**3GPP TSG-RAN WG4 Meeting #100-e R4-210xxxx**

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

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## 4 Rel-15 and previous release maintenance

### 4.1 Rel-15 New radio access technology

#### 4.1.7 RRM core requirements maintenance (38.133/36.133)

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**Email discussion: [99-e][201] NR\_RRM\_maintenance\_R15\_Core**

**R4-2108125 Email discussion summary: [99-e][201] NR\_RRM\_maintenance\_R15\_Core** *Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2109294 Maintenance on CSSF for EN-DC and deactivated SCell measurement R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1885 rev Cat: F (Rel-15)  
  
 Source: Apple, Huawei, HiSilicon*

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

**R4-2109295 Maintenance on CSSF for EN-DC and deactivated SCell measurement R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1886 rev Cat: A (Rel-16)  
  
 Source: Apple, Huawei, HiSilicon*

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

**R4-2109296 Maintenance on CSSF for EN-DC and deactivated SCell measurement R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1887 rev Cat: A (Rel-17)  
  
 Source: Apple, Huawei, HiSilicon*

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

**R4-2109319 Core requirement maintenance on signal characteristics (R15)**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1896 rev Cat: F (Rel-15)  
  
 Source: Apple*

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

**R4-2109320 Core requirement maintenance on signal characteristics (R16)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1897 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

**R4-2109321 Core requirement maintenance on signal characteristics (R17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1898 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

**R4-2109621 CR on RRC-based BWP switch on single CC requirements**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1925 rev Cat: F (Rel-15)  
  
 Source: vivo*

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

**R4-2109622 CR on RRC-based BWP switch on single CC requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1926 rev Cat: A (Rel-16)  
  
 Source: vivo*

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

**R4-2109623 CR on RRC-based BWP switch on single CC requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1927 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

**R4-2109848 CR on scheduling restriction of UE during intra-frequency measurements on FR2 in R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1938 rev Cat: F (Rel-15)  
  
 Source: MediaTek inc.*

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

**R4-2109849 CR on scheduling restriction of UE during intra-frequency measurements on FR2 in R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1939 rev Cat: A (Rel-16)  
  
 Source: MediaTek inc.*

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

**R4-2109850 CR on scheduling restriction of UE during intra-frequency measurements on FR2 in R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1940 rev Cat: A (Rel-17)  
  
 Source: MediaTek inc.*

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

**R4-2109983 CR on TS38.133 inter-frequency without gaps - r15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1957 rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

The CR corrects no gapless inter-frequency measurements in R-15

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

**R4-2110358 CR on measurement on deactivated SCell and interruption to NR serving cells for measurements on deactivated NR Scell**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2031 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110359 CR on measurement on deactivated SCell and interruption to NR serving cells for measurements on deactivated NR SCell**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2032 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110360 CR on measurement on deactivated SCell and interruption to NR serving cells for measurements on deactivated NR SCell**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2033 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110749 Correction to interruption to LTE serving cells for measurements on deactivated NR SCell\_R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7106 rev Cat: A (Rel-16)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110750 Correction to interruption to LTE serving cells for measurements on deactivated NR SCell\_R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7107 rev Cat: A (Rel-17)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110769 Correction to interruption to LTE serving cells for measurements on deactivated NR SCell\_R15**

*Type: CR For: Agreement  
 36.133 v15.13.0 CR-7108 rev Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110846 Discussion on remaining issues in Rel-15 NR RRM requirements**

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

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

**R4-2110848 CR on Rel-15 SCell activation, SMTC determination and UL timing 38133 R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2077 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110849 CR on Rel-15 SCell activation, SMTC determination and UL timing 38133 R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2078 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110851 CR on applicability of requirements for NE-DC operation and SMTC determination 36133 R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7110 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110852 CR on applicability of requirements for NE-DC operation and SMTC determination 36133 R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7111 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110927 CR on Rel-15 SCell activation, SMTC determination and UL timing 38133**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2103 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110928 CR on applicability of requirements for NE-DC operation and SMTC determination 36133**

*Type: CR For: Agreement  
 36.133 v15.13.0 CR-7120 rev Cat: F (Rel-15)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111028 discussion on RRC-based BWP switch on single CC in Rel15**

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

**Abstract:**

discussion on RRC-based BWP switch on multiple CCs

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

**R4-2111029 CR on RRC-based BWP switch on single CC in Rel15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2106 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

CR on RRC-based BWP switch on single CC in Rel15

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

**R4-2111030 CR on RRC-based BWP switch on single CC in Rel16 - Cat A**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2107 rev Cat: A (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Cat-A CR on RRC-based BWP switch on single CC in Rel16

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

**R4-2111031 CR on RRC-based BWP switch on single CC in Rel17 - Cat A**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2108 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Cat-A CR on RRC-based BWP switch on single CC in Rel17

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

**R4-2111032 CR on NR-DC PSCell addition and release delay in Rel15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2109 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Maintenance CR NR-DC PSCell addition and release delay in Rel15

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

**R4-2111033 CR on NR-DC PSCell addition and release delay in Rel16 - Cat A**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2110 rev Cat: A (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Cat-A Maintenance CR NR-DC PSCell addition and release delay in Rel16

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

**R4-2111034 CR on NR-DC PSCell addition and release delay in Rel17 - Cat A**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2111 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Cat-A Maintenance CR NR-DC PSCell addition and release delay in Rel17

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

**R4-2111313 Correction to reference point definition for UE timing in TS 38.133**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2134 rev Cat: F (Rel-15)  
  
 Source: Ericsson, Nokia, Intel*

**Abstract:**

Definition of reference point for UE timing error is clarified

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

**R4-2111314 Correction to reference point definition for UE timing in TS 38.133**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2135 rev Cat: A (Rel-16)  
  
 Source: Ericsson, Nokia, Intel*

**Abstract:**

Definition of reference point for UE timing error is clarified

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

**R4-2111315 Correction to reference point definition for UE timing in TS 38.133**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2136 rev Cat: A (Rel-17)  
  
 Source: Ericsson, Nokia, Intel*

**Abstract:**

Definition of reference point for UE timing error is clarified

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

#### 4.1.8 RRM performance requirements maintenance (38.133/36.133)

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**Email discussion: [99-e][202] NR\_RRM\_maintenance\_R15\_Perf**

**R4-2108126 Email discussion summary: [99-e][202] NR\_RRM\_maintenance\_R15\_Perf** *Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

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2nd round email discussion conclusions

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**R4-2108825 CR to Interruptions during measurements on deactivated NR SCC**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1810 rev Cat: F (Rel-15)  
  
 Source: Anritsu corporation*

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

**R4-2108826 CR to Interruptions during measurements on deactivated NR SCC**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1811 rev Cat: A (Rel-16)  
  
 Source: Anritsu corporation*

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

**R4-2108827 CR to Interruptions during measurements on deactivated NR SCC**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1812 rev Cat: A (Rel-17)  
  
 Source: Anritsu corporation*

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

**R4-2108828 CR to CSI-RS based L1-RSRP measurement on resource set with repetition off TCs**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1813 rev Cat: F (Rel-15)  
  
 Source: Anritsu corporation*

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

**R4-2108829 CR to CSI-RS based L1-RSRP measurement on resource set with repetition off TCs**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1814 rev Cat: A (Rel-16)  
  
 Source: Anritsu corporation*

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

**R4-2108830 CR to CSI-RS based L1-RSRP measurement on resource set with repetition off TCs**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1815 rev Cat: A (Rel-17)  
  
 Source: Anritsu corporation*

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

**R4-2108831 CR to the notation of SMTC in the general test parameters of Re-establishment TCs**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1816 rev Cat: F (Rel-15)  
  
 Source: Anritsu corporation*

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

**R4-2108832 CR to the notation of SMTC in the general test parameters of Re-establishment TCs**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1817 rev Cat: A (Rel-16)  
  
 Source: Anritsu corporation*

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

**R4-2108833 CR to the notation of SMTC in the general test parameters of Re-establishment TCs**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1818 rev Cat: A (Rel-17)  
  
 Source: Anritsu corporation*

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

**R4-2108834 CR to BWP configuration for interruption test case.**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1819 rev Cat: F (Rel-15)  
  
 Source: Anritsu corporation*

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

**R4-2108835 CR to BWP configuration for interruption test case.**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1820 rev Cat: A (Rel-16)  
  
 Source: Anritsu corporation*

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

**R4-2108836 CR to BWP configuration for interruption test case.**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1821 rev Cat: A (Rel-17)  
  
 Source: Anritsu corporation*

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

**R4-2108837 CR to new SMTC pattern for ReSelection back in A.6.1.1.1**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1822 rev Cat: F (Rel-15)  
  
 Source: Anritsu corporation*

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

**R4-2108838 CR to new SMTC pattern for ReSelection back in A.6.1.1.1**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1823 rev Cat: A (Rel-16)  
  
 Source: Anritsu corporation*

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

**R4-2108839 CR to new SMTC pattern for ReSelection back in A.6.1.1.1**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1824 rev Cat: A (Rel-17)  
  
 Source: Anritsu corporation*

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

**R4-2108840 Update of DRX configuration in Event-triggered Test cases**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1825 rev Cat: F (Rel-15)  
  
 Source: Anritsu corporation*

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

**R4-2108841 Update of DRX configuration in Event-triggered Test cases**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1826 rev Cat: F (Rel-16)  
  
 Source: Anritsu corporation*

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

**R4-2108842 Update of DRX configuration in Event-triggered Test cases**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1827 rev Cat: A (Rel-17)  
  
 Source: Anritsu corporation*

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

**R4-2108843 Correction to FR1 NR SA interruption during SCell measurement test cases**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1828 rev Cat: F (Rel-15)  
  
 Source: Anritsu corporation*

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

**R4-2108844 Correction to FR1 NR SA interruption during SCell measurement test cases**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1829 rev Cat: A (Rel-16)  
  
 Source: Anritsu corporation*

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

**R4-2108845 Correction to FR1 NR SA interruption during SCell measurement test cases**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1830 rev Cat: A (Rel-17)  
  
 Source: Anritsu corporation*

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

**R4-2108849 CA channel BW configuration shortage for RRM TCs**

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

**Abstract:**

In this contribution we would like to raise an issue with a shortage of CA channel BW configuration with RRM TCs.

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

**R4-2108850 PDSCH scheduling issue during SMTC for interference TC**

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

**Abstract:**

In this paper we raise an issue with PDSCH scheduling during SMTC for interference TC.

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

**R4-2108883 Update RRM Test cases where 66RBs gives insufficient dB range**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1831 rev Cat: F (Rel-15)  
  
 Source: ANRITSU LTD*

**Abstract:**

a) Update Test Configurations, choosing 24RBs where necessary, change PDSCH Reference Measurement Channel to SR.3.2 (same 24RBs as the CORESET), and change to OCNG pattern OP.3.

b) In FR2 RRC Re-establishment, update Noc and Es/Noc values to be compatible

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

**R4-2108884 Update RRM Test cases where 66RBs gives insufficient dB range**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1832 rev Cat: A (Rel-16)  
  
 Source: ANRITSU LTD*

**Abstract:**

a) Update Test Configurations, choosing 24RBs where necessary, change PDSCH Reference Measurement Channel to SR.3.2 (same 24RBs as the CORESET), and change to OCNG pattern OP.3.

b) In FR2 RRC Re-establishment, update Noc and Es/Noc values to be compatible

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

**R4-2108885 Update RRM Test cases where 66RBs gives insufficient dB range**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1833 rev Cat: A (Rel-17)  
  
 Source: ANRITSU LTD*

**Abstract:**

a) Update Test Configurations, choosing 24RBs where necessary, change PDSCH Reference Measurement Channel to SR.3.2 (same 24RBs as the CORESET), and change to OCNG pattern OP.3.

b) In FR2 RRC Re-establishment, update Noc and Es/Noc values to be compatible

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

**R4-2108886 Update Reference channels and OCNG for FR2 240kHz SSB SCS RRM Test cases**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1834 rev Cat: F (Rel-15)  
  
 Source: ANRITSU LTD*

**Abstract:**

a) Update 240kHz SSB SCS Configs to use 48RBs RMSI CORESET, Control Channel and PDSCH RMCs.

b) Update Intra-freq Event-triggered Test cases in Spherical Coverage to make verdict predictable.

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

**R4-2108887 Update Reference channels and OCNG for FR2 240kHz SSB SCS RRM Test cases**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1835 rev Cat: A (Rel-16)  
  
 Source: ANRITSU LTD*

**Abstract:**

a) Update 240kHz SSB SCS Configs to use 48RBs RMSI CORESET, Control Channel and PDSCH RMCs.

b) Update Intra-freq Event-triggered Test cases in Spherical Coverage to make verdict predictable.

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

**R4-2108888 Update Reference channels and OCNG for FR2 240kHz SSB SCS RRM Test cases**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1836 rev Cat: A (Rel-17)  
  
 Source: ANRITSU LTD*

**Abstract:**

a) Update 240kHz SSB SCS Configs to use 48RBs RMSI CORESET, Control Channel and PDSCH RMCs.

b) Update Intra-freq Event-triggered Test cases in Spherical Coverage to make verdict predictable.

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

**R4-2108949 Cat-F CR to Cell Reselection Tests with Async Cells in Rel-15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1837 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108950 Cat-A CR to Cell Reselection Tests with Async Cells in Rel-16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1838 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108951 Cat-A CR to Cell Reselection Tests with Async Cells in Rel-17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1839 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108952 Cat-F CR to Cell Reselection Tests with Async Cells in Rel-16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1840 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108953 Cat-A CR to Cell Reselection Tests with Async Cells in Rel-17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1841 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108954 Cat-F CR to FR2 CORESET and Search Space RMC in Rel-15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1842 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108955 Cat-A CR to FR2 CORESET and Search Space RMC in Rel-16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1843 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108956 Cat-A CR to FR2 CORESET and Search Space RMC in Rel-17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1844 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108957 Cat-F CR to PDSCH RMC in Rel-15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1845 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108958 Cat-A CR to PDSCH RMC in Rel-16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1846 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108959 Cat-A CR to PDSCH RMC in Rel-17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1847 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108960 Cat-F CR to TRS Configuration in Rel-15 Test Case**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1848 rev Cat: F (Rel-15)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108961 Cat-A CR to TRS Configuration in Rel-16 Test Case**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1849 rev Cat: A (Rel-16)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108962 Cat-A CR to TRS Configuration in Rel-17 Test Case**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1850 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108998 Maintenance CR for test cases - R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1855 rev Cat: F (Rel-15)  
  
 Source: ZTE Corporation*

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

**R4-2108999 Maintenance CR for test cases - R16 Cat A**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1856 rev Cat: A (Rel-16)  
  
 Source: ZTE Corporation*

**Abstract:**

This is a Cat A CR.

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

**R4-2109000 Maintenance CR for test cases - R17 Cat A**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1857 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

This is a Cat A CR.

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

**R4-2109074 CR on BFD and link recovery test cases**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1862 rev Cat: F (Rel-15)  
  
 Source: CATT*

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

**R4-2109075 CR on BFD and link recovery test cases**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1863 rev Cat: A (Rel-16)  
  
 Source: CATT*

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

**R4-2109076 CR on BFD and link recovery test cases**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1864 rev Cat: A (Rel-17)  
  
 Source: CATT*

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

**R4-2109176 Discussion on FR2 inter-frequency relative RSRP accuracy**

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

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

**R4-2109637 Correction on the SS-RSRP difference value for SS-RSRP measurement TC in R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1928 rev Cat: F (Rel-15)  
  
 Source: MediaTek inc.*

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

**R4-2109638 Correction on the SS-RSRP difference value for SS-RSRP measurement TC in R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1929 rev Cat: A (Rel-16)  
  
 Source: MediaTek inc.*

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

**R4-2109639 Correction on the SS-RSRP difference value for SS-RSRP measurement TC in R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1930 rev Cat: A (Rel-17)  
  
 Source: MediaTek inc.*

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

**R4-2109640 Correction on the CSI-reporting period for SCell activation delay in R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1931 rev Cat: F (Rel-15)  
  
 Source: MediaTek inc.*

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

**R4-2109641 Correction on the CSI-reporting period for SCell activation delay in R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1932 rev Cat: A (Rel-16)  
  
 Source: MediaTek inc.*

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

**R4-2109642 Correction on the CSI-reporting period for SCell activation delay in R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1933 rev Cat: A (Rel-17)  
  
 Source: MediaTek inc.*

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

**R4-2109847 Further considerations on FR1 FR2 test case design**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2110239 CR to TS 38.133: Correction of TDD Configuration for several TCs (Rel-15)**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1981 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

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

**R4-2110255 CR to TS 38.133: Correction of TDD Configuration for several TCs (Rel-16)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1982 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

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

**R4-2110256 CR to TS 38.133: Correction of TDD Configuration for several TCs (Rel-17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1983 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

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

**R4-2110257 CR to TS 38.133: Correction of OCNG pattern for several TCs (Rel-15)**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1984 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

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

**R4-2110258 CR to TS 38.133: Correction of OCNG pattern for several TCs (Rel-16)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1985 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

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

**R4-2110259 CR to TS 38.133: Correction of OCNG pattern for several TCs (Rel-17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1986 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

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

**R4-2110260 CR to TS 38.133: Correction of IRAT TCs (Rel-15)**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1987 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

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

**R4-2110261 CR to TS 38.133: Correction of IRAT TCs (Rel-16)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1988 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

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

**R4-2110262 CR to TS 38.133: Correction of IRAT TCs (Rel-17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1989 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

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

**R4-2110263 CR to TS 38.133: Corrections to SS-RSRP/RSRQ/SINR accuracy TCs (Rel 15)**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1990 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

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

**R4-2110264 CR to TS 38.133: Corrections to SS-RSRP/RSRQ/SINR accuracy TCs (Rel 16)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1991 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

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

**R4-2110265 CR to TS 38.133: Corrections to SS-RSRP/RSRQ/SINR accuracy TCs (Rel 17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1992 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

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

**R4-2110266 CR to TS 38.133: Several corrections to TCs (Rel 15)**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-1993 rev Cat: F (Rel-15)  
  
 Source: Rohde & Schwarz*

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

**R4-2110267 CR to TS 38.133: Several corrections to TCs (Rel 16)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1994 rev Cat: A (Rel-16)  
  
 Source: Rohde & Schwarz*

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

**R4-2110268 CR to TS 38.133: Several corrections to TCs (Rel 17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1995 rev Cat: A (Rel-17)  
  
 Source: Rohde & Schwarz*

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

**R4-2110278 CR on maintaining condition requirements in TS38.133 R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1996 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110279 CR on maintaining condition requirements in TS38.133 R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1997 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110751 Correction to CSI-RS reference configuration\_R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2056 rev Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110752 Correction to CSI-RS reference configuration\_R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2057 rev Cat: A (Rel-16)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110753 Correction to CSI-RS reference configuration\_R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2058 rev Cat: A (Rel-17)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110754 Correction to LTE DRX reference configuration\_R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2059 rev Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110755 Correction to LTE DRX reference configuration\_R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2060 rev Cat: A (Rel-16)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110758 Correction to reference configurations related to DLBWP.0.2\_R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2061 rev Cat: A (Rel-16)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110759 Correction to reference configurations related to DLBWP.0.2\_R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2062 rev Cat: A (Rel-17)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110760 Correction to TRS reference configuration\_R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2063 rev Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110761 Correction to TRS reference configuration\_R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2064 rev Cat: A (Rel-16)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110762 Correction to TRS reference configuration\_R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2065 rev Cat: A (Rel-17)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110763 Correction to FR1 test cases using DLBWP.0.2\_R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2066 rev Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110764 Correction to FR1 test cases using DLBWP.0.2\_R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2067 rev Cat: A (Rel-16)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110768 Correction to interruption during measurement on deactivated SCell test cases\_R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2068 rev Cat: A (Rel-17)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110770 Correction to LTE DRX reference configuration\_R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2069 rev Cat: A (Rel-17)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110771 Correction to reference configurations related to DLBWP.0.2\_R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2070 rev Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110772 Correction to FR1 test cases using DLBWP.0.2\_R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2071 rev Cat: A (Rel-17)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110773 Correction to interruption during measurement on deactivated SCell test cases\_R15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2072 rev Cat: F (Rel-15)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110774 Correction to interruption during measurement on deactivated SCell test cases\_R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2073 rev Cat: A (Rel-16)  
  
 Source: Huawei, Hisilicon*

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

**R4-2110782 Correction of test parameters for SA inter-frequency event triggered reporting TCs**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2074 rev Cat: F (Rel-15)  
  
 Source: Ericsson, Anritsu*

**Abstract:**

This CR corrects the test parameters for SA inter-frequency event triggered reporting test cases.

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

**R4-2110783 Correction of test parameters for SA inter-frequency event triggered reporting TCs**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2075 rev Cat: A (Rel-16)  
  
 Source: Ericsson, Anritsu*

**Abstract:**

This CR corrects the test parameters for SA inter-frequency event triggered reporting test cases.

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

**R4-2110784 Correction of test parameters for SA inter-frequency event triggered reporting TCs**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2076 rev Cat: A (Rel-17)  
  
 Source: Ericsson, Anritsu*

**Abstract:**

This CR corrects the test parameters for SA inter-frequency event triggered reporting test cases.

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

**R4-2111035 Maintenance CR for RRM test cases in Rel15**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2112 rev Cat: F (Rel-15)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Maintenance CR on RRM test cases

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

**R4-2111036 Maintenance CR for RRM test cases in Rel16 - Cat A**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2113 rev Cat: A (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Cat-A maintenance CR on RRM test cases for Rel16

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

**R4-2111037 Maintenance CR for RRM test cases in Rel17 - Cat A**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2114 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Cat-A maintenance CR on RRM test cases for Rel17

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

**R4-2111317 Correction to AoA setup in FR2**

*Type: CR For: Agreement  
 38.133 v15.13.0 CR-2137 rev Cat: F (Rel-15)  
  
 Source: Ericsson*

**Abstract:**

Correction to AoA setup in FR2 tests from Rel-15

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

**R4-2111318 Correction to AoA setup in FR2**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2138 rev Cat: A (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Correction to AoA setup in FR2 tests from Rel-15

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

**R4-2111319 Correction to AoA setup in FR2**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2139 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Correction to AoA setup in FR2 tests from Rel-15

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

**R4-2111320 Correction to AoA setup and beam assumptions in FR2 tests in Rel-16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2140 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Correction to AoA setup and beam assumptions in FR2 tests in Rel-16. AoA and beams are defined in corresponding tests in Rel-15.

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

**R4-2111321 Correction to AoA setup and beam assumptions in FR2 tests in Rel-16**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2141 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Correction to AoA setup and beam assumptions in FR2 tests in Rel-16. AoA and beams are defined in corresponding tests in Rel-15.

