**3GPP TSG RAN meeting 109 RP-250XXX**

**Beijing, China, Sep 15-18, 2025**

## Status Report to TSG

**Agenda item:** 9.6.2.1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **WI / SI Name** | NR mobility enhancements Phase 4 | | | | |
| included in this status report | Study Item:  No | Core part:  Yes | Performance part:  Yes | | Testing part:  No |
| **Acronym** | NR\_Mob\_Ph4 | | | | |
| **Unique ID** | 1020091 | | | | |
| **TSG Tdoc of latest approved WI/SI description (if any)** | RP-250339 | | | | |
| **Target Completion Date**  **(indicate if changed)** | Study Item:  N/A | Core part: 09/2025 | Performance part: 03/2026 | Testing part: N/A | |
| **Overall Completion level** | Study Item:  N/A | Core part:  100% | Performance Part:  10% | Testing part: N/A | |

Note: Overall completion level percentage numbers should use one of the colors below:

* xx%: Normal progress, no RAN plenary action needed
* xx%: Progress behind schedule, may need RAN plenary intervention. If so, SR should clearly define requested action
* xx%: Progress critically behind, RAN plenary shall intervene. SR should define requested action

**Source:**

|  |  |  |
| --- | --- | --- |
| **Leading WG** | | RAN WG2 |
| **Rapporteur** | **Name** | Naveen Palle, Pei Lin |
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## 1 Work plan related evaluation

|  |  |
| --- | --- |
| **Do you want to modify the time budget for this WI/SI compared to what was endorsed at the last RAN meeting?** | No |

*If you answered No: Then please remove the Excel file from the zip file of this status report.*

*If you answered Yes: Then please fill out the attached Excel template to request a modification of the time budgets for your WI /SI. The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI. The basis are the endorsed time budgets of the last RAN meeting. Please highlight all changes of the values.  
 One time unit (TU) corresponds to ~ 2 hours in the meeting.  
 If this status report covers a WI with Core and Performance part, then please have one line for each in the attached Excel table.  
 Note: If no Excel table is attached, then this means no time budget change.*

**Additional explanations/motivations for the time budget changes in the attached Excel table:**

## 2. Detailed progress in RAN WGs since last TSG meeting (for all involved WGs)

NOTE: Agreements and Open issues impacted cross-TSG aspects shall be explicitly highlighted

## 2.1 RAN1

#### 2.1.1 Agreements

**In RAN1#122, the following agreements were made.**

Agreement

Following TP to TS38.214 Section 5.2.4a is endorsed in principle.

* **Reason for change:** Current texts in the referred paragraph in TS 38.214 create some ambiguity. First, “corresponding NZP CSI-RS resources” is unclear. It presents unclear meaning of what the NZP CSI-RS resources are corresponding to. In our views, we should instead describe that NZP CSI-RS resources are corresponding to a [ltm-eCSI-ReportConfig]. Second, “start” is redundant here and never exists in the agreement.
* **Summary of change:** Describe UE measures NZP CSI-RS resources corresponding to a [ltm-eCSI-ReportConfig] before receiving LTM CSC MAC CE. Remove the redundant “start” wording.
* **Consequences if not approved:** Unclear UE behavior on LTM RS measurement before receiving LTM CSC MAC CE.

|  |
| --- |
| **Text Proposal 1 for TS 38.214 Clause 5.2.4a**  < Unchanged parts are omitted >  If a valid CSI is not available, the UE shall transmit a CSI report which contains a CQI corresponding to the lowest CQI index. [Depending on the UE capability] the UE may ~~start~~ measure~~ing~~ ~~corresponding~~ NZP CSI-RS resources corresponding to a [*ltm-eCSI-ReportConfig*] before receiving the LTM Cell Switch Command MAC CE [10, TS 38.321]. |

Agreement

Following TP to TS38.213 Section 21 is endorsed as editorial change.

* **Reason for change:** RAN1 agreed that CSI-RS for BM as the *referenceSignal* with QCL-TypeD is supported for an LTM TCI state, where TRS is configured as *referenceSignal* with QCL-TypeA. The agreement has been captured in above texts in TS 38.213. However, in current texts, it is said that the TRS and the CSI-RS resource**s** to provide QCL 'typeA' and 'typeD' properties, which is incorrect. There should be only one CSI-RS resource for indicating QCL 'typeD' property. Hence, we propose to adopt the Text Proposal 2 as below.
* **Summary of change:** Remove unnecessary “s”.
* **Consequences if not approved:** Incorrect UE and/or NW behavior.

|  |
| --- |
| **Text Proposal 2 for TS 38.213 Clause 21**  < Unchanged parts are omitted >  A UE can be provided by an LTM Cell Switch Command MAC CE in a PDSCH reception on the serving cell [11, TS 38.321] a TCI state ID and/or an UL TCI state ID indicating a *CandidateTCI-State* and/or *CandidateTCI-UL-State* from *ltm-DL-OrJointTCI-StateToAddModList* and/or *ltm-UL-TCI-StateToAddModList* [6, TS 38.214] for applicable receptions or transmissions on a candidate cell from the number of candidate cells. The UE may assume that DM-RS antenna ports for PDCCH receptions and for PDSCH receptions are quasi co-located either with the SS/PBCH block or the TRS in the TCI state with respect to quasi co-location 'typeA' and 'typeD' properties, when applicable, or with the TRS and the CSI-RS resource~~s~~ in the CSI-RS resource set configured with *repetition* in the TCI state with respect to quasi co-location 'typeA' and 'typeD' properties, respectively, when applicable.  < Unchanged parts are omitted > |

Agreement

Following TP to TS38.214 Section 5.2.4a is endorsed in principle.

|  |  |
| --- | --- |
| ***Reason for change:*** | For LTM CSI reporting, both channel measurements and interference measurements would be done by UE. For interference measurement, UE could either measure NZP CSI-RS or CSI-IM depending on the configuration. In TS 38.214, the measurement on CSI-IM resources is missing. |
|  |  |
| ***Summary of change:*** | For LTM CSI reporting, UE should measure CSI-IM resources if configured. |
|  |  |
| ***Consequences if not approved:*** | UE would not measure CSI-IM resources for interference measurement. |

-------------------- Start of text proposal to TS 38.214 v19.0.0 ---------------------------------------

5.2.4a CSI Reporting for LTM

**<<< UNCHANGED PART OMITTED >>>**

After a UE receives an LTM Cell Switch Command MAC CE [10, TS 38.321] providing a candidate cell (given by Target Configuration ID field), and a [*ltm-eCSI-ReportConfig*] is configured for the candidate cell, the UE can measure corresponding NZP CSI-RS resources and CSI-IM resources if configured, and shall transmit a CSI report to the candidate cell.

**<<< UNCHANGED PART OMITTED >>>**

---------------------- End of text proposal to TS 38.214 v19.0.0 ---------------------------------------

Agreement

Following TP to TS38.214 Section 5.2.4a is endorsed in principle.

|  |
| --- |
| 5.2.4a CSI Reporting for LTM  <omitted text>  A UE configured with *LTM-Config* can be provided configurations for CSI acquisition, by up to one Reporting Setting, [*ltm-eCSI-ReportConfig*], for a candidate cell. Each Reporting Setting [*ltm-eCSI-ReportConfig*] is associated with either one or two Resource Settings  - When one Resource Setting (given by higher layer parameter *ltm-ResourcesForChannelMeasurement*) is configured, it provides a list of NZP CSI-RS resources for both channel and interference measurements. The UE is not expected to be configured with more than 128 NZP CSI-RS ports in the CSI-RS resource set contained within the Resource Setting.  - When two Resource Settings are configured, the first Resource Setting (given by higher layer parameter *ltm-ResourcesForChannelMeasurement*) provides a list of NZP CSI-RS resources for channel measurement, and the second Resource Setting (given by higher layer parameter [*ltm-ResourceForInterferenceMeasurements*]), provides a list of [CSI-IM resources] for interference measurement. The UE is not expected to be configured with more than 128 NZP CSI-RS ports in the CSI-RS resource set contained within the Resource Settings.  The UE shall expect the following configuration provided in each [*ltm-eCSI-ReportConfig*]:  - For the frequency granularity of the CSI report, the CQI format indicator is Wideband CQI.  - For the frequency granularity of the CSI report, the PMI format indicator is Wideband PMI.  - The codebook type is *typeI-SinglePanel.*  - The *reportQuantity* is set to ‘cri-RI-PMI-CQI’.  <omitted text> |

Agreement

* **Introduce a new RRC IE for LTM codebook configuration**

CodebookConfig-LTM-r19 ::= CHOICE {

twoToThirtyTwoPorts CodebookConfig,

moreThanThirtyTwoPorts CodebookConfig-r19

...

