**3GPP TSG-RAN WG4 Meeting # 100-e R4-2115192**

**Electronic Meeting, 16th – 27th August, 2021**

**Agenda item:** 5.1.8

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for [100-e][202] NR\_RRM\_maintenance\_R15\_Perf

**Document for:** Information

# Introduction

The documents in agenda item 5.1.8 contains CRs to correct test configuration or test cases. Following is the main topic:

* Topic #1: Correction to RRM test configuration and test cases

# Topic #1: Correction to RRM test configuration and test cases

## Companies’ contributions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **Proposals / Observations** | **Company** | **CR cat** |
| [R4-2111846](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111846.zip) | Draft CR to specify the number of data RBs allocated | Anritsu Corporation | F |
| R4-2111847 | Draft CR to specify the number of data RBs allocated | Anritsu Corporation | A |
| R4-2111848 | Draft CR to specify the number of data RBs allocated | Anritsu Corporation | A |
| [R4-2111849](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111849.zip) | Clarification of SNR values in FR2 BFD-LR Test cases | Anritsu Corporation | F |
| R4-2111850 | Clarification of SNR values in FR2 BFD-LR Test cases | Anritsu Corporation | A |
| R4-2111851 | Clarification of SNR values in FR2 BFD-LR Test cases | Anritsu Corporation | A |
| [R4-2111852](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111852.zip) | Generic channel BW configuration definition for RRM CA TCs | Anritsu Corporation |  N/A |
| [R4-2111853](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111853.zip) | Definition of generic channel BW configurations for RRM CA tests | Anritsu Corporation | F |
| R4-2111854 | Definition of generic channel BW configurations for RRM CA tests | Anritsu Corporation | A |
| R4-2111855 | Definition of generic channel BW configurations for RRM CA tests | Anritsu Corporation | A |
| [R4-2111856](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111856.zip) | Draft CR to update RMC and SCell SSB burst position for A.6.5.2.1 | Anritsu Corporation | F |
| R4-2111857 | Draft CR to update RMC and SCell SSB burst position for A.6.5.2.1 | Anritsu Corporation | A |
| R4-2111858 | Draft CR to update RMC and SCell SSB burst position for A.6.5.2.1 | Anritsu Corporation | A |
| [R4-2111859](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111859.zip) | Update NR PSCell Addition and Release Delay RRM Test cases | Anritsu Corporation | F |
| R4-2111860 | Update NR PSCell Addition and Release Delay RRM Test cases | Anritsu Corporation | A |
| R4-2111861 | Update NR PSCell Addition and Release Delay RRM Test cases | Anritsu Corporation | A |
| [R4-2111862](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111862.zip) | Update FR2 SCell Activation and Deactivation Delay Test cases | Anritsu Corporation | F |
| R4-2111863 | Update FR2 SCell Activation and Deactivation Delay Test cases | Anritsu Corporation | A |
| R4-2111864 | Update FR2 SCell Activation and Deactivation Delay Test cases | Anritsu Corporation | A |
| [R4-2111865](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111865.zip) | Update inter-frequency FR1-FR2 SS-RSRP measurement accuracy Test cases | Anritsu Corporation | F |
| R4-2111866 | Update inter-frequency FR1-FR2 SS-RSRP measurement accuracy Test cases | Anritsu Corporation | A |
| R4-2111867 | Update inter-frequency FR1-FR2 SS-RSRP measurement accuracy Test cases | Anritsu Corporation | A |
| [R4-2111868](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111868.zip) | Update FR2 CSI-RS-based RLM Test cases | Anritsu Corporation | F |
| R4-2111869 | Update FR2 CSI-RS-based RLM Test cases | Anritsu Corporation | A |
| R4-2111870 | Update FR2 CSI-RS-based RLM Test cases | Anritsu Corporation | A |
| [R4-2111871](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111871.zip) | CR to the propagation condition of NR cell for InterRAT test cases | Anritsu Corporation | F |
| R4-2111872 | CR to the propagation condition of NR cell for InterRAT test cases | Anritsu Corporation | A |
| R4-2111873 | CR to the propagation condition of NR cell for InterRAT test cases | Anritsu Corporation | A |
| [R4-2111877](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111877.zip) | Introduction of new BWP definition for FR2 SSB SCS240kHz conditions | Anritsu Corporation | F |
| R4-2111878 | Introduction of new BWP definition for FR2 SSB SCS240kHz conditions | Anritsu Corporation | A |
| R4-2111879 | Introduction of new BWP definition for FR2 SSB SCS240kHz conditions | Anritsu Corporation | A |
| [R4-2111880](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111880.zip) | CR to EUTRA-NR Inter-RAT SFTD measurement delay | Anritsu Corporation | F |
| R4-2111881 | CR to EUTRA-NR Inter-RAT SFTD measurement delay | Anritsu Corporation | A |
| R4-2111882 | CR to EUTRA-NR Inter-RAT SFTD measurement delay | Anritsu Corporation | A |
| [R4-2111883](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111883.zip) | CR to General Test Parameters of SCell Activation and Deactivation Delay TCs | Anritsu Corporation | F |
| R4-2111884 | CR to General Test Parameters of SCell Activation and Deactivation Delay TCs | Anritsu Corporation | A |
| R4-2111885 | CR to General Test Parameters of SCell Activation and Deactivation Delay TCs | Anritsu Corporation | A |
| [R4-2111886](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111886.zip) | Correction of CSI reporting periodicity for L1RSRP reporting in FR2 | Anritsu Corporation | F |
| R4-2111887 | Correction of CSI reporting periodicity for L1RSRP reporting in FR2 | Anritsu Corporation | A |
| R4-2111888 | Correction of CSI reporting periodicity for L1RSRP reporting in FR2 | Anritsu Corporation | A |
| [R4-2111889](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111889.zip) | Correction of SSB configuration for interruption test cases in FR2 | Anritsu Corporation | F |
| R4-2111890 | Correction of SSB configuration for interruption test cases in FR2 | Anritsu Corporation | A |
| R4-2111891 | Correction of SSB configuration for interruption test cases in FR2 | Anritsu Corporation | A |
| [R4-2111899](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111899.zip) | Correction to Radio Link Monitoring Scheduling Restrictions in FR2 | Anritsu Corporation | F |
| [R4-2111900](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111900.zip) | Correction of Io in event triggered reporting test | Anritsu Corporation | F |
| [R4-2112475](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112475.zip) | Correction on configurations in SA FR2 tests in R15 | MediaTek inc. | F |
| R4-2112476 | Correction on configurations in SA FR2 tests in R16 | MediaTek inc. | A |
| R4-2112477 | Correction on configurations in SA FR2 tests in R17 | MediaTek inc. | A |
| [R4-2112526](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112526.zip) | Correction on the FR2 inter-frequency relative RSRP accuracy in R15 | MediaTek inc. | F |
| R4-2112527 | Correction on the FR2 inter-frequency relative RSRP accuracy in R16 | MediaTek inc. | A |
| R4-2112528 | Correction on the FR2 inter-frequency relative RSRP accuracy in R17 | MediaTek inc. | A |
| [R4-2112529](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112529.zip) | Discussion on the FR2 inter-frequency relative RSRP accuracy | MediaTek inc. |  N/A |
| [R4-2112536](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112536.zip) | Correction on configurations in SCell activation tests in R15 | MediaTek inc. | F |
| R4-2112537 | Correction on configurations in SCell activation tests in R16 | MediaTek inc. | A |
| R4-2112538 | Correction on configurations in SCell activation tests in R17 | MediaTek inc. | A |
| [R4-2112613](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112613.zip) | Draft-CR to TS 38.133: Missing CORESET RMCs in several test cases (Rel 15) | Rohde & Schwarz | F |
| R4-2112614 | Draft-CR to TS 38.133: Missing CORESET RMCs in several test cases (Rel 16) | Rohde & Schwarz | A |
| R4-2112615 | Draft-CR to TS 38.133: Missing CORESET RMCs in several test cases (Rel 17) | Rohde & Schwarz | A |
| [R4-2112616](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112616.zip) | Draft-CR to TS 38.133: Corrections to PRACH test cases (Rel 15) | Rohde & Schwarz | F |
| R4-2112617 | Draft-CR to TS 38.133: Corrections to PRACH test cases (Rel 16) | Rohde & Schwarz | A |
| R4-2112618 | Draft-CR to TS 38.133: Corrections to PRACH test cases (Rel 17) | Rohde & Schwarz | A |
| [R4-2112619](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112619.zip) | Draft-CR to TS 38.133: Corrections to re-establishment test cases (Rel 15) | Rohde & Schwarz | F |
| R4-2112620 | Draft-CR to TS 38.133: Corrections to re-establishment test cases (Rel 16) | Rohde & Schwarz | A |
| R4-2112621 | Draft-CR to TS 38.133: Corrections to re-establishment test cases (Rel 17) | Rohde & Schwarz | A |
| [R4-2112622](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112622.zip) | Draft-CR to TS 38.133: Corrections to radio link monitoring test cases (Rel 15) | Rohde & Schwarz | F |
| R4-2112623 | Draft-CR to TS 38.133: Corrections to radio link monitoring test cases (Rel 16) | Rohde & Schwarz | A |
| R4-2112624 | Draft-CR to TS 38.133: Corrections to radio link monitoring test cases (Rel 17) | Rohde & Schwarz | A |
| [R4-2112625](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112625.zip) | Draft-CR to TS 38.133: Corrections to periodic measurement test cases (Rel 15) | Rohde & Schwarz | F |
| R4-2112626 | Draft-CR to TS 38.133: Corrections to periodic measurement test cases (Rel 16) | Rohde & Schwarz | A |
| R4-2112627 | Draft-CR to TS 38.133: Corrections to periodic measurement test cases (Rel 17) | Rohde & Schwarz | A |
| [R4-2112647](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112647.zip) | Views on principles to handle FR1 FR2 test case | vivo |  N/A |
| [R4-2112692](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112692.zip) | Rel-15 Cat-F CR to Interruptions during measurements on deactivated NR SCC in FR1 | Qualcomm | F |
| [R4-2112697](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112697.zip) | OTA testability issue | Qualcomm |  N/A |
| [R4-2113145](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113145.zip) | draftCR to clarify timing reference point for UE UL timing test cases | Intel Corporation | F |
| R4-2113146 | draftCR to clarify timing reference point for UE UL timing test cases | Intel Corporation | A |
| R4-2113147 | draftCR to clarify timing reference point for UE UL timing test cases | Intel Corporation | A |
| [R4-2113474](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113474.zip) | Correction of Link recovery test parameter tables | Ericsson | F |
| R4-2113475 | Correction of Link recovery test parameter tables | Ericsson | A |
| R4-2113476 | Correction of Link recovery test parameter tables | Ericsson | A |
| [R4-2113477](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113477.zip) | Correction of A3-offset setting in FR2 SA event triggered reporting tests | Ericsson, Anritsu | F |
| [R4-2113478](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113478.zip) | Correction of FR2 L1-RSRP measurement tests | Ericsson | F |
| R4-2113479 | Correction of FR2 L1-RSRP measurement tests | Ericsson | A |
| R4-2113480 | Correction of FR2 L1-RSRP measurement tests | Ericsson | A |
| [R4-2113852](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113852.zip) | Correction to interruption during measurement on deactivated SCell test cases\_R15 | Huawei, HiSilicon | F |
| [R4-2113859](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113859.zip) | Maintenance CR for test cases - R15 | ZTE Corporation | F |
| R4-2113860 | Maintenance CR for test cases - R16 Cat A | ZTE Corporation | A |
| R4-2113861 | Maintenance CR for test cases - R17 Cat A | ZTE Corporation | A |
| R4-2113957 | Correction to Inter-RAT SFTD measurement test cases\_R15 | Huawei, Hisilicon | F |
| R4-2113958 | Correction to Inter-RAT SFTD measurement test cases\_R16 | Huawei, Hisilicon | A |
| R4-2113959 | Correction to Inter-RAT SFTD measurement test cases\_R17 | Huawei, Hisilicon | A |
| R4-2113960 | Correction to interruption due to BWP switching test cases\_R15 | Huawei, Hisilicon | F |
| R4-2113961 | Correction to interruption due to BWP switching test cases\_R16 | Huawei, Hisilicon | A |
| R4-2113962 | Correction to interruption due to BWP switching test cases\_R17 | Huawei, Hisilicon | A |
| R4-2113963 | Correction to PSCell addition test cases\_R15 | Huawei, Hisilicon | F |
| R4-2113964 | Correction to PSCell addition test cases\_R16 | Huawei, Hisilicon | A |
| R4-2113965 | Correction to PSCell addition test cases\_R17 | Huawei, Hisilicon | A |
| R4-2113966 | Correction to radio link monitoring test cases\_R15 | Huawei, Hisilicon | F |
| R4-2113967 | Correction to radio link monitoring test cases\_R16 | Huawei, Hisilicon | A |
| R4-2113968 | Correction to radio link monitoring test cases\_R17 | Huawei, Hisilicon | A |
| R4-2113969 | Correction to SCell activation test cases\_R15 | Huawei, Hisilicon | F |
| R4-2113970 | Correction to SCell activation test cases\_R16 | Huawei, Hisilicon | A |
| R4-2113971 | Correction to SCell activation test cases\_R17 | Huawei, Hisilicon | A |
| [R4-2114098](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114098.zip) | Discussion on RRM performance maintenance | Huawei, Hisilicon |  N/A |
| [R4-2114164](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114164.zip) | On Rel-15 TCs with mix of carriers in LTE/FR1 and FR2 | Ericsson |  N/A |
| [R4-2114165](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114165.zip) | DraftCR (R15) Applicability of test cases with LTE/FR1+FR2 | Ericsson | F |
| R4-2114166 | DraftCR (R16) Applicability of test cases with LTE/FR1+FR2 | Ericsson | A |
| R4-2114167 | DraftCR (R17) Applicability of test cases with LTE/FR1+FR2 | Ericsson | A |
| [R4-2114359](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114359.zip) | Draft-CR to TS 38.133: Corrections to propagation condition for inter-RAT test cases (Rel 15) | Rohde & Schwarz | F |
| R4-2114360 | Draft-CR to TS 38.133: Corrections to propagation condition for inter-RAT test cases (Rel 16) | Rohde & Schwarz | A |
| R4-2114361 | Draft-CR to TS 38.133: Corrections to propagation condition for inter-RAT test cases (Rel 17) | Rohde & Schwarz | A |
| [**R4-2114442**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114442.zip) | Correction to n261 RRM performance requirements in Rel-15 | Ericsson | F |
| R4-2114443 | Correction to n261 RRM performance requirements in Rel-16 | Ericsson | A |
| [**R4-2114444**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114444.zip) | Correction to n261 RRM performance requirements in Rel-17 | Ericsson | F |

