**3GPP T****SG-RAN WG3 Meeting #127-bis R3-25xxxx**

**Wuhan, China, 7th – 11th April 2025**

**Agenda item:** 19.2

**Source:** Samsung, Huawei

**Title:** (TP to BL CR for 38.473) introduction of Evolution of NR duplex operation: Sub-band full duplex (SBFD)

**Document for:** Agreement

# Introduction

This paper provides the corresponding TP to BLCR of TS38.473 based on the dicussion of RAN3#127bis.

# Text Proposals to TS38.473

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

8.1 List of F1AP Elementary procedures

In the following tables, all EPs are divided into Class 1 and Class 2 EPs (see subclause 3.1 for explanation of the different classes):

<unchanged part omitted>

**Table 2: Class 2 procedures**

| **Elementary Procedure** | **Message** |
| --- | --- |
| Error Indication | ERROR INDICATION |
| UE Context Release Request (gNB-DU initiated) | UE CONTEXT RELEASE REQUEST |
| Initial UL RRC Message Transfer | INITIAL UL RRC MESSAGE TRANSFER |
| DL RRC Message Transfer | DL RRC MESSAGE TRANSFER |
| UL RRC Message Transfer | UL RRC MESSAGE TRANSFER |
| UE Inactivity Notification  | UE INACTIVITY NOTIFICATION |
| System Information Delivery | SYSTEM INFORMATION DELIVERY COMMAND |
| Paging | PAGING |
| Notify | NOTIFY |
| PWS Restart Indication | PWS RESTART INDICATION |
| PWS Failure Indication | PWS FAILURE INDICATION |
| gNB-DU Status Indication | GNB-DU STATUS INDICATION |
| RRC Delivery Report | RRC DELIVERY REPORT |
| Network Access Rate Reduction | NETWORK ACCESS RATE REDUCTION |
| Trace Start | TRACE START |
| Deactivate Trace | DEACTIVATE TRACE |
| DU-CU Radio Information Transfer | DU-CU RADIO INFORMATION TRANSFER |
| CU-DU Radio Information Transfer | CU-DU RADIO INFORMATION TRANSFER |
| Resource Status Reporting | RESOURCE STATUS UPDATE |
| Access And Mobility Indication | ACCESS AND MOBILITY INDICATION |
| Reference Time Information Reporting Control | REFERENCE TIME INFORMATION REPORTING CONTROL |
| Reference Time Information Report | REFERENCE TIME INFORMATION REPORT |
| Access Success | ACCESS SUCCESS |
| Cell Traffic Trace | CELL TRAFFIC TRACE |
| Positioning Assistance Information Control | POSITIONING ASSISTANCE INFORMATION CONTROL |
| Positioning Assistance Information Feedback | POSITIONING ASSISTANCE INFORMATION FEEDBACK |
| Positioning Measurement Report | POSITIONING MEASUREMENT REPORT |
| Positioning Measurement Abort | POSITIONING MEASUREMENT ABORT |
| Positioning Measurement Failure Indication | POSITIONING MEASUREMENT FAILURE INDICATION |
| Positioning Measurement Update | POSITIONING MEASUREMENT UPDATE |
| Positioning Deactivation | POSITIONING DEACTIVATION |
| E-CID Measurement Failure Indication | E-CID MEASUREMENT FAILURE INDICATION |
| E-CID Measurement Report | E-CID MEASUREMENT REPORT |
| E-CID Measurement Termination | E-CID MEASUREMENT TERMINATION COMMAND |
| Positioning Information Update | POSITIONING INFORMATION UPDATE |
| Multicast Group Paging | MULTICAST GROUP PAGING |
| Broadcast Context Release Request | BROADCAST CONTEXT RELEASE REQUEST |
| Multicast Context Release Request | MULTICAST CONTEXT RELEASE REQUEST |
| PDC Measurement Report | PDC MEASUREMENT REPORT |
| PDC Measurement Failure Indication | PDC MEASUREMENT FAILURE INDICATION |
| PDC Measurement Termination | PDC MEASUREMENT TERMINATION COMMAND |
| Measurement Activation  | MEASUREMENT ACTIVATION  |
| QoE Information Transfer | QOE INFORMATION TRANSFER |
| Positioning System Information Delivery | POSITIONING SYSTEM INFORMATION DELIVERY COMMAND |
| DU-CU Cell Switch Notification | DU-CU CELL SWITCH NOTIFICATION |
| CU-DU Cell Switch Notification | CU-DU CELL SWITCH NOTIFICATION |
| DU-CU TA Information Transfer | DU-CU TA INFORMATION TRANSFER |
| CU-DU TA Information Transfer | CU-DU TA INFORMATION TRANSFER |
| QoE Information Transfer Control | QOE INFORMATION TRANSFER CONTROL |
| RACH Indication | RACH INDICATION |
| Timing Synchronisation Status Report | TIMING SYNCHRONISATION STATUS REPORT |
| Mobile IAB F1 Setup Triggering | MIAB F1 SETUP TRIGGERING |
| Mobile IAB F1 Setup Outcome Notification | MIAB F1 SETUP OUTCOME NOTIFICATION |
| Broadcast Transport Resource Request | BROADCAST TRANSPORT RESOURCE REQUEST |
| SRS Information Reservation Notification | SRS INFORMATION RESERVATION NOTIFICATION  |
| DU-CU Access And Mobility Indication | DU-CU ACCESS AND MOBILITY INDICATION |
| CLI Measurement Reporting | CLI MEASUREMENT UPDATE |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>8.2.y CLI Measurement Reporting

8.2.y.1 General

This procedure is initiated by gNB-DU or gNB-CU to report the result of CLI measurements and to request the CLI mitigation.

