

3GPP TSG RAN #94e

Electronic Meeting, December 6 - 17, 2021

Agenda: 8A.4

RP-213090

# Views on RAN4 Rel-18

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China Telecom

- General views
- UE FR1 RF requirement evolution
- UE FR2 RF requirement evolution
- RRM requirements enhancement
- Demodulation requirement evolution
- OTA testing and EMC enhancement
- Cross-area topics

## ■ Guideline in RAN#93-e (RP-212608)

- *It is critical to maintain RAN4 load reasonable*
  - *The load from the projects led by RAN1/2/3*
    - *An estimate of RAN4 TU impact is necessary for all RAN1/2/3-led items*
    - *A certain amount of RAN1/2/3 WG capacity is to be reserved when approving the package in December*

- *RAN#94 (December) can potentially approve item(s) on RAN4-led new areas*
- *Further RAN4-led proposals that are dependent on Rel-17 finalization are to be worked on in Q1/2022*
- *RAN#95 (March) to approve the rest of the RAN4 core work package for Rel18*

## ■ **Proposal 1:** Approve Rel-18 RAN4-led WI/SI package (excepting the < 5MHz WI) in March 2022.

- » Without clear definition, it is difficult to differentiate “old” and “new” areas.

## ■ **Proposal 2:** Keep enough room for RAN4-led WI/SI.

- » Many RAN1/2/3 features defined in previous releases are still lack of RAN4 requirements, and some of them are being discussed as candidate RAN4 Rel-18 topics.

- *The following RAN4-led topics are discussed in October email discussion (not include <5MHz and DSS enhancement)*
  - » *Spectrum*
    - *Topic #1: Simplification of band combination specification*
    - *Topic #2: 700+800+900MHz CA*
  - » *Non-spectrum related topics: RF centric*
    - *Topic #3: UE FR1 requirement evolution*
    - *Topic #4: UE FR2 requirement evolution*
    - *Topic #5: BS RF requirement evolution*
    - *Topic #6: EMC enhancement*
    - *Topic #7: OTA testing enhancement*
    - *Topic #8: ATG*
    - *Topic #9: Co-channel HAPS*
  - » *Non-spectrum related topics: RRM & demodulation centric*
    - *Topic #10: RRM requirements enhancement*
    - *Topic #11: Demodulation requirement evolution*
    - *Topic #12: Intra-band non-collocated EN-DC/NR-CA*
    - *Topic #13: FR2 HST enhancement*
    - *Topic #14: FR2 multi-Rx chain DL reception*
- **Proposal 3:** Continue the umbrella WI approach for FR1 RF, FR2 RF, RRM and demodulation topics in Rel-18, and limit the scope of each WI.
- **Proposal 4:** Balance the workload in the 3 parallel sessions in RAN4, including main session, RRM session, and BS RF & demod & test session.

- UE FR1 RF requirement evolution: interested proposals
  - » Enable 4Tx on a single band for FWA/CPE
  - » Enable 8Rx for FWA/CPE on higher frequency bands: Also consider FDD bands around and higher than 1.8GHz
  - » Investigate and enable 6Rx on higher frequency bands targeting at support of smartphone: Also consider FDD bands around and higher than 1.8GHz
  - » Tx switching enhancement, including: 0us switching period for UE capable of 3Tx, and Tx switching for non-collocated scenario
  - » A-MPR optimization
- UE FR2 RF requirement evolution: interested proposals
  - » Enable UL 256QAM for FR2
- RRM requirement evolution: interested proposals
  - » NeedForGap
  - » HO with PSCell for new scenarios
  - » Inter-RAT NR measurement without gaps
  - » FR2-FR2 DAPS requirements (also discussed in Mobility Enhancements thread)
  - » FR2 beam measurement enhancement

## ■ Interested proposals: UE side

- » Advanced receiver to cancel inter-user interference for MU-MIMO: the MU-MIMO interference modeling methodology and MMSE-IRC requirement for MU-MIMO are defined in Rel-17.
- » Soft-IC for SU-MIMO inter-stream interference: Total number of iterations is not increased, when limiting the number of iterations for each LDPC decoding.
- » Interference mitigation for inter-cell CSI-RS/SSB interference: Configuring SSB in the same time and frequency location for neighboring cells is the typical scenario.
- » IC for neighboring cell LTE CRS interference: more than 1dB gain by CRS-IC compared to LLR weighting.
- » Extend MMSE-IRC receiver for inter-cell and intra-cell MU-MIMO to CA scenario: MMSE-IRC is the baseline UE receiver, and the single carrier requirement is defined in Rel-17.
- » ATP with link adaptation: Feasibility study has been concluded in Rel-17. Maybe a separate RAN5-led WI.

## ■ Interested proposals: BS side

- » MMSE-IRC for inter-cell interference: BS MMSE-IRC requirement was defined for LTE. Difficult to discuss further BS receiver enhancement if IRC requirement is absent.

- OTA testing enhancement: interested proposals
  - » Dynamic OTA testing methodology for FR2
  - » FR2 OTA testing for UEs with multi-panel reception and 4DL layer for FR2
- EMC enhancement: interested proposals
  - » BS and UE EMC enhancement
- Cross-area topics (involves more than 2 areas): interested proposals
  - » FR1 ATG (air-to-ground network)
    - Involve RF, RRM and demod requirements.
  - » FR2 multi-Rx chain DL reception including 4-layer DL MIMO
    - Involve RF, RRM and demod requirements, if the test methodology is discussed separately.
  - » FR2 HST enhancement
    - Potentially involve RF, RRM and demod requirements.

Thanks!

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