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

#### 4.1.10 Positioning specs maintenance (36.171, 37.171 and 38.171)

================================================================================

**Email discussion: [99-e][242] NR\_NewRAT\_Positioning**

**R4-2108166 Email discussion summary: [99-e][242] NR\_NewRAT\_Positioning** *Type: other For: Information  
 Source: Moderator (Spirent)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2108881 Addition of missing data for BDS B1C**

*Type: CR For: Agreement  
 38.171 v16.0.0 CR-0012 rev Cat: F (Rel-16)  
  
 Source: Spirent Communications*

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

**R4-2108882 Addition of missing data for BDS B1C**

*Type: CR For: Agreement  
 36.171 v16.1.0 CR-0021 rev Cat: F (Rel-16)  
  
 Source: Spirent Communications*

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

**R4-2109002 Frequency bands for testing of A-GNSS sensitivity requirements in NR and LTE**

*Type: discussion For: (not specified)  
 Source: Qualcomm Incorporated*

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

**R4-2109326 Further discussion on testing of A-GNSS Sensitivity requirements in NR and LTE**

*Type: discussion For: Discussion  
 Source: Apple*

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

**R4-2110199 Discussion on Frequency Bands for testing of A-GNSS Sensitivity requirements in NR and LTE**

*Type: discussion For: Approval  
 Source: Xiaomi*

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

**R4-2110959 Discussion on frequency bands for testing of A-GNSS Sensitivity requirements in NR and LTE**

*Type: discussion For: (not specified)  
 Source: Spirent Communications*

**Session chair: moved from AI 13.1**

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

### 4.2 LTE maintenance (up to Rel15)

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**Email discussion: [99-e][203] LTE\_RRM\_maintenance**

**R4-2108127 Email discussion summary: [99-e][203] LTE\_RRM\_maintenance** *Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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#### 4.2.3 RRM requirements

**R4-2110349 CR on RRC re-establishment for NB-IoT R13**

*Type: CR For: Agreement  
 36.133 v13.21.0 CR-7092 rev Cat: F (Rel-13)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110350 CR on RRC re-establishment for NB-IoT R14**

*Type: CR For: Agreement  
 36.133 v14.18.0 CR-7093 rev Cat: A (Rel-14)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110351 CR on RRC re-establishment for NB-IoT R15**

*Type: CR For: Agreement  
 36.133 v15.13.0 CR-7094 rev Cat: A (Rel-15)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110352 CR on RRC re-establishment for NB-IoT R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7095 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110353 CR on RRC re-establishment for NB-IoT R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7096 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110354 CR on requirements of cell reselection for NB-IoT R14**

*Type: CR For: Agreement  
 36.133 v14.18.0 CR-7097 rev Cat: F (Rel-14)  
  
 Source: Huawei, HiSilicon, MediaTek inc*

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

**R4-2110355 CR on requirements of cell reselection for NB-IoT R15**

*Type: CR For: Agreement  
 36.133 v15.13.0 CR-7098 rev Cat: A (Rel-15)  
  
 Source: Huawei, HiSilicon, MediaTek inc*

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

**R4-2110356 CR on requirements of cell reselection for NB-IoT R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7099 rev Cat: A (Rel-16)  
  
 Source: Huawei, HiSilicon, MediaTek inc*

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

**R4-2110357 CR on requirements of cell reselection for NB-IoT R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7100 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon, MediaTek inc*

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

## 5 Rel-16 maintenance

### 5.1 NR maintenance

#### 5.1.1 Enhancements on MIMO for NR

================================================================================

**Email discussion: [99-e][205] NR\_eMIMO\_RRM**

**R4-2108128 Email discussion summary: [99-e][205] NR\_eMIMO\_RRM** *Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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##### 5.1.1.1 RRM performance requirements (38.133)

###### 5.1.1.1.1 L1-SINR measurement accuracy

**R4-2110034 Discussion on FR2 L1-SINR measurement accuracy OTA test**

*Type: discussion For: Discussion  
 Source: Samsung*

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

**R4-2110280 CR on maintaining L1-SINR measurent accuracy requirements R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1998 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110281 CR on maintaining L1-SINR measurent accuracy requirements R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1999 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111272 CR to TS 38.133: Adding conditions for L1-SINR reporting (Annex B.2)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2128 rev Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

The CR provides the text proposal for the conditions for NR L1-SINR reporting, which are required by the L1-SINR accuracy requirements.

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

**R4-2111284 CR to TS 38.133: Adding conditions for L1-SINR reporting (Annex B.2)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2129 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

The CR provides the text proposal for the conditions for NR L1-SINR reporting, which are required by the L1-SINR accuracy requirements.

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

**R4-2111287 CR to TS 38.133: Corrections to the table for L1-SINR absolute accuracy for CSI-RS based CMR only (10.1.27.1.1)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2132 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

The table reference number and the caption for Table 10.1.27.1.1-1 seem to be misplaced. They appear in the first column in the table.

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

**R4-2111289 CR to TS 38.133: Corrections to the table for L1-SINR absolute accuracy for CSI-RS based CMR only (10.1.27.1.1)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2133 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

The table reference number and the caption for Table 10.1.27.1.1-1 seem to be misplaced. They appear in the first column in the table.

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

###### 5.1.1.1.2 Test cases

**R4-2108761 [CR] Test cases for applicable timing for PL RS activated by MAC-CE**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1806 rev Cat: B (Rel-16)  
  
 Source: ZTE Corporation*

**Abstract:**

Add test cases related to the core requirements for PL RS activation delay.

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

**R4-2108762 [CR] Test cases for applicable timing for PL RS activated by MAC-CE (Cat A)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1807 rev Cat: A (Rel-17)  
  
 Source: ZTE Corporation*

**Abstract:**

This is a Cat A CR. Add test cases related to the core requirements for PL RS activation delay.

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

**R4-2108763 Test cases for applicable timing for PL RS activated by MAC-CE**

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

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

**R4-2110035 CR to 38.133 Correction on the requirement of FR2 L1-SINR measurement accuracy (Rel-16)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1969 rev Cat: F (Rel-16)  
  
 Source: Samsung*

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

**R4-2110036 CR to 38.133 Correction on the requirement of FR2 L1-SINR measurement accuracy (Rel-17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1970 rev Cat: A (Rel-17)  
  
 Source: Samsung*

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

**R4-2110282 Discussion on testbility of pathloss-RS activation delay**

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

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

**R4-2110283 CR on maintaining L1-SINR measurement accuracy tests R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2000 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110284 CR on maintaining L1-SINR measurement accuracy tests R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2001 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110654 Correction of test case of link recovery with link recovery requests**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2054 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR corrects the link recovery test cases defined in eMIMO.

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

**R4-2110655 Correction of test case of link recovery with link recovery requests**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2055 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR corrects the link recovery test cases defined in eMIMO.

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

**R4-2111322 Correction to beam assumptions in L1-SINR FR2 tests**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2142 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Beam assumption (rough) in L1-SINR FR2 tests introduced under eMIMO Rel-16 WI is defined.

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

**R4-2111323 Correction to beam assumptions in L1-SINR FR2 tests**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2143 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Beam assumption (rough) in L1-SINR FR2 tests introduced under eMIMO Rel-16 WI is defined.

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

##### 5.1.1.3 Others

**R4-2109334 CR to 38.133 on Link recovery requirements - R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1901 rev Cat: F (Rel-16)  
  
 Source: Apple*

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

**R4-2109335 CR to 38.133 on Link recovery requirements - R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1902 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

**R4-2109336 CR to 38.133 on applicability of requirements to multi-TRxP - R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1903 rev Cat: F (Rel-16)  
  
 Source: Apple*

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

**R4-2109337 CR to 38.133 on applicability of requirements to multi-TRxP - R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1904 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

**R4-2109643 Introduce the SCell beam failure recovery without the dedicated PUCCH resource in R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1934 rev Cat: F (Rel-16)  
  
 Source: MediaTek inc.*

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

**R4-2109644 Introduce the SCell beam failure recovery without the dedicated PUCCH resource in R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1935 rev Cat: A (Rel-17)  
  
 Source: MediaTek inc.*

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

**R4-2110144 CR to 38.133 Correction on SCell BFR for no dedicated PUCCH case (Rel-16)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1979 rev Cat: F (Rel-16)  
  
 Source: Samsung*

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

**R4-2110145 CR to 38.133 Correction on SCell BFR for no dedicated PUCCH case (Rel-17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1980 rev Cat: A (Rel-17)  
  
 Source: Samsung*

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

**R4-2110285 CR on maintaining L1-SINR measurement requirements R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2002 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110286 CR on maintaining L1-SINR measurement requirements R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2003 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110476 CR on condition requirements for L1-SINR measurements R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2052 rev Cat: B (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110477 CR on condition requirements for L1-SINR measurements R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2053 rev Cat: B (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

#### 5.1.2 UE power saving in NR

================================================================================

**Email discussion: [99-e][243] NR\_UE\_pow\_sav\_RRM**

**R4-2108167 Email discussion summary: [99-e][243] NR\_UE\_pow\_sav\_RRM** *Type: other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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##### 5.1.2.2 Others

**R4-2109071 Correction to cell reselection test case for UE Power saving**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1860 rev Cat: F (Rel-16)  
  
 Source: CATT*

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

**R4-2109072 Correction to cell reselection test case for UE Power saving**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1861 rev Cat: A (Rel-17)  
  
 Source: CATT*

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

**R4-2109073 Draft LS on RRM relaxation in power saving**

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

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

**R4-2109844 Remain issues on Rel-16 UE power saving**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2109845 CR for removing scaling factor K2 for R16 UE power saving**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1936 rev Cat: F (Rel-16)  
  
 Source: vivo*

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

**R4-2109846 CR for removing scaling factor K2 for R16 UE power saving**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1937 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

**R4-2110361 Discussion on measurement requirements for relaxed carriers and non-relaxed carriers**

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

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

**R4-2110362 Correction on measurement requiements in relaxed measurement**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2034 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110363 Correction on measurement requirements in relaxed measurement**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2035 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111225 Changes to cell reselection tests under power saving**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2120 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The cell reselection test cases contain square brackets which for the signal levels which are removed. Signal levels are checked and no need to further modify them.

Session chair: moved from AI 5.1.2. Please do not submit tdocs to the top-level agenda unless explicitly allowed

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

**R4-2111224 Changes to cell reselection tests under power saving**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2119 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

The cell reselection test cases contain square brackets which for the signal levels which are removed. Signal levels are checked and no need to further modify them.

Session chair: moved from AI 5.1.2. Please do not submit tdocs to the top-level agenda unless explicitly allowed

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

**R4-2111226 LS on relaxed requirements for higher priority carriers**

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

**Abstract:**

In this contribution we discuss one of the open issues in release 16 UE power saving WI. At RAN4#98e meeting a way forward contain following two open issues related to relaxation of higher priority carriers and whether to consider UE gain in the FR2 test

Session chair: moved from AI 5.1.2. Please do not submit tdocs to the top-level agenda unless explicitly allowed

**Decision: Withdrawn.**

**R4-2111240 Changes to cell reselection tests under power saving**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2122 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The cell reselection test cases contain square brackets which for the signal levels which are removed. Signal levels are checked and no need to further modify them.

Session chair: moved from AI 5.1.2. Please do not submit tdocs to the top-level agenda unless explicitly allowed

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

**R4-2111239 Changes to cell reselection tests under power saving**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2121 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

The cell reselection test cases contain square brackets which for the signal levels which are removed. Signal levels are checked and no need to further modify them.

Session chair: moved from AI 5.1.2. Please do not submit tdocs to the top-level agenda unless explicitly allowed

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

**R4-2111241 LS on relaxed requirements for higher priority carriers**

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

**Abstract:**

In this contribution we discuss one of the open issues in release 16 UE power saving WI. At RAN4#98e meeting a way forward contain following two open issues related to relaxation of higher priority carriers and whether to consider UE gain in the FR2 test

Session chair: moved from AI 5.1.2. Please do not submit tdocs to the top-level agenda unless explicitly allowed

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

#### 5.1.3 NR RRM requirement enhancement

================================================================================

**Email discussion: [99-e][206] NR\_RRM\_Enh\_RRM\_1**

**R4-2108130 Email discussion summary: [99-e][206] NR\_RRM\_Enh\_RRM\_1** *Type: other For: Information  
 Source: Moderator (Intel Corporation)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**Email discussion: [99-e][207] NR\_RRM\_Enh\_RRM\_2**

**R4-2108131 Email discussion summary: [99-e][207] NR\_RRM\_Enh\_RRM\_2** *Type: other For: Information  
 Source: Moderator (ZTE)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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**Existing tdocs**

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2nd round email discussion conclusions

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**Email discussion: [99-e][208] NR\_RRM\_Enh\_RRM\_3**

**R4-2108132 Email discussion summary: [99-e][208] NR\_RRM\_Enh\_RRM\_3** *Type: other For: Information  
 Source: Moderator (Apple)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2109923 CR to 38.133 correction on SRS carrier based switching core requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1945 rev Cat: F (Rel-16)  
  
 Source: vivo, Qualcomm, Huawei, HiSilicon, MediaTek Inc., Apple, Nokia*

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

**R4-2109924 CR to 38.133 correction on SRS carrier based switching core requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1946 rev Cat: A (Rel-17)  
  
 Source: vivo, Qualcomm, Huawei, HiSilicon, MediaTek Inc., Apple, Nokia*

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

**R4-2109925 CR to 38.133 correction on SRS carrier based switching test cases**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1947 rev Cat: F (Rel-16)  
  
 Source: vivo*

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

**R4-2109926 CR to 38.133 correction on SRS carrier based switching test cases**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1948 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

**R4-2109984 CR on TS38.133 inter-frequency without gap -r16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1958 rev Cat: F (Rel-16)  
  
 Source: Ericsson, Mediatek Inc.*

**Abstract:**

The CR corrects inter-frequency without gap measurements

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

**R4-2109985 CR on TS38.133 inter-frequency without gap -r17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1959 rev Cat: A (Rel-17)  
  
 Source: Ericsson, Mediatek Inc.*

**Abstract:**

The CR corrects inter-frequency without gap measurements

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

**R4-2110338 CR on maintenance of BWP Switch on multiple CCs 38133 R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2029 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110339 CR on maintenance of BWP Switch on multiple CCs 38133 R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2030 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110340 CR on maintenance of BWP Switch on multiple CCs 36133 R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7090 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110341 CR on maintenance of BWP Switch on multiple CCs 36133 R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7091 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110388 Correction on SRS carrier switching**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2046 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110431 Correction on SRS carrier switching**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2051 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110898 CR on SSB offset in multiple SCell activation**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2095 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110899 CR on SSB offset in multiple SCell activation R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2096 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

##### 5.1.3.1 RRM core requirements

**R4-2109340 CR to 38.133 on Uplink Spatial relation switch for PUCCH - R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1905 rev Cat: F (Rel-16)  
  
 Source: Apple*

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

**R4-2109374 CR to 38.133 on Uplink Spatial relation switch for PUCCH - R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1908 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

**R4-2109523 CR on inter-frequency measurement without measurement gap**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1910 rev Cat: F (Rel-16)  
  
 Source: CMCC*

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

**R4-2109524 CR on inter-frequency measurement without measurement gap**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1911 rev Cat: A (Rel-17)  
  
 Source: CMCC*

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

**R4-2109564 CR:Correction on SRS carrier switching**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1919 rev Cat: F (Rel-16)  
  
 Source: Qualcomm, Inc.*

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

**R4-2109883 CR on TS38.133 for typo modifications on intra frequency and inter frequency measurement requirement**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1943 rev Cat: D (Rel-16)  
  
 Source: MediaTek inc.*

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

**R4-2109884 CR on TS38.133 for typo modifications on intra frequency and inter frequency measurement requirement**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1944 rev Cat: A (Rel-17)  
  
 Source: MediaTek inc.*

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

**R4-2109986 CR on TS38.133 mandatory gaps - r16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1960 rev Cat: F (Rel-16)  
  
 Source: Ericsson, Mediatek Inc.*

**Abstract:**

The CR deletes supportedGapPattern-NRonly in EN-DC or NE-DC for mandatory gap

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

**R4-2109987 CR on TS38.133 mandatory gaps - r17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1961 rev Cat: A (Rel-17)  
  
 Source: Ericsson, Mediatek Inc.*

**Abstract:**

The CR deletes supportedGapPattern-NRonly in EN-DC or NE-DC for mandatory gap

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

**R4-2109988 Remaining issues on Multiple SCell activation**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issues for active serving cell in the same band with SCell being activated

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

**R4-2109989 CR on TS38.133 multiple SCell activation - r16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1962 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The CR fix the issue for active serving cell in the same band with SCell being activated

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

**R4-2109990 CR on TS38.133 multiple SCell activation - r17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1963 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

The CR fix the issue for active serving cell in the same band with SCell being activated

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

**R4-2110900 Discussion on remaining issues in multiple SCell activation**

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

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

**R4-2110901 CR on SMTC alignment in multiple SCell activation**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2097 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110902 CR on SMTC alignment in multiple SCell activation R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2098 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111038 CR on RRC-based BWP switch on multiple CCs in Rel16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2115 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

An updated CR on RRC-based BWP switch on multiple CCs based on the endorsed draftCR R4-2105835 in RAN4#98bis-e

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

**R4-2111039 CR on RRC-based BWP switch on multiple CCs in Rel17 - Cat A**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2116 rev Cat: A (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Cat-A CR for an update on RRC-based BWP switch on multiple CCs based on the endorsed draftCR R4-2105835 in RAN4#98bis-e

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

**R4-2111497 (R17mirror) CR:Correction on SRS carrier switching**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2158 rev Cat: A (Rel-17)  
  
 Source: Qualcomm, Inc.*

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

##### 5.1.3.2 RRM performance requirements

###### 5.1.3.2.1 General

**R4-2110970 On test case applicability for mandatory measurement gaps in R15/R16**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on test case applicability for measurement gaps.

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

###### 5.1.3.2.2 Test cases

5.1.3.2.2.1 SRS carrier switching requirements

5.1.3.2.2.2 Multiple Scell activation/deactivation

5.1.3.2.2.3 CGI reading requirements with autonomous gap

**R4-2109573 CR: CGI reading test**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1921 rev Cat: F (Rel-16)  
  
 Source: Qualcomm, Inc.*

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

**R4-2111499 (R17mirror) CR: CGI reading test**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2160 rev Cat: A (Rel-17)  
  
 Source: Qualcomm, Inc.*

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

5.1.3.2.2.4 BWP switching on multiple CCs

**R4-2109240 CR on RRC based BWP switching on multiple CCs of EN-DC for FR1 (R16)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1879 rev Cat: F (Rel-16)  
  
 Source: Intel Corporation*

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

**R4-2109241 CR on RRC based BWP switching on multiple CCs of EN-DC for FR1 (R17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1880 rev Cat: A (Rel-17)  
  
 Source: Intel Corporation*

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

**R4-2109342 CR to introduce testcase for RRC based BWP switch on multiple CCs- SA in FR2 -R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1906 rev Cat: B (Rel-16)  
  
 Source: Apple*

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

**R4-2109343 CR to introduce testcase for RRC based BWP switch on multiple CCs- SA in FR2 -R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1907 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

**R4-2109619 CR for test cases for simultaneous DCI and Timer based BWP switch on multiple CCs for NR SA**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1923 rev Cat: F (Rel-16)  
  
 Source: vivo*

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

**R4-2109620 CR for test cases for simultaneous DCI and Timer based BWP switch on multiple CCs for NR SA**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1924 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

**R4-2110342 DraftCR on introdueing RRC based Active BWP Switch on multiple CCs in EN-DC FR2**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111040 CR on test case for RRC-based BWP switch on multiple CCs - TC3**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2117 rev Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

CR on test case for RRC-based BWP switch on multiple CCs - TC3

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

**R4-2111041 CR on test case for RRC-based BWP switch on multiple CCs - TC3 in Rel-17 - Cat A**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2118 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Cat-A CR on test case for RRC-based BWP switch on multiple CCs - TC3 in Rel-17

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

5.1.3.2.2.5 Inter-frequency measurement requirement without MG

5.1.3.2.2.6 Mandatory MG patterns

**R4-2108767 On test cases for mandatory gap patterns**

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

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

**R4-2109312 CR for test applicability for mandatory gap patterns**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Apple*

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

**R4-2111278 Discussion on test cases for new mandatory GPs**

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

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

**R4-2111324 Correction to beam assumptions in FR2 tests on Rel-16 Mandatory gaps**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2144 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Beam assumption is added in FR2 tests on spatial relation and mandatory gaps in Rel-16 introduced under RRM enhancement WI

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

**R4-2111325 Correction to beam assumptions in FR2 tests on Rel-16 Mandatory gaps**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2145 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Beam assumption is added in FR2 tests on spatial relation and mandatory gaps in Rel-16 introduced under RRM enhancement WI

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

5.1.3.2.2.7 UE-specific CBW change

5.1.3.2.2.8 Spatial relation switch for uplink

**R4-2109574 CR: UL spatial relation test**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1922 rev Cat: F (Rel-16)  
  
 Source: Qualcomm, Inc.*

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

**R4-2111326 Correction to beam assumptions in FR2 tests on UL spatial relation**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2146 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Beam assumption is added in FR2 tests on UL spatial relation in Rel-16 introduced under RRM enhancement WI

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

**R4-2111327 Correction to beam assumptions in FR2 tests on UL spatial relation**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2147 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Beam assumption is added in FR2 tests on UL spatial relation in Rel-16 introduced under RRM enhancement WI

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

**R4-2111500 (R17mirror) CR: UL spatial relation test**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2161 rev Cat: A (Rel-17)  
  
 Source: Qualcomm, Inc.*

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

5.1.3.2.2.9 Inter-band CA requirement for FR2 UE measurement capability of independent Rx beam

**R4-2110289 CR on maintaining SCell activation and deactication delay test for FR2 inter-band CA R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2004 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110290 CR on maintaining SCell activation and deactication delay test for FR2 inter-band CA R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2005 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

#### 5.1.7 Other WIs

##### 5.1.7.3 RRM requirements

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**Email discussion: [99-e][204] NR\_RRM\_maintenance\_R16**

**R4-2108128 Email discussion summary: [99-e][204] NR\_RRM\_maintenance\_R16** *Type: other For: Information  
 Source: Moderator (Apple)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
|  |  |  |  |  |

2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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###### 5.1.7.3.1 RRM core

**R4-2108963 Cat-F CR to FR1 Single SCell activation requirement with TCI activation in Rel-16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1851 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108964 Cat-A CR to FR1 Single SCell activation requirement with TCI activation in Rel-17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1852 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108965 Cat-F CR to FR1 SSB-less SCell activation requirement in Rel-16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1853 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108966 Cat-A CR to FR1 SSB-less SCell activation requirement in Rel-17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1854 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

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

**R4-2108967 Maintenance on FR1 SCell Activation**

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

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

**R4-2109303 CR on interruption for SCell addition/release R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1892 rev Cat: F (Rel-16)  
  
 Source: Apple*

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

**R4-2109304 CR on interruption for SCell addition/release R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1893 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

**R4-2109305 On SSB-less SCell activation**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-16)  
  
 Source: Apple*

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

**R4-2109306 CR on SSB-less SCell activation requirement R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1894 rev Cat: B (Rel-16)  
  
 Source: Apple*

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

**R4-2109307 CR on SSB-less SCell activation requirement R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1895 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

**R4-2109525 CR on CSSFintra for HST measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1912 rev Cat: A (Rel-17)  
  
 Source: CMCC*

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

**R4-2109526 CR on CSSFintra for HST measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1913 rev Cat: F (Rel-16)  
  
 Source: CMCC*

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

**R4-2109991 Discussion on NeedForGap measurements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the UE behaviour for NeedForGap measurements

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

**R4-2110291 Discussion on sync conditions for intra-band DAPS handover**

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

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

**R4-2110292 CR on maintaining sync conditions for intra-band DAPS handover R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2006 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110293 CR on maintaining sync conditions for intra-band DAPS handover R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2007 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110294 CR on maintaining interruptions for intra-band DAPS handover R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2008 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110295 CR on maintaining interruptions for intra-band DAPS handover R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2009 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110908 Discussion on SCell activation requirements in Rel-16**

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

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

**R4-2110909 CR on Rel-16 SCell activation requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2101 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110910 CR on Rel-16 SCell activation requirements R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2102 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111257 CR on CSSF for SCell measurements outside gaps**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2124 rev Cat: F (Rel-16)  
  
 Source: vivo*

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

**R4-2111258 CR on CSSF for SCell measurements outside gaps**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2125 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

###### 5.1.7.3.2 RRM performance

**R4-2108823 CR to A.3.14 CSI-RS configurations for nzp-CSI-RS-ResourceId values**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1808 rev Cat: F (Rel-16)  
  
 Source: Anritsu corporation*

**Abstract:**

Re-submission of previously agreed CR (R4-2010858) for #96-e. Some part of contents were not correctly captured in the previous spec.

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

**R4-2108824 CR to A.3.14 CSI-RS configurations for nzp-CSI-RS-ResourceId values**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1809 rev Cat: A (Rel-17)  
  
 Source: Anritsu corporation*

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

**R4-2109069 Correction to cell reselection test case for HST**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1858 rev Cat: F (Rel-16)  
  
 Source: CATT*

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

**R4-2109070 Correction to cell reselection test case for HST**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1859 rev Cat: A (Rel-17)  
  
 Source: CATT*

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

**R4-2109271 Correction on the power of the first preamble for 2-step RACH**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1881 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Correction of the power of the first preamble of 2-step RACH

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

**R4-2109272 Correction on the power of the first preamble for 2-step RACH**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1882 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Correction of the power of the first preamble of 2-step RACH

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

**R4-2109527 CR on test case on NR intra-frequency cell reselection for HST**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1914 rev Cat: F (Rel-17)  
  
 Source: CMCC*

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

**R4-2110370 Correction on test cases for inter-RAT cell identification in connected mode for HST**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2040 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110371 Correction on test cases for inter-RAT cell identification in connected mode for HST**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2041 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111328 Correction to HO tests in FR2 under mobility enhancements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2148 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Beam assumption and AoA are missing in DAPS HO and conditional test cases defined under NR mobility enhancement Rel-16 WI

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

**R4-2111329 Correction to HO tests in FR2 under mobility enhancements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2149 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Beam assumption and AoA are missing in DAPS HO and conditional test cases defined under NR mobility enhancement Rel-16 WI

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

### 5.2 LTE maintenance

#### 5.2.1 Even further mobility enhancement

##### 5.2.1.1 RRM core requirements

**R4-2110375 Clarification on asynchronous DAPS handover R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7101 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110376 Clarification on asynchronous DAPS handover R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7102 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110390 TDD UL-DL and DL-UL switching in LTE DAPS handover**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

Further clarification on DL-to-UL and UL-to-DL switching time

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

**R4-2110391 Correction on the synchronous condition for DAPS handover**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7103 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Add conditions for not expected to transmit / not expected to receive covering both source and target cell. Add autonomous interruption allowance if these conditions are unspecified.