The procedure uses non UE-associated signalling.

8.2.y.2 Successful Operation



**Figure 8.2.y.2-1: CLI Measurement Reporting initiated from the gNB-DU, successful operation**

gNB-DU shall report the results of the CLI measurements and possible CLI mitigation request in CLI MEASUREMENT UPDATE message to gNB-CU.

**Figure 8.2.y.2-2: CLI Measurement Reporting initiated from the gNB-CU, successful operation**

gNB-CU shall forward the received results of the CLI measurements and possible CLI mitigation request in CLI MEASUREMENT UPDATE message to gNB-DU.

Eitor’s Note: The name of the new procedure and details of procedure text can be further discussed.

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.2.1.10 GNB-CU CONFIGURATION UPDATE

This message is sent by the gNB-CU to transfer updated information associated to an F1-C interface instance.

NOTE: If F1-C signalling transport is shared among several F1-C interface instances, this message may transfer updated information associated to several F1-C interface instances.

Direction: gNB-CU → gNB-DU

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | reject |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **Cells to be Activated List** |  | *0..1* |  | List of cells to be activated or modified | YES | reject |
| **>Cells to be Activated List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>NR PCI  | O |  | INTEGER (0..1007) | Physical Cell ID | - |  |
| >>gNB-CU System Information | O |  | 9.3.1.42 | RRC container with system information owned by gNB-CU | YES | reject |
| >>Available PLMN List | O |  | 9.3.1.65 |  | YES | ignore |
| >>Extended Available PLMN List | O |  | 9.3.1.76 | This is included if *Available PLMN List* IE is included and if more than 6 Available PLMNs is to be signalled. | YES | ignore |
| >>IAB Info IAB-donor-CU | O |  | 9.3.1.105 | IAB-related configuration sent by the IAB-donor-CU. | YES | ignore |
| >>Available SNPN ID List | O |  | 9.3.1.163 | Indicates the available SNPN ID list.If this IE is included, the content of the *Available PLMN List* IE and *Extended Available PLMN List* IE if present in the *Cells to be Activated List Item* IE is ignored. | YES | ignore |
| >>MBS Broadcast Neighbour Cell List | O |  | 9.3.1.226 |  | YES | ignore |
| >>SSBs within the cell to be Activated List | O |  | 9.3.1.326 | List of SSB beams within the cell requested to be activated. | YES | reject |
| **Cells to be Deactivated List** |  | *0..1* |  | List of cells to be deactivated | YES | reject |
| **>Cells to be Deactivated List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | reject |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| **gNB-CU TNL Association To Add List**  |  | *0..1* |  |  | YES | ignore |
| **>gNB-CU TNL Association To Add Item IEs** |  | *1..<maxnoofTNLAssociations>* |  |  | EACH | ignore |
| >>TNL Association Transport Layer Information | M |  | CP Transport Layer Information9.3.2.4 | Transport Layer Address of the gNB-CU. | - |  |
| >>TNL Association Usage | M |  | ENUMERATED (ue, non-ue, both, ...) | Indicates whether the TNL association is only used for UE-associated signalling, or non-UE-associated signalling, or both. For usage of this IE, refer to TS 38.472 [22]. | - |  |
| **gNB-CU TNL Association To Remove List**  |  | *0..1* |  |  | YES | ignore |
| **>gNB-CU TNL Association To Remove Item IEs** |  | *1..<maxnoofTNLAssociation>* |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Information9.3.2.4 | Transport Layer Address of the gNB-CU. | - |  |
| >>TNL Association Transport Layer Address gNB-DU | O |  | CP Transport Layer Information9.3.2.4 | Transport Layer Address of the gNB-DU. | YES | reject |
| **gNB-CU TNL Association To Update List**  |  | *0..1* |  |  | YES | ignore |
| **>gNB-CU TNL Association To Update Item IEs** |  | *1..<maxnoofTNLAssociations>* |  |  | EACH | ignore |
| >>TNL Association Transport Layer Address | M |  | CP Transport Layer Information9.3.2.4 | Transport Layer Address of the gNB-CU. | - |  |
| >>TNL Association Usage | O |  | ENUMERATED (ue, non-ue, both, ...) | Indicates whether the TNL association is only used for UE-associated signalling, or non-UE-associated signalling, or both. For usage of this IE, refer to TS 38.472 [22]. | - |  |
| **Cells to be barred List** |  | *0..1* |  | List of cells to be barred. | YES | ignore |
| **>Cells to be barred List Item** |  | *1.. <maxCellingNBDU>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Cell Barred | M |  | ENUMERATED (barred, not-barred, ...) |  | - |  |
| >>IAB Barred | O |  | ENUMERATED (barred, not-barred, ...) | Corresponds to information provided in the *iab-Support* contained in the *PLMN-IdentityInfo* IE or contained inthe *NPN-IdentityInfo* IE as defined in TS 38.331 [8]. The codepoint value “barred” indicates that the *iab-Support* is not sent in SIB1, and the codepoint value “not-barred” indicates that the *iab-Support* is sent in SIB1. | - |  |
| >>Mobile IAB Barred | O |  | ENUMERATED (barred, not-barred, ...) | Corresponds to information provided in the *mobileIAB-Support* contained in the *PLMN-IdentityInfo* IE or contained inthe *NPN-IdentityInfo* IE as defined in TS 38.331 [8]. The codepoint value “barred” indicates that the *mobileIAB-Support* is not sent in SIB1, and the codepoint value “not-barred” indicates that the *mobileIAB-Support* is sent in SIB1. | - |  |
| **Protected E-UTRA Resources List** |  | *0..1* |  | List of Protected E-UTRA Resources. | YES | reject |
| **>Protected E-UTRA Resources List Item** |  | *1.. <maxCellineNB>* |  |  | EACH | reject |
| >>Spectrum Sharing Group ID | M |  | INTEGER (1.. maxCellineNB) | Indicates the E-UTRA cells involved in resource coordination with the NR cells affiliated with the same Spectrum Sharing Group ID. | - |  |
| **>>E-UTRA Cells List** |  | *1* |  | List of applicable E-UTRA cells.  | - |  |
| **>>>E-UTRA Cells List Item** |  | *1 .. <maxCellineNB>* |  |  | - |  |
| >>>>EUTRA Cell ID | M |  | BIT STRING (SIZE(28)) | Indicates the E-UTRAN Cell Identifier IE contained in the ECGI as defined in subclause 9.2.14 in TS 36.423 [9]. | - |  |
| >>>>Served E-UTRA Cell Information | M |  | 9.3.1.64 |  | - |  |
| **Neighbour Cell Information List** |  | *0..1* |  |  | YES | ignore |
| **>Neighbour Cell Information List Item** |  | *1 .. <maxCellingNBDU>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |
| >>Intended TDD DL-UL Configuration | O |  | 9.3.1.89 |  | - |  |
| >>SBFD configuration | O |  | FFS | FFS | - |  |
| >>SSB resource configuration |  |  | OCTET STRING | Includes the *MeasTimingList* contained in the MeasurementTimingConfiguration message as defined in 38.331 [10]. | - | - |
| >>NZP-CSI-RS Configuration | O |  | 9.3.1.y |  | - | - |
| Transport Layer Address Info | O |  | 9.3.2.5 |  | YES | ignore |
| Uplink BH Non-UP Traffic Mapping | O |  | 9.3.1.103 |  | YES | reject |
| BAP Address | O |  | 9.3.1.111 | Indicates a BAP address assigned to the IAB-donor-DU. | YES | ignore |
| CCO Assistance Information | O |  | 9.3.1.211 | Indicates CCO Assistance Information for cells and beams served by the gNB-DU of the same NG-RAN node or for cells and beams not served by the gNB-DU. | YES | ignore |
| Cells for SON List | O |  | 9.3.1.214 |  | YES | ignore |
| gNB-CU Name | O |  | PrintableString(SIZE(1..150,...)) | Human readable name of the gNB-CU.  | YES | ignore |
| Extended gNB-CU Name | O |  | 9.3.1.206 |  | YES | ignore |
| **Cells Allowed to be Deactivated List** |  | *0..1* |  |  | YES | ignore |
| >**Cells Allowed to be Deactivated List Item** |  | *1 .. <maxCellingNBDU>* |  |  | EACH | ignore |
| >>NR CGI | M |  | 9.3.1.12 |  | - |  |

