**LPWUS Review file**

**3GPP TSG-RAN WG2 Meeting #131 R2-2506583**

**Bengaluru, India, 25th – 29th Aug. 2025**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.331** | **CR** | **5416** | **rev** | **2** | **Current version:** | **18.6.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Introduction of LP-WUS/WUR in RRC | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | vivo (Rapporteur) | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_LPWUS-Core | | | | |  | ***Date:*** | | | 2025-09-01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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:*** | | New mechanisms have been agreed to support Rel-19 LP-WUS WUR in both idle/inactive and connected modes.  Enhancement on RRM measurement relaxation and RRM measurement offloading in idle/inactive modes have been agreed in Rel-19. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 1. Enhancements to support LP-WUS WUR in idle/inactive and connected modes. 2. Enhancements to support RRM measurement relaxation and RRM measurement offloading in idle/inactive modes. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | LP-WUS WUR and enhanced RRM measurement relaxation/offloading would not be supported in Rel-19. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 3.2, 5.3.5.9, 5.3.7.2, 5.3.13.2, 5.7.4.1, 5.7.4.2, 5.7.4.3, 6.2.2, 6.3.1, 6.3.2, 6.3.4, 6.4, 7.1.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 38.331 CR 5403  TS 38.306 CR 1321  TS 38.321 CR 2103  TS 38.304 CR 0440  TS 38.300 CR 1015  TS 37.340 CR 0420 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

Start of change

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

5GC 5G Core Network

A2X Aircraft-to-Everything

ACK Acknowledgement

AM Acknowledged Mode

ARQ Automatic Repeat Request

AS Access Stratum

ASN.1 Abstract Syntax Notation One

ATG Air to Ground

BAP Backhaul Adaptation Protocol

BCD Binary Coded Decimal

BFD Beam Failure Detection

BH Backhaul

BLER Block Error Rate

BRID Broadcast Remote Identification

BSR Buffer Status Report

BWP Bandwidth Part

CA Carrier Aggregation

CAG Closed Access Group

CAG-ID Closed Access Group Identifier

CAPC Channel Access Priority Class

CBR Channel Busy Ratio

CCCH Common Control Channel

CFR Common Frequency Resources

CG Cell Group

CHO Conditional Handover

CLI Cross Link Interference

CMAS Commercial Mobile Alert Service

CP Control Plane

CPA Conditional PSCell Addition

CPAC Conditional PSCell Addition or Change

CPC Conditional PSCell Change

C-RNTI Cell RNTI

CSI Channel State Information

DAA Detect And Avoid

DAPS Dual Active Protocol Stack

DC Dual Connectivity

DCCH Dedicated Control Channel

DCI Downlink Control Information

DCP DCI with CRC scrambled by PS-RNTI

DFN Direct Frame Number

DL Downlink

DL-PRS Downlink Positioning Reference Signal

DL-SCH Downlink Shared Channel

DM-RS Demodulation Reference Signal

DRB (user) Data Radio Bearer

DRX Discontinuous Reception

DSR Delay Status Report

DTCH Dedicated Traffic Channel

DTX Discontinuous Transmission

ECEF Earth-Centered, Earth-Fixed

ECI Earth-Centered Inertial

EN-DC E-UTRA NR Dual Connectivity with E-UTRA connected to EPC

EPC Evolved Packet Core

EPS Evolved Packet System

ETWS Earthquake and Tsunami Warning System

E-UTRA Evolved Universal Terrestrial Radio Access

E-UTRA/5GC E-UTRA connected to 5GC

E-UTRA/EPC E-UTRA connected to EPC

E-UTRAN Evolved Universal Terrestrial Radio Access Network

FDD Frequency Division Duplex

FFS For Further Study

G-CS-RNTI Group Configured Scheduling RNTI

GERAN GSM/EDGE Radio Access Network

GIN Group ID for Network selection

GNSS Global Navigation Satellite System

G-RNTI Group RNTI

GSM Global System for Mobile Communications

GSO Geosynchronous Orbit

HARQ Hybrid Automatic Repeat Request

HRNN Human Readable Network Name

HSDN High Speed Dedicated Network

H-SFN Hyper SFN

HST High Speed Train

IAB Integrated Access and Backhaul

IAB-DU IAB-node DU

IAB-MT IAB Mobile Termination

IDC In-Device Coexistence

IE Information element

IMSI International Mobile Subscriber Identity

kB Kilobyte (1000 bytes)

L1 Layer 1

L2 Layer 2

L3 Layer 3

LBT Listen Before Talk

LEO Low Earth Orbit

LR Low Power Wake-Up Receiver

LP-WUR Low Power Wake-Up Receiver

LP-WUS Low Power Wake-Up Signal

LP-SS Low Power Synchronization Signal

LTM L1/L2 Triggered Mobility

MAC Medium Access Control

MBS Multicast/Broadcast Service

MBS FSAI MBS Frequency Selection Area Identity

MCCH MBS Control Channel

MCG Master Cell Group

MDT Minimization of Drive Tests

MIB Master Information Block

MO-SDT Mobile Originated SDT

MPE Maximum Permissible Exposure

MP Multi-path

MR                      Main Receiver

MRB MBS Radio Bearer

MR-DC Multi-Radio Dual Connectivity

MTCH MBS Traffic Channel

MT-SDT Mobile Terminated SDT

MTSI Multimedia Telephony Service for IMS

MUSIM Multi-Universal Subscriber Identity Module

N3C Non-3GPP Connection

N/A Not Applicable

NCR Network-Controlled Repeater

NCR-Fwd NCR Forwarding

NCR-MT NCR Mobile Termination

NE-DC NR E-UTRA Dual Connectivity

NES Network Energy Savings

(NG)EN-DC E-UTRA NR Dual Connectivity (covering E-UTRA connected to EPC or 5GC)

NGEN-DC E-UTRA NR Dual Connectivity with E-UTRA connected to 5GC

NID Network Identifier

NPN Non-Public Network

NR-DC NR-NR Dual Connectivity

NR/5GC NR connected to 5GC

NSAG Network Slice AS Group

NTN Non-Terrestrial Network

OOK  On-Off Keying

PCell Primary Cell

PDCP Packet Data Convergence Protocol

PDU Protocol Data Unit

PEI Paging Early Indication

PEI-O Paging Early Indication-Occasion

PLMN Public Land Mobile Network

PNI-NPN Public Network Integrated Non-Public Network

posSIB Positioning SIB

PPW PRS Processing Window

PRS Positioning Reference Signal

PSCell Primary SCG Cell

PSI PDU Set Importance

PTM Point to Multipoint

PTP Point to Point

PWS Public Warning System

QoE Quality of Experience

QoS Quality of Service

RAN Radio Access Network

RAT Radio Access Technology

RLC Radio Link Control

RLM Radio Link Monitoring

RMTC RSSI Measurement Timing Configuration

RNA RAN-based Notification Area

RNTI Radio Network Temporary Identifier

ROHC Robust Header Compression

RPLMN Registered Public Land Mobile Network

RRC Radio Resource Control

RS Reference Signal

SBAS Satellite Based Augmentation System

SCell Secondary Cell

SCG Secondary Cell Group

SCS Subcarrier Spacing

SD-RSRP Sidelink Discovery RSRP

SDT Small Data Transmission

SFN Single Frequency Network

SFN System Frame Number

SFTD SFN and Frame Timing Difference

SI System Information

SIB System Information Block

SL Sidelink

SL-PRS Sidelink Positioning Reference Signal

SLSS Sidelink Synchronisation Signal

SNPN Stand-alone Non-Public Network

SpCell Special Cell

SRAP Sidelink Relay Adaptation Protocol

SRB Signalling Radio Bearer

SRS Sounding Reference Signal

SSB Synchronization Signal Block

TAG Timing Advance Group

TDCP Time Domain Channel Property

TDD Time Division Duplex

TEG Timing Error Group

TM Transparent Mode

TMGI Temporary Mobile Group Identity

TN Terrestrial Network

TSS Timing Synchronization Status.

U2N UE-to-Network

U2U UE-to-UE

UDC Uplink Data Compression

UE User Equipment

UL Uplink

UM Unacknowledged Mode

UP User Plane

VR Virtual Reality

VSAT Very Small Aperture Terminal

XR eXtended Reality

In the ASN.1, lower case may be used for some (parts) of the above abbreviations e.g. c-RNTI.

Nex change

#### 5.3.5.9 Other configuration

The UE shall:

1> if the received *otherConfig* includes the *delayBudgetReportingConfig*:

2> if *delayBudgetReportingConfig* is set to *setup*:

3> consider itself to be configured to send delay budget reports in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to send delay budget reports and stop timer T342, if running.

1> if the received *otherConfig* includes the *overheatingAssistanceConfig*:

2> if *overheatingAssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide overheating assistance information in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide overheating assistance information and stop timer T345, if running;

1> if the received *otherConfig* includes the *idc-AssistanceConfig*:

2> if *idc-AssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide IDC assistance information in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide IDC assistance information;

1> if the received *otherConfig* includes the *drx-PreferenceConfig*:

2> if *drx-PreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on DRX parameters for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on DRX parameters for power saving for the cell group and stop timer T346a associated with the cell group, if running;

1> if the received *otherConfig* includes the *maxBW-PreferenceConfig*:

2> if *maxBW-PreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the maximum aggregated bandwidth for power saving for the cell group in accordance with 5.7.4;

3> if *otherConfig* includes *maxBW-PreferenceConfigFR2-2*:

4> consider itself to be configured to provide its preference on the maximum aggregated bandwidth for FR2-2 for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the maximum aggregated bandwidth for power saving for the cell group and stop timer T346b associated with the cell group, if running;

1> if the received *otherConfig* includes the *maxCC-PreferenceConfig*:

2> if *maxCC-PreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the maximum number of secondary component carriers for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the maximum number of secondary component carriers for power saving for the cell group and stop timer T346c associated with the cell group, if running;

1> if the received *otherConfig* includes the *maxMIMO-LayerPreferenceConfig*:

2> if *maxMIMO-LayerPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the maximum number of MIMO layers for power saving for the cell group in accordance with 5.7.4;

3> if *otherConfig* includes *maxMIMO-LayerPreferenceConfigFR2-2*:

4> consider itself to be configured to provide its preference on the maximum number of MIMO layers for FR2-2 for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the maximum number of MIMO layers for power saving for the cell group and stop timer T346d associated with the cell group, if running;

1> if the received *otherConfig* includes the *minSchedulingOffsetPreferenceConfig*:

2> if *minSchedulingOffsetPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on the minimum scheduling offset for cross-slot scheduling for power saving for the cell group in accordance with 5.7.4;

3> if *otherConfig* includes *minSchedulingOffsetPreferenceConfigExt*:

4> consider itself to be configured to provide its preference on the minimum scheduling offset for 480 kHz SCS and/or 960 kHz SCS for cross-slot scheduling for power saving for the cell group in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on the minimum scheduling offset for cross-slot scheduling for power saving for the cell group and stop timer T346e associated with the cell group, if running;

1> if the received *otherConfig* includes the *releasePreferenceConfig*:

2> if *releasePreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide assistance information to transition out of RRC\_CONNECTED in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide assistance information to transition out of RRC\_CONNECTED and stop timer T346f, if running.

1> if the received *otherConfig* includes the *lpwus-OffsetPreferenceConfig*:

2> if *lpwus-OffsetPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its preference on time offset for LP-WUS monitoring [RIL]: V000, LPWUS in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on time offset for LP-WUS monitoring and stop timer T346xx, if running;

1> if the received *otherConfig* includes the *obtainCommonLocation*:

2> include available detailed location information for any subsequent measurement report or any subsequent RLF report, *SCGFailureInformation,* successful handover report, and successful PSCell change or addition report (if received for the associated cell group);

NOTE 1: The UE is requested to attempt to have valid detailed location information available whenever sending a measurement report for which it is configured to include available detailed location information. The UE may not succeed e.g. because the user manually disabled the GPS hardware, due to no/poor satellite coverage. Further details, e.g. regarding when to activate GNSS, are up to UE implementation.

1> if the received *otherConfig* includes the *btNameList*:

2> if *btNameList* is set to *setup*, include available Bluetooth measurement results for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

1> if the received *otherConfig* includes the *wlanNameList*:

2> if *wlanNameList* is set to *setup*, include available WLAN measurement results for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

1> if the received *otherConfig* includes the *sensorNameList*:

2> if *sensorNameList* is set to *setup*, include available Sensor measurement results for any subsequent measurement report or any subsequent RLF report and SCGFailureInformation;

NOTE 2: The UE is requested to attempt to have valid Bluetooth measurements, WLAN measurements and Sensor measurements whenever sending a measurement report for which it is configured to include these measurements. The UE may not succeed e.g. because the user manually disabled the WLAN or Bluetooth or Sensor hardware. Further details, e.g. regarding when to activate WLAN or Bluetooth or Sensor, are up to UE implementation.

1> if the received *otherConfig* includes the *sl-AssistanceConfigNR*:

2> consider itself to be configured to provide configured grant assistance information for NR sidelink communication in accordance with 5.7.4;

1> if the received *otherConfig* includes the *referenceTimePreferenceReporting*:

2> consider itself to be configured to provide UE reference time assistance information in accordance with 5.7.4;

1> else:

2> consider itself not to be configured to provide UE reference time assistance information;

1> if *successHO-Config* is set to *setup*:

2> consider itself to be configured to provide the successful handover information in accordance with 5.7.10.6;

1> else:

2> consider itself not to be configured to provide the successful handover information.

1> if *sn-initiatedPSCellChange* is not included in the received *otherConfig* and if the *successPSCell-Config* in the received *otherConfig* is set to *setup*:

2> consider itself to be configured by the corresponding cell group to provide the successful PSCell change or addition information in accordance with 5.7.10.7;

1> else:

2> consider itself not to be configured by the corresponding cell group to provide the successful PSCell change or addition information.

1> if *sn-initiatedPSCellChange* is included in the received *otherConfig* and if the received *otherConfig* includes *successPSCell-Config* set to *setup* and *thresholdPercentageT304-SCG* is not included; or

1> if *sn-initiatedPSCellChange* is included in received *otherConfig* and *successPSCell-Config* is already configured for the SCG:

2> consider itself to be configured by the source PSCell to provide the successful PSCell change or addition information in accordance with 5.7.10.7;

1> if *successPSCell-Config* in the received *otherConfig* is set to *setup* and *thresholdPercentageT304-SCG* is included:

2> consider itself to be configured by the target PSCell to provide the successful PSCell change or addition information in accordance with 5.7.10.7

1> if the *successPSCell-Config* received in *otherConfig* is set to *release*:

2> consider itself not to be configured by the corresponding cell group to provide the successful PSCell change or addition information.

1> if the received *otherConfig* includes the *ul-GapFR2-PreferenceConfig*:

2> consider itself to be configured to provide its preference on FR2 UL gap in accordance with 5.7.4;

1> else:

2> consider itself not to be configured to provide its preference on FR2 UL gap;

1> if the received *otherConfig* includes the *musim-GapAssistanceConfig*:

2> if *musim-GapAssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide MUSIM assistance information for gap preference in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide MUSIM assistance information for gap preference and stop timer T346h, if running;

1> if the received *otherConfig* includes the *musim-LeaveAssistanceConfig:*

2> if *musim-LeaveAssistanceConfig* is set to *setup*:

3> consider itself to be configured to provide MUSIM assistance information for leaving RRC\_CONNECTED in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide MUSIM assistance information for leaving RRC\_CONNECTED and stop timer T346g, if running.

1> if the received *otherConfig* includes the *musim-GapPriorityAssistanceConfig*:

2> consider itself to be configured to provide MUSIM assistance information for gap(s) priority in accordance with 5.7.4;

1> else:

2> consider itself not to be configured to provide MUSIM assistance information for gap(s) priority;

1> if the received *otherConfig* includes the *musim-CapabilityRestrictionConfig*:

2> if *musim-CapabilityRestrictionConfig* is set to *setup*:

3> consider itself to be configured to provide MUSIM assistance information for capability restriction in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide MUSIM assistance information for capability restriction and stop timer T348 and T346n, if running;

1> if the received *otherConfig* includes the *rlm-RelaxationReportingConfig*:

2> if *rlm-RelaxationReportingConfig* is set to *setup*:

3> consider itself to be configured to report the relaxation state of RLM measurements in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report the relaxation state of RLM measurements and stop timer T346j associated with the cell group, if running;

1> if the received *otherConfig* includes the *bfd-RelaxationReportingConfig*:

2> if *bfd-RelaxationReportingConfig* is set to *setup*:

3> consider itself to be configured to report the relaxation state of BFD measurements in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report the relaxation state of BFD measurements and stop timer T346k associated with the cell group, if running;

1> if the received *otherConfig* includes the *scg-DeactivationPreferenceConfig*:

2> if the *scg-DeactivationPreferenceConfig* is set to *setup*:

3> consider itself to be configured to provide its SCG deactivation preference in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its SCG deactivation preference and stop timer T346i, if running.

1> if the received *otherConfig* includes the *propDelayDiffReportConfig*:

2> if the *propDelayDiffReportConfig* is set to *setup*:

3> consider itself to be configured to provide service link propagation delay difference between serving cell and neighbour cell(s) in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide service link propagation delay difference between serving cell and neighbour cell(s).

1> if the received *otherConfig* includes the *rrm-MeasRelaxationReportingConfig*:

2> if the *rrm-MeasRelaxationReportingConfig* is set to *setup*:

3> consider itself to be configured to report the fulfilment of the criterion for relaxing RRM measurements in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to report the fulfilment of the criterion for relaxing RRM measurements.

1> if the received *otherConfig* includes the *multiRx-PreferenceReportingConfigFR2*:

2> if the *multiRx-PreferenceReportingConfigFR2* is set to *setup*:

3> consider itself to be configured to provide its preference on multi-Rx operation for FR2 in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide its preference on multi-Rx operation for FR2 and stop timer T346m, if running.

1> if the received *otherConfig* includes the *aerial-FlightPathAvailabilityConfig*:

2> consider itself to be configured to indicate the availability of flight path information in accordance with 5.7.4;

1> if the received *otherConfig* includes the *ul-TrafficInfoReportingConfig*:

2> if *ul-TrafficInfoReportingConfig* is set to *setup*:

3> consider itself to be configured to provide UL traffic information in accordance with 5.7.4;

2> else:

3> consider itself not to be configured to provide UL traffic information and stop all instances of timer T346l, if running;

1> if the received *otherConfig* includes *n3c-RelayUE-InfoReportConfig*:

2> consider itself to be configured to report relay UE information with non-3GPP connection(s).

Nex change

#### 5.3.7.2 Initiation

The UE initiates the procedure when one of the following conditions is met:

1> upon detecting radio link failure of the MCG and *t316* is not configured, in accordance with 5.3.10; or

1> upon detecting radio link failure of the MCG while SCG transmission is suspended, in accordance with 5.3.10; or

1> upon detecting radio link failure of the MCG while PSCell change or PSCell addition is ongoing, in accordance with 5.3.10; or

1> upon detecting radio link failure of the MCG while the SCG is deactivated, in accordance with 5.3.10; or

1> upon re-configuration with sync failure of the MCG, in accordance with clause 5.3.5.8.3; or

1> upon mobility from NR failure, in accordance with clause 5.4.3.5; or

1> upon integrity check failure indication from lower layers concerning SRB1 or SRB2, except if the integrity check failure is detected on the *RRCReestablishment* message; or

1> upon an RRC connection reconfiguration failure, in accordance with clause 5.3.5.8.2; or

1> upon detecting radio link failure for the SCG while MCG transmission is suspended, in accordance with clause 5.3.10.3 in NR-DC or in accordance with TS 36.331 [10] clause 5.3.11.3 in NE-DC; or

1> upon reconfiguration with sync failure of the SCG while MCG transmission is suspended in accordance with clause 5.3.5.8.3; or

1> upon SCG change failure while MCG transmission is suspended in accordance with TS 36.331 [10] clause 5.3.5.7a; or

1> upon SCG configuration failure while MCG transmission is suspended in accordance with clause 5.3.5.8.2 in NR-DC or in accordance with TS 36.331 [10] clause 5.3.5.5 in NE-DC; or

1> upon integrity check failure indication from SCG lower layers concerning SRB3 while MCG is suspended; or

1> upon T316 expiry, in accordance with clause 5.7.3b.5; or

1> upon detecting sidelink radio link failure by L2 U2N Remote UE in RRC\_CONNECTED which is not configured with MP, in accordance with clause 5.8.9.3; or

1> upon reception of *NotificationMessageSidelink* including *indicationType* by L2 U2N Remote UE in RRC\_CONNECTED which is not configured with MP, in accordance with clause 5.8.9.10; or

1> upon PC5 unicast link release for the serving L2 U2N Relay UE indicated by upper layer at L2 U2N Remote UE in RRC\_CONNECTED which is not configured with MP while T301 is not running; or

1> if MP is configured, upon detecting radio link failure of the MCG (i.e. direct path) in accordance with clause 5.3.10 while the transmission of indirect path is suspended as specified in 5.3.5.17; or

1> if MP is configured, upon detecting radio link failure of the MCG (i.e. direct path) in accordance with 5.3.10 while MP indirect path addition or change is ongoing; or

1> if MP is configured, upon detecting sidelink radio link failure of SL indirect path by L2 U2N Remote UE, in accordance with clause 5.8.9.3, while MCG transmission (i.e. direct path) is suspended as specified in clause 5.7.3b; or

1> if MP is configured, upon reception of *NotificationMessageSidelink* including *indicationType* in accordance with clause 5.8.9.10, while MCG transmission (i.e. direct path) is suspended as specified in clause 5.7.3b; or

1> if MP is configured, upon PC5 unicast link release indicated by upper layer at L2 U2N Remote UE, while MCG transmission (i.e. direct path) is suspended as specified in clause 5.7.3b; or

1> if MP is configured, upon detecting the failure of N3C indirect path by N3C remote UE in accordance with clause 5.7.3c, while MCG transmission (i.e. direct path) is suspended.

NOTE 0: It is up to UE implementation whether to initiate the procedure while T346g is running.

Upon initiation of the procedure, the UE shall:

1> stop timer T310, if running;

1> stop timer T312, if running;

1> stop timer T304, if running;

1> start timer T311;

1> stop timer T316, if running;

1> stop timer T421, if running;

1> if UE is not configured with *attemptCondReconfig*;and

1> if UE is not configured with *attemptLTM-Switch*:

2> reset MAC;

2> release *spCellConfig*, if configured;

2> suspend all RBs, and BH RLC channels for IAB-MT, and Uu Relay RLC channels for L2 U2N Relay UE, except SRB0 and broadcast MRBs;

2> release the MCG SCell(s), if configured;

2> if MR-DC is configured:

3> perform MR-DC release, as specified in clause 5.3.5.10;

2> perform the LTM configuration release procedure for the MCG and the SCG as specified in clause 5.3.5.18.7;

2> release *delayBudgetReportingConfig*, if configured and stop timer T342, if running;

2> release *overheatingAssistanceConfig*, if configured and stop timer T345, if running;

2> release *idc-AssistanceConfig*, if configured;

2> release *btNameList*, if configured;

2> release *wlanNameList*, if configured;

2> release *sensorNameList*, if configured;

2> release *drx-PreferenceConfig* for the MCG, if configured and stop timer T346a associated with the MCG, if running;

2> release *maxBW-PreferenceConfig* for the MCG, if configured and stop timer T346b associated with the MCG, if running;

2> release *maxCC-PreferenceConfig* for the MCG, if configured and stop timer T346c associated with the MCG, if running;

2> release *maxMIMO-LayerPreferenceConfig* for the MCG, if configured and stop timer T346d associated with the MCG, if running;

2> release *minSchedulingOffsetPreferenceConfig* for the MCG, if configured stop timer T346e associated with the MCG, if running;

2> release *rlm-RelaxationReportingConfig* for the MCG, if configured and stop timer T346j associated with the MCG, if running;

2> release *bfd-RelaxationReportingConfig* for the MCG, if configured and stop timer T346k associated with the MCG, if running;

2> release *releasePreferenceConfig*, if configured stop timer T346f, if running;

2> release *onDemandSIB-Request* if configured, and stop timer T350, if running;

2> release *referenceTimePreferenceReporting*, if configured;

2> release *sl-AssistanceConfigNR*, if configured;

2> release *obtainCommonLocation*, if configured;

2> release *musim-GapAssistanceConfig*, if configured and stop timer T346h, if running;

2> release *musim-GapPriorityAssistanceConfig*, if configured;

2> release *musim-LeaveAssistanceConfig*, if configured;

2> release *musim-CapabilityRestrictionConfig*, if configured and stop timer T346n, if running;

2> release*ul-GapFR2-PreferenceConfig*, if configured;

2> release *scg-DeactivationPreferenceConfig*, if configured, and stop timer T346i, if running;

2> release *propDelayDiffReportConfig*, if configured;

2> release *rrm-MeasRelaxationReportingConfig*, if configured;

2> release *maxBW-PreferenceConfigFR2-2*, if configured;

2> release *maxMIMO-LayerPreferenceConfigFR2-2*, if configured;

2> release *minSchedulingOffsetPreferenceConfigExt*, if configured;

2> release *multiRx-PreferenceReportingConfigFR2*, if configured, and stop timer T346m, if running;

2> release *aerial-FlightPathAvailabilityConfig*, if configured;

2> release *ul-TrafficInfoReportingConfig*, if configured, and stop all instances of timer T346l, if running;

2> release *lpwus-OffsetPreferenceConfig*, if configured, and stop timer T346xx, if running;

1> release *successHO-Config*, if configured;

1> release *successPSCell-Config* configured by the PCell, if configured;

1> if any DAPS bearer is configured:

2> reset the source MAC and release the source MAC configuration;

2> for each DAPS bearer:

3> release the RLC entity or entities as specified in TS 38.322 [4], clause 5.1.3, and the associated logical channel for the source SpCell;

3> reconfigure the PDCP entity to release DAPS as specified in TS 38.323 [5];

2> for each SRB:

3> release the PDCP entity for the source SpCell;

3> release the RLC entity as specified in TS 38.322 [4], clause 5.1.3, and the associated logical channel for the source SpCell;

2> release the physical channel configuration for the source SpCell;

2> discard the keys used in the source SpCell (the KgNB key, the KRRCenc key, the KRRCint key, the KUPint key and the KUPenc key), if any;

1> release *sl-L2RelayUE-Config* for L2 U2N relay operation, if configured;

1> release *sl-L2RemoteUE-Config* for L2 U2N relay operation, if configured;

1> release the SRAP entity for L2 U2N relay operation, if configured;

1> release *ncr-FwdConfig*, if configured;

1> if the UE is NCR-MT:

2> indicate to NCR-Fwd to cease forwarding;

1> if SL indirect path is configured:

2> release cell identity and relay UE ID configured in *sl-IndirectPathAddChange*;

2> indicate upper layers to trigger PC5 unicast link release of the SL indirect path;

1> if N3C indirect path is configured:

2> release *n3c-IndirectPathAddChange*;

2> consider the non-3GPP connection is not used;

1> if the UE is acting as a N3C relay UE:

2> release *n3c-IndirectPathConfigRelay*;

2> consider the non-3GPP connection is not used;

1> if the UE is acting as L2 U2N Remote UE and MP via L2 U2N Relay UE is not configured:

2> if the PC5-RRC connection with the U2N Relay UE is determined to be released:

3> indicate upper layers to trigger PC5 unicast link release;

3> perform either cell selection in accordance with the cell selection process as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both;

2> else (i.e., maintain the PC5 RRC connection):

3> consider the connected L2 U2N Relay UE as suitable and perform actions as specified in clause 5.3.7.3a;

NOTE 1: It is up to Remote UE implementation whether to release or keep the current PC5 unicast link.

1> else:

2> if the UE is capable of L2 U2N Remote UE:

3> perform either cell selection as specified in TS 38.304 [20], or relay selection as specified in clause 5.8.15.3, or both;

2> else:

3> perform cell selection in accordance with the cell selection process as specified in TS 38.304 [20].

NOTE 2: For L2 U2N Remote UE, if both a suitable cell and a suitable relay are available, the UE can select either one based on its implementation.

Nex change

#### 5.3.13.2 Initiation

The UE initiates the procedure when upper layers or AS (when responding to RAN paging, upon triggering RNA updates while the UE is in RRC\_INACTIVE, upon requesting multicast reception as specified in clause 5.3.13.1d, for NR sidelink communication/discovery/V2X sidelink communication as specified in clause 5.3.13.1a, for requesting configuration for SRS for positioning, for activation of preconfigured Positioning SRS in RRC\_INACTIVE, for activation of non-preconfigured Positioning SRS with type semi-persistent in RRC\_INACTIVE, upon receiving *RRCRelease* message including *resumeIndication*) requests the resume of a suspended RRC connection or requests the resume for initiating SDT as specified in clause 5.3.13.1b.

The UE shall ensure having valid and up to date essential system information as specified in clause 5.2.2.2 before initiating this procedure.

Upon initiation of the procedure, the UE shall:

1> if the resumption of the RRC connection is triggered by response to NG-RAN paging; or

1> if the resumption of the RRC connection is triggered by receiving *RRCRelease* message including *resumeIndication*; or

1> if the resumption of the RRC connection is triggered for multicast reception as specified in clause 5.3.13.1d:

2> select '0' as the Access Category;

2> perform the unified access control procedure as specified in 5.3.14 using the selected Access Category and one or more Access Identities provided by upper layers;

3> if the access attempt is barred, the procedure ends;

1> else if the resumption of the RRC connection is triggered by upper layers:

2> if the upper layers provide an Access Category and one or more Access Identities:

3> perform the unified access control procedure as specified in 5.3.14 using the Access Category and Access Identities provided by upper layers;

4> if the access attempt is barred, the procedure ends;

2> if the upper layers provide NSAG information and one or more S-NSSAI(s) triggering the access attempt (TS 23.501 [32] and TS 24.501 [23]):

3> apply the NSAG with highest NSAG priority among the NSAGs that are included in *SIB1* (i.e., in *FeatureCombination* and/or in *RA-PrioritizationSliceInfo*), and that are associated with the S-NSSAI(s) triggering the access attempt, in the Random Access procedure (TS 38.321 [3], clause 5.1);

NOTE 0: If there are multiple NSAGs with the same highest NAS-provided NSAG priority identified for access attempt as above, it is left to UE implementation to select the NSAG to be applied in the Random Access procedure.

2> if the resumption occurs after release with redirect with *mpsPriorityIndication*:

3> set the *resumeCause* to *mps-PriorityAccess*;

2> else if the resumption of the RRC connection is triggered for activation of preconfigured SRS for positioning available in *srs-PosRRC-InactiveValidityAreaPreConfigList* and if the UE is camped in one of the cells indicated in one of *srs-PosConfigValidityArea*; or

2> if the resumption of the RRC connection is triggered due to the need for SRS for positioning configuration and no stored *srs-PosRRC-InactiveValidityAreaPreConfigList* for the camped cell exists; or

2> if the resumption of the RRC connection is triggered due to activation of non-preconfigured SRS for positioning with type semi-persistent available in *srs-PosRRC-InactiveValidityAreaNonPreConfig* and if the UE is camped in the cells indicated in *srs-PosConfigValidityArea*:

3> if an emergency service is ongoing:

4> select '2' as the Access Category;

4> set the *resumeCause* to *emergency*;

3> else:

4> set the *resumeCause* to *srs-PosConfigOrActivationReq*;

2> else:

3> set the *resumeCause* in accordance with the information received from upper layers;

1> else if the resumption of the RRC connection is triggered due to an RNA update as specified in 5.3.13.8:

2> if an emergency service is ongoing:

NOTE 1: How the RRC layer in the UE is aware of an ongoing emergency service is up to UE implementation.

3> select '2' as the Access Category;

3> set the *resumeCause* to *emergency*;

2> else:

3> select '8' as the Access Category;

2> perform the unified access control procedure as specified in 5.3.14 using the selected Access Category and one or more Access Identities to be applied as specified in TS 24.501 [23];

3> if the access attempt is barred:

4> set the variable *pendingRNA-Update* to *true*;

4> the procedure ends;

1> else if *srs-PosRRC-InactiveValidityAreaPreConfigList* or *srs-PosRRC-InactiveValidityAreaNonPreConfig* is configured:

2> if the resumption of the RRC connection is triggered due to cell reselection as specified in clause 5.3.13.6:

3> if an emergency service is ongoing:

4> select '2' as the Access Category;

4> set the *resumeCause* to *emergency*;

3> else:

4> select '8' as the Access Category;

4> set the *resumeCause* to *srs-PosConfigOrActivationReq*;

NOTE 2: In case the L2 U2N Relay UE initiates RRC connection resume triggered either by reception of message from a L2 U2N Remote UE via SL-RLC0 or SL-RLC1 as specified in 5.3.13.1a, or by reception of the *RemoteUEInformationSidelink* message containing the *connectionForMP* as specified in 5.3.13.1a, the L2 U2N Relay UE sets the *resumeCause* by implementation, but it can only set the *emergency*, *mps-PriorityAccess*, or *mcs-PriorityAccess* as *resumeCause*, if the same cause value in the message received from the L2 U2N Remote UE via SL-RLC0.