}

* Add note in RRC parameter list to inform RAN2 to add ‘typeI and single panel’ restriciton.

Agreement

* Add the optional field ‘repetition’ to LTM-NZP-CSI-RS-ResourceSet
  + When LTM-NZP-CSI-RS-ResourceSet is used for beam-management, ‘repetition’ should be set to ‘off’ and when it is used for early CSI acquisition, the field should be absent.

Agreement

* Adapt LTM-CSI-ReportConfig to include cqi-Table for CQI reporting
* Clarify in RAN1 specification that the LTM-CandidateId-r18 in ltm-CandidateIdList-r19 of LTM-NZP-CSI-RS-ResourceSet-r19 should be same as that of LTM-Candidate-r18 under which CSI report configuration for CSI acquisition is configured.

**Agreement**

**Semi-persistent CSI-IM measurement resource is supported for the CSI acquisition for candidate cells.**

**Agreement**

For a UE capable of CSI acquisition of performing early CSI measurement operations before and after LTM Cell Switch Command MAC CE:

* For candidate cell(s), a periodic CSI-RS resource and port are counted as ‘active’ in a duration starting when the periodic CSI-RS resource is configured by higher layer signaling until the reception of the LTM cell switch command MAC CE or a RRC reconfiguration message, which comes first.
* For candidate cell(s), a SP CSI-RS resource and port are counted as ‘active’ in a duration starting from the end of when the activation command is applied until the reception of the LTM cell switch command MAC CE or a deactivation command MAC CE, which comes first.

Agreement

For a UE capable of CSI acquisition of performing early CSI measurement operations only after LTM Cell Switch Command MAC CE:

* For candidate cell(s), periodic and SP-CSI-RS resources and ports configured for early CSI acquisition in an LTM Candidate cell are not counted as active before reception of LTM Cell Switch Command MAC CE.

#### 2.1.2 Remaining Open issues

* ***None***

## 2.2 RAN2

#### 2.2.1 Agreements

**RAN2-131:**

**Agreements on stage-3 details**

1. WI is completed from RAN2 point of view.
2. No UE capability for reporting the beam not satisfying the event condition in the MR MAC CE.
3. A per UE capability for inter-CU LTM recovery.
4. If a CSI-RS resource set configured for early CSI acquisition contains CSI-RSs from multiple candidates, the UE is expected to measure the RSs of target cell after reception of LTM CSC.
5. IM resource and NZP CSI resource cannot be configured for a CSI-RS resource configuration id.
6. SP-CSI MAC CE includes up to two CSI-RS resource configuration ids.
7. Detailed change is left to MAC CR rapporteur.
8. No impact on event triggered L1 MR procedure when beam failure is detected.
9. RAN2 will keep the current definition of Type II in MAC, i.e. any beam.
10. During CLTM is ongoing, after the first transmission, if TAT timer expires while RACH-less LTM is ongoing, UE always fall back to RACH-based LTM regardless whether UE based TA is valid or not.
11. Stop the running ltm-Candidate-TimeAlignmentTimer for the corresponding candidate cell and release the stored TA value for the candidate cell if the corresponding CLTM candidate configuration is released.
12. If RACH-less CLTM fallback to RACH-based CLTM due to PTAG expiration, RAN2 assumes it’s up to UE implementation to obtain the MAC PDU for 1st UL transmission. Captured as a Note in the MAC spec.
13. For MAC-31, wait for RAN1. it is not essential issue, and does not impact the WI completion.
14. In case of MCG failure recovery, network reconfigure the UE in case it wishes the UE to restart the evaluation of the LTM cell switch execution condtion.
15. UE understands whether to send an MR or trigger a conditional LTM cell switch procedure based on the presence of the reporting content configuration. The related ASN.1 field is changed from mandatory to optional.
16. The UE shall not perform secondary key change when intra-MN LTM is performed (take TP in R2-2505583 as baseline).
17. The reference configuration can be signalled to UE via the ltm-Config and ltm-ConfigNRDC (current restrictions in RRC are removed).
18. RRC-9, RRC-10, RRC-11, RRC-12 is handled during the post email discussion.
19. RRC-5, RRC-7, and RRC-8 are not pursued.

**Inter-CU details**

1. SP CSI-RS resource for target cell is deactivated after CSI reporting in the first UL transmission. How to capture it in MAC is up to MAC CR rapporteur.
2. For inter-CU LTM failure recovery, even if the selected cell is the target cell, there is no security issue, and no specification change is needed in RRC CR for the case.
3. After L3 HO or CHO failure, the UE cannot perform inter-CU LTM fast recovery.

**Event Triggered details**

1. When mTRP is configured in the serving cell the UE uses the best beam of the two “current beams” for LTM event evaluation, and it’s up to UE implementation to how to derive the best beam.
2. No additional indication in MR MAC CE is needed.
3. The coexistence between event-triggered L1 measurement reporting and mTRP for the source cell is supported in Release 19 LTM.
4. “best beam of the two current beams” is changed to “best beam of the current beams”
5. TP for stage-2 and MAC are baseline.
6. For LTM2, network always configures reportCurrentBeam in the LTM-EventTriggeredReportContent.
7. Serving beam measured result is only included at the end of a (truncated) MR MAC CE for LTM2.
8. Confirm the following working assumption: If network configures to include the current serving beam in MR, the UE always includes the current serving beam in the truncated MR MAC CE. In this case, minimum size of truncated MR MAC CE is {at least one triggered beam + the current serving beam}. If grant is not enough for that, the UE does not assemble a truncated MR MAC CE.

**CLTM details**

1. For C-LTM, if the UE receives more TAs beyond its capability, it’s up to UE implementation to decide which one is released.
2. It’s up to NW implementation to avoid the latency caused by the PDCP SN gap due to CLTM fast recovery.
3. It will be added as a note into stage-2 spec. How to capture it is left to stage-2 spec CR rapporteur.
4. If UE receives the LTM CS command triggered by NW, UE shall follow the R18 behaviour to initiate LTM CS in the target cell regardless of whether the UE has the available C-TA value.
5. RAN2 understands RAN3 handles the remaining TA information exchange from the source to the target.
6. No need to define a separate UE capability for CLTM fast recovery (i.e., reuse the UE capability for Rel-18 intra-CU LTM fast recovery).
7. CLTM can coexist with network triggered L3 HO, CHO and network triggered PScell change, while the coexistence of CLTM and DAPS HO is not supported.

#### 2.2.2 Remaining Open issues

* ***None***

## 2.3 RAN3

#### 2.3.1 Agreements

**RAN3#129:**

* BL CR to 37.483 (R3-255057), BL CR to 38.420 (R3-255058), BL CR to 38.470 (R3-255059), BL CR to 37.340 (R3-255060), BL CR to 38.300 (R3-255061), BL CR to 38.401 (R3-255062), BLCR to 38.423 for DC (R3-255064), BLCR to 38.473 (R3-255065) and BL CR to 38.423 (R3-255715) are endorsed.