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxCellingNBDU | Maximum numbers of cells that can be served by a gNB-DU. Value is 512. |
| maxnoofTNLAssociations | Maximum numbers of TNL Associations between the gNB-CU and the gNB-DU. Value is 32. |
| maxCellineNB | Maximum no. cells that can be served by an eNB. Value is 256. |
| *maxnoofSSBAreas* | Maximum no. SSB Areas that can be served by a cell. Value is 64.  |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

### 9.2.y CLI Measurement Reporting Message

#### 9.2.y.1 CLI MEASUREMENT UPDATE

This message is sent by gNB-DU to report the results of the requested CLI measurements or sent by gNB-CU to forward the results of the requested CLI measurements.

Direction: gNB-DU → gNB-CU and gNB-CU → gNB-DU.

| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** | **Criticality** | **Assigned Criticality** |
| --- | --- | --- | --- | --- | --- | --- |
| Message Type | M |  | 9.3.1.1 |  | YES | ignore |
| Transaction ID | M |  | 9.3.1.23 |  | YES | reject |
| **CLI Measurement Result** |  | *1* |  |  | YES | ignore |
| **>CLI Measurement Result Item** |  | *1 .. < maxCellingNBDU >* |  |  | YES | ignore |
| >>Cell ID | M |  | NR CGI9.3.1.12 |  | – |  |
| >>SSB index | O |  | INTEGER (0..63) | Strongest DL SSB beam information |  |  |
| >>CRI | O |  | INTEGER (1..64) | Strongest DL NZP CSI-RS beam information |  |  |
| >>CLI Mitigation Indication | O |  | ENUMERATED (true, …) | Indicates to request CLI mitigation |  |  |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxCellingNBDU | Maximum no. cells that can be served by a gNB-DU. Value is 512. |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.3.1.10 Served Cell Information