1> if the UE is in NE-DC or NR-DC:

2> if the UE does not support maintaining SCG configuration upon connection resumption:

3> release the MR-DC related configurations (i.e., as specified in 5.3.5.10) from the UE Inactive AS context, if stored;

1> if the UE does not support maintaining the MCG SCell configurations upon connection resumption:

2> release the MCG SCell(s) from the UE Inactive AS context, if stored;

1> if the UE is acting as L2 U2N Remote UE:

2> establish a SRAP entity as specified in TS 38.351 [66], if no SRAP entity has been established;

2> apply the default configuration of SL-RLC1 as defined in 9.2.4 for SRB1;

2> apply the default PDCP configuration as defined in 9.2.1 for SRB1;

2> apply the default configuration of SRAP as defined in 9.2.5 for SRB1;

1> else:

2> apply the default L1 parameter values as specified in corresponding physical layer specifications, except for the parameters for which values are provided in *SIB1*;

2> apply the default SRB1 configuration as specified in 9.2.1;

2> apply the default MAC Cell Group configuration as specified in 9.2.2;

1> release *delayBudgetReportingConfig* from the UE Inactive AS context, if stored;

1> stop timer T342, if running;

1> release *overheatingAssistanceConfig* from the UE Inactive AS context, if stored;

1> stop timer T345, if running;

1> release *idc-AssistanceConfig* from the UE Inactive AS context, if stored;

1> release *drx-PreferenceConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346a, if running;

1> release *maxBW-PreferenceConfig* and *maxBW-PreferenceConfigFR2-2* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346b, if running;

1> release *maxCC-PreferenceConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346c, if running;

1> release *maxMIMO-LayerPreferenceConfig* and *maxMIMO-LayerPreferenceConfigFR2-2* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346d, if running;

1> release *minSchedulingOffsetPreferenceConfig* and *minSchedulingOffsetPreferenceConfigExt* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346e, if running;

1> release *rlm-RelaxationReportingConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346j, if running;

1> release *bfd-RelaxationReportingConfig* for all configured cell groups from the UE Inactive AS context, if stored;

1> stop all instances of timer T346k, if running;

1> release *releasePreferenceConfig* from the UE Inactive AS context, if stored;

1> release *wlanNameList* from the UE Inactive AS context, if stored;

1> release *btNameList* from the UE Inactive AS context, if stored;

1> release *sensorNameList* from the UE Inactive AS context, if stored;

1> release *obtainCommonLocation* from the UE Inactive AS context, if stored;

1> stop timer T346f, if running;

1> stop timer T346i, if running;

1> release *referenceTimePreferenceReporting* from the UE Inactive AS context, if stored;

1> release *sl-AssistanceConfigNR* from the UE Inactive AS context, if stored;

1> release *musim-GapAssistanceConfig* from the UE Inactive AS context, if stored and stop timer T346h, if running;

1> release *musim-GapConfig* from the UE Inactive AS context, if stored;

1> release *musim-GapPriorityAssistanceConfig* from the UE Inactive AS context, if stored;

1> release *musim-LeaveAssistanceConfig* from the UE Inactive AS context, if stored;

1> release *musim-CapabilityRestrictionConfig* from the UE Inactive AS context, if stored and stop timer T346n, if running;

1> release *propDelayDiffReportConfig* from the UE Inactive AS context, if stored;

1> release *ul-GapFR2-PreferenceConfig*, if configured;

1> release *rrm-MeasRelaxationReportingConfig* from the UE Inactive AS context, if stored;

1> release *multiRx-PreferenceReportingConfigFR2* if configured, and stop timer T346m, if running;

1> release *aerial-FlightPathAvailabilityConfig* from the UE Inactive AS context, if stored;

1> release *ul-TrafficInfoReportingConfig* from the UE Inactive AS context, if stored;

1> stop all instances of timer T346l, if running;

1> if the UE is acting as L2 U2N Remote UE:

2> apply the specified configuration of SL-RLC0 used for the delivery of RRC message over SRB0 as specified in 9.1.1.4;

2> apply the SDAP configuration and PDCP configuration as specified in 9.1.1.2 for SRB0;

1> else:

2> apply the CCCH configuration as specified in 9.1.1.2;

2> apply the *timeAlignmentTimerCommon* included in *SIB1*;

1> if *sdt-MAC-PHY-CG-Config* is configured:

2> if the resume procedure is initiated in a cell that is different to the PCell in which the UE received the stored *sdt-MAC-PHY-CG-Config*:

3> release the stored *sdt-MAC-PHY-CG-Config*;

3> instruct the MAC entity to stop the *cg-SDT-TimeAlignmentTimer*, if it is running;

1> if *ncd-SSB-RedCapInitialBWP-SDT* is configured:

2> if the resume procedure is initiated in a cell that is different to the PCell in which the UE received the stored *ncd-SSB-RedCapInitialBWP-SDT*:

3> release the stored *ncd-SSB-RedCapInitialBWP-SDT;*

1> if conditions for initiating SDT in accordance with 5.3.13.1b are fulfilled [RIL]: E037, LPWUS:

2> consider the resume procedure is initiated for SDT;

2> start timer T319a when the lower layers first transmit the CCCH message;

2> consider SDT procedure is ongoing;

1> else:

2> start timer T319;

2> instruct the MAC entity to stop the *cg*-*SDT*-*TimeAlignmentTimer*, if it is running;

1> if *ta-Report* or *ta-ReportATG* is configured with value *enabled* and the UE supports TA reporting:

2> indicate TA report initiation to lower layers;

1> set the variable *pendingRNA-Update* to *false*;

1> release *successHO-Config* from the UE Inactive AS context, if stored;

1> release *successPSCell-Config* configured by the PCell from the UE Inactive AS context, if stored;

1> release *successPSCell-Config* configured by the PSCell from the UE Inactive AS context, if stored;

1> release *lpwus-OffsetPreferenceConfig* from the UE Inactive AS context, if stored;[RIL]: H056 LPWUS

1> stop timer T346xx, if running; [RIL]: H057 LPWUS

1> initiate transmission of the *RRCResumeRequest* message or *RRCResumeRequest1* in accordance with 5.3.13.3.

Nex change

5.7.4 UE Assistance Information

5.7.4.1 General

****

**Figure 5.7.4.1-1: UE Assistance Information**

The purpose of this procedure is for the UE to inform the network of:

- its delay budget report carrying desired increment/decrement in the connected mode DRX cycle length; or

- its overheating assistance information; or

- its IDC assistance information; or

- its preference on DRX parameters for power saving; or

- its preference on the maximum aggregated bandwidth for power saving; or

- its preference on the maximum number of secondary component carriers for power saving; or

- its preference on the maximum number of MIMO layers for power saving; or

- its preference on the minimum scheduling offset for cross-slot scheduling for power saving; or

- its preference on the RRC state; or

- configured grant assistance information for NR sidelink communication; or

- its preference in being provisioned with reference time information; or

- its preference for FR2 UL gap; or

- its preference to transition out of RRC\_CONNECTED state for MUSIM operation; or

- its preference on the MUSIM gaps; or

- its preference on the MUSIM gap priority; or

- its preference on keeping the colliding MUSIM gaps; or

- its preference on the MUSIM temporary capability restriction; or

- its relaxation state for RLM measurements; or

- its relaxation state for BFD measurements; or

- availability of data and/or signalling mapped to radio bearers which are not configured for SDT; or

- its preference for the SCG to be deactivated; or

- availability of uplink data to transmit for a DRB for which there is no MCG RLC bearer while the SCG is deactivated; or

- change of its fulfilment status for RRM measurement relaxation criterion; or

- service link (specified in TS 38.300 [2]) propagation delay difference between serving cell and neighbour cell(s); or

- its preference on multi-Rx operation for FR2; or

- availability of flight path information for Aerial UE operation; or

- UL traffic information; or

- the information of the relay UE(s) with which it connects via a non-3GPP connection for MP; or

- configured grant assistance information for NR sidelink positioning; or

- its preference on time offset for LP-WUS monitoring.

5.7.4.2 Initiation

A UE capable of providing delay budget report in RRC\_CONNECTED may initiate the procedure in several cases, including upon being configured to provide delay budget report and upon change of delay budget preference.

A UE capable of providing overheating assistance information in RRC\_CONNECTED may initiate the procedure if it was configured to do so, upon detecting internal overheating, or upon detecting that it is no longer experiencing an overheating condition.

A UE capable of providing IDC assistance information in RRC\_CONNECTED may initiate the procedure if it was configured to do so, upon detecting IDC problem if the UE did not transmit an IDC assistance information since it was configured to provide IDC indications, or upon change of IDC problem information.

A UE capable of providing its preference on DRX parameters of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a preference on DRX parameters and upon change of its preference on DRX parameters.

A UE capable of providing its preference on the maximum aggregated bandwidth of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a maximum aggregated bandwidth preference and upon change of its maximum aggregated bandwidth preference.

A UE capable of providing its preference on the maximum number of secondary component carriers of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a maximum number of secondary component carriers preference and upon change of its maximum number of secondary component carriers preference.

A UE capable of providing its preference on the maximum number of MIMO layers of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a maximum number of MIMO layers preference and upon change of its maximum number of MIMO layers preference.

A UE capable of providing its preference on the minimum scheduling offset for cross-slot scheduling of a cell group for power saving in RRC\_CONNECTED may initiate the procedure in several cases, if it was configured to do so, including upon having a minimum scheduling offset preference and upon change of its minimum scheduling offset preference.

A UE capable of providing assistance information to transition out of RRC\_CONNECTED state may initiate the procedure if it was configured to do so, upon determining that it prefers to transition out of RRC\_CONNECTED state, or upon change of its preferred RRC state.

A UE capable of providing configured grant assistance information for NR sidelink communication in RRC\_CONNECTED may initiate the procedure in several cases, including upon being configured to provide traffic pattern information and upon change of traffic patterns.

A UE capable of providing an indication of its preference in being provisioned with reference time information may initiate the procedure upon being configured to provide this indication, or if it was configured to provide this indication and upon change of its preference.

A UE capable of providing an indication of its preference in FR2 UL gap may initiate the procedure if it was configured to do so, upon detecting the need of FR2 UL gap activation/deactivation.

A UE capable of providing MUSIM assistance information for gap preference may initiate the procedure if it was configured to do so, upon determining it needs the gaps, or upon change of the gap preference information.

A UE capable of providing MUSIM assistance information for gap priority preference and/or preference to keep the colliding MUSIM gaps may initiate the procedure if it was configured to do so, upon determining it has gap priority preference information and/or it has preference to keep the colliding MUSIM gaps.

A UE capable of providing MUSIM assistance information for leave indication may initiate the procedure if it was configured to do so upon determining that it needs to leave RRC\_CONNECTED state.

A UE capable of providing MUSIM assistance information for temporary capability restriction may initiate the procedure if it was configured to do so, upon determining it has temporary capability restriction or upon determining the removal of the capability restriction.

A UE capable of relaxing its RLM measurements of a cell group in RRC\_CONNECTED state shall initiate the procedure for providing an indication of its relaxation state for RLM measurements upon being configured to do so, and upon change of its relaxation state for RLM measurements in RRC\_CONNECTED state.

A UE capable of relaxing its BFD measurements in serving cells of a cell group in RRC\_CONNECTED shall initiate the procedure for providing an indication of its relaxation state for BFD measurements upon being configured to do so, and upon change of its relaxation state for BFD measurements in RRC\_CONNECTED state.

A UE capable of SDT initiates this procedure when data and/or signalling mapped to radio bearers that are not configured for SDT becomes available during SDT (i.e. while SDT procedure is ongoing).

A UE capable of providing its preference for SCG deactivation may initiate the procedure if it was configured to do so, upon determining that it prefers or does no more prefer the SCG to be deactivated.

A UE that has uplink data to transmit for a DRB for which there is no MCG RLC bearer while the SCG is deactivated shall initiate the procedure.

A UE capable of providing an indication of fulfilment of the RRM measurement relaxation criterion in connected mode may initiate the procedure if it was configured to do so, upon change of its fulfilment status for RRM measurement relaxation criterion for connected mode.

A UE capable of providing service link propagation delay difference between serving cell and neighbour cell(s) shall initiate the procedure upon being configured to do so, and upon determining that service link propagation delay difference between serving cell and a neighbour cell has changed more than *threshPropDelayDiff* compared with the last reported value.

A UE capable of providing an indication of its preference on multi-Rx operation for FR2 may initiate the procedure if it was configured to do so, upon detecting having a preference on multi-Rx operation for FR2 and upon change of its preference on multi-Rx operation for FR2.

A UE capable of indicating the availability of flight path information may initiate the procedure, if it was configured to do so, upon determining that an initial or updated flight path information is available.

A UE capable of providing UL traffic information shall initiate the procedure when this information is available upon being configured to do so, and upon change of UL traffic information.

A UE capable of N3C remote UE operation initiates the procedure upon being configured to report relay UE information on the available non-3GPP connection(s), and upon change of its available non-3GPP connection(s).

A UE capable of providing configured grant assistance information including SL-PRS transmission periodicity, priority, bandwidth and delay budget for NR sidelink positioning in RRC\_CONNECTED may initiate the procedure.

A UE capable of providing its preference on time offset for LP-WUS monitoring may initiate the procedure in several cases, including upon being configured to provide its preference on time offset for LP-WUS monitoring and upon change of its preference on time offset for LP-WUS monitoring.

Upon initiating the procedure, the UE shall:

1> if configured to provide delay budget report:

2> if the UE did not transmit a *UEAssistanceInformation* message with *delayBudgetReport* since it was configured to provide delay budget report; or

2> if the current delay budget is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *delayBudgetReport* and timer T342 is not running:

3> start or restart timer T342 with the timer value set to the *delayBudgetReportingProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide a delay budget report;

1> if configured to provide overheating assistance information:

2> if the overheating condition has been detected and T345 is not running; or

2> if the current overheating assistance information is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *overheatingAssistance* and timer T345 is not running:

3> start timer T345 with the timer value set to the *overheatingIndicationProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide overheating assistance information;

1> if configured to provide IDC assistance information based on *candidateServingFreqListNR* included in *idc-AssistanceConfig* of a cell group:

2> if the UE did not transmit a *UEAssistanceInformation* message with *idc-Assistance* since it was configured to provide IDC assistance information:

3> if on one or more frequencies included in *candidateServingFreqListNR*, the UE is experiencing IDC problems that it cannot solve by itself; or

3> if on one or more supported UL CA or NR-DC combination comprising of carrier frequencies included in *candidateServingFreqListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide FDM IDC assistance information including a list of affected frequencies and/or frequency combinations;

2> else if the current *idc-Assistance* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC FDM assistance information including a list of affected frequencies and/or frequency combinations;

1> if configured to provide IDC assistance information based on *idc-FDM-AssistanceConfig* included in *idc-AssistanceConfig* of a cell group:

2> if the UE did not transmit a *UEAssistanceInformation* message with *idc-FDM-Assistance* since it was configured to provide IDC assistance information:

3> if on one or more frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself; or

3> if on one or more supported UL CA or NR-DC combination comprising of frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC enhanced FDM assistance information including a list of affected frequency ranges and/or frequency range combinations;

2> else if the current *idc-FDM-Assistance* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC enhanced FDM assistance information including a list of affected frequency ranges and/or frequency range combinations;

1> if configured to provide IDC assistance information based on *idc-TDM-AssistanceConfig* included in *idc-AssistanceConfig* of a cell group:

2> if the UE did not transmit a *UEAssistanceInformation* message with *idc-TDM-Assistance* since it was configured to provide IDC assistance information:

3> if on one or more frequencies included in *candidateServingFreqListNR* or frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself; or

3> if on one or more supported UL CA or NR-DC combination comprising of carrier frequencies included in *candidateServingFreqListNR* or frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC TDM assistance information;

2> else if the current *idc-TDM-Assistance* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide IDC TDM assistance information;

NOTE 1: The term "IDC problems" refers to interference issues applicable across several subframes/slots where not necessarily all the subframes/slots are affected.

NOTE 2: For the frequencies or frequency range(s) on which a serving cell or serving cells is configured that is activated, IDC problems consist of interference issues that the UE cannot solve by itself, during either active data exchange or upcoming data activity which is expected in up to a few hundred milliseconds.  
For frequencies or frequency range(s) on which a SCell or SCells is configured that is deactivated, reporting IDC problems indicates an anticipation that the activation of the SCell or SCells would result in interference issues that the UE would not be able to solve by itself.  
For a non-serving frequency or frequency range(s), reporting IDC problems indicates an anticipation that if the non-serving frequency or frequencies or frequency range(s) became a serving frequency or serving frequencies or frequency range(s) then this would result in interference issues that the UE would not be able to solve by itself.

1> if configured to provide its preference on DRX parameters of a cell group for power saving:

2> if the UE has a preference on DRX parameters of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *drx-Preference* for the cell group since it was configured to provide its preference on DRX parameters of the cell group for power saving; or

2> if the current *drx-Preference* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *drx-Preference* for the cell group and timer T346a associated with the cell group is not running:

3> start the timer T346a with the timer value set to the *drx-PreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *drx-Preference*;

1> if configured to provide its preference on the maximum aggregated bandwidth of a cell group for power saving:

2> if the UE has a preference on the maximum aggregated bandwidth of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *maxBW-Preference* and/or *maxBW-PreferenceFR2-2* for the cell group since it was configured to provide its preference on the maximum aggregated bandwidth of the cell group for power saving; or

2> if the current *maxBW-Preference* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *maxBW-Preference* and/or *maxBW-PreferenceFR2-2*for the cell group and timer T346b associated with the cell group is not running:

3> start the timer T346b with the timer value set to the *maxBW-PreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *maxBW-Preference* and/or *maxBW-PreferenceFR2-2*;

1> if configured to provide its preference on the maximum number of secondary component carriers of a cell group for power saving:

2> if the UE has a preference on the maximum number of secondary component carriers of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *maxCC-Preference* for the cell group since it was configured to provide its preference on the maximum number of secondary component carriers of the cell group for power saving; or

2> if the current *maxCC-Preference* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *maxCC-Preference* for the cell group and timer T346c associated with the cell group is not running:

3> start the timer T346c with the timer value set to the *maxCC-PreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *maxCC-Preference*;

1> if configured to provide its preference on the maximum number of MIMO layers of a cell group for power saving:

2> if the UE has a preference on the maximum number of MIMO layers of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *maxMIMO-LayerPreference* and/or *maxMIMO-LayerPreferenceFR2-2* for the cell group since it was configured to provide its preference on the maximum number of MIMO layers of the cell group for power saving; or

2> if the current *maxMIMO-LayerPreference* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *maxMIMO-LayerPreference* and/or *maxMIMO-LayerPreferenceFR2-2* for the cell group and timer T346d associated with the cell group is not running:

3> start the timer T346d with the timer value set to the *maxMIMO-LayerPreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *maxMIMO-LayerPreference* and/or *maxMIMO-LayerPreferenceFR2-2*;

1> if configured to provide its preference on the minimum scheduling offset for cross-slot scheduling of a cell group for power saving:

2> if the UE has a preference on the minimum scheduling offset for cross-slot scheduling of the cell group and the UE did not transmit a *UEAssistanceInformation* message with *minSchedulingOffsetPreference* and/or *minSchedulingOffsetPreferenceExt* for the cell group since it was configured to provide its preference on the minimum scheduling offset for cross-slot scheduling of the cell group for power saving; or

2> if the current *minSchedulingOffsetPreference* and/or *minSchedulingOffsetPreferenceExt* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *minSchedulingOffsetPreference* and/or *minSchedulingOffsetPreferenceExt* for the cell group and timer T346e associated with the cell group is not running:

3> start the timer T346e with the timer value set to the *minSchedulingOffsetPreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *minSchedulingOffsetPreference* and/or *minSchedulingOffsetPreferenceExt*;

1> if configured to provide its release preference and timer T346f is not running:

2> if the UE determines that it would prefer to transition out of RRC\_CONNECTED state; or

2> if the UE is configured with *connectedReporting* and the UE determines that it would prefer to revert an earlier indication to transition out of RRC\_CONNECTED state:

3> start timer T346f with the timer value set to the *releasePreferenceProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the release preference;

1> if configured to provide configured grant assistance information for NR sidelink communication:

2> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide configured grant assistance information for NR sidelink communication;

1> if configured to provide preference in being provisioned with reference time information:

2> if the UE did not transmit a *UEAssistanceInformation* message with *referenceTimeInfoPreference* since it was configured to provide preference; or

2> if the UE's preference changed from the last time UE initiated transmission of the *UEAssistanceInformation* message including *referenceTimeInfoPreference*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide preference in being provisioned with reference time information.

1> if configured to provide its preference on FR2 UL gap:

2> if the UE did not transmit a *UEAssistanceInformation* message with *ul-GapFR2-Preference* since it was configured to provide its preference on FR2 UL gap information:

3> if the UE has a preference on FR2 UL gap activation/deactivation:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide FR2 UL gap preference;

2> else if the current FR2 UL gap preference is different from the one indicated in the last transmission of the *UEAssistanceInformation* message:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide FR2 UL gap preference.

1> if configured to provide MUSIM assistance information for leaving RRC\_CONNECTED:

2> if the UE needs to leave RRC\_CONNECTED state and the timer T346g is not running:

3> initiate transmission of the UEAssistanceInformation message in accordance with 5.7.4.3 to provide MUSIM assistance information for leaving RRC\_CONNECTED;

3> start the timer T346g with the timer value set to the *musim-LeaveWithoutResponseTimer*;

1> if configured to provide MUSIM assistance information for gap preference:

2> if configured to provide MUSIM assistance information for gap priority preference:

3> if the UE has a preference on the MUSIM gap(s) and the UE did not transmit a *UEAssistanceInformation* message with *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference* since it was configured to provide MUSIM assistance information for gap preference and gap priority preference and the timer T346h is not running; or

3> if the current *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference* is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference* and the timer T346h is not running:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference*;

4> start the timer T346h with the timer value set to the *musim-GapProhibitTimer*.

2> else:

3> if the UE has a preference on the MUSIM gap(s) and the UE did not transmit a *UEAssistanceInformation* message with *musim-GapPreferenceList* since it was configured to provide MUSIM assistance information for gap preference; or

3> if the current *musim-GapPreferenceList* is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *musim-GapPreferenceList* and the timer T346h is not running:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-GapPreferenceList*;

4> start the timer T346h with the timer value set to the *musim-GapProhibitTimer*.

NOTE 3: The UE does not need to initiate transmission of the *UEAssistanceInformation* message if the difference between the current *musim-GapPreferenceList* and the last transmission of the *UEAssistanceInformation* message including *musim-GapPreferenceList* is only due to removal of an ended aperiodic gap.

1> if configured to provide MUSIM assistance information for temporary capability restriction:

2> if the UE has temporary capability restriction on the current configuration and timer T348 is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-Cell-SCG-ToRelease and/or musim-CellToAffectList*;

3> start the timer T348 with the timer value set to the *musim-WaitTimer*.

2> if the UE has temporary capability restriction on the combination(s) of bands comprising of band(s) included in *musim-CandidateBandList* or if the UE has temporary capability restriction on the maximum CC number, and the UE did not transmit a *UEAssistanceInformation* message with *musim-AffectedBandsList* and/or *musim-AvoidedBandsList* and/or *musim-MaxCC* since it was configured to provide MUSIM assistance information for temporary capability restriction and timer T346n is not running; or

2> if the current *musim-AffectedBandsList* and/or *musim-AvoidedBandsList* and/or *musim-MaxCC* is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *musim-CapRestriction* and timer T346n is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-AffectedBandsList* and/or *musim-AvoidedBandsList* and/or *musim-MaxCC*;

3> start the timer T346n with the timer value set to the *musim-ProhibitTimer*.

2> if the UE is configured to provide the measurement gap requirement information of NR target bands and if the current measurement gap requirement information is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *musim-NeedForGapsInfoNR* or *RRCReconfigurationComplete* message or *RRCResumeComplete* message including *needForGapsInfoNR*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *musim-NeedForGapsInfoNR*;

2> if the UE has included *musim-CapRestrictionInd* in the *RRCSetupComplete* message or *RRCResumeComplete* or *RRCReestablishmentComplete* message and the temporary capability restriction is not applicable when the UE is configured to provide MUSIM assistance information for temporary capability restriction:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate that there is no temporary capability restriction;

1> if configured to provide the relaxation state of RLM measurements of a cell group and RLM measurement of the cell group is not stopped:

2> if the UE did not transmit a *UEAssistanceInformation* message with *rlm-MeasRelaxationState* since it was configured to provide the relaxation state of RLM measurements for the cell group; or

2> if the relaxation state of RLM measurements for the cell group is currently different from the relaxation state reported in the last transmission of the *UEAssistanceInformation* message including *rlm-MeasRelaxationState* of the cell group and timer T346j associated with the cell group is not running:

3> start timer T346j with the timer value set to the *rlm-RelaxtionReportingProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the relaxation state of RLM measurements of the cell group;

1> if configured to provide the relaxation state of BFD measurements of serving cells of a cell group and BFD measurement of the cell group is not stopped:

2> if the UE did not transmit a *UEAssistanceInformation* message with *bfd-MeasRelaxationState* since it was configured to provide the relaxation state of BFD measurements for the cell group; or

2> if the relaxation state of BFD measurements in any serving cell of the cell group is currently different from the relaxation state reported in the last transmission of the *UEAssistanceInformation* message including *bfd-MeasRelaxationState* of the cell group and timer T346k associated with the cell group is not running:

3> start timer T346k with the timer value set to the *bfd-RelaxtionReportingProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the relaxation state of BFD measurements of serving cells of the cell group.

1> if data and/or signalling mapped to radio bearers not configured for SDT becomes available during SDT (i.e. while SDT procedure is ongoing):

2> if the UE did not transmit a *UEAssistanceInformation* message with *nonSDT-DataIndication* since the initiation of the current resume procedure for SDT:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide *nonSDT-DataIndication*.

1> if configured to provide its preference for SCG deactivation and timer T346i is not running;

2> if the UE prefers the SCG to be deactivated and did not transmit a *UEAssistanceInformation* message with *scg-DeactivationPreference* since it was configured to provide its SCG deactivation preference; or

2> if the UE preference for SCG deactivation is different from the last indicated *scg-DeactivationPreference*:

3> start timer T346i with the timer value set to the *scg-DeactivationPreferenceProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the UE preference for SCG deactivation;

1> if the SCG is deactivated, and,

1> the UE has uplink data to send for an SCG RLC entity while the UE previously did not have any uplink data to send for any SCG RLC entity:

2> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate that the UE has uplink data to send for a DRB whose *DRB-Identity* is not included in any *RLC-BearerConfig* in the *CellGroupConfig* associated with the MCG.

1> if configured to send indications of RRM measurement relaxation criterion fulfilment:

2> if the criterion in 5.7.4.4 is met for a period of TSearchDeltaP-StationaryConnected:

3> if the UE did not transmit a *UEAssistanceInformation* message with *rrm-MeasRelaxationFulfilment* as *true* since it was configured to provide indications of RRM measurement relaxation criterion fulfilment; or

3> the last *UEAssistanceInformation* message indicated the criterion in 5.7.4.4 is not fulfilled with *rrm-MeasRelaxationFulfilment* as *false*:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate that the criterion for RRM measurement relaxation for connected mode is fulfilled;

2> else:

3> if the last *UEAssistanceInformation* message indicated fulfilment of the criterion in 5.7.4.4 with *rrm-MeasRelaxationFulfilment* as *true*:

4> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate that the criterion for RRM measurement relaxation for connected mode is not fulfilled.

1> if configured to provide service link propagation delay difference between serving cell and neighbour cell(s);

2> if the UE did not transmit a *UEAssistanceInformation* message with *propagationDelayDifference* since it was configured to provide service link propagation delay difference between serving cell and neighbour cell(s); or

2> for any neighbour cell in *neighCellInfoList*, if the service link propagation delay difference between serving cell and the neighbour cell has changed more than *threshPropDelayDiff* since the last transmission of the *UEAssistanceInformation* message including *propagationDelayDifference*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide service link propagation delay difference between serving cell and each neighbour cell included in the *neighCellInfoList*;

1> if configured to provide its preference for multi-Rx operation and timer T346m is not running;

2> if the UE has a preference on multi-Rx operation for FR2 and did not transmit a *UEAssistanceInformation* message with *multiRx-PreferenceFR2* since it was configured to provide its preference on multi-Rx operation; or

2> if the UE has a different preference on multi-Rx operation for FR2 from the last indicated *multiRx-PreferenceFR2*:

3> start timer T346m with the timer value set to the *multiRx-PreferenceReportingConfigFR2ProhibitTimer*;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the UE preference for multi-Rx operation for FR2.

1> if configured to indicate the availability of flight path information and the UE has (updated) flight path information available:

2> if the UE had neither provided a flight path information nor indicated the availability of flight path information since last entering RRC\_CONNECTED state; or

2> if at least one waypoint or a timestamp corresponding to a waypoint location that was not previously provided since last entering RRC\_CONNECTED state is available; or

2> if at least one upcoming waypoint or a timestamp corresponding to a waypoint location that was previously provided since last entering RRC\_CONNECTED state is to be removed; or

2> if *flightPathUpdateDistanceThr* is configured and, for at least one waypoint, the 3D distance between the previously provided location and the new location is more than the distance threshold configured by *flightPathUpdateDistanceThr*; or

2> if *flightPathUpdateTimeThr* is configured and, for at least one waypoint, the time difference between the previously provided timestamp and the new timestamp, if available, is more than the time threshold configured by *flightPathUpdateTimeThr*:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to indicate the availability of flight path information;

NOTE 4: If neither *flightPathUpdateDistanceThr* nor *flightPathUpdateTimeThr* is configured, it is up to UE implementation whether to initiate transmission of the *UEAssistanceInformation* message when updated flight path information is available.

1> if configured to provide UL traffic information:

2> if the UE did not transmit a *UEAssistanceInformation* message with *ul-TrafficInfo* since it was configured to provide UL traffic information; or

2> if UL traffic information included in the previous *UEAssistanceInformation* has changed since the last transmission of the *UEAssistanceInformation* message containing *ul-TrafficInfo* for at least one QoS flow for which timer T346l is not running:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide UL traffic information.

NOTE 5: The UE only considers *burstArrivalTime* to have changed when it changes relative to the periodicity of the Data Burst arrival.

1> if configured to report relay UE information with non-3GPP connection(s):

2> if the UE did not transmit a *UEAssistanceInformation* message with *n3c-relayUE-InfoList* since it was configured to report available relay UE information with non-3GPP connection(s); or

2> if the UE has new available non-3GPP connection(s); or

2> if the non-3GPP connection(s) with the reported relay UE(s) is not available:

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to report relay UE information with non-3GPP connection(s) included in the *n3c-relayUE-InfoList*;

1> if configured to provide configured grant assistance information for NR sidelink positioning:

2> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide configured grant assistance information for NR sidelink positioning;

1> if configured to provide its preference on time offset for LP-WUS monitoring of a cell group:

2> if [the UE has a preference on time offset for LP-WUS monitoring of the cell group and] [RIL]: E009 LPWUS the UE did not transmit a *UEAssistanceInformation* message with *lpwus-OffsetPreference* for the cell group since it was configured to provide its preference on time offset for LP-WUS monitoring of the cell group for power saving; or

2> if the current *lpwus-OffsetPreference* information for the cell group is different from the one indicated in the last transmission of the *UEAssistanceInformation* message including *lpwus-OffsetPreference* for the cell group and timer T346xx associated with the cell group is not running:

3> start the timer T346xx with the timer value [RIL]: Z051, LPWUS set to the *lpwus-OffsetPreferenceProhibitTimer* of the cell group;

3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide the current *lpwus-OffsetPreference*.

