

3GPP TSG RAN Meeting #103

RP-240132

Maastricht, Netherlands, March 18-22, 2024

Views on Rel-19 RAN4 RRM scope

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Agenda Item: 9.1.4.4

Potential RRM enhancement only items

RRM

According to R4-240019, Potential RRM enhancements in Rel-19 can be considered for the two topics

- FR2 L3/L1 measurement delay reduction
- Fast SCell activation with EMR

Starting point of Scope for FR2 L3/L1 measurement delay reduction

- FR2 L3/L1 measurement delay reduction with reduced Rx beam sweeping and enhanced CSSF for connected mode
 - FFS on applied scenarios, justification and feasibility on reduced number of Rx beam sweeping
 - For single Rx, focus on the case of CA/DC where it is currently specified that the delay is scaled with the number of CCs
 - For multi-Rx, focus on the single carrier case
 - Other scenarios (if so, clearly defined)?

Starting point of Scope for Fast SCell activation with EMR

- Fast SCell activation with EMR with both delay requirements for SCell activation and enhanced measurement accuracy requirements.
 - To start from Q3'2024 and aim for completion in Dec'2024
 - Workplan for this bullet can be discussed in May'2024

Scope for FR2 L3/L1 measurement delay reduction

RRM

Scope needs to be further clarified

- FR2 L1 measurement delay reduction with reduced Rx beam sweeping factor
 - In Rel-18 multi-Rx WI, it was agreed to introduce UE capability for fast beam sweeping (with reduced beam sweeping factor). Though it is not finalized yet, the UE capability can be reused for this purpose.
- FR2 L3 measurement delay reduction with reduced Rx beam sweeping factor
 - This seems to be merged from multi-Rx proposal to reduce L3 measurement delay with multi-Rx UE capability.
 - It needs to be clarified that it is only for measurement delay reduction. No other requirements, such as scheduling restriction relaxation, are considered.
- FR2 L3 measurement delay reduction with enhanced CCSF
 - Scenarios and justification for CCSF enhancement need to be studied, firstly.
 - Requirements for enhanced CCSF are introduced, if justified.

Proposed scope for FR2 L3/L1 measurement delay reduction

- FR2 L3/L1 measurement delay reduction
 - FR2 L3 measurement delay reduction with reduced Rx beam sweeping factor
 - Based on multi-Rx UE capability
 - Only measurement delay requirements are considered
 - FR2 L3 measurement delay reduction with enhanced CCSF
 - Study on scenarios and justification for CCSF enhancement
 - If justified, Specify requirements for enhanced CCSF
 - Applicability to FR1
- FR2 L1 measurement delay reduction with reduced Rx beam sweeping factor
 - Further check in Sep'2024 based on progress of Rel-18 multi-Rx WI

Scope for fast SCell activation with EMR

RRM



Scope needs to be further clarified

- Fast SCell activation with EMR with both delay requirements for SCell activation and enhanced measurement accuracy requirements.
- Fast SCell activation with EMR with delay requirements for SCell activation
 - It is understood that the SCell activation delay requirements will be enhanced, which is based on EMR.
 - It is not clear it is Rel-16 EMR or Rel-18 EMR with enhanced measurements
- Fast SCell activation with EMR with enhanced measurement accuracy
 - There is no measurement accuracy requirements for SCell activation. So, it is understood that enhanced measurement accuracy requirements are for EMR.
 - There is no reason to enhance measurement accuracy requirements for Rel-16 EMR.
 - Measurement accuracy requirements for Rel-18 EMR with enhanced measurements would take lengthy discussions based on Rel-18 experience, especially if delay requirements are considered either.

Proposed scope for fast SCell activation with EMR

- Fast SCell activation with EMR
 - Specify enhanced SCell activation delay requirements with Rel-16 and Rel-18 EMR reporting

Other candidates of RRM enhancement only items

RRM

- TCI state switch delay enhancement
 - Periodic TRS and A-TRS have been used for reduction of SCell activation delay. The enhancement were made in Rel-17 and Rel-18 for known and unknown SCell activation, respectively.
 - Similar solution can be used for reducing TCI state switch delay when one SSB is needed during the switch. The TCI state switch delay can be reduced for
 - Rel-15/16 TCI state framework
 - Unified TCI state framework
- HO with PSCell
 - Following scenarios could happen in practical NW
 - HO with Pcell from NR SA to NR-DC
 - CHO with CPA
- Gap combination of different features
 - RAN2 signaling in general supports joint configuration for all gap features, including concurrent gap, Pre-MG, NCSG, ePOS, MUSIM and NTN.
 - However, RAN4 has not define any requirements on joint configuration gaps of different features.
 - It is high likely a UE would support MUSIM and NTN. There is benefit to define corresponding requirements for the joint configuration of the two features in terms of gap handling. MSIM and NCSG may be another example.

Scope of other candidates of RRM enh only items

RRM

- TCI state switch delay enhancement
 - Specify requirements for TCI state switch delay based on periodical TRS / A-TRS.
 - Note: It includes requirements for Rel-15/16 TCI state framework and unified TCI state framework
- HO with PSCell
 - Specify requirements for HO with PSCell for following scenario
 - HO with Pcell from NR SA to NR-DC
 - CHO with CPA
- Gap combination of different features
 - Specify RRM requirements for joint configuration of or MUSIM gaps and NTN gaps.
 - Note: Other feature combinations may also be considered depending on interest from industry, e.g., joint configuration of MUSIM gaps and NCSG, etc.

THANK YOU.

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