**3GPP TSG-RAN WG4 Meeting #104-bis-e R4-22xxxxx**

**Online Meeting, 10 – 21 October 2022**

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

**DRAFT Meeting Report  
for  
TSG RAN WG4  
meeting: 104-e**

**Electronic Meeting, Online, 15/08/2022 to 26/08/2022**

Report generated on Thursday, 2022-08-11 04:07 UTC

## 1 Opening of the E-meeting

## 2 Approval of the agenda

## 3 Incoming LS and meeting report

### 3.2 Session chair notes

**R4-22xxxxx RAN4#104-e RRM session chair notes**

*Type: report For: endorsement  
 Source: RAN4 Chair*

**Decision: Return to.**

RRM session email thread list

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Email title** | **WI** | **Topic areas** | **AI covered in the email thread** | **Moderator & Summary agenda** |
| [104-e][200] RRM\_Session | N.A | N.A | N.A | Xizeng Dai Meng Zhang AI 3.2 |
| [104-e][201] Maintenance\_R15\_R16\_RRM | R15/R16 NR (NR\_newRAT-Core/Perf) | Rel-15/R16 NR RRM Core/Perf maintenance | 4.5 | Li Zhang AI 4.8 |
| [104-e][202] Maintenance\_R17\_RRM | R17 RRM maintenance | Rel-17 NR RRM maintenance and TEI 8.2.2 Railway 900MHz RRM | 5.2.3 5.2.4.3 | Yang Tang AI 5.3 |
| [104-e][203] NR\_RF\_FR1\_enh\_RRM | R17 NR FR1 RF (NR\_RF\_FR1\_enh) | RRM Core requirements RRM Perf requirements | 9.3.2 | Han Jing AI 9.3.3 |
| [104-e][204] NR\_RF\_FR2\_req\_enh2\_RRM | R17 NR FR2 RF (NR\_RF\_FR2\_req\_enh2) | RRM Core requirements:  - Inter-band DL CA enhancements - Inter-band UL CA RRM perf requirements | 9.4.5 9.4.6.1 | Lei Du AI 9.4.7 |
| [104-e][205] NR\_HST\_FR1\_enh\_RRM | R17 NR FR1 HST enhancements (NR\_HST\_FR1\_enh) | RRM Core requirements RRM Perf requirements | 9.6.1 9.6.2 | Jingjing Chen AI 9.6.4 |
| [104-e][206] NR\_HST\_FR2\_RRM\_1 | R17 NR FR2 HST (NR\_HST\_FR2) | RRM Core requirement maintenance | 9.7.2 | Dmitry Petrov AI 9.7.5 |
| [104-e][207] NR\_HST\_FR2\_RRM\_2 | R17 NR FR2 HST (NR\_HST\_FR2) | RRM perf requirements | 9.7.3 | He (Jackson) Wang AI 9.7.5 |
| [104-e][208] NR\_RRM\_enh2\_1 | R17 NR RRM further enhancements core maintenance (NR\_RRM\_enh2) | RRM Core requirements maintenance/Perf - General - SRS antenna port switching | 9.8 9.8.1 9.8.1.1 9.8.2.1 | Jerry Cui AI 9.8.3 |
| [104-e][209] NR\_RRM\_enh2\_2 | R17 NR RRM further enhancements core maintenance (NR\_RRM\_enh2) | RRM Core requirements maintenance/Perf - HO with PSCell | 9.8.1.2 9.8.2.2 | Qian Yang AI 9.8.3 |
| [104-e][210] NR\_RRM\_enh2\_3 | R17 NR RRM further enhancements perf requirements (NR\_RRM\_enh2) | RRM Core requirements maintenance/Perf - PUCCH SCell activation/deactivation | 9.8.1.3 9.8.2.3 | Qiuge Guo  AI 9.8.3 |
| [104-e][211] NR\_MG\_enh\_1 | R17 NR measurement gap enhancements (NR\_MG\_enh) | RRM Core requirements maintenance/Perf - General - Multiple concurrent and independent MG patterns | 9.9.1 9.9.1.2 9.9.2.2 | Ato Yu AI 9.9.3 |
| [104-e][212] NR\_MG\_enh\_2 | R17 NR measurement gap enhancements (NR\_MG\_enh) | RRM Core requirements maintenance/Perf - Pre-configured MG pattern(s) | 9.9.1.1 9.9.2.1 | Rui Huang AI 9.9.3 |
| [104-e][213] NR\_MG\_enh\_3 | R17 NR measurement gap enhancements (NR\_MG\_enh) | RRM Core requirements maintenance/Perf - Network Controlled Small Gap | 9.9.1.3 9.9.2.3 | Qiming Li AI 9.9.3 |
| [104-e][214] NR\_NTN\_solutions\_RRM\_1 | R17 NR NTN  (NR\_NTN\_solutions) | RRM requirements maintenance | 9.11.5 | CH Park AI 9.11.8 |
| [104-e][215] NR\_NTN\_solutions\_RRM\_2 | R17 NR NTN  (NR\_NTN\_solutions) | RRM Perf requirements | 9.11.6 | Xuhua Tao AI 9.11.8 |
| [104-e][216] NR\_UE\_pow\_sav\_enh | R17 NR Power Saving enhancements (NR\_UE\_pow\_sav\_enh) | RRM Core requirements RRM Perf requirements | 9.12.1 9.12.2 | Hsuanli Lin AI 9.12.4 |
| [104-e][217] NR\_SL\_enh\_RRM | R17 NR SL enhancements (NR\_SL\_enh) | RRM Core requirements RRM Perf requirements | 9.13.3 9.13.4 | Yoonoh Yang AI 9.13.5 |
| [104-e][218] NR\_ext\_to\_71GHz\_RRM\_1 | R17 NR 52.6 - 71GHz (NR\_ext\_to\_71GHz) | RRM Core requirements maintenance | 9.14.6 | Zhongyi Shen AI 9.14.9 |
| [104-e][219] NR\_ext\_to\_71GHz\_RRM\_2 | R17 NR 52.6 - 71GHz (NR\_ext\_to\_71GHz) | RRM Perf requirements | 9.14.7 | Prashant Sharma AI 9.14.9 |
| [104-e][220] NR\_IAB\_enh\_RRM | R17 NR IAB enhancements (NR\_IAB\_enh) | RRM Core requirements maintenance | 9.15.3 | Richie Leo AI 9.15.4 |
| [104-e][221] NR\_feMIMO\_RRM\_1 | R17 NR feMIMO (NR\_feMIMO) | RRM Core requirement maintenance | 9.17.2 | Hua Li AI 9.17.5 |
| [104-e][222] NR\_feMIMO\_RRM\_2 | R17 NR feMIMO (NR\_feMIMO) | RRM perf requirements | 9.17.3 | Yiyan Zhang AI 9.17.5 |
| [104-e][223] NR\_redcap\_RRM\_1 | R17 NR RedCap (NR\_redcap) | RRM Core requirements RRM Perf requirements | 9.18.3 9.18.3.1 9.18.4 | Santhan Thangarasa AI 9.18.6 |
| [104-e][224] NR\_redcap\_RRM\_2 | R17 NR RedCap (NR\_redcap) | RRM Core requirements maintenance - Extended DRX enhancements - RRM measurement relaxations - Others | 9.18.3.2 9.18.3.3 9.18.3.4 | Xusheng Wei AI 9.18.6 |
| [104-e][225] NR\_pos\_enh\_1 | R17 NR ePos (NR\_pos\_enh) | RRM requirements maintenance - Latency reduction of positioning measurement  - Impact on existing UE positioning and RRM RRM Perf | 9.19.1 9.19.1.2 9.19.1.4 9.19.2 | Muhammad Kazmi AI 9.19.3 |
| [104-e][226] NR\_pos\_enh\_2 | R17 NR ePos (NR\_pos\_enh) | RRM requirements maintenance - UE Rx/Tx and/or gNB Rx/Tx timing delay mitigation  - Measurement in RRC\_INACTIVE state  - Enhancements of A-GNSS positioning  - Others | 9.19.1.1 9.19.1.3 9.19.1.5 9.19.1.6 | Qiuge Guo AI 9.19.3 |
| [104-e][227] LTE\_NR\_DC\_enh2 | R17 MR-DC enhacements (LTE\_NR\_DC\_enh2) | RRM Core requirements RRM Perf requirements | 9.20 | Han Jing AI 9.20.3 |
| [104-e][228] NR\_IIOT\_URLLC\_enh | R17 NR IIoT/URLLC (NR\_IIOT\_URLLC\_enh) | RRM Core requirements RRM Perf requirements | 9.21.1 9.21.2 | Lars Dalsgaard AI 9.21.4 |
| [104-e][229] NR\_SL\_relay | R17 NR SL Relay (NR\_SL\_relay) | RRM Core requirements RRM Perf requirements | 9.22 | Roy Hu AI 9.22.3 |
| [104-e][230] NR\_SmallData\_INACTIVE | R17 NR small data transmissions in INACTIVE state (NR\_SmallData\_INACTIVE) | RRM Core requirements RRM Perf requirements | 9.23 | Aijun Cao AI 9.23.3 |
| [104-e][231] NB\_IOTenh4\_LTE\_eMTC6\_RRM | R17 NB-IoT and LTE-MTC (NB\_IOTenh4\_LTE\_eMTC6) | RRM Core requirements RRM Perf requirements | 9.24.4 9.24.5 | Zhongyi Shen AI 9.24.7 |
| [104-e][232] R18\_Spectrum\_RRM | RRM topics for all Rel-18 spectrum related WIs | RRM Core requirements for Rel-18 spectrum related WIs | AI 10 | Muhammad Kazmi AI 10 |
| [104-e][233] FR2\_multiRx\_RRM | R18 NR FR2 multi-Rx chain DL reception | RRM Core requirements for simultaneous DL Rx | 11.8.3 | Qian Yang AI 11.8.4 |
| [104-e][234] NR\_RRM\_enh3 | R18 Even Further RRM enhancement for NR and MR-DC | RRM Core requirements | 11.9 | Jerry Cui AI 11.9.4 |
| [104-e][235] NR\_MG\_enh2 | R18 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps | RRM Core requirements | 11.10 | Ato Yu AI 11.10.4 |
| [104-e][236] NR\_ATG\_RRM | R18 Air-to-ground network | RRM core requirements | 11.12.4 | Shiyuan Wang AI 11.12.5 |
| [104-e][237] NR\_Mob\_enh2 | R18 further mobility enhancement | RRM core requirements | 11.16 | Miao WANG AI 11.16.4 |
| [104-e][238] NR\_DualTxRx\_MUSIM | R18 MUSIM | RRM core requirements | 11.17 | Xusheng Wei AI 11.17.3 |
| [104-e][239] LTE\_NBeMTC\_NTN\_RRM | R18 NB-IoT/eMTC core & perf. requirements for NTN | RRM core requirements | 12.5.5 | Hsuanli Lin AI 12.5.6 |
| [104-e][240] LS\_reply | R18 related | Time difference for MIMO with two TAs (R1-2205593) Feature Group 6-1a(R2-2204009, RP-221870) | 13.1.1Maximum timing MIMO 13.1.4 FG6-1 13.2.1 | Jerry Cui AI 13.4 |

## 4 Up to Rel-16 maintenance for LTE and NR

### 4.5 RRM requirements

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

**R4-2211715 Draft CR on R16 NR positioning measurement period requirements**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211718 Draft CR on R16 NR positioning measurement period requirements**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211836 Draft CR on scheduling restriction for FR2 R15**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211837 Draft CR on scheduling restriction for FR2 R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211838 Draft CR on scheduling restriction for FR2 R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211839 Draft CR on inter-RAT NR-U RSSI and CO measurement without MG in TS36.133 R16**

*Type: draftCR For: Endorsement* 36.133 v16.14.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211840 Draft CR on inter-RAT NR-U RSSI and CO measurement without MG in TS36.133 R17**

*Type: draftCR For: Endorsement* 36.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211855 Draft CR on scheduling restrictions for L3 measurements in FR1 (Rel-15)**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211856 Draft CR on scheduling restrictions for L3 measurements in FR1 (Rel-16)**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211857 Draft CR on scheduling restrictions for L3 measurements in FR1 (Rel-17)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211913 Maintenance CR on scheduling restriction on L1-RSRP measurement (R17)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211932 draftCR on inter-frequency measurement without MG**

*Type: draftCR For: Approval* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2211933 draftCR on inter-frequency measurement without MG**

*Type: draftCR For: Approval* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212253 [draft CR] R15 Maintenance for 38133 Core**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: ZTE Corporation*

**Abstract:**

The definition of N\_TA\_offset is not correctly referred to.

**Decision:** The document was **not treated**.

**R4-2212254 [draft CR] Maintenance for 38133 Core R16 Cat A**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: ZTE Corporation*

**Abstract:**

This is a Cat A CR.

**Decision:** The document was **not treated**.

**R4-2212255 [draft CR] Maintenance for 38133 Core R17 Cat A**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: ZTE Corporation*

**Abstract:**

This is a Cat A CR.

**Decision:** The document was **not treated**.

**R4-2212256 [draft CR] R16 Maintenance for 38133 Core**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2212257 [draft CR] Maintenance for 38133 Core R17 Cat A**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: ZTE Corporation*

**Abstract:**

This is a Cat A CR.

**Decision:** The document was **not treated**.

**R4-2212922 Correction to NR SCell interruption requirements 36.133\_r15**

*Type: draftCR For: Endorsement* 36.133 v15.17.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212923 Correction to NR SCell interruption requirements 36.133\_r16**

*Type: draftCR For: Endorsement* 36.133 v16.14.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212924 Correction to NR SCell interruption requirements 36.133\_r17**

*Type: draftCR For: Endorsement* 36.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212925 Correction to NR SCell interruption requirements 38.133\_r15**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212926 Correction to NR SCell interruption requirements 38.133\_r16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212927 Correction to NR SCell interruption requirements 38.133\_r17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212938 Correction to NR sidelink core requirements\_r16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212939 Correction to NR sidelink core requirements\_r17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212944 Draft CR on maintenance on SCell activation in NR-U Rel-16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212947 Draft CR on maintenance on SCell activation in NR-U Rel-17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213041 Draft CR to TS 38.133 Correction to conditional handover requirements(Rel-16)**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213042 Draft CR to TS 38.133 Correction to conditional handover requirements(Rel-17)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213043 Draft CR to TS 38.133 Correction to conditional PSCell change requirements(Rel-16)**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213044 Draft CR to TS 38.133 Correction to conditional PSCell change requirements(Rel-17)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213046 Draft CR to 38.133 correction to NR positioning measurement requirements**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213047 Draft CR to 38.133 correction to NR positioning measurement requirements**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213296 Draft CR on Link Recovery Procedures for TS38.133 R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: (Rel-16)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2213297 Draft CR on Link Recovery Procedures for TS38.133 R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2213467 Discussion on maintaining PL-RS switching delay requirements in R16**

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

**Decision:** The document was **not treated**.

**R4-2213468 DraftCR on maintaining PL-RS switching delay requirements R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213469 DraftCR on maintaining PL-RS switching delay requirements R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213497 Discussion on remaining issue in PRS measurement period**

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

**Decision:** The document was **not treated**.

**R4-2213498 CR on PRS meausurement period R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213499 CR on PRS meausurement period R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213502 CR on inter-frequency measurement without MG R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213503 CR on inter-frequency measurement without MG R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213504 CR on CSI-RS measurement requirements R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213505 CR on CSI-RS measurement requirements R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213879 Draft CR on Link Recovery Procedures for TS38.133 R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: (Rel-16)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2213880 Draft CR on Link Recovery Procedures for TS38.133 R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2213934 Clarification on fine timing requirements for known and unknown cell in HO in FR1**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Ericsson*

**Abstract:**

provides clarification on fine timing requirements in HO

**Decision:** The document was **not treated**.

**R4-2213935 SCell activation maintenance in Rel-15**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Ericsson*

**Abstract:**

Maintenance CR on SCell activation

**Decision:** The document was **not treated**.

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

**R4-2211541 Draft CR to FR2 NSA CSI-RS based L1-RSRP measurement**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Anritsu Corporation*

**Abstract:**

Change SR.3.1 TDD -> SR.3.3 TDD, CR.3.1 TDD -> CR.3.2 TDD, and CCR.3.1 TDD -> CCR.3.7 TDD in Table A.5.6.3.3.2-1 and Table A.5.6.3.4.2-1

**Decision:** The document was **not treated**.

**R4-2211542 Draft CR to FR2 NSA CSI-RS based L1-RSRP measurement**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Anritsu Corporation*

**Abstract:**

Change SR.3.1 TDD -> SR.3.3 TDD, CR.3.1 TDD -> CR.3.2 TDD, and CCR.3.1 TDD -> CCR.3.7 TDD in Table A.5.6.3.3.2-1 and Table A.5.6.3.4.2-1

**Decision:** The document was **not treated**.

**R4-2211543 Draft CR to FR2 NSA CSI-RS based L1-RSRP measurement**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Anritsu Corporation*

**Abstract:**

Change SR.3.1 TDD -> SR.3.3 TDD, CR.3.1 TDD -> CR.3.2 TDD, and CCR.3.1 TDD -> CCR.3.7 TDD in Table A.5.6.3.3.2-1 and Table A.5.6.3.4.2-1

**Decision:** The document was **not treated**.

**R4-2211544 Correction on the FR2 inter-frequency relative RSRP accuracy**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Anritsu Corporation*

**Abstract:**

This draft CR is to add some supplemental definitions in the spec based on the previously submitted CR R4-2203567 (postponed).

