**3GPP TSG RAN WG1 #122 R1-25nnnnn**

**Bengaluru, India, Aug 25th – 29th, 2025**

**Source: Ad-Hoc Chair (AT&T)**

**Title: Session Notes of AI 9.6**

**Agenda Item: 9.6**

**Document for: Endorsement**

### 9.6 UE features for NR mobility enhancements Phase 4

**Proposal: Adopt the following changes highlighted in chromatic fonts, while keeping the yellow highlighting, if any, as shown**

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| 63. NR\_Mob\_Ph4 | 63-6 | Intra-frequency CSI-RS and CSI-IM measurement and CSI reporting for cell indicated in CSC MAC CE after reception of LTM CSC MAC CE based on periodic CSI-RS resource | 1. Support of CSI-RS and CSI-IM measurement and CSI reporting after reception of LTM CSC MAC CE based on periodic CSI-RS(s) of cell indicated in CSC MAC CE  ~~[2. Maximum number of the RRC configured candidate cells]~~  3. Maximum number of CSI-RS resources for CMR associated with CSI report configuration for a candidate cell  4. Max number of ~~CSI-RS~~ ports of CSI-RS resource(s) associated with a CSI report configuration for CSI reporting for a candidate cell  5. Maximum number of ~~Tx~~ ports in one NZP CSI-RS resource  6. Max rank for CSI reporting for a candidate cell  7. Maximum number of CSI-IM resources for interference measurement associated with CSI report configuration for a candidate cell | FFS | Yes | No | Intra-frequency periodic CSI-RS and CSI-IM measurement and CSI reporting for cell indicated in CSC MAC CE after reception of LTM CSC MAC CE is not supported | ~~FFS~~  Per Band | n/a | n/a | n/a | ~~Component 2 candidate values: {1,2,3,4,5,6,7,8}~~  Component 3 candidate values: {1,2,3,4,5,6,7,8}  Component 4 candidate values: {1,2,4,8,12,16,24,32,48,64,128}  Component 5 candidate values: {1, 2, 4, 8, 12, 16, 24, 32}  Component 6 candidate values: ~~FFS~~ {2,3,4,5,6,7,8}  Component 7 candidate values: {1,2,3,4,5,6,7,8} | Optional with capability signaling |

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| 63. NR\_Mob\_Ph4 | 63-6a | Intra-frequency CSI-RS and CSI-IM measurement and CSI reporting for cell indicated in CSC MAC CE after reception of LTM CSC MAC CE based on semi-persistent CSI-RS resource | 1. Support of CSI-RS and CSI-IM measurement and CSI reporting after reception of LTM CSC MAC CE based on periodic CSI-RS(s) of cell indicated in CSC MAC CE  ~~[2. Maximum number of the RRC configured candidate cells]~~  3. Maximum number of CSI-RS resources for CMR associated with CSI report configuration for a candidate cell  4. Max number of ~~CSI-RS~~ ports of CSI-RS resource(s) associated with a CSI report configuration for CSI reporting for a candidate cell  5. Maximum number of ~~Tx~~ ports in one NZP CSI-RS resource  6. Max rank for CSI reporting for a candidate cell  7. Maximum number of CSI-IM resources for interference measurement associated with CSI report configuration for a candidate cell | FFS | Yes | No | Intra-frequency semi-persistent CSI-RS and CSI-IM measurement and CSI reporting for cell indicated in CSC MAC CE after reception of LTM CSC MAC CE is not supported | ~~FFS~~  Per Band | n/a | n/a | n/a | ~~Component 2 candidate values: {1,2,3,4,5,6,7,8}~~  Component 3 candidate values: {1,2,3,4,5,6,7,8}  Component 4 candidate values: {1,2,4,8,12,16,24,32,48,64,128}  Component 5 candidate values: {1, 2, 4, 8, 12, 16, 24, 32}  Component 6 candidate values: ~~FFS~~ {2,3,4,5,6,7,8}  Component 7 candidate values: {1,2,3,4,5,6,7,8} | Optional with capability signaling |