This IE contains cell configuration information of a cell in the gNB-DU.

| IE/Group Name | Presence | Range | IE type and reference | Semantics description | Criticality | Assigned Criticality |
| --- | --- | --- | --- | --- | --- | --- |
| NR CGI | M |  | 9.3.1.12 |  | - |  |
| NR PCI | M |  | INTEGER (0..1007) | Physical Cell ID | - |  |
| 5GS TAC | O |  | 9.3.1.29 | 5GS Tracking Area Code | - |  |
| Configured EPS TAC | O |  | 9.3.1.29a |  | - |  |
| **Served PLMNs** |  | *1..<maxnoofBPLMNs>* |  | Broadcast PLMNs in SIB 1 associated to the NR Cell Identity in the *NR CGI* IE | - |  |
| >PLMN Identity | M |  | 9.3.1.14 |  | - |  |
| >TAI Slice Support List | O |  | Slice Support List9.3.1.37 | Supported S-NSSAIs per PLMN or per SNPN.  | YES | ignore |
| >NPN Support Information | O |  | 9.3.1.156 | Supported NPNs per PLMN. | YES | reject |
| >Extended TAI Slice Support List | O |  | Extended Slice Support List9.3.1.165 | Additional Supported S-NSSAIs per PLMN or per SNPN.  | YES | reject |
| >TAI NSAG Support List | O |  | 9.3.1.273 | NSAG information associated with the slices per TAC, per PLMN or per SNPN. | YES | ignore |
| CHOICE *NR-Mode-Info*  | M |  |  |  | - |  |
| *>FDD* |  |  |  |  | - |  |
| **>>FDD Info** |  | *1* |  |  | - |  |
| >>>UL FreqInfo | M |  | NR Frequency Info9.3.1.17 | This IE is ignored if the *Cell Direction* IE is included and set to “dl-only”. | - |  |
| >>>DL FreqInfo | M |  | NR Frequency Info9.3.1.17 | This IE is ignored if the *Cell Direction* IE is included and set to “ul-only”. | - |  |
| >>>UL Transmission Bandwidth | M |  | Transmission Bandwidth9.3.1.15 | This IE is ignored if the *Cell Direction* IE is included and set to “dl-only”. | - |  |
| >>>DL Transmission Bandwidth | M |  | Transmission Bandwidth9.3.1.15 | This IE is ignored if the *Cell Direction* IE is included and set to “ul-only”. | - |  |
| >>>UL Carrier List  | O |  | NR Carrier List9.3.1.137 | If included, the *UL Transmission Bandwidth* IE shall be ignored. | YES | ignore |
| >>>DL Carrier List | O |  | NR Carrier List9.3.1.137 | If included, the *DL Transmission Bandwidth* IE shall be ignored. | YES | ignore |
| *>TDD* |  |  |  |  | - |  |
| **>>TDD Info** |  | *1* |  |  | - |  |
| >>>NR FreqInfo | M |  | NR Frequency Info9.3.1.17 |  | - |  |
| >>>Transmission Bandwidth | M |  | 9.3.1.15 | This IE is ignored if the *Transmission Bandwidth asymmetric* IE is present. | - |  |
| >>>Intended TDD DL-UL Configuration | O |  | 9.3.1.89 |  |  YES | ignore |
| >>>TDD UL-DL Configuration Common NR | O |  | OCTET STRING | Includes the *tdd-UL-DL-ConfigurationCommon* contained in the *ServingCellConfigCommon* IE as defined in TS 38.331 [8] | YES | ignore |
| >>>Carrier List | O |  | NR Carrier List9.3.1.137 | If included, the *Transmission Bandwidth* IE shall be ignored. | YES | ignore |
| >>>SBFD configuration | O |  | FFS | FFS | YES | ignore |
| **>>>Transmission Bandwidth asymmetric** |  | *0..1* |  | Indicates the asymmetric UL and DL transmission bandwidth. | YES | ignore |
| >>>>UL Transmission Bandwidth | M |  | Transmission Bandwidth9.3.1.15 | .  | – |  |
| >>>>DL Transmission Bandwidth | M |  | Transmission Bandwidth9.3.1.15 |  | – |  |
| *>NR-U* |  |  |  |  | YES | ignore |
| **>>NR-U Channel Info List** |  | *1..< maxnoofNR-UChannelIDs>* |  |  | - |  |
| **>>>NR-U Channel Info Item** |  |  |  |  | - |  |
| >>>>NR-U Channel ID | M |  | INTEGER (1.. maxnoofNR-UChannelIDs, …) | Index to uniquely identify the part of the NR-U Channel Bandwidth consisting of a contiguous set of resource blocks (RBs) on which a channel access procedure is performed in shared spectrum.Value 1 represents the first part of the NR-U Channel Bandwidth on which a channel access procedure is performed. Value 2 represents the second part of the NR-U Channel Bandwidth on which a channel access procedure is performed, and so on. | - |  |
| >>>>NR-U ARFCN | M |  | INTEGER (0.. maxNRARFCN) | It represents the centre frequency of the NR-U Channel Bandwidth for NR bands restricted to operation with shared spectrum channel access, as defined in TS 37.213 [46]. Allowed values are specified in TS 38.101-1 [26] in Table 5.4.2.3-2, Table 5.4.2.3-3 and Table 5.4.2.3-4. | - |  |
| >>>>NR-U Channel Bandwidth | M |  | ENUMERATED (10MHz, 20MHz, 40MHz, 60 MHz, 80 MHz, …, 100MHz) |  | - |  |
| Measurement Timing Configuration | M |  | OCTET STRING | Includes the *MeasurementTimingConfiguration* inter-node message defined in TS 38.331 [8]. | - |  |