## Open issues summary

### Sub-topic 1-1: Channel BW configuration for RRM CA TCs

According to R4-2111852:

* Observation 1: By the new definitions provided as propose 1, we can keep the current Io values in the spec.
* Observation 2: In case we change OCNG pattern, RAN5 TT analysis has to be conducted again.
* Observation 3: There is a case that OCNG pattern 3 may not be able to cover the CORESET for RMC after the BWP is switched.
* Observation 4: The description of Note 2 in the definition of OCNG pattern 3 is not clear whether the CORESET indicates RMSI CORESET or dedicated CORESET.
* Observation 5: It is suggested that we keep the OCNG BW same as the channel bandwidth with a new concept proposed in Proposal 1 above.

According to R4-2114098:

* Observation 1: For new introduced CBW configurations, the RMC configurations could adopt the same configurations of the existing CBW (10 MHz, 40 MHz), where the PDSCH RMC is allocated at the same RBs as CORESET with same number of RBs and the OCNG is also only cover the CORESET RBs.
* Proposals
	+ Option 1: Anritsu
		- For channel BW other than 10 MH for SSB SCS 15 kHz or 40 MHz for SSB SCS 30 kHz, define test parameters as follows.
			* Define channel bandwidth with “≥” mark in the test configuration tables to add flexibility to the CA bandwidth combination
			* Introduce a new parameter “BWchannel\_actual-occupied” which is the actual BW allocation in each test parameter table (confined with 10 MHz or 40 MHz)
			* Configure PDSCH RMC with the same number of RBs as 10 MHz for 15 kHz SSB SCS or 40 MHz for 30 kHz SSB SCS
			* Configure CORESET for RMSI and RMC scheduling with same configurations as CBW of 10 MHz for 15 kHz SSB SCS or 40 MHz for 30 kHz SSB SCS
			* Fill in 10 MHz or 40 MHz channel BW with OCNG
	+ Option 2: Huawei
		- For newCBW other than 10 MHz of 15 kHz SCS and 40 MHz of 30 kHz SCS:
		- For 15 kHz SCS:
			* Configure the RMC of PDSCH with the same number of RBs as CORESET
			* Allocate the PDSCH at the same RB range as CORESET
			* Configure CORESET for RMSI and RMC with same configurations as CBW of 10 MHz
			* Distribute OCGN within the same RB range as CORESET
		- For 30 kHz SCS:
			* Configure the RMC of PDSCH with the same number of RBs as CORESET
			* Allocate the PDSCH at the same RB range as CORESET
			* Configure CORESET for RMSI and RMC with same configurations as CBW of 40 MHz when CBW is larger than 40 MHz; When CBW is smaller than 40 MHz, the configuration of COREST for RMSI is referred to the table for minimum CBW of 5MHz or 10 MHz.
			* Distribute OCGN within the same RB range as CORESET
* Recommended WF
	+ Further discuss the above proposals and identify common proposals

### Sub-topic 1-2: FR2 inter-frequency relative RSRP accuracy

According to R4-2112529:

* Observation 1: In the FR2 inter-frequency RSRP relative accuracy test, the beam peak AoA2 for Cell 3 is based on fine beam, while SS-RSRP measurement can be conducted by rough beam.
* Observation 2: UE may achieve worse rough beamforming gain at AoA2 (i.e. at the fine beam peak) than at AoA1 (selected from spherical coverage).
* Observation 3: Current SS-RSRP relative accuracy test requirement mandates UE to equalize the antenna gain difference between 2 frequencies or even 2 bands, which seems not well-discussion in Rel-15.
* Proposals
	+ Option 1: MediaTek
		- For the test case of FR2 inter-frequency relative RSRP accuracy, to add 9 dB margin in the lower bound.
* Recommended WF
	+ Further discuss the above proposal

### Sub-topic 1-3: FR1/LTE + FR2 testability

Related contributions in R4-2112647 (Vivo), R4-2112697 (Qualcomm), R4-2114098 (Huawei) and R4-2114164 (Ericsson).

