirements for FR2

### 9.8 NR inter-band Carrier Aggregation/Dual Connectivity for 2 bands DL with x bands UL (x=1, 2)

**[102-e][111] NR\_Baskets\_Part\_3, AI 9.8, 9.9, 9.10, 9.11, 9.12, 9.13, 9.19, 9.20, 9.21, 9.22, 9.23, 9.24 –Johannes Hejselbaek**

**R4-2206311 Email discussion summary for [102-e][111] NR\_Baskets\_Part\_3**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

-----------------------------------------------------------------------------------------------------------------------------------------

**R4-2205218 TR 38.717-02-01 v0.8.0**

*Type: draft TR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Abstract:**

[draft TR] TR 38.717-02-01

**Decision:** The document was **for email approval**.

#### 9.8.1 Rapporteur Input (WID/TR/CR)

**R4-2204769 Revised WID on Rel-17 NR Inter-band Carrier Aggregation/Dual Connectivity for 2 bands DL with x bands UL (x=1,2)**

*Type: WID revised For: Approval  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

**R4-2204770 Big CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1009 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

**R4-2204771 Big CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0688 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

**R4-2206628 Big CR to reflect the completed NR inter band CA DC combinations for 2 bands DL with up to 2 bands UL into TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v16.10.0 CR-XXX rev Cat: F (Rel-17)  
  
 Source: ZTE*

**Decision: Return to.**

#### 9.8.2 NR inter band CA requirements without any FR2 band(s)

**R4-2204480 Discussion on CA\_n18\_n28**

*Type: discussion For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision: Noted.**

**R4-2204482 draft CR to 38101-1-h40 improve note for CA\_n18-n28**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision: Merged (with R4-220xxxx).**

**R4-2204483 draft CR to 38101-1-h40 missing MSD for CA\_n5-n77(2A)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision: Revised to R4-2206385 (from R4-2204483).**

**R4-2206385 draft CR to 38101-1-h40 missing MSD for CA\_n5-n77(2A)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: MediaTek Inc., Skyworks, AT&T, Apple*

**Decision: Endorsed.**

**R4-2204755 Draft CR to TS38.101-1[R17] CA\_n3A-n8A\_BCS1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204756 Draft CR to TS38.101-1[R17] CA\_n3A-n79A\_BCS1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204757 Draft CR for TS 38.101-2 Add a note for BCS in 2DL NR CA table**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206244 (from R4-2204757).**

**R4-2206244 Draft CR for TS 38.101-2 Add a note for BCS in 2DL NR CA table**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204793 CR TS38.101-1 introduction of CA\_n29-n71**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1012 rev Cat: B (Rel-17)  
  
 Source: Dish Network, Nokia, Qualcomm Inc., Skyworks Solutions Inc.*

**Decision: Not pursued.**

**R4-2205256 TP for TR 38.717-02-01 CA\_n28A-n38A**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2205257 TP for TR 38.717-02-01 CA\_n1A-n38A / CA\_n1(2A)-n38A**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206245 (from R4-2205257).**

**R4-2206245 TP for TR 38.717-02-01 CA\_n1A-n38A / CA\_n1(2A)-n38A**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2205258 Draft CR for 38.101-1 to add configuration CA\_n1A-n28A\_BCS1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206246 (from R4-2205258).**

**R4-2206246 Draft CR for 38.101-1 to add configuration CA\_n1A-n28A\_BCS1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205259 Draft CR for 38.101-1 to add configuration CA\_n3A-n28A\_BCS2**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205260 Draft CR for 38.101-1 to add configuration CA\_n1A-n3B\_BCS0/CA\_n1A-n3(2A)\_BCS2/CA\_n1(2A)-n3(2A)/CA\_n1(2A)-n3B**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205261 Draft CR for 38.101-1 to add configuration CA\_n1(2A)-n79A and CA\_n1(2A)-n79C**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205262 Draft CR for 38.101-1 to add configuration CA\_n3B-n7A / CA\_n3(2A)-n7A\_BCS1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205263 Draft CR for 38.101-1 to add configuration CA\_n3B-n38A / CA\_n3(2A)-n38A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205264 Draft CR for 38.101-1 to add configuration CA\_n3B-n79A / CA\_n3(2A)-n79A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205265 Draft CR for 38.101-1 to add configuration CA\_n3B-n78A / CA\_n3(2A)-n78A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205266 TP for TR 38.717-02-01 CA\_n38A-n79A / CA\_n38A-n79C**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206247 (from R4-2205266).**

**R4-2206247 TP for TR 38.717-02-01 CA\_n38A-n79A / CA\_n38A-n79C**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2205267 TP for TR 38.717-02-01 CA\_n7A-n79A / CA\_n7A-n79C**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206248 (from R4-2205267).**

**R4-2206248 TP for TR 38.717-02-01 CA\_n7A-n79A / CA\_n7A-n79C**

*Type: pCR For: Approval  
 38.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2205268 Draft CR for 38.101-1 to add configuration CA\_n78A-n79C**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205564 draftCR to add BCS for CA\_n40A-n78A to 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia*

**Decision: Revised to R4-2206249 (from R4-2205564).**

**R4-2206249 draftCR to add BCS for CA\_n40A-n78A to 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia*

**Decision: Endorsed.**

**R4-2205566 draftCR to add DC\_n1A-n28A to 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, BT*

**Decision: Endorsed.**

**R4-2205711 draft CR 38.101-1 to make editorial corrections in 2 bands NR CA configuration tables.**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

draft CR 38.101-1 to make editorial corrections in 2 bands NR CA configuration tables.

**Decision: Endorsed.**

#### 9.8.3 NR inter band CA requirements with at least one FR2 band

**R4-2205712 draft CR 38.101-3 to make editorial corrections in 2 bands NR CA configuration tables.**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

draft CR 38.101-3 to make editorial corrections in 2 bands NR CA configuration tables.

**Decision: Endorsed.**

### 9.9 NR Inter-band Carrier Aggregation for 3 bands DL with 1 band UL

#### 9.9.1 Rapporteur Input (WID/TR/CR)

**R4-2203965 TR 38.717-03-01 on Rel-17 NR inter-band Carrier Aggregation (CA) for 3 Down Link (DL) / 1 Up Link (UL) v.0.7.0**

*Type: draft TR For: Approval  
 38.717-03-01 v0.8.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Abstract:**

[draft TR] TR 38.717-03-01

**Decision:** The document was **for email approval**.

**R4-2203966 Revised WID on Rel-17 NR inter-band CA of 3DL bands and 1UL band**

*Type: WID revised For: Approval  
 Source: CATT*

**Decision:** The document was **for email approval**.

**R4-2203967 CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0994 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **for email approval**.

**R4-2203968 CR on Introducing NR inter-band CA for 3DL Bands and 1UL band for 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0678 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **for email approval**.

#### 9.9.2 UE RF requirements

**R4-2204138 Draft CR for 38.101-3: support of DL n77(3A) in NR-CA of CA\_n28A-n77-n257A/G/H/I**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

DL\_n77(3A) is added to CA\_n28A-n77-n257A/G/H/I.

**Decision: Endorsed.**

**R4-2204753 TP for TR38.717-03-01: CA\_n28A-n40A-n41A**

*Type: pCR For: Approval  
 38.717-03-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2205171 DraftCR for 38.101-1: additional combinations for CA\_n7-n25-n66**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed.**

**R4-2205172 DraftCR for 38.101-1: CA\_n25(2A)-n38A-n66(2A)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed.**

### 9.10 NR Inter-band Carrier Aggregation for 4 bands DL with 1 band UL

#### 9.10.1 Rapporteur Input (WID/TR/CR)

**R4-2205676 Revised WID 4 DL/1UL NR CA Rel-17**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

Revised WID 4 DL/1UL NR CA Rel-17

**Decision:** The document was **for email approval**.

**R4-2205681 Big CR 38.101-1 new combinations NR CA Inter-band 4DL/1UL**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1026 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Big CR 38.101-1 new combinations NR CA Inter-band 4DL/1UL

**Decision:** The document was **for email approval**.

**R4-2205682 Big CR 38.101-3 new combinations NR CA Inter-band 4DL/1UL**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0696 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Big CR 38.101-3 new combinations NR CA Inter-band 4DL/1UL

**Decision:** The document was **for email approval**.

**R4-2205686 TR 38.717-04-01 v0.8.0 Rel-17 NR CA Inter-band 4DL/1UL**

*Type: draft TR For: Approval  
 38.717-04-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

[draft TR] TR 38.717-04-01 v0.8.0 Rel-17 NR CA Inter-band 4DL/1UL

**Decision:** The document was **for email approval**.

#### 9.10.2 UE RF requirements

**R4-2204758 Draft CR for TS 38.101-3 Add a note for BCS in 4DL NR CA table**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2205168 TP for TR 38.717-04-01: CA\_n25-n38-n66-n78**

*Type: pCR For: Approval  
 38.717-04-01 v0.8.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Approved.**

**R4-2205169 TP for TR 38.717-04-01: CA\_n25-n66-n71-n78**

*Type: pCR For: Approval  
 38.717-04-01 v0.8.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Approved.**

**R4-2205170 DraftCR for 38.101-1: additional combinations for CA\_n7-n25-n66-n78**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Bell Mobility, Telus*

**Decision: Endorsed.**

**R4-2205713 draft CR 38.101-1 to add back 5 MHz for n1A in CA\_n1A-n3A-n5A-n78A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

draft CR 38.101-1 to add back 5 MHz for n1A in CA\_n1A-n3A-n5A-n78A

**Decision: Endorsed.**

### 9.11 NR Inter-band Carrier Aggregation/Dual connectivity for 3 bands DL with 2 bands UL

**R4-2205219 TR 38.717-03-02 v0.8.0**

*Type: draft TR For: Approval  
 38.717-03-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Abstract:**

[draft TR] TR 38.717-03-02

**Decision:** The document was **for email approval**.

#### 9.11.1 Rapporteur Input (WID/TR/CR)

**R4-2203984 Revised WID on Rel-17 NR Inter-band Carrier AggregationDual Connectivity for 3 bands DL with 2 bands UL, ZTE Corporation**

*Type: WID revised For: Approval  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

**R4-2203985 Big CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0995 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

**R4-2203986 Big CR to reflect the completed NR inter band CA DC combinations for 3 bands DL with 2 bands UL into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0679 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

#### 9.11.2 UE RF requirements

**R4-2204130 Draft CR for 38.101-1: support of DL n77(2A) in 2UL CA of CA\_n1A-n28A-n77**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

DL n77(2A) support is added to 2UL CA\_n1A-n28A-n77.

**Decision: Endorsed.**

**R4-2204131 Draft CR for 38.101-1: support of Inter-band NR-DC of DC\_n1A-n3A-n28A, DC\_n1A-n3A-n41A, DC\_n1A-n28A-n41A, DC\_n1A-n28A-n77A, DC\_n1A-n28A-n79A and DC\_n1A-n41A-n77A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

6 DC mentioned in the title are added.

**Decision: Endorsed.**

**R4-2204754 TP for TR38.717-03-02: CA\_n28A-n40A-n41A**

*Type: pCR For: Approval  
 38.717-03-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206250 (from R4-2204754).**

**R4-2206250 TP for TR38.717-03-02: CA\_n28A-n40A-n41A**

*Type: pCR For: Approval  
 38.717-03-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation, Qualcomm*

**Decision: Postponed.**

**R4-2205563 draftCR to add CA\_n40-n77-n257 to 38.101-3**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, NBN*

**Decision: Endorsed.**

**R4-2205565 draftCR to add BCS for CA\_n1A-n40A-n78A to 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia*

**Decision: Endorsed.**

**R4-2205567 draftCR to add DC\_n1A-n28A-78A to 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, BT*

**Decision: Endorsed.**

**R4-2205568 draftCR to add DC\_n3A-n28A-78A to 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, BT*

**Decision: Endorsed.**

**R4-2205693 TP for TR 38.717-03-02 to include CA\_n41-n66-n70**

*Type: pCR For: Approval  
 38.717-03-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TP for TR 38.717-03-02 to include CA\_n41-n66-n70

**Decision: Revised to R4-2206251 (from R4-2205693).**

**R4-2206251 TP for TR 38.717-03-02 to include CA\_n41-n66-n70**

*Type: pCR For: Approval  
 38.717-03-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TP for TR 38.717-03-02 to include CA\_n41-n66-n70

**Decision: Approved.**

**R4-2205694 TP for TR 38.717-03-02 to include CA\_n66-n70-n78**

*Type: pCR For: Approval  
 38.717-03-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TP for TR 38.717-03-02 to include CA\_n66-n70-n78

**Decision: Approved.**

**R4-2205698 draft CR 38.101-1 to add UL configurations for CA\_n3-n7-n28 and CA\_n3-n28-n78**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, BT plc*

**Abstract:**

draft CR 38.101-1 to add UL configurations for CA\_n3-n7-n28 and CA\_n3-n28-n78

**Decision: Endorsed.**

**R4-2205699 draft CR 38.101-1 to add configurations for CA\_n3-n7-n78**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, BT plc*

**Abstract:**

draft CR 38.101-1 to add configurations for CA\_n3-n7-n78

**Decision: Endorsed.**

### 9.12 NR inter-band Carrier Aggregation and Dual connectivity for DL 4 bands and 2UL bands

#### 9.12.1 Rapporteur Input (WID/TR/CR)

**R4-2204670 Big CR on introduction of completed NR CA/DC combs with 4DL/2UL within FR1**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1008 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Abstract:**

big CR

**Decision:** The document was **for email approval**.

**R4-2204671 Big CR on introduction of completed NR CA/DC combs with 4DL/2UL including FR2**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0685 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Abstract:**

big CR

**Decision:** The document was **for email approval**.

**R4-2204672 Revised WID on NR CA/DC with 4DL/2UL**

*Type: WID revised For: Information  
 Source: Samsung*

**Decision:** The document was **for email approval**.

**R4-2204677 TR 38.717-04-02 update version 0.8.0**

*Type: draft TR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **withdrawn**.

**R4-2204699 TR 38.717-04-02 update version 0.8.0**

*Type: draft TR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Abstract:**

[draft TR] TR 38.717-04-02

**Decision:** The document was **for email approval**.

#### 9.12.2 UE RF requirements

**R4-2203816 TP for TR TR 38.717-04-02: CA\_n2-n5-n48-n66**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon. Samsung*

**Decision: Approved.**

**R4-2203817 TP for TR TR 38.717-04-02: CA\_n5-n48-n66-n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon. Samsung*

**Decision: Approved.**

**R4-2203825 TP for TR 38.717-04-02 to include CA\_n2-n5-n66-n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon, Samsung*

**Decision: Approved.**

**R4-2203826 TP for TR TR 38.717-04-02: CA\_n2-n5-n48-n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon, Samsung*

**Decision: Approved.**

**R4-2203827 TP for TR TR 38.717-04-02: CA\_n2-n48-n66-n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon, Samsung*

**Decision: Approved.**

**R4-2204094 TP for TR 38.717-04-02: CA\_n1-n3-n28-n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204095 TP for TR 38.717-04-02: CA\_n1-n3-n28-n79**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204096 TP for TR 38.717-04-02: CA\_n1-n3-n28-n257**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204097 TP for TR 38.717-04-02: CA\_n1-n3-n77-n79**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204099 TP for TR 38.717-04-02: CA\_n1-n3-n79-n257**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204100 TP for TR 38.717-04-02: CA\_n1-n28-n77-n79**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204102 TP for TR 38.717-04-02: CA\_n1-n28-n77-n257**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204103 TP for TR 38.717-04-02: CA\_n1-n28-n79-n257**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204104 TP for TR 38.717-04-02: CA\_n3-n28-n41-n257**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204105 TP for TR 38.717-04-02: CA\_n3-n41-n77-n257**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204106 TP for TR 38.717-04-02: CA\_n28-n41-n77-n257**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204135 Draft CR for 38.101-3: support of Inter-band NR-DC of DC\_n3A-n77A/(2A)-n79A-n257A/G/H/I**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

DC\_n3A-n77A-n79A-n257A/G/H/I, DC\_n3A-n77(2A)-n79A-n257A/G/H/I are added as 4B/2B DC combos.

**Decision: Revised to R4-2206252 (from R4-2204135).**

**R4-2206252 Draft CR for 38.101-3: support of Inter-band NR-DC of DC\_n3A-n77A/(2A)-n79A-n257A/G/H/I**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

DC\_n3A-n77A-n79A-n257A/G/H/I, DC\_n3A-n77(2A)-n79A-n257A/G/H/I are added as 4B/2B DC combos.

**Decision: Endorsed.**

**R4-2204682 Draft CR for 38.101-1 to introduce new configurations to CA\_n7-n25-n66-n78**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Samsung, Telus, Bell Mobility*

**Decision: Endorsed.**

**R4-2204683 TP for TR 38.717-04-02 CA\_n2-n5-n66-n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung, Telus, Bell Mobility*

**Decision: Noted.**

**R4-2204684 TP for TR 38.717-04-02 CA\_n5-n30-n66-n77**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung, Telus, Bell Mobility*

**Decision: Noted.**

**R4-2204685 TP for TR 38.717-04-02 CA\_n25-n38-n66-n78**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung, Telus, Bell Mobility*

**Decision: Approved.**

**R4-2204686 TP for TR 38.717-04-02 CA\_n25-n66-n71-n78**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung, Telus, Bell Mobility*

**Decision: Approved.**

**R4-2205569 draftCR to add n78(2A) to excisting combinations in 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, BT*

**Decision: Revised to R4-2206253 (from R4-2205569).**

**R4-2206253 draftCR to add n78(2A) to excisting combinations in 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, BT*

**Decision: Endorsed.**

**R4-2205571 draftCR to add DC\_12A\_n77C to 38.101-3**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, US Cellular*

**Decision: Revised to R4-2206254 (from R4-2205571).**

**R4-2206254 draftCR to add DC\_12A\_n77C to 38.101-3**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, US Cellular*

**Decision: Endorsed.**

**R4-2205692 TP for TR 38.717-04-02 to include CA\_n41-n66-n70-n78**

*Type: pCR For: Approval  
 38.717-04-02 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TP for TR 38.717-04-02 to include CA\_n41-n66-n70-n78

**Decision: Approved.**

**R4-2205700 draft CR 38.101-1 to add new 4DL2UL configurations**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, BT plc, Telstra*

**Abstract:**

draft CR 38.101-1 to add new 4DL2UL configurations

**Decision: Endorsed.**

### 9.13 NR inter-band CA for 5 bands DL with x bands UL (x=1, 2)

#### 9.13.1 Rapporteur Input (WID/TR/CR)

**R4-2205239 Revised WID on NR inter-band CA for 5 bands DL with x bands UL (x=1, 2)**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

**R4-2205240 TR 38.717-05-01 v0.5.0**

*Type: draft TR For: Approval  
 38.717-05-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[draft TR] TR 38.717-05-01 To capture the approved TPs in this meeting

**Decision:** The document was **for email approval**.

**R4-2205241 CR on Introduction of completed 5 bands inter-band CA into TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1017 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

**R4-2205242 CR on Introduction of completed 5 bands inter-band CA into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0692 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

#### 9.13.2 UE RF requirements

**R4-2203815 TP to TR 38.717-05-01: CA\_n2-n5-n48-n66-n77**

*Type: pCR For: Approval  
 38.717-05-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon, Samsung*

**Decision: Revised to R4-2206255 (from R4-2203815).**

**R4-2206255 TP to TR 38.717-05-01: CA\_n2-n5-n48-n66-n77**

*Type: pCR For: Approval  
 38.717-05-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon, Samsung*

**Decision: Approved.**

**R4-2203828 TP for TR 38.717-05-01: CA\_n2-n5-n48-n66-n77**

*Type: pCR For: Approval  
 38.717-05-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon, Samsung*

**Decision: Noted.**

**R4-2204134 TP update for TR 38.717-05-01: CA\_n3-28-n77-n79-n257**

*Type: pCR For: Approval  
 38.717-05-01 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204759 Draft CR for TS 38.101-3 Add notes for BCS in 5DL NR CA table**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206256 (from R4-2204759).**

**R4-2206256 Draft CR for TS 38.101-3 Add notes for BCS in 5DL NR CA table**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2205570 draftCR to add CA\_n1A-n3A-n7A-n28A-n78(2A) to 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, BT*

**Decision: Revised to R4-2206257 (from R4-2205570).**

**R4-2206257 draftCR to add CA\_n1A-n3A-n7A-n28A-n78(2A) to 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, BT*

**Decision: Endorsed.**

### 9.14 DC of 1 LTE band and 1 NR band

#### 9.14.1 Rapporteur Input (WID/TR/CR)

**R4-2204043 Big CR for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0681 rev Cat: B (Rel-17)  
  
 Source: CHTTL*

**Decision:** The document was **for email approval**.

**R4-2204044 Revised WID for Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)**

*Type: WID revised For: Endorsement  
 Source: CHTTL*

**Decision:** The document was **for email approval**.

**R4-2204045 TR 37.717-11-11 v1.1.0 Rel-17 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)**

*Type: draft TR For: Approval  
 37.717-11-11 v1.0.0 CR- rev Cat: (Rel-17)  
  
 Source: CHTTL*

**Abstract:**

[draft TR] TR 37.717-11-11

**Decision:** The document was **for email approval**.

**R4-2204047 TP for TR 37.717-11-11: general part update**

*Type: pCR For: Approval  
 37.717-11-11 v1.0.0 CR- rev Cat: (Rel-17)  
  
 Source: CHTTL*

**Decision: Approved.**

#### 9.14.2 EN-DC requirements without FR2 band

**R4-2204736 TP for TR 37.717-11-11: Update MSD analysis of DC\_(n)3AA**

*Type: discussion For: Approval  
 37.717-11-11 v1.0.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei Technologies France*

**Decision: Revised to R4-2206386 (from R4-2204736).**

**R4-2206386 TP for TR 37.717-11-11: Update MSD analysis of DC\_(n)3AA**

*Type: discussion For: Approval  
 37.717-11-11 v1.0.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei Technologies France*

**Decision: Postponed.**

**R4-2205695 TP for TR 37.717-11-11 to include DC\_20\_n67**

*Type: pCR For: Approval  
 37.717-11-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 37.717-11-11 to include DC\_20\_n67

**Decision: Withdrawn.**

#### 9.14.3 EN-DC requirements with FR2 band

### 9.15 DC of 2 LTE band and 1 NR band

#### 9.15.1 Rapporteur Input (WID/TR/CR)

**R4-2205165 TR 37.717-21-11 V0.8.0 for DC of 2 LTE band and 1 NR band**

*Type: draft TR For: Approval  
 37.717-21-11 v0.8.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[draft TR] TR 37.717-21-11

**Decision:** The document was **for email approval**.

**R4-2205166 Revised WID: Dual Connectivity (DC) of 2 bands LTE inter-band CA (2DL/1UL) and 1 NR band (1DL/1UL)**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

**R4-2205167 CR on introduction of completed EN-DC of 2 bands LTE and 1 band NR from RAN4#101bis-e and RAN4#102-e into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0691 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

#### 9.15.2 EN-DC requirements without FR2 band

**R4-2203628 TP for TR 37.717-21-11: DC\_8-32\_n3**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-21-11 to include DC\_8-32\_n3.

**Decision: Approved.**

**R4-2203629 TP for TR 37.717-21-11: DC\_8-38\_n1**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-21-11 to include DC\_8-38\_n1.

**Decision: Approved.**

**R4-2203630 TP for TR 37.717-21-11: DC\_28-38\_n1**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-21-11 to include DC\_28-38\_n1.

**Decision: Revised to R4-2206261 (from R4-2203630).**

**R4-2206261 TP for TR 37.717-21-11: DC\_28-38\_n1**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-21-11 to include DC\_28-38\_n1.

**Decision: Approved.**

**R4-2204554 TP for TR 37.717-21-11: EN-DC\_8-11\_n1**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp., LG Electronics*

**Decision: Approved.**

**R4-2204806 TP for TR 37.717-21-11: Update DC\_1A\_(n)3AA**

*Type: discussion For: Approval  
 37.717-21-11 v0.7.1 CR- rev Cat: (Rel-17)  
  
 Source: Huawei Technologies France*

**Decision: Postponed.**

**R4-2205247 Updated TP for TR 37.717-21-11: add MSD due to harmonic interference between band n28 and 32**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206269 (from R4-2205247).**

**R4-2206269 Updated TP for TR 37.717-21-11: add MSD due to harmonic interference between band n28 and 32**

*Type: pCR For: Approval  
 37.717-21-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2205709 draft CR to remove DC\_48A\_n77A as possible UL**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

draft CR to remove DC\_48A\_n77A as possible UL

**Decision: Not pursued.**

**R4-2205710 draft CR 38.101-3 to correct DC\_20A-38A\_n1 in delta TibRib tables**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

draft CR 38.101-3 to correct DC\_20A-38A\_n1 in delta TibRib tables

**Decision: Endorsed.**

#### 9.15.3 EN-DC requirements with FR2 band

### 9.16 DC of 3 LTE band and 1 NR band

#### 9.16.1 Rapporteur Input (WID/TR/CR)

**R4-2205675 Revised WID LTE 3DL and one NR band Rel-17**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

Revised WID LTE 3DL and one NR band Rel-17

**Decision:** The document was **for email approval**.

**R4-2205680 Big CR 38.101-3 new combinations LTE 3DL and one NR band**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0695 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Big CR 38.101-3 new combinations LTE 3DL and one NR band

**Decision:** The document was **for email approval**.

**R4-2205685 TR 37.717-31-11 v0.8.0 Rel-17 DC combinations LTE 3DL and one NR band**

*Type: draft TR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

[draft TR] TR 37.717-31-11 v0.8.0 Rel-17 DC combinations LTE 3DL and one NR band

**Decision:** The document was **for email approval**.

#### 9.16.2 EN-DC requirements without FR2 band

**R4-2203632 TP for TR 37.717-31-11: DC\_1-8-20\_n3**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_1-8-20\_n3.

**Decision: Approved.**

**R4-2203633 TP for TR 37.717-31-11: DC\_1-8-28\_n3**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_1-8-28\_n3.

**Decision: Approved.**

**R4-2203634 TP for TR 37.717-31-11: DC\_1-8-28\_n78**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_1-8-28\_n78.

**Decision: Approved.**

**R4-2203635 TP for TR 37.717-31-11: DC\_1-8-32\_n3**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_1-8-32\_n3.

**Decision: Approved.**

**R4-2204098 TP for TR 37.717-31-11: DC\_1-8-32\_n78**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_1-8-32\_n78.

**Decision: Approved.**

**R4-2204101 TP for TR 37.717-31-11: DC\_1-20-28\_n78**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_1-20-28\_n78.

**Decision: Approved.**

**R4-2204107 TP for TR 37.717-31-11: DC\_1-20-38\_n8**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_1-20-38\_n8.

**Decision: Approved.**

**R4-2204110 TP for TR 37.717-31-11: DC\_3-8-28\_n78**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_3-8-28\_n78.

**Decision: Approved.**

**R4-2204112 TP for TR 37.717-31-11: EN-DC\_1-8-11\_n79**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204113 TP for TR 37.717-31-11: DC\_3-8-32\_n1**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_3-8-32\_n1.

**Decision: Approved.**

**R4-2204116 TP for TR 37.717-31-11: DC\_3-8-32\_n78**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_3-8-32\_n78.

**Decision: Approved.**

**R4-2204119 TP for TR 37.717-31-11: DC\_3-20-28\_n78**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_3-20-28\_n78.

**Decision: Approved.**

**R4-2204122 TP for TR 37.717-31-11: DC\_7-8-32\_n78**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_7-8-32\_n78.

**Decision: Approved.**

**R4-2204125 TP for TR 37.717-31-11: DC\_7-8-38\_n1**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_7-8-38\_n1.

**Decision: Approved.**

**R4-2204126 TP for TR 37.717-31-11: DC\_7-20-38\_n8**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_7-20-38\_n8.

**Decision: Approved.**

**R4-2204127 TP for TR 37.717-31-11: DC\_7-28-38\_n1**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_7-28-38\_n1.

Pending on fallback approval

**Decision: Approved.**

**R4-2204128 TP for TR 37.717-31-11: DC\_8-20-28\_n78**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_8-20-28\_n78.

**Decision: Approved.**

**R4-2204129 TP for TR 37.717-31-11: DC\_8-20-38\_n1**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_8-20-38\_n1.

**Decision: Approved.**

**R4-2204136 Draft CR for 38.101-3: support of DL n77(3A) in Inter-band 3B LTE EN-DC of DC\_1/3/8/11-n77**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

DL n77(3A) is added to DC\_1A-3A-8A\_n77, DC\_1A-3A-11A\_n77, DC\_1A-8A-11A\_n77, DC\_3A-8A-11A\_n77.

**Decision: Revised to R4-2206262 (from R4-2204136).**

**R4-2206262 Draft CR for 38.101-3: support of DL n77(3A) in Inter-band 3B LTE EN-DC of DC\_1/3/8/11-n77**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

DL n77(3A) is added to DC\_1A-3A-8A\_n77, DC\_1A-3A-11A\_n77, DC\_1A-8A-11A\_n77, DC\_3A-8A-11A\_n77.

**Decision: Endorsed.**

**R4-2204139 TP for TR 37.717-31-11: DC\_8-32-38\_n1**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_8-32-38\_n1.

**Decision: Approved.**

**R4-2204141 TP for TR 37.717-31-11: DC\_20-28-38\_n1**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_20-28-38\_n1.

pending fallback approval

**Decision: Approved.**

**R4-2204142 TP for TR 37.717-31-11: DC\_28-32-38\_n1**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-31-11 to include DC\_28-32-38\_n1.

pending fallback approval

**Decision: Approved.**

**R4-2205248 Draft CR for 38.101-3 To add configuration DC\_1A-3C-32A\_n78A**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

**R4-2205249 Draft CR for 38.101-3 To correct the configuration DC\_3C-7A-28A\_n1A**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Endorsed.**

**R4-2205251 Updated TP for TR 37.717-31-11 DC\_3C-7A-32A\_n78A**

*Type: pCR For: Approval  
 37.717-31-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

#### 9.16.3 EN-DC requirements with FR2 band

### 9.17 DC of 4 LTE band and 1 NR band

#### 9.17.1 Rapporteur Input (WID/TR/CR)

**R4-2205547 Revised Rel-17 WID on DC of 4 bands LTE inter-band CA (4DL1UL) and 1 NR band (1DL1UL)**

*Type: WID revised For: Endorsement  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Inclusion of requests provided for RAN4#102

**Decision:** The document was **for email approval**.

**R4-2205548 draft TR 37.717-41-11-080**

*Type: draft TR For: Approval  
 37.717-41-11 v0.8.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

[draft TR] TR 37.717-41-11 Inclusion of TPs provided at RAN4#101bis

**Decision: Agreed.**

**R4-2205549 draft TR 37.717-41-11-090**

*Type: draft TR For: Approval  
 37.717-41-11 v0.9.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

[draft TR] TR 37.717-41-11 Inclusion of TPs provided at RAN4#102

**Decision:** The document was **for email approval**.

**R4-2205550 draftCR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Inclusion of approved combinations provided at RAN4#101bis

**Decision: Endorsed.**

**R4-2205551 Big CR to introduce new combinations of LTE 4band + NR 1band for TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0694 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Inclusion of approved combinations provided at RAN4#102

**Decision:** The document was **for email approval**.

#### 9.17.2 EN-DC requirements without FR2 band

**R4-2203998 Draft CR for TS 38.101-3 to add new configuration DC\_1A-3A-20A-38A\_n78(2A)**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204594 TP for TR 37.717-41-11: DC\_1-3-7-32\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_1-3-7-32\_n78.

**Decision: Noted.**

**R4-2204625 TP for TR 37.717-41-11: DC\_1-3-8-20\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_1-3-8-20\_n78.

**Decision: Approved.**

**R4-2204626 TP for TR 37.717-41-11: DC\_1-3-8-28\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_1-3-8-28\_n78.

**Decision: Approved.**

**R4-2204627 TP for TR 37.717-41-11: DC\_1-3-8-32\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_1-3-8-32\_n78.

**Decision: Approved.**

**R4-2204628 TP for TR 37.717-41-11: DC\_1-3-20-28\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_1-3-20-28\_n78.

**Decision: Approved.**

**R4-2204630 TP for TR 37.717-41-11: DC\_1-3-20-32\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_1-3-20-32\_n78.

**Decision: Approved.**

**R4-2204658 TP for TR 37.717-41-11: DC\_1-7-8-32\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_1-7-8-32\_n78.

**Decision: Approved.**

**R4-2204659 TP for TR 37.717-41-11: DC\_1-7-20-38\_n8**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_1-7-20-38\_n8.

**Decision: Approved.**

**R4-2204660 TP for TR 37.717-41-11: DC\_1-8-20-28\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_1-8-20-28\_n78.

**Decision: Approved.**

**R4-2204661 TP for TR 37.717-41-11: DC\_3-7-8-32\_n1**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_3-7-8-32\_n1.

**Decision: Approved.**

**R4-2204662 TP for TR 37.717-41-11: DC\_3-7-8-32\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_3-7-8-32\_n78.

**Decision: Approved.**

**R4-2204663 TP for TR 37.717-41-11: DC\_3-8-20-28\_n78**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_3-8-20-28\_n78.

**Decision: Approved.**

**R4-2204664 TP for TR 37.717-41-11: DC\_7-8-20-38\_n1**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_7-8-20-38\_n1.

**Decision: Approved.**

**R4-2204665 TP for TR 37.717-41-11: DC\_7-8-32-38\_n1**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_7-8-32-38\_n1.

**Decision: Approved.**

**R4-2204666 TP for TR 37.717-41-11: DC\_7-20-28-38\_n1**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_7-20-28-38\_n1.

pending fallback approval

**Decision: Approved.**

**R4-2204667 TP for TR 37.717-41-11: DC\_7-28-32-38\_n1**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_7-28-32-38\_n1.

pending fallback approval

**Decision: Approved.**

**R4-2204668 TP for TR 37.717-41-11: DC\_8-20-32-38\_n1**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_8-20-32-38\_n1.

**Decision: Approved.**

**R4-2204669 TP for TR 37.717-41-11: DC\_20-28-32-38\_n1**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-41-11 to include DC\_20-28-32-38\_n1.

pending fallback approval

**Decision: Approved.**

**R4-2204750 TP for TR 37.717-41-11: DC\_1A-7A-20A-38A\_n78A**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206268 (from R4-2204750).**

**R4-2206268 TP for TR 37.717-41-11: DC\_1A-7A-20A-38A\_n78A**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2205252 TP for TR 37.717-41-11 DC\_1A-3A-7A-32A\_n78A and DC\_1A-3C-7A-32A\_n78A**

*Type: pCR For: Approval  
 37.717-41-11 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

#### 9.17.3 EN-DC requirements with FR2 band

### 9.18 DC of 5 bands LTE inter-band CA (5DL/1L) and 1 NR band (1DL/1UL)

#### 9.18.1 Rapporteur Input (WID/TR/CR)

**R4-2204673 Big CR introduction completed band combinations for Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL)**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0686 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Abstract:**

big CR

**Decision:** The document was **for email approval**.

**R4-2204674 Revised WID on Dual Connectivity (DC) of 5 bands LTE inter-band CA (5DL/1UL) and 1 NR band (1DL/1UL)**

*Type: WID revised For: Information  
 Source: Samsung*

**Decision:** The document was **for email approval**.

**R4-2204678 TR 37.717-51-11 update version 0.3.0**

*Type: draft TR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **withdrawn**.

**R4-2204700 TR 37.717-51-11 update version 0.3.0**

*Type: draft TR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Abstract:**

[draft TR] TR 37.717-51-11

**Decision:** The document was **for email approval**.

#### 9.18.2 UE RF requirements

**R4-2204689 TP for TR 37.717-51-11: DC\_1-3-7-8-32\_n78**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_1-3-7-8-32\_n78.

**Decision: Revised to R4-2206263 (from R4-2204689).**

**R4-2206263 TP for TR 37.717-51-11: DC\_1-3-7-8-32\_n78**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_1-3-7-8-32\_n78.

**Decision: Approved.**

**R4-2204690 TP for TR 37.717-51-11: DC\_1-3-7-20-32\_n78**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_1-3-7-20-32\_n78.

**Decision: Revised to R4-2206264 (from R4-2204690).**

**R4-2206264 TP for TR 37.717-51-11: DC\_1-3-7-20-32\_n78**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_1-3-7-20-32\_n78.

**Decision: Approved.**

**R4-2204691 TP for TR 37.717-51-11: DC\_1-3-8-20-28\_n78**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_1-3-8-20-28\_n78.

**Decision: Revised to R4-2206265 (from R4-2204691).**

**R4-2206265 TP for TR 37.717-51-11: DC\_1-3-8-20-28\_n78**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_1-3-8-20-28\_n78.

**Decision: Approved.**

**R4-2204692 TP for TR 37.717-51-11: DC\_7-8-20-32-38\_n1**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_7-8-20-32-38\_n1.

**Decision: Revised to R4-2206266 (from R4-2204692).**

**R4-2206266 TP for TR 37.717-51-11: DC\_7-8-20-32-38\_n1**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_7-8-20-32-38\_n1.

**Decision: Approved.**

**R4-2204693 TP for TR 37.717-51-11: DC\_7-20-28-32-38\_n1**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_7-20-28-32-38\_n1.

**Decision: Revised to R4-2206267 (from R4-2204693).**

**R4-2206267 TP for TR 37.717-51-11: DC\_7-20-28-32-38\_n1**

*Type: pCR For: Approval  
 37.717-51-11 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: VODAFONE Group Plc*

**Abstract:**

This contribution is a text proposal for TR 37.717-51-11 to include DC\_7-20-28-32-38\_n1.

**Decision: Approved.**

### 9.19 DC of x bands (x=1,2, 3, 4) LTE inter-band CA and 2 bands NR inter-band CA

#### 9.19.1 Rapporteur Input (WID/TR/CR)

**R4-2204495 TR 37.717-11-21 v1.0.0 TR update: LTE(xDL/1UL)+ NR(2DL/1UL) DC in Rel-17**

*Type: draft TR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

[draft TR] TR 37.717-11-21 TR 1.0.0 to complete LTE (xDL/UL x=1.2,3,4) with NR 2 bands (2DL/1UL) DC in Rel-17

**Decision:** The document was **for email approval**.

**R4-2204510 Revised WID on LTE (xDL/UL x=1.2,3,4) with NR 2 bands (2DL/1UL) DC in Rel-17**

*Type: WID revised For: Endorsement  
 Source: LG Electronics France*

**Abstract:**

Revised WID for LTE (xDL/UL x=1.2,3,4) with NR 2 bands (2DL/1UL) DC in Rel-17

**Decision:** The document was **for email approval**.

**R4-2204513 Introduction CR on new NR DC LTE(xDL/1UL)+ NR(2DL/1UL) band combinations in Rel-17**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0684 rev Cat: B (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

CR to introduce new LTE (xDL/UL x=1.2,3,4) with NR 2 bands (2DL/1UL) DC band combination in Rel-17

**Decision:** The document was **for email approval**.

#### 9.19.2 EN-DC requirements including NR inter CA without FR2 band

**R4-2204006 TP for TR 37.717-11-21: DC\_1A-7A\_n3A-n38A**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2204007 TP for TR 37.717-11-21: DC\_1A-7A-20A\_n3A-n38A**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2204008 TP for TR 37.717-11-21: DC\_7A-20A\_n3A-n38A**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2204108 TP for TR 37.717-11-21: EN-DC\_1-3-8\_n77-n79**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204114 TP for TR 37.717-11-21: EN-DC\_1-11\_n3-n79**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204115 TP for TR 37.717-11-21: EN-DC\_1-11\_n77-n79**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204120 TP for TR 37.717-11-21: EN-DC\_8-11\_n3-n79**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204121 TP for TR 37.717-11-21: EN-DC\_8-11\_n77-n79**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204123 TP for TR 37.717-11-21: EN-DC\_8-41\_n1-n77**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204124 TP for TR 37.717-11-21: EN-DC\_8-42\_n1-n3**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204132 TP for TR 37.717-11-21: EN-DC\_11\_n1-n77**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204151 TP on summary of self-interference analysis for new NR DC LTE(xDL/1UL)+ NR(2DL/1UL) DC in Rel-17**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Updated the summary Tables for coexistence analysis and MSD test levels

**Decision: Approved.**

**R4-2204745 TP for TR 37.717-11-21: DC\_7A-20A-38A\_n3A-n78A**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2204746 TP for TR 37.717-11-21: DC\_1A-7A-38A\_n3A-n78A**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2204747 TP for TR 37.717-11-21: DC\_1A-7A-20A\_n3A-n78A**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2204748 TP for TR 37.717-11-21: DC\_1A-7A-20A-38A\_n3A-n78A**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2204751 TP for 37.717-11-21: DC\_3\_n41-n258**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206258 (from R4-2204751).**

**R4-2206258 TP for 37.717-11-21: DC\_3\_n41-n258**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2204752 TP for 37.717-11-21: DC\_8\_n41-n258**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206259 (from R4-2204752).**

**R4-2206259 TP for 37.717-11-21: DC\_8\_n41-n258**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2205250 Draft CR for 38.101-3 To remove the duplicated configurations in the spec**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, DT*

**Decision: Endorsed.**

**R4-2205688 TP for TR 37.717-11-21 to include DC\_5\_n1-n78**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Airtel*

**Abstract:**

TP for TR 37.717-11-21 to include DC\_5\_n1-n78

**Decision: Approved.**

**R4-2205689 TP for TR 37.717-11-21 to include DC\_5\_n3-n78**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Airtel*

**Abstract:**

TP for TR 37.717-11-21 to include DC\_5\_n3-n78

**Decision: Approved.**

**R4-2205690 TP for TR 37.717-11-21 to include DC\_8\_n3-n78**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Airtel*

**Abstract:**

TP for TR 37.717-11-21 to include DC\_8\_n3-n78

**Decision: Approved.**

**R4-2205696 TP for TR 37.717-11-21 to include DC\_20\_n1-n67**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 37.717-11-21 to include DC\_20\_n1-n67

**Decision: Approved.**

**R4-2205697 TP for TR 37.717-11-21 to include DC\_20\_n3-n67**

*Type: pCR For: Approval  
 37.717-11-21 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, BT plc*

**Abstract:**

TP for TR 37.717-11-21 to include DC\_20\_n3-n67

**Decision: Approved.**

#### 9.19.3 EN-DC requirements including NR inter CA with FR2 band

**R4-2203994 CR to TS 38.101-3 on corrections to EN-DC configuration DC\_5-7-7\_n78-n257**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0680 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Not pursued.**

**R4-2206260 Draft CR to TS 38.101-3 on corrections to EN-DC configuration DC\_5-7-7\_n78-n257**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR-xxx rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204062 draft CR for DC\_7-8\_n78-n257, DC\_3-3-8\_n78-n257, DC\_7-7-8\_n78-n257, DC\_3-7-8\_n78-n257, DC\_3-3-7-8\_n78-n257, DC\_3-7-7-8\_n78-n257, DC\_3-3-7-7-8\_n78-n257 with n257A up to n257M**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CHTTL*

**Decision: Endorsed.**

**R4-2204063 draft CR for DC\_8\_n1-n257, DC\_3-8\_n1-n257, DC\_3-3-8\_n1-n257, DC\_7-8\_n1-n257, DC\_7-7-8\_n1-n257, DC\_3-7-8\_n1-n257, DC\_3-3-7-8\_n1-n257, DC\_3-7-7-8\_n1-n257, DC\_3-3-7-7-8\_n1-n257**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CHTTL*

**Decision: Endorsed.**

### 9.20 DC of x bands (x=1,2) LTE inter-band CA (xDL/xUL) and y bands (y=3-x) NR inter-band CA

#### 9.20.1 Rapporteur Input (WID/TR/CR)

**R4-2204772 Revised WID on Rel-17 Dual Connectivity (DC) x bands (x=1,2) LTE inter-band CA (xDL/xUL) and y bands (y=3-x) NR inter-band CA**

*Type: WID revised For: Approval  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

**R4-2204773 Big CR to reflect the completed ENDC combinations for 3 bands DL with 3 bands UL into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0689 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

**R4-2204774 TR 37.717-33 v0.7.0**

*Type: draft TR For: Approval  
 37.717-33 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

[draft TR] TR 37.717-33

**Decision:** The document was **for email approval**.

#### 9.20.2 UE RF requirements

**R4-2204749 TP for TR 37.717-33\_DC\_3A\_n40A-n258A**

*Type: pCR For: Approval  
 37.717-33 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

### 9.21 DC of x bands (x=1,2,3) LTE inter-band CA (xDL/1UL) and 3 bands NR inter-band CA (3DL/1UL)

#### 9.21.1 Rapporteur Input (WID/TR/CR)

**R4-2204775 Revised WID on Rel-17 Dual Connectivity (DC) of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL)**

*Type: WID revised For: Approval  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

**R4-2204776 Big CR to reflect the completed DC of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL) into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0690 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation*

**Decision:** The document was **for email approval**.

**R4-2204777 TR 37.717-11-31 v0.7.0**

*Type: draft TR For: Approval  
 37.717-11-31 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

[draft TR] TR 37.717-11-31

**Decision:** The document was **for email approval**.

#### 9.21.2 UE RF requirements

**R4-2204064 draft CR for DC\_8\_n1-n78-n257, DC\_3-8\_n1-n78-n257, DC\_3-3-8\_n1-n78-n257, DC\_7-8\_n1-n78-n257, DC\_7-7-8\_n1-n78-n257, DC\_3-7-8\_n1-n78-n257, DC\_3-3-7-8\_n1-n78-n257, DC\_3-7-7-8\_n1-n78-n257, DC\_3-3-7-7-8\_n1-n78-n257**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CHTTL*

**Decision: Endorsed.**

**R4-2204067 TP for TR 37.717-11-31: update support of DC\_3\_n1-n8-n78, DC\_3-3\_n1-n8-n78, DC\_7\_n1-n8-n78, DC\_7-7\_n1-n8-n78**

*Type: pCR For: Approval  
 37.717-11-31 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: CHTTL*

**Decision: Approved.**

**R4-2204068 TP for TR 37.717-11-31: update support of DC\_3-7\_n1-n8-n78, DC\_3-3-7\_n1-n8-n78, DC\_3-7-7\_n1-n8-n78, DC\_3-3-7-7\_n1-n8-n78**

*Type: pCR For: Approval  
 37.717-11-31 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: CHTTL*

**Decision: Approved.**

**R4-2204109 TP for TR 37.717-11-31: EN-DC\_1-8\_n3-n28-n79**

*Type: pCR For: Approval  
 37.717-11-31 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204111 TP for TR 37.717-11-31: EN-DC\_1-8\_n28-n77-n79**

*Type: pCR For: Approval  
 37.717-11-31 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204117 TP for TR 37.717-11-31: EN-DC\_8\_n1-n3-n77**

*Type: pCR For: Approval  
 37.717-11-31 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204133 TP for TR 37.717-11-31: EN-DC\_11\_n3-n77-n79**

*Type: pCR For: Approval  
 37.717-11-31 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

**R4-2204137 Draft CR for 38.101-3: support of DL n77(2A) in Inter-band EN-DC of DC\_1A\_n3A-n77-n79A**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: SoftBank Corp.*

**Abstract:**

DL n77(2A) is added to DC\_1A\_n3A-n77-n79A..