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

**R4-2110392 Correction on the synchronous condition for DAPS handover**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7104 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Add conditions for not expected to transmit / not expected to receive covering both source and target cell. Add autonomous interruption allowance if these conditions are unspecified.

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

##### 5.2.1.2 RRM performance requirements

#### 5.2.2 Other WIs

##### 5.2.2.3 RRM requirements

###### 5.2.2.3.1 RRM core requirements

**R4-2109868 Time synchronization assumption for RSS-based neighbor cell measurements**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7082 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

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

**R4-2109869 Time synchronization assumption for RSS-based neighbor cell measurements**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7083 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

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

**R4-2110276 Discussion on RSS based RSRQ for LTE-MTC**

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

**Abstract:**

Discussion on incoming reply LS from RAN2 on RSS based RSRQ

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

**R4-2110853 Discussion on remaining issues in Rel-16 eMTC RRM**

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

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

**R4-2110854 CR on remaining issues in Rel-16 eMTC RRM**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7112 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110855 CR on remaining issues in Rel-16 eMTC RRM R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7113 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111236 LS on RAN4 agreement on RSS based RSRQ measurement for cat-M**

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

**Abstract:**

In this contribution we discuss the RSS based RSRQ measurement for release 16 eMTC based on the incoming LSs.

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

**R4-2111251 LS on RAN4 agreement on RSS based RSRQ measurement for cat-M**

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

**Abstract:**

In this contribution we discuss the RSS based RSRQ measurement for release 16 eMTC based on the incoming LSs.

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

###### 5.2.2.3.2 RRM performance requirements

**R4-2110647 Correction of RLM test parameters for MPDCCH performance improvement**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7105 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR corrects the RLM test parameters for eMTC MPDCCH performance improvement.

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

**R4-2110779 Correction of RLM test parameters for MPDCCH performance improvement**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7109 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR corrects the RLM test parameters for eMTC MPDCCH performance improvement.

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

### 5.3 Rel-16 UE feature list maintenance

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**Email discussion: [99-e][241] R16\_UE\_feature\_list\_RRM**

**R4-2108165 Email discussion summary: [99-e][241] R16\_UE\_feature\_list\_RRM** *Type: other For: Information  
 Source: Moderator (CMCC)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (May 21st)

**Topic#1: NR support for high speed train scenario**

* Issue 1-1: Clarification on requirements of 10-1
  + Proposals
    - Option 1 (Intel): Clarify in the spec that regarding UE indicating support of 10-1 but not capable of measuring on or operating under LTE with 500km/h (e.g., NR SA UE), the UE is not required to meet the Rel-16 inter-RAT HST measurement requirements specified for CONNECTED or IDLE mode.
  + Discussion
    - Huawei: the issue is not very clear to us. UE shall not report 10-1 if it does support LTE meas
    - Intel: There may be already some UEs in the field indicating 10-1 (e.g. NR NSA UEs). This is the problem of the legacy specification, which says that UE needs to support inter-RAT measurements.
    - CMCC: Share views from Huawei. There are no UEs in the field, since they cannot pass the requirements.
    - Apple: If UE does not support LTE then it should not indicate 10-1.
    - vivo: Same view with Huawei, CMCC and Apple.
    - Intel: When we agree 10-1 originally there were no decisions to exclude UEs which support NR only.
    - QC: In our understanding 10-1 implies support of both NR SA and EN-DC
    - CMCC: when we discussed the capability there was a common understanding there will be no UEs which support NR only and all chipsets will support both NR and LTE operation.
    - Intel: we do not think that there was clear consensus on this. What is the harm to allow UEs without LTE support not to pass the respective requirements.
      * CMCC: we need to understand the benefits and if there are any UEs in the field.
        + Intel: For SA operation there are UEs which support NR+LTE. But still a portion of UEs can support NR only RAT.
    - ZTE: is it possible for UE to support NR only?
      * Intel: Yes.
  + Session chair: Continue discussion. Come back in the 2nd round.
* Issue 1-2: Clarification on the applicability of HST RRM requirements
  + RAN4 #98-bis-e agreements
    - Add two new UE capabilities to
      * 10-4) Support of intra-NR HST RRM measurement with speed up to 500km/h
      * 10-5) Support of NR-LTE inter-RAT RRM measurement with speed up to 500km/h
      * Note 1: UE can indicate support of 10-4 or 10-5 only if 10-1 is NOT supported.
      * Note 2: The principle of adding the capabilities is to avoid the NBC issues
  + Proposals
    - Option 1 (Huawei):
      * When UE reports 10-4 as “supported”, 10-5 is not reported (i.e., inter-RAT NR-LTE HST RRM is not supported) and if network indicates highSpeedMeasFlag-r16 as “true”, then UE is not required to meet the specified connected or idle mode measurement requirements for R16 HST inter-RAT NR-LTE enhancement.
    - Option 2 (Apple):
      * Intra-frequency HST RRM measurement shall only applies if UE supports intra-NR HST, i.e. measurementEnhancement-r16 (10-1) or the new capability intraRAT-MeasurementEnhancement-r16 (10-4).
      * Inter-RAT NR-LTE HST RRM measurement shall only applies if UE supports inter-RAT NR-LTE HST, i.e. measurementEnhancement-r16 (10-1) or the new capability interRAT-MeasurementEnhancement-r16 (10-5).
  + Recommended WF:
    - Intra-frequency HST RRM measurement shall only apply if UE supports intra-NR HST, i.e. measurementEnhancement-r16 (10-1) or the new capability intraRAT-MeasurementEnhancement-r16 (10-4).
    - Inter-RAT NR-LTE HST RRM measurement shall only apply if UE supports inter-RAT NR-LTE HST, i.e. measurementEnhancement-r16 (10-1) or the new capability interRAT-MeasurementEnhancement-r16 (10-5).
  + Discussion
    - Huawei: recommended WF is ok.
    - Intel: Agree with the first bullet. Disagree with the 2nd bullet due to NBC issues. This is also relevant to the discussion on the previous issues.
    - Apple: Fine with the recommended WF. To Intel we can discuss the principle.
    - CMCC: We can add a note to sub-bullet to clarify that some exceptions can be allowed
    - QC: Agree with CMCC, Apple, Huawei. To Intel – need to bring a CR to discuss this.
    - Intel: we cannot agree with current text. To QC we have a CR.
  + Agreements
    - Intra-frequency HST RRM measurement shall only apply if UE supports intra-NR HST, i.e. [measurementEnhancement-r16] (10-1) or the new capability [intraRAT-MeasurementEnhancement-r16] (10-4).
  + Session chair: Continue discussion on the Inter-RAT NR-LTE HST RRM measurement applicability. Come back in the 2nd round.

**Topic#2: per-FR gap capability**

* RAN4 #98-bis-e
  + Tentative Agreements:
    - Do not introduce per-BC indication of per-FR measurement gap UE capabilities in Rel-16
    - Add the following statement to the chairman notes: RAN4 has a common understanding that further enhancements to the per-FR measurement gap UE capabilities can be further studied in Rel-17 (e.g. in FeRRM WI) and is subject to RAN plenary approval and available time budget.
  + Session chair: no consensus reached in this meeting. The discussion can continue in May meeting and shall be concluded.
* Issue 2-1: Whether to introduce per-BC indication of per-FR measurement gap UE capabilities
  + Proposals
    - Option 1 (Qualcomm, Huawei): Keep the original per UE per-FR gap indication and add new Per BC indication for the per-FR gap capability
    - Option 2 (Intel): RAN4 agrees on generating a new objective of R17 standards to introduce per-BC indication of per-FR measurement gap UE capabilities, was there no consensus on introducing it in Rel-16.
  + Recommended WF:
    - Proponents of per-BC indication of per-FR measurement gap UE capabilities provide analysis on the impacts on RRM requirements. It seems that no new RRM requirements are needed.
    - Companies are encouraged to provide comments based on the analysis in submitted contributions.
  + Discussion
    - Apple: We discussed for several meeting. Based on HW and QC proposals it is still not clear which requirements are the bottleneck. In our view the key impact will be on interruptions. In our view the interruptions depend whether this is shared RFIC and not relevant to baseband constraints. Also, the baseband constraints depend on # of CCs and it is unclear how per BC indication can help. Ok to discuss in Rel-17.
    - E///: Similar view with Apple. This also may not be helpful for the network. It can be quite complicated for the network side. Ok to discuss in Rel-17.
    - QC: The feature is very implementation specific and we cannot provide all details. The per-FR gap feature in the current specs is becoming very complex and not RF relevant.
    - vivo: Understand the motivation to resolve UE complexity. We have a different view on the possible impact on RRM requirements and the respective impacts should be further discussed. We are ok to discuss in Rel-17.
    - Huawei: Share same view as QC. Disagree with NW complexity – the network can always use scheduling based on legacy capability signalling. We prefer to discuss in Rel-16.
    - Apple: We would like to understand the technical details. For per-BWP switching capability we can aim to address in Rel-16. We can see impact on the existing requirements for SCell activation since it has different requirements for per-UE and per-FR gap.
  + Session chair: Continue the discussion. Come back in the 2nd round. QC will lead WF discussion in the 2nd round.

**Topic#3: NR RRM requirement enhancement**

* Issue 3-1: Capability of ‘bwp-SwitchingMultiCCs-r16’
  + Proposal (Qualcomm): Change the current prerequisite for bwp-SwitchingMultiCCs-r16 to “The UE indicating support of this feature shall also support bwp-SwitchingDelay and/or bwp-SameNumerology and/or bwp-DiffNumerology.”
  + Discussion
    - Apple: support the proposal
  + Agreement
    - Change the current prerequisite for bwp-SwitchingMultiCCs-r16 to “The UE indicating support of this feature shall also support bwp-SwitchingDelay, bwp-SameNumerology and/or bwp-DiffNumerology.”

**Topic#4: Others**

* Issue 4-1: New UE feature on enhanced CSSF for SCell measurements outside gaps

1st round email discussion conclusions

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
|  |  |  |  |  |

2nd round email discussion conclusions

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| --- | --- | --- | --- | --- |
| Tdoc number | Title | Source | Recommendation | Comments |
|  |  |  |  |  |

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**R4-2108968 Discussion on Rel-16 Features**

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

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

**R4-2109225 Discussion on UE capabilities in Rel-16**

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

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

**R4-2110367 On UE behavior due to separate NR HST capability and on Per BC indication of per-FR gap**

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

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

**R4-2111259 Discussion on addition of UE feature on enhanced CSSF for SCell measurements outside gaps**

*Type: discussion For: Approval  
 Source: vivo*

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

**R4-2109226 CR on legacy Rel-16 HST NR UE measurement requirements (R16)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1877 rev Cat: F (Rel-16)  
  
 Source: Intel Corporation*

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

**R4-2109227 CR on legacy Rel-16 HST NR UE measurement requirements (R17)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1878 rev Cat: A (Rel-17)  
  
 Source: Intel Corporation*

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

**R4-2110368 CR on inter-RAT measurement in HST**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2038 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110369 CR on inter-RAT measurement in HST**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2039 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2109322 Clarification on NR-LTE inter-RAT HST RRM measurement requirements**

*Type: discussion For: (not specified)  
 Source: Apple*

Session chair: moved from 5.1.7.3

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

**R4-2109323 CR on inter-RAT HST RRM measurement requirements R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1899 rev Cat: F (Rel-16)  
  
 Source: Apple*

Session chair: moved from 5.1.7.3

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

**R4-2109324 CR on inter-RAT HST RRM measurement requirements R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1900 rev Cat: A (Rel-17)  
  
 Source: Apple*

Session chair: moved from 5.1.7.3

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

## 6 Rel-16 non-spectrum related work items for NR

### 6.1 NR-based access to unlicensed spectrum

#### 6.1.5 RRM core requirements maintenance (38.133)

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**Email discussion: [99-e][209] NR\_unlic\_RRM\_1**

**R4-2108133 Email discussion summary: [99-e][209] NR\_unlic\_RRM\_1** *Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (May 20th)

**Topic #3: SCell activation/deactivation**

* Issue 3-1-1: Interruption length during intra-band CA
  + Proposals
    - Proposals 1 (Huawei, HiSilicon, Apple):
      * For intra-band CA, up to 1+L interruption windows are allowed during SCell activation. The length of up to L interruption windows shall be extended considering the RF tuning.
    - Proposal 2 (Qualcomm Incorporated, Ericsson):
      * There is no need to extend the interruption time because of DL LBT failure during intra-band SCell activation. No further clarification needed in the spec-text.
  + Discussion
    - QC: This is a corner case. Prefer not to introduce additional RF retuning.
    - Huawei: Proponents of Proposal 2 recognize that additional RF retuning may be needed. We need to define the requirements based on the worst case.
    - QC: The conditions for this to happen are. This is a very rare case and we should not penalize the performance under all conditions:
      * 1) The scheduled SSB index is the last one in the SSB burst and
      * 2) SMTC duration configured by the network is the shortest which just includes two candidate positions for the SSB index (which is very unlikely to happen) and
      * 3) CCA failure happens on both the candidate positions (As per discussion in the performance part, the probability of happening this is <10%) implying that the channel is extremely crowded (why would a network want to activate a CC in such a busy channel).
    - MTK: Agree with QC. We can go with Option 1 and list the specific conditions when this would apply.
    - Huawei: Suggest to agree that additional RF tuning is needed.
    - QC: we do not need additional interruption for RF retuning time. We do not support RF retuning.
    - Apple: Support proposal 1. If AGC estimation fails then UE needs to tune to single CC and it will cause interruption.
    - E///: We can compromise with proposal with MTK.
    - QC: we do not agree with RF retuning concept at all
    - HW: can compromise with MTK proposal
  + Agreements:
    - During SCell activation for intra-band CA
      * Additional relaxations apply for the following conditions
        + 1) The scheduled SSB index is the last one in the SSB burst and
        + 2) SMTC duration configured by the network includes two candidate positions for the SSB index
        + 3) CCA failure happens on both candidate positions
      * Candidate relaxations
        + Option 1: Extend the length of interruption window
        + Option 2: Allow a certain performance degradation
        + Option 3: Allow multiple interruptions due to RF tuning
      * Note: the agreement applies at least for unknown SCell activation case
* Issue 3-1-2: Inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and target SCell is unknown
  + Proposals
    - Proposals 1 (Huawei, HiSilicon, ZTE Corporation) More than one interruptions are allowed on the victim inter-band CCs.
      * 1a: (Huawei, HiSilicon): For inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and target SCell is unknown, more than one interruptions are allowed.
      * 1b (ZTE Corporation, ~~Ericsson~~): For scenarios with victims on inter-band CCs and intra-band CCs: more than one interruption can be allowed.
    - Proposal 2 (Qualcomm Incorporated, Mediatek, Ericsson): A single interruption is allowed on the victim inter-band CCs
      * 2a (Qualcomm): A single interruption applies to any victim cell outside the band with the (unknown) SCell being activated, irrespective of whether any intra-band victim cell is present or not and. No further clarification is needed in the spec text.
        + No need to consider RF retuning due to DL CCA failures in SCell activation/deactivation requirements.
      * 2b (MediaTek Inc.): A single interruption applies to any victim cell outside the band with the SCell being activated
  + Discussion
    - E///: Prefer Proposal 2
    - Huawei: This is relevant to Option 3 in the previous issue.
    - QC: Prefer no RF tuning. This is very implementation specific. The interruptions cause much throughput overhead
    - Huawei: typically RAN4 requirements are defined based on the worst case. In the past we did not consider possible constraints on number of CCs.
    - Apple: Share same view with Huawei. As a compromise we can also agree to specify that “some performance degradation can be expected”
    - E///: for inter-band CA case we have multiple chains. Do we really need interruptions.
      * Apple: the basic assumption is that UE has a shared IC for multiple RF chains and needs interruptions.
    - Session chair: Continue discussion. Come back in the 2nd round.
* Issue 3-1-3: Inter-band CA regardless of whether the victim cell is on an intra-band or inter-band CC and target SCell is known
  + Proposals
    - Proposals 1 (Huawei, HiSilicon, ZTE Corporation): More than one interruptions are allowed on the victim inter-band CCs.
      * 1a: (Huawei, HiSilicon): For inter-band CA where victims on inter-band CCs and intra-band CCs interruptions and when target SCell is known with measurement cycle larger greater than 160 ms, more than one interruptions are allowed.
      * 1b(ZTE Corporation): For scenarios with victims on inter-band CCs and intra-band CCs: more than one interruption can be allowed.
    - Proposal 2 (Qualcomm Incorporated, Ericsson, Mediatek):
      * 1a(Qualcomm, Ericsson): A single interruption applies to any victim cell outside the band with the (known) SCell being activated, irrespective of whether any intra-band victim cell is present or not and. No further clarification is needed in the spec text.
        + No need to consider RF retuning due to DL CCA failures in SCell activation/deactivation requirements.
      * 1b (MediaTek Inc.): A single interruption applies to any victim cell outside the band with the SCell being activated
  + Discussion
    - TBA
  + Agreements:
    - TBA

**Topic#4: Timing**

* Issue 4-2-1: Definition of the reference cell which is not available, with respect to MGs
  + Proposals
    - Proposal 1 (ZTE Corporation): No clarification related to gap is needed on the current definition of unavailability of a reference cell on a carrier frequency subject to CCA in section 7.1.1.
    - Proposal 2 (Huawei, HiSilicon): The availability of reference cell shall base on the SSB within the DL active BWP which is not overlapping with measurement gaps.
    - Proposal 3 (Apple, Ericsson, QC, MTK):
      * In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
      * X = 1280ms.
    - Proposal 4 (Ericsson):
      * In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
      * X is FFS, X>160ms.
  + Discussion
    - Huawei: ok with Proposal 3.
    - QC: we propose some clarification on Proposal 3
  + Agreements:
    - In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available during at least one discovery burst transmission window, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
    - X = 1280ms.
* Issue 4-1-1: Definition of the reference cell which is not available, with respect to DRX
  + Proposals
    - Proposal 1 (ZTE Corporation): SSB does not have to be within ON duration in a reference cell subject to DL CCA in order to meet UE timing requirements. No clarification related to DRX is needed on the current definition of unavailability of a reference cell on a carrier frequency subject to CCA in section 7.1.1.
    - Proposal 2 (Apple, Ericsson):
      * In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
      * X = 1280ms.
    - Proposal 4 (Ericsson):
      * In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available for at least one SSB, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
      * X is FFS, X>160ms.
  + Discussion
    - ZTE: How is 1280ms value derived?
      * Apple: we use same breakpoint between known and unknown conditions
      * ZTE: then the conditions is from legacy case?
      * Apple: this threshold is not an enhancement for UE
  + Agreements:
    - In the requirements of clause 7.1.2, the term reference cell on a carrier frequency subject to CCA is not available at the UE refers to when at least one SSB is configured by gNB, but the first two successive candidate SSB positions for the same SSB index within the discovery burst transmission window are not available during at least one discovery burst transmission window, at the UE due to DL CCA failures at gNB during the last X ms; otherwise the reference cell on the carrier frequency subject to CCA is considered as available at the UE.
    - X = 1280ms.

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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**R4-2110312 CR on Active TCI state switching for NR-U R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2019 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110313 CR on Active TCI state switching for NR-U R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2020 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110314 CR on RLM requirements NR-U R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2021 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110315 CR on RLM requirements NR-U R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2022 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110316 CR on beam management requirements for NR-U R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2023 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110317 CR on beam management requirements for NR-U R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2024 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110318 CR on measurement requirements for NR-U R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2025 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110319 CR on measurement requirements for NR-U R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2026 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110320 CR on CSSF for NR-U R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2027 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110321 CR on CSSF for NR-U R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2028 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110322 CR on core requirements maintenance of IDLE mode inter-RAT measurement for NR-U R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7084 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110323 CR on core requirements maintenance of IDLE mode inter-RAT measurement for NR-U R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7085 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110324 CR on PSCell Addition requirements for NR-U R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7086 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110325 CR on PSCell Addition requirements for NR-U R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7087 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2108168 Terminology updates for NR-U in 38.133**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-TBA rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108169 Terminology updates for NR-U in 38.133**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-TBA rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108170 Terminology updates for NR-U in 36.133**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-TBA rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108171 Terminology updates for NR-U in 36.133**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-TBA rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108172 Updates in SCell activation in NR-U**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-TBA rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108173 Updates in SCell activation in NR-U**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-TBA rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108174 NR-U bands**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-TBA rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108175 NR-U bands**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-TBA rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

##### 6.1.5.1 General

**R4-2108759 On terminology updates for measurements in NR-U**

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

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

**R4-2109274 Terminology update for NR-U**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1883 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2109293 Terminology update for NR-U**

*Type: CR For: Approval  
 38.133 v17.1.0 CR-1884 rev Cat: A (Rel-17)  
  
 Source: Nokia Belgium*

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

**R4-2109416 Terminology update for NR-U**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1909 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2110780 SSB monitoring capability for CBD**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the remaining open issuse for SSB monitoring capability.

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

##### 6.1.5.2 RRC connection mobility control

**R4-2111513 SI reading time in RRC mobility control**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2164 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

This CR removes an editor's note from section 6.2.1A.2.1

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

**R4-2111514 SI reading time in RRC mobility control**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2165 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

This CR removes an editor's note from section 6.2.1A.2.1

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

##### 6.1.5.3 SCell activation/deactivation (delay and interruption)

**R4-2108757 On SCell activation in NR-U**

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

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

**R4-2109300 CR on SCell activation requirement for NR-U R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1890 rev Cat: F (Rel-16)  
  
 Source: Apple*

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

**R4-2109301 CR on SCell activation requirement for NR-U R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1891 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

**R4-2109851 Discussion on Scell activation requirement in NR-U**

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

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

**R4-2110306 Discussion on SCell activation requirements for NR-U**

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

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

**R4-2110307 CR on SCell activation and deactivation for NR-U R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2015 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110308 CR on SCell activation and deactivation for NR-U R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2016 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111223 On remaining issues for SCell activation in NR-U**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

There were good progress in the SCell activation requirements for NR-U at last meeting. The agreements and the open issues were captured in the way forward document [1]. But there are still a few remaining issues which are addressed in this contribution.

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

**R4-2111238 On remaining issues for SCell activation in NR-U**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

There were good progress in the SCell activation requirements for NR-U at last meeting. The agreements and the open issues were captured in the way forward document [1]. But there are still a few remaining issues which are addressed in this contribution.

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

**R4-2111254 NR-U SCell activiation interruption requirements in 38.133**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2123 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Interruption requiremnets during SCell acitvation is missing for NR-U.

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

**R4-2111511 Interruption during Scell activation requirements for SCells operating with CCA**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2162 rev Cat: F (Rel-16)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

The CR updates clause 8.3A based on agreements related to interruptions during Scell activation requirements.

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

**R4-2111512 Interruption during Scell activation requirements for SCells operating with CCA**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2163 rev Cat: A (Rel-17)  
  
 Source: Qualcomm Incorporated*

**Abstract:**

The CR updates clause 8.3A based on agreements related to interruptions during Scell activation requirements.

