**3GPP TSG-RAN WG3 Meeting #129bisR3-257315**

**Prague, CZ, 13-17 Oct, 2025**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.423** | **CR** | **1540** | **rev** | **2** | **Current version:** |  |  |
|  | | | | | | | | |
| *For* [***HE******LP***](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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **x** | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Semi-Persistent CSI-RS activation with TCI state | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, CATT, China Telecom, Ericsson, Huawei, NEC, ZTE, Google, Samsung, LG Electronics, Qualcomm, Ofinno, Lenovo | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | | 2025-10-17 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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 periodic CSI-RS resource, the candidate gNB provides each CSI-RS associated with pre-configured QCL-info (via *qcl-InfoPeriodicCSI-RS*, which indicates a TCI state ID). However, for SP CSI-RS, this is not possible. The reason is that SP CSI-RSs are pre-configured but only activated dynamically, based on needs determined from periodic SSB or CSI-RS measurements.  Therefore, when the source gNB selects an SP CSI-RS for activation, it also needs to determine the appropriate TCI State and indicate it to the candidate gNB, this ensures that the SP CSI-RS can be properly activated with the correct TCI State. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the *TCI state information List* IE in the CSI-RS COORDINATION REQUEST message. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Candidate gNB is unable to know the TCI State for SP CSI-RS activation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.11.1, 9.1.5.7, 9.4 (ASN.1) | | | | | | | | |
| ***.4*** | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS/TR 38.473 CR 1606 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev 0: R3-256825  Rev 1: Updates to procedural text and tabular.  Rev 2: Semantics for TCI States Information List IE updated | | | | | | | | |

<<<<<<<<<<<<<<<<<<<< Start of Changes >>>>>>>>>>>>>>>>>>>>

### 8.11.1 CSI-RS Coordination

#### 8.11.1.1 General

The purpose of the CSI-RS Coordination procedure is to enable coordination of CSI-RS transmission. The procedure uses UE-associated signalling.

#### 8.11.1.2 Successful Operation



Figure 8.11.1.2-1: CSI-RS Coordination procedure, successful operation

The NG-RAN node1 initiates the procedure by sending the CSI-RS COORDINATION REQUEST message to NG-RAN node2.

If the *TCI State Information List* IE is included in the CSI-RS COORDINATION REQUEST message, the NG-RAN node2 shall, if supported, use it for Semi-Persistent CSI-RS activation.

<<<<<<<<<<<<<<<<<<<< Next change >>>>>>>>>>>>>>>>>>>>

#### 9.1.5.7 CSI-RS COORDINATION REQUEST

This message is sent by NG-RAN node1 to NG-RAN node2 to coordinate the activation and deactivation of CSI-RS transmission for a UE at NG-RAN node2.

Direction: NG-RAN node1 → NG-RAN node2.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.2.3.1 |  | YES | reject |
| NG-RANnode1 UE XnAP ID | M |  | NG-RANnode1 UE XnAP ID 9.2.3.16 | Allocated at the source NG-RAN node. | YES | reject |
| NG-RANnode2 UE XnAP ID | M |  | NG-RANnode2 UE XnAP ID 9.2.3.16 | Allocated at the target NG-RAN node. | YES | reject |
| **CSI-RS Coordination Request** | M |  |  |  | YES | reject |
| **>L1 Measurements List** |  | *0..1* |  |  | – |  |
| **>>L1 Measurements Item** |  | *1 .. <maxnoofCSIResourceConfigurationsPlus1>* |  |  | – |  |
| >>>Request For Semi Persistent CSI-RS Resources | M |  | ENUMERATED(activate, deactivate, …) |  | – |  |
| >>>CSI Resource Configuration ID | M |  | INTEGER (0..111, …) | Corresponds to information provided in the *LTM-CSI-ResourceConfigId* as defined in TS 38.331 [10]. | – |  |
| **>>>TCI State Information List** |  | *0..1* |  | Indicates the TCI states where the semi persistent CSI-RS resource is transmitted. The mapping between the CSI-RS Resource indicated by the LTM CSI Resource Configuration ID IE and the TCI state is defined in TS 38.321 [35]. | - | - |
| >>>>TCI state information Item IEs |  | *1 .. <* *maxnoofLTM-CSI-ResourcesPerSet>* |  |  | - |  |
| >>>>>Joint or DL TCI State ID | M |  | OCTET STRING | Includes the *TCI-StateId* IE, as defined in TS 38.331 [10]. | - |  |
| **>CSI-RS Acquisition List** |  | *0..1* |  |  | – |  |
| **>>CSI-RS Acquisition Item** |  | *1 .. < maxnoofCSIResourceConfigurationsPlus1>* |  |  | – |  |
| >>>Request For Semi Persistent CSI-RS Resources | M |  | ENUMERATED(activate, deactivate, …) |  | – |  |
| >>>CSI Resource Configuration ID | M |  | INTEGER (0..111, …) | Corresponds to information provided in the *CSI-ResourceConfigId* as defined in TS 38.331 [10]. | – |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofCSIResourceConfigurationsPlus1 | Maximum number of CSI Resource Configurations Plus 1. Value is 112. |
| maxnoofLTM-CSI-ResourcesPerSet | Maximum number of LTM CSI-RS resource per set. Value is 512. |

