**3GPP TSG-RAN WG4 Meeting #111**

**Fukuoka City, Fukuoka, Japan, 20th - 24th May, 2024**

**Source: RAN4 Vice Chair (China Telecom)**

**Title: RAN4 #111 RRM session meeting report**

3A Topic Summary (pre-meeting)

This agenda item is only for at-meeting-generated content related to topic summary.

3A.2 RRM session topic summaries

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TDoc** | **Title** | **Source** | **Type** | **For** | **Abstract** | **AI** | **TDoc Status** | **Decision** |
| R4-2407998 | Topic summary for [111][201] Maintenance\_up\_to\_R17 | Moderator (Huawei) | other | Information | [111][200] RRM Session | 4.8 |  |  |
| R4-2407999 | Topic summary for [111][202] Maintenance\_R18 | Moderator (Apple) | other | Information | [111][200] RRM Session | 5.4 |  |  |
| R4-2408000 | Topic summary for [111][203] FR2\_multiRx\_part1 | Moderator (Ericsson) | other | Information | [111][200] RRM Session | 7.3.4 |  |  |
| R4-2408001 | Topic summary for [111][204] FR2\_multiRx\_part2 | Moderator (vivo) | other | Information | [111][200] RRM Session | 7.3.4 |  |  |
| R4-2408002 | Topic summary for [111][205] NR\_RRM\_enh3\_part1 | Moderator (Apple) | other | Information | [111][200] RRM Session | 7.4.5 |  |  |
| R4-2408003 | Topic summary for [111][206] NR\_RRM\_enh3\_part2 | Moderator (OPPO) | other | Information | [111][200] RRM Session | 7.4.5 |  |  |
| R4-2408004 | Topic summary for [111][207] NR\_MG\_enh2\_part1 | Moderator (MediaTek) | other | Information | [111][200] RRM Session | 7.5.5 |  |  |
| R4-2408005 | Topic summary for [111][208] NR\_MG\_enh2\_part2 | Moderator (Intel) | other | Information | [111][200] RRM Session | 7.5.5 |  |  |
| R4-2408006 | Topic summary for [111][209] NR\_BWP\_wor | Moderator (vivo) | other | Information | [111][200] RRM Session | 7.6.3 |  |  |
| R4-2408007 | Topic summary for [111][210] NR\_HST\_FR2\_enh | Moderator (Samsung) | other | Information | [111][200] RRM Session | 7.7.4 |  |  |
| R4-2408008 | Topic summary for [111][211] NR\_FR1\_lessthan\_5MHz\_BW | Moderator (Nokia) | other | Information | [111][200] RRM Session | 7.8.8 |  |  |
| R4-2408009 | Topic summary for [111][212] NR\_pos\_enh2\_part1 | Moderator (Ericsson) | other | Information | [111][200] RRM Session | 7.12.3 |  |  |
| R4-2408010 | Topic summary for [111][213] NR\_pos\_enh2\_part2 | Moderator (CATT) | other | Information | [111][200] RRM Session | 7.12.3 |  |  |
| R4-2408011 | Topic summary for [111][214] NR\_pos\_enh2\_part3 | Moderator (Huawei) | other | Information | [111][200] RRM Session | 7.12.3 |  |  |
| R4-2408012 | Topic summary for [111][215] NR\_MC\_enh | Moderator (Huawei) | other | Information | [111][200] RRM Session | 7.13.4 |  |  |
| R4-2408013 | Topic summary for [111][216] NR\_Mob\_enh2\_part1 | Moderator (MediaTek) | other | Information | [111][200] RRM Session | 7.14.3 |  |  |
| R4-2408014 | Topic summary for [111][217] NR\_Mob\_enh2\_part2 | Moderator (Apple) | other | Information | [111][200] RRM Session | 7.14.3 |  |  |
| R4-2408015 | Topic summary for [111][218] NR\_DualTxRx\_MUSIM | Moderator (vivo) | other | Information | [111][200] RRM Session | 7.15.3 |  |  |
| R4-2408016 | Topic summary for [111][219] NR\_NTN\_enh | Moderator (Qualcomm) | other | Information | [111][200] RRM Session | 7.16.9 |  |  |
| R4-2408017 | Topic summary for [111][220] NR\_netcon\_repeater | Moderator (ZTE) | other | Information | [111][200] RRM Session | 7.18.8 |  |  |
| R4-2408018 | Topic summary for [111][221] NR\_MIMO\_evo\_DL\_UL | Moderator (Samsung) | other | Information | [111][200] RRM Session | 7.19.4 |  |  |
| R4-2408019 | Topic summary for [111][222] NR\_SL\_enh2 | Moderator (OPPO) | other | Information | [111][200] RRM Session | 7.20.5 |  |  |
| R4-2408020 | Topic summary for [111][223] NR\_redcap\_enh | Moderator (Ericsson) | other | Information | [111][200] RRM Session | 7.21.3 |  |  |
| R4-2408021 | Topic summary for [111][224] NR\_SL\_relay\_enh | Moderator (LGE) | other | Information | [111][200] RRM Session | 7.22.3 |  |  |
| R4-2408022 | Topic summary for [111][225] NR\_mobile\_IAB | Moderator (Qualcomm) | other | Information | [111][200] RRM Session | 7.23.6 |  |  |
| R4-2408023 | Topic summary for [111][226] Netw\_Energy\_NR | Moderator (Huawei) | other | Information | [111][200] RRM Session | 7.24.4 |  |  |
| R4-2408024 | Topic summary for [111][227] IoT\_NTN\_enh | Moderator (MediaTek) | other | Information | [111][200] RRM Session | 8.3.5 |  |  |
| R4-2408025 | Topic summary for [111][228] NR\_RRM\_Ph5 | Moderator (Apple) | other | Information | [111][200] RRM Session | 10.6.3 |  |  |
| R4-2408026 | Topic summary for [111][229] NR\_LPWUS | Moderator (vivo) | other | Information | [111][200] RRM Session | 10.14.5 |  |  |
| R4-2408027 | Topic summary for [111][230] Reply\_LS | Moderator (Apple) | other | Information | [111][200] RRM Session | 11.3 |  |  |

## 4 Up to Rel-17 maintenance for LTE and NR

The following guidance are provided for maintenance work under AI 4 ~ AI 8:

- For maintenance agenda AI 4 (Rel-15/16/17) and AI 5 (Rel-18), formal CRs are expected and multiple CRs per company in the lowest agenda are allowed. For tracking the changes easily, it expected that one batch of CRs (Cat-F/A/…) will just cover a single topic/WI rather than multiple topics/WIs and Cat-F CR with corresponding Cat-A CRs needs be submitted under the same agenda.

- When submitting contributions to AI 4, AI 5.1.3/AI 5.2.9, please add (WI\_code) in the beginning of titles for both discussion files and CRs to facilitate moderators and session chairs handling.

- When reserving the tdoc number, please use the correct WI code rather than simply using TEI and fill the column of “Related WIs” in your reservation spreadsheet. If you submit a draft CR with TEI as WI code, please inform session chair.

- For all the endorsed draft CRs in this bis meeting, please re-submit them in the next ordinary meeting.

- The contributions corresponding to incoming LS for Rel-15/16/17 are expected to be submitted in AI 11.

- The contributions corresponding to incoming LS for Rel-18 are expected to be submitted to (sub-) agenda dedicated to the individual WIs under AI 5~AI 8. If there is no dedicated agenda, please submit to AI 5.1.3 or AI 5.2.9 depending on whether it is spectrum related topic or non-spectrum related topic.

### 4.4 RRM requirements

NR\_newRAT

**R4-2407289 [NR\_newRAT-Core] On active TCI state list update delay**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407290 [NR\_newRAT-Core] CR on active TCI state list update delay - R15**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4339 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407291 [NR\_newRAT-Core] CR on active TCI state list update delay - R16**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4340 rev Cat: F (Rel-16)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407292 [NR\_newRAT-Core] CR on active TCI state list update delay - R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4341 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407293 [NR\_newRAT-Core] CR on active TCI state list update delay - R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4342 rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407182 (NR\_newRAT-Perf) CR on test for scheduling availability during BFD/CBD in FR2**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4323 rev Cat: F (Rel-15)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410215 (from R4-2407182).**

[**R4-2410215**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410215.zip) **(NR\_newRAT-Perf) CR on test for scheduling availability during BFD/CBD in FR2**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4323 rev Cat: F (Rel-15)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407183 (NR\_newRAT-Perf) CR on test for scheduling availability during BFD/CBD in FR2**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4324 rev Cat: A (Rel-16)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407184 (NR\_newRAT-Perf) CR on test for scheduling availability during BFD/CBD in FR2**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4325 rev Cat: A (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407185 (NR\_newRAT-Perf) CR on test for scheduling availability during BFD/CBD in FR2**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4326 rev Cat: A (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Noted.**

**R4-2407186 (NR\_newRAT-Perf) CR on test for SCell activation**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4327 rev Cat: F (Rel-15)  
  
 Source: MediaTek inc.*

**Decision: Agreed.**

**R4-2407187 (NR\_newRAT-Perf) CR on test for SCell activation**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4328 rev Cat: A (Rel-16)  
  
 Source: MediaTek inc.*

**Decision: Agreed.**

**R4-2407188 (NR\_newRAT-Perf) CR on test for SCell activation**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4329 rev Cat: A (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Agreed.**

**R4-2407189 (NR\_newRAT-Perf) CR on test for SCell activation**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4330 rev Cat: A (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Agreed.**

**R4-2407360 (NR\_newRAT-Perf) CR for test case of intra-frequency handover from FR2 to FR2 R15**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4356 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Abstract:**

MCC: Parsing Failure as Change request Work Item wrong on CR cover for TDoc R4-2407360. Database value : NR\_newRAT-Perf. CR cover value : NR\_newRAT\_Core. The WI code on CR coversheet is not valid. A revision is required.

**Decision: Revised to R4-2410216 (from R4-2407360).**

[**R4-2410216**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410216.zip) **(NR\_newRAT-Perf) CR for test case of intra-frequency handover from FR2 to FR2 R15**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4356 rev Cat: F (Rel-15)  
  
 Source: Apple*

**Abstract:**

MCC: Parsing Failure as Change request Work Item wrong on CR cover for TDoc R4-2407360. Database value : NR\_newRAT-Perf. CR cover value : NR\_newRAT\_Core. The WI code on CR coversheet is not valid. A revision is required.

**Decision: Return to.**

**R4-2407361 (NR\_newRAT-Perf) CR for test case of intra-frequency handover from FR2 to FR2 R16**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4357 rev Cat: A (Rel-16)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407362 (NR\_newRAT-Perf) CR for test case of intra-frequency handover from FR2 to FR2 R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4358 rev Cat: A (Rel-17)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407363 (NR\_newRAT-Perf) CR for test case of intra-frequency handover from FR2 to FR2 R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4359 rev Cat: A (Rel-18)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407449 (NR\_newRAT-Perf) Inter-RAT measurement for UE capable of independentGapConfig (Cat-F Rel-15)**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4369 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410217 (from R4-2407449).**

[**R4-2410217**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410217.zip) **(NR\_newRAT-Perf) Inter-RAT measurement for UE capable of independentGapConfig (Cat-F Rel-15)**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4369 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407450 (NR\_newRAT-Perf) Inter-RAT measurement for UE capable of independentGapConfig (Cat-A Rel-16)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4370 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407451 (NR\_newRAT-Perf) Inter-RAT measurement for UE capable of independentGapConfig (Cat-A Rel-17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4371 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407452 (NR\_newRAT-Perf) Inter-RAT measurement for UE capable of independentGapConfig (Cat-A Rel-18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4372 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407758 (NR\_newRAT-Core) Discussion on maintenance of R15 TCI state list updated delay**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2407759 CR on maintenance of R15 TCI state list updated delay**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4397 rev Cat: F (Rel-15)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2407760 (NR\_newRAT-Core)CR on maintenance of R15 TCI state list updated delay(R16 mirror)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4398 rev Cat: A (Rel-16)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2407761 (NR\_newRAT-Core)CR on maintenance of R15 TCI state list updated delay(R17 mirror)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4399 rev Cat: A (Rel-17)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2407762 (NR\_newRAT-Core)CR on maintenance of R15 TCI state list updated delay(R18 mirror)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4400 rev Cat: A (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2407978 (NR\_newRAT-Perf) R15 SUL test setup correction**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4424 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410238 (from R4-2407978).**

[**R4-2410238**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410238.zip) **(NR\_newRAT-Perf) R15 SUL test setup correction**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4424 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407337 (NR\_newRAT-Perf) R15 SUL test setup correction**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4349 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

MCC: Parsing Failure as the change request Work Item wrong on CR cover for TDoc R4-2407337. Database value : NR\_newRAT-Perf. CR cover value : xxx. A revision will be required.

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

**R4-2407338 (NR\_newRAT-Perf) R15 SUL test setup correction R16 mirror**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4350 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407339 (NR\_newRAT-Perf) R15 SUL test setup correction R18 mirror**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4351 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407340 (NR\_newRAT-Perf) R15 SUL test setup correction R18 mirror**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4352 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2408138 [NR\_newRAT-Perf] Clarification on MAC-CE based TCI state switch delay**

*Type: other For: Approval  
 38.133 v CR- rev Cat: (Rel-15)  
  
 Source: Nokia*

**Decision: Noted.**

**R4-2408139 [ NR\_newRAT-Perf] CR clarification on MAC-CE based TCI state switch delay**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4427 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2410218 (from R4-2408139).**

[**R4-2410218**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410218.zip) **[ NR\_newRAT-Perf] CR clarification on MAC-CE based TCI state switch delay**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4427 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Return to.**

**R4-2408140 [NR\_newRAT-Perf] CR clarification on MAC-CE based TCI state switch delay**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4428 rev Cat: A (Rel-16)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408141 [NR\_newRAT-Perf] CR clarification on MAC-CE based TCI state switch delay**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4429 rev Cat: A (Rel-17)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408142 [NR\_newRAT-Perf] CR clarification on MAC-CE based TCI state switch delay**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4430 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408267 [NR\_newRAT-Perf] CR for R15 test case of L1-RSRP measurement**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4458 rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: Parsing failure Release number wrong on CR cover for TDoc R4-2408267. Database value : Rel-15. CR cover value : R15. A revision is required.

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

**R4-2408533 (NR\_newRAT-Perf) Correction to PRACH RMCs\_R15**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4478 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408534 (NR\_newRAT-Perf) Correction to PRACH RMCs\_R16**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4479 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408535 (NR\_newRAT-Perf) Correction to PRACH RMCs\_R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4480 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408536 (NR\_newRAT-Perf) Correction to PRACH RMCs\_R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4481 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408537 (NR\_newRAT-Perf) Correction to intra-frequency re-establishment test case\_R15**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4482 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

*Only to make change to Rel-15.*

**Decision: Revised to R4-2410389 (from R4-2408537).**

[**R4-2410389**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410389.zip) **(NR\_newRAT-Perf) Correction to intra-frequency re-establishment test case\_R15**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4482 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

*Only to make change to Rel-15.*

**Decision: Return to.**

**R4-2408680 (NR\_newRAT-Core) CR for Rel-15 TCI state switching requirements - Rel-15**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4529 rev Cat: F (Rel-15)  
  
 Source: Nokia*

**Abstract:**

Proposal how to fix the active TCI state switch requirement

**Decision: Return to.**

**R4-2408681 (NR\_newRAT-Core) CR for Rel-15 TCI state switching requirements - Rel-16**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4530 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Abstract:**

Proposal how to fix the active TCI state switch requirement + adding the 38.321 reference agreed in RAN4#110 to missing sections

**Decision: Revised to R4-2410349 (from R4-2408681).**

[**R4-2410349**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410349.zip) **(NR\_newRAT-Core) CR for Rel-15 TCI state switching requirements - Rel-16**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4530 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Abstract:**

Proposal how to fix the active TCI state switch requirement + adding the 38.321 reference agreed in RAN4#110 to missing sections

**Decision: Return to.**

**R4-2408682 (NR\_newRAT-Core) CR for Rel-15 TCI state switching requirements - Rel-17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4531 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Abstract:**

Proposal how to fix the active TCI state switch requirement + adding the 38.321 reference agreed in RAN4#110 to missing sections

**Decision: Revised to R4-2410350 (from R4-2408682).**

[**R4-2410350**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410350.zip) **(NR\_newRAT-Core) CR for Rel-15 TCI state switching requirements - Rel-17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4531 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Abstract:**

Proposal how to fix the active TCI state switch requirement + adding the 38.321 reference agreed in RAN4#110 to missing sections

**Decision: Return to.**

**R4-2408683 (NR\_newRAT-Core) CR for Rel-15 TCI state switching requirements - Rel-18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4532 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Abstract:**

Proposal how to fix the active TCI state switch requirement + adding the 38.321 reference agreed in RAN4#110 to missing sections

**Decision: Revised to R4-2410351 (from R4-2408683).**

[**R4-2410351**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410351.zip) **(NR\_newRAT-Core) CR for Rel-15 TCI state switching requirements - Rel-18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4532 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Abstract:**

Proposal how to fix the active TCI state switch requirement + adding the 38.321 reference agreed in RAN4#110 to missing sections

**Decision: Return to.**

**R4-2409656 [NR\_newRAT-Perf] CR for R15 test case of L1-RSRP measurement**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4583 rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

**R4-2408271 [NR\_newRAT-Perf] CR for R15 test case of L1-RSRP measurement**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4462 rev Cat: A (Rel-16)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

**R4-2408272 [NR\_newRAT-Perf] CR for R15 test case of L1-RSRP measurement**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4463 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

**R4-2408273 [NR\_newRAT-Perf] CR for R15 test case of L1-RSRP measurement**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4464 rev Cat: A (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

NR\_UE\_pow\_sav

**R4-2408143 [NR\_UE\_pow\_sav-Core] Corrections and clarifications**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4431 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision: Revised to R4-2410219 (from R4-2408143).**

[**R4-2410219**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410219.zip) **[NR\_UE\_pow\_sav-Core] Corrections and clarifications**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4431 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408144 [NR\_UE\_pow\_sav-Core] Corrections and clarifications**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4432 rev Cat: A (Rel-17)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408145 [NR\_UE\_pow\_sav-Core] Corrections and clarifications**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4433 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408303 [NR\_UE\_pow\_sav\_enh-Core] Clarification to RLM/BFD relaxation with short DRX**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4469 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2410220 (from R4-2408303).**

[**R4-2410220**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410220.zip) **[NR\_UE\_pow\_sav\_enh-Core] Clarification to RLM/BFD relaxation with short DRX**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4469 rev Cat: F (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Return to.**

**R4-2408317 [NR\_UE\_pow\_sav\_enh-Core] Clarification to RLM/BFD relaxation with short DRX - R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4470 rev Cat: A (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Return to.**

NR\_RF\_FR1

**R4-2408538 (NR\_RF\_FR1-Perf) Correction to Rel-16 Tx switching RRM test cases\_R16**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4483 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408539 (NR\_RF\_FR1-Perf) Correction to Rel-16 Tx switching RRM test cases\_R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4484 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408540 (NR\_RF\_FR1-Perf) Correction to Rel-16 Tx switching RRM test cases\_R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4485 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408541 (NR\_RF\_FR1\_enh-Perf) Correction to Rel-17 Tx switching RRM test cases\_R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4486 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408542 (NR\_RF\_FR1\_enh-Perf) Correction to Rel-17 Tx switching RRM test cases\_R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4487 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

NR\_RRM\_Enh

**R4-2407190 (NR\_RRM\_Enh-Perf) Maintenance perf part CR on event triggered reporting tests with additional mandatory gap pattern (Rel-17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4331 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

*Session Chair: Chagne CR category from A to F.*

**Decision: Return to.**

**R4-2409127 (NR\_RRM\_enh-Core) Discussion on Rel 16 no-gap reporting**

*Type: discussion For: Approval  
 Source: Nokia, Deutsche Telekom, Orange, NTT DOCOMO, INC., TELECOM ITALIA S.p.A., Telia Company, T-Mobile USA, Verizon, Vodafone*

**Decision: Noted.**

**R4-2409128 (NR\_RRM\_enh-Core) CR to 36.133 Clarification of interruption behavior for measurements without gaps**

*Type: CR For: Agreement  
 36.133 v16.20.0 CR-7322 rev Cat: F (Rel-16)  
  
 Source: Nokia, Deutsche Telekom, Orange, NTT DOCOMO, INC., TELECOM ITALIA S.p.A., Telia Company, T-Mobile USA, Vodafone*

**Decision: Return to.**

**R4-2409129 (NR\_RRM\_enh-Core) CR to 36.133 Clarification of interruption behavior for measurements without gaps**

*Type: CR For: Agreement  
 36.133 v17.13.0 CR-7323 rev Cat: A (Rel-17)  
  
 Source: Nokia, Deutsche Telekom, Orange, NTT DOCOMO, INC., TELECOM ITALIA S.p.A., Telia Company, T-Mobile USA, Vodafone*

**Decision: Return to.**

**R4-2409130 (NR\_RRM\_enh-Core) CR to 36.133 Clarification of interruption behavior for measurements without gaps**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7324 rev Cat: A (Rel-18)  
  
 Source: Nokia, Deutsche Telekom, Orange, NTT DOCOMO, INC., TELECOM ITALIA S.p.A., Telia Company, T-Mobile USA, Vodafone*

**Decision: Return to.**

**R4-2409131 (NR\_RRM\_enh-Core) CR to 38.133 Clarification of interruption behavior for measurements without gaps**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4546 rev Cat: F (Rel-16)  
  
 Source: Nokia, Deutsche Telekom, Orange, NTT DOCOMO, INC., TELECOM ITALIA S.p.A., Telia Company, T-Mobile USA, Vodafone*

**Decision: Return to.**

**R4-2409132 (NR\_RRM\_enh-Core) CR to 38.133 Clarification of interruption behavior for measurements without gaps**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4547 rev Cat: A (Rel-17)  
  
 Source: Nokia, Deutsche Telekom, Orange, NTT DOCOMO, INC., TELECOM ITALIA S.p.A., Telia Company, T-Mobile USA, Vodafone*

**Decision: Return to.**

**R4-2409133 (NR\_RRM\_enh-Core) CR to 38.133 Clarification of interruption behavior for measurements without gaps**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4548 rev Cat: A (Rel-18)  
  
 Source: Nokia, Deutsche Telekom, Orange, NTT DOCOMO, INC., TELECOM ITALIA S.p.A., Telia Company, T-Mobile USA, Vodafone*

**Decision: Return to.**

**R4-2409233 Correction of parameters for FR2 SA event triggered without gap tests**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4556 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Incorrect OTA Cell parameters for FR2 SA event triggered without gap tests.

**Decision: Return to.**

**R4-2409234 (NR\_RRM\_enh-Perf) Correction of parameters for FR2 SA event triggered without gap tests**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4557 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Incorrect OTA Cell parameters for FR2 SA event triggered without gap tests.

**Decision: Return to.**

**R4-2409235 (NR\_RRM\_enh-Perf) Correction of parameters for FR2 SA event triggered without gap tests**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4558 rev Cat: A (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Incorrect OTA Cell parameters for FR2 SA event triggered without gap tests.

**Decision: Return to.**

NR\_HST\_FR1

**R4-2407335 (NR\_HST\_FR1\_enh) Deactivated Scell measurement for NR FR1 HST**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4347 rev Cat: F (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410221 (from R4-2407335).**

[**R4-2410221**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410221.zip) **(NR\_HST\_FR1\_enh) Deactivated Scell measurement for NR FR1 HST**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4347 rev Cat: F (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407336 (NR\_HST\_FR1\_enh) Deactivated Scell measurement for NR FR1 HST R18 mirror**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4348 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

NR\_Mob\_enh

**R4-2408872 (NR\_Mob\_enh-Core) CR on modification on the definition of TEvent\_DU for the conditional handover and conditional PSCell change in Rel-16**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4534 rev Cat: F (Rel-16)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408873 (NR\_Mob\_enh-Core) CR on modification on the definition of TEvent\_DU for the conditional handover and conditional Pscell change in Rel-17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4535 rev Cat: A (Rel-17)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408874 (NR\_Mob\_enh-Core) CR on modification on the definition of TEvent\_DU for the conditional handover and conditional Pscell change in Rel-18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4536 rev Cat: A (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

NR\_pos

**R4-2409241 (NR\_pos-Core) CR on measurement requirements for R16 positioning**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4559 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410222 (from R4-2409241).**

[**R4-2410222**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410222.zip) **(NR\_pos-Core) CR on measurement requirements for R16 positioning**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4559 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409242 (NR\_pos-Core) CR on measurement requirements for R16 positioning R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4560 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409243 (NR\_pos-Core) CR on measurement requirements for R16 positioning R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4561 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

NR\_unlic

**R4-2407387 (NR\_unlic-Perf) CR to TS 38.133: Corrections to NR-U test cases (Rel 16)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4360 rev Cat: F (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Agreed.**

[**R4-2410223**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410223.zip) **(NR\_unlic-Perf) CR to TS 38.133: Corrections to NR-U test cases (Rel 16)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4360 rev Cat: F (Rel-16)  
  
 Source: Rohde & Schwarz*

**Decision: Withdrawn.**

**R4-2407388 (NR\_unlic-Perf) CR to TS 38.133: Corrections to NR-U test cases (Rel 17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4361 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Return to.**

**R4-2407389 (NR\_unlic-Perf) CR to TS 38.133: Corrections to NR-U test cases (Rel 18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4362 rev Cat: A (Rel-18)  
  
 Source: Rohde & Schwarz*

**Decision: Return to.**

**R4-2407559 (NR\_unlic-Perf) CR for NR-U TC correction (R16)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4377 rev Cat: F (Rel-16)  
  
 Source: Qualcomm*

**Decision: Agreed.**

**R4-2407560 (NR\_unlic-Perf) CR for NR-U TC correction (R17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4378 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2407561 (NR\_unlic-Perf) CR for NR-U TC correction (R18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4379 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2407562 (NR\_unlic-Perf) Removal of Interruption during SCell operations and RSSI and CO Measurement reporting TCs for NR-U (R16)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4380 rev Cat: F (Rel-16)  
  
 Source: Qualcomm*

**Decision: Agreed.**

**R4-2407563 (NR\_unlic-Perf) Removal of Interruption during SCell operations TCs for NR-U (R17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4381 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2407564 (NR\_unlic-Perf) Removal of Interruption during SCell operations TCs for NR-U (R18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4382 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2407565 (NR\_unlic-Perf) OCNG modeling for NR-U (R16)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4383 rev Cat: F (Rel-16)  
  
 Source: Qualcomm*

**Decision: Agreed.**

**R4-2407566 (NR\_unlic-Perf) OCNG modeling for NR-U (R17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4384 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2407567 (NR\_unlic-Perf) OCNG modeling for NR-U (R18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4385 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2408146 [NR\_unlic -Perf] Correction for NR-U test case**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4434 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409574 [NR\_unlic-Perf] Correction for NR-U test case**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4575 rev Cat: F (Rel-16)  
  
 Source: Nokia*

**Decision: Agreed.**

**R4-2409567 [NR\_unlic-Perf] Correction for NR-U test case**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4574 rev Cat: F (Rel-16)  
  
 Source: Nokia Corporation*

**Abstract:**

MCC: The WI code was updated in 3GU to align with CR coversheet.

**Decision: Withdrawn.**

**R4-2408147 [NR\_unlic -Perf] Correction for NR-U test case**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4435 rev Cat: A (Rel-17)  
  
 Source: Nokia*

**Decision: Agreed.**

**R4-2408148 [NR\_unlic -Perf] Correction for NR-U test case**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4436 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Decision: Agreed.**

NR\_HST\_FR1\_enh

**R4-2407445 [NR\_HST\_FR1\_enh-Perf] Corrections to FR1 EN-DC Even Triggered test parameters in A.4.6.1.8**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4365 rev Cat: F (Rel-17)  
  
 Source: Keysight Technologies*

**Decision: Return to.**

**R4-2407446 [NR\_HST\_FR1\_enh-Perf] Corrections to FR1 EN-DC Even Triggered test parameters in A.4.6.1.8 (Rel-18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4366 rev Cat: A (Rel-18)  
  
 Source: Keysight Technologies UK Ltd*

**Decision: Return to.**

**R4-2409389 (NR\_HST\_FR1\_enh-Perf) CR on Test cases for NR FR1 HST R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4568 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410247 (from R4-2409389).**

[**R4-2410247**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410247.zip) **(NR\_HST\_FR1\_enh-Perf) CR on Test cases for NR FR1 HST R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4568 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2409390 (NR\_HST\_FR1\_enh-Perf) CR on Test cases for NR FR1 HST R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4569 rev Cat: A (Rel-18)  
  
 Source: MediaTek Inc.*

**Decision: Return to.**

NR\_HST\_FR2

**R4-2408647 [NR\_HST\_FR2] CR to 38.133, Cat F on HST FR2 RRM Performance Corrections**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4520 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Decision: Revised to R4-2410224 (from R4-2408647).**

[**R4-2410224**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410224.zip) **[NR\_HST\_FR2] CR to 38.133, Cat F on HST FR2 RRM Performance Corrections**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4520 rev Cat: F (Rel-17)  
  
 Source: Nokia, Samsung*

**Decision: Return to.**

**R4-2408648 [NR\_HST\_FR2] CR to 38.133, Cat A on HST FR2 RRM Performance Corrections**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4521 rev Cat: A (Rel-17)  
  
 Source: Nokia*

**Decision: Return to.**

NR\_RRM\_enh2

**R4-2407763 (NR\_RRM\_enh2-Core)CR on SRS antenna switching interruption requirements in R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4401 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision: Revised to R4-2410225 (from R4-2407763).**

[**R4-2410225**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410225.zip) **(NR\_RRM\_enh2-Core)CR on SRS antenna switching interruption requirements in R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4401 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2407764 (NR\_RRM\_enh2-Core)CR on SRS antenna switching interruption requirements(R18 mirror)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4402 rev Cat: A (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408266 [NR\_RRM\_enh2-Perf] CR on R17 test cases of unknown PUCCH SCell and fast SCell activation in FR1**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4457 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2410239 (from R4-2408266).**

[**R4-2410239**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410239.zip) **[NR\_RRM\_enh2-Perf] CR on R17 test cases of unknown PUCCH SCell and fast SCell activation in FR1**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4457 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2408270 [NR\_RRM\_enh2-Perf] CR on test cases of R17 unknown PUCCH SCell and fast SCell activation in FR1**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4461 rev Cat: A (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2408549 (NR\_RRM\_enh2-Core) Discussion on maintenance for R17 RRM enhancement - PUCCH SCell**

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

**Decision: Noted.**

**R4-2408550 (NR\_RRM\_enh2-Core) CR on PUCCH SCell activation with multiple SCells R17 (Cat F)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4493 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408551 (NR\_RRM\_enh2-Core) CR on PUCCH SCell activation with multiple SCells R18 (Cat A)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4494 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408552 (NR\_RRM\_enh2-Core) Discussion on maintenance for R17 RRM enhancement -SRS AS**

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

**Decision: Noted.**

**R4-2408553 (NR\_RRM\_enh2-Core) CR on SRS AS interruption requirements R17 (Cat F)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4495 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408554 (NR\_RRM\_enh2-Core) CR on SRS AS interruption requirements R18 (Cat A)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4496 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408639 (NR\_RRM\_enh2-Core) CR on PUCCH SCell activation with multiple SCells R17 (Cat F)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4518 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408640 (NR\_RRM\_enh2-Core) CR on SRS AS interruption requirements R17 (Cat F)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4519 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

NR\_SmallData\_INACTIVE

**R4-2408543 (NR\_SmallData\_INACTIVE-Perf) Correction to SDT test cases\_R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4488 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged.**

**R4-2408544 (NR\_SmallData\_INACTIVE-Perf) Correction to SDT test cases\_R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4489 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Withdrawn.**

**R4-2409134 (NR\_SmallData\_INACTIVE) Discussion on SDT R17 test parameters**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409135 (NR\_SmallData\_INACTIVE) CR correcting SDT test cases**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4549 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Decision: Revised to R4-2410226 (from R4-2409135).**

[**R4-2410226**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410226.zip) **(NR\_SmallData\_INACTIVE) CR correcting SDT test cases**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4549 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409136 (NR\_SmallData\_INACTIVE) CR correcting SDT test cases**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4550 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

NR\_pos\_enh

**R4-2409576 (NR\_pos\_enh-Perf) CR to 38.133 Corrections to measurement reporting resolutions for RSTD and UE Rx-Tx measurements for Rel. 17 NR positioning**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4576 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Corrections to reporting resolution for positioning measurements.

**Decision: Not pursued.**

**R4-2409577 (NR\_pos\_enh-Perf) CR to 38.133 Rel. 17 NR positioning performance requirements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4577 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Corrections to rel. 17 positioning performance requirements

**Decision: Postponed.**

**R4-2409578 (NR\_pos\_enh-Perf) CR to 38.133 Rel. 17 NR positioning performance requirements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4578 rev Cat: A (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Mirror of corrections to rel. 17 positioning performance requirements

**Decision: Withdrawn.**

NR\_ext\_to\_71GHz

**R4-2407040 (NR\_ext\_to\_71GHz-Core) 38.133 CR addressing duplication of clause number**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4315 rev Cat: F (Rel-17)  
  
 Source: BeammWave*

**Abstract:**

Addressing that there are two clause 9.5A.6.3 in the current specification.

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

**R4-2407041 (NR\_ext\_to\_71GHz-Core) 38.133 CR addressing duplication of clause number**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4316 rev Cat: A (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Addressing that there are two clause 9.5A.6.3 in the current specification.

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

**R4-2407790 (NR\_ext\_to\_71GHz-Core) 38.133 CR addressing duplication of clause number**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4414 rev Cat: F (Rel-17)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Addressing that there are two clause 9.5A.6.3 in the current specification.

**Decision: Return to.**

**R4-2407791 (NR\_ext\_to\_71GHz-Core) 38.133 CR addressing duplication of clause number**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4415 rev Cat: A (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Addressing that there are two clause 9.5A.6.3 in the current specification.

**Decision: Return to.**

NR\_NTN\_solutions

**R4-2407191 (NR\_NTN\_solutions-Core) CR on update field name of NTN features for NGSO**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4332 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407192 (NR\_NTN\_solutions-Core) CR on update field name of NTN features for NGSO**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4333 rev Cat: A (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407193 (NR\_NTN\_solutions-Perf) Correction on SIB19**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4334 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407194 (NR\_NTN\_solutions-Perf) Correction on SIB19**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4335 rev Cat: A (Rel-18)  
  
 Source: MediaTek inc.*

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

**R4-2407453 (NR\_NTN\_solutions-Perf) CR on 14.2.1.6 (Cat-F Rel-17)**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4373 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

MCC: Parsing failure as Specification version number wrong on CR cover for TDoc R4-2407453. Database value : 15.25.0. CR cover value : 17.13.0. Release number wrong on CR cover for TDoc R4-2407453. Database value : Rel-15. CR cover value : Rel-17. A revis

**Decision:** The document was **revised to R4-2409734**.

**R4-2409734 CR on 14.2.1.6 (Cat-F Rel-17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4373 rev 1 Cat: F (Rel-17)  
  
 Source: Qualcomm Incorporated*

(Replaces R4-2407453)

**Decision: Agreed.**

**R4-2407454 (NR\_NTN\_solutions-Perf) CR on 14.2.1.6 (Cat-A Rel-18)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4374 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2407837 CR on maintenance of RRM performance requirements in NR\_NTN\_solutions WI\_R17**

*Type: draftCR For: Endorsement  
 38.133 v17.13.0 CR- rev Cat: F (Rel-17)  
  
 Source: Xiaomi*

**Decision: Endorsed.**

**R4-2407838 CR on maintenance of RRM performance requirements in NR\_NTN\_solutions WI\_R18**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: A (Rel-18)  
  
 Source: Xiaomi*

Session Chair: AI changed from 5.2.8.3 to 4.4. CR author to request MCC to change the AI in 3GU.

**Decision: Endorsed.**

**R4-2408264 [NR\_NTN\_solutions-Core] CR for the TCI state indication of R17 NTN**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4455 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: Parsing failure as release number wrong on CR cover for TDoc R4-2408264. Database value : Rel-17. CR cover value : R17. A revision is required.

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

**R4-2409654 [NR\_NTN\_solutions-Core] CR for the TCI state indication of R17 NTN**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4581 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2410228 (from R4-2409654).**

[**R4-2410228**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410228.zip) **[NR\_NTN\_solutions-Core] CR for the TCI state indication of R17 NTN**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4459 rev Cat: A (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2408268 [NR\_NTN\_solutions-Core] CR for the TCI state indication of R17 NTN**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4459 rev Cat: A (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2408507 (NR\_NTN\_Solutions) Discussion on terminology alignment for GSO satellites**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408508 (NR\_NTN\_Solutions) CR on 38133 clarification of terminology for GSO (Rel.17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4473 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408509 (NR\_NTN\_Solutions) CR on 38133 clarification of terminology for GSO (Rel.17)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4474 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408704 LS Reply to RAN2 on usage of LEO or NGSO**

*Type: LS out For: Approval  
 to RAN2  
 Source: Ericsson*

**Abstract:**

This contribution is a LS Reply to RAN2 LS R2-2403858 on the usage of LEO or NGSO. MCC: Chair stated this is to be handled in RRM Session.

**Decision: Return to.**

**R4-2408875 (NR\_NTN\_solutions-Core) CR on modification on the filed name with LEO in NTN related features in Rel-17 core requirements**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4537 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408876 (NR\_NTN\_solutions-Core) CR on modification on the filed name with LEO in NTN related features in Rel-18 core requirements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4538 rev Cat: A (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408878 (NR\_NTN\_solutions-Perf) CR on modification on the filed name with LEO in NTN related features in Rel-17 perf requirements**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4539 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision: Agreed.**

**R4-2408879 (NR\_NTN\_solutions-Perf) CR on modification on the filed name with LEO in NTN related features in Rel-18 perf requirements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4540 rev Cat: A (Rel-18)  
  
 Source: vivo*

**Decision: Agreed.**

**R4-2409246 (NR\_NTN\_solutions-Core) CR on Rel-17 NTN RRM requirements**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4564 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410229 (from R4-2409246).**

[**R4-2410229**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410229.zip) **(NR\_NTN\_solutions-Core) CR on Rel-17 NTN RRM requirements**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4564 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409247 (NR\_NTN\_solutions-Core) CR on Rel-17 NTN RRM requirements R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4565 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409693 (NR\_NTN\_solutions –Core) Modify the S criteria for NTN measurements of intra-frequency NR cell in RRC IDLEINACTIVE state**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4588 rev Cat: F (Rel-17)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Agreed.**

**R4-2409694 (NR\_NTN\_solutions –Core) Modify the S criteria for NTN measurements of intra-frequency NR cell in RRC IDLEINACTIVE state**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4589 rev Cat: A (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Agreed.**

LTE\_NR\_DC\_enh2

**R4-2407342 (LTE\_NR\_DC\_enh2) test case maintenance: E-UTRAN – NR interruptions during measurements on deactivated NR PSCell - R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4353 rev Cat: F (Rel-17)  
  
 Source: Apple*

**Abstract:**

MCC: Parsing Failure as the CR coversheet used WI code NR\_MG\_enh2-Core. A revision is required to align the WI codes for database and CR coversheet.

**Decision: Postponed.**

**R4-2407343 (LTE\_NR\_DC\_enh2) test case maintenance: E-UTRAN – NR interruptions during measurements on deactivated NR PSCell - R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4354 rev Cat: A (Rel-18)  
  
 Source: Apple*

**Decision: Withdrawn.**

**R4-2408153 [LTE\_NR\_DC\_enh2-Core] Alignment of RAN4 requirements with RAN2 procedures**

*Type: other For: Approval  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia*

**Decision: Noted.**

**R4-2408154 [LTE\_NR\_DC\_enh2-Core] CR on alignment of RAN4 requirements with RAN2 procedures**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4441 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Decision: Revised to R4-2410230 (from R4-2408154).**

[**R4-2410230**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410230.zip) **[LTE\_NR\_DC\_enh2-Core] Alignment of RAN4 requirements with RAN2 procedures**

*Type: other For: Approval  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408155 [LTE\_NR\_DC\_enh2-Core] CR on alignment of RAN4 requirements with RAN2 procedures**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4442 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

NR\_redcap

**R4-2407173 (NR\_redcap-Perf) CR to A.16.6.2.9 and A.16.6.2.10 SMTC settings**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4317 rev Cat: F (Rel-17)  
  
 Source: Anritsu Corporation*

**Abstract:**

Updated tables A.16.6.2.9.1-3 and A.16.6.2.10.1-3 to align SMTC configuration with non-RedCap TC:

- Config 1,4 Cell 1: SMTC 2 ? SMTC 1

**Decision: Agreed.**

**R4-2407174 (NR\_redcap-Perf) CR to A.16.6.2.9 and A.16.6.2.10 SMTC settings**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4318 rev Cat: A (Rel-18)  
  
 Source: Anritsu Corporation*

**Abstract:**

Updated tables A.16.6.2.9.1-3 and A.16.6.2.10.1-3 to align SMTC configuration with non-RedCap TC:

- Config 1,4 Cell 1: SMTC 2 ? SMTC 1

**Decision: Agreed.**

**R4-2407390 (NR\_redcap-Perf) CR to TS 38.133: Corrections to RedCap test cases (Rel 17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4363 rev Cat: F (Rel-17)  
  
 Source: Rohde & Schwarz*

**Decision: Not pursued.**

**R4-2407391 (NR\_redcap-Perf) CR to TS 38.133: Corrections to RedCap test cases (Rel 18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4364 rev Cat: A (Rel-18)  
  
 Source: Rohde & Schwarz*

**Decision: Withdrawn.**

**R4-2407447 [NR\_redcap-Perf] Correction to Cell specific test parameters for E-UTRAN inter-RAT NR handover affecting to A.18.2.1.1**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4367 rev Cat: F (Rel-17)  
  
 Source: Keysight Technologies*

**Decision: Agreed.**

**R4-2407448 [NR\_redcap-Perf] Correction to Cell specific test parameters for E-UTRAN inter-RAT NR handover affecting to A.18.2.1.1 (Rel-18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4368 rev Cat: A (Rel-18)  
  
 Source: Keysight Technologies UK Ltd*

**Decision: Agreed.**

**R4-2407568 (NR\_redcap-Perf) Correction CR for RRC re-establishment TCs for RedCap (R17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4386 rev Cat: F (Rel-17)  
  
 Source: Qualcomm*

**Decision: Agreed.**

**R4-2407569 (NR\_redcap-Perf) Correction CR for RRC re-establishment TCs for RedCap (R18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4387 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2407570 (NR\_redcap-Perf) Correction CR for inter-RAT measurement TCs for RedCap Clause A.18.3.1(R17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4388 rev Cat: F (Rel-17)  
  
 Source: Qualcomm*

**Decision: Agreed.**

**R4-2407571 (NR\_redcap-Perf) Correction CR for inter-RAT measurement TCs for RedCap - Clause A.18.3.1 (R18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4389 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Agreed.**

**R4-2407572 (NR\_redcap-Perf) Correction CR for Inter-RAT Measurements TCs for RedCap – Clause A.16.6.3 (R17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4390 rev Cat: F (Rel-17)  
  
 Source: Qualcomm*

**Decision: Return to.**

**R4-2407573 (NR\_redcap-Perf) Correction CR for Inter-RAT Measurements TCs for RedCap - Clause A.16.6.3 (R18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4391 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2408043 (NR\_redcap-Core) CR on high priority search with eDRX (R17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4425 rev Cat: F (Rel-17)  
  
 Source: Qualcomm, MediaTek inc., Nokia, Ericsson*

*Session Chair: the CR is discussed with thread [223].*

**Decision: Revised to R4-2410142 (from R4-2408043).**

[**R4-2410142**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410142.zip) **(NR\_redcap-Core) CR on high priority search with eDRX (R17)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4425 rev Cat: F (Rel-17)  
  
 Source: Qualcomm, MediaTek inc., Nokia, Ericsson, Huawei*

*Session Chair: the CR is discussed with thread [223]. The CR is agreeable, with a revision to clean the change on change. The minor change for Rel-18 is captured in a Rel-18 Cat F CR.*

**Decision: Return to.**

**R4-2408044 (NR\_redcap-Core) CR on high priority search with eDRX (R18)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4426 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2408149 [NR\_Redcap-Core] Corrections and clarifications**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4437 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Abstract:**

MCC: Session Chair requested it is moved to AI 4.4.

**Decision: Agreed.**

**R4-2408150 [NR\_Redcap-Core] Corrections and clarifications**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4438 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: Session Chair requested it is moved to AI 4.4.

**Decision: Agreed.**

**R4-2408151 NR\_Redcap-Core] CR clarifying the handover interruption time requirements**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4439 rev Cat: D (Rel-17)  
  
 Source: Nokia*

**Abstract:**

MCC: Session Chair requested it is moved to AI 4.4.

**Decision: Revised to R4-2410231 (from R4-2408151).**

[**R4-2410231**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410231.zip) **NR\_Redcap-Core] CR clarifying the handover interruption time requirements**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4439 rev Cat: D (Rel-17)  
  
 Source: Nokia*

**Abstract:**

MCC: Session Chair requested it is moved to AI 4.4.

**Decision: Return to.**

**R4-2408152 [NR\_Redcap-Core] CR clarifying the handover**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4440 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: Session Chair requested it is moved to AI 4.4.

**Decision: Return to.**

**R4-2408265 [NR\_redcap-Core] CR for the TCI state indication of R17 RedCap**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4456 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: Parsing Failure as release number wrong on CR cover for TDoc R4-2408265. Database value : Rel-17. CR cover value : R17. A revision will be required.

**Decision: Return to.**

**R4-2409655 [NR\_redcap-Core] CR for the TCI state indication of R17 RedCap**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4582 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: Need checking if CAT A Rel-18 CR.

**Decision: Revised to R4-2410232 (from R4-2409655).**

[**R4-2410232**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410232.zip) **[NR\_redcap-Core] CR for the TCI state indication of R17 RedCap**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4582 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

**Decision: Return to.**

**R4-2408269 [NR\_redcap-Core] CR for the TCI state indication of R17 RedCap**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4460 rev Cat: A (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: This is the mirror CAT A CR in relation to CAT F CR in R4-2408265.

**Decision: Return to.**

**R4-2408289 (NR\_redcap-Core) CR on handover requirements for RedCap**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4467 rev Cat: F (Rel-17)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408290 (NR\_redcap-Core) CR on handover requirements for RedCap**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4468 rev Cat: A (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408545 (NR\_redcap-Perf) Correction to RedCap RRM test cases\_R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4490 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410348 (from R4-2408545).**

[**R4-2410348**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410348.zip) **(NR\_redcap-Perf) Correction to RedCap RRM test cases\_R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4490 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408546 (NR\_redcap-Perf) Correction to RedCap RRM test cases\_R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4491 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon, Starpoint*

**Decision: Return to.**

**R4-2408601 (NR\_redcap-Core) Correction to RedCap relaxed measurement requirements\_R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4516 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410347 (from R4-2408601).**

[**R4-2410347**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410347.zip) **(NR\_redcap-Core) Correction to RedCap relaxed measurement requirements\_R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4516 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408602 (NR\_redcap-Core) Correction to RedCap relaxed measurement requirements\_R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4517 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409041 Correction on measurement requirements for RedCap UE**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4543 rev Cat: F (Rel-17)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

**R4-2409042 (NR\_redcap-Core)Correction on measurement requirements for RedCap UE**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4544 rev Cat: A (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Agreed.**

**R4-2409160 (NR\_redcap-Perf) CR correcting SDT test cases for RedCap**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4551 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Abstract:**

MCC: The source was changed from R4 to Nokia. The CR coversheet also have source to WG as R4.

**Decision: Revised to R4-2410233 (from R4-2409160).**

[**R4-2410233**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410233.zip) **(NR\_redcap-Perf) CR correcting SDT test cases for RedCap**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4551 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Abstract:**

MCC: The source was changed from R4 to Nokia. The CR coversheet also have source to WG as R4.

**Decision: Return to.**

**R4-2409161 (NR\_redcap-Perf) CR correcting SDT test cases for RedCap**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4552 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: The source was changed from R4 to Nokia. The CR coversheet also have source to WG A R4.