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

**R4-2111515 Interruptions during SCell activation in NR-U**

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

**Abstract:**

In this paper, we discuss remaining open issues interruptions during Scell activation in NR-U

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

##### 6.1.5.4 Active TCI state switching

##### 6.1.5.5 RLM

##### 6.1.5.6 Beam management

##### 6.1.5.7 Measurement requirements

##### 6.1.5.8 Measurement capability and reporting criteria

##### 6.1.5.9 Timing

**R4-2108758 On remaining issues in Timing in NR-U**

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

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

**R4-2109297 On reference cell availability for NR-U**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-16)  
  
 Source: Apple*

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

**R4-2109298 CR on reference cell availability for NR-U R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1888 rev Cat: F (Rel-16)  
  
 Source: Apple, MediaTek, Ericsson*

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

**R4-2109299 CR on reference cell availability for NR-U R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1889 rev Cat: A (Rel-17)  
  
 Source: Apple, MediaTek, Ericsson*

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

**R4-2110309 Discussion on reference cell of timing requirements for NR-U**

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

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

**R4-2110310 CR on timing requirements for NR-U R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2017 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110311 CR on timing requirements for NR-U R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2018 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111303 Analysis of reference cell availability for UE transmit timing under DL LBT failure**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

The paper discusses open issues on UE transmit timing under CCA

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

##### 6.1.5.10 Other requirements

#### 6.1.6 RRM performance requirements (38.133)

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**Email discussion: [99-e][210] NR\_unlic\_RRM\_2**

**R4-2108134 Email discussion summary: [99-e][210] NR\_unlic\_RRM\_2** *Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (May 20th)

**Topic #2: CCA models**

* Issue 2-1-1: Principle for defining PCCA
  + Proposals
    - Proposal 1: Define PCCA that results in a large percentage of test runs with one or more CCA failures in each phase of a test run where CCA failures are modelled.
      * Proposal 1a (R4-2109275): Define PCCA\_DL that results in a 90% probability that at least 15 out of 33 test runs will have one or more LBT failures in a 200 ms interval.
      * Proposal 1b (R4-2109282): Define PCCA\_UL probabilities that ensure that at least 15 out of 33 test runs experience more than one CCA failure.
  + Discussion
    - QC: Understand the intention. Need to consider the deployment aspects. For FBE there will be control and CCA failure probability is low. FBE devices may not be optimized for large number of LBT failures.
    - E///: We have LBT in all DL test cases. We disagree that in FBE networks there will be no LBT failures. The proposal aims to verify core requirements.
    - Nokia: We are testing the min requirements and need to make sure there will be no problems.
    - QC: For FBE deployments based on specs there will be no WiFi deployed in the same proximity and no hidden node problems
    - Session chair: made an agreement for 2-2-1. No need to further discuss.
* Issue 2-1-2: PCCA dependency on Es/Iot
  + Proposals
    - Proposal 1a (R4-2109275, R4-2111304) CCA DL success probabilities are applicable to any value of Es/Iot.
    - Proposal 1b: CCA UL success probabilities are applicable to any value of Es/Iot.
  + Agreements:
    - CCA DL success probabilities are applicable to any value of Es/Iot.
    - CCA UL success probabilities are applicable to any value of Es/Iot.
* Issue 2-1-3: Requirement classification for statistical testing
  + Proposals
    - Proposal 1 (R4-2109275): Determine that TCs under CCA are subject to statistical testing.
  + Discussion
    - QC: RAN5 is in a better position to design these details.
    - Nokia: RAN5 is typically following what is defined in RAN4. So, need to have at least smth in RAN4. In RAN5 the tests which have a requirement for 90% of tests to be successful are repeated multiple times (at least 33 times).
    - QC: LTE LAA already had it. Leave it up to RAN5.
  + Session chair: continue discussion whether RAN4 can add specific clarifications on statistical testing and provide information to RAN5
* Issue 2-2-1: CCA success probabilities for DL CCA model in typical test cases
  + Proposals
    - Option 1 ([QC](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111516.zip))
      * For LBE: P1=0.75, P2=0.75
      * For FBE: P = 0.95
    - Option 2 ([Nokia](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109275.zip), [E///](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111304.zip))
      * For LBE: P1=0.75, P2=0.5
      * For FBE: P = 0.9
    - Option 3 ([Nokia](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109275.zip), MTK, E///)
      * For LBE: P1=0.75, P2=0.75
      * For FBE: P = 0.9
  + Agreements:
    - For LBE: P1 = 0.75, P2 = 0.75
    - For FBE: P = 0.9375
* Issue 2-2-2 DRX CCA model
  + Proposals
    - Proposal 1 (R4-2111304): The existing DL CCA model in non-DRX shall also apply when DRX is used.
    - Proposal 2 (R4-2111304): Regardless of whether DRX is used or not, prior to each DBT window, the test equipment shall determine whether the CCA attempt is successful.
  + Discussion
    - QC: Fine with proposals. UE is not required to determine the availability of SSB more frequent than once in a DRX cycle, it should be specified in the model to take that into account while testing a requirement involving DRX
  + Agreements:
    - The existing DL CCA model in non-DRX shall also apply when DRX is used.
    - Regardless of whether DRX is used or not, prior to each DBT window, the test equipment shall determine whether the CCA attempt is successful.
* Issue 2-3-1: CCA success probability in UL
  + Proposals
    - Option 1 ([Nokia](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109275.zip)): Define PCCA\_UL = 0.8 for both LBE and FBE modes.
    - Option 2 ([QC](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2111516.zip)): RAN4 to adopt the following CCA success probabilities for UL CCA model in typical test cases
      * For LBE: P = 0.75
      * For FBE: P = 0.95
    - Option 3 (E///, Nokia): Typical value of the successful UL CCA probability is 75%.
  + Discussion
    - Nokia: probabilities > 0.8 may have issues from the statistical testing perspective. 0.95 is too low given 5 RACH retransmissions.
    - QC: We should align with DL. The UL probabilities of LBT failure will be even smaller than in UL.
    - E///: Agree that in UL there may be less failures. We are focusing on testing functionality and some values are fine to be selected artificially to simplify the test procedure.
    - Nokia: 5 RACH retransmissions come based on legacy test design.
  + Agreements:
    - RAN4 to adopt the following CCA success probabilities for UL CCA model in typical test cases
      * For LBE: P = 0.75
      * For FBE:
        + Option 1: P = 0.8
        + Option 2: P = 0.9375
        + FFS whether and how option 2 can ensure statistical reliability of UL requirements testing
* Issue 2-3-2: Limitation of CCA failures in UL
  + Proposals
    - Proposal 1 ([R4-2109275](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_99-e/Docs/R4-2109275.zip)): Include limitation of the UL CCA failures LCCA\_UL on the UL CCA model.
  + Agreements:
    - Include limitation of the UL CCA failures LCCA\_UL on the UL CCA model.
* Issue 2-3-3 Test case list to include UL CCA failures
  + Proposals
    - Proposal 1 (R4-2108760): Specifying one test case with UL CCA failure for each of the cases below:
      * Proposal 1a: SCell activation
        + Additional delay in transmission of CSI reporting due to CCA failure
      * Proposal 1b: Event triggered measurement reporting delay
        + Additional delay due to UL LBT failure not defined
        + FFS: Assume it similar to above-mentioned SCell activation case
      * Proposal 1c (R4-2111304): MAC CE based TCI state switch delay
        + Delay in sending HARQ feedback transmissions
  + Discussion
    - QC: we already have some test cases. For 1b there additional delay is not defined.
    - E///: 1b is not needed. 1c is interesting.
    - Huawei: FR1 TCI state switch delay is not defined and not sure if it is testable. Need further discussions.
    - QC/MTK: agree with Huawei.
  + Agreements:
    - FFS: Define “MAC CE based TCI state switch delay” test case with UL CCA failure
* Issue 2-3-4 Noise pattern used for modeling UL CCA failures
  + Proposals
    - Proposal 1 (R4-2111304): OCNG pattern is used for noise generation during the UL CCA detection time (TCCA) within the UL resources where the UE needs to assess the UL CCA.
    - Proposal 2 (R4-2111304): During the UL CCA detection time the test equipment should generate energy level 3 dB above the energy detection threshold defined in TS 37.106.
  + Agreements:
    - OCNG pattern is used for noise generation during the UL CCA detection time (TCCA) within the UL resources where the UE needs to assess the UL CCA.
    - During the UL CCA detection time the test equipment should generate energy level 3 dB above the energy detection threshold defined in TS 37.106.

**Topic #3: Test case specific details**

Session chair: come back in the 2nd round

* Issue 3-2-3: HO test behaviour after T304 expires
  + Proposals
    - Proposal 1 (R4-2110328): Add a note in handover test cases to clarify that A test will not be considered in the statistics when T304 times expires considering the time extensions cause by L1, L1´, L2, L3.
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 3-4-1: Differentiation of FBE and LBE configurations in random access test cases
  + Proposals
    - Proposal 1 (R4-2109282): Define configuration of random access test cases that help differentiating the UE behaviour when configured with semi-static and dynamic channel access modes.
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 3-4-2: Configuration of DL CCA for random access test cases
  + Proposals
    - Option 1 (R4-2108774): NR-U random access procedure tests do not need to configure DL LBT failure, i.e., set PCCA\_DL=1.0.
    - Option 2 (R4-2109282): Configure DL CCA failures for the random access test cases for semi-static channel access configuration.
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 3-4-3: Preamble received target power configuration
  + Proposals
    - Proposal 1 (R4-2108774): Test equipment to configure preambleReceivedTargetPower for msg1 and msgA-PreambleReceivedTargetPower for msgA to the highest value for UL LBT test cases.
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 3-4-4: Limitation of CCA failures in UL for random access TCs
  + Proposals
    - Proposal 1 (R4-2109282): Define random access test cases that limit the number of CCA failures in UL and DL to prevent reaching preambleTransMax for both LBE and FBE configurations.
    - Proposal 2 (R4-2109282): Define preambleTransMax, LCCA\_DL and LCCA\_UL in random access test cases with CCA such that preambleTransMax > 5 + L LCCA\_DL + LCCA\_UL for both LBE and FBE configurations
    - Proposal 3 (R4-2109282): Define preambleTransMax = n20, LCCA\_DL =4 and LCCA\_UL =5 in random access test cases with CCA for both LBE and FBE configurations.
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 3-4-6: CCA success probability in random access TCs
  + Proposals
    - Proposal 1 (R4-2109282): Define PCCA probabilities that ensure that at least 15 out of 33 test runs experience more than one CCA failure.
    - Proposal 2 (R4-2109282): Define PCCA\_UL = 0.8 for both LBE and FBE modes in random access test cases.
    - Proposal 3 (R4-2109282): Define PCCA\_DL = 0.8 for FBE mode in random access test cases.
  + Discussion
    - TBA
  + Agreements:
    - TBA

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**R4-2108176 Big CR: Introduction of Rel-16 NR-U RRM performance**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-TBA rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108177 Big CR: Introduction of Rel-16 NR-U RRM performance**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-TBA rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

##### 6.1.6.1 General

**R4-2109275 On remaining details of NR-U RRM test configurations**

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

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

**R4-2110961 CR 36.133 Correction of accuracy requirements for NR-U bands**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7121 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Updates pertaining to supported NR-U band combinations, and to reference to NR band group definitions.

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

**R4-2110962 DraftCR 38.133 NR-U conditions**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Adding missing NR-U conditions.

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

**R4-2110968 CR 36.133 Correction of accuracy requirements for NR-U bands**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7122 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Updates pertaining to supported NR-U band combinations, and to reference to NR band group definitions.

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

##### 6.1.6.2 Measurement accuracy requirements

**R4-2110326 CR on inter-RAT measurement accuracy for NR-U R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7088 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110327 CR on inter-RAT measurement accuracy for NR-U R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7089 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

##### 6.1.6.3 Test cases

**R4-2111516 Remaining issues on RRM performance requirements**

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

**Abstract:**

In this paper, we discuss remaining open issues on RRM performance requirements

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

###### 6.1.6.3.1 General

**R4-2108760 On CCA models and applicability rules in test cases for NR-U**

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

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

**R4-2109276 Draft CR on CCA model for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2109852 Discussion on RRM test cases in NR-U**

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

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

**R4-2110781 Draft CR: Update of RMC for NR-U test cases**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This draft CR updates RMCs used for NR-U RRM test cases.

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

###### 6.1.6.3.2 RRC IDLE cell re-selection

**R4-2108772 Remianing issues on RRC IDLE cell re-selection tests in NR-U**

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

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

**R4-2111227 Correction to cell reselection test cases for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR contains corrections to the cell reselection test case for NR-U.

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

**R4-2111242 Correction to cell reselection test cases for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR contains corrections to the cell reselection test case for NR-U.

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

###### 6.1.6.3.3 HO (delay and interruptions)

**R4-2108773 Remianing issues on handover tests in NR-U**

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

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

**R4-2109279 Draft TC NR-U Handover test cases**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2110328 Discussion on HO test cases for NR-U**

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

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

**R4-2110329 Draft CR on HO test cases for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111228 Correction to handover test cases for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR contains corrections to the handover test case for NR-U.

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

**R4-2111243 Correction to handover test cases for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR contains corrections to the handover test case for NR-U.

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

###### 6.1.6.3.4 RRC Re-establishment

**R4-2109280 Draft TC RRC re-establishment with CCA**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2110330 Draft CR on RRC Re-establishment for NR-U from NR to NRU**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

###### 6.1.6.3.5 RRC Connection Release with Redirection

**R4-2110331 Draft CR on TC of RRC connection release with redirection for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111306 RRC re-establishment tests from NR to NR-U**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

The paper describes test case on RRC re-establishment in NR-U when serving cell is NR

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

**R4-2111307 RRC re-establishment tests from NR to NR-U in 38.133**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The CR contains test case on RRC re-establishment in NR-U when serving cell is NR

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

###### 6.1.6.3.6 Random access

**R4-2108774 Remianing issues on random access tests in NR-U**

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

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

**R4-2109281 Random Access test cases with CCA**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2109282 Discussion on Random access TC parameters**

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

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

**R4-2110653 Draft CR: Random access procedure test cases for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This draft CR updates the test cases of random access procedure in NR-U.

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

###### 6.1.6.3.7 Timing (transmit timing and TA)

**R4-2108770 Discussion on test cases for timing in NR-U**

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

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

**R4-2111308 Correction to UE transmit timing tests**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The CR defines LBT, FBE and LBE related parameters in the endorsed test cases on UE transmit timing

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

###### 6.1.6.3.8 BWP switching delay and interruptions

**R4-2108775 Remianing issues on tests for BWP switch in NR-U**

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

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

**R4-2111309 Correction to BWP switching with consistent UL LBT failures**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The CR defines LBT, FBE and LBE related parameters in the endorsed test cases on consistent UL LBT failure.

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

###### 6.1.6.3.9 PSCell addition/release (delay and interruption)

**R4-2110332 Draft CR on PSCell addtion for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

###### 6.1.6.3.10 SCell activation/deactivation (delay and interruption)

**R4-2110963 NR-U SCell activation TC**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Updates to SCell activation TC for NR-U

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

###### 6.1.6.3.11 Other interruptions

**R4-2110964 NR-U Other interruption TC**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Updates to Interruption TC for NR-U

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

###### 6.1.6.3.12 RLM

###### 6.1.6.3.13 Beam management (BFD and link recovery)

**R4-2108776 On test cases for beam management in NR-U**

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

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

**R4-2110651 Open issues on link recovery and L1-RSRP reporting test cases for NR-U**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses the open issues on the test cases for beam failure recovery and L1-RSRP reporting in NR-U.

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

**R4-2110652 Draft CR: Update of beam management test cases for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This draft CR introduces the test cases for bean failure recovery and L1-RSRP reporting in NR-U.

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

###### 6.1.6.3.14 SS-RSRP/SS-RSRQ/SS-SINR/L1-RSRP measurement procedure (intra-frequency, inter-frequency, inter-RAT)

**R4-2109277 Draft TC NR-U inter-frequency measurements**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2109853 Draft CR of test cases on measurement accuracy under CCA for inter-frequency SS-RSRP and L1-RSRP**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: MediaTek inc.*

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

**R4-2110333 Draft CR of test cases for Inter-RAT measurement for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

###### 6.1.6.3.15 RSSI/CO measurement procedure (intra-frequency, inter-frequency, inter-RAT)

###### 6.1.6.3.16 SFTD measurement procedure

**R4-2110965 NR-U SFTD procedure TC**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Updates to SFTD measurement procedure TC for NR-U

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

###### 6.1.6.3.17 SS-RSRP/SS-RSRQ/SS-SINR/L1-RSRP measurement accuracy (intra-frequency, inter-frequency, inter-RAT)

**R4-2110334 Draft CR of test cases for Intra-frequency measurement accuracy for NR-U**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111229 Discussions on RSRP/RSRQ measurement accuracy test for NR-U in EN-DC**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution, we discuss RSRP/RSRQ measurement accuracy test for NR-U in EN-DC.

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

**R4-2111230 RSRP/RSRQ measurement accuracy test for NR-U in EN-DC**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR contains test case for RSRP/RSRQ measurement accuracy for NR-U in EN-DC.

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

**R4-2111244 Discussions on RSRP/RSRQ measurement accuracy test for NR-U in EN-DC**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

In this contribution, we discuss RSRP/RSRQ measurement accuracy test for NR-U in EN-DC.

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

**R4-2111245 RSRP/RSRQ measurement accuracy test for NR-U in EN-DC**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This CR contains test case for RSRP/RSRQ measurement accuracy for NR-U in EN-DC.

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

###### 6.1.6.3.18 RSSI/CO measurement accuracy (intra-frequency, inter-frequency, inter-RAT)

**R4-2109302 TCs for RSSI and CO measurement accuracy in NR-U R16**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Apple*

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

###### 6.1.6.3.19 SFTD measurement accuracy

**R4-2110966 NR-U SFTD accuracy TC**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Updates to SFTD measurement accuracy TC for NR-U

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

###### 6.1.6.3.20 Other

**R4-2108777 On test cases for TCI state switch in NR-U**

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

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

**R4-2109278 Requirement classification for statistical testing for TCs with CCA**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2111304 Analysis of open issues related to DL and UL CCA models**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

The paper addresses open issues related to the DL CCA and UL CCA models used in RRM tests

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

**R4-2111305 Correction to DL/UL CCA models in 38.133**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The draft CR updates and corrects open issues related to the DL CCA and UL CCA models used in RRM tests

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

### 6.2 5G V2X with NR sidelink

#### 6.2.2 RRM core requirements maintenance (38.133)

#### 6.2.3 RRM performance requirements maintenance (38.133)

**R4-2109565 CR: RRM congestion control test cases for NR V2X**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1920 rev Cat: F (Rel-16)  
  
 Source: Qualcomm, Inc.*

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

**R4-2109568 On NR V2X Core and Accuracy Requirement Remaining Issues**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

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

**R4-2111498 (R17mirror) CR: RRM congestion control test cases for NR V2X**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2159 rev Cat: A (Rel-17)  
  
 Source: Qualcomm, Inc.*

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

### 6.3 Integrated Access and Backhaul for NR

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**Email discussion: [99-e][211] NR\_IAB\_RRM**

**R4-2108135 Email discussion summary: [99-e][211] NR\_IAB\_RRM** *Type: other For: Information  
 Source: Moderator (ZTE)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

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2nd round email discussion conclusions

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#### 6.3.3 RRM core requirement maintenance

**R4-2110335 CR on maintenance of side conditions for IAB-MT R16**

*Type: CR For: Agreement  
 38.174 v16.2.0 CR-0014 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110336 CR on maintenance on sharing factor of RLM and link recovery for IAB-MT R16**

*Type: CR For: Agreement  
 38.174 v16.2.0 CR-0015 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111300 Side conditions in IAB-MT RRC connection mobility requirements in TS 38.174**

*Type: CR For: Agreement  
 38.174 v16.2.0 CR-0019 rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The CR on side conditions (SSB Es/Iot and SSP\_RP) for IAB-MT requirements

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

#### 6.3.4 RRM performance requirements

##### 6.3.4.1 General

**R4-2110337 Draft CR on maintenance of IAB test cases**

*Type: draftCR For: Endorsement  
 38.174 v16.2.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111299 Draft Big CR: IAB-MT RRM test cases in 38.174**

*Type: CR For: Agreement  
 38.174 v16.2.0 CR-0018 rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The big CR IAB-MT RRM test cases. Last version was endorsed in R4-2105730 (RAN4#98bis-e)

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

##### 6.3.4.2 Test cases

###### 6.3.4.2.1 RRC Re-establishment

###### 6.3.4.2.2 RRC Connection Release with Redirection

###### 6.3.4.2.3 IAB-MT transmit timing

###### 6.3.4.2.4 RLM

**R4-2111301 Further analysis of CSI-RS based RLM tests for LA IAB-MT**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

The document describes test cases to verify IAB-MT CSI-RS based RLM requirements for IAB-MT LA class

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

**R4-2111302 Correction to CSI-RS based RLM tests for LA IAB-MT in TS 38.174**

*Type: draftCR For: Endorsement  
 38.174 v16.2.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

The updates in draft CR on IAB-MT CSI-RS based RLM tests for IAB-MT LA class

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

###### 6.3.4.2.5 Beam Failure Detection and Link Recovery

### 6.4 Multi-RAT Dual-Connectivity and Carrier Aggregation enhancements

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**Email discussion: [99-e][212] LTE\_NR\_DC\_CA\_RRM\_1\_NWM**

**R4-2108136 Email discussion summary: [99-e][212] LTE\_NR\_DC\_CA\_RRM\_1\_NWM** *Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (May 20th)

**R4-2111277 Draft CR for Idle Mode measurements of inter-RAT CA candidate cells for early reporting (TC#3)**

* Discussion
  + Anritsu: Additional comments need to be taken into account (provided additional information in NWM)
    - Nokia: we can look further.
  + Huawei: Need to have a single sub-test. No need to have multiple.
    - Nokia: open to discuss how to capture the test.
  + Apple: There may be different Noc, Es for different band groups. The performance was verified in other tests. We suggest to simplify the test and no need to specify the exact values. Need to make sure UE can make detection.
    - Nokia: We prefer to have poor conditions, but can discuss if we should use same values.
    - Apple: The current value is TBD. We have quite similar requirement in LTE spec and there we have a simple design without differentiation of power levels for different bands.
    - Nokia: We can use EUTRAN as baseline.