**Issue 1-3-1: List of FR1/LTE + FR2 tests with testability issue**

|  |  |  |
| --- | --- | --- |
| **No.** | **Test case** | **Tests with testability issues: Y/N?** |
| **Vivo** | **QC** | **HW** | **E///** |
| **1** | A.5.5.2.3 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in synchronous EN-DC  | Y | Y | Y | Y |
| **2** | A.5.5.2.4 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in asynchronous EN-DC | Y | Y | Y | Y |
| **3** | A.5.5.2.5 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in synchronous EN-DC  | Y | Y | Y | Y |
| **4** | A.5.5.2.6 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in asynchronous EN-DC  | Y | Y | Y | Y |
| **5** | A.5.5.3.1 SCell Activation and deactivation of SCell in FR2 intra-band  | Y | Y | Y | Y |
| **6** | A.5.5.3.2 SCell Activation and deactivation of known SCell in FR1 for 160ms SCell measurement cycle  | Y | Y | Y | Y |
| **7** | A.5.5.3.5 SCell Activation and deactivation of SCell in FR2  | Y | Y | Y | Y |
| **8** | A.5.5.6.1.1 E-UTRAN – NR PSCell FR2 DL active BWP switch with non-DRX in synchronous EN-DC  | Y | Y | Y | Y |
| **9** | A.5.5.6.1.2 E-UTRAN – NR PSCell FR2 DL active BWP switch with FR2 SCell in non-DRX in synchronous EN-DC | Y | Y | Y | Y |
| **10** | A.5.5.6.2.1 E-UTRAN – NR PSCell FR2 DL active BWP switch with non-DRX in synchronous EN-DC | N | N | Y | Y |
| **11** | A.7.3.1.1 Inter-frequency handover from FR1 to FR2; unknown target cell | N | N | N | Y |
| **12** | A.7.3.1.4  Inter-band inter-frequency synchronous DAPS handover from FR1 to FR2 | N | Y |  | N |
| **13** | A.7.3.1.5  Inter-band inter-frequency asynchronous DAPS handover from FR1 to FR2 | N | Y |  | N |
| **14** | A.7.5.3.2 SCell Activation and deactivation for FR1+FR2 inter-band with target SCell in FR2 | Y | Y | Y | Y |
| **15** | A.7.5.6.1.2 NR FR1-NR FR2 DL active BWP switch of PCell with non-DRX in SA | Y | Y | Y | Y |
| **16** | A.7.5.7.1 Addition and Release Delay of known NR PSCell | N | N | N | Y |
| **17** | A.7.5.7.2 Addition and Release Delay of unknown NR PSCell | N | N | N | Y |
| **18** | A.7.6.2.5 SA event triggered reporting tests for FR2 without SSB time index detection when DRX is not used (PCell in FR1) | N | N | N | Y |
| **19** | A.7.6.2.6 SA event triggered reporting tests for FR2 without SSB time index detection when DRX is used (PCell in FR1) | N | N | N | Y |
| **20** | A.7.6.2.7 SA event triggered reporting tests for FR2 with SSB time index detection when DRX is not used (PCell in FR1) | N | N | N | Y |
| **21** | A.7.6.2.8 SA event triggered reporting tests for FR2 with SSB time index detection when DRX is used (PCell in FR1) | N | N | N | Y |
| **22** | A.7.7.1.3 SA inter-frequency measurement accuracy with FR1 serving cell and FR2 target cell | N | N | N | Y |
| **23** | A.8.4.2.5 NR Inter-RAT event triggered reporting tests for FR2 without SSB time index detection when DRX is not used | N | N | N | Y |
| **24** | A.8.4.2.6 NR Inter-RAT event triggered reporting tests for FR2 without SSB time index detection when DRX is used | N | N | N | Y |
| **25** | A.8.4.2.7 NR Inter-RAT event triggered reporting tests for FR2 with SSB time index detection when DRX is not used | N | N | N | Y |
| **26** | A.8.4.2.8 NR Inter-RAT event triggered reporting tests for FR2 with SSB time index detection when DRX is used | N | N | N | Y |

* Recommended WF
	+ Further discussion needed to agree on list of tests with testability issues

**Issue 1-3-2: Solutions for R1/LTE + FR2 tests with testability issue:**

* Proposals
	+ Option 1: Vivo, HW
		- Exclude testing of all tests by defining general rule/applicability rule in Annex of TS 38.133
	+ Option 2: QC, E///
		- Some of the tests can be performed with some modification
		- Exclude testing of remaining tests by defining general rule/applicability rule in Annex of TS 38.133
* Recommended WF
	+ Further discuss the above proposal

**Issue 1-3-3: List of FR1/LTE+FR2 tests which can be tested with modification, if option 2 (Issue 1-3-2) is agreed:**

* Proposals

|  |  |  |
| --- | --- | --- |
| **No.** | **Test case** | **Tests possible with modification: Yes?** |
| **QC** | **E///** |  |  |
| **1** | A.5.5.2.3 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in synchronous EN-DC  |  | Y |  |  |
| **2** | A.5.5.2.4 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in asynchronous EN-DC |  | Y |  |  |
| **3** | A.5.5.2.5 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in synchronous EN-DC  |  | Y |  |  |
| **4** | A.5.5.2.6 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in asynchronous EN-DC  |  | Y |  |  |
| **5** | A.5.5.3.1 SCell Activation and deactivation of SCell in FR2 intra-band  |  | Y |  |  |
| **6** | A.5.5.3.2 SCell Activation and deactivation of known SCell in FR1 for 160ms SCell measurement cycle  |  |  |  |  |
| **7** | A.5.5.3.5 SCell Activation and deactivation of SCell in FR2  |  |  |  |  |
| **8** | A.5.5.6.1.1 E-UTRAN – NR PSCell FR2 DL active BWP switch with non-DRX in synchronous EN-DC  |  | Y |  |  |
| **9** | A.5.5.6.1.2 E-UTRAN – NR PSCell FR2 DL active BWP switch with FR2 SCell in non-DRX in synchronous EN-DC |  | Y |  |  |
| **10** | A.5.5.6.2.1 E-UTRAN – NR PSCell FR2 DL active BWP switch with non-DRX in synchronous EN-DC |  | Y |  |  |
| **11** | A.7.3.1.1 Inter-frequency handover from FR1 to FR2; unknown target cell |  |  |  |  |
| **12** | A.7.3.1.4  Inter-band inter-frequency synchronous DAPS handover from FR1 to FR2 | Y |  |  |  |
| **13** | A.7.3.1.5  Inter-band inter-frequency asynchronous DAPS handover from FR1 to FR2 | Y |  |  |  |
| **14** | A.7.5.3.2 SCell Activation and deactivation for FR1+FR2 inter-band with target SCell in FR2 |  |  |  |  |
| **15** | A.7.5.6.1.2 NR FR1-NR FR2 DL active BWP switch of PCell with non-DRX in SA |  |  |  |  |
| **16** | A.7.5.7.1 Addition and Release Delay of known NR PSCell |  |  |  |  |
| **17** | A.7.5.7.2 Addition and Release Delay of unknown NR PSCell |  |  |  |  |
| **18** | A.7.6.2.5 SA event triggered reporting tests for FR2 without SSB time index detection when DRX is not used (PCell in FR1) |  |  |  |  |
| **19** | A.7.6.2.6 SA event triggered reporting tests for FR2 without SSB time index detection when DRX is used (PCell in FR1) |  |  |  |  |
| **20** | A.7.6.2.7 SA event triggered reporting tests for FR2 with SSB time index detection when DRX is not used (PCell in FR1) |  |  |  |  |
| **21** | A.7.6.2.8 SA event triggered reporting tests for FR2 with SSB time index detection when DRX is used (PCell in FR1) |  |  |  |  |
| **22** | A.7.7.1.3 SA inter-frequency measurement accuracy with FR1 serving cell and FR2 target cell |  | Y |  |  |
| **23** | A.8.4.2.5 NR Inter-RAT event triggered reporting tests for FR2 without SSB time index detection when DRX is not used |  |  |  |  |
| **24** | A.8.4.2.6 NR Inter-RAT event triggered reporting tests for FR2 without SSB time index detection when DRX is used |  |  |  |  |
| **25** | A.8.4.2.7 NR Inter-RAT event triggered reporting tests for FR2 with SSB time index detection when DRX is not used |  |  |  |  |
| **26** | A.8.4.2.8 NR Inter-RAT event triggered reporting tests for FR2 with SSB time index detection when DRX is used |  |  |  |  |

* Recommended WF
	+ Further discuss the above proposal

**Issue 1-3-4: General modification related to FR1/LTE+FR2 testability:**

* Proposals
	+ Option 1: QC
		- Proposal 1A: Modify the description of testability in “A.3.7A NR FR1-FR2 test setup”
			* Some Test cases in clause A.7 have NR cells in both FR1 and FR2. Unless otherwise stated within the test, the NR FR1 Cell signal is required only to provide a link to the UE under test. The Test System shall provide a stable and noise-free NR FR1 signal without need of precise propagation modelling, path loss and polarization control. Further details of the NR FR1 signal configuration are not defined as part of the cell specific test parameters, since the NR FR1 link is not under performance verification and ~~is not expected to influence the test purpose~~ *shall not affect the test result unless otherwise specifically stated in the test case*.
		- Proposal 1B: Add the following to “A.3.7.2.1 E-UTRAN Serving Cell Parameters for Tests with NR Cell(s) in FR1”:
			* Some Test cases in clause A.5 have LTE and FR2 NR cells. Unless otherwise stated within the test, the LTE Cell signal is required only to provide a link to the UE under test. The Test System shall provide a stable and noise-free LTE signal without need of precise propagation modelling, path loss and polarization control. Further details of the LTE signal configuration are not defined as part of the cell specific test parameters, since the LTE link is not under performance verification and shall not affect the test result unless otherwise specifically stated in the test case.
* Recommended WF
	+ Further discuss the above proposal

### Sub-topic 1-4: CRs on Test configurations, RRM tests and Conditions

* Directly provide comments on the cat-F CRs in section 1.3.2

## Companies views’ collection for 1st round

### Open issues

**Sub-topic 1-1: Channel BW configuration for RRM CA TCs**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Anritsu | Since our discussion paper didn’t clearly mention about the bandwidth of AWGN, we would also like to add our proposal on AWGN definition. To keep the Io consistent regardless with any CA band combination, we propose to confine also AWGN bandwidth within 10 MHz or 40 MHz.The image of AWGN is also depicted to the figure below. Therefore CR (R4-2111853) also needs an update to add the note to describe AWGN bandwidth. |
| Ericsson | Regarding the option 1, we are not sure we need to add ‘≥' in the test configuration table.‘BWchannel\_actual-occupied' is long. Should we put a short name such as 'BWoccupied'?Example:

|  |
| --- |
| Config 1: LTE FDD, NR 15 kHz SSB SCS, 10 MHz bandwidth (BWoccupied), FDD duplex mode |

Option 1 works for CBW ≥ 10MHz for FDD and ≥ 40MHz for TDD. But what is the case if CBW < 40MHz for TDD, as discussed in R4-2114098? There is no such a case?  |
| Anritsu | To Ericsson: Thanks for the comment. Our understanding is that the term “bandwidth” in test configuration table (e.g. Table A.4.5.3.1.1-1) denotes BWchannel and thus we added ≥ in the table. We are fine to change the name of BWchannel\_actual-occupied to BWoccupied. To clarify the intention better, how about changing the wording in the configuration table as follows?Example:Config 1: LTE FDD, NR 15 kHz SSB SCS, ≥10 MHz bandwidth (BWchannel), FDD duplex modeAs for the question on the case with <40 MHz for TDD, as far as we checked, we suppose there are no such cases. Identified combinations are as follows. We appreciate if Huawei point out the associated combinations.NR 15 kHz SSB SCS, 15 MHz bandwidth, FDD – FDD duplex mode (for CA\_n71B, CA\_n66B)NR 30 kHz SSB SCS, 50 MHz bandwidth, TDD – TDD duplex mode (for CA\_n40B)NR 30 kHz SSB SCS, 60 MHz bandwidth, TDD – TDD duplex mode (for CA\_n41C, CA\_n46C, CA\_n77C, CA\_n78C, CA\_n79C) |
| Huawei | Based on offline discussion. We are fine to go with option 1. It should be also clarified that Noc is also distributed within the same 10 MHz or 40 MHz. |
| Ericsson | To AnritsuThank you for your explanation. We are ok with your revision as far we what channel bandwidth it is specified.