**For inter-CU LTM:**

* Confirm to have the explicit Request for CSI-RS Resource Configuration indicator in the Handover Request message.
* The candidate gNB/gNB-DU provides the CSI-RS Report configuration for CSI Acquisition separately via a new IE (e.g., refers to ltm-CSI-ReportConfig-r19) during the preparation phase.
* For deactivation of SP CSI-RS of candidate cell(s) after the UE’s successful cell switch, the CSI-RS Coordination procedure is re-used, triggered by the previous serving gNB-CU after successful cell switch is confirmed, and toward the relevant candidate gNB-DU(s) and gNB-CU(s).
* Agree to reuse LTM Configuration Update message to transfer Rel-19 set ID per candidate cell to the candidate CUs.
* Once the UE XnAP association is setup, the source gNB includes the target NG-RAN node UE XnAP ID in the handover request message for any follow-up preparation.
* The old source gNB can deliver the old target UE XnAP ID(s) to the new serving gNB via Cell Switch Notification and LTM Configuration Update message.
* The source gNB sends the Data Forwarding Information as per-PDU session level to the candidate gNBs in the LTM CONFIGURATION UPDATE message.
* Include the Tag ID Pointer and RACH resource request ID in TA Information Transfer in XnAP.
* Include the TA values in Cell Switch Notification message.
* For Rel-19 Set ID assignment, source gNB-CU sends the Rel-19 Set ID list per-node to candidate gNB-CUs in Handover Request message.
* To clarify that the “old target UE XnAP ID” is the target UE XnAP ID allocated by the candidate gNB after last LTM cell switch e.g., when receiving the LTM Configuration Update Request message from the new source gNB.
* For CSI-RS configuration in F1AP and XnAP, including the CSI-RS resource configuration and the CSI-RS resource type in the UE Context Setup Response, UE Context Modification Response and Handover Request Acknowledge message.
* For TCI State List configuration over the XnAP, adopt the similar solution as TEI18.
* Include the explicit request for CSI-RS Resource Configuration for CSI acquisition indicator in the Handover Request message.
* The candidate gNB/gNB-DU provides the CSI-RS Report configuration for CSI Acquisition separately via a new IE (e.g., refers to ltm-CSI-ReportConfig-r19) in the LTM Configuration Update Acknowledge and the UE Context Modification Response message.
* For CSI-RS coordination procedure, include the mandatory CSI Resource Config ID (i.e. LTM-CSI-ResourceConfigId) in the both request and response message in F1AP and XnAP.
* The CSI-RS-based beam measurement results should be sent from the CU to the DU in the F1AP CU-DU Mobility Initiation Request message.
* TP for BLCR of TS38.300 (R3-255857), TP for BLCR of TS38.401 (R3-255871), TP for BLCR of TS38.473 (R3-255962) and TP for BLCR of TS38.423(R3-255961) are agreed.

**For inter-CU LTM in DC:**

* Turn the WA into agreement: Different candidate PSCells in the same SN can have different Rel-19 set IDs.
* Do not support LTM modification on the already prepared LTM candidate PScells in DC scenario in Rel-19.
* Support both Source SN-initiated and Candidate SN-initiated LTM Cancel.
* For security update for inter-CU SCG LTM, the list of {KSN, sk-counter} is provided on the granularity of Rel-19 set ID.
* The MN provides a list of R19 set IDs to the candidate SN via the SN Addition Request message. MN sends R19 set ID for the candidate cell along with a list of {KSN, sk-counter} in the SN Modification Request message.
* The MN sends the R19 set ID for each candidate PSCell to the source SN and other candidate SNs via the SN Modification Request message.
* The candidate PSCells to be cancelled is included in the SN Modification Required message.
* The MN may inform the source SN about the cancellation of the prepared candidate PSCells at a candidate SN using SN modification request message.
* To support inter- or intra-CU MCG LTM with SCG, introduce a new XnAP IE to indicate to the candidate SN that the SN Addition/Modification preparation procedure is triggered as part of a MCG LTM procedure.
* To support inter- or intra-CU MCG LTM with SCG, introduce a new F1AP IE to indicate to the DU of a candidate SN that the UE Context Setup/Modification procedure is triggered as part of a MCG LTM procedure.
* Remove the FFS: FFS whether Handover Success is used from the target-SN to the MN to notify that UE has successfully accessed to the target SN.
* SN Change Confirm message is used to notify the list of data forwarding addresses to the source SN.
* The SCG reference configuration is provided by an implicit way in the CG-Config RRC container in the SN Addition Request Acknowledge message from the candidate SN to the MN, no RAN3 impact is foreseen.
* TP for BLCR of TS37.340 (R3-255904), and TP for BLCR of TS38.423 for DC (R3-255903) are agreed.

**For intra-CU Conditional LTM:**

* To convert the working assumptions into agreement:
  + To introduce one codepoint in the legacy LTM indicator IE, namely “C-LTM”.
  + To introduce a new IE with a list of candidate cells for L1 execution condition.
* In case of L3 measurement report-triggered early RACH, to reuse the F1AP CU-DU Mobility Initiation procedure to notify the source DU to initiate early RACH procedure to the candidate cells.
* To remove the TAT value IE in the UE CONTEXT SETUP RESPONSE message in the BLCR.
* The source DU sends the TA values and the remaining time of the TA timers, and TAG ID of candidate cells and target cell to the CU by the UE CONTEXT MODIFICATION RESPONSE message after receiving the successful cell change notification from the CU.
* The CU reuses the UE Context Modification procedure to transfer the TA values and the remaining time of the TATs, and TAG ID to the target DU.
* TP for BLCR of TS38.473 (R3-255963) and TPs for BLCR of TS38.401 (R3-255936) are agreed.

#### 2.3.2 Remaining Open issues

* ***None***

## 2.4 RAN4

#### 2.4.1 Agreements

**1) Event triggered L1 measurement reporting**

Issue 2-1: applicability of L1-RSRP reporting delay

**Agreement:**

* Capture the following conditions in test case but not in core requirements.
  + No indicate TCI change during the evaluation period.
  + No configuration change w.r.t measurement RS during the evaluation period
  + After the condition that would trigger the event takes effect, the condition is assumed to be fixed during the whole L1 measurement period

Issue 2-2: whether to introduce/update requirements for reporting criteria per measurement category

**Agreement:**

* No consensus on the necessity to introduce/update requirements for reporting criteria per measurement category.
* The issue does not impact the WI core part completion, and interested companies can further discuss this issue in maintenance phase based on contribution driven.

Issue 2-3: Impact on Cell switch and TCI activation requirements

**Agreement:**

* In FR1, cell switch and TCI state requirements are applicable if the UE is configured with event-triggered L1 reporting and on leave reporting, and the UE has sent an event-triggered L1 report for the target cell and has not sent on leave report before reception of the cell switch command.
* Not to extend above agreements to FR2.

**2) CSI-RS based L1 measurement**

Issue 3-1: whether skipping step 2 for a serving cell when included in LTM candidate cell

**Agreement:**

* Define UE capability of skipping SSB based L1-RSRP measurement for candidate cell CSI-RS-based L1-RSRP measurement, which include two Components:

1) Indicates support for skipping SSB-based L1-RSRP during neighboring cell CSI-RS-based L1-RSRP measurement.

2) Indicates support for skipping SSB-based L1-RSRP during both neighboring cell and serving cell CSI-RS-based L1-RSRP measurement.

* Not define additional/new RAN4 requirement for #2)
* Legacy requirement for serving cell operation such as RLM, BFD, CBD applies.

Issue 3-2: Measurement restriction

**Agreement:**

* In FR2-1, or in FR1 when CSI-RS based L1 measurement would cause scheduling restriction, all CSI-RS resources within a 40 ms window on one intra-frequency layer should be configured within up to two separate windows, each lasting up to 5 ms. The separation of the two windows is at least 4ms.

Issue 3-3: how to handle the case when CSI-RS based L1 RSRP measurement on neighbour cell when colliding with serving cell CSI-RS for L1-RSRP measurement?

**Agreement:**

* If the CSI-RS resources configured for L1 RSRP measurement in serving cell and neighbour cell are colliding in time domain, RAN4 to introduce measurement restriction as legacy.

Issue 3-4: how to handle the case when the CSI-RS based L1-RSRP measurement on neighbour cell in FR2-1 overlap with CSI-RS configured for RLM/BFD/CBD?

**Agreement:**

* For intra-f CSI-RS based L1-RSRP measurement on neighbor cell in FR2, define measurement restriction when it is overlapped with CSI-RS configured for RLM/BFD/CBD.