**Decision: Revised to R4-2410261 (from R4-2409161).**

[**R4-2410261**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410261.zip) **(NR\_redcap-Perf) CR correcting SDT test cases for RedCap**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4552 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: The source was changed from R4 to Nokia. The CR coversheet also have source to WG A R4.

**Decision: Return to.**

**R4-2409673 (NR\_redcap-Core) eDRX requirements for CG-SDT for non-RedCap UE**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4587 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

eDRX requiremens for non-RedCap UE in RRC INACTIVE state were introduced in R4-2321628. In this CR the CG-SDT requirements in INACTIVE mode are updated to take into account the eDRX support.

**Decision: Agreed.**

**R4-2409231 (NR\_redcap-Core) eDRX requirements for CG-SDT for non-RedCap UE**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4554 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

eDRX requiremens for non-RedCap UE in RRC INACTIVE state were introduced in R4-2321628. In this CR the CG-SDT requirements in INACTIVE mode are updated to take into account the eDRX support. MCC: Parsing failure as • Change request Work Item wrong on CR c

**Decision: Return to.**

**R4-2409232 (NR\_redcap-Core) eDRX requirements for CG-SDT for non-RedCap UE**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4555 rev Cat: A (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

eDRX requiremens for non-RedCap UE in RRC INACTIVE state were introduced in R4-2321628. In this CR the CG-SDT requirements in INACTIVE mode are updated to take into account the eDRX support.

**Decision: Agreed.**

**R4-2409732 (NR\_redcap-Perf) Formal CR to Rel-17 TS 38.133 on RedCap SDT test cases**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4594 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2409733 (NR\_redcap-Perf) Formal CR to Rel-18 TS 38.133 on RedCap SDT test cases (Mirror)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4595 rev Cat: A (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2409752 (NR\_redcap-Core) Formal CR to Rel-17 TS 38.133: on RedCap Handover**

*Type: CR For: Approval  
 38.133 v17.13.0 CR-4598 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

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

**R4-2409797 (NR\_redcap-Core) Formal CR to Rel-17 TS 38.133: on RedCap Handover**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4609 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Abstract:**

MCC: The CAT A CR is in R4-2409753. Session Chair: The title needs to be updated and a revision is required during the meeting.

**Decision: Revised to R4-2410234 (from R4-2409797).**

[**R4-2410234**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410234.zip) **(NR\_redcap-Core) Formal CR to Rel-17 TS 38.133: on RedCap Handover**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4609 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Abstract:**

MCC: The CAT A CR is in R4-2409753. Session Chair: The title needs to be updated and a revision is required during the meeting.

**Decision: Return to.**

**R4-2409753 (NR\_redcap-Core) Formal CR to Rel-18 TS 38.133: on RedCap Handover**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4599 rev Cat: A (Rel-18)  
  
 Source: MediaTek inc.*

**Abstract:**

MCC: This is mirror CAT A CR for CAT F CR in R4-2409797.

**Decision: Return to.**

**R4-2409754 (NR\_redcap-Core) Formal CR to Rel-17 TS 38.133: on eDRX non-RedCap for INACTIVE mode**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4600 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2409755 (NR\_redcap-Core) Formal CR to Rel-18 TS 38.133: on eDRX non-RedCap for INACTIVE mode**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4601 rev Cat: A (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2409756 (NR\_redcap-Perf) Formal CR to Rel-17 TS 38.133: on RedCap Perf maintenance**

*Type: CR For: Approval  
 38.133 v17.13.0 CR-4602 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

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

**R4-2409798 (NR\_redcap-Perf) Formal CR to Rel-17 TS 38.133: on RedCap Perf maintenance**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4610 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410377 (from R4-2409798).**

[**R4-2410377**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410377.zip) **(NR\_redcap-Perf) Formal CR to Rel-17 TS 38.133: on RedCap Perf maintenance**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4610 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2409757 (NR\_redcap-Perf) Formal CR to Rel-18 TS 38.133: on RedCap Perf maintenance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4603 rev Cat: A (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

NR\_MG\_enh

**R4-2407175 (NR\_MG\_enh-Perf) Correction to A.7.6.15.3 Event triggered reporting test for FR2 concurrent gap**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4319 rev Cat: F (Rel-17)  
  
 Source: Anritsu Corporation, MediaTek inc.*

**Abstract:**

Corrected Io and Es/Noc in A.7.6.15.3.

**Decision: Revised to R4-2410235 (from R4-2407175).**

[**R4-2410235**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410235.zip) **(NR\_MG\_enh-Perf) Correction to A.7.6.15.3 Event triggered reporting test for FR2 concurrent gap**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4319 rev Cat: F (Rel-17)  
  
 Source: Anritsu Corporation, MediaTek inc.*

**Abstract:**

Corrected Io and Es/Noc in A.7.6.15.3.

**Decision: Return to.**

**R4-2407176 (NR\_MG\_enh-Perf) Correction to A.7.6.15.3 Event triggered reporting test for FR2 concurrent gap**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4320 rev Cat: A (Rel-18)  
  
 Source: Anritsu Corporation, MediaTek inc.*

**Abstract:**

Corrected Io and Es/Noc in A.7.6.15.3.

**Decision: Return to.**

**R4-2407177 (NR\_MG\_enh-Perf) Correction to A.7.6.16.2 Event triggered reporting test with NCSG for FR2**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4321 rev Cat: F (Rel-17)  
  
 Source: Anritsu Corporation*

**Abstract:**

Removed the descriptions of test 1 and 2 from A.7.6.16.2.1.

**Decision: Agreed.**

**R4-2407178 (NR\_MG\_enh-Perf) Correction to A.7.6.16.2 Event triggered reporting test with NCSG for FR2**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4322 rev Cat: A (Rel-18)  
  
 Source: Anritsu Corporation*

**Abstract:**

Removed the descriptions of test 1 and 2 from A.7.6.16.2.1.

**Decision: Agreed.**

**R4-2407693 (NR\_MG\_enh-Perf) Maintenance CR for MGE perf part R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4394 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410379 (from R4-2407693).**

[**R4-2410379**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410379.zip) **(NR\_MG\_enh-Perf) Maintenance CR for MGE perf part R17**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4394 rev Cat: F (Rel-17)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407694 (NR\_MG\_enh-Perf) Maintenance CR for MGE perf part R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4395 rev Cat: A (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407873 Discussion on Rel-17 NCSG maintenance issues**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2407874 CR on Rel-17 NCSG requirements (Rel-17 spec)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4419 rev Cat: F (Rel-17)  
  
 Source: OPPO*

**Decision: Revised to R4-2410236 (from R4-2407874).**

[**R4-2410236**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410236.zip) **CR on Rel-17 NCSG requirements (Rel-17 spec)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4419 rev Cat: F (Rel-17)  
  
 Source: OPPO*

**Decision: Return to.**

**R4-2407875 CR on Rel-17 NCSG requirements (Rel-18 spec)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4420 rev Cat: A (Rel-18)  
  
 Source: OPPO*

**Decision: Return to.**

**R4-2408328 (NR\_MG\_enh-Core)Remaining issues on R17 NCSG**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining issues on R17 NCSG

**Decision: Noted.**

**R4-2408427 [NR\_MG\_enh-Core] CR scheduling restriction on interRAT E-UTRAN measurement with NCSG**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4471 rev Cat: F (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2408428 [NR\_MG\_enh-Core] CR scheduling restriction on interRAT E-UTRAN measurement with NCSG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4472 rev Cat: A (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2408625 On remaining issues for Rel-17 NSCG**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409159 (NR\_MG\_enh-Core) Use of NCSG for deactivated SCell measurements in Rel-17**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409244 (NR\_MG\_enh-Core) CR on Rel-17 MGE core requirements**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4562 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410390 (from R4-2409244).**

[**R4-2410390**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410390.zip) **(NR\_MG\_enh-Core) CR on Rel-17 MGE core requirements**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4562 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409245 (NR\_MG\_enh-Core) CR on Rel-17 MGE core requirements R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4563 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

TEI17

**R4-2407029 (TEI17) 38.133 CR addressing pervious conditions**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4304 rev Cat: F (Rel-17)  
  
 Source: BeammWave*

**Abstract:**

Correcting "pervious conditions" to "previous conditions".

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

**R4-2407030 (TEI17) 38.133 CR addressing pervious conditions**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4305 rev Cat: A (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Correcting "pervious conditions" to "previous conditions".

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

**R4-2407033 (TEI17) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4308 rev Cat: F (Rel-17)  
  
 Source: BeammWave*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

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

**R4-2407034 (TEI17) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4309 rev Cat: A (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

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

**R4-2407779 (TEI17) 38.133 CR addressing pervious conditions**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4403 rev Cat: F (Rel-17)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting "pervious conditions" to "previous conditions".

**Decision: Return to.**

**R4-2407780 (TEI17) 38.133 CR addressing pervious conditions**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4404 rev Cat: A (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting "pervious conditions" to "previous conditions".

**Decision: Return to.**

**R4-2407783 (TEI17) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4407 rev Cat: F (Rel-17)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Revised to R4-2410199 (from R4-2407783).**

[**R4-2410199**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410199.zip) **(TEI17) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4407 rev Cat: F (Rel-17)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Return to.**

**R4-2407784 (TEI17) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4408 rev Cat: A (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Return to.**

Others

**R4-2408577 CR Correcting propagation condition Rel-16 (Cat F)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4498 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2408578 CR Correcting propagation condition Rel-17 (Cat F)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4499 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure that the data could not be saved in database. Session Chair requested a revision.

**Decision: Revised to R4-2410346 (from R4-2408578).**

[**R4-2410346**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410346.zip) **CR Correcting propagation condition Rel-17 (Cat F)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4499 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Session Chair: this CR was makred as agreed on Wednesday. Proponent clarified an reivision is needed.

**Decision: Return to.**

**R4-2408579 CR Correcting propagation condition Rel-18 (Cat A)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4500 rev Cat: A (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Agreed.**

**R4-2408580 CR resubmission Correcting propagation condition Rel-17 (Cat F)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4501 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410227 (from R4-2408580).**

[**R4-2410227**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410227.zip) **CR resubmission Correcting propagation condition Rel-17 (Cat F)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4501 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

*Session Chair: no Cat A CR.*

**Decision: Return to.**

**R4-2408597 Corrections on measurement restriction for RLM, BFD and CBD**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4512 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408598 Corrections on measurement restriction for RLM, BFD and CBD**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4513 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408599 Corrections on measurement restriction for RLM, BFD and CBD**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4514 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408600 Corrections on measurement restriction for RLM, BFD and CBD**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4515 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409057 CR to 38.133 on Gradual timing adjustment**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4545 rev Cat: F (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Editorial change upling to uplink.

**Decision: Endorsed.**

**R4-2409697 CR to revise the measured quantity value\_R16 (ZOA)**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4590 rev Cat: F (Rel-16)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Return to.**

**R4-2409698 CR to revise the measured quantity value\_R17 (ZOA)**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4591 rev Cat: A (Rel-17)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Return to.**

**R4-2409699 CR to revise the measured quantity value\_R18 (ZOA)**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4592 rev Cat: A (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Return to.**

### 4.7 Rel-15/16/17 TEI

**R4-2408183 CR on applicability conditions for SDT**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4451 rev Cat: F (Rel-17)  
  
 Source: CMCC*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session. The work item code was confirmed by CMCC it should be changed to TEI17. The Mirror CAT A CR is in R4-2408184. A revision is required to update the work item code on CR coversheet.

**Decision: Revised to R4-2410237 (from R4-2408183).**

[**R4-2410237**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410237.zip) **CR on applicability conditions for SDT**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4451 rev Cat: F (Rel-17)  
  
 Source: CMCC*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session. The work item code was confirmed by CMCC it should be changed to TEI17. The Mirror CAT A CR is in R4-2408184. A revision is required to update the work item code on CR coversheet.

**Decision: Return to.**

**R4-2408184 CR on applicability conditions for SDT**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4452 rev Cat: A (Rel-18)  
  
 Source: CMCC*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session. The work item code was confirmed by CMCC it should be TEI17 and have been updated. Mirror CR to CAT F CR in R4-2408183.

**Decision: Return to.**

### 4.8 Moderator summary and conclusions (for Agenda 4)

Topic: [111][201] Maintenance\_up\_to\_R17

**R4-2407998 Topic summary for [111][201] Maintenance\_up\_to\_R17**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410130**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410130.zip) **Ad-hoc minutes for Maintenance\_up\_to\_R17**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Approved.**

[**R4-2410326**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410326.zip) **WF on clarification of R17 NCSG pattern**

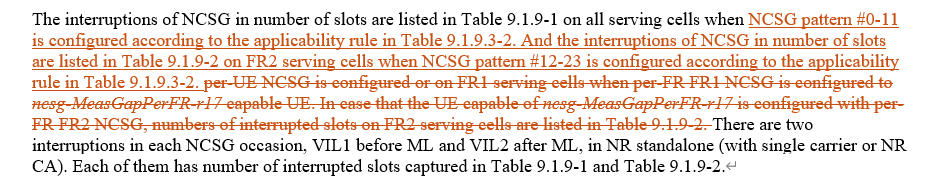
*Type: other For: Approval  
 Source: OPPO*

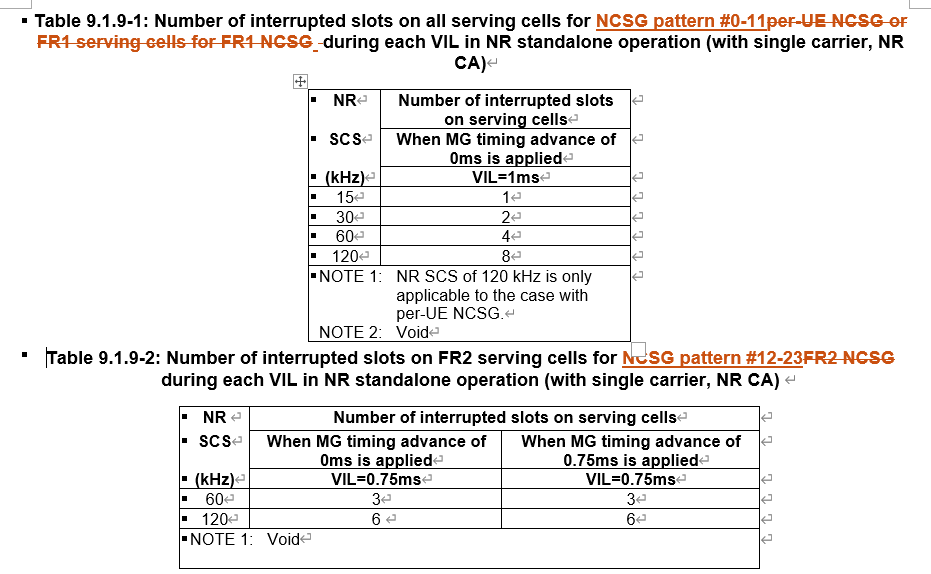
**Decision: Return to.**

**Online session (Wednesday May 22, 2024)**

Sub-topic 4-2: NCSG patterns

* Proposals
  + Option 1 (OPPO):
    - VIL should be specific to NCSG patterns, i.e. VIL=1ms for NCSG pattern #0-11 and VIL=0.75ms for NCSG pattern #12-23.
    - Consider the following two methods to capture proposal 2 is agreed:
      * Option a: explicitly capture VIL in the NCSG patterns in Table 9.1.9.3-1, e.g. by adding one more column for VIL.
      * Option b: implicitly associated VIL with NCSG patterns in the VIL requirements, e.g. Table 9.1.9-1 for NCSG pattern #0-11 and Table 9.1.9-2 for NCSG pattern #12-23.





E///: For FR2 per UE NCSG, the interruption is not clear.

Apple: The interruption requirement on FR2 serving with per-UE NCSG is clear, but some companies want to update the core requirement.

CMCC: The reason of updating is that it is not correct and too long.

MTK: The spec is simplified in some scenario. We can discuss the WF, and discuss the need of spec change in the next meeting. Discuss the interruption for FR2 per UE NCSG.

Nokia: We don’t think there is any issue based on the current design. We understand there are different UE capabilities.

Session Chair: In this meeting, discuss the need of updating/clarifying the interruption requirement on FR2 serving cell with per-UE NCSG, and capture in WF if any agreement.

## 4 Up to Rel-17 maintenance for LTE and NR

The following guidance are provided for maintenance work under AI 4 ~ AI 8:

- For maintenance agenda AI 4 (Rel-15/16/17) and AI 5 (Rel-18), formal CRs are expected and multiple CRs per company in the lowest agenda are allowed. For tracking the changes easily, it expected that one batch of CRs (Cat-F/A/…) will just cover a single topic/WI rather than multiple topics/WIs and Cat-F CR with corresponding Cat-A CRs needs be submitted under the same agenda.

- When submitting contributions to AI 4, AI 5.1.3/AI 5.2.9, please add (WI\_code) in the beginning of titles for both discussion files and CRs to facilitate moderators and session chairs handling.

- When reserving the tdoc number, please use the correct WI code rather than simply using TEI and fill the column of “Related WIs” in your reservation spreadsheet. If you submit a draft CR with TEI as WI code, please inform session chair.

- For all the endorsed draft CRs in this bis meeting, please re-submit them in the next ordinary meeting.

- The contributions corresponding to incoming LS for Rel-15/16/17 are expected to be submitted in AI 11.

- The contributions corresponding to incoming LS for Rel-18 are expected to be submitted to (sub-) agenda dedicated to the individual WIs under AI 5~AI 8. If there is no dedicated agenda, please submit to AI 5.1.3 or AI 5.2.9 depending on whether it is spectrum related topic or non-spectrum related topic.

### 4.4 RRM requirements

**R4-2407029 (TEI17) 38.133 CR addressing pervious conditions**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4304 rev Cat: F (Rel-17)  
  
 Source: BeammWave*

**Abstract:**

Correcting "pervious conditions" to "previous conditions".

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

## 5 Rel-18 maintenance for LTE and NR

The following guidance are provided for maintenance work under AI 4 ~ AI 8:

- For maintenance agenda AI 4 (Rel-15/16/17) and AI 5 (Rel-18), formal CRs are expected and multiple CRs per company in the lowest agenda are allowed. For tracking the changes easily, it expected that one batch of CRs (Cat-F/A/…) will just cover a single topic/WI rather than multiple topics/WIs and Cat-F CR with corresponding Cat-A CRs needs be submitted under the same agenda.

- When submitting contributions to AI 4, AI 5.1.3/AI 5.2.9, please add (WI\_code) in the beginning of titles for both discussion files and CRs to facilitate moderators and session chairs handling.

- When reserving the tdoc number, please use the correct WI code rather than simply using TEI and fill the column of “Related WIs” in your reservation spreadsheet. If you submit a draft CR with TEI as WI code, please inform session chair.

- For all the endorsed draft CRs in this bis meeting, please re-submit them in the next ordinary meeting.

- The contributions corresponding to incoming LS for Rel-15/16/17 are expected to be submitted in AI 11.

- The contributions corresponding to incoming LS for Rel-18 are expected to be submitted to (sub-) agenda dedicated to the individual WIs under AI 5~AI 8. If there is no dedicated agenda, please submit to AI 5.1.3 or AI 5.2.9 depending on whether it is spectrum related topic or non-spectrum related topic.

### 5.2 Rel-18 non-spectrum related WI maintenance

#### 5.2.2 NB-IoT/eMTC core & perf. requirements for NTN

##### 5.2.2.3 RRM requirement

**R4-2407199 CR on general setup for SIB31**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Endorsed.**

**R4-2407200 CR on test Parameters for UE Transmit Timing Accuracy Tests for NB-IoT over Satellite Access**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Endorsed.**

**R4-2407204 Big CR to TS 36.133 on Correction of core and performance requirements for NB-IoT/eMTC NTN**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7316 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410242 (from R4-2407204).**

[**R4-2410242**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410242.zip) **Big CR to TS 36.133 on Correction of core and performance requirements for NB-IoT/eMTC NTN**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7316 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: For post-meeting email agreement.**

**R4-2407392 (LTE\_NBIoT\_eMTC\_NTN\_req-Perf) CR to TS 36.133: Corrections to IE configurations (Rel 18)**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7319 rev Cat: F (Rel-18)  
  
 Source: Rohde & Schwarz*

**Decision: Revised to R4-2410246 (from R4-2407392).**

[**R4-2410246**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410246.zip) **(LTE\_NBIoT\_eMTC\_NTN\_req-Perf) CR to TS 36.133: Corrections to IE configurations (Rel 18)**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7319 rev Cat: F (Rel-18)  
  
 Source: Rohde & Schwarz*

**Decision: Return to.**

**R4-2408555 CR on core requirements maintenance for R18 IoT NTN**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7321 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409236 (LTE\_NBIOT\_eMTC\_NTN\_req-Perf) Correction to PHR reporting requirements for NB-IoT over NTN**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7325 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

At last meeting it was agreed to not introduce separate PHR reporting tables for LEO and GEO. This CR makes correction to the spec to be aligned with this agreement.

**Decision: Endorsed.**

#### 5.2.6 Air-to-ground network for NR

##### 5.2.6.3 RRM core and performance requirements

**R4-2407031 (NR\_ATG-Core) 38.133 CR addressing pervious conditions**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4306 rev Cat: F (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Correcting "pervious conditions" to "previous conditions".

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

**R4-2407035 (NR\_ATG-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4310 rev Cat: F (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

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

**R4-2407275 (NR\_ATG-Core) On deriveSSB-IndexFromCell tolerance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4338 rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Revised to R4-2410240 (from R4-2407275).**

[**R4-2410240**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410240.zip) **(NR\_ATG-Core) On deriveSSB-IndexFromCell tolerance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4338 rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407479 Discussion on core requirements for Rel-18 ATG maintenance**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407480 CR on test case of RRC Connection Release with Redirection for ATG UE**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4375 rev Cat: F (Rel-18)  
  
 Source: CATT*

**Abstract:**

MCC: Parsing Failure as change request Work Item wrong on CR cover for TDoc R4-2407480. Database value : NR\_ATG-Perf. CR cover value : NR\_ATG-Core/Perf. A revision is required.

**Decision: Return to.**

**R4-2407481 CR on signalling characteristics for ATG RRM core requirement maintenance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4376 rev Cat: F (Rel-18)  
  
 Source: CATT*

**Abstract:**

MCC: Parsing Failure as change request Work Item wrong on CR cover for TDoc R4-2407481. Database value : NR\_ATG-Core. CR cover value : NR\_ATG-Core/Perf. A revision is required.

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

**R4-2407781 (NR\_ATG-Core) 38.133 CR addressing pervious conditions**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4405 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting "pervious conditions" to "previous conditions".

**Decision: Endorsed.**

**R4-2407785 (NR\_ATG-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4409 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Revised to R4-2410200 (from R4-2407785).**

[**R4-2410200**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410200.zip) **(NR\_ATG-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4409 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Return to.**

**R4-2407927 (NR\_ATG-Core) Discussion on the maintenance issues for NR ATG core requirement**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2407928 (NR\_ATG-Core) draftCR to TS 38.133 correction of scheduling availability requirements for ATG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Decision: Endorsed.**

**R4-2407929 Big CR to TS 38.133 Correction of core requirements for NR ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4421 rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Decision: Revised to R4-2410243 (from R4-2407929).**

[**R4-2410243**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410243.zip) **Big CR to TS 38.133 Correction of core requirements for NR ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4421 rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Decision: For post-meeting email agreement.**

**R4-2407930 Big CR to TS 38.133 Correction of performance requirements for NR ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4422 rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Decision: Revised to R4-2410244 (from R4-2407930).**

[**R4-2410244**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410244.zip) **Big CR to TS 38.133 Correction of performance requirements for NR ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4422 rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Decision: For post-meeting email agreement.**

**R4-2407931 (NR\_ATG-Perf) drafCR to TS 38.133 correction of cell re-selection and HOCHO test cases for ATG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Decision: Endorsed.**

**R4-2407960 [NR\_ATG-Perf] Draft CR for measurement procedure for NR ATG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: LG Electronics Inc.*

**Decision: Endorsed.**

**R4-2408241 Discussion on the maintenance of ATG**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2408254 [NR\_ATG-Core] CR for CHO of R18 ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4453 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: Parsing Failure as release number wrong on CR cover for TDoc R4-2408254. Database value : Rel-18. CR cover value : R18. A revision is required.

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

**R4-2408255 [NR\_ATG-Core] CR for timing of R18 ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4454 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: Parsing Failure as release number wrong on CR cover for TDoc R4-2408255. Database value : Rel-18. CR cover value : R18. A revision is required

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

**R4-2408556 Discussion on RRM requirements maintenance for R18 ATG**

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

**Decision: Noted.**

**R4-2408557 Draft CR on TC maintenance for R18 ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4497 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: The title have "Draft CR" but it is a formal CR.

**Decision: Return to.**

**R4-2409055 Core maintenance paper related to deriveSSB-IndexFromCell and deriveSSB-IndexFromCellInter-r17**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

Proposal on issues left FFS in WF for deriveSSB-IndexFromCell and deriveSSB-IndexFromCellInter-r17.

**Decision: Noted.**

**R4-2409229 (NR\_ATG-Perf) Corrections to RRC re-establishment tests for ATG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

This draftCR contains test cases for RRC re-establishment for ATG according to the worksplit.

**Decision: Not pursued.**

[**R4-2410245**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410245.zip) **(NR\_ATG-Perf) Corrections to RRC re-establishment tests for ATG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Decision: Endorsed.**

**R4-2409433 CR on test case of RRC Connection Release with Redirection for ATG UE**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4570 rev Cat: F (Rel-18)  
  
 Source: CATT*

**Abstract:**

MCC: Parsing Failure as change request number wrong on CR cover for TDoc R4-2409433. Database value : 4570. CR cover value : 4375. A revision is required.

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

**R4-2409434 CR on signalling characteristics for ATG RRM core requirement maintenance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4571 rev Cat: F (Rel-18)  
  
 Source: CATT*

**Abstract:**

MCC: Parsing Failure as change request number wrong on CR cover for TDoc R4-2409434. Database value : 4571. CR cover value : 4376. A revision is required.

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

**R4-2409445 CR on test case of RRC Connection Release with Redirection for ATG UE**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4572 rev Cat: F (Rel-18)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2409446 CR on signalling characteristics for ATG RRM core requirement maintenance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4573 rev Cat: F (Rel-18)  
  
 Source: CATT*

**Decision: Endorsed.**

**R4-2409652 [NR\_ATG-Core] CR for CHO of R18 ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4579 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Endorsed.**

**R4-2409653 [NR\_ATG-Core] CR for timing of R18 ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4580 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2410241 (from R4-2409653).**

[**R4-2410241**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410241.zip) **[NR\_ATG-Core] CR for timing of R18 ATG**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4580 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

#### 5.2.8 Other Rel-18 non-spectrum related WIs

##### 5.2.8.3 RRM requirements

**R4-2407318 Addition of the FR1 DPC reporting mapping table.**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4345 rev Cat: F (Rel-18)  
  
 Source: InterDigital Communications*

**Abstract:**

This CR is the official submission of the endorsed CR in R4-2406297 from meeting #110bis.

**Decision: Agreed.**

**R4-2408156 [NR\_ext\_to\_71GHz-Core] Removal of square brackets**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4443 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: The WI code in 3GU was aligned to CR coversheet.

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

**R4-2409658 [NR\_ext\_to\_71GHz-Core] Removal of square brackets**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4584 rev Cat: F (Rel-18)  
  
 Source: Nokia Corporation*

**Decision: Agreed.**

### 5.4 Moderator summary and conclusions (for Agenda 5)

Topic: [111][202] Maintenance\_R18

**R4-2407999 Topic summary for [111][202] Maintenance\_R18**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

**Online session (Wednesday May 22, 2024)**

**NR\_ATG:**

**Applicability rule for deriveSSB-IndexFromCell/Inter-r17**

**Should the applicable rules for deriveSSB-IndexFromCell/Inter-r17 be introduced?**

* + Yes: Huawei
    - Clarify in the measurement requirements that requirements don't apply when the deriveSSB-IndexFromCell/Inter-r17 are set as true but the RTD from UE is larger than the required tolerance
    - If needed to add clarification of the applicable scenario for deriveSSB-IndexFromCell/Inter-r17, suggest the following wording in Section 9 in TS 38.133. (CATT)
* The requirements for enabling deriveSSB-IndexFromCell/Inter-r17 only apply when RTD from UE between serving and neighbour cell is smaller than X.
  + - Apple, LGE, QC:
* Note: UE does not expect the *deriveSSB-IndexFromCell* to be set as true when RTD from UE between serving and neighbour cell is large than X
  + FFS the section for adding the note.
  + No: CATT(prefer), CMCC, ZTE, Ericsson, Huawei

ZTE: it is not clear when more than 1 neighbour cell.

CATT: Clarify with the following note in secion 9:

* The requirements for enabling deriveSSB-IndexFromCell/Inter-r17 only apply when RTD from UE between serving and neighbour cell is smaller than X.

E///: We are fine to add a note for the progress. X is related to SCS, which is open. We can start with Apple text with further updates.

CMCC: 1st preference is no clarification. It is up to network whether to configure the *deriveSSB-IndexFromCell*. The RTD is unknown to network. For the sake of progress, we are open to the soft wording from CATT / HW. Perfer CATT wording.

Agreement:

Add a clarification note:

* The requirements corresponding to deriveSSB-IndexFromCell/Inter-r17 enabled only apply when RTD from UE between serving and neighbour cell is smaller than X.
* FFS for the value of X.
  + Option 1: the tolerance requirement
  + Other option is not precluded.
* Further discuss the wording for the CR.

**Other proposals**

Proposal 1(CMCC): For ATG inter-frequency SSB based measurements without measurement gaps requirement, remove the assumption that when UE performs inter-frequency measurements without measurement gaps in a TDD bands on FR1, SFN and frame boundary across serving cell and inter-frequency neighbor cells is aligned.

Proposal 2(CMCC): The transmission scheduling restriction impact from deriveSSB-IndexFromCell/Inter-r17 should be applied to both ATG UE with antenna array and ATG UE with one or multiple omni-directional antennas in TDD network.

Proposal 3(CMCC): For ATG UE with antenna array in both FR1 FDD and TDD band, UE could not perform the reception of data and RS during the scheduling restriction period

## 7 Rel-18 on-going non-spectrum related work items for NR

The following guidance are provided for maintenance work under AI 4 ~ AI 8:

- For maintenance agenda AI 4 (Rel-15/16/17) and AI 5 (Rel-18), formal CRs are expected and multiple CRs per company in the lowest agenda are allowed. For tracking the changes easily, it expected that one batch of CRs (Cat-F/A/…) will just cover a single topic/WI rather than multiple topics/WIs and Cat-F CR with corresponding Cat-A CRs needs be submitted under the same agenda.

- When submitting contributions to AI 4, AI 5.1.3/AI 5.2.9, please add (WI\_code) in the beginning of titles for both discussion files and CRs to facilitate moderators and session chairs handling.

- When reserving the tdoc number, please use the correct WI code rather than simply using TEI and fill the column of “Related WIs” in your reservation spreadsheet. If you submit a draft CR with TEI as WI code, please inform session chair.

- For all the endorsed draft CRs in this bis meeting, please re-submit them in the next ordinary meeting.

- The contributions corresponding to incoming LS for Rel-15/16/17 are expected to be submitted in AI 11.

- The contributions corresponding to incoming LS for Rel-18 are expected to be submitted to (sub-) agenda dedicated to the individual WIs under AI 5~AI 8. If there is no dedicated agenda, please submit to AI 5.1.3 or AI 5.2.9 depending on whether it is spectrum related topic or non-spectrum related topic.

### 7.3 Requirement for NR FR2 multi-Rx chain DL reception

#### 7.3.1 RRM core requirements maintenance for simultaneous DL reception from different directions

**R4-2409706 Draft Big CR to TS 38.133 on core requirement maintenance for NR FR2 multi-Rx chain DL reception**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4593 rev Cat: F (Rel-18)  
  
 Source: Ericsson, Vivo*

**Abstract:**

BIG CR for multi-rx. MCC: The title have "Draft Big CR" but it is a formal CR.

**Decision: Revised to R4-2410212 (from R4-2409706).**

[**R4-2410212**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410212.zip) **Draft Big CR to TS 38.133 on core requirement maintenance for NR FR2 multi-Rx chain DL reception**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4593 rev Cat: F (Rel-18)  
  
 Source: Ericsson, Vivo*

**Abstract:**

BIG CR for multi-rx. MCC: The title have "Draft Big CR" but it is a formal CR.

Session Chair: CR author to request to update the title.

**Decision: For post-meeting email agreement.**

**R4-2407036 (NR\_FR2\_multiRX\_DL-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4311 rev Cat: F (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

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

**R4-2407295 On RRM core requirement maintenance for NR FR2 multi-Rx chain DL reception**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407304 (NR\_FR2\_multiRX\_DL-Core) draft CR on scheduling and measurement restrictions for multiple Rx chains**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Abstract:**

MCC: This was decided to be treated in RRM session.

**Decision: Revised to R4-2410205 (from R4-2407304).**

[**R4-2410205**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410205.zip) **(NR\_FR2\_multiRX\_DL-Core) draft CR on scheduling and measurement restrictions for multiple Rx chains**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Abstract:**

MCC: This was decided to be treated in RRM session.

**Decision: Return to.**

**R4-2407456 (NR\_FR2\_multiRX\_DL-Core) Scheduling and measurement restriction requirements**

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

**Decision: Noted.**

**R4-2407695 Discussion on core part maintenance for multi-Rx UEs**

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

**Decision: Noted.**

**R4-2407786 (NR\_FR2\_multiRX\_DL-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4410 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Revised to R4-2410201 (from R4-2407786).**

[**R4-2410201**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410201.zip) **(NR\_FR2\_multiRX\_DL-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4410 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Return to.**

**R4-2407851 Discussion on core requirement maintenance for Multi-RX**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2407869 Maintenance CR for BFD and CBD related requirements of R18 multi-Rx DL**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4418 rev Cat: F (Rel-18)  
  
 Source: OPPO*

**Decision: Revised to R4-2410206 (from R4-2407869).**

[**R4-2410206**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410206.zip) **Maintenance CR for BFD and CBD related requirements of R18 multi-Rx DL**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4418 rev Cat: F (Rel-18)  
  
 Source: OPPO*

**Decision: Return to.**

**R4-2408247 Discussion on maintenance of RRM core part for simultaneous DL reception from different directions**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2408256 [NR\_FR2\_multiRX\_DL-Core] Draft CR for dual TCI state switching of R18 Multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2410207 (from R4-2408256).**

[**R4-2410207**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410207.zip) **[NR\_FR2\_multiRX\_DL-Core] Draft CR for dual TCI state switching of R18 Multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2408257 [NR\_FR2\_multiRX\_DL-Core] Draft CR for Link Recovery Procedures of R18 Multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Merged.**

**R4-2408258 [NR\_FR2\_multiRX\_DL-Core] Draft CR for MRTD of R18 Multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Merged.**

**R4-2408259 [NR\_FR2\_multiRX\_DL-Core] Draft CR for RLM of R18 Multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Merged.**

**R4-2408260 [NR\_FR2\_multiRX\_DL-Core] Draft CR for TRP specific Link Recovery Procedures of R18 Multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Merged.**

**R4-2408278 Remaining issues for FR2 multi-Rx**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2408281 Draft CR on TRP specific link recovery for multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410208 (from R4-2408281).**

[**R4-2410208**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410208.zip) **Draft CR on TRP specific link recovery for multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408558 Discussion on RRM core requirements for R18 FR2 multi-RX**

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

**Decision: Noted.**

**R4-2408559 DraftCR on RRM maintenance for R18 FR2 multi-RX**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410209 (from R4-2408559).**

[**R4-2410209**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410209.zip) **DraftCR on RRM maintenance for R18 FR2 multi-RX**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408687 On remaining multi-Rx core part requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409137 Draft CR maintenance multi Rx RRM requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410210 (from R4-2409137).**

[**R4-2410210**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410210.zip) **Draft CR maintenance multi Rx RRM requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409701 On remaining core requirements issues for multi-rx**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

On remaining core requirements issues for multi-rx

**Decision: Noted.**

**R4-2409702 CR to 38.133 on measurement restrictions relaxation for UE supporting multi-rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR on measurement restrictions relaxation for UE supporting multi-rx

**Decision: Revised to R4-2410211 (from R4-2409702).**

[**R4-2410211**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410211.zip) **CR to 38.133 on measurement restrictions relaxation for UE supporting multi-rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR on measurement restrictions relaxation for UE supporting multi-rx

**Decision: Return to.**

#### 7.3.2 RRM performance requirements

**R4-2408282 Big CR to TS 38.133 on performance requirements for NR FR2 multi-Rx chain DL reception**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4465 rev Cat: B (Rel-18)  
  
 Source: vivo, Ericsson*

**Abstract:**

[Email Approval]

**Decision: For post-meeting email agreement.**

##### 7.3.2.1 RRM test case design

**R4-2407296 On RRM performance requirements - test cases**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407457 (NR\_FR2\_multiRX\_DL-Perf) AoA selection for multiple AoA-based FR2 RRM test cases**

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

**Decision: Noted.**

**R4-2407696 Draft CR on TC for scheduling and measurement restriction relaxation for L1-RSRP on FR2-1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410357 (from R4-2407696).**

[**R4-2410357**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410357.zip) **Draft CR on TC for scheduling and measurement restriction relaxation for L1-RSRP on FR2-1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407852 Discussion on test case design for Multi-RX**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2407853 DraftCR on TC for MAC CE based TCI state activation in sDCI in Multi-RX**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2410358 (from R4-2407853).**

[**R4-2410358**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410358.zip) **DraftCR on TC for MAC CE based TCI state activation in sDCI in Multi-RX**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

**Decision: Return to.**

**R4-2407870 Draft CR on TRP specific CSI-RS based BFD measurement delay for multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO, Xiaomi*

**Decision: Revised to R4-2410359 (from R4-2407870).**

[**R4-2410359**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410359.zip) **Draft CR on TRP specific CSI-RS based BFD measurement delay for multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO, Xiaomi*

**Decision: Return to.**

**R4-2408251 Discussion on performance part for multi-Rx**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2408280 Further discussion on test cases for FR2 multi-Rx**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2408283 Draft CR on test cases for m-DCI based TCI dual states switch for multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408560 Discussion on performance requirements for R18 FR2 multi-RX**

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

**Decision: Noted.**

**R4-2408561 DraftCR on TC3 fast beam sweeping for R18 FR2 multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410360 (from R4-2408561).**

[**R4-2410360**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410360.zip) **DraftCR on TC3 fast beam sweeping for R18 FR2 multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2408688 Draft CR for TC for mRx s-DCI DCI-based TCI state switch and related configurations**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410361 (from R4-2408688).**

[**R4-2410361**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410361.zip) **Draft CR for TC for mRx s-DCI DCI-based TCI state switch and related configurations**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408893 RRM test case design for multi-Rx**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2409138 Discussion on test cases for multi Rx RRM requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409703 Discussion on RRM test case design**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on RRM test case design

**Decision: Noted.**

##### 7.3.2.2 RRM measurement accuracy requirements

**R4-2407297 On RRM performance requirements - Accuracy requirements**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407697 Discussion on measurement accuracy requirements for multi-Rx UEs**

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

**Decision: Noted.**

**R4-2408250 Discussion on accuracy requirements for simultaneous DL reception from different directions**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2408279 Further discussion on performance accuracy requirements for FR2 multi-Rx**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2408284 Draft CR on test cases for performance accuracy for multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410362 (from R4-2408284).**

[**R4-2410362**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410362.zip) **Draft CR on test cases for performance accuracy for multi-Rx**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408562 Discussion on accuracy requirements for R18 FR2 multi-RX**

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

**Decision: Noted.**

**R4-2408689 Multi Rx RRM measurement accuracy requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408891 GBBR accuracy requirements for multi-rx**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

**R4-2408892 Draft CR on accuracy requirements for L1-RSRP measurements with groupbasedbeamreporting**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Samsung, Ericsson*

**Decision: Revised to R4-2410363 (from R4-2408892).**

[**R4-2410363**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410363.zip) **Draft CR on accuracy requirements for L1-RSRP measurements with groupbasedbeamreporting**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Samsung, Ericsson*

**Decision: Return to.**

**R4-2409704 Discussion on RRM measurement accuracy test case**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on RRM measurement accuracy test case

**Decision: Noted.**

**R4-2409705 Draft CR to 38.133 for AoA set up for multi-rx and TC for GBBR measurement accuracy**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson, Samsung*

**Abstract:**

Draft CR for AoA set up for multi-rx and TC for GBBR measurement accuracy

**Decision: Revised to R4-2410364 (from R4-2409705).**

**[R4-2410364](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410364.zip) Draft CR to 38.133 for AoA set up for multi-rx and TC for GBBR measurement accuracy**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson, Samsung*

**Abstract:**

Draft CR for AoA set up for multi-rx and TC for GBBR measurement accuracy

**Decision: Return to.**

#### 7.3.4 Moderator summary and conclusions

Topic: [111][203] FR2\_multiRx\_part1

**R4-2408000 Topic summary for [111][203] FR2\_multiRx\_part1**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410356**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410356.zip) **WF on core maintenance and performance part for multi-Rx**

*Type: other For: Approval  
 Source: vivo, Ericsson*

**Decision: Return to.**

**Online session (Monday May 20, 2024)**

**Sub-topic 1-1: Conditions for multi-RX operation and fast beam sweeping.**

Background:

In last meeting, RAN4 agreed on following

* For fast beam sweeping, the UE is in multi-Rx operation if following condition is met:
  + UE is configured with group-based beam reporting (GBBR) report.

**Issue 1-1-1: When is UE considered to be in multi-rx operation**

* Proposals
  + Proposal 1: Keep the agreed definition
    - Given UE indication of its preference of multi-RX/single-RX operation has been allowed, it is OK to take the current definition of multi-RX operation
  + Proposal 2: Add following additional condition
    - P2a:
      * UE sent a recent valid Rel-17 group-based beam reporting (GBBR).
      * If UE recently reported ‘Not valid’ for one of the RSRP for a beam pair, this means UE is allow to fallback to single panel for the later reception QCL-ed to that beam pair.
    - P2b: Rel-17 group-based beam reporting (GBBR) is activated/triggered by the network.
* Recommended WF:
  + - Further discuss.

E///: For P2b: Rel-17 group-based beam reporting (GBBR) is activated/triggered by the network for aperiodic or semi-persistent reporting. For periodic, GBBR configured.

ZTE: We are fine with Option 2b.

Nokia: Updated P2b is fine.

QC: We support P1. For aperiodic reporting, we don’t know when it is reported.

OPPO: For P2b, the delta with the previous agreement is GBBR configured or activate/triggered.

MTK: P2a is our proposal. P2b does not help too much for UE power consumption in our understanding.

Nokia: In MTK scenario, network can de-activate the GBBR.

MTK: To Nokia, network may or may not do so.

Apple: With the understanding that we trust the network will honor the UAI, the previous agreement could be fine.

MTK: UAI is a good suggestion.

Apple: Clarify that some requirements with Multi-Rx cannot be gurantted if UAI is indicated by UE.

Nokia: we discussed this before. UAI does not enforce network to do something.

**Issue 1-1-2: End point for fast beam sweeping application.**

* Proposals
  + Proposal 1: When multiple PDSCHs are not scheduled within 300s since group-based beam reporting is configured, the UE is allowed to exit fast beam sweeping.
* Recommended WF:
  + - Discuss whether need to define end point.

**Issue 1-3-3: The scheduling restriction and measurement restriction relaxation for CBD**

* Proposals
  + Proposal 1: Remove CBD from the applicable resources for scheduling restriction relaxation.
* Recommended WF
  + The WI was closed. Unless there is a big issue, RAN4 should not revert previous agreements.

Agreement:

* + Remove CBD from the applicable resources for scheduling and measurement restriction relaxation.
  + Remove scheduling and measurement restriction relaxation requirements for CBD.

Topic: [111][204] FR2\_multiRx\_part2

**R4-2408001 Topic summary for [111][204] FR2\_multiRx\_part2**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410131**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410131.zip) **Ad-hoc minutes for FR2\_multiRx WI**

*Type: other For: Approval  
 Source: vivo*

**Decision: Approved.**

[**R4-2410344**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410344.zip) **Ad-hoc minutes #2 for FR2\_multiRx WI**

*Type: other For: Approval  
 Source: vivo*

**Decision: Approved.**

**Online session (Monday May 20, 2024)**

**Sub-topic 1-1: Accuracy test case design**

**Issue 1-1: Whether to define new test case for accuracy requirements for multi-Rx measurement**

* Proposals
  + Option 1: (vivo, Samsung, Ericsson, ZTE, QC, CMCC)
    - Define test case to verify the accuracy requirements for multi-Rx.
  + Option 2: (MTK)
    - No need to introduce new test cases for measurement accuracy for mRx UEs.
* Recommended WF
  + Further discuss.

MTK: The two RSs are transmitted simultaneously or in TDM manner?

Apple: agree with MTK.

E///: This is the basic functionality for this feature. This is intra-cell scenario.

vivo: Even with TDM manner, the UE implementation might be different with the legacy.

ZTE: GBBR can be SSB based or CSI-RS based. If it is CSI-RS based, it can be simultaneous reception.

Nokia: GBBR cannot be simultaneous RS.

MTK: Do we need to add test applicability?

E///: the direction is different from the legacy requirement.

Nokia: if a margin is added, it is difficult to define test applicability.

QC: Technically share with the view from MTK. Also understand that the test case is important for the network. Ok with either option.

Apple: We can compromise to the following agreement for the sake of progress.

**Agreement:**

* The existing G for Rx beam peak direction for PC3 is applicable for multi-Rx UEs.
* Not add additional margin on top of the legacy methodology used in the test setup
* Define test case to verify the accuracy requirements for multi-Rx.
* If the new test case is conducted, the corresponding legacy test will be skipped.
  + The bullet can be revisited in this meeting if not feasible.

ZTE: For the test setup, to further discuss the two RSs are transmitted simultaneously or in TDM manner?

Agreement:

In the test configuration for CSI-RS based, the transmission of the two RSs is simultaneous or TDMed.

In the test configuration for SSB based, the transmission of the two RSs is TDMed.

**Issue 1-2: Gain accuracy in tests for verifying multi-Rx L1-RSRP accuracy requirements**

* Proposals
  + Option 1: (Huawei, MTK, ZTE, vivo, Nokia, Samsung, Ericsson)
    - The existing G for PC3 is still applicable for UE supporting multi-Rx.
  + Option 2: (Apple)
    - It is proposed to consider some allowance **Δ** in test requirement, where **Δ** = [9dB].
  + Option 3: (vivo)
    - In the accuracy test, UE gain G and rough beam gain reduction D are added as additional margin in test requirements.
* Recommended WF
  + Agree on
    - The existing G for Rx beam peak direction for PC3 is applicable for multi-Rx UEs.
  + Discuss
    - Whether additional margin is needed in the test requirements for multi-Rx UE
      * Option 1: No additional margin
      * Option 2: Add addition margin as **Δ** = [9dB].
      * Option 3: Add addition margin as rough beam gain reduction D = 5.5dB for PC3

**Tentative agreement (in ad-hoc session):**

* The existing G for Rx beam peak direction for PC3 is applicable for multi-Rx UEs.
* FFS additional margin X: [0, 5.5, 9] dB.
  + FFS if it is for Gmin only.

QC: RF input is needed to decide the value of X.

Apple: agree with QC.

vivo: 5.5 is from the legacy, is difference of rough beam direction and Rx beam peak gain, i.e., rough beam D. Both G and D are considered in the test setup.

QC: additional margin is not needed.

HW: Gmin and Gmax are decided based on the Rx peak beam (legacy) or spherical coverage (for multi-Rx). It is not clear how UE can achieve gain lower than -10dBm.

Samsung: D, E, X should be all considered. Gmin and Gmax is not impacted since the range is really large. X in the existing spec is not the same as the one in the tentative agreement.

ZTE: Agree with HW that Gmin and Gmax are decided based on the Rx peak beam (legacy) or spherical coverage (for multi-Rx).

HW: D, E, X are for other aspects.

QC: Agree with HW. The range of Gmin and Gmax is really large, with all the possibilities already considered.

Apple: Gmin is defined based on Rx peak beam.