|  |
| --- |
| Config 1: LTE FDD, NR 15 kHz SSB SCS, ≥10 MHz bandwidth (BWchannel), FDD duplex mode |

We are also fine with TDD, if no BWchannel < 40MHz is available. |

**Sub-topic 1-2: FR2 inter-frequency relative RSRP accuracy**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Anritsu | There is one clarification question on the applicability of this -9 dB relaxation. Is the intention of the proposal only for inter-band scenario or is it also implying intra-band scenario? |
| Ericsson | When you derive 9 dB margin, what is the assumption for deriving the antenna gains? It is not clear for us how MediaTek derived 9dB.  |
| MediaTek | To Anritsu: The proposal (-9dB) is applied for both intra-band and inter-band. It is intended to address two issues: (1) The mismatch between the way we define AoA(by fine beam) and real UE implementation (rough beam). (2) The antenna gains could be different at different frequencies, especially for different bands. Besides, the test case does not say it is inter-band or intra-band. As a result, considering the worst case and to make the requirement simple, we suggest the same value (-9dB) can be defined.Regarding to including -9 dB in 38.133 Table 10.1.5.1.2-1, to us, because the issue is more likely the test case configuration, i.e., the beam type. But we are open if the additional explanation is needed to add in 38.133 Table 10.1.5.1.2-1.One possible modification (two new notes are added as following)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table A.5.7.1.2.3-2: SS-RSRP relative accuracy test requirement

|  |  |
| --- | --- |
|  | Test requirement Notes1,2,3,4 |
| Cell 3 – Cell 2 | SSB\_RP3 - SSB\_RP2 -δ -Y ≤ Reported RSRP(dB) ≤ SSB\_RP3 - SSB\_RP2 +δ–(X) |
| Note 1: SSB\_RPn is the equivalent power received by an antenna with 0dBi gain at the centre of the quiet zone configured in the test for the cell n under considerationNote 2: δ is the RSRP relative accuracy requirement from Table 10.1.5.1.2-1Note 3: Void Note 4: X is the Spherical coverage gain difference in dB, derived as (UE Refsens - UE Spherical coverage) from TS 38.101-2 [19] clauses 7.3.2 and 7.3.4, selected according to the UE power class and operating band. X is always a negative value.Note 5: Y is the margin for the different frequency layers and the different beam from Table 10.1.5.1.2-1. |

10.1.5.1.2 Relative SS-RSRP AccuracyThe relative accuracy of SS-RSRP is defined as the SS-RSRP measured from one cell on a frequency in FR2 compared to the SS-RSRP measured from another cell on another frequency in FR2.The accuracy requirements in Table 10.1.5.1.2-1 are valid under the following conditions:- Conditions defined in 38.101-2 [19] Clause 7.3 for reference sensitivity are fulfilled.- Conditions for inter-frequency measurements are fulfilled according to Annex B.2.3 for a corresponding Band for each relevant SSB.- |SSB\_RP1dBm - SSB\_RP2dBm| ≤ 27dB- | Channel 1\_Io ‑Channel 2\_Io | ≤ 20 dB- The measured signals are in the directions covered by the percentile EIS spherical coverage of the UE, defined in clause 7.3.4 of TS 38.101-2 [19].Table 10.1.5.1.2-1: SS-RSRP Inter frequency relative accuracy in FR2

|  |  |
| --- | --- |
| Accuracy | Conditions |
| Normal condition | Extreme condition | SSB Ês/Iot | Io Note 2 range |
|  |  |  | Minimum Io | Maximum Io |
| dB | dB | dB | dBm / SCSSSB Note 1 | dBm/BWChannel |
|  |  |  | SCSSSB = 120kHz | SCSSSB = 240kHz |  |
| ±6 | ±9 | ≥-4 | Same value as SSB\_RP in Table B.2.3-2, according to UE Power class, operating band and angle of arrival | -50 |
| Note 1: Values based on Refsens and EIS spherical coverage as defined in clauses 7.3.2 and 7.3.4 of TS 38.101-2 [19]. Applicable side condition selected depending on angle of arrival.Note 2: Io specified at the Reference point, and assumed to have constant EPRE across the bandwidth.Note 3: In the test cases, the SSB Ês/Iot and related parameters may need to be adjusted to ensure Ês/Iot at UE baseband is above the value defined in this table.Note 4: The parameter SSB Ês/Iot is the minimum SSB Ês/Iot of the pair of cells to which the requirement applies.Note 5: Y = 9, Y is the margin for the different frequency layers and the different beam in test case. |

 |

To EricssonThanks for the question.-9 dB is based on our simulation provided in R4-2112529. In that table, we use simulation tool to simulate antenna array in the housing and get the frequency response/antenna gain. On each band, we recorded the best rough beam gain and worst rough beam gain within the 50% spherical coverage of fine beam. And then try to find out the case leading to the biggest mismatch when one AoA is selected from one band/frequency layer and one AoA is selected from the other band/frequency layer. It would be a long story to provide the detail on how much is contributed from different frequency layers and how much is contributed from the AoA (fine beam v.s. rough beam) All of all, based on our observation, we suggest -9 dB in the lower bound. |
| Huawei | Support option 1. |
| Qualcomm | While we agree that there are issues with the current requirement, we would like to try to avoid relaxing the requirement too much.As MTK noted, there are two separate issues:1. Difference in peak direction between fine and rough beams.
2. Difference in Rx gain across different frequencies and/or different bands.

For the first issue, the peak direction between fine and rough beam should be closely aligned such that measurements are consistent with what the UE would see when using fine beams. Misalignment would be a poor UE design. For the second issue, we expect that Rx gain differences would be much smaller for frequencies that are in close proximity in the same band vs. frequencies in different bands. One approach would be to specifiy two different margins for each of these cases. When the test is performed on adjacent channels then we would expect little relaxation of the current requirement would be needed. |
| MediaTek | To Qualcomm:Thanks for the comment.For the first bullet, we totally agree with you. As we discussed in our paper, “the beamforming gains of fine and rough beams still have some dependence, because they are received by the same set of antenna”. But even if they have some dependence, the beam direction/antenna gain is impossible to be the same. Thus, the uncertainty due to beam misalignment is still needed to be considered.For the second bullet, we can understand your concern. But, we do not prefer to divide the test into intra-band and inter-band cases. We suggest to take the worst case (inter-band) into account for both cases to simply the test case requirement.Based on the above reasons, we still believe the -9 dB can be used. |
| Intel | Thank MediaTek for the proposals.We agree that this should be solved, and the approach proposed seems quite OK to us. 9dB margin seems to be the only controversial thing, as it is still open for discussion in the 2nd round. |

**Issue 1-3-1: List of FR1/LTE + FR2 tests with testability issue**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Our proposal can be found in Table 1-3-1 above. Regarding test cases #12 and #13, our understanding is that those are for a Rel-16 feature. Our analysis so far is only for Rel-15 features. We suggest that we first focus on Rel-15 test cases. Rel-16 features can be conducted once the principles have been agreed for Rel-15.  |
| Huawei | First we slightly changed our views in the table. From our understanding, from the outcome of SI, test setup shall be capable to provide NR FR1 link to the DUT with a stable and noise-free link, it means the configuration receiving in FR1/LTE could be guaranteed. However, without quantitative conclusion, one can also say that the command to trigger the particular procedure or report received by TE are not guaranteed and the starting and ending point of the test are not clear. If consensus cannot be reached. Then it is proposed to consider the worst case.  |
| vivo | A little bit clarification is we want to use a general way to handle all impacted test case. We agree for some test cases the FR2 related verification can still be done after modification. However instead modify TC one by one we prefer to have more general description to handle this issue. For example to declare that the verification on FR1 is not required to be done for related test cases.  |
| Qualcomm | Technically, we agree that the test cases listed in Table 1-3-1 have potentially testability issue even through the details of issues are not the same across the test cases. |
| Intel | We agree that the test case list is something that we should mostly focus on.After the exact list is concluded we can easily figure out how to address in the spec, the exceptional descriptions for those test cases. |
| Ericsson | We agree with the observation by Huawei. Tests where configuration message has to be sent on FR1/LTE or UE has to send UL (e.g., measurement report/feedback) on FR1/LTE within the testing time period, are not testable. Our thinking was that for tests where an action in FR2 (ending point) is triggered by a configuration in FR1 (starting point) one could condition the test result on that an ACK from UE has been received by TE in FR1 on the configuration sent in FR1, and then time could be counter from (time period starting at) reception of that ACK instead of from transmission of the last TTI carrying the configuration. If no ACK would be received by TE, the test iteration would not count in the test outcome statistics. We do however realize that this might increase the test execution time and are open to discuss whether to exclude also those test cases (i.e., A.7.3.1.1, A.7.5.7.1, A.7.5.7.2).The modification is actually limiting the scope of test case to test only FR2 and is not broadening the scope. We therefore do not agree with vivo approach that even tests which can be tested with some modifications are excluded in general manner. |
| Nokia | We agree to list the related test cases, the criteria to identify/select test cases need to be clarified firstly. |

**Issue 1-3-2: Solutions for R1/LTE + FR2 tests with testability issue:**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Option 2. As we have shown our analysis on the existing FR1/LTE + FR2 RRM test cases, we don’t think all the test cases can be used as is because of the unclear performance of FR1/LTE. We are therefore proposing to modify some test cases to avoid the impact to the tests. |
| Huawei | We can go with option 2. We prefer to explicitly state the test cases with testability issues in general. But regarding modification approach, minor modification is acceptable. (e.g. interruption on certain cell is not verified). |
| vivo | As we explained before in principle we agree to keep useful part of a TC as much as possible instead of excluding the whole TC. We think it could be better if using a general description to realize this purpose.  |
| Qualcomm | Option 2. As for how to modify, we prefer to have one separate section where the modification for each test case can be defined as much as possible. With this, the actual test case description can include all relevant core requirements assuming everything is or testable. |
| Intel | Option 2. We had consensus in the group that we should strive still to test the UE in all the existing cases unless by modifying if possible. Removal of the test cases seems hard to be acceptable and not applying certain cases require sufficient justifications. |
| Nokia | We agree to define general rule/applicability rule to exclude the test cases. Which test cases will be testable after some modification may need further discussion. What’s the criteria to identify these test cases? |
| R&S | If test modification is possible, we prefer Option 2. In general, we think, it might be early for a drastic decision as per Option 1. We need to allow first experiences with FR1-FR2 test cases implementation in RAN5 and industry before taking a decision. To judge the experience, we think RAN4 need to define for each TC, whether instability of an LTE/FR1 link would lead to an unfair pass or fail. * In case of an unfair fail, but still positive experience (passes) with FR1/FR2 test case, means the TEs are providing a sufficiently stable link and no need to worry.
* In case of unfair pass, or unfair fail with bad FR1/FR2 test case experience (fails), means the test case applicability needs to be revisited.
 |

