**3GPP TSG-RAN WG2 Meeting #128 *Draft R2-2410948***

**Orlando, USA, 18 - 22 November 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.331** | **CR** | **xxxx** | **rev** | **-** | **Current version:** | **18.3.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | Scope of *interFreqL1-MeasConfig-r18* | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_Mob\_enh2-Core | | | | |  | ***Date:*** | | | 2024-10-31 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | For each supported BC, the UE can indicate whether it supports *interFreqL1-MeasConfig-r18* defined as:  ***interFreqL1-MeasConfig-r18***  Indicates whether UE supports inter-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s).  This definition does not indicate in which band(s) the candidate cell(s) can be, so it can be any band where candidate cells(s) can be.  However, If the SSBs of candidate cells are all in the serving BC, the UE can take advantage of its CA capability to measure them, while if they are not in the serving BC, this is not possible so extra resources must be used. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce a new per UE capabilty that indicates that, for each BC in which the UE indicates support of interFreqL1-MeasConfig-r18, the UE only supports inter-frequency L1-RSRP measurement and reporting based on SSB(s) of candidate cell(s) in the BC.  **Impact Analysis**  Impacted 5G architecture options:  NR, NR-DC  Impacted functionality:  Inter-frequency L1 measurements for LTM  Inter-operability:  If the network is implemented according to the CR and UE is not, there is no inter-operability issue.  If UE is implemented according to the CR and the network is not, the network might configure inter-frequency L1 measurements of SSB of candidate cells that are not supported by the UE. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UEs that indicate support inter-frequency L1 measurements for LTM cannot indicate that they only support such measurements for SSB of candidate cells in the BC(s) in which they indicate support of inter-frequency L1 measurements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 38.306 CR xxxxx | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

### 6.3.3 UE capability information elements

#### – *MeasAndMobParameters*

The IE *MeasAndMobParameters* is used to convey UE capabilities related to measurements for radio resource management (RRM), radio link monitoring (RLM) and mobility (e.g. handover).