MTK: The R15 values are defined based on R4-1912035. It is not only for beam peak direction.

**Issue 2-3: Number of probes in RRM test cases**

* Proposals
  + Option 1: (Apple)
    - The baseline to verify UE performance of dual TCI state switching is from one TCI state to two TCI states, assuming 3 probes are used in testing.
  + Option 2: (ZTE)
    - It is suggested to verify the dual to dual active TCI state switching from [RS 1, RS 2] to [RS 1, RS3] under the assumption of 3 active probes.
  + Option 3: (vivo)
    - Define test cases for verifying m-DCI based dual TCI states switch requirements with 3 probes, i.e., from [RS1] to [RS2, RS3].
  + Option 4: (Nokia)
    - Define a dual-to-dual TCI test case for m-DCI, where the UE needs to switch both the TCI states i.e. [RS1, RS3], to [RS2, RS4], with [RS1, RS3] and [RS2, RS4] each forming beam pairs.
    - When less than four probes are used, the test equipment should emulate different DL transmit beams by transmitting different signals with different power and delay.
* Recommended WF
  + Discuss and agree on the following.
    - RRM test cases for multi-Rx are defined with at most 3 active probes needed in the tests.

**Agreement:**

* RRM test cases for multi-Rx are defined with at most 3 active probes needed in the tests.

**Issue 2-7: Test case(s) for dual TCI state switching for m-DCI**

* Proposals
  + Option 1: (ZTE)
    - It is suggested to verify the dual to dual active TCI state switching from [RS 1, RS 2] to [RS 1, RS3] under the assumption of 3 active probes.
  + Option 2: (vivo)
    - Define test cases for verifying m-DCI based dual TCI states switch requirements with 3 probes, i.e., from [RS1] to [RS2, RS3].
    - Not to define test cases MAC-CE based dual TCI states switch with m-DCI.
  + Option 3: (Nokia)
    - Test cases for DCI based and MAC-CE dual TCI state switch for m-DCI need to be defined.
* Recommended WF
  + Discuss and agree on the following.
    - Introduce one test case for DCI based dual TCI state switch for m-DCI. Discuss following setup
      * ~~Option 1: from [RS1] to [RS2, RS3]~~
      * Option 2: from [RS 1, RS 2] to [RS 1, RS3]
      * Option 3: from [RS1, RS2] (Probe 1 and 2, no simulatenous transmission) to [RS3, RS4] (Probe 1 and 3) with 3 active probes.
        + 4 TCI states, two of them share the same probe.
        + Probe 1 with RS1 and RS3
        + Probe 2 with RS2
        + Probe 3 with RS4
    - Discuss test case for MAC-CE based dual TCI state switch for m-DCI

Tentative Agreement (the tentative agreement can be confirmed if it is feasible for testing):

* From [RS1, RS2] (Probe 1 and 2, no simultaneous transmission) to [RS3, RS4] (Probe 1 and 3) with 3 active probes.
  + 4 TCI states, two of them share the same probe.
  + Probe 1 with RS1 and RS3, [fulfilling legacy EIS requirement]
  + Probe 2 with RS2, [fulfilling legacy EIS requirement]
  + Probe 3 with RS4
  + [Probe 1 and Probe 3 (after TCI state switching) fulfill the 2AoA setup requirement]

**Online session (Thursday, 23 May 2024)**

**Agreement:**

* Introduce new AoA Setup X2: 2 AoAs, both AoAs are in non Rx beam peak directions
  + The 2 AoAs for simultaneous reception with different QCL-typeD is from the set of [qualified AoA pairs] according to the spherical coverage requirement for simultaneous reception from multiple directions as defined in clause 7.3K.3 of TS 38.101-2.
  + The relative angular offset between the directions of the 2 AoAs is based on the UE’s declared orientation as defined in clause 7.3K.3 of TS 38.101-2.
  + One of the AoAs needs to satisfy the legacy spherical coverage requirement. FFS how single AoA RF test and 2 AoA RF test could ensure this.
* Work on the CR for 3AoA test setup:
  + 1 AoA is from the set of directions corresponding to the EIS spherical coverage percentile of the DUT as defined in clause 7.3.4 of TS 38.101-2 [19] for each UE power class.
  + The AoA pair for simultaneous reception with different QCL-typeD is from the set of [qualified AoA pairs] according to the spherical coverage requirement for simultaneous reception from multiple directions as defined in clause 7.3K.3 of TS 38.101-2.
    - The relative angular offset between the directions of the AoA pair is based on the UE’s declared [AoA separation and UE] orientation as defined in clause 7.3K.3 of TS 38.101-2.

Agreement:

* 3AoAs for TCI state switching [and TRP specific BFD] tests with 3 or more SSBs. For the other test cases, as basline, use 2 AoAs.
* Further discussion is allowed if consensus can be reached in the future meeting.

OPPO: TRP specific BFD, with 3SSBs.

**Accuracy test:**

Updated Agreement:

* The existing G for Rx beam peak direction for PC3 is applicable for multi-Rx UEs.
* Not add additional margin on top of the legacy methodology used in the test setup
* Define test case to verify the accuracy requirements for multi-Rx.
* If the new test case is conducted, the corresponding legacy test will be skipped.

### 7.4 Even Further RRM enhancement for NR and MR-DC

#### 7.4.1 RRM core requirements maintenance for FR2 SCell activation delay reduction

**R4-2407300 On RRM core requirements maintenance for Scell activation enhancement**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2407736 Maintenance on FR2 SCell activation delay reduction**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2407737 38.133 CR on multilple SCell activation with L3 reporting**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4396 rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Merged.**

**R4-2407765 Discussion on maintenance of R18 FR2 SCell activation delay requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2407766 draft CR on R18 FR2 SCell activation delay reduction**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410251 (from R4-2407766).**

[**R4-2410251**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410251.zip) **draft CR on R18 FR2 SCell activation delay reduction**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408243 Discussion on the core maintenance of SCell activation delay reduction**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2408261 [NR\_RRM\_enh3-Core] Draft CR on L3 reporting relevant R18 RRM enhancement core maintenance**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Merged.**

**R4-2408262 [NR\_RRM\_enh3-Core] Draft CR on SCell activation enhancement of R18 RRM enhancement core maintenance**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2410252 (from R4-2408262).**

[**R4-2410252**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410252.zip) **[NR\_RRM\_enh3-Core] Draft CR on SCell activation enhancement of R18 RRM enhancement core maintenance**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2408308 Draft CR on maintenance for R18 SCell activation enhancement**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: China Telecom*

**Decision: Merged.**

**R4-2408309 Discussion on RRM core requirements maintenance for FR2 SCell activation delay reduction**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2408429 eFeRRM-Core remaining issues for L3 report based SCell activation**

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

**Decision: Noted.**

**R4-2408563 Discussion on Core requirements maintenance for R18 eFeRRM SCell activation**

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

**Decision: Noted.**

**R4-2408564 DraftCR on maintenance for R18 eFeRRM SCell activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410253 (from R4-2408564).**

[**R4-2410253**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410253.zip) **DraftCR on maintenance for R18 eFeRRM SCell activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409707 Core maintenance: L3 reporting in multiple SCell activation**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Core maintenance: L3 reporting in multiple SCell activation

**Decision: Noted.**

#### 7.4.2 RRM core requirements maintenance for FR1-FR1 NR-DC

**R4-2408161 Discussion on FR1-FR1 SCG activation**

*Type: other For: Approval  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Noted.**

**R4-2408162 FR1-FR1 SCG activation**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4447 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Postponed.**

#### 7.4.3 RRM performance requirements for FR2 SCell activation delay reduction

**R4-2407358 On FG31-1 test cases for Scell activation enhancement**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2407738 Performance requirement for FR2 SCell activation delay reduction**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2407739 correction on TCs for FR2 unknown SCell activation with FG31-1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2410254 (from R4-2407739).**

[**R4-2410254**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410254.zip) **correction on TCs for FR2 unknown SCell activation with FG31-1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Return to.**

**R4-2407767 Discussion on test cases of FR2 SCell activation delay reduction**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2407768 draft CR on test case for R18 FR2 SCell activation delay reduction**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410255 (from R4-2407768).**

[**R4-2410255**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410255.zip) **draft CR on test case for R18 FR2 SCell activation delay reduction**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408263 [NR\_RRM\_enh3-Perf] Draft CR on TC for Multiple SCell activation delay with FR1 unknown SCell with L3 report**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2410256 (from R4-2408263).**

[**R4-2410256**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410256.zip) **[NR\_RRM\_enh3-Perf] Draft CR on TC for Multiple SCell activation delay with FR1 unknown SCell with L3 report**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2408310 Discussion on RRM performance requirements for FR2 SCell activation delay reduction**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2408430 eFeRRM-Perf remaining issues for L3 report based SCell activation**

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

**Decision: Noted.**

**R4-2408565 Discussion on performance requirements for FR2 SCell activation delay reduction**

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

**Decision: Noted.**

**R4-2408566 DraftCR on TC maintenance for R18 eFeRRM SCell activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410257 (from R4-2408566).**

[**R4-2410257**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410257.zip) **DraftCR on TC maintenance for R18 eFeRRM SCell activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409708 Performance maintenance for Scell activation**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Performance maintenance for Scell activation

**Decision: Noted.**

**R4-2409709 draft CR to TS 38.133 on SCell activation enhancement test cases**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Decision: Revised to R4-2410258 (from R4-2409709).**

**[R4-2410258](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410258.zip) draft CR to TS 38.133 on SCell activation enhancement test cases**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Decision: Return to.**

#### 7.4.4 RRM performance requirements for FR1-FR1 NR DC

**R4-2408528 Draft CR to TS 38.133 for test case of SCG activation in FR1-FR1 NR-DC**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

draft CR to TS 38.133 for test case of SCG activation in FR1-FR1 NR-DC

**Decision: Endorsed.**

#### 7.4.5 Moderator summary and conclusions

**R4-2407301 Big CR to TS 38.133 on core requirement maintenance for Even Further RRM enhancemen for NR and MR-DC**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4343 rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Revised to R4-2410397 (from R4-2407301).**

[**R4-2410397**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410397.zip) **Big CR to TS 38.133 on core requirement maintenance for Even Further RRM enhancemen for NR and MR-DC**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4343 rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: For post-meeting email agreement.**

**R4-2407302 Big CR to TS 38.133 on performance requirements for Even Further RRM enhancement for NR and MR-DC**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4344 rev Cat: B (Rel-18)  
  
 Source: Apple*

**Abstract:**

MCC: The CR CAT was changed to B to be in alignment with CR coversheet.

**Decision: Revised to R4-2410398 (from R4-2407302).**

[**R4-2410398**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410398.zip) **Big CR to TS 38.133 on performance requirements for Even Further RRM enhancement for NR and MR-DC**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4344 rev Cat: B (Rel-18)  
  
 Source: Apple*

**Abstract:**

MCC: The CR CAT was changed to B to be in alignment with CR coversheet.

**Decision: For post-meeting email agreement.**

Topic: [111][205] NR\_RRM\_enh3\_part1

**R4-2408002 Topic summary for [111][205] NR\_RRM\_enh3\_part1**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410259**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410259.zip) **Way Forward for [111][205] NR\_RRM\_enh3\_part1**

*Type: other For: Approval  
 Source: Apple*

**Decision: Return to.**

**Online session (Wednesday May 22, 2024)**

**Issue 2-1: whether to verify requirement with L1 report for FG31-1 TC**

|  |
| --- |
| *Agreement:*   * *Calculate the M values based on UE capability in the corresponding sections.*   Agreement:  DCI transmission timing: cover two case:   * Case 1: n+3ms+THARQ+M-k2   + FFS: UE pass condition is either UE to L1 or L3 report. * Case 2: n+[7]ms+ THARQ   + where k2=1 with type A mapping and startSymbolAndLength (SLIV) = 42 (L=4, and S=0).   DL scheduling for data starts from n+3ms.  Agreement in last meeting:   * + For all FG31-1 TCs, only verify the activation delay when L3 report is triggered.     - FFS UE reporting L1 is also a pass condition. |

* Option 1 (Apple):
  + For all FG31-1 TCs, only verify the activation delay when L3 report is triggered. But if UE can report L1-RSRP earlier than the target L3 reporting time (DCI triggered PUSCH), such UE can still be treated as “pass the test” as long as it can complete the SCell activation within the delay requirement of FR2 SCell activation enhancement with FG31-1.
* Option 2 (Nokia):
  + If DCI is scheduled within the time margin, UE is required to respond with the L3 report as long as there is a valid measurement result.
  + The test equipment sends TCI activation command after receiving the L3 report.
  + UE report of L1-RSRP shall not be considered as the pass condition of the FG31-1 TC.
* Option 3 (vivo):
  + If TE is able to deal with the TCI configuration/activation based on either L3 reporting or L1 reporting whichever is earlier, the test case shall allow UE reporting L1 as one pass condition.
  + According to core requirements, UE reporting L1 instead L3 shall complete the SCell activation within max(Tuncertainty\_MAC + TFineTiming + 2ms, Tuncertainty\_SP) after L1-RSRP is reported.
* Option 4 (CTC):
  + UE reporting L1 can also be a pass condition to verify the case that UE report both L3-RSRP reporting and L1-RSRP reporting before receiving TCI activation command.
* Option 5 (QC):
  + In sub-test1, UE consider pass if UE send L1 measurements and receive TCI activation command before UE send L3 reporting.
* Option 6 (HW):
  + For following case1, the TCI configuration is based on the L3 reporting regardless whether there is L1 reporting before n+3ms+THARQ+M, and UE shall be able to report L3 report as scheduled.
    - Case 1: n+3ms+THARQ+M-k2.
* Option 7 (Ericsson):
  + If UE is configured with periodic or semi-persistent CSI report, L1-RSRP report can be test passing condition, if UE do not receive UL grant before the L1-RSRP report is ready.

Issue 2-1: whether to verify requirement with L1 report for FG31-1 TC

* Recommended WF
  + Moderator: discuss based on the following option A/B/C:
  + In case1 of test
    - Option A:
      * TE sends TCI activation CMD after L3 report
        + If DCI is scheduled within the time margin, UE is required to respond with the L3 report as long as there is a valid measurement result regardless whether there is L1 reporting before n+3ms+THARQ+M. (Apple, Nokia, HW)
        + UE can still be treated as “pass the test” as long as it can complete the SCell activation within the delay requirement of FR2 SCell activation enhancement with L3 report.
    - Option B:
      * TE sends TCI activation CMD after L1 report and before L3 report
        + Test case shall allow UE reporting L1 as one pass condition. (QC, vivo)
        + According to core requirements, UE reporting L1 instead L3 shall complete the SCell activation within max(Tuncertainty\_MAC + TFineTiming + 2ms, Tuncertainty\_SP) after L1-RSRP is reported. (vivo)
    - Option C:
      * If UE is configured with periodic or semi-persistent CSI report, L1-RSRP report can be test passing condition, if UE do not receive UL grant before the L1-RSRP report is ready. (Ericsson)

QC: No need to agree the following bullet since it is already in the test case.

* + UE can still be treated as “pass the test” as long as it can complete the SCell activation within the delay requirement of FR2 SCell activation enhancement with L3 report.

Agreement:

* TE sends TCI activation CMD after L3 report
  + If DCI is scheduled within the time margin, UE is required to respond with the L3 report as long as there is a valid measurement result regardless whether there is L1 reporting before n+3ms+THARQ+M.

**Issue 2-2: DCI transmission timing for case 2 in FG31-1 TC**

|  |
| --- |
| Agreement:  DCI transmission timing: cover two case:   * Case 1: n+3ms+THARQ+M-k2   + FFS: UE pass condition is either UE to L1 or L3 report. * Case 2: n+[7]ms+ THARQ   + where k2=1 with type A mapping and startSymbolAndLength (SLIV) = 42 (L=4, and S=0).   DL scheduling for data starts from n+3ms. |

* Option 1 (vivo, QC):
  + DCI transmission for case 2 is n+7ms+ THARQ.
* Recommended WF
  + Moderator: Agree on option 1.

Agreement: DCI transmission for case 2 is n+7ms+ THARQ.

**Issue 2-3: FG31-1 TC for CSSF2**

* Option 1 (HW):
  + Clarify the applicability rule that for UE supporting two PUCCH group, UE is required to pass TC#2.
* Recommended WF
  + Moderator: Agree on option 1.

Agreement: Clarify the applicability rule that for UE supporting two PUCCH group, UE is required to pass TC#2 in the agreed TC list (R4-2403466).

**Issue 2-4: others for FG31-1 TC**

* Proposal 1 (QC):
  + The timeline is similar as legacy SCell activation TC three consecutive time (T1, T2, T3). No more optimization is needed to define additional time points.
* Proposal 2 (Ericsson):
  + RAN4 to include SR transmission in the test case for L3 report based fast SCell activation test case
* Recommended WF
  + FFS on P1 and P2.

E///: Send SR for the test.

QC: To choose the simple one for the test. Use DCI based grant is enough for the test.

E///: Not introduce new test. Just modify the exisiting TC.

Apple: This is a new issue, companies may need more time to check. This may not be only related to the FG31-1, but also the legacy test where UE needs to report in UL.

**Issue 1-1: Applicability of multiple SCell activation with L3 reporting on FR1 and FR2 band**

* Option 1 (Nokia):
  + The conditions shall be defined for FR1 and FR2 band separately, assuming “all to-be-activated SCells are on the same band”
  + To adopt the following conditions for multiple SCell activation delay requirement with L3 reporting:
    - All to-be-activated SCells are on the same band, and
    - there is at least one unknown to-be-activated SCell on the band, and
    - there is no active serving cell or known to-be-activated SCell on the FR2 band, or there is no active serving cell or known to-be-activated SCell contiguous to the unknown SCell on the FR1 band.
* Option 2 (Qualcomm):
  + L3 reporting based multiple SCell activation requirements for both FR1 and FR2 are applicable to unknown target SCell activation when there is no active serving cell or there is no known SCell(s) on the same band. Applicable scenario (Case1-2, Case 2-3 in R4-2408429). Otherwise, legacy requirements are applicable.
  + Case 1-2: FR2 multiple SCell activation when there is no known parallel to-be-activated SCell on the same band
  + Case 2-3: FR1 multiple SCell activation when there is no known SCells in the same band
* Option 3 (Huawei):
  + The split between new clause 8.3.17 and the legacy clause 8.3.7 are suggested as follows:
    - Capture the requirements for case 1-1 and case 2-1 in 8.3.18
    - Case 1-2 and Case 1-3 to be referred to legacy clause with necessary clarification about N1 definition.
  + FR1 target SCell:
    - Case 1-1: The UE has L3-RSRP after SCell activation command.
    - Case 1-2: The UE does not have L3-RSRP report but it is contiguous to a Cell with L3-RSRP report after SCell activation command.
    - Case 1-3: The UE does not have L3-RSRP report and it is not contiguous to such a Cell, but there is at least one such Cell is counted in N1.
  + FR2 target SCell:
    - Case 2-1: UE have L3-RSRP for at least one SCell in the same FR2 band.
* Recommended WF:
  + Moderator: consider using option 3 as baseline and add condition descriptions from option 1 and option 2.

QC: for the “otherwise”, the legacy requirement means shorter legacy.

Nokia: For FR1, we have non-contiguous CC case, which needs further discussion. For FR1,

* + For FR1, L3 reporting based multiple SCell activation requirements are applicable to unknown target SCell activation when there is no active serving cell or there is no known SCell(s) contiguous to the unknown to-be-activated SCell on the FR1 band.
    - This condition will be added section 8.3.18.
  + If there is contiguous CC, the legacy requirement applies.

Agreement:

* + For FR1, L3 reporting based multiple SCell activation requirements are applicable to unknown target SCell activation when there is no contiguous active serving cell or there is no contiguous known SCell(s) to the unknown to-be-activated SCell on the FR1 band.
    - This condition will be added section 8.3.18.
  + For FR2, L3 reporting based multiple SCell activation requirements are applicable to unknown target SCell activation when there is no active serving cell or there is no known SCell(s) on the same band.
    - This condition will be added section 8.3.18.

**Issue 1-3: L3 reporting in multiple SCell activation**

* Proposals
  + Option 1(ZTE):
    - For both single and multiple SCell activation,
      * From the UE perspective, UE reports valid L3 reporting for the to-be-activated SCell(s), regardless same or different measurement results. Besides the to-be-activated SCell(s), UE can decide whether and which cell(s)’ measurement results configured with servingCellMO can be reported by the way.
      * Form the NW perspective, if receiving the L3 reporting, NW picks the measurement results on the to-be-activated SCell(s) to accelerate the SCell activation procedure. Regarding other cells measurement results, whether and how to apply, depend on NW decision
  + Option 2(CTC):
    - For multiple CC activation in the same FR2 band when more than one to-be-activated SCell are configured with servingCellMO, it is up to UE implementation to report CC of SCell to be activated result or the other CC (if it is latest) or both, and after UE reports the results to NW, it is up to NW which result to be used for SCell activation.
  + Option 3(QC):
    - For multiple CC activation in the same band when more than one to-be-activated SCell are configured with servingCellMO,
      * Regardless of FR, UE can report measurement results for multiple to-be-activated SCell if measurements are available and valid if reportOnActivation report type is configured at corresponding MO. Results from different Cells in the same band are also valid even the results are different. It is up to NW which result to be used for SCell activation.
      * For FR2, UE is expected to receive one measurement and report configuration for one frequency carrier per band.
  + Option 4(Ericsson):
    - For single SCell activation, the measurement report of the to-be-activated SCell should be validate before sending to the NW.
    - For multiple CC activation when more than one to-be-activated SCell are configured with servingCellMO, it is up to UE implementation to report CC of SCell to be activated result or the other CC (if it is latest) or both.

Issue 1-3: L3 reporting in multiple SCell activation

* Recommended WF
  + Moderator: to see if following option can be a compromise (use option 1 as baseline):
    - Option 5 (Moderator): For both single and multiple SCell activation,
      * From the UE perspective, UE reports valid L3 reporting for the to-be-activated SCell(s), regardless same or different measurement results. Besides the to-be-activated SCell(s), UE can decide whether and which cell(s)’ measurement results configured with servingCellMO can be reported by the way.
      * Form the NW perspective, if receiving the L3 reporting, NW picks the measurement results on the to-be-activated SCell(s) to accelerate the SCell activation procedure. Regarding other cells measurement results, whether and how to apply, depend on NW decision
      * For FR2, UE is expected to receive one measurement and report configuration for one frequency carrier per band. (similar as in option 3, but it’s general for both single and multiple SCell activation)

HW: the 3rd bullet does not align with the first two bullets.

Agreement:

* From the UE perspective, UE reports valid L3 reporting for the to-be-activated SCell(s), regardless same or different measurement results.
* Form the NW perspective, if receiving the L3 reporting, it is up to NW to pick the measurement results to accelerate the SCell activation procedure.
* No specification impact for the above clarifications.

**Issue 1-4: Other issues related with FR1 SCell activation enhancement**

* Proposals
  + Proposal 1:
    - RAN4 to discuss if measurement period shall be considered as a condition to differentiate the requirements for FR1 SCell activation enhancement with L3 report.
    - Like the legacy FR1 known SCell activation, SCell activation delay requirement with L3 report shall be differentiated according to measurement period below or above 2400ms, and decide if AGC refinement or T/F tracking is needed.
      * Option 1a: to be differentiated according to measurement period below or above 2400ms as the legacy requirement (Apple, QC, MTK)
      * Option 1b: not need to be differentiated (HW)

Discussion:

Apple: the existing requirement is different for FR1 and FR2.

QC: this differentiation is to add 1 or 2 samples.

HW: this differentiation is over design for the legacy release.

Apple: the intention is to align the requirement with the legacy.

* + Proposal 2(vivo):
    - RAN4 also consider applying enhancements of L3 reporting during SCell activation in FR1 to the case when only one SSB is transmitted in *ssb-PositionInBurst*.
    - RAN4 further extend the requirement applicability of 8.3.17 and 8.3.18 to the scenarios in FR1 where only one SSB is considered.
      * If only one SSB is considered, Tuncertainty\_MAC, Tuncertainty\_SP, Tuncertainty\_RRC and TRRC\_delay are counted as zero, and the 3ms MACE CE decoding delay for TCI state activation is removed, i.e. the overall delay Tactivation\_time is 7ms + TL3,report+ THARQ + TFineTiming + 2ms.

Discussion:

vivo: the current requirement of 8.3.17 and 8.3.18 only applies to more than 1 SSB case.

ZTE: O/K to extend the requirement applicability. Beside the condition of number of SSBs, other condition is needed.

QC, E///, Nokia: We already have this scenario of one SSB in legacy spec, which can be applied.

Topic: [111][206] NR\_RRM\_enh3\_part2

**R4-2408003 Topic summary for [111][206] NR\_RRM\_enh3\_part2**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410343**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410343.zip) **WF on improvement of SCG activation requirements for FR1-FR1 NR-DC**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Return to.**

**Online session (Wednesday May 22, 2024)**

Tsearch in RACH-based PSCell activation delay:

Proposal 7: For RACH based PSCell activation,

* if the FR1 or FR2 PSCell is known, Tsearch = 0 ms.
* If the PSCell is an unknown FR1 or FR2 PSCell configured with bfd-and-RLM with value true, provided no RLM has occurred, if Es/Iot ≥ -2 dB then for FR2 Tsearch = [12 / TBD]\* Trs ms and Tsearch = [1 / TBD]\* Trs ms for FR1.
* Otherwise, if the FR2 PSCell is unknown and Es/Iot ≥ -2 dB, then Tsearch = 24\* Trs ms, and if the target cell is an unknown FR1 PSCell and Es/Iot ≥ -2 dB, then Tsearch =3\* Trs ms.

Discussion on the 2nd bullet:

MTK: what’s the reason for UE to reduce the number?

QC: UE may do better than 12, the spec already allows UE to do this.

Apple: provided no RLM has occurred, or no out-of-sync / RLF has occurred.

QC: Out-of-sync.

OPPO: we can identify the issue in this meeting, can further discuss how to resolve.

MTK: Es/Iot ≥ -2 dB is sufficient, no need to capture the out-of-sync or RLF.

### 7.5 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps

#### 7.5.1 RRM core requirements maintenance for pre-configured MGs, multiple concurrent MGs and NCSG

**R4-2407037 (NR\_MG\_enh2-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4312 rev Cat: F (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

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

**R4-2407344 Discussion on core maintenance for pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407345 Draft CR for collision between Pre-MG activation/deactivation and measurement gap**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Merged.**

**R4-2407787 (NR\_MG\_enh2-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4411 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Revised to R4-2410202 (from R4-2407787).**

[**R4-2410202**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410202.zip) **(NR\_MG\_enh2-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4411 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Return to.**

**R4-2407829 Discussion on RRM requirements for combinations of pre-configured MGs and multiple concurrent MGs**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2407830 Draft CR for R18 PreMG core requirements maintence**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Xiaomi*

**Decision: Merged.**

**R4-2408165 (NR\_MG\_enh2-Core) Discussion on open issues for pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408242 Discussion on core the maintenance for Case 1 and 2**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2408311 Discussion on RRM core requirements maintenance for pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2408321 Remaining issues on PreMG, NCSG and ConMGs**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the requirement for NCSG and ConMGs

**Decision: Noted.**

**R4-2408620 Remaining maintenance issues for pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409162 Discussion on Case 1 and Case 2 requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409248 Discussion on remaining issues for Case 1 and Case 2**

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

**Decision: Noted.**

**R4-2409249 draftCR on RRM requirements for con-MG + pre-MG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged.**

**R4-2409659 Draft CR 38.133 Corrections to Case 1 core requirements for NR\_MG\_enh2**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4585 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: The title have "Draft CR" but it is a formal CR.

**Decision: Merged.**

**R4-2409741 Big CR to TS 38.133 on core requirement maintenance for R18 NR and MR-DC measurement gaps and measurements without gaps**

*Type: CR For: Approval  
 38.133 v18.5.0 CR-4596 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

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

**R4-2409743 Draft CR on concurrent Pre-MG dynamic collision**

*Type: CR For: Approval  
 36.133 v18.5.0 CR-7326 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

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

**R4-2409744 Discussion on core requirements maintenance for pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Noted.**

**R4-2409784 Draft CR on concurrent Pre-MG dynamic collision**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4606 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Abstract:**

MCC: The title have "Draft CR" but it is a formal CR.

**Decision: Revised to R4-2410262 (from R4-2409784).**

[**R4-2410262**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410262.zip) **Draft CR on concurrent Pre-MG dynamic collision**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4606 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Abstract:**

MCC: The title have "Draft CR" but it is a formal CR.

**Decision: Return to.**

**R4-2409795 Big CR to TS 38.133 on core requirement maintenance for R18 NR and MR-DC measurement gaps and measurements without gaps**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4607 rev Cat: F (Rel-18)  
  
 Source: MediaTek, Intel*

**Decision: Revised to R4-2410374 (from R4-2409795).**

**[R4-2410374](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410374.zip) Big CR to TS 38.133 on core requirement maintenance for R18 NR and MR-DC measurement gaps and measurements without gaps**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4607 rev Cat: F (Rel-18)  
  
 Source: MediaTek, Intel*

**Decision: For post-meeting email agreement.**

#### 7.5.2 RRM core requirements maintenance for measurements without gaps

**R4-2407346 Discussion on core maintenance for measurements without gaps**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407347 Draft CR of core maintenance for measurements without gaps**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Merged.**

**R4-2407692 (NR\_RRM\_enh-Core) Remaining issues for Rel-16 NeedforGap**

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

**Abstract:**

MCC: Session Chair requested this is moved to AI 7.5.2.

**Decision: Noted.**

**R4-2407831 Draft CR on NFG core part maintenance**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2410327 (from R4-2407831).**

[**R4-2410327**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410327.zip) **Draft CR on NFG core part maintenance**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Xiaomi*

**Decision: Return to.**

**R4-2407839 draftCR on maintenance of interruprion requirements for inter-RAT NR measurement without gap (case a-1)**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Xiaomi*

**Decision: Return to.**

**R4-2407876 Discussion on core requirements for measurement without gaps**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2408166 (NR\_MG\_enh2-Core) Discussion on open issues for measurements without gaps**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408169 (NR\_MG\_enh2-Core) DraftCR on measurement delay for NFG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Decision: Revised to R4-2410328 (from R4-2408169).**

[**R4-2410328**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410328.zip) **(NR\_MG\_enh2-Core) DraftCR on measurement delay for NFG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Decision: Return to.**

**R4-2408244 Discussion on measurement without gaps for UEs reporting NeedForGapsInfoNR**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2408245 [NR\_RRM\_enh-Core] Discussion on interruption requirements for Rel-16 NeedForGaps**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Abstract:**

MCC: Session Chair requested this is moved to AI 7.5.2.

**Decision: Noted.**

**R4-2408322 Remaining issues on measurement without gaps**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the NeedForGaps measurement requirement

**Decision: Noted.**

**R4-2408431 MG-Enh2-core remaining issues for part 2 core requirements**

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

**Decision: Noted.**

**R4-2408432 Draft CR for R18 inter-RAT measurement without gap**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Merged.**

**R4-2408485 Feature list proposals for measurement gap enhancements**

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

**Decision: Noted.**

**R4-2408486 Maintenance draftCR on interruption requirements for measurements without gap**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2410329 (from R4-2408486).**

[**R4-2410329**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410329.zip) **Maintenance draftCR on interruption requirements for measurements without gap**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Intel Corporation*

**Decision: Return to.**

**R4-2408621 Remaining maintenance issues for measurements without gaps**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409144 Discussion on measurements without gaps**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409145 Draft CR 38.133 measurements without gaps**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Merged.**

**R4-2409146 Draft CR 36.133 measurements without gaps**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Merged.**

**R4-2409151 Discussion on UE capabilities for measurements without gaps**

*Type: discussion For: Discussion  
 Source: Nokia, China Unicom, Deutsche Telekom, Orange, NTT DOCOMO, INC., TELECOM ITALIA S.p.A., Telia Company, T-Mobile USA, Vodafone*

**Decision: Noted.**

**R4-2409250 Discussion on remaining issues for measurement without MG**

*Type: LS out For: Approval  
 to RAN2  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2409251 draftCR on requirements for inter-RAT LTE measurement without gap**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410330 (from R4-2409251).**

[**R4-2410330**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410330.zip) **draftCR on requirements for inter-RAT LTE measurement without gap**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409745 Discussion on measurement without gaps**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Noted.**

#### 7.5.3 RRM performance requirements for pre-configured MGs, multiple concurrent MGs and NCSG

[**R4-2410354**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410354.zip) **Draft CR on TS 38.133 for Con-NCSG TC4**

*Type: draftCR For: Endorsement  
 38.133-0y v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Decision: Return to.**

**R4-2407514 (Con-NCSG TC2) DraftCR on FR2 inter-frequency with concurrent gap and NCSG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

*Moderator: agreeable.*

**Decision: Return to.**

**R4-2408168 DraftCR on intra-frequency in FR1 with concurrent gap with Pre-MG and network-controlled activation/deactivation of two Pre-MG**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CMCC*

*Moderator: agreeable.*

**Decision: Return to.**

**R4-2408170 Discussion on RRM performance requirements for pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408312 Discussion on RRM performance requirements for pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2408323 Discussion on Pre-MG, Con-MGs and NCSG test cases**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the test case design for Pre-MG, NCSG and ConMGs

**Decision: Noted.**

**R4-2409252 Discussion on test cases for Case 1 and Case 2**

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

**Decision: Noted.**

**R4-2409253 draftCR on Con-Pre-MG TC2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

*Moderator: agreeable.*

**Decision: Return to.**

**R4-2409742 Big CR to TS 38.133 on performance requirements for R18 NR and MR-DC measurement gaps and measurements without gaps**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4597 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410375 (from R4-2409742).**

[**R4-2410375**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410375.zip) **Big CR to TS 38.133 on performance requirements for R18 NR and MR-DC measurement gaps and measurements without gaps**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4597 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: For post-meeting email agreement.**

**R4-2409746 Draft CR for test case of event triggered reporting test on intra-frequency in FR1 with autonomous (de)activation of Pre-MG + Type-2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410373 (from R4-2409746).**

**[R4-2410373](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410373.zip) Draft CR for test case of event triggered reporting test on intra-frequency in FR1 with autonomous (de)activation of Pre-MG + Type-2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

#### 7.5.4 RRM performance requirements for measurements without gaps

**R4-2407515 (NFG6) DraftCR on FR2 inter-frequency measurements without gap without interruption for needforgap reporting**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Revised to R4-2410331 (from R4-2407515).**

[**R4-2410331**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410331.zip) **(NFG6) DraftCR on FR2 inter-frequency measurements without gap without interruption for needforgap reporting**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Return to.**

**R4-2407516 (IR1) DraftCR on inter-RAT EUTRAN measurements wihtout gap case b-1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Revised to R4-2410332 (from R4-2407516).**

[**R4-2410332**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410332.zip) **(IR1) DraftCR on inter-RAT EUTRAN measurements wihtout gap case b-1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Return to.**

**R4-2407517 Discussion on performance requirements for measurements without gaps**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407832 [draftCR IR2] CR for inter-RAT EUTRAN measurements case b-2 without gap**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2410333 (from R4-2407832).**

[**R4-2410333**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410333.zip) **[draftCR IR2] CR for inter-RAT EUTRAN measurements case b-2 without gap**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

**Decision: Return to.**

**R4-2408167 DraftCR on test case for intra-frequency measurement without gap without interruption and inter-RAT EUTRAN measurement case b-2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CMCC*

**Decision: Revised to R4-2410334 (from R4-2408167).**

[**R4-2410334**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410334.zip) **DraftCR on test case for intra-frequency measurement without gap without interruption and inter-RAT EUTRAN measurement case b-2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CMCC*

**Decision: Return to.**

**R4-2408171 Discussion on RRM performance requirements for measurements without gaps**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408324 Discussion on measurement without gap test cases**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the test case for measurement without gap

**Decision: Noted.**

**R4-2408325 Draft CR to 38.133 Test Case of NFG TC5**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

The test case of NFG TC5

**Decision: Revised to R4-2410335 (from R4-2408325).**

[**R4-2410335**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410335.zip) **Draft CR to 38.133 Test Case of NFG TC5**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

The test case of NFG TC5

**Decision: Return to.**

**R4-2408433 MG-Enh2-Perf remaining issues for part 2 perf requirements**

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

**Decision: Noted.**

**R4-2408434 DraftCR TC FR1 inter-frequency measurement without gap with interruption**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410336 (from R4-2408434).**

[**R4-2410336**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410336.zip) **DraftCR TC FR1 inter-frequency measurement without gap with interruption**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2408487 Test case for FR2 intra-frequency measurements for UE indicating NeedforInterruptionInfoNR under non-DRX and no interruption outside configured measurement gaps**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2410337 (from R4-2408487).**

[**R4-2410337**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410337.zip) **Test case for FR2 intra-frequency measurements for UE indicating NeedforInterruptionInfoNR under non-DRX and no interruption outside configured measurement gaps**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Intel Corporation*

**Decision: Return to.**

**R4-2408622 On remaining issues for performance requirements for measurements without gaps**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409147 Discussion on performance requirements for measurements without gaps**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409148 Draft CR TC for FR1 intra-freq measurments without gaps with interruptions**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410338 (from R4-2409148).**

[**R4-2410338**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410338.zip) **Draft CR TC for FR1 intra-freq measurments without gaps with interruptions**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409149 Draf CR TC for inter-RAT NR measurements without gaps with interruption**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410339 (from R4-2409149).**

[**R4-2410339**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410339.zip) **Draf CR TC for inter-RAT NR measurements without gaps with interruption**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409254 Discussion on test cases for measurement without MG**

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

**Decision: Noted.**

**R4-2409255 draftCR on NFG TC4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410340 (from R4-2409255).**

[**R4-2410340**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410340.zip) **draftCR on NFG TC4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409256 draftCR on IR TC4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410341 (from R4-2409256).**

[**R4-2410341**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410341.zip) **draftCR on IR TC4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409747 Draft CR for test case of event triggered reporting without interruption Intra-frequency measurements without gap or DRX configuration**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410342 (from R4-2409747).**

[**R4-2410342**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410342.zip) **Draft CR for test case of event triggered reporting without interruption Intra-frequency measurements without gap or DRX configuration**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2409748 Discussion on RRM performance requirements for measurements without gaps**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Noted.**

#### 7.5.5 Moderator summary and conclusions

Topic: [111][207] NR\_MG\_enh2\_part1

**R4-2408004 Topic summary for [111][207] NR\_MG\_enh2\_part1**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410376**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410376.zip) **WF on NR\_MG\_enh2\_part1**

*Type: other For: Approval  
 Source: MediaTek*

**Decision: Return to.**

[**R4-2410132**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410132.zip) **Ad-hoc minutes for NR\_MG\_enh2 WI**

*Type: other For: Approval  
 Source: MediaTek*

**Decision: Approved.**

**Issue 3-2-1: [Case 2] When the UE is configured with Concurrent gaps with NCSG, what is the potential changes to UE behaviour for NCSG upon SCell activation (in Rel-18)**

Discussion:

Ad-hoc chair: If we follow the tentative agreement in Rel-17:

* For UE configured with one NCSG and one Type 1/2 MG: All deactivated SCells are measured within NCSG, regardless of the reported UE capabilities [and gap association].
* For UE configured with 2 NCSG, deactivated SCells are measured with NCSG according to gap association, regardless of the reported UE capabilities.

Ad-hoc chair: come back this issue when treating the ad-hoc meeting munites.

Agreement:

* For UE configured with one NCSG and one Type 1/2 MG: All deactivated SCells are measured within NCSG, regardless of the reported UE capabilities [and gap association].
  + Further details on the processing delay between NCSG and Type 1/2 MG can be further discussed.
* For UE configured with 2 NCSG, deactivated SCells are measured with NCSG
  + If the association is provided, deactivated SCells are measured with NCSG according to gap association.
  + If the association is not provided, UE is not expected to cause interruption outside the VIL due to measurement on any of the deactivated SCells, and the existing measurement delay requirement does not apply to this case.

**Issue 4-2-3: [Case 1] Test cases list for Case 1: whether to do further setting changes to the agreed TCs**

Agreement:

For UE not supporting dynamic collision, the MG will be drop if overlapped with Pre-MG, regardless whether Pre-MG (with higher priority) is activated or deactivated, including the case when the MG overlaps with the Pre-MG activation/deactivation procedure.

**Issue 4-3-1: [Case 2] Test cases list for Case 2: Whether to support ‘Con-NCSG TC4’?**

* Agreement: Add Con-NCSG TC4

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Test case category** | **Test purpose** | **Volunteering companies** |
| Con-NCSG TC4 | Event triggered reporting test on deactivated SCell in **FR1** with concurrent gap and NCSG | Intra-frequency cell search/measurement delay for deactivated SCC is met for Cell2 in NCSG~~, and Inter-frequency cell search/measurement delay for Cell3 in MG~~  UE receives data in Cell1 meeting scheduling restriction requirements, andUE will not cause any interruption on Cell1 outside VIL windows. |  |

Topic: [111][208] NR\_MG\_enh2\_part2

**R4-2408005 Topic summary for [111][208] NR\_MG\_enh2\_part2**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410355**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410355.zip) **WF on NR\_MG\_enh2\_part2**

*Type: other For: Approval  
 Source: Intel*

**Decision: Return to.**

**Online session (Tuesday May 21, 2024)**

**Test cases**

**Test cases list and configurations for inter-RAT**

**UE features**

**Issue 2-3-2: Additional UE capability for scheduling restriction of case a-1**

* Proposals
  + Option 1: Introduce an E-UTRA FG x-z for scheduling restriction due to mixed numerology.
* Agreement: Introduce an E-UTRA FG x-z for scheduling restriction due to mixed numerology.

**Issue 2-3-3: Remove FG32-4 from prerequisite feature groups for FG 32-7.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Features** | **Index** | **Feature group** | **Components** | **Prerequisite feature groups** |
| 32. NR\_MG\_enh2 | 32-4 | Inter-RAT EUTRAN measurements without gap and outside active DL BWP | Support inter-RAT EUTRAN measurements outside active DL BWP for nogap-noncsg | 19-1b |
| 32. NR\_MG\_enh2 | 32-5 | Inter-RAT EUTRAN measurement without gap and within active DL BWP | Support of inter-RAT EUTRAN measurements without gap when CRS is contained within UE’s active DL BWP |  |
| 32. NR\_MG\_enh2 | 32-6 | Effective measurement window for inter-RAT EUTRAN measurements | Support configuration of effective measurement window for inter-RAT EUTRAN measurements, including offset, duration and periodicity. | 32-4 or 32-5 |
| 32. NR\_MG\_enh2 | 32-7 | Simultaneous reception of NR data and EUTRAN CRS with different numerology | Support concurrent inter-RAT measurement on EUTRAN cell in non-DSS with CRS and PDCCH or PDSCH reception from the serving cell with a different numerology | 32-4 or 32-5 |

* Proposals
  + Option 1: Remove.
* Recommended WF
  + Discussion is needed.

QC: Vacant RF chain is assumed for case b-1, no scheduling resctriction for mixed numerology. The same assumption for case a.

Intel: If even vacant RF chain, scheduling restriction is still needed. From baseband perspective, additional efforts are needed for mixed numerologies.

Apple: even with vacant RF chain ability, UE implementation with larger RF BW for intra-frequency case is still possible.

QC: when we discuss case b-1, the assumption is with vacant RF chain.

MTK: the assumption of vacant RF chain is for the discussion, but not directly captured in the UE feature.

HW: Share the view of Apple and MTK. We prefer to leave more flexibility for UE implementation.

HW: For 32-4, does it include case the Inter-RAT EUTRAN measurements without gap and overlapping with the active DL BWP?

Intel: the name is the UE ability, other scenario is also possible.

Agreement: Not Remove FG32-4 from prerequisite feature groups for FG 32-7

**Issue 2-3-4: Update FG 32-5 description.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 32. NR\_MG\_enh2 | 32-5 | Inter-RAT EUTRAN measurement without gap and within active DL BWP | Support of inter-RAT EUTRAN measurements without gap when CRS is contained within UE’s active DL BWP |  |

* Proposals
  + Option 1: Support of inter-RAT EUTRAN measurements without gap when CRS is completely contained within UE’s active DL BWP.
* Recommended WF
  + Discussion is needed.
* Agreement:
  + Support of inter-RAT EUTRAN measurements without gap when CRS is completely contained within UE’s active DL BWP.

**Issue 2-3-5: Update FG 32-4 description.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 32. NR\_MG\_enh2 | 32-4 | Inter-RAT EUTRAN measurements without gap and outside active DL BWP | Support inter-RAT EUTRAN measurements outside active DL BWP for nogap-noncsg | 19-1b |

* Proposals
  + Option 1: Remove CRS location restriction for FG32-4 and update FG32-4 description “Support inter-RAT EUTRAN measurements without gap for UE indicates nogap-noncsg”.
* Recommended WF
  + Discussion is needed.

Agreement: this issue is closed.

**NFG**

**Issue 1-1-1: Misalignment between DRX-on duration and SMTC for NFG measurements**

* Proposals
  + Option 1:
    - Option 1a: Interruptions are always allowed outside DRX ON duration and it is according to Tcycle,i.
    - Option 1b: Interruptions are not allowed during DRX ON duration.
    - Option 1c: Interruptions are not allowed when DRX cycle is larger than 320ms.
    - Option 1d: Interruptions are not allowed in the DRX ON duration, excluding the time extended due to drx-inactivityTimer.
  + Option 2: Interruptions are allowed under the conditions of issues 1-1-2, 1-1-3, 1-1-4.
* Recommended WF
  + Discussion needed.

**Issue 1-1-2: Aligned DRX-on duration and SMTC for NFG measurements and: DRX ON duration is SHORT and DRX cycle is LARGE**

* Proposals
  + Option 1: Interruption is always allowed, and it is according to Tcycle,i.
    - Option 1a: interruption is always allowed but except for the last DL slot containing PDCCH in the ON duration.
  + Option 2: UE does not measure within SMTC occasions and no interruption is allowed.
  + Option 3: Interruptions are not allowed in the DRX ON duration.
* Recommended WF
  + Discuss on the options.

**Issue 1-1-3: Aligned DRX-on duration and SMTC for NFG measurements and: ~~DRX ON duration is LONG and DRX cycle is SMALL~~**

* Proposals
  + Option 1: Interruption is always allowed, and it is according to Tcycle,i.
  + ~~Option 2: interruption is always allowed but except for the last DL slot containing PDCCH in the ON duration. (Nokia, ZTE)~~
  + Option 3: Interruption requirement not based on DRX-on duration
    - Further discuss the zero interruption scenario e.g., SMTC is not overlapping with DRX-on duration.
* Recommended WF
  + Agree on Option 1 and discuss option 2.

QC: DRX on duration is dynamically changed. We should not define interruption based on DRX on duration and DRX cycle. We should define minimal requirement in RAN4.

vivo: We have concern on this framework, which make UE implementation quite complicated.

Nokia: This may not be the most critical case. The scenario in Issue 1-1-2 is more relevant. UE try to aovid the non-preferred interrupton.

MTK: The basic idea of NFG is not to define the location of the interruption. Additional burden will be added for UE with the new framework.

**Agreement:**

* + Interruption ratio requirement not based on DRX-on duration
  + Not define the interruption location

**Issue 1-1-4: DRX ON duration SHORT and LONG threshold**

* Proposals
  + Option 1: 5ms.
  + Option 2: 10ms.
* Recommended WF
  + Need discussions.

**Issue 1-1-5: DRX cycle SMALL and LARGE threshold**

* Proposals
  + Option 1: 80ms.
  + Option 2: 160ms.
  + Option 3: 320ms.
* Recommended WF
  + Need discussions.

**Issue 1-1-6a: Interruption requirements for Tcycle,i when DRX cycle is configured**

* Proposals
  + Option 1: For DRX, the interruption ratio is defined based on
    - Tcycle,i = max (80ms, DRX cycle) x CSSFoutside\_gap,i, for DRX cycle > 320ms
    - Tcycle,i = max (80ms, SMTC period, DRX cycle) x 1.5 x CSSFoutside\_gap,i, for DRX cycle ≤ 320ms
  + Option 2:
    - Tcycle,i = DRXcycle, DRXcycle >320ms.
    - Tcycle,i = max (80ms, SMTCi, DRXcycle) , DRXcycle <=320ms
* Recommended WF
  + Need discussions.