**Decision: Endorsed.**

### 9.22 DC of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL)

#### 9.22.1 Rapporteur Input (WID/TR/CR)

**R4-2204675 Big CR introduction completed band combinations for Dual Connectivity (DC) of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL)**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0687 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Abstract:**

big CR

**Decision:** The document was **for email approval**.

**R4-2204676 Revised WID on Dual Connectivity (DC) of x bands (x=2,3,4) LTE inter-band CA (xDL/1UL) and 1 NR FR1 band (1DL/1UL) and 1 NR FR2 band (1DL/1UL)**

*Type: WID revised For: Information  
 Source: Samsung*

**Decision:** The document was **for email approval**.

**R4-2204679 TR 37.717-21-22 update version 0.2.0**

*Type: draft TR For: Approval  
 37.717-21-22 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Decision:** The document was **withdrawn**.

**R4-2204701 TR 37.717-21-22 update version 0.2.0**

*Type: draft TR For: Approval  
 37.717-21-22 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Abstract:**

[draft TR] 37.717-21-22

**Decision:** The document was **for email approval**.

#### 9.22.2 UE RF requirements

### 9.23 DC of x bands (x=1,2,3) LTE inter-band CA (xDL/1UL) and 4 bands NR inter-band CA (4DL/1UL)

#### 9.23.1 Rapporteur Input (WID/TR/CR)

**R4-2205243 Revised WID on Rel-17 Dual Connectivity (DC) of x bands (x=1,2) LTE inter-band CA (xDL1UL) and 4 bands NR inter-band CA (4DL1UL)**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

**R4-2205244 TR 37.717-11-41 v0.1.0**

*Type: draft TR For: Approval  
 37.717-11-41 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[draft TR] TR 37.717-11-41To capture the approved TPs in this meeting

**Decision:** The document was **for email approval**.

**R4-2205245 CR on Introduction of completed Dual Connectivity (DC) of x bands (x=1,2) LTE inter-band CA (xDL1UL) and 4 bands NR inter-band CA (4DL1UL) into TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1018 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2206636 CR on Introduction of completed Dual Connectivity (DC) of x bands (x=1,2) LTE inter-band CA (xDL1UL) and 4 bands NR inter-band CA (4DL1UL) into TS 38.101-3**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-XXXX rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

#### 9.23.2 UE RF requirements

**R4-2204118 TP for TR 37.717-11-41: EN-DC\_8\_n3-n28-n77-n79**

*Type: pCR For: Approval  
 37.717-11-41 v0.0.1 CR- rev Cat: (Rel-17)  
  
 Source: SoftBank Corp.*

**Decision: Approved.**

### 9.24 Band combinations for SA NR supplementary uplink (SUL) NSA NR SUL, NSA NR SUL with UL sharing from the UE perspective (ULSUP)

#### 9.24.1 Rapporteur Input (WID/TR/CR)

**R4-2205238 Revised WID on Band combinations for SA NR Supplementary uplink (SUL), NSA NR SUL, NSA NR SUL with UL sharing from the UE perspective (ULSUP)**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

#### 9.24.2 UE RF requirements

### 9.25 Band combinations for Uu and V2X con-current operation

**[102-e][112] NR\_LTE\_V2X\_PC5\_combos, AI 9.25 – Yuan Gao**

**R4-2206312 Email discussion summary for [102-e][112] NR\_LTE\_V2X\_PC5\_combos**

*Type: other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206412 (from R4-2206312).**

**R4-2206412 Email discussion summary for [102-e][112] NR\_LTE\_V2X\_PC5\_combos**

*Type: other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2203915  Revised to R4-2206400 | Draft CR for TS 38.101-1, Introduce new band combinations of V2X\_n1A-n47A | CATT | Endorsed |
| R4-2203916  Revised to R4-2206444 | Draft CR for TS 38.101-3, Introduce new band combination of V2X\_n1A\_47A and V2X\_1A\_n47A | CATT | Endorsed |
| R4-2203913  Revised to R4-2206445 | TP on coexistence study of V2X\_n1A-n47A, V2X\_1A\_n47A and V2X\_n1A\_47A | CATT | Approved |
| R4-2204014  Revised to R4-2206446 | Calculation of MSD for V2X\_n1A-47A and accompanying TP | Qualcomm Incorporated | Approved |

#### 9.25.1 Rapporteur Input (WID/TR/CR)

**R4-2203915 Draft CR for TS 38.101-1, Introduce new band combinations of V2X\_n1A-n47A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2206400 (from R4-2203915).**

**R4-2206400 Draft CR for TS 38.101-1, Introduce new band combinations of V2X\_n1A-n47A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2203916 Draft CR for TS 38.101-3, Introduce new band combination of V2X\_n1A\_47A and V2X\_1A\_n47A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2206444 (from R4-2203916).**

**R4-2206444 Draft CR for TS 38.101-3, Introduce new band combination of V2X\_n1A\_47A and V2X\_1A\_n47A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2203917 TR37.875, Band combinations of V2X con-current operation**

*Type: draft TR For: Approval  
 37.875 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Abstract:**

[draft TR] TR 37.875

**Decision:** The document was **for email approval**.

**R4-2204172 Big CR for 38.101-1, Introduce new band combination for V2X con-current operation**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1003 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **for email approval**.

**R4-2204173 Big CR for 38.101-3, Introduce new band combination for V2X con-current operation**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1004 rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision:** The document was **for email approval**.

#### 9.25.2 UE RF requirements

**R4-2203913 TP on coexistence study of V2X\_n1A-n47A, V2X\_1A\_n47A and V2X\_n1A\_47A**

*Type: pCR For: Approval  
 37.875 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2206445 (from R4-2203913).**

**R4-2206445 TP on coexistence study of V2X\_n1A-n47A, V2X\_1A\_n47A and V2X\_n1A\_47A**

*Type: pCR For: Approval  
 37.875 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Approved.**

**R4-2203914 TP on coexistence study of V2X\_n8A-n47A, V2X\_8A\_n47A and V2X\_n8A\_47A**

*Type: pCR For: Approval  
 37.875 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Approved.**

**R4-2204014 Calculation of MSD for V2X\_n1A-47A and accompanying TP**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Outlines MSD for band 47 for V2X\_n1A-47A

**Decision: Revised to R4-2206446 (from R4-2204014).**

**R4-2206446 Calculation of MSD for V2X\_n1A-47A and accompanying TP**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Outlines MSD for band 47 for V2X\_n1A-47A

**Decision: Approved.**

**R4-2204171 TP for 37.875, Correction on coexistence study of V2X\_3A\_n47A**

*Type: pCR For: Approval  
 37.875 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: CATT*

**Decision: Approved.**

### 9.26 Adding channel bandwidth support to existing NR bands

**[102-e][113] NR\_bands\_R17\_BWs, AI 9.26 – Dominique Evereare**

**R4-2206313 Email discussion summary for [102-e][113] NR\_bands\_R17\_BWs**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206413 (from R4-2206313).**

**R4-2206413 Email discussion summary for [102-e][113] NR\_bands\_R17\_BWs**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206447 WF on adding 100 MHz channel BW in NR-U bands n46 and n96. | Qualcomm | Approved |
| R4-2206448 WF on 70 and 90 MHz channel BW support for bands n48, n77 and n78. | Rogers, AT&T, Verizon | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205068  Revised R4-2206449 | Revised Basket WID on adding channel bandwidth support to existing NR bands | Ericsson | Endorsed |
| R4-2204731 | Draft CR to TS 38.101-1: Addition of notes for band n79 | Samsung | Endorsed |
| R4-2204732 | Draft CR to TS 38.104: Addition of notes for band n79 | Samsung | Withdrawn |
| R4-2205069 | Big CR to TS 38.104: Adding channel BW support in existing NR bands | Ericsson | Withdrawn |
| R4-2205070 | Big CR to TS 38.101-1: Adding channel BW support in existing NR bands | Ericsson | For email approval |
| R4-2204548 | CR n48 NS\_27 30MHz BW error rel 17 Cat-F | Qualcomm | Endorsed |

**R4-2206447 WF on adding 100 MHz channel BW in NR-U bands n46 and n96**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

**R4-2206448 WF on 70 and 90 MHz channel BW support for bands n48, n77 and n78**

*Type: other For: Approval  
 Source: Rogers, AT&T, Verizon*

**Decision: Approved.**

#### 9.26.1 Rapporteur Input (WID/TR/CR)

**R4-2205068 Revised Basket WID on adding channel bandwidth support to existing NR bands**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

This contribution is the revision of the basket WI to include the new requests received before RAN4#102-e meeting and update status of previous requests

**Decision: Revised to R4-2206449 (from R4-2205068).**

**R4-2206449 Revised Basket WID on adding channel bandwidth support to existing NR bands**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

This contribution is the revision of the basket WI to include the new requests received before RAN4#102-e meeting and update status of previous requests

**Decision: Endorsed.**

#### 9.26.2 UE RF requirements

**R4-2204548 n48 NS\_27 30MHz BW error rel 17 CR Cat-F**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2204569 Draft CR for 38.101-1- Addition of 25 MHz for n28 and n83**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CMCC*

**Decision: Not pursued.**

**R4-2204731 Draft CR to TS 38.101-1: Addition of notes for band n79**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Abstract:**

Draft CR to implement the final solution for n79 NBC issue after RAN1 decision

**Decision: Endorsed.**

**R4-2205070 Big CR to TS 38.101-1: Adding channel BW support in existing NR bands**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1015 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This big CR will capture all draft CRs endorsed in RAN4#102-e meeting

**Decision:** The document was **for email approval**.

##### 9.26.2.1 Addition of bandwidth and Tx/Rx requirements

**R4-2204511 Clarification on UE behavior to new channel bandwidth(s) introduced in later release during initial access**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2205316 Discussion on UE support of RF channel bandwidth for bands n48\_n77\_n78**

*Type: discussion For: Discussion  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Rogers Communications Canada, AT&T*

**Abstract:**

Discussion on UE support of RF channel bandwidth for bands n48\_n77\_n78 for frequency 3300-4200 MHz for bandwidth of 70 and 90 MHz

**Decision: Noted.**

##### 9.26.2.2 NR-U 100MHz bandwidth

**R4-2203537 Further discussion on co-existence proposals between NR-U 100 MHz channel raster and Wi-Fi channel bonding in n46 (5 GHz)**

*Type: Work Plan For: Approval  
 Source: Charter Communications, Inc*

**Decision: Noted.**

**R4-2203667 On intra-carrier guard bands for the 100MHz NR-U channel**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2204471 NR-U 100 MHz channelization in band n46**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2205822 Views on NR-U 100MHz in n46**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

#### 9.26.3 BS RF requirements

**R4-2204568 Draft CR for 38.104-Addition of 25 MHz for n28**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: CMCC*

**Decision: Not pursued.**

**R4-2204732 Draft CR to TS 38.104: Addition of notes for band n79**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Abstract:**

Draft CR to implement the final solution for n79 NBC issue after RAN1 decision

**Decision: Withdrawn.**

**R4-2205069 Big CR to TS 38.104: Adding channel BW support in existing NR bands**

*Type: CR For: Agreement  
 38.104 v17.4.0 CR-0368 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This big CR will capture all draft CRs endorsed in RAN4#102-e meeting

**Decision: Withdrawn.**

### 9.27 Introduction of bandwidth combination set 4 (BCS4) for NR

**[102-e][114] NR\_BCS4\_MSD\_Inter\_Band\_ENDC, AI 9.27, 9.28 – Peng Zhang**

**R4-2206314 Email discussion summary for [102-e][114] NR\_BCS4\_MSD\_Inter\_Band\_ENDC**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206414 (from R4-2206314).**

**R4-2206414 Email discussion summary for [102-e][114] NR\_BCS4\_MSD\_Inter\_Band\_ENDC**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206450 WF on improvements to MSD table | Huawei, HiSilicon | Approved |
| R4-2206451 Big CRs to TS 38.101-1 for NR\_BCS4 | Huawei, HiSilicon | Agreed |
| R4-2206452 Big CRs to TS 38.101-3 for NR\_BCS4 | Nokia | Withdrawn |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2203997  Revised to R4-2206453 | CR to TS 38.307 on Release independence of BCS4 and BCS5 | ZTE Corporation | Agreed |
| R4-2205282  Revised to R4-2206454 | Draft CR for 38.101-1 to introduce new tables for MSD due to cross band isolation | Huawei, HiSilicon | Postponed |

**R4-2206450 WF on improvements to MSD table**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2206451 Big CRs to TS 38.101-1 for NR\_BCS4**

*Type: CR For: Agreement  
 38.101-1 v x.x.0 CR-XXX rev Cat: F (Rel-17)  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2206452 Big CRs to TS 38.101-3 for NR\_BCS4**

*Type: CR For: Agreement  
 38.101-3 v x.x.0 CR-XXX rev Cat: F (Rel-17)*

*Source: Nokia*

**Abstract:**

**Decision: Withdrawn.**

#### 9.27.1 Rapporteur Input (WID/TR/CR)

#### 9.27.2 UE RF requirements for BCS4/BCS5

**R4-2203997 CR to TS 38.307 on Release independence of BCS4 and BCS5**

*Type: CR For: Agreement  
 38.307 v17.4.0 CR-0087 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Revised to R4-2206453 (from R4-2203997).**

**R4-2206453 CR to TS 38.307 on Release independence of BCS4 and BCS5**

*Type: CR For: Agreement  
 38.307 v17.4.0 CR-0087 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Agreed.**

**R4-2204053 Discussion on the number of test points for the MSD table improvement**

*Type: discussion For: Approval  
 Source: CHTTL*

**Decision: Noted.**

**R4-2204486 Max aggregated CBW for BCS4/5**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution discusses handling of max aggregated CBW for BCS4/5.

**Decision: Noted.**

**R4-2204509 Discussion on maximum aggregated channel bandwidth for BCS4/5**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2205117 Discussion on the maximum aggregated bandwidth of intra-band CA for BCS4/5**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205118 TP for TR 38.862 to correct the maximum aggregated bandwidth for intra-band C CA with BCS4/BCS5**

*Type: pCR For: Approval  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205280 Discussion on simplifying extended MSD table**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205281 CR for 38.307 to introduce release independent method for BCS4/5**

*Type: CR For: Agreement  
 38.307 v17.4.0 CR-0089 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged (with R4-2206453).**

**R4-2205282 Draft CR for 38.101-1 to introduce new tables for MSD due to cross band isolation**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206454 (from R4-2205282).**

**R4-2206454 Draft CR for 38.101-1 to introduce new tables for MSD due to cross band isolation**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Postponed.**

**R4-2206142 MSD Tables Simplification Proposal for BCS4**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted.**

#### 9.27.3 Discussion of LS on NR CA capability for BCS5 (R2-2109073)

### 9.28 Addition of MSD (Maximum Sensitivity Degradation) for inter-band EN-DC combinations due to added channel bandwidths

#### 9.28.1 Rapporteur Input (WID/TR/CR)

**R4-2205283 CR for 38.101-3 to introduce MSD requirements for missing bandwidths.**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0693 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

#### 9.28.2 UE RF requirements

### 9.29 High-power UE operation for fixed-wireless/vehicle-mounted use cases in Band 12, Band 5, Band 13, Band n5, Band n13, and Band n71

**[102-e][115] LTE\_NR\_HPUE\_FWVM, AI 9.29 – Man Hung Ng**

**R4-2206315 Email discussion summary for [102-e][115] LTE\_NR\_HPUE\_FWVM**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206415 (from R4-2206315).**

**R4-2206415 Email discussion summary for [102-e][115] LTE\_NR\_HPUE\_FWVM**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206455 CR to TS 38.101-1 on PC1 MPR table | Nokia, Huawei | Agreed |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205926  Revised to R4-2206456 | TP for TR 37.828: Filter and PA data for n71, n26 and n12 | T-Mobile USA | Approved |
| R4-2205670 | MPR studies for PCI FWA UEs | Huawei Technologies France | Noted |

**R4-2206455 CR to TS 38.101-1 on PC1 MPR table**

*Type: CR For: Agreement  
 38.101-1 v1x.x.0 CR-XXX rev Cat: B (Rel-17)*

*Source: Nokia, Huawei*

**Abstract:**

**Decision: Agreed.**

#### 9.29.1 General

**R4-2205849 TR 37.828 v0.2.0**

*Type: draft TR For: Approval  
 37.828 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

[draft TR] TR 37.828 v0.2.0

**Decision: Agreed.**

#### 9.29.2 Feasibility study

##### 9.29.2.1 Coexistence study between B5 and adjacent bands

**R4-2203648 TP to TR 37.828: Coexistence study for High-power UE Vs adjacent channel Public Safety operation for fixed-wireless/vehicle-mounted use cases in Band 5 and Band n5**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This text proposal to record some discussion on this objective into the TR 37.828 of this work item was approved at TSG RAN4#101-bis-e. This contribution provides further information on this objective and a text proposal to record the information into TR

**Decision: Approved.**

##### 9.29.2.2 Coexistence study between B13/n13 and adjacent bands

##### 9.29.2.3 Filter with smaller duplex for B13, n13 and n71

**R4-2205926 TP for TR 37.828: Filter and PA data for n71, n26 and n12**

*Type: pCR For: Approval  
 37.828 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Revised to R4-2206456 (from R4-2205926).**

**R4-2206456 TP for TR 37.828: Filter and PA data for n71, n26 and n12**

*Type: pCR For: Approval  
 37.828 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Approved.**

##### 9.29.2.4 PA related to MPR and A-MPR for B13, n13, and n71

#### 9.29.3 UE RF requirements

##### 9.29.3.1 UE REFSENS

##### 9.29.3.2 UE Tx requirements (MOP, MPR, A-MPR, and ACLR)

**R4-2204786 TP to 37.828: FWA MPR**

*Type: pCR For: Approval  
 37.828 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia*

**Decision: Approved.**

**R4-2205670 MPR studies for PCI FWA UEs**

*Type: discussion For: Approval  
 Source: Huawei Technologies France*

**Decision: Noted.**

### 9.30 High power UE (power class 2) for NR inter-band Carrier Aggregation with 2 bands downlink and 2 bands uplink

**[102-e][116] NR\_PC2\_SUL\_CA\_lowMSD, AI 9.30, 9.32 – Bo Liu**

**R4-2206316 Email discussion summary for [102-e][116] NR\_PC2\_SUL\_CA\_lowMSD**

*Type: other For: Information  
 Source: Moderator (China Telecom)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206416 (from R4-2206316).**

**R4-2206416 Email discussion summary for [102-e][116] NR\_PC2\_SUL\_CA\_lowMSD**

*Type: other For: Information  
 Source: Moderator (China Telecom)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**9.30 High power UE (power class 2) for NR inter-band Carrier Aggregation with 2 bands downlink and 2 bands uplink**

**New tdoc**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Title** | **Source** | **Status** |
| R4-2206457 | Revised WID: High power UE for NR inter-band Carrier Aggregation with 2 bands downlink and x bands uplink (x =1,2) | China Telecom | Emai approval |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2203631  Revised to R4-2206458 | Draft CR to 38.101-1 Correct the descriptions on power class requirements applications for UE maximum output power for CA | China Telecom | Endorsed |
| R4-2203829  Revised to R4-2206459 | TP for TR 38.841: CA\_n2-n77 | Verizon | Approved |
| R4-2203830  Revised to R4-2206460 | TP for TR 38.841: CA\_n66-n77 | Verizon | 3830 noted  6460 withdrawn |
| R4-2205726  Revised to R4-2206461 | TP for TR 38.841 to add CA\_n7-n78 | Ericsson, Telstra | Approved |
| R4-2205727  Revised to R4-2206462 | TP for TR 38.841 to add CA\_n28-n78 | Ericsson, Telstra | Approved |
| R4-2205927  Revised to R4-2206463 | Draft CR for 38.101-1: Corrections related to PC2 and PC1.5 with DL CA | T-Mobile USA, Interdigital, Skyworks Solutions, Inc | Endorsed |
| R4-2205928  Revised to R4-2206464 | TP for TR38.841: PC2 and PC1.5 n77 for CA\_n25A-n77A | T-Mobile USA | Approved |
| R4-2205930  Revised to R4-2206465 | TP for TR38.841: PC2 and PC1.5 n77 for CA\_n66A-n77A | T-Mobile USA | Approved |
| R4-2205932  Revised to R4-2206466 | Draft CR for 38.101-1: Addition of PC2 and PC1.5 for combinations with n25 and n77 | T-Mobile USA | Endorsed |
| R4-2205934  Revised to R4-2206467 | Draft CR for 38.101-1: Addition of PC2 and PC1.5 for combinations with n66 and n77 | T-Mobile USA | Endorsed |

**9.32 Power Class 2 UE for NR inter-band CA and SUL configurations with x (x>2) bands DL and y (y=1, 2) bands UL**

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2204019  Revised to R4-2206468 | TP for TR 38.842 Addition of CA\_n2-n66-n77 | AT&T | 4019 Approved  6468 Withdrawn |
| R4-2205728  Revised to R4-2206469 | TP for TR 38.842 to add CA\_n5-n7-n78 | Ericsson, Telstra | Approved |
| R4-2205729  Revised to R4-2206470 | TP for TR 38.842 to add CA\_n7-n28-n78 | Ericsson, Telstra | Approved |

**R4-2206457 Revised WID: High power UE for NR inter-band Carrier Aggregation with 2 bands downlink and x bands uplink (x =1,2)**

*Type: WID revised For: Approval  
 Source: China Telecom*

**Decision:** The document was **for email approval**.

-----------------------------------------------------------------------------------------------------------------------------------------

**R4-2204196 Draft TR 38.841 v0.6.0: High power UE for NR inter-band Carrier Aggregation with 2 bands downlink and x bands uplink (x =1,2)**

*Type: draft TR For: Approval  
 38.841 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: China Telecom*

**Abstract:**

[draft TR] TR 38.841 draft TR for email approval

**Decision:** The document was **for email approval**.

**R4-2204197 Big CR to 38.101-1 Introduce RF requirements for HPUE CA with 2 bands downlink and x bands uplink (x =1,2)**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1005 rev Cat: B (Rel-17)  
  
 Source: China Telecom*

**Abstract:**

big CR for email approval

**Decision:** The document was **for email approval**.

#### 9.30.1 Rapporteur Input (WID/TR/CR)

#### 9.30.2 UE RF requirements

**R4-2203631 Draft CR to 38.101-1 Correct the descriptions on power class requirements applications for UE maximum output power for CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: China Telecom Corporation Ltd.*

**Abstract:**

Correct the descriptions on power class requirements applications in clause 6.2A.1.1, 6.2A.1.2 and 6.2A.1.3 to make them aligned across inter-band CA, intra-band CA, with one uplink carrier

**Decision: Revised to R4-2206458 (from R4-2203631).**

**R4-2206458 Draft CR to 38.101-1 Correct the descriptions on power class requirements applications for UE maximum output power for CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: China Telecom Corporation Ltd.*

**Abstract:**

Correct the descriptions on power class requirements applications in clause 6.2A.1.1, 6.2A.1.2 and 6.2A.1.3 to make them aligned across inter-band CA, intra-band CA, with one uplink carrier

**Decision: Endorsed.**

**R4-2203829 TP for TR 38.841: CA\_n2-n77**

*Type: ToR For: Approval  
 38.841 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon Denmark*

**Decision: Revised to R4-2206459 (from R4-2203829).**

**R4-2206459 TP for TR 38.841: CA\_n2-n77**

*Type: ToR For: Approval  
 38.841 v0.6.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon Denmark*

**Decision: Approved.**

**R4-2203830 TP for TR 38.841: CA\_n66-n77**

*Type: pCR For: Approval  
 38.841 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon Denmark*

**Decision: Noted.**

**R4-2206460 TP for TR 38.841: CA\_n66-n77**

*Type: pCR For: Approval  
 38.841 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon Denmark*

**Decision: Withdrawn.**

**R4-2205725 TP for TR 38.841 to add CA\_n5-n78**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 38.841 to add CA\_n5-n78

**Decision: Approved.**

**R4-2205726 TP for TR 38.841 to add CA\_n7-n78**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 38.841 to add CA\_n7-n78

**Decision: Revised to R4-2206461 (from R4-2205726).**

**R4-2206461 TP for TR 38.841 to add CA\_n7-n78**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 38.841 to add CA\_n7-n78

**Decision: Approved.**

**R4-2205727 TP for TR 38.841 to add CA\_n28-n78**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 38.841 to add CA\_n28-n78

**Decision: Revised to R4-2206462 (from R4-2205727).**

**R4-2206462 TP for TR 38.841 to add CA\_n28-n78**

*Type: pCR For: Approval  
 38.841 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 38.841 to add CA\_n28-n78

**Decision: Approved.**

**R4-2205927 Draft CR for 38.101-1: Corrections related to PC2 and PC1.5 with DL CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA, Interdigital, Skyworks Solutions, Inc.*

**Decision: Revised to R4-2206463 (from R4-2205927).**

**R4-2206463 Draft CR for 38.101-1: Corrections related to PC2 and PC1.5 with DL CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA, Interdigital, Skyworks Solutions, Inc.*

**Decision: Endorsed.**

**R4-2205928 TP for TR38.841: PC2 and PC1.5 n77 for CA\_n25A-n77A**

*Type: pCR For: Approval  
 38.841 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Revised to R4-2206464 (from R4-2205928).**

**R4-2206464 TP for TR38.841: PC2 and PC1.5 n77 for CA\_n25A-n77A**

*Type: pCR For: Approval  
 38.841 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Approved.**

**R4-2205929 TP for TR38.841: PC2 and PC1.5 n77 for CA\_n41A-n77A**

*Type: pCR For: Approval  
 38.841 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Approved.**

**R4-2205930 TP for TR38.841: PC2 and PC1.5 n77 for CA\_n66A-n77A**

*Type: pCR For: Approval  
 38.841 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Revised to R4-2206465 (from R4-2205930).**

**R4-2206465 TP for TR38.841: PC2 and PC1.5 n77 for CA\_n66A-n77A**

*Type: pCR For: Approval  
 38.841 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Approved.**

**R4-2205931 TP for TR38.841: PC1.5 n77 for CA\_n71A-n77A**

*Type: pCR For: Approval  
 38.841 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Approved.**

**R4-2205932 Draft CR for 38.101-1: Addition of PC2 and PC1.5 for combinations with n25 and n77**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Revised to R4-2206466 (from R4-2205932).**

**R4-2206466 Draft CR for 38.101-1: Addition of PC2 and PC1.5 for combinations with n25 and n77**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Endorsed.**

**R4-2205933 Draft CR for 38.101-1: Addition of PC2 and PC1.5 for combinations with n41 and n77**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Endorsed.**

**R4-2205934 Draft CR for 38.101-1: Addition of PC2 and PC1.5 for combinations with n66 and n77**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Revised to R4-2206467 (from R4-2205934).**

**R4-2206467 Draft CR for 38.101-1: Addition of PC2 and PC1.5 for combinations with n66 and n77**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Endorsed.**

**R4-2205935 Draft CR for 38.101-1: Addition of n77 PC1.5 for DL CA\_n71A-n77A**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: T-Mobile USA*

**Decision: Endorsed.**

### 9.31 High power UE (power class 2) for EN-DC with 1 LTE band + 1 NR TDD band

**[102-e][117] NR\_PC2\_EN-DC, AI 9.31, 9.33 – Per Lindell**

**R4-2206317 Email discussion summary for [102-e][117] NR\_PC2\_EN-DC**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206417 (from R4-2206317).**

**R4-2206417 Email discussion summary for [102-e][117] NR\_PC2\_EN-DC**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |
| --- | --- | --- |
| **CR/TP number** | **Name** | **Status** |
| [R4-2205714](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205714.zip)  Revised to R4-2206272 | TP for TR 37.826 to add DC\_28\_n78 | Approved |
| [R4-2205715](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205715.zip)  Revised to R4-2206273 | TP for TR 37.827 to add DC\_3-7\_n78 | Approved |
| [R4-2205717](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205717.zip)  Revised to R4-2206274 | TP for TR 37.827 to add DC\_7-28\_n78 | Approved |
| [R4-2205719](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205719.zip)  Revised to R4-2206275 | TP for TR 37.827 to add DC\_3\_n5-n78 | Approved |
| [R4-2205720](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205720.zip)  Revised to R4-2206276 | TP for TR 37.827 to add DC\_7\_n5-n78 | Approved |
| [R4-2205722](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205722.zip)  Revised to R4-2206277 | TP for TR 37.827 to add DC\_3\_n28-n78 | Approved |
| [R4-2205723](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205723.zip)  Revised to R4-2206278 | TP for TR 37.827 to add DC\_7\_n28-n78 | Approved |

#### 9.31.1 Rapporteur Input (WID/TR/CR)

**R4-2204164 Revised WID on High power UE (power class 2) for EN-DC with 1 LTE band + 1 NR TDD band**

*Type: WID revised For: Approval  
 Source: China Unicom*

**Decision:** The document was **for email approval**.

**R4-2204166 Big CR on introduction of completed PC2 for EN-DC with 1 LTE band + 1 NR TDD band**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0683 rev Cat: B (Rel-17)  
  
 Source: China Unicom*

**Decision:** The document was **for email approval**.

**R4-2204168 TR 37.826 v1.1.0 ENDC\_UE\_PC2\_R17\_NR\_TDD**

*Type: draft TR For: Approval  
 37.826 v1.1.0 CR- rev Cat: (Rel-17)  
  
 Source: China Unicom*

**Abstract:**

[draft TR] TR 37.826

**Decision:** The document was **for email approval**.

#### 9.31.2 UE RF requirements

**R4-2205714 TP for TR 37.826 to add DC\_28\_n78**

*Type: pCR For: Approval  
 37.826 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.826 to add DC\_28\_n78

**Decision: Revised to R4-2206272 (from R4-2205714).**

**R4-2206272 TP for TR 37.826 to add DC\_28\_n78**

*Type: pCR For: Approval  
 37.826 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.826 to add DC\_28\_n78

**Decision: Approved.**

### 9.32 Power Class 2 UE for NR inter-band CA and SUL configurations with x (x>2) bands DL and y (y=1, 2) bands UL

#### 9.32.1 Rapporteur Input (WID/TR/CR)

**R4-2204074 draft TR 38.842 v0.3.0**

*Type: draft TR For: Approval  
 38.842 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon, China Unicom*

**Abstract:**

[draft TR] TR 38.842

**Decision:** The document was **for email approval**.

**R4-2204075 Revised WID on NR\_UE\_PC2\_R17\_CADC\_SUL\_xBDL\_yBUL**

*Type: WID revised For: Approval  
 Source: Huawei, HiSilicon, China Unicom*

**Decision:** The document was **for email approval**.

**R4-2204076 Big CR to 38.101-1 Introduce RF requirements for HPUE CA**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0997 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, China Unicom*

**Decision:** The document was **for email approval**.

#### 9.32.2 UE RF requirements

**R4-2204018 TP for TR 38.842 Addition of CA\_n2-n29-n77**

*Type: pCR For: Approval  
 38.842 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T*

**Decision: Approved.**

**R4-2204019 TP for TR 38.842 Addition of CA\_n2-n66-n77**

*Type: pCR For: Approval  
 38.842 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T*

**Decision: Approved.**

**R4-2206468 TP for TR 38.842 Addition of CA\_n2-n66-n77**

*Type: pCR For: Approval  
 38.842 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T*

**Decision: Withdrawn.**

**R4-2204020 TP for TR 38.842 Addition of CA\_n5-n29-n77**

*Type: pCR For: Approval  
 38.842 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T*

**Decision: Approved.**

**R4-2204021 TP for TR 38.842 Addition of CA\_n5-n66-n77**

*Type: pCR For: Approval  
 38.842 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T*

**Decision: Approved.**

**R4-2204022 TP for TR 38.842 Addition of CA\_n29-n30-n77**

*Type: pCR For: Approval  
 38.842 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T*

**Decision: Approved.**

**R4-2204023 TP for TR 38.842 Addition of CA\_n29-n66-n77**

*Type: pCR For: Approval  
 38.842 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: AT&T*

**Decision: Approved.**

**R4-2204024 DraftCR 38.101-1 Addition of PC2 CA Combinations**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: AT&T*

**Decision: Endorsed.**

**R4-2204218 PC2 MSD NRCA 3DL 2UL for TR 38.842**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2205728 TP for TR 38.842 to add CA\_n5-n7-n78**

*Type: pCR For: Approval  
 38.842 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 38.842 to add CA\_n5-n7-n78

**Decision: Revised to R4-2206469 (from R4-2205728).**

**R4-2206469 TP for TR 38.842 to add CA\_n5-n7-n78**

*Type: pCR For: Approval  
 38.842 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 38.842 to add CA\_n5-n7-n78

**Decision: Approved.**

**R4-2205729 TP for TR 38.842 to add CA\_n7-n28-n78**

*Type: pCR For: Approval  
 38.842 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 38.842 to add CA\_n7-n28-n78

**Decision: Revised to R4-2206470 (from R4-2205729).**

**R4-2206470 TP for TR 38.842 to add CA\_n7-n28-n78**

*Type: pCR For: Approval  
 38.842 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 38.842 to add CA\_n7-n28-n78

**Decision: Approved.**

### 9.33 Power Class 2 for EN-DC with xLTE band + yNR DL with 1LTE+1(TDD) NR UL band (x= 2, 3, 4, y=1; x=1, 2, y=2)

#### 9.33.1 Rapporteur Input (WID/TR/CR)

**R4-2205677 Revised WID EN-DC PC2**

*Type: WID revised For: Endorsement  
 Source: Ericsson*

**Abstract:**

Revised WID EN-DC PC2

**Decision:** The document was **for email approval**.

**R4-2205683 Big CR 38.101-3 EN-DC PC2**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0697 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Big CR 38.101-3 EN-DC PC2

**Decision:** The document was **for email approval**.

**R4-2205687 TR 37.827 v0.4.0 ENDC\_PC2\_R17\_xLTE\_yNR**

*Type: draft TR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

[draft TR] TR 37.827 v0.4.0 ENDC\_PC2\_R17\_xLTE\_yNR

**Decision:** The document was **for email approval**.

#### 9.33.2 UE RF requirements

**R4-2204025 DraftCR 38.101-3 Addition of PC2 EN-DC Combinations**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: AT&T*

**Decision: Endorsed.**

**R4-2204219 PC2 MSD ENDC xLTE yNR for TR 37.827**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Approved.**

**R4-2205715 TP for TR 37.827 to add DC\_3-7\_n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_3-7\_n78

**Decision: Revised to R4-2206273 (from R4-2205715).**

**R4-2206273 TP for TR 37.827 to add DC\_3-7\_n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_3-7\_n78

**Decision: Approved.**

**R4-2205716 TP for TR 37.827 to add DC\_3-28\_n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_3-28\_n78

**Decision: Approved.**

**R4-2205717 TP for TR 37.827 to add DC\_7-28\_n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_7-28\_n78

**Decision: Revised to R4-2206274 (from R4-2205717).**

**R4-2206274 TP for TR 37.827 to add DC\_7-28\_n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_7-28\_n78

**Decision: Approved.**

**R4-2205718 draft CR 38.101-3 to add DC\_3-7-28\_n78 PC2**

*Type: draftCR For: Endorsement  
 37.827 v0.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-3 to add DC\_3-7-28\_n78 PC2

**Decision: Endorsed.**

**R4-2205719 TP for TR 37.827 to add DC\_3\_n5-n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_3\_n5-n78

**Decision: Revised to R4-2206275 (from R4-2205719).**

**R4-2206275 TP for TR 37.827 to add DC\_3\_n5-n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_3\_n5-n78

**Decision: Approved.**

**R4-2205720 TP for TR 37.827 to add DC\_7\_n5-n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_7\_n5-n78

**Decision: Revised to R4-2206276 (from R4-2205720).**

**R4-2206276 TP for TR 37.827 to add DC\_7\_n5-n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_7\_n5-n78

**Decision: Approved.**

**R4-2205721 draft CR 38.101-3 to add DC\_3-7\_n5-n78 PC2**

*Type: draftCR For: Endorsement  
 37.827 v0.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-3 to add DC\_3-7\_n5-n78 PC2

**Decision: Endorsed.**

**R4-2205722 TP for TR 37.827 to add DC\_3\_n28-n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_3\_n28-n78

**Decision: Revised to R4-2206277 (from R4-2205722).**

**R4-2206277 TP for TR 37.827 to add DC\_3\_n28-n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_3\_n28-n78

**Decision: Approved.**

**R4-2205723 TP for TR 37.827 to add DC\_7\_n28-n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_7\_n28-n78

**Decision: Revised to R4-2206278 (from R4-2205723).**

**R4-2206278 TP for TR 37.827 to add DC\_7\_n28-n78**

*Type: pCR For: Approval  
 37.827 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

TP for TR 37.827 to add DC\_7\_n28-n78

**Decision: Approved.**

**R4-2205724 draft CR 38.101-3 to add DC\_3-7\_n28-n78 PC2**

*Type: draftCR For: Endorsement  
 37.827 v0.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, Telstra*

**Abstract:**

draft CR 38.101-3 to add DC\_3-7\_n28-n78 PC2

**Decision: Endorsed.**

### 9.34 High power UE for NR TDD intra-band carrier aggregation in frequency range FR1

#### 9.34.1 Rapporteur Input (WID/TR/CR)

#### 9.34.2 UE RF requirements

### 9.35 Increasing UE power high limit for CA and DC

**[102-e][118] NR\_Power\_Limit\_CA\_DC, AI 9.35 – Gene Fong**

**R4-2206318 Email discussion summary for [102-e][118] NR\_Power\_Limit\_CA\_DC**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206418 (from R4-2206318).**

**R4-2206418 Email discussion summary for [102-e][118] NR\_Power\_Limit\_CA\_DC**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206471 LS on Signaling of increased maximum output power for inter-band CA and DC | Qualcomm Incorporated and InterDigital | Noted |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2203556](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203556.zip)  Revised to R4-2206472 | Draft CR for Introduction of the Increased MOP for CA and DC feature | InterDigital Finland Oy | Not pursued |
| [R4-2204083](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204083.zip) | Draft CR to TS38101-1 Addition of higher power limit for NR inter-band CA | Huawei, HiSilicon | Not pursued |
| [R4-2206106](http://ftp.3gpp.org/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2206106.zip)  Revised to R4-2206473 | Increasing the maximum power limit for inter-band UL CA | Qualcomm Incorporated | Not pursued |

**R4-2206471 LS on Signaling of increased maximum output power for inter-band CA and DC**

*Type: LSout For: Approval  
 Source: Qualcomm, InterDigital*

**Decision: Noted.**

=> Chair: the following is the Chair’s understanding of the WI status

* WI on Increasing UE power high limit for CA and DC: to be

#### 9.35.1 General

**R4-2203688 Increasing UE power high limit for CA and DC**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2204084 Draft LS to RAN2 on new Tx power limit for NR inter-band CA**

*Type: LS out For: Agreement  
 to RAN2, cc RAN1  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205177 LS on new power class for inter-band UL CA and DC**

*Type: LS out For: Approval  
 to RAN2  
 Source: Apple*

**Decision: Noted.**

#### 9.35.2 Feasibility and impact study

**R4-2204082 On Power class ambiguity and new power limit for NR inter-band CA**

*Type: discussion For: Agreement  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2204608 Draft LS to RAN2 on increasing UE power high limit for CA and DC**

*Type: LS out For: Approval  
 to RAN2  
 Source: Ericsson*

**Abstract:**

Draft LS to RAN2 on use of existing signaling mechanism to increase the power limit for CA and DC

**Decision: Noted.**

**R4-2204763 On increasing UE maximum power for NR uplink inter band CA**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2204825 R17 UE power class high limit**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2204939 Further discussion on the increasing UE power high limit for CA and DC**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

#### 9.35.3 UE RF requirements

**R4-2203555 RF requirements proposals for Increased MOP for CA and DC**

*Type: other For: Approval  
 Source: InterDigital Finland Oy*

**Abstract:**

In this contribution we are discussing the RF requirements impact for UE Tx and suggest solutions.

**Decision: Noted.**

**R4-2203556 Draft CR for Introduction of the Increased MOP for CA and DC feature**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: InterDigital Finland Oy*

**Abstract:**

Draft CR for Introduction of the Increased MOP for CA and DC feature.

**Decision: Revised to R4-2206472 (from R4-2203556).**

**R4-2206472 Draft CR for Introduction of the Increased MOP for CA and DC feature**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: InterDigital Finland Oy*

**Abstract:**

Draft CR for Introduction of the Increased MOP for CA and DC feature.

**Decision: Not pursued.**

**R4-2204083 Draft CR to TS38101-1 Addition of higher power limit for NR inter-band CA**

*Type: draftCR For: endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

**R4-2204734 UE RF requirements for the sum method**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution shared specific examples of the requirements for MOP and configured power with the sum method

**Decision: Noted.**

**R4-2204814 Discussion on increasing UE maximum power high limit**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205450 Discussion on increasing power limit of CA and DC**

*Type: other For: Approval  
 Source: NTT DOCOMO INC.*

**Decision: Noted.**

**R4-2205865 Valid 1Tx and 2Tx configurations for increased power option for inter-band CA**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution we provide our input on the different cases based on their UL configurations, which power class applies and what maximum output power can be achieved

**Decision: Noted.**

**R4-2206106 Increasing the maximum power limit for inter-band UL CA**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1028 rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2206473 (from R4-2206106).**

**R4-2206473 Increasing the maximum power limit for inter-band UL CA**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1028 rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Not pursued.**

### 9.36 High power UE (power class 2) for NR FDD band

**[102-e][119] NR\_PC2\_UE\_FDD, AI 9.36 – Basaier Jialade**

**R4-2206319 Email discussion summary for [102-e][119] NR\_PC2\_UE\_FDD**

*Type: other For: Information  
 Source: Moderator (China Unicom)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206419 (from R4-2206319).**

**R4-2206419 Email discussion summary for [102-e][119] NR\_PC2\_UE\_FDD**

*Type: other For: Information  
 Source: Moderator (China Unicom)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206474 WF on MSD mitigation for FDD HPUE | China Unicom | Noted |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2204081  Revised to R4-2206475 | CR to TS38101-1 Addition of PC2 A-MPR for FDD PC2 | Huawei, HiSilicon, China Unicom | Agreed |
| R4-2205178  Revised to R4-2206476 | LS on hybrid duplex operation for PC2 FDD bands | Apple | Noted |
| R4-2204205  Revised to R4-2206477 | CR on power class fallback for FDD HPUE with high MSD | China Unicom | Not pursued |
| R4-2204080  Revised to R4-2206478 | CR to TS38101-1 Addition of MSD for FDD PC2 | Huawei, HiSilicon, China Unicom | Agreed |

**R4-2206474 WF on MSD mitigation for FDD HPUE**

*Type: other For: Approval  
 Source: China Unicom*

**Decision: Noted.**

**GTW on Mar-02**

**Conclusion:** There is no consensus on the hybrid duplex mode in RAN4 in Rel-17.

=> Chair: In Chair’s understanding WI on High power UE (power class 2) for NR FDD band can be closed.

#### 9.36.1 General

**R4-2204762 CR to TS38.307: Release independent for PC2 FDD bands**

*Type: CR For: Agreement  
 38.307 v17.4.0 CR-0088 rev Cat: B (Rel-17)  
  
 Source: ZTE Corporation,China Unicom*

**Decision: Agreed.**

#### 9.36.2 UE RF requirements

**R4-2203690 On hybrid HD/FD operation for PC2 FDD**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2205178 LS on hybrid duplex operation for PC2 FDD bands**

*Type: LS out For: Approval  
 to RAN1, RAN2  
 Source: Apple*

**Decision: Revised to R4-2206476 (from R4-2205178).**

**R4-2206476 LS on hybrid duplex operation for PC2 FDD bands**

*Type: LS out For: Approval  
 to RAN1, RAN2  
 Source: Apple*

**Decision: Noted.**

##### 9.36.2.1 UE maximum output power and power tolerance

**R4-2204761 CR to TS38.101-1: Corrections on MOP tolerance for PC2 FDD n3**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1013 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation,China Unicom*

**Decision: Agreed.**

##### 9.36.2.2 A-MPR requirements

**R4-2204081 CR to TS38101-1 Addition of PC2 A-MPR for FDD PC2**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0999 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206475 (from R4-2204081).**

**R4-2206475 CR to TS38101-1 Addition of PC2 A-MPR for FDD PC2**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0999 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2204221 PC2\_FDD NS\_05 AMPR**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2206096 Bandwidth Parts for Reducing A-MPR for Wideband Carriers**

*Type: discussion For: Discussion  
 Source: Lenovo*

**Decision: Noted.**

##### 9.36.2.3 PC2 MSD requirements (investigation for HD-FDD)

**R4-2203691 HPUE (PC2) REFSENS for n1 and n3**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2204079 On Remaining Issues for PC2 FDD bands**

*Type: discussion For: Agreement  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2204080 CR to TS38101-1 Addition of MSD for FDD PC2**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0998 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206478 (from R4-2204080).**

**R4-2206478 CR to TS38101-1 Addition of MSD for FDD PC2**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0998 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2204203 On MSD mitigation for FDD HPUE**

*Type: discussion For: Approval  
 Source: China Unicom*

**Decision: Noted.**

**R4-2204205 CR on power class fallback for FDD HPUE with high MSD**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1006 rev Cat: B (Rel-17)  
  
 Source: China Unicom*

**Abstract:**

Introducing new IE FddHpuePowerFall to modify configured transmitted power for FDD PC2 HPUE where the sensitivity degradation is significant.

