**3GPP TSG-RAN WG3 #125R3-244683**

**Maastricht, NL,** **19th – 23th Aug 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.423** | **CR** | **1326** | **rev** | **1** | **Current version:** | **16.18.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Correction on asymmetric UL and DL for TDD Carrier | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | China Telecom,ZTE, CATT,China Unicom, Ericsson, Nokia, Nokia Shanghai Bell, Huawei | | | | | | | | | |
| ***Source to TSG:*** | R3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Core | | | | |  | ***Date:*** | | | 2024-08-21 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | A |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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:*** | | Per TS38.104, TDD Band can be configured with asymmetric UL and DL,i.e, n50 for TDD (see Table 5.3.6-2 in TS38.101-1). However, the existing *Served Cell Information* *NR* IE the UL and DL bandwidth for TDD can only be set to symmetric. Therefore, it is need to introduce a new UL and DL Transmission Bandwidth for asymmetric TDD Band. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * To introduce a new UL and DL Transmission Bandwidth for asymmetric TDD Band in existing *Served Cell Information NR* IE. * To add semantics description for exisiting TDD Transmission Bandwidth IE   Impact Analysis:  Impact assessment towards the previous version of the specification (same release):  This CR has an isolated impact towards the previous version of the specification (same release). This CR only has an impact on the Served Cell Information by introducing the asymmetric TDD transmission bandwidth. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Asymmetric bandwidth for TDD cell can not be exchanged between two nodes | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.2.2.11,9.3.5,9.3.7 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 38.473 CR 1450 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1: Correct the IE tabular format issue and add more co-source companies | | | | | | | | |

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#### 9.2.2.11 Served Cell Information NR

