3GPP TSG-RAN Meeting #88e
Online, 29th Jun – 3rd Jul 2020

RP-201099

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Working scope reduction for R16 RRM enhancement and CSI-RS L3 measurement WIs

Introduction

Regarding the progress of R16 RRM enhancement WI and CSI-RS L3 measurement WI, there might be still some open issues which are not likely to be finalized in the R16 timeline. In order to improve the efficiency of discussion in next RAN4 #96e meeting, prioritization or narrowing down the current WI scope is worthwhile and necessary.

In this contribution, we list the current open issues for R16 RRM enhancement and CSI-RS L3 measurement WI, and propose to keep some of them for R16 discussion in next RAN4 #96e meeting while moving the other ones to R17 scope.

Proposal on working scope prioritization for R16 NR RRM Enhancement WI (1/2)

- Propose to modify the current working scope for R16 RRM enhancement WI
  - **1. BWP switching on multiple CCs**
    - Definition of N in simultaneous DCI- and timer-based BWP switching on multiple CCs
    - Definition of D in simultaneous RRC based BWP switching on multiple CCs
    - RRM requirement for partial overlapped timer-based BWP switching on multiple CCs

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline
  - **2. UL spatial relation change**
    - Requirement for BC bit-0 UE

    → Move this open issue to R17 and capture it in the R17 RRM further enh WI
    - Whether UE should meet initial transmit timing accuracy requirements after UL spatial relation switch
    - Whether to consider timing tracking when associated DL-RS for sub1. and sub2 in WF R4-2008679.
    - Whether and how to define requirement for UL signal which has spatial relation to an unknown DL RS

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline
  - **3. SRS carrier-based switching requirements**
    - FFS interruption requirements for case 1, case 2 and case 3.
      - Case 1: CA is co-location deployed
      - Case 2: Single TAG CA, or carriers in the same TAG for multiple TAG CA
      - Case 3: uplink time difference does not exceed a threshold X
        - X = [5] us

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline
    - Interruptions for inter-band SRS carrier switching in FR2 are waiting for RF room conclusion
      - Requirements will be specified once there is conclusion in RF.

    → Move this open issue to R17 and capture it in the R17 RRM further enh WI

Proposal on working scope prioritization for R16 NR RRM Enhancement WI (2/2)

- Propose to modify the current working scope for R16 RRM enhancement WI
  - **4. CGI reading requirements with autonomous gap**
    - MIB decoding delay for FR2
    - SNR conditions for SIB1 decoding delay requirements
    - Value of timer T321 for FR2

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline
  - **5. Multiple SCell activation/deactivation**
    - Multiple SCell activation/deactivation in FR2 inter-band CA

    → Move this open issue to R17 and capture it in the R17 RRM further enh WI
  - **6. FR2 inter-band CA RRM**
    - The scheduling restrictions and measurement restrictions due to incorrect network configuration for IBM

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline
    - The interruption requirements for CBM UE.
    - The unknown SCell activation requirement for CBM UE in case2.
      - Case 2: SCell being activated belongs to FR2 and if there is no active serving cell on that FR2 band provided that PCell or PSCell is FR2.

    → Move this open issue to R17 and capture it in the R17 RRM further enh WI

Proposal on working scope prioritization for R16 CSI-RS L3 measurement WI (1/2)

- Propose to modify the current working scope for R16 CSI-RS L3 measurement WI
  - **1. CSI-RS configuration applicability:**
    - FFS on whether to define requirements for {D=1 with PRBs ≥ 96}

    → Move this open issue to R17 and capture it in the R17 RRM further enh WI
  - **2. Scope of requirement:**
    - FFS: whether UE is required to perform Rx beam sweeping for CSI-RS based L3 measurement

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline
  - **3. UE capability:**
    - FFS: Introduce new UE capability on the simultaneous reception of CSI-RS of neighbour cell and SSB of serving cell
    - Whether or not to introduce new UE capability for minimum separation between two slots with CSI-RS resources

    → Move this open issue to R17 and capture it in the R17 RRM further enh WI
  - **4. UE measurement capability requirement:**
    - Relation between CSI-RS layer and SSB layer
    - Whether multiple MOs can be counted as one frequency layer
    - How to count SSB frequency layers
    - Number of CSI-RS layers/cells/beams

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline

Proposal on working scope prioritization for R16 CSI-RS L3 measurement WI (2/2)

- Propose to modify the current working scope for R16 CSI-RS L3 measurement WI
  - **5. Cell identification requirement:**
    - FFS: whether to introduce 2 different requirements for with index and without index.
    - FFS: time-domain restriction on CSI-RS resources configuration as a temporary solution in Rel-16
    - FFS: the tuning time of inter-frequency GAP of CSI-RS measurement

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline
    - FFS: CMTC for CSI-RS L3 measurement and time-restriction restriction on CSI-RS resources configuration

    → Move this open issue to R17 and capture it in the R17 RRM further enh WI
  - **6. Scheduling and measurement restriction:**
    - Scheduling restriction on the following cases
      - when UE is not able to support mixed numerology of data and CSI-RS L3 mobility
      - when UE performs CSI-RS intra-frequency measurements in a TDD band
      - when UE performs RX beam sweeping
    - FFS for the collision case between L1 measurement of serving cell and CSI-RS L3 measurement of neighbour cell

    → Move this open issue to R17 and capture it in the R17 RRM further enh WI
  - **7. CSSF:**
    - FFS: CSSF for CSI-RS based measurement within measurement gap and outside of measurement gap.

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline
  - **8. Other issues:**
    - FFS on synchronization assumption for CSI-RS measurement

    → Continue discussing in the next RAN4 #96e meeting within R16 timeline

Conclusions

Proposal 1: Move the following topics from R16 RRM enhancement WI to R17 (new R17 WI of RRM further enh.)

- ***UL spatial relation change requirement for BC bit-0 UE***
- ***SRS carrier switching requirement for inter-band FR2 CA***
- ***Multiple SCell activation/deactivation requirement in FR2 inter-band CA***
- ***RRM requirements for CBM in FR2 inter-band CA***

Proposal 2: Move the following topics from R16 CSI-RS L3 measurement WI to R17 (new R17 WI of RRM further enh.)

- ***Necessity to define requirements for {D=1 with PRBs ≥ 96}***
- ***New UE capability***
  - ***on the simultaneous reception of CSI-RS of neighbour cell and SSB of serving cell***
  - ***minimum separation between two slots with CSI-RS resources***
- ***CMTC for CSI-RS L3 measurement and time-restriction restriction on CSI-RS resources configuration***
- ***Scheduling restriction and measurement restriction for CSI-RS measurement***

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