### 7.6 Completion of specification support for bandwidth part operation without restriction in NR

#### 7.6.1 RRM core requirements maintenance

**R4-2407213 Big CR to TS 38.133 on core requirement maintenance for Completion of specification support for BWP without restriction in NR**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4336 rev Cat: F (Rel-18)  
  
 Source: Vodafone*

**Decision: Revised to R4-2410370 (from R4-2407213).**

[**R4-2410370**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410370.zip) **Big CR to TS 38.133 on core requirement maintenance for Completion of specification support for BWP without restriction in NR**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4336 rev Cat: F (Rel-18)  
  
 Source: Vodafone*

**Decision: For post-meeting email agreement.**

**R4-2407455 (NR\_BWP\_wor-Core) draft CR on condition of intra-band SSB-based measurements without measurement gap for Option C [R18 CatF]**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410371 (from R4-2407455).**

[**R4-2410371**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410371.zip) **(NR\_BWP\_wor-Core) draft CR on condition of intra-band SSB-based measurements without measurement gap for Option C [R18 CatF]**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2408159 CR clarifying the handover interruption time requirements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4445 rev Cat: D (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410372 (from R4-2408159).**

[**R4-2410372**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410372.zip) **CR clarifying the handover interruption time requirements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4445 rev Cat: D (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408275 On remaining issues for BWP operation without restriction**

*Type: discussion For: Discussion  
 Source: vivo, Vodafone*

**Decision: Noted.**

**R4-2408326 Remainning issues on BWP operation without restriction**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the reply LS on BWP without restriction

**Decision: Noted.**

**R4-2409257 Discussion on remaining issues for BWP without restriction**

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

**Decision: Noted.**

**R4-2409258 draftCR on requirements for BWP without restriction**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409750 Discussion on core maintenance**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Noted.**

#### 7.6.2 RRM performance requirements

**R4-2407214 Big CR to TS 38.133 on performance requirements for Completion of specification support for BWP without restriction in NR**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4337 rev Cat: B (Rel-18)  
  
 Source: Vodafone*

**Decision: Revised to R4-2410366 (from R4-2407214).**

[**R4-2410366**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410366.zip) **Big CR to TS 38.133 on performance requirements for Completion of specification support for BWP without restriction in NR**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4337 rev Cat: B (Rel-18)  
  
 Source: Vodafone*

**Decision: For post-meeting email agreement.**

**R4-2407518 (TC set 1&2) DraftCR on test cases for L1 and intra-frequency measurement without gap for option B-1-1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Return to.**

**R4-2408276 Draft CR on test cases for intra-frequency measurements without gaps for option C**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408277 Draft CR on test configurations for BWP operation without restriction**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410367 (from R4-2408277).**

[**R4-2410367**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410367.zip) **Draft CR on test configurations for BWP operation without restriction**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408327 Draft CR to 38.133 Test case of L1-RSRP,L1-SINR for Option C**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

The test case of NES Cell DTX

E///: Define a new SMTC configuration, with the same values for the parameters, but not have “RedCap” in the name.

|  |  |  |  |
| --- | --- | --- | --- |
| SMTC configuration for NCD-SSB | 1~3 |  | [SMTC.2 RedCap] |

Agreement: Add a note to clarify that the RedCap [SMTC] configuration can be applied to non-RedCap UE.

**Decision: Revised to R4-2410368 (from R4-2408327).**

[**R4-2410368**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410368.zip) **Draft CR to 38.133 Test case of L1-RSRP,L1-SINR for Option C**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

The test case of NES Cell DTX

E///: Define a new SMTC configuration, with the same values for the parameters, but not have “RedCap” in the name.

|  |  |  |  |
| --- | --- | --- | --- |
| SMTC configuration for NCD-SSB | 1~3 |  | [SMTC.2 RedCap] |

Agreement: Add a note to clarify that the RedCap [SMTC] configuration can be applied to non-RedCap UE.

**Decision: Return to.**

**R4-2409259 draftCR on HO TCs for option C**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409751 Draft CR to Rel-18 TS 38.133: on test case of L1-RSRP, L1-SINR for option C**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410369 (from R4-2409751).**

**[R4-2410369](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410369.zip) Draft CR to Rel-18 TS 38.133: on test case of L1-RSRP, L1-SINR for option C**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

#### 7.6.3 Moderator summary and conclusions

Topic: [111][209] NR\_BWP\_wor

**R4-2408006 Topic summary for [111][209] NR\_BWP\_wor**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410365**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410365.zip) **WF on core maintenance and performance part for BWP without restriction**

*Type: other For: Approval  
 Source: vivo, Vodafone*

**Decision: Return to.**

**Online session (Tuesday May 21, 2024)**

**Issue 1-5: Configuration of SSB resources within CSI-ResourceConfig settings for option B-1-1**

* Proposals
  + Option 1: (vivo, Vodafone)
    - Remove the bracket in L1-RSRP/L1-SINR requirements for UE supporting option B-1-1.
  + Option 2a: (Huawei)
    - RAN4 to confirm that SSB outside a BWP can be configured within *CSI-ResourceConfig* for the BWP if UE supports option B-1-1.
  + Option 2b: (Ericsson)
    - * Configuration of SSB resources outside active BWP is allowed within *CSI-ResourceConfig* settings for UEs supporting option B-1-1. No need to send an LS to RAN1/RAN2.
  + Option 2c: (MTK)
    - RAN4 should further clarify what is the ambiguity part of the other WG spec before sending an LS requesting for further details.
* Agreement:
  + It is RAN4 common understanding that SSB outside a BWP can be configured within *CSI-ResourceConfig* for the BWP if UE supports option B-1-1.
  + Remove the bracket in L1-RSRP/L1-SINR requirements for UE supporting option B-1-1.

### 7.7 Enhanced NR support for high speed train scenario in frequency range 2

#### 7.7.1 RRM core requirement maintenance

**R4-2408592 Reply LS on RRM enhancements for NR FR2 HST**

*Type: LS out For: Approval  
 to RAN2  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2408609 Reply LS to RAN2 on RRM enhancements for NR FR2 HST**

*Type: LS out For: Approval  
 to RAN2  
 Source: Ericsson*

**Abstract:**

Discussion on reply LS to RAN2 on RRM enhancements for NR FR2 HST

**Decision: Noted.**

**R4-2408645 On LS Reply on RRM enhancements for NR FR2 HST to RAN2**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408646 Draft LS Reply on RRM enhancements for NR FR2 HST to RAN2**

*Type: LS out For: Approval  
 to TSG RAN WG5  
 Source: Nokia*

**Decision: Noted.**

**R4-2408649 CR to 38.133 on HST FR2 Enhanced RRM Core Maintenance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4522 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410298 (from R4-2408649).**

[**R4-2410298**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410298.zip) **CR to 38.133 on HST FR2 Enhanced RRM Core Maintenance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4522 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408887 Discussion on intra-band CA intra-frequency configuration for Rel-18 FR2 HST**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

**R4-2408888 Reply LS to RAN2 on RRM intra-frequency CA measurement enhancements for NR FR2 HST**

*Type: LS out For: Approval  
 to RAN2  
 Source: Samsung*

**Decision: Revised to R4-2410285 (from R4-2408888).**

[**R4-2410285**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410285.zip) **Reply LS to RAN2 on RRM intra-frequency CA measurement enhancements for NR FR2 HST**

*Type: LS out For: Approval  
 to RAN2  
 Source: Samsung*

**Decision: Approved.**

**R4-2409794 Draft LS Reply on RRM enhancements for NR FR2 HST to RAN2**

*Type: LS out For: Approval  
 to TSG RAN WG2  
 Source: Nokia*

**Decision: Noted.**

#### 7.7.2 RRM performance requirements

**R4-2408593 Test case on SA event triggered reporting for Rel-18 FR2 HST inter-frequency measurement with SSB time index detection when DRX is not used (Pcell in FR2)**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4510 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408593. Database value : 4510. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Revised to R4-2410286 (from R4-2408593).**

[**R4-2410286**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410286.zip) **Test case on SA event triggered reporting for Rel-18 FR2 HST inter-frequency measurement with SSB time index detection when DRX is not used (Pcell in FR2)**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4510 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408593. Database value : 4510. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Return to.**

**R4-2408642 Draft CR to 38.133 on UL Timing and TCI State Switch Test Case for HST FR2 Enhanced**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410287 (from R4-2408642).**

[**R4-2410287**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410287.zip) **Draft CR to 38.133 on UL Timing and TCI State Switch Test Case for HST FR2 Enhanced**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408643 Draft CR to 38.133 on Minimum SSB\_RP Values for PC6 UEs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410288 (from R4-2408643).**

[**R4-2410288**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410288.zip) **Draft CR to 38.133 on Minimum SSB\_RP Values for PC6 UEs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408644 Draft CR to 38.133 on Enhanced Intra-Frequency Measurements Test Case for HST FR2 Enhanced**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410289 (from R4-2408644).**

[**R4-2410289**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410289.zip) **Draft CR to 38.133 on Enhanced Intra-Frequency Measurements Test Case for HST FR2 Enhanced**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408839 Draft CR for 38.133 on test case for FR2 HST intra-band CA without SSB time index detection when DRX is not used**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR for 38.133 on test case for FR2 HST intra-band CA without SSB time index detection when DRX is not used

**Decision: Revised to R4-2410290 (from R4-2408839).**

[**R4-2410290**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410290.zip) **Draft CR for 38.133 on test case for FR2 HST intra-band CA without SSB time index detection when DRX is not used**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR for 38.133 on test case for FR2 HST intra-band CA without SSB time index detection when DRX is not used

**Decision: Return to.**

**R4-2408889 Draft CR to 38.133 on test case for SSB based L1-RSRP for FR2 PC6 UE with multi-Rx**

*Type: draftCR For: Endorsement* 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 *Source: Samsung*

**Decision: Revised to R4-2410291 (from R4-2408889).**

[**R4-2410291**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410291.zip) **Draft CR to 38.133 on test case for SSB based L1-RSRP for FR2 PC6 UE with multi-Rx**

*Type: draftCR For: Endorsement* 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 *Source: Samsung*

**Decision: Return to.**

**R4-2408890 Draft CR to 38.133 on new 2AoA setup for multi-Rx chain DL reception in Rel-18 FR2 HST**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Samsung, Nokia, Qualcomm, Ericsson*

**Decision: Revised to R4-2410292 (from R4-2408890).**

[**R4-2410292**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410292.zip) **Draft CR to 38.133 on new 2AoA setup for multi-Rx chain DL reception in Rel-18 FR2 HST**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Samsung, Nokia, Qualcomm, Ericsson*

**Decision: Return to.**

**R4-2408894 Big CR to TS 38.133 on Rel-18 HST FR2 RRM performance requirements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4541 rev Cat: B (Rel-18)  
  
 Source: Samsung*

**Decision: Revised to R4-2410378 (from R4-2408894).**

**[R4-2410378](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410378.zip) Big CR to TS 38.133 on Rel-18 HST FR2 RRM performance requirements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4541 rev Cat: B (Rel-18)  
  
 Source: Samsung*

**Decision: For post-meeting email agreement.**

#### 7.7.4 Moderator summary and conclusions

Topic: [111][210] NR\_HST\_FR2\_enh

**R4-2408007 Topic summary for [111][210] NR\_HST\_FR2\_enh**

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

**Abstract:**

Topic summary in RRM session

**Decision: Revised to R4-2410293 (from R4-2408007).**

[**R4-2410293**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410293.zip) **Topic summary for [111][210] NR\_HST\_FR2\_enh**

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

**Abstract:**

Topic summary in RRM session

**Decision: Return to.**

**Online session (Monday May 20, 2024)**

**Sub-topic 1-1 Discussion on RAN2 LS R2-2403963**

[Moderator] In RAN2 #125-bis meeting, the LS [R2-2403963] regarding intra-band CA intra-frequency RRM enhancements for NR FR2 HST was sent to RAN4. In their LS, they respectfully ask RAN4 the following question: whether gNB should enable RRM enhancements for all serving cells in the same frequency band (i.e. intra-band CA) in consistent manner. For convenience, the whole LS is copied as below

|  |
| --- |
| **1. Overall Description:**  In RAN2 #125, RAN2 agreed a TS38.331 CR (R2-2401565) to support RRM enhancement for Rel-18 NR FR2 HST. For the intra-frequency measurement enhancement on SCC, RAN2 agreed to use the existing RRC configuration parameter *highSpeedMeasFlagFR2* in serving cell configuration of each SCell.  During RAN2 discussion, it was questioned whether gNB should enable RRM enhancements for all serving cells in the same frequency band (i.e. intra-band CA) in consistent manner. That is, it is whether the presence of highSpeedMeasFlagFR2 should be the same for all serving cells in the same frequency band. For example, if highSpeedMeasFlagFR2 is present for PCell, highSpeedMeasFlagFR2 should be present to all SCells in the same frequency band as PCell.  Some companies think that given that HST is a dedicated deployment, it is likely that all carriers in the same frequency band in CA are deployed for HST. In this case, if the same HST configuration is applied for all serving cells in the same frequency band, unnecessary complexity in UE implementation could be avoided.  **2. Actions:**  **To RAN4 group:**  **ACTION:** RAN2 respectfully ask RAN4 whether gNB should enable RRM enhancements for all serving cells in the same frequency band (i.e. intra-band CA) in consistent manner. |

**Issue 1-1-1 Whether gNB should enable RRM enhancements for all serving cells in the same frequency band (i.e. intra-band CA) in consistent manner**

* Observations
  + Observation 1 (Nokia):
    - It was agreed at RAN4#108 that *highSpeedMeasFlagFR2-r17* signaling is re-used for:
      * Reuse Rel-17 signaling highSpeedMeasFlagFR2 to inform UE whether to apply the enhanced RRM requirements for inter-frequency measurement for FR2 HST in Connected mode.
      * Reuse Rel-17 signaling highSpeedMeasFlagFR2 to inform UE whether to apply the enhanced RRM requirements for intra-frequency measurement on SCC for FR2 HST in Connected mode.
      * Reuse Rel-17 IE highSpeedMeasFlagFR2-r17 in SIB to inform UE whether to apply the enhanced RRM requirements for inter-frequency measurement for FR2 HST in idle mode.
    - RAN4 assumed that HST FR2 feature is used only in dedicated railways deployments, i.e., including all subcarriers allocated to HST FR2 in the frequency band.
  + Observation 2 (Samsung):
    - The specific signalling highSpeedMeasCA-Scell was introduced for CA enhancement intra-frequency measurements in FR1 HST.
    - The parameter highSpeedMeasFlag is only indicated to apply to the serving frequency of SpCell in FR1 HST
    - For FR2 HST,
      * In Rel-17, if the highSpeedMeasFlagFR2-17 is considered, UE shall apply enhanced intra-frequency RRM requirement to the serving frequency of SpCell according to the definition of the IE in TS 38.331
      * In Rel-18, if the highSpeedMeasFlagFR2-17 is considered, and UE supports the capability measurementEnhancementCAInterFreqFR2-r18, UE shall apply the enhanced RRM requirements for intra-frequency measurement on SCC in connected mode
    - For FR2 intra-frequency intra-band case, UE shall be capable of performing measurements for at least 6 cells.
* Proposals
  + Proposal 1 (Samsung):
    - In FR2 HST scenario,
      * it can be assumed that intra-band CA RRM requirements are enhanced if applicable implies all the serving frequencies in the same band shall be enhanced.
      * the RRC configuration parameter highSpeedMeasFlagFR2 can be same configured for different serving cells in the same band
    - In FR2 HST scenario,
      * The RRM requirements will be defined under assumption that all carriers in the connected mode are HST carriers, that is all carriers in the same frequency band (i.e. intra-band CA) are deployed for HST
      * The parameter highSpeedMeasFlagFR2 not only applies to serving frequency of PCell but also applies to serving frequencies of all SCells in the same frequency band (i.e. intra-band CA).
    - In FR2 HST, gNB should enable RRM enhancements for all serving cells in the same frequency band (i.e. intra-band CA) in consistent manner
  + Proposal 2 (Huawei, HiSilicon):
    - the presence of highSpeedMeasFlagFR2 should be the same for all serving cells in the same frequency band, and
    - if highSpeedMeasFlagFR2 is present, the HST configuration (set1 or set2) should be the same for all serving cells in the same frequency band as well.
  + Proposal 3 (Nokia):
    - In HST FR2 deployments, gNB shall enable RRM enhancements for all serving cells/carrier components in the same frequency band (i.e., intra-band CA) if *highSpeedMeasFlagFR2* is present for PCell

Issue 1-1-1 Whether gNB should enable RRM enhancements for all serving cells in the same frequency band (i.e. intra-band CA) in consistent manner

* Candidate options / tentative agreements
  + Option 1:
    - In FR2 HST scenario, the requirements is defined under assumption that all carriers in the same frequency band (i.e. intra-band CA) are deployed for HST in connected mode
    - In FR2 HST, gNB should enable RRM enhancements for all serving cells in the same frequency band (i.e. intra-band CA) in consistent manner
      * The presence of highSpeedMeasFlagFR2 should be the same for all serving cells in the same frequency band
        + If highSpeedMeasFlagFR2 is present, the configured parameters for FR2 HST, i.e., set 1or set 2, should be the same for all serving cells in the same frequency band
* Recommended WF
  + Discuss whether the two sub-bullets in Option 1 are acceptable during the meeting and reflect the agreements in Reply LS

Nokia: the two bullets are on the same thing.

QC: Either set 1 or set 2 is configured for all serving cells. The indication is applicable to only PCell or all cells, which is up to RAN2 design.

HW: For intra-band CA, it is related to collocated scenario, and thus either set 1 or set 2 is configured for all serving cells.

Samsung: the first bullet is for comfirmation.

Agreement: Capture the following RAN4 agreements in the reply LS to RAN2:

* + - In FR2 HST, gNB should enable RRM enhancements for all serving cells in the same frequency band (i.e. intra-band CA) in consistent manner
      * The presence of highSpeedMeasFlagFR2 should be the same for all serving cells in the same frequency band
        + If highSpeedMeasFlagFR2 is present, the configured parameters for FR2 HST, i.e., set 1 or set 2, should be the same for all serving cells in the same frequency band
    - Further discuss the wording in the reply LS.

**Issue 1-1-2 How to define the highSpeedMeasFlagFR2 for intra-frequency intra-band CA enhancement**

* Proposals and Observations
  + Observation 1 (Ericsson):
    - There are the below options to align RAN4’s understanding and IE definition in RRC message in RAN2.
      * Option 1: Define ‘highSpeedMeasFlagFR2-r17’ only for SpCell.
      * Option 2: Define ‘highSpeedMeasFlagFR2-r17’ at the least for SpCell.
      * Option 3: Define ‘highSpeedMeasFlagFR2-r17’ for SpCell and SCell respectively.
    - To our understanding, Option 1 is enough, but we’re fine with Option 3, which is in line with FR1 method in which signalings are separately for each cell.
  + Observation 2 (Samsung):
    - RAN4 agreed to reuse legacy Rel-17 requirements for NR intra-frequency measurement, i.e, PCell requirements, for Rel-18 FR2 HST UE supporting intra-frequency intra-band CA.
      * The corresponding agreement was achieved in RAN4 #107 R4-2310041, below

|  |
| --- |
| * + Reuse legacy Rel-17 requirements for NR intra-frequency measurement for Rel-18 FR2 HST UE supporting intra-band CA. |

* + Proposal 1 (Samsung):
    - In FR2 HST, it is expected to put a restriction for intra-frequency intra-band CA enhancement on PCell for the description of highSpeedMeasFlagFR2-r17 in Rel-18 version to enable:
      * UE shall apply enhanced intra-frequency RRM requirements to all serving cells in the same frequency band when the field is present for PCell and the UE supports measEnhCAInterFreqFR2-r18.
  + Proposal 2 (Nokia):
    - In HST FR2 deployments, gNB shall enable RRM enhancements for all serving cells/carrier components in the same frequency band (i.e., intra-band CA) if *highSpeedMeasFlagFR2* is present for PCell
* Candidate options / tentative agreements:
  + Option 1:
    - * In HST FR2, UE shall apply enhanced intra-frequency RRM requirements to all serving cells in the same frequency band when *highSpeedMeasFlagFR2* is present for PCell and the UE supports measEnhCAInterFreqFR2-r18.
  + Option 2:
    - * RAN4 agreed to reuse legacy Rel-17 requirements for NR intra-frequency measurement, i.e, PCell requirements, for Rel-18 FR2 HST UE supporting intra-frequency intra-band CA.
        + The corresponding agreement was achieved in RAN4 #107 R4-2310041, below

|  |
| --- |
| * + Reuse legacy Rel-17 requirements for NR intra-frequency measurement for Rel-18 FR2 HST UE supporting intra-band CA. |

* Recommended WF
  + Discuss whether Option 1 is acceptable, and whether Option 2 is needed for information during the meeting and reflect the tentative agreement in Reply LS

### 7.8 NR support for dedicated spectrum less than 5MHz for FR1

#### 7.8.5 RRM core requirement maintenance

**R4-2408160 BigCR for NR\_FR1\_lessthan\_5MHz\_BW**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4446 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: 3GU was updated for WI code to include NR\_FR1\_lessthan\_5MHz\_BW-Core.

**Decision: Revised to R4-2410395 (from R4-2408160).**

[**R4-2410395**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410395.zip) **BigCR for NR\_FR1\_lessthan\_5MHz\_BW**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4446 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: 3GU was updated for WI code to include NR\_FR1\_lessthan\_5MHz\_BW-Core.

**Decision: Return to.**

**R4-2408662 draft CR to 38.133 on RRM core requirements for Less than 5MHz**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Merged.**

**R4-2409260 draftCR on RRM core requirements for less than 5MHz BW**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged.**

**R4-2409710 RRM core requirement maintenance for NR less than 5 MHz**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

RRM core requirement maintenance for NR less than 5 MHz

**Decision: Noted.**

**R4-2409711 Draft CR to 38.133 on core requirement maintenance for NR less than 5 MHz**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR on core requirement maintenance for NR less than 5 MHz

**Decision: Merged.**

#### 7.8.6 RRM performance requirements

[**R4-2410396**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410396.zip) **Big CR for Introducing agreed test cases and common parameters for NR\_FR1\_lessthan\_5MHz\_BW**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-xxxx rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2407303 (NR\_FR1\_lessthan\_5MHz\_BW-Perf) test case of FR1 intra-frequency handover for less than 5MHz**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Apple*

**Decision: Merged.**

**R4-2408042 Draft CR on SSB-based RLM IS test for FR1 PCell with 3MHz CBW in non-DRX mode**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Merged.**

**R4-2408663 draft CR to 38.133 on RLM Test Case for LessThan 5MHz (SSB-based, FR1) DRX, Out-of-sync, 12 PRBs with common TC parameters**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Merged.**

**R4-2408664 draft CR to 38.133 on Radio Link Monitoring Test Case for LessThan 5MHz (SSB-based, FR1): non-DRX, Out-of-sync, 15 PRBs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Merged.**

**R4-2408665 draft CR to 38.133 on Cell reselection Test Case for LessThan 5MHz FR1 intra-frequency**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Merged.**

**R4-2408666 Discussion on test case approach for Less Than 5MHz**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Noted.**

**R4-2409261 draftCR on TC MR-1 for less than 5MHz operation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged.**

**R4-2409712 Discussions on performance requirements for NR less than 5 MHz**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussions on performance requirements for NR less than 5 MHz

**Decision: Noted.**

**R4-2409713 Draft CR to 38.133 TC: BFD and link recovery (SSB-based, FR1): DRX, 15 PRB**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

TC: BFD and link recovery (SSB-based, FR1): DRX, 15 PRB

**Decision: Merged.**

**R4-2409749 Draft CR for event-4 SA event triggered reporting, SSB based, Time period for time index detection**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Merged.**

#### 7.8.8 Moderator summary and conclusions

Topic: [111][211] NR\_FR1\_lessthan\_5MHz\_BW

**R4-2408008 Topic summary for [111][211] NR\_FR1\_lessthan\_5MHz\_BW**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

**Online session (Wednesday May 22, 2024)**

**Core maintenance:**

**Issue 1-1: Clarify T∆ during handover by adding ‘SSB index reading and MIB reading’**

* Proposals
  + Option 1: Agree on the clarification for ‘T∆’ as proposed in R4-2409710
  + Option 2: More discussion needed.
* Recommended WF
  + This was discussed and agreed to add a clarification in the requirements. However, the wording was left FFS in RAN4#110bis and agreed to further discuss and agree on the wording in RAN4#111 meeting.
  + Agree on the principle in TP in R4-2409710. Further discuss any wording updates during CR drafting.

QC: We have not agreed to add the clarification. No such clarification in legacy spec. It will lead to misalignment for less than 5MHz spec and other sections.

Apple: MIB reading of neigboring cell is not needed.

Nokia: No common understanding on the agreement in the last meeting. Can leave the spec as it is, since the requirement itself is clear.

E///: If leave it open, it is not clear for the future.

Session chair: Further check whether it is ok to: not add the clarification under this WI, and discuss it as a generic issue.

**Issue 1-2: Removal of square brackets as proposed in R4-2408662**

* Proposals
  + Option 1: yes
  + Option 2: no
* Agreement
  + Remove the square brackets as proposed in R4-2408662

**Issue 1-3: Update FR2-FR1 HO section 6.1.1.3.2 as proposed in R4-2409260**

* Proposals
  + Option 1: yes
  + Option 2: no
* Agreement
  + Update section 6.1.1.3.2 FR2-FR1 HO with the agreed changes from FR1-FR1 HO as proposed in R4-2409260.

### 7.12 Expanded and improved NR positioning

#### 7.12.1 RRM core requirements maintenance

##### 7.12.1.1 General aspects

**R4-2409368 Draft Big CR to 38.133 on RRM core requirements for Positioning Enhancements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft big CR to 38.133 on RRM core requirements for Positioning Enhancements

**Decision: Not pursued.**

[**R4-2410150**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410150.zip) **Big CR to 38.133 on RRM core requirements for Positioning Enhancements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-xxxx rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Decision: Post-meeting email agreement.**

##### 7.12.1.2 SL Positioning and Carrier Phase Positioning

**R4-2407490 Discussion on Core requirements of Sidilink positioning and CPP**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407877 Discission on core requirements for SL positioning and carrier phase**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2407968 On RRM core maintenance for SL positioning and carrier phase positioning**

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

**Decision: Noted.**

**R4-2408299 Discussion on remaining issues for sidelink positioning requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409262 Discussion on RRM requirements for SL and CPP**

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

**Decision: Noted.**

**R4-2409263 draftCR on RRM requirements for SL positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409264 draftCR on RRM requirements for CPP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409370 Draft CR to 38.133 on SL positioning RRM core requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to 38.133 on SL positioning RRM core requirements

**Decision: Revised to R4-2410155 (from R4-2409370).**

[**R4-2410155**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410155.zip) **Draft CR to 38.133 on SL positioning RRM core requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to 38.133 on SL positioning RRM core requirements

**Decision: Return to.**

**R4-2409575 Definition of Carrier Phase and Carrier Phase Difference with Carrier Frequency Offsets**

*Type: discussion For: Approval  
 Source: Lenovo*

**Decision: Noted.**

**R4-2409580 On remaining issues related to carrier phase positioning and SL positioning core requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This paper discusses issues related to core requirements for carrier phase positioning and SL positioning

**Decision: Noted.**

**R4-2409581 DraftCR to 38.133 on core requirements for CPP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Corrections to core requirements for CPP.

**Decision: Return to.**

##### 7.12.1.3 LPHAP use case

**R4-2407972 Draft CR – Corrections to PRS measurement period with eDRX in RRC\_IDLE state**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410156 (from R4-2407972).**

[**R4-2410156**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410156.zip) **Draft CR – Corrections to PRS measurement period with eDRX in RRC\_IDLE state**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2409265 draftCR on RRM requirements for LPHAP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410157 (from R4-2409265).**

[**R4-2410157**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410157.zip) **draftCR on RRM requirements for LPHAP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409582 DraftCR to 38.133 on Core requirements for LPHAP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Corrections to core requirements for LPHAP.

**Decision: Revised to R4-2410158 (from R4-2409582).**

**[R4-2410158](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410158.zip) DraftCR to 38.133 on Core requirements for LPHAP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Corrections to core requirements for LPHAP.

**Decision: Return to.**

##### 7.12.1.4 RedCap Positioning and PRS/SRS bandwidth aggregation

**R4-2407039 (NR\_Pos\_enh2-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4314 rev Cat: F (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

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

**R4-2407491 Discussion on Core requirements of BW aggregation positioning**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407789 (NR\_Pos\_enh2-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4413 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Revised to R4-2410151 (from R4-2407789).**

[**R4-2410151**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410151.zip) **(NR\_Pos\_enh2-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4413 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Return to.**

**R4-2407833 draftCR for RedCap postioing requirements in RRC\_Idle**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Xiaomi*

**Decision: Not pursued.**

**R4-2407878 Discission on core requirements for RedCap positioning and PRS bandwidth aggregation**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2409266 Discussion on RedCap positioning and PRS/SRS CA**

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

**Decision: Noted.**

**R4-2409267 draftCR on RRM requirements for RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410152 (from R4-2409267).**

[**R4-2410152**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410152.zip) **draftCR on RRM requirements for RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409268 draftCR on RRM requirements for PRS CA**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410154 (from R4-2409268).**

[**R4-2410154**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410154.zip) **draftCR on RRM requirements for PRS CA**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409583 On remaining issues related to RedCap positioning and bandwidth aggregation for positioning core requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This paper discusses remaining issues related to RedCap positioning and bandwidth aggregation core requirements.

**Decision: Noted.**

**R4-2409584 DraftCR to 38.133 on core requirements for bandwidth aggregation for positioning measurements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Corrections to core requirements for positioning measurements based on bandwidth aggregation.

**Decision: Endorsed.**

**R4-2409585 DraftCR to 38.133 on core requirements for RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Corrections to core requirements for RedCap positioning.

**Decision: Revised to R4-2410153 (from R4-2409585).**

[**R4-2410153**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410153.zip) **DraftCR to 38.133 on core requirements for RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Corrections to core requirements for RedCap positioning.

**Decision: Return to.**

**R4-2409651 RRM Core Requirements Maintenance for RedCap Positioning**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409689 Discussion on RRM impacts on RedCap positioning**

*Type: other For: Approval  
 Source: ZTECorporation,Sanechips*

**Decision: Noted.**

#### 7.12.2 RRM performance requirements

##### 7.12.2.1 General aspects

**R4-2409269 On general aspects of positioning test cases**

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

**Decision: Noted.**

**R4-2409270 draftCR on time window configuration**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410159 (from R4-2409270).**

[**R4-2410159**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410159.zip) **draftCR on time window configuration**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409369 Draft Big CR to 38.133 on RRM performance requirements for Positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft Big CR to 38.133 on RRM performance requirements for Positioning

**Decision: Revised to R4-2410160 (from R4-2409369).**

[**R4-2410160**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410160.zip) **Draft Big CR to 38.133 on RRM performance requirements for Positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft Big CR to 38.133 on RRM performance requirements for Positioning

**Decision: Return to.**

**R4-2409586 Updated work split on test cases for RedCap positioning**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

updated worksplit

**Decision: Noted.**

**R4-2409587 DraftCR to 38.133 on general aspects related to performance requirement**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Revised to R4-2410161 (from R4-2409587).**

**[R4-2410161](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410161.zip) DraftCR to 38.133 on general aspects related to performance requirement**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Return to.**

##### 7.12.2.2 SL Positioning

**R4-2407492 Discussion on Performance requirements of Sidilink positioning**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407519 (Set 1-4 & 10-2) Draft CR for SL PRS configuration and SL Rx-Tx measurement delay TC in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Revised to R4-2410186 (from R4-2407519).**

[**R4-2410186**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410186.zip) **(Set 1-4 & 10-2) Draft CR for SL PRS configuration and SL Rx-Tx measurement delay TC in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Return to.**

**R4-2407879 Discission on perf requirements for SL positioning**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2407880 [2-14] Draft CR on Measurements Accuracy for SL PRS-RSRPP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Revised to R4-2410187 (from R4-2407880).**

[**R4-2410187**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410187.zip) **[2-14] Draft CR on Measurements Accuracy for SL PRS-RSRPP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Return to.**

**R4-2407969 On RRM performance requirements for SL positioning**

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

**Decision: Noted.**

**R4-2408297 Draft CR on measurement delay test cases for SL positioning - Sets 10-3 10-4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410188 (from R4-2408297).**

[**R4-2410188**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410188.zip) **Draft CR on measurement delay test cases for SL positioning - Sets 10-3 10-4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408300 Discussion on performance requirements for sidelink positioning**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409271 On performance requirements for SL positioning**

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

**Decision: Noted.**

**R4-2409272 draftCR on performance requirements for SL positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410189 (from R4-2409272).**

[**R4-2410189**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410189.zip) **draftCR on performance requirements for SL positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409371 On SL positioning performance issues**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

On SL positioning performance issues

**Decision: Noted.**

**R4-2409372 Draft CR to 38.133 on SL positioning RRM performance**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to 38.133 on SL positioning RRM performance

**Decision: Revised to R4-2410190 (from R4-2409372).**

**[R4-2410190](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410190.zip) Draft CR to 38.133 on SL positioning RRM performance**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to 38.133 on SL positioning RRM performance

**Decision: Return to.**

##### 7.12.2.3 LPHAP use case

**R4-2407881 [TC 9-5 and 9-6] Draft CR on PRS-RSRP delay TC for case 2 in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Revised to R4-2410181 (from R4-2407881).**

[**R4-2410181**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410181.zip) **[TC 9-5 and 9-6] Draft CR on PRS-RSRP delay TC for case 2 in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Return to.**

**R4-2407975 Draft CR – Test cases for UE Rx-Tx measurement delay with eDRX > 10.24s in RRC\_INACTIVE, Sets 9-11, 9-12**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410182 (from R4-2407975).**

[**R4-2410182**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410182.zip) **Draft CR – Test cases for UE Rx-Tx measurement delay with eDRX > 10.24s in RRC\_INACTIVE, Sets 9-11, 9-12**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2408296 Draft CR on measurement delay test cases for LPHAP - Sets 9-3 9-4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410183 (from R4-2408296).**

[**R4-2410183**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410183.zip) **Draft CR on measurement delay test cases for LPHAP - Sets 9-3 9-4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2409273 On performance requirements for LPHAP**

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

**Decision: Noted.**

**R4-2409274 draftCR on performance requirements for LPHAP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410184 (from R4-2409274).**

[**R4-2410184**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410184.zip) **draftCR on performance requirements for LPHAP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409588 DraftCR to 38.133 to introduce test cases for LPHAP in RRC\_INACTIVE state in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Revised to R4-2410185 (from R4-2409588).**

**[R4-2410185](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410185.zip) DraftCR to 38.133 to introduce test cases for LPHAP in RRC\_INACTIVE state in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Return to.**

##### 7.12.2.4 RedCap Positioning

**R4-2407488 (2-4, 3-21, 22, 23, 24) Draft CR on PRS-RSRPP performance requirements and UE Rx-Tx measurement delay test cases for RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Revised to R4-2410162 (from R4-2407488).**

[**R4-2410162**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410162.zip) **(2-4, 3-21, 22, 23, 24) Draft CR on PRS-RSRPP performance requirements and UE Rx-Tx measurement delay test cases for RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Return to.**

**R4-2407493 Discussion on Performance requirements of RedCap UE positioning**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407882 [TC 3-29 and 3-30] Draft CR on TC for PRS-RSRPP delay with Rx FH in RRC CONNECTED**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Revised to R4-2410163 (from R4-2407882).**

[**R4-2410163**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410163.zip) **[TC 3-29 and 3-30] Draft CR on TC for PRS-RSRPP delay with Rx FH in RRC CONNECTED**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Return to.**

**R4-2408488 (3-17~20) Test cases for RedCap RSTD measurement delay with frequency hopping**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2410164 (from R4-2408488).**

[**R4-2410164**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410164.zip) **(3-17~20) Test cases for RedCap RSTD measurement delay with frequency hopping**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Intel Corporation*

**Decision: Return to.**

**R4-2409275 On performance requirements for RedCap positioning**

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

**Decision: Noted.**

**R4-2409276 additional simulation results for RedCap positioning**

*Type: other For: Discussion  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2409277 draftCR on performance requirements for RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410165 (from R4-2409277).**

[**R4-2410165**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410165.zip) **draftCR on performance requirements for RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409589 On performance requirements for RedCap positioning**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses performance requirements for RedCap positioning.

**Decision: Noted.**

**R4-2409590 DraftCR to 38.133 on performance requirements for Rel.18 RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Revised to R4-2410166 (from R4-2409590).**

[**R4-2410166**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410166.zip) **DraftCR to 38.133 on performance requirements for Rel.18 RedCap positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Return to.**

**R4-2409650 (NR\_pos\_enh2-Perf) (3-9, 3-10) PRS-RSRP measurement delay test case for RedCap positioning without Rx FH in RRC CONNECTED state in FR1 and FR2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410167 (from R4-2409650).**

[**R4-2410167**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410167.zip) **(NR\_pos\_enh2-Perf) (3-9, 3-10) PRS-RSRP measurement delay test case for RedCap positioning without Rx FH in RRC CONNECTED state in FR1 and FR2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409700 Draft CR for test case on RedCap positioning\_PRS RSRPP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Revised to R4-2410168 (from R4-2409700).**

[**R4-2410168**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410168.zip) **Draft CR for test case on RedCap positioning\_PRS RSRPP**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Return to.**

**R4-2409731 draftCR (3-1)(3-3)(4-1)(4-3) TCs for RedCap positioning without FH on RSTD measurement delay and accuracy in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410169 (from R4-2409731).**

**[R4-2410169](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410169.zip) draftCR (3-1)(3-3)(4-1)(4-3) TCs for RedCap positioning without FH on RSTD measurement delay and accuracy in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

##### 7.12.2.5 PRS/SRS bandwidth aggregation

**R4-2407489 (5-3, 4) Draft CR on RSTD measurement reporting delay test cases for PRS aggregation in FR1 and FR2 in RRC\_INACTIVE state**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Revised to R4-2410170 (from R4-2407489).**

[**R4-2410170**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410170.zip) **(5-3, 4) Draft CR on RSTD measurement reporting delay test cases for PRS aggregation in FR1 and FR2 in RRC\_INACTIVE state**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Return to.**

**R4-2407494 Discussion on Performance requirements of PRS BW aggregation**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407883 Discission on perf requirements for PRS bandwidth aggregation**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2407884 [2-6] Draft CR on PRS-RSRP Measurements Based on PRS BWA**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Revised to R4-2410171 (from R4-2407884).**

[**R4-2410171**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410171.zip) **[2-6] Draft CR on PRS-RSRP Measurements Based on PRS BWA**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Return to.**

**R4-2407971 On RRM performance requirements for PRS/SRS bandwidth aggregation**

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

**Decision: Noted.**

**R4-2407973 Draft CR – Test cases for UE Rx-Tx measurement delay with PRS BW aggregation, Sets 5-5, 5-6, 5-7, 5-8**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410172 (from R4-2407973).**

[**R4-2410172**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410172.zip) **Draft CR – Test cases for UE Rx-Tx measurement delay with PRS BW aggregation, Sets 5-5, 5-6, 5-7, 5-8**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407974 Draft CR – Performance requirements for UE Rx-Tx measurements with PRS bandwidth aggregation (Set 2-7)**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410173 (from R4-2407974).**

[**R4-2410173**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410173.zip) **Draft CR – Performance requirements for UE Rx-Tx measurements with PRS bandwidth aggregation (Set 2-7)**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2408295 Draft CR on PRS-RSRPP measurements based on PRS aggregation - set 2-8**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410174 (from R4-2408295).**

[**R4-2410174**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410174.zip) **Draft CR on PRS-RSRPP measurements based on PRS aggregation - set 2-8**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408298 Discussion on performance requirements for BW aggregation for positioning**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409165 Simulation results for PRS Bandwidth Aggregation**

*Type: other For: Information  
 Source: Nokia*

**Decision: Noted.**

**R4-2409278 On performance requirements for PRS/SRS CA**

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

**Decision: Noted.**

**R4-2409279 draftCR on performance requirements for PRS CA**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410175 (from R4-2409279).**

[**R4-2410175**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410175.zip) **draftCR on performance requirements for PRS CA**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409591 On performance requirements for PRS/SRS aggregation**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses performance requirements for bandwidth aggregation for positioning measurements.

**Decision: Noted.**

**R4-2409592 DraftCR to 38.133 to introduce test cases for PRS aggregation for positioning measurements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Revised to R4-2410176 (from R4-2409592).**

**[R4-2410176](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410176.zip) DraftCR to 38.133 to introduce test cases for PRS aggregation for positioning measurements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Return to.**

##### 7.12.2.6 Carrier Phase Positioning

**R4-2407495 Discussion on Performance requirements of Carrier phase positioning**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407520 (Set 7-3 & 7-4) Draft CR for RSCPD with RSTD measurement delay TC in RRC\_INACTIVE in FR1 and FR2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Revised to R4-2410177 (from R4-2407520).**

[**R4-2410177**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410177.zip) **(Set 7-3 & 7-4) Draft CR for RSCPD with RSTD measurement delay TC in RRC\_INACTIVE in FR1 and FR2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Return to.**

**R4-2407834 (8-5, 8-6) Draft CR Accuracy test cases for RSCP reporting with UE Rx-Tx measurement in RRC\_CONNECTED mode**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

*Session Chair: Tdoc title has been updated in session report and 3GU.*

**Decision: Revised to R4-2410178 (from R4-2407834).**

[**R4-2410178**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410178.zip) **(8-5, 8-6) Draft CR Accuracy test cases for RSCP reporting with UE Rx-Tx measurement in RRC\_CONNECTED mode**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

*Session Chair: Tdoc title has been updated in session report and 3GU.*

**Decision: Return to.**

**R4-2407885 Discission on perf requirements for carrier phase positioning**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2407970 On RRM performance requirements for carrier phase positioning**

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

**Decision: Noted.**

**R4-2409166 Sets (2-9), (7-5) and (7-6) DL CPP performance requirements and measurement delay TCs for RSCP with UE Rx-Tx in RRC\_CONNECTED for FR1 and FR2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410179 (from R4-2409166).**

[**R4-2410179**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410179.zip) **Sets (2-9), (7-5) and (7-6) DL CPP performance requirements and measurement delay TCs for RSCP with UE Rx-Tx in RRC\_CONNECTED for FR1 and FR2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409280 On performance requirements for CPP**

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

**Decision: Noted.**

**R4-2409593 On performance requirements for carrier phase positioning**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This contribution discusses performance requirement for carrier phase measurement.

**Decision: Noted.**

**R4-2409594 DraftCR to 38.133 to introduce measurement delay test case for RSCPD with RSTD measurement for NR positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Revised to R4-2410180 (from R4-2409594).**

**[R4-2410180](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410180.zip) DraftCR to 38.133 to introduce measurement delay test case for RSCPD with RSTD measurement for NR positioning**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

DraftCR based on the work split agreed in RAN4#110bis

**Decision: Return to.**

#### 7.12.3 Moderator summary and conclusions

Topic: [111][212] NR\_pos\_enh2\_part1

**R4-2408009 Topic summary for [111][212] NR\_pos\_enh2\_part1**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[R4-2410133](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410133.zip) **Ad-hoc minutes for NR\_pos\_enh2 WI (Monday)**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

[R4-2410134](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410134.zip) **Ad-hoc minutes for NR\_pos\_enh2 WI (Tuesday)**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

[R4-2410135](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410135.zip) **Ad-hoc minutes for NR\_pos\_enh2 WI (Wednesday)**

*Type: other For: Approval  
 Source: Intel*

**Decision: Approved.**

[**R4-2410191**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410191.zip) **Updated work split on test cases for positioning**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Approved.**

[**R4-2410192**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410192.zip) **WF on RedCap positioning and PRS/SRS bandwidth aggregation**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Revised to R4-2410353 (from R4-2410192).**

[**R4-2410353**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410353.zip) **WF on RedCap positioning and PRS/SRS bandwidth aggregation**

*Type: other For: Approval  
 Source: Ericsson*

**Decision: Return to.**

Topic: [111][213] NR\_pos\_enh2\_part2

**R4-2408010 Topic summary for [111][213] NR\_pos\_enh2\_part2**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410193**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410193.zip) **WF on SL positioning and carrier phase positioning**

*Type: other For: Approval  
 Source: CATT*

**Decision: Return to.**

[**R4-2410195**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410195.zip) **Simulation results summary for CPP accuracy requirements**

*Type: other For: Information  
 Source: CATT*

**Decision: Return to.**

[**R4-2410196**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410196.zip) **Simulation results summary for SL positioning accuracy requirements**

*Type: other For: Information  
 Source: CATT*

**Decision: Return to.**

[**R4-2410301**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410301.zip) **LS on synchronization source change at the transmitting anchor UE in SL positioning**

*Type: LS out For: Approval  
 to RAN1, RAN2  
 Source: Ericsson*

*Intel: if the measuring SL UE cannot be aware of this, whether there is a plan to introduce a corresponding solution to the identified issue.*

**Decision: Revised to R4-2410352 (from R4-2410301).**

[**R4-2410352**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410352.zip) **LS on synchronization source change at the transmitting anchor UE in SL positioning**

*Type: LS out For: Approval  
 to RAN1, RAN2  
 Source: Ericsson*

**Decision: Return to.**

Topic: [111][214] NR\_pos\_enh2\_part3

**R4-2408011 Topic summary for [111][214] NR\_pos\_enh2\_part3**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410194**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410194.zip) **WF on** **LPHAP**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Return to.**

### 7.13 Multi-carrier enhancements for NR

#### 7.13.2 RRM core requirements maintenance

**R4-2408287 On UE features for NR multi-carrier enhancement**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2408288 CR to correct RRM requirements for DCI based BWP switching on multiple CCs for multi-carrier enh**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4466 rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Postponed.**

**R4-2409471 DL interruption for Tx switching**

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

**Decision: Noted.**

#### 7.13.3 RRM performance requirements

**R4-2408547 Discussion on multi-carrier enhancement RRM test cases**

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

**Decision: Noted.**

**R4-2408548 (NR\_MC\_enh-Perf) Correction to multi-carrier enhancement RRM test cases\_R18**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4492 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

#### 7.13.4 Moderator summary and conclusions

Topic: [111][215] NR\_MC\_enh

**R4-2408012 Topic summary for [111][215] NR\_MC\_enh**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410300**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410300.zip) **WF on RRM requirements on Multi-carrier enhancements**

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

**Decision: Return to.**

[**R4-2410297**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410297.zip) **LS on UE capability for multi-carrier enhancement**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: vivo*

**Decision: Revised to R4-2410299 (from R4-2410297).**

[**R4-2410299**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410299.zip) **LS on UE capability for multi-carrier enhancement**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: vivo*

**Decision: Approved.**

**Online session (Tuesday May 21, 2024)**

**Issue 1-1: Whether to introduce new UE capability for Dormant BWP switching on multiple CCs RRM requirements with DCI 0-3/1-3**

***Background***

1. *A new UE capability 49-9 on SCell dormancy indication within active time in DCI format 0\_3/1\_3 in NR multi-carrier enhancement were introduced in RAN1.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Features*** | ***Index*** | ***Feature group*** | ***Components*** | ***Prerequisite feature groups*** |
| *49. NR\_MC\_enh* | *49-9* | *SCell dormancy indication within active time in DCI format 0\_3/1\_3* | *Support for SCell dormancy indication sent within the active time on PCell with DCI format 0\_3/1\_3* | *6-5, at least one of {49-1, 49-1b, 49-2,49-2b}* |

1. *In existing DCI based BWP switch delay on multiple CCs requirements (in TS38.133 clause 8.6.2A), incremental delay (i.e., D) for simultaneous BWP switch depends on different UE capabilities:*

*-bwp-SwitchingMultiCCs-r16 for switching between non-dormant BWPs, and*

*-bwp-SwitchingMultiDormancyCCs-r16 for switching between non-dormant and dormant BWPs.*

*Where bwp-SwitchingMultiDormancyCCs-r16 (that’s FG 6-3) is defined as below. The prerequisite of FG 6-3 is FG 18-4 or 18-4a, which are for format 0-1/1-1 or format 2-6, respectively*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Features* | *Index* | *Feature group* | *Components* | *Prerequisite feature groups* |
| *6. LTE\_NR\_DC\_CA\_enh* | *6-3* | *Dormant BWP switching on multiple CCs RRM requirements* | *Incremental delay for BWP switch processing on additional SCells in DCI based simultaneous dormant BWP switching on multiple SCells* | *RAN1 feature 18-4 or 18-4a* |
| *18. MR-DC/CA enhancement* | *18-4* | *SCell dormancy indication within active time* | *Support for SCell dormancy indication sent within the active time on PCell with DCI format 0\_1/1\_1* | *6-5* |
| *18. MR-DC/CA enhancement* | *18-4a* | *SCell dormancy indication outside active time* | *Support for SCell dormancy indication sent outside the active time on PCell with DCI format 2\_6* | *19-1* |

* Proposals

Option 1(vivo): Introduce a new UE capability for incremental delay in RRM requirements for DCI-based BWP switch on multiple CCs for multi carrier enhancement

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Features** | **Index** | **Feature group** | **Components** | **Prerequisite feature groups** |
| 38.  NR\_MC\_enh | 38-9 | Dormant BWP switching on multiple CCs RRM requirements with DCI 0-3/1-3 | Incremental delay for BWP switch processing on additional SCells in DCI 0-3/1-3 based simultaneous dormant BWP switching on multiple SCells | 49-9 |

* Recommended WF

Further discussion.