| RANAC | O |  | RAN Area Code9.3.1.57 |  | YES | ignore |
| **Extended Served PLMNs List** |  | *0..1* |  | This is included if more than 6 Served PLMNs is to be signalled. | YES | ignore |
| **>Extended Served PLMNs Item** |  | *1 ..<maxnoofExtendedBPLMNs>* |  |  | - |  |
| >>PLMN Identity | M |  | 9.3.1.14 |  | - |  |
| >>TAI Slice Support List | O |  | Slice Support List9.3.1.37 | Supported S-NSSAIs per PLMN or per SNPN.  | - |  |
| >>NPN Support Information | O |  | 9.3.1.156 | Supported NPNs per PLMN. | YES | reject |
| >>Extended TAI Slice Support List | O |  | Extended Slice Support List9.3.1.165 | Additional Supported S-NSSAIs per PLMN or per SNPN.  | YES | reject |
| >>TAI NSAG Support List | O |  | 9.3.1.273 | NSAG information associated with the slices per TAC, per PLMN or per SNPN. | YES | ignore |
| Cell Direction | O |  | 9.3.1.78 |  | YES | ignore |
| **Broadcast PLMN Identity Info List** |  | *0..<maxnoofBPLMNsNR>* |  | 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 |
| >PLMN Identity List | M |  | Available PLMN List9.3.1.65 | Broadcast PLMN IDs in SIB1 associated to the *NR Cell Identity* IE | - |  |
| >Extended PLMN Identity List | O |  | Extended Available PLMN List9.3.1.76 |  | - |  |
| >5GS-TAC | O |  | OCTET STRING (3) |  | - |  |
| >NR Cell Identity | M |  | BIT STRING (36) |  | - |  |
| >RANAC | O |  | RAN Area Code9.3.1.57 |  | - |  |
| >Configured TAC Indication | O |  | 9.3.1.87a | NOTE: This IE is associated with the 5GS TAC in the *Broadcast PLMN Identity Info List* IE | YES | ignore |
| >NPN Broadcast Information | O |  | 9.3.1.157 | If this IE is included the content of the *PLMN Identity List* IE and *Extended PLMN Identity List* IE if present in the *Broadcast PLMN Identity Info List* IE is ignored. | YES | reject |
| Cell Type  | O |  | 9.3.1.87 |  | YES | ignore |
| Configured TAC Indication | O |  | 9.3.1.87a | NOTE: This IE is associated with the 5GS TAC on top-level of the *Served Cell Information* IE | YES | ignore |
| Aggressor gNB Set ID | O |  | gNB Set ID9.3.1.93 | This IE indicates the associated aggressor gNB Set ID of the cell | YES | ignore |
| Victim gNB Set ID | O |  | gNB Set ID9.3.1.93 | This IE indicates the associated Victim gNB Set ID of the cell | YES | ignore |
| IAB Info IAB-DU | O |  | 9.3.1.106 |  | YES | ignore |
| SSB Positions In Burst  | O |  | 9.3.1.138 |  | YES | ignore |
| NR PRACH Configuration | O |  | 9.3.1.139 |  | YES | ignore |
| SFN Offset | O |  | 9.3.1.208 |  | YES | ignore |
| NPN Broadcast Information | O |  | 9.3.1.157 |  | YES | reject |
| **Supported MBS FSA ID List** |  | *0..<maxnoofMBSFSAs>* |  | Shall contain all MBS Frequency Selection Area Identities associated with the NR CGI. | YES | ignore |
| >MBS Frequency Selection Area Identity | M |  | OCTET STRING(3) |  | – |  |
| RedCap Broadcast Information | O |  | BIT STRING (SIZE(8))  | The presence of this IE indicates that the intraFreqReselectionRedCap IE is broadcast in SIB1 of the corresponding cell, see TS 38.331 [8].Each position in the bitmap indicates which RedCap UEs are allowed access, according to the setting of RedCap barring indicators in SIB1, see TS 38.331 [8].First bit = 1Rx, second bit = 2Rx,third bit = halfDuplex, other bits reserved for future use. Value '1' indicates 'access allowed'. Value '0' indicates 'access not allowed”. | YES | ignore |
| eRedCap Broadcast Information | O |  | BIT STRING (SIZE(8)) | The presence of this IE indicates that the *intraFreqReselection-eRedCap* IE is broadcast in SIB1 of the corresponding cell, see TS 38.331 [8].Each position in the bitmap indicates which eRedCap UEs are allowed access, according to the setting of the barring indicators in SIB1, see TS 38.331 [8].First bit = 1Rx, second bit = 2Rx, third bit=half-duplex,other bits reserved for future use. Value '1' indicates 'access allowed'. Value '0' indicates 'access not allowed”. | YES | ignore |
| XR Broadcast Information | O |  | ENUMERATED (true, …) | Corresponds to information provided in the *cellBarred2RxXR* contained in the *SIB1* message as defined in TS 38.331 [8]. | YES | ignore |
| Barring Exemption for Emergency Call Information | O |  | ENUMERATED (true, …) | Corresponds to information provided in the *barringExemptEmergencyCall*  contained in the *SIB1* message as defined in 38.331 [10]. | YES | ignore |
| NZP-CSI-RS Configuration | O |  | 9.3.1.y |  | YES | ignore |