**Issue 1-3-3: List of FR1/LTE+FR2 tests which can be tested with modification, if option 2 (Issue 1-3-2) is agreed:**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Regarding A.7.3.1.4/A.7.3.1.5, we are generally fine to modify. But as we commented in Issue 1-3-1, we prefer to focus on Rel-15 test cases.  |
| vivo | We agree that A.7.3.1.4/A.7.3.1.5 also have the same issue identified for other TCs. |
| Qualcomm | We don’t disagree with Ericsson’s suggestion. However, if possible, we prefer to consider all identified test cases in one place (kind of Release agnostic manner). |
| Ericsson | To Qualcomm, our proposal is to fix R15 test case first (maybe in this meeting). Then we will fix R16 test cases. This can help to handle CR easier. Qualcomm has provided only 2 FR1+FR2 test cases for R16. But in R16 we may have more tests because there were several functionalities related to multiple CCs introduced in R16. So it is better to check tests in R16 after R15 is fixed. The general principle of addressing such tests (LTE/FR1+FR2) will be the same in R15 and R16. |
| Nokia | Criteria to select the test cases need to be clarified. |

**Issue 1-3-4: General modification related to FR1/LTE+FR2 testability:**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | A.3.7A change looks ok. But no change is needed to A.3.7.2.1 because this clause is for LTE+ ALL NR in FR1. We are discussing LTE+FR2 and it is specified in A.3.7.2.2. |
| vivo | OK with the principle to handle test cases. |
| Qualcomm | Thanks Ericsson for spotting out. Then we can consider adding the proposed text to A.3.7.2.2 or change the title of A.3.7A from “NR FR1-FR2 test setup” to “LTE – FR2 and NR FR1-FR2 test setup” and implement one consolidated text there. |
| R&S | We need to identify 4 cases:- I-RAT: LTE/FR2 -> this case is missing at all in A.3.7(A)- EN-DC: LTE-FR2 covered in Table A.3.7.2.2-1 Note 4- EN-DC: LTE-FR1/FR2 -> this case is missing at all in A.3.7(A)- SA: FR1/FR2 covered in A.3.7ANone of the proposals solves completely the above. |
|  |  |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| [**R4-2111846**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111846.zip) | Ericsson: OK |
| R&S:* Not clear which the rational of the definition of Data RBs allocated. If it is the PDSCH RMC configuration, this is not matching. Example in Table A.5.5.2.1.1-3, Data RBs allocated is specified as 66 (same to NRB,C), but the PDSCH RMC is SR.3.1 TDD which has only 24 allocated RBs.
* The correction of Note 3 in many tables (e.g. Table A.5.5.2.1.1-4) is wrong and should be undone, since requirements are set to SS-RSRP, not to SSB\_RP.
 |
|  |
| [**R4-2111849**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111849.zip) | Ericsson: OK |
|  |
|  |
| **R4-2111850** | **Moderator**: This tdoc was requested as R16 cat A CR. But according to proponent, “*In Table A.5.5.5.1.1-3, SNR\_SSB of set q0, SNR\_SSB of set q1 and SSB\_RP of set q1 are not correctly defined (not aligned with Rel-15 spec*”. Companies can provide feeback on the draft in ‘Document’ folder of this thread in the 1st round. The formal decision will be taken in 2nd round. |
|  |
|  |
|  |
| [**R4-2111853**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111853.zip) | Anritsu: We would like to revise this CR add one more note to describe AWGN bandwidth (which is also confined in 10 MHz or 40 MHz). |
| Ericsson: Wait for the conclusion of Sub-topic 1-1. |
| Huawei: As commented in sub topic 1-1, the distribution of Noc shall also be clarified in the test case to maintain the Io changed. And can proponent company clarify the meaning of FcarrierLow in the note? I suppose that the CR is for FR 1 but only some of the test cases are modified in the CR. |
| [**R4-2111856**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111856.zip) | Ericsson: Comment for SR.1.2 TDD.\* ‘For partial-downlink slots’ should be ‘For special slots’. \* Need to specify the binary channel bits ‘For special slots’. \* Number of CB should be 1. |
|  |
|  |
| [**R4-2111859**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111859.zip) | Ericsson: OK |
|  |
|  |
| [**R4-2111862**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111862.zip) | Ericsson: OK |
| Huawei: Similar change in R4-2111862 |
| R&S: In Table A.5.5.3.1.1-3 Void of Note 2 missing |
| ZTE: Similar change in R4-2111862.Since the CR might need to be revised anyways, our CR can be merged into this one. |
| [**R4-2111865**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111865.zip) | Ericsson: We do not see a need to change SSB configuration. Just because one SSB index is enough in the test doesn't mean that we cannot have two SSB indexes transmitted in the cell |
| Huawei: We want to know why Es is added in Table A.7.7.1.3.2-2 and why it is not provided for Cell 2 in Test 1? |
| Nokia: In Table A.5.7.1.3.2-1 & Table A.7.7.1.3.2-1, why OP.1 for cell 3 given in test 2? |
| [**R4-2111868**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111868.zip) | Anritsu: Overlap with Huawei CR (R4-2113966) at Table A.5.5.1.5.1-3, Table A.5.5.1.6.1-3, Table A.7.5.1.5.1-3, Table A.7.5.1.6.1-3. Need to discuss on a way to merge depending on an outcome of the two CRs.Another overlap with R&S CR (R4-2112622) at Table A.5.5.1.6.1-3, Table A.7.5.1.6.1-3. Also need to discuss on a way to merge depending on an outcome of the two CRs.  |
| Ericsson: In-sync table is overlapped with CR R4-2112622. Need coordination. |
| Huawei: It is suggested that changes in R4-2113966 in A.5 and A.7 could be merged to Anritsu’s CR, and A.5 and A.7 could be removed in R4-2113966. |
| R&S: We don’t agree changing CSI-RS RLM test case from Setup 3 (2AoA) to Setup 1 (1AoA). No comprehensive rational has been given. Also, we are not aware of any RAN5 dedicated discussion on this topic. |
| Qualcomm: We oppose the change from AoA Setup 3 to Setup 1 because of the following reasons.1. Changing to a single angle will just make this a baseband test and we do not test the most important functionality that has to be implemented.
2. If the issue is based on analysis assuming # of RBs for CSI-RS is 66, in our understanding the # of RBs should be 52 not 66 based on RMCs of TRS.2.1 and TRS.2.2.
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| [**R4-2111871**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111871.zip) | Anritsu: Overlap with R&S CR (R4-2114359). Need to merge each other. |
| Ericsson: OK |
| R&S: * Doppler frequency for the TDLA channel has been specified to 70Hz resulting to TDLA30-70. However, this particular combination is not listed in the TS 38.101-4 Table B.2.2-2, TDLA30-75 is specified instead.
* Agree to merge with R&S R4-2114359, which needs anyhow to be revised due to an identified editorial issue.
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| [**R4-2111877**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111877.zip) | Ericsson: OK |
| R&S: Added Note 3 applies only to BWP.1.1 right? Then it needs to be referenced from there, otherwise it conflicts with the principle of selecting the BW for BWP.1.2/2 which is done based on SSB SCS. |
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| [**R4-2111880**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111880.zip) | Anritsu: Overlap with Huawei CR (R4-2113957). |
| Ericsson: We do not agree on changing config 2 and 3 to "synchronous". LTE FDD cell does not have to be synchronous to the NR TDD cell. This is SFTD and not EN-DC operation, and the functionality is used also for acquiring cell timing for inter-frequency measurement configuration (gaps etc). |
| Huawei: Suggest to work on R4-2113957 |
| R&S: Conflicting with R4-2113957. We think proposal of R4-2111880 with regard of asynchronous and synchronous config ID is not correct.  |
| [**R4-2111883**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111883.zip) | Ericsson: OK |
| Anritsu: Overlap with Huawei CR (R4-2113969). If the change in Table A.6.5.3.1.1-3 is merged in Huawei CR, this CR can be noted. |
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| [**R4-2111886**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111886.zip) | Anritsu: Overlap with Ericsson CR (R4-2113478)Though most of the changes are covered by Ericsson CR, since changes at A.5.7.4.1.3 and A.5.7.4.2.3 in this CR are not included in the Ericsson CR, we propose to endorse both this CR and Ericsson CR (R4-2111886). |
| Ericsson: We support to change the reporting period parameter from 640 to 320 (same as R4-2113478), but we should keep the delay to 640 considering the measurement delay. Propose to merge to R4-2113478. |
| Anritsu: To Ericsson Thanks for the comments. Then it seems all the contents are covered by R4-2113478 now.We agree to note this CR and only focus on R4-2113478. |
| Huawei: Can Ericsson clarify why 640 is kept for the delay? |
| Ericsson: To Huawei, we misunderstood the unit of delay. We are ok to change the delay to 320 slots also.  |
| [**R4-2111889**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111889.zip) | Ericsson: OK |
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| [**R4-2111899**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111899.zip) | Ericsson: OK |
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| [**R4-2111900**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111900.zip) | Ericsson: OK |
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| [**R4-2112475**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112475.zip) | Ericsson: OK |
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| [**R4-2112526**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112526.zip) | Anritsu: The discussion about gain values in R4-2112529 seems reasonable for inter-band scenarios. But as commented at the sub-topic 1-2, we would like to clarify on this relaxation whether this is intended also to intra-band scenario.The value “-9” is just inserted into the test case test requirements table without any explanation or traceability to a UE core requirement. In 38.133 RRM test cases, all the test requirements must be traceable to a UE requirement. For example, the value δ is the RSRP relative accuracy requirement from 38.133 Table 10.1.5.1.2-1 (an RRM requirement) and the value X is the Spherical coverage gain difference in dB, derived as (UE Refsens - UE Spherical coverage) from TS 38.101-2 clauses 7.3.2 and 7.3.4.In our view the value “-9” needs to be included somehow in 38.133 Table 10.1.5.1.2-1: |
| Ericsson: Wait for the conclusion of Sub-topic 1-2. |
| MediaTek: To Anritsu and Ericsson. Thanks for the comment. Please see our reply in Sub-topic 1-2 Thanks. |
| [**R4-2112536**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112536.zip) | Anritsu: Overlap with Anritsu CR (R4-2111862) at Table A.7.5.3.1.1-3.To resolve our overlap, we suggest revising this CR and remove only the change in Table A.7.5.3.1.1-3 once contents in both Anritsu CR and this CR have been endorsed. Other parts are OK for us. |
| Ericsson: OK, but for Change 3 (A.7.5.3.1) and Change 7 (A.7.5.3.5) it would make more sense to remove/void Note 5 and Note 6 in the tables. |
| MediaTek: To Anritsu: we are ok to remove the change in Table A.7.5.3.1.1-3 from our CR. Thanks.To Ericsson: Thanks for the comment. We are fine with your suggestion. |
| [**R4-2112613**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112613.zip) | Ericsson: OK |
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| [**R4-2112616**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112616.zip) | Ericsson: OK |
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| [**R4-2112619**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112619.zip) | Ericsson: OK |
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| [**R4-2112622**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112622.zip) | Anritsu: Agree with changes but there is an overlap with Anritsu CR (R4-2111868) at Table A.5.5.1.6.1-3, Table 7.5.1.6.1-3. Need to discuss a way to merge both CRs during the 2nd round once contents of two CRs have been endorsed in the 1st round. Possible way is to revise both CRs and remove changes only at Table A.5.5.1.6.1.3 and Table A.7.5.1.6.1-3 from R&S CR, and add those two changes in our revised CR (R4-2111868r1). |
| Ericsson: Some FR2 RLM In-sync tests are overlapped with CR R4-2111868. Need coordination. |
| R&S: If the changes here are endorsed in the 1st round, we can find a way of capturing them in revisions of both overlapping CRs in 2nd round. However, pls note, that currently we have objections to some of the changes in R4-2112622.  |
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| [**R4-2112625**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112625.zip) | Ericsson: OK |
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| [**R4-2112692**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112692.zip) | Ericsson: OK. But don’t we need Cat-A CRs for Rel-16/17? What is the plan? |
| Qualcomm: We reserved CRs for Cat-A series as below, but we just realized Agenda items for them had been mistakenly indicated. Would moderator please consider handling the companion Cat-A CRs in this thread?