**Decision: Revised to R4-2206477 (from R4-2204205).**

**R4-2206477 CR on power class fallback for FDD HPUE with high MSD**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1006 rev Cat: B (Rel-17)  
  
 Source: China Unicom*

**Abstract:**

Introducing new IE FddHpuePowerFall to modify configured transmitted power for FDD PC2 HPUE where the sensitivity degradation is significant.

**Decision: Not pursued.**

**R4-2204223 PC2\_n3\_REFSENS\_1TX\_2TX**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204764 On HPUE FDD band n3 MSD**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2204813 Discussion on HP UE for FDD bands**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2204938 Further discussion on MSD mitigation of FDD HPUE**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2206143 Reference Sensitivity Degradation for Band n3 PC2**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Noted.**

### 9.37 Additional NR bands for UL-MIMO

**[102-e][120] LTE\_NR\_Other\_WI, AI 9.37, 9.39, 12.7, 12.9.2, 12.9.3 – Jin Wang**

**R4-2206320 Email discussion summary for [102-e][120] LTE\_NR\_Other\_WI**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206420 (from R4-2206320).**

**R4-2206420 Email discussion summary for [102-e][120] LTE\_NR\_Other\_WI**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206479 WF on simultaneous Rx/Tx capability | Huawei, HiSilicon | Approved |
| R4-2206480 WF on feasibility study on max power reduction for PRACH, PUCCH, and full-PRB PUSCH | Sony | Approved |
| R4-2206481 WF on MPR and A-MPR requirements for PC5 NR-U UL MIMO | Skyworks | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2203813  revised to R4-2206482 | Draft CR to 38.101-1 for adding support NR band n77 with UL-MIMO for PC1.5 UPUE | Verizon Denmark | Endorsed |
| R4-2205593  revised to R4-2206483 | revised WID Basket UL MIMO bands | Huawei, HiSilicon | Endorsed |
| R4-2203684  revised to R4-2206484 | draft CR to 38.101-1 on new column for mandatory simultaneous RxTx | Apple | Postponed |
| R4-2205439  revised to R4-2206485 | Draft CR for clarification on per band pair simultaneous RxTx capability for CA and SUL for TS 38.101-1 | NTT DOCOMO INC. | Endorsed |
| R4-2205440 | Draft CR for clarification on per band pair simultaneous RxTx capability for CA and SUL for TS 38.101-1 | NTT DOCOMO INC. | Endorsed |
| R4-2205444 | Draft CR for clarification on per band pair simultaneous RxTx capability for CA and SUL for TS 38.101-1 | NTT DOCOMO INC. | Endorsed |
| R4-2205446  revised to R4-2206486 | Draft CR for clarification on per band pair simultaneous RxTx capability for TS 38.101-3 | NTT DOCOMO INC. | Endorsed |
| R4-2205447 | Draft CR for clarification on per band pair simultaneous RxTx capability for TS 38.101-3 | NTT DOCOMO INC. | Endorsed |
| R4-2205448 | Draft CR for clarification on per band pair simultaneous RxTx capability for TS 38.101-3 | NTT DOCOMO INC. | Endorsed |
| R4-2205449  revised to R4-2206487 | Draft CR for clarification on per band pair simultaneous RxTx capability for DC TS 38.101-1 | NTT DOCOMO INC. | Endorsed |
| R4-2205579  revised to R4-2206488 | TR 38.839 v0.2.0 | Huawei, HiSilicon | Agreed |
| R4-2205581  revised to R4-2206489 | TP for TR 38.839: update for simultaneous RxTx capability | Huawei, HiSilicon | Approved |
| R4-2205592  Revised to R4-2206575 | Big CR for TS38.101-1: introduction of new UL MIMO bands | Huawei, HiSilicon | 6575 Agreed |

**R4-2206479 WF on simultaneous Rx/Tx capability**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2206480 WF on feasibility study on max power reduction for PRACH, PUCCH, and full-PRB PUSCH**

*Type: other For: Approval  
 Source: Sony*

**Decision: Approved.**

**R4-2206481 WF on MPR and A-MPR requirements for PC5 NR-U UL MIMO**

*Type: other For: Approval  
 Source: Skyworks*

**Decision: Approved.**

* Chair: the following are Chair understandings for the status of WIs
* NR\_bands\_UL\_MIMO\_PC3\_R17: to be extended
* DL\_intrpt\_combos\_TxSW\_R17: to be closed
* LTE\_NR\_Simult\_RxTx: to be extended
* LTE\_bands\_R17\_M1\_M2\_NB1\_NB2: to be closed
* NB\_IOTenh4\_LTE\_eMTC6: to be exnteded?

#### 9.37.1 Rapporteur Input (WID/TR/CR)

**R4-2205592 Big CR for TS38.101-1: introduction of new UL MIMO bands**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1024 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206575 (from R4-2205592).**

**R4-2206575 Big CR for TS38.101-1: introduction of new UL MIMO bands**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1024 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2205593 revised WID Basket UL MIMO bands**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206483 (from R4-2205593).**

**R4-2206483 revised WID Basket UL MIMO bands**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

#### 9.37.2 UE RF requirements

**R4-2203813 Draft CR to 38.101-1 for adding support NR band n77 with UL-MIMO for PC1.5 UPUE**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon Denmark*

**Decision: Revised to R4-2206482 (from R4-2203813).**

**R4-2206482 Draft CR to 38.101-1 for adding support NR band n77 with UL-MIMO for PC1.5 UPUE**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Verizon Denmark*

**Decision: Endorsed.**

**R4-2204092 Introducing missing MPR for NR-U PC5 UL MIMO**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution we make proposal on how to introduce PC5 NRU UL MIMO n in Release 17 and is looking for input on what should be done in Release 16 specification

**Decision: Noted.**

**R4-2204093 Draft CR TS 38.101-1: Introducing missing MPR for NR-U PC5 UL MIMO**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Decision: Postponed.**

**R4-2204926 CR for n24 and n99 UL-MIMO PC3**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1014 rev Cat: B (Rel-17)  
  
 Source: Ligado Networks*

**Decision: Agreed.**

### 9.38 Downlink interruption for band combinations to conduct dynamic Tx Switching

#### 9.38.1 Rapporteur Input (WID/TR/CR)

#### 9.38.2 Determination of inter-band uplink CA and EN-DC combinations for which DL interruption is not allowed

### 9.39 Simultaneous Rx/Tx band combinations for CA, SUL, MR-DC and NR-DC

**R4-2205439 Draft CR for clarification on per band pair simultaneous RxTx capability for CA and SUL for TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: NTT DOCOMO INC.*

**Decision: Revised to R4-2206485 (from R4-2205439).**

**R4-2206485 Draft CR for clarification on per band pair simultaneous RxTx capability for CA and SUL for TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: NTT DOCOMO INC.*

**Decision: Endorsed.**

**R4-2205440 Draft CR for clarification on per band pair simultaneous RxTx capability for CA and SUL for TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: NTT DOCOMO INC.*

**Abstract:**

Cat A CR for R4-2205439

**Decision: Endorsed.**

**R4-2205444 Draft CR for clarification on per band pair simultaneous RxTx capability for CA and SUL for TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: NTT DOCOMO INC.*

**Abstract:**

Cat A Mirror CR for R4-2205439

**Decision: Endorsed.**

**R4-2205446 Draft CR for clarification on per band pair simultaneous RxTx capability for TS 38.101-3**

*Type: draftCR For: Endorsement  
 38.101-3 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: NTT DOCOMO INC.*

**Decision: Revised to R4-2206486 (from R4-2205446).**

**R4-2206486 Draft CR for clarification on per band pair simultaneous RxTx capability for TS 38.101-3**

*Type: draftCR For: Endorsement  
 38.101-3 v15.16.0 CR- rev Cat: F (Rel-15)  
  
 Source: NTT DOCOMO INC.*

**Decision: Endorsed.**

**R4-2205447 Draft CR for clarification on per band pair simultaneous RxTx capability for TS 38.101-3**

*Type: draftCR For: Endorsement  
 38.101-3 v16.10.0 CR- rev Cat: A (Rel-16)  
  
 Source: NTT DOCOMO INC.*

**Abstract:**

Cat A Mirror CR for Rel-15 change

**Decision: Endorsed.**

**R4-2205448 Draft CR for clarification on per band pair simultaneous RxTx capability for TS 38.101-3**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: NTT DOCOMO INC.*

**Abstract:**

Cat A Mirror CR for Rel-15 change

**Decision: Endorsed.**

**R4-2205449 Draft CR for clarification on per band pair simultaneous RxTx capability for DC TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: NTT DOCOMO INC.*

**Decision: Revised to R4-2206487 (from R4-2205449).**

**R4-2206487 Draft CR for clarification on per band pair simultaneous RxTx capability for DC TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: NTT DOCOMO INC.*

**Decision: Endorsed.**

#### 9.39.1 Rapporteur Input (WID/TR/CR)

**R4-2203684 draft CR to 38.101-1 on new column for mandatory simultaneous RxTx**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Revised to R4-2206484 (from R4-2203684).**

**R4-2206484 draft CR to 38.101-1 on new column for mandatory simultaneous RxTx**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Postponed.**

**R4-2203685 draft CR to 38.101-3 on new column for mandatory simultaneous RxTx**

*Type: draftCR For: Endorsement  
 38.101-3 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **withdrawn**.

**R4-2205579 TR 38.839 v0.2.0**

*Type: draft TR For: Approval  
 38.839 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[draft TR] TR 38.839

**Decision: Revised to R4-2206488 (from R4-2205579).**

**R4-2206488 TR 38.839 v0.2.0**

*Type: draft TR For: Approval  
 38.839 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[draft TR] TR 38.839

**Decision: Agreed.**

#### 9.39.2 MSD threshold principle

**R4-2203683 MSD threshold for simultaneous Rx/Tx**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2204212 Discussion on the simultaneous Rx/Tx capability for FR1+FR1 FDD-TDD band combination**

*Type: other For: Approval  
 Source: SoftBank Corp.*

**Decision: Noted.**

**R4-2204741 Simultaneous RxTx capability for FR1+FR1 FDD-TDD band combination**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2204815 Discussion on principle for simultaneous Rx Tx band combinations for CA, SUL, MR-DC and NR-DC**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205580 Further consideration on the simultaneous Rx/Tx capability for FR1 TDD-FDD**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205581 TP for TR 38.839: update for simultaneous RxTx capability**

*Type: pCR For: Approval  
 38.839 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206489 (from R4-2205581).**

**R4-2206489 TP for TR 38.839: update for simultaneous RxTx capability**

*Type: pCR For: Approval  
 38.839 v0.2.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

#### 9.39.3 FR2 band combinations with simultaneous Rx/Tx

**R4-2204222 Recap on no support of FR2 simultaneous TxRx discussion**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

Proposal: Implement prior agreement to add NOTE to clarify the minimum requirements apply only when there is non-simultaneous Rx/Tx operation for CA\_n257-n259 and CA\_n258-n260, as CA\_n260-n261.

**Decision: Noted.**

**R4-2204742 Draft CR to TS 38.101-2: On Simultaneous RxTx capability for FR2 inter-band CA**

*Type: draftCR For: Endorsement  
 38.101-2 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204743 Draft CR to TS 38.101-2: On Simultaneous RxTx capability for FR2 inter-band CA**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

**R4-2204744 Draft CR to TS 38.101-2: On Simultaneous RxTx capability for FR2 inter-band CA CA\_n257-n259 and CA\_n258-n260**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Endorsed.**

### 9.40 4Rx support for NR band n8

**[102-e][121] NR\_4Rx\_Bn8\_FWA, AI 9.40 – Jinqiang Xing**

**R4-2206321 Email discussion summary for [102-e][121] NR\_4Rx\_Bn8\_FWA**

*Type: other For: Information  
 Source: Moderator (OPPO)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206421 (from R4-2206321).**

**R4-2206421 Email discussion summary for [102-e][121] NR\_4Rx\_Bn8\_FWA**

*Type: other For: Information  
 Source: Moderator (OPPO)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2204050 | draft CR for release independent for 4Rx support for NR band | CHTTL, China Unicom, ZTE | Endorsed |
| R4-2204051 | draft CR for release independent for 4Rx support for NR band | CHTTL, China Unicom, ZTE | Endorsed |

**Post-meeting**

**R4-2206629 CR for release independent for 4Rx support for NR band**

*Type: CR For: Agreement  
 38.307 v15.9.0 CR-XXX rev Cat: F (Rel-15)  
  
 Source: CHTTL, China Unicom, ZTE*

**Decision: Return to.**

**R4-2206630 CR for release independent for 4Rx support for NR band**

*Type: CR For: Agreement  
 38.307 v16.9.0 CR-XXX rev Cat: F (Rel-16)  
  
 Source: CHTTL, China Unicom, ZTE*

**Decision: Return to.**

**R4-2206631 CR for release independent for 4Rx support for NR band**

*Type: CR For: Agreement  
 38.307 v17.4.0 CR-XXX rev Cat: F (Rel-17)  
  
 Source: CHTTL, China Unicom, ZTE*

**Decision: Return to.**

#### 9.40.1 UE RF requirements (delta\_R\_IB,4Rx)

**R4-2204048 CR for 4 Rx antenna ports support of band n8**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0996 rev Cat: B (Rel-17)  
  
 Source: CHTTL, China Unicom, ZTE, SGS Wireless*

**Decision: Agreed.**

#### 9.40.2 Release independency

**R4-2204049 Further discussion on release independent for 4Rx support for NR band**

*Type: discussion For: Approval  
 Source: CHTTL, China Unicom, ZTE*

**Decision: Noted.**

**R4-2204050 draft CR for release independent for 4Rx support for NR band**

*Type: draftCR For: Endorsement  
 38.307 v15.9.0 CR- rev Cat: F (Rel-15)  
  
 Source: CHTTL, China Unicom, ZTE*

**Decision: Agreed.**

**R4-2204051 draft CR for release independent for 4Rx support for NR band**

*Type: draftCR For: Endorsement  
 38.307 v16.9.0 CR- rev Cat: F (Rel-16)  
  
 Source: CHTTL, China Unicom, ZTE*

**Decision: Agreed.**

**R4-2204052 draft CR for release independent for 4Rx support for NR band**

*Type: draftCR For: Endorsement  
 38.307 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: CHTTL, China Unicom, ZTE*

**Decision: Endorsed.**

## 10 Rel-17 non-spectrum related work items for NR

### 10.1 Multiple Input Multiple Output (MIMO) Over-the-Air (OTA) requirements for NR UEs

#### 10.1.1 General

#### 10.1.2 Performance requirements

##### 10.1.2.1 Performance Requirements for FR1

##### 10.1.2.2 Performance Requirements for FR2

##### 10.1.2.3 MU assessment for FR1 and FR2

#### 10.1.3 Testing methodologies

##### 10.1.3.1 Testing parameters for Performance

##### 10.1.3.2 Optimization of test methodologies

##### 10.1.3.3 Channel model validation

### 10.2 Introduction of UE TRP (Total Radiated Power) and TRS (Total Radiated Sensitivity) requirements and test methodologies for FR1 (NR SA and EN-DC)

#### 10.2.1 General and work plan

#### 10.2.2 Test methodology

##### 10.2.2.1 SA test methodology

##### 10.2.2.2 EN-DC test methodology

##### 10.2.2.3 UE with multiple antennas test methodology

##### 10.2.2.4 Test time reduction

#### 10.2.3 Performance requirements

##### 10.2.3.1 Framework for lab alignment and requirements

##### 10.2.3.2 SA requirements

##### 10.2.3.3 EN-DC requirements

### 10.3 RF requirements enhancement for NR frequency range 1 (FR1)

#### 10.3.1 General

**[102-e][124] NR\_RF\_FR1\_enh\_IntraHPUE, AI 10.3.1, 10.3.2 – Ye Liu**

**R4-2206324 Email discussion summary for [102-e][124] NR\_RF\_FR1\_enh\_IntraHPUE**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206424 (from R4-2206324).**

**R4-2206424 Email discussion summary for [102-e][124] NR\_RF\_FR1\_enh\_IntraHPUE**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW on Feb-23**

**Sub-topic 1-1: clarification in RAN2 spec for *dualPA-Architecture* capability**

**Agreement:** send LS to clarify in RAN2 38.306 that this capability is also used to indicate UE using two LO to support one intra-band UL CA.

| ***dualPA-Architecture***  For band combinations with single-band with UL CA, this field indicates the support of dual PA and dual LO frequency. If absent in such band combinations, the UE supports single PA and single LO frequency for all the ULs. For other band combinations, this field is not applicable. | BC | No | N/A | N/A |
| --- | --- | --- | --- | --- |

**Sub-topic 2-1: 1CC Fall-Back MPR for NC UL CA**

**Issue 2-1-1: Fall-Back MPR for NC UL CA with 1LO Architecture**

* Proposal:
  + NC-ULCA MPR can fallback to 1CC MPR when allocation size >= [9/11.5] MHz for PC3/PC2 respectively else Backoff varies with allocation size according to Figure 2.3-4. The maximum backoff of the 1CC MPR and fallback MPR should be taken.

**Agreement:** NC-ULCA MPR can fallback to 1CC MPR[5.5/6.5]dB when allocation size >= [9/11.5] MHz for PC3/PC2 respectively else Backoff varies with allocation size according to Figure 2.3-4. The maximum backoff of the 1CC MPR and fallback MPR should be taken.

**Issue 2-1-2: PC3 intra-band non-contiguous UL CA MPR requirements for 2LO case**

**Agreement:** R4-2204977 is endorsed.

**Issue 3-1-1: SCell dropping solutions**

* Proposals:
  + Option 1: the configured maximum power Pcmax,f,c for the serving cells are modified by UE-specific configured power limits, and can be modified/enabled/disabled by MAC/CE for fast adaptation to changing radio conditions and applies for concurrent transmissions; the limits can also be made absolute (similar to the cell-specific P-Max) by configuration; a UE capability indicating support of the functionality could be used for indicating support in earlier releases (early indication)
  + Option 2: Power distribution among PCell and SCell proportionally should be considered at NW side according to the RB resource scheduling info for CCs, and the power ratio for PCell and SCell(s) can be configured to UE. The power ratio can be configured via RRC on UE specific basis, and enable/disable via DCI or MAC-CE for fast adaption of the dynamic RB resource allocation for PCell and SCell(s).
  + Option 3: Define new parameter to indicate priority between configured UL cells for the UE. The new parameter for impacting UE power control should be optional for UE under a capability.
  + Option 4: If only measurement issue, no new RAN4 requirement; otherwise, new RAN4 requirement may be considered if RAN1 and RAN4 jointly confirm that SCell dropping can a real field issue.
  + Option 5: If no consensus can be made in a reasonable timeframe, removing the objective in RAN.

***Moderator’s recommendation:***

* Recommended WF
  + TBA based on 1st round discussion

**Discussion:**

Ericsson: propose to adopt Option 1, which addresses the conformance testing issue and field issue. To proponents, clarify why not to see the problem in the test. For FR2, we use the exact same principle. We propose to have measures not to change RAN1. It can be used in the field to ensure SCell not to be dropped.

Huawei: prefer to Option 2. Option 1 and 2 are quite similar with some modification to make it more flexible. For whether the problem is valid in field, could other companies clarify? To find some solid solution, we would like to communicate with RAN1. Some companies thought it is just a measurement issue. Other companies it is issue for both FR1 and FR2.

Apple: we do not disagree that Scell dropping is observed. But the issue was addressed in FR2 device. We have not heared the observation of problem as for FR1. We have no enough information that for FR1 Scell dropping is problem. In the conformance test, the tester will send TPC command to UE and UE has very slow feedback to tester such that tester know the problem and sends the TPC to make the power correct. Our understanding is that this is correct UE behaviour and PCell link can still be maintained. If we do something, PCell performance will be impacted.

Qualcomm: Same as Apple about RAN5 testing. For FR1 vs FR2, the original is RAN5 sets Pcell and scell as the priority. Network can read PHR to ensure which scell will be dropped. We propose Option 3 to set the priority. For option 1, the problem is UE run out of power headroom. If we set the additional limit to the power, it will make the situation worse when UE runs out of the power. I wonder if RAN5 approach sending TPC could be used by the network.

Ericsson: Supposing two cell with the same bandwidth, in the conformance testing, the output power on two cells will be reached and there is consistent TPC. If the power on PCell is continuously increased, UE has to decrease the power on SCell and then drop Scell when the power is -3dB below. We have many discussion for EN-DC. For FR2, the power inaccuracy is so large that RAN5 cannot test it. The network has difficulty to know the power of UE on cells. We propose to set -3dB relative level on device. UE will never be power-limited and dropping does not occur. In the conformance testing, we see the same problem as in field. To Qualcomm, we won’t make the problem worst.

Apple: The mechanism for Scell dropping is pretty clear. In the conformance test, there is no PHR feedback to tester. PHR will be reported per Cell or per CC. If there is PHR, we know the total power. If there is problem, network should not send the TPC anymore. There is difference between conformance test and field.

Huawei: Based on Qualcomm comment, it seems Option 2 is acceptable. For PHR reporting, PHR per carrier is not accurate enough. Regarding the solution, one thing is based on the agreement, I want to check if the previous agreement not to have RAN1 impact is still valid or not. For Option 3, there will be some change on power control mechanism, which needs RAN1 and may not be possible to be done in RAN1 in Rel-17.

Qualcomm: agree with the first part about power control behaviour of Ericsson comment. -3dB power does not save the … It should be a relative number. Network sets the priority. How to limit the power is to address scell dropping.

Ericsson: PHR reporting are indeed available on each cell. PHR is periodic. PHR is based on actual pcmax. The actual pcmax on both cell is subject to open loop control and maybe different on two cells. Network does not know the actual power backoff. The threadhold is relative. Please prefer to previous slide for details. In RAN5 testing, Pcmax is checked and pcmax is reported by PHR, which can be tested by RAN5. Option 3 is also based on relative changes. Option 1 is simple just to set -3dB relative and robust, which does not impact on concurrent transmission.

OPPO: For PHR reporting, the comment is that reporting is slow. We are confused if network is not based on PHR reporting to decide the power than how the network can deactivate or activate. The PHR reporting is per CC or per cell group. It means PHR reporting for two cells can reach the network at the different time, which may cause the problem.

Huawei: We have the similar issue for FR1 and FR2. Based on the discussion in FR1 including WI increasing power limit, we do not need consider inter-band CA case but just focus on intra-band case.

Ericsson: To OPPO, network indeed uses the power headroom report. If headroom is large, there is no need to active the limit. But when it is very close to maximum level, it is very difficult to active or de-active based on PHR reporting. PHR can be used to assistant for network. Whether to define the same PHR is other topic. For itner-band case, the total power is the sum. PHR can assist network to do fallback for high power UE. It is very difficult to monitor using the existing signaling. Defining the PHR for CA is with limit value and may assist the other problem.

Qualcomm: It seems there is solution but different to be implemented by network? This should be addressed in RAN1.

Ericsson: The issue was identified by RAN5. RAN5 conformance test issue is good enough as the issue statement. For RAN1 discussion, it is different from the discussion for EN-DC. RAN1 adopted the similar solution as EN-DC for CA, which has consequence.

OPPO: How does network activate or de-activate the limit without PHR reporting? For PHR for intra-band CA, if Pcmax is the same for single cell as for CA, it does not matter.

Apple: Regarding the solution proposed in RAN4, if we set PCell -3dB below pcmax, it is basically to equalize the priority between PCell and SCell, which is against the will of RAN1. SCell dropping seems become incorrect UE behaviour if we introduce the new requirement.

Qualcomm: There is cell specific p-max, which is the same for all UEs. In the conformance test, there is one UE. RAN5 can use it to limit the power. In RAN5, when the power is almost beyond, RAN5 will decrease power by TPC. Why can the solution of network to decrease the power of other cell not be used?

Huawei: It seems that Option 2 can address the other issues.

Ericsson: regarding using power headroom, if there are three cell and two cells are activated, the limit will…. We won’t change the RAN1 spec. We only change the pcmax. By setting -3dB, UE will never be power-limited. Regarding conformance test, we want to ensure transmissions at the proper on both pcell and scell within the power limit. Regarding TPC, the problem occur when there are very closed powers at both cells.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206503 draft LS on clarification of dualPA-Architecture capability | OPPO | Approved |
| R4-2206504 WF on Scell dropping and PHRCA | Huawei, HiSilicon | Noted |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2204979](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204979.zip)  Revised to R4-2206505 | Adding intra-band non-contiguous UL CA requirements for PC2 2LO and PC2&3 1LO case | vivo, Huawei, Skyworks | Endorsed |
| R4-2205587 | Big CR for TS 38.101-1 introduction of PC2 intra-band non-contiguous UL CA | Huawei, HiSilicon, Qualcomm, Skyworks, vivo | Agreed |
| [R4-2205588](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205588.zip)  Revised to R4-2206506 | Big CR for TS 38.101-1 contiguous CA with UL MIMO for power class 2 | Huawei, HiSilicon | Agreed |
| [R4-2205590](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205590.zip) | draft CR for TS 38.101-1 Power configuration for CA | Huawei, HiSilicon | Not pursued |
| [R4-2205591](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205591.zip) | draft CR for TS 38.101-2 Power configuration for CA | Huawei, HiSilicon | Not pursued |
| R4-2204610  Revised to R4-2206297 | Introduction of power limits for serving cells of UL CA | Ericsson | Not pursued |
| R4-2204611  Revised to R4-2206298 | Introduction of power limits for serving cells of UL CA | Ericsson | Not pursued |

**R4-2206503 draft LS on clarification of dualPA-Architecture capability**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Approved.**

**R4-2206504 WF on Scell dropping and PHRCA**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Discussion:**

Ericsson: this is critical for network perspective. It is more important than PHR\_CA.

Huawei: SCell dropping is important issue.

Conclusion: No consensus for SCell dropping in Rel-17.

**Decision: Noted.**

---------------------------------------------------------------------------------------------------------------------------------------------

**R4-2203824 CR on UL MIMO coherence for Tx switching**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0993 rev Cat: F (Rel-17)  
  
 Source: China Telecom*

**Decision: Agreed.**

#### 10.3.2 RF core requirements

##### 10.3.2.1 UL MIMO configuration for SUL band configurations

##### 10.3.2.2 HPUE for TDD intra-band contiguous UL CA

##### 10.3.2.3 HPUE for TDD intra-band non-contiguous UL CA

**R4-2204225 1CC Fall-Back MPR for NC UL CA with 1LO Architecture**

*Type: discussion For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204827 R17 FR1 clarification of dualPA-architecture capability**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2204977 Corrections on PC3 intra-band non-contiguous UL CA requirements for 2LO case**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: vivo, Huawei, Skyworks*

**Decision: Endorsed.**

**R4-2204978 Corrections on PC3 intra-band non-contiguous UL CA requirements for 2LO case**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: A (Rel-17)  
  
 Source: vivo, Huawei, Skyworks*

**Decision: Endorsed.**

**R4-2204979 Adding intra-band non-contiguous UL CA requirements for PC2 2LO and PC2&3 1LO case**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: vivo, Huawei, Skyworks*

**Decision: Revised to R4-2206505 (from R4-2204979).**

**R4-2206505 Adding intra-band non-contiguous UL CA requirements for PC2 2LO and PC2&3 1LO case**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: vivo, Huawei, Skyworks*

**Decision: Endorsed.**

**R4-2205587 Big CR for TS 38.101-1 introduction of PC2 intra-band non-contiguous UL CA**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1022 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Qualcomm, Skyworks, vivo, LG Electronics*

**Abstract:**

Reserved big CR based on endorsed CR R4-2202298, it also depends on the agreement of draft CR for fallback requirement to be discussed in this meeting.

**Decision: Agreed.**

##### 10.3.2.4 Intra-band UL contiguous CA for UL MIMO (n41C and n78C)

**R4-2205588 Big CR for TS 38.101-1 contiguous CA with UL MIMO for power class 2**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1023 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206506 (from R4-2205588).**

**R4-2206506 Big CR for TS 38.101-1 contiguous CA with UL MIMO for power class 2**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1023 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, LG Electronics*

**Decision: Agreed.**

##### 10.3.2.5 Solution preventing transmission power dropping on cell with lower priority

**R4-2203689 SCell dropping issue for UL CA**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2204966 Further discussion on Scell dropping**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

###### 10.3.2.5.1 FR1 related

**R4-2204609 Further details on resolving the Scell dropping (power prioritization) problem by power limits: signaling**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Further background to the solution of the Scell power prioritization problems by means of serving cell power limits (both FR1 and FR2 explained)

**Decision: Noted.**

**R4-2204610 Introduction of power limits for serving cells of UL CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to introduce power limits for serving cells of UL CA to prevent power reduction of serving cells for power limited UEs when the power reduction is enabled (FR1)

**Decision: Revised to R4-2206297 (from R4-2204610).**

**R4-2206297 Introduction of power limits for serving cells of UL CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to introduce power limits for serving cells of UL CA to prevent power reduction of serving cells for power limited UEs when the power reduction is enabled (FR1)

**Decision: Not pursued.**

**R4-2204826 R17 FR1 CA PHR reporting in SCC drop**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2205589 On SCell dropping**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205590 draft CR for TS 38.101-1 Power configuration for CA**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

###### 10.3.2.5.2 FR2 related

**R4-2204611 Introduction of power limits for serving cells of UL CA**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to introduce power limits for serving cells of UL CA to prevent power reduction of serving cells for power limited UEs when the power reduction is enabled (FR2)

**Decision: Revised to R4-2206298 (from R4-2204611).**

**R4-2206298 Introduction of power limits for serving cells of UL CA**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to introduce power limits for serving cells of UL CA to prevent power reduction of serving cells for power limited UEs when the power reduction is enabled (FR2)

**Decision: Not pursued.**

**R4-2205591 draft CR for TS 38.101-2 Power configuration for CA**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

**R4-2205885 Discussion on UE behavior and root cause for dropping SCell**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

#### 10.3.3 RRM core requirements

#### 10.3.4 RRM performance requirements

### 10.4 NR RF requirement enhancements for frequency range 2 (FR2)

#### 10.4.1 General

**[102-e][125] NR\_RF\_FR2\_enh2\_Part\_1, AI 10.4.1, 10.4.2 – Petri Vasenkari**

**R4-2206325 Email discussion summary for [102-e][125] NR\_RF\_FR2\_enh2\_Part\_1**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206425 (from R4-2206325).**

**R4-2206425 Email discussion summary for [102-e][125] NR\_RF\_FR2\_enh2\_Part\_1**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW on Feb-23**

**Sub-topic 2-1: REFSENS**

**Issue 2-1-1: EIS spherical coverage**

* Proposals *(Can support more than one)*
  + Option 1: REFSENS requirements is specified based on normalized equal PSD. The requirements on each CC do not have to be met simultaneously at single direction. R4-2204361, R4-2204575
  + Option 2: It is proposed to differentiate PSD based on different UE architectures, i.e. 6dB PSD difference for UE implemented with single RF chain, and requirements including PSD difference similar to IBM for inter-band CA with CBM for different frequency group.
  + Option 3: specify sensitivity verification rule for inter-band CA supporting ‘both’ beam management capability as following:
  + Peak EIS should be verified with both IBM and CBM
  + if the measured EIS spherical coverage of CBM has already satisfied the requirements of IBM, then the IBM EIS spherical coverage verification is not necessary
* Recommended WF
  + Option 1 to be discussed and agreed in GTW.

**Discussion:**

Oppo: Option 1 is good but needs some clarification. “Normalized equal PSD” needs clarification. There may be some conflict between “normalized equal PSD” and second part of proposal. Option 1 means simultaneous reception with different directions.

Vivo: we are OK with the second part of Option 1. Option 2 of PSD statement is acceptable. If UE reports F\_inter, UE can be tested with equal PSD, otherwise UE will be tested with unequal PSD.

Huawei: we have similar question as OPPO. Normalized PSD is not clear. For PSD condition, the requirement should be defined to ensure performance under the real scenario. Regarding how to distinguish PSD condition, we are open. Either Fs-inter or UE reporting IBM/both can be used.

Samsung: for normalized equal PSD, it means the simultaneous EIS condition. It does not mean simultaneous requirements on the same direction. Fs\_inter is optional capability. If UE does not report F-inter, it will preclude UE to implement single chain. Option 3 does not conflict with other options.

DOCOMO: we support Option 1. For second part of option 1, it is for peak EIS requirement. It is not proper to have such agreement for spherical coverage. We also support combine Fs\_Inter capability and PSD condition.

Apple: In general for Rx requirement for CBM, we prefer to equal PSD condition. What is the meaning of normalized PSD? On Option 3, we need further discuss the solution when UE reports both CBM and IBM.

Samsung: for other Rx requirement, absolute PSD is set. It is not practical to set the equal absolute PSD.

Mediatek: based on Samsung comment, we can support option 1.

Ericsson: need clarification on normalized PSD. In our understanding, it means we sample the case for collocation. CBM is not relevant. It does not mean equal PSD on bands. They may be similar. For requirements, UE can meet the requirements on the cell simultaneously. Based on the fact on CBM only, if UE only support CBM for band combinations, then we mimic the case with similar input power on two bands on the same time. For device also supporting IBM, it can deal with non-colocation case. Then we set the different requirement with different input level but UE needs meeting the requirements simultaneously with 10dB difference. For Fs\_inter, we do not agree to introduce such parameter. If UE reports to support a certain band combination, UE needs support all the cases with various separation. Option 3 is RAN5 topic. RAN5 can take action.

Qualcomm: We do not prefer to have package with Fs\_inter. We can focus on the discussion about Fs\_inter. Whether 2-1 applies to L+L.

Nokia: L+L only.

LGE: Support Option 1 as package with Fs\_inter.

ZTE: Support option 1 with Samsung clarification. For Option 2, it seems we are going to define the different requirements for different architecture.

Sony: We are fine with Option 1. To DOCOMO, the second part impacts the spherical coverage. We wonder if the package with Fs\_inter is a good package.

Nokia: for PSD difference, it is minor thing which can be agreed in either RAN4 or RAN5. Maybe we do not need CBM.

Apple: To Samsung, with the understanding, we are aligned for set-up. For Fs-inter, we observe the problem. When discussing delta-RIBp/s, we can apply different relaxation. At least the requirement should take the separation into account. For capability, we agree with Ericsson.

Huawei: Suggestion from Ericsson can be considered as solution. Some indication is needed. For Fs\_inter, that is concept is adopted for contiguous CA. We do not see the difference between Fs for intra-CA and Fs\_inter.

Ericsson: Fs\_inter should be in the context to set relaxation for the requirements. In the best case there is 3.5dB which 1/3 decrease of coverage of DL. We can discuss the impact for CBM only. If the UE indicates the band combinations, UE needs fulfil all the requirements for band combination. In most reference test, we set the input power. It achieves 90%. But there is slightly difference from spherical coverage.

OPPO: we should use more precise wording for normalized PSD.

Qualcomm: Encourage companies to look into CRs from Ericsson and Nokia for wording. Need clarify the definition of Fs\_inter.

Nokia: PSD issue would not be RAN5 only issue.

**Tentative Agreement:**

* For UE only supporting CBM for band combinations, the requirement with equal PSD on cells will be applied
* For UE supporting IBM, the requirement with the different input levels, i.e, [10]dB difference, will be applied.
  + The additional relaxation will be applied with respect to frequency separation.

**Sub-topic 2-2: Fs\_inter**

**Issue 2-2-1: Fs\_inter**

* Proposals *(Can support more than one)*
  + Option 1: Define the minimum requirement based on the largest frequency separation between two CCs. R4-2204035
  + Option 2: For REFSENS requirements for CA within same frequency group, Fs\_Inter capability is introduced for performance functional separation. R4-2204361, No additional EIS relaxation specific for frequency separation factor is acceptable R4-2204229, R4-2204940 .
  + Option 3: Fs\_inter capability is optionally reported by UE, and should be considered by NW, but to keep both NW scheduling and UE implementation flexibility, it is proposed to agree that once configured CCs exceed this capability then UE behavior is considered to be undefined.
  + Option 4: If Fs\_inter is to be introduced, it is proposed to refine previous agreement of Max input level, ACS and IBB verification rules as following:
    - if the measured Max input level, ACS and IBB has already satisfied the requirements with IBM, then the verification with CBM is not necessary
* Recommended WF
  + None as compromise CR seems not acceptable

**Discussion:**

OPPO: support Option 3. If network configures in the way beyond the separation UE can support, how does UE do?

Vivo: Fs\_inter is a functional capability. Support 2 and 3.

Apple: our preference is not to define Fs\_inter rather defining relaxation based on separation.

Huawei: prefer Option 2 without relaxation based on capability.

Mediatek: prefer Option 2. Option3, what does it mean by saying “undefined”.

Qualcomm: do not prefer to introduction of Fs\_inter. We have CBM discussion for two release now. If Fs\_inter is defined, then the L\_H requiremetns will be based on multi-chain architecture.

LGE: Support Option 2 and 3. If configured separate is beyond the capability, the additional relaxation can be considered.

Ericsson: Option 1. We are ready to discuss the relaxation level. We should consider the feasibility of the feature when discussing the relaxation. 4dB relaxation means 1/3 coverage loss.

Nokia: We understand the reason not to have Fs\_inter. The relaxation should be considered.

OPPO: The requirement can only ensure the performance within the Fs\_inter. When the configuration is beyond Fs\_inter,…

Huawei: the relaxation for different band combiantions would be different and should be checked one by one.

**Tentative Agreement:**

* For UE only supporting CBM for band combinations [within the same frequency group], the requirement with “equal” PSD on cells will be applied
  + Alternative 1: The additional relaxation will be applied with respect to frequency separation.
  + Alternative 1a: The additional relaxation will be applied with respect to frequency separation.
    - The signalling to indicate that the additional relaxation is needed.
  + Alternative 2: the requirement without relaxation is applied to scenario with the separation within Fs\_inter
    - Introduce the Fs\_inter capability.
  + Alternative 3: define the requirement without the relaxation only under condition of a certain separation (within the same frequency group)
    - Add note that beyond this separation no requirement is specified in Rel-17
* For UE supporting IBM or both IBM and CBM for band combinations, the [IBM] requirements [except for any sensitivity related requirements] different input PSD levels will be applied.

**Sub-topic 2-3: BMRS configuration**

**Issue 2-3-1:**

* Proposals *(Can support more than one)*
  + Option 1: Use SSB+CSI RS as the BMRS and use DMRS at the other band as the QCL-D target reference signal.
  + Option 2: The REFSENSE and spherical coverage will only be tested with worst case of BMRS side condition, i.e., the BMRS is only located in the untested band, to reduce the test complexity.
  + Option 3: If no consensus reached for the BMRS conditions, leave it to RAN5 as a measurement issue.
  + Option 4: For CBM, all the reference signals in Band\_without\_BMRS shall traces its QCL type-D dependence to SSB and/or CSI-RS in Band\_with\_BMRS by certain manner and For CBM. Be more specific, DMRS in Band\_without\_BMRS traces TRS of Band\_without\_BMRS, and then traces its QCL type-D dependence to SSB and/or CSI-RS in Band\_with\_BMRS, R4-2204230.
* Recommended WF
  + None

**Discussion**:

Mediatek: Four companies prefer Option 3. We prefer Option 4. For CBM, maybe can agree “all the reference signals in Band\_without\_BMRS shall traces its QCL type-D dependence to SSB and/or CSI-RS in Band\_with\_BMRS by certain manner”.

Qualcomm: we prefer Option 3. We do not need additional agreement. RAN5 can do their job.

Apple: For option 4, Mediatek comment helps. Option 3 is always fall-back.

OPPO: previously we agreed different BMRS types will have no impact on DL performance.

VIVO: prefer Option 3. The intention of Option 4 is to reduce the test burden.

Mediatek: In RAN4, we lack the configuration for CBM. We want to make it clear in RAN4.

Huawei: we prefer to Option 3.

Qualcomm: How can we do as next step if we agree with the tentative agreement.

Mediatek: need specify side condition in 38.101-2.

OPPO: we first try to capture the agreement. If not acceptable, RAN5 can do.

**Agreement:**

* All the reference signals in Band\_without\_BMRS shall traces its QCL type-D dependence to SSB and/or CSI-RS in Band\_with\_BMRS by certain manner.

**Sub-topic 2-4: Band combination**

**Issue 2-4-1:**

* Proposals
  + Option 1: Wait for the operator demands before defining requirements for specific band combinations within same frequency group. R4-2205122
  + Option 2: If an example band combination, i.e., CA\_n258-n261, is required strongly, the requirements for both CBM and IBM should be introduced. R4-2205122
  + Option 3: it is preferred not to explicitly introduce band combination, e.g. n258+n261into core specification without operator request, but to define CBM requirements in such manner that both same frequency group and different frequency group are applicable. R4-2204575
  + Option 4: Proposal 3: Introduce requirement of n258-n261 as an example band combination in TR and with note as follows: Note: the ΔRIB,S,n and ΔRIB,P,n can be revised with sufficient technical justification when the band combination is request by operator. R4-2204940
* Recommended WF
  + Go with CA\_n258-n261 for band combination within same f-group pointed out by ZTE, and requested by USC in WID R4-2118205.

**Discussion:**

Apple: we need two things before agreement. We need clear formal operator requirements for n258+n261. The other thing is that we need to figure out how to address the Fs\_inter issue.

Nokia: There is request which is captured in basket WI. We can focus on CA\_n258-n261.

ZTE: The CA\_n258-n261 is in the basket WI. There is clear operator demand. For CBM and IBM, the information was not captured.

Mediatek: we need ask US cellular whether they prefer CBM and IBM.

Samsung: For this band combination, if we introduce this band combination in the basket, it is only for IBM.

Qualcomm: we agree with that IBM requirement should be introduced.

Huawei: we do not need indicate that the band combination is for CBM or IBM. UE can indicate capability. We can consider both CBM and IBM requirements.

Xiaomi: Agree with Huawei. Both CBM and IBM should be done.

OPPO: agree with Huawei and Xiaomi. Why do we need ask operator to clarify whether it is CBM or IBM. It is related to UE capability.

Mediatek: we need clarify the operator demand. For FR2, there are many possibilities.

Sony: We have the same understanding as OPPO.

**Sub-topic 3-1: Requirement setting for CBM between frequency groups**

**Issue 3-1-1: Requirement setting for CBM between frequency groups**

* Proposals
  + Option 1: For CBM between different band groups is not feasible with single-chain architecture. The requirement definition for inter-band DL CA between different band groups should only be based on multi-chain architecture, R4-2203699 and R4-2204941 partly. And Sensitivity requirements for CBM UEs in an H+L combination shall be based on a multi-chain architecture. R4-2206056
  + Option 2: For UEs indicating IBM and ‘both’ capability for a BC across different frequency groups, then unequal PSD is used, while for UEs indicating CBM-only the input levels resembling an equal PSD are used, R4-2204036.
  + Option 3: CBM requirement shall NOT imply additional request on beam peak direction of each band compared to IBM; and CBM requirement shall NOT imply additional request on untested band EIS at specific AoA of tested band. R4-2204230
  + Option 4: Sensitivity requirements for CBM UEs in an H+L combination shall be based on a multi-chain architecture. R4-2206056
* Recommended WF
* Option 1 and 4 to be discussed and agreed in GTW.

**Discussion:**

Ericsson: we prefer the same approach for collocation and non-collocation. We prefer Option 2.

Qualcomm: if assuming multi-chain, Option 4 and 1 are super-set.

Huawei: we tend to agree with Ericsson. Option 2 is OK for us.

OPPO: What does it mean if we only consider multi-chain?

Apple: Support Option 1, which includes Option 4. It is better how to handle CBM first and the applicability.

Sony: try to agree on Option 1 and option 4.

Apple: need clarify “unequal PSD”

Huawei: we need unified framework. We need find the different way.

Samsung: we cannot agree on Option 1 and 4. It is coupled with issue 2-1.

OPPO: is it CBM or IBM based?

**Tentative agreement**: Agree on Option 1 and Option 4.

* FFS on Option 2
  + Need clarification on what the “unequal PSD” is

**GTW Feb-24**

**Sub-topic 2-5: in-gap exemption for ACS and IBB**

**Issue 2-5-1:**

* Proposals
  + Option 1: for adjacent or overlapped band combinations, in-gap exemption for ACS and IBB apply for FR2 inter-band CA no matter IBM or CBM. R4-2204575
  + Option 2: Other
* Recommended WF
  + None

**Discussion:**

Samsung: ACS and IBB have no relation with beam measurement, which was supported by companies. The exemption is not dependent on beam management.

Apple: Option 1 is intent to apply UE to supporting inter-CA with common architecture?

Qualcomm: Is Option 1 intent to change the IBM requirements for ACS and IBB?

Samsung: this is not limited to common architecture. It is not related to beam management and architecture. It intends to distinguish CA from single carrier. When we introduce the IBM requirements, only different frequency group was considered. But now we are considering the same frequency group. We do not intend to change the previous requirements with different frequency group.

OPPO: in-gap exemption requirement was defined for intra-band NC CA. It seems Samsung propose to reuse the same concept for the same frequency group. If that is the intention, we are OK.

Qualcomm: We are reluctant to change the existing IBM requirements. There are other way to address it.