**Decision:** The document was **not treated**.

**R4-2211545 Correction on the FR2 inter-frequency relative RSRP accuracy**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Anritsu Corporation*

**Abstract:**

This draft CR is to add some supplemental definitions in the spec based on the previously submitted CR R4-2203567 (postponed).

**Decision:** The document was **not treated**.

**R4-2211546 Correction on the FR2 inter-frequency relative RSRP accuracy**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Anritsu Corporation*

**Abstract:**

This draft CR is to add some supplemental definitions in the spec based on the previously submitted CR R4-2203567 (postponed).

**Decision:** The document was **not treated**.

**R4-2211587 Correction of Configuration Parameters for Test 1 in Test Case A.7.1.11**

*Type: CR For: Agreement* 36.133 v13.22.0 CR-7165 rev Cat: A (Rel-13)  
  
 *Source: STMicroelectronics*

**Abstract:**

In Meeting 103-e, R4-2210985 CR 7148 was approved to correct the configuration parameters for Test 1 in Test Case A.7.1.11 for 36.133 release 17. The same change needs to be done for earlier releases to keep consistency of specification through all releas

**Decision:** The document was **not treated**.

**R4-2211588 Correction of Configuration Parameters for Test 1 in Test Case A.7.1.11**

*Type: CR For: Agreement* 36.133 v14.22.0 CR-7166 rev Cat: A (Rel-14)  
  
 *Source: STMicroelectronics*

**Abstract:**

In Meeting 103-e, R4-2210985 CR 7148 was approved to correct the configuration parameters for Test 1 in Test Case A.7.1.11 for 36.133 release 17. The same change needs to be done for earlier releases to keep consistency of specification through all releas

**Decision:** The document was **not treated**.

**R4-2211589 Correction of Configuration Parameters for Test 1 in Test Case A.7.1.11**

*Type: CR For: Agreement* 36.133 v15.17.0 CR-7167 rev Cat: A (Rel-15)  
  
 *Source: STMicroelectronics*

**Abstract:**

In Meeting 103-e, R4-2210985 CR 7148 was approved to correct the configuration parameters for Test 1 in Test Case A.7.1.11 for 36.133 release 17. The same change needs to be done for earlier releases to keep consistency of specification through all releas

**Decision:** The document was **not treated**.

**R4-2211590 Correction of Configuration Parameters for Test 1 in Test Case A.7.1.11**

*Type: CR For: Agreement* 36.133 v16.14.0 CR-7168 rev Cat: A (Rel-16)  
  
 *Source: STMicroelectronics*

**Abstract:**

In Meeting 103-e, R4-2210985 CR 7148 was approved to correct the configuration parameters for Test 1 in Test Case A.7.1.11 for 36.133 release 17. The same change needs to be done for earlier releases to keep consistency of specification through all releas

**Decision:** The document was **not treated**.

**R4-2211601 CR: Corrections on LTE V2X Resource Selection Test**

*Type: draftCR For: Endorsement* 36.133 v14.22.0 CR- rev Cat: F (Rel-14)  
  
 *Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2211602 (mirror R15)Corrections on LTE V2X Resource Selection Test**

*Type: draftCR For: Endorsement* 36.133 v15.17.0 CR- rev Cat: A (Rel-15)  
  
 *Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2211603 (mirror R16)Corrections on LTE V2X Resource Selection Test**

*Type: draftCR For: Endorsement* 36.133 v16.14.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2211604 (mirror R17)Corrections on LTE V2X Resource Selection Test**

*Type: draftCR For: Endorsement* 36.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2211608 Draft CR to TS 38.133: Corrections to NR RRM test cases (Rel 15)**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Rohde & Schwarz*

**Decision:** The document was **not treated**.

**R4-2211609 Draft CR to TS 38.133: Corrections to NR RRM test cases (Rel 16)**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Rohde & Schwarz*

**Decision:** The document was **not treated**.

**R4-2211610 Draft CR to TS 38.133: Corrections to NR RRM test cases (Rel 17)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Rohde & Schwarz*

**Decision:** The document was **not treated**.

**R4-2211611 Draft CR to TS 38.133: Corrections to NR RSTD requirements and test cases (Rel 16)**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Rohde & Schwarz*

**Decision:** The document was **not treated**.

**R4-2211612 Draft CR to TS 38.133: Corrections to NR RSTD requirements and test cases (Rel 17)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Rohde & Schwarz*

**Decision:** The document was **not treated**.

**R4-2211668 Draft CR on HST FR1 L1-RSRP test case**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211669 Correction to FR2 cell re-selection test case**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211670 Correction to FR2 cell re-selection test case**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211671 Correction to FR2 cell re-selection test case**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211716 Draft CR on R16 NR positioning measurement accuracy requirements**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211717 Draft CR on R16 NR positioning test cases**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211719 Draft CR on R16 NR positioning measurement accuracy requirements**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211720 Draft CR on R16 NR positioning test cases**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211887 On RRM performance maintenance**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211888 draftCR on applicabiltiy for test Cases involving E-UTRA/FR1 and FR2 carriers (R15)**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211889 draftCR on applicabiltiy for test Cases involving E-UTRA/FR1 and FR2 carriers (R16)**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211890 draftCR on applicabiltiy for test Cases involving E-UTRA/FR1 and FR2 carriers (R17)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212085 CR on TS38.133 for TC of CSI-RS inter-freq measurement R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212086 CR on TS38.133 for TC of CSI-RS inter-freq measurement R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212162 CR: SRS carrier switching configuration correction**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Qualcomm Ltd.*

**Decision:** The document was **not treated**.

**R4-2212163 CR: SRS carrier switching configuration correction**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Qualcomm Ltd.*

**Decision:** The document was **not treated**.

**R4-2212195 DraftCR - Correction of margins for UE Rx-Tx accuracy requirements**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2212196 DraftCR - Correction of margins for UE Rx-Tx accuracy requirements**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2212251 [draft CR] R16 Maintenance for 38133 test cases**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2212252 [draft CR] Maintenance for 38133 test cases R17 Cat A**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: ZTE Corporation*

**Abstract:**

This is a Cat A CR.

**Decision:** The document was **not treated**.

**R4-2212288 draftCR for test configuration and requirement correction of CSI-RS based RLM OOS test in NR SA**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: (Rel-15)  
  
 *Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212289 draftCR for test configuration and requirement correction of CSI-RS based RLM OOS test in NR SA**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: (Rel-16)  
  
 *Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212290 draftCR for test configuration and requirement correction of CSI-RS based RLM OOS test in NR SA**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212396 CR on TS38.133 for applicable DRX cycle in NR-DC and NE-DC inter-frequency measurement**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212397 CR on TS38.133 for applicable DRX cycle in NR-DC and NE-DC inter-frequency measurement**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212522 Draft CR on TC for known PSCell addition in R15**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2212523 Draft CR on TC for known PSCell addition in R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2212524 Draft CR on TC for known PSCell addition in R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2212525 Draft CR on TC for known PSCell addition for CCA in R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2212526 Draft CR on TC for known PSCell addition for CCA in R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2212529 Draft CR on TC for typo in SCell activation in R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2212928 Correction to Rel-15 FR1 test cases\_r15**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212929 Correction to Rel-15 FR1 test cases\_r16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212930 Correction to Rel-15 FR1 test cases\_r17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212931 Correction to Rel-15 FR2 test cases\_r15**

*Type: draftCR For: Endorsement* 38.133 v15.18.0 CR- rev Cat: F (Rel-15)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212932 Correction to Rel-15 FR2 test cases\_r16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: A (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212933 Correction to Rel-15 FR2 test cases\_r17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212934 Correction to Rel-16 FR1 test cases\_r16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212935 Correction to Rel-16 FR1 test cases\_r17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212936 Correction to Rel-16 FR2 test cases\_r16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212937 Correction to Rel-16 FR2 test cases\_r17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212940 Correction to NR sidelink test cases\_r16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212941 Correction to NR sidelink test cases\_r17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212942 Correction to DAPS HO test cases\_r16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212943 Correction to DAPS HO test cases\_r17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212945 Draft CR on test cases of SCell activation in NR-U Rel-17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2212946 Draft CR on test cases of SCell activation in NR-U Rel-16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213470 DraftCR on correction of eMIMO test cases R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213471 DraftCR on correction of eMIMO test cases R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213472 DraftCR on maintaining interruption test cases for NR V2X R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213473 DraftCR on maintaining interruption test cases for NR V2X R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213500 CR on accuracy requirements for positioning measurement R16**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213501 CR on accuracy requirements for positioning measurement R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213932 Draft CR to TS 38.133: Correction to NR UE Rx-Tx time difference measurement accuracy requirements**

*Type: draftCR For: Endorsement* 38.133 v16.12.0 CR- rev Cat: F (Rel-16)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213933 Draft CR to TS 38.133: Correction to NR UE Rx-Tx time difference measurement accuracy requirements**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: A (Rel-17)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

### 4.8 Moderator summary and conclusions

**[104-e][201] R15\_R16\_Maintenance, AI 4.5 – Li Zhang**

**R4-2214121 Email Discussion Summary for [104-e][201] Maintenance\_R15\_R16\_RRM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

## 5 Rel-17 maintenance for LTE and NR

### 5.2 Rel-17 non-spectrum related WIs maintenance

#### 5.2.3 Support for Multi-SIM devices for LTE/NR

**R4-2211891 On R17 MUSIM RRM remianing issue**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212030 CR to MUSIM gap configuration for MUSIM requirements applicability**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2442 rev Cat: F (Rel-17)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212686 Correction of UE behavior outside gaps**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2478 rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2213749 Formal CR to 38.133: Corrections on MUSIM gaps**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2548 rev Cat: F (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

#### 5.2.4 Other NR/LTE WIs and Rel-17 TEI

##### 5.2.4.3 RRM requirements

**R4-2211954 Correction on Measurements of inter-frequency NR cells**

*Type: CR For: Approval* 38.133 v17.6.0 CR-2432 rev Cat: F (Rel-17)  
  
 *Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212762 Remaining issue for Idle mode**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining issues for Idle mode

**Decision:** The document was **not treated**.

**R4-2212763 CR on cell reselection in Idle mode**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2482 rev Cat: F (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

This draft CR captures cell reselection in Idle mode

**Decision:** The document was **not treated**.

**R4-2212764 CR on cell selection in Idle mode for NR-U**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2483 rev Cat: F (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

This draft CR updates the timer to initiate the cell selection in NR-U Idle mode

**Decision:** The document was **not treated**.

**R4-2213936 Number of DL CCs in FR2 for NE-DC**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

Number of carriers for NR SA needs to be updated

**Decision:** The document was **not treated**.

**R4-2213937 General approach to develop R17 FR1/LTE+FR2 test cases**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution, we provieds view on FR1+FR2 testing methodology

**Decision:** The document was **not treated**.

### 5.3 Moderator summary and conclusions

**[104-e][202] Maintenance\_R17\_RRM, AI 5.2.3 and 5.2.4.3 – Yang Tang**

**R4-2214122 Email Discussion Summary for [104-e][202] Maintenance\_R17\_RRM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

Please refer to the latest tdoc list at <https://www.3gpp.org/ftp/tsg_ran/WG4_Radio/TSGR4_104-e/Inbox/Tdoclist>

**Conclusions after 2nd round**

.

## 6 LS response to ITU

## 7 Rel-17 feature list

## 8 Rel-17 spectrum related WIs for NR

## 9 Rel-17 non-spectrum related work items for NR and LTE

### 9.3 RF requirements enhancement for NR frequency range 1 (FR1)

#### 9.3.2 RRM core maintenance and RRM performance requirements

**R4-2212975 Test case for R17 Tx switching enhancement**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2498 rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

#### 9.3.3 Moderator summary and conclusions

**[104-e][203] NR\_RF\_FR1-enh\_RRM, AI 9.3.2 – Jing Han**

**R4-2214123 Email Discussion Summary for [104-e][203] NR\_RF\_FR1\_enh\_RRM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

### 9.4 NR RF requirement enhancements for frequency range 2 (FR2)

#### 9.4.5 RRM core requirement maintenance

**R4-2213938 Draft CR on UL gaps for BPS**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2556 rev Cat: F (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

In this contribution, we provieds value of X for UL gaps.

**Decision:** The document was **not treated**.

#### 9.4.6 RRM performance requirements

##### 9.4.6.1 Inter-band UL CA for IBM

**R4-2212858 Discussion on remaining test cases for IBM inter-band FR2 UL CA**

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

**Abstract:**

Discussion on remaining test cases for IBM inter-band FR2 UL CA

**Decision:** The document was **not treated**.

**R4-2212859 CR for testcase of UE UL carrier RRC reconfiguration in FR2**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2487 rev Cat: B (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Formal CR for the endorsed draftCR (R4-2211081) in 103e meeting. To introduce the test cases for UE UL carrier RRC reconfiguraiton delay and interruption in FR2.

**Decision:** The document was **not treated**.

#### 9.4.7 Moderator summary and conclusions

**[104-e][204] NR\_RF\_FR2\_req\_enh2\_RRM, AI 9.4.5 and 9.4.6.1 – Lei Du**

**R4-2214124 Email Discussion Summary for [104-e][204] NR\_RF\_FR2\_req\_enh2\_RRM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

**GTW on Aug-22**

**Topic #1: RRM core requirement maintenance**

**Issue 1-1 Test cases for FR2 inter-band UL CA for IBM**

* Proposals:
  + Option 1: Test case for FR2 inter-band UL CA SCell activation delay with IBM can reuse TC 1-5 and TC 1-6 for PUCCH SCell activation and deactivation delay requirements of FR2 known and unknown cell with inter-band FR2 PCell in PUCCH SCell activation in FeRRM WI directly (Nokia)

**Moderator’s comments:** From the comments received, there seems to be two scenarios for FR2 inter-band UL CA:

Case 1: an SCell is always configured with DL+UL. This is also the understanding from RF people.

Case 2: an SCell is UL only CC. We don’t have any core requirements for this case.

I would propose taking Case 1 as assumption for FR2 inter-band UL CA. Under this assumption, can we conclude existing SCell activation TCs in FR2 inter-band scenarios can be applied? And for Case 2, it is probably too late to open the discussion in this WI. Please comment in 2nd round if you see the necessity.

*Moderator’s Proposal:*

* *In FR2 inter-band UL CA, an SCell is assumed always configured with DL+UL.*
* *Existing SCell activation TCs in FR2 inter-band scenarios can be applied.*

*Recommendations for 2nd round:* Please companies to check if above proposal is agreeable.

**Discussions:**

Ericsson: we are ok with proposal. We don’t have SUL in FR2.

Nokia: we support the proposal.

**Agreement:**

Regarding test cases for FR2 inter-band UL CA for IBM

* In FR2 inter-band UL CA, an SCell is assumed always configured with DL+UL.
* Existing SCell activation TCs in FR2 inter-band scenarios can be applied.

### 9.6 Enhancement for NR high speed train scenario in FR1

#### 9.6.1 RRM core requirement maintenance

**R4-2211930 CR on measurement requirements for FR1 HST**

*Type: CR For: Approval* 38.133 v17.6.0 CR-2431 rev Cat: F (Rel-17)  
  
 *Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212415 Maintenance CR for Rel-17 HST in FR1 on 38.133**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2471 rev Cat: F (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2213015 CR on the enhancement for inter-frequency measurement in idle mode for HST**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2508 rev Cat: F (Rel-17)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213338 RRM remaining issues for HST FR1**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

RRM remaining issues for HST FR1

**Decision:** The document was **not treated**.

#### 9.6.2 RRM performance requirements

**R4-2211594 FR1 HST requirement**

*Type: discussion For: (not specified)  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2211672 Discussion on remaining issues of performance requirements for HST FR1**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211673 Draft CR on test case for inter-frequency measurement in SA for HST FR1**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211904 draftCR on HST CA enhancement on deactivated SCell (EN-DC)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211945 Discussion on FR1 HST RRM enhancement**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212414 Discussion on Rel-17 HST in FR1**

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

**Decision:** The document was **not treated**.

**R4-2212657 Discussion on L1-SINR measurement accuracy in R17 FR1 HST WI**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2212976 Test case for CA: enhancement on deactivated SCell (SA)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213339 draft CR on Inter-frequency with MG EN-DC for HST FR1**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

Inter-frequency with MG EN-DC for HST FR1

**Decision:** The document was **not treated**.

**R4-2213432 L1-SINR measurements for Rel-17 FR1 HST**

*Type: other For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution, we provide our views on the upper bound of L1-SINR and inter-frequency measurement.