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| **TDoc** | **Title** | **Agenda item** | **Release** | **CR category** |
| R4-2112692 | Rel-15 Cat-F CR to Interruptions during measurements on deactivated NR SCC in FR1 | 5.1.8 | **[Rel-15](https://portal.3gpp.org/desktopmodules/Release/ReleaseDetails.aspx?releaseId=190)** | F |
| R4-2112693 | Rel-16 Cat-A CR to FR1 Multiple SCell activation requirement for SSB-less and TCI activation | 6.1.7.1 | **[Rel-16](https://portal.3gpp.org/desktopmodules/Release/ReleaseDetails.aspx?releaseId=191)** | A |
| R4-2112694 | Rel-17 Cat-A CR to FR1 Multiple SCell activation requirement for SSB-less and TCI activation | 6.1.7.1 | **[Rel-17](https://portal.3gpp.org/desktopmodules/Release/ReleaseDetails.aspx?releaseId=192)** | A |

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| [**R4-2113145**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113145.zip) | Ericsson: There is corresponding update to the reference point definition in core requirements. We propose to resolve core part first. |
| MediaTek: It seems need to wait the conclusion in email discussion of [239] URLLC & [201] R15 core part. |
| Huawei: Suggest to update the test case after the corresponding core requirements are concluded. |
| R&S: In FR1 tests are running conducted, UE antenna might not be correct. Do we expect Core Requirement, Test Requirement and Test Case in RAN5 to be identical? |
| Nokia: The discussion on core part is still ongoing. Test cases can be come back after core part has conclusion. |
| [**R4-2113474**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113474.zip) | Huawei: No technical comments. The affected spec shall be indicated. |
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| [**R4-2113477**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113477.zip) |  |
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| [**R4-2113478**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113478.zip) | Anritsu: Agree with all the changes ~~but since there seems to be missing changes in texts at A.5.7.4.1.3 and A.5.7.4.2.3 (there are 2 places where the description of 640 ms remain in the texts), we would like to propose~~ ~~endorsing this CR and also overlapping CR (R4-2111886) from Anritsu.~~  |
| Ericsson: We are ok with Anritsu comments. We can change 640ms to 320ms in A.5.7.4.1.3/A.5.7.4.1.4. |
| Anritsu: Based on the comments at our CR (R4-2111886), our CR can be covered (merged) in this CR.There is one indication on the coversheet. It seems the formula to calculate Io has a typo. We suppose that the last term 10 log(66 x 120) is 10 log (66 x 12). |
| Ericsson: To Anritsu, thank you for your pointing out the error in the cover page. We will fix it in the revision.  |
| [**R4-2113852**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113852.zip) | Anritsu: Confirmed that the change is to correct a missing correction from the previously agreed CR (R4-2100773). |
| Ericsson OK: But don’t we need Cat-A CRs for Rel-16/17? What is the plan? |
| Huawei: to Ericsson, thanks for reminding. However R16,R17 spec have already correctly capture the change. Only R15 CR is needed. |
| [**R4-2113859**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113859.zip) | Ericsson OK: But don’t we need Cat-A CRs for Rel-16/17? What is the plan? |
| Huawei: similar change in R4-2111862. |
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| R4-2113957 | Anritsu: There are conflicts with Anritsu CR (R4-2111880) at the parameter “Frame time offset between serving and neighbour cells”. Proposals in Anritsu CR are based on the similar test case (A.8.4.2.1). Is that change acceptable? |
| Ericsson: We want to understand why SMTC configuration should be changed. It seems there is confusion for frame border difference (which can be any with FDD involved) with time difference between transmission on sync signals in each respective RAT. The latter has nothing to do with the former. We need more explanation for the motivation. It shall be noted that (Anritsu: it seems the comment is stopped in the middle.)"inter-RAT SFTD" which not only is applicable to EN-DC but also for general timing acquisition. |
| Huawei:Thanks for all the comments.To Anritsu:Actually the discussion with Baba-san and Setsu-san on solving overlapping between corresponding RAN5 CRs is also ongoing in RAN5. I have no strongly view and I think both ways are OK from technical point of view. However, I've checked Ericsson's initial CR that introducing TC 8.4.1.1/8.4.1.2 (R4-1901521). In R4-1901521 it is already config.1.2.3.4 as "async" and config 5,6 as "sync". It makes me suspect that Ericsson's intention is to make all 15kHz SCS +FDD/TDD configuration be async and 30kHz SCS configuration be sync. So I suggest we keep 15kHz SCS +TDD configuration (config 2/4) to be async. Or could Ericsson please provide us some guidance?To EricssonInter-RAT SFTD delay requirements specified in 36.133 cl.8.1.2.4 is expressed as multiple of SMTC periods. Obviously it assumes that UE performs SFTD measurements on SSBs in SMTC window. However, SFTD measurement is configured by LTE PCell, then the timing reference of SMTC window configured in corresponding LTE MO is **LTE PCell** according to 36.331 cl.5.5.2.13.On the other side, timing reference of the SSB(s) sent from NR neighbour cell are the **NR Cell** itself according to 38.133 A.3.10. Take RMC SSB.1 FR1 as an example:Considering SSB and SMTC are using different timing references. It's clear that the difference between timing references shall be compensated when configuring SMTC, otherwise there is no guarantee that SMTC can cover SSBs. |
| Ericsson:To Huawei: The only SMTC-related parameter used by the UE when carrying out inter-RAT SFTD measurement is the SMTC period. The whole purpose of the SFTD measurement is to identify the start of the SMTC window which then can be related to SFN 0 in neighbour cell, which in turn can be related to SFN 0 in PCell, to give SFTD. The UE is using the SMTC period information to know how many alternative SMTC window positions (assumed 5ms) there would be, and use this information when carrying out cell detection. 36.331:5.5.2.13 NR measurement timing configurationThe UE shall setup the first SS/PBCH block measurement timing configuration (SMTC) in accordance with the received *periodicityAndOffset* (providing *Periodicity* and *Offset* value for the following condition) in the *MTC-SSB-NR* configuration i.e., the first subframe of each SMTC occasion occurs at an SFN and subframe of the PCell meeting the following condition:SFN mod *T* = FLOOR(*Offset*/10);if the *Periodicity* is larger than *sf5*:subframe = *Offset* mod 10;else;subframe = *Offset* or (*Offset* +5);with *T* = CEIL(*Periodicity*/10).On the concerned frequency, the UE shall not consider SS/PBCH block transmission in subframes outside the SMTC occasion which lasts for *ssb-Duration* for measurements including RRM measurements except for SFTD measurement (see TS 36.133 [16], clause 8.1.2.4.25.2 and 8.1.2.4.26.1). |
| R4-2113960 |  |
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| R4-2113963 | Ericsson: OK |
| Anritsu: In Table A.5.5.7.1.1-3, CSI-RS configuration for CSI reporting is mistakenly defined. CSI-RS.2.1.TDD is for SCS 30kHz and it should be CSI-RS.3.1.TDD (for 120 kHz SCS). |
| Huawei:Thanks for all the comments.To AnritsuAgree, I'll fix it in revision. |
| R4-2113966 | Anritsu: Overlap with Anritsu CR (R4-2111868) at Table A.5.5.1.5.1-3, Table A.5.5.1.6.1-3, Table A.7.5.1.5.1-3, Table A.7.5.1.6.1-3. Propose to discuss a way to merge two CRs later. |
| Ericsson: Some FR2 RLM In-sync tests are overlapped with Anritsu CR R4-2111868. Need coordination. |
| Huawei:Thanks for all the comments.To Anritsu and Ericsson:We are fine to merge. I can revise R4-2113966 to only capture all changes to FR1 RLM TCs. and all changes to FR2 TCs can be merged into Anritsu's CR R4-2111868. |
| R&S: For CSI-RS based test case, are we sure that the power offsets towards other channels (as depicted in cover page, is constant)? |
| R4-2113969 | Ericsson: We suggest that updates pertaining to measCycleSCell are handled once this has been settled completely in core. Other parts are OK. |
| Anritsu: Overlap with Anritsu CR (R4-2111883). To merge two CRs, RMSI CORESET parameters in Table A.6.5.3.1.1-3 needs to be corrected in this CR. => CR.2.3 TDD should be fixed to CR.2.1 TDD.There is an inconsistency between the description at A.7.5.3.2.1 and the definition of parameter “reportQuantity” in Table A.7.5.3.2.1-2. reportQuantity is defined as cri-RI-CQI while the text below is mentioning L1-RSRP. |
| Huawei:Thanks for all the comments.To Ericsson:Of course, we are fine to wait until brackets are removed in core requirements. I'll handle it in revision.To Anritsu:Fine with change RMSI CORESET in A.6.5.3.1.1-3. Then R4-2111883 can be covered by R4-2113969. And for reportQuantity in Table A.7.5.3.2.1-2. It is not an inconsistency. Actually we need both CSI reporting and L1-RSRP reporting in this TC:* First, SCell activation ends when a valid CSI report for SCell is sent. So we need report configuration for CSI reporting
* Second, For FR2 unknown SCell activation. we need L1-RSRP reporting to help NW to select Tx-Rx beam pair. So report configuration for L1-RSRP is also needed.