5.7.4.3 Actions related to transmission of *UEAssistanceInformation* message

The UE shall set the contents of the *UEAssistanceInformation* message as follows:

1> if transmission of the *UEAssistanceInformation* message is initiated to provide a delay budget report according to 5.7.4.2 or 5.3.5.3;

2> set *delayBudgetReport* to *type1* according to a desired value;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide overheating assistance information according to 5.7.4.2 or 5.3.5.3;

2> if the UE experiences internal overheating:

3> if the UE prefers to temporarily reduce the number of maximum secondary component carriers:

4> include *reducedMaxCCs* in the *OverheatingAssistance* IE;

4> set *reducedCCsDL* to the number of maximum SCells the UE prefers to be temporarily configured in downlink;

4> set *reducedCCsUL* to the number of maximum SCells the UE prefers to be temporarily configured in uplink;

3> if the UE prefers to temporarily reduce maximum aggregated bandwidth of FR1:

4> include *reducedMaxBW-FR1* in the *OverheatingAssistance* IE;

4> set *reducedBW-DL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all downlink carriers of FR1;

4> set *reducedBW-UL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all uplink carriers of FR1;

3> if the UE prefers to temporarily reduce maximum aggregated bandwidth of FR2-1:

4> include *reducedMaxBW-FR2* in the *OverheatingAssistance* IE;

4> set *reducedBW-DL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all downlink carriers of FR2-1;

4> set *reducedBW-UL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all uplink carriers of FR2-1;

3> if the UE prefers to temporarily reduce maximum aggregated bandwidth of FR2-2:

4> include *reducedMaxBW-FR2-2* in the *OverheatingAssistance IE*;

4> set *reducedBW-FR2-2-DL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all downlink carriers of FR2-2;

4> set *reducedBW-FR2-2-UL* to the maximum aggregated bandwidth the UE prefers to be temporarily configured across all uplink carriers of FR2-2;

3> if the UE prefers to temporarily reduce the number of maximum MIMO layers of each serving cell operating on FR1:

4> include *reducedMaxMIMO-LayersFR1* in the *OverheatingAssistance* IE;

4> set *reducedMIMO-LayersFR1-DL* to the number of maximum MIMO layers of each serving cell operating on FR1 the UE prefers to be temporarily configured in downlink;

4> set *reducedMIMO-LayersFR1-UL* to the number of maximum MIMO layers of each serving cell operating on FR1 the UE prefers to be temporarily configured in uplink;

3> if the UE prefers to temporarily reduce the number of maximum MIMO layers of each serving cell operating on FR2-1:

4> include *reducedMaxMIMO-LayersFR2* in the *OverheatingAssistance* IE;

4> set *reducedMIMO-LayersFR2-DL* to the number of maximum MIMO layers of each serving cell operating on FR2-1 the UE prefers to be temporarily configured in downlink;

4> set *reducedMIMO-LayersFR2-UL* to the number of maximum MIMO layers of each serving cell operating on FR2-1 the UE prefers to be temporarily configured in uplink;

3> if the UE prefers to temporarily reduce the number of maximum MIMO layers of each serving cell operating on FR2-2:

4> include *reducedMaxMIMO-LayersFR2-2* in the *OverheatingAssistance IE*;

4> set *reducedMIMO-LayersFR2-2-DL* to the number of maximum MIMO layers of each serving cell operating on FR2 the UE prefers to be temporarily configured in downlink;

4> set *reducedMIMO-LayersFR2-2-UL* to the number of maximum MIMO layers of each serving cell operating on FR2 the UE prefers to be temporarily configured in uplink;

2> else (if the UE no longer experiences an overheating condition):

3> do not include *reducedMaxCCs*, *reducedMaxBW-FR1*, *reducedMaxBW-FR2*, *reducedMaxBW-FR2-2*, *reducedMaxMIMO-LayersFR1,* *reducedMaxMIMO-LayersFR2* or *reducedMaxMIMO-LayersFR2-2* in *OverheatingAssistance* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide IDC FDM assistance information according to 5.7.4.2 or 5.3.5.3:

2> if there is at least one carrier frequency included in *candidateServingFreqListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

3> include the field *affectedCarrierFreqList* with an entry for each affected carrier frequency included in *candidateServingFreqListNR*;

3> for each carrier frequency included in the field *affectedCarrierFreqList*, include *interferenceDirection* and set it accordingly;

2> if there is at least one supported UL CA or NR-DC combination comprising of carrier frequencies included in *candidateServingFreqListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

3> include *victimSystemType* for each UL CA or NR-DC combination included in *affectedCarrierFreqCombList*;

3> if the UE sets *victimSystemType* to *wlan* or *bluetooth*:

4> include *affectedCarrierFreqCombList* with an entry for each supported UL CA combination comprising of carrier frequencies included in *candidateServingFreqListNR*, that is affected by IDC problems;

3> else:

4> optionally include *affectedCarrierFreqCombList* with an entry for each supported UL CA or NR-DC combination comprising of carrier frequencies included in *candidateServingFreqListNR*, that is affected by IDC problems;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide IDC enhanced FDM assistance information according to 5.7.4.2 or 5.3.5.3:

2> if there is at least one affected frequency range overlapping with one candidate frequency range included in *candidateServingFreqRangeListNR*, and the center frequency of the affected frequency range is within the candidate frequency range included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

3> include the field *affectedCarrierFreqRangeList* with an entry for each affected frequency range;

3> for each affected frequency range included in the field *affectedCarrierFreqRangeList*, include *centerFreq* and *affectedBandwidth*;

3> for each affected frequency range included in the field *affectedCarrierFreqRangeList*, include *interferenceDirection* and optionally *victimSystemType*, and set it accordingly;

2> if there is at least one supported UL CA or NR-DC combinations comprising of candidate frequency ranges included in *candidateServingFreqRangeListNR*, and each affected frequency range in the UL CA or NR-DC combination overlapping with one candidate frequency range included in *candidateServingFreqRangeListNR*, and the center frequency of the affected frequency range is within the candidate frequency range included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself:

3> include the field *affectedCarrierFreqRangeCombList* with an entry for each supported UL CA or NR-DC combination comprising of frequency ranges that is affected by IDC problems;

3> for each affected frequency range included in the field *affectedCarrierFreqRangeCombList*, include *centerFreq* and *affectedBandwidth*;

3> for each UL CA or NR-DC combination included in the field *affectedCarrierFreqRangeCombList*, include *interferenceDirection* and optionally *victimSystemType*, and set it accordingly;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide IDC TDM assistance information according to 5.7.4.2 or 5.3.5.3:

2> if there is at least one candidate carrier frequency included in *candidateServingFreqListNR* or candidate frequency range included in *candidateServingFreqRangeListNR* or one supported UL CA or NR-DC combination comprising of candidate carrier frequencies included in *candidateServingFreqListNR* or candidate frequency ranges included in *candidateServingFreqRangeListNR*, the UE is experiencing IDC problems that it cannot solve by itself, and *affectedCarrierFreqList* or *affectedCarrierFreqCombList* or *affectedCarrierFreqRangeList* or *affectedCarrierFreqRangeCombList* is included, and *idc-TDM-AssistanceConfig* is set to *setup*:

3> include Time Domain Multiplexing (TDM) based assistance information as indicated by *idc-TDM-Assistance* that could be used to resolve the IDC problems;

NOTE 1: When sending an *UEAssistanceInformation* message to inform the IDC problems, the UE includes all IDC assistance information in the *idc-Assistance* (IDC FDM assistance information) or *idc-FDM-Assistance* (IDC enhanced FDM assistance information) or *idc-TDM-Assistance* (IDC TDM assistance information) fields respectively (rather than providing e.g. the changed part(s) of the IDC assistance information in respective fields).

NOTE 2: Upon not anymore experiencing a particular IDC problem that the UE previously reported, the UE provides an IDC indication with the modified contents of the *UEAssistanceInformation* message (e.g. by not including the IDC assistance information in the *idc-Assistance* or *idc-FDM-Assistance* or *idc-TDM-Assistance* fields).

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *drx-Preference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *drx-Preference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on DRX parameters for the cell group:

3> if the UE has a preference for the long DRX cycle:

4> include *preferredDRX-LongCycle* in the *DRX-Preference* IE andset it to the preferred value;

3> if the UE has a preference for the DRX inactivity timer:

4> include *preferredDRX-InactivityTimer* in the *DRX-Preference* IE and set it to the preferred value;

3> if the UE has a preference for the short DRX cycle:

4> include *preferredDRX-ShortCycle* in the *DRX-Preference* IE and set it to the preferred value;

3> if the UE has a preference for the short DRX timer:

4> include *preferredDRX-ShortCycleTimer* in the *DRX-Preference* IE and set it to the preferred value;

2> else (if the UE has no preference on DRX parameters for the cell group):

3> do not include *preferredDRX-LongCycle, preferredDRX-InactivityTimer, preferredDRX-ShortCycle* and *preferredDRX-ShortCycleTimer* in the *DRX-Preference* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxBW-Preference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxBW-Preference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the maximum aggregated bandwidth for the cell group:

3> if the UE prefers to reduce the maximum aggregated bandwidth of FR1:

4> include *reducedMaxBW-FR1* in the *MaxBW-Preference* IE;

4> set *reducedBW-DL* to the maximum aggregated bandwidth the UE desires to have configured across all downlink carriers of FR1in the cell group;

4> set *reducedBW-UL* to the maximum aggregated bandwidth the UE desires to have configured across all uplink carriers of FR1in the cell group;

3> if the UE prefers to reduce the maximum aggregated bandwidth of FR2-1:

4> include *reducedMaxBW-FR2* in the *MaxBW-Preference* IE;

4> set *reducedBW-DL* to the maximum aggregated bandwidth the UE desires to have configured across all downlink carriers of FR2-1in the cell group;

4> set *reducedBW-UL* to the maximum aggregated bandwidth the UE desires to have configured across all uplink carriers of FR2-1in the cell group;

2> else (if the UE has no preference on the maximum aggregated bandwidth for the cell group):

3> do not include *reducedMaxBW-FR1* and *reducedMaxBW-FR2* in the *MaxBW-Preference* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxBW-PreferenceFR2-2* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxBW-PreferenceFR2-2* in the *UEAssistanceInformation* message;

3> if the UE prefers to reduce the maximum aggregated bandwidth of FR2-2:

4> include *reducedMaxBW-FR2-2* in the M*axBW-PreferenceFR2-2* IE;

4> set *reducedBW-FR2-2-DL* to the maximum aggregated bandwidth the UE desires to have configured across all downlink carriers of FR2-2 in the cell group;

4> set *reducedBW-FR2-2-UL* to the maximum aggregated bandwidth the UE desires to have configured across all uplink carriers of FR2-2 in the cell group;

2> else (if the UE has no preference on the maximum aggregated bandwidth for the cell group):

3> do not include *reducedMaxBW-FR2-2* in the *MaxBW-PreferenceFR2-2* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxCC-Preference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxCC-Preference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the maximum number of secondary component carriers for the cell group:

3> include *reducedMaxCCs* in the *MaxCC-Preference* IE;

3> set *reducedCCsDL* to the number of maximum SCells the UE desires to have configured in downlinkin the cell group;

3> set *reducedCCsUL* to the number of maximum SCells the UE desires to have configured in uplinkin the cell group;

2> else (if the UE has no preference on the maximum number of secondary component carriers for the cell group):

3> do not include *reducedMaxCCs* in the *MaxCC-Preference* IE;

NOTE 3: The UE can implicitly indicate a preference for NR SCG release by reporting the maximum aggregated bandwidth preference for power saving of the cell group, if configured, as zero for both FR1 and FR2, and by reporting the maximum number of secondary component carriers for power saving of the cell group, if configured, as zero for both uplink and downlink.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxMIMO-LayerPreference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxMIMO-LayerPreference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the maximum number of MIMO layers for the cell group:

3> if the UE prefers to reduce the number of maximum MIMO layers of each serving cell operating on FR1:

4> include *reducedMaxMIMO-LayersFR1* in the *MaxMIMO-LayerPreference* IE;

4> set *reducedMIMO-LayersFR1-DL* to the preferred maximum number of downlink MIMO layers of each BWP of each FR1 serving cell that the UE operates on in the cell group;

4> set *reducedMIMO-LayersFR1-UL* to the preferred maximum number of uplink MIMO layers of each FR1 serving cell that the UE operates on in the cell group;

3> if the UE prefers to reduce the number of maximum MIMO layers of each serving cell operating on FR2-1:

4> include *reducedMaxMIMO-LayersFR2* in the *MaxMIMO-LayerPreference* IE;

4> set *reducedMIMO-LayersFR2-DL* to the preferred maximum number of downlink MIMO layers of each BWP of each FR2-1 serving cell that the UE operates on in the cell group;

4> set *reducedMIMO-LayersFR2-UL* to the preferred maximum number of uplink MIMO layers of each FR2-1 serving cell that the UE operates on in the cell group;

2> else (if the UE has no preference on the maximum number of MIMO layers for the cell group):

3> do not include *reducedMaxMIMO-LayersFR1* and *reducedMaxMIMO-LayersFR2* in the *MaxMIMO-LayerPreference* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *maxMIMO LayerPreferenceFR2* 2 of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *maxMIMO-LayerPreferenceFR2-2* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the maximum number of MIMO layers for the cell group for FR2-2:

3> if the UE prefers to reduce the number of maximum MIMO layers of each serving cell operating on FR2 2:

4> include *reducedMaxMIMO-LayersFR2-2* in the *MaxMIMO-LayerPreferenceFR2 2* IE;

4> set *reducedMIMO-LayersFR2-2-DL* to the preferred maximum number of downlink MIMO layers of each BWP of each FR2-2 serving cell that the UE operates on in the cell group;

4> set *reducedMIMO-LayersFR2-2-UL* to the preferred maximum number of uplink MIMO layers of each FR2-2 serving cell that the UE operates on in the cell group;

2> else (if the UE has no preference on the maximum number of MIMO layers for the cell group):

3> do not include reducedMaxMIMO-LayersFR2-2 in the *MaxMIMO-LayerPreferenceFR2-*2 IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *minSchedulingOffsetPreference* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *minSchedulingOffsetPreference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the minimum scheduling offset for cross-slot scheduling for the cell group:

3> if the UE has a preference for the value of K0 (TS 38.214 [19], clause 5.1.2.1) for cross-slot scheduling with 15 kHz SCS:

4> include *preferredK0-SCS-15kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*0;

3> if the UE has a preference for the value of K0 for cross-slot scheduling with 30 kHz SCS:

4> include *preferredK0-SCS-30kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*0;

3> if the UE has a preference for the value of K0 for cross-slot scheduling with 60 kHz SCS:

4> include *preferredK0-SCS-60kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*0;

3> if the UE has a preference for the value of K0 for cross-slot scheduling with 120 kHz SCS:

4> include *preferredK0-SCS-120kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*0;

3> if the UE has a preference for the value of K2 (TS 38.214 [19], clause 6.1.2.1) for cross-slot scheduling with 15 kHz SCS:

4> include *preferredK2-SCS-15kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*2;

3> if the UE has a preference for the value of K2 for cross-slot scheduling with 30 kHz SCS:

4> include *preferredK2-SCS-30kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*2;

3> if the UE has a preference for the value of K2 for cross-slot scheduling with 60 kHz SCS:

4> include *preferredK2-SCS-60kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*2;

3> if the UE has a preference for the value of K2 for cross-slot scheduling with 120 kHz SCS:

4> include *preferredK2-SCS-120kHz* in the *MinSchedulingOffsetPreference* IE and set it to the desired value of *K*2;

2> else (if the UE has no preference on the minimum scheduling offset for cross-slot scheduling for the cell group):

3> do not include *preferredK0* and *preferredK2* in the *MinSchedulingOffsetPreference* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *minSchedulingOffsetPreferenceExt* of a cell group for power saving according to 5.7.4.2 or 5.3.5.3:

2> include *minSchedulingOffsetPreferenceExt* in the *UEAssistanceInformation* message;

2> if the UE has a preference on the minimum scheduling offset for cross-slot scheduling for the cell group for FR2-2:

3> include *minSchedulingOffsetPreferenceExt* in the *UEAssistanceInformation* message;

4> if the UE has a preference for the value of K0 (TS 38.214 [19], clause 5.1.2.1) for cross-slot scheduling with 480 kHz SCS:

5> include *preferredK0-SCS-480kHz* in the *minSchedulingOffsetPreferenceExt* IE and set it to the desired value of K0;

4> if the UE has a preference for the value of K0 for cross-slot scheduling with 960 kHz SCS:

5> include *preferredK0-SCS-960kHz* in the *minSchedulingOffsetPreferenceExt* IE and set it to the desired value of K0;

4> if the UE has a preference for the value of K2 for cross-slot scheduling with 480 kHz SCS:

5> include *preferredK2-SCS-480kHz* in the *minSchedulingOffsetPreferenceExt* IE and set it to the desired value of K2;

4> if the UE has a preference for the value of K2 for cross-slot scheduling with 960 kHz SCS:

5> include *preferredK2-SCS-960kHz* in the *minSchedulingOffsetPreferenceExt* IE and set it to the desired value of K2;

3> else (if the UE has no preference on the minimum scheduling offset for cross-slot scheduling for the cell group):

4> do not include *preferredK0* and *preferredK2* in the *minSchedulingOffsetPreferenceExt* IE;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide a release preference according to 5.7.4.2 or 5.3.5.3:

2> include *releasePreference* in the *UEAssistanceInformation* message;

2> set *preferredRRC-State* to the desired RRC state on transmission of the *UEAssistanceInformation* message;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide an indication of preference in being provisioned with reference time information according to 5.7.4.2 or 5.3.5.3:

2> if the UE has a preference in being provisioned with reference time information:

3> set *referenceTimeInfoPreference* to *true*;

2> else:

3> set *referenceTimeInfoPreference* to *false*.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide preference on FR2 UL gap according to 5.7.4.2 or 5.3.5.3:

2> if the UE has a preference for FR2 UL gap configuration:

3> set *ul-GapFR2-PatternPreference* to the preferred FR2 UL gap pattern;

2> else (if the UE has no preference for the FR2 UL gap configuration):

3> do not include *ul-GapFR2-PatternPreference* in the *UL-GapFR2-Preference* IE.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference*, or provide MUSIM assistance information for leaving RRC\_CONNECTED according to 5.7.4.2 or 5.3.5.3:

2> if the UE has a preference for MUSIM periodic gap(s):

3> include *musim-GapPreferenceList* with an entry for each periodic gap the UE prefers to be configured;

4> set *musim-GapLength* and *musim-GapRepetitionAndOffset* in the *musim-GapInfo* IEto the values of the length and the repetition/offset of the gap(s), respectively, the UE prefers to be configured with;

4> if UE has a preference for MUSIM gap priority;

5> include the *musim-GapPriorityPreferenceList* the UE prefers to be configured;

2> if the UE has a preference for MUSIM aperiodic gap:

3> include the field *musim-GapPreferenceList*, with one entry for the aperiodic gap the UE prefers to be configured;

4> include *musim-GapLength* in the *musim-GapInfo* IEand set it to the values of the length of the gap the UE prefers to be configured with;

4> optionally include *musim-Starting-SFN-AndSubframe* in the *musim-GapInfo* IE and set it to the starting SFN/subframe of the gap the UE prefers to be configured with;

2> if the UE has a preference to keep all colliding MUSIM gaps:

3> include the *musim-GapKeepPreference*;

2> if the UE has no longer preference for the periodic/aperiodic gaps:

3> do not include *musim-GapPreferenceList*, *musim-GapPriorityPreferenceList* and *musim-GapKeepPreference* in the *musim-Assistance* IE;

2> if UE has a preference to leave RRC\_CONNECTED state:

3> set *musim-PreferredRRC-State* to the preferred RRC state.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *musim-CapRestriction* according to 5.7.4.2 or 5.3.5.3:

2> if UE has a preference for temporary capability restriction:

3> if UE has a preference for serving cell(s), except PCell, and/or SCG to be released:

4> include the *musim-Cell-SCG-ToRelease*;

5> set *musim-CellToRelease* to include the serving cell(s) the UE prefers to be released;

5> set scg-ReleasePreference to *scgReleasePreferred* if the UE prefers the SCG to be released;

3> if UE has a preference to indicate the serving cells with restricted capabilities:

4> include the *musim-CellToAffectList* the UE prefers to be configured;

5> include the *musim-ServCellIndex* and the *musim-MIMO-Layers-DL*/ *musim-MIMO-Layers-UL/ musim-SupportedBandwidth-DL/ musim-SupportedBandwidth-UL for* the corresponding serving cell;

3> if UE has a preference to indicate the maximum number of CCs:

4> include the *musim-CapRestriction* for the *musim-MaxCC* the UE prefers to be configured;

5> include the *musim-MaxCC-TotalDL/ musim-MaxCC-TotalUL/ musim-MaxCC-FR1-DL/ musim-MaxCC-FR1-UL/ musim-MaxCC-FR2-1-DL/ musim-MaxCC-FR2-2-UL/ musim-MaxCC-FR2-2-DL/ musim-MaxCC-FR2-2-UL* for the corresponding maximum number of CCs;

3> if UE has a preference to indicate band(s) and/or combination(s) of bands with capabilities restricted which comprise of the band(s) that is/are indicated in *musim-CandidateBandList*:

4> include the *musim-AffectededBandsList* the UE prefer to be configured with capabilities restricted;

5> include the *musim-bandEntryIndex* for each band or each band of the combination(s) for which capabilities are restricted;

5> include the *musim-CapabilityRestricted* for the corresponding band;

3> if UE has a preference to indicate band(s) and/or combination(s) of bands to be avoided which comprise of band(s) that is indicated in *musim-CandidateBandList*:

4> include the *musim-AvoidedBandsList* the UE prefers not to be configured;

5> include the *musim-bandEntryIndex* for each band or each band of the combination(s) to be avoided;

2> if UE has no longer preference for temporary capability restriction indicated by *musim-Cell-SCG-ToRelease*, *musim-CellToAffectList*, *musim-MaxCC*, *musim-AffectededBandsList* and/or *musim-AvoidedBandsList*:

3> do not include the corresponding temporary capability restriction preference in the *musim-CapRestriction*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *musim-NeedForGapsInfoNR* according to 5.7.4.2 or 5.3.5.3:

2> include *intraFreq-needForGap* and set the gap requirement information of intra-frequency measurement for each supported NR serving cell;

2> if the *requestedTargetBandFilterNR-r16* of *NeedForGapsConfigNR* is configured:

3> for each supported NR band included in *requestedTargetBandFilterNR-r16*, include an entry in *interFreq-needForGap* and set the measurement gap requirement information for that band;

2> else:

3> include an entry in *interFreq-needForGap* and set the measurement gap requirement information for each supported NR band;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide the relaxation state of RLM measurements of a cell group according to 5.7.4.2:

2> if the UE performs RLM measurement relaxation on the cell group according to TS 38.133 [14]:

3> set the *rlm-MeasRelaxationState* to *true*;

2> else:

3> set the *rlm-MeasRelaxationState* to *false*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide the relaxation state of BFD measurements of a cell group:

2> for each serving cell of the cell group:

3> if the UE performs BFD measurement relaxation on this serving cell according to TS 38.133 [14]:

4> set the n-th bit of *bfd-MeasRelaxationState* to '1', where n is equal to the *servCellIndex* value + 1 of the serving cell;

3> else:

4> set the n-th bit of *bfd-MeasRelaxationState* to '0', where n is equal to the *servCellIndex* value + 1 of the serving cell.

1> if transmission of the *UEAssistanceInformation* message is initiated to indicate availability of data mapped to radio bearers not configured for SDT according to 5.7.4.2:

2> include the *nonSDT-DataIndication* in the *UEAssistanceInformation* message;

2> include and set the *resumeCause* according to the information received from the upper layers, if provided.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide an indication of preference for SCG deactivation according to 5.7.4.2:

2> include *scg-DeactivationPreference* in the *UEAssistanceInformation* message;

2> set the *scg-DeactivationPreference* to *scg-DeactivationPreferred* if the UE prefers the SCG to be deactivated, otherwise set it to *noPreference*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide an indication that the UE has uplink data related to a deactivated SCG according to 5.7.4.2:

2> include *uplinkData* in the *UEAssistanceInformation* message.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide an indication about whether the criterion for RRM relaxation for connected mode is fulfilled or not fulfilled:

2> if the criterion for RRM measurement relaxation for connected mode is fulfilled:

3> set the *rrm-MeasRelaxationFulfilment* to *true*;

2> else:

3> set the *rrm-MeasRelaxationFulfilment* to *false*.

1> if transmission of the *UEAssistanceInformation* message is initiated to provide the service link propagation delay difference between serving cell and neighbour cell(s) according to 5.7.4.2;

2> include the *propagationDelayDifference* for each neighbour cell in the *neighCellInfoList*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide preference on multi-Rx operation for FR2 according to 5.7.4.2:

2> if the UE has a preference for not operating on multi-Rx (i.e. not supporting simultaneous reception with different QCL-typeD) for FR2:

3> set *multiRx-PreferenceFR2* to *single*;

2> else (if the UE has the preference for operating on multi-Rx for FR2):

3> set *multiRx-PreferenceFR2* to *multiple*.

1> if transmission of the *UEAssistanceInformation* message is initiated to indicate the availability of flight path information according to 5.7.4.2 or 5.3.5.3;

2> include the *flightPathInfoAvailable*;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide UL traffic information according to 5.7.4.2 or 5.3.5.3:

2> for each PDU session for which the UE intends to provide UL traffic information in this *UEAssistanceInformation* message:

3> set *pdu-SessionID* to the value of the concerned PDU session ID;

3> if transmission of the *UEAssistanceInformation* message is initiated to provide UL traffic information according to 5.3.5.3:

4> stop timer T346l for each QoS flow of this PDU session for which the UE intends to provide UL traffic information in this *UEAssistanceInformation* message;

3> for each QoS flow of this PDU session for which timer T346l is not running and for which the UE intends to provide UL traffic information in this *UEAssistanceInformation* message:

4> start timer T346l associated to this QoS flow with the timer value set to the value of *ul-TrafficInfoProhibitTimer*;

4> set *qfi* to the value of the concerned QFI;

4> if the jitter range measurement is available; and

4> if the UE did not provide jitter range since it was configured to provide UL traffic information, or if the measured jitter range has changed since the last transmission of the *UEAssistanceInformation* message containing *jitterRange*:

5> set *jitterRange* to the latest measured value of the jitter range;

4> if the burst arrival time measurement is available; and

4> if the UE did not provide burst arrival time since it was configured to provide UL traffic information, or if the measured burst arrival time has changed since the last transmission of the *UEAssistanceInformation* message containing *burstArrivalTime*:

5> set *burstArrivalTime* to the latest measured value of the burst arrival time;

4> if the traffic periodicity measurement is available; and

4> if the UE did not provide traffic periodicity since it was configured to provide UL traffic information, or if the measured traffic periodicity has changed since the last transmission of the *UEAssistanceInformation* message containing *trafficPeriodicity*:

5> set *trafficPeriodicity* to the latest measured value of the traffic periodicity;

4> if the UE did not provide *pdu-SetIdentification* since it was configured to provide UL traffic information, or if the information previously provided in *pdu-SetIdentification* has changed since the last transmission of the *UEAssistanceInformation* message containing *pdu-SetIdentification*:

5> if the UE is able to identify PDU Set(s) for the QoS flow:

6> set *pdu-SetIdentification* to *true*;

5> else:

6> set *pdu-SetIdentification* to *false*.

4> if the UE did not provide *psi-Identification* since it was configured to provide UL traffic information, or if the information previously provided in *psi-Identification* has changed since the last transmission of the *UEAssistanceInformation* message containing *psi-Identification*:

5> if the UE is able to identify PSI(s) for the QoS flow:

6> set *psi-Identification* to true;

5> else:

6> set *psi-Identification* to *false*.

1> if transmission of the *UEAssistanceInformation* message is initiated to report relay UE information with non-3GPP connection(s) according to 5.7.4.2:

2> include *n3c-relayUE-InfoList* in the *UEAssistanceInformation* message;

1> if transmission of the *UEAssistanceInformation* message is initiated to provide *lpwus-OffsetPreference* of a cell group according to 5.7.4.2 or 5.3.5.3:

2> include *lpwus-OffsetPreference* in the *UEAssistanceInformation* message;

2> if the UE has a preference on time offset for LP-WUS monitoring:

3> set the *timeOffset* to the preferred offset value. [RIL]: V001, LPWUS

The UE shall set the contents of the *UEAssistanceInformation* message for configured grant assistance information for NR sidelink communication or NR sidelink positioning:

1> if configured to provide configured grant assistance information for NR sidelink:

2> include the *sl-UE-AssistanceInformationNR*;

1> if configured to provide configured grant assistance information for NR sidelink positioning:

2> include the *sl-PRS-UE-AssistanceInformationNR*;

NOTE 4: It is up to UE implementation when and how to trigger configured grant assistance information for NR sidelink communication or NR sidelink positioning.

The UE shall:

1> if the procedure was triggered to provide configured grant assistance information for NR sidelink communication by an NR *RRCReconfiguration* message that was embedded within an E-UTRA *RRCConnectionReconfiguration*:

2> submit the *UEAssistanceInformation* to lower layers via SRB1, embedded in E-UTRA RRC message *ULInformationTransferIRAT* as specified in TS 36.331 [10], clause 5.6.28;

1> else if the procedure was triggered to provide UE preference for SCG deactivation or to indicate that the UE with a deactivate SCG has uplink data to send on a DRB for which there is no MCG RLC bearer:

2> submit the *UEAssistanceInformation* via SRB1 to lower layers for transmission;

1> else if the UE is in (NG)EN-DC:

2> if SRB3 is configured and the SCG is not deactivated:

3> submit the *UEAssistanceInformation* message via SRB3 to lower layers for transmission;

2> else:

3> submit the *UEAssistanceInformation* message via the E-UTRA MCG embedded in E-UTRA RRC message *ULInformationTransferMRDC* as specified in TS 36.331 [10].

1> else if the UE is in NR-DC:

2> if the UE assistance configuration that triggered this UE assistance information is associated with the SCG:

3> if SRB3 is configured and the SCG is not deactivated:

4> submit the *UEAssistanceInformation* message via SRB3 to lower layers for transmission;

3> else:

4> submit the *UEAssistanceInformation* message via the NR MCG embedded in NR RRC message *ULInformationTransferMRDC* as specified in5.7.2a.3;

2> else:

3> submit the *UEAssistanceInformation* message via SRB1 to lower layers for transmission;

1> else:

2> submit the *UEAssistanceInformation* message to lower layers for transmission.

Nex change

### 6.2.2 Message definitions

– *RRCReconfiguration*

The *RRCReconfiguration* message is the command to modify an RRC connection. It may convey information for measurement configuration, mobility control, radio resource configuration (including RBs, MAC main configuration and physical channel configuration) and AS security configuration.