HW: If companies can agree on the new capability, we are open.

Nokia: This is related to another objective of MC\_enh WI. We only discussed the RAN4 requirement for the Tx switching objective before. RAN4 is not the responsible WG for this objective.

MTK: We don’t have strong view, but we feel it is a bit late.

QC: Add Rel-18 RAN1 FG 49-9 as the prerequisite for Rel-16 FG 6-3 (approach 1), or introduce a new capability as proposed by vivo (approach 2).

vivo: Fine with the approach by QC if it is workable.

HW: Either way is fine.

Nokia: why additional delay is required from RRM requirement perspective?

vivo: The additional delay is due to multiple CCs. If no additional delay, the UE behaviour is unclear.

HW: this is not to introduce additional delay, but the legacy delay is also applicable to the new DCI format scenario. For 38.133, just to add the new IE if go with approach 2. No RRM spec change if go with approach 1.

Agreement: Send LS to RAN2

RAN4 discussed the following candidate approaches, and the decision is up to RAN2:

* Approach 1: In Rel-18 specification, add Rel-18 RAN1 FG 49-9 as the prerequisite for the FG 6-3 introduced in Rel-16.
* Approach 2: Introduce a new Rel-18 UE capability as proposed by vivo. For the new capability, if defined,
  + Approach 2-1: Not to define the prerequisite and remove “with DCI 0-3/1-3” to allow flexibility.
  + Approach 2-2: To define the prerequisite and keep “with DCI 0-3/1-3”.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Features** | **Index** | **Feature group** | **Components** | **Prerequisite feature groups** |
| 38.  NR\_MC\_enh | [38-9] | Dormant BWP switching on multiple CCs RRM requirements [with DCI 0-3/1-3] | Incremental delay for BWP switch processing on additional SCells [in DCI 0-3/1-3] based simultaneous dormant BWP switching on multiple SCells | [49-9] |

* Update UE feature list later based on RAN2 further decision.

Agreement:

For RAN4 RRM requirement, the legacy incremental delay for BWP switching is also applicable to the Rel-18 new mc-DCI format scenario.

**Issue 2-4: SRS configuration and AP CSI-RS for L1-RSRP reporting for FDD-TDD Tx switching across 3 or 4 bands**

* Proposals
  + Option 1 (Huawei): In FDD-TDD Tx switching across 3 or 4 bands test cases,

set SRS *periodicityAndOffset-p* = sl10,6 for Cell 1 and Cell 2, and SRS *periodicityAndOffset-p* = sl20,3 for Cell 3 (and Cell 4) ,

AP CSI-RS for L1-RSRP reporting is triggered

* + - in the slot overlapping with the first S slot of every radio frame on NR TDD cell for Cell 1 and Cell 2,
    - in the second S slot of every radio frame for Cell 3 (and Cell 4).
* *For Information*

*With the proposal option 1, SRS configurations and AP CSI-RS configurations are updated as follow:*

* *FDD Cells (Cell 1 and Cell 2): set periodicityAndOffset-p = sl10,6, AP CSI-RS for L1-RSRP reporting is triggered in the slot overlapping with the first special slot of every radio frame on NR TDD cell.*
* *TDD Cell(s) (Cell 3, and Cell 4 if applicable): set periodicityAndOffset-p = sl20,3, AP CSI-RS for L1-RSRP reporting is triggered in the second special slot of every radio frame on NR TDD cell.*

*The time domain locations of SRS, AP CSI-RS and DL interruption are depicted in Figure 1.*

**

*Figure 1: Proposed time domain location of SRS, CSI-RS and interruption under proposed SRS configuration for FDD-TDD Tx switching test*

* Recommended WF

Further discussion

Nokia: in principle is fine, we can check the details offline.

**Issue 2-5: SRS configuration and AP CSI-RS for L1-RSRP reporting for TDD-TDD Tx switching across 3 or 4 bands TC**

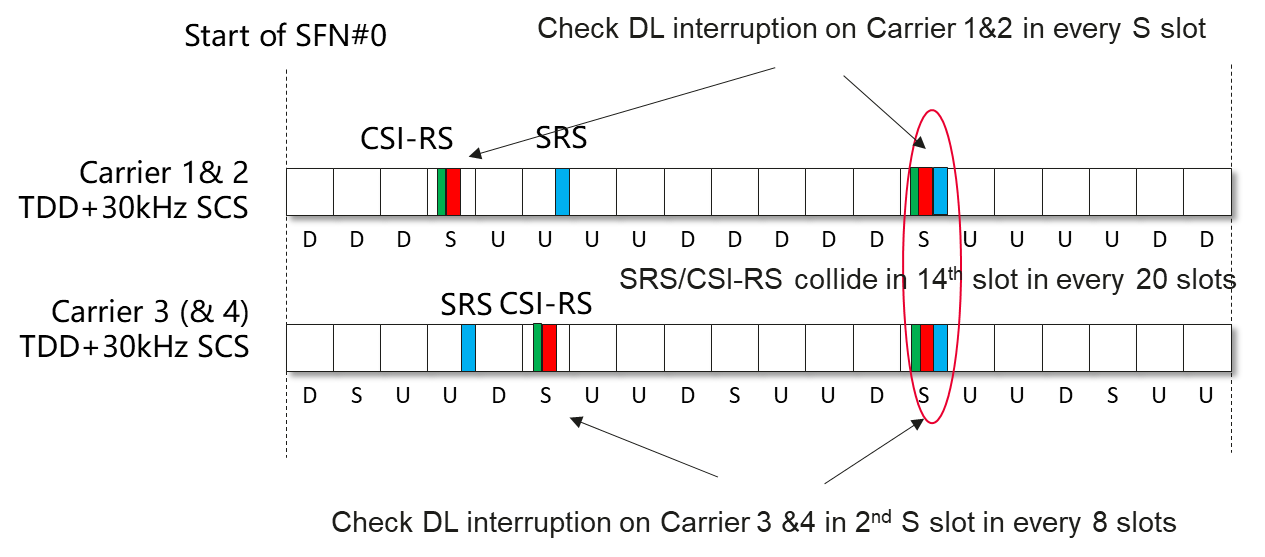
* Proposals
  + Option 1 (Huawei): In TDD-TDD Tx switching across 3 or 4 bands test cases,

set SRS periodicityAndOffset-p = sl20,5 for Cell 1 and Cell 2, and SRS periodicityAndOffset-p = sl20,3 for Cell 3 (and Cell 4),

AP CSI-RS for L1-RSRP reporting is triggered

* + - in the first special slot of every radio frame for Cell 1 and Cell 2,
    - in the second special slot of every radio frame for Cell 3 (and Cell 4).
* *For Information*

*Under current test configuration (as shown in figure 2) S slot on Cell 1/2 collides with the 2nd S slot of every 8 slots on Cell 3 once every radio frame. Checking DL interruption on all Cells at the same time, which implies SRS shall be transmitted on all Cells at the same time, which violates the intention of testing.*

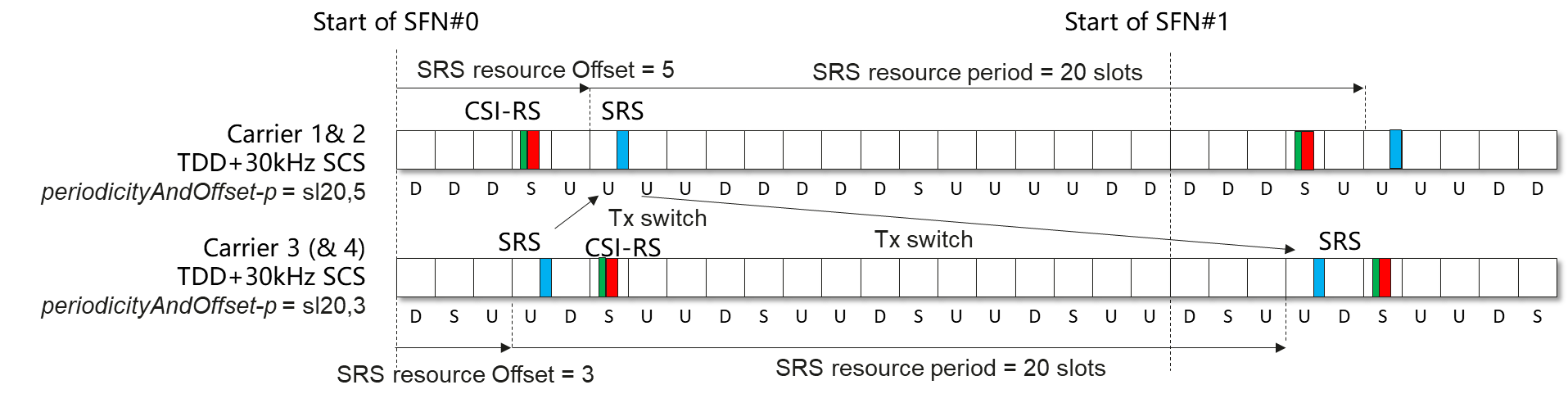
**

*Figure 2: time domain location of SRS, CSI-RS and interruption under current test configuration in current TDD-TDD Tx switching test*

*With the proposal option 1, SRS configurations and AP CSI-RS configurations are updated as follow:*

* *TDD Cells with UL/DL pattern “DDDSUUUUDD” (Cell 1 and Cell 2): set periodicityAndOffset-p = sl20,5, AP CSI-RS for L1-RSRP reporting is triggered in the first special slot of every radio frame on Cell 1 and Cell 2.*
* *TDD Cell(s) with UL/DL pattern “DSUU” (Cell 3, and Cell 4 if appplicable): set periodicityAndOffset-p = sl20,3, AP CSI-RS for L1-RSRP reporting is triggered in the second special slot of every radio frame on Cell 3 (and Cell 4).*

*The time domain locations of SRS, AP CSI-RS and DL interruption are depicted in figure 3.*

**

*Figure 3: Proposed time domain location of SRS, CSI-RS and interruption under proposed SRS configuration for TDD-TDD Tx switching test*

* Recommended WF

Further discussion

**Issue 1-3: DL interruption for Tx switching across 2 bands and 2 TAGs case**

* Proposals
  + Option 1: Existing requirements for DL interruption for Tx switching across 2 bands can be applied to DL interruption for Tx switching across 2 bands and 2 TAGs case. (Nokia, E///)
  + Option 2: Existing requirements for DL interruption for Tx switching across 3/4 bands with 2 TAGs can be applied to DL interruption for Tx switching across 2 bands and 2 TAGs case. (HW, MTK, vivo)
* Recommended WF

Further discussion.

ZTE: we have no strong view on option 1 or option 2.

### 7.14 Further NR mobility enhancements

#### 7.14.1 RRM Core requirements maintenance

**R4-2409383 Big CR to TS 38.133 on core requirement maintenance for Further NR mobility enhancements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4566 rev Cat: F (Rel-18)  
  
 Source: MediaTek Inc, Apple*

**Decision: Revised to R4-2410399 (from R4-2409383).**

**[R4-2410399](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410399.zip) Big CR to TS 38.133 on core requirement maintenance for Further NR mobility enhancements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4566 rev Cat: F (Rel-18)  
  
 Source: MediaTek Inc, Apple*

**Decision: For post-meeting email agreement.**

##### 7.14.1.1 L1/L2 based inter-cell mobility

**R4-2407038 (NR\_Mob\_enh2-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4313 rev Cat: F (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

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

**R4-2407348 Discussion on L1/L2 based inter-cell mobility**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407349 Reply LS on LTM L1 intra and inter-frequency measurements**

*Type: LS out For: Approval  
 to RAN2, RAN1  
 Source: Apple*

**Decision: Noted.**

**R4-2407350 Draft CR for PDCCH ordered RACH delay**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Merged.**

**R4-2407351 Draft CR for requirements of L1-RSRP measurement**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Postponed.**

**R4-2407482 Discussion on RRM core requirements maintenance for LTM**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407483 Draft CR on PDCCH ordered Random Access delay for LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Merged.**

**R4-2407769 Discussion on maintenance issues in R18 LTM**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2407770 draft CR on UL transmit timing requirements for R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Merged.**

**R4-2407771 draft CR on L1-RSRP RRM requirements in R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410304 (from R4-2407771).**

[**R4-2410304**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410304.zip) **draft CR on L1-RSRP RRM requirements in R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2407772 draft CR on cell switch delay and PDCCH ordered RACH delay requirements in R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410305 (from R4-2407772).**

[**R4-2410305**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410305.zip) **draft CR on cell switch delay and PDCCH ordered RACH delay requirements in R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2407788 (NR\_Mob\_enh2-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4412 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Revised to R4-2410306 (from R4-2407788).**

[**R4-2410306**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410306.zip) **(NR\_Mob\_enh2-Core) 38.133 CR addressing the use of expected to in normative text**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4412 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting the use of "UE is expected to" in normative text to "UE shall".

**Decision: Return to.**

**R4-2407864 Discussion on L1L2 based inter-cell mobility**

*Type: other For: Approval  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: OPPO*

**Decision: Noted.**

**R4-2407865 Maintenance CR for known Cell definition of R18 LTM**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4416 rev Cat: F (Rel-18)  
  
 Source: OPPO*

**Decision: Postponed.**

**R4-2408172 (NR\_Mob\_enh2-Core) Discussion on open issues for L1/L2 based inter-cell mobility**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408186 DraftCR on LTM cell switch delay**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Decision: Merged.**

**R4-2408581 Discussion on maintenance for L1/L2-based inter-cell mobility**

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

**Decision: Noted.**

**R4-2408582 Corrections on L1-RSRP measurement on candidate cells**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4502 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408582. Database value : 4502. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Return to.**

**R4-2408583 Corrections on LTM cell switch delay**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4503 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408583. Database value : 4503. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Merged.**

**R4-2408584 Correction on LTM TCI state activation delay**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4504 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408584. Database value : 4504. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Revised to R4-2410307 (from R4-2408584).**

[**R4-2410307**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410307.zip) **Correction on LTM TCI state activation delay**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4504 rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408584. Database value : 4504. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Return to.**

**R4-2408611 RRM Core requirements maintenance on L1/L2 based inter-cell mobility**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2408667 draft LS reply on LTM L1 intra- and inter-frequency measurements**

*Type: LS out For: Approval  
 to RAN WG2, RAN WG1  
 Source: Nokia*

**Decision: Noted.**

**R4-2408668 draft LS on reporting of unmeasured LTM candidate cells**

*Type: LS out For: Approval  
 to RAN WG1  
 Source: Nokia*

**Decision: Noted.**

**R4-2408684 On remaining LTM core part requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408685 Draft CR for LTM cell switch, PDCCH ordered RACH and TCI state activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410308 (from R4-2408685).**

[**R4-2410308**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410308.zip) **Draft CR for LTM cell switch, PDCCH ordered RACH and TCI state activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409031 Discussion on L1/L2 based inter-cell mobility**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2409032 Reply LS on on LTM L1 intra and inter-frequency measurements**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2409038 Correction on known conditions for TCI state in TCI state activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Merged.**

**R4-2409385 Discussion on R18 L1/L2 mobility core part requirements**

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

**Decision: Noted.**

**R4-2409386 Draft CR on Core maintenance for R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: MediaTek Inc.*

**Decision: Return to.**

**R4-2409714 RRM requirements for L1/L2 based inter-cell mobility**

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

**Abstract:**

RRM requirements for L1/L2 based inter-cell mobility

**Decision: Noted.**

**R4-2409715 Draft CR to 38.133 on RRM requirements for L1/L2 based inter-cell mobility**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson, Qualcomm Incorporated*

**Abstract:**

Draft CR on RRM requirements for L1/L2 based inter-cell mobility

**Decision: Merged.**

##### 7.14.1.2 Other RRM Core requirements

**R4-2407032 (NR\_Mob\_enh2-Core) 38.133 CR addressing pervious conditions**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4307 rev Cat: F (Rel-18)  
  
 Source: BeammWave*

**Abstract:**

Correcting "pervious conditions" to "previous conditions".

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

**R4-2407352 Discussion on core part maintenance of improvement on SCG/Scell setup/resume delay**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407484 Discussion on RRM core requirements maintenance for mobility enhancement part 2**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407782 (NR\_Mob\_enh2-Core) 38.133 CR addressing pervious conditions**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4406 rev Cat: F (Rel-18)  
  
 Source: BeammWave, Nokia*

**Abstract:**

Correcting "pervious conditions" to "previous conditions".

**Decision: Return to.**

**R4-2407866 Draft CR on measurement report for fast CA/DC setup**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4417 rev Cat: F (Rel-18)  
  
 Source: OPPO*

**Abstract:**

MCC: The title have "Draft CR" but it is a formal CR.

**Decision: Merged.**

**R4-2408173 (NR\_Mob\_enh2-core) Discussion on RRM core requirements for mobility enhancement**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408435 Remaining issues on RRM core requirement for fast CA/DC setup**

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

**Decision: Noted.**

**R4-2408523 Discussion for core maintainence for mobility enhancement eEMR and IMR**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution on RRM core requirement for Rel-18 eEMR and IMR validty check

**Decision: Noted.**

**R4-2408527 CR for eEMR core maintenance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4477 rev Cat: F (Rel-18)  
  
 Source: R4*

**Abstract:**

CR to TS 38.133 for eEMR and IMR core requirement

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

**R4-2408585 Discussion on remaining issue on SCell/SCG setup delay**

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

**Decision: Noted.**

**R4-2408669 On remaining eEMR issues**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Noted.**

**R4-2408670 draft CR to 38.133 on eEMR core requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410281 (from R4-2408670).**

[**R4-2410281**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410281.zip) **draft CR to 38.133 on eEMR core requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408757 CR for eEMR core maintenance**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4533 rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

CR to TS 38.133 for eEMR and IMR core requirement

**Decision: Merged.**

**R4-2408877 Discussion on maintenance issues for R18 NR Mobility Enhancements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409034 Discussion on the improvement on SCell/SCG setup delay**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

#### 7.14.2 RRM performance requirements

**R4-2409384 Big CR to TS 38.133 on performance requirements for Further NR mobility enhancements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4567 rev Cat: B (Rel-18)  
  
 Source: MediaTek Inc, Apple*

**Decision: Revised to R4-2410400 (from R4-2409384).**

**[R4-2410400](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410400.zip) Big CR to TS 38.133 on performance requirements for Further NR mobility enhancements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4567 rev Cat: B (Rel-18)  
  
 Source: MediaTek Inc, Apple*

**Decision: For post-meeting email agreement.**

##### 7.14.2.1 L1/L2 based inter-cell mobility

**R4-2407485 Draft CR on test cases for intra-f RACH based PSCell Cell switch from FR1 to FR1 for LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CATT*

**Decision: Merged.**

**R4-2407773 Discussion on performance requirements and test cases for R18 LTM**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2407774 draft CR on TC for inter-frequency RACH based Cell switch from FR1 to FR1 for R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Merged.**

**R4-2407775 draft CR on TC for PDCCH-ordered RACH to an inter-frequency candidate cell in FR1 for R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410309 (from R4-2407775).**

[**R4-2410309**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410309.zip) **draft CR on TC for PDCCH-ordered RACH to an inter-frequency candidate cell in FR1 for R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2407867 Draft CR on test cases for LTM FR2 PScell switch and PDCCH-order RACH**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Merged.**

**R4-2408174 Discussion on performance requirements for L1/L2 based inter-cell mobility**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408586 Correction on L1-RSRP accuracy requirements on neighbor cells**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4505 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408586. Database value : 4505. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Revised to R4-2410310 (from R4-2408586).**

[**R4-2410310**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410310.zip) **Correction on L1-RSRP accuracy requirements on neighbor cells**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4505 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408586. Database value : 4505. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Return to.**

**R4-2408587 Update test case for RACH based Cell switch from FR2 to FR2 Intra-frequency cell switch**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4506 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408587. Database value : 4506. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Merged.**

**R4-2408588 Update on test case for Inter-frequency L1-RSRP measurement with MG in FR1**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4507 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408588. Database value : 4507. CR cover value : -. Session Chair: We can endorse the formal CRs if the contents are agreeable.

**Decision: Merged.**

**R4-2408589 Update on test case for Inter-frequency L1-RSRP accuracy requirements for neighbour cell in FR1**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4508 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408589. Database value : 4508. CR cover value : -. Change request category wrong on CR cover for TDoc R4-2408589. Database value : B. CR cover value : F. Session Chair: We can en

**Decision: Merged.**

**R4-2409033 Discussion on performance requirements for LTM**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2409037 draftCR on Intra-f L1-RSRP measurement in FR2 with one of neighbor cells’ TCI state is activated**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Postponed.**

**R4-2409039 Correction on L1-RSRP accuracy requirements for neighbour cell**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Merged.**

**R4-2409387 Discussion on RRM performance requirements for R18 LTM**

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

**Decision: Noted.**

**R4-2409388 Draft CR on performance requirements for R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek Inc., Apple, Qualcom, Nokia, OPPO, Ericsson*

**Decision: Revised to R4-2410311 (from R4-2409388).**

[**R4-2410311**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410311.zip) **Draft CR on performance requirements for R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek Inc., Apple, Qualcom, Nokia, OPPO, Ericsson*

**Decision: Return to.**

**R4-2409716 Discussion on LTM test cases**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on LTM test cases

**Decision: Noted.**

**R4-2409717 Draft CR to TS 38.133 on performance requirements for R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson, MediaTek inc., Qualcomm Incorporated*

**Abstract:**

Draft CR on LTM test case for cell switch

**Decision: Revised to R4-2410312 (from R4-2409717).**

**[R4-2410312](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410312.zip) Draft CR to TS 38.133 on performance requirements for R18 LTM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson, MediaTek inc., Qualcomm Incorporated*

**Abstract:**

Draft CR on LTM test case for cell switch

**Decision: Return to.**

##### 7.14.2.2 Other RRM performance requirements

**R4-2407353 Test procedure for validity check**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407354 draft CR for performance part of R18 NR mobility further enhancement part 2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407486 Discussion on RRM performance requirements for mobility enhancement part 2**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407868 Draft CR for test case of CHO including target MCG and candidate SCG in NR-DC**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: OPPO*

**Decision: Not pursued.**

**R4-2408175 DraftCR on inter-frequency subsequent CPA from FR1-FR2 NR-DC to FR1-FR2 NR-DC**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CMCC*

**Decision: Revised to R4-2410282 (from R4-2408175).**

[**R4-2410282**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410282.zip) **DraftCR on inter-frequency subsequent CPA from FR1-FR2 NR-DC to FR1-FR2 NR-DC**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CMCC*

**Decision: Return to.**

**R4-2408436 Remaining issues on RRM Perf requirement for fast CA/DC setup**

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

**Decision: Noted.**

**R4-2408524 Discussion for performance for mobility enhancement eEMR and IMR**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discuss on the eEMR and IMR test case

**Decision: Noted.**

**R4-2408525 Draft CR to TS 38.133 for Test case of improment on SCG\_Scell setup delay for FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

draft CR to TS38.133 to add FR1 eEMR and IMR test case

**Decision: Revised to R4-2410283 (from R4-2408525).**

[**R4-2410283**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410283.zip) **Draft CR to TS 38.133 for Test case of improment on SCG\_Scell setup delay for FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

draft CR to TS38.133 to add FR1 eEMR and IMR test case

**Decision: Return to.**

**R4-2408526 Draft CR to TS 38.133 for Test case of improment on SCG\_Scell setup delay for FR2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

draft CR to TS38.133 to add FR1 eEMR and IMR test case

**Decision: Revised to R4-2410284 (from R4-2408526).**

[**R4-2410284**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410284.zip) **Draft CR to TS 38.133 for Test case of improment on SCG\_Scell setup delay for FR2**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

draft CR to TS38.133 to add FR1 eEMR and IMR test case

**Decision: Return to.**

**R4-2408590 Discussion on test case for Improvement on SCell/SCG setup delay**

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

**Decision: Noted.**

**R4-2408591 Update on test case for NR conditional handover including target MCG and target SCG from FR1-FR1 NR-DC to FR1-FR1 NR-DC**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4509 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408591. Database value : 4509. CR cover value : -. Change request category wrong on CR cover for TDoc R4-2408591. Database value : B. CR cover value : F. Session Chair: We can en

**Decision: Return to.**

**R4-2408671 Draft CR for eEMR test case**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Merged.**

**R4-2408672 draft CR to TS 38.133 on subsequent CPA test cases**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408686 On EMR test case**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408865 Discussion on test cases for R18 NR Mobility Enhancements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409035 Discussion on performance requirements for NR mobility enhancements**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2409036 Correction on subsequent conditional PSCell addition/change**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

#### 7.14.3 Moderator summary and conclusions

Topic: [111][216] NR\_Mob\_enh2\_part1

**R4-2408013 Topic summary for [111][216] NR\_Mob\_enh2\_part1**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410136**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410136.zip) **Ad-hoc minutes for NR\_Mob\_enh2 WI**

*Type: other For: Approval  
 Source: Apple*

**Decision: Approved.**

[**R4-2410302**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410302.zip) **WF on NR mobility enhancements (part 1)**

*Type: other For: Approval  
 Source: MediaTek*

**Decision: Return to.**

[**R4-2410303**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410303.zip) **Reply LS on LTM L1 intra and inter-frequency measurements**

*Type: LS out For: Approval  
 to RAN2, RAN1  
 Source: Ericsson*

**Decision: Return to.**

**Online session (Tuesday May 21, 2024)**

**Issue 4-2-1: Understanding of per BC and Reporting granularity of RAN4 features 39-1, 39-2, 39-3-1, 39-3-2, 39-3-3, 39-3-4, 39-3-5, 39-3-6**

|  |
| --- |
| **Question 2:** The above features, 45-1 and 45-1a, from RAN1 and related RAN4 features (39-1, 39-2, 39-3-1, 39-3-2, 39-3-3, 39-3-4, 39-3-5, 39-3-6) are defined per BC for both intra-frequency and inter-frequency measurements. RAN2 would like check with RAN1/4 for which BC (e.g. BC of current serving cells, BC including current serving cells and cell to be measured or something else) these capabilities are to be considered for L1 intra-frequency and inter-frequency LTM measurements? |

|  |
| --- |
| **From 38.306**  UE capability parameters have hierarchical structure. In the table of UE capability parameter in subsequent clauses, "Per" indicates the level the associated parameter is included. "UE" in the column indicates the associated parameter is signalled per UE, "Band" indicates it is signalled per band, "BC" indicates it is signalled per band combination, "FS" indicates it is signalled per feature set (per band per band combination), "FSPC" indicates it is signalled per feature set per component carrier (per CC per band per band combination), and "FD" in the column indicates to refer the associated field description |

|  |  |  |
| --- | --- | --- |
| 39-1 | SSB based L1-RSRP measurements for multiple cells with RTD > CP | Capability of simultaneous L1-RSRP measurements for more than one cell when the max RTD among the cells on the same frequency layer or in the same active BWP is larger than CP length of the cell on the frequency layer or in the same active BWP. |
| 39-2 | SSB based inter-frequency L1-RSRP measurements without measurement gaps | Capability of SSB based inter-frequency L1-RSRP measurements on SSBs within active DL BWP without measurement gaps (without interruption on serving cell(s)) for LTM |
| 39-3-1 | Number of frequency layers for L1-RSRP measurement | 1. The max number of frequency layers UE can measure for intra- and inter-frequency without measurement gaps L1-RSRP measurement   2. The max number of frequency layers UE can measure for inter-frequency L1-RSRP measurement with measurement gaps |
| 39-3-2 | Number of neighbour cells to be measured per frequency layer | 1. The max number of neighbour cells UE can measure for L1-RSRP per frequency layer for intra-frequency or inter-frequency without measurement gaps   2. The max number of neighbour cells UE can measure for L1-RSRP per frequency layer for inter-frequency with measurement gaps |
| 39-3-3 | Number of total cells to be measured | The max number of total cells of serving cells and neighboring cells across all frequency layers of intra-frequency and inter-frequency without measurement gaps for L1 measurement. |
| 39-3-4 | Number of SSB resources for L1-RSRP measurement within a slot | The max number of SSB resources for L1-RSRP measurement that UE can measure within a slot across candidate cells for intra- and inter-frequency without gap L1-RSRP measurement |
| 39-3-5 | Number of SSB resources for L1-RSRP measurement per frequency layer | 1. The max number of SSB resources UE can measure for L1-RSRP per frequency layer for intra-frequency or inter-frequency without measurement gaps   2. The max number of SSB resources UE can measure for L1-RSRP per frequency layer for inter-frequency with measurement gaps |
| 39-3-6 | Number of total SSB resources to be measured | The max number of total SSB resources of serving cells and neighboring cells across all frequency layers of intra-frequency and inter-frequency without measurement gaps for L1 measurement. |

* Proposals
  + Option 1 (Apple, vivo, MTK, ZTE):
    - RAN4 features (39-1, 39-2, 39-3-1, 39-3-2, 39-3-3, 39-3-4, 39-3-5, 39-3-6) are defined per BC of serving cells.
  + Option 2 (Huawei, Ericsson, QC): The BC granularity is BC including current serving cells and cell to be measured.
    - Option 2a (Huawei): For intra frequency/intra-band inter-frequency LTM measurement, the current serving cell and candidate cell to be measured are on the same band in a band combination. For inter-band inter-frequency measurement, the current serving cell and candidate cell to be measured can be on any band in the band combination.
    - Option 2b (Ericsson, QC):
      * The RAN4 features (39-1, 39-2, 39-3-1, 39-3-2, 39-3-3, 39-3-4, 39-3-5, 39-3-6) are defined per BC, assuming that candidate cells are considered as if they are serving cells when reporting the UE features in the form of per BC.
  + Option 3 (Nokia):
    - Due to implementation and signalling overhead, the LTM measurements capabilities are defined per UE instead of per BC agreed in RAN4#110bis.
    - RAN4 to inform RAN2 about changes in UE capabilities from per BC to per UE.
* Recommended WF

*Generally, suggest not to revert previous agreements.*

*For intra-f and inter-f without gap L1 measurement, the SSB to measure will be within serving band(s). There is no difference between option 1 and option 2.*

*For the capabilities for intra-f and inter-f without gap L1 measurement (39-1,* *39-2, 39-3-3, 39-3-4, 39-3-5, 39-3-6, component 1 of 39-3-1, component 1 of 39-3-2, and component 1 of 39-3-5), suggest not to revert previous agreement, they are per BC of serving cells.*

*For capabilities for inter-f with MG L1 measurement (component 2 of 39-3-1, component 2 of 39-3-2, and component 2 of 39-3-5), different understanding of per BC may lead to different reporting mechanism. Suggest to discuss the report granularity.*

* + Recommend agree on
    - The capabilities for intra-f and inter-f without gap L1 measurement (39-1, 39-2, 39-3-3, 39-3-4, 39-3-5, 39-3-6, component 1 of 39-3-1, component 1 of 39-3-2, and component 1 of 39-3-5) are reported per BC of serving cells
    - Discuss the exact reporting granularity for capabilities for inter-f with MG L1 measurement, i.e., component 2 of 39-3-1, component 2 of 39-3-2, and component 2 of 39-3-5

Discussion:

Discuss the exact reporting granularity for capabilities for inter-f with MG L1 measurement, i.e., component 2 of 39-3-1, component 2 of 39-3-2, and component 2 of 39-3-5.

* + Option 1 (Apple, vivo, MTK, ZTE, QC, Nokia, E///):
    - RAN4 features (39-1, 39-2, 39-3-1, 39-3-2, 39-3-3, 39-3-4, 39-3-5, 39-3-6) are defined per BC of serving cells.
  + Option 2 (Huawei): The BC granularity is BC including current serving cells and cell to be measured.

HW: We support option 2. It is beneficial to share the processing and buffer for the band combination between serving cell and target cell.

Nokia: We originally supported option 3. Option 1 is fine after offline discussion.

ZTE: option 1 definition of BC is aligned with the legacy definition.

E///: also ok with option 1.

vivo: If the band combination includes either serving cell or target cell. UE only report the band combination of the target bands (option 4).

HW: the LTM feature is implemented differently. We have strong view, and we can also wait if RAN1 will reach any agreement.

QC: we have technical concern on option 2. In RAN4, we can agree option 1 conditional on that RAN1 agreed option 1.

**Issue 6-2-3: Whether to have test with two neighbor cells in FR2 for intra-frequency L1-RSRP measurement**

* Proposals
  + Proposal 1 (ZTE, Ericsson):
    - Introduce test with two neighbor cells in FR2 for intra-frequency L1-RSRP measurement to verify the UE behavior.
* Recommended WF
  + Need more discussion

Discussion:

* Option 1: Introduce test with two neighbor cells in FR2 for intra-frequency L1-RSRP measurement to verify the UE behavior. (ZTE, Ericsson)
  + One neighbor cells at one time.
* Option 2: Not introduce test with two neighbor cells (MTK, Apple, QC, HW)

E///: if One neighbour cells at one time, it is very easy for UE to pass the test.

Agreement:

* Not introduce test with two neighbor cells in FR2 for intra-frequency L1-RSRP measurement to verify the UE behavior.

**Issue 2-1-1: whether to consider L1-RSRP measurement on deactivated SCell**

*Related RAN2 agreement and spec*

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| **RAN2#123bis**   * Confirm that deactivated SCell as LTM candidate cell is supported   38.321  1>  if the SCell is deactivated:  2> not transmit SRS on the SCell;  2> not report CSI for the SCell;  2> not transmit on UL-SCH on the SCell;  2> not transmit on RACH on the SCell;  2> not monitor the PDCCH on the SCell;  2> not monitor the PDCCH for the SCell;  2>  not transmit PUCCH on the SCell. |

**RAN4#110bis**

|  |
| --- |
| **Issue 2-1-2: whether to consider L1-RSRP measurement on deactivated SCell**  *Online agreement*  < **Agreement**>:  Conclude this issue in the next meeting. |

**Whether to consider L1-RSRP measurement on deactivated SCell**

* Proposals
  + Option 1 (CMCC, HW): Consider L1-RSRP measurement on deactivated SCell.
    - Option 1a (ZTE): If network configures a deactivated SCell as a LTM candidate cell, UE should measure that cell using LTM L1-RSRP measurement period.
  + Option 2 (Nokia, MTK, Apple, OPPO, QC): RAN4 not to consider L1-RSRP measurement on deactivated SCell in R18.
    - Option 2a (MTK): Intra-frequency L1-RSRP requirements defined in R18 are not applicable to deactivated SCC.
* Recommended WF
  + Recommend discuss
    - whether intra-frequency L1-RSRP requirements defined in R18 are applicable to deactivated SCC.
    - Whether to define L1-RSRP measurement requirements on deactivated SCell in R18.

QC: Support option 2. option 2 does not mean the measurement is not allowed.

CMCC: based on RAN2 agreement, it is supported. We understand it is difficult to define the requirement.

In RAN4 understanding, the L1-RSRP measurement on deactivated SCell is allowed based on RAN1/2 design, and it is up to UE on how to perform the measurement.

Agreement:

* In Rel-18, RAN4 will not define the requirement for L1-RSRP measurement on deactivated SCell.
* It is up to UE on how to perform the measurement if the L1-RSRP measurement on deactivated SCell is supported based on RAN1/2 design.

**Issue 2-1-2: L1-RSRP measurement on intra-f neighbor cell of deactivated SCC**

* Proposals
  + Option 1 (Apple, MTK): LTM intra-frequency L1-RSRP requirements defined in R18 are not applicable to neighbor cell on deactivated SCC.
    - Option 1a (Apple): not define requirements in R18
    - Option 1b (Apple): allow similar measurement relaxation as L3 measurement (e.g. following measCycleSCell)
  + Option 2 (OPPO, Huawei): If network configures cell on deactivate SCell frequency as a LTM candidate cell, UE should measure that cell using LTM L1-RSRP measurement period.
* Recommended WF
  + Need more discussion.

Agreement: Apply the same agreement in Issue 2-1-1.

**Issue 1-2-1: Whether and how to define timing requirements for UE based TA measurement**

* Proposals
  + Option 1 (vivo, CMCC): Define timing requirements for UE based TA measurement for LTM.
    - Option 1a (CMCC): for UE autonomous TA adjustment for LTM, it is proposed that UE autonomously adjusts the TA based on twice of the DL timing difference if the DL timing difference is≥CP/4, and the UL timing requirements after one-shot autonomous TA adjustment is ±Te (similar as the UE transmit timing requirements for LPHAP defined in TS38.133 7.1.2.4).
  + Option 2 (Nokia, MTK, ZTE): Not to define requirements for UE based TA measurement in R18.
* Recommended WF
  + Need more discussion

CMCC: We still think it is important to define the requirement. We can compromise considering the Rel-18 timeline.

vivo: This is discussed in R19, so we are ok not to define the requirement in Rel-18.

Nokia: If the feature is supported by UE, no unexpected interruption to the network.

Apple: UE should avoid interruption, but may not guarantted.

Session Chair: Further discussion on whether/which/how the existing requirements apply is not precluded based on contribution driven.

Agreement on Core requirements for UE based TA measurement

* + Not to define dedicated requirements for UE based TA measurement in R18.
  + It is RAN4 common understanding that the feature is supported in RAN1/2 specification.

**Issue 6-2-4: Whether define test cases for UE-based TA measurement**

* Proposals
  + Option 1 (CMCC): Define test cases for UE based TA measurement for LTM.
* Recommended WF
  + Need more discussion.

Agreement: Not define dedicated test cases for UE based TA measurement for LTM.

**Issue 3-2-1: Extension of known TCI state conditions for cell switch**

* Proposals
  + Proposal 1 (Nokia):
    - The target TCI state in the LTM cell switch command is known if the TCI state activation command was received not more than 1280 ms before the cell switch command, or if the RS associated to the target TCI state is available at least every 1280 ms after TCI state activation command.
    - Target TCI state in cell switch command is known, if UE successfully completed PDCCH ordered RACH preamble transmission within 1280 ms before the cell switch command, and if the SSB in the PDCCH order is associated to the target TCI state
    - In cell switch delay requirements, the target TCI state is known if the UE has reported L3-RSRP measurements for the SSB associated to the target TCI state before the cell switch command.
  + Proposal 2 (MTK): In cell switch delay requirements, activated TCI state can be known if the following conditions can be met:
    - SNR of the SSB associated to TCI state ≥ -3dB
    - Beam-level L3 measurement results have been reported in 1280ms
    - L1-RSRP measurement period is no larger than 1280ms in FR2
  + Proposal 3 (Ericsson, QC): update the known TCI state conditions for LTM cell switch:

|  |
| --- |
| The target joint DL/UL TCI state or separate DL and UL TCI states in the LTM cell switch command are known if the following conditions are met:  - *The target TCI state in the cell switch command is activated not more than X1 ms before the reception of the cell switch command and SNR of the SSB associated to TCI state ≥ -3dB; where X1 is 1280ms for FR1 and 160ms for FR2; or*  *- The target TCI state in cell switch command is activated before receiving the cell switch command and the SSB associated to target TCI state is available at least once every 160 ms after the TCI state activation command is received and SNR of the SSB associated to TCI state ≥ -3dB; or*  - During the period from the last transmission of the RS resource used for the L1-RSRP measurement reporting for the target DL/UL TCI state to the completion of LTM cell switch, where the RS resource for L1-RSRP measurement is the RS in target DL/UL TCI state or QCLed to the target DL/UL TCI state  - LTM cell switch command is received within 1280 ms upon the last transmission of the RS resource for beam reporting or measurement  - The UE has sent at least 1 L1-RSRP report for the target DL/UL TCI state before the LTM cell switch command  - The target DL/UL TCI state remains detectable during the LTM cell switching period  - The SSB associated with the target DL/UL TCI state remain detectable during the cell switching period  - SNR of the TCI state ≥ -3dB  Otherwise, the target joint DL/UL TCI state or separate DL and UL TCI state is unknown. |

**Issue 3-2-1: Extension of known TCI state conditions for cell switch**

* Recommended WF
  + Recommend to discuss whether TCI state can be viewed as known if the following conditions are met when SNR of the TCI state≥ -3dB
    - In FR1
      * Condition 1: TCI state has been activated and
        + Condition 1A: the TCI state activation command was received not more than 1280 ms before the cell switch command
        + Condition 1B: Beam-level L3 measurement results have been reported in 1280 ms
        + Condition 1C: The RS associated to the target TCI state is available at least every 1280 ms after TCI state activation command
      * Condition 2: UE has reported L3-RSRP measurements for the SSB associated to the target TCI state in [1280]ms before the cell switch command

Discussion on condition 2:

Apple, HW: not support to use the L3 report to replace the L1 report.

HW: the associated RS can be different for L3 and L1 report.

vivo: we support condition 2. the TCI state can be activated based on the L3-RSRP measurement.

MTK: It is about whether we define cell switch requirement without L1 measurement and report.

QC: there are some parameters conditioned on known condition.

Agreement:

* For FR1, the cell switch delay requirement is applicable for the case without L1 measurement and report, under certain conditions.
  + Further discuss the how the requirement applies together with the condition.
    - In FR2
      * Condition 3: TCI state has been activated and
        + Condition 3A: the TCI state activation command was received not more than 1280 ms before the cell switch command
        + Condition 3B: the TCI state activation command was received not more than 160 ms before the cell switch command
        + Condition 3C: The RS associated to the target TCI state is available at least every 1280 ms after TCI state activation command
        + Condition 3D:

Beam-level L3 measurement results have been reported in 1280ms

L1-RSRP measurement period is no larger than 1280ms in FR2

* + - * Condition 4: UE has reported L3-RSRP measurements for the SSB associated to the target TCI state in [1280]ms before the cell switch command

**Issue 4-1-2: How to reply RAN2 on Question 1**

* Proposals
  + Option 1 (Apple, CATT, Huawei): L1-RSRP measurements and reporting are the prerequisite to support R18 LTM
    - Option 1a (Apple): answer to question 1: current RAN4 LTM cell switch delay requirements are applicable only to UE supporting L1-RSRP measurement.
    - Option 1b (CATT): Reply RAN2 that RAN4 only consider intra-frequency and inter-frequency LTM triggered by intra-frequency and inter-frequency L1 measurement and reporting.
    - Option 1c (Huawei): FG45-1 should be the prerequisite to support intra-frequency LTM. FG45-1a should be the prerequisite to support inter-frequency LTM.
  + Option 2 (Nokia, vivo, ZTE, MTK, Ericsson, QC): L1-RSRP measurements and reporting are not the prerequisite to support R18 LTM
    - Option 2a (MTK): From the point of RAN4 requirements
      * In FR1: L1 measurement is not necessary and similar benefits can be obtained in FR1 without L1 measurement compared to with L1 measurement
      * In FR2: there are not related requirements if L1 measurement is not supported or configured.
      * Decouple R18 LTM and L1-RSRP measurement.
    - Option 2b (Ericsson, QC)
      * RAN4 to await confirmation from RAN1. If necessary, RAN4 to confirm that RRM requirements are defined to accommodate scenarios where L3 measurement and report are conducted, even if L1 measurement and report were unavailable.
* Recommended WF
  + Need more discussion.

Agreement:

* In FR2: the RAN4 Rel-18 related LTM requirements are not applicable if L1 measurement of LTM candidate cell is not supported or configured.

Online discussion (Thursday, 23 May 2024):

**Issue 4-2-1: Understanding of per BC and Reporting granularity of RAN4 features 39-1, 39-2, 39-3-1, 39-3-2, 39-3-3, 39-3-4, 39-3-5, 39-3-6**

* + Option 1 (Apple, vivo, MTK, ZTE, QC, Nokia, E///):
    - RAN4 features (39-1, 39-2, 39-3-1, 39-3-2, 39-3-3, 39-3-4, 39-3-5, 39-3-6) are defined per BC of serving cells.
  + Option 2 (Huawei): The BC granularity is BC including current serving cells and cell to be measured.
  + Option 3: Introduce UE capability based on option 1, and additional UE capability to accommodate the UE implementation with option 2.

Moderator: no consensus in RAN1. RAN1 suggest RAN2 to work on the signaling.

HW: Suggest the similar way as in RAN1. Given the ASN.1 deadline, RAN2 can make decision by themselves.

QC: We have strong concern on option 2 from implementation perspective. The use of LTM feature will be limited with option 2. Option 1 is the majority view.

HW: Option 2 is to follow the capability signaling design for DAPS. We don’t think the use of the feature is limited. Although we are the only one company supporting option 2, we have strong concern on option 1.

Alt 1: Up to RAN2.

Alt 2: Send option 1 and 3.

Alt 3: Discuss the details for Option 3.

Agreement: capture in the reply LS to RAN2:

RAN4 discussed the following options. Option 1 is supported by majority companies in RAN4, but RAN4 cannot reach consensus on option 1. Meanwhile, RAN4 discussed the compromised option in Option 3, and the feasibility and details are up to RAN2.

* + Option 1: The BC granularity is BC of serving cells.
  + Option 2: The BC granularity is BC including serving cells and candidate cells to be measured.
  + Option 3: The UE capability is based on option 1, and introduce additional UE capability to accommodate option 2.

From RAN4 perspective, the UE capabilities can be implemented into the specification based on RAN2 conclusion.

Topic: [111][217] NR\_Mob\_enh2\_part2

**R4-2408014 Topic summary for [111][217] NR\_Mob\_enh2\_part2**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410280**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410280.zip) **WF on R18 Further NR mobility enhancement - part 2**

*Type: other For: Approval  
 Source: Apple*

**Decision: Return to.**

**Online session (Tuesday May 21, 2024)**

**Core maintenance:**

**Issue 1-1: impact of validity check on measurement accuracy in CONNECTESD mode**

* Candidate solutions:
  + Option 1: allowing validity check for measurement which is obtained during CONNECTED mode before UE goes into IDLE/INACTIVE has no impact on measurement performance in CONNECTED mode. (Apple)
  + Option 1a: The difference of accuracy requirements for measurements between CONNECTED mode and IDLE/INACTIVE mode will not affect the applicability of validity check. (CATT)
* Recommended WF
  + Discuss candidate solutions.

**Issue 1-2: applicability of validity check based on measurement obtained in CONNECTED mode before UE enters IDLE/INACTIVE mode**

* Candidate solutions:
  + Option 1: It is up to UE implementation whether to perform validity check for measurement which was performed during CONNECTED mode before UE enters IDLE/INACTIVE mode. (Apple, QC, E///, HW, vivo, ZTE, CATT)
  + Option 2: as long as the measurements are performed within the *measIdleValidityDuration* or *measReselectionValidityDuration,* the measurements are considered valid. (Nokia)
  + Option 3: validity check is only applicable to idle/inactive measurement. (CMCC)
* Recommended WF
  + Discuss candidate solutions.

Agreement:

* + For the validity check, it is up to UE implementation whether/how to utilize the measurement which was performed during CONNECTED mode before UE enters IDLE/INACTIVE mode.
  + No spec change for the above agreement.