<<<<<<<<<<<<<<<<<<<< Next change >>>>>>>>>>>>>>>>>>>>

-- L

Local-NG-RAN-Node-Identifier ::= CHOICE {

full-I-RNTI-Profile-List Full-I-RNTI-Profile-List,

short-I-RNTI-Profile-List Short-I-RNTI-Profile-List,

choice-extension ProtocolIE-Single-Container { { Local-NG-RAN-Node-Identifier-ExtIEs} }

}

Local-NG-RAN-Node-Identifier-ExtIEs XNAP-PROTOCOL-IES ::= {

{ ID id-Full-and-Short-I-RNTI-Profile-List CRITICALITY ignore TYPE Full-and-Short-I-RNTI-Profile-List PRESENCE mandatory},

...

}

<< skip unchanged part >>

Layer1MeasurementRequest-List ::= SEQUENCE (SIZE(1..maxnoofCSIResourceConfigurationsPlus1)) OF Layer1MeasurementRequest-Item

Layer1MeasurementRequest-Item ::= SEQUENCE {

requestForSemiPersistentCSI-RSResources ENUMERATED {activate, deactivate,...},

cSIResourceConfigurationID CSIResourceConfigurationID,

tci-State-InformationList Tci-State-InformationList OPTIONAL,

iE-Extensions ProtocolExtensionContainer { { Layer1MeasurementRequest-Item-ExtIEs} } OPTIONAL,

...

}

Layer1MeasurementRequest-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

<<<<<<<<<<<<<<<<<<<< Next change >>>>>>>>>>>>>>>>>>>>

-- T

TABasedMDT ::= SEQUENCE {

tAListforMDT TAListforMDT,

iE-Extensions ProtocolExtensionContainer { {TABasedMDT-ExtIEs} } OPTIONAL,

...

}

TABasedMDT-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

<< skip unchanged part >>

Tci-State-InformationList ::= SEQUENCE (SIZE(1.. maxnoofLTM-CSI-ResourcesPerSet)) OF Tci-State-Information-Item

Tci-State-Information-Item ::= SEQUENCE {

jointorDLTCIStateID JointorDLTCIStateID,

iE-Extensions ProtocolExtensionContainer { { Tci-State-Information-Item-ExtIEs } } OPTIONAL,

...

}

Tci-State-Information-Item-ExtIEs XNAP-PROTOCOL-EXTENSION ::= {

...