This IE contains cell configuration information of an NR cell that a neighbouring NG-RAN node may need for the Xn AP interface.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| NR-PCI | M |  | INTEGER (0..1007, …) | NR Physical Cell ID | – |  |
| NR CGI | M |  | 9.2.2.7 |  | – |  |
| TAC | M |  | 9.2.2.5 | Tracking Area Code | – |  |
| RANAC | O |  | RAN Area Code  9.2.2.6 |  | – |  |
| **Broadcast PLMNs** |  | *1..<maxnoofBPLMNs>* |  | Broadcast PLMNs in SIB1 associated to the NR Cell Identity in the *NR CGI* IE. | – |  |
| >PLMN Identity | M |  | 9.2.2.4 |  | – |  |
| CHOICE *NR-Mode-Info* | M |  |  |  | – |  |
| >*FDD* |  |  |  |  |  |  |
| >>**FDD Info** |  | *1* |  |  | – |  |
| >>>UL NR Frequency Info | M |  | NR Frequency Info  9.2.2.19 | This IE is ignored for NR operating bands for which uplink range of NREF is not defined in section 5.4.2.3 of TS 38.104 [24]. | – |  |
| >>>DL NR Frequency Info | M |  | NR Frequency Info  9.2.2.19 |  | – |  |
| >>>UL Transmission Bandwidth | M |  | NR Transmission Bandwidth  9.2.2.20 | This IE is ignored for NR operating bands for which uplink range of NREF is not defined in section 5.4.2.3 of TS 38.104 [24]. | – |  |
| >>>DL Transmission Bandwidth | M |  | NR Transmission Bandwidth  9.2.2.20 |  | – |  |
| >>>UL Carrier List | O |  | NR Carrier List  9.2.2.63 | If included, the *UL Transmission Bandwidth* IE shall be ignored. | YES | ignore |
| >>>DL Carrier List | O |  | NR Carrier List  9.2.2.63 | If included, the *DL Transmission Bandwidth* IE shall be ignored. | YES | ignore |
| >*TDD* |  |  |  |  |  |  |
| >>**TDD Info** |  | *1* |  |  | – |  |
| >>>Frequency Info | M |  | NR Frequency Info  9.2.2.19 |  | – |  |
| >>>Transmission Bandwidth | M |  | NR Transmission Bandwidth  9.2.2.20 | This IE is ignored if the UL Transmission BandwidthIE and DL Transmission Bandwidth IE are included | – |  |
| >>>Intended TDD DL-UL Configuration NR | O |  | 9.2.2.40 |  | YES | ignore |
| >>>TDD UL-DL Configuration Common NR | O |  | OCTET STRING | The *tdd-UL-DL-ConfigurationCommon* as defined in TS 38.331 [10] | YES | ignore |
| >>>Carrier List | O |  | NR Carrier List  9.2.2.63 | If included, the *Transmission Bandwidth* IE shall be ignored. | YES | ignore |
| **>>>Transmission Bandwidth asymmetric** |  | *0..1* |  | This IE is included if the TDD carrier is asymmetric UL and DL | YES | ignore |
| >>>>UL Transmission Bandwidth | M |  | Transmission Bandwidth  9.2.2.20 | . | – |  |
| >>>>DL Transmission Bandwidth | M |  | Transmission Bandwidth  9.2.2.20 |  | – |  |
| Measurement Timing Configuration | M |  | OCTET STRING | Contains the *MeasurementTimingConfiguration* inter-node message for the served cell, as defined in TS 38.331 [10]. | – |  |
| Connectivity Support | M |  | 9.2.2.28 |  | – |  |
| **Broadcast PLMN Identity Info List NR** |  | *0..<maxnoofBPLMNs>* |  | This IE corresponds to the *PLMN-IdentityInfoList* IE and the *NPN-IdentityInfoList* IE (if available) in *SIB1* as specified in TS 38.331 [8]. All PLMN Identities and associated information contained in the *PLMN-IdentityInfoList* IE and NPN identities and associated information contained in the *NPN-IdentityInfoList* IE (if available) are included and provided in the same order as broadcast in SIB1.  NOTE: In case of NPN-only cell, the PLMN Identities and associated information contained in the *PLMN-IdentityInfoList* IE are not included. | YES | ignore |
| **>Broadcast PLMNs** |  | *1..<maxnoofBPLMNs>* |  | Broadcast PLMNs in SIB1 associated to the *NR Cell Identity* IE. | – |  |
| >>PLMN Identity | M |  | 9.2.2.4 |  | – |  |
| >TAC | M |  | 9.2.2.5 |  | – |  |
| >NR Cell Identity | M |  | BIT STRING (SIZE(36)) |  | – |  |
| >RANAC | O |  | RAN Area Code  9.2.2.6 |  | – |  |
| >Configured TAC Indication | O |  | 9.2.2.39a | NOTE: This IE is associated with the TAC in the *Broadcast PLMN Identity Info List NR* IE | YES | ignore |
| >NPN Broadcast Information | O |  | 9.2.2.71 | If this IE is included the content of the *Broadcast PLMNs* IE in the *Broadcast PLMN Identity Info List NR* IE is ignored. | YES | reject |
| Configured TAC Indication | O |  | 9.2.2.39a | NOTE: This IE is associated with the TAC on top-level of the *Served Cell Information NR* IE | YES | ignore |
| NPN Broadcast Information | O |  | 9.2.2.71 | If this IE is included the content of the *Broadcast PLMNs* IE in the top *Served Cell Information NR* IE is ignored. | YES | reject |
| SSB Positions In Burst | O |  | 9.2.2.64 |  | YES | ignore |
| NR Cell PRACH Configuration | O |  | OCTET STRING | Containing 9.3.1.139 NR Cell PRACH Configuration as of TS 38.473 [41]. | YES | ignore |
| CSI-RS Transmission Indication | O |  | ENUMERATED (activated, deactivated, ...) | This IE indicates the CSI-RS transmission status of the given cell. | YES | ignore |
| SFN Offset | O |  | 9.2.2.75 |  | YES | ignore |