Signalling radio bearer: SRB1 or SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: Network to UE

***RRCReconfiguration message***

-- ASN1START

-- TAG-RRCRECONFIGURATION-START

RRCReconfiguration ::= SEQUENCE {

rrc-TransactionIdentifier RRC-TransactionIdentifier,

criticalExtensions CHOICE {

rrcReconfiguration RRCReconfiguration-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

RRCReconfiguration-IEs ::= SEQUENCE {

radioBearerConfig RadioBearerConfig OPTIONAL, -- Need M

secondaryCellGroup OCTET STRING (CONTAINING CellGroupConfig) OPTIONAL, -- Cond SCG

measConfig MeasConfig OPTIONAL, -- Need M

lateNonCriticalExtension OCTET STRING (CONTAINING RRCReconfiguration-v15t0-IEs) OPTIONAL,

nonCriticalExtension RRCReconfiguration-v1530-IEs OPTIONAL

}

-- Regular non-critical extensions:

RRCReconfiguration-v1530-IEs ::= SEQUENCE {

masterCellGroup OCTET STRING (CONTAINING CellGroupConfig) OPTIONAL, -- Need M

fullConfig ENUMERATED {true} OPTIONAL, -- Cond FullConfig

dedicatedNAS-MessageList SEQUENCE (SIZE(1..maxDRB)) OF DedicatedNAS-Message OPTIONAL, -- Cond nonHO

masterKeyUpdate MasterKeyUpdate OPTIONAL, -- Cond MasterKeyChange

dedicatedSIB1-Delivery OCTET STRING (CONTAINING SIB1) OPTIONAL, -- Need N

dedicatedSystemInformationDelivery OCTET STRING (CONTAINING SystemInformation) OPTIONAL, -- Need N

otherConfig OtherConfig OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1540-IEs OPTIONAL

}

RRCReconfiguration-v1540-IEs ::= SEQUENCE {

otherConfig-v1540 OtherConfig-v1540 OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1560-IEs OPTIONAL

}

RRCReconfiguration-v1560-IEs ::= SEQUENCE {

mrdc-SecondaryCellGroupConfig SetupRelease { MRDC-SecondaryCellGroupConfig } OPTIONAL, -- Need M

radioBearerConfig2 OCTET STRING (CONTAINING RadioBearerConfig) OPTIONAL, -- Need M

sk-Counter SK-Counter OPTIONAL, -- Need N

nonCriticalExtension RRCReconfiguration-v1610-IEs OPTIONAL

}

RRCReconfiguration-v1610-IEs ::= SEQUENCE {

otherConfig-v1610 OtherConfig-v1610 OPTIONAL, -- Need M

bap-Config-r16 SetupRelease { BAP-Config-r16 } OPTIONAL, -- Need M

iab-IP-AddressConfigurationList-r16 IAB-IP-AddressConfigurationList-r16 OPTIONAL, -- Need M

conditionalReconfiguration-r16 ConditionalReconfiguration-r16 OPTIONAL, -- Need M

daps-SourceRelease-r16 ENUMERATED{true} OPTIONAL, -- Need N

t316-r16 SetupRelease {T316-r16} OPTIONAL, -- Need M

needForGapsConfigNR-r16 SetupRelease {NeedForGapsConfigNR-r16} OPTIONAL, -- Need M

onDemandSIB-Request-r16 SetupRelease { OnDemandSIB-Request-r16 } OPTIONAL, -- Need M

dedicatedPosSysInfoDelivery-r16 OCTET STRING (CONTAINING PosSystemInformation-r16-IEs) OPTIONAL, -- Need N

sl-ConfigDedicatedNR-r16 SetupRelease {SL-ConfigDedicatedNR-r16} OPTIONAL, -- Need M

sl-ConfigDedicatedEUTRA-Info-r16 SetupRelease {SL-ConfigDedicatedEUTRA-Info-r16} OPTIONAL, -- Need M

targetCellSMTC-SCG-r16 SSB-MTC OPTIONAL, -- Need S

nonCriticalExtension RRCReconfiguration-v1700-IEs OPTIONAL

}

RRCReconfiguration-v1700-IEs ::= SEQUENCE {

otherConfig-v1700 OtherConfig-v1700 OPTIONAL, -- Need M

sl-L2RelayUE-Config-r17 SetupRelease { SL-L2RelayUE-Config-r17 } OPTIONAL, -- Need M

sl-L2RemoteUE-Config-r17 SetupRelease { SL-L2RemoteUE-Config-r17 } OPTIONAL, -- Need M

dedicatedPagingDelivery-r17 OCTET STRING (CONTAINING Paging) OPTIONAL, -- Cond PagingRelay

needForGapNCSG-ConfigNR-r17 SetupRelease {NeedForGapNCSG-ConfigNR-r17} OPTIONAL, -- Need M

needForGapNCSG-ConfigEUTRA-r17 SetupRelease {NeedForGapNCSG-ConfigEUTRA-r17} OPTIONAL, -- Need M

musim-GapConfig-r17 SetupRelease {MUSIM-GapConfig-r17} OPTIONAL, -- Need M

ul-GapFR2-Config-r17 SetupRelease { UL-GapFR2-Config-r17 } OPTIONAL, -- Need M

scg-State-r17 ENUMERATED { deactivated } OPTIONAL, -- Need S

appLayerMeasConfig-r17 AppLayerMeasConfig-r17 OPTIONAL, -- Need M

ue-TxTEG-RequestUL-TDOA-Config-r17 SetupRelease {UE-TxTEG-RequestUL-TDOA-Config-r17} OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1800-IEs OPTIONAL

}

RRCReconfiguration-v1800-IEs ::= SEQUENCE {

needForInterruptionConfigNR-r18 ENUMERATED { disabled, enabled } OPTIONAL, -- Need M

aerial-Config-r18 SetupRelease { Aerial-Config-r18 } OPTIONAL, -- Need M

sl-IndirectPathAddChange-r18 SetupRelease { SL-IndirectPathAddChange-r18 } OPTIONAL, -- Need M

n3c-IndirectPathAddChange-r18 SetupRelease { N3C-IndirectPathAddChange-r18 } OPTIONAL, -- Need M

n3c-IndirectPathConfigRelay-r18 SetupRelease { N3C-IndirectPathConfigRelay-r18 } OPTIONAL, -- Need M

otherConfig-v1800 OtherConfig-v1800 OPTIONAL, -- Need M

srs-PosResourceSetAggBW-CombinationList-r18 SetupRelease { SRS-PosResourceSetAggBW-CombinationList-r18 } OPTIONAL, -- Need M

ltm-Config-r18 SetupRelease {LTM-Config-r18} OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v1830-IEs OPTIONAL

}

RRCReconfiguration-v1830-IEs ::= SEQUENCE {

otherConfig-v1830 OtherConfig-v1830 OPTIONAL, -- Need M

nonCriticalExtension RRCReconfiguration-v19xx-IEs OPTIONAL

}

RRCReconfiguration-v19xx-IEs ::= SEQUENCE {

otherConfig-v19xx OtherConfig-v19xx OPTIONAL, -- Need M

nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Late non-critical Rel-15 extensions:

RRCReconfiguration-v15t0-IEs ::= SEQUENCE {

-- Following field is only to be used for late REL-15 extensions

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension RRCReconfiguration-v16k0-IEs OPTIONAL

}

RRCReconfiguration-v16k0-IEs ::= SEQUENCE {

sl-ConfigDedicatedNR-v16k0 SetupRelease {SL-ConfigDedicatedNR-v16k0} OPTIONAL, -- Need M

nonCriticalExtension SEQUENCE{} OPTIONAL

}

MRDC-SecondaryCellGroupConfig ::= SEQUENCE {

mrdc-ReleaseAndAdd ENUMERATED {true} OPTIONAL, -- Need N

mrdc-SecondaryCellGroup CHOICE {

nr-SCG OCTET STRING (CONTAINING RRCReconfiguration),

eutra-SCG OCTET STRING

}

}

BAP-Config-r16 ::= SEQUENCE {

bap-Address-r16 BIT STRING (SIZE (10)) OPTIONAL, -- Need M

defaultUL-BAP-RoutingID-r16 BAP-RoutingID-r16 OPTIONAL, -- Need M

defaultUL-BH-RLC-Channel-r16 BH-RLC-ChannelID-r16 OPTIONAL, -- Need M

flowControlFeedbackType-r16 ENUMERATED {perBH-RLC-Channel, perRoutingID, both} OPTIONAL, -- Need R

...

}

MasterKeyUpdate ::= SEQUENCE {

keySetChangeIndicator BOOLEAN,

nextHopChainingCount NextHopChainingCount,

nas-Container OCTET STRING OPTIONAL, -- Cond securityNASC

...

}

OnDemandSIB-Request-r16 ::= SEQUENCE {

onDemandSIB-RequestProhibitTimer-r16 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30}

}

T316-r16 ::= ENUMERATED {ms50, ms100, ms200, ms300, ms400, ms500, ms600, ms1000, ms1500, ms2000}

IAB-IP-AddressConfigurationList-r16 ::= SEQUENCE {

iab-IP-AddressToAddModList-r16 SEQUENCE (SIZE(1..maxIAB-IP-Address-r16)) OF IAB-IP-AddressConfiguration-r16 OPTIONAL, -- Need N

iab-IP-AddressToReleaseList-r16 SEQUENCE (SIZE(1..maxIAB-IP-Address-r16)) OF IAB-IP-AddressIndex-r16 OPTIONAL, -- Need N

...

}

IAB-IP-AddressConfiguration-r16 ::= SEQUENCE {

iab-IP-AddressIndex-r16 IAB-IP-AddressIndex-r16,

iab-IP-Address-r16 IAB-IP-Address-r16 OPTIONAL, -- Need M

iab-IP-Usage-r16 IAB-IP-Usage-r16 OPTIONAL, -- Need M

iab-donor-DU-BAP-Address-r16 BIT STRING (SIZE(10)) OPTIONAL, -- Need M

...

}

SL-ConfigDedicatedEUTRA-Info-r16 ::= SEQUENCE {

sl-ConfigDedicatedEUTRA-r16 OCTET STRING OPTIONAL, -- Need M

sl-TimeOffsetEUTRA-List-r16 SEQUENCE (SIZE (8)) OF SL-TimeOffsetEUTRA-r16 OPTIONAL -- Need M

}

SL-TimeOffsetEUTRA-r16 ::= ENUMERATED {ms0, ms0dot25, ms0dot5, ms0dot625, ms0dot75, ms1, ms1dot25, ms1dot5, ms1dot75,

ms2, ms2dot5, ms3, ms4, ms5, ms6, ms8, ms10, ms20}

UE-TxTEG-RequestUL-TDOA-Config-r17 ::= CHOICE {

oneShot-r17 NULL,

periodicReporting-r17 ENUMERATED { ms160, ms320, ms1280, ms2560, ms61440, ms81920, ms368640, ms737280 }

}

SRS-PosResourceSetAggBW-CombinationList-r18 ::= SEQUENCE (SIZE(1.. maxNrOfLinkedSRS-PosResSetComb-r18)) OF SRS-PosResourceSetLinkedForAggBW-List-r18

SRS-PosResourceSetLinkedForAggBW-List-r18 ::= SEQUENCE (SIZE(2..maxNrOfLinkedSRS-PosResourceSet-r18)) OF SRS-PosResourceSetLinkedForAggBW-r18

-- TAG-RRCRECONFIGURATION-STOP

-- ASN1STOP

|  |
| --- |
| ***RRCReconfiguration-IEs* field descriptions** |
| ***appLayerMeasConfig***  This field is used to configure application layer measurements. This field is absent when the UE is configured to operate with shared spectrum channel access or if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***bap-Config***  This field is used to configure the BAP entity for IAB nodes. |
| ***bap-Address***  Indicates the BAP address of an IAB-node. The BAP address of an IAB-node cannot be changed once configured for the cell group to the BAP entity. |
| ***conditionalReconfiguration***  Configuration of candidate target SpCell(s) and execution condition(s) for conditional handover, conditional PSCell addition or conditional PSCell change. The field is absent if any DAPS bearer is configured, if the *sl-L2RemoteUE-Config* or *sl-L2RelayUE-Config* is configured, or if the *RRCReconfiguration* message is contained within *condRRCReconfig*. When the *masterCellGroup* and/or *secondaryCellGroup* includes *ReconfigurationWithSync*, if this field is present, it only includes configurations/fields specific to subsequent CPAC. The *RRCReconfiguration* message contained in *DLInformationTransferMRDC* cannot contain the field *conditionalReconfiguration* for conditional PSCell change or for conditional PSCell addition. The network does not include this field in an *RRCReconfiguration* message contained within a *LTM-Config* IE*.* |
| ***daps-SourceRelease***  Indicates to UE that the source cell part of DAPS operation is to be stopped and the source cell part of DAPS configuration is to be released. |
| ***dedicatedNAS-MessageList***  This field is used to transfer UE specific NAS layer information between the network and the UE. The RRC layer is transparent for each PDU in the list. |
| ***dedicatedPagingDelivery***  This field is used to transfer *Paging* message for the associated L2 U2N Remote UE to the L2 U2N Relay UE in RRC\_CONNECTED. |
| ***dedicatedPosSysInfoDelivery***  This field is used to transfer *SIBPos* to the UE in RRC\_CONNECTED. |
| ***dedicatedSIB1-Delivery***  This field is used to transfer *SIB1* to the UE (including L2 U2N Remote UE). The field has the same values as the corresponding configuration in *servingCellConfigCommon*. |
| ***dedicatedSystemInformationDelivery***  This field is used to transfer *SIB6*, *SIB7*, *SIB8, SIB19, SIB20, SIB21, SIB25* to the UE with an active BWP with no common search space configured or the L2 U2N Remote UE in RRC\_CONNECTED. For UEs in RRC\_CONNECTED (including L2 U2N Remote UE), this field is also used to transfer the SIBs requested on-demand. |
| ***defaultUL-BAP-RoutingID***  This field is used for IAB-node to configure the default uplink Routing ID, which is used by IAB-node during IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment for *F1-C* and *non-F1* traffic. The *defaultUL-BAP-RoutingID* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes. This field is mandatory only for IAB-node bootstrapping. |
| ***defaultUL-BH-RLC-Channel***  This field is used for IAB-nodes to configure the default uplink BH RLC channel*,* which is used by IAB-nodeduring IAB-node bootstrapping*,* migration, IAB-MT RRC resume and IAB-MT RRC re-establishment *for F1-C and non-F1 traffic*. The *defaultUL-BH-RLC-Channel* can be (re-)configured when IAB-node IP address for *F1-C* related traffic changes, and the new IP address is anchored at a different IAB-donor-DU. This field is mandatory for IAB-node bootstrapping. If the IAB-MT is operating in EN-DC, the default uplink BH RLC channel is referring to an RLC channel on the SCG; Otherwise, it is referring to an RLC channel either on the MCG or on the SCG depending on whether the MN or the SN configures this field. |
| ***flowControlFeedbackType***  This field is only used for IAB-node that support hop-by-hop flow control to configure the type of flow control feedback. Value *perBH-RLC-Channel* indicates that the IAB-node shall provide flow control feedback per BH RLC channel, value *perRoutingID* indicates that the IAB-node shall provide flow control feedback per routing ID, and value *both* indicates that the IAB-node shall provide flow control feedback both per BH RLC channel and per routing ID. |
| ***fullConfig***  Indicates that the full configuration option is applicable for the *RRCReconfiguration* message for intra-system intra-RAT HO. For inter-RAT HO from E-UTRA to NR, *fullConfig* indicates whether or not delta signalling of SDAP/PDCP from source RAT is applicable. This field is absent if any DAPS bearer is configured or when the *RRCReconfiguration* message is transmitted on SRB3, and in an *RRCReconfiguration* message for SCG contained in another *RRCReconfiguration* message (or *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1. |
| ***iab-IP-Address***  This field is used to provide the IP address information for IAB-node. |
| ***iab-IP-AddressIndex***  This field is used to identify a configuration of an IP address. |
| ***iab-IP-AddressToAddModList***  List of IP addresses allocated for IAB-node to be added and modified. |
| ***iab-IP-AddressToReleaseList***  List of IP address allocated for IAB-node to be released. |
| ***iab-IP-Usage***  This field is used to indicate the usage of the assigned IP address. If this field is not configured, the assigned IP address is used for all traffic. |
| ***iab-donor-DU-BAP-Address***  This field is used to indicate the BAP address of the IAB-donor-DU where the IP address is anchored. |
| ***keySetChangeIndicator***  Indicates whether UE shall derive a new KgNB. If *reconfigurationWithSync* is included, value *true* indicates that a KgNB key is derived from a KAMF key taken into use through the latest successful NAS SMC procedure, or N2 handover procedure with KAMF change, as described in TS 33.501 [11] for KgNB re-keying. Value *false* indicates that the new KgNB key is obtained from the current KgNB key or from the NH as described in TS 33.501 [11]. |
| ***ltm-Config***  The network does not configure this field in an *RRCReconfiguration* message within an *LTM-Config* IE and *ConditionalReconfiguration* IE. |
| ***masterCellGroup***  Configuration of master cell group. |
| ***mrdc-ReleaseAndAdd***  This field indicates that the current SCG configuration is released and a new SCG is added at the same time. |
| ***mrdc-SecondaryCellGroup***  Includes an RRC message for SCG configuration in NR-DC or NE-DC. For NR-DC (nr-SCG), *mrdc-SecondaryCellGroup* contains the *RRCReconfiguration* message as generated (entirely) by SN gNB. In this version of the specification, the RRC message can only include fields *secondaryCellGroup, otherConfig, conditionalReconfiguration,* *ltm-Config,* *measConfig,* *bap-Config,* *IAB-IP-AddressConfigurationList* and *appLayerMeasConfig*.  For NE-DC (eutra-SCG), *mrdc-SecondaryCellGroup* includes the E-UTRA *RRCConnectionReconfiguration* message as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA RRC message can only include the field *scg-Configuration*. |
| ***mrdc-SecondaryCellGroupConfig***  This field is used to configure and release an SCG in NR-DC and NE-DC. In an *RRCReconfiguration* message within an *LTM-Config* IE associated with the MCG, if this field is present its value can only be set to *release*. |
| ***musim-GapConfig***  Indicates the MUSIM gap configuration and controls setup/release of MUSIM gaps. In this version of the specification, the network does not configure MUSIM gap together preconfigured measurement gap for positioning. For the UE supporting *musim-GapPriorityPreference*, the network can configure MUSIM gap together with concurrent measurement gap. Otherwise, the network does not configure MUSIM gap together with concurrent measurement gap. |
| ***nas-Container***  This field is used to transfer UE specific NAS layer information between the network and the UE. The RRC layer is transparent for this field, although it affects activation of AS security after inter-system handover to NR. The content is defined in TS 24.501 [23]. |
| ***needForGapsConfigNR***  Configuration for the UE to report measurement gap requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForGapNCSG-ConfigEUTRA***  Configuration for the UE to report measurement gap and NCSG requirement information of E‑UTRA target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForGapNCSG-ConfigNR***  Configuration for the UE to report measurement gap and NCSG requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. |
| ***needForInterruptionConfigNR***  Indicates whether the UE shall report interruption requirement information of NR target bands in the *RRCReconfigurationComplete* and *RRCResumeComplete* message. The network sets this field to *enabled* only if the *needForGapsConfigNR* is configured. The network sets this field to *disabled* if the *needForGapsConfigNR* is released. |
| ***nextHopChainingCount***  Parameter NCC: See TS 33.501 [11] |
| ***onDemandSIB-Request***  Indicates that the UE is allowed to request SIB(s) on-demand while in RRC\_CONNECTED according to clause 5.2.2.3.5. |
| ***onDemandSIB-RequestProhibitTimer***  Prohibit timer for requesting SIB(s) on-demand while in RRC\_CONNECTED according to clause 5.2.2.3.5. Value in seconds. Value s0 means prohibit timer is set to 0 seconds, value s0dot5 means prohibit timer is set to 0.5 seconds, value s1 means prohibit timer is set to 1 second and so on. |
| ***otherConfig***  Contains configuration related to other configurations. When configured for the SCG, only fields *drx-PreferenceConfig, maxBW-PreferenceConfig, maxBW-PreferenceConfigFR2-2, maxCC-PreferenceConfig, maxMIMO-LayerPreferenceConfig*, *maxMIMO-LayerPreferenceConfigFR2-2*, *minSchedulingOffsetPreferenceConfig, minSchedulingOffsetPreferenceConfigExt, rlm-RelaxationReportingConfig, bfd-RelaxationReportingConfig, btNameList, wlanNameList, sensorNameList*, *obtainCommonLocation*, *idc-AssistanceConfig*, *multiRx-PreferenceReportingConfigFR2*, *ul-TrafficInfoReportingConfig*, *n3c-RelayUE-InfoReportConfig, successPSCell-Config* and *sn-InitiatedPSCellChange* can be included. |
| ***radioBearerConfig***  Configuration of Radio Bearers (DRBs, SRBs, multicast MRBs) including SDAP/PDCP. In (NG)EN-DC this field may only be present if the *RRCReconfiguration* is transmitted over SRB3. SRB4 should not be configured if *sl-L2RemoteUE-Config-r17* is configured or not released. |
| ***radioBearerConfig2***  Configuration of Radio Bearers (DRBs, SRBs) including SDAP/PDCP. This field can only be used if the UE supports NR-DC or NE-DC. |
| ***scg-State***  Indicates that the SCG is in deactivated state.  This field is not used  - in an *RRCReconfiguration* message received:  - within *mrdc-SecondaryCellGroup*, or  - in an E-UTRA *RRCConnectionReconfiguration* message, or  - in an E-UTRA *RRCConnectionResume* message or  - in an *RRCReconfiguration* message received via SRB3, except if the *RRCReconfiguration* message is included in *DLInformationTransferMRDC*.  The field is absent if CPA, CPC, or subsequent CPAC is configured for the UE, or if the *RRCReconfiguration* message is contained in *CondRRCReconfig,* or PSCell is configured with *tag2*, or if the *RRCReconfiguration* message is included within an *LTM-Config* IE. |
| ***sl-L2RelayUE-Config***  Contains L2 U2N relay operation related configurations used by a UE acting as or to be acting as a L2 U2N Relay UE or L2 U2U relay operation related configuration used by a UE acting as a L2 U2U Relay UE. In case of L2 U2N relay operation, the field is absent if *conditionalReconfiguration* is configured for CHO. |
| ***sl-L2RemoteUE-Config***  Contains L2 U2N relay operation related configurations used by a UE acting as or to be acting as a L2 U2N Remote UE or L2 U2U relay operation related configuration used by a UE acting as a L2 U2U Remote UE. In case of L2 U2N relay operation, the field is absent if *conditionalReconfiguration* is configured for CHO, or if *appLayerMeasConfig* or SRB4 is configured/not released. |
| ***secondaryCellGroup***  Configuration of secondary cell group ((NG)EN-DC or NR-DC). |
| ***sk-Counter***  A counter used upon initial configuration of S-KgNB or S-KeNB, as well as upon refresh of S-KgNB or S-KeNB. This field is always included either upon initial configuration of an NR SCG or upon configuration of the first RB with *keyToUse* set to *secondary*, whichever happens first. This field is absent if there is neither any NR SCG nor any RB with *keyToUse* set to *secondary*, or if the *RRCReconfiguration* message is contained in *condRRCReconfig* for subsequent CPAC. |
| ***sl-ConfigDedicatedNR***  This field is used to provide the dedicated configurations for NR sidelink communication/discovery/positioning. |
| ***sl-ConfigDedicatedEUTRA-Info***  This field includes the E-UTRA *RRCConnectionReconfiguration* as specified in TS 36.331 [10]. In this version of the specification, the E-UTRA *RRCConnectionReconfiguration* can only includes sidelink related fields for V2X sidelink communication, i.e. *sl-V2X-ConfigDedicated*, *sl-V2X-SPS-Config*, *measConfig* and/or *otherConfig*. |
| ***srs-PosResourceSetLinkedForAggBWList***  This field indicates the SRS resource sets across two or three carriers which are linked for SRS bandwidth aggregation in RRC\_CONNECTED state as defined in clause 6.2.1.4 of TS 38.214 [19]. |
| ***sl-TimeOffsetEUTRA***  This field indicates the possible time offset to (de)activation of V2X sidelink transmission after receiving DCI format 3\_1 used for scheduling V2X sidelink communication. Value *ms0dpt75* corresponds to 0.75ms, *ms1* corresponds to 1ms and so on. The network includes this field only when *sl-ConfigDedicatedEUTRA* is configured. |
| ***targetCellSMTC-SCG***  The SSB periodicity/offset/duration configuration of target cell for NR PSCell addition and SN change. When UE receives this field, UE applies the configuration based on the timing reference of NR PCell for PSCell addition and PSCell change for the case of no reconfiguration with sync of MCG, and UE applies the configuration based on the timing reference of target NR PCell for the case of reconfiguration with sync of MCG. If both this field and the *smtc* in *secondaryCellGroup* -> *SpCellConfig* -> *reconfigurationWithSync* are absent, the UE uses the SMTC in the *measObjectNR* having the same SSB frequency and subcarrier spacing, as configured before the reception of the RRC message. |
| ***t316***  Indicates the value for timer T316 as described in clause 7.1. Value *ms50* corresponds to 50 ms, value *ms100* corresponds to 100 ms and so on. This field can be configured only if the UE is configured with split SRB1 or SRB3. |
| ***ue-TxTEG-RequestUL-TDOA-Config***  Configures the periodicity of UE reporting for the association between Tx TEG and SRS Positioning resources. When configured with *oneShot* UE reports the association only one time. When configured with *periodicReporting* UE reports the association periodically and the *periodicReporting* indicates the periodicity. Value *ms160* corresponds to 160ms, value *ms320* corresponds to 320ms and so on. |
| ***ul-GapFR2-Config***  Indicates the FR2 UL gap configuration to UE. In EN-DC and NGEN-DC, the SN decides and configures the FR2 UL gap pattern. In NE-DC, the MN decides and configures the FR2 UL gap pattern. In NR-DC without FR2-FR2 band combination, the network entity which is configured with FR2 serving cell(s) decides and configures the FR2 UL gap pattern. |

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *nonHO* | The field is absent in case of reconfiguration with sync within NR or to NR; otherwise it is optionally present, need N. |
| *securityNASC* | This field is mandatory present in case of inter system handover. Otherwise the field is optionally present, need N. |
| *MasterKeyChange* | This field is mandatory present in case *masterCellGroup* includes *ReconfigurationWithSync* and *RadioBearerConfig* includes *SecurityConfig* with *SecurityAlgorithmConfig*, indicating a change of the AS security algorithms associated to the master key. If *ReconfigurationWithSync* is included for other cases, this field is optionally present, need N. If *ReconfigurationWithSync* is part of an *RRCReconfiguration* message within an *LTM-Config* IE associated with the MCG, the field is absent. Otherwise the field is absent. |
| *FullConfig* | The field is mandatory present in case of inter-system handover from E-UTRA/EPC to NR. It is optionally present, Need N, during a reconfiguration with sync which is not related to an LTM cell switch or subsequent CPAC, and also in first reconfiguration after reestablishment; or for intra-system handover from E-UTRA/5GC to NR. It is absent otherwise. |
| *SCG* | The field is mandatory present in:  - an *RRCReconfiguration* message contained in an *RRCResume* message (or in an *RRCConnectionResume* message, see TS 36.331 [10]),  - an *RRCReconfiguration* message contained in an *RRCConnectionReconfiguration* message, see TS 36.331 [10], which is contained in *DLInformationTransferMRDC* transmitted on SRB3 (as a response to *ULInformationTransferMRDC* including an *MCGFailureInformation*).  The field is optional present, Need M, in:  - an *RRCReconfiguration* message transmitted on SRB3,  - an *RRCReconfiguration* message contained in another *RRCReconfiguration* message (or in an *RRCConnectionReconfiguration* message, see TS 36.331 [10]) transmitted on SRB1  - an *RRCReconfiguration* message contained in another *RRCReconfiguration* message which is contained in *DLInformationTransferMRDC* transmitted on SRB3 (as a response to *ULInformationTransferMRDC* including an *MCGFailureInformation*).  Otherwise, the field is absent. |
| *PagingRelay* | For L2 U2N Relay UE, the field is optionally present, Need N. Otherwise, it is absent. |

Nex change

– *UEAssistanceInformation*

The *UEAssistanceInformation* message is used for the indication of UE assistance information to the network.

Signalling radio bearer: SRB1, SRB3

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

***UEAssistanceInformation message***

-- ASN1START

-- TAG-UEASSISTANCEINFORMATION-START

UEAssistanceInformation ::= SEQUENCE {

criticalExtensions CHOICE {

ueAssistanceInformation UEAssistanceInformation-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

UEAssistanceInformation-IEs ::= SEQUENCE {

delayBudgetReport DelayBudgetReport OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1540-IEs OPTIONAL

}

DelayBudgetReport::= CHOICE {

type1 ENUMERATED {

msMinus1280, msMinus640, msMinus320, msMinus160,msMinus80, msMinus60, msMinus40,

msMinus20, ms0, ms20,ms40, ms60, ms80, ms160, ms320, ms640, ms1280},

...

}

UEAssistanceInformation-v1540-IEs ::= SEQUENCE {

overheatingAssistance OverheatingAssistance OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1610-IEs OPTIONAL

}

OverheatingAssistance ::= SEQUENCE {

reducedMaxCCs ReducedMaxCCs-r16 OPTIONAL,

reducedMaxBW-FR1 ReducedMaxBW-FRx-r16 OPTIONAL,

reducedMaxBW-FR2 ReducedMaxBW-FRx-r16 OPTIONAL,

reducedMaxMIMO-LayersFR1 SEQUENCE {

reducedMIMO-LayersFR1-DL MIMO-LayersDL,

reducedMIMO-LayersFR1-UL MIMO-LayersUL

} OPTIONAL,

reducedMaxMIMO-LayersFR2 SEQUENCE {

reducedMIMO-LayersFR2-DL MIMO-LayersDL,

reducedMIMO-LayersFR2-UL MIMO-LayersUL

} OPTIONAL

}

OverheatingAssistance-r17 ::= SEQUENCE {

reducedMaxBW-FR2-2-r17 SEQUENCE {

reducedBW-FR2-2-DL-r17 ReducedAggregatedBandwidth-r17,

reducedBW-FR2-2-UL-r17 ReducedAggregatedBandwidth-r17

} OPTIONAL,

reducedMaxMIMO-LayersFR2-2 SEQUENCE {

reducedMIMO-LayersFR2-2-DL MIMO-LayersDL,

reducedMIMO-LayersFR2-2-UL MIMO-LayersUL

} OPTIONAL

}

ReducedAggregatedBandwidth ::= ENUMERATED {mhz0, mhz10, mhz20, mhz30, mhz40, mhz50, mhz60, mhz80, mhz100, mhz200, mhz300, mhz400}

ReducedAggregatedBandwidth-r17 ::= ENUMERATED {mhz0, mhz100, mhz200, mhz400, mhz800, mhz1200, mhz1600, mhz2000}

UEAssistanceInformation-v1610-IEs ::= SEQUENCE {

idc-Assistance-r16 IDC-Assistance-r16 OPTIONAL,

drx-Preference-r16 DRX-Preference-r16 OPTIONAL,

maxBW-Preference-r16 MaxBW-Preference-r16 OPTIONAL,

maxCC-Preference-r16 MaxCC-Preference-r16 OPTIONAL,

maxMIMO-LayerPreference-r16 MaxMIMO-LayerPreference-r16 OPTIONAL,

minSchedulingOffsetPreference-r16 MinSchedulingOffsetPreference-r16 OPTIONAL,

releasePreference-r16 ReleasePreference-r16 OPTIONAL,

sl-UE-AssistanceInformationNR-r16 SL-UE-AssistanceInformationNR-r16 OPTIONAL,

referenceTimeInfoPreference-r16 BOOLEAN OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1700-IEs OPTIONAL

}

UEAssistanceInformation-v1700-IEs ::= SEQUENCE {

ul-GapFR2-Preference-r17 UL-GapFR2-Preference-r17 OPTIONAL,

musim-Assistance-r17 MUSIM-Assistance-r17 OPTIONAL,

overheatingAssistance-r17 OverheatingAssistance-r17 OPTIONAL,

maxBW-PreferenceFR2-2-r17 MaxBW-PreferenceFR2-2-r17 OPTIONAL,

maxMIMO-LayerPreferenceFR2-2-r17 MaxMIMO-LayerPreferenceFR2-2-r17 OPTIONAL,

minSchedulingOffsetPreferenceExt-r17 MinSchedulingOffsetPreferenceExt-r17 OPTIONAL,

rlm-MeasRelaxationState-r17 BOOLEAN OPTIONAL,

bfd-MeasRelaxationState-r17 BIT STRING (SIZE (1..maxNrofServingCells)) OPTIONAL,

nonSDT-DataIndication-r17 SEQUENCE {

resumeCause-r17 ResumeCause OPTIONAL

} OPTIONAL,

scg-DeactivationPreference-r17 ENUMERATED { scg-DeactivationPreferred, noPreference } OPTIONAL,

uplinkData-r17 ENUMERATED { true } OPTIONAL,

rrm-MeasRelaxationFulfilment-r17 BOOLEAN OPTIONAL,

propagationDelayDifference-r17 PropagationDelayDifference-r17 OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v1800-IEs OPTIONAL

}

UEAssistanceInformation-v1800-IEs ::= SEQUENCE {

idc-FDM-Assistance-r18 IDC-FDM-Assistance-r18 OPTIONAL,

idc-TDM-Assistance-r18 IDC-TDM-Assistance-r18 OPTIONAL,

multiRx-PreferenceFR2-r18 ENUMERATED {single, multiple } OPTIONAL,

musim-Assistance-v1800 MUSIM-Assistance-v1800 OPTIONAL,

flightPathInfoAvailable-r18 ENUMERATED {true} OPTIONAL,

ul-TrafficInfo-r18 UL-TrafficInfo-r18 OPTIONAL,

n3c-RelayUE-InfoList-r18 SEQUENCE (SIZE (0..8)) OF N3C-RelayUE-Info-r18 OPTIONAL,

sl-PRS-UE-AssistanceInformationNR-r18 SL-PRS-UE-AssistanceInformationNR-r18 OPTIONAL,

nonCriticalExtension UEAssistanceInformation-v19xx-IEs OPTIONAL

}

UEAssistanceInformation-v19xx-IEs ::= SEQUENCE {

lpwus-OffsetPreference-r19 LPWUS-OffsetPreference-r19 OPTIONAL,[RIL]: H050, LPWUS

nonCriticalExtension SEQUENCE {} OPTIONAL

}

IDC-Assistance-r16 ::= SEQUENCE {

affectedCarrierFreqList-r16 AffectedCarrierFreqList-r16 OPTIONAL,

affectedCarrierFreqCombList-r16 AffectedCarrierFreqCombList-r16 OPTIONAL,

...