**Decision:** The document was **not treated**.

#### 9.6.4 Moderator summary and conclusions

**[104-e][205] NR\_HST\_FR1\_enh\_RRM, AI 9.6.1 and 9.6.2 – Jingjing Chen**

**R4-2214125 Email Discussion Summary for [104-e][205] NR\_HST\_FR1\_enh\_RRM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

**GTW on Aug-19**

**Topic #2: RRM performance requirements**

**Issue 2-1-1: upper bound of side condition for L1-SINR measurement accuracy**

* Proposals
  + Option 1 (QC, CATT, CMCC, MTK): for L1-SINR measurement accuracy requirements, the upper bound of the side condition is same as R16 intra-frequency SS-SINR, which is 5dB
  + Option 2 (vivo, Nokia, Ericsson):
    - For DPS 1a scenario, if max doppler shift does not beyond TRS tracking ability,
    - No impact to L1-SINR measurement accuracy requirements if the measured RS is associated with active TCI of the UE in DPS 1a scenario, i.e. legacy performance requirements still apply to DPS 1a scenario.
    - No accuracy requirements for L1-SINR measurements on RSs that are not associated with active TCI of the UE in DPS 1a scenario when side condition is above 5dB.
    - For DPS 1b or HST-SFN scenario, no accuracy requirements for L1-SINR measurements when side condition is above 5dB.

**Discussions:**

CMCC: we need to move forward.

Qualcomm: for SINR measurement accuracy, ICI always exists no matter whether the UE measures serving or neighbour cells. Having different requirements among DPS 1a 1b HSTSFN does not make much sense in terms of upper bound.

Vivo: ICI is caused by inperfect DL sync. For DPS 1a the UE achieves good sync. For dedicated IMR, little impact.

Nokia: based on the analysis on the HST FR2, we need to differentiate the type 1 L1-SINR measurements from type 2 and type 3. So we need to differentiate the applicability of L1-SINR accuracy side condition upper bound. Only type 1 L1-SINR meaurements need the upper bound.

Apple: we support option 1.

Qualcomm: option 2 is demanding complexity in implementation. 2 CSI-RS symbols are needed for tracking frequency offset.

Ericsson: we support option 2. Since it looks like a compromise.

MTK: if the beam is associated with the active TCI, the UE can have good accuracy. If not, we need 5dB upper bound.

Nokia: we can compromise to introduce the upper bound only for type 1 SINR measuremetns which is CSI-RS based CMR + no dedicated IMR.

CMCC: we are not ok to introduce only for type 1. Option 1 is the minimum requirement.

**Tentative Agreement:**

For L1-SINR measurement accuracy requirements, the upper bound of the side condition is [6dB].

**Issue 2-2-1: upper bound of side condition for inter-frequency SS-SINR measurement accuracy**

* Proposals
  + Option 1 (QC, CATT, CMCC, MTK): for inter-frequency SS-SINR measurement accuracy requirements, the upper bound of the side condition is same as R16 intra-frequency SS-SINR, which is 5dB
  + Option 2 (Nokia): determine the upper bound of the side condition based on a typical inter-frequency scenario for FR1 HST

**Discussions:**

Nokia: we can compromise to option 1 provided that ‘the upper cound of side condition = 5dB for inter-frequency SS SINR accuracy is derived assuming operating frequency is the same as the intra-frequency case. The upper bound condition should be reassessed if the assumption does not hold.’ is captured.

CMCC: how does inter-frequncy is the same as intra-frequency? Situation is the same between inter and intra frequency cases.

Apple: same question as CMCC.

### 9.8 Further RRM enhancement for NR and MR-DC

#### 9.8.1 RRM core requirement maintenance

**R4-2212266 38133CR on SRS antenna switching - Resubmission**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2458 rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2212267 38133CR on PUCCH SCell activation delay requirement - Resubmission**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2459 rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

##### 9.8.1.1 SRS antenna port switching

**R4-2211600 SRS antenna switching requirement**

*Type: discussion For: (not specified)  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2212268 38133CR on SRS antenna switching in MR-DC**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2460 rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2212948 CR on SRS antenna port switching requirements 36.133**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2496 rev Cat: F (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.8.1.2 HO with PSCell

**R4-2213948 CR on correction of fine timing for HO with PSCell when PSCell is on CCA in EN-DC to EN-DC scenario**

*Type: CR For: Agreement* 36.133 v17.6.0 CR-7176 rev Cat: F (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

In this CR, we provide correction for fine timing for HO with PSCell when PSCell is on CCA in EN-DC to EN-DC scenario

**Decision:** The document was **not treated**.

**R4-2213949 CR on correction of fine timing for HO with PSCell when PSCell is on CCA in NR SA to EN-DC scenario**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2560 rev Cat: F (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

In this CR, we provide correction for fine timing for HO with PSCell when PSCell is on CCA in NR SA to EN-DC scenario

**Decision:** The document was **not treated**.

##### 9.8.1.3 PUCCH SCell activation/deactivation

**R4-2211630 Discussion on remaining issues for PUCCH Scell activation**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211631 Completing PUCCH SCell activation requirement**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2421 rev Cat: F (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211844 On PUCCH SCell activation requirement and testing**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212271 Open issues on PUCCH SCell activation**

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

**Decision:** The document was **not treated**.

**R4-2212272 38133CR on PUCCH SCell activation delay**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2461 rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2212517 Discussion on PUCCH SCell activation and deactivation**

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

**Decision:** The document was **not treated**.

**R4-2212949 Discussion on maintenance on PUCCH SCell activation requirements**

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

**Decision:** The document was **not treated**.

**R4-2212950 CR on interruption of PUCCH SCell activation**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2497 rev Cat: F (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213950 Remaining issues in SCell activation/deactivation with PUCCH**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we provide our views on interruption length and also provide some clarification to CSI reporting

**Decision:** The document was **not treated**.

**R4-2213951 Maintenance CR on SCell activation/deactivation with PUCCH**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2561 rev Cat: F (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

In this CR we provide interruption length and clarification to CSI reporting

**Decision:** The document was **not treated**.

#### 9.8.2 RRM performance requirements

##### 9.8.2.1 SRS antenna port switching

**R4-2211632 Discussion on configuration for test case for SRS antenna port switching**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211841 On testing configuration for SRS antenna port switching**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212032 draft CR on TC6 for NR FR1-E-UTRAN interruptions at NR SRS antenna port switching**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212122 DraftCR to TS 38.133: NR FR1 interruptions at NR SRS antenna port switching with more than 1 SRS symbol in NR-CA**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2212269 Test configuration for SRS antenna port switching**

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

**Decision:** The document was **not treated**.

**R4-2212270 draftCR on TC1 on SRS antenna switching in EN-DC**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2212658 Discussion on test cases for R17 SRS antenna switching interruption requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2212659 Draft CR on test case for NR FR1 interruptions at NR SRS antenna port switching with 1 SRS symbol in NR-CA**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2212951 Discussion on performance requirements for SRS antenna port switching**

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

**Decision:** The document was **not treated**.

**R4-2212952 Draft CR on TC for NR SRS antenna port switching with more than 1 SRS symbol in asynchronous EN-DC**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.8.2.2 HO with PSCell

**R4-2211619 RRM performance requirements for HO with PSCELL**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2211633 Discussion on test case for handover with PSCell**

*Type: discussion For: Discussion  
 Source: CATT*

**Abstract:**

Proposal 1: The design for FR1+FR2 test cases should be delayed until testability issues are solved.

**Decision:** The document was **not treated**.

**R4-2211634 Test case of handover with PSCell from EN-DC to EN-DC with known target PSCell in FR1**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: CATT*

**Abstract:**

Introducing the test case for handover with PSCell from EN-DC to EN-DC with known target PSCell in FR1.

This CR is represented based on R4-2211006 with saveral editorial modification.

**Decision:** The document was **not treated**.

**R4-2211842 On testing configuration for HO with PSCell**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211843 Draft CR on TC for HO with PSCell from NR-SA to EN-DC with parallel processing and known FR2 PSCell in TS38.133 R17**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211956 CR on test case for Handover with PSCell from NR SA to EN-DC with sequential processing**

*Type: CR For: Approval* 38.133 v17.6.0 CR-2433 rev Cat: B (Rel-17)  
  
 *Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212033 draft CR on TC2 for HO with PSCell from NR SA to EN-DC with parallel processing**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212129 DraftCR to TS 38.133: Handover with PSCell from NR-DC to NR-DC with sequential processing**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2212660 draft CR on test cases for Handover with PSCell from NE-DC to NE-DC with known target PSCell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2212860 Correction on HO with PSCell test cases**

*Type: draftCR For: Agreement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Correction on HO with PSCell test cases

**Decision:** The document was **not treated**.

**R4-2212953 Draft CR on TC for HO with PSCell from NR SA to EN-DC**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213747 Discussion on the testability of FR1+FR2 TCs for HO with PSCell**

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

**Decision:** The document was **not treated**.

**R4-2213952 TC for EN-DC to EN-DC Handover with PSCell using CCA with known target PSCell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

We provide TC for EN-DC to EN-DC Handover with PSCell using CCA with known target PSCell

**Decision:** The document was **not treated**.

**R4-2213953 TC for NR SA to EN-DC Handover with PSCell using CCA with known target PSCell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

We provide TC for EN-DC to EN-DC Handover with PSCell using CCA with known target PSCell

**Decision:** The document was **not treated**.

##### 9.8.2.3 PUCCH SCell activation/deactivation

**R4-2211635 TC1-6 for PUCCH SCell activation and deactivation delay requirements of FR2 unknown cell with inter-band FR2 PCell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: CATT*

**Abstract:**

Introducing TC for PUCCH SCell activation and deactivation delay requirements of FR2 unknown cell with inter-band FR2 PCell

**Decision:** The document was **not treated**.

**R4-2211636 TC2-2 for PUCCH SCell activation and deactivation delay requirements of FR1 unknown cell (All NR cells in FR1)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: CATT*

**Abstract:**

Introducing following TC for PUCCH SCell activation and deactivation delay requirements of FR1 unknown cell (All NR cells in FR1)

**Decision:** The document was **not treated**.

**R4-2211637 Big CR on test cases of Rel-17 FeRRM - PUCCH SCell activation**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2422 rev Cat: B (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211845 Draft CR on TC for PUCCH SCell activation and deactivation delay requirements of FR1 unknown PUCCH SCell and one FR1 unknown SCell (All NR cells in FR1)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211846 Draft CR on TC for PUCCH SCell activation and deactivation delay requirements of FR2 unknown PUCCH SCell and one FR2 unknown SCell with FR2 PSCell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212034 draft CR on TC10 for PUCCH SCell activation and deactivation delay requirements of FR1 known cell for EN-DC**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212181 Test framework for FR2 unknown PUCCH SCell Activation**

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

**Decision:** The document was **not treated**.

**R4-2212183 draft CR of TC 1-4 and 1-10 (FR2 unknown PUCCH SCell Activation)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2212273 draftCR on TC1-5 and TC2-6 PUCCH SCell activation in FR2 inter-band**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2212519 Draft CR on TC for PUCCH SCell activation and deactivation delay of FR1 unknown cell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2212520 Draft CR on FR2 TC for PUCCH SCell activation and deactivation delay of known PUCCH SCell and one unknown SCell with PSCell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2212954 Discussion on performance requirements for PUCCH SCell activation**

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

**Decision:** The document was **not treated**.

**R4-2212955 Draft CR on TC for PUCCH SCell activation and deactivation**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213460 draft CR for TC for PUCCH SCell activation and deactivation delay requirements of FR1 known PUCCH SCell and one FR1 unknown SCell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213954 TC for PUCCH SCell activation and deactivation delay requirements of FR2 known cell with FR1 PCell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

We provide TC for PUCCH SCell activation and deactivation delay requirements of FR2 known cell with FR1 PCell

**Decision:** The document was **not treated**.

**R4-2213955 TC for PUCCH SCell activation and deactivation delay requirements of FR2 known PUCCH SCell and one FR2 unknown SCell with FR2 PCell**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

We provide TC for PUCCH SCell activation and deactivation delay requirements of FR2 known PUCCH SCell and one FR2 unknown SCell with FR2 PCell

**Decision:** The document was **not treated**.

**R4-2213956 TC for PUCCH SCell activation and deactivation delay requirements of FR1 unknown PUCCH SCell and one FR1 unknown SCell (All NR cells in FR1)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

We provide TC for PUCCH SCell activation and deactivation delay requirements of FR1 unknown PUCCH SCell and one FR1 unknown SCell (All NR cells in FR1)

**Decision:** The document was **not treated**.

#### 9.8.3 Moderator summary and conclusions

**[104-e][208] NR\_RRM\_enh2\_1, AI 9.8.1, 9.8.1.1 and 9.8.2.1 – Jerry Cui**

**R4-2214128 Email Discussion Summary for [104-e][208] NR\_RRM\_enh2\_1**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

**GTW on Aug-22**

**Topic #3: SRS antenna port switching performance part**

**Issue 3-1-1: General configuration – SCS and BW**

Agreements in R4-2210996 (RAN4#103e):

* for configuration of test cases for SRS antenna port switching, to consider following cases:
  + 15 kHz SSB SCS with 10 MHz bandwidth for FDD
  + 15 kHz SSB SCS with 10 MHz bandwidth for TDD
  + 30 kHz SSB SCS with 40 MHz bandwidth for TDD
* Proposals
  + Option 1 (Huawei): above configurations applies for both aggressor cell and victim cell, and such configuration may be different between aggressor cell and victim cell. The configuration for different cells can be chosen independently in the test.
    - Option 1a (vivo): The test case configuration applies for both aggressor CC and victim CC, and such configuration may be different between aggressor cell and victim cell. It is preferred that aggressor can only be within TDD band.
  + Option 2 (Apple): above configurations applies for both aggressor cell and victim cell, and such configuration is same between aggressor and victim.
    - Option 2a (CATT): Same configuration for aggressor cell and victim cell should be prioritized if supported on these operating bands. If same configuration is not supported on the selected bands, different configurations between aggressor cell and victim cell can be used.
  + Option 3 (Nokia): The agreed configuration on SCS and BW applies to aggressor cell. For victim cell, only TDD mode with the same SCS and BW configuration is considered.

**Discussions:**

Apple: We can compromise to option 1. We d like to add the note that the UE is required to test only one of the combinations.

Vivo: we support option 1. For aggressor cell it is TDD band. So 1a is better.

Huawei: we support option 1. RAN5 demands that there is no restriction on the combination so that there is certain combbiantion without any TC. One approach is to state in the test requirements that the configurations of SCS and BW between victim and aggressor cells are chosen independently.

MediaTek: we are fine with option 1. Coverage is important so that test cases are close to deployments.

Nokia: one difference between 1 and 3 is that TDD+TDD and TDD+FDD are different. Maybe we need to decide the list of combos here.

Qualcomm: it is different between port and carrier switchings in terms of TDD band aggressors.

CATT: we can compromise to option 1. It is realistic.

Huawei: To Nokia, to specify the list for EN-DC cases, it is difficult to list all of the combos in the spec.

Vivo: to QC, SRS port switching is mainly operated under TDD cell. But we are ok to also specify FDD aggressor test cases.

**Agreement:**

* for configuration of test cases for SRS antenna port switching, to consider following cases:
  + 15 kHz SSB SCS with 10 MHz bandwidth for FDD
  + 15 kHz SSB SCS with 10 MHz bandwidth for TDD
  + 30 kHz SSB SCS with 40 MHz bandwidth for TDD
* Above configurations apply for both aggressor cell and victim cell, and such configuration may be different between aggressor cell and victim cell. The configuration of victim and aggresor cells can be chosen independently in the test.
* Add a note in the test requirements that the UE is required to test only one of the supported combinations.

**Issue 3-2-1: Special slot configuration to accommodate 6 SRS symbols**

* Proposals (Qualcomm): Since the start position is 5, we need 6 UL symbols in the special slot to accommodate SRS symbols, and the special slot configuration is below

|  |  |
| --- | --- |
| SCS | Special slot configuration |
| 15kHz | S = ‘6DL: 2GP: 6UL’ |
| 30kHz | S = ‘4DL: 4GP: 6UL’ |

**Discussions:**

Nokia: We wonder if this is also applied to scenario 1. We prefer to apply the existing config for S slot for scenario 1.

Qualcomm: we prefer to have the same S slot config for all the SRS port switching test cases. It simplifies the test setup. We have the similar situation as in the SRS carrier switching tests. They also demand 6UL.

Huawei: scenario 1 has also some problem with the legacy config for S slot.

**Agreement:**

For Scenario 2 in SRS antenna port switching test cases, new TDD configurations are introduced to have 6UL symbos in the special slot.

|  |  |
| --- | --- |
| SCS | Special slot configuration |
| 15kHz | S = ‘6DL: 2GP: 6UL’ |
| 30kHz | S = ‘4DL: 4GP: 6UL’ |

**Issue 3-1-2: SRS configuration for scenario 1 sync case (symbol-level interruption)**

Agreements in R4-2210996 (RAN4#103e):

* Counting missed ACK/NACK number (it’s a slot level interruption counting)
  + Option 1:
    - Define test cases for scenario 1 sync case by allocating the SRS resource at the last but one symbol of slot and the interruption on victim CCs should be no longer than 1 slot (subframe for E-UTRA) when the SCS of aggressor CC and victim CC is 15/30 KHz.
  + Option 2:
    - Define test cases for scenario 1 sync case by allocating the SRS resource before the last two symbols or more of slot and the interruption on victim CCs should be no longer than 1 slot (subframe for E-UTRA) when the SCS of aggressor CC and victim CC is 15/30 KHz.
* Proposals
  + Option 1 (CATT, vivo) : Define test cases for scenario 1 sync case by allocating the SRS resource at the last but one symbol of slot and the interruption on victim CCs should be no longer than 1 slot (subframe for E-UTRA) when the SCS of aggressor CC and victim CC is 15/30 KHz.
  + Option 2 (Apple, Nokia): Define test cases for scenario 1 sync case by allocating the SRS resource before the last two symbols or more of slot and the interruption on victim CCs should be no longer than 1 slot (subframe for E-UTRA) when the SCS of aggressor CC and victim CC is 15/30 KHz.
    - Option 2b (Huawei): Define test cases for scenario 1 sync case by allocating the SRS resource at the 10th symbol of a slot and the interruption on victim CCs should be no longer than 1 slot (subframe for E-UTRA) when the SCS of aggressor CC and victim CC is 15/30 KHz.

