3GPP TSG-RAN WG4 Meeting #112 R4-2411437

Maastricht, Netherlands, 19 – 23, 2024

Agenda Item: 8.22.1

Source: Apple, China Telecom (Rapporteurs)

**Title: RAN4 Work Plan for R19 NR mobility enhancement phase 4**

Document for: Approval

# Introduction

In RAN#102 meeting, a new WI for R19 NR mobility enhancement phase 4was agreed, which was revised to [1] in RAN#104 with the following objectives:

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| * Specify support for inter-CU Layer1/Layer 2 Triggered Mobility (LTM) [RAN2, RAN3]
	+ Prioritize the case when CU is acting as MN when DC is not configured
	+ When DC is configured, inter-CU LTM can be configured either in MN or in SN but not both at the same time. For such cases:
		- As secondary priority, support the case where CU is acting as SN and MN is unchanged
		- As secondary priority, support the case where CU is acting as MN and SN is unchanged or SN is released
	+ Specify support for subsequent LTM mobility procedures aiming to avoid RRC configuration between cell switches as per Rel-18 LTM
		- Coordination with SA3 needed with respect to security key handling
	+ Note: Rel. 18 intra-CU LTM procedure is considered as baseline for adding inter-CU support
* Measurements related enhancements for purpose of supporting LTM: [RAN2, RAN1]
	+ Measurement related enhancements are applicable to Intra-CU MCG/SCG LTM and Inter-CU MCG/SCG LTM
	+ Specify necessary components to support event triggered L1 measurement reporting [RAN2, RAN1]
		- RAN1 and RAN2 to progress independently on the event triggered measurements objectives of their respective MIMO and Mobility enhancement WIs. Review progress at RAN#105 to see if any modification of objectives is required to avoid/manage any overlap in the work
	+ Specify support for CSI-RS measurements for LTM procedures and enable CSI-RS based beam management, and/or other necessary physical layer operations on candidate cells before LTM [RAN1]
* Specify support of conditional LTM [RAN2, RAN3, RAN1]
	+ Specify UE evaluated conditions for triggering LTM
	+ Aim to support conditional LTM including subsequent LTM
	+ Prioritise intra-CU LTM
	+ Checkpoint to review objective at RAN#105. RAN WG work to not start before this checkpoint
* Specify RRM requirements related to the above objectives as necessary [RAN4]
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In this contribution, a RAN4 work plan for this WI is provided.

# Work plan

According to on the WID, the completion date for core part is 9/2025 (RAN#109) and performance part is 03/2026 (RAN#111).

The following RAN4 work plan is proposed for approval:

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| Quarter | Meeting | Available Tus | Proposed work plan |
| 2024 Q3 | RAN4-112 | 1.5 | * Discuss and approve RAN4 work plan.
* Evaluate potential additional requirements for inter-CU mobility (on top existing R18 requirements).
* Discuss RRM scope to support L1 event triggered measurement reporting.
* Discuss RRM scope to support CSI-RS based measurement and beam management for LTM procedures.
	+ Focus on requirements that have no dependency on RAN1/2 progress.
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| 2024 Q4 | RAN4-112bis | 1.5 | * Continue evaluating potential additional requirements for inter-CU mobility.
* Continue discussion on RRM requirements to support L1 event triggered measurement reporting.
* Continue discussion on RRM requirements to support CSI-RS based measurement and beam management for LTM.
* Discuss RRM scope to support conditional LTM (if concluded to be supported by RANP).
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| RAN4-113 | 1.5 | * Provide initial draft CR to support inter-CU mobility (if necessary)
* Continue discussion on RRM requirements to support L1 event triggered measurement reporting.
* Continue discussion on RRM requirements to support CSI-RS based measurement and beam management for LTM.
* Continue discussion on RRM requirements to support conditional LTM (if concluded to be supported by RANP).
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| 2025 Q1 | RAN4-114 | 1.5 | * Refine draft CR to support inter-CU mobility (if necessary)
* Continue discussion on RRM requirements to support L1 event triggered measurement reporting.
* Continue discussion on RRM requirements to support CSI-RS based measurement and beam management for LTM.
* Continue discussion on RRM requirements to support conditional LTM (if concluded to be supported by RANP).
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| 2025 Q2 | RAN4-114bis | 1.5 | * Finalize RRM requirements to support inter-CU mobility (if necessary).
* Provide initial draft CR for RRM requirements to support L1 event triggered measurement reporting.
* Provide initial draft CR for RRM requirements to support CSI-RS based measurement and beam management for LTM.
* Provide initial draft CR for RRM requirements to support conditional LTM (if concluded to be supported by RANP).
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| RAN4-115 | 1 | * Refine draft CR for RRM requirements to support L1 event triggered measurement reporting.
* Refine draft CR for RRM requirements to support CSI-RS based measurement and beam management for LTM.
* Refine draft CR for RRM requirements to support conditional LTM (if concluded to be supported by RANP).
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| RAN4-115(Perf) | 0.5 | * Trigger discussion on performance part of RRM requirements. Agree on RRM test coverage.
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| 2025 Q3 | RAN4-116 | 1 | * Finalize RRM requirements to support L1 event triggered measurement reporting.
* Finalize RRM requirements to support CSI-RS based measurement and beam management for LTM.
* Finalize RRM requirements to support conditional LTM (if concluded to be supported by RANP).
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| RAN4-116 (Perf) | 0.5 | * Continue discussion on performance part of RRM requirements.
* Agree on test case lists and work split.
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| 2025 Q4 | RAN4-116bis (Perf) | 1 | * Continue discussion on performance part of RRM requirements.
* Provide initial draft CR for RRM test cases.
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| RAN4-117 (Perf) | 1 | * Continue discussion on performance part of RRM requirements.
* Refine draft CR for RRM test cases.
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| 2026 Q1 | RAN4-118 (Perf) | 1 | * Agree final CR for RRM test cases and finalize performance part of RRM requirements.
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Proposal 1: approve RAN4 work plan for R19 NR mobility enhancement phase 4 proposed in this contribution.

# Conclusion

In this contribution, a RAN4 work plan is discussed. After discussion, the following proposal is made:

**Proposal 1: approve RAN4 work plan for R19 NR mobility enhancement phase 4 proposed in this contribution.**

# Reference

1. RP-241515, Revised Work Item: NR mobility enhancements Phase 4, Apple Inc, China Telecom