Ericsson: To OPPO, the intention in Ericsson and Sony CRs is exact to mimic the case of intra-band NC CA to apply it to inter-band with the same frequency group (overlapping band).

Samsung: we confirm the understanding of Samsung. To Qualcomm, we are open to the solution either use the intra-band NC CA approach or adopting Nokia/Qualcomm CRs.

Ericsson: We are also fine with other alternative.

Apple: why do you propose the overlapping condition rather than in-gap concept we have already agreed?

OPPO: We should consider CMB.

Qualcomm: to Apple, reusing the in-gap concept is the straightforward. We can use it. The concern is why we should have case for IBM. The gap should not exist when the gap is in-between.

Apple: it is reasonable to consider

**Agreement:**

* Apply the in-gap exemption for the CBM requirements of ACS and IBB for inter-band CA within the same frequency group
  + Refer to R4-2114960
* For IBM requirements, the following changes in R4-2204789 are agreeable

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* No changes \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**7.5A.3 Adjacent channel selectivity for Inter-band CA**

For inter-band carrier aggregation with one component carrier per operating band and the uplink assigned to one NR band, the adjacent channel requirements are defined with the uplink active on the band other than the band whose downlink is being tested. The UE shall meet the requirements specified in clause 7.5 for each component carrier while all downlink carriers are active. The requirement does not apply if the interferer of the band being tested overlaps any part of the component carrier in the other band.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* No changes \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**7.6A.2.3 In-band blocking for Inter-band CA**

For inter-band carrier aggregation with one component carrier per operating band and the uplink assigned to one NR band, the in-band blocking requirements are defined with the uplink active on the band other than the band whose downlink is being tested. The UE shall meet the requirements specified in clause 7.6.2 for each component carrier while all downlink carriers are active. The requirement does not apply if the interferer of the band being tested overlaps any part of the component carrier in the other band.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of changes \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

**Sub-topic 4-1: Rx beam switch value**

**Issue 4-1-1:**

* Proposals
  + Option 1: 60 ns
  + Option 2: 200ns
  + Option 3: Other
* Recommended WF
  + Can we specify 150 ns?

**Discussions:**

Apple: Option 2.

Huawei: Option 2.

Qualcomm: Option 2.

Nokia: Option 2 is compromise.

**Agreement:** For CBM, Rx beam switch value is 200ns.

**Issue 5-1: Band combo**

* Proposals
  + Option 1: UL CA\_n260-n261 is included in this WI in addition to CA\_n257-n259.
  + Option 2: Specify only CA\_n257-n259.
* Recommended WF
  + Option 1

**Discussions:**

LGE: how to handle the band combination.

Verizon: we would like to consider it in FR2 enh. WI.

ZTE: Treating it in FR2 enh WI is OK for me.

Apple: if we handle band combination request in the basket maintenance phase, and it is related to core features, does it mean the extension of core?

**Agreement:** RAN4 recommends to include UL CA\_n260-n261 is included in this WI in addition to CA\_n257-n259.

**Issue 5-2: power class**

* Proposals
  + Option 1: PC3 is specified
  + Option 2: PC5 is specified.
  + Option 3: Both PC3 and PC5 are specified.
* Recommended WF
  + As there are concerns about total power for PC3, Moderator propose to exclude PC3 and focus on non-handheld device types such as PC1/PC2/PC4/PC5 and a possible new power class similar to PC3 but for non-handheld form factor like for laptops. The possible new power class is less affected by thermal/power/MPE issues and thus could maintain the PC3 EIRP/EIS requirement (without power concept but with CA relaxations).
  + Is it acceptable to specify PC1, PC2, PC4, PC5 and the new power class?

**Discussion:**

DOCOMO: I am afraid that we cannot agree to exclude PC3. The CA was discussed based on PC3 feature. PC3 should be one candidate baseline UE type. More operators preferred Option 3.

LGE: I would like to include PC2. UE type can be handed in WID. We need revision for WID to include UE types.

Apple: we are aligned with moderator suggestion. MPR needs more time. We cannot complete the whole scope without down-selection.

OPPO: we are not against the way forward. I would like to know the plan. All the previous analysis is based on PC3. Even if we extend by one meeting, are we confident to complete the work for new UE type. In the way forward, we do not understand in which level the impact of thermal, … on PC1.

Qualcomm: Many companies raised the good point that DL CA is specified for PC3. It just means that there is no requirement for other power classes and does not mean other power classes.

Nokia: we do not understand OPPO comment to delay the work.

Huawei: I agreed with Apple. We should define the requirements based on urgency.

Samsung: we support moderator way forward. Power class discuss seems no controversial. PC1/PC5 should be the focus. We have the concern on the potential power class. For new power class, we need define the new power class single carrier requirement.

DOCOMO: My suggestion is to focus on the common issues. And then we can consider the PC3 specific issue.

Qualcomm: For new power class, it is intended to replace PC3, which is not constrained by form factor. For OPPO comment, we are open to make the definition clear. PC1/2/5 + new power, the total power concept is not used.

Mediatek: Generally fine with the recommended way forward.

Nokia: To OPPO, we can finish the work in the next release.

Sony: Support the proposal. We have deadlock for PC3. We can prioritize the power class.

Huawei: based on the comment from Qualcomm, it seems that we want to make PC1/2/5 under control of total power, and PC3 is not under control of total power.

LGE: suggest to consider

**Agreements:** Focus on the common requirements (i.e., MPR and power control) of PC1/2/3/4/5 and Delta\_TIB values of PC1/2/4/5, and afterwards discuss the PC3 specific requirements (i.e., Delta\_TIB values and total power issue).

* The power class cannot be supported without finalized the requirements including Delta\_TIB.

**Issue 5-4: total power concept for other than handheld device types (i.e., such as PC1/2/4/5 and a new PC)**

* Proposals
  + Option 1: not needed
  + Option 2: still needed
  + Option 3: Others (please specify)
* Recommended WF
  + Moderator suggests Option 1

**Discussion:**

Huawei: PC4 is not FWA and should be removed.

Samsung: New power class should be removed.

Qualcomm: there are some devices which are not really handheld form factor.

OPPO: we should check the regulation for FWA/CPE type.

Nokia: why to remove PC4.

**Agreement:** The total power concept is not applied for power classes such as PC1/2/5.

* FFS include new power class
* Further check the MPE regulation for FWA/CPE.

**Issue 5-11: Power Control**

* Proposals
  + Option 1: for UL inter-band CA power control in FR2, the existing behavior in 38.213 is assumed: the UE configures a PCMAX in an implementation-specific manner like for the intra-band case and relative power limits are used for controlling the power on the serving cells. PCMAX ≥ PCMAX,f,c for each configured serving cell *c* with PCMAX,f,c as specified in clause 6.2.4 with parameters MPR and A-MPR as specified per serving cell or modified as needed for the band combination (CA MPR). (Ericsson)
  + Option 2: *Before conclusion of SCell dropping solution for intra-band CA, no need to have further discussion on power control for FR2 UL inter-band CA case. (Huawei)*
  + Option 3: For FR2+FR2 inter-band ULCA, the configured power requirement shall be independent and per-FR2 band. (Qualcomm)
  + Option 4: Others (Please specify)
* Recommended WF
  + TBD

**Discussion:**

Qualcomm: We have Option 3. For Option2, we should wait for the completion of inter-band. For option 3, there would be some power sharing. Each band can fully control the power. The additional background is that we have agreed that each band in the uplink CA is allowed to transmit as much as single carrier case in that band.

Ericsson: We would like to know we will consider the core RAN1 specification in power control in 38.213. It is background for Ericsson proposal. There is specification of total power. It does not mean that power on each band is significantly decreased. 38.213 does not imply that we should have significantly decrease the power. For SCell dropping, we expect the similar issue. From network perspective, it would be beneficial to have some solutions. We are in favour of requirements which do not significantly reduce the power.

Qualcomm: we want to solution compliant with 38.213.

Mediatek: If we can make scope narrow focusing on inter-band UL CA within different frequency group, it would be beneficial. In Rel-17 we have only one type for uplink CA.

VIVO: We have similar view as Mediatek. Option 3 should be restricted to IBM.

Apple: for Option 1 nad Option 3, PCmax paramtere has been defiend. We do not see fundamental differences between 1 and 3. Mediatek comment makes sense.

Qualcomm: We can leave it to inter-band UL CA across different frequency group.

**Agreement:** Focus on inter-band UL CA across the different frequency group for power control.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206507 WF for FR2 DL CA | Nokia | Approved |
| R4-2206508 WF for FR2 UL CA | Qualcomm Inc. | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2204789](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204789.zip) | Addition of downlink CA feature for CBM UEs and one band combination for IBM UEs | Nokia, Qualcomm | Postponed |
| [R4-2204612](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204612.zip) | Introduction of requirements for DL inter-band CA for CBM-capable UEs | Ericsson, Sony | Postponed |
| [R4-2206057](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2206057.zip)  Revised to R4-2206579->  Revised to R4-2206597 ->  Revised to R4-2206600 | Draft CR to 38.101-2 FR2+FR2 ULCA | Qualcomm, Nokia, Verizon, Docomo | Endorsed |

**R4-2206507 WF for FR2 DL CA**

*Type: other For: Approval  
 Source: Nokia*

**Decision: Approved.**

**R4-2206508 WF for FR2 UL CA**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

----------------------------------------------------------------------------------------------------------------------------------------

**R4-2204787 TR 38.851 v0.4.0**

*Type: draft TR For: Approval  
 38.851 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

[draft TR] TR 38.851

**Decision: Agreed.**

#### 10.4.2 UE RF requirements for inter-band CA

##### 10.4.2.1 Inter-band DL CA requirements

**R4-2203700 Simultaneous Rx/Tx for DL inter-band CA**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2204361 Sensitivity requirements for inter-band DL CA with CBM**

*Type: other For: Approval  
 Source: NTT DOCOMO, INC.*

**Abstract:**

To discuss CBM sensitivity requirements for FR2 inter-band DL CA.

**Decision: Noted.**

**R4-2204789 Addition of downlink CA feature for CBM UEs and one band combination for IBM UEs**

*Type: CR For: Agreement  
 38.101-2 v17.4.0 CR-0438 rev Cat: B (Rel-17)  
  
 Source: Nokia, Qualcomm*

**Decision: Postponed.**

###### 10.4.2.1.1 CA configurations within the same frequency group based on CBM

**R4-2204035 UE requirements for CBM for the same frequency group**

*Type: other For: Approval  
 Source: Sony, Ericsson*

**Decision: Noted.**

**R4-2204143 Discussion on CBM based inter-band DL CA within same frequency group**

*Type: discussion For: (not specified)  
 Source: LG Electronics*

**Abstract:**

It discusses RF requirements for CBM based inter-band DL CA.

**Decision: Noted.**

**R4-2204229 Fs\_inter and view on FR2 inter-band DL CA within same frequency group based on CBM**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

Proposal1: Define “Option2: Fs\_Inter capability is introduced. No additional EIS relaxation specific for frequency separation factor is acceptable”

Proposal2: LS to RAN2 to raise the request on “Fs\_inter”.

**Decision: Noted.**

**R4-2204927 R17 FR2 CBM inter-band DL CA**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2204940 Discussion on requirement of n258-n261**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2205122 Discussion on inter-band DL CA with CBM**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205598 On RF requirements for FR2 Inter-band DL CA with CBM**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2206055 On delta(RIB) for n258+n261 DL inter-CA**

*Type: other For: Discussion  
 Source: Qualcomm Incorporated*

**Abstract:**

delta(RIB) proposal for an example band combination, along with relevant considerations

**Decision: Noted.**

###### 10.4.2.1.2 CA configurations between different frequency groups based on CBM

**R4-2203699 FR2 Sensitivity requirements for inter-band CBM**

*Type: discussion For: Approval  
 Source: Apple*

**Decision: Noted.**

**R4-2204036 Requirements for CBM UEs between different frequency group**

*Type: other For: Approval  
 Source: Sony, Ericsson*

**Decision: Noted.**

**R4-2204230 Reference signal, and relaxation value about FR2 inter-band DL CA between different frequency groups based on CBM**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

?About 2.1 Reference signal

Proposal1: For CBM, all the reference signals in Band\_without\_BMRS shall traces its QCL type-D dependence to SSB and/or CSI-RS in Band\_with\_BMRS by certain manner.

Observation: “Traces its QCL type-D dependence” shows “no DL me

**Decision: Noted.**

**R4-2204575 Discussion on requirements of FR2 inter-band DL CA**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2204612 Introduction of requirements for DL inter-band CA for CBM-capable UEs**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, Sony*

**Abstract:**

Draft CR to introduce requirements for DL CA based on CBM within the same and different frequency groups

**Decision: Postponed.**

**R4-2204941 Discussion on CBM between different frequency group**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2206056 On delta(RIB) for DL inter-CA with CBM in n260+n261**

*Type: other For: Discussion  
 Source: Qualcomm Incorporated*

**Abstract:**

delta(RIB) proposal for an example band combination, along with relevant considerations

**Decision: Noted.**

###### 10.4.2.1.3 Feasibility study for DL inter-band CA for IBM within the same frequency group

###### 10.4.2.1.4 Rx beam switch value

**R4-2204790 Discussion on UE Rx beam switch delay**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

##### 10.4.2.2 Inter-band UL CA requirements

###### 10.4.2.2.1 Inter-band UL CA for two bands

**R4-2203814 Introduce FR2 n260 and n261 uplink CA**

*Type: discussion For: Approval  
 Source: Verizon Denmark*

**Decision: Noted.**

**R4-2204037 UE UL CA requirements based on IBM**

*Type: other For: Approval  
 Source: Sony, Ericsson*

**Decision: Noted.**

**R4-2204576 Discussion on MOP relaxation of FR2 inter-band UL CA**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2205123 Tx requirements for inter-band UL CA between different frequency groups based on IBM**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205599 On RF requirements for FR2 inter-band UL CA**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2206057 Draft CR to 38.101-2 FR2+FR2 ULCA**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm, Nokia, Verizon, Docomo*

**Abstract:**

Cat B feature CR in draft form

**Decision: Revised to R4-2206579 (from R4-2206057).**

**R4-2206579 Draft CR to 38.101-2 FR2+FR2 ULCA**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm, Nokia, Verizon, Docomo*

**Abstract:**

Cat B feature CR in draft form

**Decision: Revised to R4-2206597 (from R4-2206579).**

**R4-2206597 Draft CR to 38.101-2 FR2+FR2 ULCA**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm, Nokia, Verizon, Docomo*

**Abstract:**

Cat B feature CR in draft form

**Decision: Revised to R4-2206600 (from R4-2206597).**

**R4-2206600 Draft CR to 38.101-2 FR2+FR2 ULCA**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm, Nokia, Verizon, Docomo*

**Abstract:**

Cat B feature CR in draft form

**Decision: Endorsed.**

###### 10.4.2.2.2 CA configuration CA\_n257A-n259A based on IBM

**R4-2204228 View on FR2 inter-band UL CA relaxation**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

Proposal1: Total UE power concept factor shall be considered for relaxation value of FR2 inter-band UL CA.

Proposal2: Detailed factors and values for inter-band UL CA relaxation value calculation shall base on below table:

**Decision: Noted.**

**R4-2204928 R17 FR2 Inter-band UL CA requirements**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2204942 Discussion on iinter-band UL CA**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2205109 Discussion on relaxation value X&Y for CA\_n257A\_n259A**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2206054 delta(TIB) for FR2+FR2 ULCA**

*Type: other For: Discussion  
 Source: Qualcomm Incorporated*

**Abstract:**

We share our proposals for both delta(TIB) along with the underlying reasoning and analysis. We address PC3 as well as the Japan-motivated PC5 FWA UE. We also extend our analysis to cover a more recent operator request for n260+n261. We also touch upon CA

**Decision: Noted.**

#### 10.4.3 UL gaps for self-calibration and monitoring

**[102-e][126] NR\_RF\_FR2\_enh2\_Part\_2, AI 10.4.3, 10.4.6.3 – Yang Tang**

**R4-2206326 Email discussion summary for [102-e][126] NR\_RF\_FR2\_enh2\_Part\_2**

*Type: other For: Information  
 Source: Moderator (Apple)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206426 (from R4-2206326).**

**R4-2206426 Email discussion summary for [102-e][126] NR\_RF\_FR2\_enh2\_Part\_2**

*Type: other For: Information  
 Source: Moderator (Apple)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW Feb-24**

**Sub-topic 1-1: delta P-MPR reporting and P-MPR reporting when UL gap is not configured/activated**

Sub-topic description:

Open issues and candidate options before e-meeting:

* + Option 1: It is mandatory to reportP-MPR when UL gap is not configured/activated (P-bit is 1) (Nokia)
  + Option 2: delta P-MPR should not be tested with the already agreed P bit setting before and after the UL GAP in conformance tests. (OPPO)

**Discussion:**

OPPO: We do not see the need to mandating P-MPR reporting. The delta P-MPR is used to test the gain.

Apple: similar comment as OPPO.

VIVO: agree with OPPO.

Sony: Fine not to test delat P-MPR. P bit equals to 0.

Ericsson: Agree there is no reason to mandate reporting P-MPR

**Agreement:**

* Agree on Option 2.
* No need to mandate P-MPR reporting when UL gap is not configured/activated (P bis is 1)

**Sub-topic 1-2: On related UE capability**

* + Proposal: Introduce per band per band combination UE capability for inter-band UL CA on whether UL transmission in different FR2 band within the gap is feasible when UL gap is activated.

**Discussion:**

OPPO: our proposal is for CBM original. But we are OK with the proposal.

Ericsson: We do not need use per-band per band combination. We prefer to per-UE.

ZTE: We agree with Apple. We have concern on per-band per band combination capability. We only need per-UE capability. We can reuse the existing IBM and CBM capability.

Apple: the reason is that UE may have different architecture for implementation. Per-UE capability cannot cover all the possibility.

OPPO: it is based on RF architecture. Our first proposal is reply on single chain or multi-chains.

Ericsson: we are assuming the gap is for the purpose for MPR compliance. From this perspective, it won’t rely on UE architecture.

Apple: It is based on RF architecture. We have already agreed to introduce the per-band capability whether the uplink gap is needed. In last meeting, companies claim that MPE issue is different for different band combination. The band may or may not be impact by UL gap on other band depending on the architecture.

OPPO: We agree with Apple. We can use example A+B. The first UE asks for gap for A. Whether the gap applies for B depends on UE architecture. It should be per-band per band combination.

Huawei: We agree with OPPO and apple to accommodate the different UE implementation.

**Agreement:**

* Introduce the UE capability for inter-band UL CA on whether UL transmission in different FR2 within gap is feasible when UL gap is activated.
  + For CBM, the capability is per band per band combination
  + For IBM, FFS whether the capability is per band per band combination or per UE.

**Sub-topic 1-3: On UL gap and maxUplinkDutyCycle-FR2**

* + Proposal: Z should be larger than maxUplinkDutyCycle-FR2 in the test if maxUplinkDutyCycle-FR2 is reported. If maxUplinkDutyCycle-FR2 is absent, no explicit restriction on Z can be specified.

**Discussion:**

OPPO: we would like to clarify on maxUplinkDutyCycle-FR2. How can it be configured properly in the conformance testing.

Apple: if the max.. is less than 20 or not reported, we can keep the original agreement Z is 20%. Otherwise, Z has to be defined more than 20%. We can first finish core requirement.

VIVO: we can discuss the next topic first.

Ericsson: UE declares a certain duty cycle capability. It is able to reach peak EIRP regardless whether gap is activated or not. It means delta EIRP metrics applies the duty cycle exceeding a certain value. We see the issue for very small duty cycle for UE be difficult to achieve the gain. We only expect configure the gap for a certain duty cycle. For large gap the assistance would be beneficial.

Apple: We agree with Ericsson comments. We can discuss the test methods proposed by Ericsson. But for this topic, it is for Z. We can agree on the value.

**Agreement:** When maxUplinkDutyCycle-FR2 is less than 20, or not reported, Z=20 in the test as agreed in previous meeting. When maxUplinkDutyCycle-FR2 is equal to or greater than 20, then Z should be larger than maxUplinkDutyCycle-FR2 as proposed.

**Sub-topic 1-4: on the EIRP requirements**

* + Option 1: Modify the UL GAP gain as fixed 3dB, the inequation is proposed as below:
    - PUMAX,f,c\_GAP\_ON - PUMAX,f,c\_GAP\_OFF 3dB
  + Option 2: keep the existing agreements unchanged.

**Discussion:**

OPPO: if UE transmits the power without P-MPR, the transmission power should be lower than 22dBm. Our concern is on the lower limit. This limitation is not necessary for UE with very good peak.

Sony: We realized that there is some issues. We have fixed 21dBm, which is not scaled. We still prefer to the original format.

VIVO: We have the same concern. The original formula restricts the good UE. We agree with Sony. We need modified the solution to cover the concern.

Apple: OPPO proposal is not brand new, which was proposed. But there was concern from infra vendor. To Sony and VIVO, I am not sure about what is the concern. 21dBm EIPR is the UE can meet the requirement with 0 P-MPR and 20% duty cycle. It is based on the calculation. I do not see how to change the number. What is the enhancement? If Option 1 is not agreeable, we suggest to keep the previous agreement.

Ericsson: we share the sympathy with OPPO comment. Supposing a good UE, the same UE reports 20% duty cycle. We assume UE can meet the requirement without P-MPR. If duty cycle is 25% or 40%, good UE still produces 5dB gain when gap is configured. Even 3dB is a lot with gap off. Good UEs will be penalized.

Apple: maybe 5dB is unrealistic and 3dB is good enough. It seems that companies want to relax the requirement a little bit.

Ericsson: if we specify the capability, there will be gain associated the feature. Our concern is that we would penalize the good UE.

Chair: suggest to honor the previous agreement unless the proponent convince the group to revert the previous agreement.

**Sub topic 2-1: Optionality of Gap configurations**

* + Option 1: All UL gap configurations are optional
  + Option 2: At leas**t one UL gap configuration is mandatory**

**Discussion:**

Moderator: there is less chance for UE vendor to consolidate and agree on one mandatory.

VIVO: it is difficult to merge all the gap. For network implementation, network can implement one or two gap.

Ericsson: we propose Option 2.

Nokia: prefer to at least one gap pattern should be mandatory.

OPPO: Option 1. For Option2, as commented previously, different UE may have different UL gap pattern request. If network

ZTE: support Option 2.

Apple: can we define UE should support at least one of #1 and #3.

**Agreement:**

* [UE is mandated to support at least one of patterns #1 and #3].
* The other two gap patterns except for #1 and #3 are optional

**Sub-topic 2-2: UE capability**

Proposal: The capability to support the UL gap configuration which is defined as optional should be per-UE based

**Agreement:** The capability to support the UL gap configuration which is defined as optional should be per-UE based for FR2 only.

* The gap for FR2 has no impact on FR1.

**Sub-topic 2-3: Gap pattern for ULGP#0 and 1**

* + Option 1: keep the existing agreement in R4-2119962 unchanged
  + Option 2: On top of existing agreements, uniformly distributed UL gap mapping pattern is also allowed

**Discussion:**

Qualcomm: there would be ambiguity.

Apple: there is no ambiguity in the previous agreement.

**Sub-topic 2-4: Impacts on RRM Requirements**

* + Option 1: RAN4 to add a requirement applicability rule, to the following legacy requirements, that, e.g. the requirements are applicable when UL gaps, if configured and activated, do not overlap with UL feedback channels:
    - Interruption requirements which rely on ACK/NACK on UL
    - Latency requirements in which UL is supposed to transmit UL

**Discussions:**

Apple: the question is whether it is necessary.

Huawei: in order to simplify we just follow measurement gap case.

**Issue 3-1: UL gap triggering**

* + Proposal: Enable implicit triggering of the UL gap for UL coherent MIMO, by defining K2\_min\_cal which include the PUSCH preparation time plus the calibration time.

**Discussion:**

Huawei: we support implicit triggering. Ericsson question was raised in previous meetings. Once the side condition happens. We can calibrate. UE is not expected to be scheduled and transmit. From base station perspective, the RF hardware is powerful. But the UE hardward is not such powerfully. If UE has not time, there is no possibility for UE to calibrate. We should focus on how to define the requirement.

Apple: we are not convinced by that UE can do it autonomously.

**Issue 3-2: UL gap configuration**

* + Proposal by Huawei: Define UGL (UL gap length) indicating the number of consecutive static slots before the scheduled PUSCH after side condition happening

**Discussion:**

Huawei: We would like to add one more pattern with 0.25 ms to reduce the gap.

**Issue 3-3: Requirements for coherent UL MIMO**

* + Symbol used for calculation
    - Option 1: DMRS+Data symbols (Huawei)
    - Option 2: DMRS RE (Anritsu)
  + Average window for relative phase and power error
    - Option 1: The relative phase and power errors for each slot should be an average over a slot. (Huawei)
    - Option 2: The “relative phase error” and “relative amplitude” shall be calculated in frequency domain. There should not be then mention of “instantaneous” or “average over a slot”. (Anritsu)

**Agreement:** Further discuss the following options in order to conclude in this meeting

* Symbol used for calculation
  + Option 1: DMRS+Data symbols (Huawei)
  + Option 2: DMRS RE (Anritsu)
* Average window for relative phase and power error
  + Option 1: The relative phase and power errors for each slot should be an average over a slot. (Huawei)
  + Option 2: The “relative phase error” and “relative amplitude” shall be calculated in frequency domain. There should not be then mention of “instantaneous” or “average over a slot”. (Anritsu)

**Issue 3-4: Others**

Proposal 1: Put details regarding UL coherent MIMO requirements in "Annex G (informative): Transmit signal quality".(Anritsu)

Proposal 2: CFO should be corrected for each slot. (Anritsu)

Proposal 3: Equalization should not be used by the TE for performing the test. (Anritsu)

Proposal 4: Put details regarding UL coherent MIMO requirements in "Annex G (informative): Transmit signal quality". A block **diagram** shown in Figure 2 should be added in Annex G to indicate the reference point. (Anritsu)

Proposal 5: Only one side condition is chosen as the worst case to be verified in the test to reduce the test complexity.(vivo)

**Discussions:**

Ericsson: we are not in favor to specify the uplink gap. Our view is still that UE can calibrate it without uplink gap.

Chair: due to lack of time, encourage companies to have further discussion.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206509 WF on UL gap in FR2  Revised to R4-2206604 | Apple | Approved |
| R4-2206510 LS on UL gap in FR2  Revised to R4-2206605 ->  Revised to R4-2206608 | Apple | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2203753](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203753.zip)  revised to R4-2206511 | Draft CR for UL gap for Tx power management RRM aspect | Apple | Endorsed |
| [R4-2205835](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205835.zip) | Draft CR on UL gaps for TX power management | Ericsson | Merged with the revision of [R4-2203753](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203753.zip) |
| [R4-2205004](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205004.zip)  revised to R4-2206512 | Draft CR to 38.101-2 on requirements for coherent UL MIMO | Huawei,HiSilicon | Not pursued |
| [R4-2203751](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203751.zip)  revised to R4-2206513 | Draft CR for UL gap for Tx power management RF aspect | Apple | Endorsed |

**R4-2206509 WF on UL gap in FR2**

*Type: other For: Approval  
 Source: Apple*

**Decision: Revised to R4-2206604 (from R4-2206509).**

**R4-2206604 WF on UL gap in FR2**

*Type: other For: Approval  
 Source: Apple*

**Decision: Approved.**

**R4-2206510 LS on UL gap in FR2**

*Type: LSout For: Approval  
 Source: Apple*

**Decision: Revised to R4-2206605 (from R4-2206510).**

**R4-2206605 LS on UL gap in FR2**

*Type: LSout For: Approval  
 Source: Apple*

**Decision: Revised to R4-2206608 (from R4-2206605).**

**R4-2206608 LS on UL gap in FR2**

*Type: LSout For: Approval  
 Source: Apple*

**Decision: Approved.**

----------------------------------------------------------------------------------------------------------------------------------------

**R4-2204943 Discussion on UL gap**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

##### 10.4.3.1 UE Tx power management

**R4-2203557 Requirements and test cases of UE FR2 UL Gap for UE Tx power enhancement**

*Type: discussion For: Discussion  
 Source: Nokia Denmark*

**Decision: Noted.**

**R4-2203749 UL gaps for Tx power management RF aspect**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2203751 Draft CR for UL gap for Tx power management RF aspect**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Revised to R4-2206513 (from R4-2203751).**

**R4-2206513 Draft CR for UL gap for Tx power management RF aspect**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2204613 More on UE Tx power management for MPE compliance**

*Type: other For: Approval  
 Source: Ericsson, Sony*

**Abstract:**

In this constribution we make proposals on the Tx power manangement for MPE and P-MPR in particular

**Decision: Noted.**

**R4-2204925 R17 FR2 UL gap for power management**

*Type: discussion For: Approval  
 Source: Guangdong OPPO Mobile Telecom.*

**Decision: Noted.**

**R4-2205005 Discussion on Tx power management**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

##### 10.4.3.2 Coherent UL-MIMO

**R4-2203750 UL gaps for coherent UL MIMO**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2205004 Draft CR to 38.101-2 on requirements for coherent UL MIMO**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Revised to R4-2206512 (from R4-2205004).**

**R4-2206512 Draft CR to 38.101-2 on requirements for coherent UL MIMO**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei,HiSilicon*

**Decision: Not pursued.**

**R4-2205006 Discussion on UL coherent MIMO**

*Type: discussion For: Discussion  
 Source: Huawei,HiSilicon*

**Decision: Noted.**

**R4-2205611 FR2 UL coherent MIMO**

*Type: discussion For: Approval  
 Source: Anritsu Limited*

**Decision: Noted.**

#### 10.4.4 DC location for intra-band UL CA with > 2 CCs for both FR2 and FR1

**[102-e][127] NR\_RF\_FR2\_enh2\_Part\_3, AI 10.4.4, 10.4.5 – Sanjun Feng**

**R4-2206327 Email discussion summary for [102-e][127]** **NR\_RF\_FR2\_enh2\_Part\_3**

*Type: other For: Information  
 Source: Moderator (Vivo)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206427 (from R4-2206327).**

**R4-2206427 Email discussion summary for [102-e][127]** **NR\_RF\_FR2\_enh2\_Part\_3**

*Type: other For: Information  
 Source: Moderator (Vivo)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW Feb-24**

**Issue 1-1-4: Whether “frequency component” capability can be different for each default DC location?**

* Proposals
  + Option 1: Yes
  + Option 2: Others
* Recommended WF
  + TBD

Moderator’s recommendation before GTW: None. Merit some discussion and a conclusion seems possible.

**Discussion:**

OPPO: we are OK with only one.

VIVO: Option 1 is more flexible. But we are also OK with the same capability.

Nokia: prefer to have one common capability.

Apple: when mentioning capability, do we mean Rel-16 or Rel-17 capability? They should be subject to only one reporting format.

VIVO: this issue is only for Rel-17.

**Agreement:** The frequency component type should be the same for the two default DC locations in Rel-17.

**Issue 1-3-1: Whether and how to use Rel-16 reporting scheme in Rel-17?**

* Proposals
  + Option 1: R16 Reporting scheme can still be used in Rel-17.
    - Option 1a. In Rel-17, UE is allowed to choose either Rel-16 or new Rel-17 DC reporting for 2CC UL CA case.
    - Option 1b. In Rel-17, Rel-16 scheme would still be used for 2CCs, and new Rel-17 scheme would only apply to the case of > 2CCs;
  + Option 2: R16 Reporting scheme cannot be used in Rel-17 even for 2CC UL CA case.
  + Option 3: Others
* Recommended WF
  + TBA

Moderator’s recommendation before GTW: Option 1a, which seems receive most support and least objection.

[In Rel-17, UE is allowed to choose either Rel-16 or new Rel-17 DC reporting for 2CC UL CA case.]

**Discussion:**

OPPO: RAN4 should cover both Rel-16 and Rel-17 schemes.

Nokia: we cannot agree with Option 1. We should discuss if Rel-17 DC location can cover two CC or not. If it cannot, UE can report DC location when the configuration of CC is more than 2.

Qualcomm: Where does that Rel-17 scheme covers come from? We prefer Option 1a.

Apple: We sent LS to RAN2 with title of more than two CC. RAN2 may make decision that only more than two CC will be supported.

OPPO: Two CC case should be covered by Rel-17.

Nokia: to Qualcomm, I did not say that UE should support both Rel-16 and Rel-17. If Rel-17 can cover two CCs, then it depends on UE. If UE only implements Rel-17, there is back foward comptable issue. It is UE choice.

Huawei: Rel-15 is for single CC. Rel-16 is for 2 CC. Rel-17 for >2 CC.

Nokia: if Rel-17 scheme is only applied to more than two CC cases, the network needs to change the RRC according to the number of CCs. If UE suppots 3 CCs, network needs to use Rel-17 RRC scheme. In case UE falls back to 2 CCs, network need to change the RRC to Rel-16.

Apple: Inside 3 CC cases, there would be a single DC and two DC cases. Rel-17 should cover the single CC case.

OPPO: this is one band combination. Consider them as a whole.

Nokia: We tend to agree with Apple. UE may have DC location tied with one CC and other DC location tied with other CCs. If being configured with 3rd CC, we can use Rel-17 scheme. It depnds on RAN2 decision.

**Tentative Agreement:**

* Rel-17 reporting scheme can be applied to both 2 UL CC and more than 2 UL CC cases.
* In Rel-17, UE is allowed to support either Rel-16, new Rel-17 DC reporting for 2CC UL CA case, or both.

**Conclusions after 2nd round**

**GTW Feb-25**

**Issue 2-1-1: How to define the new CA BW classes and fall back behaviour?**

* Proposals
  + Option 1 (option 2 in WF R4-2202347):

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class | Carrier configuration | | | | | | | | | | | | Number of contiguous CC | |
| FBG3 | | | | | | | | FBG2 | | | | FBG3 | FBG2 |
| MA |  |  |  |  |  |  |  |  |  |  |  |  | 8 | 1 |
| MD |  |  |  |  |  |  |  |  |  |  |  |  | 8 | 2 |
| ME |  |  |  |  |  |  |  |  |  |  |  |  | 8 | 3 |
| MF |  |  |  |  |  |  |  |  |  |  |  |  | 8 | 4 |
| AF |  |  |  |  |  |  |  |  |  |  |  |  | 1 | 4 |
| GF |  |  |  |  |  |  |  |  |  |  |  |  | 2 | 4 |
| HF |  |  |  |  |  |  |  |  |  |  |  |  | 3 | 4 |
| IF |  |  |  |  |  |  |  |  |  |  |  |  | 4 | 4 |
| JF |  |  |  |  |  |  |  |  |  |  |  |  | 5 | 4 |
| KF |  |  |  |  |  |  |  |  |  |  |  |  | 6 | 4 |
| LF |  |  |  |  |  |  |  |  |  |  |  |  | 7 | 4 |

* + Option 2 (option 4 in WF R4-2202347): define CA BW classes up to 1600 MHz in a new FBG 5

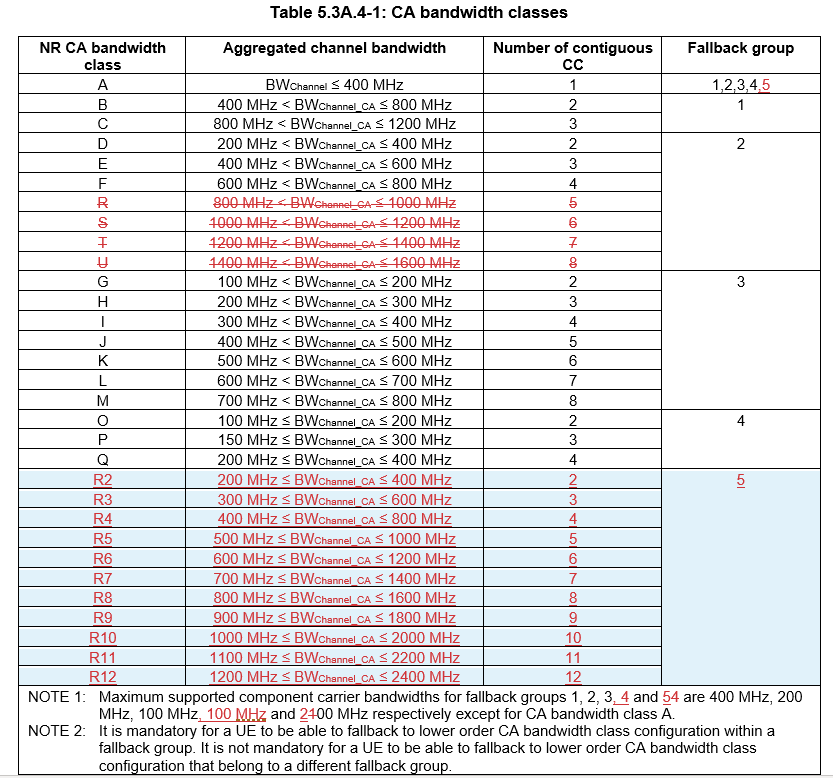
|  |  |  |  |
| --- | --- | --- | --- |
| NR CA bandwidth class | Aggregated channel bandwidth | Number of contiguous CC | Fallback group |
| V2 | 150 MHz ≤ BWChannel\_CA ≤ 400 MHz | 2 | 5 |
| V3 | 250 MHz ≤ BWChannel\_CA ≤ 600 MHz | 3 |
| V4 | 350 MHz ≤ BWChannel\_CA ≤ 800 MHz | 4 |
| V5 | 450 MHz ≤ BWChannel\_CA ≤ 900 MHz | 5 |
| V6 | 550 MHz ≤ BWChannel\_CA ≤ 1000 MHz | 6 |
| V7 | 650 MHz ≤ BWChannel\_CA ≤ 1100 MHz | 7 |
| V8 | 750 MHz ≤ BWChannel\_CA ≤ 1200 MHz | 8 |
| V9 | 850 MHz ≤ BWChannel\_CA ≤ 1300 MHz | 9 |
| V10 | 1050 MHz ≤ BWChannel\_CA ≤ 1400 MHz | 10 |
| V11 | 1250 MHz ≤ BWChannel\_CA ≤ 1500 MHz | 11 |
| V12 | 1450 MHz ≤ BWChannel\_CA ≤ 1600 MHz | 12 |
| NOTE 1: Maximum supported component carrier bandwidths for fallback groups 1, 2, 3 and 4 are 400 MHz, 200 MHz, 100 MHz and 100 MHz respectively except for CA bandwidth class A. For CA BW classes of fallback group 5 the maximum supported channel bandwidth is 200 MHz and the number of carriers of 50 MHz channel bandwidth is less than or equal to one.  NOTE 2: It is mandatory for a UE to be able to fallback to lower order CA bandwidth class configuration within a fallback group. It is not mandatory for a UE to be able to fallback to lower order CA bandwidth class configuration that belong to a different fallback group. | | | |

* + Option 2a (Option 4a in WF R4-2202347): define CA BW classes up to 16 x 100 MHz in FBG 3

|  |  |  |  |
| --- | --- | --- | --- |
| NR CA bandwidth class | Aggregated channel bandwidth | Number of contiguous CC | Fallback group |
| V1 | 800 MHz < BWChannel\_CA ≤ 900 MHz | 9 | 3 |
| V2 | 900 MHz < BWChannel\_CA ≤ 1000 MHz | 10 |
| V3 | 1000 MHz < BWChannel\_CA ≤ 1100 MHz | 11 |
| V4 | 1100 MHz < BWChannel\_CA ≤ 1200 MHz | 12 |
| V5 | 1200 MHz < BWChannel\_CA ≤ 1300 MHz | 13 |
| V6 | 1300 MHz < BWChannel\_CA ≤ 1400 MHz | 14 |
| V7 | 1400 MHz < BWChannel\_CA ≤ 1500 MHz | 15 |
| V8 | 1500 MHz < BWChannel\_CA ≤ 1600 MHz | 16 |

* + Option 2b: Choose modified option 4 in WF [2] for support of legacy networks. The modification is to drop the option for configuring a 50M channel in addition to the mix of 100M and 200M channels.

|  |  |  |  |
| --- | --- | --- | --- |
| V2 | 200 MHz ≤ BWChannel\_CA ≤ 400 MHz | 2 | 5  (BCS) |
| V3 | 300 MHz ≤ BWChannel\_CA ≤ 600 MHz | 3 |
| V4 | 400 MHz ≤ BWChannel\_CA ≤ 800 MHz | 4 |
| V5 | 500 MHz ≤ BWChannel\_CA ≤ 900 MHz | 5 |
| V6 | 600 MHz ≤ BWChannel\_CA ≤ 1000 MHz | 6 |
| V7 | 700 MHz ≤ BWChannel\_CA ≤ 1100 MHz | 7 |
| V8 | 800 MHz ≤ BWChannel\_CA ≤ 1200 MHz | 8 |
| V9 -> fall back to M | 900 MHz ≤ BWChannel\_CA ≤ 1300 MHz | 9 |
| V10 | 1000 MHz ≤ BWChannel\_CA ≤ 1400 MHz | 10 |
| V11 | 1100 MHz ≤ BWChannel\_CA ≤ 1500 MHz | 11 |
| V12 | 1200 MHz ≤ BWChannel\_CA ≤ 1600 MHz | 12 |

* + Option 2c: From Ericsson in the comments.
* 
  + Option 3: Define new FBG2 classes V, W, X and Y with associated note 3 as presented in table below.

|  |  |  |  |
| --- | --- | --- | --- |
| NR CA bandwidth class | Aggregated channel bandwidth | Number of contiguous CC | Fallback group |
| A | BWChannel ≤ 400 MHz | 1 | 1,2,3,4 |
| B | 400 MHz < BWChannel\_CA ≤ 800 MHz | 2 | 1 |
| C | 800 MHz < BWChannel\_CA ≤ 1200 MHz | 3 |  |
| D | 200 MHz < BWChannel\_CA ≤ 400 MHz | 2 | 2 |
| E | 400 MHz < BWChannel\_CA ≤ 600 MHz | 3 |
| F | 600 MHz < BWChannel\_CA ≤ 800 MHz | 4 |
| R | 800 MHz < BWChannel\_CA ≤ 1000 MHz | 5 |
| S | 1000 MHz < BWChannel\_CA ≤ 1200 MHz | 6 |
| T | 1200 MHz < BWChannel\_CA ≤ 1400 MHz | 7 |
| U | 1400 MHz < BWChannel\_CA ≤ 1600 MHz | 8 |
| **V (Note 3)** | **1000 MHz ≤ BWChannel\_CA ≤ 1800 MHz** | **9** |
| **W (Note 3)** | **1200 MHz ≤ BWChannel\_CA ≤ 2000 MHz** | **10** |
| **X (Note 3)** | **1400 MHz ≤ BWChannel\_CA ≤ 2200 MHz** | **11** |  |
| **Y (Note 3)** | **1600 MHz ≤ BWChannel\_CA ≤ 2400 MHz** | **12** |  |
| G | 100 MHz < BWChannel\_CA ≤ 200 MHz | 2 | 3 |
| H | 200 MHz < BWChannel\_CA ≤ 300 MHz | 3 |  |
| I | 300 MHz < BWChannel\_CA ≤ 400 MHz | 4 |  |
| J | 400 MHz < BWChannel\_CA ≤ 500 MHz | 5 |  |
| K | 500 MHz < BWChannel\_CA ≤ 600 MHz | 6 |  |
| L | 600 MHz < BWChannel\_CA ≤ 700 MHz | 7 |  |
| M | 700 MHz < BWChannel\_CA ≤ 800 MHz | 8 |  |
| O | 100 MHz ≤ BWChannel\_CA ≤ 200 MHz | 2 | 4 |
| P | 150 MHz ≤ BWChannel\_CA ≤ 300 MHz | 3 |  |
| Q | 200 MHz ≤ BWChannel\_CA ≤ 400 MHz | 4 |  |
| NOTE 1: Maximum supported component carrier bandwidths for fallback groups 1, 2, 3 and 4 are 400 MHz, 200 MHz, 100 MHz and 100 MHz respectively except for CA bandwidth class A.  NOTE 2: It is mandatory for a UE to be able to fallback to lower order CA bandwidth class configuration within a fallback group. It is not mandatory for a UE to be able to fallback to lower order CA bandwidth class configuration that belong to a different fallback group **unless otherwise stated**.  **NOTE 3: It is mandatory for a UE to be able to fallback to same or lower order CA bandwidth class configuration (with the same or a smaller number of contiguous CC) within fallback group 3.** | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Modified Option3 (From Xiaomi) | |  |  |
| V | 900 MHz ≤ BWChannel\_CA ≤ 1800 MHz | 9 | 9\*100 |
| 8\*100+1\*200 |
| 7\*100+2\*200 |
| 6\*100+3\*200 |
| 5\*100+4\*200 |
| 4\*100+5\*200 |
| 3\*100+6\*200 |
| 2\*100+7\*200 |
| 1\*100+8\*200 |
| 9\*200 |
| W | 1000 MHz ≤ BWChannel\_CA ≤ 2000 MHz | 10 | 10\*100 |
| 9\*100+1\*200 |
| 8\*100+2\*200 |
| 7\*100+3\*200 |
| 6\*100+4\*200 |
| 5\*100+5\*200 |
| 4\*100+6\*200 |
| 3\*100+7\*200 |
| 2\*100+8\*200 |
| 1\*100+9\*200 |
| 10\*200 |
| X | 1100 MHz ≤ BWChannel\_CA ≤ 2200 MHz | 11 | 11\*100 |
| 10\*100+1\*200 |
| 9\*100+2\*200 |
| 8\*100+3\*200 |
| 7\*100+4\*200 |
| 6\*100+5\*200 |
| 5\*100+6\*200 |
| 4\*100+7\*200 |
| 3\*100+8\*200 |
| 2\*100+9\*200 |
| 1\*100+10\*200 |
| 11\*200 |
| Y | 1200 MHz ≤ BWChannel\_CA ≤ 2400 MHz | 12 | 12\*100 |
| 11\*100+1\*200 |
| 10\*100+2\*200 |
| 9\*100+3\*200 |
| 8\*100+4\*200 |
| 7\*100+5\*200 |
| 6\*100+6\*200 |
| 5\*100+7\*200 |
| 4\*100+8\*200 |
| 3\*100+9\*200 |
| 2\*100+10\*200 |
| 1\*100+11\*200 |
| 12\*200 |

**Discussions:**

Qualcomm: U is fallback of V? it is difficult.