*MeasAndMobParameters* information element

-- ASN1START

-- TAG-MEASANDMOBPARAMETERS-START

MeasAndMobParameters ::= SEQUENCE {

measAndMobParametersCommon MeasAndMobParametersCommon OPTIONAL,

measAndMobParametersXDD-Diff MeasAndMobParametersXDD-Diff OPTIONAL,

measAndMobParametersFRX-Diff MeasAndMobParametersFRX-Diff OPTIONAL

}

MeasAndMobParameters-v1700 ::= SEQUENCE {

measAndMobParametersFR2-2-r17 MeasAndMobParametersFR2-2-r17 OPTIONAL

}

MeasAndMobParametersCommon ::= SEQUENCE {

supportedGapPattern BIT STRING (SIZE (22)) OPTIONAL,

ssb-RLM ENUMERATED {supported} OPTIONAL,

ssb-AndCSI-RS-RLM ENUMERATED {supported} OPTIONAL,

...,

[[

eventB-MeasAndReport ENUMERATED {supported} OPTIONAL,

handoverFDD-TDD ENUMERATED {supported} OPTIONAL,

eutra-CGI-Reporting ENUMERATED {supported} OPTIONAL,

nr-CGI-Reporting ENUMERATED {supported} OPTIONAL

]],

[[

independentGapConfig ENUMERATED {supported} OPTIONAL,

periodicEUTRA-MeasAndReport ENUMERATED {supported} OPTIONAL,

handoverFR1-FR2 ENUMERATED {supported} OPTIONAL,

maxNumberCSI-RS-RRM-RS-SINR ENUMERATED {n4, n8, n16, n32, n64, n96} OPTIONAL

]],

[[

nr-CGI-Reporting-ENDC ENUMERATED {supported} OPTIONAL

]],

[[

eutra-CGI-Reporting-NEDC ENUMERATED {supported} OPTIONAL,

eutra-CGI-Reporting-NRDC ENUMERATED {supported} OPTIONAL,

nr-CGI-Reporting-NEDC ENUMERATED {supported} OPTIONAL,

nr-CGI-Reporting-NRDC ENUMERATED {supported} OPTIONAL

]],

[[

reportAddNeighMeasForPeriodic-r16 ENUMERATED {supported} OPTIONAL,

condHandoverParametersCommon-r16 SEQUENCE {

condHandoverFDD-TDD-r16 ENUMERATED {supported} OPTIONAL,

condHandoverFR1-FR2-r16 ENUMERATED {supported} OPTIONAL

} OPTIONAL,

nr-NeedForGap-Reporting-r16 ENUMERATED {supported} OPTIONAL,

supportedGapPattern-NRonly-r16 BIT STRING (SIZE (10)) OPTIONAL,

supportedGapPattern-NRonly-NEDC-r16 ENUMERATED {supported} OPTIONAL,

maxNumberCLI-RSSI-r16 ENUMERATED {n8, n16, n32, n64} OPTIONAL,

maxNumberCLI-SRS-RSRP-r16 ENUMERATED {n4, n8, n16, n32} OPTIONAL,

maxNumberPerSlotCLI-SRS-RSRP-r16 ENUMERATED {n2, n4, n8} OPTIONAL,

mfbi-IAB-r16 ENUMERATED {supported} OPTIONAL,

dummy ENUMERATED {supported} OPTIONAL,

nr-CGI-Reporting-NPN-r16 ENUMERATED {supported} OPTIONAL,

idleInactiveEUTRA-MeasReport-r16 ENUMERATED {supported} OPTIONAL,

idleInactive-ValidityArea-r16 ENUMERATED {supported} OPTIONAL,

eutra-AutonomousGaps-r16 ENUMERATED {supported} OPTIONAL,

eutra-AutonomousGaps-NEDC-r16 ENUMERATED {supported} OPTIONAL,

eutra-AutonomousGaps-NRDC-r16 ENUMERATED {supported} OPTIONAL,

pcellT312-r16 ENUMERATED {supported} OPTIONAL,

supportedGapPattern-r16 BIT STRING (SIZE (2)) OPTIONAL

]],

[[

-- R4 19-2 Concurrent measurement gaps

concurrentMeasGap-r17 CHOICE {

concurrentPerUE-OnlyMeasGap-r17 ENUMERATED {supported},

concurrentPerUE-PerFRCombMeasGap-r17 ENUMERATED {supported}

} OPTIONAL,

-- R4 19-1 Network controlled small gap (NCSG)

nr-NeedForGapNCSG-Reporting-r17 ENUMERATED {supported} OPTIONAL,

eutra-NeedForGapNCSG-Reporting-r17 ENUMERATED {supported} OPTIONAL,

-- R4 19-1-1 per FR Network controlled small gap (NCSG)

ncsg-MeasGapPerFR-r17 ENUMERATED {supported} OPTIONAL,

-- R4 19-1-2 Network controlled small gap (NCSG) supported patterns

ncsg-MeasGapPatterns-r17 BIT STRING (SIZE(24)) OPTIONAL,

-- R4 19-1-3 Network controlled small gap (NCSG) supported NR-only patterns

ncsg-MeasGapNR-Patterns-r17 BIT STRING (SIZE(24)) OPTIONAL,

-- R4 19-3-2 pre-configured measurement gap

preconfiguredUE-AutonomousMeasGap-r17 ENUMERATED {supported} OPTIONAL,

-- R4 19-3-1 pre-configured measurement gap

preconfiguredNW-ControlledMeasGap-r17 ENUMERATED {supported} OPTIONAL,

handoverFR1-FR2-2-r17 ENUMERATED {supported} OPTIONAL,

handoverFR2-1-FR2-2-r17 ENUMERATED {supported} OPTIONAL,

-- RAN4 14-1: per-FR MG for PRS measurement

independentGapConfigPRS-r17 ENUMERATED {supported} OPTIONAL,

rrm-RelaxationRRC-ConnectedRedCap-r17 ENUMERATED {supported} OPTIONAL,

-- R4 25-3: Parallel measurements with multiple measurement gaps

parallelMeasurementGap-r17 ENUMERATED {n2} OPTIONAL,

condHandoverWithSCG-NRDC-r17 ENUMERATED {supported} OPTIONAL,

gNB-ID-LengthReporting-r17 ENUMERATED {supported} OPTIONAL,

gNB-ID-LengthReporting-ENDC-r17 ENUMERATED {supported} OPTIONAL,

gNB-ID-LengthReporting-NEDC-r17 ENUMERATED {supported} OPTIONAL,

gNB-ID-LengthReporting-NRDC-r17 ENUMERATED {supported} OPTIONAL,

gNB-ID-LengthReporting-NPN-r17 ENUMERATED {supported} OPTIONAL

]],

[[

-- R4 25-1: Parallel measurements on multiple SMTC-s for a single frequency carrier