**Discussions:**

Nokia: it is reasonable to also apply 6UL for scenario 1.

CATT: the timing difference between the cells setups is not considered?

Qualcomm:

Apple: to CATT, for 15khz it maybe fine. But for 30khz, it is larger. Also for future proof, we may need to introduce larger timing differences for test setups.

CATT: currently MTTD is not considered.

Apple: we can set 3us.

Ericsson: we agree to 3us. The core spec already accommodates the MTTD.

Huawei: 1 or 2 symbols are added due to timing difference between victim and aggressor. So 10th symbol.

Qualcomm: 10th symbol makes sense. It aligns the configuration between scenario 1 and 2.

**Agreement:**

Define test cases for scenario 1 sync case by allocating the SRS resource before the last two symbols or more of slot i.e., at the 10th symbol of a slot and the interruption on victim CCs should be no longer than 1 slot (subframe for E-UTRA) when the SCS of aggressor CC and victim CC is 15/30 KHz.

For Scenario 1 in SRS antenna port switching test cases, new TDD configurations are introduced to have 6UL symbos in the special slot.

|  |  |
| --- | --- |
| SCS | Special slot configuration |
| 15kHz | S = ‘6DL: 2GP: 6UL’ |
| 30kHz | S = ‘4DL: 4GP: 6UL’ |

**Issue 3-2-2: test configurations of each SRS, scenario and xTyR in special slot**

* Proposal (Qualcomm): In order to have SRS antenna switching on special slots, we propose the following tables for test configurations of each SRS, scenario and xTyR:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15kHz, scenario 1 | 1T2R | | 2T4R | | 1T4R | | | |
| srs-ResourceId | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 3 |
| startPosition | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| nrofSRS-Ports | port1 | port1 | port2 | port2 | port1 | port1 | port1 | port1 |
| periodicityAndOffset-p | sl40, 1 | sl40, 5 | sl40, 1 | sl40, 5 | sl40, 1 | sl40, 5 | sl40, 9 | sl40, 13 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15kHz, scenario 2 | 1T2R | | 2T4R | | 1T4R | | | |
| srs-ResourceId | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 3 |
| startPosition | 5 | [2] | 5 | [2] | 5 | [2] | 5 | [2] |
| nrofSRS-Ports | port1 | port1 | port2 | port2 | port1 | port1 | port1 | port1 |
| periodicityAndOffset-p | sl40, 1 | sl40, 1 | sl40, 1 | sl40, 1 | sl40, 1 | sl40, 1 | sl40, 5 | sl40, 5 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30kHz, scenario 1 | 1T2R | | 2T4R | | 1T4R | | | | |
| srs-ResourceId | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 3 |
| startPosition | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| nrofSRS-Ports | port1 | port1 | port2 | port2 | port1 | port1 | port1 | port1 |
| periodicityAndOffset-p | sl80, 3 | sl80, 11 | sl80, 3 | sl80, 11 | sl80, 3 | sl80, 11 | sl80, 19 | sl80, 27 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30kHz, scenario 2 | 1T2R | | 2T4R | | 1T4R | | | |
| srs-ResourceId | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 3 |
| startPosition | 5 | [2] | 5 | [2] | 5 | [2] | 5 | [2] |
| nrofSRS-Ports | port1 | port1 | port2 | port2 | port1 | port1 | port1 | port1 |
| periodicityAndOffset-p | sl80, 3 | sl80, 3 | sl80, 3 | sl80, 3 | sl80, 3 | sl80, 3 | sl80, 11 | sl80, 11 |

**Discussions:**

Vivo: need further check on the highlighted numbers.

**Agreement:**

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**[104-e][209] NR\_RRM\_enh2\_2, AI 9.8.1.2 and 9.8.2.2 – Qian Yang**

**R4-2214129 Email Discussion Summary for [104-e][209] NR\_RRM\_enh2\_2**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

**GTW on Aug-22**

**Topic #2: HO with PSCell test cases**

**Issue 2-1-1: Test cases design principle - FR1+FR2 test cases**

* Background agreements in R4-2115240:
* FR1/LTE+FR2 test has OTA testability problem if at least one of the following criteria is met:
  + Tests where any requirement is tested for FR1/LTE,
  + Tests where UE receives any DL message (e.g. RRC/DCI/MAC-CE configuration message/command etc) on FR1/LTE between the starting point and ending point of the test, and
  + Tests where UE transmits any UL signal (e.g. measurement report, ACK/NACK, CSI etc) b on FR1/LTE between the starting point and ending point of the test.
* Proposals
  + Option 1 (CATT, Apple, MTK): Test case design is delayed until testability issues are solved
  + Option 2 (Qualcomm): Introduce the test case in R17 and define applicability
* Recommended WF
  + Companies are encouraged to provide views on the two options for FR1+FR2 test cases design. Other options are not precluded in the 1st round.

**Discussions:**

Huawei: for HO with PSCell test cases, it is more complicated than PUCCH SCell tests. It is similar as the difficult ones for PUCCH SCell tests.

Apple: we should apply the same principle between HO and PUCCH SCell activation.

MTK: we prefer to have reduced number of test cases.

Qualcomm: we support the proposal. Parallel processing should be assumed from the Scenario perspective.

Intel: let’s consider only parallel processing in the test cases.

Apple: we can compromise to the proposal.

**Agreement:**

Specify test cases for HO with PSCell – the below FR1+FR2 test cases

* FR1+FR2 NR-DC to FR1+FR2 NR-DC
* FFS EN-DC with FR1 PSCell to EN-DC with FR2 PSCell
* FFS NR-SA FR1 to EN-DC with FR2 PSCell
* FFS EN-DC with FR2 PSCell to EN-DC with FR2 PSCell

Introduce the cases with applicability rule based on the testability study and update the applicability when testability study progress.

**Issue 2-1-2: Test cases list for FR1+FR2 test cases**

* Proposals
  + Option 1:
    - FR1+FR2 NR-DC to FR1+FR2 NR-DC
    - EN-DC with FR1 PSCell to EN-DC with FR2 PSCell
    - EN-DC with FR2 PSCell to EN-DC with FR1 PSCell
    - EN-DC with FR2 PSCell to EN-DC with FR2 PSCell
    - NR-SA FR2 to EN-DC with FR1 PSCell
    - NR-SA FR2 to EN-DC with FR2 PSCell
    - NR-SA FR1 to EN-DC with FR2 PSCell
  + Option 2:
    - FR1+FR2 NR-DC to FR1+FR2 NR-DC
    - EN-DC with FR1 PSCell to EN-DC with FR2 PSCell
    - NR-SA FR1 to EN-DC with FR2 PSCell

**Discussions:**

Nokia: we proposed Option 2. The approach to specify test cases and applicability rules should be applied. Option 2 is balanced coverage.

Huawei: Optino 2 are more difficult. However the scenarios are important as serving and target cells are in different FR.

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**[104-e][210] NR\_RRM\_enh2\_3, AI 9.8.1.3 and 9.8.2.3 – Qiuge Guo**

**R4-2214130 Email Discussion Summary for [104-e][210] NR\_RRM\_enh2\_3**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

**GTW on Aug-22**

**Topic #2: PUCCH SCell activation/deactivation performance requirements**

**Issue 2-1-3: Whether to define test case for FR1 PCell/PSCell + FR2 PUCCH SCell**

Proposals

* Option 1: (Qualcomm, Huawei)
  + Yes
* Option 1a: (Huawei)
  + TE determines the starting point of the test based on the activation command of which the HARQ ACK is successfully received
* Option 1b: (Huawei)
  + For FR1 PCell/PSCell + FR2 PUCCH SCell, only consider known PUCCH SCell with valid TA
* Option 1c: (Qualcomm)
  + For FR1 PCell/PSCell + FR2 PUCCH SCell, if PUCCH SCell in unknown, don’t consider valid TA scenario.
* Option 1d: (Qualcomm)
  + RAN4 to define the test case of “FR1 PCell/PSCell + FR2 PUCCH SCell” in Rel-17 without adding another FR2 serving cell as a workaround
  + Include the test cases to Table A.3.13A.3-1(which indicates the test cases that UE don’t need to pass in current version) until the testability issue on FR1+FR2 is resolved.
* Option 2: (MTK, Apple, CATT)
  + Not to define the test case for FR1 + FR2 scenario.
* Recommended WF
  + *Need more discussion*
  + *Impacted TCs: TC 1-3, TC 1-4, TC 2-3, TC 2-4*
  + *If option 1b is agreed, TC 1-4 and TC 2-4 are not needed and no need to define invalid TA scenario in TC 1-3 and TC 2-3.*
  + *If option 1c is agreed, no need to define valid TA scenario in TC 1-4 and TC 2-4.*

**Discussions:**

Huawei: based on the TE vendor input, option 1a and 1b provide support on some of the test cases so that the requirements can be verified. We can compromise to that we don’t test cases other than known with valid TA.

Ericsson: we agree with Huawei. We can agree on general approaches to solve the problem for FR1+FR2 test cases further. Maybe we can first specify everything and further with applicability. And update the applicability according to testability study outcome.

Qualcomm: we prefer to specify the test cases based on the currently testability. We should define the test cases right now. We don’t rely on future work.

Nokia: we agree with Ericsson. At least we need to specify some of the test cases. We can further discuss for the difficult cases.

Apple: we can compromise to Huawei proposal. We can test based on the TE vendor input. But for the difficult cases, we need more check on intorudcing them with applicability.

Vivo: we support Huawei proposal on this PUCCH activation test cases. However regarding general approaches, we need further check on the difficult ones. The work load is also huge.

MediaTek: we can compromise to define some test cases.

Qualcomm: Most likely we will specify known cases. Real field cases are important. FR2 PUCCH scell unknown cases are field cases.

Huawei: Unknown and invalid TA cases make sense. But they are not doable at the moment. So we introduce applicability at the moment.

Ericsson: there is not huge work load. We also prefer to finish everything in the work item. Otherwise there is not a valid placeholder.

Qualcomm: we are fine with Huawei proposal. Unknown but valid TA does not exist.

Apple: repeat that for the difficult cases we have concern on introducing it.

**Agreement:**

Define test case for FR1 PCell/PSCell + FR2 PUCCH SCell

* TE determines the starting point of the test based on the activation command of which the HARQ ACK is successfully received
* For FR1 PCell/PSCell + FR2 PUCCH SCell, consider known PUCCH SCell with valid TA
* FFS
  + Introducing the unknown PUCCH SCell and invalid TA cases with applicability rule based on the testability study
  + Updating the applicability when testability study progress

**New Issue 2-1-4a: For PUCCH SCell activation with multiple DL SCells in FR2, whether to define test for the case when non-PUCCH SCell is in same PUCCH group as PCell, i.e. Primary PUCCH group**

Proposals

* Option 1:
  + Yes
* Option 2:
  + No

**Discussions:**

Qualcomm: the reason to add this is that it is valid case when non-PUCCH SCell is in the same PUCCH group as PCell.

Apple: two purely unknown SCells can be in the same band but different from PCell.

Ericsson: whether a normal SCell can send cross group CSI reporting to the PCell instead on the PUCCH scell?

Apple: when the non PUCCH SCell is in the same band with the PCell the report is on the PCell.

**Agreement:**

For PUCCH SCell activation with multiple DL SCells in FR2, define test for the case when non-PUCCH SCell is in the same PUCCH group as PCell, i.e. Primary PUCCH group.

**Topic #1: PUCCH SCell activation/deactivation core requirements maintenance**

**Issue 1-1-1: Whether the PL-RS will introduce extra delay time when the known condition is met in FR2 (the value of [X] in 8.3.12)?**

Proposals

* Option 1: (CATT, Apple, Huawei)
  + When PL-RS of target PUCCH SCell is known, the X=5 sample measurement time is always considered and no need to consider condition of ‘maintain’ or ‘not maintain’.
* Option 2: (Nokia)
  + PL-RS is considered as maintained if the UE has acquired intra-frequency L3 measurement on deactivated PUCCH SCell according to section 9.2.5.2.
  + If PUCCH SCell is known in FR2, the reported L3 measurement results can be reused for pathloss estimation and additional PL-RS measurement is not needed during PUCCH SCell activation.
  + If PUCCH SCell is unknown in FR2, additional PL-RS measurement delay is allowed only when the PL-RS is not maintained.
* Option 3: (MTK)
  + No requirement when the PL-RS has been maintained before UE receives activation command for PUCCH SCell.
  + For non-maintained PL-RS, additional five PL-RS measurement samples are needed.

**Discussions:**

**Agreement:**

**Issue 1-1-2: Update TFirst\_available\_CSI and TCSI\_reporting\_after in the PUCCH SCell activation delay requirements?**

Proposals

* Option 1: (Ericsson)
  + Existing requirements:
    - - TFirst\_available\_CSI: the delay uncertainty in acquiring the first available downlink CSI reference resource.
    - - TCSI\_reporting\_after: the delay uncertainty in acquiring the first available CSI reporting resource after T3
  + Update to:
    - - TLast\_Valid\_CSI: the delay uncertainty in acquiring the downlink CSI reference resource which is the last CSI reference resource before the first available CSI report resource after T1+T2+T3. Where time difference between last CSI reference resource before the first available CSI report resource after T1+T2+T3 and the first available CSI report resource after T1+T2+T3 is less than **Threshold1**. Where **Threshold1** is configurable parameter in CSI resource settings.
    - - TCSI\_reporting\_after is the delay uncertainty in acquiring the first available CSI reporting resource after T3 if time difference between first available CSI report resource after T3 and last available CSI reference resource before this CSI report resource is less than **Threshold1**. Where **Threshold1**is configurable parameter in CSI resource settings. Else, it is the delay uncertainty in acquiring the second available CSI report resource.

**Discussions:**

**Agreement:**

**Issue 1-1-7: Clarification on interruption length on UL transmission when colliding with PRACH transmission on PUCCH SCell?**

Proposals

* Option 1: (Huawei)
  + No need to define the interruption length of PRACH transmission when UE is not capable of *parallelTxPRACH-SRS-PUCCH-PUSCH­*.
* Option 2: (Ericsson)
  + RAN4 to define 4 different interruption groups with each group having different interruption length.
    - For preambles format A1, A2, A3, B1, B2, B3, B4, C0 and C1, the interruption length is 0.5ms.
    - For preambles format 0 and 3, the interruption length is 1ms.
    - For preambles format 1, the interruption length is 3ms.
    - For preambles format 2, the interruption length is 5ms.