Nokia: We would need 9x100Mhz case. Fallback group 3 class. U would be also fallback of V. Need fine retuning further.

Ericsson: We do not support Nokia due to the reason that we are against Option 2. R to U could be removed. We can keep the original fall-back. We insist on 2c. It has the same problem of Option 2. No additional rule will apply.

Xiaomi: we still prefer option 1. It has just one band combination in each class and it is clear. We also prefer Option 3 with smaller number. There is no overlapping classes with the existing ones.

Apple: Option 3 offer the metris with smaller numbers. The issue is that if UE can support the upper limit then there is no problem to fallback to U, T, S, R. If UE is limited by 1600MHz and declare V, V cannot fall back to U. Option 2c looks a valuable solution.

Mediatek: we are open to option 2b than option 2c. We have concern on the note.

Ericsson: our concern of the solution is to break the normal fallback rule. We have to support different fallback rule. It is the issue. It is not the numbers of combinations. Option 1 and Option 3 lead to completely re-design of new rule. Regarding MTK to interlacing, we are open to such restriction.

Verizon: We agree with Ericsson. We would like to keep the existing fallback rule.

Qualcomm: support both Option 2b and Option 3. Can we create to mixed?

Xiaomi: we proposed the modified Option 3 and V does not need fall back to U. Then the problem is addressed.

Ericsson: We still disagree. It changes the fallback rules. It is not a question of counting the numbers of bandwidth class. We can accept the restriction in the spec.

Xiaomi: For option 2b and option 2c, there is issue for backward compatible issue. The legacy network cannot identify BSC5. UE needs to report one class in the existing fall back group.

Verizon: we do not want to introduce the way which impacts the system.

Apple: The fallback rule is for the purpose to save the signalling. If we have the combination of 100MHz + 200MHz, then we need the new fallback group.

Ericsson: in the field, we have the handle the legacy devices.

**Agreement:**

* Alternative 1: Approve Option 2c or Option 2b with the following clarification in the meeting minutes as the common understanding
  + Capture that the interlacing CC bandwidth is not allowed.
  + Limit the maximum aggregated bandwidth to 1600MHz.
* Alternative 2: Approve Option 3.
* For both Alternative 1 and Alternative 2, 50MHz channel bandwidth is not supported

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206514 WF on DC location  Revised to R4-2206601 | vivo | 6601 Approved |
| R4-2206515 Reply LS on DC location for >2CC  Revised to R4-2206602 | Qualcomm | 6602 Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2204615](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204615.zip)  Revised to R4-2206577 | FR2 CA BW classes up to 1600 MHz aggregated BW with mixed channel bandwidths | Ericsson | 4615 not pursued  6577 withdrawn |
| [R4-2205125](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205125.zip)  Revised to R4-2206578 | LS on release independence aspects of newly introduced FR2 CA BW Classes | Xiaomi | 5125 Noted  6578 withdrawn |
| [R4-2205126](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205126.zip) | Draft CR for TS 38.101-2 to introduction of FR2 new CA BW classes V, AF, GF, HF, IF, JF, KF, LF, MF,ME, MD, MA | Xiaomi | Not pursued |

**R4-2206514 WF on DC location**

*Type: other For: Approval  
 Source: VIVO*

**Decision: Revised to R4-2206601 (from R4-2206514).**

**R4-2206601 WF on DC location**

*Type: other For: Approval  
 Source: VIVO*

**Decision: Approved.**

**R4-2206515 Reply LS on DC location for >2CC**

*Type: LSout For: Approval  
 Source: Qualcomm*

**Decision: Revised to R4-2206602 (from R4-2206515).**

**R4-2206602 Reply LS on DC location for >2CC**

*Type: LSout For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

-------------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2203698 DC location for intra-band UL CA with more than 2 CCs**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2204198 Handling of multiple DC locations for intra-band configuration**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution address the above remaining issues in the WF [R4-2202346] as well as the two questions raised in RAN2 LS [R2-2201978]

**Decision: Noted.**

**R4-2204822 Further study on DC location reporting**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2204922 R17 FR2 DC reporting**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2204944 Discussion and draft reply LS on DC location**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2205883 Two DC location and RAN2 LS discussion**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

#### 10.4.5 CA BW classes

**R4-2203697 New CA BW classes**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2206062 On new contiguous BW classes for legacy networks**

*Type: other For: Discussion  
 Source: Qualcomm Incorporated*

**Abstract:**

Views on how to support frequency expansion of legacy FR2 networks

**Decision: Noted.**

##### 10.4.5.1 New FR2 CA BW classes

**R4-2203812 FR2 bandwidth class and fallback group**

*Type: discussion For: Approval  
 Source: Verizon*

**Abstract:**

Proposal for options Alt 2

**Decision: Noted.**

**R4-2203990 Discussion on new FR2 CA BW classes in hybrid FBG**

*Type: discussion For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2204220 View on new FR2 CA BW class options**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

Proposal: Define Option2 for new FR2 CA BW class.

**Decision: Noted.**

**R4-2204614 FR2 bandwidth classes covering up to 1600 MHz aggregated bandwidth with mixed carrier bandwidths**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we propose to reconsider the BW classes of the WF agreed at RAN4#100 in view of deployment aspects and number of CCs supported.

**Decision: Noted.**

**R4-2204615 FR2 CA BW classes up to 1600 MHz aggregated BW with mixed channel bandwidths**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to introduce FR2 CA BW classes up to 1600 MHz aggregated BW with mixed channel bandwidths.

**Decision: Not pursued.**

**R4-2206577 FR2 CA BW classes up to 1600 MHz aggregated BW with mixed channel bandwidths**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to introduce FR2 CA BW classes up to 1600 MHz aggregated BW with mixed channel bandwidths.

**Decision: Withdrawn.**

**R4-2204788 Solution to FBG3+2 topic**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2205124 Discussion on FR2 new CA BW classes**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205125 LS on release independence aspects of newly introduced FR2 CA BW Classes**

*Type: LS out For: Approval  
 to RAN2  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2206578 LS on release independence aspects of newly introduced FR2 CA BW Classes**

*Type: LS out For: Approval  
 to RAN2  
 Source: Xiaomi*

**Decision: Withdrawn.**

**R4-2205126 Draft CR for TS 38.101-2 to introduction of FR2 new CA BW classes V, AF, GF, HF, IF, JF, KF, LF, MF,ME, MD, MA**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Xiaomi*

**Decision: Not pursued.**

##### 10.4.5.2 Fallback group

#### 10.4.6 RRM core requirements

##### 10.4.6.1 Inter-band DL CA requirements for CBM

###### 10.4.6.1.1 MRTD requirements

###### 10.4.6.1.2 Other RRM requirements

##### 10.4.6.2 Inter-band UL CA for IBM

##### 10.4.6.3 UL gaps for self-calibration and monitoring

**R4-2203752 UL gaps for Tx power management RRM aspect**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2203753 Draft CR for UL gap for Tx power management RRM aspect**

*Type: draftCR For: Endorsement  
 38.133 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Revised to R4-2206511 (from R4-2203753).**

**R4-2206511 Draft CR for UL gap for Tx power management RRM aspect**

*Type: draftCR For: Endorsement  
 38.133 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Endorsed.**

**R4-2203862 UL gaps for self-calibration and monitoring**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2205013 Discussion on RRM impact of UL gap for Tx power management**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205649 Network impact of FR2 UL gaps - RRM**

*Type: discussion For: Agreement  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2205650 LS on UL gap in FR2 RF enhancement**

*Type: LS out For: Agreement  
 to RAN1, RAN2  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2205834 Discussion on UL gaps for self calibration and monitoring**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution, we provide our views on UL gaps for self-calibration and monitoring and its impacts on other RRM requirements.

**Decision: Noted.**

**R4-2205835 Draft CR on UL gaps for TX power management**

*Type: draftCR For: Endorsement  
 38.133 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

We introduce draft CR for FR2 UL gaps for TX power management

**Decision: Merged (with R4-2206511).**

### 10.5 NR repeater

#### 10.5.1 General

##### 10.5.1.1 System parameters

##### 10.5.1.2 Repeater Class/Type

##### 10.5.1.3 TDD repeater switching requirements

##### 10.5.1.4 Others

#### 10.5.2 Conductive RF core requirements

##### 10.5.2.1 Transmitted power related requirements

##### 10.5.2.2 Emission requirements

##### 10.5.2.3 Others

#### 10.5.3 Radiated RF core requirements

##### 10.5.3.1 Transmitted power related requirements

##### 10.5.3.2 Emission requirements

##### 10.5.3.3 Others

#### 10.5.4 EMC core requirements

### 10.6 Introduction of DL 1024QAM for NR FR1

#### 10.6.1 General

#### 10.6.2 UE RF requirements maintenance

#### 10.6.3 BS TX RF requirements maintenance

#### 10.6.4 BS RF conformance testing

#### 10.6.5 Demodulation and CSI requirements

##### 10.6.5.1 General

##### 10.6.5.2 PDSCH requirements

##### 10.6.5.3 SDR requirements

##### 10.6.5.4 CQI requirements

### 10.7 UE RF requirements for Transparent Tx Diversity (TxD) for NR

**[102-e][128] NR\_TxD, AI 10.7 – Ville Vintola**

**R4-2206328 Email discussion summary for [102-e][128] NR\_TxD**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206428 (from R4-2206328).**

**R4-2206428 Email discussion summary for [102-e][128] NR\_TxD**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**GTW Feb-25**

**Topic #3: SRS IL**

**Issue 3-1-1: Mode1 SRS IL**

**Proposals:**

* + Option 1, mode 1 SR*S IL shall be lower by 3 dB (Nokia, ZTE, Apple, Erics*son, Qualcomm, Intel)
    - Depending the UE declaration for mode 1. If the UE with 23+26 or 26+26, lowering 3dB is not applied.
    - 3dB does not include insertion loss
  + Option 2, ~~mode 1 shall sound same power as power class~~ Mode1 is not separately specified in the SRS IL section (vivo, Oppo, Huawei)
  + Alternative (Samsung) use TxD indication only.

**Discussions:**

Oppo: TxD is the clear signaling. We may use it.

Ericsson: We consider it in terms of performance. Option 2 is for 23+26dBm UE. UE uses the different PA to do SRS switching. If agreeing on Option 2, any UE can apply 6dBm relaxation. SRS has to meet the power class. TxD is not clear in the way to specify in the RAN4. There is rule for UE with Mode X can indicate TxD. We accept the TxD as implementation. It can be viewed as fall back. RAN2 can make it clear that UE supporting mode 2 with full power won’t indicate TxD.

Vivo: we can also accept Option 1.

T-Moible: for PC1.5, TxD is indicated. Some early UE supporting PC1.5 but do not indicate TxD.

Samsung: One way is to have some restriction from RAN2 perspective. For Mode 1 UE can indicate TxD. For Mode 0 UE cannot indicate TxD.

Huawei: Comment from Ericsson includes two aspects: one relation between full power mode and TxD; the other is for PC2 23+26. Disagree to have limitation from RAN2. RAN1 had LS that for mode 1 and mode 0 capable UE can indicate TxD. The concern from Ericsson that UE may indicate TxD in order to relax the requirement. But in RAN4, only some specific UE will indicate TxD. We can add some note in RAN4 spec.

OPPO: From RAN1/2, single antenna port and two layer are separate features. There is no UE restriction. We can only rely on TxD. UE with 23+26 and 23+23 may support mode 1.

Ericsson: we know there is no restriction from RAN1. The intention of RAN1 original discussion is that different PA architecture uses different modes. Either we make restriction in RAN2 or we differentiate the requirement in RAN4.

Apple: full power mode has different assumption of architectures. Combining the TxD and full power blurs the boundary.

Intel: We are in favor of Option 1, which is simpler.

**Agreement:** For Topic #3 and Topic #4, the following principles are agreed

* For UE supporting mode 1 and indicating TxD per band, then 3dB relaxation will be applied.
* For UE supporting mode 1 only, then 3dB relaxation won’t be applied.
* TxD requirements do not apply to UE supporting mode 0 and mode 2 with full power TMPI

**Agreement:**

* The following changes for R4-2205224 are agreed
* 3dB when PC2 capable UE indicating txDiversity-r16 or PC1.5 [and *SRS-TxSwitch* capability ‘t1r1-t1r2’ or ‘t1r1-t1r2-t1r4’ and] applied during SRS transmission occasions with usage in SRS-ResourceSet set as ‘antennaSwitching’ with configured SRS resources in each SRS resource set(s) consisting of one SRS port
* Remove the following sentence from R4-2205224
* 3dB when UE indicating txDiversity-r16 and SRS-TxSwitch capability 't2r4' and applied during SRS transmission occasions with usage in SRS-ResourceSet set as ‘antennaSwitching’ with configured SRS resources as the second resource in each SRS resource set(s) consisting of two SRS ports;
* In RAN4 spec, capture that PC1.5 implies TxD even if UE does not indicate TxD in UE capability.

**Topic #4: ULFPTx**

**Agreement:**

* The following changes in R4-2204618 are endorsed.

If the UE is scheduled for single antenna-port PUSCH transmission by DCI format 0\_0 or by DCI format 0\_1 for single antenna port codebook based transmission, the requirements in clause 6.2 apply for at least one antenna connector for the power class as indicated by the *ue-PowerClass* field in capability signalling with the following exceptions: for UEs indicating [*txDiversity-r16*] ~~or the feature~~ *~~ul-FullPwrMode1-r16~~* for a band entry, the requirements in clause 6.2G for the power class indicated by the *ue-PowerClass*.

A UE indicating the feature *ul-FullPwrMode2-TPMIGroup-r16* or [*ul-FullPwrMode0-r16 (NOTE: for Mode 0)]* for a band entry shall meet the requirement in clause 6.2 for at least one antenna connector when scheduled for single antenna-port transmission by DCI format 0\_0 or by DCI format 0\_1 for codebook-based transmission on a single antenna port.

* R4-2204618 with the additional changes above (highlighted by yellow) are agreeable.

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205575  Revised to R4-2206516 | Big CR for TS 38.307: release independent requirements for TxD | Huawei, HiSilicon | Agreed |
| R4-2205578  Revised to R4-2206517 | draft CR for TS 38.101-1: move 2Tx MPR to Clause 6.2D (Rel-16) | Huawei, HiSilicon, Qualcomm | Endorsed |
| R4-2205224  Revised to R4-2206518 | Draft CR on SRS IL for NR TxD | ZTE Wistron Telecom AB | Endorsed |
| R4-2204618  Revised to R4-2206519 | TxD and UL-MIMO requirements for single-port antenna transmission | Ericsson | Endorsed |
| R4-2204595 | 3GPP TR 38.837 v0.4.0 | vivo | Email approval |
| R4-2205574 | Big CR for TS 38.101-1 Tx diversity requirements (phase 2) | Huawei, HiSilicon, Qualcomm, vivo | Email approval |

#### 10.7.1 General

**R4-2204595 3GPP TR 38.837 v0.4.0**

*Type: draft TR For: Approval  
 38.837 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Abstract:**

[draft TR] TR 38.837

**Decision:** The document was **for email approval**.

**R4-2204968 TP for TR 38.837 on Power Class Clarification for SA**

*Type: pCR For: Approval  
 38.837 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: vivo*

**Decision: Approved.**

**R4-2205574 Big CR for TS 38.101-1 Tx diversity requirements (phase 2)**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1021 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Qualcomm, vivo*

**Abstract:**

Reserved big CR, previously endorsed CR is R4-2201941.

**Decision:** The document was **for email approval**.

**R4-2205575 Big CR for TS 38.307: release independent requirements for TxD**

*Type: CR For: Agreement  
 38.307 v17.4.0 CR-0090 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206516 (from R4-2205575).**

**R4-2206516 Big CR for TS 38.307: release independent requirements for TxD**

*Type: CR For: Agreement  
 38.307 v17.4.0 CR-0090 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

#### 10.7.2 UE RF requirements for phase 1 (38.101-1)

**R4-2206133 TP to TR38.837 on MPR evaluation for 2Tx PC2 and PC1.5 operation**

*Type: pCR For: Approval  
 38.837 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

in this contribution we provide TP to add the inputs on the TxD MPR studies. Note that due to lack of time before deadline this TP is incomplete, a revision will be provided to the group consideration before the beginning of the meeting.

**Decision: Noted.**

##### 10.7.2.1 UL MIMO requirement for TxD except ULFPTx

**R4-2205578 draft CR for TS 38.101-1: move 2Tx MPR to Clause 6.2D (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon, Qualcomm*

**Decision: Revised to R4-2206517 (from R4-2205578).**

**R4-2206517 draft CR for TS 38.101-1: move 2Tx MPR to Clause 6.2D (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon, Qualcomm*

**Decision: Endorsed.**

#### 10.7.3 UE RF requirements for phase 2 (38.101-1)

##### 10.7.3.1 SRS antenna switching related

**R4-2203681 TxD and SRS antenna switching**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2204616 Pcmax for SRS usage set as antenna switching for TxD and UL-MIMO features**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the Pcmax for SRS used for antenna switching for antenna virtualization and full-power UL-MIMO

**Decision: Noted.**

**R4-2204836 Draft R17 CR on SRS IL for TxD**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: OPPO*

**Decision: Noted.**

**R4-2204837 R17 FR1 TP to 38.837 for TxD SRS IL**

*Type: pCR For: Approval  
 38.837 v0.3.0 CR- rev Cat: (Rel-17)  
  
 Source: OPPO*

**Decision: Noted.**

**R4-2204921 R17 FR1 SRS IL for TxD and ULFPTx**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2204969 Further discussion on SRS antenna switching for TxD**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2205223 Discussion on SRS sharing and antenna switching**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted.**

**R4-2205224 Draft CR on SRS IL for NR TxD**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Revised to R4-2206518 (from R4-2205224).**

**R4-2206518 Draft CR on SRS IL for NR TxD**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Endorsed.**

**R4-2205576 On SRS IL for TxD**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

##### 10.7.3.2 ULFPTx related

**R4-2204617 Single-antenna fallback for TxD and UL-MIMO (including ULFPTx)**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we propose single-antenna port fall-back requirements and discuss the importance of consistent virtualization for SRS and PUSCH

**Decision: Noted.**

**R4-2204618 TxD and UL-MIMO requirements for single-port antenna transmission**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the single-port requirements to accommodate TxD and (full-power) UL-MIMO modes

**Decision: Revised to R4-2206519 (from R4-2204618).**

**R4-2206519 TxD and UL-MIMO requirements for single-port antenna transmission**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to correct the single-port requirements to accommodate TxD and (full-power) UL-MIMO modes

**Decision: Endorsed.**

**R4-2204828 Draft R17 CR on UL MIMO falllback to TxD**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: OPPO*

**Decision: Noted.**

**R4-2204835 R17 FR1 TxD and ULFPTx fallback**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2204970 Discussion on ULFPTx with TxD**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **withdrawn**.

**R4-2205225 ULFPTx requirements for fallback and TxD**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted.**

**R4-2205577 On ULFPTx and applicable MPR requirements for different PA configurations**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205884 TxD and ULFPTx requirements**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2205887 Further discussion on transparent TxD – ULFPTx related**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

#### 10.7.4 Release independency

### 10.8 Enhancement for NR high speed train scenario in FR1

#### 10.8.1 General

#### 10.8.2 RRM core requirements

##### 10.8.2.1 Intra-frequency measurements

##### 10.8.2.2 Inter-frequency measurements

##### 10.8.2.3 L1-SINR measurements

##### 10.8.2.4 Others

#### 10.8.3 UE demodulation requirements (38.101-4)

##### 10.8.3.1 General

##### 10.8.3.2 PDSCH requirements for CA scenarios

### 10.9 NR support for high speed train scenario in FR2

#### 10.9.1 General

**R4-2206594 TR 38.854, NR support for high speed train scenario in frequency range 2 (FR2)**

*Type: draftTR For: Approval  
 Source: Nokia, Nokia Shanghai Bell, Samsung*

**Decision: Return to.**

#### 10.9.2 UE RF core requirements

**[102-e][129] NR\_HST\_FR2, AI 10.9.2 – He Wang**

**R4-2206329 Email discussion summary for [102-e][129] NR\_HST\_FR2**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206429 (from R4-2206329).**

**R4-2206429 Email discussion summary for [102-e][129] NR\_HST\_FR2**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW on Feb-22**

**Issue 2-1-1: Spherical coverage requirement – Confirm coverage region and x%-tile**

* Proposals:
  + Proposal-1 (Nokia, ZTE): RAN4 confirms the baseline UE spherical coverage region (+/-37.5 degrees for azimuth angle and +/-15 degrees for elevation angles).
* Recommended WF
  + Agree Proposal-1, i.e., RAN4 confirms the baseline UE spherical coverage region in spherical coordination system:
    - Azimuth angle range (relative to 0 and 180 degree in spherical coordination system):
      * [-37.5degrees, +37.5 degrees]
    - Elevation angle:
      * [-15degrees, +15degrees] w.r.t. UE claimed boresight direction.

**Agreement:** Agree on the following table

|  |  |  |
| --- | --- | --- |
|  | θ range (degree) | ϕ range (degree) |
| Area-1 | 90 to 60 | -37.5 to + 37.5 |
| Area-2 | 90 to 60 | 142.5 to 217.5 |
| NOTE 1: When testing power class 6 UEs, DUT orientation can be determined according to the UE spherical coverage evaluation areas, not necessarily following default alignment in Figure J.1-2 or positioning guidelines in clause J.3.  NOTE 2: High speed train deployment is expected to be w.r.t. the reference coordination system: θ = 90 (degree) corresponds to the ground plane the train is running on, and ϕ= 0 or 180 with θ = 90 are the train track directions. | | |

**Issue 2-1-2: Spherical coverage requirement - EIRP drop from min. Peak EIRP**

* Proposals on requirement setting:
  + Proposal 1 (Qualcomm): Set EIRP drop requirement to at least keep received power at gNB stable.
* Options on EIRP drop (i.e., x dB lower than min. Peak EIRP requirement):
  + Option 1 (Qualcomm): 9dB
  + Option 2 (Samsung): 12dB
  + Option 3 (Nokia): 15dB
* Recommended WF
  + Companies’ views are collected in 1st round discussion (on observations, proposal, and options for EIRP drop values).

**Discussion:**

Qualcomm: prefer 9dB.

Huawei: Qualcomm proposed 15dB in previous meeting. We can take the middle one.

Qualcomm: the previous proposal is for different angles, which cause the difference.

Samsung: Aligned with Qualcomm. In the last meeting, the number proposed by companies depends on the different understanding of spherical coverage.

ZTE:

Huawei: it makes sense. We are OK with 12dB.

Nokia: 9dB is a bit challenging with no margin. We are OK with 12dB.

Qualcomm: PC5 has more beams than PC3. PC5 requirement would be preferable and on top of it we consider 1dB additional margin.

Nokia: We do not need to optimal requirement and handover would be used on the edge. The peak EIPR was agreed. So we have concern on 9dB, which needs special design on the antenna. We could adopt 3dB more relaxation.

Huawei: We have some assumption for antenna element. We should leave some room for UE implementation.

ZTE: The different scenario such as A and B have different assumptions of beam numbers. If we discuss the EIRP, we think the number of beams should be reached. Or we consider the EIRP with 3 beams or 6 beams.

Qualcomm: To ZTE, we agreed to consider set 2, which is with 6 beams. Do you imply PC5 has no RAN4 implementation? To Nokia, we prefer to PC5, which is feasible. Why is PC6 not feasible? If we have better EIRP drop, the better performance can be achieved. Check with Nokia and Huawei if 10dB is OK.

Samsung: for the proposed values, we are aligned with Qualcomm. PC5 is the good reference from antenna chipset. We think the smaller margin is reasonable. In our paper, we have some calculation on the spherical coverage percentile. It is comparable to PC5. The other consideration is that the required region is fixed. 9dB is OK for us. Some further margin can be allowed. 10dB would be compromise.

Huawei: To Qualcomm, we just want to leave room for UE implementation.

**Agreement:** For EIRP drop (i.e., x dB lower than min. Peak EIRP requirement), agree 10dB.

**Issue 2-2-1: UE TX minimum output power and transmit signal quality**

* Proposals:
  + Proposal-1 (Samsung): For FR2 PC6 UE, RAN4 adopt the same requirement as FR2 PC5 UE for:
    - Minimum output power, and
    - Transmit signal quality.
* Recommended WF
  + Companies’ views are collected on P1 in 1st round discussion.
  + Also check CR drafting in details for relevant changes.

**Agreement:** For FR2 PC6 UE, RAN4 adopt the same requirement as FR2 PC5 UE for:

* Minimum output power, and
* Transmit signal quality.

**Issue 2-2-2: UE TX requirement for UL-MIMO**

* Proposals:
  + Proposal-1 (Samsung): Similar to other power classes, RAN4 define UL-MIMO TX requirements for FR2 PC6 UE, by following the same requirement as PC6 single TX port requirement numerically.
* Recommended WF
  + Companies’ views are collected on P1 in 1st round discussion.
  + Also check CR drafting in details for relevant changes.

**Agreement:** Similar to other power classes, RAN4 define UL-MIMO TX requirements for FR2 PC6 UE, by following the same requirement as PC6 single TX port requirement numerically.

**Issue 2-3-1: EIS Spherical Coverage requirements**

* Proposals:
  + Proposal-1 (Samsung): For EIS spherical coverage requirement, it is defined in the same spherical coverage region as introduced for TX spherical coverage.

**Agreement:** the text in the follow table is agreeable but the numbers in the table will be updated based on the agreements

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7.3.4.6 EIS spherical coverage for power class 6  The reference measurement channels and throughput criterion shall be as specified in clause 7.3.2.6  The maximum EIS measured over the spherical coverage evaluation areas is defined as the spherical coverage requirement and is found in Table 7.3.4.6-1 below. UE spherical coverage evaluation areas are found in Table 6.2.1.6-3a in clause 6.2.1.6, by consisting of Area-1 and Area-2, in the reference coordinate system in Annex J.1. The requirement is verified with the test metric of EIS (Link=Spherical coverage grid, Meas=Link angle).  **Table 7.3.4.6-1: EIS spherical coverage for power class 6**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Operating band** | **Max EIS over UE spherical coverage evaluation areas (dBm) / Channel bandwidth** | | | | | **50 MHz** | **100 MHz** | **200 MHz** | **400 MHz** | | n257 | [-80.6] | [-77.6] | [-74.6] | [-71.6] | | n258 | [-80.8] | [-77.8] | [-74.8] | [-71.8] | | n261 | [-80.6] | [-77.6] | [-74.6] | [-71.6] | | NOTE 1: The transmitter shall be set to PUMAX as defined in clause 6.2.4  NOTE 2: The EIS spherical coverage requirements are verified only under normal thermal conditions as defined in Annex E.2.1. | | | | |   The requirement shall be met for an uplink transmission using QPSK DFT-s-OFDM waveforms and for uplink transmission bandwidth less than or equal to that specified in Table 7.3.2.1-2.  Unless given by Table 7.3.2.1-3, the minimum requirements for reference sensitivity shall be verified with the network signalling value NS\_200 (Table 6.2.3-1) configured. |

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206520 WF on remaining issues for FR2 PC6 for HST Scenarios | Samsung | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205889  Revised to R4-2206521 | CR to introduce UE RF requirement for FR2 Power Class 6 | Samsung | Agreed |

**R4-2206520 WF on remaining issues for FR2 PC6 for HST Scenarios**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Approved.**

-------------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2203712 On FR2 HST RF Requirements**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision: Noted.**

**R4-2205888 Remaining Issues on RF requirement for FR2 PC6 UE**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2205889 CR to introduce UE RF requirement for FR2 PC 6 UE**

*Type: CR For: Agreement  
 38.101-2 v17.4.0 CR-0441 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision: Revised to R4-2206521 (from R4-2205889).**

**R4-2206521 CR to introduce UE RF requirement for FR2 PC 6 UE**

*Type: CR For: Agreement  
 38.101-2 v17.4.0 CR-0441 rev Cat: B (Rel-17)  
  
 Source: Samsung*

**Decision: Agreed.**

##### 10.9.2.1 UE Tx requirements

###### 10.9.2.1.1 UE RF framework and power class

###### 10.9.2.1.2 Spherical coverage requirements

**R4-2204431 Discussion on Spherical coverage requirements for HST\_FR2**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205211 UE spherical coverage requirement for FR2 HST**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

###### 10.9.2.1.3 Beam correspondence

##### 10.9.2.2 UE Rx requirements

#### 10.9.3 RRM core requirements

##### 10.9.3.1 General

##### 10.9.3.2 RRC Idle/Inactive and connected state mobility requirements

##### 10.9.3.3 Timing requirements

##### 10.9.3.4 Signalling characteristics requirements

##### 10.9.3.5 Measurement procedure requirements

#### 10.9.4 Demodulation requirements

##### 10.9.4.1 General

##### 10.9.4.2 UE demodulation requirements

###### 10.9.4.2.1 PDSCH requirements under Uni-directional scenario

###### 10.9.4.2.2 PDSCH requirements under Bi-directional scenario

##### 10.9.4.3 BS demodulation requirements

###### 10.9.4.3.1 PUSCH requirements

###### 10.9.4.3.2 PUSCH with UL timing adjustment requirements

###### 10.9.4.3.3 PRACH requirements

### 10.10 Further RRM enhancement for NR and MR-DC

#### 10.10.1 General

#### 10.10.2 RRM core requirements

##### 10.10.2.1 SRS antenna port switching

##### 10.10.2.2 HO with PSCell

##### 10.10.2.3 PUCCH SCell activation/deactivation

### 10.11 NR and MR-DC measurement gap enhancements

#### 10.11.1 General

#### 10.11.2 RRM core requirements

##### 10.11.2.1 Pre-configured MG pattern(s)

##### 10.11.2.2 Multiple concurrent and independent MG patterns

##### 10.11.2.3 Network Controlled Small Gap

### 10.12 Further enhancement on NR demodulation performance

#### 10.12.1 General

#### 10.12.2 UE demodulation and CSI requirements

##### 10.12.2.1 MMSE-IRC receiver for inter-cell interference

###### 10.12.2.1.1 PDSCH requirements

###### 10.12.2.1.2 CQI requirements

##### 10.12.2.2 MMSE-IRC receiver for intra-cell inter-user interference

##### 10.12.2.3 CRS-IM receiver in scenarios with overlapping spectrum for LTE and NR

###### 10.12.2.3.1 General

###### 10.12.2.3.2 Network assistant signaling

###### 10.12.2.3.3 Test set-up

#### 10.12.3 BS demodulation requirements

##### 10.12.3.1 PUSCH demodulation requirements for FR1 256QAM

### 10.13 Solutions for NR to support non-terrestrial networks (NTN)

#### 10.13.1 General

##### 10.13.1.1 System parameters

##### 10.13.1.2 NTN Satellite Access Node Class/Type

##### 10.13.1.3 Regulatory information

##### 10.13.1.4 Others

#### 10.13.2 Coexistence aspects

##### 10.13.2.1 NTN coexistence scenarios and simulations

##### 10.13.2.2 HAPS coexistence scenarios and simulations

##### 10.13.2.3 ACLR/ACS proposals

#### 10.13.3 Satellite Access Node RF requirements

##### 10.13.3.1 TX requirements for radiated characteristics

##### 10.13.3.2 RX requirements for radiated characteristics

##### 10.13.3.3 Tx requirements for conducted characteristics

##### 10.13.3.4 Rx requirements for conducted characteristics

#### 10.13.4 UE RF requirements

##### 10.13.4.1 TX requirements

##### 10.13.4.2 RX requirements

#### 10.13.5 RRM core requirements

##### 10.13.5.1 General

##### 10.13.5.2 GNSS-related requirements

##### 10.13.5.3 Mobility requirements

##### 10.13.5.4 Timing requirements

##### 10.13.5.5 Measurement procedure requirements

#### 10.13.6 Demodulation requirements

##### 10.13.6.1 General

##### 10.13.6.2 Satellite Access Node demodulation requirements

###### 10.13.6.2.1 PUSCH requirements

###### 10.13.6.2.2 PUCCH requirements

###### 10.13.6.2.3 PRACH requirements

##### 10.13.6.3 UE demodulation requirements

###### 10.13.6.3.1 PDSCH requirements

###### 10.13.6.3.2 PDCCH/PBCH requirements

##### 10.13.6.4 CSI requirements

### 10.14 UE Power Saving Enhancements for NR

#### 10.14.1 General

#### 10.14.2 RRM core requirements

#### 10.14.3 RRM performance requirements

#### 10.14.4 Demodulation performance requirements

### 10.15 NR Sidelink enhancement

#### 10.15.1 General

**[102-e][130] NRSL\_enh\_Part\_1, AI 10.15.1, 10.15.2 – Su Hwan Lim**

**R4-2206330 Email discussion summary for [102-e][130] NRSL\_enh\_Part\_1**

*Type: other For: Information  
 Source: Moderator (LGE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206430 (from R4-2206330).**

**R4-2206430 Email discussion summary for [102-e][130] NRSL\_enh\_Part\_1**

*Type: other For: Information  
 Source: Moderator (LGE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW on Feb-22**

**Issue 1-1-1: Frequency error for TxD**

* Proposals
  + Option 1: The frequency error observation period for NR SL MIMO and NR V2X TxD should be revised to 1.0 ms to align with the Uu specifications.
  + Option 2: Keep the current 0.5ms for NR SL MIMO and V2X TxD UE.
* Recommended WF
  + Option 1 is acceptable

**Discussion:**

Qualcomm: Support Option 1 which is aligned with NR Uu spec.

Huawei: we need consider Cat F CR to correct the value for LTE-V. We only consider the revision for NR.

Xiaomi: for LTE-V, 0.5ms corresponds to LTE Uu.

**Agreement:** for frequency error for TxD, agree with Option 1.

**Issue 1-1-2: Revision of MPR for PC2 TxD in TS38.101-1**

* Proposals
  + Option 1: Based on Huawei CR (R4-2205583), RAN4 can update the MOP and MPR requirements for PC3/PC2 V2X TxD UE.
  + Option 2: In Table 6.2E.1.1-1, the PC2 tolerance should be aligned with NR UL-MIMO UE with +2/-3dB.
  + Option 3: Need further clarification for the proposed contents in Huawei CR (R4-2205583)
* Recommended WF
  + TBD

**Discussion:**

Huawei: We would like to check if the separate tables for TxD are needed.

LGE: Not to define the separate table for TxD.

**Agreement:** Do not have separate tables for TxD requirements for NR V2X PC2 UE.

**Issue 1-2-1: 5MHz CBW FRC Tables for PS UE in Annex 7**

* Proposals
  + Option 1: Based on LGE CR (R4-2204154), RAN4 can update the FRC tables for 5MHz CBW for PS UE.
  + Option 2: Need time to further check the FRC Tables.
* Recommended WF
  + TBD.

**Discussion:**

Qualcomm: there was band combination for 5MHz with 30KHz SCS, which is targeting at public safety. The related part should be removed from document.

LGE: 5MHz can be support with 30KHz SCS.

AT&T: We do not think it is necessary to limit to n14. There is no band to show 5Mhz with 30Khz.

**Agreement:** Remove 5MHz with 30KHz from the draft CRs.

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2204152 | TR38.785 v1.0.0 TR Update for SL enhancement in Rel-17 | LG Electronics France | Agreed |
| [R4-2204154](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204154.zip)  Revised to R4-2206522 | Draft CR on FRC for 5MHz CBW for SL enhancement for public safety service in n14 | LG Electronics France | Endorsed |
| [R4-2204156](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204156.zip)  Revised to R4-2206523 | Draft big CR to merge the endorsed CRs for SL enhancement PS UE in Part1 | LG Electronics France | Endorsed |
| R4-2204157 | Formal big CR to introduce SL enhancements UE RF requirements in Rel-17 | LG Electronics France | Agreed |
| [R4-2205583](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205583.zip)  Revised to R4-2206524 | draft CR for TS 38.101-1: introduction of PC2 TxD for SL | Huawei, HiSilicon | Endorsed |
| R4-2204929  Revised to R4-2206590 | Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-16) | vivo | 4929 Not pursued  6590 withdrawn |
| R4-2204930 | Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-17) | vivo | Withdrawn |

-----------------------------------------------------------------------------------------------------------------------------------

**R4-2204152 TR38.785 v1.0.0 TR Update for SL enhancement in Rel-17**

*Type: draft TR For: Approval  
 38.785 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

[draft TR] TR 38.785 TR for SL enhancement to complete the WI in Rel-17.

**Decision: Agreed.**

**R4-2204157 Formal big CR to introduce SL enhancements UE RF requirements in Rel-17**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1002 rev Cat: B (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Formal Big CR to introduce SL enhancement UE RF requirements in Rel-17

**Decision: Agreed.**

#### 10.15.2 UE RF requirements for NR SL enhancement

**R4-2204154 Draft CR on FRC for 5MHz CBW for SL enhancement for public safety service in n14**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Add FRC Tables for 5MHz CBW for PS UE in n14

**Decision: Revised to R4-2206522 (from R4-2204154).**

**R4-2206522 Draft CR on FRC for 5MHz CBW for SL enhancement for public safety service in n14**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Add FRC Tables for 5MHz CBW for PS UE in n14

**Decision: Endorsed.**

**R4-2204156 Draft big CR to merge the endorsed CRs for SL enhancement PS UE in Part1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Draft Big CR to merge the endorsed draft CRs for NR SL enhancement PS UE in Part1

**Decision: Revised to R4-2206523 (from R4-2204156).**

**R4-2206523 Draft big CR to merge the endorsed CRs for SL enhancement PS UE in Part1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Draft Big CR to merge the endorsed draft CRs for NR SL enhancement PS UE in Part1

**Decision: Endorsed.**

##### 10.15.2.1 Configured Tx power requirements

**R4-2204929 Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: vivo*

**Decision: Not pursued.**

**R4-2206590 Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-16)**

*Type: draftCR For: Endorsement  
 38.101-1 v16.10.0 CR- rev Cat: F (Rel-16)  
  
 Source: vivo*

**Decision: Withdrawn.**

**R4-2204930 Draft CR for TS 38.101-1, Correction on configured transmitted power for SL (Rel-17)**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision: Withdrawn.**

##### 10.15.2.2 REFSENS requirements

##### 10.15.2.3 Other RF requirements

**R4-2204017 Frequency error measurement period for NR SL MIMO and NR V2X TxD**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Discussion on frequency error measurement period for NR SL MIMO and NR V2X TxD

**Decision: Noted.**

**R4-2205583 draft CR for TS 38.101-1: introduction of PC2 TxD for SL**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206524 (from R4-2205583).**

**R4-2206524 draft CR for TS 38.101-1: introduction of PC2 TxD for SL**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

#### 10.15.3 Intra-band con-current operation between NR SUL and NR Uu

**[102-e][131] NRSL\_enh\_Part\_2, AI 10.15.3 – Yuan Gao**

**R4-2206331 Email discussion summary for [102-e][131] NRSL\_enh\_Part\_2**

*Type: other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206431 (from R4-2206331).**

**R4-2206431 Email discussion summary for [102-e][131] NRSL\_enh\_Part\_2**

*Type: other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW on Feb-22**

**Issue 1-1-1: Whether to include TA difference into switching time mask**

* Proposals
  + Option 1: Yes.
  + Option 2: No.
* Recommended WF
  + TBA

**Discussion:**

Huawei: more companies prefer not to include TA difference. In RRM session, they had agreement. There is no necessity to include TA, which is not a fixed value. For the switching time make, usually we are considering the hardware implementation. Regarding other aspect, we can leave to RAN1.

Xiaomi: Support Option1. Regarding other time mask, there are no timing difference because the frame is quite aligned. In EN-DC, the TA difference is included in the spec. We propose the worst the case to solve the issue for TA fixed value.

VIVO: We prefer Option 2. We agree with Huawei. If there is not test, we are OK with either way.

LGE: Support Option 1. NR sidelink and NR Uu has different timing. If not considering, it does not reflect the UE behaviour. RAN4 can add the timing difference between sidelink and Uu.

CATT: support Option 1.

**Agreement:** Define the switching time mask requirement only considering the hardware limitation

* Add the note to clarify that there will be additional TA difference included in the switching time in the real field.
* There is no test case for it.

**Issue 1-1-6: Whether to send LS to RAN5 for indication of no RF test for switching time**

* Proposals
  + Option 1: Yes.
  + Option 2: No.
* Recommended WF
  + TBA

**Agreement:** Send LS to RAN5 for indication of no RF test for switching time.

**Issue 1-2-1: MPR for intra-band V2X con-current operation**

* Proposals
  + Option 1: Consider the MPR in LGE paper [R4-](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2117831.zip)2204144.
  + Option 2: Consider the MPR in Huawei paper [R4-2](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-e/Docs/R4-2118707.zip)205584.
* Recommended WF
  + TBA

**Discussions:**

Huawei: we have two different views for MPR requirement. One from LGE, the requirement is defined for.. Based on observation that the requirement should not be smaller than single carrier case. For the simultaneous transmission, we do not have FDM or TDM capabilities. We should consider them together. Whether it is FDM or TDM should depend on the scheduling. The same requirement can be defined for con-current operation to cover both FDM and TDM.

LGE: we are fine to find the common ground for MPR. But the agreement should be based on agreed way forward. We should consider the PRB allocations. RAN4 should consider high moderator order. RAN4 should consider 10 RB for sidelink.

Qualcomm: with the simulation, there are so many difference parameters. There is quite big difference between the numbers. The MPR numbers are lower than what we measured in the lab. There is complex simulation and the measurement should be best way to go.

Huawei: Tend to agree with Qualcomm. For 2Tx, we derive the requirement based on measurement. The minimum RB number should be 10 RB. Based on the discussion for uplink CA, we see some similarity. Can we use UL CA requirement as reference?

LGE: It is difficult to derive the requirement. We can have principle. RAN4 should consider the highest modulation order for sidelink. RB size should be 10 RB for the sidelink.

**Agreement:** Agree with following high level principles

* Use the highest modulation order between sidelink and NR Uu
* RB size allocated for sidelink is 10 RB
* Taking intra-band UL CA requirement into account
* Have one requirement for con-current operation.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206525 WF on switching time mask for intra-band V2X con-current operation | CATT | Approved |
| R4-2206526 LS on time mask for intra-band SL and Uu switching | Qualcomm Incorporated | Approved |
| R4-2206527 WF on MPR for intra-band V2X con-current operation | Huawei, HiSilicon | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2204153](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204153.zip)  Revised to R4-2206528 | TP on the RF requirements for the remaining open issues for SL enhancements | LG Electronics | Approved |
| [R4-2203912](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203912.zip)  Revised to R4-2206529 | Draft CR for TS 38.101-1, Remaining RF requirements for intra-band con-current operation | CATT | Endorsed |
| [R4-2204155](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204155.zip)  Revised to R4-2206530 | Draft CR on MPR and ON/OFF time mask for intra-band con-current V2X operation in Rel-17 | LG Electronics | Endorsed |
| [R4-2205135](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205135.zip)  Revised to R4-2206531 | TP to TR 38.785 switching time mask between SL and Uu for different carriers | Xiaomi | Approved |
| [R4-2205136](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205136.zip) | draft CR for TS 38.101-1 on default power class for intra-band concurrent operation | Xiaomi | Endorsed |
| R4-2204174 | Draft big CR for TS 38.101-1, RF requirements for intra-band con-current operation | CATT | Endorsed |

**R4-2206525 WF on switching time mask for intra-band V2X con-current operation**

*Type: other For: Approval  
 Source: CATT*

**Decision: Approved.**

**R4-2206526 LS on time mask for intra-band SL and Uu switching**

*Type: LSout For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

**R4-2206527 WF on MPR for intra-band V2X con-current operation**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

--------------------------------------------------------------------------------------------------------------------------------------

**R4-2204153 TP on the RF requirements for the remaining open issues for SL enhancements**

*Type: pCR For: Approval  
 38.785 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Propose the remaining open issues and conclusion contents

**Decision: Revised to R4-2206528 (from R4-2204153).**

**R4-2206528 TP on the RF requirements for the remaining open issues for SL enhancements**

*Type: pCR For: Approval  
 38.785 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Propose the remaining open issues and conclusion contents

**Decision: Approved.**

**R4-2205133 on Switching time mask**

*Type: discussion For: (not specified)  
 Source: Xiaomi*

**Decision: Noted.**

##### 10.15.3.1 RF requirements for intra-band V2X con-current (including MPR)

**R4-2203912 Draft CR for TS 38.101-1, Remaining RF requirements for intra-band con-current operation**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Revised to R4-2206529 (from R4-2203912).**

**R4-2206529 Draft CR for TS 38.101-1, Remaining RF requirements for intra-band con-current operation**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2204144 MPR for NR V2X intra-band con-current operation with Uu**

*Type: discussion For: Approval  
 Source: LG Electronics*

**Abstract:**

It provides MPR for NR V2X intra-band con-current operation with Uu.

**Decision: Noted.**

**R4-2204155 Draft CR on MPR and ON/OFF time mask for intra-band con-current V2X operation in Rel-17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Propose the MPR requirements and ON/OFF time mask for TDM operation.

**Decision: Revised to R4-2206530 (from R4-2204155).**

**R4-2206530 Draft CR on MPR and ON/OFF time mask for intra-band con-current V2X operation in Rel-17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Propose the MPR requirements and ON/OFF time mask for TDM operation.