**Performance part:**

**Issue 2-1: test scope of solution based on existing measurement for validity check**

* Candidate solutions:
  + Option 1: Do not introduce TC for non-EMR UE. (QC)
  + Option 2: (E///)
    - Introduce one single test case for Rel-18 Idle/Inactive measurement for CA/DC setup enhancement to cover both UE capability 39-8 eEMR (Measurement validation based on EMR measurement) and 39-9 IMR (Measurement validation based on non-EMR measurement).
    - The different UE capabilities of 39-8 and 39-9 can be verified in one case by configuring 2 neibouring cells. When both 39-8 and 39-9 capabilities are claimed, configure 3 cells (1 serving and 2 neighboring cells) for the test case, when only one of the capabilities is claimed, configure 2 cells (1 serving and 1 neighboring cell) for the test case.
  + Option 3: (Nokia)
    - RAN4 to define Rel-18 eEMR test cases for:
      * EMR-based idle mode measurements
        + UE does not report
        + UE reports measurements from X window
      * Cell reselection based idle mode measurements
        + UE does not report
        + UE reports measurements from X window
  + Option 4: define test cases to support Rel-18 early measurement reporting of both EMR and cell-reselection measurements in FR1 and FR2, respectively. (vivo)
  + Option 5: Define test case to support Rel-18 early measurement reporting of non-EMR measurement. (ZTE)
* Recommended WF
  + Discuss candidate solutions.

QC: RAN2 has not decided the signaling design.

Apple: RAN2 will finish the signaling in this meeting.

E///: the detailed definition of RAN2 siganlling does not have big impact on RAN4 TC.

Agreement:

RAN4 to introduce TC for non-EMR UE based on the understanding that RAN2 will define the corresponding signalling.

RAN4 can discuss the CR for the TC, and the signaling in the TC is subject to RAN2 agreement.

**Issue 2-2: test purpose ~~for solution based on existing measurement for validity check~~**

* Candidate solutions:
  + Option 1: TC will verify EMR-UE does not send measurement report which exceeds X second before paging reception. (QC, Apple)
  + Option 1a: (vivo)
    - For UE capable of 39-x1, design the test to verify that no valid measurement result is reported by turning off the target cell within the validity window.
    - For UE capable of 39-x2, design the test to verify the following UE behaviors by setting the different signal levels for the cell before and after validity window:
      * UE only reports the valid measurement result
      * The reported measurement result only includes the frequency configured by the network when measReselectionCarrierListNR-r18 is enabled
* Recommended WF
  + Discuss candidate solutions.

Nokia: Check also the case that UE will report.

QC: Not test the legacy UE behaviour.

HW: agree with QC.

Agreement:

* + For EMR, TC will verify UE does not send measurement report which exceeds X second before paging reception.
  + For non-EMR, TC will verify
    - UE send measurement report which is within X second before [paging reception].
    - UE does not send measurement report which exceeds X second before [paging reception] if it is feasible for the testing.

### 7.15 Dual Tx/Rx Multi-SIM for NR

#### 7.15.1 RRM core requirements maintenance for Rel-17 MUSIM gaps

**R4-2407843 Discussion on RRM core requirements maintenance for Rel-17 MUSIM gaps**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2408157 Discussion on remaining aspects of MUSIM**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Noted.**

**R4-2408158 CR on collisions handling and MUSIM operations**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4444 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Merged.**

**R4-2408319 Remaining issues on MUSIM General**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the general rules for MUSIM gaps

**Decision: Noted.**

**R4-2408623 On remaining maintenance issues for MUSIM**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2408626 Draft CR for applicable scenarios for intra or inter-frequency measurement when MUSIM is configured**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

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

**R4-2408709 Draft CR for applicable conditions for intra or inter-frequency measurement when MUSIM is configured**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410144 (from R4-2408709).**

[**R4-2410144**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410144.zip) **Draft CR for applicable conditions for intra or inter-frequency measurement when MUSIM is configured**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2409281 Discussion on remaining issues in RRM requirements for MUSIM**

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

**Decision: Noted.**

**R4-2409282 draftCR on RRM requirements for MUSIM gaps**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon, vivo, ZTE, MediaTek*

**Decision: Revised to R4-2410145 (from R4-2409282).**

[**R4-2410145**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410145.zip) **draftCR on RRM requirements for MUSIM gaps**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon, vivo, ZTE, MediaTek*

**Decision: Return to.**

**R4-2409688 Discussion on general aspects on MUSIM**

*Type: other For: Approval  
 Source: ZTECorporation,Sanechips*

**Decision: Noted.**

**R4-2409727 Discussion on the general aspects of MUSIM gaps**

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

**Decision: Noted.**

#### 7.15.2 RRM performance requirements

**R4-2408320 Draft CR to 38.133 Test case of MUSIM TC4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

This test case of MUSIM TC4

**Decision: Revised to R4-2410146 (from R4-2408320).**

[**R4-2410146**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410146.zip) **Draft CR to 38.133 Test case of MUSIM TC4**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

This test case of MUSIM TC4

**Decision: Return to.**

**R4-2409283 draftCR on TC1 for MUSIM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410147 (from R4-2409283).**

[**R4-2410147**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410147.zip) **draftCR on TC1 for MUSIM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409690 Draft CR for TC5 on MUSIM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Revised to R4-2410148 (from R4-2409690).**

[**R4-2410148**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410148.zip) **Draft CR for TC5 on MUSIM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Return to.**

**R4-2409728 draftCR on TC2 for MUSIM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410149 (from R4-2409728).**

**[R4-2410149](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410149.zip) draftCR on TC2 for MUSIM**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

#### 7.15.3 Moderator summary and conclusions

Topic: [111][218] NR\_DualTxRx\_MUSIM

**R4-2408015 Topic summary for [111][218] NR\_DualTxRx\_MUSIM**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410143**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410143.zip) **WF on NR Dual TxRx Multi-SIM**

*Type: other For: Approval  
 Source: vivo*

**Decision: Return to.**

**Online session (Monday May 20, 2024)**

**Issue 1-1-2: Scenarios for the case where the MO to be measured without MG have to be measured in the associated MG**

* Proposals
  + P1-1: When UE performs a measurement without gap which is partially overlapping with the MG but fully overlapping with the union of the NW-A’s gap and MUSIM gaps, UE shall perform the measurement within MG. (Ericsson Huawei Nokia)
  + P1-2: (vivo):
    - Case 1: For the scenario when measurement gap and MUSIM gaps are configured, where intra/inter- frequency measurement is measured with no measurement gap however part of the SMTC occasions of this intra/inter- frequency measurement object are overlapped with the measurement gap and all its SMTC are overlapping with the union of measurement gap and MUSIM gaps. Clarify the measurement will be performed within measurement gap.
      * Further discuss the CR wording for inter-frequency case
    - Case 2: For the scenario when concurrent gaps and MUSIM gaps are configured, where intra intra/inter- frequency measurement is measured with no measurement gap however part of the SMTC occasions of this intra/inter- frequency measurement object are overlapped with the associated measurement gap of concurrent gap and all its SMTC are overlapping with the union of concurrent gaps and MUSIM gaps. Clarify the measurement will be performed within the associated measurement gaps.
      * Further discuss the CR wording for inter-frequency case
    - Case 3: For the scenario when concurrent gaps and MUSIM gaps are configured, where intra/inter-frequency measurement is measured with no measurement gap and this measurement object is not associated with any concurrent gap, No requirement applies when all its SMTC are overlapping with the union of concurrent gaps and MUSIM gaps.
      * The proposal for case 3 is RAN4’s common understanding in pricinple, and further discuss whether/how to capture it in the spec.

Recommendations:

To moderator’s understanding Case 1 plus case 2 in P1-2 is the same as P1-1.

The only extra case is:

When a MO measured without gap is not associated with any one of concurrent gap however all of its SMTC are overlapping with the union of concurrent and MUSIM gaps, no requirement applies under this scenario.

On Case 1 & 2:

Nokia: The intra- and inter-frequency should be discussed separately. First discuss the case 1 and 2 for intra.

QC: in principle ok with P1-1. We already have CR endorsed in the last meeting. May not need to discuss the inter- and intra-frequency separately.

vivo: for inter- and intra-frequency in case 1 and case 2, follow the CR endorsed in previous meeting and both are included.

On case 3:

vivo: case 3 is a special case not covered in P1-1.

MTK: Wonder whether case 3 is a valid case.

E///: case 3 is corner case. Case 2 is typical in the real network. The case 3 is already covered in the concurrent gap. Case 3 is one of the scenarios for concurrent gap.

Nokia: With case 3, there will be one case with no requirement for intra-frequency, which is an unfortunate case.

Agreement:

* + - Case 1: For the scenario when measurement gap and MUSIM gaps are configured, where intra/inter- frequency measurement is measured with no measurement gap however part of the SMTC occasions of this intra/inter- frequency measurement object are overlapped with the measurement gap and all its SMTC are overlapping with the union of measurement gap and MUSIM gaps. Clarify the measurement will be performed within measurement gap.
      * Further discuss the CR wording
    - Case 2: For the scenario when concurrent gaps and MUSIM gaps are configured, where intra intra/inter- frequency measurement is measured with no measurement gap however part of the SMTC occasions of this intra/inter- frequency measurement object are overlapped with the associated measurement gap of concurrent gap and all its SMTC are overlapping with the union of concurrent gaps and MUSIM gaps. Clarify the measurement will be performed within the associated measurement gaps.
      * Further discuss the CR wording
    - Case 3: For the scenario when concurrent gaps and MUSIM gaps are configured, where intra/inter-frequency measurement is measured with no measurement gap and this measurement object is not associated with any concurrent gap, No requirement applies when all its SMTC are overlapping with the union of concurrent gaps and MUSIM gaps.
      * The proposal for case 3 is RAN4’s common understanding in principle, and further discuss whether/how to capture it in the spec.

**Issue 1-1-1: Mandatory MUSIM gap patterns or constraints on MUSIM gap request from UE side**

* Proposals
  + P1: No need to introduce mandatory MUSIM gap patterns and constraints on MUSIM gap request from UE side (xiaomi Huawei MTK, QC, Apple)
  + P2: Define 1 or 2 mandatory MUSIM gap patterns, as minimum the UE shall support MUSIM gap 6ms MGL and 160ms MGRP (Nokia ZTE)
  + P3: UE support at least one MUSIM gap pattern within a subset of MUSIM gap patterns and UE shall know the preferred MUSIM gap patterns from NW before UE requesting the MUSIM gaps.(Ericsson)
  + P4: For compromise, when UE requests more than one periodic MUSIM gaps, at least one MUSIM gap has a MGRP larger than x ms where x could be 1280 (vivo ZTE)
  + ~~P5: Discuss whether an LS is needed to RAN5 confirming that RAN4 assumption is reasonable. (Nokia)~~

Discussion:

Nokia: at least 1 mandatory gap pattern is preferred from network side. We agreed on the gap pattern used for the test.

QC: In 3GPP, our task on defining the core and test requirements have been done. Further coordination can happen after finishing the 3GPP requirements.

MTK: support P1. Mandatory MUSIM gap is not beneficial.

Agreement:

* No consensus to introduce mandatory MUSIM gap patterns in Rel-18.
* This issue is closed.

**Issue 1-1-3: How to capture agreements on MUSIM and Type-1 collision handling when their MGRP is identical**

* Proposals
  + P1: Capture in the MUSIM requirements section new section 9.1.10.7 that no requirements apply if collisions occur between a MUSIM gap and any measurement gap without assigned priority if the two gaps in a collision have the same MGRP. (Nokia)

*Recommendations:*

*Suggest to capture the clarification in existing section instead of a new section*

**Agreement:**

Capture in the MUSIM requirements in an existing section that no requirements apply if collisions occur between a MUSIM gap and any measurement gap without assigned priority if the two gaps in a collision have the same MGRP.

**Issue 1-1-5: Clarification on MUSIM related operations within allocated MUSIM gaps**

* Proposals
  + P1: Clarify in section 9.1.10 that the operations listed concerning cell detection, measurements, paging reception and SI reception are for MUSIM operations and shall be performed within the allocated MUSIM gaps. (Nokia)

*Recommendations: Discuss during the meeting*

QC: We can discuss, but the wording can be improved.

HW: in general ok. Capture from Rel-17 or Rel-18 spec?

Apple: in principle fine. May not need to capture all of these in the spec. UE also perform some operations outside the MUSIM gap in some cases if UE does not cause any trouble to the network.

Charter: To clarify “UE also perform some operations outside the MUSIM gap in some cases if UE does not cause any trouble to the network.”

Apple: For example, in some cases, MUSIM gap is dropped, and UE can still receive the paging.

Nokia: agree with this understanding.

vivo: This issue is not urgent and can further discucss offline.

Apple: no need to capture in the spec.

QC: agree with Apple.

Nokia: UE do the measurement within the non-dropped MUSIM gaps.

Charter: the clarification makes the spec clearer.

Nokia: If UE request MUSIM gaps, and network allocates the MUSIM gaps, it is expected that UE do the related operation within the allocated MUSIM gap. We want to make this clear.

**Issue 1-1-4: Clarification on network schedule on dropped gaps**

* Proposals
  + P1: Capture in section 9.1.10 that the network can schedule the UE in gaps (MUSIM and measurement gaps) which are dropped due to gap collision handling. UE scheduling availability in dropped gaps shall be clarified covering both sections 9.1.10.4 and 9.1.10.5 (Nokia)

*Recommendations:*

*Suggest to consider to capture the clarification*

E///: it is already in the spec. In principle fine.

Agreement:

The network can schedule the UE in gaps (MUSIM and measurement gaps) which are dropped due to gap collision handling.

* Capture the above understanding in RAN4 spec if it it not fully covered in the current spec. Further discuss the details in the CR.

### 7.16 NR NTN enhancement

#### 7.16.6 RRM core requirements

**R4-2407460 (NR\_NTN\_enh-Core) Baseline-Big CR for RAN4#111 draft CRs to TS 38.133 on RRM requirements for NR NTN enhancement\_v0**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

##### 7.16.6.1 NR-NTN RRM requirements in above 10 GHz bands

**R4-2407305 On RRM requirements in bands above 10GHz**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2407677 Draft CR on VSAT UE timing requirements for NTN in above 10GHz**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Samsung*

**Decision: Revised to R4-2410382 (from R4-2407677).**

[**R4-2410382**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410382.zip) **Draft CR on VSAT UE timing requirements for NTN in above 10GHz**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Samsung*

**Decision: Return to.**

**R4-2407841 draftCR on L3-RSRP measurement requirements maintenance in above 10 GHz scenario**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Xiaomi*

**Decision: Return to.**

**R4-2408419 Discussion on RRM core maintenance for NTN in above 10GHz**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

**R4-2408510 Discussion on Side Conditions for UE transmit timing requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408868 Discussion on maintenance issues for NTN bands above 10GHz**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409056 On side condition for timing requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

Proposals related to side condition for 120kHz of UL SCS in case2.

**Decision: Noted.**

**R4-2409058 Draft CR to TS 38.133: Removing side condition.**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Remove side condition for 120kHz of UL SCS in case2.

**Decision: Return to.**

**R4-2409059 LS reply on reference point for SSB-TimeOffset**

*Type: LS out For: Approval  
 to RAN2, cc RAN1  
 Source: Ericsson*

**Abstract:**

LS reply on reference point for SSB-TimeOffset

**Decision: Noted.**

**R4-2409284 Discussion on remaining issues for NTN in Ka band**

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

**Decision: Noted.**

**R4-2409285 draftCR on measurement requirements for NTN in Ka band**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410383 (from R4-2409285).**

**[R4-2410383](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410383.zip) draftCR on measurement requirements for NTN in Ka band**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

##### 7.16.6.2 Network verified UE location

**R4-2408511 Discussion on UE RX-TX Time difference**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408605 Core requirements for Network verified UE location**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Core requirements for Network verified UE location

**Decision: Noted.**

**R4-2408869 Discussion on maintenance issues for NW verified UE location**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409286 Discussion on RRM requirements for NW verified location**

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

**Decision: Noted.**

**R4-2409287 draftCR on Rx-Tx measurement requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

##### 7.16.6.3 NTN-TN and NTN-NTN mobility and service continuity enhancements

**R4-2407306 On mobility and service continuity for eNTN**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2407307 Reply LS on reference point for SSB-TimeOffset**

*Type: LS out For: Approval  
 to R2-2403771, cc RAN2  
 Source: Apple*

**Decision: Noted.**

**R4-2407840 Discussion on NTN-TN and NTN-NTN mobility and service continuity enhancements**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2407932 (NR\_NTN\_enh-Core) Discussion on the maintenance issue and the LS from RAN2 for NR NTN enhancement**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408512 CR to TS 38.133 on applicability of soft satellite switching requirements**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4475 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408513 CR to TS 38.133 on RLM and measurements during satellite switching with resynchronization**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4476 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410384 (from R4-2408513).**

[**R4-2410384**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410384.zip) **CR to TS 38.133 on RLM and measurements during satellite switching with resynchronization**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4476 rev Cat: F (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408514 Considerations on Soft Satellite Switch Capability**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408606 Core requirements for NTN-TN and NTN-NTN mobility and service continuity enhancements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Core requirements for NTN-TN and NTN-NTN mobility and service continuity enhancements

**Decision: Noted.**

**R4-2408867 Discussion on maintenance issues for NTN mobility enhancements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409288 Discussion on mobility enhancements in NTN**

*Type: LS out For: Approval  
 to RAN2, RAN1  
 Source: Huawei, HiSilicon*

**Decision: Noted.**

**R4-2409289 draftCR on requirements for satellite switch with re-sync**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410385 (from R4-2409289).**

**[R4-2410385](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410385.zip) draftCR on requirements for satellite switch with re-sync**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

#### 7.16.7 RRM performance requirements

**R4-2408608 Draft CR for 38.133 on Radio Link Monitoring test for NTN**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Test case on RLM for NTN

**Decision: Revised to R4-2410386 (from R4-2408608).**

**[R4-2410386](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410386.zip) Draft CR for 38.133 on Radio Link Monitoring test for NTN**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Test case on RLM for NTN

**Decision: Return to.**

##### 7.16.7.1 NR-NTN RRM performance requirements in above 10 GHz bands

**R4-2407308 On NR-NTN accuracy requirements in above 10 GHz bands**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2407364 (NR\_NTN\_enh-Perf) Test case of SSB based L1-RSRP measurement for NTN above 10GHz**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407461 (NR\_NTN\_enh-Perf) draft CR on TC for Connected mode mobility in FR2-NTN**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Revised to R4-2410387 (from R4-2407461).**

[**R4-2410387**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410387.zip) **(NR\_NTN\_enh-Perf) draft CR on TC for Connected mode mobility in FR2-NTN**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2407678 Draft CR on test cases of VSAT UE timing requirements for NTN in above 10GHz**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Samsung*

**Decision: Return to.**

**R4-2407842 draftCR on test case for L3-RSRP measurement without gap under non-DRX with SSB index reading in above 10 GHz scenario**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2410388 (from R4-2407842).**

[**R4-2410388**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410388.zip) **draftCR on test case for L3-RSRP measurement without gap under non-DRX with SSB index reading in above 10 GHz scenario**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

**Decision: Return to.**

**R4-2408420 Discussion on NTN performance requirements in Ka band**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

**R4-2408515 Dicussion on Testability of Case 3 UEs in FR2-NTN**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408864 Draft CR on test case for NTN RLM requirements in bands above 10GHz**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2408870 Discussion on test cases design for NTN bands above 10GHz**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2409290 Discussion on performance requirements for NTN in Ka band**

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

**Decision: Noted.**

**R4-2409291 draftCR on TC for inter-satellite HO for FR2-NTN**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

##### 7.16.7.2 Network verified UE location

**R4-2409292 draftCR on UE Rx-Tx time difference accuracy requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

##### 7.16.7.3 NTN-TN and NTN-NTN mobility and service continuity enhancements

**R4-2407195 Discussion on the performance requirement for NR NTN enhancement below 10GHz**

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

**Decision: Noted.**

**R4-2407196 Introduce the test for NTN to NTN RACH-less HO**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Return to.**

**R4-2407933 (NR\_NTN\_enh-Perf) draftCR to TS 38.133 Introduction of satellite switch test cases for NTN enh**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CMCC*

**Decision: Revised to R4-2410391 (from R4-2407933).**

[**R4-2410391**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410391.zip) **(NR\_NTN\_enh-Perf) draftCR to TS 38.133 Introduction of satellite switch test cases for NTN enh**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CMCC*

**Decision: Return to.**

**R4-2407964 Draft CR on TC for NTN-NTN time-based trigger CHO enhancements for NR NTN**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: LG Electronics Inc.*

**Decision: Return to.**

**R4-2408421 Discussion on RRM performance part for NTN mobility enhancements**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

**R4-2408607 RRM performance requirements for NTN enhancements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

RRM performance requirements for NTN-TN enhancements

**Decision: Noted.**

**R4-2409293 Discussion on RRM tests for mobility enhancement in NTN**

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

**Decision: Noted.**

**R4-2409691 Draft CR \_Cell Reselection for NR UE for Satellite in IDLE state**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Revised to R4-2410392 (from R4-2409691).**

[**R4-2410392**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410392.zip) **Draft CR \_Cell Reselection for NR UE for Satellite in IDLE state**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Return to.**

**R4-2409692 Draft CR \_Cell Reselection for NR UE for Satellite in INACTIVE state**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Revised to R4-2410393 (from R4-2409692).**

[**R4-2410393**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410393.zip) **Draft CR \_Cell Reselection for NR UE for Satellite in INACTIVE state**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Return to.**

**R4-2409695 Draft CR for test case on NTN to LTE TN**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Revised to R4-2410394 (from R4-2409695).**

[**R4-2410394**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410394.zip) **Draft CR for test case on NTN to LTE TN**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Return to.**

**R4-2409696 Draft CR for test case on NTN to NR TN**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTECorporation,Sanechips*

**Decision: Return to.**

#### 7.16.9 Moderator summary and conclusions

Topic: [111][219] NR\_NTN\_enh

**R4-2408016 Topic summary for [111][219] NR\_NTN\_enh**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410137**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410137.zip) **Ad-hoc minutes for NR\_NTN\_enh WI**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Approved.**

[**R4-2410380**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410380.zip) **WF on RRM requirements for NR\_NTN\_enh**

*Type: other For: Approval  
 Source: Qualcomm*

**Decision: Return to.**

[**R4-2410381**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410381.zip) **Reply LS to R4-2407009 (R2-2403771) on reference point for SSB-TimeOffset**

*Type: LS out For: Approval  
 to RAN2  
 Source: Apple*

**Decision: Return to.**

**Online session (Monday May 20, 2024)**

**<Online # 1>Issue 1-6A: Te\_NTN for 60kHz and 120kHz in Case2**

**Views from companies**

* (Note) Side condition for the requirement applicability (Cast-2, 120kHz of UL SCS) agreed in RAN4#109-100
  + The requirements are applicable only if the ephemeris information be refreshed (i.e. update rate of ephemeris information in SIB19) at least every [7] seconds
* Option 1: Keep the agreed side condition
  + Samsung, vivo
* Option 2: Remove the agreed side condition
  + Nokia (Pleas confirm if Proposal 1 in R4-2408510 is for Case2), Ericsson, Huawei, ZTE
    - The difference between empimeris update of 7 s and 10 s is minimal.
    - The limited range of the SFN (10.24 seconds) forces the network to frequently update the broadcast ephemeris data to update empch time and ephimeris data at least ecery 10 seconds.

ZTE: support moderator’s WF, given no big performance difference for 7s and 10s.

Apple: Agree no big performance difference for 7s and 10s. How does the 10.24 restriction come from?

Nokia: The limited range of the SFN (10.24 seconds) forces the network to frequently update the broadcast ephemeris data to update empch time and ephimeris data at least ecery 10 seconds.

QC: We agreed that if SIB19 is updated every 7 s, it is up to UE how to read.

Apple: the requirement is defined assuming network can update every 10.24s. Fine with option2.

**Moderator’s WF: Based on the technical observation presented in R4-2408510, it appears that Option 2 can be agreed.**

* In Case-2, remove the below side condition for requirement applicability.
  + The requirements are applicable only if the ephemeris information be refreshed (i.e. update rate of ephemeris information in SIB19) at least every [7] seconds.

**Agreement:**

* In Case-2, remove the below side condition for requirement applicability.
  + The requirements are applicable only if the ephemeris information be refreshed (i.e. update rate of ephemeris information in SIB19) at least every [7] seconds.

**<Online # 2>Issue 3-5: Other impact on RRM**

**Summary of agreements:**

|  |
| --- |
| **Agreement [RAN4#109]:**  **FFS:**   * For the satellite switch case with same PCI, the UE shall consider the measurements collected prior to the satellite switch invalid and restart the UE Rx-Tx time difference measurement after the switch is complete. * Discuss how to handle UE measurements across both satellites when there is a soft satellite switch.   **Agreement [RAN4#110]:**   * When UE switches to a new satellite switch with same PCI, and no UE requirement applies. RAN4 can further discuss whether to stop or re-start the measurement in maintenance phase based on contribution driven.   **Agreement (online) [RAN4#110b]:**   * When UE switches to a new satellite switch with same PCI (through HO, CHO or satellite switch with re-sync for both hard and soft satellite switch), select one option from:   + Option 1a: UE stops the PRS measurement after t\_service and restart the UE Rx-Tx time difference measurement after switch is complete.     - The PRS configuration of the two satellites with the same PCI follows RAN1/2 specficiaton, and no further restriction for gNB/LMF to be defined in RAN4.     - The UE measurement accuracy requiremet does not apply if the PRS transmission from two satelliates overlap in time/frequency domain. Further clarify the definition of “overlapping” offline.   + Option 1b: UE stops the PRS measurement after t\_servicestart and restart the UE Rx-Tx time difference measurement after switch is complete.     - The PRS configuration of the two satellites with the same PCI follows RAN1/2 specficiaton, and no further restriction for gNB/LMF to be defined in RAN4.   + Option 2: UE stops the PRS measurement after t\_service and until LMF triggers new measurement.   **FFS (online) [RAN4#110b]:**   * When UE switches to a new satellite switch with different PCI (through HO or CHO),   + UE stops the PRS measurement for the source cell and re-start PRS measurement for the target cell after SRS (re)configuration on the target cell is complete. |

**Views from companies**

* When UE switches to a new cell with **different PCI**, UE stops the PRS measurement for the source cell and start PRS measurement for the target cell after SRS reconfiguration on the target cell is complete.
  + Nokia, vivo, Huawei
* When UE switches to a new cell with **same PCI** through **hard** satellite switch with re-sync, UE stops the PRS measurement after X and restarts the UE Rx-Tx time difference measurement after switch is complete.
  + X = t-Service
    - Vivo, Nokia
  + X = t-ServiceStart
    - Huawei
* When UE switches to a new cell with **same PCI** through **soft** satellite switch with re-sync, UE stops the PRS measurement after Y and restarts the UE Rx-Tx time difference measurement after switch is complete.
  + Y = t-Service
    - Nokia
    - Nokia: The UE measurement accuracy requiremet does not apply if the PRS transmission from two satelliates overlap in time/frequency domain. Further clarify the definition of “overlapping” offline.
  + Y = t-ServiceStart
    - Vivo, Huawei

**Moderator’s WF**: **To prevent a situation where the UE might receive two sets of PRSs from source and target satellites, it is advisable to halt PRS measurements at whichever point occurs earlier between t-Service and t-ServiceStart during satellite switch with re-sync.**

* When UE switches to a new cell with different PCI, UE stops the PRS measurement for the source cell and start PRS measurement for the target cell after SRS reconfiguration on the target cell is complete.
* When UE switches to a new cell with same PCI through hard and soft satellite switch with re-sync, UE halts/stop the PRS measurement at whichever point occurs earlier between t-Service and t-ServiceStart and ~~re~~starts the UE Rx-Tx time difference measurement after switch is complete.

For different PCI case:

Nokia: it is same as the legacy requirements.

Apple: It is different for DL only measurement and Rx-Tx measurement.

For same PCI case:

Moderator: t-service is before or after t-serviceStart for hard and soft satellite switch. Unified agreement for hard and soft satellite switch.

Nokia: fine with principle.

* When UE switches to a new cell with same PCI through hard and soft satellite switch with re-sync, UE stops the PRS measurement at whichever point occurs earlier between t-Service and t-ServiceStart and starts new measurement for the UE Rx-Tx time difference after switch is complete.

vivo: “re-start” is the wording in legacy requirements. what’s the difference between “re-start” and “start new”

Nokia: ok to use “start”

Agreement:

* When UE switches to a new cell with different PCI, UE stops the PRS measurement for the source cell after HO occurs and starts new PRS measurement for the target cell after SRS reconfiguration on the target cell is complete.
  + Further discuss how to capture “starts new measurement” in the CR.
* When UE switches to a new cell with same PCI through hard and soft satellite switch with re-sync, UE stops the PRS measurement at whichever point occurs earlier between t-Service and t-ServiceStart and starts new measurement for the UE Rx-Tx time difference after switch is complete.
  + Further discuss how to capture “starts new measurement” in the CR.

**<Online # 3>Issue 4-1: TN to NTN cell reselection**

**Summary of agreements:**

|  |
| --- |
| **Agreement [RAN4#108b]:**   * FFS: whether/how to define TN to NTN cell reselection.   **Agreement [RAN4#109]:**   * Define requirements on TN to NTN cell reselection.   + Define core requirements for GNSS ON and GNSS switch OFF to ON, no test case.   + No specific value for the GNSS time to first fix to be define for the case of GNSS switch OFF to ON.   **Agreement [RAN4#110]:**   * Requirement applicability   + Only inter-frequency cell reselection from TN to NTN only in FR1-NTN   + Timer-based measurement triggering parts not applicable for cell reselection from TN to NTN   + The requirements apply provided that UE has valid SIB19   + UE is not required to ensure having a valid version of SIB19 and the exact time of reacquiring SIB19 is up to UE implementation.   **Agreement [RAN4#110]:**   * Measurement requirements on inter-frequency cell reselection from NR TN to NTN   + - * Kcarrier\_TN \* Tdetect/measure/evaluate,NR\_Inter\_TN + + T\_GNSS if the UE does not support the feature for enhanced RRM requirements defined in TS38.306 [14] or if the enhancedMeasurementLEO-r17 is not enabled, or within Kcarrier\_TN \* Tdetect/measure/evaluate,NR\_Inter\_TN + if the UE supports the feature for enhanced RRM requirements defined in TS38.306 [14] and the enhancedMeasurementLEO-r17 is enabled.         + The parameter Kcarrier\_TN is the number of NR TN inter-frequency carriers indicated by the serving cell.         + The parameter Kcarrier\_NTN is the number of NR NTN inter-frequency carriers indicated by the serving cell.         + Tdetect/measure/evaluate,NR\_Inter\_TN is the NR TN inter-frequency cell re-selection requirement defined in Table 4.2.2.4-1 in TS38.133         + Tdetect/measure/evaluate,NR\_Inter\_NTN is the NR NTN inter-frequency cell re-selection requirement defined in Table 4.2C.2.4-1 in TS38.133   + T\_GNSS is TTFF (Time To First Fix) of which value is left undefined in RRM spec. If UE GNSS has been switched ON, T\_GNSS can be assumed zero.     - The note below is to be implemented in RRM requirement spec:       * the above requirement does not assume UE always performs NTN cell detection/measurement as well as TN cells. * Implement the requirements for TN-to-NTN cell reselection in IDLE mode in a new subclause under clause 4.2. * FFS how to implement in CR the impact to the TN-to-TN requirement under this scenario in the maintenance phase.   **Agreement [RAN4#110]: Updated agreement on top of adhoc agreement:**   * The requirements apply provided that network provides SIB19. UE is not required to ensure having a valid version of SIB19 and the exact time of reacquiring SIB19 is up to UE implementation. |

**Views from companies**

* Apple: If both TN and NTN carriers are broadcasted to NTN capable UE for neighbour cells measurement in IDLE/Inactive mode, we propose following alternatives:
  + Alt1: Cell reselection delay requirement is defined such that the UE may measure both TN and NTN cells/carriers.
  + Alt2: If UE GNSS has been switched ON, cell reselection delay requirement is defined such that the UE may measure both TN and NTN cells/carriers; otherwise, cell reselection delay requirement is defined such that TN inter-frequency cell measurement is not extended.
* Ericsson: Split the condition of searching for and measuring TN only inter-frequency layers and the condition of searching for and measuring TN+NTN inter-frequency layers. One example of solutions is adding an offset to SnonIntraSearchP and SnonIntraSearchQ, e.g., in Clause 4.2.2.4.
  + If Srxlev ≤ SnonIntraSearchP or Squal ≤ SnonIntraSearchQ then the UE shall search for and measure inter-frequency layers belonging to TN of higher, equal or lower priority in preparation for possible reselection.
  + If Srxlev ≤ (SnonIntraSearchP – [ONTN] or Squal ≤ SnonIntraSearchQ – [ONTN] then the UE shall search for and measure inter-frequency layers belonging to TN and NTN of higher, equal or lower priority in preparation for possible reselection, provided UE has valid satellite information.
* Define an applicability rule for the new subclause for TN to NTN cell reselection requirements that the requirements are only applicable when the UE is NTN capable and NTN neighbor cell(s) has been configured for measurements.
  + CMCC
* Location-based measurement triggering parts are not applicable for cell reselection from TN to NTN
  + Xiaomi, CMCC
* The agreement ‘the above requirement does not assume UE always performs NTN cell detection/measurement as well as TN cells.’ is vague. RAN4 shall clarify it. To our understanding, the legacy requirements on measurements of TN only inter-frequency cells anyway shall not be impacted, i.e., not delay the existing legacy TN requirements even for a TN+NTN capable UE
  + Ericsson
* If UE is configured by network to have at least one high priority carrier which contains NTN cells, UE shall keep GNSS ON during such high priority frequency layer measurement even the UE is in TN coverage
  + Apple

**Issue 4-1: TN to NTN cell reselection**

**Moderator’s WF: The central debate revolves around avoiding an unreasonably extended TN-to-TN cell reselection delay. Properly splitting the UE requirements for TN-only capable UE and NTN-only capable UE can mitigate this issue, although there are still cases where the exact UE requirements remain unclear. New proposals that may potentially impact UE implementation or other working groups are not considered in the moderator’s WF.**

* It is a common understanding that location-based measurement triggering parts are not applicable for cell reselection from TN to NTN. Whether/How to implement this in RAN4 spec is left to CR.
* If both TN and NTN carriers are broadcasted for neighbour cells measurement in IDLE/Inactive mode,
  + For NTN capable UE, the cell reselection requirements are applied assuming UE may measure both TN and NTN cells/carriers (i.e., the TN to NTN requirement agreed in RAN4 #110).

*Ran4 #110 agreement: Measurement requirements on inter-frequency cell reselection from NR TN to NTN*

* + - * *Kcarrier\_TN \* Tdetect/measure/evaluate,NR\_Inter\_TN + + T\_GNSS if the UE does not support the feature for enhanced RRM requirements defined in TS38.306 [14] or if the enhancedMeasurementLEO-r17 is not enabled, or within Kcarrier\_TN \* Tdetect/measure/evaluate,NR\_Inter\_TN + if the UE supports the feature for enhanced RRM requirements defined in TS38.306 [14] and the enhancedMeasurementLEO-r17 is enabled.*
  + For NTN incapable UE, the existing TN-to-TN cell reselection requirements are applied.
    - Further check does UE know whether it is a TN carrier or NTN carrier?

Discussion:

vivo: define additional TN to NTN only requirement.

ZTE: In our CR, in the clause of TN to TN requirement, we already added a sub-clause for TN to NTN only requirement.

QC, HW: The band number for TN and TN is different. Further check whether the carrier frequency or also the band number is configured.

CMCC: If both TN and NTN carriers are broadcasted for neighbour cells measurement in IDLE/Inactive mode,

* + For NTN capable UE, the cell reselection requirements are applied assuming UE may measure both TN and NTN cells/carriers (i.e., the TN to NTN requirement agreed in RAN4 #110).

Nokia: can one SMTC configured for both TN and NTN carriers.

HW, Apple: one SMTC per carrier. different SMTCs for TN and NTN. UE perform measurement on one carrier with one SMTC fist, and then on the second carrier.

Agreement:

* It is a common understanding that location-based measurement triggering parts are not applicable for cell reselection from TN to NTN. Whether/How to implement this in RAN4 spec is left to CR.
* If both TN and NTN carriers are broadcasted for neighbour cells measurement in IDLE/Inactive mode,
  + For NTN capable UE, the cell reselection requirements (i.e., the TN to NTN reselection requirement agreed in RAN4 #110) are applied to both TN and NTN target cells/carriers.
  + FFS: For NTN incapable UE, the existing TN-to-TN cell reselection requirements are applied.
    - Further check does UE know whether it is a TN carrier or NTN carrier

**<Online # 4>Issue 5-2: NTN to NTN Satellite switching without PCI change**

**Summary of agreements:**

|  |
| --- |
| **Agreement [RAN4#108b]:**   * For satellite switching without PCI change,   + define requirements for both hard and soft switch scenarios.     - TBD on how to define hard/soft satellite switch without PCI change (which will be determined mostly based on further clarification expected to be made by RAN2)   + define requirements for PRACH-based and for without RACH performed solution.   + The above does not necessarily mean that a common requirement formula cannot be defined. e.g. requirements for each case can be represented by a common formula with different definitions of respective components.     - Starting point of the interruption time for the switch is t-Service, FFS other starting point needs to be considered for other cases depending on RAN2 progress     - Ending point of the interruption time for the switch is PRACH transmission for PRACH-based case and [first UL transmission excepting PRACH for without RACH performed solution] * Interruption time for the hard switch is defined as Tinterrupt = Tsearch + TIU + Tprocessing + T∆ + Tmargin    + Tsearch = [Trs] ms   + Tprocessing = [5] ms   + T∆, Tmargin and TIU are same as existing requirements * FFS Interruption time for soft switch * FFS on   + whether/how to define requirements resulting from separate link switch time instances for UL and DL.     - Note: the starting and ending may be revisited depending outcome of discussions   + whether/how to define UE behavior (e.g. skipping/relaxation of L1/L3 measurement and evaluation) during the switch.   **Agreement [RAN4#109]:**  **FFS:**   * For soft and hard satellite switch without PCI change, Tinterrupt = Tsearch + TIU + Tprocessing + T∆ + Tmargin (i.e. same formula as hard satellite switch). The following are the same for both cases:   + Tprocessing = 5 ms   + TIU, T∆ and Tmargin are same as existing requirements.   + Ending point of the interruption time: PRACH transmission for PRACH-based case and [first UL transmission excepting PRACH for without RACH performed solution, if supported by RAN2] * For soft satellite switch without PCI change,   + Starting point of the interruption time:     - Option 1: between t-Start and t-Service, and the exact starting time is up to UE implementation.     - Option 2: t-Service   + Tsearch     - Decide whether to consider the following known condition.       * In the interruption requirement a cell is known if it has been meeting the relevant cell identification requirement during the last 5 seconds before UE starts synchronizing with target satellite otherwise it is unknown. Relevant cell identification requirements are described in Clause 9.2.5 for intra-frequency handover ~~and Clause 9.3.4 for inter-frequency handover~~.     - If agreed to not consider known vs. unknown condition,       * Tfirst\_SSB ms, where Tfirst\_SSB is the time to the end of the first complete SSB burst indicated by the SMTC of target satellite.     - Otherwise,       * Tfirst\_SSB ms, where Tfirst\_SSB is the time to the end of the first complete SSB burst indicated by the SMTC of target satellite for unknown target cell [and the target cell Es/Iot ≥ -2 dB], and 0 for known target cell. * For hard satellite switch without PCI change,   + Starting point of the interruption time: t-Service   + Tsearch = Tfirst\_SSB ms, where Tfirst\_SSB is the time to the end of the first complete SSB burst indicated by the SMTC of target satellite. * Note: The SMTC configuration details need to be updated as RAN2 makes further progress.   **FFS:**   * During satellite switching without PCI change, UE is not required to monitor other cells than the target cell:   + For soft satellite switch without PCI change, UE [may or shall] skip measurements on other cells than the target cell after t-Start   + For hard satellite switch without PCI change, UE is not required to monitor other cells than the target cell after t-Service   **FFS:**   * For hard satellite switch without PCI change, further discuss the following:   + A scheduling restriction applies to UEs that do not support parallelMeasurementWithoutRestriction-r17 starting at the UL slot to be transmitted at tue\_ul\_switch = t-service – common delay   + Include in the interruption time a component associated to the DL transmission gap   **FFS:**   * Decide whether/how to define requirements resulting from separate link switch time instances for UL and DL   + Option 1: Do not define separate starting points for UL and DL for hard switch   + Option 2: Define separate starting points for UL and DL for hard switch   **Agreement [RAN4#110]: Common aspects for ‘Hard’ and ‘Soft’ Satellite switch**   * Decide a specific value for Tprocessing time   + 10ms * Side condition for the requirement applicability   + the target cell Es/Iot ≥ -2 dB |

**Views from companies**

* In response to RAN2 LS (R4-2407009\_R2-2403771), RAN4 to confirm that it is feasible to adopt the gNB as the reference point of ssb-TimeOffset for both soft and hard satellite switch scenarios.
  + Ericsson, Apple, Xiaomi, CMCC (not preferred though), Nokia, vivo, Huawei
* Huawei: For both hard and soft satellite switch, update Tfirst\_SSB definition as
  + Tfirst\_SSB is the time to the end of the first complete SSB burst of the target satellite, the location of which is determined by the periodicity and offset of SSB of the source satellite, the ssb-TimeOffset and the propagation delay difference between the serving satellite and the target satellite.
* When soft satellite switching is implemented by the network and the UE supports only hard satellite switching, the UE performs hard satellite switching and the corresponding requirements are applicable to this.
  + Nokia

**Issue 5-2: NTN to NTN Satellite switching without PCI change**

**Moderator’s WF: The proposal from Nokia is already confirmed by RAN2 specification/agreement.**

* In response to RAN2 LS (R4-2407009\_R2-2403771), RAN4 to confirm that it is feasible to adopt the gNB as the reference point of ssb-TimeOffset for both soft and hard satellite switch scenarios.
  + [Apple takes the lead on the reply LS, based on the draft presented in R4-2407307]
* For both hard and soft satellite switch, update Tfirst\_SSB definition as
  + Tfirst\_SSB is the time to the end of the first complete SSB burst of the target satellite, the location of which is determined by the periodicity and offset of SSB of the source satellite, the ssb-TimeOffset and the propagation delay difference between the serving satellite and the target satellite. If the gNB is adopted as the reference point of ssb-TimeOffset, additional changes will be made, if any, e.g. kmac.

Discussion:

CMCC: Using the gNB as reference point requires more efforts from network side. It is feasible but may not be the better option. Suggest to add our consideration in the reply LS as well in addition to answer “feasible”.

Nokia: UL reference point is not changed. Using the gNB as reference point is ok.

QC: the LS is also sent to RAN1. We can focus on answering feasible or not.

Session Chair: agree the first main bullet, and further discuss any additional information is needed for the reply LS.

Agreement:

* In response to RAN2 LS (R4-2407009\_R2-2403771), RAN4 to confirm that it is feasible to adopt the gNB as the reference point of ssb-TimeOffset for both soft and hard satellite switch scenarios.

**<Online # 5>Issue 5-2-S: Soft’ Satellite switch (5-2-S1 and -S2 from RAN4#110 are merged)**

**Summary of agreements:**

|  |
| --- |
| **Agreement [RAN4#110]:**   * It is feasible that a soft satellite switch capable UE can perform downlink synchronization with the target NGSO satellite and keep the connection (DL and UL) with the source NGSO satellite simultaneously under the following conditions.   + Only if SSBs from the two satellites are spaced apart from each other at least by [1 OFDM symbol] in the time domain at UE Rx side. * [If the UE not capable of parallelMeasurementWithoutRestriction-r17 then scheduling restriction shall be expected within the duration from Tstart to T service.]   **Agreement [RAN4#110]:**   * Further discuss on the solutions of alleviating the scheduling restriction problem can be further discussed in maintenance phase.   **Agreement [RAN4#110]:**   * The starting point of the downlink synchronization time~~/interruption time~~.   + Between t-serviceStart and t-Service, the exact starting time is up to UE implementation * The starting point of the interruption time.   + t-Service   **Agreement [RAN4#110]: Satellite switch latency Requirement**   * If t-Service – t-serviceStart >= Tsearch + T∆ + Tmargin and UE is able to perform downlink synchronization with the target NGSO satellite and keep the connection (DL and UL) with the source NGSO satellite simultaneously   + Satellite switch **ending pint** is **no later than** is Tprocessing + TIU from t-Service * Otherwise   + Satellite switch ~~latency~~ **ending pint** is **no later than** Tsearch + T∆ + Tmargin + Tprocessing + TIU from t-serviceStart * Interruption is allowed only after t-Service   **Agreement [RAN4#110]:**   * Satellite switch delay (Tsoft-switch), from t-serviceStart to the time instance for the first UL transmission to the target satellite, is defined as below:   + Tsoft-switch = max(t-Service - t-serviceStart, Tsearch + T∆ + Tmargin) + Tprocessing + TIU * ‘The time instance for the first UL transmission to the target satellite’ is no earlier than t-Service.   **Agreement [RAN4#110]:**   * Tsearch   + Tfirst\_SSB [ms], where Tfirst\_SSB is the time to the end of the first complete SSB burst indicated by     - SMTC of serving cell + ssb-TimeOffset + PDD propagation difference * TIU (ending point of interruption is at TIU)   + The interruption uncertainty in acquiring the first UL transmission resource, which can be a configured grant based PUSCH, dynamic grant based PUSCH, SR on PUCCH, according to NW configuration and scheduling, or PRACH if TA timer is not running and there is no PUCCH SR   + Note: Anything not compliant with RAN2 spec, if identified, will be removed. * T∆: Same as the existing requirements * Tmargin: Same as the existing requirements * Further discuss whether UE is allowed to skip or deprioritize measurements on the serving cell and neighbor cells from T-Start in maintenance phase   **Agreement (online) [RAN4#110]:**   * Scheduling restrictions over [t-ServiceStart ~ t-Service] for UE incapable of parallelMeasurementWithoutRestriction-r17 and/or [differentSCS between SSB and data]   + Define scheduling restriction during soft satellite switch from UE perspective, i.e. scheduling restriction are allowed only during SSB occasions of the target satellite (same as 9.2C.5.3)     - For the scheduling restriction: For RSRP measurement, 1 additional symbol before and after SSB block. For RSRQ measurement, 1 additional symbol before and after RSSI symbols.   **Agreement (online) [RAN4#110]:**   * Optimization on measurements   + UE is allowed to skip measurements other cells and satellites than the target satellite and source satellite from T-serviceStart to the satellite switch completion.   **Agreement (online) [RAN4#110]:**   * Impact on inter-satellite neighbour cell measurements   + No optimization for the scenario of ‘(both hard and soft) satellite switch with re-sync’ on inter-satellite neighbor cell measurements |

**Views from companies**

* Do not define known case for soft satellite switch.
  + Huawei
* Do not consider PDD reporting between serving and target satellites involved in the satellite switching without PCI change
  + Apple
* To enhance scheduling restriction in soft satellite switching,
  + Consider modifying the capability rule such that: if UE indicates to support soft satellite switching without PCI change, it also means UE supports both simultaneousRxDataSSB-DiffNumerology and parallelMeasurementWithoutRestriction-r17.
    - Apple, Nokia
  + Soft satellite switching requirements do not apply if the propagation delay difference is larger than 2ms
    - Nokia
* Because the UE is allowed to skip measurements in neighbor cells during soft satellite switching, the total timing to detect neighbor cells has to be extended
  + Nokia
* The UE is allowed to skip measurement gaps not associated to the satellite switching from the duration of t-serviceStart and t-service
  + Nokia
* Measurement gaps or SMTCs colliding with RLM-RS are not accounted for during soft satellite switching operation
  + Nokia

**Issue 5-2-S: Soft’ Satellite switch (5-2-S1 and -S2 from RAN4#110 are merged)**

**Moderator’s WF**

* UE capability of parallelMeasurementWithoutRestriction-r17 is mandatorily supported for a UE supporting soft satellite switching.
* Do not define known case for soft satellite switch.
* Do not consider PDD reporting between serving and target satellites involved in the satellite switching without PCI change.
* During and after soft satellite switch, the total timing to detect neighbor cells has to be extended.
* UE is allowed to skip measurement gaps not associated to the satellite switching from the duration of t-serviceStart and t-service
* Measurement gaps or SMTCs colliding with RLM-RS are not accounted for during soft satellite switching operation

Discussion on the first bullet:

* UE capability of parallelMeasurementWithoutRestriction-r17 is mandatorily supported for a UE supporting soft satellite switching.