}

AffectedCarrierFreqList-r16 ::= SEQUENCE (SIZE (1.. maxFreqIDC-r16)) OF AffectedCarrierFreq-r16

AffectedCarrierFreq-r16 ::= SEQUENCE {

carrierFreq-r16 ARFCN-ValueNR,

interferenceDirection-r16 ENUMERATED {nr, other, both, spare}

}

AffectedCarrierFreqCombList-r16 ::= SEQUENCE (SIZE (1..maxCombIDC-r16)) OF AffectedCarrierFreqComb-r16

AffectedCarrierFreqComb-r16 ::= SEQUENCE {

affectedCarrierFreqComb-r16 SEQUENCE (SIZE (2..maxNrofServingCells)) OF ARFCN-ValueNR OPTIONAL,

victimSystemType-r16 VictimSystemType-r16

}

VictimSystemType-r16 ::= SEQUENCE {

gps-r16 ENUMERATED {true} OPTIONAL,

glonass-r16 ENUMERATED {true} OPTIONAL,

bds-r16 ENUMERATED {true} OPTIONAL,

galileo-r16 ENUMERATED {true} OPTIONAL,

navIC-r16 ENUMERATED {true} OPTIONAL,

wlan-r16 ENUMERATED {true} OPTIONAL,

bluetooth-r16 ENUMERATED {true} OPTIONAL,

...,

[[

uwb-r18 ENUMERATED {true} OPTIONAL

]]

}

DRX-Preference-r16 ::= SEQUENCE {

preferredDRX-InactivityTimer-r16 ENUMERATED {

ms0, ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60, ms80,

ms100, ms200, ms300, ms500, ms750, ms1280, ms1920, ms2560, spare9, spare8,

spare7, spare6, spare5, spare4, spare3, spare2, spare1} OPTIONAL,

preferredDRX-LongCycle-r16 ENUMERATED {

ms10, ms20, ms32, ms40, ms60, ms64, ms70, ms80, ms128, ms160, ms256, ms320, ms512,

ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240, spare12, spare11, spare10,

spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 } OPTIONAL,

preferredDRX-ShortCycle-r16 ENUMERATED {

ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30, ms32,

ms35, ms40, ms64, ms80, ms128, ms160, ms256, ms320, ms512, ms640, spare9,

spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 } OPTIONAL,

preferredDRX-ShortCycleTimer-r16 INTEGER (1..16) OPTIONAL

}

MaxBW-Preference-r16 ::= SEQUENCE {

reducedMaxBW-FR1-r16 ReducedMaxBW-FRx-r16 OPTIONAL,

reducedMaxBW-FR2-r16 ReducedMaxBW-FRx-r16 OPTIONAL

}

MaxBW-PreferenceFR2-2-r17 ::= SEQUENCE {

reducedMaxBW-FR2-2-r17 SEQUENCE {

reducedBW-FR2-2-DL-r17 ReducedAggregatedBandwidth-r17 OPTIONAL,

reducedBW-FR2-2-UL-r17 ReducedAggregatedBandwidth-r17 OPTIONAL

} OPTIONAL

}

MaxCC-Preference-r16 ::= SEQUENCE {

reducedMaxCCs-r16 ReducedMaxCCs-r16 OPTIONAL

}

MaxMIMO-LayerPreference-r16 ::= SEQUENCE {

reducedMaxMIMO-LayersFR1-r16 SEQUENCE {

reducedMIMO-LayersFR1-DL-r16 INTEGER (1..8),

reducedMIMO-LayersFR1-UL-r16 INTEGER (1..4)

} OPTIONAL,

reducedMaxMIMO-LayersFR2-r16 SEQUENCE {

reducedMIMO-LayersFR2-DL-r16 INTEGER (1..8),

reducedMIMO-LayersFR2-UL-r16 INTEGER (1..4)

} OPTIONAL

}

MaxMIMO-LayerPreferenceFR2-2-r17 ::= SEQUENCE {

reducedMaxMIMO-LayersFR2-2-r17 SEQUENCE {

reducedMIMO-LayersFR2-2-DL-r17 INTEGER (1..8),

reducedMIMO-LayersFR2-2-UL-r17 INTEGER (1..4)

} OPTIONAL

}

MinSchedulingOffsetPreference-r16 ::= SEQUENCE {

preferredK0-r16 SEQUENCE {

preferredK0-SCS-15kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

preferredK0-SCS-30kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

preferredK0-SCS-60kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL,

preferredK0-SCS-120kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL

} OPTIONAL,

preferredK2-r16 SEQUENCE {

preferredK2-SCS-15kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

preferredK2-SCS-30kHz-r16 ENUMERATED {sl1, sl2, sl4, sl6} OPTIONAL,

preferredK2-SCS-60kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL,

preferredK2-SCS-120kHz-r16 ENUMERATED {sl2, sl4, sl8, sl12} OPTIONAL

} OPTIONAL

}

MinSchedulingOffsetPreferenceExt-r17 ::= SEQUENCE {

preferredK0-r17 SEQUENCE {

preferredK0-SCS-480kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL,

preferredK0-SCS-960kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL

} OPTIONAL,

preferredK2-r17 SEQUENCE {

preferredK2-SCS-480kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL,

preferredK2-SCS-960kHz-r17 ENUMERATED {sl8, sl16, sl32, sl48} OPTIONAL

} OPTIONAL

}

MUSIM-Assistance-r17 ::= SEQUENCE {

musim-PreferredRRC-State-r17 ENUMERATED {idle, inactive, outOfConnected} OPTIONAL,

musim-GapPreferenceList-r17 MUSIM-GapPreferenceList-r17 OPTIONAL

}

MUSIM-GapPreferenceList-r17 ::= SEQUENCE (SIZE (1..4)) OF MUSIM-GapInfo-r17

MUSIM-Assistance-v1800 ::= SEQUENCE {

musim-GapPriorityPreferenceList-r18 MUSIM-GapPriorityPreferenceList-r18 OPTIONAL,

musim-GapKeepPreference-r18 ENUMERATED {true} OPTIONAL,

musim-CapRestriction-r18 MUSIM-CapRestriction-r18 OPTIONAL,

musim-NeedForGapsInfoNR-r18 NeedForGapsInfoNR-r16 OPTIONAL,

...

}

MUSIM-GapPriorityPreferenceList-r18 ::= SEQUENCE (SIZE (1..3)) OF GapPriority-r17

MUSIM-CapRestriction-r18 ::= SEQUENCE {

musim-Cell-SCG-ToRelease-r18 MUSIM-Cell-SCG-ToRelease-r18 OPTIONAL,

musim-CellToAffectList-r18 MUSIM-CellToAffectList-r18 OPTIONAL,

musim-AffectedBandsList-r18 MUSIM-AffectedBandsList-r18 OPTIONAL,

musim-AvoidedBandsList-r18 MUSIM-AvoidedBandsList-r18 OPTIONAL,

musim-MaxCC-r18 MUSIM-MaxCC-r18 OPTIONAL

}

MUSIM-Cell-SCG-ToRelease-r18 ::= SEQUENCE {

musim-CellToRelease-r18 MUSIM-CellToRelease-r18 OPTIONAL,

scg-ReleasePreference-r18 ENUMERATED {true} OPTIONAL

}

MUSIM-CellToRelease-r18 ::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF ServCellIndex

MUSIM-CellToAffectList-r18::= SEQUENCE (SIZE (1..maxNrofServingCells)) OF MUSIM-CellToAffect-r18

MUSIM-CellToAffect-r18 ::= SEQUENCE {

musim-ServCellIndex-r18 ServCellIndex,

musim-MIMO-Layers-DL-r18 INTEGER (1..8) OPTIONAL,

musim-MIMO-Layers-UL-r18 INTEGER (1..4) OPTIONAL,

musim-SupportedBandwidth-DL-r18 SupportedBandwidth-v1700 OPTIONAL,

musim-SupportedBandwidth-UL-r18 SupportedBandwidth-v1700 OPTIONAL

}

MUSIM-AffectedBandsList-r18 ::= SEQUENCE (SIZE (1..maxBandComb-MUSIM-r18)) OF MUSIM-AffectedBands-r18

MUSIM-AffectedBands-r18 ::= SEQUENCE (SIZE (1..maxCandidateBandIndex-r18)) OF MUSIM-CapabilityRestrictedBandParameters-r18

MUSIM-CapabilityRestrictedBandParameters-r18 ::= SEQUENCE {

musim-bandEntryIndex-r18 MUSIM-BandEntryIndex-r18,

musim-CapabilityRestricted-r18 SEQUENCE {

musim-MIMO-Layers-DL-r18 INTEGER (1..8) OPTIONAL,

musim-MIMO-Layers-UL-r18 INTEGER (1..4) OPTIONAL,

musim-SupportedBandwidth-DL-r18 SupportedBandwidth-v1700 OPTIONAL,

musim-SupportedBandwidth-UL-r18 SupportedBandwidth-v1700 OPTIONAL

}

}

MUSIM-AvoidedBandsList-r18 ::= SEQUENCE (SIZE (1..maxBandComb-MUSIM-r18)) OF MUSIM-AvoidedBands-r18

MUSIM-AvoidedBands-r18 ::= SEQUENCE (SIZE (1..maxCandidateBandIndex-r18)) OF MUSIM-BandEntryIndex-r18

MUSIM-BandEntryIndex-r18 ::= INTEGER(1.. maxCandidateBandIndex-r18)

MUSIM-MaxCC-r18 ::= SEQUENCE {

musim-MaxCC-TotalDL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-TotalUL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR1-DL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR1-UL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR2-1-DL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR2-1-UL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR2-2-DL-r18 INTEGER (1..32) OPTIONAL,

musim-MaxCC-FR2-2-UL-r18 INTEGER (1..32) OPTIONAL

}

LPWUS-OffsetPreference-r19 ::= SEQUENCE {

timeOffset-r19 ENUMERATED {ms5, ms13, ms37} OPTIONAL

}

ReleasePreference-r16 ::= SEQUENCE {

preferredRRC-State-r16 ENUMERATED {idle, inactive, connected, outOfConnected}

}

ReducedMaxBW-FRx-r16 ::= SEQUENCE {

reducedBW-DL-r16 ReducedAggregatedBandwidth,

reducedBW-UL-r16 ReducedAggregatedBandwidth

}

ReducedMaxCCs-r16 ::= SEQUENCE {

reducedCCsDL-r16 INTEGER (0..31),

reducedCCsUL-r16 INTEGER (0..31)

}

SL-UE-AssistanceInformationNR-r16 ::= SEQUENCE (SIZE (1..maxNrofTrafficPattern-r16)) OF SL-TrafficPatternInfo-r16

SL-TrafficPatternInfo-r16::= SEQUENCE {

trafficPeriodicity-r16 ENUMERATED {ms20, ms50, ms100, ms200, ms300, ms400, ms500, ms600, ms700, ms800, ms900, ms1000},

timingOffset-r16 INTEGER (0..10239),

messageSize-r16 BIT STRING (SIZE (8)),

sl-QoS-FlowIdentity-r16 SL-QoS-FlowIdentity-r16

}

UL-GapFR2-Preference-r17::= SEQUENCE {

ul-GapFR2-PatternPreference-r17 INTEGER (0..3) OPTIONAL

}

PropagationDelayDifference-r17 ::= SEQUENCE (SIZE (1..4)) OF INTEGER (-270..270)

IDC-FDM-Assistance-r18 ::= SEQUENCE {

affectedCarrierFreqRangeList-r18 AffectedCarrierFreqRangeList-r18 OPTIONAL,

affectedCarrierFreqRangeCombList-r18 AffectedCarrierFreqRangeCombList-r18 OPTIONAL,

...

}

IDC-TDM-Assistance-r18 ::= SEQUENCE {

cycleLength-r18 ENUMERATED {ms2, ms3, ms4, ms5, ms6, ms7, ms8, ms10, ms14, ms16, ms20, ms30,

ms32, ms35, ms40, ms60, ms64, ms70, ms80, ms96, ms100, ms128, ms160,

ms256, ms320, ms512, ms640, ms1024, ms1280, ms2048, ms2560, ms5120, ms10240},

startOffset-r18 INTEGER (0..10239),

slotOffset-r18 INTEGER (0..31),

activeDuration-r18 CHOICE {

subMilliSeconds-r18 INTEGER (1..31),

milliSeconds-r18 ENUMERATED {

ms1, ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30, ms40, ms50, ms60,

ms80, ms100, ms200, ms300, ms400, ms500, ms600, ms800, ms1000, ms1200,

ms1600, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1 }

},

...

}

AffectedCarrierFreqRangeList-r18 ::= SEQUENCE (SIZE (1..maxFreqIDC-r16)) OF AffectedCarrierFreqRange-r18

AffectedCarrierFreqRange-r18 ::= SEQUENCE {

affectedFreqRange-r18 AffectedFreqRange-r18,

interferenceDirection-r18 ENUMERATED {nr, other, both, spare},

victimSystemType-r18 VictimSystemType-r16 OPTIONAL

}

AffectedCarrierFreqRangeCombList-r18 ::= SEQUENCE (SIZE (1..maxCombIDC-r16)) OF AffectedCarrierFreqRangeComb-r18

AffectedCarrierFreqRangeComb-r18 ::= SEQUENCE {

affectedCarrierFreqRangeComb-r18 SEQUENCE (SIZE (2..maxNrofServingCells)) OF AffectedFreqRange-r18,

interferenceDirection-r18 ENUMERATED {nr, other, both, spare},

victimSystemType-r18 VictimSystemType-r16 OPTIONAL

}

AffectedFreqRange-r18 ::= SEQUENCE {

centerFreq-r18 ARFCN-ValueNR,

affectedBandwidth-r18 ENUMERATED {khz200, khz400, khz600, khz800, mhz1, mhz2, mhz3, mhz4, mhz5, mhz6,

mhz8, mhz10, mhz20, mhz30, mhz40, mhz50, mhz60, mhz80, mhz100, mhz200,

mhz300, mhz400, spare10, spare9, spare8, spare7, spare6, spare5, spare4,

spare3, spare2, spare1}

}

UL-TrafficInfo-r18 ::= SEQUENCE (SIZE (1..maxNrofPDU-Sessions-r17)) OF PDU-SessionUL-TrafficInfo-r18

PDU-SessionUL-TrafficInfo-r18 ::= SEQUENCE {

pdu-SessionID-r18 PDU-SessionID,

qos-FlowUL-TrafficInfoList-r18 SEQUENCE (SIZE (1..maxNrofQFIs)) OF QOS-FlowUL-TrafficInfo-r18

}

QOS-FlowUL-TrafficInfo-r18 ::= SEQUENCE {

qfi-r18 QFI,

jitterRange-r18 SEQUENCE {

lowerBound-r18 JitterBound-r18,

upperBound-r18 JitterBound-r18

} OPTIONAL,

burstArrivalTime-r18 CHOICE {

referenceTime ReferenceTime-r16,

referenceSFN-AndSlot ReferenceSFN-AndSlot-r18

} OPTIONAL,

trafficPeriodicity-r18 INTEGER (1..640000) OPTIONAL,

pdu-SetIdentification-r18 BOOLEAN OPTIONAL,

psi-Identification-r18 BOOLEAN OPTIONAL,

...

}

ReferenceSFN-AndSlot-r18 ::= SEQUENCE {

referenceSFN-r18 INTEGER (0..1023),

referenceSlot-r18 INTEGER (0..639)

}

JitterBound-r18 ::= ENUMERATED {ms0, ms0dot5, ms1, ms1dot5, ms2, ms2dot5, ms3, ms3dot5, ms4, ms4dot5, ms5, ms5dot5, ms6, ms6dot5, ms7, beyondMs7}

SL-PRS-UE-AssistanceInformationNR-r18 ::= SEQUENCE (SIZE (1..maxNrofSL-PRS-TxConfig-r18)) OF SL-PRS-TxInfo-r18

SL-PRS-TxInfo-r18 ::= SEQUENCE {

sl-PRS-Periodicity-r18 ENUMERATED {ms100, ms200, ms300, ms400, ms500, ms600, ms700, ms800, ms900, ms1000, spare6,

spare5, spare4, spare3, spare2, spare1},

sl-PRS-Priority-r18 INTEGER (1..8) OPTIONAL,

sl-PRS-DelayBudget-r18 INTEGER (0..1023) OPTIONAL,

sl-PRS-Bandwidth-r18 ENUMERATED {mhz5, mhz10, mhz15, mhz20, mhz25, mhz30, mhz35, mhz40,

mhz45, mhz50, mhz60, mhz70, mhz80, mhz90, mhz100, mhz200, mhz400,

spare15, spare14, spare13, spare12, spare11, spare10, spare9, spare8,

spare7, spare6, spare5, spare4, spare3, spare2, spare1} OPTIONAL,

...

}

-- TAG-UEASSISTANCEINFORMATION-STOP

-- ASN1STOP

|  |
| --- |
| ***UEAssistanceInformation* field descriptions** |
| ***activeDuration***  Indicates the UE's preferred active duration to resolve the IDC problem. Value in multiples of 1/32 ms (subMilliSeconds) or in ms (milliSecond). For the latter, value ms1 corresponds to 1 ms, value ms2 corresponds to 2 ms, and so on. |
| ***affectedBandwidth***  Indicates the bandwidth around the center frequency of the carrier frequency range which is affected by the IDC problem. Value mhz5 corresponds to 5 MHz, value mhz10 corresponds to 10 MHz and so on. If *candidateBandwidth* is not configured, the UE is allowed to report the frequency range for any bandwidth as indicated by *affectedBandwidth*, within the frequency band limitation as defined in TS 38.101-1 [15], TS 38.101-2 [39], TS 38.101-3 [34] and TS 38.101-5 [75]. |
| ***affectedCarrierFreqList***  Indicates a list of NR carrier frequencies that are affected by IDC problem. |
| ***affectedCarrierFreqRangeList***  Indicates a list of NR carrier frequency ranges that are affected by IDC problem. |
| ***affectedCarrierFreqCombList***  Indicates a list of NR carrier frequency combinations that are affected by IDC problems due to Inter-Modulation Distortion and harmonics from NR when configured with UL CA or NR-DC. |
| ***affectedCarrierFreqRangeCombList***  Indicates a list of NR carrier frequency range combinations that are affected by IDC problems due to Inter-Modulation Distortion and harmonics from NR when configured with UL CA or NR-DC |
| ***bfd-MeasRelaxationState***  Indicates the relaxation state of BFD measurements. Each bit corresponds to a serving cell of the cell group. A serving cell is mapped to the (*servCellIndex*+1)-th bit, starting from MSB. A bit that is set to 1 indicates that the UE is performing BFD measurements relaxation on the serving cell mapped on the bit. A bit that is set to 0 indicates that the UE is not performing BFD measurements relaxation on the serving cell mapped on the bit. If a serving cell is not configured to the UE, the corresponding bit is set to 0. |
| ***centerFreq***  Indicates the center frequency of the carrier frequency range which is affected by the IDC problem. |
| ***cycleLength***  Indicates the UE's preferred cycle length to resolve the IDC problem. Value in ms. Value *ms2* corresponds to 2 ms, value *ms3* corresponds to 3 ms, and so on. |
| ***delayBudgetReport***  Indicates the UE-preferred adjustment to connected mode DRX. |
| ***interferenceDirection***  Indicates the direction of IDC interference. Value *nr* indicates that only NR is victim of IDC interference, value *other* indicates that only another radio is victim of IDC interference and value *both* indicates that both NR and another radio are victims of IDC interference. The other radio refers to either the ISM radio or GNSS (see TR 36.816 [44]). |
| ***minSchedulingOffsetPreference***  Indicates the UE's preferences on *minimumSchedulingOffset* of cross-slot scheduling for power saving. |
| ***minSchedulingOffsetPreferenceExt***  Indicates the UE's preferences on *minimumSchedulingOffset* of cross-slot scheduling for power saving for SCS 480 kHz and/or 960 kHz. |
| ***multiRx-PreferenceFR2***  Indicates the UE's preference on single FR2 Rx operation to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR2. |
| ***musim-AffectedBandsList***  Indicates the UE's preference on the band(s) and/or combination(s) of bands with restricted capability for MUSIM operation. If the *MUSIM-CapabilityRestrictedBandParameters-r18* with same *musim-bandEntryIndex* appears more than once in the list of bands in a *MUSIM-AffectedBands* entry, the UE supports intra-band non-contiguous CA with restricted capability for MUSIM operation for this band. UE explicitly indicates each band and each combination of bands that are affected. The Network should respect these capability restrictions when configuring the UE with bands or band combinations that contain these bands and/or combination of bands. Fields *musim-MIMO-Layers-DL/UL* and *musim-SupportedBandwidth-DL/UL* indicate the max number of MIMO layers and max bandwidth on each CC of the band, respectively. The band(s) and/or combination(s) of bands are supported in UE capability, and the *musim-MIMO-Layers-DL/UL* and *musim-SupportedBandwidth-DL/UL* range up to the concerned capability of band(s) and/or combination(s) of bands in UE capability. |
| ***musim-AvoidedBandsList***  Indicates the UE's preference on band(s) and/or combination(s) of bands to be avoided for MUSIM purpose. UE explicitly indicates each band and each combination of bands to be avoided. The list may include the band of the PCell. The Network should respect these capability restrictions for the band combinations that contain these bands and/or combination of bands. The band(s) and/or combination(s) of bands is a subset of the band combination(s) in UE capability. |
| ***musim-bandEntryIndex***  Indicates an NR band by referring to the position of a band entry in *musim-CandidateBandList* IE. Value 1 identifies the first band in the *musim-CandidateBandList* IE, value 2 identifies the second band in the *musim-CandidateBandList* IE, and so on. |
| ***musim-CapabilityRestricted***  Indicates the UE's preference on the temporary capability restriction on the band for MUSIM operation. |
| ***musim-CapRestriction***  Indicates the UE's preference on SCell(s) or PSCell to be released, serving cell(s) with restricted capability, band(s) or combination(s) of bands with restricted capability, or band(s) or band combination(s) to be avoided for UE temporary capabilities restriction. |
| ***musim-Cell-SCG-ToRelease***  Indicates the UE's preference on any serving cell(s), except for Pcell, and/or SCG to be releasedfor MUSIM operation. |
| ***musim-CellToAffectList***  Indicates the UE's preference on the temporary capability restriction on the serving cell(s) for MUSIM operation. |
| ***musim-CellToRelease***  Indicates the UE's preference on the temporary capability restriction on the serving cell(s) to release, except PCell, for MUSIM operation. |
| ***musim-GapKeepPreference***  Indicates the UE's preference to keep all colliding gaps for requested MUSIM gap(s). If the field is absent, the colliding MUSIM gaps with lower priority shall be dropped as specified in TS 38.133 [14]. |
| ***musim-GapPreferenceList***  Indicates the UE's MUSIM gap preference and related MUSIM gap configuration, as defined in TS 38.133 [14] clause 9.1.10. |
| ***musim-GapPriorityPreferenceList***  Indicates the UE's MUSIM gap priority preference for periodic MUSIM gaps as specified in TS 38.133[14].  If the UE includes *musim-GapPriorityPreferenceList-r18*, it includes the same number of entries, and listed in the same order for periodic gaps, as in *musim-GapPreferenceList-r17*. |
| ***musim-MaxCC***  Indicates the UE's preference on the temporary capability restriction on maximum number of CCs per DL/UL in total, and per FR1/FR2-1/F2-2. |
| ***musim-NeedForGapsInfoNR***  This field is used to indicate the measurement gap requirement information of the UE for NR target bands when in MUSIM operation while NR-DC or NE-DC is not configured. |
| ***musim-PreferredRRC-State***  Indicates the UE's preferred RRC state when leaving RRC\_CONNECTED. |
| ***n3c-RelayUE-InfoList***  Information of available N3C relay UE(s). |
| ***nonSDT-DataIndication***  Informs the network about the arrival of data and/or signaling mapped to radio bearers not configured for SDT while SDT procedure is ongoing. |
| ***lpwus-OffsetPreference*** [RIL]: O700, LPWUS [RIL]: C031, LPWUS  Indicates the UE's preferred time offset for PDCCH monitoring after LP-WUS monitoring. [RIL]: C028, LPWUS [RIL]: W201, LPWUS Value in ms (milliSecond). *ms5* corresponds to 5 ms, *ms13* corresponds to 13 ms, and *ms37* corresponds to 37 ms. The reported preferred time offset value is equal to or longer than the minimum time gap reported by UE capability for a UE. If the field is absent, it is interpreted as the UE having no preference for the time offset for LP-WUS monitoring [RIL]: O701, LPWUS. [RIL]: Z052, LPWUS |
| ***preferredDRX-InactivityTimer***  Indicates the UE's preferred DRX inactivity timer length for power saving. Value in ms (milliSecond). *ms0* corresponds to 0, *ms1* corresponds to 1 ms, *ms2* corresponds to 2 ms, and so on. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the DRX inactivity timer. If secondary DRX group is configured, the *preferredDRX-InactivityTimer* only applies to the default DRX group. |
| ***preferredDRX-LongCycle***  Indicates the UE's preferred long DRX cycle length for power saving. Value in ms. *ms10* corresponds to 10ms, *ms20* corresponds to 20 ms, *ms32* corresponds to 32 ms, and so on. If *preferredDRX-ShortCycle* is provided, the value of *preferredDRX-LongCycle* shall be a multiple of the *preferredDRX-ShortCycle* value. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the long DRX cycle. |
| ***preferredDRX-ShortCycle***  Indicates the UE's preferred short DRX cycle length for power saving. Value in ms. *ms2* corresponds to 2ms, *ms3* corresponds to 3 ms, *ms4* corresponds to 4 ms, and so on. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the short DRX cycle. |
| ***preferredDRX-ShortCycleTimer***  Indicates the UE's preferred short DRX cycle timer for power saving. Value in multiples of *preferredDRX-ShortCycle*. A value of 1 corresponds to *preferredDRX-ShortCycle*, a value of 2 corresponds to 2 \* *preferredDRX-ShortCycle* and so on. If the field is absent from the *DRX-Preference* IE, it is interpreted as the UE having no preference for the short DRX cycle timer. A preference for the short DRX cycle is indicated when a preference for the short DRX cycle timer is indicated. |
| ***preferredK0***  Indicates the UE's preferred value of *k0* (slot offset between DCI and its scheduled PDSCH - see TS 38.214 [19], clause 5.1.2.1) for cross-slot scheduling for power saving. Value is defined for each subcarrier spacing (numerology) in units of slots. *sl1* corresponds to 1 slot, *sl2* corresponds to 2 slots, *sl4* corresponds to 4 slots, and so on. If a value for a subcarrier spacing is absent, it is interpreted as the UE having no preference on *k0* for cross-slot scheduling for that subcarrier spacing. If the field is absent from the *MinSchedulingOffsetPreference* IE, it is interpreted as the UE having no preference on *k0* for cross-slot scheduling. |
| ***preferredK2***  Indicates the UE's preferred value of *k2* (slot offset between DCI and its scheduled PUSCH - see TS 38.214 [19], clause 6.1.2.1) for cross-slot scheduling for power saving. Value is defined for each subcarrier spacing (numerology) in units of slots. *sl1* corresponds to 1 slot, *sl2* corresponds to 2 slots, *sl4* corresponds to 4 slots, and so on. If a value for a subcarrier spacing is absent, it is interpreted as the UE having no preference on *k2* for cross-slot scheduling for that subcarrier spacing. If the field is absent from the *MinSchedulingOffsetPreference* IE, it is interpreted as the UE having no preference on *k2* for cross-slot scheduling. |
| ***preferredRRC-State***  Indicates the UE's preferred RRC state. The value *idle* is indicated if the UE prefers to be released from RRC\_CONNECTED and transition to RRC\_IDLE. The value *inactive* is indicated if the UE prefers to be released from RRC\_CONNECTED and transition to RRC\_INACTIVE. The value *connected* is indicated if the UE prefers to revert an earlier indication to leave RRC\_CONNECTED state. The value *outOfConnected* is indicated if the UE prefers to be released from RRC\_CONNECTED and has no preferred RRC state to transition to. The value *connected* can only be indicated if the UE is configured with *connectedReporting*. |
| ***propagationDelayDifference***  Indicates the one-way service link propagation delay difference between serving cell and each neighbour cell included in *neighCellInfoList,* defined as neighbour cell's service link propagation delay minus serving cell's service link propagation delay, in number of ms. First entry in *propagationDelayDifference* corresponds to first entry in *neighCellInfoList*, second entry in *propagationDelayDifference* corresponds to second entry in *neighCellInfoList*, and so on. |
| ***reducedCCsDL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink SCells indicated by the field, to address overheating or power saving.  When indicated to address overheating, this maximum number includes SCells of the NR MCG, PSCell and SCells of the SCG. This maximum number only includes PSCell and SCells of the SCG in (NG)EN-DC.  When indicated to address power saving, this maximum number includes PSCell and SCells of the cell group that this UE assistance information is associated with. The maximum number of downlink SCells can only range up to the current active configuration when indicated to address power savings. |
| ***reducedCCsUL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink SCells indicated by the field, to address overheating or power saving.  When indicated to address overheating, this maximum number includes SCells of the NR MCG, PSCell and SCells of the SCG. This maximum number only includes PSCell and SCells of the SCG in (NG)EN-DC.  When indicated to address power saving, this maximum number includes PSCell and SCells of the cell group that this UE assistance information is associated with. The maximum number of uplink SCells can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMaxBW-FR1***  Indicates the UE's preference on reduced configuration corresponding to the maximum aggregated bandwidth across all downlink carrier(s) and across all uplink carrier(s) of FR1, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cell(s) operating on FR1. The aggregated bandwidth across all downlink carrier(s) of FR1 is the sum of bandwidth of active downlink BWP(s) across all activated downlink carrier(s) of FR1. The aggregated bandwidth across all uplink carrier(s) of FR1 is the sum of bandwidth of active uplink BWP(s) across all activated uplink carrier(s) of FR1. If the field is absent from the *MaxBW-Preference* IE or the *OverheatingAssistance* IE, it is interpreted as the UE having no preference on the maximum aggregated bandwidth of FR1.  When indicated to address overheating, this maximum aggregated bandwidth includes carrier(s) of FR1 of both the NR MCG and the SCG. This maximum aggregated bandwidth only includes carriers of FR1 of the SCG in (NG)EN-DC. Value *mhz0* is not used when indicated to address overheating.  When indicated to address power saving, this maximum aggregated bandwidth includes carrier(s) of FR1 of the cell group that this UE assistance information is associated with. The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMaxBW-FR2***  Indicates the UE's preference on reduced configuration corresponding to the maximum aggregated bandwidth across all downlink carrier(s) and across all uplink carrier(s) of FR2-1, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cell(s) operating on FR2-1. The aggregated bandwidth across all downlink carrier(s) of FR2-1 is the sum of bandwidth of active downlink BWP(s) across all activated downlink carrier(s) of FR2-1. The aggregated bandwidth across all uplink carrier(s) of FR2-1 is the sum of bandwidth of active uplink BWP(s) across all activated uplink carrier(s) of FR2-1. If the field is absent from the *MaxBW-Preference* IE or the *OverheatingAssistance* IE, it is interpreted as the UE having no preference on the maximum aggregated bandwidth of FR2-1.  When indicated to address overheating, this maximum aggregated bandwidth includes carrier(s) of FR2-1 of both the NR MCG and the NR SCG. This maximum aggregated bandwidth only includes carriers of FR2-1 of the SCG in (NG)EN-DC.  When indicated to address power saving, this maximum aggregated bandwidth includes carrier(s) of FR2-1 of the cell group that this UE assistance information is associated with. The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMaxBW-FR2-2***  Indicates the UE's preference on reduced configuration corresponding to the maximum aggregated bandwidth across all downlink carrier(s) and across all uplink carrier(s) of FR2-2, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cell(s) operating on FR2-2. The aggregated bandwidth across all downlink carrier(s) of FR2-2 is the sum of bandwidth of active downlink BWP(s) across all activated downlink carrier(s) of FR2-2. The aggregated bandwidth across all uplink carrier(s) of FR2-2 is the sum of bandwidth of active uplink BWP(s) across all activated uplink carrier(s) of FR2-2. If the field is absent from the *MaxBW-PreferenceFR2-2* IE or the *OverheatingAssistance* IE, it is interpreted as the UE having no preference on the maximum aggregated bandwidth of FR2-2.  When indicated to address overheating, this maximum aggregated bandwidth includes carrier(s) of FR2-2 of both the NR MCG and the NR SCG. This maximum aggregated bandwidth only includes carriers of FR2-2 of the SCG in (NG)EN-DC.  When indicated to address power saving, this maximum aggregated bandwidth includes carrier(s) of FR2-2 of the cell group that this UE assistance information is associated with. The aggregated bandwidth can only range up to the current active configuration when indicated to address power savings. |
| ***reducedMIMO-LayersFR1-DL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink MIMO layers of each serving cell operating on FR1 indicated by the field, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR1. The maximum number of downlink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated downlink carrier(s) of FR1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR1-UL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink MIMO layers of each serving cell operating on FR1 indicated by the field, to address overheating or power saving (see NOTE 1). This field is allowed to be reported only when UE is configured with serving cells operating on FR1. The maximum number of uplink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated uplink carrier(s) of FR1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-DL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink MIMO layers of each serving cell operating on FR2-1 indicated by the field, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR2-1. The maximum number of downlink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated downlink carrier(s) of FR2-1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-UL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink MIMO layers of each serving cell operating on FR2-1 indicated by the field, to address overheating or power saving (see NOTE 1). This field is allowed to be reported only when UE is configured with serving cells operating on FR2-1. The maximum number of uplink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated uplink carrier(s) of FR2-1 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-2-DL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of downlink MIMO layers of each serving cell operating on FR2-2 indicated by the field, to address overheating or power saving. This field is allowed to be reported only when UE is configured with serving cells operating on FR2-2. The maximum number of downlink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated downlink carrier(s) of FR2-2 in the cell group when indicated to address power savings. |
| ***reducedMIMO-LayersFR2-2-UL***  Indicates the UE's preference on reduced configuration corresponding to the maximum number of uplink MIMO layers of each serving cell operating on FR2-2 indicated by the field, to address overheating or power saving (see NOTE 1). This field is allowed to be reported only when UE is configured with serving cells operating on FR2-2. The maximum number of uplink MIMO layers can only range up to the maximum number of MIMO layers configured across all activated uplink carrier(s) of FR2-2 in the cell group when indicated to address power savings. |
| ***referenceTimeInfoPreference***  Indicates whether the UE prefers being provisioned with the timing information specified in the IE *ReferenceTimeInfo*. |
| ***resumeCause***  Provides the resume cause based on the information received from the upper layers. |
| ***rlm-MeasRelaxationState***  Indicates the relaxation state of RLM measurements. Value *true* indicates that the UE is performing relaxation of RLM measurements, and value *false* indicates that the UE is not performing relaxation of RLM measurements. |
| ***rrm-MeasRelaxationFulfilment***  Indicates whether the UE fulfils the relaxed measurement criterion for stationary UE in 5.7.4.4. Value true indicates that the UE fulfils the criterion, and value false indicates that the UE does not fulfil the criterion. |
| ***sl-QoS-FlowIdentity***  This identity uniquely identifies one sidelink QoS flow between the UE and the network in the scope of UE, which is unique for different destination and cast type. |
| ***sl-PRS-Bandwidth***  Indicates the desired bandwidth of the requested SL-PRS resources provided by upper layers (see TS 38.355 [77]) in the unit of MHz. |
| ***sl-PRS-DelayBudget***  Indicates the SL-PRS delay budget provided by upper layers (see TS 38.355 [77]). |
| ***sl-PRS-Periodicity***  Indicates the periodicity of SL-PRS transmission. |
| ***sl-PRS-Priority***  Indicates the priority of SL-PRS provided by upper layers (see TS 38.355 [77]). Value 1 is the highest priority whereas value 8 is the lowest priority. |
| ***sl-UE-AssistanceInformationNR***  Indicates the traffic characteristic of sidelink logical channel(s), specified in the IE *SL-TrafficPatternInfo,* that are setup for NR sidelink communication. |
| ***slotOffset***  Indicates the UE's preferred slot offset to resolve the IDC problem, in multiples of 1/32 ms. |
| ***startOffset***  Indicates the UE's preferred start offset to resolve the IDC problem, in multiples of 1 ms. |
| ***type1***  Indicates the preferred amount of increment/decrement to the long DRX cycle length with respect to the current configuration. Value in number of milliseconds. Value *ms40* corresponds to 40 milliseconds, *msMinus40* corresponds to -40 milliseconds and so on. |
| ***ul-GapFR2-PatternPreference***  Indicates the UE's preference on FR2 UL gap pattern as defined in TS 38.133 [14]. |
| ***victimSystemType***  Indicate the list of victim system types to which IDC interference is caused from NR. Value *gps*, *glonass*, *bds*, *galileo* and *navIC* indicates the type of GNSS. Value *wlan* indicates WLAN and value *bluetooth* indicates Bluetooth. Value *uwb* indicates Ultra Wide Band. |