Issue 3-5: Early CSI acquisition

**Agreement:**

* No consensus on defining new RAN4 requirements for early CSI acquisition.
  + Clarification on the applicability of the existing requirement is not precluded if consensus on the exact clarification can be reached.
* It is RAN4 common understanding that for baseline early CSI acquisition,
  + If fine T/F tracking is included in cell switch delay, UE shall start CSI acquisition at least after UE finishes fine T/F tracking of target cell.
  + Otherwise, UE shall start CSI acquisition at least after Tprocessing.
* No need to capture above agreement in RAN4 spec.

Issue 3-7: whether send LS to RAN1/2 on intra-frequency/inter-frequency definition for L1 measurement?

**Agreement:**

* Send LS to RAN1/2 about RAN4 agreement on intra-frequency and inter-frequency definition for CSI-RS based L1 measurement.

**3) CLTM**

Issue 1-1-2: TCSI-RS\_SFN\_intra

**Agreement:**

* Remove the TCSI-RS\_SFN\_intra and reuse the applicable condition in Rel-18 LTM. Discuss whether additional condition is needed in CR directly

Issue 1-1-4: Whether to include unknown cell case

**Agreement:**

* Only cover the known cell case.

Issue 1-1-5: Side condition for known cell

**Agreement:**

* Follow the related agreements on CSI-RS based L1 measurement in part1.

Issue 1-2-1: Whether Tfirst-RS and TRS-proc areincluded in Tinterrupt

**Agreement:**

* Tfirst-RS and TRS-proc areincluded in Tinterrupt.

Issue 1-2-2: The values and the conditions for Tfirst-RS = 0 and TRS-proc = 0

**Candidate solutions:**

* Proposal 1:

1> if the target TCI state is in the serving cell active TCI state list

2> Tfirst-RS = 0 and TRS-proc= 0

1> else if the UE is configured with CLTM L1 intra- and/or inter-frequency measurements for the target cell, and

2> if the target TCI state is in the CLTM candidate cell active TCI state list, and

3> if the time between receiving the CLTM candidate cell TCI state activation MAC-CE and starting to execute cell switch towards the target cell is at least TCI state activation delay stated in section 8.25.3, and

3> if the time between receiving the CLTM candidate cell TCI state activation MAC-CE and starting to execute cell switch towards the target cell is not more than TCI state activation delay stated in section 8.25.3 + 160 ms, or

3> if the measurement period of the SSB associated to target TCI state is not larger than 160 ms after the CLTM candidate cell TCI state activation MAC-CE is received

4> Tfirst-RS = 0 and TRS-proc= 0

1> else if the target cell is an FR1 cell, and the UE is not configured with CLTM L1 intra- and/or inter-frequency measurements for the target cell, and

2> if the target TCI state is in the CLTM candidate cell active TCI state list, and

3> if the time between receiving the CLTM candidate cell TCI state activation MAC-CE and starting to execute cell switch towards the target cell is at least TCI state activation delay stated in section 8.25.3, and

3> if not more than TCI state activation delay stated in section 8. 25.3 + 480 ms for an intra-frequency target cell, or

NOTE: longer L3 measurement delay may be expected for 480 ms after TCI state activation delay stated in section 8.25.3.

3> if not more than TCI state activation delay stated in section 8. 25.3 + 160 ms for an inter-frequency target cell

4> Tfirst-RS = 0 and TRS-proc= 0

2> else if the time between the latest PDCCH ordered RACH preamble transmission on the target cell and starting to execute cell switch towards the target cell is not more than 160 ms.

3> Tfirst-RS = 0 and TRS-proc= 0

1> else:

2> Tfirst-RS is the time to the first SSB transmission on the target cell after TLTM-processing.

* Proposal 2: If UE has received a PDCCH order and consequently a TA MAC-CE, Tfirst-RS = 0 and TRS-proc = 0 based on successful preamble transmission and while the TA timer is running.

**Agreement:**

* Proposal 1 is agreed.
* Proposal 2 can be discussed during maintenance phase without impact on core part completion.

Issue 1-2-3: CLTM requirements for candidate cells without active TCI states in FR2

**Agreement:**

* Capture the following in the WF.
  + - As starting point: L1 measurement behavior, which was introduced in R18, is not changed. CLTM measurement time requirements (Tmeasure) do not apply for the candidate cells without active TCI states after TCI state activation for at least one candidate cell in FR2. Other CLTM requirements (cell switch interruption, etc.) apply.
* FFS whether and how to capture in the CR

**4) performance**

Issue 4-1-2: test configuration for event-triggered L1 reporting

**Agreement:**

* On high level, the test cases for event-triggered L1 reporting can have two cells (serving and candidate), and the signal level of one of these cells is to be changed during the test so that the reporting condition becomes met. UE shall send the report within the specified delay after the condition becomes met.

Issue 4-2-1: CSI-RS based L1 measurement accuracy

**Agreement:**

* CSI-RS based L1-RSRP accuracy of the serving cell can be reused for neighbour cell when the following conditions are met:
  + Conditions defined in clause 7.3 of TS 38.101-1 [18] for reference sensitivity are fulfilled.
  + Conditions for L1-RSRP measurements are fulfilled according to annex B.2.4.2 for a corresponding Band for each relevant CSI-RS.
  + The bandwidth of CSI-RS is 48 PRBs and the density is 3.
  + The timing offset between the reference measurement timing and the target CSI-RS in one layer is no larger than CP.
* Legacy SS/CSI-RSRP measurement L1 report mapping specified in clause 10.1.6 (including measured quantity reporting and differential reporting) can be reused for SS/CSI-RS based L1 measurement reporting on neighbor cell.
* New requirements are defined in the following sections

|  |  |
| --- | --- |
| **Accuracy requirements** | **Detail** |
| Intra-frequency L1-RSRP accuracy requirements | 10.1.19D.2 CSI-RS based intra-frequency L1-RSRP accuracy requirements for FR1  10.1.19D.2.1 Absolute Accuracy  10.1.19D.2.2 Relative Accuracy |
| 10.1.20A.2 CSI-RS based intra-frequency L1-RSRP accuracy requirements for FR2  10.1.20A.2.1 Absolute Accuracy  10.1.20A.2.2 Relative Accuracy |

Issue 4-3-1: CLTM test scope – frequency range

**Agreement:**

* CLTM test frequency range:
  + FR1 to FR1
  + FR2 to FR2
* Other options are not precluded.

#### 2.4.2 Remaining Open issues

**Event triggered L1 measurement reporting**

Test cases for event triggered L1 measurement reporting.

**CSI-RS L1 RSRP measurement**

Test cases for CSI-RS L1 RSRP measurement.

**Conditional LTM**

Test cases for CLTM.

## 2.5 RAN5

#### 2.5.1 Agreements

#### 2.5.2 Remaining Open issues

#### 2.5.3 Remaining Open issues with cross-WG dependencies

## 2.6 RAN6

#### 2.6.1 Agreements

#### 2.6.2 Remaining Open issues

## 3. Detailed progress in SA/CT WGs since last TSG meeting (for all involved WGs)

NOTE: This section only needs to be filled in for WI/SIs where there is a corresponding relevant WI/SI in SA/CT.

## 3.1 SAx/CTs

#### 3.1.1 Agreements with cross-TSG impacts

#### 3.1.2 Remaining Open issues with cross-TSG impacts

NOTE: This section should also flag any critical dependencies that need TSG attention.

## 4. References

NOTE: This can be e.g. a list of all related Tdocs in the affected WGs since last TSG, references to LSs, produced TRs/TSs, the work/study item description or status reports of previous TSGs.