parallelSMTC-r17 ENUMERATED {n4} OPTIONAL,

-- R4 19-2-1 Concurrent measurement gaps for EUTRA

concurrentMeasGapEUTRA-r17 ENUMERATED {supported} OPTIONAL,

serviceLinkPropDelayDiffReporting-r17 ENUMERATED {supported} OPTIONAL,

-- R4 19-1-4 Network controlled small gap (NCSG) performing measurement based on flag deriveSSB-IndexFromCellInter

ncsg-SymbolLevelScheduleRestrictionInter-r17 ENUMERATED {supported} OPTIONAL

]],

[[

eventD1-MeasReportTrigger-r17 ENUMERATED {supported} OPTIONAL,

independentGapConfig-maxCC-r17 SEQUENCE {

fr1-Only-r17 INTEGER (1..32) OPTIONAL,

fr2-Only-r17 INTEGER (1..32) OPTIONAL,

fr1-AndFR2-r17 INTEGER (1..32) OPTIONAL

} OPTIONAL

]],

[[

interSatMeas-r17 ENUMERATED {supported} OPTIONAL,

deriveSSB-IndexFromCellInterNon-NCSG-r17 ENUMERATED {supported} OPTIONAL

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[[

-- R4 31-1 Enhanced L3 measurement reporting for unknown SCell activation if the valid L3 measurement results are available

l3-MeasUnknownSCellActivation-r18 ENUMERATED {supported} OPTIONAL,

-- R4 31-3 Shorter measurement interval for unknown SCell activation

shortMeasInterval-r18 ENUMERATED {supported} OPTIONAL,

nr-NeedForInterruptionReport-r18 ENUMERATED {supported} OPTIONAL,

measSequenceConfig-r18 ENUMERATED {supported} OPTIONAL,

cellIndividualOffsetPerMeasEvent-r18 ENUMERATED {supported} OPTIONAL,

eventD2-MeasReportTrigger-r18 ENUMERATED {supported} OPTIONAL,

-- R4 32-1: Concurrent gaps with Pre-MG in a FR

concurrentMeasGapsPreMG-r18 ENUMERATED {supported} OPTIONAL,

-- R4 32-2: Support for dynamic collisions

dynamicCollision-r18 ENUMERATED {supported} OPTIONAL,

-- R4 32-3: Concurrent gaps with NCSG in a FR

concurrentMeasGapsNCSG-r18 ENUMERATED {supported} OPTIONAL,

-- R4 32-4: Inter-RAT EUTRAN measurements without gap and outside active DL BWP

eutra-NoGapMeasurementOutsideBWP-r18 ENUMERATED {supported} OPTIONAL,

-- R4 32-5: Inter-RAT EUTRAN measurement without gap and within active DL BWP

eutra-NoGapMeasurementInsideBWP-r18 ENUMERATED {supported} OPTIONAL,

-- R4 32-6: Effective measurement window for inter-RAT EUTRAN measurements

eutra-MeasEMW-r18 BIT STRING (SIZE(6)) OPTIONAL,

-- R4 32-7: Simultaneous reception of NR data and EUTRAN CRS with different numerology

concurrentMeasCRS-InsideBWP-EUTRA-r18 ENUMERATED {supported} OPTIONAL,

-- R4 39-2a: SSB based inter-frequency L1-RSRP measurements with measurement gaps