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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**Email discussion: [99-e][213] LTE\_NR\_DC\_CA\_RRM\_2**

**R4-2108137 Email discussion summary: [99-e][212] LTE\_NR\_DC\_CA\_RRM\_2** *Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (May 20th)

* Issue 1-3-1: Measurement periods threshold value for requirement branching in NR FR1
  + Proposals
    - Option 1 (Nokia): Increase the measurement period threshold for Direct SCell Activation in FR1 from 1280ms to [5]s.
  + Discussion
    - Nokia: The issue is that for 1280ms threshold, the network will need to use shorter DRX cycles. There is impact on both NW and UEs.
    - E///: Agree with Nokia. The current assumptions limit the set of DRX cycles which we use. 1280ms will allow only 1 SCell to be measured. Need to further discuss exact value. The intention is not to tighten.
    - Apple: for 1280ms there will be constraints on the configuration. All of this was discussed in Rel-15. We prefer not to reopen the discussion.
    - Intel: Rel-15 assumption of 160ms sampling interval. We acknowledge E/// comments that current assumption limit the flexibility (i.e. 1 SCell measurement). We are open to discuss improvements.
    - Huawei: Understand the concern from the network side. However, AGC reliability needs to be considered. For 5sec it is not possible to guarantee AGC validity and activation process can fail. We are open to discuss some values in the middle.
    - Apple: We think that another SMTC for AGC will be required and SCell activation delay will be longer.
    - QC: Understand the issue from NW side. UE power consumption can be improved in case of enhancements. Open to further discussion.
    - MediaTek: It is difficult for UE to differentiate conditions. Can we always follow the longer requirement instead?
    - QC: there may be additional requirements affected by this change. Need to further discuss if we should consistently update other requirements
  + Sessions chair: Continue discussion. Come back in the 2nd round.
* Topic #2: Test cases
  + Sessions chair: Continue discussion. Further check in the 2nd round.
* Issue 1-1-1: Timeline for directly activated SCell configured with multiple TCI states
  + Proposals
    - Option 1 (MediaTek): RAN4 to correct the direct SCell activation time for the cases that TCI state is still needed .
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 1-2-1: Removal of bracket for SCell known condition in NR FR1
  + Proposals
    - Option 1 (Nokia): Remove bracket around [5] seconds in SCell known condition requirement for Direct SCell Activation in NR FR1.
  + Discussion
    - TBA
  + Agreements:
    - TBA

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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#### 6.4.1 RRM core requirement maintenance (38.133/36.133)

**R4-2110856 CR on LTE-NR EMR requirements 36133**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7114 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110857 CR on LTE-NR EMR requirements 36133 R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7115 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110858 CR on EMR requirements correction 38133**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2079 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110859 CR on EMR requirements correction 38133 R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2080 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110862 CR on direct SCell activation**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2081 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110863 CR on direct SCell activation R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2082 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110864 CR on SCell dormancy requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2083 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110865 CR on SCell dormancy requirements R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2084 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111285 CR Correction of activation delay for Direct activated Scell**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2130 rev Cat: F (Rel-16)  
  
 Source: Nokia Corporation*

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

**R4-2111286 CR Correction of activation delay for Direct activated SCell**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2131 rev Cat: A (Rel-17)  
  
 Source: Nokia Corporation*

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

##### 6.4.1.1 Early Measurement reporting

##### 6.4.1.2 Efficient and low latency serving cell configuration, activation and setup

**R4-2109881 CR on TS38.133 for direct Scell activation**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1941 rev Cat: F (Rel-16)  
  
 Source: MediaTek inc.*

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

**R4-2109882 CR on TS38.133 for direct Scell activation**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1942 rev Cat: A (Rel-17)  
  
 Source: MediaTek inc.*

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

**R4-2110277 Discussion on direct Scell activation**

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

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

**R4-2111274 Direct SCell activation delay**

*Type: discussion For: Agreement  
 38.133 v CR- rev Cat: (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2111275 CR for Direct SCell activation delay**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2126 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2111276 CR for Direct SCell activation delay**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2127 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2108180 CR for core requirement maintenance on direct SCell activation R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-TBA rev Cat: F (Rel-16)  
  
 Source: Apple*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108181 CR for core requirement maintenance on direct SCell activation R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-TBA rev Cat: A (Rel-17)  
  
 Source: Apple*

**Abstract:**

**Discussion:**

**Decision: Return to.**

#### 6.4.2 RRM performance requirements (38.133)

##### 6.4.2.1 Early Measurement reporting

###### 6.4.2.1.1 General

**R4-2110860 Big CR: Introduction of Rel-16 MR-DC EMR RRM performance requirements (TS 36.133)**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7116 rev Cat: B (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110861 Big CR: Introduction of Rel-16 MR-DC EMR RRM performance requirements (TS 36.133) R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7117 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2108182 Big CR: Introduction of Rel-16 MR-DC EMR RRM performance requirements (TS 38.133)**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-TBA rev Cat: B (Rel-16)  
  
 Source: Nokia*

**Abstract:**

**Discussion:**

**Decision: Return to.**

**R4-2108183 Big CR: Introduction of Rel-16 MR-DC EMR RRM performance requirements (TS 38.133)**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-TBA rev Cat: A (Rel-17)  
  
 Source: Nokia*

**Abstract:**

**Discussion:**

**Decision: Return to.**

###### 6.4.2.1.2 Measurement accuracy requirements

###### 6.4.2.1.3 Test cases

**R4-2111277 Draft CR for Idle Mode measurements of inter-RAT CA candidate cells for early reporting (TC#3)**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

##### 6.4.2.2 Efficient and low latency serving cell configuration, activation and setup

###### 6.4.2.2.1 General

**R4-2110967 Big CR 38.133: Introduction of Rel-16 MR-DC Direct SCell activation and SCell dormancy RRM performance requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2104 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Big CR with test cases for Direct SCell activation and SCell Dormancy

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

**R4-2110969 Big CR 38.133: Introduction of Rel-16 MR-DC Direct SCell activation and SCell dormancy RRM performance requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2105 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Big CR with test cases for Direct SCell activation and SCell Dormancy

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

###### 6.4.2.2.2 Test cases for direct SCell activation

###### 6.4.2.2.3 Test case for SCell Dormancy

**R4-2110975 DraftCR 38.133: Corrections to test cases for SCell dormancy**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Corrections pertaining to triggering inside/outside initial 3 OFDM symbols in a slot, and to new CORESET RMC to be used for the latter case.

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

### 6.5 NR Positioning Support

#### 6.5.1 RRM core requirement maintenance (38.133)

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**Email discussion: [99-e][214] NR\_pos\_1**

**R4-2108138 Email discussion summary: [99-e][214] NR\_pos\_1**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA) – not handled

* Issue 1-1-1: Upper bound for N\_muting factor
  + Proposals
    - Option 1a (CATT, QC, Nokia, vivo)
      * Option A in WF R4-2105851 from RAN4#98-bis-e
      * If Tprs \* dl-PRS-MutingBitRepetitionFactor-r16 > 10240 ms
        + N\_muting = 1 (effectively no type1 muting)
      * else
        + N\_muting = X \* dl-PRS-MutingBitRepetitionFactor-r16, where
        + X = min( L, 10240/( Tprs \* dl-PRS-MutingBitRepetitionFactor-r16 ) ) and
        + L is the size of NR-MutingPattern-r16 for mutingOption1-r16.
    - Option 1b (OPPO)
      * When Tprs \* dl-PRS-MutingBitRepetitionFactor-r16 > 10240 ms or Tprs \* L \* dl-PRS-MutingBitRepetitionFactor-r16 > 10240ms, support option 1
      * When Tprs \* L \* dl-PRS-MutingBitRepetitionFactor-r16 <= 10240 ms, muting scaling factor should be the ratio of muting pattern size and the number of “1” in the muting pattern, i.e.
    - Option 2 (HW)
      * If RAN4 is to optimize the requirements for muting, consider to define N\_muting based on the minimum repetition factor of bit ‘1’ in the muting pattern.
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 1-2-1: Observation window of Lprs
  + Proposals
    - Option 1 (CATT, HW, QC, vivo, OPPO, Intel)
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 1-2-2: Relation between the observation windows of Lprs and UE processing capability ‘N’
  + Proposals
    - Option 1 (Nokia)
      * A UE needs to use the observation window for *N* same as LPRS,i observation window that was agreed as the aggregating duration of all the PRS resources that fall within MGs and are not muted.
      * If the window *T* ms is not set same as the window LPRS,i, the requirement applies another scaler as , where is the observation window of LPRS,i counting.
    - Option 2 (CATT, HW)
      * No relation between the two observation windows
    - Option 3 (vivo)
      * Keep current scaling factor
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 2-2-3: PRS resource being overlapped with (or fully covered by) MG
  + Proposals
    - Option 1 (QC)
      * The measurement requirements apply for a PRS resource only if at least the minimum number of repetitions specified in the accuracy requirements are covered by the MGL excluding RF switching time.
    - Option 2 (vivo)
      * If at least part of the PRS resource including at least the minimum number of repetitions specified in the accuracy requirements is fully covered by MGL, then the PRS resource is considered being fully covered by MGL.
    - Option 3 (HW)
      * A PRS resource is considered to be fully (partially) overlapped with MG if all (some) of its instances are overlapped with an MG occasion.
      * A PRS resource instance is considered to be overlapped with an MG occasion if the minimum number of repetitions of the instance is fully covered by the MGL excluding RF switching time, where the minimum number is given in the accuracy requirements.
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 2-1-2: Definition of long periodicity measurement
  + Proposals
    - Option 1 (QC, vivo)
      * Define the long periodicity condition as Tavailable\_PRS,i > 160 ms (or >=320ms)
      * Measurement requirements apply even if some of the PRS resources in the PFL can be measured with periodicity shorter or equal to 160 ms. i.e. all of the PRS resources would be measured with high priority (CSSF = 1).
    - Option 2 (OPPO, HW, Intel)
      * Define the long periodicity condition as Tavailable\_PRS,i > 160 ms (or >=320ms)
      * Measurement requirements do not apply if some of the PRS resources in the PFL can be measured with periodicity shorter or equal to 160 ms. i.e. none of the PRS resources in the PFL would be measured.
    - Option 3 (Nokia, CATT)
      * Define the long periodicity condition as Tavailable\_PRS,i > 160 ms (or >=320ms)
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 1-3-1: PRS-RSRP configured for a different method than DL-TDOA
  + Proposals
    - Option 1a (ZTE, OPPO)
      * RSTD measurement period is not impacted by the PRS-RSRP measurement configured for another positioning method, if they are measured on the same set of PRS resources.
    - Option 1b (CATT, Nokia, vivo, OPPO, Intel)
      * RSTD measurement period is not impacted by PRS-RSRP measurement.
    - Option 2a (HW)
      * When UE is configured measurement for more than one positioning requests, the measurement period for each requests can be longer than measurement period when UE is configured measurement for that single positioning request.
    - Option 2b (Ericsson)
      * When PRS-RSRP and RSTD are configured using separate OTDOA assistance data then the measurement periods of RSTD and PRS-RSRP may be different.
    - Option 2c (QC)
      * RAN4 not to specify requirements for scenarios involving concurrent NR positioning methods in Rel-16.
      * Measurement period requirements in TS 38.133 sections 9.9.2.5, 9.9.3.5 and 9.9.4.5 do not apply when there are concurrent positioning requests. If there are concurrent positioning requests the starting point and duration of the measurement period may be different.
    - Option 2d (OPPO)
      * PRS measurement requirements do not apply when UE is configured PRS measurement for more than one positioning methods with different sets of PRS resources to measure.
  + Discussion
    - TBA
  + Agreements:
    - TBA
* Issue 3-1-1: Applicable requirements for PRS-RSRP configured for DL-TDOA
  + Proposals
    - Option 1 (HW, Nokia)
      * Requirements for RSTD in clause 9.9.2 apply
    - Option 2a (ZTE, vivo)
      * Requirements for PRS-RSRP in clause 9.9.3 apply
    - Option 2b (OPPO)
      * Current requirements in clause 9.9.3 also apply for the case when PRS-RSRP is measured for DL-TDOA, except the following scenarios:
        + If handover occurs while PRS-RSRP measurements for Multi-RTT are being performed, or
        + If other cell change impacting SRS configuration occurs while PRS-RSRP measurements for Multi-RTT are being performed
  + Discussion
    - TBA
  + Agreements:
    - TBA

1st round email discussion conclusions

**New tdocs**

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| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2109089 CR on PRS RSTD measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1870 rev Cat: F (Rel-16)  
  
 Source: CATT*

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

**R4-2109091 CR on PRS RSTD measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1872 rev Cat: A (Rel-17)  
  
 Source: CATT*

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

**R4-2109931 CR to 38.133 correction on CCSF for NR measurements for positioning**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1953 rev Cat: F (Rel-16)  
  
 Source: vivo*

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

**R4-2109932 CR to 38.133 correction on CCSF for NR measurements for positioning**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1954 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

**R4-2110866 CR on MG for PRS measurement 38.133 R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2085 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110867 CR on MG for PRS measurement 38.133 R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2086 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110868 CR on MG for PRS measurement 36.133 R16**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7118 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110869 CR on MG for PRS measurement 36.133 R17**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7119 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

##### 6.5.1.1 PRS-RSTD measurement requirements

**R4-2108778 On UE PRS-RSTD measurements**

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

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

**R4-2109087 Discussion on PRS RSTD measurement requirements**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109090 CR on PRS PRS RSTD measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1871 rev Cat: F (Rel-16)  
  
 Source: CATT*

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

**R4-2109092 CR on PRS PRS RSTD measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1873 rev Cat: A (Rel-17)  
  
 Source: CATT*

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

**R4-2109175 CR to update RSTD measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1874 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

There are some remaining open issues in RSTD measurement period.

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

**R4-2109234 Discussion on NR PRS RSTD measurement report requirements**

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

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

**R4-2109858 On PRS-RSTD measurement requirements**

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

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

**R4-2109934 Further discussion on PRS RSTD measurement requirements**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2110007 CR to update RSTD measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1964 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2110012 On PRS-RSTD measurement period definition**

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

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

**R4-2110039 Discussion on the measurement period for RSTD**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110870 Discussion on remaining issues for RSTD measurement requirements**

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

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

**R4-2110871 CR to update RSTD measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2087 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110872 CR to update RSTD measurement requirements R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2088 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111331 On RSTD measurement requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

On RSTD measurement requirements

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

**R4-2111332 Updates to measurement requirements in TS 38.133**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2150 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Positioning measurement requirements for DL DTOA and DL AOD are updated. Gap pattern # 25 is removed for LTE measurements

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

**R4-2111333 Updates to measurement requirements in TS 38.133**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2151 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Positioning measurement requirements for DL DTOA and DL AOD are updated. Gap pattern # 25 is removed for LTE measurements as agreed at RAN4#98bis-e.

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

**R4-2111334 Updates to measurement requirements in TS 36.133**

*Type: CR For: Agreement  
 36.133 v16.9.0 CR-7123 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Gap pattern # 25 is removed for LTE measurements as agreed at RAN4#98bis-e

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

**R4-2111335 Updates to measurement requirements in TS 36.133**

*Type: CR For: Agreement  
 36.133 v17.1.0 CR-7124 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Gap pattern # 25 is removed for LTE measurements as agreed at RAN4#98bis-e

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

##### 6.5.1.2 PRS-RSRP measurement requirements

**R4-2108779 Remaining issues on PRS-RSRP measurements**

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

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

**R4-2109859 On PRS-RSRP measurement requirements**

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

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

**R4-2109935 Further discussion on PRS-RSRP measurement requirements**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2110008 CR to update PRS-RSRP measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1965 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2110009 CR to update PRS-RSRP measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1966 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2110013 On PRS-RSRP measurement period definition**

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

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

**R4-2110045 Discussion on the measurement period for PRS-RSRP**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110873 Discussion on remaining issues for PRS-RSRP measurement requirements**

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

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

**R4-2110874 CR to update PRS-RSRP measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2089 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110875 CR to update PRS-RSRP measurement requirements R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2090 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111336 On PRS-RSRP measurement requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

On PRS-RSRP measurement requirements

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

**R4-2111337 PRS-RSRP measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2152 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

PRS-RSRP measurement requirements. The CR was endorsed in R4-2105745 at RAN4#98bis-e

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

**R4-2111338 PRS-RSRP measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2153 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

PRS-RSRP measurement requirements. The CR was endorsed in R4-2105745 at RAN4#98bis-e

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

##### 6.5.1.3 UE Rx-Tx time difference measurement requirements

**R4-2108780 On UE Rx-Tx time difference measurement requirements**

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

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

**R4-2109088 Discussion on UE Rx-Tx time difference measurement requirements**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109236 Discussion on UE RX-TX time difference measurement requirements**

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

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

**R4-2109860 On UE Rx-Tx measurement requirements**

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

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

**R4-2109936 Further discussion on UE RX-TX timing difference measurement requirements**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2110010 CR to update UE Rx-Tx time difference measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1967 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2110011 CR to update UE Rx-Tx time difference measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1968 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2110014 On UE RX-TX measurement period definition**

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

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

**R4-2110046 Discussion on the measurement period for UE Rx-Tx time difference**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110122 CR on UE Rx-Tx time difference measurement period**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1976 rev Cat: F (Rel-16)  
  
 Source: OPPO*

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

**R4-2110123 CR on UE Rx-Tx time difference measurement period**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1977 rev Cat: A (Rel-17)  
  
 Source: OPPO*

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

**R4-2110876 Discussion on remaining issues for UE Rx-Rx time difference measurement requirements**

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

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

**R4-2110877 CR to update UE Rx-Tx time difference measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2091 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110878 CR to update UE Rx-Tx time difference measurement requirements R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2092 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111339 On UE Rx-Tx measurement requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

On UE Rx-Tx measurement requirements, which are updated to include past agreements and further updates are done to complete the requirements

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

**R4-2111340 UE Rx-Tx measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2154 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

UE Rx-Tx measurement requirements are updated to include past agreements and further updates are done to complete the requirements

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

**R4-2111341 UE Rx-Tx measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2155 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

UE Rx-Tx measurement requirements are updated to include past agreements and further updates are done to complete the requirements

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

##### 6.5.1.4 Other requirements

**R4-2108781 Discussion on impact of CSSF to positioning measurements**

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

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

**R4-2109861 On general PRS measurement requirements**

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

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

**R4-2109937 Further discussion on general requirements for NR positioning**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2110015 Discussion on other NR positioning requirements**

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

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

**R4-2110124 Discussion on general PRS measurement requirements**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110879 Discussion on CSSF and measurement capability for PRS measurement**

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

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

**R4-2110880 CR on CSSF and measurement capability for PRS measurement 38.133**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2093 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110881 CR on CSSF and measurement capability for PRS measurement 38.133 R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2094 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

#### 6.5.2 RRM performance requirements (38.133)

================================================================================

**Email discussion: [99-e][215] NR\_pos\_2**

**R4-2108139 Email discussion summary: [99-e][215] NR\_pos\_2**

*Type: other For: Information  
 Source: Moderator (Intel Corporation)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (May 21st)

* Sub-topic 2-1 Applicable propagation channel for accuracy requirement
  + Proposals
    - Option 1 (vivo, Intel, OPPO, CATT, HW).
      * No need to define the additional accuracy requirement for AWGN
    - Option 2 (QC, E///, Nokia):
      * Define separated set requirements for AWGN beside the requirements for the fading channels
    - Option 2a (Huawei, QC, E///):
      * Define additional set requirements for AWGN
      * Captured in the specification the propagation channel models based on which the accuracy requirements are derived
  + Discussion
    - E///: Test cases will be done in AWGN but requirements are based on fading. So, the test cases become less useful. Not convinced we need to skip. In the past we had some measurements defined for AWGN (e.g. LTE Pos measurements).
    - QC: Do not oppose defining requirements for fading. Prefer to have additional set of AWGN requirements.
    - vivo: Industry refers to the RAN4 requirements as the baseline. AWGN requirements can be misleading and too optimistic. For fading channels, we may need to further discuss the accuracy since there may be some issues with the definition of the reference point.
    - QC: for AWGN requirements we can add some clarifications that the requirements are optimistic. We do not want to create confusion. We can also further discuss which requirement is further used.
    - Session chair: the agreement below may be adjusted based on outcome of the fading channel accuracy discussion.
  + Agreements:
    - PRS-RSTD and UE Rx-Tx measurement accuracy requirements
      * Define an additional set of accuracy requirements for AWGN
      * Capture in the specification the propagation channel models based on which the accuracy requirements are derived
    - Test cases for PRS-RSTD, PRS-RSRP and UE Rx-Tx accuracy requirements
      * Test cases are defined for AWGN conditions
      * AWGN accuracy requirements are used for the accuracy test cases for PRS-RSTD and UE Rx-Tx.
    - Test cases for measurement delay requirements
      * FFS if fading conditions can be used for FR1 measurement delay tests cases.
      * AWGN conditions will be used for FR2 measurement delay test cases.
* Sub-topic 2-5 RSTD accuracy requirements for FR1/FR2
  + Proposal 2: RSTD accuracy requirements under AWGN:

**Table 1: RSTD accuracy in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [181+margin] | ≥ [24] | 15 | ≥4 |
| [104+margin] | ≥ [52] | All |
| [43+margin] | ≥ [104] | All |
| [TBD+margin] | ≥ [24] | 30 | ≥4 |
| [52+margin] | ≥ [48] | All |
| [24+margin] | ≥ [132] | All |
| [59+margin] | ≥ [24] | 60 | ≥4 |
| [27+margin] | ≥ [64] | All |

**Table 2: RSTD accuracy in FR2**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [53+margin] | ≥ [24] | 60/120 | ≥4 |
| [57+margin] | ≥ [64] | All |
| [37+margin] | ≥ [132] | All |

* + Proposal 1: RSTD accuracy requirements under the fading channels:

**Table 1: RSTD accuracy in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [247+margin] | ≥ [24] | 15 | ≥4 |
| [128+margin] | ≥ [52] | All |
| [75+margin] | ≥ [104] | All |
| [TBD+margin] | ≥ [24] | 30 | ≥4 |
| [98+margin] | ≥ [48] | All |
| [31+margin] | ≥ [132] | All |
| [120+margin] | ≥ [24] | 60 | ≥4 |
| [26+margin] | ≥ [64] | All |

**Table 2: RSTD accuracy in FR2**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [53+margin] | ≥ [24] | 60/120 | ≥4 |
| [57+margin] | ≥ [64] | All |
| [37+margin] | ≥ [132] | All |

* + Discussion
    - Session chair: encourage companies to double check the simulation results
    - QC: for fading channel what is the reference time? We assumed the 1st tap in multi-path channel.
      * vivo: reference time is first detectable path
  + Agreements:
    - Reference point of ideal RX time for RSTD accuracy requirements is the absolute arrival time of the first path of the receive signal
    - Accuracy requirements will be finalized once the simulation results collection is finalized
    - RSTD accuracy requirements under AWGN:
      * [Requirements are based on the average of companies simulation results]
      * Margin value is FFS

**Table 1: RSTD accuracy in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [TBD + margin] | ≥ [24] | 15 | ≥4 |
| [TBD + margin] | ≥ [52] | All |
| [TBD + margin] | ≥ [104] | All |
| [TBD + margin] | ≥ [24] | 30 | ≥4 |
| [TBD + margin] | ≥ [48] | All |
| [TBD + margin] | ≥ [132] | All |
| [TBD + margin] | ≥ [24] | 60 | ≥4 |
| [TBD + margin] | ≥ [64] | All |

**Table 2: RSTD accuracy in FR2**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [TBD + margin] | ≥ [24] | 60 | All |
| [TBD + margin] | ≥ [64] | All |
| [TBD + margin] | ≥ [132] | All |
| [TBD + margin] | ≥ [32] | 120 | All |
| [TBD + margin] | ≥ [64] | All |
| [TBD + margin] | ≥ [128] | All |

* + - RSTD accuracy requirements under fading conditions:
      * Margin value is FFS

**Table 1: RSTD accuracy in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [TBD + margin] | ≥ [24] | 15 | ≥4 |
| [TBD + margin] | ≥ [52] | All |
| [TBD + margin] | ≥ [104] | All |
| [TBD + margin] | ≥ [24] | 30 | ≥4 |
| [TBD + margin] | ≥ [48] | All |
| [TBD + margin] | ≥ [132] | All |
| [TBD + margin] | ≥ [24] | 60 | ≥4 |
| [TBD + margin] | ≥ [64] | All |

**Table 2: RSTD accuracy in FR2**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [TBD + margin] | ≥ [24] | 60 | ≥4 |
| [TBD + margin] | ≥ [64] | All |
| [TBD + margin] | ≥ [132] | All |
| [TBD + margin] | ≥ [32] | 120 | ≥4 |
| [TBD + margin] | ≥ [64] | All |
| [TBD + margin] | ≥ [128] | All |

* Sub-topic 4-5 UE Rx-Tx time difference measurement accuracy requirements
  + Proposals
    - Proposal 1: UE Rx-TX time difference measurement accuracy requirements under the fading channels can be:

**Table 1: UE Rx-Tx time difference accuracy in FR1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **Es/Iot,**  **dB** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [114+margin] | **-3** | ≥[24] | 15 | ≥4 |
| [83+margin] | ≥[52] | All |
| [47+margin] | >[104] | All |
| [TBD+margin] | ≥[24] | 30 | ≥4 |
| [51+margin] | ≥[48] | All |
| [41+margin] | ≥[132] | All |
| [53+margin] | ≥[24] | 60 | ≥4 |
| [31+margin] | ≥[64] | All |
| [135+margin] | **-13** | ≥[24] | 15 | ≥4 |
| [86+margin] | ≥[52] | All |
| [52+margin] | >[104] | All |
| [TBD+margin] | ≥[24] | 30 | ≥4 |
| [72+margin] | ≥[48] | All |
| [40+margin] | ≥[132] | All |
| [118+margin] | ≥[24] | 60 | ≥4 |
| [43margin] | ≥[64] | All |

* **Table 2: : UE Rx-Tx time difference accuracy in FR2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **Es/Iot,**  **dB** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [55+margin] | **-3** | ≥[24] | 60/120 | ≥4 |
| [47+margin] | ≥[64] | All |
| [30+margin] | ≥[132] | All |
| [59+margin] | **-13** | ≥[24] | 60/120 | ≥4 |
| [60+margin] | ≥[64] | All |
| [31+margin] | ≥[128] | All |

* + - Proposal 2: UE Rx-Tx time difference accuracy requirements under AWGN:

**Table 1: UE Rx-Tx time difference accuracy in FR1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **Es/Iot,**  **dB** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [99+margin] | **-3** | ≥[24] | 15 | ≥4 |
| [66+margin] | ≥[52] | All |
| [32+margin] | >[104] | All |
| [TBD+margin] | ≥[24] | 30 | ≥4 |
| [34+margin] | ≥[48] | All |
| [15+margin] | ≥[132] | All |
| [29+margin] | ≥[24] | 60 | ≥4 |
| [15+margin] | ≥[64] | All |
| [9+margin] | ≥[132] | All |
| [90+margin] | **-13** | ≥[24] | 15 | ≥4 |
| [79+margin] | ≥[52] | All |
| [39+margin] | >[104] | All |
| [TBD+margin] | ≥[24] | 30 | ≥4 |
| [39+margin] | ≥[48] | All |
| [18+margin] | ≥[132] | All |
| [40+margin] | ≥[24] | 60 | ≥4 |
| [18+margin] | ≥[64] | All |
| [9+margin] | ≥[132] | All |