**Discussions:**

**Agreement:**

### 9.9 NR and MR-DC measurement gap enhancements

#### 9.9.1 RRM core requirement maintenance

**R4-2212031 CR to enhanced gap configuration for RRM requirements applicability**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2443 rev Cat: F (Rel-17)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

##### 9.9.1.1 Pre-configured MG pattern(s)

**R4-2211721 Reply LS on LMI contents and pre-configured MG parameters**

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

**Decision:** The document was **not treated**.

**R4-2211892 Discussion on RAN2 LS on LocationMeasurementIndication contents**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211948 Discussion on pre-configured MG pattern(s)**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212076 Discussion on LS on LocationMeasurementIndication contents and measurement gap parameters**

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

**Decision:** The document was **not treated**.

**R4-2212077 Maintenance CR on TS38.133 for Pre-MG core part**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2448 rev Cat: F (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212203 Open issues in core requirements for pre-configured measurement gaps**

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

**Decision:** The document was **not treated**.

**R4-2213062 Corrections to Pre-configured MG**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2512 rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2213292 Views on pre-configured MG patterns**

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

**Decision:** The document was **not treated**.

**R4-2213303 Reply LS on LocationMeasurementIndication contents and measurement gap parameters**

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

**Decision:** The document was **not treated**.

**R4-2213506 Reply LS LocationMeasurementIndication contents and measurement gap parameters**

*Type: LS out For: Approval* to RAN2  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213507 CR on pre-MG related requirements**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2530 rev Cat: F (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213875 Views on pre-configured MG patterns**

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

**Decision:** The document was **not treated**.

**R4-2213886 Reply LS on LocationMeasurementIndication contents and measurement gap parameters**

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

**Decision:** The document was **reivsed to R4-2214213**.

**R4-2214213 Reply LS on LocationMeasurementIndication contents and measurement gap parameters**

*Type: LS out For: Approval  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

##### 9.9.1.2 Multiple concurrent and independent MG patterns

**R4-2211895 On multiple concurrent and independent MG patterns**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211942 Discussion on multiple concurrent and independent MG patterns**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2211955 Discussion on the remaining issues for concurrent MGs**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212078 Discussion on remaining issues of concurrent gaps**

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

**Decision:** The document was **not treated**.

**R4-2212079 Maintenance CR on TS38.133 for concurrent gaps core part**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2449 rev Cat: F (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212130 Discussion on Rel17 concurrent measurement gaps in NR**

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

**Decision:** The document was **not treated**.

**R4-2212204 Open issues in core requirements for multiple concurrent measurement gaps**

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

**Decision:** The document was **not treated**.

**R4-2212760 Discussion on Con-MGs**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses concurrent gaps

**Decision:** The document was **not treated**.

**R4-2212871 Discussion on Concurrent Measurement Gaps**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2212872 CR for concurrent measurement gaps**

*Type: CR For: Approval* 38.133 v17.6.0 CR-2489 rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2212873 LS on priority for legacy gaps**

*Type: LS out For: Approval* to RAN2  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2213291 Views on multiple concurrent and independent MGs**

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

**Decision:** The document was **not treated**.

**R4-2213508 Discussion on remaining issues for multiple concurrent MGs**

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

**Decision:** The document was **not treated**.

**R4-2213509 CR on concurrent MG related requirements**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2531 rev Cat: F (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213874 Views on multiple concurrent and independent MGs**

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

**Decision:** The document was **not treated**.

##### 9.9.1.3 Network Controlled Small Gap

**R4-2211617 Open issue in RRM core requirement for NCSG**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2211618 DraftCR 38.133 needforgap reporting capability for NCSG**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2211722 CR on NCSG core requirements maintenance**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2424 rev Cat: F (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211897 CR on NCSG maintenance**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2429 rev Cat: F (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211943 Discussion on Network Controlled Small Gap**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212080 Discussion on remaining issues of NCSG**

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

**Decision:** The document was **not treated**.

**R4-2212081 Maintenance CR on TS38.133 for NCSG core part**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2450 rev Cat: F (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212874 CR for remaining aspects of NCSG measurement gaps (section 8 and 9)**

*Type: CR For: Approval* 38.133 v17.6.0 CR-2490 rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2213063 Corrections to deriveSSB-IndexFromCellInter parameter naming**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2513 rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2213293 Views on remaining issues of NCSG**

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

**Decision:** The document was **not treated**.

**R4-2213294 CR on NCSG TA**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2213510 Discussion on remaining issues for NCSG**

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

**Decision:** The document was **not treated**.

**R4-2213511 CR on maintenance of NCSG requirements**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2532 rev Cat: F (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213876 Views on remaining issues of NCSG**

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

**Decision:** The document was **not treated**.

**R4-2213877 CR on NCSG TA**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2214053 On general terminology for gap**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

The paper discusses how to define gap to cover different types of gaps in 38.133

**Decision:** The document was **not treated**.

**R4-2214054 Relevant gap terminologies for different scenarios in TS 38.133**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2562 rev Cat: F (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

The CR defines define gap terms to cover different types of gaps in 38.133

**Decision:** The document was **not treated**.

**R4-2214055 Correction to NCSG core requirements**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2563 rev Cat: F (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

The draft CR corrects some aspects of NCSG

**Decision:** The document was **not treated**.

#### 9.9.2 RRM performance requirements

##### 9.9.2.1 Pre-configured MG pattern(s)

**R4-2211893 On Pre-MG performance**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211894 Intra-frequency measurement test with SA event triggered reporting tests: with autonomous activation/deactivation of Pre-MG in FR2**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211949 Discussion on test cases for pre-configured MG pattern(s)**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212035 Draft CR on TC1-5 for Intra-frequency measurement test with SA event triggered reporting tests:with autonomous activation/deactivation of Pre-MG in FR1 triggered by MO addition/release(A6.6.X1.3)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212082 CR on TS38.133 for Pre-MG test case No 4**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212133 [draftCR] CR for Pre-MG test case No 1-1**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2213512 Discussion on test cases for pre-MG**

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

**Decision:** The document was **not treated**.

**R4-2213513 CR to introduce TC#3 for pre-MG**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.9.2.2 Multiple concurrent and independent MG patterns

**R4-2211896 draftCR on concurrent gaps test case for FR2 SA with SSB and PRS**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212083 CR on TS38.133 for concurrent MG test case No 2**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212134 [draftCR] CR for concurrent MG test case No 4**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2212761 Test case for Con-MGs TC1**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2481 rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

This CR for the test case about concurrent gaps TC1

**Decision:** The document was **not treated**.

**R4-2212875 DraftCR TC#3 on Concurrent Measurement Gaps**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2213298 Draft CR on test case for Concurrent MG for FR2 PPO in TS38.133 A.7.6.2.x**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2213514 Discussion on test cases for concurrent MGs**

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

**Decision:** The document was **not treated**.

**R4-2213515 CR to introduce TC#5 for concurrent MGs**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213881 Draft CR on test case for Concurrent MG for FR2 PPO in TS38.133 A.7.6.2.x**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

##### 9.9.2.3 Network Controlled Small Gap

**R4-2211616 Open issues in RRM performance requirements for NCSG**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2211723 Draft CR on test case of inter-freq measurement with NCSG in FR2**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211898 On NCSG performance**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211944 Discussion on test cases for Network Controlled Small Gap**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212036 Draft CR on TC6 for Event triggered reporting test on intra-frequency in FR1(A.6.6.X3.1)**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212084 CR on TS38.133 for NCSG test case No 2**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2212135 [draftCR] CR for NCSG test case No 5**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2213299 Draft CR on test case for Event triggered reporting based on intra-frequency measurement with NCSG in FR2 in TS38.133 A.7.6.1.x**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2213516 Discussion on test cases for NCSG**

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

**Decision:** The document was **not treated**.

**R4-2213517 CR to introduce TC#3 for NCSG**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213882 Draft CR on test case for Event triggered reporting based on intra-frequency measurement with NCSG in FR2 in TS38.133 A.7.6.1.x**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: (Rel-17)  
  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2214056 Event trigger reporting on SCC with deactivated SCell in FR1 with NCSG**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

This document discusses RRM test case # 1 for NCSG according to work split in R4-2210588

**Decision:** The document was **not treated**.

**R4-2214057 Test case # 1: A.6.6.1.x Event triggered reporting test on SCC with deactivated SCell in FR1**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

The draft CR on A.6.6.1.x Event triggered reporting test on SCC with deactivated Scell in FR1

**Decision:** The document was **not treated**.

#### 9.9.3 Moderator summary and conclusions

**[104-e][211] NR\_MG\_enh\_1, AI 9.9.1, 9.9.1.2 and 9.9.2.2 – Ato Yu**

**R4-2214131 Email Discussion Summary for [104-e][211] NR\_MG\_enh\_1**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

**GTW on Aug-19**

**Topic #3: Performance requirement for concurrent gaps**

**Issue 3-1: Whether to introduce test cases for PRS measurement**

* Proposals
  + Option 1: Yes

**Discussions:**

Apple: we are fine with option 1. One note is that this applies to UE supporting PRS measurement.

Intel: we support option 1. Which PRS measurement needs to be defined? PRS RSRP or RSTD?

Apple: we prefer to have RSRP rather than RSTD. In the RSRP tests we have only two cells.

**Agreement:**

Confirm that RAN4 is to introduce test cases for PRS measurement with concurrent gaps.

PRS RSRP test cases will be introduced.

**Issue 3-2: Whether to introduce test cases for EUTRAN measurement**

* Proposals
  + Option 1: Yes

**Discussions:**

**Agreement:**

Confirm that RAN4 is to introduce the test case for EUTRAN measurement with concurrent gaps.

**Issue 3-3: Which test case to add for SBI reporting**

* Background: Agreement in last meeting
  + **< Agreement>** Define test case without SBI reporting. FFS whether and how to pick 1 test case for SBI reporting
* Proposals
  + Option 1: Yes: TC#1

**Discussions:**

Ericsson: we can skip the test. Is there particular reason that we introduce it?

Apple: we don’t see the importance in introducing it.

**Agreement:**

Skip SBI reporting test case for concurrent gaps.

**Topic #2: Core requirement maintenance for concurrent gaps**

**Issue 2-3: How to define the overhead cap when concurrent MGs are configured**

* Proposals
  + Option 1: Introduce UE capability to indicate whether configuration restriction apply
    - Option 1a: Apple, Xiaomi, Nokia
      * The MGRP for each MG cannot be smaller than 40ms
    - Option 1b: Apple
      * Up to one MGP can be configured with MGRP=20ms
    - Option 1c: Qualcomm
      * A set of candidate values of per FR maximum overhead includes {30%, 40%, 50%}
  + Option 2: Directly add NW configuration limitation in spec
    - Option 2a: CMCC
      * The MGRP for each MG cannot be smaller than 40ms simultaneously
    - Option 2b: MTK, Huawei, CMCC
      * Up to one MGP can be configured with MGRP=20ms
    - [Option 2c]:
      * Both MGRP are larger than 20ms
  + Option 3: Extending dropping rules
    - Option 3a: Intel, E///
      * when two MGs configuring with MGRP=20ms, the lower priority gap can be cancelled regardless of proximity rule and data scheduling is resumed on the dropped gap occasions
  + Option 4: Qualcomm
    - Signal the preferred maximum overhead via UE Assistance Information. Request RAN2 to add new signalling for this purpose.

**Discussions:**

Apple: We can compromise to option 2. It provides flexibility. 2b is the best.

Nokia: we are fine with 2b.

Intel: we can compromise to option 2.

CMCC: we support option 2b. the intention is to preclude 20ms+20ms which is to occupying.

ZTE: option 3 increases UE implementation complexity. Option 2b is a good choice.

Vivo: eventually we can compromise to option 2. On option 2 we prefer option 2c. even we allow one 20ms, the overhead is still a lot. Option 2c provides better balance between overhead and complexity.

Qualcomm: we can compromise to option 2. The limitation is to cap the uoverhead to some number. 2b we prefer. We would like to see 20ms + low overhead MGRP. Option 2c cuts out a lot of combinations of such kind.

OPPO: we can go with option 2. We prefer option 2b. one note is that this applies to the case where the approximity rule is not met (overlap and one leg is dropped).

CATT: we also support option 2b.

Ericsson: we can also go with option 2b. we have concern on option 2c. 20ms is rather typical MGRP. We agree with Qualcomm comments.

Apple: to OPPO, the cap applies to all cases including overlap and non overlap. There seems no need to have the scope limitation.

OPPO: whether this applicability is only for per UE gaps or it is also accounted for by pre FR gaps.

Qualcomm: overhead cap applies only for gaps that are within the same FR.

MTK: we count the cap respectively in different FR-s. this restriction is for same FR gaps.

**Agreement:**

Regarding the overhead cap on concurrent gaps in Rel-17, measurement requirement does not apply when more than one MGP is configured with MGRP=20ms in an FR.

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**[104-e][212] NR\_MG\_enh\_2, AI 9.9.1.1 and 9.9.2.1 – Rui Huang**

**R4-2214132 Email Discussion Summary for [104-e][212] NR\_MG\_enh\_2**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

**GTW on Aug-19**

**Topic #2: Test cases for pre-configured gaps**

**Issue 2-1-1 CA test case**

* Option 1 (CMCC): Yes. Define additional test case for CA
* Option 2 (Apple, Huawei): No.

**Issue 2-1-2 Test case for the other trigger events beside BWP switching**

* Option 1 (CMCC): For UE autonomous pre-MG (de)activation, design test cases for other trigger events, e.g. MO addition/remove
* Option 2 (Apple, Huawei): No additional test case for other trigger events (e.g. MO addition/remove).

Proposal from 2-1-1 and 2-1-2 is to add one test case to test both CA and SCell activation triggering event.

**Discussions:**

CATT: SCell activation is a totally different trigger event than BWP switching.

Intel: we need to achieve tradeoff between test effort and coverage. SCell activation is not a typical trigger event.

Nokia: we agree with the proposal to test CA deployment. We should test it with minimized effort.

Apple: for pre configured MG, CA case is pretty much the same situation with single carrier. We prefer not to test CA.

Intel: we agree with Apple. From UE behaviour perspective, nothing is too different between signle carrier and CA, between SCell activation triggering and BWP switching triggering.

CMCC: our preference was to consider CA in test cases. We are also fine with option 2 since we recognize the similarity between CA and single carrier cases.

CATT: do we have MO addition as a trigger event? We can test CA in that case.

Intel:

Apple: MO addition test is still open. MO addition is through RRC configuration.

CATT: Test coverage is important.

MTK: if we converge test cases to CA cases, we lose test coverage for UE which does not support CA.

**Agreement:**

No additional test case is introduced for CA or for SCell activation triggering event.

**New issue 2-2-1 Testing procedure alignment among draftCRs:**

**check whether T4 is needed**

* T4 was designed to verify that the UE correctly receives data instead of measuring on the deactivated MG occations
* Up to 5s is observed in the draft Test cases for T4
* T1 can also accommodates the verification (before pre-MG activation)
* Moderator proposes to remove T4 from the design to save test time
* Option 1 (MTK, Apple, Huawei): The test consists of 4 successive time periods, with durations of T1, T2, T3 and T4, respectively. During T4, UE shall perform intra-frequency measurement with pre-MG deactivated.
* Option 2 (Intel): The test consists of 3 successive time periods, with durations of T1, T2, T3 respectively.

**Discussions:**

Intel: we can use T1 to test the measurement for deactivated MG in stead of T4 to save test time. Note that T4 is particularly long: up to 5s. we invite companies to comment on the fresh issue.

MTK: we are OK to the proposal.

Huawei: we are also fine with the proposal. We will update our draftCR if this was agreed.

Intel: all the draftCR need revisions. Please proponent update the TC according to the agreement.

**Agreement:**

Update the test cases to remove T4 from the previous designs and the test cases consist of 3 successive time periods T1, T2 and T3.

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**[104-e][213] NR\_MG\_enh\_3, AI 9.9.1.3 and 9.9.2.3 – Qiming Li**

**R4-2214133 Email Discussion Summary for [104-e][213] NR\_MG\_enh\_3**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

**GTW on Aug-19**

**Topic #2: performance part**

**Issue 2-2: gap pattern in NCSG test**

* Proposals
  + Option 1: (QC)
    - For UE who support per-UE, NCSG pattern #3 is required to test short ML as same as legacy gap pattern in addition NCSG pattern #0. For UE who support per-FR, NCSG pattern #13 and #17 are configured.
  + Option 2: (Apple, HW)
    - NCSG pattern #0 for FR1 test
    - NCSG pattern #13 for FR2 test
  + Option 3: (CMCC)
    - NCSG pattern #2 for FR1 test
    - NCSG pattern #17 for FR2 test

**Discussions:**

Qualcomm: we can go with option 2.

CMCC: we support option 3. This issue is related to per FR NCSG. Both per UE and per FR NCSG are considered in the test cases. Applicability is there to guarantee test effort is limited. We need to introduce #2 for per FR NCSG for FR1 test. For FR2 per FR NCSG pattern either #13 or #17.

Nokia: we also support option 2.

Ericsson: we support option 2.

Apple: we support option 2. We can compromise to that we introduce one case in FR1 and one in FR2 to test perFR gaps.

Apple: moderator proposes to test perFR gaps in interfrequency test cases. We are also fine with #2 pattern.

CMCC: we are ok with the moderator proposal. We need to have 3 sub tests: 1 with #0 in FR1 per-UE gap, 1 with #2 in FR1 per-FR gap, and 1 with #13 in FR2 per-FR gap.

Apple: How do we have sub tests in different FR-s.

CMCC: For FR1 #0 and #2 are both tested in inter-frequency test cases as sub tests. For FR2 we test with per-FR gaps pattern #13.

**Agreement:**

For FR1 NCSG #0 per-UE gap and NCSG #2 per-FR gap are both tested in inter-frequency sub test cases. For FR2 we test with per-FR NCSG pattern #13.

**Topic #1: Core requirement maintenance**

**Issue 1-1: new optional UE capability for UE supporting NCSG indicating the support of deriveSSB-IndexFromCell-inter**

* Proposals
  + Option 1:
    - introduce a new optional UE capability for UE supporting NCSG indicating the support of *deriveSSB-IndexFromCell-inter*., and it implies that when deriveSSB-IndexFromCell-inter is enabled, (1) Tidentify\_inter\_without\_index is applicable to UE (2) UE is capable of serving cell communication within SMTC based on the agreed scheduling restriction associated with deriveSSB-IndexFromCell-inter (QC)
  + Option 1a:
    - Introduce a new UE capability related to deriveSSB-IndexFromCell-inter, and UE supporting the capability is required to meet the following requirements: (HW)
      * Cell identification delay Tidentify\_inter\_without\_index
      * Scheduling restriction during NCSG ML is on SSB symbol level
  + Option 2:
    - not necessary to introduce UE capability indicating support of deriveSSB-IndexFromCell-inter. (CMCC)
  + Option 3:
    - No new UE capability for UE supporting NCSG. Introduce a new UE capability for UE not supporting NCSG after R17(ZTE)

**Discussions:**

CMCC: We do not see the necessity to have the capability. We don’t have capability for intra case.

ZTE: we agree with CMCC. We support option 2.