RP-251187 Status Report for Work Item: NR mobility enhancements Phase 4 (rapporteur: Apple)

RP-250339 Revised Work Item: NR mobility enhancements Phase 4

**RAN1#122:**

R1-2505886 FL Summary #2 of NR Mobility enhancement Phase 4 Moderator (Apple)

R1-2505885 FL Summary #1 of NR Mobility enhancement Phase 4 Moderator (Apple)

R1-2505160 Remaining issues on measurements related enhancements for LTM Spreadtrum, UNISOC

R1-2505244 Maintenance on measurement related enhancements for LTM Nokia

R1-2505271 Maintenance on measurements related enhancements for LTM ZTE Corporation, Sanechips

R1-2505333 Maintenance on measurements related enhancements for LTM CATT

R1-2505386 Maintenance on measurements related enhancements for LTM vivo

R1-2505550 Remaining issues on Rel-19 LTM including CSI-RS based measurement/reporting and early CSI acquisition Samsung

R1-2505623 Maintenance on NR mobility enhancements Phase 4 Ericsson

R1-2505665 Discussion on NR mobility enhancement Phase 4 Ofinno

R1-2505740 Remaining Issues of measurement enhancement for LTM OPPO

R1-2505811 Maintenance on the measurements for LTM Lenovo

R1-2505848 Remaining issues on measurements related enhancements for LTM LG Electronics

R1-2506071 Maintenance on measurements related enhancements for LTM Sharp

R1-2505231 Maintenance on measurements related enhancements for LTM Huawei, HiSilicon

**RAN2#131:**

R2-2505012 LS on frequency location of CSI-RS resources for CSI acquisition in LTM (R1-2504828; contact: Fujitsu) RAN1 LS in Rel-19 NR\_Mob\_Ph4-Core To:RAN4 Cc:RAN2

R2-2505065 Reply LS on security handling for inter-CU LTM in non-DC cases (S3-252398; contact: Huawei) SA3 LS in Rel-19 NR\_Mob\_Ph4-Core To:RAN3 Cc:RAN2

R2-2505453 Introduction of NR mobility enhancements Phase 4 in TS 38.300 Apple Inc CR Rel-19 38.300 18.6.0 1011 - B NR\_Mob\_Ph4-Core

R2-2506195 Introduction of NR mobility enhancements Phase 4 in TS 38.300 Apple Inc CR Rel-19 38.300 18.6.0 1011 1 B NR\_Mob\_Ph4-Core R2-2505453

R2-2506415 Introduction of NR mobility enhancements Phase 4 in TS 38.300 Apple Inc CR Rel-19 38.300 18.6.0 1011 2 B NR\_Mob\_Ph4-Core R2-2505453

R2-2505291 Introduction of NR mobility enhancements Phase 4 in TS 37.340 China Telecom CR Rel-19 37.340 18.6.0 0419 - B NR\_Mob\_Ph4-Core

R2-2505164 Report of [POST130][120][MOB] CATT discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506217 Report of [AT131][107][MOB](CATT) CATT discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505162 Draft 306 running CR for UE capability for Mob Ph4 CATT draftCR Rel-19 38.306 18.6.0 NR\_Mob\_Ph4-Core

R2-2505163 Draft 331 running CR for UE capability for Mob Ph4 CATT draftCR Rel-19 38.331 18.6.0 NR\_Mob\_Ph4-Core

R2-2505398 Discussion summary and list of MAC open issue for Mob Ph4 vivo discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505397 Introduction of NR mobility enhancements Phase 4 in MAC vivo (Rapporteur) CR Rel-19 38.321 18.6.0 2098 - B NR\_Mob\_Ph4-Core

R2-2505815 Introduction of RRC changes for mobility enhancements phase 4 Ericsson CR Rel-19 38.331 18.6.0 5443 - B NR\_Mob\_Ph4-Core

R2-2505816 List of open issues for mobility ph4 Ericsson discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506213 Discussion report on [AT131][103][MOB] MAC open issues (vivo) Vivo discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506212 List of open issues for mobility phase4 Ericsson discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505277 Remaining issues of inter-CU LTM Xiaomi discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505117 Discussion on L1 event-triggered measurement reporting Huawei, HiSilicon discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505717 Final View on Measurement Reporting Enhancements for Rel-19 LTM Nokia discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505277 Remaining issues of inter-CU LTM Xiaomi discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505893 Inter-CU LTM Huawei, HiSilicon discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505399 Discussion on inter-CU LTM vivo discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506139 Discussion on inter-CU LTM ZTE Corporation, Sanechips discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505158 UE capability for fast recovery for inter-CU LTM MediaTek Inc. discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505158 UE capability for fast recovery for inter-CU LTM MediaTek Inc. discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505165 Discussion on Inter-CU LTM CATT discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505277 Remaining issues of inter-CU LTM Xiaomi discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505311 Remaining issues on inter-CU LTM ETRI discussion Rel-19

R2-2505399 Discussion on inter-CU LTM vivo discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505455 Remaining issues of Inter-CU LTM Samsung discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505517 Discussion on open issues for inter-CU LTM OPPO discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505546 Discussion on inter-CU LTM Qualcomm Incorporated discussion

R2-2505583 Remaining issues on inter-CU LTM LG Electronics Inc. discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505657 LTM CG Resource consumption for the target cells Sony discussion Rel-19 NR\_Mob\_Ph4

R2-2505730 Remaining issues of Inter-CU LTM Rakuten Mobile, Inc discussion Rel-19

R2-2505786 Discussion on open issues of inter-CU LTM Ofinno discussion Rel-19

R2-2505869 How to include the NCC value in the Enhanced Cell Switch Command MAC CE Ericsson discussion NR\_Mob\_Ph4-Core

R2-2505870 On remaining open issues for Inter-CU LTM and DC-LTM Nokia discussion

R2-2505893 Inter-CU LTM Huawei, HiSilicon discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506022 Remaining issues and solutions on inter-CU LTM Sharp discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506113 Discussion on SP CSI-RS for target cell NTT DOCOMO, INC. discussion Rel-19

R2-2506139 Discussion on inter-CU LTM ZTE Corporation, Sanechips discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506158 Discussion on inter-CU LTM DENSO CORPORATION discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505719 Report from [POST130][117][MOB] (Nokia) Nokia discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506214 Text Proposal for multi-TRP in Rel-19 LTM Nokia discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505159 Remaining issues on event triggered L1 MR MediaTek Inc. discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506149 Remaining Issues of L1 Event Triggered Measurement Report Samsung discussion

R2-2505518 Open issues for L1 event triggered measurement reporting OPPO discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506140 Discussion on L1 event triggered measurement reporting ZTE Corporation, Sanechips discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505159 Remaining issues on event triggered L1 MR MediaTek Inc. discussion Rel-19 NR\_Mob\_Ph4-Core

Proposal 3: A per UE capability is introduced to report the beam not satisfying the event condition in the MR MAC CE.

R2-2505117 Discussion on L1 event-triggered measurement reporting Huawei, HiSilicon discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505135 Remaining issues of L1 event triggered measurement reporting Xiaomi discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505159 Remaining issues on event triggered L1 MR MediaTek Inc. discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505166 L1 event triggered measurement reporting CATT discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505180 Discussion on L1 event triggered measurement reporting Transsion Holdings discussion Rel-19

R2-2505348 Discussions on L1 event triggered measurement reporting Fujitsu discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505400 Discussion on LTM measurement event evaluation and reporting vivo discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505456 Remaining Issues of L1 Event Triggered Measurement Report Samsung discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505482 Remaining issues of LTM measurement Apple discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505518 Open issues for L1 event triggered measurement reporting OPPO discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505544 Discussion on L1 event-triggered measurement reporting Qualcomm Incorporated discussion

R2-2505548 Discussion on L1 event triggered measurement reporting for LTM KDDI Corporation discussion Rel-19

R2-2505717 Final View on Measurement Reporting Enhancements for Rel-19 LTM Nokia discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505719 Report from [POST130][117][MOB] (Nokia) Nokia discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505731 Remaining issues of L1 event triggered measurement reporting Rakuten Mobile, Inc discussion Rel-19

R2-2505764 Discussion on triggering of MR MAC CE for leaving beam LG Electronics Inc. discussion NR\_Mob\_Ph4-Core

R2-2505787 Remaining issues for L1 event triggered measurement report Ofinno discussion Rel-19

R2-2505868 Handling of SP CSI-RS resources of target cell after LTM cell switch Ericsson discussion NR\_Mob\_Ph4-Core

R2-2505926 Leftover for L1 measurement and report Lenovo discussion NR\_Mob\_Ph4-Core

R2-2505966 Remaining issues of L1 event triggered measurement reporting CMCC discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505974 Remaining issues of event-triggered L1 measurement reporting for LTM Kyocera discussion Rel-19