NOTE 1: The field may also indicate the UE's preference on reduced configuration corresponding to the maximum number of SRS ports (i.e. *nrofSRS-Ports*) of each serving cell operating on the associated frequency range.

|  |
| --- |
| ***SL-TrafficPatternInfo field descriptions*** |
| ***messageSize***  Indicates the maximum TB size based on the observed traffic pattern. The value refers to the index of TS 38.321 [3], table 6.1.3.1-2. |
| ***timingOffset***  This field indicates the estimated timing for a packet arrival in a sidelink logical channel. Specifically, the value indicates the timing offset with respect to subframe#0 of SFN#0 in milliseconds. |
| ***trafficPeriodicity***  This field indicates the estimated data arrival periodicity in a sidelink logical channel. Value ms20 corresponds to 20 ms, ms50 corresponds to 50 ms and so on. |

|  |
| --- |
| ***UL-TrafficInfo field descriptions*** |
| ***burstArrivalTime***  Indicates the expected arrival time of the first packet of the Data Burst for the concerned QoS flow. If the UE provides both *burstArrivalTime* and *jitterRange, burstArrivalTime* is used as a reference time for the indicated jitter range.  If *burstArrivalTime* is indicated as *referenceTime*, the indicated time in 10ns unit from the origin is *refDays*\*86400\*1000\*100000 + *refSeconds*\*1000\*100000 + *refMilliSeconds*\*100000 + *refTenNanoSeconds*. The *refDays* field specifies the sequential number of days (with day count starting at 0) from 00:00:00 on Gregorian calendar date 6 January, 1980 (start of GPS time).  If *burstArrivalTime* is indicated as *referenceSFN-AndSlot*, it refers to the UL timing of the closest SFN and slot of the PCell with the indicated number. |
| ***jitterRange***  Indicates the maximum deviation of the arrival time of the first packet of a Data Burst compared to the time indicated with *burstArrivalTime* and the periodicity of the Data Bursts. *lowerBound* indicates the negative deviation while *upperBound* indicates the positive deviation. This field shall only be reported together with the *burstArrivalTime* or after the *burstArrivalTime* has been already reported. Value ms0 corresponds to 0 ms, value 0dot5 to 0.5 ms, value ms1 to 1 ms and so on. Value *beyondMs7* indicates the jitter bound is higher than 7 ms. Value 0 ms means there is no Data Burst arrival time deviation from the indicated *burstArrivalTime*. |
| ***pdu-SetIdentification***  Indicates whether the UE is able to identify PDU Set(s) for the QoS flow. If set to *true*, the UE is able to identify PDU Set(s) for the associated QoS flow, otherwise, the UE is not able to do so. Before receiving this indication, the network assumes the value is set to *false*. |
| ***psi-Identification***  Indicates whether the UE is able to identify PSI(s) for the QoS flow. This field shall only be set to *true* if *pdu-SetIdentification* is also set to *true* (or was set to *true* previously for the same QoS flow). If set to *true*, the UE is able to identify PSI(s) for the associated QoS flow, otherwise, the UE is not able to do so. Before receiving this indication, the network assumes the value is set to *false*. |
| ***qfi***  Identity of the QoS flow to which this UL traffic information refers. |
| ***trafficPeriodicity***  Indicates the average time period between the start times of two data bursts, expressed in the number of microseconds. |

Nex change

6.3.1 System information blocks

– *SIB2*

*SIB2* contains cell re-selection information common for intra-frequency, inter-frequency and/or inter-RAT cell re-selection (i.e. applicable for more than one type of cell re-selection but not necessarily all) as well as intra-frequency cell re-selection information other than neighbouring cell related.

***SIB2* information element**

-- ASN1START

-- TAG-SIB2-START

SIB2 ::= SEQUENCE {

cellReselectionInfoCommon SEQUENCE {

nrofSS-BlocksToAverage INTEGER (2..maxNrofSS-BlocksToAverage) OPTIONAL, -- Need S

absThreshSS-BlocksConsolidation ThresholdNR OPTIONAL, -- Need S

rangeToBestCell RangeToBestCell OPTIONAL, -- Need R

q-Hyst ENUMERATED {

dB0, dB1, dB2, dB3, dB4, dB5, dB6, dB8, dB10,

dB12, dB14, dB16, dB18, dB20, dB22, dB24},

speedStateReselectionPars SEQUENCE {

mobilityStateParameters MobilityStateParameters,

q-HystSF SEQUENCE {

sf-Medium ENUMERATED {dB-6, dB-4, dB-2, dB0},

sf-High ENUMERATED {dB-6, dB-4, dB-2, dB0}

}

} OPTIONAL, -- Need R

...

},

cellReselectionServingFreqInfo SEQUENCE {

s-NonIntraSearchP ReselectionThreshold OPTIONAL, -- Need S

s-NonIntraSearchQ ReselectionThresholdQ OPTIONAL, -- Need S

threshServingLowP ReselectionThreshold,

threshServingLowQ ReselectionThresholdQ OPTIONAL, -- Need R

cellReselectionPriority CellReselectionPriority,

cellReselectionSubPriority CellReselectionSubPriority OPTIONAL, -- Need R

...

},

intraFreqCellReselectionInfo SEQUENCE {

q-RxLevMin Q-RxLevMin,

q-RxLevMinSUL Q-RxLevMin OPTIONAL, -- Need R

q-QualMin Q-QualMin OPTIONAL, -- Need S

s-IntraSearchP ReselectionThreshold,

s-IntraSearchQ ReselectionThresholdQ OPTIONAL, -- Need S

t-ReselectionNR T-Reselection,

frequencyBandList MultiFrequencyBandListNR-SIB OPTIONAL, -- Need S

frequencyBandListSUL MultiFrequencyBandListNR-SIB OPTIONAL, -- Need R

p-Max P-Max OPTIONAL, -- Need S

smtc SSB-MTC OPTIONAL, -- Need S

ss-RSSI-Measurement SS-RSSI-Measurement OPTIONAL, -- Need R

ssb-ToMeasure SSB-ToMeasure OPTIONAL, -- Need S

deriveSSB-IndexFromCell BOOLEAN,

...,

[[

t-ReselectionNR-SF SpeedStateScaleFactors OPTIONAL -- Need R

]],

[[

smtc2-LP-r16 SSB-MTC2-LP-r16 OPTIONAL, -- Need R

ssb-PositionQCL-Common-r16 SSB-PositionQCL-Relation-r16 OPTIONAL -- Cond SharedSpectrum

]],

[[

ssb-PositionQCL-Common-r17 SSB-PositionQCL-Relation-r17 OPTIONAL -- Cond SharedSpectrum2

]],

[[

smtc4list-r17 SSB-MTC4List-r17 OPTIONAL -- Need R

]],

[[

frequencyBandList-v1760 MultiFrequencyBandListNR-SIB-v1760 OPTIONAL, -- Need R

frequencyBandListSUL-v1760 MultiFrequencyBandListNR-SIB-v1760 OPTIONAL -- Need R

]],

[[

frequencyBandListAerial-r18 MultiFrequencyBandListNR-Aerial-SIB-r18 OPTIONAL -- Need S

]]

},

...,

[[

relaxedMeasurement-r16 SEQUENCE {

lowMobilityEvaluation-r16 SEQUENCE {

s-SearchDeltaP-r16 ENUMERATED {

dB3, dB6, dB9, dB12, dB15,

spare3, spare2, spare1},

t-SearchDeltaP-r16 ENUMERATED {

s5, s10, s20, s30, s60, s120, s180,

s240, s300, spare7, spare6, spare5,

spare4, spare3, spare2, spare1}

} OPTIONAL, -- Need R

cellEdgeEvaluation-r16 SEQUENCE {

s-SearchThresholdP-r16 ReselectionThreshold,

s-SearchThresholdQ-r16 ReselectionThresholdQ OPTIONAL -- Need R

} OPTIONAL, -- Need R

combineRelaxedMeasCondition-r16 ENUMERATED {true} OPTIONAL, -- Need R

highPriorityMeasRelax-r16 ENUMERATED {true} OPTIONAL -- Need R

} OPTIONAL -- Need R

]],

[[

cellEquivalentSize-r17 INTEGER(2..16) OPTIONAL, -- Cond HSDN

relaxedMeasurement-r17 SEQUENCE {

stationaryMobilityEvaluation-r17 SEQUENCE {

s-SearchDeltaP-Stationary-r17 ENUMERATED {dB2, dB3, dB6, dB9, dB12, dB15, spare2, spare1},

t-SearchDeltaP-Stationary-r17 ENUMERATED {s5, s10, s20, s30, s60, s120, s180, s240, s300, spare7, spare6, spare5,

spare4, spare3, spare2, spare1}

},

cellEdgeEvaluationWhileStationary-r17 SEQUENCE {

s-SearchThresholdP2-r17 ReselectionThreshold,

s-SearchThresholdQ2-r17 ReselectionThresholdQ OPTIONAL -- Need R

} OPTIONAL, -- Need R

combineRelaxedMeasCondition2-r17 ENUMERATED {true} OPTIONAL -- Need R

} OPTIONAL -- Need R

]],

[[

relaxedMeasurementForServingAndNeighboringCell-r19 [RIL]: E035, LPWUS SEQUENCE {

cellEdgeEvaluationOnMR-ForLR-OnSSB-r19 SEQUENCE {

s-SearchThresholdP3-r19 ReselectionThreshold,

s-SearchThresholdQ3-r19 ReselectionThresholdQ OPTIONAL -- Need R

} OPTIONAL, -- Cond SupportLR-OnSSB

cellEdgeEvaluationOnMR-ForLR-OnLPSS-r19 SEQUENCE {

s-SearchThresholdP4-r19 ReselectionThreshold,

s-SearchThresholdQ4-r19 ReselectionThresholdQ OPTIONAL -- Need R

} OPTIONAL, -- Cond SupportLR-OnLPSS

cellEdgeEvaluationOnLR-ForLR-OnLPSS-r19 SEQUENCE {

rsrpThresholdLR-r19 ThresholdP-LR-r19,

rsrqThresholdLR-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL, -- Need R

cellEdgeEvaluationOnLR-ForLR-OnSSB-r19 SEQUENCE {

rsrpThresholdLR2-r19 ThresholdP-LR-r19,

rsrqThresholdLR2-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL -- Need R

} OPTIONAL, -- Need R

offloadMeasurementForServingCell-r19 SEQUENCE {

cellEdgeEvaluationOnMR-ForLR-OnSSB-r19 SEQUENCE {

s-SearchThresholdP5-r19 ReselectionThreshold,

s-SearchThresholdQ5-r19 ReselectionThresholdQ OPTIONAL -- Need R

} OPTIONAL, -- Cond SupportLR-OnSSB

cellEdgeEvaluationOnMR-ForLR-OnLPSS-r19 SEQUENCE {

s-SearchThresholdP6-r19 ReselectionThreshold,

s-SearchThresholdQ6-r19 ReselectionThresholdQ OPTIONAL -- Need R

} OPTIONAL, -- Cond SupportLR-OnLPSS

cellEdgeEvaluationOnLR-ForLR-OnLPSS-r19 SEQUENCE {

rsrpThresholdLR3-r19 ThresholdP-LR-r19,

rsrqThresholdLR3-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL, -- Need R

cellEdgeEvaluationOnLR-ForLR-OnSSB-r19 SEQUENCE {

rsrpThresholdLR4-r19 ThresholdP-LR-r19,

rsrqThresholdLR4-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL, -- Need R

cellEdgeEvaluationOnLR-ForLR-OnLPSS-Exit-r19 SEQUENCE {

rsrpThresholdLR5-r19 ThresholdP-LR-r19,

rsrqThresholdLR5-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL, -- Cond SupportLR-OnLPSS

cellEdgeEvaluationOnLR-ForLR-OnSSB-Exit-r19 SEQUENCE {

rsrpThresholdLR6-r19 ThresholdP-LR-r19,

rsrqThresholdLR6-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL -- Cond SupportLR-OnSSB

} OPTIONAL -- Need R

]]

}

RangeToBestCell ::= Q-OffsetRange

-- TAG-SIB2-STOP

-- ASN1STOP

| ***SIB2* field descriptions** |
| --- |
| ***absThreshSS-BlocksConsolidation***  Threshold for consolidation of L1 measurements per RS index. If the field is absent, the UE uses the measurement quantity as specified in TS 38.304 [20]. |
| ***cellEdgeEvaluation***  Indicates the criteria for a UE to detect that it is not at cell edge, in order to relax measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.9.2). |
| ***cellEdgeEvaluationOnLR-ForLR-OnLPSS***  Indicates the criteria for a UE to detect that it is not at cell edge based on the serving cell measurement on LR for OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS, in order to relax serving cell and neighboring cell measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.x.2), or to offload serving cell measurement to low power receiver [RIL]: O703, LPWUS (see TS 38.304 [20], clause 5.2.4.x.4). |
| ***cellEdgeEvaluationOnLR-ForLR-OnSSB***  Indicates the criteria for a UE to detect that it is not at cell edge based on the serving cell measurement on LR for OFDM based LP-WUR measuring on SSB, in order to relax serving cell and neighboring cell measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.x.2), or to offload serving cell measurement to low power receiver (see TS 38.304 [20], clause 5.2.4.x.4). |
| ***cellEdgeEvaluationOnMR-ForLR-OnLPSS***  Indicates the criteria for a UE to detect that it is not at cell edge based on the serving cell measurement on main radio for OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS, in order to relax serving cell and neighboring cell measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.x.2), or to offload serving cell measurement to low power receiver (see TS 38.304 [20], clause 5.2.4.x.4). |
| ***cellEdgeEvaluationOnLR-ForLR-OnLPSS-Exit***  Indicates the exit criteria for serving cell measurement offloading for a UE to detect that it is not at cell edge based on the serving cell measurement on LR for OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS. This field is optional present for the cell supporting OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS. |
| ***cellEdgeEvaluationOnMR-ForLR-OnSSB***  Indicates the criteria for a UE to detect that it is not at cell edge based on the serving cell measurement on main radio for OFDM based LP-WUR measuring on SSB, in order to relax serving cell cell and neighboring cell measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.x.2), or to offload serving cell measurement to low power receiver (see TS 38.304 [20], clause 5.2.4.x.4). |
| ***cellEdgeEvaluationOnLR-ForLR-OnSSB-Exit***  Indicates the exit criteria for serving cell measurement offloading for a UE to detect that it is not at cell edge based on the serving cell measurement on LR for OFDM based LP-WUR measuring on SSB. |
| ***cellEdgeEvaluationWhileStationary***  Indicates the criteria for a UE to detect that it is not at cell edge while stationary, in order to relax measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.9.4). |
| ***cellEquivalentSize***  The number of cell count used for mobility state estimation for this cell as specified in TS 38.304 [20]. |
| ***cellReselectionInfoCommon***  Cell re-selection information common for intra-frequency, inter-frequency and/ or inter-RAT cell re-selection. |
| ***cellReselectionServingFreqInfo***  Information common for non-intra-frequency cell re-selection i.e. cell re-selection to inter-frequency and inter-RAT cells. |
| ***combineRelaxedMeasCondition***  When both *lowMobilityEvaluation* and *cellEdgeEvaluation* criteria are present in SIB2, this parameter configures the UE to fulfil both criteria in order to relax measurement requirements for cell reselection. If the field is absent, the UE is allowed to relax measurement requirements for cell reselection when either or both of the criteria are met. (See TS 38.304 [20], clause 5.2.4.9.0) |
| ***combineRelaxedMeasCondition2***  When both *stationaryMobilityEvaluation* and *cellEdgeEvaluationWhileStationary* criteria are present in SIB2, this parameter configures the UE to fulfil both criteria in order to relax measurement requirements for cell reselection. If the field is absent, the UE is allowed to relax measurement requirements for cell reselection when only the stationary criteria is met. (See TS 38.304 [20], clause 5.2.4.9.0) |
| ***deriveSSB-IndexFromCell***  This field indicates whether the UE can utilize serving cell timing to derive the index of SS block transmitted by neighbour cell. If this field is set to *true*, the UE assumes SFN and frame boundary alignment across cells on the serving frequency as specified in TS 38.133 [14]. |
| ***frequencyBandList***  Indicates the list of frequency bands for which the NR cell reselection parameters apply. The UE behaviour in case the field is absent is described in clause 5.2.2.4.3. |
| ***frequencyBandListAerial***  Indicates the list of frequency bands for aerial operation for which the NR cell reselection parameters apply. The UE behaviour in case the field is absent is described in clause 5.2.2.4.3. |
| ***highPriorityMeasRelax***  Indicates whether measurements can be relaxed on high priority frequencies. If the field is absent, the UE shall not relax measurements on high priority frequencies beyond "Thigher\_priority\_search" unless both low mobility and not at cell edge criteria are fulfilled (see TS 38.133 [14], clauses 4.2.2.7, 4.2.2.10 and 4.2.2.11). |
| ***intraFreqCellReselectionInfo***  Cell re-selection information common for intra-frequency cells. |
| ***lowMobilityEvaluation***  Indicates the criteria for a UE to detect low mobility, in order to relax measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.9.1). |
| ***nrofSS-BlocksToAverage***  Number of SS blocks to average for cell measurement derivation. If the field is absent the UE uses the measurement quantity as specified in TS 38.304 [20]. |
| ***offloadMeasurementForServingCell***  Configuration to allow offloading of serving cell RRM measurement on MR to serving cell RRM measurement on LP-WUR (see TS 38.304 [20], clause 5.2.4.x). |
| ***p-Max***  Value in dBm applicable for the intra-frequency neighbouring NR cells. If absent the UE applies the maximum power according to TS 38.101-1 [15] in case of an FR1 cell, TS 38.101-2 [39] in case of an FR2 cell or TS 38.101-5 [75] in case of an NTN cell. In this release of the specification, if *p-Max* is present on a carrier frequency in FR2, the UE shall ignore the field and applies the maximum power according to TS 38.101-2 [39] for FR2-1/2 or according to TS 38.101-5 [75] for FR2-NTN. This field is ignored by IAB-MT and NCR-MT. The IAB-MT applies output power and emissions requirements, as specified in TS 38.174 [63]. The NCR-MT applies output power and emissions requirements as specified in TS 38.106 [79]. |
| ***q-Hyst***  Parameter "*Qhyst*" in TS 38.304 [20], Value in dB. Value *dB1* corresponds to 1 dB, *dB2* corresponds to 2 dB and so on. |
| ***q-HystSF***  Parameter "Speed dependent ScalingFactor for Qhyst" in TS 38.304 [20]. The *sf-Medium* and *sf-High* concern the additional hysteresis to be applied, in Medium and High Mobility state respectively, to Qhyst as defined in TS 38.304 [20]. In dB. Value *dB-6* corresponds to -6dB, *dB-4* corresponds to -4dB and so on. |
| ***q-QualMin***  Parameter "Qqualmin" in TS 38.304 [20], applicable for intra-frequency neighbour cells. If the field is absent, the UE applies the (default) value of negative infinity for Qqualmin. |
| ***q-RxLevMin***  Parameter "Qrxlevmin" in TS 38.304 [20], applicable for intra-frequency neighbour cells. |
| ***q-RxLevMinSUL***  Parameter "Qrxlevmin" in TS 38.304 [20], applicable for intra-frequency neighbour cells. |
| ***rangeToBestCell***  Parameter "rangeToBestCell" in TS 38.304 [20]. The network configures only non-negative (in dB) values. |
| ***relaxedMeasurement***  Configuration to allow relaxation of RRM measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.9). In NTN, this field is only applicable for GSO neighbour cells. |
| ***relaxedMeasurementForServingAndNeighboringCell***  Configuration to allow relaxation of serving cell and neighboring cell RRM measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.x). |
| ***s-IntraSearchP***  Parameter "SIntraSearchP" in TS 38.304 [20]. |
| ***s-IntraSearchQ***  Parameter "SIntraSearchQ" in TS 38.304 [20]. If the field is absent, the UE applies the (default) value of 0 dB for SIntraSearchQ. |
| ***s-NonIntraSearchP***  Parameter "SnonIntraSearchP" in TS 38.304 [20]. If this field is absent, the UE applies the (default) value of infinity for SnonIntraSearchP. |
| ***s-NonIntraSearchQ***  Parameter "SnonIntraSearchQ" in TS 38.304 [20]. If the field is absent, the UE applies the (default) value of 0 dB for SnonIntraSearchQ. |
| ***s-SearchDeltaP***  Parameter "SSearchDeltaP" in TS 38.304 [20]. Value dB3 corresponds to 3 dB, dB6 corresponds to 6 dB and so on. |
| ***s-SearchDeltaP-Stationary***  Parameter "SSearchDeltaP-Stationary" in TS 38.304 [20]. Value *dB2* corresponds to 2 dB, *dB3* corresponds to 3 dB and so on. |
| ***s-SearchThresholdP, s-SearchThresholdP2, s-SearchThresholdP3, s-SearchThresholdP4, s-SearchThresholdP5, s-SearchThresholdP6***  Parameters "SSearchThresholdP", "SSearchThresholdP2", "SSearchThresholdP3", "SSearchThresholdP4", "SSearchThresholdP5", and "SSearchThresholdP6" in TS 38.304 [20]. The network configures *s-SearchThresholdP* and *s-SearchThresholdP2* to be less than or equal to *s-IntraSearchP* and *s-NonIntraSearchP*. The network configures both *s-SearchThresholdP5* and *s-SearchThresholdP6* to be larger than or equal to *s-IntraSearchP* and *s-NonIntraSearchP*, if there is such configuration(s). [RIL]: E008 LPWUS The network configures *s-SearchThresholdP5* and *s-SearchThresholdP6* to be larger than or equal to *s-SearchThresholdP3* and *s-SearchThresholdP4*, respectively, if there is such configuration(s). [RIL]: V002, LPWUS, [RIL]: V004, LPWUS |
| ***rsrpThresholdLR, rsrpThresholdLR2, rsrpThresholdLR3, rsrpThresholdLR4, rsrpThresholdLR5***, ***rsrpThresholdLR6***  Parameters "*SRSRPThresholdLR*", "*SRSRPThresholdLR2*", "*SRSRPThresholdLR3*", "*SRSRPThresholdLR4*", "*SRSRPThresholdLR5*", and "*SRSRPThresholdLR6*" in TS 38.304 [20]. The network configures *rsrpThresholdLR3* and *rsrpThresholdLR4* to be larger than or equal to *rsrpThresholdLR* and *rsrpThresholdLR2,* respectively, if there is such configuration(s). [RIL]: V003, LPWUS, [RIL]: V005, LPWUS, [RIL]: V005, LPWUS |
| ***s-SearchThresholdQ, s-SearchThresholdQ2, s-SearchThresholdQ3, s-SearchThresholdQ4, s-SearchThresholdQ5, s-SearchThresholdQ6***  Parameters "SSearchThresholdQ" "SSearchThresholdQ2", "SSearchThresholdQ3", "SSearchThresholdQ4", "SSearchThresholdQ5", and "SSearchThresholdQ6" in TS 38.304 [20]. The network configures *s-SearchThresholdQ* and *s-SearchThresholdQ2* to be less than or equal to *s-IntraSearchQ* and *s-NonIntraSearchQ*. The network configures both *s-SearchThresholdQ5* and *s-SearchThresholdQ6* to be larger than or equal to *s-IntraSearchQ* and *s-NonIntraSearchQ*, if there is such configuration(s). The network configures *s-SearchThresholdQ5* and *s-SearchThresholdQ6* to be larger than or equal to *s-SearchThresholdQ3* and *s-SearchThresholdQ4*, respectively, if there is such configuration(s). |
| ***rsrqThresholdLR, rsrqThresholdLR2, rsrThresholdLR3, rsrqThresholdLR4, rsrqThresholdLR5***, ***rsrqThresholdLR6***  Parameters "*SRSRQThresholdLR*", "*SRSRQThresholdLR2*", "*SRSRQThresholdLR3*", "*SRSRQThresholdLR4*", "*SRSRQThresholdLR5*", and "*SRSRQThresholdLR6*" in TS 38.304 [20]. The network configures *rsrqThresholdLR3* and *rsrqThresholdLR4* to be larger than or equal to *rsrqThresholdLR* and *rsrqThresholdLR2,* respectively, if there is such configuration(s). |
| ***smtc***  Measurement timing configuration for intra-frequency measurement. If this field is absent, the UE assumes that SSB periodicity is 5 ms for the intra-frequency cells. If the field is broadcast by an NTN cell, the *offset* (derived from parameter *periodicityAndOffset*) is based on the assumption that the gNB-UE propagation delay difference between the serving cell and neighbour cells equals to 0 ms, and UE can adjust the actual *offset* based on the actual propagation delay difference. |
| ***smtc2-LP***  Measurement timing configuration for intra-frequency neighbour cells with a Long Periodicity (LP) indicated by periodicity in *smtc2-LP*. The timing offset and duration are equal to the offset and duration indicated in *smtc* in *intraFreqCellReselectionInfo*. The periodicity in *smtc2-LP* can only be set to a value strictly larger than the periodicity in *smtc* in *intraFreqCellReselectionInfo* (e.g. if *smtc* indicates sf20 the Long Periodicity can only be set to sf40, sf80 or sf160, if *smtc* indicates sf160, *smtc2-LP* cannot be configured). The *pci-List*, if present, includes the physical cell identities of the intra-frequency neighbour cells with Long Periodicity. If *smtc2-LP* is absent, the UE assumes that there are no intra-frequency neighbour cells with a Long Periodicity. This field is not configured together with *smtc4list*. |
| ***smtc4list***  Measurement timing configuration list for NTN deployments. The offset of each SSB-MTC4 in *smtc4list* is based on the assumption that the gNB-UE propagation delay difference between the serving cell and neighbour cells equals to 0 ms, and UE can adjust the actual *offset* based on the actual propagation delay difference. For a UE that supports less SMTCs than what is included in this list, it is up to the UE to select which SMTCs to consider. |
| ***ssb-PositionQCL-Common***  Indicates the QCL relation between SS/PBCH blocks for intra-frequency neighbor cells as specified in TS 38.213 [13], clause 4.1. |
| ***ssb-ToMeasure***  The set of SS blocks to be measured within the SMTC measurement duration (see TS 38.215 [9]). When the field is absent the UE measures on all SS-blocks. |
| ***stationaryMobilityEvaluation***  Indicates the criteria for a UE to detect stationary mobility, in order to relax measurement requirements for cell reselection (see TS 38.304 [20], clause 5.2.4.9.0). |
| ***t-ReselectionNR***  Parameter "TreselectionNR" in TS 38.304 [20]. |
| ***t-ReselectionNR-SF***  Parameter "Speed dependent ScalingFactor for TreselectionNR" in TS 38.304 [20]. If the field is absent, the UE behaviour is specified in TS 38.304 [20]. |
| ***threshServingLowP***  Parameter "ThreshServing, LowP" in TS 38.304 [20]. |
| ***threshServingLowQ***  Parameter "ThreshServing, LowQ" in TS 38.304 [20]. |
| ***t-SearchDeltaP***  Parameter "TSearchDeltaP" in TS 38.304 [20]. Value in seconds. Value *s5* means 5 seconds, value *s10* means 10 seconds and so on. |
| ***t-SearchDeltaP-Stationary***  Parameter "TSearchDeltaP-Stationary" in TS 38.304 [20]. Value in seconds. Value *s5* means 5 seconds, value *s10* means 10 seconds and so on. |

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *HSDN* | The field is optionally present, Need R, if *speedStateReselectionPars* is present; otherwise the field is not present. |
| *SharedSpectrum* | This field is mandatory present if this intra-frequency operates with shared spectrum channel access in FR1. Otherwise, it is absent, Need R. |
| *SharedSpectrum2* | This field is optionally present if this intra-frequency operates with shared spectrum channel access in FR2-2, Need R. Otherwise, it is absent, Need R. |
| *SupportLR-OnLPSS* | This field is mandatory present for the cell supporting OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS. It is absent otherwise. |
| *SupportLR-OnSSB* | This field is mandatory present for the cell supporting OFDM based LP-WUR measuring on SSB. It is absent otherwise. |

Nex change

### 6.3.2 Radio resource control information elements

– *DownlinkConfigCommonSIB*

The IE *DownlinkConfigCommonSIB* provides common downlink parameters of a cell.

***DownlinkConfigCommonSIB* information element**

-- ASN1START

-- TAG-DOWNLINKCONFIGCOMMONSIB-START

DownlinkConfigCommonSIB ::= SEQUENCE {

frequencyInfoDL FrequencyInfoDL-SIB,

initialDownlinkBWP BWP-DownlinkCommon,

bcch-Config BCCH-Config,

pcch-Config PCCH-Config,

...,

[[

pei-Config-r17 PEI-Config-r17 OPTIONAL, -- Need R

initialDownlinkBWP-RedCap-r17 BWP-DownlinkCommon OPTIONAL -- Need R

]],

[[

frequencyInfoDL-v1800 FrequencyInfoDL-SIB-v1800 OPTIONAL -- Need R

]],

[[

lowPowerConfig-r19 LowPowerConfig-r19 OPTIONAL -- Need R

]]

}

DownlinkConfigCommonSIB-v1760 ::= SEQUENCE {

frequencyInfoDL-v1760 FrequencyInfoDL-SIB-v1760

}

BCCH-Config ::= SEQUENCE {

modificationPeriodCoeff ENUMERATED {n2, n4, n8, n16},

...

}

PCCH-Config ::= SEQUENCE {

defaultPagingCycle PagingCycle,

nAndPagingFrameOffset CHOICE {

oneT NULL,

halfT INTEGER (0..1),

quarterT INTEGER (0..3),

oneEighthT INTEGER (0..7),

oneSixteenthT INTEGER (0..15)

},

ns ENUMERATED {four, two, one},

firstPDCCH-MonitoringOccasionOfPO CHOICE {

sCS15KHZoneT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..139),

sCS30KHZoneT-SCS15KHZhalfT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..279),

sCS60KHZoneT-SCS30KHZhalfT-SCS15KHZquarterT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..559),

sCS120KHZoneT-SCS60KHZhalfT-SCS30KHZquarterT-SCS15KHZoneEighthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..1119),

sCS120KHZhalfT-SCS60KHZquarterT-SCS30KHZoneEighthT-SCS15KHZoneSixteenthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..2239),

sCS480KHZoneT-SCS120KHZquarterT-SCS60KHZoneEighthT-SCS30KHZoneSixteenthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..4479),

sCS480KHZhalfT-SCS120KHZoneEighthT-SCS60KHZoneSixteenthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..8959),

sCS480KHZquarterT-SCS120KHZoneSixteenthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..17919)

} OPTIONAL, -- Need R

...,

[[

nrofPDCCH-MonitoringOccasionPerSSB-InPO-r16 INTEGER (2..4) OPTIONAL -- Cond SharedSpectrum2

]],

[[

ranPagingInIdlePO-r17 ENUMERATED {true} OPTIONAL, -- Need R

firstPDCCH-MonitoringOccasionOfPO-v1710 CHOICE {

sCS480KHZoneEighthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..35839),

sCS480KHZoneSixteenthT SEQUENCE (SIZE (1..maxPO-perPF)) OF INTEGER (0..71679)

} OPTIONAL -- Need R

]]

}

PEI-Config-r17 ::= SEQUENCE {

po-NumPerPEI-r17 ENUMERATED {po1, po2, po4, po8},

payloadSizeDCI-2-7-r17 INTEGER (1..maxDCI-2-7-Size-r17),

pei-FrameOffset-r17 INTEGER (0..16),

subgroupConfig-r17 SubgroupConfig-r17,

lastUsedCellOnly-r17 [RIL]: E034, LPWUS ENUMERATED {true} OPTIONAL, -- Need R

...

