3GPP TSG-RAN WG4 Meeting #116-bis R4-2514821

**Prague, Czech Republic, Oct. 13-17, 2025**

**Agenda item:** 7.4.1

**Source:** Ericsson

**Title:** WF on NR\_RRM\_Ph6

**Document for:** Approval

# Topic #1: (e)RedCap UE enhancement requirements (AI 7.4.3.2)

**Issue 2-1-1: Scope for LT5 (e)RedCap UE**

Agreement:

* For (e)RedCap UE supporting LT5:
	+ CSI-RS based measurement is out of scope.
	+ RAN4 only defines the requirements for PCell.
	+ RAN4 only defines the requirements for NR FR1.
	+ Introduce support for only 15 PRB transmission bandwidth configuration and 12 PRB SSB

**Issue 2-1-2: LT5 for 2Rx (e)RedCap UE**

Agreement:

* The existing LT5 requirements for non-RedCap UE can be directly reused for 2Rx (e)RedCap UE with full-duplex FDD, TDD modes.
	+ Handover
	+ RLM/BFD
	+ Intra-frequency/Inter-frequency measurement
* Further check for HD-FDD

**Issue 2-2-1: Scope of relaxed RLM/BFD for (e)RedCap UE**

Agreement:

RAN4 only considers the relaxed RLM/BFD requirements on PCell when the DRX cycle is no longer than 80 ms.

**Issue 2-2-2: Relaxed RLM/BFD for 2Rx (e)RedCap UE**

Agreement:

* Reuse the existing **R17** RLM/BFD relaxation requirements for both FR1 and FR2, and for full-duplex FDD and TDD.

**Sub-topic 2-3: Simulation assumption for LT5 1Rx (e)RedCap**

Agreement:

**Simulation Assumptions for SSB index reading and MIB reading Evaluation**

|  |  |  |
| --- | --- | --- |
| Parameter | Unit | Value |
| * Number of PRBs for PBCH
 | *
 | 12 PRBs |
| * Carrier frequency
 | * GHz
 | * 900MHz
 |
| * Subcarrier spacing
 | * kHz
 | * 15 kHz
 |
| * Number of Tx antennas
 | * -
 | * 1
* 2
 |
| * Number of Rx antennas
 | * -
 | * 1
 |
| * DMRS
 | * -
 | * PBCH DMRS
 |
| * Other assumptions
 | *
 | * Tx BW and SSB puncturing are known at the Rx side
 |
| * CP Length
 | * -
 | * Normal
 |
| * Number of transmitted SS block within a SS burst set period (K)
 | * -
 | * 1
 |
| * SS burst set periodicity
 | * ms
 | * 20
 |
| * Frequency Offset relative to UE frequency reference
 | * Hz
 | * 0
 |
| * PBCH symbols within the SS block
 | *
 | * PSS-PBCH-SSS-PBCH
 |
| * Data and Control Power offset with respect to PSS and SSS
 | * dB
 | * Baseline 0
 |
| * PBCH power offset with respect to PBCH-DMRS
 | * dB
 | * 0
 |
| * PBCH-DMRS power offset with respect to PSS and SSS
 | * dB
 | * 0
 |
| * PSS and SSS sequences
 | * -
 | * No changes expected
 |
| * PBCH-DMRS sequences
 | * -
 | * No changes expected
 |
| * PBCH-DMRS RE positions within the PBCH resource
 | * -
 | * No changes expected except for puncturing impact
 |
| * PBCH Channel coding
 | *
 | * No changes expected to actual Channel coding
* (Polar code with 512 length and 24bit CRC)
 |
| * PBCH Modulation
 | * -
 | * QPSK
 |
| * PBCH Payload (including the CRC)
 | * bits
 | * 56bit (CRC 24bit)
 |
| * PBCH SNR
 | * dB
 | * -10 : 0 dB, with 1 dB spacing
 |
| * Propagation Condition / Channel models
 | * -
 | * For 3 km/h UE speed
* TDL-C 300ns
* Additional scenarios can be considered
 |
| * Detection Method
 | *
 | * Baseline: One shot detection (i.e. no combination for different PBCHs)
* FFS whether to remove Soft Combining or keep Soft Combining as Optional
 |
| * Metrics
 | *
 | * TBA
 |
| * NOTE: the companies are encouraged to state channel model parameters together with the results, the parameters are to be further discussed and aligned.
 |

**Issue 2-1-4: RLM/BFD impact of LT5 for 1Rx (e)RedCap UE**

Agreement:

For discussing the PDCCH hypothetical parameters, RAN4 discuss whether it is feasible to target on coverage equivalence between 1Rx and 2Rx RedCap UEs.

**Issue 2-2-4: Entry and exit criteria, singling indication, applicability rules for 2Rx**

Agreement:

Reuse R17 RLM/BFD Entry and exit criteria from legacy UE as a baseline