**Decision: Endorsed.**

**R4-2204174 Draft big CR for TS 38.101-1, RF requirements for intra-band con-current operation**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2204931 Further discussion on switching time mask for intra-band V2X con-current operation**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2205137 draft CR for TS 38.101-1 on switching time mask between SL and Uu**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision: Not pursued.**

**R4-2205584 On MPR for intra-band con-current operation**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

##### 10.15.3.2 Synchronous operation between SL and Uu (including switching time mask, SL transmission timing)

**R4-2203911 Time mask for Uu and SL switching**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2204015 RF switching for V2X intra-band con-current operation with different carriers in TDD bands**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

RF switching requirements for intra-band con-current operation with different carrier is presented

**Decision: Noted.**

**R4-2204920 Synchronous operation between SL and Uu**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205135 TP to TR 38.785 switching time mask between SL and Uu for different carriers**

*Type: pCR For: Approval  
 38.785 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2206531 (from R4-2205135).**

**R4-2206531 TP to TR 38.785 switching time mask between SL and Uu for different carriers**

*Type: pCR For: Approval  
 38.785 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision: Approved.**

**R4-2205136 draft CR for TS 38.101-1 on default power class for intra-band concurrent operation**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision: Endorsed.**

**R4-2205585 On time mask for SL intra-band con-current operation**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205586 draft CR for TS 38.101-1: On time mask for SL intra-band con-current operation**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

#### 10.15.4 High power UE(PC2) for SL

**[102-e][132] NRSL\_enh\_Part\_3, AI 10.15.4 – Liehai Liu**

**R4-2206332 Email discussion summary for [102-e][132] NRSL\_enh\_Part\_3**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206432 (from R4-2206332).**

**R4-2206432 Email discussion summary for [102-e][132] NRSL\_enh\_Part\_3**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW on Feb-22**

**Issue 1-1: Pcmax definition for inter-band V2X UE**

Whether to keep the existing Pcmax definition for inter-band con-current operation

* Proposal 1: No change for NR V2X Pcmax definition for Rel-17 inter-band con-current operation.
* Proposal 2: If study outcome of WI Power\_Limit\_CA\_DC for licensed bands has any impact to the existing requirements for inter-band con-current operation, the requirements can be further revisited in future release.

Moderator’s recommendation:

* Recommended WF
  + Discuss whether the proposals are agreeable

**Discussion:**

Huawei: we can only agree on proposal 1. We won’t have any change for the requirement for existing band combo.

**Agreement:** No change for NR V2X Pcmax definition for Rel-17 inter-band con-current operation.

**Conclusions after 2nd round**

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205134  Revised to R4-2206532 | TP to TR 38.785 on the co-channel co-existence issue | Xiaomi | Approved |

##### 10.15.4.1 TX requirements (Power class)

**R4-2205582 On configured output power for NR SL inter-band con-current operation**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

##### 10.15.4.2 Coexistence study

**R4-2205134 TP to TR 38.785 on the co-channel co-existence issue**

*Type: pCR For: Approval  
 38.785 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2206532 (from R4-2205134).**

**R4-2206532 TP to TR 38.785 on the co-channel co-existence issue**

*Type: pCR For: Approval  
 38.785 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Xiaomi*

**Decision: Approved.**

**R4-2205538 Tp for Co-channel existing**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, TP for co-channel interference aspect is proposed

**Decision: Merged (with R4-2206532).**

##### 10.15.4.3 Others

#### 10.15.5 RRM core requirements

##### 10.15.5.1 Intra-band con-current V2X operation

##### 10.15.5.2 SL-DRX

##### 10.15.5.3 Others

#### 10.15.6 RRM performance requirements

#### 10.15.7 Demodulation performance requirements

### 10.16 Extending current NR operation to 71GHz

**R4-2205190 Reply LS on the minimum guard period between two SRS resources for antenna switching**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

#### 10.16.1 General

**[102-e][133] NR\_ext\_to\_71GHz\_Part\_1, AI 10.16.1, 10.16.2, 10.16.7, 10.16.9 – Aida L Vera Lopez**

**R4-2206333 Email discussion summary for [102-e][133] NR\_ext\_to\_71GHz\_Part\_1**

*Type: other For: Information  
 Source: Moderator (Intel)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206433 (from R4-2206333).**

**R4-2206433 Email discussion summary for [102-e][133] NR\_ext\_to\_71GHz\_Part\_1**

*Type: other For: Information  
 Source: Moderator (Intel)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206535 WF on system parameters of FR2-2 | Intel Corporation | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2203581  Revised to R4-2206533 | Draft LS on sensing beam characteristics to RAN1 | Ericsson | Approved |
| R4-2203939 | Draft CR for TS 37.106: introduction of UE LBT requirement for FR2-2 | CATT | Not pursued |
| R4-2203940 | Draft CR for TS 37.107: introduction of BS LBT requirement for FR2-2 | CATT | Not pursued |
| R4-2203941  Revised to R4-2206534 | Draft reply LS on the minimum guard period between two SRS resources for antenna switching | CATT | 3941 Noted  6534 withdrawn |
| R4-2204932 | Draft CR for TS 38.101-2: Introduction of system parameters for FR2-2 | vivo | Not pursued |
| R4-2205997 | UE feature list for NR ext. to 71GHz | Intel Corporation | Noted |
| R4-2205020  Revised to R4-2206582 | Draft CR to TS 38.104: Channel arrangement | Ericsson | Endorsed |
| R4-2205021  Revised to R4-2206583 ->  Revised to R4-2206607 | Draft CR to TS 38.101-2: Channel arrangement | Ericsson | Endorsed |

**R4-2206535 WF on system parameters of FR2-2**

*Type: other For: Approval  
 Source: Intel*

**Decision: Approved.**

**GTW on Feb-28**

**Sub-topic 2-1: Band definition**

**Issue 2-1: Should a licensed band from 66 to 71 GHz be specified now**

Majority view is that defining a licensed band should be postponed until regulations become clear. However, some companies want to discuss further to consider channelization and regulatory status.

Tentative agreement: Wait for regulations to be clear before introducing a licensed band

Recommendations: Further discuss the issue and whether tentative agreement is agreeable

**Discussion:**

Ericsson: The agreement on the raster included the solution for both licensed and unlicensed. We sent LS to RAN2 to make sure that they cover it in Rel-17. Regarding waiting for regulation, we have gotten the allocation for 66-71GHz according to WRC-19, which is equally clear. We do not understand why we should not discuss the regulation. We would like to make sure that the raster agreement will be captured.

Nokia: We have slightly concern. It will set the precedent that we define bands without regulation in place. The solution can be captured in the TR.

Ericsson: If there is additional regulatory requirements, they can be captured in NS value. The same problem applies to unlicensed band in this range.

Apple: previously we had the RAN4 requirements, we are OK to specify the raster for licensed band. I still need to wait for the regulation being clear.

Huawei: we support Ericsson proposal. In previous, we had the situation. There is no stop to specify the licensed band. We suggest the statement to clearly capture what is going to do in the future.

Nokia: the regulation for unlicensed is published and the situation is not similar.

Apple: If there is no further development of regulation, we should honor the previous agreement, i.e., specify the unlicensed band and postpone the licensed.

Ericsson: there are a lot of discussion for EU. There are some discussion on-going (C2 no LBT requirements in the harmonized standard). Many other regions are changing the regulation for unlicensed. We do not see any problem to specify the licensed band.

Apple: we would like to see the regulation for unlicensed bands in other regions.

Ericsson: we would like to know the resolution in WRC-19. Should there be regulation of output power, it can be captured by NS value.

**Agreement:** Endorse the draft CR to capture the solution of raster for 66-71 GHz band based on the agreement in RAN4#101-bis-e, and agree the CR in the future when the regulation is available in at least one country or region.

* 66-71GHz frequency range should be put in the [ ] in the draft CR.
* The agreement on the raster from RAN4#101-bis-e remains.
* The other RF requirements can also be captured if they are applicable to licensed band.

**Sub-topic 2-2: Channelization**

**Issue 2-2a: Channelization for unlicensed bands**

Candidate proposal options:

* Option 1: CATT (R4-2203936)
* Option 2: vivo (R4-2204933)
* Option 3: Huawei (R4-2205988)
* Option 4: Intel (R4-2205998)

Recommendations:

Companies are encouraged to provide their views on the available proposals and may also provide an alternative concrete proposal for consideration.

If aligning on the above options is too difficult, we can focus on agreeing on a potential principle or approach for how to define the sync and RF channel rasters first.

Consider discussing the points below for GSCN step size:

* Do we need to consider SSB SCS 960kHz in the GSCN calculation?
* What is the SSB location related to the fixed channel?
* GSCN step size is related to SU and GB for each minimum channel bandwidth. Therefore, what kind of assumption should be used in the calculation

**Discussion:**

Intel: We only need 120KHz and 480KHz for PCell, and we need 960KHz for SCell.

Nokia: Initial access is not applicable to 960KHz. We need discussion on the principle for the raster. We do not set to restrict the limitation. We prefer to fixed raster just to select the sync raster. For RF raster, we prefer to leave flexibility.

Apple: We think it is necessary to specify 960KHz. We can add note to clarify 960KHz is not for initial access. To Nokia, we have slightly different understanding. For licensed, it needs specify the flexibility for operator. For unlicensed, we can simply specify some fixed raster.

**Agreement:** Specify SSB SCS 960KHz in the GSCN, and add a note to clarify that 960KHz SCS cannot be used for initial access.

* Channel locations for 100 MHz
  + Raster step size options for 120 kHz 100 MHz
    - Option 1: 1664 (99.84 MHz)
    - Option 2: 1680 (100.8 MHz)
    - Option 3: Mix of 1664 and 1680
  + Other options not precluded

**Discussion:**

Nokia: we would like to have more flexible channel raster to better support CA.

Ericsson: Align the same line with Nokia.

LGE: There would be some benefit. Do we need to raster to be multiple of SCS or the raster can be more sparse?

Apple: If we ensure the channel spacing between channels is the multiple of 960KHz, we can always ensure the CA can be done. We need consider the utilization. For 100MHz the companies had different proposals for SU. For unlicensed band, the SU is not that important. Having fixed channel placement is important with the dedicated channel placement such that we can avoid the interference. The flexible placement for licensed is not such important for unlicensed.

CATT: there are so many channels if the flexible channel raster is used. For some region, there would be some problem. We propose to use mix of 1664 and 1680. We should consider the situation in the different region.

Intel: we focuses on the fixed raster for unlicensed. In terms of finding the step, having 100.8MHz gives a uniform design. We are not sure about the CATT comments for alignment. What does the requirement stand from?

Nokia: We are not only look at 100MHz channel. The CA with 100MHz are feasible. But if we combine 100 with 400 and 800MHz, there would be some problem to align the edges.

Intel: with the flexible RF channel raster, we need define many fixed sync raster.  
CATT: the CA problem can be solved by option 3.

OPPO: we have different options. With option 3, the channels from different operators cannot be aligned.

Nokia: we can choose what kinds of CA configurations are allowed.

Intel: for CATT, there is no strong need to support some number of channels for different regulation. No operators use 140CC for aggregation. It is far more better to simplify the things.

**Agreement:** Use the fixed RF channel raster with the step size of 1680 (100.8 MHz) as baseline to define the channel raster for the unlicensed band, and accordingly provide the channel raster numbers

* To Check if the above solution can support CA with different bandwidth combinations
  + If there is issue identified, then the above agreement can be revisited

**Issue 2-2b: Channelization for licensed bands**

Candidate options for GSCN:

* Option 1: GSCN step sizes (Nokia, Ericsson, Intel)
  + 3 for 120 kHz
  + 12 for 480 kHz
  + 6 for 960 kHz

Candidate options for channel:

* Option 1: SCS based channel raster is used for licensed bands. Therefore, the step size for channel raster should be: (vivo)
  + 2 for 120kHz
  + 8 for 480kHz
  + 16 for 960kHz
* Option 2: If floating channel raster step size information is needed for RAN1 to determine the required kSSB signaling values, then we think step sizes below are suitable:
  + <16> for 120 kHz
  + <16> for 480 kHz
  + <32> for 960 kHz

Recommendations: Further discuss the candidate options. Companies may also provide an alternative concrete proposal for consideration

**Discussion:**

VIVO: for GSCN step size, it is related to the spectrum utilization. Our result are slight different.

Intel: if assuming SU 87%, there would be no problem.

**Agreement:** for GSCN for licensed band,

* GSCN step sizes
  + 3 for 120 kHz
  + 12 for 480 kHz
  + 6 for 960 kHz
* Those values will be further checked after agreeing on the SU values.

**Agreement:** for RF channel raster for licensed band, SCS based channel raster is used for licensed bands, and the step size for channel raster is

* 2 for 120kHz
* 8 for 480kHz
* 16 for 960kHz

**Sub-topic 2-3: Channel bandwidth**

**Issue 2-3: Mandatory channel bandwidths**

Candidate options:

* Proposal 1: The optionality of CBW is agreed as follows:
  + 120 kHz: mandatory (100 MHz), optional (400 MHz)
  + 480 kHz: mandatory (400 MHz), optional (800 MHz, 1600 MHz)
  + 960 kHz: mandatory (400 MHz), optional (800 MHz, 1600 MHz, 2000 MHz)
* Proposal 2: As each SCS is optional to support, further optionality on maximum channel bandwidth support is not required.

Most companies prefer Proposal 1.

Tentative agreement: Approve Proposal 1 as baseline

Recommendation: Discuss if tentative agreement can be approved

**Discussion:**

Nokia: we have concern on Proposal #1. 480KHz and 960KHz is optional. It means only 100MHz is mandatory.

Apple: Two aspects: 1) UE implementation challenges, i.e. power consumption, ADC, DPD, should be considered for different type of UEs; 2) we need consider with the current agreement on optional supporting, it does not provide the flexibility and necessary granularity for UE to support bandwidth. Proposals promote the support of 480KHz and 960KHz SCS.

**Sub-topic 2-4: Carrier aggregation**

**Issue 2-4: FR2-2 CA work in Rel-17**

Candidate option:

* Proposal: RAN4 deprioritize the work related to CA within band n263 in Rel-17.

Majority view is that CA work should not be deprioritized, as it is within WI scope. Clarification on what is meant by “deprioritizing” was requested. Proponent further explained:

“Our understanding is that until the generic CA requirements are defined, the CA band combination within band n263 cannot be added to Rel-17. Considering that RAN4 #102 is the last meeting of Rel-17 Core work scope, it is proposed to deprioritize the CA related work.”

Recommendation:

Further discuss and verify if companies’ understanding is the same

**Discussion:**

Apple: this is the last meeting. We did not have finalized the generic requirements. Thus we would like to deprioritize CA within n263.

Ericsson: we are not in favor in deprioritizing. In our view, the CA is important component for this WI. CA support is straightforward with floating design.

Nokia: it is necessary to finalize DL CA at least, which is straightforward.

* Chair: do not discuss the “*deprioritizing*” of CA within n263 in this meeting.

---------------------------------------------------------------------------------------------------------------------------------------------------

**R4-2203581 Draft LS on sensing beam characteristics to RAN1**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we present some technical background related to beam quality properties related to sensing beam previously discussed in RAN4 and our view on the need for beam quality requirements and corresponding test aspects relevant for BS and UE

**Decision: Revised to R4-2206533 (from R4-2203581).**

**R4-2206533 Draft LS on sensing beam characteristics to RAN1**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we present some technical background related to beam quality properties related to sensing beam previously discussed in RAN4 and our view on the need for beam quality requirements and corresponding test aspects relevant for BS and UE

**Decision: Approved.**

**R4-2203807 On sensing beam selection on the UE side**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2203937 Draft reply LS on sensing beam selection**

*Type: LS out For: Approval  
 to RAN1  
 Source: CATT*

**Decision: Noted.**

**R4-2203941 Draft reply LS on the minimum guard period between two SRS resources for antenna switching**

*Type: LS out For: Approval  
 to RAN1  
 Source: CATT*

**Decision: Noted.**

**R4-2206534 Draft reply LS on the minimum guard period between two SRS resources for antenna switching**

*Type: LS out For: Approval  
 to RAN1  
 Source: CATT*

**Decision: Withdrawn.**

**R4-2204932 Draft CR for TS 38.101-2: Introduction of system parameters for FR2-2**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: vivo*

**Decision: Not pursued.**

**R4-2205129 Discussion and draft reply LS on minimum guard symbol of SRS**

*Type: discussion For: (not specified)  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205732 Views on sensing beam selection on the UE side**

*Type: other For: Discussion  
 Source: Sony*

**Decision: Noted.**

**R4-2205997 UE feature list for NR ext. to 71GHz**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2206048 SRS antenna switching in FR2-2**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

#### 10.16.2 Operation bands and system parameters (channelization, raster, CBW, etc)

**R4-2203805 Remaining issues on system parameters for NR operation in 52.6GHz - 71GHz**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2203936 ON channelization and sync raster entries for up to 71GHz**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2204933 Further discussion on channel raster and sync raster for 52.6~71 GHz**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2205020 Draft CR to TS 38.104: Channel arrangement**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Implementation of channelization of floating raster in 66-71 GHz range

**Decision: Revised to R4-2206582 (from R4-2205020).**

**R4-2206582 Draft CR to TS 38.104: Channel arrangement**

*Type: draftCR For: Endorsement  
 38.104 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Implementation of channelization of floating raster in 66-71 GHz range

**Decision: Endorsed.**

**R4-2205021 Draft CR to TS 38.101-2: Channel arrangement**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Implementation of channelization of floating raster in 66-71 GHz range

**Decision: Revised to R4-2206583 (from R4-2205021).**

**R4-2206583 Draft CR to TS 38.101-2: Channel arrangement**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Implementation of channelization of floating raster in 66-71 GHz range

**Decision: Revised to R4-2206607 (from R4-2206583).**

**R4-2206607 Draft CR to TS 38.101-2: Channel arrangement**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Implementation of channelization of floating raster in 66-71 GHz range

**Decision: Endorsed.**

**R4-2205022 52.6-71 GHz System Parameters**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution will further details, such as ARFCN required for floating raster, which is required for complete channelization design.

**Decision: Noted.**

**R4-2205233 60GHz channel and synchronization raster**

*Type: discussion For: Approval  
 Source: LG Electronics Finland*

**Abstract:**

Channel raster and SSB raster for 52.6-71GHz frequency range is discussed and proposals for both are made for both un-licensed band n263 and also for foreseen bands for licensed operation.

**Decision: Noted.**

**R4-2205313 System parameters for a NR band in the range 52.6GHz – 71GHz**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2205315 60 GHz system parameters**

*Type: discussion For: Approval  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2205988 Further discussion on the channel raster and sync raster in FR2-2**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Abstract:**

This contribution provides our views and proposals about channel raster and sync raster for band n263, and the possible licensed band in 66-71 GHz spectrum.

**Decision: Noted.**

**R4-2205998 Views on FR2-2 channelization**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

#### 10.16.3 UE RF requirements

**[102-e][134] NR\_ext\_to\_71GHz\_Part\_2, AI 10.16.3 – Phil Coan**

**R4-2206334 Email discussion summary for [102-e][134] NR\_ext\_to\_71GHz\_Part\_2**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206434 (from R4-2206334).**

**R4-2206434 Email discussion summary for [102-e][134] NR\_ext\_to\_71GHz\_Part\_2**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206536 WF on 60 GHz UE RF | Qualcomm Incorporated | Approved  Put an additional agreement in the meeting report that the statement captured in 16 Spectrum Utilization is the working assumption and to be confirmed in the future meeting. |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **title** | **Source** | **Status** |
| [R4-2205210](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205210.zip)  Revised to R4-2206587 | draft CR on vehicular UE Tx RF requirements in FR2-2 | LG Electronics Finland | Endorsed |
| [R4-2205229](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205229.zip)  Revised to R4-2206588 | draft CR on vehicular UE Rx RF requirements in FR2-2 | LG Electronics Finland | Endorsed |

**R4-2206536 WF on 60 GHz UE RF**

*Type: other For: Approval  
 Source: Qualcomm*

Agreement: The statement captured in “Section 16 Spectrum Utilization” is the working assumption and to be confirmed in the future meeting.

**Decision: Approved.**

**GTW on Feb-28**

**PC3 UE min peak EIRP**

recompute power and linear averages based on input from both Jan and Feb meeting

companies discuss a value in the range of 14.6 to 15.4 dBm

|  |  |
| --- | --- |
| PC3 | EIRP |
| Apple | 9.2 |
| OPPO | 11.3 |
| Huawei | 12 |
| vivo | 13.7 |
| Intel | 13.7 |
| LGE | 14.7 |
| QCOM | 15 |
| Murata | 16.2 |
| Sony | 16.5 |
| DOCOMO | 17 |
| Nokia | 17.9 |
| Ericsson | 18.5 |
|  | average |
| in dB | **14.6** |
| in power | **15.4** |

**Discussion:**

Intel: the preference is to keep the previous one. We can accept 14dBm.

Apple: We should use the values in this meeting and re-calculate the value. The upper bound is 14.1dB.

Qualcomm: There is different understanding of previous agreement.

Sony: we should derive the value based on the result. We prefer to average in power domain.

Moderator: we can choose the value proposed. From Qualcomm, we can also provide the tdoc with the analysis and 15dB.

Nokia: our understanding is that we should take the input in this meeting into account. We should do averaging in power domain.

Apple: in our understanding, there is wrong way to go. We should only include the value with the Tdoc with analysis provided.

MTK: We should respect agreement.

Huawei: Propose to averaging in power domain. Agree with Nokia that averaging should be done for all the values.

OPPO: the difference is nearly 9dB. It is deserved to see what the assumption is. For the averaging, we see companies may have different view. It is better to do averaging in both dB and power domain.

VIVO: we propose 13.7dBm. Then we do not need re-evaluation again.

**Agreement:** PC3 UE min peak EIRP is 14.1dBm

**PC1 number of elements per polarization**

Option 1: 64 element assumption

Option 2: any value between 32 and 64 elements

Option 3: other number

**Discussion:**

Intel: It is implementation. It is just to ideally align the results. I am not sure if we need continue discussion on it. We can directly discuss the EIRP.

Qualcomm: We think this is for uplink. If we are going to make assumption, it would be beneficial to use 64. We just decide the assumption to derive the requirements.

**PC1 min peak EIRP**

Option 1: 30 dBm (average in dB) (OPPO, Intel)

Option 2: 31.25 dBm (average in power) (Sony, Huawei, Murata, QCOM)

**proposed WF:**

table this discussion until PC1 elements assumption is decided

**Discussion:**

OPPO: difference comes from how to averaging. We can do averaging between Option 1 and Option 2.

Intel: last meeting, Qualcomm proposed 26dBm, which is 9dBm difference from the proposal in this meeting.

Qualcomm: PA power increases significantly. We consider the different technology, which is not WIFI based PA.

Chair: do averaging between Option 1 and 2.

**Agreement:** PC1 min peak EIRP is 30.6 dBm.

**PC2 number of elements and min peak EIRP**

**proposed WF**:

make this an agreement

Tentative agreements: 22.7 dBm based on 16 elements

**Agreement:** PC2 min peak EIRP is 22.7 dBm.

**PC3 panels and spherical coverage 50%ile drop**

**proposed WF:**

11.5 dB:

Use data from both 1 panel and 2 panel proposals. Average in dB is 11.1 dB. Average in linear is 12.3 dB. Split the difference at 11.5 dB.

**Discussion:**

Apple: we provided the simulation based on single panel. Our value is 24 for single panel. Our proposal is 16 dB.

Nokia: there is very large difference among results. Should we consider the number of single panel? 24dB should be discarded from the data.

Huawei: the value from one panel should be considered well. We agree that some value for two panels is outstanding from others, e.g., 3, 16.1 dB, which can removed from the calculation.

Apple: we are fine to remove both 24 and 3dB together.

DOCOMO: based on the agreed antenna assumption, we proposed the value. In our analysis, the 3dB is derived. At least it is proper to consider the single panel and significant margin. We propose 5.6dB for single panel.

Sony: we should focus on two panel case. But we can compromise to do average between 1 and 2 panel.

Ericsson: we also support using two panel. We can accept compromise. RRM requirement also depends on it.

**Agreement:** Calculate the spherical coverage 50%ile drop based on the averaged value between 2 panel and 1 panel values in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| PC3 50%ile drop | 2 panel dB | 1 panel dB |  |
| DOCOMO |  |  |  |
| Sony | 8.5 |  |  |
| Ericsson | 8.5 |  |  |
| LGE | 9 | 14 |  |
| Murata | 10.5 |  |  |
| Apple | 11.6 |  |  |
| QCOM |  |  |  |
| vivo |  | 14.59 |  |
| Huawei |  | 13.7 |  |
| Intel? |  | 14 |  |
|  | 2 panel | 1 panel | both 1 and 2 panels |
| dB averaging [dB] |  |  |  |
| from linear averaging [dB] |  |  |  |

**PC1 %ile for spatial coverage**

prev agreement **R4-2202366**

Agreement: One panel as an assumption for FWA specification development. All companies that commented agreed with 1 panel.

**proposed WF:**

make this an agreement

Tentative agreements: proposal 1 85%ile

**Agreement:** Agree on 85%ile for PC1 spherical coverage.

**PC1 drop for spatial coverage**

**for RAN4#102e**

* Option 1: 14 dB
* Option 2: 9 to 10 dB
* Option 3: Something else

**proposed WF:** table this discussion until PC1 elements assumption is decided

**Discussion:**

Intel: we are OK to discuss the number in the middle. We propose 11.5dB.

Qualcomm: 11.5 is moderator proposal.

**Agreement:** Agree on 11.5dB for PC1 drop for spatial coverage.

**PC2 %ile for spatial coverage**

**proposed WF:** make this an agreement

Tentative agreements: 60%ile

**Agreement:** agree 60%ile for PC2 spatial coverage.

**PC2 drop for spatial coverage**

**proposed WF:**

make this an agreement

Tentative agreements: 15.1 dB

**Agreement:** agree on 15.1dB for PC2 drop for spatial coverage.

**PC3 REFSENS**

**proposed WF:**

-73 dBm

recomputed power and linear averages based on input from both Jan and Feb meeting.

note the Apple REFSENS was entered incorrectly in the thread and has been corrected

|  |  |
| --- | --- |
| PC3 | REFSENS dBm in 400 MHz |
| Nokia, Nokia Shanghai Bell | -82 |
| NTT DOCOMO | -80.7 |
| QCOM | -79.2 |
| Sony | -76 |
| LGE | -75.3 |
| Murata | -72.3 |
| Intel | -71 |
| Mediatek | -70 |
| Huawei HiSilicon | -69.5 |
| Vivo | -68 |
| Apple | -67.8 |
|  | dBm |
| average in dB | -73.8 |
| average linear | -71.6 |

**Discussion:**

Intel: we would like to re-calculate. The -73 is average in dBm. It should be done over Watts.

Nokia: Keep the methodology. Adopt the previous agreed value -73dBm.

Intel: can the moderator clarify if the -73.8dBm is calculated in dB or Watts?

**Agreement:** PC3 REFSENS is -72 dBm for n263 400 MHz.

**PC2 REFSENS**

**proposed WF:** make this an agreement

Tentative agreements: -80.3 dBm

**Agreement:** PC2 REFSENS is -80.3 dBm for n263 400 MHz.

**EIS all power classes**

**proposed WF:**

make this an agreement

Tentative agreement: use the spherical coverage drops from each power class to determine the EIS

**Agreement:** use the spherical coverage drops from each power class to determine the EIS

**TRP**

Proposals

* Proposal 1: Minimum UE beamforming requirements shall be defined for devices with a TRP exceeding 20 dBm.
* Proposal 2: Maximum power level TRP of 25 dBm shall be considered.

On the proposals perhaps these questions can help us converge:

Q1: Should we ensure the EN requirement is captured in the 3GPP spec?

**EN table (shown for reference)**

|  |  |
| --- | --- |
| Maximum power level EIRP | 40 dBm1 |
| Maximum power level TRP | 25->27 dBm |
| Maximum power spectral density (EIRP) | 23dBm/MHz2 |
| Note 1: Exception to 55 dBm if only fixed outdoor installations with  ≥ 30 dB transmit directivity  Note 2: Exception to 38 dBm/MHz if only fixed outdoor installations  with ≥ 30 dB transmit directivity can | |

**Discussion:**

Nokia: the proposals are aligned with ETSI BRAN.

Ericsson: this is agreed for C2. It is EU regulation. There are some useful conclusions.

Intel: confused about Proposal #1. It is for performance. We never specify the minimum TRP. If we were to capture, it should be specific to power class. How to specify it.

Apple: The key requirement is max PSD density. Minimum TRP is not necessary. We need consider the codebook. We suggest to consider the modified MPR bit.

Ericsson: This is upper limit of regulation requirement for power class for device operated. NS values are properiate.

Nokia: It is not so easily to specify it according to the current spec framework. We should further discuss whether it should be captured in NS.

Intel: maximum makes senses

**UE ACLR**

**proposed WF:** make this an agreement

Tentative agreements: proposal 1 15 dB ACLR

Agreement: agree on 15dB ACLR

**Spectral utilization**

**Proposals:**

* Proposal 1: Table proposes 400 MHz (480 and 960 SCS), and 800 – 2000 MHz SU.
* Table 5.3.2-3: *Transmission bandwidth configuration* NRB for FR2-2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SCS (kHz) | 100 MHz | 400 MHz | 800 MHz | 1600 MHz | 2000 MHz |
| NRB | NRB | NRB | NRB | NRB |
| 120 | 66 | 264 | N/A | N/A | N/A |
| 480 | N/A | 66 | 132 | 264 | N/A |
| 960 | N/A | 33/32 | 66 | 132 | 165 |

* Proposal 2: Use same SU for 800 and 1600 MHz as agreed for 120 kHz SCS
* Proposal 3: Specify lower spectral utilization for 2000 MHz CCBW as compared to other CCBWs

**proposed WF:**

agree all values in the table except further discussion on:

* 960 SCS, 400 MHz: companies comment either 32 or 33 PRBs
* 960 SCS, 2000 MHz: companies comment on values between 156 and 165

**Discussion:**

Apple: we have not discussed the MPR requirements.

Nokia: we have older values using -17dBm out-band emission. We are OK with 33 PRB. We have proposed <156 for 2000MHz.

Ericsson: it is relevant to align the discussion with BS side.

**Agreement:** agree the spectral utilization in the table below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SCS (kHz) | 100 MHz | 400 MHz | 800 MHz | 1600 MHz | 2000 MHz |
| NRB | NRB | NRB | NRB | NRB |
| 120 | 66 | 264 | N/A | N/A | N/A |
| 480 | N/A | 66 | 132 | 264 | N/A |
| 960 | N/A | 33 | 66 | 132 | [156] |

-----------------------------------------------------------------------------------------------------------------------------------------

**R4-2203707 On UE spherical coverage for band n263**

*Type: discussion For: Approval  
 Source: Apple*

**Decision: Noted.**

**R4-2204330 Specifications of FR2-2 handheld UE**

*Type: discussion For: Approval  
 Source: Murata Manufacturing Co Ltd.*

**Decision: Noted.**

##### 10.16.3.1 TX requirements

**R4-2204033 Discussion on NR coverage enhancement PUSCH demodulation**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on NR coverage enhancement PUSCH demodulation

**Decision: Noted.**

**R4-2204038 Minimum Tx requirement for handheld and FWA UEs at 60 GHz**

*Type: other For: Approval  
 Source: Sony*

**Decision: Noted.**

**R4-2204227 Proposals on FR2-2 spherical drop for requirement calculation**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

Proposal: FR2-2 Power Class 3 spherical EIRP/EIS requirements shall consider the calculated spherical drop value [14.1-18.3] dB.

**Decision: Noted.**

**R4-2204359 Handheld UE RF TX requirements for n263 in FR2-2**

*Type: other For: Approval  
 Source: NTT DOCOMO, INC.*

**Abstract:**

To provide TX requirement values for n263 in FR2-2.

**Decision: Noted.**

**R4-2204590 Views on FR2-2 FWA UE**

*Type: discussion For: (not specified)  
 Source: Murata Manufacturing Co Ltd.*

**Decision: Noted.**

**R4-2204619 UE output power for 57-71 GHz**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we propose UE output power and spherical coverage

**Decision: Noted.**

**R4-2204934 Further discussion on handheld UE EIRP and spherical coverage requirements for 52.6~71 GHz**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2205173 Draft CR to 38.101-2 on band n263 Tx aspects**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Apple*

**Decision: Not pursued.**

**R4-2205188 On 60GHz UE Tx RF requirements**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205210 draft CR on vehicular UE Tx RF requirements in FR2-2**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics Finland*

**Abstract:**

Add UE Tx RF requirements for vehicular UE(PC2) in FR2-2

**Decision: Revised to R4-2206587 (from R4-2205210).**

**R4-2206587 draft CR on vehicular UE Tx RF requirements in FR2-2**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics Finland*

**Abstract:**

Add UE Tx RF requirements for vehicular UE(PC2) in FR2-2

**Decision: Endorsed.**

**R4-2205227 Discussion on Tx RF requirements in FR2-2**

*Type: discussion For: Approval  
 Source: LG Electronics Finland*

**Abstract:**

Wiews on MOP and Spherical coverage for 60GHz vehicular UE

**Decision: Noted.**

**R4-2205246 60 GHz UE TX**

*Type: discussion For: Approval  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2205459 Further Discussion on spectral utilization requirements for FR2-2**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205552 On UE Tx RF aspects for FR2-2**

*Type: discussion For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2205999 UE Tx RF requirements for FR2-2**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

##### 10.16.3.2 RX requirements

**R4-2204034 Discussion on NR coverage enhancement PUCCH demodulation**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on NR coverage enhancement PUCCH demodulation

**Decision: Noted.**

**R4-2204039 Minimum Rx requirement for handheld UEs at 60 GHz**

*Type: other For: Approval  
 Source: Sony*

**Decision: Noted.**

**R4-2204360 Handheld UE RF RX requirements for n263 in FR2-2**

*Type: other For: Approval  
 Source: NTT DOCOMO, INC.*

**Abstract:**

To provide RX requirement values for n263 in FR2-2.

**Decision: Noted.**

**R4-2204935 Further discussion on handheld UE EIS requirements for 52.6~71 GHz**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2205189 On 60GHz UE Rx RF requirements**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205229 draft CR on vehicular UE Rx RF requirements in FR2-2**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics Finland*

**Abstract:**

Add UE Rx RF requirements for vehicular UE(PC2) in FR2-2

**Decision: Revised to R4-2206588 (from R4-2205229).**

**R4-2206588 draft CR on vehicular UE Rx RF requirements in FR2-2**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: LG Electronics Finland*

**Abstract:** R4-2206537

Add UE Rx RF requirements for vehicular UE(PC2) in FR2-2

**Decision: Endorsed.**

**R4-2205231 Discussion on Rx RF requirements in FR2-2**

*Type: discussion For: Approval  
 Source: LG Electronics Finland*

**Abstract:**

Views on reference sensitivity and EIS spherical coverage for 60GHz vehicular UE.

**Decision: Noted.**

**R4-2205292 60 GHz UE RX**

*Type: discussion For: Approval  
 38.101-2 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incoprorated*

**Decision: Noted.**

**R4-2205553 On UE Rx RF aspects for FR2-2**

*Type: discussion For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2206000 UE EIS requirements for band n263**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

#### 10.16.4 BS RF requirements

##### 10.16.4.1 TX requirements

##### 10.16.4.2 RX requirements

#### 10.16.5 BS RF conformance testing

#### 10.16.6 Co-existence simulations

#### 10.16.7 FR1+FR2-2 DC/CA band combinations

**R4-2206053 CR for 38.101-3 on FR2-2 DC/CA with FR1 anchor**

*Type: CR For: Agreement  
 38.101-3 v17.4.0 CR-0698 rev Cat: B (Rel-17)  
  
 Source: Ericsson GmbH, Eurolab*

**Decision: Endorsed.**

#### 10.16.8 RRM core requirements

##### 10.16.8.1 General

##### 10.16.8.2 Timing requirements

##### 10.16.8.3 Interruption requirements

##### 10.16.8.4 Active BWP switching delay requirements

##### 10.16.8.5 Measurement gap interruption requirements

##### 10.16.8.6 LBT impacts on RRM requirements

#### 10.16.9 Others

**R4-2203938 Discussion on the FR2-2 LBT requirement**

*Type: other For: Approval  
 Source: CATT*

**Decision: Noted.**

**R4-2203939 Draft CR for TS 37.106: introduction of UE LBT requirement for FR2-2**

*Type: draftCR For: Endorsement  
 37.106 v16.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Not pursued.**

**R4-2203940 Draft CR for TS 37.107: introduction of BS LBT requirement for FR2-2**

*Type: draftCR For: Endorsement  
 37.107 v16.3.0 CR- rev Cat: B (Rel-17)  
  
 Source: CATT*

**Decision: Not pursued.**

**R4-2204620 Reply LS on a minimum guard period between two SRS resources for antenna switching**

*Type: LS out For: Approval  
 to RAN1  
 Source: Ericsson*

**Abstract:**

Reply LS on a minimum guard period between two SRS resources for antenna switching for 480/960 kHz SCS

**Decision: Withdrawn.**

**R4-2204936 Discussion and draft reply LS on sensing beam selection**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2206047 Sensing beam for LBT in FR2-2**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

#### 10.16.10 Demodulation and CSI requirements

##### 10.16.10.1 General

##### 10.16.10.2 UE Demodulation and CSI requirements

##### 10.16.10.3 BS demodulation requirements

### 10.17 Enhancements to Integrated Access and Backhaul (IAB) for NR

#### 10.17.1 General

#### 10.17.2 RF requirements

##### 10.17.2.1 Impact for Simultaneous operation of IAB child and parent links

##### 10.17.2.2 Impact for Timing enhancement

##### 10.17.2.3 Others

#### 10.17.3 RF conformance testing

#### 10.17.4 RRM core requirements

#### 10.17.5 Demodulation requirements

### 10.18 NR coverage enhancements

#### 10.18.1 General and CR structure

**[102-e][136] NR\_cov\_enh, AI 10.18.1, 10.18.2 – Shan Yang**

**R4-2206336 Email discussion summary for [102-e][136] NR\_cov\_enh**

*Type: other For: Information  
 Source: Moderator (China Telecom)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206436 (from R4-2206336).**

**R4-2206436 Email discussion summary for [102-e][136] NR\_cov\_enh**

*Type: other For: Information  
 Source: Moderator (China Telecom)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW on Feb-22**

**Issue 1-1: Phase continuity tolerance**

**Discussion:**

MTK: we are happy with Option 2, which is the way UE sees the phase error. Need more discussion on the numbers especially on the consecutive slots.

China Telecom: From our simulation results, Option 1A and Option 2A provide the similar performance. In last meeting, we agreed to down-select. We would like to down-select to 1A and 2A. We need to agree on the numbers since it is the last meeting. Majority companies submitted results in January meeting.

Apple: consider both options with the tolerance numbers. For larger number of slots, we consider 1A and consider 2A for smaller number of slots. 8 slots should be the boundary.

Huawei: Option 1 is uniform distribution is better than Option 2. The phase noise will be increased if larger slot is used.

Ericsson: We use two options to derive the requirements. We have no measurement to show Option 2 reflects UE behavior better. The randomness of phase behavior is similar to the old behavior. So we still prefer to Option 1.

Qualcomm: We would like to avoid. Option 2 comes from UE behavior. We are assuming the join channel estimation and see the link level simulation. We would like to avoid always using the first slot for channel estimation.

Ericsson: The JCE gain from all of companies over the non-JCE is not the same. The alignment is not good. It is not possible to use 1dB gain loss to set SNR criterion to set the phase tolerance. If you have less JCE gain, you cannot afford more gain loss. This is our understanding that different companies will have different curves and numbers according to their simulation.

Qualcomm: We do not fully understand comment, since we agreed the simulation assumptions.

China Telecom: the Ericsson results are different because of different repetition numbers. Regarding phase offset Option 2, we would like to know what the acceptable number is.

Ericsson: prefer to Apple proposal.

Mediatek: when there is residual of frequency error, if we choose Option 1 the residual phase error would be larger. The other option is to limit the residual phase error.

Qualcomm: if we go with Option1, UE has store the phase in the first slot and then do some correction for the following slots. Option 2 comes from the real UE design.

Ericsson: when we choosing the phase tolerance we should not consider the frequency error. In the last meeting, we agreed that frequency error can be corrected.

**Agreement:**

* Use Option 2 as baseline to define the requirements for repetition number less than or equal to 8
  + Decide the number of phase tolerance according to the <1-dB performance degradation (simulation results with phase tolerance over simulation results without phase tolerance under assumption of JCE at receiver) based on the existing simulation results.
    - The different numbers of phase tolerance will apply depending on the repetition numbers.
* For the larger repetition number (>8), if the repetition number is larger than 8, need deciding on which approach will be taken in this meeting.
  + Alt 1: take Option 1
  + Alt 2: take Option 2
  + Alt 3: take both Option 1 and Option 2

**Issue 1-2: RMS average for phase tolerance**

**Discussion:**

MTK: in the simulation, we agreed the uniform distribution. You need a lot of number of samples to come up with the number.

Qualcomm: aligned with MTK. We agreed with uniform value. We would like to go with maximum value.

Apple: How would rms be measured? We agree with MTK and Qualcomm. It is late to consider it.

Huawei: regarding rms value, it is related to sampling numbers, which TE choose. In our understanding, the only value that we can agreed on for the first issue is enough. We do not need rms value.

Ericsson: rms value is providing the good measurement to reflect the good UE performance.

**Issue 2-1: Length of maximum duration**

**Discussion:**

Apple: keep option 1 alive. 32 slot is valid. 32 slot is only applicable to FDD band.

Qualcomm: prefer to Option 3.

Mediatek: Prefer to Option 3. For TDD, there seems no way to go beyond 8.

Nokia: Go for Option 1. Keep 32 for both TDD and FDD.

China Telecom: Option 2.

Huawei: prefer Option 2.

Ericsson: prefer to separate FDD and TDD. For TDD, {8, 16}, for FDD {5, 8, 16, 32}

Mediatek: people prefer to remove >8 for TDD. UE should reset the phase.

**Agreement:** For UE capability, the set of values of duration lengths are

* For TDD, {5, 8}
  + FFS: 16
* For FDD, {5, 8, 16, [32]}

**Issue 3-1: Frequency correction for phase tolerance test**

**Proposals**

* + Proposal 1: Improve the agreement on frequency correction by TE from RAN4#101bis-e, such that “the level of correction required shall be estimated in every slot by the TE”. (MTK)
  + Proposal 2: Frequency correction in the JCE test is applied to the whole bundle. (E///)
    - E///: For example, the frequency error is f1, the reference time slot is first time slot and the measured time slot is the second time slots. The first sample in the first symbol of the 2nd time slot need to be correct with f1\* one time slot\* 2pi. (E/// CR in R4-2205533)

**Discussion:**

Ericsson: Proposal 1 and 2 do not contradict. We can further discuss it in this meeting.

Qualcomm: Estimation is done in the whole bundling and do correction per slot would not be acceptable way.

Mediatek: agree with Qualcomm. We do not agree with Proposal 2.

R&S: we share the same view as MTK and Qualcomm. Proposal 2 goes against the previous proposal.

Apple: proposal 1 is well aligned with the previous proposal.

**Agreement:** The level of correction required shall be estimated in every slot by the TE.

* FFS on proposal 2 in this meeting.

**Issue 3-2: Reference point for phase tolerance test**

**Proposals**

* + Option 2: The reference point would be between “Channel estimation” and “equalization”, since the amplitude and phase values can be taken directly from the channel estimation. (China Telecom, E///)

**Agreement:** agree Option 2.

**Issue 3-3: DFT-s-OFDM and CP-OFDM waveforms for testing**

**Proposals**

* + Option 1: Test both DFT-s-OFDM and CP-OFDM (China Telecom, E///)
    - China Telecom: For option 2 of the reference point in Issue 3-2, clarify that it applies to both DFT-s-OFDM and CP-OFDM waveforms, considering that DFT/IDFT is not applied to DMRS. (China Telecom)

**Discussion:**

China Telecom: we can only test CP-OFDM. This is just for testing.

Ericsson: we would like to choose DFT-s-OFDM.

Qualcomm: DFT-s-OFDM is the only meaningful here. We are OK to test both.

**Agreement:** The core requirement will cover both DFT-s-OFDM and CP-OFDM.

* For the test, only choose DFT-s-OFDM for testing.

**Issue 3-4: OFDM symbols for deriving the phase value**

**Proposals:**

* + For option 2 of the reference point in Issue 3-2, discuss whether only the channel estimation on DMRS symbols in each slot will be used to derive the phase value. (China Telecom)
    - Option 1: Use the channel estimation on DMRS symbols in each slot (E/// CR in R4-2205533)

**Discussion:**

R&S: let us do it as EVM. There is no need to restrict to DMRS. We just reuse the existing procedure.

Ericson: we check that channel estimation is just to use DMRS. On top of that, we have agreed the reference point. If we want to use the data, we force to use other reference point to equalize the data. We may be consistent on the measurement.

China Telecom: tend to agree with Ericsson. We derive the phase based on the estimated channel. No big difference from measurement perspective. DMRS would be enough.

Qualcomm: need clarify what is the intention by saying “channel estimation on DMRS symbols”.

China Telecom: we are talking about using DMRS REs.

R&S: from our perspective, the channel estimation is done for data and DMRS. We prefer the existing approach.

Apple: we want to rephrase the proposal here. We propose the side condition that the network is expected to use all the DMRS symbols within the JCE window to estimation the channel.

Ericsson: the side condition should be for UE side. We are setting the UE requirement.

**Tentative agreement:** To derive the requirement for phase value, assume that the DMRS REs within the window will be used.

**Issue 3-6: Additional side conditions for testing**

**Proposals**

* + Proposal 1 (MTK)
    - The TE DL signal frequency shall not change during the JCE test.
    - DL signal timing shall be maintained constant by the TE during the test case.
  + Proposal 2 (MTK)
    - Add a note to the spec to reflect the following:

“NOTE: In practical field conditions, the need for the UE to autonomously adjust frequency and power to maintain the radio uplink baseline performance may impact phase continuity in some scenarios. The UE reported capability is not required to take the potential presence of such events into account.”

**Discussion:**

Apple: support both proposals.