CMCC: not agree with it. Even UE does not support the capability, there is still benefit from soft switching.

HW, E///: Agree with CMCC.

Apple: The background is to do optimization. We also proposed to mandate other UE capabilities for soft switching. We are also ok to not enforce additional capability for UE.

vivo: agree with CMCC. We already discussed the case for UE without parallelMeasurementWithoutRestriction-r17 capability.

Nokia: It is true that UE does not support the capability, there is still benefit from soft switching. But the soft switching requires additional BS efforts.

Discussion on the second bullet:

* Do not define known case for soft satellite switch.

CMCC, HW: to clarify, at the starting of the soft switch, the cell is unknown.

Inmarsat: to clarify the meaning of “the cell is unknown”.

HW: UE needs to do time sync.

QC: follow the legacy definition.

Nokia: the same PCI is considered here.

Discussion on:

* During and after soft satellite switch, the total timing to detect neighbor cells has to be extended.

Nokia: this is based on the previous RAN4 agreement. To capture the proposal in the spec.

HW: To define the exact time for the extension, or just clarify it will be extended?

E///: We have different view. The measurement on the neighbor cells should be started based on target satellite timing or STMC.

Agreement:

* Do not define known case for soft satellite switch.
  + It does not mean RAN4 will define the “known” or “unknown” case in the spec for soft satellite switching.

**Online discussion (Tuesday, 21 May 2024)**

**Issue 2-4: RRC Re-establishment**

**Summary of agreements:**

|  |
| --- |
| **FFS [RAN4#108b]:**   * For Type 1 UE, whether to specify RRC Re-establishment for inter-satellite scenario. * For Type 2 UE, whether to specify RRC Re-establishment for inter-satellite scenario. * FFS: RRC Re-establishment requirements for intra-satellite scenario are the same as the existing FR1 NTN requirements with Ksatellite = 1.   **Agreement [RAN4#109]:**   * For **type 1** UE (electronical steering antenna)   + **Inter-satellite** RRC re-establishment:     - **No** RRC re-establishment requirements   + **Intra-satellite** RRC re-establishment:     - **Define** RRC re-establishment requirement, and the requirement is the same as the **existing FR1 NTN requirements** (6.2C.1). And the requirement applies when the UE is **not configured with inter-satellite measurement**.   + FFS whether exception case need to be considered * For **type 2** UE (mechanical steering antenna)   + **Inter-satellite** RRC re-establishment     - **No** RRC re-establishment requirements   + **Intra-satellite** RRC re-establishment     - **Define** RRC re-establishment requirement, and the requirement is the same as the **existing FR1 NTN requirements** (6.2C.1). And the requirement applies when the UE is **not configured with inter-satellite measurement**.     - FFS whether exception case need to be considered   **No agreement [RAN4#110]: (no further discussion)**   * Decide whether to define RRC re-establishment requirements for the case where UE fails to complete blind HO to the target satellite/cell. |

**Views from companies**

* For Type 2 UE, intra-satellite RRC re-establishment requirements do not apply when the cause for the RRC re-establishment is an inter-satellite HO failure.
  + Apple, Samsung, Huawei
* Do not to define inter-satellite RRC re-establishment requirement:
  + Apple. Huawei

**Issue 2-4: RRC Re-establishment**

**Moderator’s WF**: “No inter-satellite RRC re-establishment requirement” was already agreed in RAN4#109.

* For Type 2 UE, ~~intra-satellite~~ RRC re-establishment requirements do not apply when the cause for the RRC re-establishment is an inter-satellite HO failure.

Agreement:

* For Type 2 UE, RRC re-establishment requirements do not apply when the cause for the RRC re-establishment is an inter-satellite HO failure.

**Issue 4-2: NTN to TN cell reselection**

**Summary of agreements:**

|  |
| --- |
| **Agreement [RAN4#108b]:**   * UE is allowed to skip TN neighbour cells measurement in an area where there is no coverage of the frequency based on the provided TN cell coverage information and UE GNSS position information. FFS whether and how to implement it RAN4 CR. * FFS on how to enhance NTN-to-TN cell reselection in case of mismatch between practical TN cell coverage and TN cell coverage information provided by serving cell.   **Agreement [RAN4#109]:**   * Define requirements on NTN to TN cell reselection.   **Agreement [RAN4#110]:**   * Requirement applicability   + Only inter-frequency cell reselection from NTN in FR1-NTN to TN   + FFS inter-RAT cell resection * Measurement requirements on cell reselection from NTN to NR TN (inter-frequency)   + Remove HST components.   + Remove HST components if inter-RAT considered in Rel-18   **Agreement [RAN4#110]:**   * Measurement requirements on cell reselection from NTN to NR TN (inter-frequency intra-RAT)   + - Kcarrier\_TN \* Tdetect/measure/evaluate,NR\_Inter\_TN + if the UE does not support the feature for enhanced RRM requirements defined in TS38.306 [14] or if the enhancedMeasurementLEO-r17 is not enabled, or within Kcarrier\_TN \* Tdetect/measure/evaluate,NR\_Inter\_TN ~~+ K~~~~carrier\_HST~~ ~~\* T~~~~detect/measure/evaluate,NR\_Inter\_HST~~ + if the UE supports the feature for enhanced RRM requirements defined in TS38.306 [14] and the enhancedMeasurementLEO-r17 is enabled.       * The parameter Kcarrier\_TN is the number of NR TN inter-frequency carriers indicated by the serving cell, except for the frequency carrier where there is no coverage of that frequency based on the provide TN cell coverage information and UE GNSS position information.       * The parameter Kcarrier\_HST is the number of NR TN inter-frequency carriers which are configured with highSpeedMeasInterFreq-r17 indicated by the serving cell, except for the frequency carrier where there is no coverage of that frequency based on the provide TN cell coverage information and UE GNSS position information.       * The parameter Kcarrier\_NTN is the number of NR NTN inter-frequency carriers indicated by the serving cell.       * Tdetect/measure/evaluate,NR\_Inter\_TN is the NR TN inter-frequency cell re-selection requirement defined in Table 4.2.2.4-1 in TS38.133       * Tdetect/measure/evaluate,NR\_Inter\_NTN is the NR NTN inter-frequency cell re-selection requirement defined in Table 4.2C.2.4-1 in TS38.133     - When the distance between the UE and tn-ReferenceLocation is larger than tn-DistanceRadius +50m, the UE is allowed to not perform measurements on the TN frequency in the corresponding area. * Measurement requirements on cell reselection from NTN to LTE TN (inter-RAT)   + - NEUTRA\_carrier \* Tdetect/measure/evaluate,EUTRAN       * The parameter NEUTRA\_carrier\_HST is the total number of configured E-UTRA carriers indicated to meet high speed requirements in the neighbour frequency list, except for the frequency carrier where there is no coverage of that frequency based on the provide TN cell coverage information and UE GNSS position information.       * The parameter NEUTRA\_carrier is the number of EUTRA TN carriers indicated by the serving cell, except for the frequency carrier where there is no coverage of that frequency based on the provide TN cell coverage information and UE GNSS position information.     - When the distance between the UE and tn-ReferenceLocation is larger than tn-DistanceRadius +50m, the UE is allowed to not perform measurements on the TN frequency in the corresponding area. |

**Views from companies**

* Xiaomi: Clarify that the requirements for NR NTN to LTE TN inter-RAT cell re-selection is defined as NEUTRA\_carrier \* Tdetect/measure/evaluate,EUTRAN, where
  + The parameter NEUTRA\_carrier is the number of configured E-UTRA carriers indicated in the neighbour frequency list by serving cell, except for the frequency carrier where there is no coverage of that frequency based on the provide TN cell coverage information and UE GNSS position information.
  + Tdetect/measure/evaluate,EUTRAN is the inter-RAT E-UTRAN TN cell re-selection requirement defined in Table 4.2.2.5-1 in TS 38.133
* Define maximum paging interruption requirement for NR NTN to LTE TN inter-RAT cell re-selection.
  + Xiaomi
* Huawei: Clarify the requirements related to TN measurement skipping as follows:
  + UE shall perform TN measurement if its estimated distance to tn-ReferenceLocation is smaller than tn-DistanceRadius. The requirements apply provided that the actual distance between UE to tn-ReferenceLocation is smaller than tn-DistanceRadius – 50m.

**Issue 4-2: NTN to TN cell reselection**

**Moderator’s WF: The TN coverage information is to allow UE to skip unnecessary TN cell measurements rather than forcing them. In other words, RRM requirement impact due to the assistant information should be minimal. With this understanding, the moderator’s WF is prepared.**

**Agreement**:

* Clarify the requirements related to TN measurement skipping as follows:
  + UE shall perform TN measurement if its estimated distance to tn-ReferenceLocation is smaller than tn-DistanceRadius. The requirements apply provided that the actual distance between UE to tn-ReferenceLocation is smaller than tn-DistanceRadius – 50m.

**Issue 6-2-7: (FR2-NTN) Measurement accuracy**

Updated agreement:

* The existing absolute measurement accuracy requirement and relative measurement accuracy requirement of TN FR2 (including intra-frequency and inter-frequency) can be applied for NTN UE above 10GHz with [1]dB relaxation.
  + Note: Companies are encouraged to further evaluate the performance loss due to single polarization assumption on FR2 Ka band VSAT UE. It’s not precluded to further update the tentative relaxation value in future RAN4 meeting.
* Remove an RF margin for different RX beams in the relative accuracy.

**Issue 6-2-9: (FR2-NTN) AoA setup**

**Views from companies**

* In test cases such as timing, single AoA in Rx beam peak direction can be reused.
  + Samsung, Huawei
* For the test case of inter-satellite handover, 2-AoA setup with details on FFS
  + Samsung, Huawei
* The rest test cases:
  + new AoA setup should be defined
    - Samsung
  + single AoA setup with details on FFS
    - Huawei

Discussion: Inter-satellite mobility: 2-AoA setup with details on FFS

Apple: both AoA are in Rx beam peak directions. The beam peak is aligned with epherimis information to UE.

HW: Techically agree with Apple, but not use the term of “beam peak”. It is enough to follow epherimis information.

QC: The AoA is based on the epherimis information of two satellites to be defined by RAN5.

R&S: the order is different. First define the AoA in RAN4 (with the RF requirement fulfilled), and then RAN5 define the epherimis information based on the AoA. RAN5 can always find the epherimis based on the condition defined in RAN4. RAN4 should define the offset.

**Agreement:**

* Use the following AoA setup for test cases:
  + Transmission timing accuracy: single AoA in Rx beam direction, if defined and applicable.
  + Inter-satellite mobility: 2-AoA setup
    - Offset of relative angles of 2 AoAs from UE perspective is 30 degrees in Rel-18 test.
    - The AoA is set up with the corresponding UE RF requirements fulfiled.
    - The AoA and the epherimis information of two satellites are aligned.
  + The rest test cases: single AoA in Rx beam direction, if defined and applicable

**Issue 6-2-3: (FR2-NTN) UL timing accuracy**

* Vivo: Define additional test cases as below:
  + UL SCS 60kHz with DL SSB SCS: 120kHz
  + UL SCS 60kHz with DL SSB SCS: 240kHz
  + UL SCS 120kHz with DL SSB SCS: 240kHz
* Huawei: RAN4 to discuss the value for for mobile and fixed UEs

**Moderator’s WF: Moderator does not find a reason to consider UE mobility for Case-3 in Rel-18 or to define additional test cases for other SCSs that 120kHz. Furthermore, test applicability rule based on UE capability or VSAT class need not be separately agreed, as it is evident.**

vivo: to consider UE only supports 60kHz.

QC: 120kHz SCS is mandated to be supported.

Agreement:

Only define test case with UL SCS 120kHz and DL SSB SCS 120kHz

**Issue 6-2-8: (FR2-NTN) Test case details**

Moderator: For TN, FR2 is TDD. For NTN, FR2 is FDD. Any other new configurations to be considered for FR2 NTN FDD?

The RMC configurations:

Option 1: Use the TN table as baseline, and only specify the different ones (delta approach).

Option 2: Copy the TN table, and update value which is different with TN configuration.

### 7.18 NR Network-controlled Repeaters

#### 7.18.5 RRM core requirements maintenance

#### 7.18.6 RRM performance requirements

**R4-2409614 draft CR to TS 38.106: introduction of NCR-MT RLM requirement**

*Type: draftCR For: Endorsement  
 38.106 v18.4.0 CR- rev Cat: B (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Endorsed.**

**R4-2409615 Big CR to TS 38.115-2: the introduction of NCR RRM test case**

*Type: CR For: Agreement  
 38.106 v18.4.0 CR-0081 rev Cat: B (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2410214 (from R4-2409615).**

**[R4-2410214](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410214.zip) Big CR to TS 38.115-2: the introduction of NCR RRM test case**

*Type: CR For: Agreement  
 38.106 v18.4.0 CR-0081 rev 1 Cat: B (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Post-meeting email agreement.**

#### 7.18.8 Moderator summary and conclusions

Topic: [111][220] NR\_netcon\_repeater

**R4-2408017 Topic summary for [111][220] NR\_netcon\_repeater**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

**Online session (Wednesday May 22, 2024)**

### 7.19 NR MIMO evolution for downlink and uplink

#### 7.19.1 RRM core requirements maintenance

**R4-2407253 On MIMO evolution RRM requirements maintenance**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407254 CR on DL reference timing for 2TA**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Merged.**

**R4-2407255 CR for eUTCI state switching requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Revised to R4-2410313 (from R4-2407255).**

[**R4-2410313**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410313.zip) **CR for eUTCI state switching requirements**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407458 (NR\_MIMO\_evo\_DL\_UL-Core) draft CR on UL timing requirement for mDCI based mTRP with two TAGs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Merged.**

**R4-2407674 Big CR on core maintenance of NR\_MIMO\_evo\_DL\_UL**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4392 rev Cat: F (Rel-18)  
  
 Source: Samsung*

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

**R4-2407848 Discussion on core requirements maintenance for FeMIMO**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2407850 DraftCR on scheduling restriction for TCI state switch in mDCI**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2410314 (from R4-2407850).**

[**R4-2410314**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410314.zip) **DraftCR on scheduling restriction for TCI state switch in mDCI**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Xiaomi*

**Decision: Return to.**

**R4-2408422 Discussion on RRM core maintenance for MIMO evolution for downlink and uplink**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

**R4-2408567 Discussion on RRM requirements maintenance for Rel-18 MIMO**

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

**Decision: Noted.**

**R4-2408568 Draft CR on timing requirements for R18 MIMO**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged.**

**R4-2409139 Discussion on remaining issues for MIMO evo RRM core requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409140 Draft CR clarification fo RS for 2 Tas**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Merged.**

**R4-2409378 Discussion on R18 MIMO for RRM core part requirement**

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

**Decision: Noted.**

**R4-2409379 Draft CR on core maintenance of NR\_MIMO\_evo\_DL**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: MediaTek Inc.*

**Decision: Revised to R4-2410315 (from R4-2409379).**

[**R4-2410315**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410315.zip) **Draft CR on core maintenance of NR\_MIMO\_evo\_DL**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: MediaTek Inc.*

**Decision: Return to.**

**R4-2409718 Discussions on the core-part open issues for MIMO evolution**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussions on the core-part open issues for MIMO evolution

**Decision: Noted.**

**R4-2409719 Draft CR to 38.133 on 2 TA timing maintenance for MIMO evolution**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR on 2 TA timing maintenance for MIMO evolution

**Decision: Merged.**

**R4-2409781 Big CR on core maintenance of NR\_MIMO\_evo\_DL\_UL**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4604 rev Cat: F (Rel-18)  
  
 Source: Samsung*

**Decision: Revised to R4-2410316 (from R4-2409781).**

**[R4-2410316](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410316.zip) Big CR on core maintenance of NR\_MIMO\_evo\_DL\_UL**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4604 rev Cat: F (Rel-18)  
  
 Source: Samsung*

**Decision: Return to.**

#### 7.19.2 RRM performance requirements

**R4-2407676 Big CR on performance part of NR\_MIMO\_evo\_DL\_UL**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4393 rev Cat: B (Rel-18)  
  
 Source: Samsung*

**Abstract:**

For post meeting approval. [Email Approval]

**Decision: For post-meeting email agreement.**

##### 7.19.2.1 RRM performance requirements for TDCP

**R4-2407256 Performance requirements for TDCP**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407257 Draft CR for TDCP mapping**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Apple*

**Decision: Revised to R4-2410318 (from R4-2407257).**

[**R4-2410318**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410318.zip) **Draft CR for TDCP mapping**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2407459 (NR\_MIMO\_evo\_DL\_UL-Perf) TDCP requirements**

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

**Decision: Noted.**

**R4-2408423 Discussion on RRM tests of TDCP**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

**R4-2408569 Discussion on performance requirements for TDCP for R18 MIMO**

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

**Decision: Noted.**

**R4-2409141 Discussion on TDCP requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

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

**R4-2409380 Discussion on test case of TDCP for MIMO evo**

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

**Decision: Noted.**

**R4-2409629 Discussion on TDCP requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409720 RRM performance requirements for TDCP**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

RRM performance requirements for TDCP

**Decision: Noted.**

**R4-2409721 Draft CR to 38.133 on TDCP tests**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR on TDCP tests

**Decision: Revised to R4-2410319 (from R4-2409721).**

**[R4-2410319](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410319.zip) Draft CR to 38.133 on TDCP tests**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR on TDCP tests

**Decision: Return to.**

##### 7.19.2.2 Other RRM performance requirements

**R4-2407258 On performance test cases for MIMO Evolution**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision: Noted.**

**R4-2407675 Draft CR on test cases of UE transmit timing from two TRPs in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Samsung*

**Decision: Revised to R4-2410320 (from R4-2407675).**

[**R4-2410320**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410320.zip) **Draft CR on test cases of UE transmit timing from two TRPs in FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Samsung*

**Decision: Return to.**

**R4-2407776 draft CR on test cases for FR2 UE transmit timing from two TRPs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410321 (from R4-2407776).**

[**R4-2410321**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410321.zip) **draft CR on test cases for FR2 UE transmit timing from two TRPs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2407849 DraftCR on TC for MAC CE based DL separate dual TCI state activation in sDCI**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

**Decision: Revised to R4-2410322 (from R4-2407849).**

[**R4-2410322**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410322.zip) **DraftCR on TC for MAC CE based DL separate dual TCI state activation in sDCI**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Xiaomi*

**Decision: Return to.**

**R4-2408424 Discussion on other RRM tests for MIMO evolution for downlink and uplink**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

**R4-2408570 Draft CR on TC for FR1 TCI state switching for mDCI with two TA**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410323 (from R4-2408570).**

[**R4-2410323**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410323.zip) **Draft CR on TC for FR1 TCI state switching for mDCI with two TA**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409142 Discussion on performance requirements for MIMO evo**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2409143 TC: sDCI mTRP, FR2 separate UL TCI state switching**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410324 (from R4-2409143).**

[**R4-2410324**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410324.zip) **TC: sDCI mTRP, FR2 separate UL TCI state switching**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409381 Discussion on enhanced unified TCI state switching test cases for MIMO evo**

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

**Decision: Noted.**

**R4-2409382 TC for sDCI MAC-CE based joint dual TCI state switching**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek Inc.*

**Decision: Revised to R4-2410325 (from R4-2409382).**

[**R4-2410325**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410325.zip) **TC for sDCI MAC-CE based joint dual TCI state switching**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek Inc.*

**Decision: Return to.**

**R4-2409722 Discussion on performance part: Test configuration of for s-DCI mTRP cases**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on performance part: Test configuration of for s-DCI mTRP cases

**Decision: Noted.**

#### 7.19.4 Moderator summary and conclusions

Topic: [111][221] NR\_MIMO\_evo\_DL\_UL

**R4-2408018 Topic summary for [111][221] NR\_MIMO\_evo\_DL\_UL**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410138**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410138.zip) **Ad-hoc minutes for NR\_MIMO\_evo\_DL\_UL WI**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Approved.**

[**R4-2410345**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410345.zip) **Ad-hoc minutes #2 for NR\_MIMO\_evo\_DL\_UL WI**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Approved.**

Tentative agreement:

OL = 1 if the SSB overlaps or is adjacent to the SSB from the other TRP in FR2 and the SSB is associated to the TRP with the lowest corestPoolIndex, 0, otherwise.

Ericsson would like to check before the end of the meeting.

[**R4-2410317**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410317.zip) **WF on RRM requirements for NR\_MIMO\_evo\_DL\_UL**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Return to.**

**Online session (Monday May 20, 2024)**

**Issue 3-1-1: Test cases for FR2 separate DL/UL TCI state switching**

* Proposals
  + Proposal 1: (Apple, MediaTek)
    - Do not define the test case for FR2 separate DL/UL state switching
  + Proposal 2: (Nokia)
    - Use applicable rules.
      * If UE supports separate DL/UL TCI states, it is tested only for Separate DL TCI state switch and Separate UL TCI state switch
      * If UE supports only joint TCI states, it is tested only for Joint TCI state switch

Moderator: Proposal 2 is aligned with the agreement in the last meeting.

MTK: P1 is also aligned with the agreement in the last meeting. From UE capability perspective, for UE supporting separate UL/DL state switching, the UE also supports joint UL/DL state switching.

Samsung: For the UE capability for uTCI, it is the same for Rel-17 capability. In Rel-17, we defined 6 TCs: joint and separate DL/UL cases for SA and DC.

Apple: the core requirements are the same for joint and combination of UL and DL. A larger number of TCs for UE supporting separate DL/UL TCI state switching, if we agree option 2.

Nokia: Techinically, network can switch only DL or UL TCI state.

Xiaomi: share the same understanding with Nokia.

Session chair: option 2 is more aligned with the agreement in RAN4 #110bis:

|  |  |
| --- | --- |
| TC1 | separate DL TCI state switch |
| TC2 | separate UL TCI state switch |
| TC3 | Joint TCI state switching |

* Add the Note for the UE should pass which tests in the test purpose. Such as: UE can pass only one test or two tests depends on the UE capability.

Agreement on the applicability rule:

* If UE supports separate DL/UL TCI states, it is tested only for Separate DL TCI state switch and Separate UL TCI state switch
* If UE supports only joint TCI states, it is tested only for Joint TCI state switch

**Issue 3-1-2: Test configuration of for s-DCI mTRP cases:**

* Proposals
  + Proposal 1: (Apple, Samsung)
    - Dual to Dual TCI state switching: 4 AoAs and active probes in TDM manner
      * Proposal 1a: (Apple)
        + TDM transmission scheme for DL
        + PUSCH repetition for UL
  + Proposal 2: (Ericsson, Nokia)
    - Single to dual TCI state switching

Samsung: For MIMO, the scenario is different from Multi-Rx. TDM is considered for MIMO.

Nokia: option 1 is also ok.

QC: Is it possible that all 4 AoAs can satisfy the spherical requirement?

Samsung: we checked with RAN4 RF and RAN5 colleagues internally, and it is feasible.

HW: If 3 AoAs, higher possibility to find the 3AoAs satisfying the spherical requirement.

Apple: we do not have core requirements for Proposal 2.

Session Chair:

Companies to further check the test feasibility of Proposal 1, and come back to the issue in the Wednesday MIMO adhoc.

**Issue 2-1-1: Test metric of TDCP test cases:**

[Background]: In RAN4#110-bis meeting, it is agreed as:

|  |
| --- |
| Agreements for the test case definition:   * Define the same test case for both 15kHz with FDD and 30kHz with TDD in the same sub-clause. * Channel models: TDL-A30 * Doppler:   + Two TCs with low and high Doppler     - TC1: low (10) for both 15kHz and 30kHz     - TC2: high       * Option 1: high (300)       * Option 2: 100 for 15kHz SCS, and 200 for 30kHz SCS   + BW:     - 10MHz for FDD and TDD   + SNR:     - Option 1: 20dB for TC1     - Option 2: 10dB or 20dB for TC2   + The distance between two TRSs: 1 * Report index: Bring CR for both options, make decision in the next meting   + Option 1:     - lower Doppler: CDP at X1 is higher than Y1 = [90] %     - high Doppler: CDP at X2 is lower than Y2= [10] %     - X1, X2, Y1, and Y2 can be different for TDD and FDD   + Option 2:     - [X1, X2] for Y2= FFS |

* Proposals

In below table:

Use TC1 for low doppler condition+15kHz SCS FDD

Use TC2 for low doppler condition+30kHz SCS TDD

Use TC3 for high doppler condition+15kHz SCS FDD

Use TC4 for high doppler condition+30kHz SCS TDD

|  |  |  |  |
| --- | --- | --- | --- |
|  | Doppler (Hz) | SNR | Report index |
| Apple | TC1: 10 | 20 | [0, 6] for Y2=70% |
| TC2: 10 | [0, 7] for Y2=70% |
| TC3: 100 | [4, 12] for Y2=70% |
| TC4: 200 | [4, 12] for Y2=70% |
| Qualcomm | TC1: 10 | 20 | CDP is higher than 90% at X1= 1 |
| TC2: 10 | CDP is higher than 90% at X1= 2 |
| Down select from:  300Hz for TC3 and TC4  100Hz for TC3 and 200Hz for TC4 | 300Hz for TC3 and TC4:   * CDP is lower than 10% at   + X2 = 8 (TC3)   + X2 = 4 (TC4)   100Hz for TC3 and 200Hz for TC4:   * CDP is lower than 10% at   + X2 = 2 (TC3)   X2 = 2 (TC4) |
| Samsung | TC1: 10 | 20 |  |
| TC2: 10 | Reported TDCP is less than 6 for 90% tests |
| TC3: 300 |  |
| TC4: 300 | Reported TDCP is higher than 6 for 90% tests |
| Huawei | TC1: 10 | 10 | [5,13] with Y2=80% |
| 20 | [0,8] with Y2=80% |
| TC2: 10 | 10 | [5,13] with Y2=80% |
| 20 | [0,8] with Y2=80% |
| TC3: 300 | 10 | [8,15] with Y2=80% |
| 20 | [6,15] with Y2=80% |
| TC4: 300 | 10 | [7,15] with Y2=80% |
| 20 | [3,14] with Y2=80% |
| MediaTek | TC1:10 | 20 | 90% of reported TDCP values should be larger than a certain value (CDF 10% is used to determine the value). |
| TC2:10 |
| TC3:100 | 90% of reported TDCP values should be less than a certain value (CDF 90% is used to determine the value). |
| TC4:200 |
| Nokia | TC1: 10 | 20 | pass criteria is TCDP > X1 for 90 % of the samples.   * 1. X1 is defined as quantized maximum value among the 90th percentile among all companies excluding outliers. |
| TC2: 10 |
| TC3: 300 | 10 | pass criteria is TCDP < X2 for 90 % of the samples.   * 1. X2 is calculated as quantized minimum value among the 10th percentile among all companies excluding outliers. |
| TC4: 300 |
| Ericsson | TC1: 10 | 20 | Choose one from option 1 and option 2 |
| TC2: 10 |
| TC3: 300 | 10 |
| TC4: 300 |

Discussion:

* Report index: Bring CR for both options, make decision in the next meting
  + Option 1:
    - ~~lower Doppler: TCDP at X1 is higher than Y1 = [90] %~~
    - Lower Doppler: reported TDCP index is no bigger than a certain value (e.g., 6), with 90% propability
      * We agreed with 10Hz Doppler shift, 20dB SNR
    - ~~high Doppler: TCDP at X2 is lower than Y2= [10] %~~
    - high Doppler: reported TDCP index is larger than a certain value
    - X1, X2, Y1, and Y2 can be different for TDD and FDD
  + Option 2:
    - [X1, X2] for Y2= FFS

On High Doppler:

Samsung: suggest 300 to have different test coverage for low and high Doppler cases.

MTK: 300 is for high speed train scenario, which is not related to TDCP reportin scenario.

Apple: The TDCP error is big with 300. Also, the scenario is not typical.

E///: The main test point is whether UE can monitor the Doppler change. 300 can better satisfty this test purpose. Non-overlapping report is preferred.

QC: still overlapping index with option 1.

Nokia: can we find no overlapping for option 2.

Option 1: 300Hz for TC3 and TC4 (Samsung, E///, Nokia)

Not support: Apple, MTK

Option 2: 100Hz for TC3 and 200Hz for TC4 (MTK, Apple, Xiaomi)

Option 3: 100Hz for TC3 (15kHz SCS) and 300Hz for TC4 (30kHz SCS)

Agreement:

* Lower Doppler: reported TDCP index is no bigger than a certain value (e.g., 6), with 90% propability
* Higher Doppler
  + For TC4, use 300Hz
  + For TC3, further discuss whether to use 100Hz or 300Hz together with the threshold for the report index.

**Issue 3-1-3: AoA setup for s-DCI mTRP cases:**

* Proposals
  + Proposal 1: (Samsung)
    - Setup 3 of AoA can be reused as baseline. Two probes of two AoAs are configured in TDM.
  + Proposal 2: (Nokia)
    - Define a new AoA setup with three active probes

**Issue 1-2-2: For mDCI mTRP, how to specify UL TCI state switching requirements for eUTCI if UE supporting two TAs (RTD<CP and RTD>CP)?**

* Proposals
  + Proposal 1 (Apple, Samsung)
    - Additional time for DL timing reference tracking should be added in conditions.
    - Proposal 1a (Apple)
      * In the condition: no timing reference associated with the same coresetPoolIndex.
    - Proposal 1b (Samsung)
      * For joint TCI state, no additional DL RS tracking time for UL TCI state switching.
      * For separate UL TCI state, If the DL beams are changed as well and DL TCI is not in the active list, the previous DL timing cannot be used. Additional DL RS tracking time for UL TCI state switching is needed as:
        + Known case: THARQ + + TOk-ref (Tfirst-SSB-DLRef + OL\*T SSB-DLRef + 2ms)+NM\*( Tfirst-PL-RS + 4\*Ttarget\_PL-RS + 2ms)
        + Unknown case: THARQ + + TL1-RSRP + TOuk-ref (Tfirst-SSB-DLRef + OL\*T SSB-DLRef + 2ms)+ Tfirst-PL-RS + 4\*Ttarget\_PL-RS + 2ms
        + TOk-ref = 1 if there is no active DL TCI-State for DL timing reference associated with the same coresetPoolIndex
      * For other cases of separate UL TCI state, no additional DL tracking is needed.
  + Proposal 2: (Huawei, MediaTek, Ericsson)
    - No additional DL RS tracking time for UL TCI state switching-

**Issue 1-2-1: For mDCI mTRP, OL definition?**

Previous Agreement: OL=1 if SSB overlaps or adjacent to SSB from other TRP in FR2 and SSB periodicity is less than that of other TRP

* Proposals
  + Proposal 1 (Apple)
    - For all the cases: OL=1 if SSB overlaps or adjacent to SSB from other TRP in FR2 and SSB periodicity is less than that of other TRP, 0 otherwise
  + Proposal 2 (Samsung, Nokia)
    - if the first SSB which after decoding the MAC-CE overlaps or adjacent to the first SSB which after decoding another MAC-CE from other TRP in FR2 and SSB periodicity is equal to that of other TRP
      * If the MAC CE arrived first, OL=0; Otherwise OL=1
    - If the first SSB which after decoding the MAC-CE overlaps or adjacent to the first SSB which after decoding another MAC-CE from other TRP in FR2 and SSB periodicity is less than that of other TRP, OL=1
    - Otherwise, OL=0
  + Proposal 3 (MediaTek)
    - how to handle the overlapped or adjacent case are up to UE implementation.

### 7.20 NR sidelink evolution

#### 7.20.2 RRM core requirements maintenance

#### 7.20.3 RRM performance requirements

**R4-2407962 Draft CR on RMC table and clean up TC for NR SL-U**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: LG Electronics Inc.*

**Decision: Revised to R4-2410197 (from R4-2407962).**

[**R4-2410197**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410197.zip) **Draft CR on RMC table and clean up TC for NR SL-U**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: LG Electronics Inc.*

**Decision: Return to.**

**R4-2407963 Big CR for RRM performance requirements for NR sidelink evolution**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4423 rev Cat: B (Rel-18)  
  
 Source: LG Electronics Inc., OPPO*

**Decision: Revised to R4-2410198 (from R4-2407963).**

**[R4-2410198](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410198.zip) Big CR for RRM performance requirements for NR sidelink evolution**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4423 rev Cat: B (Rel-18)  
  
 Source: LG Electronics Inc., OPPO*

**Decision: Return to.**

#### 7.20.5 Moderator summary and conclusions

Topic: [111][222] NR\_SL\_enh2

**R4-2408019 Topic summary for [111][222] NR\_SL\_enh2**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

**Online session (Monday May 20, 2024)**

### 7.21 Enhanced support of reduced capability NR devices

#### 7.21.1 RRM core requirements maintenance

**R4-2407359 (NR\_redcap\_enh-Core) CR on transition requirement for Inactive mode with eDRX**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4355 rev Cat: F (Rel-18)  
  
 Source: Apple*

**Decision: Return to.**

**R4-2408041 Draft CR on high priority search with Inactive mode eDRX for eRedCap UEs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Return to.**

**R4-2409030 Discussion on impacts to RRM core requirements for Enhanced RedCap**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2409040 Correction on relaxation measurement requirements for RedCap inactive UE**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4542 rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2409796 CR on relaxation measurement requirements for RedCap inactive UE with INACTIVE eDRX >10.24s**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4608 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc., Ericsson and Huawei, HiSilicon*

**Decision: Revised to R4-2410141 (from R4-2409796).**

**[R4-2410141](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410141.zip) CR on relaxation measurement requirements for RedCap inactive UE with INACTIVE eDRX >10.24s**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4608 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc., Ericsson and Huawei, HiSilicon*

*Session Chair: the revision in the following link is agreeable: http://10.10.10.10/ftp/RAN/RAN4/Inbox/drafts/%5B111%5D%5B223%5D%20NR\_redcap\_enh/CR%20revision/Revised%20R4-2409796%20eDRX%20for%20RedCap%20and%20non-RedCap.docx*

**Decision: Return to.**

#### 7.21.3 Moderator summary and conclusions

Topic: [111][223] NR\_redcap\_enh

**R4-2408020 Topic summary for [111][223] NR\_redcap\_enh**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

**Online session (Tuesday May 21, 2024)**

**Issue 1-3: Measurements on higher priority carriers in IDLE and INACTIVE mode when configured with eDRX**

* Proposals
  + Option 1 (ZTE):
    - For INACTIVE mode, the same search rate as IDLE mode applies with eDRX\_INACTIVE cycle length instead of eDRX\_IDLE cycle length.
* Recommended WF
  + Discuss the CR directly based on [R4-2409796](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409796.zip).

### 7.22 Enhanced NR Sidelink Relay

#### 7.22.1 RRM core requirements maintenance

#### 7.22.2 RRM performance requirements

**R4-2407326 Big CRs on RRM performance requirements for NR sidelink relay enhancement**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4346 rev Cat: B (Rel-18)  
  
 Source: LG Electronics Inc.*

**Abstract:**

Big CR on RRM performance requirements for NR sidelink relay enhancement. [Email Approval]

**Decision: Return to.**

**R4-2409230 (NR\_SL\_relay\_enh-Perf) CR to 38.133 on applicability of SD-RSRP and SL-RSRP accuracy requirements in multipath scenario**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4553 rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR defines applicability of SD-RSRP and SL-RSRP accuracy requirements for the remote UE in multipath scenario. MCC: Parsing Failure as Release number wrong on CR cover for TDoc R4-2409230. Database value : Rel-18. CR cover value : Rel-17. A revisio

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

**R4-2409649 (NR\_SL\_relay\_enh-Perf) Draft CR for test case for delay of selection/reselection of relay UE by remote UE in U2U relay scenario**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia, LG Electronics*

Moderator: can further discuss based on the revision from QC.

**Decision: Revised to R4-2410140 (from R4-2409649).**

[R4-2410140](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410140.zip) **(NR\_SL\_relay\_enh-Perf) Draft CR for test case for delay of selection/reselection of relay UE by remote UE in U2U relay scenario**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia, LG Electronics*

Moderator: can further discuss based on the revision from QC.

**Decision: Return to.**

**R4-2409672 (NR\_SL\_relay\_enh-Perf) Applicability of SD-RSRP and SL-RSRP accuracy requirements in multipath scenario**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4586 rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR defines applicability of SD-RSRP and SL-RSRP accuracy requirements for the remote UE in multipath scenario

**Decision: Endorsed.**

#### 7.22.3 Moderator summary and conclusions

Topic: [111][224] NR\_SL\_relay\_enh

**R4-2408021 Topic summary for [111][224] NR\_SL\_relay\_enh**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

**Online session (Monday May 20, 2024)**

**Issue 1-1-1: Draft CR for test case for delay of selection/reselection of relay UE by remote UE in U2U relay scenario**

* ***Reason for change:*** To introduce test case for delay of selection/reselection of relay UE by remote UE in U2U relay scenario
* ***Summary of change:*** Add test case for delay of selection/reselection of relay UE by remote UE in U2U relay scenario
* ***Consequences if not approved:*** No test case for delay of selection/reselection of relay UE by remote UE in U2U relay scenario in 38.133
* Recommended WF
  + Moderator’s view: Can be endorsed.

**Issue 1-1-2: Applicability of SD-RSRP and SL-RSRP accuracy requirements in multipath scenario**

* ***Reason for change:*** To define applicable conditions for a remote sidelink UE in multipath relay scenario to meet the SD-RSRP and SL-RSRP accuracies
* ***Summary of change:*** This CR makes additional changes to R4-2403336 which was endorsed at RAN4#110. The new changes are highlgithed.

Following was agreed in R4-2406298, and this CR captures those changes as per worksplit:

|  |
| --- |
| * Agreement:   + Existing accuracies of SD-RSRP and SL-RSRP in clause 10.4.5 shall also apply for the remote UE in the multipath scenario provided that the remote UE:     - is synchronised to the sidelink relay UE that is measured and     - is in-coverage on the frequency used for sidelink if both the direct path and the SL on the indirect path are on the same frequency or     - is out of coverage on the frequency used for sidelink if the direct path and the SL on the indirect path are on different frequencies. |

* ***Consequences if not approved:*** The SD-RSRP and SL-RSRP accuracy performance of the remote UE in multipath relay operation cannot be guaranteed.
* Recommended WF
  + Moderator’s view: Can be endorsed.

### 7.23 Mobile IAB (Integrated Access and Backhaul) for NR

#### 7.23.3 RRM core requirements maintenance

#### 7.23.4 RRM performance requirements

**R4-2408660 Draft CR to 38.174 on mIAB-MT RRM Transmit Timing Test Cases**

*Type: draftCR For: Endorsement  
 38.174 v18.4.0 CR- rev Cat: B (Rel-18)  
  
 Source: Nokia*

**Decision: Endorsed.**

**R4-2409306 Draft Measurement Accuracy Test Cases for mobile IAB**

*Type: draftCR For: Endorsement  
 38.174 v18.4.0 CR- rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Decision: Endorsed.**

**R4-2409307 Big CR on RRM performance requirements for NR Mobile IAB**

*Type: CR For: Agreement  
 38.174 v18.4.0 CR-0114 rev Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2409307. Database value : 0114. CR cover value : 114. A revision is required to include the 4-digit CR number.

**Decision:** The document was **revised to R4-2409568**.

**R4-2409568 Big CR on RRM performance requirements for NR Mobile IAB**

*Type: CR For: Agreement  
 38.174 v18.4.0 CR-0114 rev 1 Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

(Replaces R4-2409307)

**Decision: Revised to R4-2410213 (from R4-2409568).**

**[R4-2410213](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410213.zip) Big CR on RRM performance requirements for NR Mobile IAB**

*Type: CR For: Agreement  
 38.174 v18.4.0 CR-0114 rev 2 Cat: B (Rel-18)  
  
 Source: Qualcomm Incorporated*

(Replaces R4-2409307)

**Decision: For post-meeting email agreement.**

#### 7.23.6 Moderator summary and conclusions

Topic: [111][225] NR\_mobile\_IAB

**R4-2408022 Topic summary for [111][225] NR\_mobile\_IAB**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

**Online session (Wednesday May 22, 2024)**

**Sub-topic 1-1**

R4-2408660 – Draft CR to 38.174 on mIAB-MT RRM Transmit Timing Test Cases

|  |  |
| --- | --- |
| ***Reason for change:*** | The followgin agreements were achived RAN4#110 meeting [R4-2403326]:   * Existing timing requirements in Section 12.2, TS 38.174 are applicable to mIAB-MT * RAN4 to define mIAB-MT timer accuracy requirements by reusing UE requirements from Clause 7.2 of TS 38.133   Legacy NR IAB-MT Transmit Timing Tests for FR1/FR2-1 (Clauses G.2.2.1.1/2 of TS 38.174) shall be applicable and reused for mIAB-MTs. |
|  |  |
| ***Summary of change:*** | Specifiing mIAB-MT Timing Advance test case in FR2-1 based on the corresonding UE test cases defined in TS 38.133, Clause A.7.4.2.1. |

**Issue 1-1: R4-2408660**

* Proposals
  + Option 1: Provide comments on whether the contes can be endorsed
* Recommended WF

Please provide any comments if changes are needed

**Sub-topic 1-2**

R4-2409306 - Draft Measurement Accuracy Test Cases for mobile IAB

|  |  |
| --- | --- |
| ***Reason for change:*** | Introduce Measurement Accuracy Test Cases for mIAB-MT |
|  |  |
| ***Summary of change:*** | Measurement accuracy test cases for Intra-frequency SS-RSRP, intra-frequency SS-RSRQ, intra-frequency SS-SINR, SSB based L1-RSRP, CSI-RS based L1-RSRP are introduced |

**Issue 1-2: R4-2409306**

* Proposals
* Proposals
  + Option 1: Provide comments on whether the contes can be endorsed
* Recommended WF

Please provide any comments if changes are needed

### 7.24 Network energy saving for NR

#### 7.24.1 RRM core requirements maintenance

**R4-2407197 Discussion on RRM requirements for inter-band SSB-less SCell operation**

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

**Decision: Noted.**

**R4-2407309 On RRM core requirements maintenance for NES**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2407740 Core maintenance on network energy saving**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2407741 38133CR on handover delay for NES-based handover**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2410270 (from R4-2407741).**

[**R4-2410270**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410270.zip) **38133CR on handover delay for NES-based handover**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Return to.**

**R4-2407871 Discussion on SSB-less Scell operation for intra-band non-contiguous CA**

*Type: other For: Approval  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: OPPO*

**Decision: Noted.**

**R4-2407934 (Netw\_Energy\_NR-Core) Discussion on core maintenance for NES**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408078 Views on intra-band NC scenario**

*Type: discussion For: Discussion  
 Source: SAMSUNG R&D INSTITUTE JAPAN*

**Decision: Noted.**

**R4-2408248 Discussion on the core maintenance of SSB-less SCell operation of Network energy saving for NR**

*Type: other For: Approval  
 Source: ZTE Corporation*

**Decision: Noted.**

**R4-2408252 [Netw\_Energy\_NR-Core] Draft CR for SSB-less SCell activation of R18 NES**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2410271 (from R4-2408252).**

[**R4-2410271**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410271.zip) **[Netw\_Energy\_NR-Core] Draft CR for SSB-less SCell activation of R18 NES**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2408313 Discussion on RRM core requirements maintenance for NES**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2408437 Discussion on remaining core issues SSBless Scell operation**

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

**Decision: Noted.**

**R4-2408482 Discussion on intra-band NCCA SSB-less Scell activation delay requirement**

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

**Decision: Noted.**

**R4-2408483 DraftCR on intra-band NCCA SSB-less Scell activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Intel Corporation*

**Decision: Return to.**

**R4-2408571 Discussion on RRM requirement maintenance for R18 NES**

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

**Decision: Noted.**

**R4-2408594 Discussion on SSB-less SCell operation**

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

**Decision: Noted.**

**R4-2408595 Update on SSB-less based SCell activation**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4511 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408595. Database value : 4511. CR cover value : -. Change request category wrong on CR cover for TDoc R4-2408595. Database value : B. CR cover value : F. Session Chair: We can e

**Decision: Revised to R4-2410272 (from R4-2408595).**

[**R4-2410272**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410272.zip) **Update on SSB-less based SCell activation**

*Type: CR For: Endorsement  
 38.133 v18.5.0 CR-4511 rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

MCC: Parsing Failure as Change request number wrong on CR cover for TDoc R4-2408595. Database value : 4511. CR cover value : -. Change request category wrong on CR cover for TDoc R4-2408595. Database value : B. CR cover value : F. Session Chair: We can e

**Decision: Return to.**

**R4-2408866 Discussion on maintenance issues for network energy saving**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2408871 Draft CR for conditional handover requirements on network energy saving**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Revised to R4-2410273 (from R4-2408871).**

[**R4-2410273**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410273.zip) **Draft CR for conditional handover requirements on network energy saving**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: vivo*

**Decision: Return to.**

**R4-2409723 Remaining issues on NES general**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Remaining issues on NES general

**Decision: Noted.**

**R4-2409724 Draft CR to 38.133 on SSB less Scell activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR on SSB less Scell activation

**Decision: Merged.**

#### 7.24.2 RRM performance requirements

**R4-2407777 Discussion on test cases for R18 NES**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

##### 7.24.2.1 SSB-less SCell operation

**R4-2407198 Discussion on RRM performance requirements for NR Network energy saving**

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

**Decision: Noted.**

**R4-2407310 On RRM test cases for NES**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2407742 RRM performance aspect on SSB-less SCell operation**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2407744 correction CR on SSB-less SCell activation TCs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2410274 (from R4-2407744).**

[**R4-2410274**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410274.zip) **correction CR on SSB-less SCell activation TCs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Return to.**

**R4-2407935 (Netw\_Energy\_NR-Perf) Discussion on RRM test setup for SSB-less SCell**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408246 Discussion on the perf maintenance of SSB-less SCell operation of Network energy saving for NR**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2408253 [Netw\_Energy\_NR-Perf] Draft CR for TC of TRS, A-TRS based SSB-less SCell activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Revised to R4-2410275 (from R4-2408253).**

[**R4-2410275**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410275.zip) **[Netw\_Energy\_NR-Perf] Draft CR for TC of TRS, A-TRS based SSB-less SCell activation**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: ZTE Corporation, Sanechips*

**Decision: Return to.**

**R4-2408314 Discussion on RRM performance requirements for NES**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2408438 Discussion on remaining perf issues SSBless Scell operation**

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

**Decision: Noted.**

**R4-2408572 Draft CR on TC maintenance for R18 NES SSB-less**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410276 (from R4-2408572).**

[**R4-2410276**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410276.zip) **Draft CR on TC maintenance for R18 NES SSB-less**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

**R4-2409725 Open issues on performance part for SSB less Scell actviation**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Open issues on performance part for SSB less Scell actviation

**Decision: Noted.**

**R4-2409726 Draft CR to 38.133 TC for EN-DC: A-TRS based inter-band SSB-less Scell activation delay**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to 38.133 TC for EN-DC: A-TRS based inter-band SSB-less Scell activation delay

**Decision: Revised to R4-2410277 (from R4-2409726).**

**[R4-2410277](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410277.zip) Draft CR to 38.133 TC for EN-DC: A-TRS based inter-band SSB-less Scell activation delay**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Ericsson*

**Abstract:**

Draft CR to 38.133 TC for EN-DC: A-TRS based inter-band SSB-less Scell activation delay

**Decision: Return to.**

##### 7.24.2.2 Other RRM performance requirements

**R4-2407743 RRM performance aspect on other NES features**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Noted.**

**R4-2407745 correction CR on NES based CHO HO delay TCs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Revised to R4-2410278 (from R4-2407745).**

[**R4-2410278**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410278.zip) **correction CR on NES based CHO HO delay TCs**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Decision: Return to.**

**R4-2408484 Test case requirements for NES triggering inter-frequency target CHO delay from FR2 to FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Intel Corporation*

**Decision: Revised to R4-2410279 (from R4-2408484).**

[**R4-2410279**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410279.zip) **Test case requirements for NES triggering inter-frequency target CHO delay from FR2 to FR1**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Intel Corporation*

**Decision: Return to.**

**R4-2408573 Draft CR on TC maintenance for R18 NES CHO**

*Type: draftCR For: Endorsement  
 38.133 v18.5.0 CR- rev Cat: F (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Merged.**

#### 7.24.4 Moderator summary and conclusions

Topic: [111][226] Netw\_Energy\_NR

**R4-2408023 Topic summary for [111][226] Netw\_Energy\_NR**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410139**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410139.zip) **Ad-hoc minutes for Netw\_Energy\_NR WI**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Return to.**

**Issue 1-1-5: Relation to R15 intra-band SSB-less**

Agreement:

From RAN4 understanding, for UE supports both R18 inter-band SSB-less and R15 intra-band contiguous SSB-less,

* it is not expected that the to-be-activated SCell is configured with QCL source to both intra-band contiguous and inter-band Cells [when the Rel-18 reference cell indication SCell is not configured].
  + When R18 reference cell indication is configured, network configure with QCL source to both intra-band contiguous and inter-band Cells, there is no RAN4 agreement on whether Rel-15 or Rel-18 requirement is applied.
  + The above RAN4 understanding does not intend to trigger any further RAN2 discussion.