Editor’s Note: The specific IE name(s) of SBFD time and frequency configuration in 38.331 to be taken as reference are depended on RAN2 definition.

|  |  |
| --- | --- |
| Range bound | Explanation |
| maxnoofBPLMNs | Maximum no. of Broadcast PLMN Ids. Value is 6. |
| maxnoofExtendedBPLMNs | Maximum no. of Extended Broadcast PLMN Ids. Value is 6. |
| maxnoofBPLMNsNR | Maximum no. of PLMN Ids.broadcast in an NR cell. Value is 12. |
| maxnoofNR-UChannelIDs | Maximum no. NR-U Channel IDs in a cell. Value is 16. |
| maxnoofMBSFSAs | Maximum no. of MBS FSAs by a cell. Value is 256. |

<<<<<<<<<<<<<<<<<<<< Next Change >>>>>>>>>>>>>>>>>>>>

#### 9.3.1.y NZP CSI-RS Resources Configuration

This IE contains the NZP CSI-RS resources configuration of an NR cell.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| NZP-CSI-RS-ResourceSet | M |  | OCTET STRING | Includes the *NZP-CSI-RS-ResourceSet* IE, as defined in TS 38.331 [8]. |
| **NZP-CSI-RS-Resource List** |  | *1* |  |  |
| **>NZP-CSI-RS-Resource Item** |  | *1..<maxnoofNZP-CSI-RS-ResourcesPerSet>* |  |  |
| >>NZP-CSI-RS-Resource | M |  | OCTET STRING | Includes the *NZP-CSI-RS-Resource* IE, as defined in TS 38.331 [8]. |

|  |  |
| --- | --- |
| **Range bound** | **Explanation** |
| maxnoofNZP-CSI-RS-ResourcesPerSet | Maximum no. of NZP CSI-RS resources per resource set. Value is 64. |

<<<<<<<<<<<<<<<<<<<< Next Changes >>>>>>>>>>>>>>>>>>>>

9.4.3 Elementary Procedure Definitions

-- ASN1START

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

--

-- Elementary Procedure definitions

--

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

F1AP-PDU-Descriptions {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-PDU-Descriptions (0)}

