

3GPP TSG-RAN Meeting #91e

RP-210592

Electronic Meeting, 16 – 26 Mar., 2021

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Views on scope of Further RRM enhancement for NR and MR-DC in Rel-17

CATT

Background and discussion

- Rel-17 FeRRM WI was approved in RP-202874 and the scope was kept as three topics. However based on the status of discussion in RP-202022 as duplicated as below, more topics are supported by most of companies.
 - The following 3 topics have clear majority support with no significant technical concerns.
 - Topic 2.5 SRS antenna port switching (support: 14, concerns: 0)
 - Topic 2.11: HO with PSCell (support: 11, concerns: 0)
 - Topic 2.13: PUCCH SCell activation/deactivation (support: 10, concerns: 0)
 - The following 2 topics have received reasonable number of supports which is significantly higher than the concerns.
 - Topic 5.1: CMTC for CSI-RS L3 measurement (support: 7, concerns: 2)
 - Topic 2.15: TCI switching enhancement in REL-17 (support: 6, concerns: 3)
 - The following 4 topics remain as controversial with split opinions
 - Topic 2.14: IDLE mode requirement for SMTC2-LP (support: 3, concerns: 3)
 - Topic 2.4: RLM enhancement requirement (support: 4, concerns: 4)
 - Topic 5.2: Synchronization assumption for CSI-RS L3 measurement (support: 3, concerns: 4)
 - Topic 5.4: Dedicated CSI-RS measurement engine (support: 2, concerns: 2)
- From technical perspective, more topics can be considered in R17 FeRRM WI.

Proposal 1: Add CMTC for CSI-RS L3 measurement to R17 FeRRM scope

- The RRM requirement for CSI-RS based measurement in R16 is applied when CSI-RS resources per frequency layers are configured within 5 ms window at any location.
- But there is no signaling indication for this time window to align the understanding of NW and UE.
- In our understanding, the NW signaling indication for CSI-RS measurement window e.g. CMTC configuration can be introduced in R17.

Proposal 2: Add synchronization assumption for CSI-RS L3 measurement to R17 FeRRM scope

- The CSI-RS based measurement requirements in R16 are based on single FFT implementation and the serving cell timing is used for intra-frequency measurement
- It can be seen the synchronization assumption actually restricts the scenarios of CSI-RS L3 measurement feature from the discussion on RRM requirements in R16.
- Using the timing of associated SSB is aligned with RAN1/2 specification and similar approach has already been used in SSB based measurement.
- In our understanding, the synchronization assumption for CSI-RS based L3 measurement can be further discussed in R17.

Proposal 3: Add TCI switching enhancement to R17 FeRRM scope

- In Rel-16 TCI switching requirement, UE is not required to receive DL data during the time gap from “slot $n + T_{\text{HARQ}} + (3N_{\text{slot}}^{\text{subframe},\mu}) / \text{NR slot length}$ ” to “slot $n + T_{\text{HARQ}} + (3N_{\text{slot}}^{\text{subframe},\mu} + TO_k * (T_{\text{first-SSB}} + T_{\text{SSB-proc}})) / \text{NR slot length}$ ” .
- The throughput performance will be probably impacted in case the first SSB arrives later.
- RAN4 can further discuss if UE behavior can be enhanced to receive DL data during the time gap of $T_{\text{first-SSB}}$ in Rel-17.

Proposal 4: Add dedicated CSI-RS measurement engine to R17 FeRRM scope

- The RRM requirement for CSI-RS based measurement in R16 is based on same searcher as SSB based measurement and UE is not required to support simultaneous reception of CSI-RS and SSB.
- No specific requirement is defined for UE implementation with dedicated CSI-RS measurement engine.
- The UE capability of different types of UE and corresponding requirements can be considered and specified in R17.

Proposed scope

Topic 5.1 CMTC for CSI-RS L3 measurement

- RRM requirements for CSI-RS L3 measurement based on CMTC
- Signaling design for CMTC of CSI-RS L3 measurement

Topic 5.2 Synchronization assumption for CSI-RS L3 measurement

- RRM requirements based on multiple FFT implementation for CSI-RS based L3 measurement
 - for the CSI-RS resource with associated SSB, the timing is based on the cell given by the cellId of the CSI-RS resource configuration

Topic 2.15 TCI switching enhancement in REL-17

- Work on the feasibility of enhancement to maintain the UE reception and transmission during the period (or part of period) of MAC CE based TCI switching
- Work on the feasibility of enhancement to maintain the UE reception and transmission during the period (or part of period) of RRC based TCI switching

Topic 5.4 Dedicated CSI-RS measurement engine

- RRM requirements based on dedicated CSI-RS measurement engine for CSI-RS based L3 measurement



THANK YOU

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