R2-2506023 Discussion on issues for supporting L1 event triggered measurement reporting Sharp discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506065 Discussion on measurement event evaluation and report HONOR discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506140 Discussion on L1 event triggered measurement reporting ZTE Corporation, Sanechips discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506149 Remaining Issues of L1 Event Triggered Measurement Report Samsung discussion

R2-2505278 Remaining issues of conditional LTM Xiaomi discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505360 Issue in Fast LTM Recovery after Conditional LTM Failure Fujitsu, NTT DOCOMO, InterDigital discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505167 Discussion on Conditional Intra-CU LTM CATT discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505483 Remaining issues of conditional LTM Apple discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505312 Remaining issues on conditional LTM ETRI discussion Rel-19

R2-2505278 Remaining issues of conditional LTM Xiaomi discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505945 Discussion on open issue of conditional LTM CMCC discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505894 Intra-CU conditional LTM Huawei, HiSilicon discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505098 Discussion on Conditional Intra CU LTM Lekha Wireless Solutions discussion Rel-19

R2-2505104 Discussion on remaining open issues of conditional intra-CU LTM Transsion Holdings discussion

R2-2505160 Remaining issues in conditional LTM MediaTek Inc. discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505167 Discussion on Conditional Intra-CU LTM CATT discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505278 Remaining issues of conditional LTM Xiaomi discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505312 Remaining issues on conditional LTM ETRI discussion Rel-19

R2-2505349 Discussion on MAC open issues for Conditional intra-CU LTM Fujitsu discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505360 Issue in Fast LTM Recovery after Conditional LTM Failure Fujitsu, NTT DOCOMO, InterDigital discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505401 Discussion on conditional LTM vivo discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505483 Remaining issues of conditional LTM Apple discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505519 Open issues for conditional LTM OPPO discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505545 Discussion on conditional intra-CU LTM Qualcomm Incorporated discussion

R2-2505584 Remaining issues on CLTM LG Electronics Inc. discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505620 Remaining Open issues for CLTM NEC discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505641 Discussion on early TA for conditional LTM ITRI discussion NR\_Mob\_Ph4-Core

R2-2505696 Remaining issues for CLTM Lenovo discussion Rel-19

R2-2505729 Remaining issues of Conditional LTM Rakuten Mobile, Inc discussion Rel-19

R2-2505733 Introduction of Hybrid CHO/LTM Handover Mechanism Jio Platforms discussion Rel-19

R2-2505788 Discussion on remaining issues of CLTM Ofinno discussion Rel-19

R2-2505867 L2 Reset Coordination for Conditional LTM Ericsson discussion NR\_Mob\_Ph4-Core

R2-2505894 Intra-CU conditional LTM Huawei, HiSilicon discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2505945 Discussion on open issue of conditional LTM CMCC discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506010 Remaining issues of Conditional intra-CU LTM Kyocera discussion

R2-2506024 Discussion on issues for supporting conditional LTM Sharp discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506032 Discussion on remaining issue for C-LTM ASUSTeK discussion Rel-19 38.321 NR\_Mob\_Ph4-Core

R2-2506066 Discussion on conditional LTM HONOR discussion Rel-19 NR\_Mob\_Ph4-Core

R2-2506132 Considerations on conditional LTM Nokia discussion Rel-19 NR\_Mob\_Ph4

R2-2506141 Discussion on conditional intra-CU LTM ZTE Corporation, Sanechips discussion Rel-19 NR\_Mob\_Ph4-Core