**Table 2: UE Rx-Tx time difference accuracy in FR2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Accuracy,**  **Tc** | **Es/Iot,**  **dB** | **PRS BW,**  **PRB** | **PRS SCS,**  **kHz** | **Repetition factor**  ***(*** |
| [22+margin] | **-3** | ≥[24] | 60 | All |
| [14+margin] | ≥[64] | All |
| [9+margin] | ≥[132] | All |
| [14+margin] | ≥[24] | 120 | All |
| [8+margin] | ≥[64] | All |
| [4+margin] | ≥[128] | All |
| [32+margin] | **-13** | ≥[24] | 60 | All |
| [15+margin] | ≥[64] | All |
| [9+margin] | ≥[132] | All |
| [15+margin] | ≥[24] | 120 | All |
| [10+margin] | ≥[64] | All |
| [4+margin] | ≥[128] | All |

* + Discussion
    - TBA
  + Agreements:
    - TBA
* Sub-topic 5-10 Supported test configurations in FR1
  + Proposals
    - Option 1 (Ericsson, Huawei): *Supported test configurations for FR1:*

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode |
| 2 | 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 3 | 30 kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| NOTE: The UE is only required to be tested in one of the supported test configurations. | |

* + - Option 1a (Qualcomm): Support the proposed reference test configurations below under the assumption that they correspond to the Pcell configuration and do not constrain the PRS bandwidth and SCS to be tested in each test case.

|  |  |
| --- | --- |
| *Configuration* | *Description* |
| *1* | *15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode* |
| *2* | *15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode* |
| *3* | *30 kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode* |
| *NOTE: The UE is only required to be tested in one of the supported test configurations.* | |

* + Discussion
    - TBA
  + Agreements:
    - TBA
* Sub-topic 3-1 Relative PRS-RSRP requirements definition
  + Proposals
    - Option 1 (CATT): The relative RSRP accuracy should be (RSRP95 – RSRP05)/2.
  + Discussion
    - Session chair: continue discussion. Majority view is not to make any changes.
* Sub-topic 3-3-1 Applicability of the relative PRS RSRP accuracy requirements
  + Proposals
    - Option 1 (vivo):
      * For PRS-RSRP measurement from one TRP and PRS-RSRP measurement from another TRP on the same PFL in FR1, or PRS-RSRP measurements between any two PRS-RSRP levels on the same TRP in FR1, no RF calibration margin is added in the relative accuracy requirements.
      * For PRS-RSRP measurements from one TRP on one PFL in FR1 and PRS-RSRP measurements from another TRP on a different PFL in FR1, 2.5dB RF calibration margin is added in the relative accuracy requirements.
      * For all PRS-RSRP measurements in FR2, 4dB RF calibration margin is added in the relative accuracy requirements.
      * Antenna gain and beamforming gain uncertainty for PRS-RSRP measurement in FR2 are accounted in the test.
    - Option 3. (Huawei, Intel, CATT):
      * Relative PRS-RSRP accuracy requirements only apply for PRS-RSRP measured from resources in the same resource set, and with same Rx beam in case of FR2.
    - Option 4 (OPPO):
      * Relative PRS-RSRP accuracy requirements apply to any two PRS-RSRP:
        + The PRS-RSRP could be measured from the same TRP or different TRPs,
        + The PRS-RSRP could be measured in the same PFL or different PFLs,
        + The PRS-RSRP could be measured in the same FR range,
        + The difference between two PRS-RSRP should be no larger than X, |PRS\_RP1dBm - PRS\_RP2dBm| ≤ X dB

FFS: the value of X

* + - * The following rules should be considered for relative PRS-RSRP accuracy requirements:
        + The parameter PRS Es/Iot is the minimum PRS Es/Iot of the pair of TRPs to which the requirement applies.
        + The parameter PRS BW is the minimum PRS BW of the pair of PRS resources to which the requirement applies.
  + Discussion
    - TBA
  + Agreements:
    - TBA

1st round email discussion conclusions

**New tdocs**

|  |  |  |  |
| --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Comments** |
|  |  |  |  |

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
|  |  |  |  |  |

2nd round email discussion conclusions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tdoc number | Title | Source | Recommendation | Comments |
|  |  |  |  |  |

================================================================================

##### 6.5.2.1 General

**R4-2111330 Draft Big CR: Introduction of Rel-16 NR Positioning RRM performance requirements and test cases**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson, Intel*

**Abstract:**

Draft Big CR: Introduction of Rel-16 NR Positioning RRM performance requirements and test cases. Last version was endorsed in R4-2105751 (RAN4#98bis-e).

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

**R4-2111342 On Methodology for estimating UE positioning measurement results**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

The paper discusses methodology for derving link level simulation results for RSTD, PRS RSRP and UE Rx-Tx time difference based on agreements in RAN4#98bis-e

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

**R4-2111343 Link level simulation results for RSTD, PRS RSRP and UE Rx-Tx time difference**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Link level simulation results for RSTD, PRS RSRP and UE Rx-Tx time difference based on agreements in RAN4#98bis-e

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

##### 6.5.2.2 UE requirements and test cases

###### 6.5.2.2.1 General

**R4-2108783 Design principles for test cases**

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

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

**R4-2110882 Additional simulation results for PRS measurement performance**

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

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

###### 6.5.2.2.2 Measurement accuracy requirements

**R4-2109238 Summary of link level simulation result for RSTD, PRS RSRP and UE Rx-Tx time difference**

*Type: other For: Information  
 Source: Intel Corporation*

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

**R4-2109866 NR Pos performance simulation results**

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

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

**R4-2109943 link level simulation result of RSTD, PRS RSRP and UE Rx-Tx time difference**

*Type: other For: Information  
 Source: vivo*

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

6.5.2.2.2.1 PRS RSTD

**R4-2108784 On Measurement Accuracy Requirements for RSTD**

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

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

**R4-2109093 Discussion on PRS RSTD accuracy requirements**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109235 Discussion on NR PRS RSTD measurement accuracy requirements**

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

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

**R4-2109862 On PRS-RSTD measurement accuracy requirements**

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

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

**R4-2109938 Further discussion on PRS RSTD accuracy requirements**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2110125 Discussion on the accuracy requirements for RSTD measurement**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110126 CR on the accuracy requirements for RSTD measurement**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1978 rev Cat: B (Rel-16)  
  
 Source: OPPO*

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

**R4-2110883 Discussion on accuracy requirements for RSTD measurement**

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

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

**R4-2110884 draftCR to introduce accuracy requirements for RSTD measurement**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

6.5.2.2.2.2 PRS RSRP

**R4-2109094 Discussion on PRS RSRP accuracy requirements**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109096 draftCR on PRS-RSRP accuracy requirements**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: CATT*

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

**R4-2109863 On PRS-RSRP measurement accuracy requirements**

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

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

**R4-2109939 Further discussion on PRS-RSRP accuracy requirements**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2109940 CR to 38.133 Introduction of Gain to PRS-RSRP measurement point for FR2 in Annex B**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1955 rev Cat: F (Rel-16)  
  
 Source: vivo*

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

**R4-2109941 CR to 38.133 Introduction of Gain to PRS-RSRP measurement point for FR2 in Annex B**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1956 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

**R4-2110127 Discussion on the accuracy requirements for PRS-RSRP measurement**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110885 Discussion on accuracy requirements for PRS-RSRP measurement**

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

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

6.5.2.2.2.3 UE Rx-Tx time difference

**R4-2108782 Measurement Accuracy Requirements for UE Rx-Tx time difference**

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

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

**R4-2109095 Discussion on UE Rx-Tx time difference accuracy requirements**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109237 Discussion on UE RX-TX time difference measurement accuracy requirements**

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

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

**R4-2109864 On UE Rx-Tx measurement accuracy requirements**

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

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

**R4-2109942 Further discussion on UE Rx-Tx timing difference accuracy requirements**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2110053 Discussion on the accuracy requirements for UE Rx-Tx time difference measurement**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110886 Discussion on accuracy requirements for UE Rx-Tx time difference measurement**

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

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

**R4-2111344 UE Rx-Tx measurement accuracy requirements**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

UE Rx-Tx measurement accuracy requirement are updated to completed remaining issues

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

###### 6.5.2.2.3 Test cases

**R4-2109231 Discussion on NR Positioning test cases configuration**

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

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

6.5.2.2.3.1 General

**R4-2109232 [draftCR] PRS configurations for NR Pos RRM tests**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Intel Corporation*

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

**R4-2109865 Design of test cases for NR positioning**

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

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

**R4-2110054 Discussion on remaining issues for NR\_pos test cases**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110055 CR for PRS configurations for NR\_pos RRM tests**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1971 rev Cat: B (Rel-16)  
  
 Source: OPPO*

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

**R4-2110887 Discussion on RRM test case for UE positioning requirements**

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

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

**R4-2110888 draftCR to introduce reference configuration for SRS for positioning tests**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111345 Analysis of UE positioning test cases**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

On positioning test cases

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

6.5.2.2.3.2 Measurement requirements

**R4-2109097 draftCR on test case for PRS-RSRP measurement requirements for FR2 in SA**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: CATT*

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

**R4-2109233 [draftCR] Test case of RSTD measurement requirements reporting in SA**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Intel Corporation*

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

**R4-2110889 draftCR to introduce TC for PRS-RSRP measurement requirements for FR1 in SA**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111346 TC5 and TC6: UE Rx-Tx time difference measurement requirements for FR1 and FR2 in SA**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

TC5 and TC6: UE Rx-Tx time difference measurement requirements for FR1 and FR2 in SA

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

**R4-2111347 TC11 and TC12: UE Rx-Tx time difference measurement accuracy for FR1 and FR2 in SA**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

TC11 and TC12: UE Rx-Tx time difference measurement accuracy for FR1 and FR2 in SA

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

6.5.2.2.3.3 Accuracy requirements

**R4-2108765 [draft CR] Test cases for PRS-RSRP measurement accuracy**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: ZTE Corporation*

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

**R4-2110890 draftCR to introduce TC for RSTD measurement accuracy for FR1 and FR2 in SA**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

###### 6.5.2.2.4 Other

##### 6.5.2.3 gNB requirements

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**Email discussion: [99-e][216] NR\_pos\_3**

**R4-2108140 Email discussion summary: [99-e][216] NR\_pos\_3**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (May 21st)

* Issue 1-1-1: Beam sweeping during gNB measurement
  + Proposals
    - Option 1: ZTE, Huawei, E///
      * gNB accuracy requirements do not mandate gNB RX beam sweeping is captured only in the WF.
    - Option 2: Nokia
      * gNB accuracy requirements do not mandate gNB RX beam sweeping is included in the accuracy side conditions.
  + Discussion
    - HW: this is not a side condition but rather a RX assumption
    - Nokia: Prefer to add to the spec
    - ZTE: this is not a side condition. This is not necessary to put it to the spec.
    - E///: same view as ZTE and HW
  + Session chair: Continue discussion. Consider of other alternative how to capture in the spec.
* Issue 2-1-1: SRS BW grouping for defining SRS-RSRP accuracy requirements
  + Proposals
    - Option 1: Huawei

|  |  |  |
| --- | --- | --- |
| SRS bandwidth in RB | SRS-RSRP measurement accuracy [dB] | |
| Ês/Iot ≥ -13dB | Ês/Iot ≥ +3dB |
| 24 ≤ BW < 32 (FFS) | TBD | TBD |
| 32 ≤ BW < 48 | TBD |
| 48 ≤ BW < 132 | TBD |
| 132 ≤ BW | TBD |

* + - Option 2: Nokia
      * Define SRS-RSRP accuracy based on SRS BW grouping according to Tables 3-7 in R4-2110272.
    - Option 3:
      * Table 13.3.2.2-1 gNB SRS-RSRP absolute accuracy requirements in FR1 for gNB type 1-C

|  |  |  |
| --- | --- | --- |
| Accuracy | Conditions | |
| SRS Ês/Iot | SRS bandwidth range |
|
| dB | dB | RB |
| ± [TBD] | Ês/Iot ≥ -13 | 24 ≤ BW ≤ [40] |
| ± [TBD] | [40] ≤ BW ≤ [84] |
| ± [TBD] | [88] ≤ BW ≤ [168] |
| ± [TBD] | [176] ≤ BW ≤ [272] |
| ± [TBD] | Ês/Iot ≥ +3 | [24] ≤ BW ≤ [40] |
| ± [TBD] | [40] ≤ BW ≤ [84] |
| ± [TBD] | [88] ≤ BW ≤ [168] |
| ± [TBD] | [176] ≤ BW ≤ [272] |

* + - * Table 13.3.2.2-2 gNB SRS-RSRP absolute accuracy requirements in FR1 for gNB type 1-H and 1-O

|  |  |  |
| --- | --- | --- |
| Accuracy | Conditions | |
| SRS Ês/Iot | SRS bandwidth range |
|
| dB | dB | RB |
| ± [TBD] | Ês/Iot ≥ -13 | 24 ≤ BW ≤ 40 |
| ± [TBD] | 40 ≤ BW ≤ 84 |
| ± [TBD] | 88 ≤ BW ≤ 168 |
| ± [TBD] | 176 ≤ BW ≤ 272 |
| ± [TBD] | Ês/Iot ≥ +3 | 24 ≤ BW ≤ 40 |
| ± [TBD] | 40 ≤ BW ≤ 84 |
| ± [TBD] | 88 ≤ BW ≤ 168 |
| ± [TBD] | 176 ≤ BW ≤ 272 |

* + - * Table 13.3.2.2-3 gNB SRS-RSRP absolute accuracy requirements in FR2 for gNB type 2-O

|  |  |  |
| --- | --- | --- |
| Accuracy | Conditions | |
| SRS Ês/Iot | SRS bandwidth range |
|
| dB | dB | RB |
| ± [TBD] | Ês/Iot ≥ -13 | 32 ≤ BW ≤ 40 |
| ± [TBD] | 40 ≤ BW ≤ 84 |
| ± [TBD] | BW ≥ 88 |
| ± [TBD] | Ês/Iot ≥ +3 | 32 ≤ BW ≤ 40 |
| ± [TBD] | 40 ≤ BW ≤ 84 |
| ± [TBD] | BW ≥ 88 |

* + Discussion
    - TBA
  + Agreements:
    - SRS BW grouping for defining SRS-RSRP accuracy requirements
      * FR1
        + 24 ≤ BW < 32 (requirements will be defined for Ês/Iot ≥ 3dB only)
        + 32 ≤ BW < 48
        + 48 ≤ BW < 132
        + 132 ≤ BW
      * FR2
        + 32 ≤ BW < 64 (requirements will be defined for Ês/Iot ≥ 3dB only)
        + 64 ≤ BW < 132
        + 132 ≤ BW
* Issue 3-1-1: SRS BW grouping for defining gNB Rx-Tx accuracy requirements
  + Proposals
    - Option 1: Nokia
      * Define gNB Rx-Tx accuracy based on SRS BW grouping according to Tables 2-6 in R4-2110273.
    - Option 2: Huawei

|  |  |  |  |
| --- | --- | --- | --- |
| **SRS bandwidth in RB** | **SCS [kHz]** | **gNB TOA measurement accuracy [Tc]** | |
| **Ês/Iot ≥ -13dB** | **Ês/Iot ≥ +3dB** |
| **24≤ BW ≤ 40** | **15** | **TBD** | **TBD** |
| **44 ≤ BW ≤ 84** | **TBD** | **TBD** |
| **88 ≤ BW ≤ 168** | **TBD** | **TBD** |
| **176≤ BW** | **TBD** | **TBD** |
| **48≤ BW ≤ 84** | **30** | **TBD** | **TBD** |
| **88≤ BW ≤ 168** | **TBD** | **TBD** |
| **176≤ BW** | **TBD** | **TBD** |
| **48≤ BW ≤ 84** | **60** | **TBD** | **TBD** |
| **88≤ BW ≤ 168** | **TBD** | **TBD** |
| **176≤ BW** | **TBD** | **TBD** |
| **32≤ BW ≤ 40** | **120** | **TBD** | **TBD** |
| **44≤ BW ≤ 84** | **TBD** | **TBD** |
| **88≤ BW** | **TBD** | **TBD** |

* + Discussion
    - TBA
  + Agreements:
    - SRS BW grouping for defining gNB Rx-Tx time difference accuracy requirements
      * FR1

|  |  |
| --- | --- |
| **SRS bandwidth in RB** | **SCS [kHz]** |
|
| 24≤ BW ≤ 40 | 15 |
| 44 ≤ BW ≤ 84 |
| 88 ≤ BW ≤ 168 |
| [176]≤ BW |
| 48≤ BW ≤ 84 | 30 |
| 88≤ BW ≤ 168 |
| [176]≤ BW |
| 48≤ BW ≤ 84 | 60 |
| 88≤ BW |

* + - * FR2

|  |  |
| --- | --- |
| **SRS bandwidth in RB** | **SCS [kHz]** |
|
| 132 ≤ BW ≤ 168 | 60 |
| [176] ≤ BW |
| 32 ≤ BW ≤ 40 | 120 |
| 44 ≤ BW ≤ 84 |
| 88 ≤ BW |

* Note: compiled results in R4-2108184

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2108184 Collection of link level simulation results of SRS RSRP and gNB TOA**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

**Discussion:**

**Decision: Return to.**

###### 6.5.2.3.1 General

**R4-2108766 Beam configuration and samples for gNB measurement accuracy**

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

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

**R4-2110225 gNB link level simulation results**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution summarizes and analyses the link level simulation results for gNB TOA and SRS-RSRP

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

**R4-2110226 gNB Pos performance simulation results collection**

*Type: other For: Information  
 Source: Ericsson*

**Abstract:**

This contribution displays the link level simulation results for gNB TOA and SRS-RSRP

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

**R4-2110271 General aspects for gNB measurement accuracy requirements**

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

**Abstract:**

Discussion on general aspects for gNB measurement accuracy requirements

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

**R4-2110891 Discussion on general issues for gNB positioning measurement requirements**

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

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

###### 6.5.2.3.2 SRS-RSRP requirements

**R4-2110227 SRS-RSRP requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This discussion paper further analyzes the SRS-RSRP link level simulation results and proposes requirement definition structure and side conditions

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

**R4-2110228 gNB SRS-RSRP measurement**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This draft CR implements the finalized side conditions and also proposes requirements structure based on link level simulation results SRS-RSRP discussion paper

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

**R4-2110272 Link simulation results for SRS-RSRP accuracy**

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

**Abstract:**

Link simulation results for SRS-RSRP accuracy for agreed SRS configurations

**Decision: Revised to R4-2108178 (from R4-2110272).**

**R4-2108178 Link simulation results for SRS-RSRP accuracy**

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

**Abstract:**

Link simulation results for SRS-RSRP accuracy for agreed SRS configurations

**Decision: Return to.**

**R4-2110892 Discussion on SRS-RSRP requirements**

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

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

**R4-2110893 Additional link level simulation results for SRS-RSRP**

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

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

**R4-2110894 draftCR to introduce SRS-RSRP requirements**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

###### 6.5.2.3.3 gNB Rx-Tx time difference requirements

**R4-2110229 gNB Rx-Tx time difference requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This discussion paper further analyzes the gNB TOA link level simulation results and proposes requirement definition structure and side conditions

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

**R4-2110230 gNB Rx-Tx measurement**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

This draft CR implements the finalized side conditions and also proposes requirements structure based on link level simulation results gNB Rx-Tx time difference requirements discussion paper

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

**R4-2110273 Link simulation results for gNB Rx-Tx time difference accuracy**

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

**Abstract:**

Link simulation results for gNB Rx-Tx time difference accuracy for agreed SRS configurations

**Decision: Revised to R4-2108179 (from R4-2110273).**

**R4-2108179 Link simulation results for gNB Rx-Tx time difference accuracy**

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

**Abstract:**

Link simulation results for gNB Rx-Tx time difference accuracy for agreed SRS configurations

**Decision: Return to.**

**R4-2110895 Discussion on gNB Rx-Tx time difference requirements**

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

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

**R4-2110896 Additional link level simulation results for gNB TOA measurement**

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

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

**R4-2110897 draftCR to introduce gNB Rx-Tx time difference requirements**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

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

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**Email discussion: [99-e][217] NR\_CSIRS\_L3meas\_1**

**R4-2108141 Email discussion summary: [99-e][217] NR\_CSIRS\_L3meas\_1**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**Email discussion: [99-e][218] NR\_CSIRS\_L3meas\_2**

**R4-2108142 Email discussion summary: [99-e][218] NR\_CSIRS\_L3meas\_2**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2109078 CR on CSI-RS intra-frequency requirement and scheduling restriction**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1865 rev Cat: F (Rel-16)  
  
 Source: CATT*

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

**R4-2109080 CR on CSI-RS intra-frequency requirement and scheduling restriction**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1867 rev Cat: A (Rel-17)  
  
 Source: CATT*

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

**R4-2109927 CR to 38.133 Correction on core requirements for CSI-RS based measurement**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1949 rev Cat: F (Rel-16)  
  
 Source: vivo*

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

**R4-2109928 CR to 38.133 Correction on core requirements for CSI-RS based measurement**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1950 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

**R4-2109929 CR to 38.133 on SA event triggered reporting tests with gap for NR neighbor cell in FR2**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1951 rev Cat: F (Rel-16)  
  
 Source: vivo*

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

**R4-2109930 CR to 38.133 on SA event triggered reporting tests with gap for NR neighbor cell in FR2**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1952 rev Cat: A (Rel-17)  
  
 Source: vivo*

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

**R4-2110386 Adding intra-frequency CSI-RS measurement in CSSF**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2044 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110387 Adding intra-frequency CSI-RS measurement in CSSF**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2045 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

#### 6.6.1 RRM core requirements maintenance (38.133)

**R4-2109077 Discussion on core part maintenance open issues**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109079 CR on CSI-RS based measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1866 rev Cat: F (Rel-16)  
  
 Source: CATT*

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

**R4-2109081 CR on CSI-RS based measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1868 rev Cat: A (Rel-17)  
  
 Source: CATT*

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

**R4-2109177 CR for clarification on frequency layer merging R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1875 rev Cat: F (Rel-16)  
  
 Source: MediaTek inc.*

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

**R4-2109178 CR for clarification on frequency layer merging R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1876 rev Cat: A (Rel-17)  
  
 Source: MediaTek inc.*

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

**R4-2109239 Discussion on NR CSI-RS L3 measurements**

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

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

**R4-2109376 On remaining issues of RRM core requirements for CSI-RS based L3 measurement**

*Type: discussion For: Agreement  
 Source: Apple*

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

**R4-2109552 Open issues on the CSI-RS based measurement requirements**

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

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

**R4-2109553 38.133 CR on the CSI-RS based measurement requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1915 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2109554 38.133 CR on the CSI-RS based measurement requirements**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1916 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2109933 Remaining issues on CSI-RS L3 measurement core requirements**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2110056 On core part maintenance of CSI-RS based L3 measurement**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110364 Discussion on remaining issues for CSI-RS based L3 measurement**

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

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

**R4-2110365 CR on time validity of the detected associatedSSB**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2036 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110366 CR on time validity of the detected associatedSSB**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2037 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110695 NR-U - System parameters**

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

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

**R4-2110903 CR on CSI-RS measurement window**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2099 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110904 CR on CSI-RS measurement window R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2100 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2111412 CR on CSSF for CSI-RS L3 RRM R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2156 rev Cat: F (Rel-16)  
  
 Source: Apple*

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

**R4-2111413 CR on CSSF for CSI-RS L3 RRM R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2157 rev Cat: A (Rel-17)  
  
 Source: Apple*

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

#### 6.6.2 RRM performance requirements (38.133)

**R4-2109086 Big CR: Introduction of Rel-16 CSI-RS based L3 measurement RRM performance requirements**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1869 rev Cat: B (Rel-16)  
  
 Source: CATT,OPPO*

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

##### 6.6.2.1 General

**R4-2110057 CR to TS 38.133 on performance requirements for CSI-RS based L3 measurement**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1972 rev Cat: B (Rel-16)  
  
 Source: OPPO*

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

##### 6.6.2.2 Measurement accuracy requirements

###### 6.6.2.2.1 CSI-RSRP requirements

###### 6.6.2.2.2 CSI-RSRQ requirements

**R4-2109082 draft CR on performance requirement for CSI-RSRQ**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: CATT*

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

###### 6.6.2.2.3 CSI-SINR requirements

**R4-2109083 draft CR on performance requirement for CSI-SINR**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: CATT*

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

**R4-2109179 Discussion on CSI-SINR measurement accuracy**

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

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

**R4-2109507 Discussion on side condition for CSI-SINR measurement**

*Type: discussion For: Discussion  
 Source: CMCC*

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

**R4-2110905 Discussion on CSI-SINR accuracy requirements**

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

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

**R4-2110906 draftCR on CSI-SINR accuracy requirements**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

##### 6.6.2.3 Test cases

###### 6.6.2.3.1 General

**R4-2110058 CR to TS 38.133 on test cases for CSI-RS based L3 measurement**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1973 rev Cat: B (Rel-16)  
  
 Source: OPPO*

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

###### 6.6.2.3.2 Intra-frequency measurement

**R4-2109084 draft CR on test case for intra-frequency CSI-RS based measurement**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: CATT*

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

**R4-2109555 38.133 CR on the test case of EN-DC event triggered reporting for intra-frequency CSI-RS based measurements in FR1**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-1917 rev Cat: F (Rel-16)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2109556 38.133 CR on the test case of EN-DC event triggered reporting for intra-frequency CSI-RS based measurements in FR1**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1918 rev Cat: A (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

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

**R4-2109735 Draft test case of CSI-RS based intra-frequency test for EN-DC event triggered reporting tests without gap for NR neighbor cell in FR2**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: (Rel-16)  
  
 Source: Qualcomm CDMA Technologies*

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

###### 6.6.2.3.3 Inter-frequency measurement

**R4-2109085 draft CR on test case for inter-frequency CSI-RS based measurement**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: B (Rel-16)  
  
 Source: CATT*

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

###### 6.6.2.3.4 Measurement performance

**R4-2110907 draft CR to update FR1 inter-frequency CSI-RS accuracy test**

*Type: draftCR For: Endorsement  
 38.133 v16.7.0 CR- rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

### 6.7 R16 TEI

**R4-2110296 CR on MRTD requirements for FR1 intra-band NR CA in non-co-located deployment R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2010 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110297 CR on MRTD requirements for FR1 intra-band NR CA in non-co-located deployment R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2011 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110298 CR on MRTD requirements for FR1 intra-band EN-DC in non-co-located deployment R16**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2012 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110299 CR on MRTD requirements for FR1 intra-band EN-DC in non-co-located deployment R17**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2013 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110372 Discussion on the needforgap measurement and on FR1 intra-band non-co-located NR-CA/EN-DC**

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

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

**R4-2110373 CR on the measurement requirements of needforgap**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2042 rev Cat: F (Rel-16)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110374 CR on the measurement requirements of needforgap**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2043 rev Cat: A (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

**R4-2110393 TDD UL-DL and DL-UL switching in DAPS handover**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Further clarification on DL-to-UL and UL-to-DL switching time

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

**R4-2110394 CR on TS38.133 for dual active protocol stack handover**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2047 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

Add conditions for not expected to transmit / not expected to receive covering both source and target cell. Add autonomous interruption allowance if these conditions are unspecified.Correct Ntx-rx and Nrx-tx to 25600 Tc

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

**R4-2110395 CR on TS38.133 for dual active protocol stack handover**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2048 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

Add conditions for not expected to transmit / not expected to receive covering both source and target cell. Add autonomous interruption allowance if these conditions are unspecified.Correct Ntx-rx and Nrx-tx to 25600 Tc

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

**R4-2110401 MRTD and MTTD in non-contiguous CA in FR1**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

MRTD and MTTD in non-contiguous CA in FR1. This is based on an issue initiated by Huawei to allow non-colocated NCCA deployments.