Huawei: additional side condition, the note says the practical field conditions.

Ericsson: share the similar view as Huawei.

China telecom: similar view as Huawei and ericsson

Mediatek: within bundling window is not intention.

R&S: proposal 1 is straightforward.

**Agreement:**

* The TE DL signal frequency shall not change during the JCE test.
* DL signal timing shall be maintained constant by the TE during the test case.

**Issue 4-1: Un-scheduled gap for extended CP**

**Proposed RAN4 answer**

* + Option 1: Yes, for extended CP, 11-symbol is the maximum length for the non-zero un-scheduled gap in-between the PUSCH transmission or PUCCH repetition, when UE is required to maintain power consistency and phase continuity. (CTC, HW, E///, QC)

**Agreement**

* Agree option 1.

**Issue 4-2: Output power for the non-zero gap in-between PUSCH/PUCCH transmissions**

**Proposals**

* + Option 1: RAN4 do not introduce new transmit off power, i.e., no requirement applies during the gap. (Apple, MTK)
  + Option 3: Clarify that the power for un-scheduled gap between slots in the same bundle can be either minimum output power (e.g., -40 dBm for small CBW) or some value in between the OFF power and minimum power. (China Telecom)
    - Note: not to define new power requirements and just clarifies that the minimum ON power applies.
  + Option 4: LS to Ran1 if no consensus reached within RAN4. (E///)
    - **Moderator’s note:** the RAN1 CR capturing the 13-symbol gap has already been approved in the Dec 2021 RAN plenary meeting.

**Discussions:**

Qualcomm: prefer to Option 1.

Apple: Option 1.

Mediatek: last meeting we decided not to go with Option 3.

China Telecom: it is very difficult to define the requirement. Network vendor can take into account the possible interference level.

Ericsson: not to define requirement may not be good approach.

Mediatek: the phase continuity assumption is that you basically modify the PA setting and it may impact the phase continuity. It is always problematic from Day 1.

**Agreement:** RAN4 do not introduce new transmit off power, i.e., no requirement applies during the gap.

* With understanding that there may be co-channel interference to other user in the duration of non-zero gap (< one slot) in-between PUSCH/PUCCH transmissions.
* FFS whether to capture it in the specifications.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206537 Reply LS on Maximum duration for DMRS bundling | Qualcomm Incorporated | Approved |
| R4-2206538 CR on UE RF requirements for DMRS bundling in TS 38.101-1 | Huawei, HiSilicon | Agreed |
| R4-2206539 CR on UE RF requirements for DMRS bundling in TS 38.101-2 | Huawei, HiSilicon | Agreed |
| R4-2206540 WF on issues for maintenance of NR coverage enhancements  Revised to R4-2206593 | Ericsson | Approved |
| R4-2206580 Reply LS on Length of Maximum duration for TDD | China Telecom | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205533  Revised to R4-2206541 | CR on measurment for DMRS bundling in TS 38.101-1 | Ericsson | Endorsed |
| R4-2205534  Revised to R4-2206542 | CR on measurment for DMRS bundling in TS 38.101-2 | Ericsson | Endorsed |

**R4-2206537 Reply LS on Maximum duration for DMRS bundling**

*Type: LSout For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

**R4-2206538 CR on UE RF requirements for DMRS bundling in TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-XXXX rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2206539 CR on UE RF requirements for DMRS bundling in TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v xx.x.0 CR-XXXX rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2206540 WF on issues for maintenance of NR coverage enhancements**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Revised to R4-2206593 (from R4-2206540).**

**R4-2206593 WF on issues for maintenance of NR coverage enhancements**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

**R4-2206580 Reply LS on Length of Maximum duration for TDD**

*Type: LSout For: Approval  
 Source: Qualcomm*

**Decision: Approved.**

**Post-meeting**

**R4-2206632 CR on measurment for DMRS bundling in TS 38.101-1**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-XXX rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Decision: Return to.**

**R4-2206633 CR on measurment for DMRS bundling in TS 38.101-2**

*Type: CR For: Agreement  
 38.101-2 v17.4.0 CR-XXX rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Decision: Return to.**

-------------------------------------------------------------------------------------------------------------------------------------

**R4-2203818 Updated RAN4 RF work plan for NR coverage enhancements WI**

*Type: Work Plan For: Information  
 Source: China Telecom*

**Decision: Noted.**

**R4-2203822 38.101-1 CR: UE RF requirements for DMRS bundling**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-0992 rev Cat: B (Rel-17)  
  
 Source: China Telecom*

**Decision: Merged.**

**R4-2203823 38.101-2 CR: UE RF requirements for DMRS bundling**

*Type: CR For: Agreement  
 38.101-2 v17.4.0 CR-0437 rev Cat: B (Rel-17)  
  
 Source: China Telecom*

**Decision: Merged.**

**R4-2204820 Draft CR on UE RF requirements for DMRS bundling**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged.**

**R4-2204821 Draft CR on UE RF requirements for DMRS bundling**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged.**

**R4-2205531 simulation updated results for phase tolerance for PUSCH repetition**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our updated simulation results

**Decision: Noted.**

**R4-2205532 LS reply on DMRS bundling for PUSCH and PUCCH**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the LS questions.

**Decision: Noted.**

#### 10.18.2 UE RF requirements

**R4-2206131 Coverage enhancements – remaining UE RF requirements aspects**

*Type: discussion For: Discussion  
 Source: MediaTek (Chengdu) Inc.*

**Decision: Noted.**

##### 10.18.2.1 Requirements for non-scheduled gap

**R4-2203819 Non-zero un-scheduled gap in between PUSCH/PUCCH transmissions**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2205530 RF impact on non-scheduled gap**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the RF requirement aspect of phase continuity.

**Decision: Noted.**

##### 10.18.2.2 Tolerance for power consistency/phase continuity

**R4-2203820 On phase continuity tolerance for DMRS bundling**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2205529 On JCE phase continuity and power consistency tolerance for PUCCH and PUSCH**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the RF requirement aspect on JCE phase continuity and power consistency tolerance for PUCCH and PUSCH repetition continuity

**Decision: Noted.**

**R4-2205535 CR on phase tolerance for DMRS bundling in TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

In this CR, phase tolerance requirement for DMRS bundling is proposed.

**Decision: Merged.**

**R4-2205536 CR on phase tolerance for DMRS bundling in TS 38.101-2**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

In this CR, phase tolerance requirement for DMRS bundling is proposed.

**Decision: Merged.**

**R4-2205882 Discussion on UE phase discontinuity requirement**

*Type: other For: Approval  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2206014 On phase continuity requirement with coverage enhancement**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

##### 10.18.2.3 Maximum duration for joint channel estimation

**R4-2203821 On maximum duration for DMRS bundling**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2204818 On phase continuity for multiple transmissions**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205537 LS reply On maximum duration of phase continuity and power consistency for PUCCH and PUSCH repetition**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the FFS aspects of phase continuity and also our view on the LS questions.

**Decision: Noted.**

##### 10.18.2.4 Others

**R4-2204819 On maximum length for the non-zero un-scheduled gap**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205528 On measurement of the TX coherent transmission**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the RF requirement measurement aspect of phase /power discontinuity tolerance.

**Decision: Noted.**

**R4-2205533 CR on measurment for DMRS bundling in TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

In this CR, measurement aspect for DMRS bundling.

**Decision: Revised to R4-2206541 (from R4-2205533).**

**R4-2206541 CR on measurment for DMRS bundling in TS 38.101-1**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

In this CR, measurement aspect for DMRS bundling.

**Decision: Endorsed.**

**R4-2205534 CR on measurment for DMRS bundling in TS 38.101-2**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

In this CR, measurement aspect for DMRS bundling.

**Decision: Revised to R4-2206542 (from R4-2205534).**

**R4-2206542 CR on measurment for DMRS bundling in TS 38.101-2**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

In this CR, measurement aspect for DMRS bundling.

**Decision: Endorsed.**

#### 10.18.3 BS demodulation requirements

##### 10.18.3.1 PUSCH requirements

##### 10.18.3.2 PUCCH requirements

### 10.19 Further enhancements on MIMO for NR

#### 10.19.1 General

**[102-e][137] NR\_feMIMO, AI 10.19.1, 10.19.2 – Taekhoon Kim**

**R4-2206337 Email discussion summary for [102-e][137] NR\_feMIMO**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206437 (from R4-2206337).**

**R4-2206437 Email discussion summary for [102-e][137] NR\_feMIMO**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 1st round**

**GTW on Feb-22**

**Topic #1:** **Simultaneous multi-panel reception with different QCL type-D (RF/RRM)**

**Discussion:**

Qualcomm: most likely we will agree that no requirement will be defined for Rel-17 and move the objectives to Rel-18. This part should be taken out from Rel-17 WID.

Apple: Agree with Chair suggestion. Option 1 is preferred. I agree with Qualcomm. RAN4 still have recommendation.

Nokia: Same view as Qualcomm.

Samsung: the feature was introduced from Rel-15. Cannot agree on the Option 1 as this stage.

VIVO: it is not possible to develop the requirement.

Nokia: We need discuss the release independency of potential new requirements to the previous release UE.

**Agreement:** RAN4 suggests not to specify the RF and RRM core requirements for the simultaneous multi-panel reception with different QCL type-D under Rel-17 feMIMO WI in the RAN4 specifications.

**Issue 2-1-1: Does per-beam based (N) P-MPRs impact on Pcmax boundaries?**

* Proposals
  + Option 1: Yes
  + Option 2: No
* Recommended WF
  + Option 2

**Discussion:**

Huawei: For Issue 2-1-1, we think there is no impact on pcmax boundary. For Issue 2-1-2, note is not needed.

Qualcomm: same view. No impact on Pcmax. In RAN4 we only have the boudanry which has nothing to do with reporting MPE.

Ericsson: Pcmax is set per carrier per serving cell. There is no impact. No need to add note.

Apple: We are not talking about Pcmax rather Pumax. For Pumax for lower bound, determined by P\_power-class. P-MPR is determined by UE. UE will not necessarily pick beam with high EIRP. We have two solutions: do not apply beam P-MPR to existing requirement; or, if companies want to define the per-beam P-MPR, the Pumax equation should be re-visited. How to resolve the issue the P-MPR is

Ericsson: Pcmax is a measurement defined per serving cell. Boundary is also changed by application of P-MPR. In conformance test, we do not expect to see the change. No need to have indication of the boundary changes.

Apple: RAN1 assumed the body sensor. UE will pick the beam not directly to human body. Even though uplink duty cycle is high, there is change that P-MPR is low. There is possibility where the cycle is high but the P-MPR is low. We should clarify P-MPR is per-UE P-MPR in the formula rather than per-beam based.

Ericsson: MPE is counting as PFD requirement regardless how many beams will be used. In the field the lower Pumax will be changed but we cannot see such change in the conformance testing.

Qualcomm: All the P-MPR should be per-beam.

OPPO: Currently UE might use the worst P-MPR. When RAN1 introduces the per-band P-MPR, the low … No impact on the equation. But some clarification is needed.

Nokia: In the last RAN2 meeting, RAN2 sent LS to RAN1 with many questions. Question 10 is saying MPE should be indicated per SSBRI or CRI. We need the clear answer from RAN1. For formula, we do not expect the change but index may be needed for clarification.

**Tentative agreement:** There is no change on the equation for Pcmax boundaries, but add the note to clarify the Pcmax boundaries are specified based on per-UE based P-MPR.

**Issue 2-1-2: Is it necessary to add a note for relationship between P-MPR and SSBRI/CRI?**

* Proposals
  + Option 1: Yes (based on the reply LS of RAN1)
    - NOTE: UE capability xxs, as defined in TS 38.306 [14], is an optional UE capability to report PCMAX,f,c per indicated SSBRI/CRI value together with corresponding MPE P-MPR bits when the reporting conditions configured by gNB are met. This UE capability is applicable to all FR2 power classes
  + Option 2: No
* Recommended WF
  + N/A (majority view is Option 2)

**Discussion:**

OPPO: depending RAN1 LS, we should wait for their conclusions.

Nokia: we need to wait.

**Issue 2-2-1: Is it able to transmit other signals in-between SRS resource sets?**

* Proposals
  + Yes, based on switching time of RAN4 if the gap is larger than Y
* Recommended WF
  + Yes

**Discussion:**

Ericsson: UE can do transmission in-between SRS. But we need discuss the value of Y. Our concern is that the excessive using Y will make the feature not work. The transient time can be much shorter than Y.

Apple: RAN1 has some agreement. Y can be used as reference. I do not see the huge different between case where SRS is in the same set and case where SRS is in the different sets.

Ericsson: to Apple, that is the exact issue. Y is decided by RAN1 for SRS antenna switching. Larger guard period make the transmission inefficient.

Nokia: we think we need discuss -1 and -2 issues. -1 can be agreed if Ericsson proposal to make Y is not applicable for 15Khz and 30KHz when some condition is met.

Huawei: we would like to have the similar understanding as Apple. The application scenario can be divided into two: interval between SRS is less than Y, for which the existing requirement can be reused; interval between SRS is larger than Y, for which only transient period is enough.

Samsung: agree that -1 and -2 have relationship. We should focus on question 1 from RAN1 LS. It is better to leave the discussion to RAN1.

Qualcomm: we can discuss more on the proposals. Sending LS to RAN1 in this meeting is late.

Ericsson: regarding transmission between SRS, it is feasible today. The question is what gap should be used.

Samsung: there is discussion on the maintenance email thread.

**Agreement:** UE is able to transmit other signals in-between SRS resource sets if the interval in-between SRS resource sets is larger than Y

* FFS on which symbols can be available for transmission in this meeting.

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206543 WF on RF impact of FeMIMO  Revised to R4-2206603 | Samsung | 6603 Approved |
| R4-2206581 CR to 38.101-2: Addition of a note for per-beam based P-MPR | Nokia | Withdrawn |

**R4-2206543 WF on RF impact of FeMIMO**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Revised to R4-2206603 (from R4-2206543).**

**R4-2206603 WF on RF impact of FeMIMO**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Approved.**

**R4-2206581 CR to 38.101-2: Addition of a note for per-beam based P-MPR**

*Type: CR For: Agreement  
 38.101-2 v x.x.0 CR-XXX rev Cat: F (Rel-17)*

*Source: Nokia*

**Decision: Withdrawn.**

------------------------------------------------------------------------------------------------------------------------------------

**R4-2203772 Discussion on Impact to RF and RRM requirements with simultaneous reception**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2204402 Discussion on simultaneous reception in FeMIMO**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2204519 Requirements for Simultaneous Reception in FR2**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

**R4-2204730 Multi-panel simultaneous reception of FeMIMO**

*Type: discussion For: Approval  
 Source: Samsung*

**Decision: Noted.**

**R4-2205842 Discussion on Simultaneous reception with different QCL-type D**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribtuion, we discuss RRM requirements for simultaneous reception of channel/RS with different QCL type D

**Decision: Noted.**

#### 10.19.2 UE RF requirements

##### 10.19.2.1 Additional requirement for multi-panel reception

**R4-2203703 Multi-panel FR2 UE requirements**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2204224 Rationality on potential additional FR2 FeMIMO multi-panel reception requirement**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

Proposal: It is important to consider these observations etc., during potential additional necessary requirement discussion for simultaneous multi-panel reception:

1) There are already REFSENS and spherical EIS requirements

2) Key UE hardware components a

**Decision: Noted.**

**R4-2204971 Further discussion on impact of multi-panel reception requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2205014 Discussion on Additional requirement for multi-panel reception**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205103 RF Requirements for Multi-panel in FR2**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

##### 10.19.2.2 Impact of MPE enhancements

**R4-2204972 Further discussion on impact of MPE requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2205015 Discussion on Impact of MPE enhancements**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205609 Requirements for MPE mitigation**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution discusses requirements for MPE mitigation.

**Decision: Noted.**

**R4-2205658 On the impact of per-beam based PMPR reporting**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

##### 10.19.2.3 SRS related impact

**R4-2204621 SRS time masks for SRS usage set to antenna switching for FeMIMO**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we propose revised time masks for improved reciprocal DL CSI estimation

**Decision: Noted.**

**R4-2204824 Remaining issues for SRS**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205142 Handling of GP in GAP between two different SRS resource sets**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution discusses handling of GP in GAP between two different SRS resource sets.

**Decision: Noted.**

#### 10.19.3 RRM core requirements

##### 10.19.3.1 Unified TCI for DL and UL

##### 10.19.3.2 Inter-cell beam management

##### 10.19.3.3 Others

#### 10.19.4 UE Demodulation and CSI requirements

##### 10.19.4.1 General

##### 10.19.4.2 Demodulation requirements

###### 10.19.4.2.1 Enhancement on HST-SFN scenario

###### 10.19.4.2.2 Enhancement on Multi-TRP

##### 10.19.4.3 CSI requirements

###### 10.19.4.3.1 CSI reporting for Multi-TRP transmission

###### 10.19.4.3.2 Rel-17 eType II port selection codebook

###### 10.19.4.3.3 Others

### 10.20 Support of reduced capability NR devices

#### 10.20.1 General

**[102-e][138] NR\_RedCap, AI 10.20.1, 10.20.2 – Chunhui Zhang**

**R4-2206338 Email discussion summary for [102-e][138] NR\_RedCap**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206438 (from R4-2206338).**

**R4-2206438 Email discussion summary for [102-e][138] NR\_RedCap**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206544 WF on RedCap in Rel-17 | Ericsson | Approved |
| R4-2206545 LS on FR2 RedCap UE | Ericsson | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| [R4-2205278](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205278.zip)  Revised to R4-2206546  Revised to R4-2206591 | CR for 38.101-1 to introduce RF requirements for RedCap UE | Huawei, HiSilicon, Deutsche Telekom, CMCC, CBN, Vivo | Agreed |
| [R4-2205540](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205540.zip)  Revised to R4-2206547 | CR on RedCap UE FR1-RX | Ericsson | Endorsed |
| [R4-2205541](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205541.zip)  Revised to R4-2206548 | CR on RedCap UE FR2-TX | Ericsson | Endorsed |
| [R4-2205542](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205542.zip)  revised to R4-2206549 | CR on RedCap UE FR2-RX | Ericsson | Endorsed |
| [R4-2205601](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205601.zip)  Revised to R4-2206550 | RedCap operating bands CR Cat B rel 17 | Qualcomm Incorporated | Not pursued |

**R4-2206544 WF on RedCap in Rel-17**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

**R4-2206545 LS on FR2 RedCap UE**

*Type: LSout For: Approval  
 Source: Ericsson*

**Decision: Approved.**

**Post-meeting**

**R4-2206634 Big CR on RedCap UE FR1-RX**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-XXX rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Decision: Return to.**

**R4-2206635 Big CR on RedCap UE FR2**

*Type: CR For: Agreement  
 38.101-2 v17.4.0 CR-XXX rev Cat: B (Rel-17)  
  
 Source: Ericsson, Qualcomm*

**Decision: Return to.**

**GTW on Mar-01**

**Issue 1-1: Power class and TX architecture in FR1**

* Proposals:
  + Option 1: Agree below agreement from RAN4#101-bis-e
    - Issue 1-1-1: 1 PC3 UL TX architecture assumption
      * For TX architecture of 23 dBm PA
    - Issue 1-1-2: PC2 UL TX architecture assumption
      * 1 TX of 26 dBm PA in Rel-17 and 2 TX architecture is excluded in Rel-17
    - Issue 1-1-3: PC2 support for HD-FDD mode
      * PC2 support based on operator request
* Recommended WF
  + Option 1

**Agreement:** agree on Option 1.

**Issue 1-2: PC2 for HD-FDD**

* Proposals
  + Option 1: in FDD bands, when HD-FDD is used, to mitigate the UL duty cycle loss and poor antenna performance, support of 1Tx PC2 is further studied to provide rationale for operators’ request of such architecture. [Skyworks]
  + Option 2: TBA
* Recommended WF
* Same conclusion with issue 1-1

**Agreement:** agree on Option 1.

**Issue 1-3-1: TX-RX distance for UL/DL BWP configuration in FDD band for legacy eMBB NR UE**

* Proposals
  + Option 1: Yes, the issue is the same [Ericsson, Huawei]
  + Option 2: No, only for RedCap UE
  + Option 3: TBA
* Recommended WF
  + TBA

**Discussion:**

Huawei: this issue is not specific for RedCap UE. The normal UE may have the same problem. This issue can be handled in maintenance.

Ericsson: We can remind the group that this is issue for legacy. We would like to check if Option 1 is agreeable.

Mediatek: In Rel-15 there is no mandate for UE to configure the narrow bandwidth. Then the issue is more relevant to RedCap. At least we should address the problem for RedCap.

OPPO: What will happen if the existing Tx-Rx separate is not met? Does it mean the requirement cannot be met? If the requriement cannot be met, the clarification is needed.

Apple: we do not have strong view. In general we agree with Mediatek for redcap there is potential issue. From conformance testing point view, we only test the normal Tx-Rx separation.

Huawei: the Mediatek’s proposal cannot address the common problem.

T-Mobile: what does the requirements apply for the UE configured with wider channel bandwidth?

Apple: if UE is configured to gNB bandwidth, i.e., 40MHz, the REFSEN requirement should be based on 40MHz. We should consider the worst case.

**Issue 2-1-1: n79**

* Proposals
  + Option 1: Delay n79 till RAN1 LS response agreed.
  + Option 2: specify n79 [ZTE]

Recommended WF: No discussion needed. Add n79 with bracket in the CR directly in FR1.

**Agreement:** Add n79 with bracket in the CR directly in FR1

**Issue 2-1-2-1: n46, n96 and n47**

For v2x and unlicensed band

Candidate options:

* Option 1: Study the requirements impacts in Rel-18 timeframe and, if no protocol spec impact compared to Rel-17 spec is identified, then consider to specify those requirements in Rel-18 specs with Release-independence from Rel-17
* Option 2: TBA

Recommendations for 2nd round:

* Discussion two options

**Issue 2-1-2-2: SUL band**

For SUL band

Candidate options:

* Option 1: Study the requirements impacts in Rel-18 timeframe and, if no protocol spec compared to Rel-17 spec is identified, then consider to specify those requirements in Rel-18 specs with Release-independence from Rel-17
* Option 2: Following RAN plenary’s agreement in RP-212634, the specification will not contain any restriction to prevent implementation of RedCap UEs with SUL feature.
* Option 3: TBA

Recommendations for 2nd round:

* Discussion above options

**Discussion:**

Ericsson: this is separate discussion. The proponent is fine to study the requirement in Rel-18.

Huawei:

CMCC: from our perspective, can we conclude the study impact in RAN4 in WG level?

Ericsson: we have this band for discussion. We did not go anywhere. We need clarify the operator request in a release independent way. It is important to capture the operator wishes. In RAN4 in Rel-17 we do not spend any time to study this band. If operator still wants the band to be supported, RAN4 needs …

Skyworks: I do not see how RAN4 can make decision if RAN cannot decide it.

CMCC: Does it mean those features are precluded in Rel-17? That is not aligned with Rel-17. We should make more general.

Huawei: we have concern on the Ericsson proposal. If it is related to Rel-18, it should be discussed in RAN. We should honor the agreement in RAN. RAN agree that those features should not be precluded but no work in Rel-17. “If feasible” does it mean that we should first evaluate? I am not sure if such issue is helpful to complete the Rel-17 work.

Qualcomm: you should list SUL band first in WID and then work on the requirement.

Mediatek: there is no intention to specify anything. I do not see the problem here. We prefer Option 1.

OPPO: RAN way forward provides different interpretion for different companies. I wonder if RAN agreement provided enough room for companies. RAN is the right place to discuss the issue.

Huawei: there are two assumptions. If supporting SUL has clear spec impact, it means no vendor will implement. If supporting features has not clear spec impact, it means that vendor can implement. Company has freedom to implement the features. But we cannot restrict company not to implement features.

CMCC: If we see the report of RAN#93e, the conclusion is that moderator proposal is endorsed.

Xiaomi: what is the impact to the spec? No company provided the impact. There is no list of band. And in WID, there is clear saying that one band.

Mediatek: The impact was never discussed. RAN does not want to spend time.

Qualcomm: looking at the WID, it does say focusing on the single band at the time.

**Issue 3-1-1-1: For band n1, n18, n24, n70, the tightening of REFSENS for HD-FDD is**

Candidate options:

* Option1 : 0 dB
* Option 2: 0.2 dB

Recommendations WF:

* Option 1

**Agreement:** Agree on Option 1.

**Issue 3-1-1-2: For band n1, n18, n24, n70, the tightening of REFSENS for HD-FDD is**

For n91, n92, n93, and n94, the tightening of REFSENS for HD-FDD is

Candidate options:

* Option1 : 0 dB
* Option 2: 0.2 dB

Recommendations WF:

* Option1

**Agreement:** Agree on Option 1.

**Issue 3-1-1-3: For framework of HD-FDD REFSESN, discuss further if additional note is need in CR.**

Candidate options:

* Option1 : HD-FDD REFSENS for channel BW wider than 5 MHz can be calculated by REFSENS(5MHz) + 10log10(n x NRB/25), where NRB is the maximum transmission bandwidth configuration with n=1 for 15kHz SCS and n=2 for 30kHz SCS.
* Option 2: TBA

Recommendations WF:

* Option 1 (previous WF agreement) and further discussion in CR format (with note or not)

**Discussion:**

Sony: In the spec, there are tables to capture the requirements rather formula.

Ericsson: we use formula to derive the numbers.

**Agreement:** HD-FDD REFSENS for channel BW wider than 5 MHz can be calculated by REFSENS(5MHz) + 10log10(n x NRB/25), where NRB is the maximum transmission bandwidth configuration with n=1 for 15kHz SCS, n=2 for 30kHz SCS, and n=4 for 60kHz SCS.

**Issue 3-1-2: UL configuration**

* Proposals
  + Option1 : Keep previous WF but adding a note that # of RB allocation in UL configuration has no impact on REFSENS
  + Option 2: use the full RB allocation in UL configuration table
* Recommended WF
  + Option 2

**Discussion:**

Xiaomi: we should keep the previous agreements for general.

Ericsson: this is only for HD-FDD.

Skyworks: we support option 2. In that case, we even not need UL configuration table.

Xiaomi: use the same configuration for both FDD and HD-FDD.

Huawei: if we use the same configuration, we can reduce the test effort.

Ericsson: The previous way forward is confusing that the requirement is only for a limited number of RB.

Apple: support Option 2.

**Agreement:** use the full RB allocation in UL configuration table for HD-FDD.

**Issue 3-1-3: Dual mode RedCap UE support (HD-FDD and FD-FDD )**

* Proposals
  + Option1 : LS to RAN1 to notify RAN4 decision on dual mode device
  + Option 2: no LS .
* Recommended WF
  + Option 2

**Discussion:**

Qualcomm: we should send LS to RAN1 to consider the dual mode. It cannot happen in this release.

Ericsson: Dual mode is proposed in RAN4. We de-prioritize it in RAN4. I do not know how to help RAN1.

Qualcomm: I also agree with de-prioritize for Rel-17.

Apple: we proposed the HD-FDD dual mode. We are OK to Option 2. We can come back to dual mode in Rel-18.

Huawei: we are busy for complete the Rel-17.

**Agreement:** agree on Option 2.

**Issue 3-1-4: specification Format of the HD-FDD REFSENS**

* Proposals
  + Option 1: RedCap UE 2Rx HD-FDD REFSENS power levels are explicitly tabulated in the specifications. [Apple] .e.g [**R4-2203692**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203692.zip)
  + Option 2: Based on the agreement in previous meeting, it’s proposed to specify the following test for HD-FDD REFSENS considering two key factors ΔRIB,HD and ΔRIB,1R . [Huawei]. E.g [**R4-2205278**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205278.zip)
  + Option 3: Formula in stead of the numbers for HD-FDD REFSESN considering different band dependent scaling factor , [Ericsson] e.g [**R4-2205540**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205540.zip)
* Recommended WF
  + Use the power level and not formular in CR

**Agreement:** Use the power level and not formula in CR

**Issue 4-0: FR2 RedCap UE power class**

* Proposal:
  + Option 1: no need to specify new power class for FR2 RedCap UE, reuse PC3 and PC5 with delta values for Minimum EIRP/Minimum EIS/Spherical coverage requirements and no need to ask RAN2 to design new capability [Huawei]
  + Option 2: Keep previous WF
  + Option 3: TBA
* Recommended WF
  + Option 2

**Discussion:**

Huawei: the option 1 does not conflict with the previous agreement.

Ericsson: in the previous agreement, we agreed to define the new power class. The Option 1 conflicts with the previous agreement. We have agreed LS to ask RAN2 about the signaling.

**Agreement:** keep previous WF.

**New Issue 4-1: PC5 for RedCap UE**

* Tentative agreements:
  + MBR does not apply to RedCap UE in Rel-17 for single band support
    - Fspecify MBR for multiple band support in future release based on operator request, FFS on MBR numbers for RedCap UE
    - MBR for RedCap is release independent as the same with FR2 NR UE
  + add a note “other device type is not precluded for RedCap” or similar in Table 6.2.1.0-1
* Recommended WF
  + Discuss the tentative agreements

**Discussion:**

Mediatek: we checked the RedCap WID. There is no limitation on single band or multiple band case. We prefer to add MBR.

Apple: UE can be hardware capable to supporting 3 bands. Then MBR is required.

OPPO: agree with Mediatek and Apple. MBR depends on whether UE supports multiple band or not.

Ericsson: MBR is release independent. MBR value should be different.

Mediatek: we cannot agree to specify MBR in future release.

OPPO: it is not relaetd to CA.

Sony: we also discuss reusing the existing power class for redCap. If UE can reuse PC5, we should use the complete requirements for PC5.

Apple: UE can support all the three bands. Once UE supports three bands, the MBR needs be taken into account.

Xiaomi: Agree with mediatek. Whether to support multiple-band does not depend on operator request and it depends on UE implementation

**Agreements:** For PC5 for RedCap UE, the existing MBR will be reused.

**Issue 4-2-1: new power class for FR2 RedCap**

* Proposals:
  + Option 1: Define one new power class for “general” RedCap in Rel-17, suited for industrial sensors and wearables.
  + Option 2: TBA
* Recommended WF
  + Option 1

**Discussion:**

Huawei: I do not think indurstrial sensor and wearables can be viewed as one.

VIVO: We should confirm whether industry sensor and wearables have the same requirement or not.

ZTE: we share the similar view as VIVO. Any change on EIRP… needs a new power class.

Ericsson: we have discussed some use case last meeting. Both industrial sensor and wearables can be driven by reduction of power consumption and cost reduction. Majority companies are OK to use one power class for both. Companies think 50% for industrial and 70% for wearable. They can share the same charastics.

Huawei: we can compromise as Option 1.

Sony: we think the wearable could be different from industrial. Given the limited time, we can have one. We can use PC3 for wearable.

**Agreement:** Define one new power class for “general” RedCap in Rel-17, suited for industrial sensors and wearables.

**Issue 4-3-1: RF architecture assumption for new power class FR2 RedCap**

* Proposals:
  + Option 1: single panel, dual polarization, 2x1 array [ Sony, Qualcomm]
  + Option 2: TBA
* Recommended WF
  + Option 1

**Agreement:** RF architecture assumption for new power class FR2 RedCap

* single panel, dual polarization, 2x1 array

**Issue 4-3-2: min EIRP**

* Proposals:
  + Option 1: 16.4 dBm for n257 n258 and n261 [xiaomi, Huawei, Sony, Qualcomm]
  + Option 2: TBA
* Recommended WF
  + Optoin 1

**Discussion:**

VIVO: the design for RedCap is different from the handheld. We need to evaluate link budget. We cannot define the requirement just based on PC3.

Apple: the number looks the directly scaling from PC3. For the wearable device, the form factor would be different from normal handheld UE.

Ericsson: We did not derive the number from PC3. Some companies provided the link budget for the analysis. We can discuss the number.

Apple: We do not contribution and need more time. We need analyze the antenna design. It make difficult to do analysis. We are thinking that in the RAN4 processing normally RAN4 has dedicated WI to handle such new device.

VIVO: for EIRP value, 2 dB relaxation would be acceptable.

Ericsson: we would like to put [16.4] dBm. It may impact RAN1. I still think we could discuss the number. We should not relax too much. We have rel-18 industry sensor objective. We could also discuss the even lower power class there.

Qualcomm: one possibility is to define two new power class: one for wearable and one for industrial sensor. The wearable can be a separate one.

Ericsson: It is better to stick the agreement of one power class. Where does 2dB relaxation come from?

VIVO: VIVO is not the only company who has the concern.

Apple: Comparing the proposed value, there is 6dB difference which met the reduction of antenna element number by half. The antenna design would be different.

**Agreement:** for min EIRP

* [16.4] dBm for n257 n258 and n261
  + FFS whether the relaxation is needed

**Issue 4-3-3: Spherical coverage**

* Proposals:
  + Option 1: EIRP spherical coverage for RedCap power class shall be 5.5 dBm for n257, n258, n261 and 2.0 dBm for n260 at 50 %-tile CDF. [Sony, Ericsson]
  + Option 2: For the low-power RedCap UE, spherical gain drop from peak direction is specified along the 75th %ile direction as: [Qualcomm]

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Band** | **n257** | **n258** | **n259** | **n260** | **n261** | **n262** |
| **Gain drop (dB)** | **8** | **8** | **9** | **9** | **8** | **10** |

* + Option 3: Adopt 11dB as the gain drop of spherical coverage @50%-tile for 28GHz bands [vivo]
  + Option 4: the same delta value 6 dB relaxer than FR2 PC3 can be used for EIS and Spherical coverage requirements of wearable use case.[Huawei]
  + Option 5: the min EIRP spherical coverage, REFSENs and EIS spherical coverage for wearable use case Redcap UE should also reduce 6dB based on PC3 handheld UE. [Xiaomi]
* Recommended WF
  + Optoin 1 (Reusing the gain drop from PC3)

**Discussion:**

Apple: the spherical coverage depends on the antenna design due to form factor design. We can consider Qualcomm proposal. We suggest to put the agreed value in [ ].

Sony: Option 1 is from our contribution. The gain is the same as PC3.

Huawei: whether n260 should be included.

**Agreement:** for spherical coverage, EIRP spherical coverage for RedCap power class shall be [5.5] dBm for n257, n258, n261 at 50%-tile CDF.

**Issue 4-3-4: REFSENS**

* Proposals:
  + Option 1: [Sony]
    - The RedCap REFSENS requirement should be based on a 2-element array reference design.
    - REFSENS for RedCap PC shall be -82.3 dBm for n257, n258, n261 and -79.7 dBm for n260 for 100MHz BW.
  + Option 2: the min EIRP spherical coverage, REFSENs and EIS spherical coverage for wearable use case Redcap UE should also reduce 6dB based on PC3 handheld UE. [Xiaomi]
  + Option 3: Scaling of the 3 dB in PC3 REFSENS for RedCap UE for band n261, n257, n258. [Ericsson, Qualcomm]
  + Option 4: TBA
* Recommended WF
  + Option 3 (same with option 1)

**Agreement:** Scaling of the [3] dB in PC3 REFSENS for RedCap UE for band n261, n257, n258.

**Issue 4-3-5: EIS**

* Proposals:
  + Option 1: EIS spherical coverage for RedCap power class shall be -71.4 dBm for n257, n258, n261 and -67.1 dBm at 100MHz BW and for n260 at 50 %-tile CDF. [Sony, Ericsson]
  + Option 2: For FR2 wearable Rx requirement, the same gain drop of Tx proposed in [1] should be adopted [Vivo, Ericsson]
  + Option 3: the min EIRP spherical coverage, REFSENs and EIS spherical coverage for wearable use case Redcap UE should also reduce 6dB based on PC3 handheld UE. [Xiaomi]
  + Option 4: the same delta value 6 dB relaxer than FR2 PC3 can be used for EIS and Spherical coverage requirements of wearable use case. [Huawei]
  + Option 5: TBA
* Recommended WF
  + Option 2

**Agreement:** For general FR2 Rx requirement for the new power class, the same gain drop [10.9]dB should be adopted.

**Issue 4-3-6: Beam correspondence**

* Proposals:
  + Option 1: General requirements for Beam Correspondence (6.6.1) apply to all RedCap UEs. [Qualcomm]
  + Option 2: Side condition of beam correspondence should be updated with gain drop from spherical coverage requirement [Ericsson]
  + Option 3: TBA
* Recommended WF
  + Option 1 and 2.

**Discussion:**

Huawei: based on the previous agreement, we only focus on EIRP, spherical coverage.. It is not aligned with the previous agreement, i.e., using PC3 as baseline. We do not prefer to change the BC requirement.

Qualcomm: There are new power class defined without bit-0. Bit-0 is for the old UE. It may require a lot of network effort.

Huawei: I think we are specifying the requirement for reduced capability UE. Is Bit-0 not allowed for RedCap UE?

Qualcomm: Bit-0 UE needs to support additional capability.

Sony: we have another reference architecture with wider beam. If bit-0 introduced, we need more work for design.

Huawei: we can compromise that some clarification is needed.

**Agreement:** In Rel-17 only bit-1 beam correspondence requirement will be specified for power class 7 for FR2 RedCap UE.

**New Issue 4-3-7: MBR**

* Proposals:
  + Option 1 MBR does not apply to RedCap in Rel-17 for single band operation
    - FFS to specify MBR for multiple band support in future release
  + Option 2: TBA
* Recommended WF
  + Opiton 1

**Agreement:** Reuse the PC3 MBR for the new power class for FR2 RedCap UE.

--------------------------------------------------------------------------------------------------------------------------------------------

**R4-2206137 RedCap draft CR to 38.101-1**

*Type: discussion For: Discussion  
 Source: MediaTek (Chengdu) Inc.*

**Decision: Noted.**

#### 10.20.2 UE RF requirements

##### 10.20.2.1 FR1

**R4-2204211 RedCap operating bands CR Cat F rel 17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: F (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **withdrawn**.

**R4-2205278 CR for 38.101-1 to introduce RF requirements for RedCap UE**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1019 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Deutsche Telekom, CMCC, CBN, Vivo*

**Decision: Revised to R4-2206546 (from R4-2205278).**

**R4-2206546 CR for 38.101-1 to introduce RF requirements for RedCap UE**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1019 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Deutsche Telekom, CMCC, CBN, Vivo*

**Decision: Revised to R4-2206591 (from R4-2206546).**

**R4-2206591 CR for 38.101-1 to introduce RF requirements for RedCap UE**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1019 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Deutsche Telekom, CMCC, CBN, Vivo*

**Decision: Agreed.**

**R4-2205601 RedCap operating bands CR Cat B rel 17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2206550 (from R4-2205601).**

**R4-2206550 RedCap operating bands CR Cat B rel 17**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Not pursued.**

**R4-2206135 RedCap Tx-Rx separation for FDD**

*Type: discussion For: Discussion  
 Source: MediaTek (Chengdu) Inc.*

**Decision: Noted.**

###### 10.20.2.1.1 Tx requirements (power class)

**R4-2204765 On RedCap FR1 Operating band**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205275 Discussion on FR1 Tx-Rx distance for RedCap UE**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205539 CR on RedCap UE FR1-TX**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR on general and Tx part for RedCap UE in FR1 is introduced

**Decision: Not pursued.**

**R4-2205544 Remaining issue for RedCap RF requirements in FR1**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on remaining issue in FR1 for RedCap UE

**Decision: Noted.**

**R4-2206072 PC2 HD-FDD for RedCap**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

If there is an agreement that PC3 1Tx is the default power class and PC2 1TX depends on operator’s request, we believe that PC2 for HD-FDD has merits on its own and is worth studying independently from operator’s request; we discuss this further in this c

**Decision: Noted.**

###### 10.20.2.1.2 Rx requirements (REFSENS, etc)

**R4-2203692 RedCap UE REFSENS requirements**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2203865 RedCap UE HD-FDD REFSENS requirements**

*Type: discussion For: Approval  
 Source: Mediatek India Technology Pvt.*

**Decision: Noted.**

**R4-2204766 On RedCap FR1 REFSEN requirements**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205276 Discussion on FR1 REFSENS requirements for RedCap UE**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205540 CR on RedCap UE FR1-RX**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, Qualcomm*

**Abstract:**

CR on general and RX part for RedCap UE in FR1 is introduced

**Decision: Revised to R4-2206547 (from R4-2205540).**

**R4-2206547 CR on RedCap UE FR1-RX**

*Type: draftCR For: Endorsement  
 38.101-1 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR on general and RX part for RedCap UE in FR1 is introduced

**Decision: Endorsed.**

##### 10.20.2.2 FR2

**R4-2205277 Discussion on FR2 RF requirements for RedCap UE**

*Type: other For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205279 CR for 38.101-2 to introduce RF requirements for FR2 RedCap UE**

*Type: CR For: Agreement  
 38.101-2 v17.4.0 CR-0439 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Not pursued.**

###### 10.20.2.2.1 Tx requirements (power class, UE type)

**R4-2204040 Peak EIRP and EIRP spherical coverage for RedCap FR2**

*Type: other For: Approval  
 Source: Sony*

**Decision: Noted.**

**R4-2204226 Further discussion on FR2 RedCap**

*Type: discussion For: Approval  
 Source: MediaTek Beijing Inc.*

**Abstract:**

Proposal1: RAN4 assumes watch as starting point for wearable RedCap requirement discussion.

Proposal2: Throughput, battery life, UE implementation feasibility, and use case shall be considered together before specifying FR2 requirements for wearable.

Prop

**Decision: Noted.**

**R4-2204767 Discussion on FR2 RedCap UE**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2204961 Further Discussion on FR2 RedCap Tx requirements**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2205119 Discussion on RF requirements for FR2 wearable use case Redcap UE**

*Type: discussion For: Approval  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2205541 CR on RedCap UE FR2-TX**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, Qualcomm*

**Abstract:**

CR on general and Tx part for RedCap UE in FR2 is introduced

**Decision: Revised to R4-2206548 (from R4-2205541).**

**R4-2206548 CR on RedCap UE FR2-TX**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson, Qualcomm*

**Abstract:**

CR on general and Tx part for RedCap UE in FR2 is introduced

**Decision: Endorsed.**

**R4-2205545 On FR2 RedCap RF requirements**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the FR2 RedCap RF requirement.

**Decision: Noted.**

**R4-2206058 On RF requirements for the low-power Redcap FR2 UE**

*Type: other For: Discussion  
 Source: Qualcomm Incorporated*

**Abstract:**

RedCap UEs in FR2 have been streamlined into FWA type devices and a low-power device that assumes a halving of number of elements compared to PC3. In this contribution we extend this this assumption for the low-power device towards determining other UE RF

**Decision: Noted.**

###### 10.20.2.2.2 Rx requirements

**R4-2204041 REFSENS and EIS spherical coverage for RedCap FR2**

*Type: other For: Approval  
 Source: Sony*

**Decision: Noted.**

**R4-2204962 Further Discussion on FR2 RedCap Rx requirements**

*Type: discussion For: Approval  
 Source: vivo*

**Decision: Noted.**

**R4-2205542 CR on RedCap UE FR2-RX**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR on general and Rx part for RedCap UE in FR2 is introduced

**Decision: Revised to R4-2206549 (from R4-2205542).**

**R4-2206549 CR on RedCap UE FR2-RX**

*Type: draftCR For: Endorsement  
 38.101-2 v17.4.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

CR on general and Rx part for RedCap UE in FR2 is introduced

**Decision: Endorsed.**

##### 10.20.2.3 Others

**R4-2205543 LS on FR2 RedCap UE**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we propose a LS to RAN2 on FR2 RedCap UE design decision

**Decision: Noted.**

#### 10.20.3 RRM core requirements

##### 10.20.3.1 Impacts from UE complexity reduction

###### 10.20.3.1.1 General

###### 10.20.3.1.2 Mobility requirements

###### 10.20.3.1.3 Timing requirements

###### 10.20.3.1.4 Signalling characteristics

###### 10.20.3.1.5 Measurement procedure

##### 10.20.3.2 Extended DRX enhancements

##### 10.20.3.3 RRM measurement relaxations

##### 10.20.3.4 Others

#### 10.20.4 UE demodulation and CSI requirements

##### 10.20.4.1 General

##### 10.20.4.2 Demodulation requirements

###### 10.20.4.2.1 PDSCH/SDR requirements

###### 10.20.4.2.2 PDCCH/PBCH requirements

##### 10.20.4.3 CSI requirements

###### 10.20.4.3.1 CQI requirements

###### 10.20.4.3.2 PMI/RI requirements

### 10.21 Positioning enhancements for NR

#### 10.21.1 General

#### 10.21.2 RRM core requirements

##### 10.21.2.1 UE Rx/Tx and/or gNB Rx/Tx timing delay mitigation

##### 10.21.2.2 Latency reduction of positioning measurement

##### 10.21.2.3 Measurement in RRC\_INACTIVE state

##### 10.21.2.4 Impact on existing UE positioning and RRM requirements

##### 10.21.2.5 Enhancements of A-GNSS positioning

##### 10.21.2.6 Others

### 10.22 Multi-Radio Dual-Connectivity enhancements

#### 10.22.1 General

#### 10.22.2 RRM core requirements

##### 10.22.2.1 Efficient activation/de-activation mechanism for SCells

##### 10.22.2.2 Efficient activation/de-activation mechanism for one SCG

##### 10.22.2.3 Conditional PSCell change and addition

##### 10.22.2.4 Others

### 10.23 Enhanced IIoT and URLLC support

#### 10.23.1 General

#### 10.23.2 RRM core requirements

##### 10.23.2.1 Propagation delay compensation enhancements

##### 10.23.2.2 Reference point for Te requirements

##### 10.23.2.3 Others

### 10.24 NR Sidelink Relay

#### 10.24.1 General

#### 10.24.2 RRM core requirements

### 10.25 NR small data transmissions in INACTIVE state

#### 10.25.1 General and work plan

#### 10.25.2 RRM core requirements

### 10.26 Support for Multi-SIM devices for LTE/NR

#### 10.26.1 General and work plan

#### 10.26.2 RRM core requirements

## 11 Rel-17 Study Items for NR

### 11.1 Study on enhanced test methods for FR2 in NR

#### 11.1.1 Maintenance on objectives 1~6

#### 11.1.2 OTA test methods for UE RF, RRM and demodulation for 52.6~71GHz

##### 11.1.2.1 General

###### 11.1.2.1.1 Test system assumption

###### 11.1.2.1.2 UE types

###### 11.1.2.1.3 MU assessment

###### 11.1.2.1.4 Others

##### 11.1.2.2 Test methodology for UE RF

##### 11.1.2.3 Test methodology for RRM

##### 11.1.2.4 Test methodology for UE demodulation and CSI

### 11.2 Study on Efficient utilization of licensed spectrum that is not aligned with existing NR channel bandwidths

**[102-e][139] FS\_NR\_eff\_BW\_util, AI 11.2 – Esther Sienkiewicz**

**R4-2206339 Email discussion summary for [102-e][139] FS\_NR\_eff\_BW\_util**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206439 (from R4-2206339).**

**R4-2206439 Email discussion summary for [102-e][139] FS\_NR\_eff\_BW\_util**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206551 WF on BS Tx Requirements | Ericsson | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205018  revised to R4-2206552 | draft TR 38.844 v0.0.7 | Ericsson | Agreed |
| R4-2204413  revised to R4-2206553 | TP to TR 38.844: General updates | Intel Corporation | Noted |
| R4-2205072  revised to R4-2206554 | TP to TR 38.844: Editorial clean up | Ericsson | Approved |
| R4-2205956  revised to R4-2206555 | TP to TR 38.844: corrections | Nokia, Nokia Shanghai Bell | Approved |
| R4-2203669  revised to R4-2206556 | Further input on performance when using the next larger channel | Apple | Noted  6556 withdrawn |
| R4-2204516  Revised to R4-2206595 | TP to TR 38.844: Clause 6.1.2.x Spec impact identification | Qualcomm Incorporated | Approved |
| R4-2204622 | TP for 38.844: configuration for the case of larger channel bandwidths than licensed bandwidth | Ericsson | Endorsed |
| R4-2205213  revised to R4-2206557 | TP to TR 38.844 on Larger CBW approach: Signalling and configuration aspects | Nokia, Nokia Shanghai Bell | Approved |
| R4-2205157  revised to R4-2206558 | TP for overlapping CA | Huawei, HiSilicon, ZTE | Approved |
| R4-2205821  revised to R4-2206559 | TP to TR 38.844: Summary and Conclusions | Intel Corporation, Ericsson | Noted |
| R4-2205158  revised to R4-2206560 | TP for overall method comparisons | Huawei, HiSilicon, Nokia, Nokia Shanghai Bell | Noted |

**R4-2206551 WF on BS Tx Requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

#### 11.2.1 General and TR

**R4-2203668 Further corrections to the solution based on overlapping channels from the network perspective**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Abstract:**

This TP was endorsed during the RAN4#101bis meeting, but was not included into the TR v0.0.6.