**RAN3 #129**

1. R3-255011 LS on RAN2 agreements for SP CSI-RS activation/deactivation RAN2(CATT)
2. R3-255027 Reply LS on security handling for inter-CU LTM in non-DC cases SA3(Huawei)
3. R3-255057 (BL CR to 37.483) Introducing Rel-19 Mobility enhancement LG Electronics Inc., Nokia, China Telecom, Google, Ericsson, CATT, Qualcomm, Samsung, CMCC, ZTE, Huawei, NTT Docomo, Lenovo, NEC, Ofinno, Jio Platforms (JPL)
4. R3-255058 (BL CR to 38.420) Support for Inter-CU LTM ZTE Corporation, China Telecom, Samsung, Nokia, CATT, NEC, LG Electronics, Ericsson, Huawei, Lenovo
5. R3-255059 (BL CR to 38.470) Support for Inter-CU LTM procedure Samsung, Huawei, LG Electronics, Ericsson, China Telecom, Nokia, ZTE Corporation, CATT
6. R3-255060 (BL CR to 37.340) stage 2 for inter-CU LTM in NR-DC CATT, China Telecom, Huawei, Nokia, LG Electronics, Google, Samsung, Ofinno, Ericsson, Lenovo, NEC, ZTE, Qualcomm
7. R3-255061 (BL CR to 38.300) Support for Inter-CU LTM Nokia, Huawei, Google, China Telecom, NEC, Ericsson, LGE, ZTE, CATT, Samsung, Ofinno
8. R3-255062 (BL CR to 38.401) on conditional intra-CU LTM and intra-CU LTM China Telecom, ZTE Corporation, NEC, Samsung, Nokia, Google, Huawei, Ericsson, LG Electronics, Qualcomm, Jio Platforms
9. R3-255063 (BL CR to 38.423) Xn support for inter-CU LTM Ericsson, Samsung, Nokia, China Telecom, CATT, Huawei, Google, Lenovo, NEC, ZTE, LG Electronics, Ofinno, Qualcomm
10. R3-255064 (BL CR to 38.423 for DC) Xn support for inter-CU LTM in DC Lenovo, Ericsson, CATT, Huawei, Ofinno, Nokia, NEC, LGE, China Telecom, Google, ZTE, Samsung
11. R3-255065 (BL CR to 38.473) Inter-CU LTM and intra-CU conditional LTM Huawei, Nokia, Samsung, Google, NEC, China Telecom, Ericsson, LG Electronics, CATT, Ofinno, ZTE, Lenovo, Qualcomm Incorporated, Jio Platforms
12. R3-255138 TP (BL CR TS 38.300, TS 38.473, TS 38.423) Remaining issues on Inter-CU LTM procedure Nokia
13. R3-255139 Discussion on Inter-CU LTM with Dual Connectivity Nokia
14. R3-255140 Discussion on Conditional LTM in split architecture Nokia
15. R3-255149 (TP to 38.423, 38.473) Inter-CU LTM ZTE Corporation
16. R3-255150 (TP to BL CR for TS 38.300, 38.473, 38.423) Rel-19 Set ID assignment ZTE Corporation
17. R3-255151 (TP to BL CR for TS 38.401, 38.473) TAT transfer for Conditional LTM ZTE Corporation
18. R3-255197 (TP to BL CR for TS 38.423 and 38.473 on Inter-CU LTM) Remaining Rel-19 inter-CU LTM issues NEC
19. R3-255198 (TP to BL CR for TS 38.423 and 37.340 on Inter-CU LTM with DC) Remaining issues of Rel-19 inter-CU LTM in DC scenario NEC
20. R3-255199 (TP to BL CR for 38.473 on conditional intra-CU LTM) Remaining issues of Rel-19 intra-CU Conditional LTM NEC
21. R3-255268 Completion of Inter-CU LTM Ericsson
22. R3-255269 (TP for LTM BL CR for TS 38.423, TS 38.473, TS 38.300, TS 38.401) – Support for inter-CU LTM Ericsson
23. R3-255270 (TP to CLTM BL CR for TS 38.473, TS 38.401) – Completion of Intra-CU Conditional LTM Ericsson
24. R3-255281 Remaining Issues on Data Forwarding for SN initiated Inter-SN LTM Ofinno, LLC
25. R3-255282 (TP for TS 38.423) Cell Switch Notification for LTM DC Scenario Ofinno, LLC
26. R3-255283 Open Issues on Access Success for Inter-SN SCG LTM Ofinno, LLC
27. R3-255301 Signalling enhancements for Inter-CU LTM handover Qualcomm India Pvt Ltd
28. R3-255302 Signalling enhancements for Intra-CU Conditional LTM Qualcomm India Pvt Ltd
29. R3-255374 (TP for TS38.401) On support of inter-CU LTM China Telecom
30. R3-255375 Discussion on inter-CU LTM in DC scenario China Telecom
31. R3-255376 (TP to TS38.401) On support of intra-CU Conditional LTM China Telecom
32. R3-255403 [TP to BLCR for TS 38.401] Inter-CU LTM Lenovo
33. R3-255404 [TP to BLCR for TS 38.423] Inter-CU LTM in DC Lenovo
34. R3-255405 [TP to BLCR for TS 38.423] Inter-CU LTM in DC - text update Lenovo
35. R3-255418 (TP to BL CR 38.423) Clarification on inter-CU LTM and LTM with SCG in NR-DC Google
36. R3-255419 (TP to BL CR 37.340 and 38.473) Clarification on inter-CU LTM and LTM with SCG in NR-DCs Google
37. R3-255421 Discussion on inter-CU LTM NTT DOCOMO INC..
38. R3-255424 (TP for LTM BLCR for TS38.300): Inter-CU LTM Huawei
39. R3-255425 (TP for LTM BLCR for TS38.473): Inter-CU LTM Huawei
40. R3-255426 [DRAFT] Reply LS on security handling for inter-CU LTM in non-DC cases Huawei
41. R3-255427 (TP for LTM BLCR for TS38.473, TS38.401): Intra-CU conditional LTM Huawei
42. R3-255440 (TP for LTM CR for TS38.423): LTM Resource Lifecycle Management in inter-CU LTM Jio Platforms
43. R3-255532 PRACH resources for RACH-less LTM Ericsson, Jio Platforms, Lenovo, NTT DoCoMo
44. R3-255533 (TP to BL CR for TS 38.423) – PRACH Resources for RACH-less LTM Ericsson, Jio Platforms, Lenovo, NTT DoCoMo
45. R3-255534 (TP to BL CR for TS 38.473) – PRACH Resources for RACH-less LTM Ericsson, Jio Platforms, Lenovo, NTT DoCoMo
46. R3-255550 gNB-DU initiated LTM resource reconfiguration Rakuten Mobile Inc, Qualcomm Inc, NTT DOCOMO INC
47. R3-255601 Inter-CU LTM Robustness Enhancements Jio Platforms
48. R3-255604 Discussion for general issues in Inter-CU LTM CATT
49. R3-255605 (TP to BL CR for TS37.340) Discussion for Inter-CU LTM in DC CATT
50. R3-255606 (TP to 38.473) Discussion for C-LTM CATT
51. R3-255614 Discussions on finalizing the essential aspects of Inter-CU LTM LG Electronics Inc.
52. R3-255615 (TP for NR\_Mob\_Ph4 TS 38.423) Inter-CU LTM LG Electronics Inc.
53. R3-255616 (TPs for NR\_Mob\_Ph4 TS 38.473 and TS 38.401) Discussions on the remaining aspects of Conditional Intra-CU LTM LG Electronics Inc.
54. R3-255625 Fetching reference configuration from candidate gNB in inter-CU LTM Huawei, Google, Nokia, Jio Platforms, CATT, CMCC, NTT Docomo, Lenovo, China Telecom, Samsung
55. R3-255626 (TP for LTM BLCR for TS38.423): Fetching reference configuration from candidate gNB in inter-CU LTM Huawei, Google, Nokia, Jio Platforms, CATT, CMCC, NTT Docomo, Lenovo, China Telecom, Samsung
56. R3-255627 (TP for LTM BLCR for TS38.300): Fetching reference configuration from candidate gNB in inter-CU LTM Huawei, Google, Nokia, Jio Platforms, CATT, CMCC, NTT Docomo, Lenovo, China Telecom, Samsung
57. R3-255628 Clarification on the single UE XnAP association in inter-CU LTM Huawei, NEC, LG Electronics
58. R3-255629 (TP for LTM BLCR for TS38.300): Clarification on the single Xn UE association in inter-CU LTM Huawei, NEC, LG Electronics
59. R3-255630 (TP for LTM BLCR for TS38.423): Clarification on the single Xn UE association in inter-CU LTM Huawei, NEC, LG Electronics
60. R3-255659 (TP to BLCR for TS38.423 and TS38.473) Inter-gNB-CU LTM Samsung
61. R3-255660 Additional Discussion on inter-gNB-CU LTM Samsung
62. R3-255685 Remaining issues on Intra-CU Conditional LTM Samsung
63. R3-255715 (BL CR to 38.423) Xn support for inter-CU LTM Ericsson, Samsung, Nokia, China Telecom, CATT, Huawei, Google, Lenovo, NEC, ZTE, LG Electronics, Ofinno, Qualcomm
64. R3-255724 Support for Semi-persistent CSI-RS transmission Ericsson, Jio Platforms, Verizon Wireless, ZTE, Ofinno
65. R3-255725 (TP to BL CR for TS 38.423) Support for Semi-persistent CSI-RS transmission (Option 1) Ericsson, Jio Platforms, Verizon Wireless, ZTE
66. R3-255726 (TP to BL CR for TS 38.473) Support for Semi-persistent CSI-RS transmission (Option 1) Ericsson, Jio Platforms, Verizon Wireless, ZTE
67. R3-255727 (TP to BL CR for TS 38.423) Support for Semi-persistent CSI-RS transmission (Option 2) Ericsson, Jio Platforms, Verizon Wireless, ZTE
68. R3-255728 (TP to BL CR for TS 38.473) Support for Semi-persistent CSI-RS transmission (Option 2) Ericsson, Jio Platforms, Verizon Wireless, ZTE
69. R3-255772 Summary of offline discussion on inter-CU LTM China Telecom
70. R3-255781 CB:#MobilityEnh\_LTM China Telecom
71. R3-255782 CB:#MobilityEnh\_LTMNR-DC Lenovo
72. R3-255783 CB:#MobilityEnh\_CLTM Nokia
73. R3-255835 (TP for LTM BLCR for TS38.473): Inter-CU LTM Huawei
74. R3-255836 TP for LTM BLCR for TS38.473): Intra-CU conditional LTM Huawei
75. R3-255839 (TP to BL CR for TS 38.401, 38.473) TAT transfer for Conditional LTM ZTE Corporation
76. R3-255842 (TP for LTM BL CR for TS 38.423) - Support for inter-CU LTM Ericsson
77. R3-255857 TP (BL CR TS 38.300) Remaining issues on Inter-CU LTM procedure Nokia
78. R3-255871 (TP for TS38.401) On support of inter-CU LTM China Telecom
79. R3-255903 (TP to BLCR for TS 38.423) Inter-CU LTM in DC LG Electronics Inc.
80. R3-255904 (TP to BL CR for TS37.340) Discussion for Inter-CU LTM in DC CATT
81. R3-255936 (TP to BL CR for TS 38.401, 38.473) TAT transfer for Conditional LTM ZTE Corporation
82. R3-255961 (TP for LTM BL CR for TS 38.423) - Support for inter-CU LTM Ericsson
83. R3-255962 (TP for LTM BLCR for TS38.473): Inter-CU LTM Huawei
84. R3-255963 (TP for LTM BLCR for TS38.473): Intra-CU conditional LTM Huawei
85. R3-256003 (BL CR to 37.340) stage 2 for inter-CU LTM in NR-DC CATT, China Telecom, Huawei, Nokia, LG Electronics, Google, Samsung, Ofinno, Ericsson, Lenovo, NEC, ZTE, Qualcomm
86. R3-256004 (BL CR to 38.300) Support for Inter-CU LTM Nokia, Huawei, Google, China Telecom, NEC, Ericsson, LGE, ZTE, CATT, Samsung, Ofinno
87. R3-256005 (BL CR to 38.401) on conditional intra-CU LTM and intra-CU LTM China Telecom, ZTE Corporation, NEC, Samsung, Nokia, Google, Huawei, Ericsson, LG Electronics, Qualcomm, Jio Platforms
88. R3-256006 (BL CR to 38.423) Xn support for inter-CU LTM Ericsson, Samsung, Nokia, China Telecom, CATT, Huawei, Google, Lenovo, NEC, ZTE, LG Electronics, Ofinno, Qualcomm
89. R3-256007 (BL CR to 38.473) Inter-CU LTM and intra-CU conditional LTM Huawei, Nokia, Samsung, Google, NEC, China Telecom, Ericsson, LG Electronics, CATT, Ofinno, ZTE, Lenovo, Qualcomm Incorporated, Jio Platforms
90. R3-256023, (BL CR to 38.423 for DC) Xn support for inter-CU LTM in DC Lenovo, Ericsson, CATT, Huawei, Ofinno, Nokia, NEC, LGE, China Telecom, Google, ZTE, Samsung