}

<<<<<<<<<<<<<<<<<<<< Next change >>>>>>>>>>>>>>>>>>>>

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

--

-- Lists

--

-- \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

maxEARFCN INTEGER ::= 262143

maxnoofAllowedAreas INTEGER ::= 16

maxnoofAMFRegions INTEGER ::= 16

maxnoofAoIs INTEGER ::= 64

maxnoofBluetoothName INTEGER ::= 4

maxnoofBPLMNs INTEGER ::= 12

maxnoofCAGs INTEGER ::= 12

maxnoofCAGsperPLMN INTEGER ::= 256

maxnoofCellIDforMDT INTEGER ::= 32

maxnoofCellsinAoI INTEGER ::= 256

maxnoofCellsinUEHistoryInfo INTEGER ::= 16

maxnoofCellsinNG-RANnode INTEGER ::= 16384

maxnoofCellsinRNA INTEGER ::= 32

maxnoofCellsUEMovingTrajectory INTEGER ::= 16

maxnoofDRBs INTEGER ::= 32

maxnoofEUTRABands INTEGER ::= 16

maxnoofEUTRABPLMNs INTEGER ::= 6

maxnoofEPLMNs INTEGER ::= 15

maxnoofExtSliceItems INTEGER ::= 65535

maxnoofEPLMNsplus1 INTEGER ::= 16

maxnoofForbiddenTACs INTEGER ::= 4096

maxnoofFreqforMDT INTEGER ::= 8

maxnoofMBSFNEUTRA INTEGER ::= 8

maxnoofMDTPLMNs INTEGER ::= 16

maxnoofMultiConnectivityMinusOne INTEGER ::= 3

maxnoofNeighbours INTEGER ::= 1024

maxnoofNeighPCIforMDT INTEGER ::= 32

maxnoofNIDs INTEGER ::= 12

maxnoofNRCellBands INTEGER ::= 32

maxnoofPLMNs INTEGER ::= 16

maxnoofPDUSessions INTEGER ::= 256

maxnoofProtectedResourcePatterns INTEGER ::= 16

maxnoofQoSFlows INTEGER ::= 64

maxnoofQoSParaSets INTEGER ::= 8

maxnoofRANAreaCodes INTEGER ::= 32

maxnoofRANAreasinRNA INTEGER ::= 16

maxnoofRANNodesinAoI INTEGER ::= 64

maxnoofSCellGroups INTEGER ::= 3

maxnoofSCellGroupsplus1 INTEGER ::= 4

maxnoofSensorName INTEGER ::= 3

maxnoofSliceItems INTEGER ::= 1024

maxnoofSNPNIDs INTEGER ::= 12

maxnoofsupportedPLMNs INTEGER ::= 12

maxnoofsupportedTACs INTEGER ::= 256

maxnoofTAforMDT INTEGER ::= 8

maxnoofTAI INTEGER ::= 16

maxnoofTAIsinAoI INTEGER ::= 16

maxnooftimeperiods INTEGER ::= 2

maxnoofTNLAssociations INTEGER ::= 32

maxnoofUEContexts INTEGER ::= 8192

maxNRARFCN INTEGER ::= 3279165

maxNrOfErrors INTEGER ::= 256

maxnoofslots INTEGER ::= 5120

maxnoofExtTLAs INTEGER ::= 16

maxnoofGTPTLAs INTEGER ::= 16

maxnoofCHOcells INTEGER ::= 8

maxnoofPC5QoSFlows INTEGER ::= 2064

maxnoofSSBAreas INTEGER ::= 64

maxnoofRAReports INTEGER ::= 64

maxnoofNRSCSs INTEGER ::= 5

maxnoofPhysicalResourceBlocks INTEGER ::= 275

maxnoofAdditionalPDCPDuplicationTNL INTEGER ::= 2

maxnoofRLCDuplicationstate INTEGER ::= 3

maxnoofWLANName INTEGER ::= 4

maxnoofNonAnchorCarrierFreqConfig INTEGER ::= 15

maxnoofDataForwardingTunneltoE-UTRAN INTEGER ::= 256

maxnoofMBSFSAs INTEGER ::= 256

maxnoofUEIDIndicesforMBSPaging INTEGER ::= 4096

maxnoofMBSQoSFlows INTEGER ::= 64

maxnoofMRBs INTEGER ::= 32

maxnoofCellsforMBS INTEGER ::= 8192