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

**R4-2110402 MRTD and MTTD in non-contiguous CA in FR1**

*Type: CR For: Agreement  
 38.133 v16.7.0 CR-2049 rev Cat: F (Rel-16)  
  
 Source: Ericsson*

**Abstract:**

MRTD and MTTD in non-contiguous CA in FR1. This is based on an issue initiated by Huawei to allow non-colocated NCCA deployments.

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

**R4-2110409 MRTD and MTTD in non-contiguous CA in FR1**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2050 rev Cat: A (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

MRTD and MTTD in non-contiguous CA in FR1. This is based on an issue initiated by Huawei to allow non-colocated NCCA deployments.

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

## 7 Rel-17 maintenance for both NR and LTE

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**Email discussion: [99-e][219] Spectrum\_RRM**

**R4-2108143 Email discussion summary: [99-e][219] Spectrum\_RRM**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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### 7.1 Introduction of FR2 FWA UE with maximum TRP of 23dBm for n257 and n258

#### 7.1.1 UE RF requirements

#### 7.1.2 RRM core requirements

#### 7.1.3 RRM performance requirements

**R4-2110300 CR on maintaining condition requirements for UE power class 5**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-2014 rev Cat: F (Rel-17)  
  
 Source: Huawei, HiSilicon*

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

## 8 Rel-17 spectrum related Work Items for NR

### 8.2 Introduction of NR 47 GHz band

#### 8.2.4 RRM requirements (38.133)

**R4-2111310 Draft Big CR: RRM requirements for band n262 in 38.133**

*Type: draftCR For: Endorsement  
 38.133 v17.1.0 CR- rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This is big CR on RRM core and performance requirements for all power classes for new band in 47 GHz. Last version was endorsed in R4-2105858 (RAN4#98bis-e).

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

### 8.3 Introduction of NR band n67

#### 8.3.3 RRM requirements (38.133)

**R4-2110098 CR to TS 38.133: Introduction of band n67**

*Type: CR For: Agreement  
 38.133 v17.1.0 CR-1974 rev Cat: B (Rel-17)  
  
 Source: Ericsson*

**Abstract:**

This CR introduces band n67 in NR RRM specifications

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

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

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

#### 9.3.3 RRM core requirements

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**Email discussion: [99-e][220] NR\_RF\_FR1\_enh\_RRM\_NWM**

**R4-2108144 Email discussion summary: [99-e][220] NR\_RF\_FR1\_enh\_RRM\_NWM**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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**R4-2109478 RRM DL interruption requirements at UE switching between two uplink carriers and two uplink bands**

*Type: discussion For: Decision  
 Source: CMCC*

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

**R4-2110384 Discussion on RF requirements enhancement for NR frequency range 1 (FR1)-RRM**

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

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

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

#### 9.4.7 RRM core requirements

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**Email discussion: [99-e][221] NR\_RF\_FR2\_req\_enh2\_RRM**

**R4-2108145 Email discussion summary: [99-e][221] NR\_RF\_FR2\_req\_enh2\_RRM**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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##### 9.4.7.1 Inter-band DL CA enhancements

**R4-2108969 FR2 Inter-band DL CA**

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

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

**R4-2109256 Further discussion on RRM requirements for FR2 inter-band DL CA**

*Type: discussion For: Discussion  
 Source: Xiaomi*

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

**R4-2109546 Discussions on Inter-band DL CA enhancements**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: NTT DOCOMO, INC.*

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

**R4-2109613 For RRM requirements for inter-band DL CA in NR FR2**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2109706 Discussion on MRTD for FR2 inter-band CA based on CBM**

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

**Abstract:**

It discusses MRTD requirements for FR2 inter-band CA based on CBM.

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

**R4-2109751 Discussion on MRTD requirements for inter-band DL CA in FR2**

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

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

**R4-2109854 Discussion on CBM MRTD requirement for FR2 inter-band DL CA**

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

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

**R4-2109888 Discussion on FR2 inter-band DL CA enhancements**

*Type: discussion For: Approval  
 Source: NEC*

**Abstract:**

We provide our views on some of the FR2 enhancements and MRTD requirement for FR2 inter-band CA

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

**R4-2110059 RRM requirements for FR2 inter-band DL CA enhancements**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110301 Discussion on FR2 inter-band DL CA enhancement**

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

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

**R4-2110419 Support up to 3 us MRTD**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we develop why at least 3us MRTD is feasible from both from a network perspective and a UE perspective, for co-located deployments.

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

**R4-2110949 MRTD requirements for CBM UEs**

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

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

**R4-2111280 Discussion on FR2 RF RRM**

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

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

##### 9.4.7.2 Inter-band UL CA for IBM capable UEs

**R4-2111281 UL CA for IBM**

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

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

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

#### 9.7.1 General

#### 9.7.2 RRM core requirements

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**Email discussion: [99-e][222] NR\_HST\_FR1\_enh\_RRM**

**R4-2108146 Email discussion summary: [99-e][222] NR\_HST\_FR1\_enh\_RRM**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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##### 9.7.2.1 UE RRM core requirements for CA scenario

**R4-2109562 On NR FR1 HST RRM Requirements**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

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

###### 9.7.2.1.1 General

**R4-2109061 General discussion on RRM requirements for NR FR1 HST**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109514 Discussion on general requirements for FR1 HST RRM**

*Type: discussion For: Discussion  
 Source: CMCC*

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

**R4-2109633 Discussion on Rel-17 HST in FR1 for general issue**

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

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

**R4-2110060 RRM requirement for Rel17 FR1 HST**

*Type: discussion For: Discussion  
 Source: OPPO*

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

**R4-2110212 On SCell general RRM requirements enhancement for NR HST in FR1**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

General RRM requirement for HST FR1 CA case

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

**R4-2110377 Discussion on Enhancement for NR high speed train scenario in FR1**

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

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

**R4-2111252 Discussion on general RRM aspects for FR1 HST CA**

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

**Abstract:**

The document has addressed several RRM open issues related to enhancements for CA under HST scenarios.

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

**R4-2111261 Discussion on R17 NR FR1 HST RRM requirements**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2111262 Discussion on intra-frequency measurement requirements for NR FR1 HST**

*Type: discussion For: Discussion  
 Source: vivo*

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

**R4-2111263 Discussion on inter-frequency measurement requirements for NR FR1 HST**

*Type: discussion For: Discussion  
 Source: vivo*

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

###### 9.7.2.1.2 Intra-frequency measurements

**R4-2109062 Discussion on intra-frequency measurement for NR FR1 HST RRM enhancement**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109248 Discussion on intra-frequency measurements requirement for R17 FR1 HST**

*Type: discussion For: Discussion  
 Source: Xiaomi*

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

**R4-2109316 On R17 FR1 HST intra-frequency measurement**

*Type: discussion For: (not specified)  
 Source: Apple*

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

**R4-2109516 Discussion on NR HST RRM enhancement for CA**

*Type: discussion For: Discussion  
 Source: CMCC*

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

**R4-2109634 Discussion on Rel-17 HST in FR1 for intra-frequency measurement**

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

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

**R4-2110214 On SCell intra-frequency measurements for NR HST in FR1**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

Intra-frequency measurements for HST FR1 CA case

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

**R4-2110220 On SCell intra-frequency measurements for NR HST in FR1**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

Intra-frequency measurements for HST FR1 CA case

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

###### 9.7.2.1.3 Inter-frequency measurements

**R4-2109063 Discussion on inter-frequency measurement for NR FR1 HST RRM enhancement**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109249 Discussion on inter-frequency measurements requirement for R17 FR1 HST**

*Type: discussion For: Discussion  
 Source: Xiaomi*

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

**R4-2109317 On R17 FR1 HST inter-frequency measurement**

*Type: discussion For: (not specified)  
 Source: Apple*

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

**R4-2109515 Discussion on NR HST RRM enhancement for inter-frequency measurement**

*Type: discussion For: Discussion  
 Source: CMCC*

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

**R4-2109635 Discussion on Rel-17 HST in FR1 for inter-frequency measurement**

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

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

**R4-2110213 On SCell inter-frequency measurements for NR HST in FR1**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

Inter-frequency measurements for HST FR1 CA case

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

**R4-2110219 On SCell inter-frequency measurements for NR HST in FR1**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

Inter-frequency measurements for HST FR1 CA case

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

**R4-2111256 Discussion on inter-frequency measurements for FR1 HST CA**

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

**Abstract:**

The document has discussed and proposed a possible enhancement for inter-frequency measurement for FR1 HST CA.

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

### 9.8 NR support for high speed train scenario in FR2

#### 9.8.4 RRM core requirements

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**Email discussion: [99-e][223] NR\_HST\_FR2\_RRM**

**R4-2108147 Email discussion summary: [99-e][223] NR\_HST\_FR2\_RRM**

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

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**R4-2109572 On NR FR2 HST RRM Requirements**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

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

##### 9.8.4.1 General

**R4-2109064 General discussion on RRM for NR FR2 HST**

*Type: discussion For: Discussion  
 Source: CATT*

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

**R4-2109365 Discussion on FR2 HST RRM requirement - geneal**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2110215 General RRM requirements for HST FR2**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

General RRM requirements for HST FR2

**Decision:** The document was **not treated**.

**R4-2110221 General RRM requirements for HST FR2**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

General RRM requirements for HST FR2

**Decision:** The document was **not treated**.

**R4-2110378 General aspects of RRM requirements for HST in FR2**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111168 Further simulation analysis for HST in FR2**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Further simulation analysis related to deployment scenarios and RRM requirements.

**Decision:** The document was **not treated**.

##### 9.8.4.2 Number of RX beams

**R4-2109065 Discussion on number of RX beams for NR FR2 HST**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109366 Discussion on number of Rx beam for FR2 HST**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2110216 RX beam number for HST FR2**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

RX beam number for HST FR2

**Decision:** The document was **not treated**.

**R4-2110222 RX beam number for HST FR2**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

RX beam number for HST FR2

**Decision:** The document was **not treated**.

**R4-2110954 Discussion on the number of RX beams for FR2 HST**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

##### 9.8.4.3 RRM requirements impacts

**R4-2109066 Discussion on RRM requirements impacts for NR FR2 HST**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109367 Discussion on RRM requirement for FR2 HST**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109509 Discussion on RRM requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2110217 RRM requirements impacted for HST FR2**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

RRM requirements impacted for HST FR2

**Decision:** The document was **not treated**.

**R4-2110223 RRM requirements impacted for HST FR2**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

RRM requirements impacted for HST FR2

**Decision:** The document was **not treated**.

**R4-2110238 Further discussion on RRM requirements for FR2 HST**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2110379 Discussion on RRM requirements for high speed train scenario in FR2**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110955 Discussion on the RRM requirements impact of FR2 HST**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2111171 Discussion on RRM requirements for FR2 HST**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

The document has discussed possible RRM enhancements for FR2 HST.

**Decision:** The document was **not treated**.

### 9.9 Further RRM enhancement for NR and MR-DC

#### 9.9.1 General

#### 9.9.2 RRM core requirements

##### 9.9.2.1 SRS antenna port switching

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**Email discussion: [99-e][224] NR\_RRM\_enh2\_1**

**R4-2108148 Email discussion summary: [99-e][224] NR\_RRM\_enh2\_1**

*Type: other For: Information  
 Source: Moderator (Apple)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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**R4-2109050 Further discussion on SRS antenna port switching**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109243 Discussion on SRS antenna port switching**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109247 Further discussion on SRS antenna switching RRM requirements**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2109308 On SRS antenna port switching**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109520 Discussion on SRS antenna port switching**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109549 Discussion on the interruption requirements at SRS antenna port switching**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2109563 On SRS antenna switching**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2109632 Discussion on SRS antenna port switching**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2109717 Discussion on interruption due to SRS antenna port switching**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2109890 Discussion on SRS antenna port switching**

*Type: discussion For: Approval  
 Source: NEC*

**Abstract:**

We analyze the interruption requirements for SRS antenna port switching

**Decision:** The document was **not treated**.

**R4-2110061 RRM requirements for SRS ant port switch**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2110343 Discussion on requirements for SRS antenna switching**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110976 On RRM requirements for SRS antenna port switching**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on RRM requirements for antenna port switching

**Decision:** The document was **not treated**.

**R4-2111264 Discussion on RRM requirements for SRS antenna port switching**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

##### 9.9.2.2 HO with PSCell

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**Email discussion: [99-e][225] NR\_RRM\_enh2\_2**

**R4-2108149 Email discussion summary: [99-e][225] NR\_RRM\_enh2\_2**

*Type: other For: Information  
 Source: Moderator (vivo)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2108768 Discussion on handover with PSCell**

*Type: discussion For: Discussion  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2109051 Further discussion on HO with PSCell**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109244 Discussion on HO with PSCell**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109250 Further discussion on RRM requirements for handover with PSCell**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2109309 On RRM requirement for handover with PSCell**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109510 Discussion on HO with PSCell**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109732 Further views on timeline assumptions for HO with PSCell**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm CDMA Technologies*

**Abstract:**

Views on parallel v.s. sequential operations

**Decision:** The document was **not treated**.

**R4-2109885 Discussion on HO with PSCell**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2109891 Discussion on PSCell HO**

*Type: discussion For: Approval  
 Source: NEC*

**Abstract:**

We analyze the requirements for HO with PSCell

**Decision:** The document was **not treated**.

**R4-2110062 RRM requirements for HO with PSCell**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2110147 Views on HO with PSCell**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: NTT DOCOMO, INC.*

**Decision:** The document was **not treated**.

**R4-2110344 Discussion on requirements for HO with PSCell**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110971 On handover with PSCell**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on handover with PSCell

**Decision:** The document was **not treated**.

**R4-2111042 discussion on HO with PSCell**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

discussion on HO with PSCell

**Decision:** The document was **not treated**.

**R4-2111265 Discussion on RRM requirements for HO with PSCell**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

##### 9.9.2.3 PUCCH SCell activation/deactivation

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**Email discussion: [99-e][226] NR\_RRM\_enh2\_3**

**R4-2108150 Email discussion summary: [99-e][226] NR\_RRM\_enh2\_3**

*Type: other For: Information  
 Source: Moderator (CATT)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2108970 Discussion on PUCCH SCell Activation**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2109052 Further discussion on PUCCH SCell activation\_deactivation**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109251 Further discussion on SCell activation and deactication requirements for PUCCH SCell**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2109310 On PUCCH SCell activation and deactivation**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109518 Discussion on PUCCH SCell activation/deactivation**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109545 Discussions on PUCCH SCell Activation/Deactivation delay requirements**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: NTT DOCOMO, INC.*

**Decision:** The document was **not treated**.

**R4-2109548 Discussion on the activation delay for deactivated PUCCH SCell**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2109617 On PUCCH SCell activation and deactivation**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2109631 Discussion on PUCCH SCell activation and deactivation**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2109892 Discussion on PUCCH SCell activation**

*Type: discussion For: Approval  
 Source: NEC*

**Abstract:**

We analyze the requirements for PUCCH SCell activation/deactivation for single and multiple SCells

**Decision:** The document was **not treated**.

**R4-2110063 RRM requirements for PUCCH SCell ActivationDeactivation**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2110345 Discussion on requirements for PUCCH SCell activation**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110972 On SCell (de)activation with PUCCH**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on SCell activation and deactivation for PUCCH SCell.

**Decision:** The document was **not treated**.

### 9.10 NR and MR-DC measurement gap enhancements

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**Email discussion: [99-e][227] NR\_MG\_enh\_1**

**R4-2108151 Email discussion summary: [99-e][227] NR\_MG\_enh\_1**

*Type: other For: Information  
 Source: Moderator (MediaTek)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**Email discussion: [99-e][228] NR\_MG\_enh\_2**

**R4-2108152 Email discussion summary: [99-e][228] NR\_MG\_enh\_2**

*Type: other For: Information  
 Source: Moderator (Intel Corporation)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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#### 9.10.1 General

#### 9.10.2 RRM core requirements

##### 9.10.2.1 Pre-configured MG pattern(s)

**R4-2109098 Discussion on pre-configured MG pattern**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109180 Discussion on pre-configured gap**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2109228 Discussion on pre-configured measurement gap**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109252 Further discussion on pre-configured MG pattern for NR**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2109313 Further consideration on Pre-MG pattern**

*Type: discussion For: (not specified)  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109517 Discussion on pre-configured MG pattern(s)**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109614 Views on pre configured MG patterns**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2109730 Views on the basic pre-configured MG configuration**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm CDMA Technologies*

**Abstract:**

It is important to establish a BASIC version of pre-configured gap for the 1st phase discussion.

**Decision:** The document was **not treated**.

**R4-2109759 Views on pre-configured MG patterns**

*Type: discussion For: Discussion  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2109894 Discussion on preconfigured measurement gap**

*Type: discussion For: Approval  
 Source: NEC*

**Abstract:**

We provide our view on the definition of pre-configured MG and their activation and deactivation procedures

**Decision:** The document was **not treated**.

**R4-2110064 On pre-configured MG pattern(s) for NR\_MG\_enh**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2110269 Discussion on Pre-configured MG patterns**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Discussion on pre-configured MG patterns for NR

**Decision:** The document was **not treated**.

**R4-2110911 Discussion on pre-configured MG**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111311 Further analysis of pre-configured measurement gap pattern**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

This document further analyzes RRM requirements for pre-configured MG in NR and MR-DC

**Decision:** The document was **not treated**.

##### 9.10.2.2 Multiple concurrent and independent MG patterns

**R4-2109099 Discussion on multiple concurrent and independent MG patterns**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109181 Discussion on concurrent gaps**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2109229 Discussion on multiple and independent concurrent measurement gaps in NR**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109253 Further discussion on multiple concurrent and independent MG patterns for NR**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2109314 On multiple concurrent and independent MG patterns**

*Type: discussion For: (not specified)  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109511 Discussion on multiple concurrent and independent MG patterns**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109615 Further consideration on multiple concurrent and independent MG patterns**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2109707 Discussion on multiple concurrent and independent MG patterns**

*Type: discussion For: (not specified)  
 Source: LG Electronics Polska*

**Abstract:**

It discusses issues for multiple concurrent and independent MG patterns.

**Decision:** The document was **not treated**.

**R4-2109729 Views on key issues of multiple concurrent and independent MG patterns**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm CDMA Technologies*

**Abstract:**

Views on configuration and activation/deactivation procedures

**Decision:** The document was **not treated**.

**R4-2109760 Views on multiple concurrent and independent MGs**

*Type: discussion For: Discussion  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2109893 Discussion on concurrent and independent MG**

*Type: discussion For: Approval  
 Source: NEC*

**Abstract:**

We discuss the principle for defining requirements for multiple concurrent and independent MG patterns

**Decision:** The document was **not treated**.

**R4-2109992 Discussion on Multiple concurrent MG patterns**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

This contribution discusses RRM requirements for multiple concurrent MGPs

**Decision:** The document was **not treated**.

**R4-2110065 On multiple concurrent and independent MG patterns for NR\_MG\_enh**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2110912 Discussion on multiple concurrent MGs**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111279 Discussion on concurrent measurement gaps**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

##### 9.10.2.3 Network Controlled Small Gap

**R4-2109100 Discussion on Network Controlled Small Gap (NCSG)**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109182 Discussion on NCSG**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2109230 Discussion on NCSG in NR**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109315 On network controlled small gap**

*Type: discussion For: (not specified)  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109512 Discussion on Network Controlled Small Gap**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109616 Views on network controlled small gap**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2109731 Discussions on open issues of network controlled small gap**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm CDMA Technologies*

**Abstract:**

Choice of VIL and other key issues

**Decision:** The document was **not treated**.

**R4-2109761 Views on NCSG**

*Type: discussion For: Discussion  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2110066 On NCSG for NR\_MG\_enh**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2110270 Discussion on Network Controlled Small Gaps for NR**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Discussion on introduction of NCSG for NR

**Decision:** The document was **not treated**.

**R4-2110913 Discussion on NCSG**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111312 Further analysis of network controlled small gap**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

This document further analyzes RRM requirements for NCSG in NR and MR-DC

**Decision:** The document was **not treated**.

### 9.12 Solutions for NR to support non-terrestrial networks (NTN)

#### 9.12.4 RRM core requirements

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**Email discussion: [99-e][229] NR\_NTN\_solutions\_RRM\_1**

**R4-2108153 Email discussion summary: [99-e][229] NR\_NTN\_solutions\_RRM\_1**

*Type: other For: Information  
 Source: Moderator (Fraunhofer)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**Email discussion: [99-e][230] NR\_NTN\_solutions\_RRM\_2**

**R4-2108154 Email discussion summary: [99-e][230] NR\_NTN\_solutions\_RRM\_2**

*Type: other For: Information  
 Source: Moderator (Xiaomi)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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##### 9.12.4.1 General

**R4-2109056 Discussion on RRM requirements for NTN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

##### 9.12.4.2 GNSS-related requirements

**R4-2109057 Discussion on GNSS-related requirements**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109492 Discussion on NTN GNSS related issues**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2110418 UE positioing and timing requirements**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion about impact on total timing error budget due to prositining.