Qualcomm: we support option 1 and 1a. It could be more challenging to UE when the UE needs to coordinate between RF chains for data and measurement.

OPPO: We prefer option 2. We recognize the reason to have capability. One compromise is to apply only scheduling restriction to the capable UE but not the cell identification delay reduction due to measurements without index reading.

Apple: we prefer option 1 and 1a. this network flag was introduced recently.

Ericsson: we also support option 2. It is complicated for the network to handle the capability. Regarding option 3, we would like to avoid discussing anything outside NCSG.

Huawei: this flag and feature has little to do with NCSG. It is reasonable to have the capability since they are separate features. We echo QC comments that it is demanding for the UE to coordinate between chains.

Intel: we have concerns to introduce capability. If the UE supports NCSG, such coordination between chains is assumed supported by the UE. Introducing capability is rather late. We support option 2 but could consider the compromise from OPPO and MTK.

CATT: we support option 2.

Nokia: we support option 1 and 1a. we need to allow powerful UE to have less interruption.

ZTE: the flag is introduced in NCSG scope. It allows the UE to have less interruption in general. For NCSG capable UE, basic assumption is that the UE is rather ppowerful in terms of coordination between chains.

Qualcomm: our concern is that when the flag is enabled, the UE uses the serving cell timing if the UE is using common beam module between the chains.

CMCC: to Qualcomm, if we introduce the capability is it only for FR2?

Qualcomm: we can do that.

**Tentative Agreements:**

Confirm that RAN4 specifies RRM requirements considering that the flag *deriveSSB-IndexFromCell-inter* is applied only to NCSG capable UE in Rel-17.

Introduce the optional capability in FR2 for the UE to indicate whether it is capable of

* + - * Scheduling restriction during NCSG ML is on SSB symbol level
      * FFS Cell identification delay Tidentify\_inter\_without\_index
      * FFS in FR1
      * FFS for UE not supporting NCSG

**Issue 1-4: NR-LTE inter-RAT measurement with ‘nogap-noncsg’**

* Proposals
  + Option 1: Define requirements for NR – LTE inter-RAT measurement without gap (UE reports ‘nogap-noncsg’ for inter-RAT measurement). (HW)
  + Option 2: No additional signalling is required to report ‘nogap-noncsg’ for inter-RAT measurements.
  + Option 3: FFS

**Discussions:**

CMCC: we support option 1. We are missing requirements for UE indicating nogap-noncsg.

Intel: in Rel-18 we have discussion on the scenarios for NR-LTE inter-RAT gapless measurement. It seems duplicate discussion.

Qualcomm: we are ok with option 1. But it is better to have the discussion in Rel-18.

Apple: we support option 1 for the completion of the feature. Regarding Rel-18, we prefer to have NCSG feature completed first.

Huawei: as proponent we support option 1. It is clearly missing part. It is already supported scenario in Rel-17. If the requirements are specified in R17, we may not need to have it in R18.

Nokia: we think it can be discussed in R18.

ZTE: we agree with Intel.

MTK: we support option 1. UE reports 2bits capability {gap, nogap, nogap-noncsg}. We need to specify the requirements.

Ericsson: we support option 1. How much is the load? It is better to discuss it in Rel-18. R18 WID is clearly covering this. This item is quite late now.

CATT: it is a new requirement after the closure. We are not sure how long does this work continue.

Vivo: we prefer option 1.

Intel: our concern is the same with Ericsson’s. it seems huge workload.

Apple: the workload is minor. There is already a concrete CR. This capability is only for inter-RAT LTE measurements. It is questionable whether R18 item covers this one.

CATT: we need to add test case for the core requirements if we agree to introduce.

Apple: we agreed no test for NCSG no gap indication.

Session Chair: encourage companies to have further discussion in the 2nd round checking: a) whether this feature is covered by the Rel-18 item scope; b) the CR from proponent to see if the workload is huge.

**Agreement:**

### 9.21 Enhanced IIoT and URLLC support

#### 9.21.1 RRM core requirement maintenance

##### 9.21.1.1 Propagation delay compensation enhancements

**R4-2212206 Open issues in core requirements for RTT-based propagation delay compensation**

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

**Decision:** The document was **not treated**.

**R4-2213048 Remaining issues for PDC enhancement**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213049 CR to TS 38.133 Correction to measurements requirements for PDC**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2511 rev Cat: F (Rel-17)  
  
 *Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213552 On RRM requirements for PDC enhancements**

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

**Decision:** The document was **not treated**.

**R4-2213553 CR on requirements for UE Rx-Tx measurement for PDC**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2543 rev Cat: F (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213657 CR on reporting mapping for URLLC in TS 38.133**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2547 rev Cat: F (Rel-17)  
  
 *Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2213777 Discussion of RRM Core Requirements for PDC**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision:** The document was **not treated**.

##### 9.21.1.2 Reference point for Te requirements

**R4-2212156 draftCR to clarify timing reference point for UE UL timing test cases**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: Intel Corporation*

**Decision:** The document was **not treated**.

##### 9.21.1.3 Others

#### 9.21.2 RRM performance requirements

##### 9.21.2.1 General (test configurations, conditions and etc)

**R4-2213050 Discussion on performance requirements for PDC enhancement**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213554 CR to introduce TRS RMC for PDC tests**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213776 General Discussion for PDC Measurement Period and Accuracy Performance Requirements**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision:** The document was **not treated**.

##### 9.21.2.2 Measurement period and accuracy requirements

**R4-2212207 On performance requirements for RTT-based propagation delay compensation**

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

**Decision:** The document was **not treated**.

**R4-2212901 Simulation results for performance part**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

Simulation results

**Decision:** The document was **not treated**.

**R4-2213555 Discussion on remaining issues for accuracy and test for PDC measurement**

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

**Decision:** The document was **not treated**.

**R4-2213556 CR on PDC measurement accuracy requirements**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213775 Simulation Results for TRS Measurement Accuracy**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision:** The document was **not treated**.

##### 9.21.2.3 Test cases for FR1

###### 9.21.2.3.1 Test cases for UE Rx-Tx time difference measurement with PRS for RTT-based PDC

**R4-2213863 draftCR on test cases for UE Rx-Tx time difference measurement with PRS for RTT-based PDC in FR1 SA**

*Type: draftCR For: (not specified)* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Nokia*

**Decision:** The document was **not treated**.

**R4-2213890 Test cases for UE Rx-Tx time difference measurement with PRS for RTT-based PDC in FR1**

*Type: discussion For: Discussion  
 Source: Nokia*

**Decision:** The document was **not treated**.

###### 9.21.2.3.2 Test cases for UE Rx-Tx time difference measurement with TRS for RTT-based PDC

**R4-2213557 CR to introduce TC#2 for PDC measurement**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.21.2.4 Test cases for FR2

###### 9.21.2.4.1 Test cases for UE Rx-Tx time difference measurement with PRS for RTT-based PDC

**R4-2212902 UE Rx-Tx time difference delay PDC test based on PRS/SRS**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

UE Rx-Tx time difference delay PDC test based on PRS/SRS

**Decision:** The document was **not treated**.

**R4-2212903 UE Rx-Tx time difference accuracy PDC test based on PRS/SRS**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

UE Rx-Tx time difference accuracy PDC test based on PRS/SRS

**Decision:** The document was **not treated**.

###### 9.21.2.4.2 Test cases for UE Rx-Tx time difference measurement with TRS for RTT-based PDC

#### 9.21.4 Moderator summary and conclusions

**[104-e][228] NR\_IIOT\_URLLC\_enh, AI 9.21.1 and 9.21.2 – Lars Dalsgaard**

**R4-2214148 Email Discussion Summary for [104-e][228] NR\_IIOT\_URLLC\_enh**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

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**GTW on Aug-22**

**Topic #2: RRM performance requirements**

**Issue 2-1: Shall** **RAN4 define accuracy requirements for PRS and TRS based Rx-Tx in fading channel conditions**

* Proposals
  + Option 1: Yes
  + Option 2: No

**Discussions:**

Ericsson: we support option 1. We don’t have fading requirements for BS. Some cases could have fading environment.

Nokia: we also provided fading results. They are quite different. We are fine to go with option 2.

Vivo: there is no accuracy requirements for gNB on fading channel. For PDC, both gNB and UE requirements are covered so maybe it is safe that we go with option 2.

**Agreement:**

RAN4 does not define accuracy requirements for PRS and TRS based Rx-Tx measurements in fading channel conditions.

**Issue 2-4: Each TC, include sub-tests for two different PRS/TRS BWs**

* Proposals
  + Option 1: Yes
  + Option 2: No

**Discussions:**

Qualcomm: positioning is different from this usecase. For PDC there is no capability to indicate the supported BW. We only need to have the largest supported BW tested.

Vivo: the accuracy requirements are different for different BWs. We could compromise to only one BW.

Huawei: to simplify the test we can also compromise to option 2.

**Agreement:**

For each TC, specify single PRS/TRS BW for PRS and TRS based Rx-Tx measurements per test configuration.

**Issue 2-5: Define new TRS RMC with 24 RB for 15k and 30kHz SCS, and 32 RB for 120kHz SCS**

* Proposals
  + Option 1: Yes
  + Option 2: No

**Discussions:**

Huawei: since we agreed signle BW it should be the BW same as BWP BW. The new RMC is not needed in this case.

**Topic #1: RRM core requirement maintenance**

**Issue 1-3~1-6: PDC measurement period if PRS measurements occasionally/continuously collide with Type 1A/1B PPW/Type 2 PPW**

* Proposals
  + Option 1: PDC measurement period is extended for occasionally colliding cases while no measurements requirements for PDC are defined for continuously colliding cases.
  + Option 2: Other.

Moderator suggests in the 2nd round:

Confirm following agreement for Issues 1-3 – 1-6:

* If PDC RS resources overlap with Type 1A/1B/2 PPW the UE is allowed longer measurement period for PDC measurements if the PRS has higher priority than CSI-RS or PRS used for PDC measurements.

**Discussions:**

Ericsson: reuse as much as possible measurement gaps is our preference. PDC measurements are not gapless measurements. Is it PDC measurements using gaps colliding with PPW?

Qualcomm: this is collisions between PDC measurements and PPW for PRS measurements. PDC measurements do not need gaps since the target RS is in the active BWP. RAN1 has not defined priority for PRS in PPW and PRS used for PDC but only between PRS in PPW and CSI-RS for PDC. We can assume CSI-RS and PRS used for PDC measurements have same priority.

Vivo: do we need to combine two R17 features in the discussion? Need to double check on the priority between PRS and PRS.

Huawei: we need to consider the collisions. PDC RS is the same priority with other serving cell measurement RS.

Ericsson: it seems that this is RAN1 work instead of RAN4. If we allow longer measurement periods, random delay is added. we should avoid uncertainty in the requirements for measurements.

Qualcomm: RAN4 needs to identify the invalid configuration. RAN4 specifies the corresponding requirements.

**Issue 1-2: Introduction of a scaling factor if the PDC-RS collides with a measurement gap**

* Proposals
  + Option 1: Introduce a scaling factor Kgap, to account for overlap between PDC RS and MG.
  + Option 2: Allow for additional delay if there is any overlap between PDC RSs and MG’s.
  + Option 3: Do not define requirements if there is any overlap between PDC RSs and MG’s.
* Recommended WF
  + 3 different proposals have been proposed regarding how to address if there is overlap between PDC RS and a measurement gap.
  + All proposals support that as minimum RAN4 need to account such scenario in the requirements (i.e. an overlap occur).
  + Moderator propose to initially agree that RAN4 need to define requirements that account a possible overlap between PDC RS and a measurement gap.
  + How to account such overlap in the requirements should be discussed together with Sub-topic 1-3.
  + Moderator propose following agreement:
    - Agree that RAN4 need to define requirements that account a possible overlap between PDC RS and a measurement gap.
    - How to account such overlap in the requirements (options 1-3) will be discussed together with Sub-topic 1-3.

**Discussions:**

Nokia: we support option 1.

Vivo: if we go with option 1, normal mreaurements are also impacted. Our preference is option 2. We already have measurement restrictions between PDC and L1 measurements. Kgap is not clear since the PDC measurements still collide with other L1 measurements.

**Tentative Agreement:**

Introduce a scaling factor Kgap, to account for overlap between PDC RS and MG.

### 9.22 NR Sidelink Relay

#### 9.22.1 RRM core requirement maintenance

#### 9.22.2 RRM performance requirements

##### 9.22.2.1 Applicability rule

**R4-2212057 CR on applicability rule for NR\_SL\_relay test cases**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2446 rev Cat: B (Rel-17)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2213493 DraftCR on applicability rule and reference configurations for NR sidelink relay tests**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.22.2.2 Test cases for interruption requirements at NR sidelink discovery

**R4-2213494 DraftCR on test cases of interruption requirements for NR sidelink relay**

*Type: draftCR For: Endorsement* 38.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.22.2.3 Test cases for selection/re-selection of sidelink relay UE in NR

**R4-2212058 CR on TC for Selection\_Reselection of sidelink relay UE**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2447 rev Cat: B (Rel-17)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

#### 9.22.3 Moderator summary and conclusions

**[104-e][229] NR\_SL\_relay, AI 9.22 – Roy Hu**

**R4-2214149 Email Discussion Summary for [104-e][229] NR\_SL\_relay**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

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### 9.23 NR small data transmissions in INACTIVE state

#### 9.23.1 RRM core requirement maintenance

**R4-2211614 Open issues in RRM requirements for CG-SDT**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2211850 On SDT RRM**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212190 Clarification on RSRP measurement reference for TA validation**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2212192 CR on T1 definition of TA validation for Rel-17 NR SDT in INACTIVE sate**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2454 rev Cat: F (Rel-17)  
  
 *Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2213376 Remaining issues on RRM requirements for NR SDT**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision:** The document was **not treated**.

**R4-2213403 Remaining discussions on RRM requirements for Small Data Transmissions**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we provide an overview of the RRM requirements for CG-SDT that RAN4 needs to introduce.

**Decision:** The document was **not treated**.

**R4-2213558 Discussion on remaining issues for SDT RRM**

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

**Decision:** The document was **not treated**.

**R4-2213559 CR on SDT RRM requirements**

*Type: CR For: Agreement* 38.133 v17.6.0 CR-2544 rev Cat: F (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213746 Discussion on the remaining issues for SDT**

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

**Decision:** The document was **not treated**.

#### 9.23.2 RRM performance requirements

**R4-2211615 RRM performance requirements for CG-SDT**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-17)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2212685 Discussion on performance requirements for SDT**

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

**Decision:** The document was **not treated**.

**R4-2213377 On RRM performance requirements for NR SDT**

*Type: discussion For: Discussion  
 Source: ZTE Wistron Telecom AB*

**Decision:** The document was **not treated**.

**R4-2213404 Discussions on RRM performance requirements for SDT**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution we discuss the performance part of SDT.

**Decision:** The document was **not treated**.

**R4-2213560 Discussion on TCs for SDT**

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

**Decision:** The document was **not treated**.

#### 9.23.3 Moderator summary and conclusions

**[104-e][230] NR\_SmallData\_INACTIVE, AI 9.23 – Aijun Cao**

**R4-2214150 Email Discussion Summary for [104-e][230] NR\_SmallData\_INACTIVE**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

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**GTW on Aug-19**

**Topic #1: Maintenance of RRM core requirements for NR SDT**

**Issue 1-3-1: Should the sub-bullet for T1 definition, i.e., [If TAC command is not received while in RRC Innactive, T1 is the time when the latest RRCRelease is received] be confirmed?**

* Proposals
  + Option 1: Yes
  + Option 2: No
* *Tentative agreement sfrom moderator:*
* *For Issue 1-3-1, two votes for Option 1, five votes for Option 2, and one vote for the need of more input from RAN2 with one concern on what MO UE to measures RSRP. One case is raised that if the RRCRelease for the transition from RRC\_CONNECTED to RRC\_INACTIVE does not contain a CG-SDT configuration, then another RRCRelease with CG-SDT configuration should be issued in RRC\_INACTIVE, and moreover in this case, if there is no TAC received, then T1 is the moment when receiving the RRCRelease with CG-SDT configuration. In Moderator’s reading, this case is not covered even if we confirm the sub-bullet. Another RRCRelease with an updated CG-SDT configuration (e.g., BWP change) in RRC\_INACTIVE is possible as well. Therefore, Moderator suggests* 
  + *not to confirm the sub-bullet*
  + *align understanding on RRCRelease with CG-SDT configuration issued in RRC\_INACTIVE state for CG-SDT transmission:*
    - *Case 1: No CG-SDT is configured in the RRCRelease when changing from RRC\_CONNECTED to RRC\_INACTIVE, therefore an RRCRelease with CG-SDT configuration is needed in RRC\_;*
    - *Case 2: A new CG-SDT can be configured via RRCRelease in RRC\_INACTIVE, e.g., the cause could be change of BWP etc.*
  + *decouple the T1 definition from what MO UE to measure RSRP within the first window for TA validation.*

*And focus on T1 definition wording based on the above suggestions in the second round.*

**Discussions:**

LGE: we have concern on case 1 and 2. RRCrelease cannot be provided in inactive state. Case 1 is not a valid case.

Nokia: we are not sure if case 2 exists.