ltm-InterFreqMeasGap-r18 ENUMERATED {supported} OPTIONAL,

dummy-ltm-FastUE-Processing-r18 SEQUENCE {

fr1-r18 ENUMERATED {ms10, ms15},

fr2-r18 ENUMERATED {ms10, ms15},

fr1-AndFR2-r18 ENUMERATED {ms20, ms30}

} OPTIONAL,

rach-LessHandoverInterFreq-r18 ENUMERATED {supported} OPTIONAL,

enterAndLeaveCellReport-r18 ENUMERATED {supported} OPTIONAL,

bestCellChangeReport-r18 ENUMERATED {supported} OPTIONAL,

secondBestCellChangeReport-r18 ENUMERATED {supported} OPTIONAL

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[[

ltm-InterFreq-r18 ENUMERATED {supported} OPTIONAL,

ltm-MCG-NRDC-r18 ENUMERATED {supported} OPTIONAL,

ltm-RACH-LessDG-r18 ENUMERATED {supported} OPTIONAL,

ltm-RACH-LessCG-r18 ENUMERATED {supported} OPTIONAL,

ltm-Recovery-r18 ENUMERATED {supported} OPTIONAL,

ltm-ReferenceConfig-r18 ENUMERATED {supported} OPTIONAL,

ltm-MCG-NRDC-Release-r18 ENUMERATED {supported} OPTIONAL,

-- R4 39-7: Faster UE processing time during cell switch

ltm-FastUE-Processing-r18 SEQUENCE {

fr1-r18 ENUMERATED {ms10, ms15} OPTIONAL,

fr2-r18 ENUMERATED {ms10, ms15} OPTIONAL,

fr1-AndFR2-r18 ENUMERATED {ms20, ms30} OPTIONAL

} OPTIONAL,

ntn-NeighbourCellInfoSupport-r18 ENUMERATED {supported} OPTIONAL

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[[

ltm-interFreqL1-OnlyInBC-r18 ENUMERATED {supported} OPTIONAL

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}

MeasAndMobParametersXDD-Diff ::= SEQUENCE {

intraAndInterF-MeasAndReport ENUMERATED {supported} OPTIONAL,

eventA-MeasAndReport ENUMERATED {supported} OPTIONAL,

...,

[[

handoverInterF ENUMERATED {supported} OPTIONAL,

handoverLTE-EPC ENUMERATED {supported} OPTIONAL,

handoverLTE-5GC ENUMERATED {supported} OPTIONAL

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[[

sftd-MeasNR-Neigh ENUMERATED {supported} OPTIONAL,

sftd-MeasNR-Neigh-DRX ENUMERATED {supported} OPTIONAL

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[[

dummy ENUMERATED {supported} OPTIONAL

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}

MeasAndMobParametersFRX-Diff ::= SEQUENCE {

ss-SINR-Meas ENUMERATED {supported} OPTIONAL,

csi-RSRP-AndRSRQ-MeasWithSSB ENUMERATED {supported} OPTIONAL,

csi-RSRP-AndRSRQ-MeasWithoutSSB ENUMERATED {supported} OPTIONAL,

csi-SINR-Meas ENUMERATED {supported} OPTIONAL,

csi-RS-RLM ENUMERATED {supported} OPTIONAL,

...,

[[

handoverInterF ENUMERATED {supported} OPTIONAL,

handoverLTE-EPC ENUMERATED {supported} OPTIONAL,

handoverLTE-5GC ENUMERATED {supported} OPTIONAL

]],

[[

maxNumberResource-CSI-RS-RLM ENUMERATED {n2, n4, n6, n8} OPTIONAL

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[[

simultaneousRxDataSSB-DiffNumerology ENUMERATED {supported} OPTIONAL

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[[

nr-AutonomousGaps-r16 ENUMERATED {supported} OPTIONAL,

nr-AutonomousGaps-ENDC-r16 ENUMERATED {supported} OPTIONAL,

nr-AutonomousGaps-NEDC-r16 ENUMERATED {supported} OPTIONAL,

nr-AutonomousGaps-NRDC-r16 ENUMERATED {supported} OPTIONAL,

dummy ENUMERATED {supported} OPTIONAL,

cli-RSSI-Meas-r16 ENUMERATED {supported} OPTIONAL,

cli-SRS-RSRP-Meas-r16 ENUMERATED {supported} OPTIONAL,

interFrequencyMeas-NoGap-r16 ENUMERATED {supported} OPTIONAL,

simultaneousRxDataSSB-DiffNumerology-Inter-r16 ENUMERATED {supported} OPTIONAL,

idleInactiveNR-MeasReport-r16 ENUMERATED {supported} OPTIONAL,

-- R4 6-2: Support of beam level Early Measurement Reporting

idleInactiveNR-MeasBeamReport-r16 ENUMERATED {supported} OPTIONAL

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[[

increasedNumberofCSIRSPerMO-r16 ENUMERATED {supported} OPTIONAL

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}

MeasAndMobParametersFR2-2-r17 ::= SEQUENCE {

handoverInterF-r17 ENUMERATED {supported} OPTIONAL,

handoverLTE-EPC-r17 ENUMERATED {supported} OPTIONAL,

handoverLTE-5GC-r17 ENUMERATED {supported} OPTIONAL,

idleInactiveNR-MeasReport-r17 ENUMERATED {supported} OPTIONAL,

...

}

-- TAG-MEASANDMOBPARAMETERS-STOP

-- ASN1STOP