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

 Criticality,

 ProcedureCode

FROM F1AP-CommonDataTypes

 Reset,

 ResetAcknowledge,

 F1SetupRequest,

 F1SetupResponse,

 F1SetupFailure,

 GNBDUConfigurationUpdate,

////Skip Unchanged Part

 TimingSynchronisationStatusRequest,

 TimingSynchronisationStatusResponse,

 TimingSynchronisationStatusFailure,

 TimingSynchronisationStatusReport,

 MIABF1SetupTriggering,

 MIABF1SetupOutcomeNotification,

 MulticastContextNotificationIndication,

 MulticastContextNotificationConfirm,

 MulticastContextNotificationRefuse,

 MulticastCommonConfigurationRequest,

 MulticastCommonConfigurationResponse,

 MulticastCommonConfigurationRefuse,

 BroadcastTransportResourceRequest,

 DUCUAccessAndMobilityIndication,

 SRSInformationReservationNotification,

 CLI-MeasurementUpdate

FROM F1AP-PDU-Contents

 id-Reset,

 id-F1Setup,

 id-gNBDUConfigurationUpdate,

 id-gNBCUConfigurationUpdate,

 id-UEContextSetup,

 id-UEContextRelease,

 id-UEContextModification,

 id-UEContextModificationRequired,

 id-DUCUAccessAndMobilityIndication,

 id-ErrorIndication,

 id-UEContextReleaseRequest,

 id-DLRRCMessageTransfer,

 id-ULRRCMessageTransfer,

 id-GNBDUResourceCoordination,

 id-privateMessage,

 id-UEInactivityNotification,

 id-InitialULRRCMessageTransfer,

 id-SystemInformationDeliveryCommand,

 id-Paging,

 id-Notify,

 id-WriteReplaceWarning,

 id-PWSCancel,

 id-PWSRestartIndication,

 id-PWSFailureIndication,

 id-GNBDUStatusIndication,

 id-RRCDeliveryReport,

 id-F1Removal,

 id-NetworkAccessRateReduction,

 id-TraceStart,

 id-DeactivateTrace,

 id-DUCURadioInformationTransfer,

 id-CUDURadioInformationTransfer,

 id-BAPMappingConfiguration,

 id-GNBDUResourceConfiguration,

 id-IABTNLAddressAllocation,

 id-IABUPConfigurationUpdate,

 id-resourceStatusReportingInitiation,

 id-resourceStatusReporting,

 id-accessAndMobilityIndication,

 id-ReferenceTimeInformationReportingControl,

 id-ReferenceTimeInformationReport,

 id-accessSuccess,

 id-cellTrafficTrace,

 id-PositioningMeasurementExchange,

 id-PositioningAssistanceInformationControl,

 id-PositioningAssistanceInformationFeedback,

 id-PositioningMeasurementReport,

 id-PositioningMeasurementAbort,

 id-PositioningMeasurementFailureIndication,

 id-PositioningMeasurementUpdate,

 id-TRPInformationExchange,

 id-PositioningInformationExchange,

 id-PositioningActivation,

 id-PositioningDeactivation,

 id-PositioningInformationUpdate,

 id-E-CIDMeasurementInitiation,

 id-E-CIDMeasurementFailureIndication,

 id-E-CIDMeasurementReport,

 id-E-CIDMeasurementTermination,

 id-BroadcastContextSetup,

 id-BroadcastContextRelease,

 id-BroadcastContextReleaseRequest,

 id-BroadcastContextModification,

 id-MulticastGroupPaging,

 id-MulticastContextSetup,

 id-MulticastContextRelease,

 id-MulticastContextReleaseRequest,

 id-MulticastContextModification,

 id-MulticastDistributionSetup,

 id-MulticastDistributionRelease,

 id-PDCMeasurementInitiation,

 id-PDCMeasurementTerminationCommand,

 id-PDCMeasurementFailureIndication,

 id-PDCMeasurementReport,

 id-pRSConfigurationExchange,

 id-measurementPreconfiguration,

 id-measurementActivation,

 id-QoEInformationTransfer,

 id-PosSystemInformationDeliveryCommand,

 id-DUCUCellSwitchNotification,

 id-CUDUCellSwitchNotification,

 id-DUCUTAInformationTransfer,

 id-CUDUTAInformationTransfer,

 id-QoEInformationTransferControl,

 id-RachIndication,

 id-TimingSynchronisationStatus,

 id-TimingSynchronisationStatusReport,

 id-MIABF1SetupTriggering,

 id-MIABF1SetupOutcomeNotification,

 id-MulticastContextNotification,

 id-MulticastCommonConfiguration,

 id-BroadcastTransportResourceRequest,

 id-SRSInformationReservationNotification,

 id-cLI-MeasurementReporting

////Skip Unchanged Part

 measurementPreconfiguration |

 timingSynchronisationStatus |

 multicastContextNotification |

 multicastCommonConfiguration ,

 ...

}

F1AP-ELEMENTARY-PROCEDURES-CLASS-2 F1AP-ELEMENTARY-PROCEDURE ::= {

 errorIndication |

 uEContextReleaseRequest |

 dLRRCMessageTransfer |

 uLRRCMessageTransfer |

 uEInactivityNotification |

 privateMessage |

 initialULRRCMessageTransfer |

 systemInformationDelivery |

 paging |

////Skip Unchanged Part

 rachIndication |

 timingSynchronisationStatusReport |

 mIABF1SetupTriggering |

 mIABF1SetupOutcomeNotification |

 broadcastTransportResourceRequest |

 dUCUAccessAndMobilityIndication |

 sRSInformationReservationNotification|

 cLI-MeasurementReporting,

 ...

}

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

--

-- Interface Elementary Procedures

--

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

reset F1AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE Reset

 SUCCESSFUL OUTCOME ResetAcknowledge

 PROCEDURE CODE id-Reset

 CRITICALITY reject

}

broadcastTransportResourceRequest F1AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE BroadcastTransportResourceRequest

 PROCEDURE CODE id-BroadcastTransportResourceRequest

 CRITICALITY reject

}

dUCUAccessAndMobilityIndication F1AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE DUCUAccessAndMobilityIndication

 PROCEDURE CODE id-DUCUAccessAndMobilityIndication

 CRITICALITY ignore

}

sRSInformationReservationNotification F1AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE SRSInformationReservationNotification

 PROCEDURE CODE id-SRSInformationReservationNotification

 CRITICALITY reject

}

////Skip Unchanged Part

cLI-MeasurementReporting F1AP-ELEMENTARY-PROCEDURE ::= {

 INITIATING MESSAGE CLI-MeasurementUpdate

 PROCEDURE CODE id-cLI-MeasurementReporting

 CRITICALITY ignore

}

END

-- ASN1STOP

9.4.4 PDU Definitions

-- ASN1START

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

--

-- PDU definitions for F1AP.

--

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

F1AP-PDU-Contents {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-PDU-Contents (1) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

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

--

-- IE parameter types from other modules.