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| 63. NR\_Mob\_Ph4 | 63-7 | Intra-frequency CSI-RS and CSI-IM measurement for candidate cell before reception of LTM CSC MAC CE based on periodic CSI-RS(s) of candidate cells | 1. Support of CSI-RS and CSI-IM measurement before reception of CSC MAC CE based on periodic CSI-RS(s) of candidate cells  2. Maximum number of RRC configured candidate cells for CSI measurement before LTM CSC MAC CE  3. Maximum number of RRC configured CSI-RS resources across candidate cells for CSI measurement before LTM CSC MAC CE  4. Max number of ~~CSI-RS~~ ports of CSI-RS resource(s) associated with a CSI report configuration for CSI reporting for a candidate cell  5. Maximum number of ~~Tx~~ ports in one NZP CSI-RS resource associated with a CSI report configuration for CSI reporting for a candidate cell  ~~[6. Max rank for CSI reporting for a candidate cell]~~  6. Maximum number of RRC configured CSI-IM resources across candidate cells for CSI measurement before LTM CSC MAC CE | 63-6 | Yes | No | Intra-frequency periodic CSI-RS and CSI-IM measurement for candidate cell before reception of LTM CSC MAC CE is not supported | Per BC | n/a | n/a | n/a | Component 2 candidate values: {1,2,3,4,5,6,7,8}  Component 3 candidate values: {1,2,...64}  Component 4 candidate values: ~~FFS~~ {1,2,4,8,12,16,24,32,48,64,128}  Component 5 candidate values: ~~FFS~~ {1,2,4,8,12,16,24,32}  Component 6 candidate values: {1,2,…64} | Optional with capability signaling |

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| 63. NR\_Mob\_Ph4 | 63-7a | Intra-frequency CSI-RS and CSI-IM measurement for candidate celbefore reception of LTM CSC MAC CE based on semi-persistent CSI-RS(s) of candidate cells | 1. Support of CSI-RS and CSI-IM measurement before reception of CSC MAC CE based on semi-persistent CSI-RS(s) of candidate cells  2. Maximum number of RRC configured candidate cells for CSI measurement before LTM CSC MAC CE  3. Maximum number of RRC configured CSI-RS resources across candidate cells RRC configured for CSI measurement before LTM CSC MAC CE  4. Max number of ~~CSI-RS~~ ports of CSI-RS resource(s) associated with a CSI report configuration for CSI reporting for a candidate cell  5. Maximum number of ~~Tx~~ ports in one NZP CSI-RS resource associated with a CSI report configuration for CSI reporting for a candidate cell  ~~[6. Max rank for CSI reporting for a candidate cell]~~  6. Maximum number of RRC configured CSI-IM resources across candidate cells for CSI measurement before LTM CSC MAC CE | 63-6a | Yes | No | Intra-frequency semi-persistent CSI-RS and CSI-IM measurement for candidate cell before reception of LTM CSC MAC CE is not supported | Per BC | n/a | n/a | n/a | Component 2 candidate values: {1,2,3,4,5,6,7,8}  Component 3 candidate values: {1,2,...64}  Component 4 candidate values: ~~FFS~~ {1,2,4,8,12,16,24,32,48,64,128}  Component 5 candidate values: ~~FFS~~ {1,2,4,8,12,16,24,32}  Component 6 candidate values: {1,2,...64} | Optional with capability signaling |

**Proposal: Introduce the following Rel. 19 UE FGs (yellow highlighting, if any, shows text that’s not yet agreed)**

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| 63. NR\_Mob\_Ph4 | 63-9 | Interference measurement for CSI acquisition on candidate cell | 1.Support of interference measurement for CSI acquisition based on CSI-RS resource as IMR of candidate cells  2. Maximum number of CSI-RS resources for IMR associated with CSI report configuration for a candidate cell | 63-6 or 63-6a or 63-7 or 63-7a | Yes | No | Interference measurement for CSI acquisition on candidate cell is not supported | Per BC | n/a | n/a | n/a | Component 2 candidate values: {1,2,3,4,5,6,7,8} | Optional with capability signaling |

**Proposal: Introduce the following Rel. 19 UE FGs (yellow highlighting, if any, shows text that’s not yet agreed)**

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| 63. NR\_Mob\_Ph4 | 63-10 | Intra-frequency CSI-RS-RS measurement and CSI reporting without CSI-IM reception | 1. Support of CSI-RS measurement and CSI reporting for candidate cells without CSI-IM resource configuration | 63-6 or 63-6a or 63-7 or 63-7a | Yes | No | Intra-frequency CSI-RS-RS measurement and CSI reporting without CSI-IM reception is not supported | Per BC | n/a | n/a | n/a |  | Optional with capability signaling |

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| 63. NR\_Mob\_Ph4 | 63-1 | NW triggered intra-frequency L1-RSRP measurement based on periodic CSI-RS (s) for L1-L2 Triggered Mobility (LTM) procedure | 1. Support of intra-frequency L1- RSRP measurement and reporting based on periodic CSI-RS(s) of candidate cell(s)  2. Maximum number of RRC configured candidate cells for intra-frequency L1-RSRP measurement on CSI-RS resource  3. Support of up to L candidate cells and M beams in one report where a CRI-RSRP pair is used for each beam report for intra-frequency L1-RSRP measurement  4. Maximum number of LTM CSI report configs using periodic CSI-RS as measurement resource | ~~FFS~~  45-1 | Yes | No | NW triggered intra-frequency L1-RSRP measurement based on periodic CSI-RS (s) for L1-L2 Triggered Mobility (LTM) procedure is not supported | Per BC | n/a | n/a | n/a | Component 2 candidate values: {1,2,3,4,5,6,7,8}  Component 3 candidate values:  L: {1, 2,3,4}  M: {1, 2,3,4}  M × L: {1,2,3,4, 6, 8, 9, 12, 16}  Component 4 candidate values:  Aperiodic: {0,1,2,3,4}  Periodic: {1,2,3,4}  Semi-persistent: {0,1,2,3,4} | Optional with capability signaling |