I only added report configuration for CSI and don't notice that reporting configuration for L1-RSRP reporting are also needed. I noticed that TL1-RSRP\_measure=480ms is assumed in TC 7.5.3.2. It seems that TC author's intention is to perform **SSB based L1-RSRP**(SMTC period = 20ms, N = 8, M = 3 then TL1-RSRP\_measure = 20\*3\*8 = 480ms and it is impossible to derive TL1-RSRP\_measure=480ms for CSI-RS.3.2 TDD). However, this value seems is outdated since RAN4 already agrees that M=1 is assumed for SCell activation. So I'll update test requirements accordingly.In short, I'm fine to also add reporting configuration for L1-RSRP in revision like this: |
| [**R4-2114165**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114165.zip) | Huawei: Suggest to come back in the 2nd round, which is related the sub-topic 1-3. |
| Nokia: we propose to discuss the CR once agreement is achieved in sub-topic 1-3. |
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| [**R4-2114359**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114359.zip) | Anritsu: Overlap with Anritsu CR (R4-2111871). Propose to merge both CRs. |
| Ericsson: Propose to merge to R4-2111871. We also prefer to use TDLA30-XX instead of ETU70 if possible. |
| R&S: Agree to merge both CRs. This CR would need anyhow a revision due to an editorial issue, Pls note that we need to agree on the Doppler frequency to be used, as commented in R4-2111871. |
| [**R4-2114442**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114442.zip) |  |
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| [**R4-2114444**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114444.zip) |  |
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## Summary for 1st round

### Open issues

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| **Sub-topic**  | **Status summary**  |
| **Sub-topic 1-1** | **Sub-topic 1-1: Channel BW configuration for RRM CA TCs***Tentative agreements:** For channel BW other than 10 MH for SSB SCS 15 kHz or 40 MHz for SSB SCS 30 kHz, define test parameters as follows.
	+ Define channel bandwidth with “≥” mark in the test configuration tables to add flexibility to the CA bandwidth combination
		- Clarify the channel bandwidth in the configuration table is BWchannel
	+ Introduce a new parameter “BWoccupied” which is the actual BW allocation in each test parameter table (confined with 10 MHz or 40 MHz)
	+ Configure PDSCH RMC with the same number of RBs as 10 MHz for 15 kHz SSB SCS or 40 MHz for 30 kHz SSB SCS
	+ Configure CORESET for RMSI and RMC scheduling with same configurations as CBW of 10 MHz for 15 kHz SSB SCS or 40 MHz for 30 kHz SSB SCS
	+ Fill in 10 MHz or 40 MHz channel BW with OCNG

*Recommendations for 2nd round: Draft CR to capture above agreements*  |
| **Sub-topic 1-2** | **Sub-topic 1-2: FR2 inter-frequency relative RSRP accuracy***Tentative agreements: None**Candidate options:** Option 1: MediaTek
	+ In all FR2 inter-frequency relative RSRP accuracy tests add 9 dB margin in the lower bound.
* Option 2: QC
	+ The margin in the FR2 inter-frequency relative RSRP accuracy tests depend on how close the inter-frequency carriers are in frequency domain e.g. whether the carriers are in the same band or not.

*Recommendations for 2nd round: Further discuss the options and margins in the option 2* |
| **Sub-topic 1-3** | **Issue 1-3-1: List of FR1/LTE + FR2 tests with testability issue***Tentative agreements:***Criteria for selecting FR1/LTE+FR2 test with OTA testability problem***:* * FR1/LTE+FR2 test has OTA testability problem if at least one of the following criteria is met:
	+ Tests where any requirement is tested for FR1/LTE,
	+ Tests where UE receives any DL message (e.g. RRC/DCI/MAC-CE configuration message/command etc) on FR1/LTE between the starting point and ending point of the test, and
	+ Tests where UE transmits any UL signal (e.g. measurement report, ACK/NACK, CSI etc) b on FR1/LTE between the starting point and ending point of the test.

**Rel-15 FR1/LTE+FR2 test case list with OTA testability problem***:* **Table 1-3-1-1: Rel-15 FR1/LTE+FR2 test cases with OTA testability problem**

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| **No.** | **Test case** |
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| **1** | A.5.5.2.3 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in synchronous EN-DC  |
| **2** | A.5.5.2.4 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in asynchronous EN-DC |
| **3** | A.5.5.2.5 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in synchronous EN-DC  |
| **4** | A.5.5.2.6 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in asynchronous EN-DC  |
| **5** | A.5.5.3.1 SCell Activation and deactivation of SCell in FR2 intra-band  |
| **6** | A.5.5.3.2 SCell Activation and deactivation of known SCell in FR1 for 160ms SCell measurement cycle  |
| **7** | A.5.5.3.5 SCell Activation and deactivation of SCell in FR2  |
| **8** | A.5.5.6.1.1 E-UTRAN – NR PSCell FR2 DL active BWP switch with non-DRX in synchronous EN-DC  |
| **9** | A.5.5.6.1.2 E-UTRAN – NR PSCell FR2 DL active BWP switch with FR2 SCell in non-DRX in synchronous EN-DC |
| **10** | A.5.5.6.2.1 E-UTRAN – NR PSCell FR2 DL active BWP switch with non-DRX in synchronous EN-DC |
| **11** | A.7.3.1.1 Inter-frequency handover from FR1 to FR2; unknown target cell |
| **12** | A.7.5.3.2 SCell Activation and deactivation for FR1+FR2 inter-band with target SCell in FR2 |
| **13** | A.7.5.6.1.2 NR FR1-NR FR2 DL active BWP switch of PCell with non-DRX in SA |
| **14** | A.7.5.7.1 Addition and Release Delay of known NR PSCell |
| **15** | A.7.5.7.2 Addition and Release Delay of unknown NR PSCell |
| **16** | A.7.6.2.5 SA event triggered reporting tests for FR2 without SSB time index detection when DRX is not used (PCell in FR1) |
| **17** | A.7.6.2.6 SA event triggered reporting tests for FR2 without SSB time index detection when DRX is used (PCell in FR1) |
| **18** | A.7.6.2.7 SA event triggered reporting tests for FR2 with SSB time index detection when DRX is not used (PCell in FR1) |
| **19** | A.7.6.2.8 SA event triggered reporting tests for FR2 with SSB time index detection when DRX is used (PCell in FR1) |
| **20** | A.7.7.1.3 SA inter-frequency measurement accuracy with FR1 serving cell and FR2 target cell |
| **21** | A.8.4.2.5 NR Inter-RAT event triggered reporting tests for FR2 without SSB time index detection when DRX is not used |
| **22** | A.8.4.2.6 NR Inter-RAT event triggered reporting tests for FR2 without SSB time index detection when DRX is used |
| **23** | A.8.4.2.7 NR Inter-RAT event triggered reporting tests for FR2 with SSB time index detection when DRX is not used |
| **24** | A.8.4.2.8 NR Inter-RAT event triggered reporting tests for FR2 with SSB time index detection when DRX is used |

**Rel-16 FR1/LTE+FR2 test case list with OTA testability problem***:* * All Rel-15 tests in table 1-3-1-1,
* Rel-16 specific tests in table 1-3-1-2,
* More Rel-16 tests are FFS.

**Table 1-3-1-2: Rel-16 specific FR1/LTE+FR2 test cases with OTA testability problem (other than Rel-15 tests)**

|  |  |
| --- | --- |
| **No.** | **Test case** |
|
| **25** | A.7.3.1.4  Inter-band inter-frequency synchronous DAPS handover from FR1 to FR2 |
| **26** | A.7.3.1.5  Inter-band inter-frequency asynchronous DAPS handover from FR1 to FR2 |
| More Rel-16 tests with OTA testability issues are FFS  |

*Recommendations for 2nd round: Further review the test case list.* |
| **Sub-topic 1-3** | **Issue 1-3-2: Solutions for R1/LTE + FR2 tests with testability issue***Tentative agreements:** Some of the LTE/FR1+FR2 tests can be performed with some modification:
	+ FFS: whether to modify each test or to specify general rule to allow the testing
* Exclude testing of remaining tests by defining general rule/applicability rule in Annex of TS 38.133

*Candidate options:*Method to enable testing of LTE/FR1+FR2 tests which can be performed with some modification:* + Option 1:
		- Modify each individual test e.g. remove testing of LTE/FR1 cell in the test
	+ Option 2:
		- Defining general rule for all tests that can be tested with modification e.g. testing on FR1/LTE cell is not required