MTK: we agree with Nokia. CG-SDT configuration is received only when the UE transits from connected to inactive. We need a feedback from RAN2 regarding case 1 and 2.

Huawei: case 1 is valid. It is possible that the UE receives RRCrelease together with CG-SDT configuration. RA-SDT TA can be used by CG-SDT.

Qualcomm: CG has priority over RA.

ZTE: CG-SDT can be configured together with RRCrelease. We need to update the spec.

Apple: in case 1 UE goes to normal inative and does not transmit SDT. Case 2 the UE receives SDT configuration before entering inactive mode.

Ericsson: we would like to further check with RAN2 on the valid cases. Maybe an LS is needed.

Nokia: we need to check with RAN2. Maybe update on the cases is needed.

LGE: we are fine to further check with the LS.

MTK: can we simply specify T1 as the time when RRCrelease is received?

**Issue 1-3-2: In RAN4’s understanding, in which RRC state transition can an RRCRelease with CG-SDT configuration be issued?**

* Proposals
  + Option 1: Only from RRC\_CONNECTED to RRC\_INACTIVE
  + Option 2: Both RRC\_CONNECTED to RRC\_INACTIVE, and RRC\_INACTIVE to RRC\_INACTIVE

**Discussions:**

**Agreement:**

**Issue 1-3-3: If the answer to Issue 1-3-2 is Option 2, then which RRCRelease with CG-SDT configuration should be the reference to T1 definition?**

* Proposals
  + Option 1: The first
  + Option 2: The latest

**Discussions:**

**Agreement:**

**Issue 1-3-4: Should TAC command in successfully completed RAR/MsgB in 2-step/4-step RA be considered in T1 definition in addition to that in MAC-CE ?**

* Proposals
  + Option 1: Yes
  + Option 2: No

**Discussions:**

**Agreement:**

**Issue 1-4-1: Should RAN4 specify SDT requirements for NR-U?**

* Proposals
  + Option 1: Yes
  + Option 2: No

**Discussions:**

**Agreement:**

### 9.24 Additional enhancements for NB-IoT and LTE-MTC

#### 9.24.4 RRM core requirements maintenance

**R4-2212965 CR on maintenance of neighbour cell measurement for NB-IoT**

*Type: CR For: Agreement* 36.133 v17.6.0 CR-7173 rev Cat: F (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

#### 9.24.5 RRM performance requirements

##### 9.24.5.1 Test procedure, configurations and side conditions

**R4-2212966 Discussion on performance requirements for Rel-17 NB-IoT**

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

**Decision:** The document was **not treated**.

**R4-2213565 Big CR on performance requirements for NB\_IOTenh4\_LTE\_eMTC6**

*Type: CR For: Agreement* 36.133 v17.6.0 CR-7175 rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.24.5.2 Test cases for HD-FDD intra-frequency neighbor cell measurement under normal coverage in non-DRX

**R4-2212967 DraftCR on test cases for HD-FDD intra-frequency neighbour cell measurement of NB-IoT R17**

*Type: draftCR For: Endorsement* 36.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.24.5.3 Test cases for TDD intra-frequency neighbor cell measurement under normal coverage in non-DRX

**R4-2212968 DraftCR on test cases for TDD intra-frequency neighbour cell measurement of NB-IoT R17**

*Type: draftCR For: Endorsement* 36.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.24.5.4 Test cases for HD-FDD inter-frequency neighbor cell measurement under normal coverage in DRX

**R4-2212969 DraftCR on test cases for HD-FDD inter-frequency neighbour cell measurement of NB-IoT R17**

*Type: draftCR For: Endorsement* 36.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.24.5.5 Test cases for TDD inter-frequency neighbor cell measurement under normal coverage in DRX

**R4-2212970 DraftCR on test cases for TDD inter-frequency neighbour cell measurement of NB-IoT R17**

*Type: draftCR For: Endorsement* 36.133 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.24.6.1 Demodulation requirements for NB-IoT

**R4-2213802 Summary of Rel-17 NB-IOT and eMTC simulation results**

*Type: other For: Information  
 Source: Huawei,HiSilicon*

**Decision:** The document was **not treated**.

###### 9.24.6.1.1 UE demodulation requirements

**R4-2212205 DraftCR – Test cases for NB-IoT DL 16-QAM demodulation performance**

*Type: draftCR For: Endorsement* 36.101 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2213798 Discussion and simulation results on NPDSCH requirements with 16QAM**

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

**Decision:** The document was **not treated**.

###### 9.24.6.1.2 BS demodulation requirements

**R4-2213075 BS demodulation performance for NB-IoT 16QAM**

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

**Decision:** The document was **not treated**.

**R4-2213076 Introduction of NPUSCH format 1 16QAM test requirements**

*Type: draftCR For: Endorsement* 36.141 v17.6.0 CR- rev Cat: F (Rel-17)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2213662 Simulation results for Rel-17 NB-IoT**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2213663 Draft CR on NPUSCH format1 demodulation requirement for TS 36.104**

*Type: draftCR For: Endorsement* 36.104 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2213800 Simulation results on NPUSCH requirements with 16QAM**

*Type: other For: Information  
 Source: Huawei,HiSilicon*

**Decision:** The document was **not treated**.

###### 9.24.6.1.3 Test cases for CONNECTED mode channel quality report

**R4-2212896 Test setup of NB-IoT channel quality reporting requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the detailed test setup for NB-IoT CQI reporting tests.

**Decision:** The document was **not treated**.

**R4-2212897 draft CR: channel quality reporting requirements for NB-IoT**

*Type: draftCR For: Endorsement* 36.101 v17.6.0 CR- rev Cat: B (Rel-17)  
  
 *Source: Ericsson*

**Abstract:**

This draft CR defines the channel quality reporting requirements for NB-IoT.

**Decision:** The document was **not treated**.

**R4-2213799 Simulation results on CQI requirements for Rel-17 NB-IOT**

*Type: other For: Information  
 Source: Huawei,HiSilicon*

**Decision:** The document was **not treated**.

##### 9.24.6.2 Demodulation requirements for MTC

**R4-2213801 CR: Introduction of eMTC PDSCH requirmeents with 14 HARQ processes**

*Type: CR For: Agreement* 36.101 v17.6.0 CR-5879 rev Cat: B (Rel-17)  
  
 *Source: Huawei,HiSilicon*

**Decision:** The document was **not treated**.

#### 9.24.7 Moderator summary and conclusions

**[104-e][231] NB\_IOTenh4\_LTE\_eMTC6\_RRM, AI 9.24.4 and 9.24.5 – Zhongyi Shen**

**R4-2214151 Email Discussion Summary for [104-e][231] NB\_IOTenh4\_LTE\_eMTC6\_RRM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

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## 10 Rel-18 spectrum related WIs for NR

## 11 Rel-18 non-spectrum related work items and study items for NR

### 11.8 Requirement for NR FR2 multi-Rx chain DL reception

#### 11.8.3 RRM core requirements for simultaneous DL reception from different directions

**Work plan**

**R4-2213053 Work plan for RRM requirement for NR FR2 multi-Rx chain DL reception**

*Type: discussion For: Approval  
 Source: vivo, Qualcomm*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**RRM requirements**

**R4-2212688 Discussion on RRM requirements for FR2 multi-Rx chain reception**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2213054 Discussion on RRM requirements for multi-chain DL reception**

*Type: discussion For: Discussion  
 Source: vivo*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2212466 Discussion on RRM requirements for simultaneous DL reception from different directions**

*Type: discussion For: Discussion  
 Source: Samsung*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211642 Discussion on Rel-18 multi Rx pannel RRM**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211768 Views on FR2 multi Rx chain DL reception**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: NTT DOCOMO, INC.*

**Decision:** The document was **not treated**.

**R4-2211883 RRM requirements for NR FR2 multi-Rx chain DL reception**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211940 Discussion on RRM requirements for simultaneous DL reception from different directions**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212062 Initial discussion on RRM requirements for simultaneous DL reception from different directions**

*Type: discussion For: Approval* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212180 Impacts on RRM to support FR2 multi-Rx chain DL reception from multi-TRP**

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

**Decision:** The document was **not treated**.

**R4-2212219 Discussion on RRM for simultaneous DL reception from different directions**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2212512 Discussion on simultaneous DL reception from different directions**

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

**Decision:** The document was **not treated**.

**R4-2213289 Discussion on RRM requirements for simultaneous DL reception from different directions**

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

**Decision:** The document was **not treated**.

**R4-2213495 Discussion on RRM impacts for R18 FR2 multi-Rx chain DL reception**

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

**Decision:** The document was **not treated**.

**R4-2213872 Discussion on RRM requirements for simultaneous DL reception from different directions**

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

**Decision:** The document was **not treated**.

**R4-2213957 Discussion on general RRM issues for simultaneous DL reception from different directions**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this paper, we provide our views on RRM requirements for UE supporting multi-RX chain with simultaneous reception using QCL type D

**Decision:** The document was **not treated**.

#### 11.8.4 Moderator summary and conclusions

**[104-e][233] FR2\_multiRx\_RRM, AI 11.8.3 – Qian Yang**

**R4-2214153 Email Discussion Summary for [104-e][233] FR2\_multiRx\_RRM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

### 11.9 Even Further RRM enhancement for NR and MR-DC

#### 11.9.1 General and work plan

**Work plan**

**R4-2211851 Work plan for R18 eFeRRM**

*Type: Work Plan For: Agreement  
 Source: Apple*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

#### 11.9.2 RRM core requirements for FR2 SCell activation delay reduction

**FR2 SCell activation delay reduction**

**R4-2211852 Preliminary discussion on FR2 SCell activation enhancement**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: Apple*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2212972 Discussion on FR2 SCell activation delay reduction**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2212277 Discussion on FR2 SCell activation delay reduction**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211769 Discussions on FR2 SCell activation**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: NTT DOCOMO, INC.*

**Decision:** The document was **not treated**.

**R4-2211941 Discussion on FR2 Scell activation delay reduction**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2211964 Discussion on FR2 SCell activation delay reduction**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212063 Initial discussion on FR2 Scell activation delay reduction**

*Type: discussion For: Approval* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212125 Discussion on FR2 SCell activation delay reduction**

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

**Decision:** The document was **not treated**.

**R4-2212217 Discussion on FR2 SCell activation delay reduction**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2212513 Discussion on FR2 SCell activation delay reduction**

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

**Decision:** The document was **not treated**.

**R4-2213039 Discussion on FR2 Scell activation delay reduction requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213286 Discussion on RRM requirements for FR2 SCell activation delay reduction**

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

**Decision:** The document was **not treated**.

**R4-2213869 Discussion on RRM requirements for FR2 SCell activation delay reduction**

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

**Decision:** The document was **not treated**.

**R4-2213958 On FR2 SCell activation delay reduction**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this paper, we provide our views on FR2 SCell activation delay reduction.

**Decision:** The document was **not treated**.

#### 11.9.3 RRM core requirements for FR1-FR1 NR-DC

**FR1 – FR1 NR-DC**

**R4-2211853 Preliminary discussion on RRM for FR1-FR1 NR-DC**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: Apple*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2213902 Discussion on NRDC FR1 FR1 RRM requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

RRM requirement for NR DC FR1 FR1

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211967 Discussion on RRM core requirements for FR1-FR1 NR-DC**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212064 Initial discussion on RRM requiremetns for FR1-FR1 NR-DC**

*Type: discussion For: Approval* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212126 Discussion on FR1-FR1 NR-DC**

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

**Decision:** The document was **not treated**.

**R4-2212514 Discussion on FR1-FR1 NR-DC**

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

**Decision:** The document was **not treated**.

**R4-2212861 discussion on FR1-FR1 NR-DC**

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

**Abstract:**

discussion on FR1-FR1 NR-DC requirements

**Decision:** The document was **not treated**.

**R4-2212973 Discussion RRM requirements for FR1-FR1 NR-DC**

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

**Decision:** The document was **not treated**.

**R4-2213040 Discussion on FR1-FR1 NR-DC requirements**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

#### 11.9.4 Moderator summary and conclusions

**[104-e][234] NR\_RRM\_enh3, AI 11.9.1, 11.9.2 and 11.9.3 – Jerry Cui**

**R4-2214154 Email Discussion Summary for [104-e][234] NR\_RRM\_enh3**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

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### 11.10 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps

#### 11.10.1 General and work plan

**Work plan**

**R4-2213651 work plan for Further Enhancements on NR and MR-DC Measurement Gaps and Measurements without Gaps for RRM**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

#### 11.10.2 RRM core requirements for pre-configured MGs, multiple concurrent MGs and NCSG

**Joing requirements**

**R4-2211742 Initial discussion on RRM requirements for combination of pre-MG, concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: CATT*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2212766 Discussion on PreMG, ConMG, NCSG**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the requirement for Pre-MG, ConMGs and NCSG

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211907 On R18 pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211934 Discussion on combination of pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2211965 RRM requirement for the combination of multiple concurrent gaps, pre-MG and NCSG**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212059 Initial discussion on RRM requirements for joint operation of MGs**

*Type: discussion For: Approval* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212131 Discussion on RRM requirements for pre-configured MGs, multiple concurrent MGs and NCSG**

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

**Decision:** The document was **not treated**.

**R4-2212208 On joint requirements for Rel-17 measurement gap enhancements**

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

**Decision:** The document was **not treated**.

**R4-2213060 Discussion on further enhancements of measurement gaps**

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

**Decision:** The document was **not treated**.

**R4-2213061 Discussion on requirements for concurrent measurement gaps, pre-configured gaps and NCSG**

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

**Decision:** The document was **not treated**.

**R4-2213287 Discussion on RRM requirements for joint considerations between pre-MG, concurrent MG and NCSG for NR and MR-DC**

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

**Decision:** The document was **not treated**.

**R4-2213448 Initial considerations on pre-configured MGs, multiple concurrent MGs and NCSG**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213563 Discussion on joint working of eMG features**

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

**Decision:** The document was **not treated**.

**R4-2213652 RRM core requirements for pre-configured MGs multiple concurrent MGs and NCSG**

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

**Decision:** The document was **not treated**.

**R4-2213870 Discussion on RRM requirements for joint considerations between pre-MG, concurrent MG and NCSG for NR and MR-DC**

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

**Decision:** The document was **not treated**.

#### 11.10.3 RRM core requirements for measurements without gaps

**Gapless measurements**

**R4-2211908 On measurements without gaps**

*Type: discussion For: Discussion  
 Source: Apple*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211935 Discussion on measurements without gaps**

*Type: discussion For: Discussion  
 Source: CMCC*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211620 Initial view for RRM core requirements for measurements without gaps**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2211743 Initial discussion on RRM requirements for measurement without gaps**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211968 Discussion on RRM requirements for measurement without gaps**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212060 Initial discussion on RRM requirements for measurements without gaps**

*Type: discussion For: Approval* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212132 Discussion on RRM requirements for measurement without gaps**

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

**Decision:** The document was **not treated**.

**R4-2212690 Discussion on further enhancements for gapless measurements**

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

**Decision:** The document was **not treated**.

**R4-2212767 Discussion on gapless measurement**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the gapless measurement requirement

**Decision:** The document was **not treated**.

**R4-2213288 Discussion on RRM requirements for measurement without gaps for NR and MR-DC**

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

**Decision:** The document was **not treated**.

**R4-2213449 Initial considerations on measurements without gaps**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213564 Discussion on MG-less measurement in feMG**

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

**Decision:** The document was **not treated**.

**R4-2213653 RRM core requirements for measurements without gaps**

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

**Decision:** The document was **not treated**.

**R4-2213871 Discussion on RRM requirements for measurement without gaps for NR and MR-DC**

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

**Decision:** The document was **not treated**.

#### 11.10.4 Moderator summary and conclusions

**[104-e][235] NR\_MG\_enh2, AI 11.10 – Ato Yu**

**R4-2214155 Email Discussion Summary for [104-e][235] NR\_MG\_enh2**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

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

#### 11.12.4 Identification of RRM core requirements

**R4-2211643 Discussion on Rel-18 ATG RRM**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211918 Overview on RRM reuqirements for ATG UE**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212302 Overview of RRM core requirements for ATG**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212384 Discussion on RRM core requirements for ATG UE**

*Type: discussion For: Discussion  
 Source: LG Electronics UK*

**Decision:** The document was **not treated**.

**R4-2212696 Discussions on A2G RRM requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

A contribution discussing the RRM imapct of A2G work item.