}

SubgroupConfig-r17 ::= SEQUENCE {

subgroupsNumPerPO-r17 INTEGER (1.. maxNrofPagingSubgroups-r17),

subgroupsNumForUEID-r17 INTEGER (1.. maxNrofPagingSubgroups-r17) OPTIONAL, -- Need S

...

}

LowPowerConfig-r19 ::= SEQUENCE {

lpwus-MvalueAndSeqConfigFR1-r19 CHOICE {

nOne SEQUENCE {

lpwus-OverlaidSeqRoots SEQUENCE {

root1-r19 INTEGER (1..131),

root2-r19 INTEGER (1..131) OPTIONAL -- Need R

} OPTIONAL, -- Cond FFS[OFDM-only]

lpwus-OverlaidSeqNum-r19 ENUMERATED {n1, n2, n4, n8, n16} OPTIONAL -- Need R

},

nTwo SEQUENCE {

lpwus-OverlaidSeqRoots SEQUENCE {

root1-r19 INTEGER (1..61),

root2-r19 INTEGER (1..61) OPTIONAL -- Need R

} OPTIONAL, -- Cond FFS[OFDM-only]

lpwus-OverlaidSeqNum-r19 ENUMERATED {n1, n2, n4, n8} OPTIONAL -- Need R

},

nFour SEQUENCE {

lpwus-OverlaidSeqRoots SEQUENCE {

root1-r19 INTEGER (1..31),

root2-r19 INTEGER (1..31) OPTIONAL -- Need R

} OPTIONAL, -- Cond FFS[OFDM-only]

lpwus-OverlaidSeqNum-r19 ENUMERATED {n1, n2, n4} OPTIONAL -- Need R

}

} OPTIONAL, -- Cond FR1-Only

lpwus-MvalueAndSeqConfigFR2-r19 CHOICE {

nOne SEQUENCE {

lpwus-OverlaidSeqRoots SEQUENCE {

root1-r19 INTEGER (1..131),

root2-r19 INTEGER (1..131) OPTIONAL -- Need R

} OPTIONAL, -- Cond FFS[OFDM-only]

lpwus-OverlaidSeqNum-SCS-120kHz-r19 ENUMERATED {n1, n2} OPTIONAL -- Need R

}

} OPTIONAL, -- Cond FR2-Only

lpwus-LoFrameOffsetList-r19 SEQUENCE {

offsetForLongerWakeUpDelay-r19 SEQUENCE (SIZE (1..4)) OF INTEGER (8..200) OPTIONAL, -- Need R

offsetForShorterWakeUpDelay-r19 SEQUENCE (SIZE (1..4)) OF INTEGER (8..200) OPTIONAL -- Need R

},[RIL]: C026, LPWUS

lpwus-MoNumPerLo-r19 ENUMERATED {n1, n2, n3, n4},

lpwus-PoNumPerLo-r19 ENUMERATED {po1, po2, po4} OPTIONAL, -- Need R

lpwus-EPRE-Ratio-r19 ENUMERATED {dBminus3, dB0, dB3, dB6} OPTIONAL, -- Need R

lpwus-AvailableSlot-r19 CHOICE {

n10 BIT STRING (SIZE (10)),

n20 BIT STRING (SIZE (20)),

n40 BIT STRING (SIZE (40))

} OPTIONAL, -- Need R

lpwus-AvailableSymbol-r19 CHOICE {

oneSlot BIT STRING (SIZE (14)),

twoSlots BIT STRING (SIZE (28))

} OPTIONAL, -- Need R

lpwus-OffsetFirstMoWithinLo-r19 ENUMERATED {ffs} OPTIONAL, -- Need R

lpwus-NominalMoDuration-r19 ENUMERATED {ffs} OPTIONAL, -- Need R

lpwus-ActualDuration-r19 ENUMERATED {ffs} OPTIONAL, -- Need R

lpwus-LPSS-StartRB-r19 INTEGER (0..263) OPTIONAL, -- Need R

lpwus-LPSS-BeamSubset-r19 CHOICE {

shortBitmap BIT STRING (SIZE (4)),

mediumBitmap BIT STRING (SIZE (8)),

longBitmap BIT STRING (SIZE (64))

} OPTIONAL, -- Need S

lpss-EPRE-Ratio-r19 ENUMERATED {dBminus3, dB0, dB3, dB6} OPTIONAL, -- Need R

lpss-BinarySeqIndex-r19[RIL]: S056, LPWUS INTEGER (1..4) OPTIONAL, -- Cond FFS[OOK-only]

lpss-MvalueAndSeqConfig-r19 CHOICE {

nOne SEQUENCE {

lpss-BinarySeqLen-r19 ENUMERATED {n6, n8} OPTIONAL, -- Cond FFS[OOK-only]

lpss-OverlaidSeqRoot-r19 INTEGER (1..131) OPTIONAL -- Cond OOK4-Only[RIL]: H051, LPWUS

},

nTwo SEQUENCE {

lpss-BinarySeqLen-r19 ENUMERATED {n12, n16} OPTIONAL, -- Cond FFS[OOK-only]

lpss-OverlaidSeqRoot-r19 INTEGER (1..61) OPTIONAL -- Cond OOK4-Only

},

nFour SEQUENCE {

lpss-BinarySeqLen-r19 ENUMERATED {n16, n32} OPTIONAL, -- Cond FFS[OOK-only]

lpss-OverlaidSeqRoot-r19 INTEGER (1..31) OPTIONAL -- Cond OOK4-Only

}

} OPTIONAL, -- Need R

lpss-PeriodicityAndOffset-r19 CHOICE {

ms160 INTEGER (0..159),

ms320 INTEGER (0..319)

} OPTIONAL, -- Cond FFS[OOK-only]

lpss-StartSymbol-r19 SEQUENCE {

startSymbol1-r19 INTEGER (0..10),

startSymbol2-r19 INTEGER (0..10) OPTIONAL [RIL]: H052, LPWUS

} OPTIONAL, -- Need R

lp-SubgroupConfig-r19 LP-SubgroupConfig-r19,

entryCondition-r19 EntryCondition-r19,

exitCondition-r19 ExitCondition-r19,

...

}

LP-SubgroupConfig-r19 ::= SEQUENCE {

lp-SubgroupsNumPerPO-r19 INTEGER (1.. maxNrofPagingSubgroupsLP-r19),

lp-SubgroupsNumForUEID-r19 INTEGER (1.. maxNrofPagingSubgroupsLP-r19) OPTIONAL, -- Need S

...

}

[RIL]: H053, LPWUS

[RIL]: E036, LPWUS EntryCondition-r19 ::= SEQUENCE {

entryEvaluationOnMR-ForLR-OnLPSS-r19 SEQUENCE {

thresholdP1-r19 ReselectionThreshold,

thresholdQ1-r19 ReselectionThresholdQ OPTIONAL -- Need R

} OPTIONAL, -- Cond SupportLR-OnLPSS

entryEvaluationOnMR-ForLR-OnSSB-r19 SEQUENCE {

thresholdP2-r19 ReselectionThreshold,

thresholdQ2-r19 ReselectionThresholdQ OPTIONAL -- Need R

} OPTIONAL, -- Cond SupportLR-OnSSB

entryEvaluationOnLR-ForLR-OnSSB-r19 SEQUENCE {

thresholdP1-LR-r19 ThresholdP-LR-r19,

thresholdQ1-LR-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL, -- Need R

entryEvaluationOnLR-ForLR-OnLPSS-r19 SEQUENCE {

thresholdP3-LR-r19 ThresholdP-LR-r19,

thresholdQ3-LR-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL, -- Need R

...

}

[RIL]: H054, LPWUS ExitCondition-r19 ::= SEQUENCE {

exitEvaluationOnLR-ForLR-OnLPSS-r19 SEQUENCE {

thresholdP2-LR-r19 ThresholdP-LR-r19,

thresholdQ2-LR-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL, -- Cond SupportLR-OnLPSS

exitEvaluationOnLR-ForLR-OnSSB-r19 SEQUENCE {

thresholdP4-LR-r19 ThresholdP-LR-r19,

thresholdQ4-LR-r19 ThresholdQ-LR-r19 OPTIONAL -- Need R

} OPTIONAL, -- Cond SupportLR-OnSSB

...

}

-- TAG-DOWNLINKCONFIGCOMMONSIB-STOP

-- ASN1STOP

Editor’s NOTE: On the RRC parameters with value of ENUMERATED {ffs}, to be updated according to further RAN1 inputs.

|  |
| --- |
| ***DownlinkConfigCommonSIB* field descriptions** |
| ***bcch-Config***  The modification period related configuration. |
| ***entryCondition***  The entry condition for LP-WUS monitoring related configuration. |
| ***exitCondition***  The exit condition for LP-WUS monitoring related configuration. |
| ***frequencyInfoDL-SIB***  Basic parameters of a downlink carrier and transmission thereon. |
| ***initialDownlinkBWP***  The initial downlink BWP configuration for a PCell. The network configures the *locationAndBandwidth* so that the initial downlink BWP contains the entire CORESET#0 of this serving cell in the frequency domain. The UE applies the *locationAndBandwidth* upon reception of this field (e.g. to determine the frequency position of signals described in relation to this *locationAndBandwidth*) but it keeps CORESET#0 until after reception of *RRCSetup*/*RRCResume/RRCReestablishment*. |
| ***initialDownlinkBWP-RedCap***  If present, (e)RedCap UEs use this DL BWP instead of *initialDownlinkBWP*. If the *locationAndBandwidth* of this BWP contains the entire CORESET#0, the UE applies the *locationAndBandwidth* upon reception of this field (e.g. to determine the frequency position of signals described in relation to this *locationAndBandwidth*) but it keeps CORESET#0 until after reception of *RRCSetup*/*RRCResume/RRCReestablishment*. Otherwise, i.e., if the *locationAndBandwidth* of this BWP does not contain the entire CORESET#0, the UE uses this BWP for receiving DL messages during initial access (Msg2, MsgB, Msg4) and after initial access.  If absent, (e)RedCap UEs use *initialDownlinkBWP* provided that it does not exceed the (e)RedCap UE maximum bandwidth (see also clause 5.2.2.4.2). |
| ***lastUsedCellOnly***  When present, the field indicates that the UE monitors PEI only if the latest received *RRCRelease* without *noLastCellUpdate* is from this cell. A PEI-capable UE stores its last used cell information. |
| ***lowPowerConfig***  The LP-WUS and LP-SS related configuration. |
| ***lp-SubgroupConfig***  The LP-WUS subgroup related configuration. |
| ***pcch-Config***  The paging related configuration. |
| ***pei-Config***  The PEI related configuration. |
| ***subgroupConfig***  The paging subgroup related configuration. |

|  |
| --- |
| ***BCCH-Config* field descriptions** |
| ***modificationPeriodCoeff***  Actual modification period, expressed in number of radio frames m = *modificationPeriodCoeff* \* *defaultPagingCycle*, see clause 5.2.2.2.2. *n2* corresponds to value 2, *n4* corresponds to value 4, and so on. |

|  |
| --- |
| ***PCCH-Config* field descriptions** |
| ***defaultPagingCycle***  Default paging cycle, used to derive 'T' in TS 38.304 [20]. Value *rf32* corresponds to 32 radio frames, value *rf64* corresponds to 64 radio frames and so on. |
| ***firstPDCCH-MonitoringOccasionOfPO***  Points out the first PDCCH monitoring occasion for paging of each PO of the PF, see TS 38.304 [20]. |
| ***nAndPagingFrameOffset***  Used to derive the number of total paging frames in T (corresponding to parameter N in TS 38.304 [20]) and paging frame offset (corresponding to parameter PF\_offset in TS 38.304 [20]). A value of *oneSixteenthT* corresponds to T / 16, a value of oneEighthT corresponds to T / 8, and so on.  If *pagingSearchSpace* is set to zero and if SS/PBCH block and CORESET multiplexing pattern is 2 or 3 (as specified in TS 38.213 [13]):  - for *ssb-periodicityServingCell* of 5 or 10 ms, N can be set to one of {*oneT, halfT, quarterT, oneEighthT, oneSixteenthT*}  - for *ssb-periodicityServingCell* of 20 ms, N can be set to one of {*halfT, quarterT, oneEighthT, oneSixteenthT*}  - for *ssb-periodicityServingCell* of 40 ms, N can be set to one of {*quarterT, oneEighthT, oneSixteenthT*}  - for *ssb-periodicityServingCell* of 80 ms, N can be set to one of {*oneEighthT, oneSixteenthT*}  - for *ssb-periodicityServingCell* of 160 ms, N can be set to *oneSixteenthT*  If *pagingSearchSpace* is set to zero and if SS/PBCH block and CORESET multiplexing pattern is 1 (as specified in TS 38.213 [13]), N can be set to one of {*halfT, quarterT, oneEighthT, oneSixteenthT*}  If *pagingSearchSpace* is not set to zero, N can be configured to one of {*oneT, halfT, quarterT, oneEighthT, oneSixteenthT*} |
| ***nrofPDCCH-MonitoringOccasionPerSSB-InPO***  The number of PDCCH monitoring occasions corresponding to an SSB within a Paging Occasion, see TS 38.304 [20], clause 7.1. |
| ***ns***  Number of paging occasions per paging frame. |
| ***ranPagingInIdlePO***  Indicates that the network supports to send RAN paging in PO that corresponds to the i\_s as determined by UE in RRC\_IDLE state, see TS38.304 [20]. |

|  |
| --- |
| ***PEI-Config* field descriptions** |
| ***payloadSizeDCI-2-7***  Payload size of PEI DCI, i.e., DCI format 2\_7. The size is no larger than the payload size of paging DCI which has maximum of 41 bits and 43 bits for licensed and unlicensed spectrums, respectively. |
| ***pei-FrameOffset***  Offset, in number of frames from the start of a reference frame for PEI-O to the start of a first paging frame of the paging frames associated with the PEI-O, see TS 38.213 [13], clause 10.4A. |
| ***po-NumPerPEI***  The number of PO(s) associated with one PEI monitoring occasion. It is a factor of the total PO number in a paging cycle, i.e N x Ns, as specified in TS 38.304 [20]. The maximum number of PF associated with one PEI monitoring occasion is 2. The number of PO mapping to one PEI should be multiple of Ns when *po-NumPerPEI* is larger than Ns. |

|  |
| --- |
| ***SubgroupConfig* field descriptions** |
| ***subgroupsNumPerPO***  Total number of subgroups per Paging Occasion (PO) for UE to read subgroups indication from PEI signaling. The field represents the sum of CN-assigned and UEID-based subgroups supported for PEI by the network. When *PEI-Config* is configured, there is always at least one subgroup (UEID-based subgroup or CN-assigned subgroup) configured. |
| ***subgroupsNumForUEID***  Number of subgroups per Paging Occasion (PO) for UE to read subgroups indication from PEI signaling, for UEID-based subgrouping method for PEI. When present, the fieldis set to an integer smaller than or equal to *subgroupsNumPerPO. subgroupsNumPerPO* equals to *subgroupsNumForUEID* when the network does not configure CN-assigned subgrouping for PEI. When *pei-Config* is configured, the field is absent when the network only configures CN-assigned subgrouping. Both this field and *subgroupsNumPerPO* are equal to 1 when the network does not configure subgrouping for PEI. When *pei-Config* is configured, if the field is absent, the UE uses subgrouping according to TS 38.304 [20], clause 7.3.0. |

|  |
| --- |
| *LowPowerConfig* field descriptions |
| ***lpss-BinarySeqIndex***  Indicates the LP-SS binary sequence index in the cell for RRC IDLE/INACTIVE (see TS 38.211 [16], clause 7.4.5.1.1). |
| ***lpss-BinarySeqLen***  Indicates the LP-SS binary sequence length in the cell for RRC IDLE/INACTIVE. The value n6 means *BinarySeqLen* (see TS 38.211 [16], clause 7.4.5.1.1) is set to 6, value n8 means *BinarySeqLen* is set to 8, and so on. |
| ***lpss-EPRE-Ratio***  Indicates the EPRE ratio between LP-SS and SSB in the cell for RRC IDLE/INACTIVE (see TS 38.213 [13], clause 10.4C). A value of dBminus3 means EPRE ratio is set to -3dB, a value of dB0 means EPRE ratio is set to 0dB, and so on. If the M value = 1 for both LP-WUS and LP-SS, or the M value > 1 for both LP-WUS and LP-SS, the difference between *lpwus-EPRE-Ratio* and *lpss-EPRE-Ratio* shall be no larger than 3 dB. If M value =1 for LP-WUS and the M value >1 for LP-SS, the ERPE ratio for LP-SS minus the EPRE ratio for LP-WUS should be within the range of -6 dB to 0 dB.  Note: EPRE refers to EPRE in one OFDM symbol with non-zero power (from baseband perspective) LP-SS transmission. |
| ***lpss-MvalueAndSeqConfig***  Indicates the number of OOK symbols in an OFDM symbol for LP-SS in FR1 or FR2 for RRC IDLE/INACTIVE (corresponding to parameter *MLPSS*, see TS 38.211 [16], clause 7.4.5.1.1) and the LP-SS sequence configuration in the cell for RRC\_IDLE/INACTIVE. A value of nOne means M value is set to 1, a value of nTwo means M value is set to 2, and so on. |
| ***lpss-OverlaidSeqRoots***  Indicates the configuration of single overlaid sequence root for LP-SS in the cell for RRC IDLE/INACTIVE (see TS 38.211 [16], clause 7.4.2.5.1.2). |
| ***lpss-PeriodicityAndOffset***  Indicates the configuration of LP-SS periodicity and time offset (see TS 38.213 [13]). The time offset is configured for the first LP-SS occasion with reference to SFN#0.  A value of ms160 means the LP-SS periodicity (see TS 38.213 [13], clause 10.4C) is set to 160ms, a value of ms320 means the LP-SS periodicity is set to 320ms. For each LP-SS periodicity value, the time offset (see TS 38.213 [13], clause 10.4C) is configured with the unit of ms. |
| ***lpss-StartSymbol***  Indicates start symbol(s) within a slot for LP-SS (see TS 38.213 [13], clause 10.4C), where the slot is determined from the periodicity/offset configuration, i.e. *lpss-PeriodicityAndOffset*, for LP-SS. If only *startSymbol1* is configured, there is one LP-SS occasion in a slot. If both *startSymbol1* and *startSymbol2* are configured, there are two LP-SS occasions in a slot. |
| ***lpwus-ActualDuration***  Indicates the actual duration for LP-WUS in the cell for RRC IDLE/INACTIVE (see TS 38.213 [13], clause 10.4C), in number of OFDM symbols. |
| ***lpwus-AvailableSlot***  Indicates the available slot(s) for LP-WUS using a unit level bitmap with a periodicity 10, 20, or 40 units (see TS 38.213 [13], clause 10.4C) in RRC IDLE/INACTIVE, where the unit is one slot if 14-bit symbol level bitmap is used, or the unit is two slots if 28-bits symbol level bitmap is used, as configured by *lpwus-AvailableSymbol*. The most significant bit of the bit string represents the first unit and the second most significant bit represents the second unit and so on. Value 1 in the bitmap indicates that the corresponding unit is available, value 0 indicates that the corresponding unit is not available. This slot pattern repeats itself continuously. |
| ***lpwus-AvailableSymbol***  Indicates the available symbol(s) for LP-WUS within the slot(s) that are indicated as available for LP-WUS configured by *lpwus-AvailableSlot* (see TS 38.213 [13], clause 10.4C) in RRC IDLE/INACTIVE. A 14-bit or 28-bit symbol level bitmap that covers one or two slots can be configured.  For *oneSlot*, the 14 bits represent the symbols within the slot.  For *twoSlots*, the first 14 bits represent the symbols within the first slot and the next 14 bits represent the symbols in the second slot.  For the bits representing symbols in a slot, the most significant bit of the bit string represents the first symbol in the slot and the second most significant bit represents the second symbol in the slot and so on.  Value 1 in the bitmap indicates that the corresponding symbol is available, value 0 indicates that the corresponding symbol is not available. |
| ***lpwus-EPRE-Ratio***  Indicates the EPRE ratio between LP-WUS and SSB in the cell for RRC IDLE/INACTIVE (see TS 38.213 [13], clause 10.4C). A value of dBminus3 means EPRE ratio is set to -3dB, a value of dB0 means EPRE ratio is set to 0dB, and so on. If the M value = 1 for both LP-WUS and LP-SS, or the M value > 1 for both LP-WUS and LP-SS, the difference between *lpwus-EPRE-Ratio* and *lpss-EPRE-Ratio* shall be no larger than 3 dB. If M value =1 for LP-WUS and the M value >1 for LP-SS, the ERPE ratio for LP-SS minus the EPRE ratio for LP-WUS should be within the range of -6 dB to 0 dB.  Note: EPRE refers to EPRE in one OFDM symbol with non-zero power (from baseband perspective) LP-WUS transmission. |
| ***lpwus-LoFrameOffsetList***  Indicates the frame-level offset between an LO and a reference PO/PF for LP-WUS in the cell for RRC IDLE/INACTIVE (see TS 38.213 [13], clause 10.4C).  The entry number of *offsetForLongerWakeUpDelay* or *offsetForShorterWakeUpDelay* is equal to CEIL (Ns/ *lpwus-PoNumPerLo*), where Ns is the number of paging occasions per paging frame configured in SIB1.  At least one frame-level offset, i.e., *offsetForLongerWakeUpDelay* or *offsetForShorterWakeUpDelay* is provided. |
| ***lpwus-LPSS-BeamSubset***  Indicates the subset of beams for LP-WUS/LP-SS in the cell for RRC IDLE/INACTIVE (see TS 38.213 [13], clause 10.4C), where the full set of beams refers to the actual transmitted SSBs determined according to *ssb-PositionsInBurst* configured in SIB1. The most significant bit of the bit string corresponds to beam index 0, the second most significant bit of the bit string corresponds to beam index 1, and so on. Value 0 in the bitmap indicates that the corresponding beam is not transmitted while value 1 indicates that the corresponding beam is transmitted. One bit could be set to value 1 only if the corresponding bit in *ssb-PositionsInBurst* is set to value 1.  If this field is not configured, UE assumes the LP-WUS/LP-SS is transmitted for all the actual transmitted beams determined according to *ssb-PositionsInBurst* configured in SIB1. |
| ***lpwus-LPSS-StartRB***  Indicates the starting RB of LP-WUS and LP-SS for RRC IDLE/INACTIVE (see TS 38.213 [13], clause 10.4C). The starting RB index reference to carrier boundary determined by *offsetToCarrier* corresponding to SCS of the DL initial BWP is configured by gNB. The starting PRB index configured for LP-WUS is that same as that of LP-SS. |
| ***lpwus-MoNumPerLo***  Indicates the number of LP-WUS MO(s) per beam within an LO in the cell for RRC IDLE/INACTIVE (see TS 38.213 [13], clause 10.4C). Value n1 means 1 MO per bean within an LO, value n2 means 2 MO per beam within an LO, and so on. |
| ***lpwus-MvalueAndSeqConfigFR1***  Indicates the number of OOK symbols in an OFDM symbol for LP-WUS in FR1 for RRC IDLE/INACTIVE (corresponding to parameter *MWUS*, see TS 38.211 [16], clause 7.4.4.1.1in TS 38.211 [16]) and the LP-WUS sequence configuration in the cell for RRC\_IDLE/INACTIVE. A value of nOne means M value is set to 1, a value of nTwo means M value is set to 2, and so on. |
| ***lpwus-MvalueAndSeqConfigFR2***  Indicates the number of OOK symbols in an OFDM symbol for LP-WUS in FR2 for RRC IDLE/INACTIVE (corresponding to parameter *MWUS*, see TS 38.211 [16], clause 7.4.4.1.1 in TS 38.211 [16]) and the LP-WUS sequence configuration in the cell for RRC\_IDLE/INACTIVE. A value of nOne means M value is set to 1. |
| ***lpwus-NominalMoDuration***  Indicates the nominal MO duration for LP-WUS in the cell for RRC IDLE/INACTIVE (see TS 38.213 [13], clause 10.4C), in number of OFDM symbols. |
| ***lpwus-OffsetFirstMoWithinLo***  Indicates the symbol leve offset for the starting time location of the first LP-WUS MO in an LO w.r.t. the reference point (see TS 38.213 [13], clause 10.4C). The reference point is the start of a reference frame determined by the frame-level offset from the start of the first PF of the PF(s) associated with the LO. Common symbol level offset is shared across all LOs. |
| ***lpwus-OverlaidSeqNum***  Indicates the number of candidate overlaid sequences to carry LP-WUS information per OOK ON chip for LP-WUS in the cell in FR1 for RRC IDLE/INACTIVE (corresponding to parameter *Nseq*, see TS 38.211 [16], clause 7.4.4.1.1). |
| ***lpwus-OverlaidSeqNum-SCS-120kHz***  Indicates the number of candidate overlaid sequences to carry LP-WUS information per OOK ON chip for LP-WUS in the cell for RRC IDLE/INACITVE for SCS of 120KHz in FR2 (see TS 38.211 [16], clause 7.4.4.1.1). |
| ***lpwus-OverlaidSeqRoots***  Indicates the configuration of overlaid sequence root for LP-WUS in the cell for RRC IDLE/INACTIVE (see TS 38.211 [16], clause 7.4.4.1.1). |
| ***lpwus-PoNumPerLo***  Indicates the number of PO(s) associated with one LO for LP-WUS in the cell for RRC IDLE/INACTIVE (see TS 38.213 [13], clause 10.4C). Value po1 means 1 PO associated with one LO, value po2 means 2 POs associated with one LO, and so on. |
| ***offsetForLongerWakeUpDelay***  Indicates the frame-level offset value for LP-WUS correposnding to longer UE wake-up delay (see TS 38.213 [13], clause 10.4C). The reference point (reference PO/PF) for the frame-level offset is the start of the PF, or the first PF of the PF(s) (if mapping of POs from multiple PFs to one LO is supported), associated with the LO. Each entry in *offsetForLongerWakeUpDelay* is configured with the unit of frames. |
| ***offsetForShorterWakeUpDelay***  Indicates the frame-level offset value for LP-WUS correposnding to shorter UE wake-up delay (see TS 38.213 [13], clause 10.4C). The reference point (reference PO/PF) for the frame-level offset is the start of the PF, or the first PF of the PF(s) (if mapping of POs from multiple PFs to one LO is supported), associated with the LO. Each entry in *offsetForShorterWakeUpDelay* is configured with the unit of frames. |
| ***root1***  Indicates the first overlaid sequence root for LP-WUS in the cell for RRC IDLE/INACTIVE (see TS 38.211 [16], clause 7.4.4.1.1). |
| ***root2***  Indicates the second overlaid sequence root for LP-WUS in the cell for RRC IDLE/INACTIVE (see TS 38.211 [16], clause 7.4.4.1.1). For FR1, this field shall be present for the case when the value of parameter lpwus-OverlaidSeqNum is configured as 16/8/4 for M value=1/2/4, respectively; otherwise, it is optional. |

|  |
| --- |
| *LP-SubgroupConfig* field descriptions |
| ***lp-SubgroupsNumPerPO***  Total number of subgroups per Paging Occasion (PO) for UE to monitor codepoint from LP-WUS signaling. The field represents the sum of CN-assigned and UEID-based subgroups supported for LP-WUS by the network. When lowPower*Config* is configured, there is always at least one subgroup (UEID-based subgroup or CN-assigned subgroup) configured. The maximum number of subgroups per PO is 31, 15, and 7 when the number of PO(s) associated with one LO for LP-WUS, i.e., lpwus-PoNumPerLo, is configured as 1, 2, and 4, respectively. |
| ***lp-SubgroupsNumForUEID***  Number of subgroups per Paging Occasion (PO) for UE to read subgroups indication from LP-WUS signaling, for UEID-based subgrouping method for LP-WUS. When present, the fieldis set to an integer smaller than or equal to *lp-SubgroupsNumPerPO. lp-SubgroupsNumPerPO* equals to *lp-SubgroupsNumForUEID* when the network does not configure CN-assigned subgrouping for LP-WUS. When *lowPowerConfig* is configured, the field is absent when the network only configures CN-assigned subgrouping for LP-WUS. Both this field and *lp-SubgroupsNumPerPO* are equal to 1 when the network does not configure subgrouping for LP-WUS. When *lowPowerConfig* is configured, if the field is absent, the UE uses subgrouping according to TS 38.304 [20], clause 7.y.2. |

|  |
| --- |
| EntryCondition, ExitConditionfield descriptions |
| ***entryEvaluationOnMR-ForLR-OnLPSS***  Indicates the threshold(s) for a UE supporting OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS to determine whether the entry condition for using LP-WUS is fulfilled or not based on the serving cell measurement on MR (see TS 38.304 [20], clause 7.x.1). |
| ***entryEvaluationOnMR-ForLR-OnSSB***  Indicates the threshold(s) for a UE supporting OFDM based LP-WUR measuring on SSB to determine whether the entry condition for using LP-WUS is fulfilled or not based on the serving cell measurement on MR (see TS 38.304 [20], clause 7.x.1). |
| ***entryEvaluationOnLR-ForLR-OnLPSS***  Indicates the threshold(s) for a UE supporting OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS to determine whether the entry condition for using LP-WUS is fulfilled or not based on the serving cell measurement on LP-WUR (see TS 38.304 [20], clause 7.x.1). This field is optional present for the cell supporting OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS. It is absent otherwise. |
| ***entryEvaluationOnLR-ForLR-OnSSB***  Indicates the threshold(s) for a UE supporting OFDM based LP-WUR measuring on SSB to determine whether the entry condition for using LP-WUS is fulfilled or not based on the serving cell measurement on LP-WUR (see TS 38.304 [20], clause 7.x.1). This field is optional present for the cell supporting OFDM based LP-WUR measuring on SSB. It is absent otherwise. |
| ***exitEvaluationOnLR-ForLR-OnLPSS***  Indicates the threshold(s) for a UE supporting OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS to determine whether the exit condition for using LP-WUS is fulfilled or not based on the serving cell measurement on LP-WUR (see TS 38.304 [20], clause 7.x.1). This field is optional present for the cell supporting OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS. It is absent otherwise. |
| ***exitEvaluationOnLR-ForLR-OnSSB***  Indicates the threshold(s) for a UE supporting OFDM based LP-WUR measuring on SSB to determine whether the exit condition for using LP-WUS is fulfilled or not based on the serving cell measurement on LP-WUR (see TS 38.304 [20], clause 7.x.1). This field is optional present for the cell supporting OFDM based LP-WUR measuring on SSB. It is absent otherwise. |
| ***thresholdP1, thresholdP2***  Parameters "*SThresholdP1*", and "*SThresholdP2*" in TS 38.304 [20]. |
| ***thresholdQ1, thresholdQ2***  Parameters "*SThresholdQ1*", and "*SThresholdQ2*"in TS 38.304 [20]. |
| ***thresholdP1-LR, thresholdP2-LR, thresholdP3-LR, thresholdP4-LR***  Parameters "*SThresholdP1-LR*", "*SThresholdP2-LR*", "*SThresholdP3-LR*", and "*SThresholdP4-LR*" in TS 38.304 [20]. |
| ***thresholdQ1-LR, thresholdQ2-LR, thresholdQ3-LR, thresholdQ4-LR***  Parameters "*SThresholdQ1-LR*", "*SThresholdQ2-LR*", "*SThresholdQ3-LR*", and "*SThresholdQ4-LR*" in TS 38.304 [20]. |

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *SharedSpectrum2* | The field is optional present, Need R, if this cell operates with shared spectrum channel access. Otherwise, it is absent, Need R. |
| *FR1-Only* | This field is mandatory present for an FR1 carrier frequency. It is absent otherwise. |
| *FR2-Only* | This field is mandatory present for an FR2 carrier frequency. It is absent otherwise. |
| *SupportLR-OnLPSS* | This field is mandatory present for the cell supporting OOK based LP-WUR or OFDM based LP-WUR measuring on LP-SS. It is absent otherwise. |
| *SupportLR-OnSSB* | This field is mandatory present for the cell supporting OFDM based LP-WUR measuring on SSB. It is absent otherwise. |
| *OOK4-Only* | This field is mandatory present for OOK-4 based LP-SS with M value >1, and optional present for OOK-4 based LP-SS with M value =1. Otherwise, it is absent. |
| *OFDM-Only* | FFS This field is mandatory present for OFDM based LP-WUR for LP-WUS operation in RRC IDLE/INACTIVE. Otherwise, it is absent. |

Nex change

– *PhysicalCellGroupConfig*

The IE *PhysicalCellGroupConfig* is used to configure cell-group specific L1 parameters.

