|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Features** | **Index** | **Feature group** | **Components** | **Prerequisite feature groups** | **Need for the gNB to know if the feature is supported** | **Applicable to the capability signalling exchange between UEs (V2X WI only)”.** | **Consequence if the feature is not supported by the UE** | **Type**  **(the ‘type’ definition from UE features should be based on the granularity of 1) Per UE or 2) Per Band or 3) Per BC or 4) Per FS or 5) Per FSPC)** | **Need of FDD/TDD differentiation** | **Need of FR1/FR2 differentiation** | **Capability interpretation for mixture of FDD/TDD and/or FR1/FR2** | **Note** | **Mandatory/Optional** |
| 39.  NR\_Mob\_enh2 | 39-1 | SSB based L1-RSRP measurements for multiple cells with RTD > CP | Capability of simultaneous L1-RSRP measurements for more than one cell when the max RTD among the cells on the same frequency layer or in the same active BWP is larger than CP length of the cell on the frequency layer or in the same active BWP. | 45-1 from RAN1 Rel-18 feature list or 39-2 or 39-2a | Yes | No | The corresponding RAN4 requirements may not be satisfied when the max RTD among the cells on the same frequency layer or in the same active BWP is larger than CP length of the cell on the frequency layer or in the same active BWP. | Per BC | No | No | N/A |  | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-2 | SSB based inter-frequency L1-RSRP measurements without measurement gaps | Capability of SSB based inter-frequency L1-RSRP measurements on SSBs within active DL BWP without measurement gaps (without interruption on serving cell(s)) for LTM | 45-1a from RAN1 Rel-18 feature list | Yes | No | UE does not support inter-frequency L1-RSRP measurements without measurement gaps | Per BC | No | No | N/A |  | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-2a | SSB based inter-frequency L1-RSRP measurements with measurement gaps | Capability of SSB based inter-frequency L1-RSRP measurements with measurement gaps for LTM | 45-1a from RAN1 Rel-18 feature list | Yes | No | UE does not support inter-frequency L1-RSRP measurements with measurement gaps | Per UE | No | No | N/A |  | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-3-1 | Number of frequency layers for L1-RSRP measurement | 1. The max number of frequency layers UE can measure for intra- and inter-frequency without measurement gaps L1-RSRP measurement   2. The max number of frequency layers UE can measure for inter-frequency L1-RSRP measurement with measurement gaps | 1. Component 1: 45-1 from RAN1 Rel-18 feature list and/or 39-2  2. Component 2: 39-2a | Yes | No | NW does not know the max number of frequency layers UE can measure | Per BC | No | No | N/A | 1. Candidate values Component 1: {1,2,3,4,5,6,7,8}  2. Candidate values Component 2: {1,2,3,4,5,6,7,8} | Mandatory with capability signaling if UE supports 45-1, 39-2 and/or 39-2a |
| 39.  NR\_Mob\_enh2 | 39-3-2 | Number of neighbour cells to be measured per frequency layer | 1. The max number of neighbour cells UE can measure for L1-RSRP per frequency layer for intra-frequency or inter-frequency without measurement gaps   2. The max number of neighbour cells UE can measure for L1-RSRP per frequency layer for inter-frequency with measurement gaps | 1. Component 1: 45-1 from RAN1 Rel-18 feature list or 39-2  2. Component 2: 39-2a | Yes | No | There is no limitation on the number of neighbour cells per frequency layer for L1 measurement. | Per BC | No | No | N/A | 1. Candidate values Component 1: {1,2,3,4,5,6,7,8}  2. Candidate values Component 2: {1,2,3,4,5,6,7,8}  Note: it is RAN4 understanding that RAN1 feature 45-1 and 45-1a is for number of cell that can be configured for L1 measurement. What RAN4 is discussing here is for number of cells on which UE can actually perform L1 measurement. | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-3-3 | Number of total cells to be measured | The max number of total cells of serving cells and neighboring cells across all frequency layers of intra-frequency and inter-frequency without measurement gaps for L1 measurement. | 45-1 from RAN1 Rel-18 feature list or 39-2 | Yes | No | There is no limitation on the number of total cells of serving cells and neighboring cells across all frequency layers of intra-frequency and inter-frequency without measurement gaps for L1 measurement. | Per BC | No | No | N/A | candidate values: {1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24}  Note: when same PCI is present in serving and candidates, one PCI is counted only once in total cells | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-3-4 | Number of SSB resources for L1-RSRP measurement within a slot | The max number of SSB resources for L1-RSRP measurement that UE can measure within a slot across candidate cells for intra- and inter-frequency without gap L1-RSRP measurement | 45-1 from RAN1 Rel-18 feature list or 39-2 | Yes | No | There is no limitation on the number of SSB resources of intra-frequency and inter-frequency without measurement gaps for L1 measurement within a slot. | Per BC | No | Yes | N/A | Candidate value: {1,2,3,4,5,6,7,8,16,32, 48,64}  Note: It is also counted in FG 2-24 | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-3-5 | Number of SSB resources for L1-RSRP measurement per frequency layer | 1. The max number of SSB resources UE can measure for L1-RSRP per frequency layer