--

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

IMPORTS

 AssociatedSessionID,

 BroadcastMRBs-FailedToBeModified-Item,

 BroadcastMRBs-FailedToBeSetup-Item,

 BroadcastMRBs-FailedToBeSetupMod-Item,

 BroadcastMRBs-Modified-Item,

 BroadcastMRBs-Setup-Item,

 BroadcastMRBs-SetupMod-Item,

 BroadcastMRBs-ToBeModified-Item,

 BroadcastMRBs-ToBeReleased-Item,

 BroadcastMRBs-ToBeSetup-Item,

 BroadcastMRBs-ToBeSetupMod-Item,

 Candidate-SpCell-Item,

 Cause,

 Cells-Allowed-to-be-Deactivated-List-Item,

 Cells-Failed-to-be-Activated-List-Item,

 Cells-Status-Item,

 Cells-to-be-Activated-List-Item,

 Cells-to-be-Deactivated-List-Item,

 CellULConfigured,

 CriticalityDiagnostics,

 C-RNTI,

 CUtoDURRCInformation,

 DRB-Activity-Item,

 DRBs-FailedToBeModified-Item,

 DRBs-FailedToBeSetup-Item,

 DRBs-FailedToBeSetupMod-Item,

 DRB-Notify-Item,

 DRBs-ModifiedConf-Item,

////Skip Unchanged Part

 SRSReservationType,

 RequestedSRSPreconfigurationCharacteristics-List,

 SRSPreconfiguration-List,

 Broadcast-MRBs-Transport-Request-Item,

 TAInformation-List,

 NonIntegerDRXCycle,

 AggregatedPosSRSResourceSetList,

 F1U-PathFailure,

 LTMResetInformation,

 CLI-MeasurementResult-List

FROM F1AP-IEs

 PrivateIE-Container{},

 ProtocolExtensionContainer{},

 ProtocolIE-Container{},

 ProtocolIE-ContainerPair{},

 ProtocolIE-SingleContainer{},

 F1AP-PRIVATE-IES,

 F1AP-PROTOCOL-EXTENSION,

 F1AP-PROTOCOL-IES,

 F1AP-PROTOCOL-IES-PAIR

FROM F1AP-Containers

 id-AssociatedSessionID,

 id-BroadcastMRBs-FailedToBeModified-List,

 id-BroadcastMRBs-FailedToBeModified-Item,

 id-BroadcastMRBs-FailedToBeSetup-List,

 id-BroadcastMRBs-FailedToBeSetup-Item,

////Skip Unchanged Part

id-TAInformation-List,

 id-NonIntegerDRXCycle,

 id-AggregatedPosSRSResourceSetList,

 id-RANSharingAssistanceInformation,

 id-F1U-PathFailure,

 id-LTMResetInformation,

 id-PreconfiguredSRSInformation,

 id-CLI-MeasurementResult-List,

 maxCellingNBDU,

 maxnoofCandidateSpCells,

 maxnoofDRBs,

 maxnoofIndividualF1ConnectionsToReset,

 maxnoofPotentialSpCells,

 maxnoofSCells,

 maxnoofSRBs,

 maxnoofPagingCells,

 maxnoofTNLAssociations,

 maxCellineNB,

 maxnoofUEIDs,

 maxnoofBHRLCChannels,

 maxnoofRoutingEntries,

 maxnoofTLAsIAB,

 maxnoofULUPTNLInformationforIAB,

 maxnoofUPTNLAddresses,

 maxnoofSLDRBs,

 maxnoofTRPInfoTypes,

 maxnoofTRPs,

 maxnoofMRBs,

 maxnoofUEIDforPaging,

 maxnoofMRBsforUE,

 maxnoofServingCellMOs

////Skip Unchanged Part

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

--

-- DU-CU Access And Mobility Indication

--

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

DUCUAccessAndMobilityIndication ::= SEQUENCE {

 protocolIEs ProtocolIE-Container { { DUCUAccessAndMobilityIndicationIEs} },

 ...

}

DUCUAccessAndMobilityIndicationIEs F1AP-PROTOCOL-IES ::= {

 { ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

 { ID id-DLLBTFailureInformationList CRITICALITY ignore TYPE DLLBTFailureInformationList PRESENCE optional},

 ...

}

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

--

-- CLI Measurement Update

--

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

CLI-MeasurementUpdate ::= SEQUENCE {

 protocolIEs ProtocolIE-Container {{CLI-MeasurementUpdate-IEs}},

 ...

}

CLI-MeasurementUpdate-IEs XNAP-PROTOCOL-IES ::= {

 { ID id-TransactionID CRITICALITY reject TYPE TransactionID PRESENCE mandatory }|

 { ID id-CLI-MeasurementResult-List CRITICALITY ignore TYPE CLI-MeasurementResult-List PRESENCE mandatory },

 ...

}

END

-- ASN1STOP

9.4.5 Information Element Definitions

-- ASN1START

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

--

-- Information Element Definitions

--

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

F1AP-IEs {

itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)

ngran-access (22) modules (3) f1ap (3) version1 (1) f1ap-IEs (2) }

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 id-gNB-CUSystemInformation,

 id-HandoverPreparationInformation,

 id-TAISliceSupportList,

 id-RANAC,

 id-BearerTypeChange,

 id-Coverage-Modification-Cause,

 id-Cell-Direction,

 id-Cell-Type,

 id-CellGroupConfig,

////Skip Unchanged Part

 id-ReportingIntervalIMs,

 id-Transmission-Bandwidth-asymmetric,

 id-TagIDPointer,

 id-LocalOrigin,

 id-SRSPosPeriodicConfigHyperSFNIndex,

 id-SBFD-Configuration,

 id-SSB-resource-config,

 id-NZP-CSI-RS-Resources-Config,

 maxNRARFCN,

 maxnoofErrors,

 maxnoofBPLMNs,

 maxnoofBPLMNsNR,

 maxnoofDLUPTNLInformation,

////Skip Unchanged Part