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| --- | --- |
| Range bound | Explanation |
| maxnoofBPLMNs | Maximum no. of broadcast PLMNs by a cell. Value is 12. |

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### 9.3.5 Information Element definitions

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id-duplicationActivation,

id-NPRACHConfiguration,

id-QoSFlowsMappedtoDRB-SetupResponse-MNterminated,

id-DL-scheduling-PDCCH-CCE-usage,

id-UL-scheduling-PDCCH-CCE-usage,

id-SFN-Offset,

id-QoS-Mapping-Information,

id-AdditionLocationInformation,

id-dataForwardingInfoFromTargetE-UTRANnode,

id-Cause,

id-SecurityIndication,

id-RRCConnReestab-Indicator,

id-SourceDLForwardingIPAddress,

id-SourceNodeDLForwardingIPAddress,

id-UERLFReportContainerLTEExtension,

id-QosFlowMappingIndication,

id-Transmission-Bandwidth-asymmetric,

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NRModeInfoTDD ::= SEQUENCE {

nrFrequencyInfo NRFrequencyInfo,

nrTransmissonBandwidth NRTransmissionBandwidth,

iE-Extension ProtocolExtensionContainer { {NRModeInfoTDD-ExtIEs} } OPTIONAL,

...

}

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

{ID id-IntendedTDD-DL-ULConfiguration-NR CRITICALITY ignore EXTENSION IntendedTDD-DL-ULConfiguration-NR PRESENCE optional }|

{ID id-TDDULDLConfigurationCommonNR CRITICALITY ignore EXTENSION TDDULDLConfigurationCommonNR PRESENCE optional }|

{ ID id-CarrierList CRITICALITY ignore EXTENSION NRCarrierList PRESENCE optional }|

{ID id-Transmission-Bandwidth-asymmetric CRITICALITY ignore EXTENSION Transmission-Bandwidth-asymmetric PRESENCE optional } ,

...

}

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

...

}

Transmission-Bandwidth-asymmetric ::= SEQUENCE {

ul-Transmission-Bandwidth Transmission-Bandwidth,

dl-Transmission-Bandwidth Transmission-Bandwidth,

iE-Extensions ProtocolExtensionContainer { { Transmission-Bandwidth-asymmetric-ExtIEs} } OPTIONAL,

...

}

Transmission-Bandwidth-asymmetric-ExtIEs F1AP-PROTOCOL-EXTENSION ::= {

...

}

//////////////////////////////////////////////////////////////irrelevant operations skipped/////////////////////////////////////////////////////////////////////

### 9.3.7 Constant definitions

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-- IEs

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//////////////////////////////////////////////////////////////irrelevant operations skipped/////////////////////////////////////////////////////////////////////

id-dataForwardingInfoFromTargetE-UTRANnode ProtocolIE-ID ::= 252

id-DirectForwardingPathAvailability ProtocolIE-ID ::= 253

id-SourceNG-RAN-node-ID ProtocolIE-ID ::= 254

id-SourceDLForwardingIPAddress ProtocolIE-ID ::= 255

id-SourceNodeDLForwardingIPAddress ProtocolIE-ID ::= 256

id-ExtendedReportIntervalMDT ProtocolIE-ID ::= 257

id-SecurityIndication ProtocolIE-ID ::= 258

id-RRCConnReestab-Indicator ProtocolIE-ID ::= 259

id-TargetNodeID ProtocolIE-ID ::= 260

id-UERLFReportContainerLTEExtension ProtocolIE-ID ::= 370

id-HashedUEIdentityIndexValue ProtocolIE-ID ::= 372

id-QosFlowMappingIndication ProtocolIE-ID ::= 373

id-Transmission-Bandwidth-asymmetric ProtocolIE-ID ::= xxx

//////////////////////////////////////////////////////////////irrelevant operations skipped/////////////////////////////////////////////////////////////////////