**Decision:** The document was **not treated**.

**R4-2212974 Discussion on RRM requirements for ATG**

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

**Decision:** The document was **not treated**.

**R4-2213285 Discussion on RRM requirements for air-to-ground network**

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

**Decision:** The document was **not treated**.

**R4-2213868 Discussion on RRM requirements for air-to-ground network**

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

**Decision:** The document was **not treated**.

#### 11.12.5 Moderator summary and conclusions

**[104-e][236] NR\_ATG\_RRM, AI 11.12.4 – Shiyuan Wang**

**R4-2214156 Email Discussion Summary for [104-e][236] NR\_ATG\_RRM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

### 11.16 Further NR mobility enhancements

#### 11.16.1 General and work plan

**Work plan**

**R4-2211550 Work Plan for Further NR Mobility Enhancements**

*Type: Work Plan For: Approval  
 Source: MediaTek (Shenzhen) Inc., Apple*

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

#### 11.16.2 Study of improvement on FR2 SCell/SCG setup/resume

**FR2 SCell setup and resume**

**R4-2212869 Discussion on requirements of FR2 measurements for DC/CA setup/resume**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211910 Study of improvement on FR2 SCell/SCG setup/resume**

*Type: discussion For: Discussion  
 Source: Apple*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2213013 Discussion on improvement on FR2 SCell/SCG setup/resume**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211685 Discussion on FR2 Scell/SCG setup/resume**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211938 Discussion on FR2 SCell/SCG setup/resume**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2211966 Discussion on the improvement of FR2 Scell/SCG setup delay**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212408 Discussion on improvement on FR2 SCell/SCG setup/resume**

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

**Decision:** The document was **not treated**.

**R4-2213018 Discussion on the improvement on FR2 SCell/SCG setup/resume**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213903 Discussion on the study of improvement on FR2 Scell/SCG setup/resume**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Early measurement enhancement for moblity work item

**Decision:** The document was **not treated**.

#### 11.16.3 Others

**L1/L2 based inter-cell mobility**

**R4-2212671 Discussion on potential RRM impacts in R18 L1L2 mobility**

*Type: discussion For: Discussion  
 Source: vivo*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2213012 Discussion on L1/L2 based inter-cell mobility for mobility latency reduction**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**CHO and CPAC**

**R4-2213014 Preliminary discussion on CPAC with subsequent CPC and CHO with candidate SCGs for R18 Further NR Mobility Enhancements**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2213019 Discussion on the potential impact on further NR mobility enhancements for MR-DC/CA**

*Type: discussion For: Discussion  
 Source: vivo*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211686 Discussion on RRM impacts for mobility enhancements**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2211911 On other RRM issue in R18 mobility enhancement**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212409 Discussion on L1/L2 mobility**

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

**Decision:** The document was **not treated**.

**R4-2212870 Discussion of RAN4 Aspects of L1/L2 Centric Mobility**

*Type: discussion For: Discussion* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2213959 On L1/L2 inter-cell mobility**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this paper, we provide our views on L1/L2 mobility.

**Decision:** The document was **not treated**.

#### 11.16.4 Moderator summary and conclusions

**[104-e][237] NR\_Mob\_enh2, AI 11.16 – Miao Wang**

**R4-2214157 Email Discussion Summary for [104-e][237] NR\_Mob\_enh2**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

### 11.17 Dual Tx/Rx Multi-SIM for NR

#### 11.17.1 General and work plan

**Work plan**

**R4-2213450 Work plan for Dual Transmission Reception (Tx Rx) Multi-SIM for NR WI.**

*Type: Work Plan For: Endorsement  
 Source: vivo*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

#### 11.17.2 RRM requirements for Rel-17 MUSIM gaps

**RRM scope**

**R4-2213451 Initial consierations on RRM requirements for Rel-17 MUSIM gaps**

*Type: discussion For: Discussion  
 Source: vivo*

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2213562 Discussion on RRM requirements for MUSIM gaps**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2211591 Discussion on RRM requirements for Rel-17 MUSIM gaps**

*Type: discussion For: (not specified)  
 Source: Charter Communications, Inc*

**Decision:** The document was **not treated**.

**R4-2211912 RRM requirements for Rel-17 MUSIM gaps**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211939 Discussion on RRM requirements for Rel-17 MUSIM gaps**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2211969 Discussion on RRM requirements for Rel-17 MUSIM gaps**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212061 Discussion on RRM requirements for Rel-17 MUSIM gaps**

*Type: discussion For: Approval* 38.133 v CR- rev Cat: (Rel-18)  
  
 *Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2212209 On requirements for Rel-17 MUSIM gaps**

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

**Decision:** The document was **not treated**.

**R4-2212343 Potential RF related issues for the MUSIM enhancements**

*Type: discussion For: Decision  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2212687 Discussion on Rel 18 RRM requirements for MUSIM**

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

**Decision:** The document was **not treated**.

**R4-2212765 Discussion on MUSIM gaps**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the requirement for MUSIM gaps

**Decision:** The document was **not treated**.

**R4-2213748 Discussion on RRM requirements for MUSIM gaps**

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

**Decision:** The document was **not treated**.

#### 11.17.3 Moderator summary and conclusions

**[104-e][238] NR\_DualTxRx\_MUSIM, AI 11.17 – Xusheng Wei**

**R4-2214158 Email Discussion Summary for [104-e][238] NR\_DualTxRx\_MUSIM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

.

## 12 Rel-18 Work Items for LTE

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

#### 12.5.5 RRM core requirements

**R4-2212908 Discussion on RRM requirements for IoT NTN**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2212404 RRM requirements for LTE NB-IoT/eMTC over NTN**

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

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2213415 Overview of RRM requirements for NTN IoT**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

A contribution discussing the RRM imapct of NTN IoT work item.

**Abstract:**

**Decision:** The document was **not treated**.

**Discussions:**

**Agreement:**

**R4-2213745 Discussion on RRM core requirements for LTE NB-IoT NTN and eMTC NTN**

*Type: discussion For: Decision  
 Source: CMCC*

**Decision:** The document was **not treated**.

#### 12.5.6 Moderator summary and conclusions

**[104-e][239] LTE\_NBeMTC\_NTN\_RRM, AI 12.5.5 – Hsuanli Lin**

**R4-2214159 Email Discussion Summary for [104-e][239] LTE\_NBeMTC\_NTN\_RRM**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

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## 13 Liaison and output to other groups

### 13.1 R18 related

#### 13.1.1 Maximum uplink timing difference for multi-DCI multi-TRP with two TAs (R1-2205593)

**R4-2211906 Reply LS on maximum uplink timing difference for multi-DCI multi-TRP with two TAs**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2211979 On Maximum uplink timing difference for multi-DCI multi-TRP with two TAs**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2212115 On Multiple TA for multi-TRP MRTD MTTD limits**

*Type: other For: Approval  
 Source: InterDigital Communications*

**Abstract:**

In this contribution, we share our analysis and propose an answer for the LS reply to RAN1.

**Decision:** The document was **not treated**.

**R4-2212326 Reply LS to RAN1 on mTRP mDCI mTAG TA difference**

*Type: LS out For: Discussion* to RAN1  
 *Source: Qualcomm Incorporated*

**Abstract:**

Inter-band CA MTTD is a ready estimate

**Decision:** The document was **not treated**.

**R4-2212468 Discussion on maximum uplink timing difference for Multi-DCI Multi-TRP with two TAs and Reply LS**

*Type: LS out For: Approval* to RAN1  
 *Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2212527 Discussion on LS on maximum uplink timing difference for Multi-DCI Multi-TRP with two TAs**

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

**Decision:** The document was **not treated**.

**R4-2212672 Discussion and draft reply LS on maximum uplink timing difference for multi-DCI multi-TRP with two TAs**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2212917 Discussion on maximum uplink timing difference for multi-DCI multi-TRP with two TAs**

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

**Decision:** The document was **not treated**.

**R4-2213304 Reply LS on maximum uplink timing difference for Multi-DCI Multi-TRP with two TAs**

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

**Decision:** The document was **not treated**.

**R4-2213496 Reply LS on maximum uplink timing difference for multi-DCI multi-TRP with two TAs**

*Type: LS out For: Approval* to RAN1  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213887 Reply LS on maximum uplink timing difference for Multi-DCI Multi-TRP with two TAs**

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

**Decision:** The document was **not treated**.

**R4-2213960 Discussion on MTTD for multi-DCI multi-TRP with two TAs**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this paper, we provide our views on RAN1 LS regarding the maximum TA difference in multi-DCI multi-TA framework.

**Decision:** The document was **not treated**.

**R4-2213961 LS on maximum uplink timing difference for Multi-DCI Multi-TRP with two TAs**

*Type: LS out For: Approval* to RAN1  
 *Source: Ericsson*

**Abstract:**

We provide form reply LS to RAN1 LS regarding the maximum TA difference in multi-DCI multi-TA framework.

**Decision:** The document was **not treated**.

#### 13.1.3 UE antenna gain for NR NTN coverage enhancement (R1-2205623)

**R4-2212307 LS to RAN1 about NTN UE antenna gain**

*Type: LS out For: Action* to RAN1  
 *Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2212656 LS Reply to RAN1 on UE antenna gain**

*Type: LS out For: Approval* to RAN WG1  
 *Source: Ericsson*

**Abstract:**

This contribution is a LS Reply to RAN1 related to UE antenna gain for NR NTN coverage enhancement (R1-2205623)

**Decision:** The document was **not treated**.

**R4-2212822 On reply to RAN1 on UE antenna gain for NR NTN**

*Type: discussion For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2213165 Draft LS on UE antenna gain for NR NTN coverage enhancement**

*Type: LS out For: Approval* to RAN1  
 *Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2213701 Draft Reply LS on UE antenna gain for NR NTN coverage enhancement**

*Type: LS out For: Approval* to RAN1  
 *Source: ZTE Corporation*

**Decision:** The document was **not treated**.

### 13.2 R17 related

#### 13.2.1 UL Segmented Transmission for UL synchronization for IoT NTN (R1-2205642)

**R4-2212909 Discussion on UL synchronization for IoT NTN**

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

**Decision:** The document was **not treated**.

**R4-2213572 Views on RAN4 action on UL Segmented Transmission for UL synchronization for IoT NTN**

*Type: other For: Approval  
 Source: Sony*

**Decision:** The document was **not treated**.

### 13.4 Moderator summary and conclusions

**[104-e][240] LS\_reply, AI 13.1.1, 13.1.3 and 13.2.1 – Yuexia Song**

**R4-2214160 Email Discussion Summary for [104-e][240] LS\_reply**

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

**Abstract:**

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

**Decision: Return to.**

**Conclusions after 1st round**

**Conclusions after 2nd round**

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**GTW on Aug-23**

**Topic #2: Feature Group 6-1a (R2-2204009, RP-221870)**

**Issue 2-2: if the answer to Sub-topic 2-2 is ”no”, how should the UE perform BM/RLM/BFD when the active BWP does not contain SSB?**

* Proposals
  + Option 1:

Perform BM/RLM/BFD based on CSI-RS are mandatory features, and should be the baseline assumption for supporting *bwp-WithoutRestriction*.

* + Option 1a (New):

Perform BM/RLM/BFD based on CSI-RS are mandatory features, and should be the baseline assumption for supporting *bwp-WithoutRestriction*.

* + - For FR2: the CSI-RS repetition is on (FFS).
  + Option 2:

UE should be allowed to perform BM/RLM/BFD when the active BWP does not contain SSB, which is up to UE implementation at least in Rel-15/16/17.

* + Option 3:

It is feasible to perform BM/RLM/BFD on RSs that are not contained within the active BWP based on following:

* + - UE’s capability to operate using larger BW,
    - Whether UE is equipped with a separate RF chain
  + Option 4:

To support the concerning scenario, existing RAN4 requirements need to be updated by taking into the following potential aspects.

* + - FFS on RF re-tuning before and after the measurement should be allowed for UE to perform L1 measurement on SSB outside BWP.
    - FFS on L1 measurement on SSB outside BWP are performed with shared MG or NCSG for L3 measurement.
    - FFS on Intra-frequency GAP and CSSF for L1 measurement
    - RAN4 shall not rely on CSI-RS for BM/RLM/BFD in FR2 for the BWP operation without SSB.
  + Option 5:

developing the NCD-SSB approach which would work with existing UE hardware architectures (FG6-1) and be compatible with existing RAN4 specifications for BM/RLM/BFD

* + Option 6 (new):

It is feasible to perform BM/RLM/BFD on RSs that are not contained within the active BWP based on following: UE’s capability to operate using larger BW

**Discussions:**

**Agreement:**

**Issue 2-3: in which release and how to introduce enhanced RRM requirements to support Feature Group 6-1a “bwp-WithoutRestriction”?**

* Proposals
  + Option 1:

Continue discussion in Rel-17 under TEI17

* + Option 2:

In Rel-18 under the umbrella WI “ Rel-18 RRM enhancement”

* + - The support of Feature Group 6-1a “*bwp-WithoutRestriction*” in Rel-17 is left to implementation.
  + Option 3:

Feature Group 6-1a “*bwp-WithoutRestriction*” with mandatory supporting FG 1-7 and /or 2-31, and the corresponding requirements can already be supported from Rel-15.

* + Option 3a (new):

Feature Group 6-1a “bwp-WithoutRestriction” with mandatory supporting FG 1-7 and /or 2-31 and/or FG-24, and the corresponding requirements can already be supported from Rel-15.

* + - For FR2: the CSI-RS repetition is on (FFS).
  + Option 4 (new):

Leave it to RAN decision.

**Discussions:**

**Agreement:**

**Topic #1: Time differentiate for MIMO with two TAs (R1-2205593)**

**Issue 1-1: Align views on whether MRTD/MTTD requirements in 38.133 cover intra-cell case (2CCs)**

*NOTE: the following terminology is used in Option 1/2/3.*

* + - *MRTD/MTTD for CA, DC*
    - *MRTD/MTTD for intra-cell MIMO (single CC and different TRP having same physical cell ID)*
    - *MRTD/MTTD for inter-cell MIMO (single CC and different TRP having different cell ID).*
* Proposals
  + Option 1 (modified): The current MRTD/MTTD requirements in RAN4 only defines the time difference limitation for different CC case, e.g. CA and DC, but not MIMO.
  + Option 1a: The current MRTD/MTTD requirements in RAN4 only defines the time difference limitation for different CC case (i.e., CA or DC). However, the requirements shall also be applicable to the case in which “UE is configured to receive multiple PDSCH transmission occasions from one or more QCL sources on any one of the aggregated NR carriers.”
  + Option 2: The current MRTD/MTTD requirement in RAN4 cover CA, DC and intra-cell and inter-cell MIMO.

**Discussions:**

**Agreement:**

**Issue 1-2: MTTD for multiple TRPs for intra-cell case (single CC)**

* Proposals
  + Option 1:

the maximum uplink transmit timing difference between multiple TRPs can be assumed within a CP length (single FFT)

* + Option 2:

the maximum transmit timing difference depends on UE capability on number of panels

* + - For single UE panel, the MTTD between UL signals should be within CP.
    - For multiple UE panels, the MTTD between UL signals may be larger than CP, e.g. MTTD for CA case.
  + Option 3:

the maximum uplink transmission timing difference refer to the Rel-18 RAN4 intra-band non-collocated WID defined MTTD requirement.

* + Option 4:

RAN4 to reuse MRTD and MTTD values of inter-band CA scenario for multi-DCI and multi-TA feature of Rel-18 MIMO.

* + Option 5:

The maximum uplink timing difference can be assumed as:

* + - For FR1, not larger than CP+1.6µs
    - For FR2, not larger than CP+0.5µs
  + Option 6 (new):
    - For FR1 UE, or for FR2 UE which is only able to Tx from one panel at a time, the maximum Tx timing difference between different carriers in CA/DC scenario that UE is required to assumed, is specified in clause 7.5.4 of TS 38.133, and it is up to RAN 1 to define the Tx timing difference within the single carrier.
    - For FR2 UE that is capable of simultaneous Tx from 2 different panels, RAN4 postpone the discussion until the RTD assumption is concluded in R18 multi-Rx chain WI.

**Discussions:**

**Agreement:**

**Issue 1-3: MTTD for multiple TRPs for inter-cell case (multiple CC)**

* Proposals
  + Option 1:

the maximum uplink transmit timing difference between multiple TRPs can be assumed within a CP length (single FFT)

* + Option 2:

the maximum transmit timing difference depends on UE capability on the number of panels

* + - For single UE panel, the MTTD between UL signals should be within CP.
    - For multiple UE panels, the MTTD between UL signals may be larger than CP, e.g. MTTD for CA case.
  + Option 3:

the current inter-band CA MTTD requirement can be reused.

* + Option 4:

RAN4 to reuse MRTD and MTTD values of inter-band CA scenario for multi-DCI and multi-TA feature of Rel-18 MIMO.

* + Option 5:

The maximum uplink timing difference

* + - For FR1, not larger than CP+1.6µs
    - For FR2, not larger than CP+0.5µs
  + Option 6 (new):
    - For FR1 UE, or for FR2 UE which is only able to Tx from one panel at a time, the maximum Tx timing difference between different carriers in CA/DC scenario that UE is required to assumed, is specified in clause 7.5.4 of TS 38.133, and it is up to RAN 1 to define the Tx timing difference within the single carrier.
    - For FR2 UE that is capable of simultaneous Tx from 2 different panels, RAN4 postpone the discussion until the RTD assumption is concluded in R18 multi-Rx chain WI.

**Discussions:**

**Agreement:**

## 14 Revision of the Work Plan

## 15 Any other business

## 16 Close of the E-meeting

Report prepared by: MCC

3:2020 for the upper frequency range of the RI test, Rel-17

*Type: draftCR For: Endorsement  
 38.113 v17.1.0 CR- rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

**Abstract:**

Based on the updated content of the IEC 61000-4-3:2020 specification, the related 6GHz upper frequency limit for the Radiated Immunity testing is removed with the consideration of possible test lab capability limitation beyond 6GHz.

**Decision:** The document was **not treated**.