**Decision: Approved.**

**R4-2204413 TP to TR 38.844: General Updates**

*Type: pCR For: Approval  
 38.844 v0.0.7 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2206553 (from R4-2204413).**

**R4-2206553 TP to TR 38.844: General Updates**

*Type: pCR For: Approval  
 38.844 v0.0.7 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2205018 draft TR 38.844 v0.0.7**

*Type: draft TR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

[draft TR] TR38.844 Updates after RAN4 #101-bis-e meeting

**Decision: Revised to R4-2206552 (from R4-2205018).**

**R4-2206552 draft TR 38.844 v0.0.7**

*Type: draft TR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

[draft TR] TR38.844 Updates after RAN4 #101-bis-e meeting

**Decision: Agreed.**

**R4-2205072 TP to TR 38.844: Editorial updates**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This TP is suggesting text to clean up current TR

**Decision: Revised to R4-2206554 (from R4-2205072).**

**R4-2206554 TP to TR 38.844: Editorial updates**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This TP is suggesting text to clean up current TR

**Decision: Approved.**

**R4-2205821 TP to TR 38.844: Summary and Conclusions**

*Type: pCR For: Approval  
 38.844 v0.0.7 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2206559 (from R4-2205821).**

**R4-2206559 TP to TR 38.844: Summary and Conclusions**

*Type: pCR For: Approval  
 38.844 v0.0.7 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2205867 Views on BS TX Channel BW Filters**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2205956 TP to TR 38.844: corrections**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2206555 (from R4-2205956).**

**R4-2206555 TP to TR 38.844: corrections**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Approved.**

#### 11.2.2 Evaluation of use of larger channel bandwidths than licensed bandwidth

**R4-2205156 TP for wider channel bandwidth**

*Type: pCR For: Approval  
 38.844 v0.0.7 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

##### 11.2.2.1 Channel filter assumptions and RB blanking with impacts on UE (ACS, blocking)

**R4-2203669 Further input on performance when using the next larger channel**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2206556 Further input on performance when using the next larger channel**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision: Withdrawn.**

**R4-2205212 TP to TR 38.844 clause 6.1.3**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

##### 11.2.2.2 Signaling and configuration (RAN1/RAN2 impacts) aspects

**R4-2204514 Considerations for wider CBW solutions**

*Type: discussion For: (not specified)  
 Source: China Telecom*

**Decision: Noted.**

**R4-2204515 Considerations for wider CBW solutions**

*Type: discussion For: (not specified)  
 Source: China Telecom*

**Decision:** The document was **withdrawn**.

**R4-2204516 TP to TR 38.844: Clause 6.1.2.x Spec impact identification**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2206595 (from R4-2204516).**

**R4-2206595 TP to TR 38.844: Clause 6.1.2.x Spec impact identification**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Approved.**

**R4-2204622 TP for 38.844: configuration for the case of larger channel bandwidths than licensed bandwidth**

*Type: pCR For: Approval  
 38.844 v0.0.7 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

In this text proposal we describe the configuration for the case of larger channel bandwidths than licensed bandwidth

**Decision: Endorsed.**

**R4-2205213 TP to TR 38.844 on Larger CBW approach: Signalling and configuration aspects**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2206557 (from R4-2205213).**

**R4-2206557 TP to TR 38.844 on Larger CBW approach: Signalling and configuration aspects**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Approved.**

##### 11.2.2.3 Other aspects such as detailed solution, complexity, legacy UE, etc

**R4-2205214 TP to TR 38.844 on Larger CBW approach: Legacy UE and RAN4 spec impacts**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

#### 11.2.3 Evaluation of use of overlapping UE channel bandwidths

##### 11.2.3.1 Overlapping CBWs from network perspective

###### 11.2.3.1.1 Signaling and configuration (RAN1/RAN2 impacts) aspects

###### 11.2.3.1.2 Other aspects such as detailed solution, complexity, legacy UE, etc

##### 11.2.3.2 Combined UE CBWs (one cell)

###### 11.2.3.2.1 Signaling and configuration (RAN1/RAN2 impacts) aspects

###### 11.2.3.2.2 Other aspects such as detailed solution, complexity, legacy UE, etc

##### 11.2.3.3 Overlapping CA (two cells)

**R4-2205157 TP for overlapping CA**

*Type: pCR For: Approval  
 38.844 v0.0.7 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206558 (from R4-2205157).**

**R4-2206558 TP for overlapping CA**

*Type: pCR For: Approval  
 38.844 v0.0.7 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2205226 Revision on Section 6.7.3 for TR 38.844**

*Type: pCR For: Approval  
 38.844 v0.0.7 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Wistron Telecom AB*

**Decision: Noted.**

###### 11.2.3.3.1 Signaling and configuration (RAN1/RAN2 impacts) aspects

###### 11.2.3.3.2 Other aspects such as detailed solution, complexity, legacy UE, etc

##### 11.2.3.4 Overall method comparisons

**R4-2205158 TP for overall method comparisons**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206560 (from R4-2205158).**

**R4-2206560 TP for overall method comparisons**

*Type: pCR For: Approval  
 38.846561*

*4 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2205215 TP to TR 38.844 Overall method comparison**

*Type: pCR For: Approval  
 38.844 v0.0.6 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

### 11.3 Study on band combination handling in RAN4

**[102-e][140] FS\_BC\_handling, AI 11.3 – Zhifeng Ma**

**R4-2206340 Email discussion summary for [102-e][140] FS\_BC\_handling**

*Type: other For: Information  
 Source: Moderator (ZTE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206440 (from R4-2206340).**

**R4-2206440 Email discussion summary for [102-e][140] FS\_BC\_handling**

*Type: other For: Information  
 Source: Moderator (ZTE)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206561 WF on further simplification for band combinations | ZTE Corporation | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2204009 | TP to TR 38.862 on simplification for EN-DC and NE-DC configuration tables | ZTE Corporation | Noted |
| R4-2205666  Revised to R4-2206562 | TP to TR38.862 on BC not for block approval and guidelines on single band UL configurations using intra-band UL CA | Skyworks Solutions Inc. | Approved |

**R4-2206561 WF on further simplification for band combinations**

*Type: other For: Approval  
 Source: ZTE*

**Decision: Approved.**

=> Chair: in Chair’s understanding, this SI can be closed.

#### 11.3.1 General and TR

**R4-2203987 TR 38.862 V060 Band combination handling**

*Type: draft TR For: Approval  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

This paper is to provide TR 38.862 V060 for band combination handling to include the approved TP in this meeting.

**Decision:** The document was **for email approval**.

**R4-2204010 TP to TR 38.862 on symbols and abbreviations**

*Type: pCR For: Approval  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

#### 11.3.2 Information of rules and guidelines of specifying band combinations (TP format, notation, band configurations, BCS)

**R4-2204760 Update template for Rel-18 NR CA and SUL band combinations**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2205666 TP to TR38.862 on BC not for block approval and guidelines on single band UL configurations using intra-band UL CA**

*Type: pCR For: Approval  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution we provide the suggested texts and TR re-organization to introduce the aspects pertaining to band combinations not for block approval

**Decision: Revised to R4-2206562 (from R4-2205666).**

**R4-2206562 TP to TR38.862 on BC not for block approval and guidelines on single band UL configurations using intra-band UL CA**

*Type: pCR For: Approval  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Skyworks Solutions Inc.*

**Abstract:**

In this contribution we provide the suggested texts and TR re-organization to introduce the aspects pertaining to band combinations not for block approval

**Decision: Approved.**

**R4-2205707 TP to 38.862 on that higher order TP(s) are pending approval of fallback(s)**

*Type: pCR For: Approval  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TP to 38.862 on that higher order TP(s) are pending approval of fallback(s)

**Decision: Approved.**

**R4-2205708 TP to 38.862 on rule about not merging cells in CA configuration tables**

*Type: pCR For: Approval  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

TP to 38.862 on rule about not merging cells in CA configuration tables

**Decision: Approved.**

#### 11.3.3 Improving RAN4 specification structures and reducing redundant contents

##### 11.3.3.1 Optimization of delta TIB and delta RIB

**R4-2204011 TP to TR 38.862 on template of delta TIB and RIB tables**

*Type: pCR For: Approval  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Approved.**

**R4-2204785 TP to TR 38.862: Statistics of dTib and dRib**

*Type: discussion For: Discussion  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Approved.**

##### 11.3.3.2 Optimizations for other redundancy

**R4-2204005 Further discussion on simplification for DC configuration table in Rel-18**

*Type: discussion For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2204009 TP to TR 38.862 on simplification for EN-DC and NE-DC configuration tables**

*Type: pCR For: Approval  
 38.862 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: ZTE Corporation*

**Decision: Noted.**

### 11.4 Optimizations of pi/2 BPSK uplink power in NR

**[102-e][141] FS\_NR\_Opt\_pi2BPSK, AI 11.4 – Chan Fernando**

**R4-2206341 Email discussion summary for [102-e][141] FS\_NR\_Opt\_pi2BPSK**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206441 (from R4-2206341).**

**R4-2206441 Email discussion summary for [102-e][141] FS\_NR\_Opt\_pi2BPSK**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206606 (from R4-2206441).**

**R4-2206606 Email discussion summary for [102-e][141] FS\_NR\_Opt\_pi2BPSK**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206563 WF for optimizations of Pi/2 BPSK uplink power  Revised to R4-2206598 | Qualcomm | Approved |
| R4-2206564 TP containing contributions to RAN4#102-e | Qualcomm | Approved |
| R4-2206565 TP on pending issues for optimizations of Pi/2 BPSK uplink power  Revised to R4-2206599 | Qualcomm | Approved |
| R4-2206574 TR for SI on optimizations of pi\_2 BPSK uplink power  Revised to R4-2206596 | Qualcomm | For email approval |

**R4-2206563 WF for optimizations of Pi/2 BPSK uplink power**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Revised to R4-2206598 (from R4-2206563).**

**R4-2206598 WF for optimizations of Pi/2 BPSK uplink power**

*Type: other For: Approval  
 Source: Qualcomm*

Skyworks: regarding the agreement, i.e., “Agreement: For 1Tx PC2 PAs, MRP relative to 29dBm should be less than or equal to 2dB”, this is limited set of allocations.

Chair: There was a further discussion after the meeting. It seems the understanding of majority companies is that the agreement applies to a limited set of allocations. Encourage companies to have further discussion.

**Decision: Approved.**

**R4-2206564 TP containing contributions to RAN4#102-e**

*Type: pCR For: Approval  
 38.868 v0.0.2 CR- rev Cat: (Rel-17)  
 Source: Qualcomm Incorporated*

**Decision: Approved.**

**R4-2206565 TP on pending issues for optimizations of Pi/2 BPSK uplink power**

*Type: pCR For: Approval  
 38.868 v0.0.2 CR- rev Cat: (Rel-17)  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2206599 (from R4-2206565).**

**R4-2206599 TP on pending issues for optimizations of Pi/2 BPSK uplink power**

*Type: pCR For: Approval  
 38.868 v0.0.2 CR- rev Cat: (Rel-17)  
 Source: Qualcomm Incorporated*

**Decision: Approved.**

**R4-2206574 TR for SI on optimizations of pi\_2 BPSK uplink power**

*Type: draft TR For: Agreement  
 38.868 v x.x.x CR- rev Cat: (Rel-17)  
 Source: Qualcomm*

**Decision: Revised to R4-2206596 (from R4-2206574).**

**R4-2206596 TR for SI on optimizations of pi\_2 BPSK uplink power**

*Type: draft TR For: Agreement  
 38.868 v x.x.x CR- rev Cat: (Rel-17)  
 Source: Qualcomm*

**Decision: Revised to R4-2206609 (from R4-2206596).**

**R4-2206609 TR for SI on optimizations of pi\_2 BPSK uplink power**

*Type: draft TR For: Agreement  
 38.868 v x.x.x CR- rev Cat: (Rel-17)  
 Source: Qualcomm*

**Decision: Return to.**

#### 11.4.1 General and TR

**R4-2204012 TR skeleton for SI on optimizations of pi\_2 BPSK uplink power**

*Type: other For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Workplan for ‘Optimizations of pi/2 BPSK uplink power in NR’ is presented

**Decision: Agreed.**

**R4-2204013 TP for Pi/2 BPSK study item for TR38.868**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Presents items from company contributions that are to be included in TR38.868

**Decision: Approved.**

**R4-2204414 TP for TR 38.868: Filter Analysis Update**

*Type: pCR For: Approval  
 38.868 v0.0.2 CR- rev Cat: (Rel-17)  
  
 Source: Intel Corporation*

**Decision: Approved.**

#### 11.4.2 UE Tx power and related issues

**R4-2203682 PI/2 BPSK enhancements**

*Type: discussion For: Decision  
 Source: Apple*

**Decision: Noted.**

**R4-2204085 On Remaining Issues for Optimisations of Pi/2 BPSK UL Power**

*Type: discussion For: Agreement  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2204481 Discussion on Pi\_2\_BPSK power boosting**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: MediaTek Inc.*

**Decision: Noted.**

**R4-2204794 Transmitter performance for pi/2 BPSK with spectral shaping**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2204937 Further discussion on pi/2 BPSK UE Tx power**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2206139 MPR Proposal for PC2 Pi\_2 BPSK**

*Type: discussion For: Approval  
 Source: Skyworks Solutions Inc.*

**Decision: Noted.**

#### 11.4.3 Evaluation of filter requirements applicable to identified new UE power capability

**R4-2204415 Views on Tx+Rx link margin filter delta**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision: Noted.**

**R4-2204795 Shaping filter characteristics including transmitter and link performance**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

#### 11.4.4 Link level simulations

**R4-2204796 Receiver performance for pi/2 BPSK with spectral shaping**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

#### 11.4.5 SAR analysis

#### 11.4.6 Identify RAN4 requirements

**R4-2204016 PC2 power boost for Pi/2 BPSK**

*Type: discussion For: Approval  
 38.101-1 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

Discussion on power boost value is presented

**Decision: Noted.**

**R4-2204797 Identify?potential changes for?RAN4 requirements**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

## 12 Rel-17 Work Items for LTE

### 12.1 LTE inter-band Carrier Aggregation for 2 bands DL with 1 band UL

**[102-e][122] LTE\_Baskets, AI 12.1~12.5 – Per Lindell**

**R4-2206322 Email discussion summary for [102-e][122] LTE\_Baskets**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

#### 12.1.1 Rapporteur Input (WID/TR/CR)

**R4-2204496 Revised WID: Rel17 LTE inter-band CA for 2 bands DL with 1 band UL**

*Type: WID revised For: Endorsement  
 Source: Qualcomm Incorporated*

**Decision:** The document was **for email approval**.

**R4-2204497 TR 36.717-02-01 Rel-17 LTE inter-band CA for 2 bands DL and 1 band UL CA**

*Type: draft TR For: Approval  
 36.717-02-01 v0.7.0 CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

[draft TR] TR 36.717-02-01

**Decision:** The document was **for email approval**.

**R4-2204498 Big CR to TS36.101: Rel-17 LTE inter-band CA for 2 bands DL and 1 band UL CA**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-5850 rev Cat: B (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision:** The document was **for email approval**.

#### 12.1.2 UE RF with harmonic, close proximity and isolation issues

#### 12.1.3 UE RF without specific issues

### 12.2 LTE inter-band Carrier Aggregation for 3 bands DL with 1 band UL

#### 12.2.1 Rapporteur Input (WID/TR/CR)

**R4-2206637 Revised WID: LTE inter-band Carrier Aggregation for 3 bands DL with 1 band UL**

*Type: WID revised For: Endorsement  
 Source: Huawei*

**Decision:** The document was **for email approval**.

**R4-2206638 TR 36.717-03-01 LTE inter-band Carrier Aggregation for 3 bands DL with 1 band UL**

*Type: draftTR For: Approval  
 36.717-03-01 v x.y.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei*

**Decision:** The document was **for email approval**.

**R4-2206639 Big CR to TS 36.101: LTE inter-band Carrier Aggregation for 3 bands DL with 1 band UL**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-XXXX rev Cat: B (Rel-17)  
  
 Source: Huawei*

**Decision:** The document was **for email approval**.

#### 12.2.2 UE RF with harmonic, close proximity and isolation issues

#### 12.2.3 UE RF without specific issues

### 12.3 LTE inter-band Carrier Aggregation for x bands DL (x=4, 5) with 1 band UL

#### 12.3.1 Rapporteur Input (WID/TR/CR)

**R4-2205951 Revised WID: LTE Advanced inter-band CA Rel-17 for x bands DL (x=4, 5, 6) with 1 band UL**

*Type: WID revised For: Endorsement  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **for email approval**.

**R4-2205952 TR 36.717-04-01 v0.8.0**

*Type: draft TR For: Approval  
 36.717-04-01 v0.8.0 CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

[draft TR] TR 36.717-04-01

**Decision: Agreed.**

**R4-2205953 Updated scope of TR: LTE inter-band CA for 4/5/6 bands DL with 1 band UL**

*Type: other For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Approved.**

**R4-2206097 Big CR to TS36.101: LTE Advanced inter-band CA Rel-17 for x bands DL (x=4, 5, 6) with 1 band UL**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-5853 rev Cat: B (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **for email approval**.

#### 12.3.2 UE RF with 4 LTE bands CA

**R4-2205269 Draft CR for 36.101 to add the band combination CA\_1-3-28-32**

*Type: draftCR For: Endorsement  
 36.101 v17.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Endorsed.**

#### 12.3.3 UE RF with 5 LTE bands CA

### 12.4 LTE inter-band Carrier Aggregation for 2 bands DL with 2 band UL

#### 12.4.1 Rapporteur Input (WID/TR/CR)

**R4-2205594 TR 36.717-02-02 v0.4.0**

*Type: draft TR For: Approval  
 36.717-02-02 v0.4.0 CR- rev Cat: (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[draft TR] 36.717-02-02

**Decision: Agreed.**

**R4-2205595 Big CR for TS 36.101: Introduction of completed LTE CA for 2 bands DL with 2 bands UL (Rel-17)**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-5852 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

**R4-2205596 Revised WID for LTE inter-band CA for 2 bands DL with 2 bands UL**

*Type: WID revised For: Endorsement  
 Source: Huawei, HiSilicon*

**Decision:** The document was **for email approval**.

#### 12.4.2 UE RF with harmonic, close proximity and isolation issues

#### 12.4.3 UE RF without specific issues

### 12.5 LTE inter-band Carrier Aggregation for x bands DL (x= 3, 4, 5) with 2 band UL

#### 12.5.1 Rapporteur Input (WID/TR/CR)

**R4-2204473 TR 36.717-03-02 v1.0.0 TR update for LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL in Rel-17**

*Type: draft TR For: Approval  
 36.717-03-02 v0.5.0 CR- rev Cat: (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

[draft TR] TR 36.717-03-02 TR1.0.0 to complete LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL WI in Rel-17

**Decision:** The document was **for email approval**.

**R4-2204485 Revised WID on LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL in Rel-17**

*Type: WID revised For: Endorsement  
 Source: LG Electronics France*

**Abstract:**

Revised WID for LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL in Rel-17

**Decision:** The document was **for email approval**.

**R4-2204493 Introduction of LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL to TS36.101**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-5849 rev Cat: B (Rel-17)  
  
 Source: LG Electronics France*

**Abstract:**

Introduce new LTE-A inter-band CA for x bands (x=3,4,5) DL with 2 bands UL band combination in Rel-17

**Decision:** The document was **for email approval**.

#### 12.5.2 UE RF with MSD

#### 12.5.3 UE RF without MSD

### 12.6 RRM for LTE CA basket WIs

#### 12.6.1 RRM Core (36.133)

#### 12.6.2 RRM Perf (36.133)

### 12.7 New WID on Additional LTE bands for UE category M1&M2 and/or NB1&NB2 in Rel-17

#### 12.7.1 Rapporteur Input (WID/TR/CR)

#### 12.7.2 RF requirements

#### 12.7.3 Others

### 12.8 Upper 700MHz A Block new E-UTRA band in US

**[102-e][123] LTE\_Upper\_700MHz, AI 12.8 – Michal Szydelko**

**R4-2206323 Email discussion summary for [102-e][123] LTE\_Upper\_700MHz**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206423 (from R4-2206323).**

**R4-2206423 Email discussion summary for [102-e][123] LTE\_Upper\_700MHz**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**Existing Tdoc**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2204460 Revised to R4-2206490 | Introduction of upper 700MHz A block into TS 36.101 | Puloli | Agreed |
| R4-2204487  Revised to R4-2206491 | Introduction of upper 700MHz A block into TS 38.101 | Puloli | Agreed |
| R4-2204352  Revised to R4-2206492 | CR to TS36.104 on introduction of upper 700MHz A block | Baicells | Agreed |
| R4-2204353  Revised to R4-2206493 | CR to TS37.104 on introduction of upper 700MHz A block | Baicells | Agreed |
| R4-2204354  Revised to R4-2206494 | CR to TS37.105 on introduction of upper 700MHz A block | Baicells | Agreed |
| R4-2204355  Revised to R4-2206495 | CR to TS38.104 on introduction of upper 700MHz A block | Baicells | Agreed |
| R4-2205989  Revised to R4-2206496 | CR to TS 37.145-1: implementation of LTE\_upper\_700MHz\_A band 103 | Huawei, HiSilicon | Agreed |
| R4-2205990  Revised to R4-2206497 | CR to TS 37.145-1: implementation of LTE\_upper\_700MHz\_A band 103 | Huawei, HiSilicon | Agreed |
| R4-2205991  Revised to R4-2206498 | CR to TS 38.141-1: implementation of LTE\_upper\_700MHz\_A band 103 | Huawei, HiSilicon | Agreed |
| R4-2205992  Revised to R4-2206499 | CR to TS 38.141-2: implementation of LTE\_upper\_700MHz\_A band 103 | Huawei, HiSilicon | Agreed |
| R4-2204356  Revised to R4-2206500 | CR to TS36.141 on introduction of upper 700MHz A block | Baicells | Agreed |
| R4-2204357  Revised to R4-2206501 | CR to TS37.141 on introduction of upper 700MHz A block | Baicells | Agreed |
| R4-2205993  Revised to R4-2206502 | CR to TS 36.133: implementation of LTE\_upper\_700MHz\_A band 103 | Huawei, HiSilicon | Agreed |

----------------------------------------------------------------------------------------------------------------------------------------------

**R4-2204346 TR 36.779 Update (v0.1.0)**

*Type: draft TR For: Approval  
 36.779 v0.1.0 CR- rev Cat: (Rel-17)  
  
 Source: Puloli*

**Abstract:**

[draft TR] TR 36.779 All TPs approved at RAN4#101-bis-e merged into the version

**Decision: Agreed.**

#### 12.8.1 General

#### 12.8.2 Study for co-existence requirements

#### 12.8.3 UE RF requirements

**R4-2204460 Introduction of upper 700MHz A block into TS 36.101**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-5848 rev Cat: B (Rel-17)  
  
 Source: Puloli*

**Decision: Revised to R4-2206490 (from R4-2204460).**

**R4-2206490 Introduction of upper 700MHz A block into TS 36.101**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-5848 rev Cat: B (Rel-17)  
  
 Source: Puloli*

**Decision: Agreed.**

**R4-2204487 Introduction of upper 700MHz A block into TS 38.101**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1007 rev Cat: B (Rel-17)  
  
 Source: Puloli*

**Decision: Revised to R4-2206491 (from R4-2204487).**

**R4-2206491 Introduction of upper 700MHz A block into TS 38.101**

*Type: CR For: Agreement  
 38.101-1 v17.4.0 CR-1007 rev Cat: B (Rel-17)  
  
 Source: Puloli*

**Decision: Agreed.**

#### 12.8.4 BS RF requirements

**R4-2204352 CR to TS36.104 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 36.104 v17.4.0 CR-4950 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Revised to R4-2206492 (from R4-2204352).**

**R4-2206492 CR to TS36.104 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 36.104 v17.4.0 CR-4950 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Agreed.**

**R4-2204353 CR to TS37.104 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 37.104 v17.4.0 CR-0956 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Revised to R4-2206493 (from R4-2204353).**

**R4-2206493 CR to TS37.104 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 37.104 v17.4.0 CR-0956 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Agreed.**

**R4-2204354 CR to TS37.105 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 37.105 v17.4.0 CR-0248 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Revised to R4-2206494 (from R4-2204354).**

**R4-2206494 CR to TS37.105 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 37.105 v17.4.0 CR-0248 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Agreed.**

**R4-2204355 CR to TS38.104 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 38.104 v17.4.0 CR-0365 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Revised to R4-2206495 (from R4-2204355).**

**R4-2206495 CR to TS38.104 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 38.104 v17.4.0 CR-0365 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Agreed.**

**R4-2205989 CR to TS 37.145-1: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 37.145-1 v17.4.0 CR-0280 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[Formal CR with CR number] In this draft CR to TS 37.145-1, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Revised to R4-2206496 (from R4-2205989).**

**R4-2206496 CR to TS 37.145-1: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 37.145-1 v17.4.0 CR-0280 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[Formal CR with CR number] In this draft CR to TS 37.145-1, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Agreed.**

**R4-2205990 CR to TS 37.145-1: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 37.145-2 v17.4.0 CR-0322 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[Formal CR with CR number] In this draft CR to TS 37.145-2, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Revised to R4-2206497 (from R4-2205990).**

**R4-2206497 CR to TS 37.145-1: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 37.145-2 v17.4.0 CR-0322 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[Formal CR with CR number] In this draft CR to TS 37.145-2, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Agreed.**

**R4-2205991 CR to TS 38.141-1: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 38.141-1 v17.4.0 CR-0262 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In this draft CR to TS 38.141-1, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Revised to R4-2206498 (from R4-2205991).**

**R4-2206498 CR to TS 38.141-1: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 38.141-1 v17.4.0 CR-0262 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

In this draft CR to TS 38.141-1, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Agreed.**

**R4-2205992 CR to TS 38.141-2: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 38.141-2 v17.4.0 CR-0384 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[Formal CR with CR number] In this draft CR to TS 38.141-2, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Revised to R4-2206499 (from R4-2205992).**

**R4-2206499 CR to TS 38.141-2: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 38.141-2 v17.4.0 CR-0384 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[Formal CR with CR number] In this draft CR to TS 38.141-2, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Agreed.**

#### 12.8.5 Others

**R4-2204356 CR to TS36.141 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 36.141 v17.4.0 CR-1325 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Revised to R4-2206500 (from R4-2204356).**

**R4-2206500 CR to TS36.141 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 36.141 v17.4.0 CR-1325 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Agreed.**

**R4-2204357 CR to TS37.141 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 37.141 v17.4.0 CR-0998 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Revised to R4-2206501 (from R4-2204357).**

**R4-2206501 CR to TS37.141 on introduction of upper 700MHz A block**

*Type: CR For: Agreement  
 37.141 v17.4.0 CR-0998 rev Cat: B (Rel-17)  
  
 Source: Baicells*

**Decision: Agreed.**

**R4-2205993 CR to TS 36.133: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 36.133 v17.4.0 CR-7141 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[Formal CR with CR number] In this draft CR to TS 36.133, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Revised to R4-2206502 (from R4-2205993).**

**R4-2206502 CR to TS 36.133: implementation of LTE\_upper\_700MHz\_A band 103**

*Type: CR For: Agreement  
 36.133 v17.4.0 CR-7141 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

[Formal CR with CR number] In this draft CR to TS 36.133, band 103 is introduced for the LTE\_upper\_700MHz\_A WI.

**Decision: Agreed.**

### 12.9 Additional enhancements for NB-IoT and LTE-MTC

#### 12.9.1 General

#### 12.9.2 Support of 16QAM in NB-IoT

##### 12.9.2.1 BS RF requirements

**R4-2204077 CR to TS16104 Addition of NB-IoT 16QAM**

*Type: CR For: Agreement  
 36.104 v17.4.0 CR-4949 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Ericsson, Nokia, Nokia Shanghai Bell*

**Decision: Agreed.**

**R4-2204078 CR to TS16141 Addition of NB-IoT 16QAM**

*Type: CR For: Agreement  
 36.141 v17.4.0 CR-1324 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon, Nokia, Nokia Shanghai Bell, Ericsson*

**Decision: Agreed.**

##### 12.9.2.2 UE RF requirements

#### 12.9.3 Support of power reduction for PRACH, PUCCH, and full-PRB PUSCH in MTC

##### 12.9.3.1 UE RF requirements

**R4-2204042 On max power reduction for PRACH, PUCCH, and full-PRB PUSCH**

*Type: other For: Approval  
 Source: Sony*

**Decision: Noted.**

**R4-2205546 RF impact analysis on R17 eMTC WID**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the RF impact for the Rel-17 eMTC.

**Decision: Noted.**

#### 12.9.4 RRM core requirements

##### 12.9.4.1 Neighbour cell measurement in RRC Connected state for NB-IoT

#### 12.9.5 Others

#### 12.9.6 Demodulation requirements

##### 12.9.6.1 General

##### 12.9.6.2 Demodulation requirements for NB-IoT

###### 12.9.6.2.1 UE demodulation requirements

###### 12.9.6.2.2 BS demodulation requirements

##### 12.9.6.3 Demodulation requirements for MTC

## 13 Liaison and output to other groups

### 13.1 R17 related

#### 13.1.1 LS reply for beam correspondence with SDT in RRC\_INACTIVE

**[102-e][142] NR\_reply\_LS\_UE\_RF, AI 13 – Steven Chen**

**R4-2206342 Email discussion summary for [102-e][142] NR\_reply\_LS\_UE\_RF**

*Type: other For: Information  
 Source: Moderator (Apple)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Revised to R4-2206442 (from R4-2206342).**

**R4-2206442 Email discussion summary for [102-e][142] NR\_reply\_LS\_UE\_RF**

*Type: other For: Information  
 Source: Moderator (Apple)*

**Abstract:**

This contribution provides the summary of email discussion and recommended summary.

**Decision: Noted.**

**Conclusions after 2nd round**

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Status** |
| R4-2206566 Reply LS on power control for NR-DC | OPPO | Approved |
| R4-2206567 Reply LS on configuration of p-MaxEUTRA and p-NR-FR1 | Huawei | Approved |
| R4-2206568 LS on Canada band n77 | Telus, Bell Mobility | Approved |

**Existing tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Status** |
| R4-2205271 | Draft Reply LS on LTE REFSENS exception simplification | Huawei, HiSilicon | Approved |
| R4-2205272  Revised to R4-2206569 | CR for 36.101 on LTE REFSENS exception simplification | Huawei, HiSilicon | Agreed |
| R4-2204963  Revised to R4-2206570 | Reply LS on applicability of RF requirements on extreme tempreture condition | VIVO | 4963 noted  6570 withdrawn |
| R4-2205597  Revised to R4-2206586 | draft Reply LS on beam correspondence with SDT in RRC\_INACTIVE state | Huawei, HiSilicon | Approved |

**R4-2206566 Reply LS on power control for NR-DC**

*Type: LSout For: Approval  
 Source: OPPO*

**Decision: Approved.**

**R4-2206567 Reply LS on configuration of p-MaxEUTRA and p-NR-FR1**

*Type: LSout For: Approval  
 Source: Huawei*

**Decision: Approved.**

**R4-2206568 LS on Canada band n77**

*Type: LSout For: Approval  
 Source: Telus, Bell Mobility*

**Decision: Approved.**

**GTW Mar-01**

**Topic #1: BC with SDC in RRC\_INACTIVE**

**Discussion:**

Huawei: there is an LS from RAN1. We need reply. The main part is to provide status to RAN1. We are OK to remove the last paragraph.

**Agreement:** the following bullets are agreed for LS reply to RAN1:

* RAN4 would like to thank RAN1 for the LS on beam correspondence with SDT in RRC\_INACTIVE.
* According to the discussion in RAN4 for several meetings, the RAN1 understanding that RAN4 beam correspondence requirements currently apply to RRC\_CONNECTED state only is not the common understanding in RAN4. There would be no the beam correspondence requirements dedicated for Small Data Transmission (Configured Grant SDT and/or Random Access SDT) in RRC\_INACTIVE state in Rel-17.

**Topic #7: Reply LS on configuration of p-MaxEUTRA and p-NR-FR1**

Need further discussion:

* For UEs supporting DPS, RAN4 understanding is there is no specified UE behaviour when the network does not configure p-MaxEUTRA or p-NR-FR1. It is up to RAN1 to confirm if this is a valid configuration.
* For UEs not supporting DPS, RAN4 understanding is the UE’s transmitted power is not fully specified by RAN4. It is up to RAN1 to decide if p-MaxEUTRA or p-NR-FR1 should be configured by the network or if default values are needed.

**Topic #8: Discussion on devices certified in a subset of a 3GPP band**

**Agreements:** The following contents for LS are agreeable:

RAN4 has discussed the above issue [1] and recommended a solution similar to that for US n77 band for enabling the signaling indication in Rel-17.

* A capability bit- to indicate that a UE is capable of operating in the full range 3450-3980 MHz in Canada.
* New NS value:  is only applicable in the range 3650-3980 MHz in Canada and used for barring existing devices not indicating capability bit from accessing a cell in 3650-3980 MHz from IDLE mode. The NS value will be defined in RAN4 when RAN2 decides to define the signaling bit.

RAN4 also welcomes RAN2 to find more general solution in this regards.

---------------------------------------------------------------------------------------------------------------------------------

**R4-2205597 draft Reply LS on beam correspondence with SDT in RRC\_INACTIVE state**

*Type: LS out For: Approval  
 to RAN1  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206586 (from R4-2205597).**

**R4-2206586 draft Reply LS on beam correspondence with SDT in RRC\_INACTIVE state**

*Type: LS out For: Approval  
 to RAN1  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

#### 13.1.2 RAN5 response LS on LTE REFSENS exception simplification (R5-215803)

**R4-2205271 Draft Reply LS on LTE REFSENS exception simplification**

*Type: LS out For: Approval  
 to RAN5  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

**R4-2205272 CR for 36.101 on LTE REFSENS exception simplification**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-5851 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2206569 (from R4-2205272).**

**R4-2206569 CR for 36.101 on LTE REFSENS exception simplification**

*Type: CR For: Agreement  
 36.101 v17.4.0 CR-5851 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

#### 13.1.3 Others

**R4-2203554 Discussion on devices certified in a subset of a 3GPP band**

*Type: discussion For: Discussion  
 Source: TELUS*

**Abstract:**

Bands defined in 3GPP do not always fully match with regional spectrum availability and therefore only a subset of a defined 3GPP band may be available in a certain region or country. Device compatibility issues arise as new spectrum becomes available and

**Decision: Noted.**

**R4-2204974 Discussion and Reply LS on configuration of p-MaxEUTRA and p-NR-FR1**

*Type: LS out For: Approval  
 to RAN5, cc RAN1, RAN2  
 Source: vivo*

**Decision: Noted.**

### 13.2 R15, R16 related

#### 13.2.1 FR2 power control for NR-DC

**R4-2204973 Discussion and Reply LS on Further Reply LS on power control for NR-DC**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2204980 R17 FR2 power control for NR-DC and draft LS**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2206059 On FR2 power control for inter-band NR-DC**

*Type: other For: Discussion  
 Source: Qualcomm Incorporated*

**Abstract:**

Progress towards the FR2+FR2 inter-band ULCA WI objective has identified that it is feasible to have independent power control in inter-band NR-DC cases.

**Decision: Noted.**

#### 13.2.2 FR2 requirement applicability over ETC

**R4-2203702 ETC applicability for FR2 requirements**

*Type: discussion For: Information  
 Source: Apple*

**Decision: Noted.**

**R4-2204816 R15 Reply LS on FR2 ETC**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2204963 Reply LS on applicability of RF requirements on extreme tempreture condition**

*Type: LS out For: Approval  
 to RAN5  
 Source: vivo*

**Decision: Noted.**

**R4-2206570 Reply LS on applicability of RF requirements on extreme tempreture condition**

*Type: LS out For: Approval  
 to RAN5  
 Source: vivo*

**Decision: Withdrawn.**

**R4-2205194 Reply LS on FR2 Extreme temperature conditions clarifications**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2206060 On reply to RAN5 on FR2 requirement applicability over ETC**

*Type: other For: Discussion  
 Source: Qualcomm Incorporated*

**Abstract:**

RAN4 must first establish common understanding on any subject before responding externally.

**Decision: Noted.**

#### 13.2.3 FR2 UE relative power control tolerance requirements

**R4-2204623 Draft Reply to LS on FR2 UE relative power control tolerance requirements**

*Type: LS out For: Approval  
 to RAN5  
 Source: Ericsson*

**Abstract:**

Draft Reply to LS on FR2 UE relative power control tolerance requirements: correction (improvement) of the 1 dB step requirement

**Decision: Noted.**

**R4-2205192 Reply LS on FR2 UE relative power control tolerance requirements**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2206061 On RAN5 request for change to FR2 UE relative power control tolerance requirements**

*Type: other For: Discussion  
 Source: Qualcomm Incorporated*

**Abstract:**

We propose a technical evaluation to accommodate RAN5 request.

**Decision: Noted.**

#### 13.2.4 Clarification on exception requirements for IMD

#### 13.2.5 Ambiguity issue in deciding TL,C

**R4-2205270 Draft Reply LS on ambiguity in deciding TL,C**

*Type: LS out For: Approval  
 to RAN5  
 Source: Huawei, HiSilicon*

**Decision: Approved.**

#### 13.2.6 RAN2 LS on RRM relaxation for Rel-16 power saving (R2-2108877)

#### 13.2.7 RAN2 LS on L3 filter configuration (R2-2111590)

#### 13.2.8 Others

**R4-2204624 Draft Reply LS on configuration of p-MaxEUTRA and p-NR-FR1**

*Type: LS out For: Approval  
 to RAN5, cc RAN1,RAN2  
 Source: Ericsson*

**Abstract:**

Draft Reply LS on configuration of p-MaxEUTRA and p-NR-FR1 for EN-DC and PC1.5

**Decision: Noted.**

**R4-2204768 Discussion on reply LS on configuration of p-MaxEUTRA and p-NR-FR1**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2204817 R15 Reply LS on Pemax in EN-DC**

*Type: discussion For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2205193 Discussion and reply draft LS on configuration of p-MaxEUTRA and p-NR-FR1**

*Type: discussion For: Approval  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2206101 Reply LS on configuration of p-MaxEUTRA and p-NR-FR1**

*Type: LS out For: Approval  
 to RAN1, RAN2, RAN5  
 Source: Qualcomm Incorporated*

**Decision: Noted.**

## 14 Revision of the Work Plan

### 14.1 R17 new proposals

### 14.2 R18 new proposals

**R4-2203558 Motivation for new WI on air-to-ground network for NR**

*Type: WID new For: Information  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2203559 New WID on air-to-ground network for NR**

*Type: WID new For: Information  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2203560 Motivation for new WID on Home Base Station for NR**

*Type: WID new For: Information  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2203561 New WID on Home Base Station for NR**

*Type: WID new For: Information  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2203701 Conditional non-simultaneous Rx/Tx operation as a mitigation for high MSD**

*Type: discussion For: Information  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2203810 Rel-18 proposal on FR2 coverage/performance enhancements**

*Type: discussion For: Information  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2204046 New WID for Rel-18 Dual Connectivity (DC) of 1 LTE band (1DL/1UL) and 1 NR band (1DL/1UL)**

*Type: WID new For: Endorsement  
 Source: CHTTL*

**Decision:** The document was **not treated**.

**R4-2204061 Draft new WID on further NR and MR-DC measurement gap enhancements**

*Type: WID new For: Information  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2204215 Motivation on defining 8Rx performance requirements for NR**

*Type: discussion For: Information  
 Source: SoftBank Corp.*

**Decision:** The document was **not treated**.

**R4-2204546 Rel-18 new basket WID on high power UE (power class 2) for NR FDD band**

*Type: WID new For: Information  
 Source: China Unicom*

**Decision:** The document was **not treated**.

**R4-2204547 Rel-18 new WID on High power UE for NR inter-band CA with 2 UL bands for 26dBm on FDD band**

*Type: WID new For: Information  
 Source: China Unicom*

**Decision:** The document was **not treated**.

**R4-2204591 Intra-band non-collocated EN-DC/NR-CA**

*Type: discussion For: Discussion  
 Source: KDDI Corporation, LG Uplus, NTT DOCOMO, INC., SoftBank Corp.*

**Decision:** The document was **not treated**.

**R4-2204778 Motivation on basket WID on 4Rx and 8Rx bands**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2204779 New WID on 4Rx\_8Rx support for NR bands**

*Type: other For: Information  
 Source: ZTE,China Telecom*

**Decision:** The document was **not treated**.

**R4-2204780 New WID on Rel-18 NR Inter-band Carrier Aggregation/Dual Connectivity for 2 bands DL with x bands UL (x=1,2)**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2204781 New WID on Rel-18 NR Inter-band Carrier AggregationDual Connectivity for 3 bands DL with 2 bands UL**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2204782 New WID on Rel-18 Dual Connectivity (DC) x bands (x=1,2) LTE inter-band CA (xDL/xUL) and y bands (y=3-x) NR inter-band CA**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2204783 New WID on Rel-18 Dual Connectivity (DC) of x bands (x=1,2,3) LTE inter-band CA (xDL1UL) and 3 bands NR inter-band CA (3DL1UL)**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2204923 Motivation on simplification of band combination specification**

*Type: WID new For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2204924 Draft New SID on simplification of band combination specification**

*Type: WID new For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2205071 Draft Basket WID on adding channel bandwidth support to existing NR bands**

*Type: WID new For: Information  
 Source: Ericsson*

**Abstract:**

This contribution is new Rel-18 basket WI for adding new channel BW in existing NR bands

**Decision:** The document was **not treated**.

**R4-2205480 Support of ATG for 5G Advanced**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2205481 Motivation on study on NR NTN RF requirement for coexistence with TN standalone NB-IoT**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2205482 New SI proposal: Study on NR NTN RF requirement for coexistence with TN standalone NB-IoT**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2205483 Views on NR UE RF enhancement in Rel-18**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2205484 Views on NR BS RF enhancement in Rel-18**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2205485 Views on NR UE RRM enhancement in Rel-18**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2205486 Motivation on the support of CRS-IM for Redcap UE**

*Type: other For: Information  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2205691 New WID: Power Class 1.5 for NR CA with xDL and 2UL (1FDD+1TDD); (x= 2, 3, 4)**

*Type: WID new For: Information  
 Source: Ericsson*

**Abstract:**

New WID: Power Class 1.5 for NR CA with xDL and 2UL (1FDD+1TDD); (x= 2, 3, 4)

**Decision:** The document was **not treated**.

**R4-2206039 Motivation for BS EMC Test Simplification**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

Motivation and scope of EMC Test Simplification for Rel-18 EMC enhancement

**Decision:** The document was **not treated**.

**R4-2206040 New WID: BS/UE EMC enhancements**

*Type: WID new For: Information  
 Source: Ericsson, Xiaomi*

**Abstract:**

New WID on BS/UE EMC enhancements in Rel-18. EMC is part of RAN4 Rel-18 package as captured in RP-212682.

**Decision:** The document was **not treated**.

## 15 Any other business

## 16 Close of the E-meeting

Report prepared by: MCC