[**R4-2410269**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410269.zip) **WF on RRM requirements for NR network energy saving**

*Type: other For: Approval  
 Source: Huawei*

**Decision: Return to.**

**Online session (Tuesday May 21, 2024)**

**Issue 1-1-1: Power difference conditions**

* Proposals
  + Option 1: keep “EPRE after pre-compensation for AGC” in the spec text. (Apple, Nokia, ZTE, Huawei, Ericsson)
    - Option 1a: clarify the pre-compensation is based on CC BW size, SCS, and pathloss difference based on normalized pathloss equation with implementation margins. (Apple)
    - Option 1b: The compensation for AGC is 20log10(X) with 4dB implementation margin, where X is the ratio of center frequency of the SSB-less operation band pair. (Huawei)
    - Option 1c: RAN4 to agree that EPRE side condition for reference cell and SSB less SCell as [12] dB. (Nokia, Ericsson)
    - Option 1d: RAN4 to agree that the EPRE should be defined as the power per RE at the antenna connector as averaged over the respective SSB and TRS bandwidth and then normalized to the SCS. (Ericsson)
  + Option 2: Remove “after pre-compensation for AGC. (MTK, Vivo)
* Moderator: Majority (5/7) supports keep the EPRE after per-compensation with different proposals on how to descript the pre-compensation. To move forward, companies are encouraged to check following alternatives summarized by moderators. Regarding the relation to BW and SCS, per RAN1 definition TS 38.213 as cited below, it is already “per RE” energy. Thus, no need for further normalization w.r.t BW.
  + “EPRE Energy per resource element”
* Recommended WF:

Agree on following clarification:

* + The EPRE in the spec is the normalized EPRE by SCS.

Considering following two alternatives in this meeting.

* + Alt 1: keep the “EPRE after pre-compensation for AGC” and clarify that pre-compensation is based on [CC BW size, SCS], and pathloss difference based on normalized pathloss equation with implementation margins as follows:
    - 20log10(X) with [4]dB implementation margin, where X is the ratio of center frequency of the SSB-less operation band pair.
  + Update Alt 1: EPER difference is smaller or equal to 9dB + 20log10(X) - certain margin
  + Alt 2: No clarification on “EPRE after pre-compensation for AGC” but increase change [9] dB to [12] dB

HW: Prefer alt 1, and can compromise to Alt 2.

ZTE: Prefer alt 1. Alt 2 does not consider the carrier frequency difference.

Nokia: Alt 1 can be starting point, and replace 9dB with 12dB + margin.

CMCC: We don’t support alt 2. For the typical inter-band BC, the gap between the bands can be large. Alt 2 will make the feature less attractive. When we agreed the “pre-compensation” based on Apple paper, it is clear that the pathloss difference due to carrier frequency difference is taken into account.

QC: We have different understanding on the pre-compensation for AGC. If path-loss difference is considered, 2 samples are not sufficient.

OPPO: The wording in the CR is the compromise. Alt 2 with 9dB.

Apple: Perfer atl 1. Can compromise to alt 2.

E///: Alt 1 with [9]dB.

For example:

For 1.8G + 3.5G BC, delta 20log10(X) = 7dB

For 700MHz + 2.6G BC, delta 20log10(X) = 12 dB, assuming EPRE at Tx side the same (SCS and BW are the same), then EPRE difference at UE receiver is 12dB.

With Alt 1: EPRE difference after pre-compensation is 0.

With Alt 2: EPRE difference ~~after pre-compensation~~ is 12 dB.

## 8 Rel-18 on-going work Items for LTE

The following guidance are provided for maintenance work under AI 4 ~ AI 8:

- For maintenance agenda AI 4 (Rel-15/16/17) and AI 5 (Rel-18), formal CRs are expected and multiple CRs per company in the lowest agenda are allowed. For tracking the changes easily, it expected that one batch of CRs (Cat-F/A/…) will just cover a single topic/WI rather than multiple topics/WIs and Cat-F CR with corresponding Cat-A CRs needs be submitted under the same agenda.

- When submitting contributions to AI 4, AI 5.1.3/AI 5.2.9, please add (WI\_code) in the beginning of titles for both discussion files and CRs to facilitate moderators and session chairs handling.

- When reserving the tdoc number, please use the correct WI code rather than simply using TEI and fill the column of “Related WIs” in your reservation spreadsheet. If you submit a draft CR with TEI as WI code, please inform session chair.

- For all the endorsed draft CRs in this bis meeting, please re-submit them in the next ordinary meeting.

- The contributions corresponding to incoming LS for Rel-15/16/17 are expected to be submitted in AI 11.

- The contributions corresponding to incoming LS for Rel-18 are expected to be submitted to (sub-) agenda dedicated to the individual WIs under AI 5~AI 8. If there is no dedicated agenda, please submit to AI 5.1.3 or AI 5.2.9 depending on whether it is spectrum related topic or non-spectrum related topic.

### 8.3 IoT (Internet of Things) NTN (non-terrestrial network) enhancements

#### 8.3.2 RRM core requirements maintenance

**R4-2407205 Big CR to TS 36.133 on core requirement maintenance for IoT NTN enhancements**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7317 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410263 (from R4-2407205).**

[**R4-2410263**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410263.zip) **Big CR to TS 36.133 on core requirement maintenance for IoT NTN enhancements**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7317 rev Cat: F (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: For post-meeting email agreement.**

**R4-2407936 (IoT\_NTN\_enh-Core) Discussion on RRM core maintenance for IOT NTN enhancement**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408516 Considerations about neighbor cell satellite measurements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision: Noted.**

**R4-2408517 CR on 36.133 on applicability of requirements upon GNSS-MG duration**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7320 rev Cat: F (Rel-18)  
  
 Source: Nokia*

*Moderator: agreeable*

**Decision: Endorsed.**

**R4-2408574 Discussion on Core requirements maintenance for R18 IoT NTN enh**

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

**Decision: Noted.**

**R4-2408575 Draft CR on core requirements maintenance for R18 IoT NTN enh**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: F (Rel-18)*

*Source: Huawei, HiSilicon*

*Moderator: agreeable*

**Decision: Endorsed.**

#### 8.3.3 RRM performance requirements

**R4-2407201 Correction on unit of k-Offset/k-Mac for SIB31/SIB33**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Endorsed.**

**R4-2407202 Add NGSO test configuration for NB-IoT/eMTC**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Endorsed.**

**R4-2407203 CR on updating annex B for NTN bands**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Endorsed.**

**R4-2407206 Big CR to TS 36.133 on performance requirements for IoT NTN enhancements**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7318 rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: Revised to R4-2410268 (from R4-2407206).**

[**R4-2410268**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410268.zip) **Big CR to TS 36.133 on performance requirements for IoT NTN enhancements**

*Type: CR For: Agreement  
 36.133 v18.5.0 CR-7318 rev Cat: B (Rel-18)  
  
 Source: MediaTek inc.*

**Decision: For post-meeting email agreement.**

**R4-2407937 (IoT\_NTN\_enh-Perf) draftCR to TS 36.133 Introduction of the NGSO test configuration for measurmenet procedure and performance TC for Cat-M1 UE**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CMCC*

**Decision: Endorsed.**

**R4-2407938 (IoT\_NTN\_enh-Perf) draftCR to TS 36.133 Introduce of cell re-selection test cases for Cat-M1 UE**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: CMCC*

**Decision: Endorsed.**

**R4-2408518 DraftCR on 36.133 Test Cases for location-based triggering of intra-frequency measurements for Cat-M1 devices**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410264 (from R4-2408518).**

[**R4-2410264**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410264.zip) **DraftCR on 36.133 Test Cases for location-based triggering of intra-frequency measurements for Cat-M1 devices**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408519 DraftCR on 36.133 Test Cases for time-based triggering of interfrequency measurements for Cat-M1 devices**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410265 (from R4-2408519).**

[**R4-2410265**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410265.zip) **DraftCR on 36.133 Test Cases for time-based triggering of interfrequency measurements for Cat-M1 devices**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2408520 DraftCR to TS 36.133 on test cases for intra-frequency measurements with time-based triggering for Cat-M1 devices**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Revised to R4-2410266 (from R4-2408520).**

[**R4-2410266**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410266.zip) **DraftCR to TS 36.133 on test cases for intra-frequency measurements with time-based triggering for Cat-M1 devices**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: (Rel-18)  
  
 Source: Nokia*

**Decision: Return to.**

**R4-2409294 Draft CR on TC for eMTC for R18 IoT NTN enh**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Revised to R4-2410267 (from R4-2409294).**

**[R4-2410267](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410267.zip) Draft CR on TC for eMTC for R18 IoT NTN enh**

*Type: draftCR For: Endorsement  
 36.133 v18.5.0 CR- rev Cat: B (Rel-18)  
  
 Source: Huawei, HiSilicon*

**Decision: Return to.**

#### 8.3.5 Moderator summary and conclusions

Topic: [111][227] IoT\_NTN\_enh

**R4-2408024 Topic summary for [111][227] IoT\_NTN\_enh**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410204**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410204.zip) **Coffee break discussion minutes for IoT\_NTN\_enh**

*Type: other For: Approval  
 Source: MediaTek*

**Decision: Approved.**

[**R4-2410295**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410295.zip) **WF on** **R18 IoT NTN enhancement RRM requirements**

*Type: other For: Approval  
 Source: MediaTek*

**Decision: Return to.**

**Online session (Wednesday May 22, 2024)**

**Issue 1-1-2: Measurement on inter-frequency neighbor cells associated to the same satellite**

Proposals:

* [Proposal 1 (Nokia): When a UE starts inter-frequency neighbor cell measurements based on time-based measurement initiation (e.g. Ttrigger before t-service), and the inter-frequency neighbor cells associated to the same satellite are also configured with t-Service, then the UE is not required to measure these cells.](file:///C:\Users\mtk12330\Desktop\2402%20R4_110_Local\%5b203%5d%5b202%5d%5b224%5d%5b233%5d%5bNTN%20evo%5d\%5bM233%5d%20R18%20IoT%20NTN%20enh%20-%20Disc1ok\TDoc%20-%20Core%20Disc\R4-2402699%20Discussion%20on%20mobility%20requirements%20for%20IoT%20NTN%20enhancements.docx#_Toc159273396)
* Proposal 2: no specification change is needed.

**Tentative agreement (in coffee break discussion):**

* Further discuss:
  + When a UE starts inter-frequency neighbor cell measurements based on time-based measurement initiation (e.g. Ttrigger before t-service), and the inter-frequency neighbor cells associated to the same satellite are also configured with t-Service with carrier t-service no later than the t-service for the serving cell, then the UE is not required to measure these cells.
  + Further check t-service is carrier-specific or cell-specific.

MTK: t-service is for serving cell. Is it t-service or t-serviceStart?

Nokia: we can further check. t-service can also be configured for inter-frequency neighbor cells.

**Issue 1-1-4: Cell reselection when t-service is reached**

Proposals:

* [Proposal 1 (Nokia): When t-service is reached, and the UE has initiated measurements based on time-based measurement initiation, the UE shall immediately perform cell reselection ignoring any previous measurement on the serving cell.](file:///C:\Users\mtk12330\Desktop\2402%20R4_110_Local\%5b203%5d%5b202%5d%5b224%5d%5b233%5d%5bNTN%20evo%5d\%5bM233%5d%20R18%20IoT%20NTN%20enh%20-%20Disc1ok\TDoc%20-%20Core%20Disc\R4-2402699%20Discussion%20on%20mobility%20requirements%20for%20IoT%20NTN%20enhancements.docx#_Toc159273396)
* Proposal 2: no specification change is needed.

MTK: P1 has RAN2 impact.

Nokia: P1 does not have RAN2 impact. We can compromise if no other company support P1.

Agreement: no specification change is needed.

**Sub-Topic 1-2: Measurements with GNSS-MGs**

**Issue 1-2-1: Measurements with GNSS-MGs and eDRX**

Proposals:

* Proposal 1 (Nokia, E///, CMCC): When the UE is configured with eDRX cycle, and the GNSS-MG is larger than the eDRX cycle, the requirements applicable right after the GNSS-MG shall be corresponding to a DRX cycle of [1.28] s.
* Proposal 2 (HW, MTK, CMCC): no specification change is needed.

Recommended WF:

* Discuss Proposal.

QC: DRX is configured by network. UE can be in non-DRX mode if there is data to transmit.

HW: What’s the applicable requirement for Proposal 1.

Nokia: If UE does not have early termination, contention based random access is still needed? This is for serving cell measurement.

E///: Proposal 1 is for UE in DRX mode.

QC: The measurement cycle is related to whether UE data to transmit?

HW: the UE measurement behavior does not change dynamically. We can understand the motivation of the P1, but the benefit is not clear.

Nokia: GNSS-MG can be 20+ seconds. With P1, the measurement can be more quick.

CMCC: Is it for RLM and connected intra-frequency measurement?

Nokia: It is for serving cell RLM measurement.

E///: we support P1.

QC: we checked the spec, the current requirement is tighter than the P1.

## 10 Rel-19 on-going non-spectrum related work items

### 10.6 NR Radio Resource Management (RRM) Phase 5

#### 10.6.1 General aspects

**R4-2408529 Workplan for RRM enhancement phase 5 fast Scell activation**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

On RRM enhancment phase 5 fast scell activation

**Decision: Noted.**

#### 10.6.2 FR2-1 SSB based L3 measurement delay reduction for connected mode

**R4-2407312 On FR2-1 SSB based L3 measurement delay reduction for connected mode**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-19)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2407375 Discussions on FR2-1 SSB based L3 measurement delay reduction**

*Type: discussion For: Discussion  
 Source: NTT DOCOMO, INC.*

**Decision: Noted.**

**R4-2407521 Discussion on FR2-1 SSB based L3 measurement delay reduction for connected mode**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407835 Discussion on FR2-1 SSB based L3 measurement delay reduction for connected mode**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2407872 Discussion on FR2-1 SSB based L3 measurement delay reduction for connected mode**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2407965 Discussion on RRM requirements for FR2-1 L3 measurement delay reduction**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision: Noted.**

**R4-2408185 Discussion on SSB based L3 measurement delay reduction for connected mode**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2408249 Discussion on R19 RRM enhancements**

*Type: other For: Approval  
 Source: ZTE Corporation, Sanechips*

**Decision: Noted.**

**R4-2408301 Discussion on FR2-1 SSB based L3 measurement delay reduction for connected mode**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2408315 Discussion on FR2-1 SSB based L3 measurement delay reduction for connected mode**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2408439 View on R19 RRM enh phase 5**

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

**Decision: Noted.**

**R4-2408481 Discussion on RRM enhancements in Rel-19**

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

**Decision: Noted.**

**R4-2408596 Discussion on FR2-1 SSB based L3 measurement delay reduction for connected mode**

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

**Decision: Noted.**

**R4-2408603 Discussion on FR2-1 SSB based L3 measurement delay reduction for connected mode**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Continue the discussions on RX beam sweeping factor and CSSF objectives.

**Decision: Noted.**

**R4-2408895 Discussion on the L3 measurement enhancement**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-18)  
  
 Source: Samsung*

**Decision: Noted.**

**R4-2409150 On FR2-1 SSB based L3 measurement delay reduction**

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

**Decision: Noted.**

**R4-2409730 Discussion on FR2-1 SSB based L3 measurement delay reduction**

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

**Decision: Noted.**

#### 10.6.3 Moderator summary and conclusions

Topic: [111][228] NR\_RRM\_Ph5

**R4-2408025 Topic summary for [111][228] NR\_RRM\_Ph5**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410260**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410260.zip) **Way Forward for [111][228] NR\_RRM\_Ph5**

*Type: other For: Approval  
 Source: Apple*

**Decision: Return to.**

**Online session (Wednesday May 22, 2024)**

**Issue 2-1-1: Applicability requirement of L3 measurement delay reduction by optimizing Rx BSF**

|  |
| --- |
| WF R4-2406392   * + FFS:   + L3 delay enhancements in Rel-19 by optimizing Rx BSF for UE supporting multi-rx simultaneous reception are applicable provided the target frequency layer to be measured is the only one in the single FR2-1 band and UE is configured [with one FR2-1 band].   + RAN4 to consider UE supporting FR2-1 power class 3 as first priority. |

**Applicability requirement:**

* Option 1 (Apple, OPPO, HW):
  + L3 delay enhancements in Rel-19 by optimizing Rx BSF for UE supporting multi-rx simultaneous reception are applicable provided the target frequency layer to be measured is the only one in the single FR2-1 band and UE is configured with one FR2-1 band.
  + Option 1a (LGE):
    - L3 measurement delay enhancement in Rel-19 by optimizing Rx BSF for UE supporting multi-Rx simultaneous reception are applicable provided target frequency layer to be measured is the only single carrier for intra- / inter-frequency L3 measurement in the configured FR2-1 band but without CA configuration.
  + Option 1b (vivo):
    - L3 delay enhancements in Rel-19 by optimizing Rx BSF for UE supporting multi-Rx simultaneous reception are applicable provided the target frequency layer to be measured is the single carrier and UE is configured with one FR2-1 band.
  + Option 1c (Samsung):
    - The applicable scenario definition “The target frequency layer to be measured is the only one in the single FR2-1 band” precludes the cases that SSB-based inter-frequency measurement and intra-frequency measurement with MG, which is not aligned to the objective
    - RAN4 to clarify the intention and meaning of “target frequency layer to be measured is the only one in the single FR2-1 band”
    - For the applicable scenarios of L3 measurement delay reduction by optimizing Rx BSF, UE is configured with at least one FR2-1 band
    - Suggest to define the applicable scenario as: L3 delay enhancements in Rel-19 by optimizing Rx BSF for UE supporting multi-rx simultaneous reception are applicable provided the target carrier to be measured is the only one in the single FR2-1 band and UE is configured with at least one FR2-1 band
* Option 2 (NTT DCM):
  + The number of configured MOs has not to be one if these MOs are intra-frequency layer.
  + L3 delay enhancements in Rel-19 by optimizing Rx BSF for UE supporting multi-rx simultaneous reception are applicable provided the target frequency layer to be measured belongs to the same ~~is the only one in the single~~ FR2-1 band and UE is configured ~~[~~with one FR2-1 band~~]~~.
* Option 3 (CATT):
  + It is proposed not to restrict the number of configured carriers and applied power class.
* Option 4 (ZTE):
  + For the case of single FR2-1 band allowed, multi-Rx can be applicable to both L3 measurement with gap and without gap. For the case of multiple FR2-1 bands allowed, multi-Rx is only beneficial for L3 measurement with gap.
  + When considering the number of serving cell within a band, both the impact on traffic data reception and other L3 measurement should be considered.
    - From the perspective of impact on traffic data reception, multi-Rx based L3 measurement can be performed regardless single or multiple serving cells configured in a band.
    - From the perspective of impact on other L3 measurement, to support multi-Rx based L3 measurement, the assumption of 2 searchers can not be satisfied if multiple serving cells configured.
      * To support multi-Rx based L3 measurement in multiple serving cells case, 2 searchers assumption has to be degraded into 1 searcher assumption.
* Option 5 (QC (clarification on “UE with multiple Rx reception” before the applicability)):
  + RAN4 first agree the definition and implication of UE supporting multiple-RX simultaneous reception for L3 delay enhancement.
    - “For UE supporting multiple-Rx simultaneous reception for L3 delay enhancement” means UE supporting “simultaneous reception of multiple SSBs from different directions of the same target frequency layer inside a SMTC window. But it does not mean “UE can process multiple SSBs from different directions of the target frequency in parallel.”
* Option 6 (Ericsson):
  + For the purpose of L3 measurement delay reduction, the L3 delay enhancements may restrict carrier configurations as follows, as a start point:
    - Single carrier on FR2-1 band, as PCell, no NR CA/DC configuration.
    - NR CA with only a serving cell in FR2-1 band, as SCell.
    - NR DC with only a serving cell in FR2-1 band, as PSCell.
* Option 7 (Nokia):
  + RAN4 to consider L3 BSF reduction due to multi-Rx only when CA/DC is not configured.

**UE Power class:**

* Option 1 (Apple, OPPO, LGE, vivo, HW, Samsung):
  + RAN4 to consider UE supporting FR2-1 power class 3 as first priority.
  + Option 1a (LGE):
    - but RAN4 should consider if other power classes could apply the outcome of the WI discussion
* Option 2 (CATT):
  + It is proposed not to restrict the number of configured carriers and applied power class.
* Option 3 (Ericsson):
  + We can have generic requirements for all power classes, maybe PC6 can be precluded, if no specific use cases for some power classes are pursued.
* Recommended WF
  + Moderator note: try to accommodate all the options, suggest to discuss if following can be agreed:

|  |
| --- |
| **Applicability requirement:**  Baseline: L3 delay enhancements in Rel-19 by optimizing Rx BSF for UE supporting multi-rx simultaneous reception are applicable provided that:   * the target carrier(s) to be measured: only one carrier in the single FR2-1 band is configured for intra- / inter-frequency L3 SSB measurement and * UE serving carrier(s): UE is configured with single carrier on FR2-1 band, i.e. FR2-1 PCell without CA/DC.   Note: The ‘other UE CA/DC modes (e.g., 2 FR2-1 bands CA, or FR1+FR2 CA/DC, or EN-DC)’ and/or the ‘other number of target to-be-measured carrier(s) on FR2-1 band’ can be FFS after concluding the baseline above. These extra FFS parts will NOT delay the WI completion.  **UE Power class:**  Baseline: RAN4 to consider UE supporting FR2-1 power class 3 as first priority.  Note: whether other power classes could apply the outcome of the WI discussion can be FFS after concluding on PC3. These extra FFS parts will NOT delay the WI completion.  **Other clarification on WID:**  “For UE supporting multiple-Rx simultaneous reception for L3 delay enhancement” means UE supporting “simultaneous reception of multiple SSBs from different directions of the same target frequency layer inside a SMTC window. But it does not mean “UE can process multiple SSBs from different directions of the target frequency in parallel.” |

Discussion:

**Applicability requirement:**

Baseline: L3 delay enhancements in Rel-19 by optimizing Rx BSF for UE supporting multi-rx simultaneous reception are applicable provided that:

* the target carrier(s) to be measured: only one carrier in the single FR2-1 band is configured for intra- / inter-frequency L3 SSB measurement and
* UE serving carrier(s): UE is configured with single carrier on FR2-1 band, i.e. FR2-1 PCell without CA/DC.

Note: The ‘other UE CA/DC modes (e.g., 2 FR2-1 bands CA, or FR1+FR2 CA/DC, or EN-DC)’ and/or the ‘other number of target to-be-measured carrier(s) on FR2-1 band’ can be FFS after concluding the baseline above. These extra FFS parts will NOT delay the WI completion.

QC: the intra- / inter-frequency is for MO?

Apple: regardless MO or handover configuration.

Nokia: ok with the second bullet.

Xiaomi: share the view of QC. Handover case can be discussed at a later phase.

HW: the first bullet is to avoid too complicated scenario. one FR2-1 band for Rel-18 Multi-Rx WI.

Agreement:

Baseline: L3 delay enhancements in Rel-19 by optimizing Rx BSF for UE supporting multi-rx simultaneous reception are applicable provided that:

* the target carrier(s) to be measured: only one carrier in the single FR2-1 band is configured for L3 SSB measurement and
* UE serving carrier(s): UE is configured with single carrier on FR2-1 band, i.e. FR2-1 PCell without CA/DC.

Note: The ‘other UE CA/DC modes (e.g., 1 or 2 FR2-1 bands CA, or FR1+FR2 CA/DC, or EN-DC)’ and/or the ‘other number of target to-be-measured carrier(s) on FR2-1 band’ can be FFS after concluding the baseline above. These extra FFS parts will NOT delay the WI completion.

### 10.14 Low-power wake-up signal and receiver for NR (LP-WUS/WUR)

#### 10.14.4 RRM core requirements for LP-WUS/WUR

**R4-2407311 On RRM core requirements for LP-WUR**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-19)  
  
 Source: Apple*

**Decision: Noted.**

**R4-2407330 Discussion on RRM core requirements for LP-WUS/WUR**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision: Noted.**

**R4-2407377 Discussions on RRM core requirements for LP-WUS/WUR**

*Type: discussion For: Discussion  
 Source: NTT DOCOMO, INC.*

**Decision: Noted.**

**R4-2407487 Discussion on RRM core requirements for R19 LP-WUS/WUR**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision: Noted.**

**R4-2407844 Discussion on RRM core requirements for LP-WUS/WUR**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision: Noted.**

**R4-2407886 Discussion on core requirements for LP-WUS WUR**

*Type: other For: Approval  
 Source: OPPO*

**Decision: Noted.**

**R4-2407939 (NR\_LPWUS-Core) Discussion on RRM impact of LP-WUR**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision: Noted.**

**R4-2407966 Discussion on RRM requirements for LP-WUS/WUR**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision: Noted.**

**R4-2408040 RRM requirements for LP-WUR**

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

**Decision: Noted.**

**R4-2408316 Discussion on RRM core requirements for LP-WUS/WUR**

*Type: discussion For: Discussion  
 Source: China Telecom*

**Decision: Noted.**

**R4-2408329 Discussion on LP-WUS RRM requirement**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the LP-WUS requirement

**Decision: Noted.**

**R4-2408624 Consideration on RRM for LP-WUR**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision: Noted.**

**R4-2408673 Discussion on RRM core requirements for LP-WUS and LR**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-19)  
  
 Source: Nokia*

**Decision: Noted.**

**R4-2409295 Discussion on RRM requirements for LP-WUR**

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

**Decision: Noted.**

**R4-2409687 Discussion on NLP-WUS for core part**

*Type: other For: Approval  
 Source: ZTECorporation,Sanechips*

**Decision: Noted.**

**R4-2409729 Discussion on the RRM requirements for LP-WUS**

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

**Decision: Noted.**

#### 10.14.5 Moderator summary and conclusions

Topic: [111][229] NR\_LPWUS

**R4-2408026 Topic summary for [111][229] NR\_LPWUS**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410296**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410296.zip) **WF for RRM core requirements for LP-WUS/WUR**

*Type: other For: Approval  
 Source:*

**Decision: Return to.**

**Online session (Wednesday May 22, 2024)**

**Issue 1-1-2: Cases/states to be considered for RRM relaxation**

* Proposals
* P1:
  + Case 1: Fully offloading case - MR stops perform any RRM measurement and LP-WUR performs serving cell measurement. (Apple Samsung CATT CMCC vivo Nokia HW ZTE)
  + Case 2: Relaxed case - MR has RRM relaxation on serving cell measurement (no neighbour cell measurement is needed) and LP-WUR performs serving cell measurement. (Apple Samsung vivo Nokia ZTE)
    - FFS on Case 2; (CATT HW)
  + Case 3: Relaxed case - MR has RRM relaxation on serving cell and neighbour cell measurement and LP-WUR performs serving cell measurement. (Apple Samsung CMCC vivo Nokia HW ZTE)
    - FFS on Case 3; (CATT)
  + Case 4: Relaxed case - MR has RRM relaxation on neighbour cell measurement and LP-WUR performs serving cell measurement. (CMCC)
  + Case 5: Exit case- Exit from LP-WUR RRM measurement and MR follows normal RRM measurement (Samsung)

*Recommendations:*

Discuss the following cases:

|  |  |  |  |
| --- | --- | --- | --- |
| **RRM measurement case index** | **MR serving cell measurement** | **MR neighboring cell measurement** | **LR measurement** |
| #1 Fully offloading case | Off | Off | ON |
| #2 Relaxed case a | On with relaxation measurement | Off | ON |
| #3 Relaxed case b | On with relaxation measurement | On with relaxation measurement | ON |
| #4 Relaxed case c | Off | On with relaxation measurement | ON |
| #5 Exit case | On | On | Off |

Moderator: Case 1 and 2 are clearly in the WID.

ZTE: case #1 is ok. Include case #3 instead of #2.

Apple: Case #1 is ok. Case #2 and #3 can be merged, discuss based on the serving cell measurement, and follow the legacy way for neighbouring cell measurement. Case 4 is not a reasonable case.

QC: First discuss the serving cell measurement, and we only have two cases for initial discussion. Consider the further neighbouring cell relaxation only for fully offloading of serving cell case. Are we going to relax the high priority carrier measurement as well.

HW: case 1 is ok. For case 2 and 3, share the Apple view, and only consider case 3. Case 2 will cause additional power consumption.

CMCC: To clarify, for case 4, neighbouring cell relaxation is only for the high priority carrier. For case 2 and 3, share the Apple view.

MTK: case 1 is ok. For case 2 and 3, share the Apple view. First discuss the serving cell measurement. Case 4 is not a valid case.

CATT: ok with case 1. For case 2 and 3, share the Apple view.

LGE: ok with case 1. For case 2 and 3, share the Apple view. Keep all the cases open for further checking.

vivo: case 1 can be confirmed.

Samsung: case 1 can be confirmed. Partially offloading is also included in the WID. Regarding the neigboring cell measurement, it should also be included in the table. We should discuss all aspects in a package.

E///: RAN2 can have their own discussion in parallel with RAN4. Focus on case 1 at first.

Nokia: RAN1 is discussing whether MR is doing paging.

QC: long time for high priority carrier measurement.

Apple: the use of LR will not impact the basic design for MR.

HW: When no high priority carrier configured, MR can also measure other carriers based on the legacy design.

Moderator: RAN4 is the leading WG for this objective.

Apple: Before entering the offloading mode and after exiting the offloading mode, whether to perform LR based RRM measurement is up to UE implementation.

|  |  |  |  |
| --- | --- | --- | --- |
| #5 Exit case (legacy case) | On | On | Off |

Agreement: Discuss the RAN4 requirements first for the following case #1, and FFS for case #2 to #5.

|  |  |  |  |
| --- | --- | --- | --- |
| **RRM measurement case index** | **MR serving cell measurement** | **MR neighboring cell measurement** | **LR measurement** |
| #1 Fully offloading case | Off | Off: FFS the condition and the details | ON |

RAN4 to further discuss case #2 to #4:

|  |  |  |  |
| --- | --- | --- | --- |
| RRM measurement case index | MR serving cell measurement | MR neighboring cell measurement | LR measurement |
| #2 Relaxed case a | On with relaxation measurement | Off | ON |
| #3 Relaxed case b | On with relaxation measurement | On with relaxation measurement | ON |
| #4 Relaxed case c | Off | On, FFS the condition and the details | ON |

**Issue 1-4-2: LP-SS periodicity for evaluation**

* Proposals
  + P1: LP-SS measurement in IDLE/Inactive mode shall only follow LP-SS periodicity. (Apple)
  + P2: RAN4 uses 320ms as the LP-SS periodicity for requirement study. (CMCC Ericsson Samsung vivo)
  + P3: For LP-WUR measurement, further discuss the assumptions on the measurement interval for defining the requirements, e.g. LP-SS periodicity or DRX/eDRX cycle (Huawei)
  + P4: RAN4 shall wait for the RAN1’s agreements and then decide the concrete values for LP-SS periodicity (ZTE)

*Recommendations:*

Agreement:

* As starting point for RAN4 simulation purpose, uses 320 ms as the LP-SS periodicity in IDLE/Inactive mode, and other values based on RAN1/2 discussion are not precluded.
  + Not consider the MR DRX configuration in the simulation.

**Issue 1-4-5: Simulation assumptions**

* Proposals
  + P1: For LR based PSS/SSS synchronization/measurement, the simulation assumption of legacy SSB based intra-frequency measurement can be reused, and only need to revisit the candidate SINRs and candidate sample numbers. For LR based LP-SS synchronization/measurement, RAN4 to discuss simulation assumption after RAN1 concluded on the LP-SS design. (Apple)
  + P2: For initial simulation calibration purpose, following assumption can be considered: Target SNR/SINR: [-10~6] dB with 2dB step size; LP-SS with periodicity: 320 ms; Measurement metric: RSRP, RSRQ. (Samsung)
  + P3: Simulation assumptions as in tables in [R4-2408624](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408624.zip) (vivo)

*Recommendations:*

Align the framework for simulation assumption and companies are encouraged to provide simulation assumption or feedback on existing simulation assumptions.

Agreement:

First start the simulation for FR1, and FFS for FR2 pending on the RF progress.

Check offline whether it is agreeable to use 1Rx for the UE receive antennas.

Table 1: General parameters

|  |  |
| --- | --- |
| **Simulation parameters** | **Comments/values** |
| Carrier frequency for Cell 1 and Cell 2 | FR1: 2.6 GHz/700MHz |
| System bandwidth | 20/100 MHz; |
| Prior knowledge of Cell 1 / Cell 2 by the UE | No / Yes |
| DRX | No |
| BS transmit antennas for LP-SS blocks | 1 tx or single layer transmissions |
| UE receive antennas | 1 rx |
| Data and control channel subcarrier spacing | OFDB based: The same as SS block subcarrier spacing  OOK based: the same as one of the SCS(s) used for other NR transmissions in the same CP-OFDM symbol |
| Measurement period (in number of measurement samples) | OOK based: 5, other number of samples may also be studied upon a need  OFDM based: 5 |
| [Receiver Filter] | [5th Order Butterworth with 4.32MHz bandwidth] |
| [Receiver ADC bit width] | [4/8-bitADC] |
| [Receiver Sampling Rate for LP-SS only] | [3.84/7.68MHz] |
| * Subcarrier spacing | 2.6GHz: 15 kHz and 30 kHz; 700MHz: 15kHz |
| * Number of LP-SS blocks per SS burst set, K | [1] |
| * LP-SS/SSB burst periodicity | [320 ms]  OFDB based: [20 ms] |
| * Number of transmit antenna ports | 1 (the same port for NR-SSS, NR-PSS, NR-PBCH) |
| * LP-SS block BW | * 144 subcarriers for SCS=30kHz, 288 subcarriers for SCS=15kHz |
| * Actual LP-SS block transmissions | always transmitted |

Table 2: Cell-specific parameters

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Cell 1 | Cell 2 |
| RF Channel number | - | Channel 1 | Channel 1 |
| NR-PSS,NR-SSS and LP-SS sequences | - | To be indicated by companies | To be indicated by companies |
| PBCH and DMRS power offset with respect to NR-PSS, NR-SSS and LP-SS | dB | 0 | 0 |
| Data and control PSD relative to NR-PSS,NR-SSS and LP-SS | dB | 0 | 0 |
| RB Utilization | % | 100 | 100 |
| LP-SS |  | OOK-1;  OOK-4 with M = 2,4; | OOK signal: [OOK-1 when Cell 1 is OOK-1;OOK-4 when Cell 1 is OOK-4]  Or NR signal |
| LP-SS pattern |  | Company report | Company report |
| Data Modulation | - | [OOK based: OOK]  [OFDM based: QPSK] | [OOK based: QPSK/OOK]  [OFDM based: QPSK] |
| Slot length | - | 14 symbols | 14 symbols |
| CP Length | - | Normal | Normal |
| Frequency Offset relative to UE frequency reference | Hz | [TBD] | [TBD] |
| 1)Relative Delay of 1st Path (synchronous) | µs | 0 | [CP/2] |
| 2) Relative Delay of 1st Path (asynchronous): Fixed delay | Ms | 0 | [3 ms] |
| SNR | dB | OFDM based: [TBD]  OOK based: [TBD] | OFDM based: [TBD]  OOK based: [TBD] |
| Es/IoT (calculated from SNR) | dB | N/A | OFDM based: [TBD]  OOK based: [TBD] |
| Propagation conditions | - | FR1:  AWGN  TDL-A 30ns  TDL-B 100ns  TDL-C 300ns | |
| UE speed |  | FR1: 30 km/h | |
| NOTE: the companies are encouraged to state channel model parameters together with the results, the parameters are to be further discussed and aligned | | | |

Table 3: UE-specific parameters

|  |  |
| --- | --- |
| [Receiver Filter] | [5th Order Butterworth with 4.32MHz bandwidth] |
| [Receiver ADC bit width] | [4/8-bitADC] |
| [Receiver Sampling Rate for LP-SS only] | [3.84/7.68MHz] |

## 11 Liaison output to other groups and related issues

### 11.1 R17 related

**R4-2408576 Discussion on RAN5 LS reply on missing parameters**

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

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Noted.**

**R4-2408650 Reply LS on defining the missing relative angular offsets and UE gain-related parameters for different power classes**

*Type: LS out For: Approval  
 to TSG RAN WG5  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Revised to R4-2410248 (from R4-2408650).**

[**R4-2410248**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410248.zip) **Reply LS on defining the missing relative angular offsets and UE gain-related parameters for different power classes**

*Type: LS out For: Approval  
 to TSG RAN WG5  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Return to.**

**R4-2408651 On Missing RAN4 PC1, 5, and 6 Parameters for RAN5**

*Type: discussion For: Discussion  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Noted.**

**R4-2408652 CR to 38.133 Rel-15 CatF on Missing PC1 Test Parameters for RAN5**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4523 rev Cat: F (Rel-15)  
  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Revised to R4-2410249 (from R4-2408652).**

[**R4-2410249**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410249.zip) **CR to 38.133 Rel-15 CatF on Missing PC1 Test Parameters for RAN5**

*Type: CR For: Agreement  
 38.133 v15.25.0 CR-4523 rev Cat: F (Rel-15)  
  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Return to.**

**R4-2408653 CR to 38.133 Rel-16 CatA on Missing PC1 Test Parameters for RAN5**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4524 rev Cat: A (Rel-16)  
  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Return to.**

**R4-2408654 CR to 38.133 Rel-17 CatA on Missing PC1 Test Parameters for RAN5**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4525 rev Cat: A (Rel-17)  
  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Return to.**

**R4-2408655 CR to 38.133 Rel-18 CatA on Missing PC1 Test Parameters for RAN5**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4526 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Return to.**

**R4-2408656 CR to 38.133 Rel-17 CatF on PC5,6 RRM Test Configuration Parameters for RAN5**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4527 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Revised to R4-2410250 (from R4-2408656).**

[**R4-2410250**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410250.zip) **CR to 38.133 Rel-17 CatF on PC5,6 RRM Test Configuration Parameters for RAN5**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4527 rev Cat: F (Rel-17)  
  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Return to.**

**R4-2408657 CR to 38.133 Rel-18 CatA on PC5,6 RRM Test Configuration Parameters for RAN5**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4528 rev Cat: A (Rel-18)  
  
 Source: Nokia*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Return to.**

**R4-2408886 Discussion on defining the missing testing parameter for PC1/5/6**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Samsung*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Noted.**

**R4-2409365 Missing Parameters for FR2 RRM Testing of Different Power Classes**

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

**Abstract:**

MCC: Session Chair requested the AI is moved to 11.1.

**Decision: Noted.**

### 11.2 R15, R16 related

**R4-2408180 CR on combination of HST and RRM relaxation**

*Type: CR For: Agreement  
 38.133 v17.13.0 CR-4448 rev Cat: F (Rel-17)  
  
 Source: CMCC*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Agreed.**

**R4-2408181 CR on combination of HST and RRM relaxation**

*Type: CR For: Agreement  
 38.133 v18.5.0 CR-4449 rev Cat: F (Rel-18)  
  
 Source: CMCC*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Agreed.**

**R4-2408182 CR on combination of HST and RRM relaxation**

*Type: CR For: Agreement  
 38.133 v16.19.0 CR-4450 rev Cat: F (Rel-16)  
  
 Source: CMCC*

**Abstract:**

MCC: Chair stated this is to be handled in RRM Session.

**Decision: Agreed.**

### 11.3 Moderator summary and conclusions

Topic: [111][230] Reply\_LS

**R4-2408027 Topic summary for [111][230] Reply\_LS**

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

**Abstract:**

Topic summary in RRM session

**Decision: Noted.**

[**R4-2410203**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410203.zip) **Coffee break discussion minutes for Reply\_LS - Missing Test Parameters**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Approved.**

[**R4-2410294**](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_111/Inbox/R4-2410294.zip) **WF on** **defining the missing testing parameter for PC1/5/6**

*Type: other For: Approval  
 Source: Samsung*

**Decision: Return to.**

**Online session (Wednesday May 22, 2024)**

**Topic#2: missing relative angular offsets and UE gain-related parameters for different power classes**

**Issue 1-1-2: what is the UE gain for PC1/5/6**

* Proposals
  + Proposal 1: (Huawei, Qualcomm)

The Gmin and Gmax for PC 1/5/6 are defined as:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | UE Power class | | | | | |
|  | 1 | 2 | 3 | 4 | 5 | 7 |
| Minimum, dBi | 0 | FFS | -10 | FFS | -5 | FFS |
| Maximum, dBi | 57 | FFS | +20 | FFS | 57 | FFS |

* + Proposal 2: (Samsung)
* Table B.2.1.5.1-1: UE gain G, Rx beam peak direction

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | UE Power class | | | | | | |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Minimum, dBi | -22 | FFS | -10 | FFS | -22 | -22 | FFS |
| Maximum, dBi | +26 | FFS | +20 | FFS | +24 | +24 | FFS |

Samsung: For PC5, 20log (64) +5dBi +3 = 44, 20log (36) +5dBi +3 = 39.

**Agreement:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | UE Power class | | | | | | |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Minimum, dBi | 0 | FFS | -10 | FFS | -5 | -5 | FFS |
| Maximum, dBi | [+50] | FFS | +20 | FFS | [+44] | [+44] | FFS |

The above agreements on Gmax can be revisited if any testing issue will be identified in RAN5.

**Issue 1-1-3: what is the UE rough beam gain reduction D in Rx beam peak direction for PC 1/5/6?**

The intention of involving D is the relative accuracy TC is that: The Rough Peak beam (Beam 1) is selected based on the Fine beam peak direction, and the coverage rough beam (Beam 2) is selected from the sets for fine coverage rough beam. While there could be misalignment between the rough peak and fine peak. Thus, margin should be considered for beam gain reduction due to this misalignment. For power class 1/5/6 with more antenna elements, the situation could be severer. Since the beam is narrower for PC1/5/6 than PC3, the beam misalignment between fine and rough beam could result

* Proposals
  + Proposal 1: (Huawei)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | UE Power class | | | | | |
|  | 1 | 2 | 3 | 4 | 5 | 6 |
| Maximum gain reduction, dB | 11.5 | FFS | 5.5 | FFS | 8.5 | 8.5 |

* + Proposal 2: (Samsung)

Do not define gain reduction for PC6 and the gain reduction for PC1/5 is as below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | UE Power class | | | | |
|  | 1 | 2 | 3 | 4 | 5 |
| Maximum gain reduction, dB | 10 | FFS | 5.5 | FFS | 10 |

* Recommended WF

Samsung: we can further ask whether these values are needed for RAN5.

HW: We can agree the values in RAN4, to fix the missing parameters.

Nokia: the definition of the value is based on simulation. If not needed for RAN5, no need to define them.

**Issue 1-1-4: what is Ginter for PC 1/6?**

Ginter is the margin due to different antenna gain on different bands, which comes from RF transceiver gain difference.

* Proposals
  + Proposal 1: (Samsung)

For UE gain difference between inter-frequencies Ginter, 3dB for PC1 and PC6

* + Proposal 2: (Qualcomm)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | UE Power class | | | | |
|  | 1 | 2 | 3 | 4 | 7 |
| Maximum difference, dB | 3 | FFS | 3 | 3 | FFS |

* + Proposal 3 (Nokia)

For PC 1, 5, and 6, specify UE gain difference between inter-frequencies Ginter equal to 3 dB.

* Recommended WF

Samsung: the bands are different for PC5.

Agreement:

For UE gain difference between inter-frequencies Ginter, 3dB for PC1 and PC6, further discuss for PC5.

**Issue 1-1-5: whether UE gain to PRS-RSRP measurement point for FR2 (Table B.2.1.5.3-1) needs to be defined for PC1, PC5, and PC6?**

* Proposals
  + Proposal 1: (Samsung)

There is no need to define G gain in Clause 2.1.6 Gain to PRS-RSRP measurement point for FR2 for PC6

For the UE gain to PRS-RSRP measurement point for FR2 for PC1/PC5

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | UE Power class | | | | |
|  | 1 | 2 | 3 | 4 | 5 | 7 |
| Minimum, dBi | -22 | FFS | -10 | FFS | -22 | FFS |
| Maximum, dBi | +26 | FFS | +20 | FFS | +24 | FFS |

* + Proposal 2: (Nokia)

RAN4 not to define UE gain to PRS-RSRP measurement point for FR2 (Clause B.2.1.6) for PC1, PC5, and PC6, unless the need for those is explicitly justified.

* Recommended WF

**Issue 1-1-6: Minimum SSB\_RP for intra-frequency measurements in FR2**

Agreement

Table B.2.2-2: Conditions for intra-frequency measurements in FR2

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Angle of arrival | NR operating bands | Minimum SSB\_RP Note 2, Note 3 | | | | | | | SSB Ês/Iot |
|  |  |  | dBm / SCSSSB | | | | | | | dB |
|  |  |  | SCSSSB = 120 kHz | | | | | | SCSSSB = 240 kHz |  |
|  |  |  | UE Power class | | | | | | UE Power class |  |
|  |  |  | 1 | 2 | 3 | 4 | 5 | 6 | 1, 2, 3, 4, 5, 6 |  |
| Conditions | Rx Beam Peak | n257 | -128.3+Y1 | -113.8 | -112.1 | -127.8+Y4 | -123.4+Y5 | -123.4+Y6 | (Value for SCSSSB = 120 kHz) +3dB | ≥-6 |
|  |  | n258 | -128.3+Y1 | -113.8 | -112.1 | -127.8+Y4 | -123.6+Y5 | -123.6+Y6 |  |  |
|  |  | n259 |  |  | -108.5 |  | -120.5+Y5 |  |  |  |
|  |  | n260 | -125.3+Y1 |  | -109.5 | -125.8+Y4 |  |  |  |  |
|  |  | n261 | -128.3+Y1 | -113.8 | -112.1 | -127.8+Y4 |  | -123.4+Y6 |  |  |
| n262 | -123.3+Y1 | -108,6 | -106.6 | -121.8+Y4 |  |  |
|  | Spherical coverage Note 1 | n257 | -120.3+Z1 | -102.8 | -101.2 | -118.8+Z4 | -115.4+Z5 | -115.4+Z6 | (Value for SCSSSB = 120 kHz) +3dB | ≥-6 |
|  |  | n258 | -120.3+Z1 | -102.8 | -101.2 | -118.8+Z4 | -115.6+Z5 | -115.6+Z6 |  |  |
|  |  | n259 |  |  | -95.7 |  |  |  |  |  |
|  |  | n260 | -117.3+Z1 |  | -96.9 | -113.8+Z4 |  |  |  |  |
|  |  | n261 | -120.3+Z1 | -102.8 | -101.2 | -118.8+Z4 |  | -115.4+Z6 |  |  |
| n262 | -115.1+Z1 | -96.7 | -93.5 | -109.7+Z4 |  |  |
| Note 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.  Note 2: Values specified at the Reference point to give minimum SSB Ês/Iot, with no applied noise.  Note 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ∆MBP,n and Spherical coverage values are increased by ∆MBS,n, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19]. | | | | | | | | | | | |