**Decision:** The document was **not treated**.

**R4-2110914 Discussion on GNSS for NTN RRM**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

##### 9.12.4.3 Timing requirements

**R4-2108971 Timing requirements in NTN Systems**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2109058 Discussion on timing requirements for NTN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109059 Response LS on NTN UL time synchronization requirements**

*Type: LS out For: Approval  
 to RAN1  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109220 Discussion on NTN timing requirements**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109254 Further discussion on timing requirements for NR NTN**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2109493 Discussion on NTN timing requirements**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109714 Discussion on timing requirements for NR NTN**

*Type: discussion For: Discussion  
 Source: LG Electronics Inc.*

**Decision:** The document was **not treated**.

**R4-2109752 Discussion on timing requirements for NTN**

*Type: discussion For: Discussion  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2109855 Discussion on timing requirements in NTN**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2109896 Discussion on RRM timing related requirements for NTN**

*Type: discussion For: Approval  
 Source: NEC*

**Abstract:**

In this contribution we provide our views on the RRM timing requirements for NTN UE

**Decision:** The document was **not treated**.

**R4-2110302 Discussion on NTN timing related requirements**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110416 Timing requirements**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

RRM timing requirements for UE.

**Decision:** The document was **not treated**.

**R4-2110417 Reply LS to RAN1: LS on NTN UL time and frequency synchronization requirements (Timing)**

*Type: LS out For: Approval  
 to RAN1  
 Source: Ericsson*

**Abstract:**

Draft Reply LS to RAN1 regarding UE timing requirements.

**Decision:** The document was **not treated**.

**R4-2111075 On timing requirements for NR NTN**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2111271 NTN - On UE timing requirements**

*Type: other For: Approval  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

This contribution addresses timing issues.

**Decision:** The document was **not treated**.

**R4-2111477 NTN UL Timing Accuracy**

*Type: discussion For: Discussion  
 Source: THALES*

**Abstract:**

The goal of this contribution is to further clarify NTN UL timing synchronization requirements to be considered by NTN RAN4 work.

**Decision:** The document was **not treated**.

##### 9.12.4.4 Measurement requirements

**R4-2108972 Measurement requirements in NTN Systems**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

**Decision:** The document was **not treated**.

**R4-2109060 Discussion on Measurement requirements for NTN**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109255 Further discussion on measurement requirements for NR NTN**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2109483 Discussion on NTN RRM measurement requirements**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109949 Discussion on measurement requirements for NTN**

*Type: discussion For: (not specified)  
 Source: LG Electronics UK*

**Decision:** The document was **not treated**.

**R4-2110218 RRM Measurement requirements for NTN**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

RRM Measurement requirements for NTN

**Decision:** The document was **not treated**.

**R4-2110224 RRM Measurement requirements for NTN**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

RRM Measurement requirements for NTN

**Decision:** The document was **not treated**.

**R4-2110382 Discussion on measurement in NTN**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111270 NTN - On measurement requirements**

*Type: other For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

The paper discusses RRM measurement requirements.

**Decision:** The document was **not treated**.

### 9.13 UE Power Saving Enhancements

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**Email discussion: [99-e][231] NR\_UE\_pow\_sav\_enh\_RRM**

**R4-2108155 Email discussion summary: [99-e][231] NR\_UE\_pow\_sav\_enh\_RRM**

*Type: other For: Information  
 Source: Moderator (MediaTek)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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#### 9.13.1 General and work plan

**R4-2111266 Discussion on work split between RAN2 and RAN4 on R17 RLM and BFD relaxation for NR**

*Type: discussion For: Approval  
 Source: vivo*

**Decision:** The document was **not treated**.

#### 9.13.2 UE measurements relaxation for RLM and/or BFD

**R4-2108764 On RLM and RLF relaxation for UE power saving**

*Type: discussion For: Discussion  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2109067 Further discussion on RLM/BFD relaxation measurement**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109242 Discussion on UE power saving for RLM and BM**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109246 Further discussion on UE measurements relaxation for RLM and/or BFD**

*Type: discussion For: Discussion  
 Source: Xiaomi*

**Decision:** The document was **not treated**.

**R4-2109364 UE measurements relaxation for RLM and/or BFD**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109494 Discussion on RLM/BFD relaxation for NR power saving enhancement**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109550 Discussion about RLM/BFD measurement relaxation**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2109551 Simulation results for UE power saving enhancements**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2109561 On Power Saving RRM Requirement**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

**R4-2109886 Evaluation on Rel-17 RLM/BFD measurement relaxation**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2110303 Further discussion on RLM/BFD measurement relaxation**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111233 Simulation results on UE power saving for RLM and BM**

*Type: discussion For: Information  
 Source: Ericsson*

**Abstract:**

In this contribution we present the SINR difference (delta SINR) for RLM-RS based on SSB for different relaxation factors and UE speeds as in agreed in previous meeting.

**Decision:** The document was **not treated**.

**R4-2111234 Discussions on UE power saving for RLM and BM**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

The RRM impact of release 17 work item on UE power saving enhancements for NR was discussed at previous meeting and the outcome of the discussions were summarized in [1]. In this contribution we further discuss and provide our view on the open issues.

**Decision:** The document was **not treated**.

**R4-2111248 Simulation results on UE power saving for RLM and BM**

*Type: discussion For: Information  
 Source: Ericsson*

**Abstract:**

In this contribution we present the SINR difference (delta SINR) for RLM-RS based on SSB for different relaxation factors and UE speeds as in agreed in previous meeting.

**Decision:** The document was **not treated**.

**R4-2111249 Discussions on UE power saving for RLM and BM**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

The RRM impact of release 17 work item on UE power saving enhancements for NR was discussed at previous meeting and the outcome of the discussions were summarized in [1]. In this contribution we further discuss and provide our view on the open issues.

**Decision:** The document was **not treated**.

**R4-2111267 Discussion on R17 RLM and BFD relaxation for NR**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

### 9.14 NR Sidelink enhancement

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**Email discussion: [99-e][232] NR\_SL\_enh\_RRM**

**R4-2108156 Email discussion summary: [99-e][232] NR\_SL\_enh\_RRM**

*Type: other For: Information  
 Source: Moderator (LGE)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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#### 9.14.1 General and work plan

**R4-2109704 Work Plan of RRM requirements for Rel-17 SL enhancement**

*Type: Work Plan For: Approval  
 Source: LG Electronics Polska*

**Abstract:**

It discusses work plan on RRM requirement for SL enhancement.

**Decision:** The document was **not treated**.

#### 9.14.8 RRM core requirements

**R4-2109068 Preliminary discussion on RRM requirements for Sidelink enhancement**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109715 Impact on RRM core requirements for NR SL enhancement**

*Type: discussion For: (not specified)  
 Source: LG Electronics Polska*

**Abstract:**

It discusses impact on RRM core requirements for Rel-17 NR SL enhancement.

**Decision:** The document was **not treated**.

**R4-2109946 RRM impacts overview for sidelink enhancement**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2110304 Discussion on RRM impacts for R17 NR V2X**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111107 On NR SL RRM Requirement Scope**

*Type: discussion For: Discussion  
 Source: Qualcomm, Inc.*

**Decision:** The document was **not treated**.

### 9.15 Extending current NR operation to 71GHz

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**Email discussion: [99-e][233] NR\_ext\_to\_71GHz\_RRM**

**R4-2108157 Email discussion summary: [99-e][233] NR\_ext\_to\_71GHz\_RRM**

*Type: other For: Information  
 Source: Moderator (Qualcomm)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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#### 9.15.1 General and work plan

**R4-2110950 NR 52.6 -71 GHz workplan (RRM)**

*Type: Work Plan For: Approval  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

#### 9.15.6 RRM core requirements

**R4-2109291 RRM considerations for extension to 71 GHz**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2109480 Discussion on RRM impacts for 52.6GHz ~ 71GHz**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109944 RRM impacts overview for extending NR operation to 71GHz**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2110348 Discussion on RRM impact of Rel-17 NR\_ext\_to\_71GHz**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110410 UE timing**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

Analysis of UE TDD ON/OFF timing.

**Decision:** The document was **not treated**.

**R4-2110414 Reply LS to RAN1: LS on beam switching gap for 60 GHz band**

*Type: LS out For: Approval  
 to RAN1  
 Source: Ericsson*

**Abstract:**

Feedback to RAN1 on TDD ON/OFF switch time.

**Decision:** The document was **not treated**.

**R4-2110951 Discussion on the RRM scope for NR 52.6 – 71 GHz support**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2111517 RRM requirements for NR operation in 57-71GHz**

*Type: Work Plan For: Approval  
 Source: Qualcomm Incorporated*

**Abstract:**

In this paper we discuss the RRM impact and work plan for the core part

**Decision:** The document was **not treated**.

### 9.16 Enhancements to Integrated Access and Backhaul (IAB) for NR

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**Email discussion: [99-e][234] NR\_IAB\_enh\_RRM**

**R4-2108158 Email discussion summary: [99-e][234] NR\_IAB\_enh\_RRM**

*Type: other For: Information  
 Source: Moderator (ZTE)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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#### 9.16.1 General and work plan

**R4-2110002 Updated workplan for Rel-17 IAB**

*Type: other For: Information  
 Source: Samsung,Qualcomm*

**Decision:** The document was **not treated**.

#### 9.16.3 RRM core requirements

**R4-2109001 on eIAB RRM**

*Type: discussion For: Discussion  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2110174 RRM requirements for IAB enhancement in Rel-17**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2110347 Discussion on RRM impact of R17 IAB**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111110 General Considerations on Rel. 17 IAB RRM Core Requirements**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

In this contribution, we make an overview of the IAB Rel.16 RRM specification changes, discuss the overall status of the WI in the other 3GPP RAN working groups, and make an initial evaluation if any additional impact on the RRM core requirement in NR-IAB

**Decision:** The document was **not treated**.

### 9.18 Rel-17 enhancements on MIMO for NR

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**Email discussion: [99-e][235] NR\_feMIMO\_RRM**

**R4-2108159 Email discussion summary: [99-e][235] NR\_feMIMO\_RRM**

*Type: other For: Information  
 Source: Moderator (Samsung)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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#### 9.18.2 General and work plan for RRM core requirements

**R4-2108771 on Timing Assumption for Inter-Cell DL Measurement**

*Type: discussion For: Discussion  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2109360 Discussion on reply LS on TCI State Update for L1/L2-Centric Inter-Cell Mobility and DL timing**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109361 Discussion on LS reply on Timing Assumption for Inter-Cell DL Measurement**

*Type: discussion For: Discussion  
 Source: Apple*

**Decision:** The document was **withdrawn**.

**R4-2109508 Discussion on L1/L2-Centric Inter-Cell Mobility**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109636 Discussion on L1/L2-centric inter-cell mobility and inter-cell mTRP for R17 feMIMO**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

**Decision:** The document was **not treated**.

**R4-2109733 Views on the scope and potential RRM impacts of feMIMO WI**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Qualcomm CDMA Technologies*

**Abstract:**

Views on feMIMO scope, impacts

**Decision:** The document was **not treated**.

**R4-2109837 Impact to RRM requirements for further enhancements on MIMO**

*Type: discussion For: Approval  
 Source: Samsung*

**Abstract:**

Initial analysis on impac to RRM requirements and work plan

**Decision:** The document was **not treated**.

**R4-2110017 Discussion on Rel-17 FeMIMO LS replies**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **withdrawn**.

**R4-2110018 Work plan on Rel-17 FeMIMO RRM and LS discussion**

*Type: Work Plan For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2110037 Discussion on RAN1 LS for L1/L2 inter-cell mobility**

*Type: discussion For: Discussion  
 Source: Samsung*

**Decision:** The document was **not treated**.

**R4-2110067 Discussion on LS for FeMIMO inter cell mobility**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2110305 Discussion on RRM impacts for R17 NR FeMIMO**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110383 [Draft] Reply LS to RAN1 on TCI State Update for L1/L2-Centric Inter-Cell Mobility**

*Type: LS out For: Approval  
 to RAN1, cc RAN2,RAN3  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110974 On L1/L2 centric mobility**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Further discussions related to the LS received by RAN4 previous meeting.

**Decision:** The document was **not treated**.

**R4-2111268 Discussion on R17 feMIMO RRM impacts including TCI State Update for L1/L2-Centric Inter-Cell Mobility**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2111269 Reply LS on Timing Assumption for Inter-Cell DL Measurement**

*Type: LS out For: Approval  
 to RAN1  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2109734 Discussion on incoming RAN1 LS for Timing Assumption for Inter-Cell DL Measurement**

*Type: discussion For: Discussion  
 Source: Qualcomm CDMA Technologies*

**Abstract:**

Recommended answers to RAN1 LSin

Session chair: moved from AI 13.1.

**Decision:** The document was **not treated**.

**R4-2110069 Reply LS on timing assumption for inter-cell DL measurement**

*Type: discussion For: Discussion  
 Source: OPPO*

Session chair: moved from AI 13.1.

**Decision:** The document was **not treated**.

### 9.19 Support of reduced capability NR devices

#### 9.19.2 General and work plan for RRM core requirements

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**Email discussion: [99-e][236] NR\_redcap\_RRM**

**R4-2108160 Email discussion summary: [99-e][236] NR\_redcap\_RRM**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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**R4-2109221 General aspects of RRM requirements for RedCap UE**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109311 Impact of RedCap on RRM requirements**

*Type: discussion For: Discussion  
 38.133 v CR- rev Cat: (Rel-17)  
  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2109485 Discussion on RRM impacts for reduced capability NR devices**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109618 Initial discussion on RRM impacts for Redcap**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2110274 On the scope of work on RRM core requirements for RedCap**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Discussion on RRM core requirements for NR\_redcap

**Decision:** The document was **not treated**.

**R4-2110385 Discussion on RRM impact of reduced capability NR devices**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110809 Discussion on RRM core requirements impact for RedCap**

*Type: discussion For: Discussion  
 Source: MediaTek Inc.*

**Decision:** The document was **withdrawn**.

**R4-2110812 Discussion on RRM core requirements impact for RedCap**

*Type: discussion For: Discussion  
 Source: MediaTek Inc.*

**Decision:** The document was **withdrawn**.

**R4-2110845 Discussion on RRM core requirements impact for RedCap**

*Type: discussion For: Discussion  
 Source: MediaTek Inc.*

**Decision:** The document was **not treated**.

**R4-2111231 Overview of RRM requirements for RedCap**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we go through the objectives, discuss and identify the type of RRM requirements that RAN4 need to develop for the release 17 RedCap UEs.

**Decision:** The document was **not treated**.

**R4-2111232 WI RRM work plan for RedCap**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This document presents a work plan for the RAN4 RRM parts of the Rel-17 work item (WI) on support of reduced capability (“RedCap”) NR devices taking into account the overall RAN meeting plan and time unit (TU) allocations.

**Decision:** The document was **not treated**.

**R4-2111246 Overview of RRM requirements for RedCap**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this contribution we go through the objectives, discuss and identify the type of RRM requirements that RAN4 need to develop for the release 17 RedCap UEs.

**Decision:** The document was **not treated**.

**R4-2111247 WI RRM work plan for RedCap**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

This document presents a work plan for the RAN4 RRM parts of the Rel-17 work item (WI) on support of reduced capability (“RedCap”) NR devices taking into account the overall RAN meeting plan and time unit (TU) allocations.

**Decision:** The document was **not treated**.

**R4-2111518 RRM requirements for RedCap UE**

*Type: Work Plan For: Approval  
 Source: Qualcomm Incorporated*

**Abstract:**

In this paper we discuss the RRM impact and work plan for the core part

**Decision:** The document was **not treated**.

### 9.20 Positioning enhancements for NR

#### 9.20.1 General and work plan for RRM core requirements

================================================================================

**Email discussion: [99-e][237] NR\_pos\_enh\_RRM**

**R4-2108161 Email discussion summary: [99-e][237] NR\_pos\_enh\_RRM**

*Type: other For: Information  
 Source: Moderator (Ericsson)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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2nd round email discussion conclusions

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**R4-2109101 Discussion on UE/TRP Rx-Tx timing error**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109102 Reply LS on UE/TRP Rx-Tx timing error**

*Type: LS out For: Approval  
 to RAN1  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109103 Discussion on RRM core requirements of R17 positioning enhancement**

*Type: discussion For: Discussion  
 Source: CATT*

**Decision:** The document was **not treated**.

**R4-2109172 Discussion on LS on UE/TRP Tx/Rx Timing Errors**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Discussion about LS reply on UE/TRP Tx/Rx Timing Errors

**Decision:** The document was **withdrawn**.

**R4-2109224 General RRM aspects for Rel-17 positioning enhancement**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109945 RRM impacts overview for positioning enhancement**

*Type: discussion For: Discussion  
 Source: vivo*

**Decision:** The document was **not treated**.

**R4-2110016 Work plan on Rel-17 NR Positioning Enhancements and LS discussion**

*Type: Work Plan For: Approval  
 Source: Nokia, Nokia Shanghai Bell*

**Decision:** The document was **not treated**.

**R4-2110231 General issues regarding RRM core requirements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

In this paper, we present our view on the issues regarding Rel-17 positioning

**Decision:** The document was **not treated**.

**R4-2110232 Work plan for RRM core requirements**

*Type: Work Plan For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we present a RAN4 work plan for WI NR\_pos\_enh-Core.

**Decision:** The document was **not treated**.

**R4-2110233 Reply LS on on UE/TRP Tx/Rx Timing Errors**

*Type: other For: Approval  
 Source: Ericsson*

**Abstract:**

In this paper, we review RAN1 agreements on TEGs for UE/TRP Tx/Rx Timing Error mitigation

**Decision:** The document was **not treated**.

**R4-2110917 Initial discussion on Rel-17 positioning RRM**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

### 9.21 Multi-Radio Dual-Connectivity enhancements

#### 9.21.1 General and work plan for RRM core requirements

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**Email discussion: [99-e][238] LTE\_NR\_DC\_enh2\_RRM**

**R4-2108162 Email discussion summary: [99-e][238] LTE\_NR\_DC\_enh2\_RRM**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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| **Tdoc number** | **Title** | **Source** | **Recommendation** | **Comments** |
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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2108769 On temporary RS for efficient SCell activation**

*Type: LS out For: Approval  
 to RAN1  
 Source: ZTE Corporation*

**Decision:** The document was **not treated**.

**R4-2109222 Discussion on MR-DC enhancement in RRM**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109318 Remaining issues on temporary RS for efficient SCell activation**

*Type: discussion For: (not specified)  
 Source: Apple*

**Decision:** The document was **not treated**.

**R4-2110068 Discussion on LS for efficient SCell activation in LTE\_NR\_DC\_enh2**

*Type: discussion For: Discussion  
 Source: OPPO*

**Decision:** The document was **not treated**.

**R4-2110380 Discussion on R17 Multi-RAT Dual-Connectivity enhancements**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110381 Draft LS on RS for efficient SCell activation in NR CA**

*Type: LS out For: Approval  
 to RAN1, RAN2  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110973 On RRM requirements for MR-DC enhancements**

*Type: discussion For: Discussion  
 Source: Ericsson*

**Abstract:**

Discussion on RRM requirements for MR-DC enhancements.

**Decision:** The document was **not treated**.

**R4-2111283 Discussion on LTE\_NR\_DC\_enh2-Core**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

Session chair: moved from AI 9.21. Please submit tdocs to the low-level AI.

**Decision:** The document was **not treated**.

**R4-2108973 Discussion on temporary RS for efficient SCell activation in NR CA**

*Type: discussion For: Discussion  
 Source: Qualcomm Incorporated*

Session chair: moved from AI 13.1.

**Decision:** The document was **not treated**.

**R4-2109612 Further considerations on temporary RS for efficient SCell activation in NR CA**

*Type: discussion For: Discussion  
 Source: vivo*

Session chair: moved from AI 13.1.

**Decision:** The document was **not treated**.

**R4-2109887 Discussion on temporary RS**

*Type: discussion For: Discussion  
 Source: MediaTek inc.*

Session chair: moved from AI 13.1.

**Decision:** The document was **not treated**.

### 9.22 Enhanced IIoT and URLLC support

#### 9.22.1 General and work plan for RRM core requirements

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**Email discussion: [99-e][239] NR\_IIOT\_URLLC\_enh\_RRM**

**R4-2108163 Email discussion summary: [99-e][239] NR\_IIOT\_URLLC\_enh\_RRM**

*Type: other For: Information  
 Source: Moderator (Nokia)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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2nd round email discussion conclusions

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| Tdoc number | Title | Source | Recommendation | Comments |
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**R4-2109223 Discussion on IIoT and URLLC enhancement in RRM**

*Type: discussion For: Discussion  
 Source: Intel Corporation*

**Decision:** The document was **not treated**.

**R4-2109495 Discussion on reference point of UE transmit timing error**

*Type: discussion For: Discussion  
 Source: CMCC*

**Decision:** The document was **not treated**.

**R4-2109895 Discussion for reply LS of UE transmit timing error**

*Type: discussion For: Approval  
 Source: NEC*

**Abstract:**

We discuss the further RAN4 response to RAN1 LS R4-2102245

**Decision:** The document was **not treated**.

**R4-2110415 Propagation Delay Compensation Enhancements for Time Synchronization**

*Type: discussion For: Approval  
 Source: Ericsson*

**Abstract:**

Analysis of different propagation delay methods using delay budgets. In particular TA based and RTT based methods.

**Decision:** The document was **not treated**.

**R4-2110915 Initial discussion on Rel-17 URLLC RRM**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2110916 LS on the definition of Reference point for Te requirements**

*Type: LS out For: Approval  
 to RAN1  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111153 Work Plan for Enhanced IIOT and URLLC support**

*Type: Work Plan For: Approval  
 Source: Nokia*

**Decision:** The document was **not treated**.

**R4-2111316 LS response on UE transmit timing error**

*Type: LS out For: Approval  
 to RAN1  
 Source: Ericsson, Nokia, Intel*

**Abstract:**

This document further analyze the remaining issue of the reference point definition for UE timing error requirements. It is continuation of LS response to RAN1 in R4-2105850.

**Decision:** The document was **not treated**.

**R4-2110850 Discussion on the reference point for the UE transmit timing error**

*Type: discussion For: Discussion  
 Source: MediaTek Inc.*

Session chair: moved from AI 9.22. Please submit tdocs to the low-level AI.

**Decision:** The document was **not treated**.

## 11 Rel-17 Work Items for LTE

### 11.9 Additional enhancements for NB-IoT and LTE-MTC

#### 11.9.4 RRM requirements

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**Email discussion: [99-e][240] NB\_IOTenh4\_LTE\_eMTC6\_RRM**

**R4-2108164 Email discussion summary: [99-e][240] NB\_IOTenh4\_LTE\_eMTC6\_RRM**

*Type: other For: Information  
 Source: Moderator (Huawei)*

**Abstract:**

**Discussion:**

**Decision: Return to.**

GTW session (TBA)

1st round email discussion conclusions

**New tdocs**

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| **Tdoc number** | **Title** | **Source** | **Comments** |
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**Existing tdocs**

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2nd round email discussion conclusions

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**R4-2110275 On the scope of work on RRM core requirements for Additional enhancements for NB-IoT and LTE-MTC**

*Type: discussion For: Discussion  
 Source: Nokia, Nokia Shanghai Bell*

**Abstract:**

Discussion on RRM core requirements for NB\_IOTenh4\_LTE\_eMTC6

**Decision:** The document was **not treated**.

**R4-2110346 Discussion on neibour cell measurement in CONNECTED state for NB-IoT Rel-17**

*Type: discussion For: Discussion  
 Source: Huawei, HiSilicon*

**Decision:** The document was **not treated**.

**R4-2111235 Discussions on RRM requirements for release 17 WI on eMTC and NB-IoT**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

The work item on NR support of reduced capability NR devices has been approved. This work item contains objective that has RRM impact that are discussed in this contribution.

**Decision:** The document was **not treated**.

**R4-2111250 Discussions on RRM requirements for release 17 WI on eMTC and NB-IoT**

*Type: other For: Discussion  
 Source: Ericsson*

**Abstract:**

The work item on NR support of reduced capability NR devices has been approved. This work item contains objective that has RRM impact that are discussed in this contribution.

**Decision:** The document was **not treated**.

**R4-21AAAAA Way forward on XXXX**

*Type: other For: Approval  
 Source: TBA*

**Abstract:**

**Discussion:**

**Decision: Return to.**