for intra-frequency or inter-frequency without measurement gaps   2. The max number of SSB resources UE can measure for L1-RSRP per frequency layer for inter-frequency with measurement gaps | 1. Component 1: 45-1 from RAN1 Rel-18 feature list or 39-2  2. Component 2: 39-2a | Yes | No | There is no limitation on the number of SSB resources per frequency layer for L1 measurement. | Per BC | No | No | N/A | Candidate value of Component 1: {1,2,3,4,5,6,7,8}  Candidate value of Component 2: {1,2,3,4,5,6,7,8} | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-3-6 | Number of total SSB resources to be measured | The max number of total SSB resources of serving cells and neighboring cells across all frequency layers of intra-frequency and inter-frequency without measurement gaps for L1 measurement. | 45-1 from RAN1 Rel-18 feature list or 39-2 | Yes | No | There is no limitation on the total number of SSB resources of serving cells and neighboring cells across all frequency layers of intra-frequency and inter-frequency without measurement gaps for L1 measurement. | PerBC | No | No | N/A | Candidate values:  {2,4,8,12,16,32,64}  Note: the value should be not smaller than UE capability of beamManagementSSB-CSI-RS (Component 2 of 2-24) | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-4 | Interruption on DL slot(s) due to PDCCH- ordered RACH transmission | Capability on whether UE may cause interruption on DL slot(s) on serving cells due to PDCCH-ordered RACH transmission | 45-5 | Yes | No | UE does not cause interruptions on DL slots on serving cells due to PDCCH-ordered RACH transmission | Per band pair (between the target band for RACH transmission and band under UE’s current band combo) per band combination | No | No | N/A |  | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-4a | Interruption due to RF retuning for PDCCH- ordered RACH | Indicates the interruption length (Y ms) due to RF re-tuning for PDCCH ordered RACH of which the resources are not fully contained in any of UE’s configured UL BWP(s) of active serving cells | 45-5 | Yes | No | PDCCH-order RACH for LTM is not supported if the PRACH bandwidth is outside of any configured BWP | Per band pair (between the target band for RACH transmission and band under UE’s current band combo) per band combination | No | No | N/A | Candidate values for interruption length Y = 0.25, 0.5, 1 and 2 | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-5 | RF/BB preparation time for PDCCH-order RACH | Indicates the RF/BB preparation time for PDCCH ordered RACH of which the resources are not fully contained in any of UE’s configured UL BWP(s) of active serving cells | 45-5 | Yes | No | PDCCH-order RACH for LTM is not supported if the PRACH bandwidth is outside of any configured BWP | Per band pair (between the target band for RACH transmission and band under UE’s current band combo) per band combination | No | No | N/A | Candidate values:  { 1ms,3ms,5ms,10ms } | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-6 | Fast processing of LTM candidate cell RRC configuration | 1. Indicates the maximum number of serving cell(s) and candidate cell(s), including serving SpCell(s), serving SCell(s) in MCG and SCG, SpCell in LTMCandidateConfig(s) and Scell(s) in LTMCandidateConfig(s) for MCG and SCG, that UE can store the configurations.  2. Indicates the maximum number of LTMCandidateConfigs that UE can support fast processing  . | 45-3a or 45-4a in RAN1 feature list | Yes | No | TLTM\_RRC-processing delay (refer to TS 38.133) will not be skipped, i.e., 10ms | Per UE | No | Yes | N/A | Component 1: Candidate values:  {2,3,4,5,6,7.8,9,10,11,12, 16}  Component 2: {1,2,3,4}  Note: The conditions for fast processing of an LTM candidate cell RRC configuration is defined in section 6.3 in 38.133. | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-7 | Faster UE processing time during cell switch | Capability of reduced TLTM\_processing delay (refer to TS 38.133)].   1. Support of reduced TLTM\_processing for cell switch from FR1 to FR1. 2. Support of reduced TLTM\_processing for cell switch from FR2 to FR2. 3. Support of reduced TLTM\_processing for cell switch from FR1/FR2 to FR2/FR1. |  | Yes | No | TLTM\_processing delay will not be reduced, i.e., 20ms for intra-FR cell switch and 40ms for inter-FR cell switch | Per UE | No | No | N/A | Candidate values of Component 1 and component 2: {10ms, 15ms}  Candidate values of Component 3: {20ms, 30ms} | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-8 | Measurement validation based on EMR measurement during connection setup/resume | Indicate UE supporting measurement validation and report based on EMR measurement during connection setup/resume for fast CA/DC setup | *idleInactiveNR-MeasReport-r16* or *idleInactiveEUTRA-MeasReport-r16* | Yes | N/A | UE does not support EMR measurement validation during connection setup/resume and reporting for fast CA/DC | Per-UE | No | Yes | N/A |  | Optional with capability signaling |
| 39.  NR\_Mob\_enh2 | 39-9 | Measurement validation based on non-EMR measurement during connection setup/resume | Indicate UE supporting measurement validation based on non-EMR measurement during IDLE/INACTIVE state and reporting for fast CA/DC setup |  | Yes | N/A | UE does not support non-EMR measurement validation during connection setup/resume and reporting for fast CA/DC | Per-UE | No | Yes | N/A |  | Optional with capability signaling |