*Recommendations for 2nd round: Further discuss method for modifying tests and work on the CR (new tdoc for CR) based on outcome* |
| **Sub-topic 1-3** | **Issue 1-3-3: List of FR1/LTE+FR2 tests which can be tested with modification, if option 2 (Issue 1-3-2) is agreed***Tentative agreements:***Table 1-3-3-2: Rel-15 LTE/FR1+FR2 test cases which can be tested with modification**

|  |  |
| --- | --- |
| **No.**  | **Test case** |
| **1** | A.5.5.2.3 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in synchronous EN-DC  |
| **2** | A.5.5.2.4 E-UTRAN – NR FR2 interruptions during measurements on deactivated NR SCC in asynchronous EN-DC |
| **3** | A.5.5.2.5 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in synchronous EN-DC  |
| **4** | A.5.5.2.6 E-UTRAN – NR FR2 interruptions during measurements on deactivated E-UTRAN SCC in asynchronous EN-DC  |
| **5** | A.5.5.3.1 SCell Activation and deactivation of SCell in FR2 intra-band  |
| **8** | A.5.5.6.1.1 E-UTRAN – NR PSCell FR2 DL active BWP switch with non-DRX in synchronous EN-DC  |
| **9** | A.5.5.6.1.2 E-UTRAN – NR PSCell FR2 DL active BWP switch with FR2 SCell in non-DRX in synchronous EN-DC |
| **10** | A.5.5.6.2.1 E-UTRAN – NR PSCell FR2 DL active BWP switch with non-DRX in synchronous EN-DC |
| **20** | A.7.7.1.3 SA inter-frequency measurement accuracy with FR1 serving cell and FR2 target cell |

**Table 1-3-3-2: Rel-16 LTE/FR1+FR2 test cases which can be tested with modification**

|  |  |
| --- | --- |
| **No.**  | **Test case** |
| **25** | A.7.3.1.4  Inter-band inter-frequency synchronous DAPS handover from FR1 to FR2 |
| **26** | A.7.3.1.5  Inter-band inter-frequency asynchronous DAPS handover from FR1 to FR2 |
| Note 1: More LTE/FR1+FR2 test cases are FFS |

*Recommendations for 2nd round: Tests are modified based on modification principle agreed in issue 1-3-2.* |
| **Sub-topic 1-3** | **Issue 1-3-4: General modification related to FR1/LTE+FR2 testability***Tentative agreements:*General modification related to FR1/LTE+FR2 testability is needed in clauses A.3.7A and A.3.7.2.2.*Recommendations for 2nd round: Work directly on the CR (new tdoc for CR).* |
|  |  |

### CRs/TPs

*Note: The tdoc decisions shall be provided in Section 3 and this table is optional in case moderators would like to provide additional information.*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

# Recommendations for Tdocs

## 1st round

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Comments** |
| WF on RRM test case related issues | Ericsson |  |
|  |  |  |
| Draft CR on modification of LTE/FR1+FR2 tests (Rel-15, cat F) | Ericsson | The CR is outcome of discussion on issue 1-3-2. Cat A Rel-16/17 CRs are also needed. |
| Draft CR on general modification in clauses A.3.7A and A.3.7.2.2(Rel-15, cat F) | Qualcomm Incorporate | The CR is outcome of discussion on issue 1-3-3. Cat A Rel-16/17 CRs are also needed |

**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| **[R4-2111846](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111846.zip)** | Draft CR to specify the number of data RBs allocated | Anritsu Corporation | Revised |  |
| **[R4-2111849](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111849.zip)** | Clarification of SNR values in FR2 BFD-LR Test cases | Anritsu Corporation | Agreeable |  |
| R4-2111850 | Clarification of SNR values in FR2 BFD-LR Test cases | Anritsu Corporation | Return to | Change to cat-F |
| **[R4-2111853](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111853.zip)** | Definition of generic channel BW configurations for RRM CA tests | Anritsu Corporation | Revised |  |
| **[R4-2111856](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111856.zip)** | Draft CR to update RMC and SCell SSB burst position for A.6.5.2.1 | Anritsu Corporation | Revised |  |
| **[R4-2111859](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111859.zip)** | Update NR PSCell Addition and Release Delay RRM Test cases | Anritsu Corporation | Agreeable |  |
| **[R4-2111862](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111862.zip)** | Update FR2 SCell Activation and Deactivation Delay Test cases | Anritsu Corporation | Revised |  |
| **[R4-2111865](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111865.zip)** | Update inter-frequency FR1-FR2 SS-RSRP measurement accuracy Test cases | Anritsu Corporation | Revised |  |
| **[R4-2111868](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111868.zip)** | Update FR2 CSI-RS-based RLM Test cases | Anritsu Corporation | Revised | Coordinate with R4-2113966/R4-2112622 |
| **[R4-2111871](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111871.zip)** | CR to the propagation condition of NR cell for InterRAT test cases | Anritsu Corporation | Revised | Merge R4-2114359 |
| **[R4-2111877](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111877.zip)** | Introduction of new BWP definition for FR2 SSB SCS240kHz conditions | Anritsu Corporation | Revised |  |
| **[R4-2111880](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111880.zip)** | CR to EUTRA-NR Inter-RAT SFTD measurement delay | Anritsu Corporation | Merged to R4-2113957 |  |
| **[R4-2111883](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111883.zip)** | CR to General Test Parameters of SCell Activation and Deactivation Delay TCs | Anritsu Corporation | Merged to R4-2113969 |  |
| **[R4-2111886](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111886.zip)** | Correction of CSI reporting periodicity for L1RSRP reporting in FR2 | Anritsu Corporation | Merged to R4-2113478 |  |
| **[R4-2111889](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111889.zip)** | Correction of SSB configuration for interruption test cases in FR2 | Anritsu Corporation | Agreeable |  |
| [R4-2111899](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111899.zip) | Correction to Radio Link Monitoring Scheduling Restrictions in FR2 | Anritsu Corporation | Agreeable |  |
| [R4-2111900](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2111900.zip) | Correction of Io in event triggered reporting test | Anritsu Corporation | Agreeable |  |
| **[R4-2112475](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112475.zip)** | Correction on configurations in SA FR2 tests in R15 | MediaTek inc. | Agreeable |  |
| **[R4-2112526](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112526.zip)** | Correction on the FR2 inter-frequency relative RSRP accuracy in R15 | MediaTek inc. | Revised |  |
| **[R4-2112536](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112536.zip)** | Correction on configurations in SCell activation tests in R15 | MediaTek inc. | Revised |  |
| **[R4-2112613](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112613.zip)** | Draft-CR to TS 38.133: Missing CORESET RMCs in several test cases (Rel 15) | Rohde & Schwarz | Agreeable |  |
| **[R4-2112616](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112616.zip)** | Draft-CR to TS 38.133: Corrections to PRACH test cases (Rel 15) | Rohde & Schwarz | Agreeable |  |
| **[R4-2112619](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112619.zip)** | Draft-CR to TS 38.133: Corrections to re-establishment test cases (Rel 15) | Rohde & Schwarz | Agreeable |  |
| **[R4-2112622](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112622.zip)** | Draft-CR to TS 38.133: Corrections to radio link monitoring test cases (Rel 15) | Rohde & Schwarz | Revised | Coordinate with R4-2111868/R4-2113966 |
| **[R4-2112625](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112625.zip)** | Draft-CR to TS 38.133: Corrections to periodic measurement test cases (Rel 15) | Rohde & Schwarz | Agreeable |  |
| **[R4-2112692](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2112692.zip)** | Rel-15 Cat-F CR to Interruptions during measurements on deactivated NR SCC in FR1 | Qualcomm Incorporated | Revised |  |
| **[R4-2113145](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113145.zip)** | draftCR to clarify timing reference point for UE UL timing test cases | Intel Corporation | Return to |  |
| **[R4-2113474](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113474.zip)** | Correction of Link recovery test parameter tables | Ericsson | Revised |  |
| **[R4-2113477](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113477.zip)** | Correction of A3-offset setting in FR2 SA event triggered reporting tests | Ericsson, Anritsu | Agreeable |  |
| **[R4-2113478](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113478.zip)** | Correction of FR2 L1-RSRP measurement tests | Ericsson | Revised | Merge R4-2111886  |
| **[R4-2113852](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113852.zip)** | Correction to interruption during measurement on deactivated SCell test cases\_R15 | Huawei, HiSilicon | Agreeable |  |
| **[R4-2113859](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2113859.zip)** | Maintenance CR for test cases - R15 | ZTE Corporation | Merged to R4-2111862 |  |
| R4-2113957 | Correction to Inter-RAT SFTD measurement test cases\_R15 | Huawei, Hisilicon | Revised | Merge R4-2111880 |
| R4-2113960 | Correction to interruption due to BWP switching test cases\_R15 | Huawei, Hisilicon | Agreeable |  |
| R4-2113963 | Correction to PSCell addition test cases\_R15 | Huawei, Hisilicon | Revised |  |
| R4-2113966 | Correction to radio link monitoring test cases\_R15 | Huawei, Hisilicon | Revised | Coordinate with R4-2111868/R4-2112622 |
| R4-2113969 | Correction to SCell activation test cases\_R15 | Huawei, Hisilicon | Revised | Merge R4-2111883 |
| **[R4-2114165](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114165.zip)** | DraftCR (R15) Applicability of test cases with LTE/FR1+FR2 | Ericsson | Revised |  |
| **[R4-2114359](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114359.zip)** | Draft-CR to TS 38.133: Corrections to propagation condition for inter-RAT test cases (Rel 15) | Rohde & Schwarz | Merged to R4-2111871 |  |
| **[R4-2114442](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114442.zip)** | Correction to n261 RRM performance requirements in Rel-15 | Ericsson | Agreeable |  |
| **[R4-2114444](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_100-e/Docs/R4-2114444.zip)** | Correction to n261 RRM performance requirements in Rel-17 | Ericsson | Agreeable |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics incl. existing and new tdocs.
2. For the Recommendation column please include one of the following:
	1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
	2. Other documents: Agreeable, Revised, Noted
3. For new LS documents, please include information on To/Cc WGs in the comments column
4. Do not include hyper-links in the documents

## 2nd round

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| R4-210xxxx | WF on … | YYY | Agreeable, Revised, Noted |  |
| R4-210xxxx | LS on … | ZZZ | Agreeable, Revised, Noted |  |
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Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics.
2. For the Recommendation column please include one of the following:
	1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
	2. Other documents: Agreeable, Revised, Noted
3. Do not include hyper-links in the documents

# Annex

Contact information

|  |  |  |
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Note:

1. Please add your contact information in above table once you make comments on this email thread.
2. If multiple delegates from the same company make comments on single email thread, please add you name as suffix after company name when make comments i.e. Company A (XX, XX)