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| 63. NR\_Mob\_Ph4 | 63-3 | CSI-RS as Type-D QCL source RS in the indicated joint LTM TCI state | Support CSI-RS for BM as Type-D QCL source RS and TRS as Type-A QCL source RS in the indicated joint LTM TCI states | ~~FFS~~  45-3 | Yes | No | UE does not support CSI-RS for BM as Type-D QCL source RS and TRS as Type-A QCL source RS in the indicated joint LTM TCI states | Per band | n/a | n/a | n/a |  | Optional with capability signalling |

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| 63. NR\_Mob\_Ph4 | 63-3a | CSI-RS as Type-D QCL source RS for MAC-CE activated joint LTM TCI states | Support CSI-RS for BM as Type-D QCL source RS and TRS as Type-A QCL source RS for MAC-CE activated joint LTM TCI states | ~~FFS~~  45-3a | Yes | No | UE does not support CSI-RS for BM as Type-D QCL source RS and TRS as Type-A QCL source RS for MAC-CE activated joint LTM TCI states | Per band | n/a | n/a | n/a |  | Optional with capability signalling |

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| 63. NR\_Mob\_Ph4 | 63-4 | CSI-RS as Type-D QCL source RS in the indicated separate DL/UL LTM TCI states | Support CSI-RS for BM as Type-D QCL source RS and TRS as Type-A QCL source RS in the indicated separate DL/UL LTM TCI states | ~~FFS~~  45-4 | Yes | No | UE does not support CSI-RS for BM as Type-D QCL source RS and TRS as Type-A QCL source RS in the indicated separate DL/UL LTM TCI states | Per band | n/a | n/a | n/a |  | Optional with capability signalling |

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| 63. NR\_Mob\_Ph4 | 63-4a | CSI-RS as Type-D QCL source RS for MAC-CE activated separate DL/UL LTM TCI states | Support CSI-RS for BM as Type-D QCL source RS and TRS as Type-A QCL source RS for MAC-CE activated separate DL/UL LTM TCI states | ~~FFS~~  45-4a | Yes | No | UE does not support CSI-RS for BM as Type-D QCL source RS and TRS as Type-A QCL source RS for MAC-CE activated separate DL/UL LTM TCI states | Per band | n/a | n/a | n/a |  | Optional with capability signalling |

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| 63. NR\_Mob\_Ph4 | 63-2 | NW triggered intra-frequency L1-RSRP measurement based on semi-persistent CSI-RS (s) for L1-L2 Triggered Mobility (LTM) procedure | 1. Support of intra-frequency L1- RSRP measurement and reporting based on semi-persistent CSI-RS(s) of candidate cell(s)  ~~4~~2. Maximum number of LTM CSI report configs using semi-persistent CSI-RS as measurement resource | 63-1 | Yes | No | NW triggered intra-frequency L1-RSRP measurement based on semi-persistent CSI-RS (s) for L1-L2 Triggered Mobility (LTM) procedure is not supported | Per BC | n/a | n/a | n/a | Component ~~4~~2 candidate values:  Aperiodic: {0,1,2,3,4}  Semi-persistent: {0,1,2,3,4}  Note: For component 4, the UE must support a non-zero value for at least one of aperiodic and semi-persistent | Optional with capability signaling |

R1-2505194 NR mobility enhancements Phase 4 UE features Nokia

R1-2505273 Discussion on UE features for NR mobility enhancements Phase 4 ZTE Corporation, Sanechips

R1-2505339 Discussions on UE features for NR mobility enhancements Phase 4 CATT

R1-2505351 UE features for NR mobility enhancements phase 4 Huawei, HiSilicon

R1-2505399 UE features for NR mobility enhancements Phase 4 vivo

R1-2505565 Remaining issues on UE features for Rel-19 LTM Samsung

R1-2505624 UE features for NR mobility enhancements phase 4 Ericsson

R1-2505741 Discussion on UE features for NR mobility enhancements OPPO

R1-2506200 UE features for NR mobility enhancement Phase 4 Qualcomm Incorporated

R1-2506229 Summary of UE features for NR mobility enhancements Phase 4 Moderator (AT&T)

R1-2506288 Discussion on UE features for NR mobility enhancemens Phase4 NTT DOCOMO, INC.