maxnoofMBSServiceAreaInformation INTEGER ::= 256

maxnoofTAIforMBS INTEGER ::= 1024

maxnoofAssociatedMBSSessions INTEGER ::= 32

maxnoofMBSSessions INTEGER ::= 256

maxnoofSuccessfulHOReports INTEGER ::= 64

maxnoofPSCellsPerSN INTEGER ::= 8

maxnoofNR-UChannelIDs INTEGER ::= 16

maxnoofCellsinCHO INTEGER ::= 8

maxnoofCHOexecutioncond INTEGER ::= 2

maxnoofServedCellsIAB INTEGER ::= 512

maxnoofServingCells INTEGER ::= 32

maxnoofBHInfo INTEGER ::= 1024

maxnoofTrafficIndexEntries INTEGER ::= 1024

maxnoofTLAsIAB INTEGER ::= 1024

maxnoofBAPControlPDURLCCHs INTEGER ::= 2

maxnoofIABSTCInfo INTEGER ::= 45

maxnoofSymbols INTEGER ::= 14

maxnoofDUFSlots INTEGER ::= 320

maxnoofHSNASlots INTEGER ::= 5120

maxnoofRBsetsPerCell INTEGER ::= 8

maxnoofRBsetsPerCell1 INTEGER ::= 7

maxnoofChildIABNodes INTEGER ::= 1024

maxnoofPSCellCandidates INTEGER ::= 8

maxnoofTargetSNs INTEGER ::= 8

maxnoofUEAppLayerMeas INTEGER ::= 16

maxnoofSNSSAIforQMC INTEGER ::= 16

maxnoofCellIDforQMC INTEGER ::= 32

maxnoofPLMNforQMC INTEGER ::= 16

maxnoofTAforQMC INTEGER ::= 8

maxnoofMTCItems INTEGER ::= 16

maxnoofCSIRSconfigurations INTEGER ::= 96

maxnoofCSIRSneighbourCells INTEGER ::= 16

maxnoofCSIRSneighbourCellsInMTC INTEGER ::= 16

maxnoofNeighbour-NG-RAN-Nodes INTEGER ::= 256

maxnoofSRBs INTEGER ::= 5

maxnoofSMBR INTEGER ::= 8

maxnoofNSAGs INTEGER ::= 256

maxnoofTargetSNsMinusOne INTEGER ::= 7

maxnoofThresholdsForExcessPacketDelay INTEGER ::= 255

maxnoofESNPNs INTEGER ::= 15

maxnoofSuccessfulPSCellChangeReports INTEGER ::= 64

maxnoofUEsforRAReportIndications INTEGER ::= 64

maxnoofPSCellsinCPAC INTEGER ::= 8

maxnoofCPACexecutioncond INTEGER ::= 2

maxnoofLBTFailureInformation INTEGER ::= 64

maxnoofCellsTrajectoryPredict INTEGER ::= 16

maxnoofCellsTrajectory INTEGER ::= 16

maxFailedCellMeasObjects INTEGER ::= 124

maxFailedMeasPerNode INTEGER ::= 124

maxnoofUEReports INTEGER ::= 16

maxnoofCandidateRelayUEs INTEGER ::= 32

maxnoofCAGforMDT INTEGER ::= 256

maxnoofMDTSNPNs INTEGER ::= 16

maxnoofSecurityConfigurations INTEGER ::= 8

maxnoofRSPPQoSFlows INTEGER ::= 2048

maxnoofThresholds INTEGER ::= 8

maxnoofEarlyRACHResourcesID INTEGER ::= 8

maxnoofLTMCells INTEGER ::= 8

maxNoSSBs INTEGER ::= 255

maxnoofTAList INTEGER ::= 8

maxnoofPreambleIndexes INTEGER ::= 64

maxnoofCSIResourceConfigurationsPlus1 INTEGER ::= 112

maxnoofNZP-CSI-RS-ResourcesPerSet INTEGER ::= 64

maxnoofSRS-Resource INTEGER ::= 64

maxnoofFailedSliceMeasObjects INTEGER ::= 124

maxnoofSliceItemsforMDT INTEGER ::= 1024

maxnoofAreaNTNforMDT INTEGER ::= 32

maxnoofLTMCellsPlusOne INTEGER ::= 9

maxnoofSCGSecurityConfigurations INTEGER ::= 8

maxnoofLTM-CSI-ResourcesPerSet INTEGER ::= 512

<<<<<<<<<<<<<<<<<<<< End of changes >>>>>>>>>>>>>>>>>>>>