**RAN4 #116**

R4-2509066 Topic summary for [116][223] NR\_Mob\_Ph4\_Part1

R4-2509067 Topic summary for [116][224] NR\_Mob\_Ph4\_Part2

R4-2509160 On LTM L1 event-triggered reporting

R4-2509161 DraftCR for LTM L1 event-triggered reporting

R4-2509232 Discussion on performance part for Rel-19 LTM

R4-2509288 Discussion on Event triggered L1 measurement reporting for Rel-19 LTM enhancements

R4-2509289 Discussion on CSI-RS based L1 measurement for Rel-19 LTM enhancements

R4-2509290 Discussion on conditional Intra-CU LTM for Rel-19 mobility enhancements

R4-2509291 Discussion on Rel-19 NR mobility Phase4 RRM performance requirements

R4-2509455 BigCR for R19 mobility RRM

R4-2509456 Discussion on event triggered L1 measurement reporting

R4-2509457 Discussion on RRM performance of NR mobility enhancements Phase 4

R4-2509461 R19 mobility CR for measurement restriction in serving cell

R4-2509466 (NR\_Mob\_Ph4-Core) On remaining issue for CSI-RS based L1 measurement

R4-2509467 (NR\_Mob\_Ph4-Core) draft CR on CSI-RS based L1 measurement requirement

R4-2509592 RRM Core requirements on event triggered L1 measurement reporting

R4-2509593 RRM Core requirements on CSI-RS based L1 measurement

R4-2509594 RRM Core requirements on conditional Intra-CU LTM

R4-2509595 DraftCR to 38.133 on conditional Intra-CU LTM

R4-2509596 RRM performance requirements on NR mobility enhancements Phase 4

R4-2509698 On event triggered L1 measurement reporting

R4-2509699 DraftCR on capabilities for Support of Event Triggering and Reporting Criteria

R4-2509700 On CSI-RS based L1 measurements

R4-2509701 On RRM performance requirements of R19 mobility

R4-2509765 Discussion on event triggered L1 measurement reporting for mobility

R4-2509766 Discussion on CSI-RS based L1 for mobility

R4-2509928 Discussion on Conditional Intra-CU LTM

R4-2509929 DraftCR for Conditional Intra-CU LTM

R4-2510099 Discussion on event triggered L1 report for LTM

R4-2510100 Discussion on CSI-RS L1 measurement for LTM

R4-2510101 Draft CR on introduction of CSI-RS L1-RSRP measurement

R4-2510102 Discussion on Conditional LTM

R4-2510103 Discussion on RRM performance requirements for R19 mobility

R4-2510145 Discussion on event triggered L1 measurement reporting

R4-2510146 Discussion on CSI-RS based L1 measurement

R4-2510147 Discussion on conditional intra-CU LTM

R4-2510148 Discussion on RRM performance requirements for NR mobility enhancements

R4-2510175 DraftCR on event-triggered reporting for CSI-RS based L1 measurement

R4-2510328 On RRM requirements for LTM CSI-RS based L1 measurement

R4-2510329 On RRM requirements for LTM event-triggered L1-RSRP reporting

R4-2510330 Updates on UE capability for mobility enhancement phase 4 WI

R4-2510331 Draft CR on measurement reporting requirements for CSI-RS based LTM

R4-2510332 On performance requirements for mobility enh phase 4

R4-2510447 Discussion on Conditional Intra-CU LTM

R4-2510448 Discussion on CSI-RS based L1-RSRP measurement

R4-2510449 Discussion on Event triggered L1 measurement reporting

R4-2510450 Discussion on performance requirements for LTM

R4-2510454 draftCR on measurement restriction for CSI-RS based L1-RSRP

R4-2510494 Further discussion on Conditional Intra-CU LTM

R4-2510572 Discussion on Event triggered L1 measurement reporting

R4-2510573 Discussion on CSI-RS based L1 measurement

R4-2510574 Draft CR on scheduling availability of UE during CSI-RS based L1-RSRP measurement

R4-2510575 Discussion on conditional Intra-CU LTM

R4-2510576 Discussion on performance requirements of mobility enhancement phase 4

R4-2510781 Discussions on event-triggered reporting for LTM

R4-2510782 Draft CR for event-triggered reporting on LTM

R4-2510783 Discussions on CSI-RS based L1 measurements

R4-2510784 Draft CR for CSI-RS ased L1 measurements

R4-2510785 Discussions on performance requirements for Mobility enhancements Ph4

R4-2510802 On Intra-CU conditional LTM

R4-2510803 Draft CR to 38.133 on intra-CU conditional LTM

R4-2511245 Discussion on CSI-RS measurements core part

R4-2511246 DraftCR to 38.133 on LTM CSI-RS applicability

R4-2511379 Discussions on event-triggered reporting for LTM

R4-2511506 Event triggered L1 measurement reporting for LTM

R4-2511507 CSI-RS based L1 measurement for LTM

R4-2511508 Conditional LTM

R4-2512140 Ad-hoc minutes for NR\_Mob\_Ph4

R4-2512141 WF on RRM requirements for NR\_Mob\_Ph4\_Part1

R4-2512142 WF on RRM requirements for NR\_Mob\_Ph4\_Part2

R4-2512158 LS on definition of CSI-RS based L1 intra/inter-frequency measurement

R4-2512184 (NR\_Mob\_Ph4-Core) draft CR on CSI-RS based L1 measurement requirement

17.05.2021 minor adaptations for RAN #92e

28.01.2021 minor adaptations for RAN #91e

09.11.2020 minor adaptations for RAN #90e

31.08.2020 minor adaptations for RAN #89e

20.04.2020 minor adaptations for RAN #88e

18.02.2020 minor adaptations for RAN #87e

14.11.2019 minor adaptations for RAN #86

18.08.2019 minor adaptations for RAN #85

12.05.2019 minor adaptations for RAN #84

27.02.2019 minor adaptations for RAN #83

21.11.2018 completion levels with colours added (for RAN #82)

v04.81 31.07.2018 simplification of template and addition of cross-TSG aspects (for RAN #81)

v04.80 21.05.2018 minor adaptations for RAN #80

v04.79 26.02.2018 minor adaptations for RAN #79

v04.78 18.11.2017 minor adaptations for RAN #78

v04.77 06.08.2017 minor adaptations for RAN #77

v04.76 15.05.2017 minor adaptations for RAN #76

v04.75 31.01.2017 minor adaptations for RAN #75

v04.74 28.10.2016 minor adaptations for RAN #74

v04.73 01.09.2016 adaptations for RAN #73 (time units in extra Excel table, RAN6 reporting included)

v04.72 26.05.2016 adaptations for RAN #72 (introduction of NR & GERAN TUs)

v04.71 10.02.2016 minor adaptations for RAN #71

v04.70 30.10.2015 minor adaptations for RAN #70

v04.69 12.08.2015 minor adaptations for RAN #69

v04.68 21.05.2015 minor adaptations for RAN #68

v04.67 01.02.2015 minor adaptations for RAN #67

v04.66 16.11.2014 minor adaptations for RAN #66

v04.65 16.08.2014 minor adaptations for RAN #65

v04.64 22.05.2014 minor adaptations for RAN #64

v04.63 24.01.2014 restructuring for RAN #63 to cover Core & Perf. in one doc file

v03.62 11.11.2013 section 1.2.3 adapted for RAN #62

v03 11.08.2013 section 1.2.3 added on time budget

v02 07.05.2010 history added, some spelling corrections

v01 13.11.2009 First version of the template