***PhysicalCellGroupConfig* information element**

-- ASN1START

-- TAG-PHYSICALCELLGROUPCONFIG-START

PhysicalCellGroupConfig ::= SEQUENCE {

harq-ACK-SpatialBundlingPUCCH ENUMERATED {true} OPTIONAL, -- Need S

harq-ACK-SpatialBundlingPUSCH ENUMERATED {true} OPTIONAL, -- Need S

p-NR-FR1 P-Max OPTIONAL, -- Need R

pdsch-HARQ-ACK-Codebook ENUMERATED {semiStatic, dynamic},

tpc-SRS-RNTI RNTI-Value OPTIONAL, -- Need R

tpc-PUCCH-RNTI RNTI-Value OPTIONAL, -- Need R

tpc-PUSCH-RNTI RNTI-Value OPTIONAL, -- Need R

sp-CSI-RNTI RNTI-Value OPTIONAL, -- Need R

cs-RNTI SetupRelease { RNTI-Value } OPTIONAL, -- Need M

...,

[[

mcs-C-RNTI RNTI-Value OPTIONAL, -- Need R

p-UE-FR1 P-Max OPTIONAL -- Cond MCG-Only

]],

[[

xScale ENUMERATED {dB0, dB6, spare2, spare1} OPTIONAL -- Cond SCG-Only

]],

[[

pdcch-BlindDetection SetupRelease { PDCCH-BlindDetection } OPTIONAL -- Need M

]],

[[

dcp-Config-r16 SetupRelease { DCP-Config-r16 } OPTIONAL, -- Need M

harq-ACK-SpatialBundlingPUCCH-secondaryPUCCHgroup-r16 ENUMERATED {enabled, disabled} OPTIONAL, -- Cond twoPUCCHgroup

harq-ACK-SpatialBundlingPUSCH-secondaryPUCCHgroup-r16 ENUMERATED {enabled, disabled} OPTIONAL, -- Cond twoPUCCHgroup

pdsch-HARQ-ACK-Codebook-secondaryPUCCHgroup-r16 ENUMERATED {semiStatic, dynamic} OPTIONAL, -- Cond twoPUCCHgroup

p-NR-FR2-r16 P-Max OPTIONAL, -- Need R

p-UE-FR2-r16 P-Max OPTIONAL, -- Cond MCG-Only

nrdc-PCmode-FR1-r16 ENUMERATED {semi-static-mode1, semi-static-mode2, dynamic} OPTIONAL, -- Cond MCG-Only

nrdc-PCmode-FR2-r16 ENUMERATED {semi-static-mode1, semi-static-mode2, dynamic} OPTIONAL, -- Cond MCG-Only

pdsch-HARQ-ACK-Codebook-r16 ENUMERATED {enhancedDynamic} OPTIONAL, -- Need R

nfi-TotalDAI-Included-r16 ENUMERATED {true} OPTIONAL, -- Need R

ul-TotalDAI-Included-r16 ENUMERATED {true} OPTIONAL, -- Need R

pdsch-HARQ-ACK-OneShotFeedback-r16 ENUMERATED {true} OPTIONAL, -- Need R

pdsch-HARQ-ACK-OneShotFeedbackNDI-r16 ENUMERATED {true} OPTIONAL, -- Need R

pdsch-HARQ-ACK-OneShotFeedbackCBG-r16 ENUMERATED {true} OPTIONAL, -- Need R

downlinkAssignmentIndexDCI-0-2-r16 ENUMERATED { enabled } OPTIONAL, -- Need S

downlinkAssignmentIndexDCI-1-2-r16 ENUMERATED {n1, n2, n4} OPTIONAL, -- Need S

pdsch-HARQ-ACK-CodebookList-r16 SetupRelease {PDSCH-HARQ-ACK-CodebookList-r16} OPTIONAL, -- Need M

ackNackFeedbackMode-r16 ENUMERATED {joint, separate} OPTIONAL, -- Need R

pdcch-BlindDetectionCA-CombIndicator-r16 SetupRelease { PDCCH-BlindDetectionCA-CombIndicator-r16 } OPTIONAL, -- Need M

pdcch-BlindDetection2-r16 SetupRelease { PDCCH-BlindDetection2-r16 } OPTIONAL, -- Need M

pdcch-BlindDetection3-r16 SetupRelease { PDCCH-BlindDetection3-r16 } OPTIONAL, -- Need M

bdFactorR-r16 ENUMERATED {n1} OPTIONAL -- Need R

]],

[[

-- start of enhanced Type3 feedback

pdsch-HARQ-ACK-EnhType3ToAddModList-r17 SEQUENCE (SIZE(1..maxNrofEnhType3HARQ-ACK-r17)) OF PDSCH-HARQ-ACK-EnhType3-r17

OPTIONAL, -- Need N

pdsch-HARQ-ACK-EnhType3ToReleaseList-r17 SEQUENCE (SIZE(1..maxNrofEnhType3HARQ-ACK-r17)) OF PDSCH-HARQ-ACK-EnhType3Index-r17

OPTIONAL, -- Need N

pdsch-HARQ-ACK-EnhType3SecondaryToAddModList-r17 SEQUENCE (SIZE(1..maxNrofEnhType3HARQ-ACK-r17)) OF PDSCH-HARQ-ACK-EnhType3-r17

OPTIONAL, -- Need N

pdsch-HARQ-ACK-EnhType3SecondaryToReleaseList-r17 SEQUENCE (SIZE(1..maxNrofEnhType3HARQ-ACK-r17)) OF PDSCH-HARQ-ACK-EnhType3Index-r17

OPTIONAL, -- Need N

pdsch-HARQ-ACK-EnhType3DCI-FieldSecondaryPUCCHgroup-r17 ENUMERATED {enabled} OPTIONAL, -- Cond twoPUCCHgroup

pdsch-HARQ-ACK-EnhType3DCI-Field-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

-- end of enhanced Type3 feedback

-- start of triggering of HARQ-ACK re-transmission on a PUCCH resource

pdsch-HARQ-ACK-Retx-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

pdsch-HARQ-ACK-RetxSecondaryPUCCHgroup-r17 ENUMERATED {enabled} OPTIONAL, -- Cond twoPUCCHgroup

-- end of triggering of HARQ-ACK re-transmission on a PUCCH resource

-- start of PUCCH Cell switching

pucch-sSCell-r17 SCellIndex OPTIONAL, -- Need R

pucch-sSCellSecondaryPUCCHgroup-r17 SCellIndex OPTIONAL, -- Cond twoPUCCHgroup

pucch-sSCellDyn-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

pucch-sSCellDynSecondaryPUCCHgroup-r17 ENUMERATED {enabled} OPTIONAL, -- Cond twoPUCCHgroup

pucch-sSCellPattern-r17 SEQUENCE (SIZE(1..maxNrofSlots)) OF INTEGER (0..1) OPTIONAL, -- Need R

pucch-sSCellPatternSecondaryPUCCHgroup-r17 SEQUENCE (SIZE(1..maxNrofSlots)) OF INTEGER (0..1) OPTIONAL, -- Cond twoPUCCHgroup

-- end of PUCCH Cell switching

uci-MuxWithDiffPrio-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

uci-MuxWithDiffPrioSecondaryPUCCHgroup-r17 ENUMERATED {enabled} OPTIONAL, -- Cond twoPUCCHgroup

simultaneousPUCCH-PUSCH-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

simultaneousPUCCH-PUSCH-SecondaryPUCCHgroup-r17 ENUMERATED {enabled} OPTIONAL, -- Cond twoPUCCHgroup

prioLowDG-HighCG-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

prioHighDG-LowCG-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

twoQCLTypeDforPDCCHRepetition-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

multicastConfig-r17 SetupRelease { MulticastConfig-r17 } OPTIONAL, -- Need M

pdcch-BlindDetectionCA-CombIndicator-r17 SetupRelease { PDCCH-BlindDetectionCA-CombIndicator-r17 } OPTIONAL -- Need M

]],

[[

simultaneousSR-PUSCH-diffPUCCH-Groups-r17 ENUMERATED {enabled} OPTIONAL -- Cond twoPUCCHgroup

]],

[[

intraBandNC-PRACH-simulTx-r17 ENUMERATED {enabled} OPTIONAL -- Need R

]],

[[

pdcch-BlindDetection4-r17 SetupRelease { PDCCH-BlindDetection4-r17 } OPTIONAL -- Need M

]],

[[

simultaneousPUCCH-PUSCH-SamePriority-r17 ENUMERATED {enabled} OPTIONAL, -- Need R

simultaneousPUCCH-PUSCH-SamePriority-SecondaryPUCCHgroup-r17 ENUMERATED {enabled} OPTIONAL -- Cond twoPUCCHgroup

]],

[[

ncr-RNTI-r18 RNTI-Value OPTIONAL, -- Cond NCR

cellDTRX-DCI-config-r18 SetupRelease { CellDTRX-DCI-config-r18 } OPTIONAL, -- Need M

twoQCL-TypeD-ForMultiDCI-r18 ENUMERATED {enabled} OPTIONAL, -- Need R

enableType1HARQ-ACK-MuxForDL-AssignmentAfterUL-Grant-r18 ENUMERATED {enabled} OPTIONAL, -- Need R

enableType2HARQ-ACK-MuxForDL-AssignmentAfterUL-Grant-r18 ENUMERATED {enabled} OPTIONAL, -- Need R

enableType3HARQ-ACK-MuxForDL-AssignmentAfterUL-Grant-r18 ENUMERATED {enabled} OPTIONAL, -- Need R

enableDiffPUCCH-Resource-r18 ENUMERATED {enabled} OPTIONAL, -- Need R

enableDiffCB-Size-r18 ENUMERATED {enabled} OPTIONAL -- Need R

]] ,

[[

lpwus-Config-r19 [RIL]: E007 LPWUS, [RIL]: E043 LPWUS SetupRelease { LPWUS-Config-r19 } OPTIONAL -- Need M

]]

}

PDSCH-HARQ-ACK-EnhType3-r17 ::= SEQUENCE {

pdsch-HARQ-ACK-EnhType3Index-r17 PDSCH-HARQ-ACK-EnhType3Index-r17,

applicable-r17 CHOICE {

perCC SEQUENCE (SIZE (1..maxNrofServingCells)) OF INTEGER (0..1),

perHARQ SEQUENCE (SIZE (1..maxNrofServingCells)) OF BIT STRING (SIZE (16))

},

pdsch-HARQ-ACK-EnhType3NDI-r17 ENUMERATED {true} OPTIONAL, -- Need R

pdsch-HARQ-ACK-EnhType3CBG-r17 ENUMERATED {true} OPTIONAL, -- Need S

...,

[[

perHARQ-Ext-r17 SEQUENCE (SIZE (1..maxNrofServingCells)) OF BIT STRING (SIZE (32)) OPTIONAL -- Need R

]]

}

PDSCH-HARQ-ACK-EnhType3Index-r17 ::= INTEGER (0..maxNrofEnhType3HARQ-ACK-1-r17)

PDCCH-BlindDetection ::= INTEGER (1..15)

DCP-Config-r16 ::= SEQUENCE {

ps-RNTI-r16 RNTI-Value,

ps-Offset-r16 INTEGER (1..120),

sizeDCI-2-6-r16 INTEGER (1..maxDCI-2-6-Size-r16),

ps-PositionDCI-2-6-r16 INTEGER (0..maxDCI-2-6-Size-1-r16),

ps-WakeUp-r16 ENUMERATED {true} OPTIONAL, -- Need S

ps-TransmitPeriodicL1-RSRP-r16 ENUMERATED {true} OPTIONAL, -- Need S

ps-TransmitOtherPeriodicCSI-r16 ENUMERATED {true} OPTIONAL -- Need S

}

PDSCH-HARQ-ACK-CodebookList-r16 ::= SEQUENCE (SIZE (1..2)) OF ENUMERATED {semiStatic, dynamic}

PDCCH-BlindDetectionCA-CombIndicator-r16 ::= SEQUENCE {

pdcch-BlindDetectionCA1-r16 INTEGER (1..15),

pdcch-BlindDetectionCA2-r16 INTEGER (1..15)

}

PDCCH-BlindDetection2-r16 ::= INTEGER (1..15)

PDCCH-BlindDetection3-r16 ::= INTEGER (1..15)

PDCCH-BlindDetection4-r17 ::= INTEGER (1..15)

MulticastConfig-r17 ::= SEQUENCE {

pdsch-HARQ-ACK-CodebookListMulticast-r17 SetupRelease { PDSCH-HARQ-ACK-CodebookList-r16} OPTIONAL, -- Need M

type1CodebookGenerationMode-r17 ENUMERATED { mode1, mode2} OPTIONAL -- Need M

}

PDCCH-BlindDetectionCA-CombIndicator-r17 ::= SEQUENCE {

pdcch-BlindDetectionCA1-r17 INTEGER (1..15) OPTIONAL, -- Need R

pdcch-BlindDetectionCA2-r17 INTEGER (1..15) OPTIONAL, -- Need R

pdcch-BlindDetectionCA3-r17 INTEGER (1..15)

}

CellDTRX-DCI-config-r18 ::= SEQUENCE {

cellDTRX-RNTI-r18 RNTI-Value,

sizeDCI-2-9-r18 INTEGER (1..maxDCI-2-9-Size-r18)

}

LPWUS-Config-r19 ::= SEQUENCE {

lpwus-MvalueAndSeqConfigFR1-r19 CHOICE {

nOne SEQUENCE {

lpwus-OverlaidSeqRoots SEQUENCE {

root1-r19 INTEGER (1..131),

root2-r19 INTEGER (1..131) OPTIONAL -- Need R

}

lpwus-OverlaidSeqNum-r19 ENUMERATED {n1, n2, n4, n8, n16} OPTIONAL -- Need R

},

nTwo SEQUENCE {

lpwus-OverlaidSeqRoots SEQUENCE {

root1-r19 INTEGER (1..61),

root2-r19 INTEGER (1..61) OPTIONAL -- Need R

}

lpwus-OverlaidSeqNum-r19 ENUMERATED {n1, n2, n4, n8} OPTIONAL -- Need R

},

nFour SEQUENCE {

lpwus-OverlaidSeqRoots SEQUENCE {

root1-r19 INTEGER (1..31),

root2-r19 INTEGER (1..31) OPTIONAL -- Need R

}

lpwus-OverlaidSeqNum-r19 ENUMERATED {n1, n2, n4} OPTIONAL -- Need R

}

} OPTIONAL, -- Cond FR1-Only

lpwus-MvalueAndSeqConfigFR2-r19 CHOICE {

nOne SEQUENCE {

lpwus-OverlaidSeqRoots SEQUENCE {

root1-r19 INTEGER (1..131),

root2-r19 INTEGER (1..131) OPTIONAL -- Need R

}

lpwus-OverlaidSeqNum-SCS-120kHz-r19 ENUMERATED {n1, n2} OPTIONAL, -- Need R

lpwus-OverlaidSeqNum-SCS-60kHz-r19 ENUMERATED {n1, n2, n4} OPTIONAL -- Need R

}

nTwo SEQUENCE {

lpwus-OverlaidSeqRoots SEQUENCE {

root1-r19 INTEGER (1..61),

root2-r19 INTEGER (1..61) OPTIONAL -- Need R

}

lpwus-OverlaidSeqNum-SCS-60kHz-r19 ENUMERATED {n1, n2} OPTIONAL -- Need R

}

} OPTIONAL, -- Cond FR2-Only

lpwus-StartRB-r19 INTEGER (0..263) OPTIONAL, -- Need R

lpwus-TimeOffset11-r19 ENUMERATED {ffs} OPTIONAL, -- Cond Option11

lpwus-TimeOffset12-r19 ENUMERATED {ffs} OPTIONAL, -- Cond Option12

lpwus-Mo11-r19 ENUMERATED {ffs} OPTIONAL, -- Cond Option11

lpwus-Mo12-r19 ENUMERATED {ffs} OPTIONAL, -- Cond Option12

lpwus-NumOfMo11-r19 ENUMERATED {ffs} OPTIONAL, -- Cond Option11

lpwus-NumOfMo12-r19 ENUMERATED {ffs} OPTIONAL, -- Cond Option12

lpwus-TCI-States-r19[RIL]: S056, LPWUS ENUMERATED {n1, n2, n3} OPTIONAL, -- Need R

lpwus-NominalMoDuration-r19 ENUMERATED {ffs} OPTIONAL, -- Need R

lpwus-ActualDuration-r19 ENUMERATED {ffs} OPTIONAL, -- Need R

lpwus-AvailableSlot-r19 CHOICE {

n10 BIT STRING (SIZE (10)),

n20 BIT STRING (SIZE (20)),

n40 BIT STRING (SIZE (40))

} OPTIONAL, -- Need R

lpwus-AvailableSymbol-r19 CHOICE {

oneSlot BIT STRING (SIZE (14)),

twoSlots BIT STRING (SIZE (28))

} OPTIONAL, -- Need R

lpwus-TransmitOtherPeriodicCSI-r19 ENUMERATED {true} OPTIONAL, -- Need S

lpwus-TransmitPeriodicL1-RSRP-r19 ENUMERATED {true} OPTIONAL, -- Need S

lpwus-Codepoint-r19 SEQUENCE (SIZE (1..8)) OF BIT STRING (SIZE (1..5)),

lpwus-PDCCH-MonitoringTimer-r19 ENUMERATED {ffs} OPTIONAL -- Cond Option12 [RIL]: C027, LPWUS

}

-- TAG-PHYSICALCELLGROUPCONFIG-STOP

-- ASN1STOP

Editor’s NOTE: On the RRC parameters with value of ENUMERATED {ffs}, to be updated according to further RAN1 inputs.

|  |
| --- |
| ***PhysicalCellGroupConfig* field descriptions** |
| ***ackNackFeedbackMode***  Indicates which among the joint and separate ACK/NACK feedback modes to use within a slot as specified in TS 38.213 [13] (clause 9). |
| ***bdFactorR***  Parameter for determining and distributing the maximum numbers of BD/CCE for mPDCCH based mPDSCH transmission as specified in TS 38.213 [13] Clause 10.1. |
| ***cs-RNTI***  RNTI value for downlink SPS (see *SPS-Config*) and uplink configured grant (see *ConfiguredGrantConfig*). |
| ***downlinkAssignmentIndexDCI-0-2***  Indicates if "Downlink assignment index" is present or absent in DCI format 0\_2. If the field "*downlinkAssignmentIndexDCI-0-2*" is absent, then 0 bit for "Downlink assignment index" in DCI format 0\_2. If the field "*downlinkAssignmentIndexDCI-0-2*" is present, then the bitwidth of "Downlink assignment index" in DCI format 0\_2 is defined in the same was as that in DCI format 0\_1 (see TS 38.212 [17], clause 7.3.1 and TS 38.213 [13], clause 9.1). |
| ***downlinkAssignmentIndexDCI-1-2***  Configures the number of bits for "Downlink assignment index" in DCI format 1\_2. If the field is absent, then 0 bit is applied for "Downlink assignment index" in DCI format 1\_2. Note that 1 bit and 2 bits are applied if only one serving cell is configured in the DL and *pdsch-HARQ-ACK-Codebook* is set to *dynamic*. 4 bits is applied if more than one serving cell are configured in the DL and *pdsch-HARQ-ACK-Codebook* is set to *dynamic* (see TS 38.212 [17], clause 7.3.1 and TS 38.213 [13], clause 9.1). |
| ***enableDiffCB-Size***  This field indicates whether a different codebook size from the size determined based on HARQ-ACK information associated with PDSCH reception(s) scheduled before a UL grant, is determined or not to include HARQ-ACK information associated with PDSCH reception(s) scheduled after a UL grant scheduling a PUSCH transmission with repetitions and the HARQ-ACK information are multiplexed on a repetition of the PUSCH transmission other than a first repetition. If enabled, a different HARQ codebook size might be determined. See clause 9 in TS 38.213 [13]. |
| ***enableDiffPUCCH-Resource***  This field indicates whether a different PUCCH resource in time domain in a slot from the PUCCH resource indicated by the last DCI format before a UL grant in the slot, is determined or not to include HARQ-ACK information associated with PDSCH reception(s) scheduled after a UL grant scheduling a PUSCH transmission with repetitions and the HARQ-ACK information are multiplexed on a repetition of the PUSCH transmission other than a first repetition in the same slot. If enabled, a different PUCCH resource in time domain might be determined. See clause 9 in TS 38.213 [13]. |
| ***enableType1HARQ-ACK-MuxForDL-AssignmentAfterUL-Grant***  If enabled, UE multiplexes Type-1 HARQ-ACK codebook on a repetition of a PUSCH transmission other than a first repetition, where the HARQ-ACK codebook includes HARQ-ACK information associated with PDSCH reception(s) scheduled after the UL grant scheduling the PUSCH transmission. See clause 9 in TS 38.213 [13]. This feature is not simultaneously enabled with PUCCH cell switching. |
| ***enableType2HARQ-ACK-MuxForDL-AssignmentAfterUL-Grant***  If enabled, UE multiplexes Type-2 HARQ-ACK codebook on a repetition of a PUSCH transmission other than a first repetition, where the HARQ-ACK codebook includes HARQ-ACK information associated with PDSCH reception(s) scheduled after the UL grant scheduling the PUSCH transmission. See clause 9 in TS 38.213 [13]. This feature is not simultaneously enabled with PUCCH cell switching. |
| ***enableType3HARQ-ACK-MuxForDL-AssignmentAfterUL-Grant***  If enabled, UE multiplexes Type-3 HARQ-ACK codebook on a repetition of a PUSCH transmission other than a first repetition, where the HARQ-ACK codebook includes HARQ-ACK information associated with PDSCH reception(s) scheduled after the UL grant scheduling the PUSCH transmission. See clause 9 in TS 38.213 [13]. This feature is not simultaneously enabled with PUCCH cell switching. |
| ***harq-ACK-SpatialBundlingPUCCH***  Enables spatial bundling of HARQ ACKs. It is configured per cell group (i.e. for all the cells within the cell group) for PUCCH reporting of HARQ-ACK. It is only applicable when more than 4 layers are possible to schedule. When the field is absent, the spatial bundling of PUCCH HARQ ACKs for the primary PUCCH group is disabled (see TS 38.213 [13], clause 9.1.2.1). If the field *harq-ACK SpatialBundlingPUCCH-secondaryPUCCHgroup* is present, *harq-ACK-SpatialBundlingPUCCH* is only applied to primary PUCCH group. Network does not configure for a UE both spatial bundling of HARQ ACKs and *codeBlockGroupTransmission* within the same cell group. |
| ***harq-ACK-SpatialBundlingPUCCH-secondaryPUCCHgroup***  Indicates whether spatial bundling of PUCCH HARQ ACKs for the secondary PUCCH group is enabled or disabled. The field is only applicable when more than 4 layers are possible to schedule (see TS 38.213 [13], clause 9.1.2.1). When the field is absent, the use of spatial bundling of PUCCH HARQ ACKs for the secondary PUCCH group is indicated by *harq-ACK-SpatialBundlingPUCCH*. See TS 38.213 [13], clause 9.1.2.1. Network does not configure for a UE both spatial bundling of HARQ ACKs and *codeBlockGroupTransmission* within the same cell group. |
| ***harq-ACK-SpatialBundlingPUSCH***  Enables spatial bundling of HARQ ACKs. It is configured per cell group (i.e. for all the cells within the cell group) for PUSCH reporting of HARQ-ACK. It is only applicable when more than 4 layers are possible to schedule. When the field is absent, the spatial bundling of PUSCH HARQ ACKs for the primary PUCCH group is disabled (see TS 38.213 [13], clauses 9.1.2.2 and 9.1.3.2). If the field *harq-ACK SpatialBundlingPUSCH-secondaryPUCCHgroup* is present, *harq-ACK-SpatialBundlingPUSCH* is only applied to primary PUCCH group. Network does not configure for a UE both spatial bundling of HARQ ACKs and *codeBlockGroupTransmission* within the same cell group. |
| ***harq-ACK-SpatialBundlingPUSCH-secondaryPUCCHgroup***  Indicates whether spatial bundling of PUSCH HARQ ACKs for the secondary PUCCH group is enabled or disabled. The field is only applicable when more than 4 layers are possible to schedule (see TS 38.213 [13], clauses 9.1.2.2 and 9.1.3.2). When the field is absent, the use of spatial bundling of PUSCH HARQ ACKs for the secondary PUCCH group is indicated by *harq-ACK-SpatialBundlingPUSCH*. See TS 38.213 [13], clauses 9.1.2.2 and 9.1.3.2. Network does not configure for a UE both spatial bundling of HARQ ACKs and *codeBlockGroupTransmission* within the same cell group. |
| ***intraBandNC-PRACH-simulTx***  Enables parallel PRACH and SRS/PUCCH/PUSCH transmissions across CCs in intra-band non-contiguous CA (see TS 38.213 [13], clause 8.1 and TS 38.214 [19], clause 6.2.1). This field is absent in the IE *CellGroupConfig* when provided as part of *RRCSetup* message. |
| ***lpwus-Config***  Configuration for UE to use LP-WUS on PCell and/or PSCell to control the PDCCH monitoring as specified in TS 38.321 [3] Clause 5.7. The network will not configure *lpwus-Config* and *dcp-Config* for a UE simultaneously. |
| ***mcs-C-RNTI***  RNTI to indicate use of *qam64LowSE* for grant-based transmissions. When the *mcs*-*C-RNTI* is configured, RNTI scrambling of DCI CRC is used to choose the corresponding MCS table. |
| ***ncr-RNTI***  RNTI value for NCR-MT, used to scramble the PDCCHs carrying side control information (see TS 38.213 [13], clause 10.1). |
| ***nfi-TotalDAI-Included***  Indicates whether the NFI and total DAI fields of the non-scheduled PDSCH group is included in the non-fallback DL grant DCI (see TS 38.212 [17], clause 7.3.1). The network configures this only when enhanced dynamic codebook is configured (*pdsch-HARQ-ACK-Codebook* is set to *enhancedDynamic*). |
| ***nrdc-PCmode-FR1***  Indicates the uplink power sharing mode that the UE uses in NR-DC in frequency range 1 (FR1) (see TS 38.213 [13], clause 7.6). |
| ***nrdc-PCmode-FR2***  Indicates the uplink power sharing mode that the UE uses in NR-DC in frequency range 2 (FR2) (see TS 38.213 [13], clause 7.6). |
| ***pdcch-BlindDetection, pdcch-BlindDetection2, pdcch-BlindDetection3, pdcch-BlindDetection4***  Indicates the reference number of cells for PDCCH blind detection for the CG. Network configures the field for each CG when the UE is in NR DC and sets the value in accordance with the constraints specified in TS 38.213 [13]. The network configures *pdcch-BlindDetection* only if the UE is in NR-DC. The network configures *pdcch-BlindDetection2* only if the UE is in NR-DC with at least one downlink cell using Rel-16 PDCCH monitoring capability. The network configures *pdcch-BlindDetection3* only if the UE is in NR-DC with at least one downlink cell using Rel-15 PDCCH monitoring capability. The network configures *pdcch-BlindDetection4* only if the UE is in NR-DC with at least one downlink cell using Rel-17 PDCCH monitoring capability. |
| ***pdcch-BlindDetectionCA-CombIndicator***  Configure one combination of *pdcch-BlindDetectionCA1* (for R15) and *pdcch-BlindDetectionCA2* (for R16) for UE to use for scaling PDCCH monitoring capability if the number of serving cells configured to a UE is larger than the reported capability, and if UE reports more than one combination of *pdcch-BlindDetectionCA1* and *pdcch-BlindDetectionCA2* as UE capability. The combination of *pdcch-BlindDetectionCA1* and *pdcch-BlindDetectionCA2* configured by *pdcch-BlindDetectionCA-CombIndicator* is from the more than one combination of *pdcch-BlindDetectionCA1* and *pdcch-BlindDetectionCA2* reported by UE (see TS 38.213 [13], clause 10).  *pdcch-BlindDetectionCA-CombIndicator-r17* is used to configure one combination of *pdcch-BlindDetectionCA1* (for R15), *pdcch-BlindDetectionCA2* (for R16) and *pdcch-BlindDetectionCA3* (for R17) for UE to use for scaling PDCCH monitoring capability if the number of serving cells configured to a UE is larger than the reported capability, and if UE reports more than one combination of *pdcch-BlindDetectionCA1*, *pdcch-BlindDetectionCA2* and *pdcch-BlindDetectionCA3* as UE capability. The combination of *pdcch-BlindDetectionCA1*, *pdcch-BlindDetectionCA2* and *pdcch-BlindDetectionCA3* configured by *pdcch-BlindDetectionCA-CombIndicator-r17* is from the more than one combination of *pdcch-BlindDetectionCA1*, *pdcch-BlindDetectionCA2* and *pdcch-BlindDetectionCA3* reported by UE (see TS 38.213 [13], clause 10).  *pdcch-BlindDetectionCA-CombIndicator-r16* and *pdcch-BlindDetectionCA-CombIndicator-r17* are not configured simultaneously. |
| ***pdsch-HARQ-ACK-Codebook***  The PDSCH HARQ-ACK codebook is either semi-static or dynamic. This is applicable to both CA and non-CA operation (see TS 38.213 [13], clauses 9.1.2 and 9.1.3). If *pdsch-HARQ-ACK-Codebook-r16* is signalled, UE shall ignore the *pdsch-HARQ-ACK-Codebook* (without suffix). For the HARQ-ACK for sidelink, if *pdsch-HARQ-ACK-Codebook-r16* is signalled, the UE uses *pdsch-HARQ-ACK-Codebook* (without suffix) and ignores *pdsch-HARQ-ACK-Codebook-r16*. If the field *pdsch-HARQ-ACK-Codebook-secondaryPUCCHgroup* is present, *pdsch-HARQ-ACK-Codebook* is applied to primary PUCCH group. Otherwise, this field is applied to the cell group (i.e. for all the cells within the cell group). For the HARQ-ACK for sidelink, if the field *pdsch-HARQ-ACK-Codebook-secondaryPUCCHgroup* is present, *pdsch-HARQ-ACK-Codebook* is applied to primary and secondary PUCCH group and the UE ignores *pdsch-HARQ-ACK-Codebook-secondaryPUCCHgroup*. |
| ***pdsch-HARQ-ACK-CodebookList***  A list of configurations for one or two HARQ-ACK codebooks. Each configuration in the list is defined in the same way as *pdsch-HARQ-ACK-Codebook* (see TS 38.212 [17], clause 7.3.1.2.2 and TS 38.213 [13], clauses 7.2.1, 9.1.2, 9.1.3 and 9.2.1). If this field is present, the field *pdsch-HARQ-ACK-Codebook* is ignored. If this field is present, the value of this field is applied for primary PUCCH group and for secondary PUCCH group (if configured). For the HARQ-ACK for sidelink, the UE uses *pdsch-HARQ-ACK-Codebook* and ignores *pdsch-HARQ-ACK-CodebookList* if this field is present. |
| ***pdsch-HARQ-ACK-Codebook-secondaryPUCCHgroup***  The PDSCH HARQ-ACK codebook is either semi-static or dynamic. This is applicable to CA operation (see TS 38.213 [13], clauses 9.1.2 and 9.1.3). It is configured for secondary PUCCH group*.* |
| ***pdsch-HARQ-ACK-EnhType3DCI-Field, pdsch-HARQ-ACK-EnhType3DCI-FieldSecondaryPUCCHgroup***  Indicates the enhanced Type 3 codebook through a new DCI field to indicate the enhanced Type 3 HARQ-ACK codebook in the primary PUCCH group if the more than one enhanced Type 3 HARQ-ACK codebook is configured for the primary PUCCH group, or in the secondary PUCCH group if the more than one enhanced Type 3 HARQ-ACK code is configured for the secondary PUCCH group, respectively. |
| ***pdsch-HARQ-ACK-EnhType3ToAddModList, pdsch-HARQ-ACK-EnhType3SecondaryToAddModList***  Configure the list of enhanced Type 3 HARQ-ACK codebooks for the primary PUCCH group and the secondary PUCCH group, respectively. When configured, DCI format 1\_1 can request the UE to report A/N for one of the configured enhanced Type 3 HARQ-ACK codebooks in the corresponding PUCCH group (see TS 38.213 [13], clause 9.1.4). The network can configure *pdsch-HARQ-ACK-EnhType3SecondaryToAddModList* only if secondary PUCCH group is configured. |
| ***pdsch-HARQ-ACK-OneShotFeedback***  When configured, the DCI format 1\_1 can request the UE to report A/N for all HARQ processes and all CCs configured in the PUCCH group (see TS 38.212 [17], clause 7.3.1). |
| ***pdsch-HARQ-ACK-OneShotFeedbackCBG***  When configured, the DCI format 1\_1 can request the UE to include CBG level A/N for each CC with CBG level transmission configured. When not configured, the UE will report TB level A/N even if CBG level transmission is configured for a CC.The network configures this only when *pdsch-HARQ-ACK-OneShotFeedback* is configured. |
| ***pdsch-HARQ-ACK-OneShotFeedbackNDI***  When configured, the DCI format 1\_1 can request the UE to include NDI for each A/N reported.The network configures this only when *pdsch-HARQ-ACK-OneShotFeedback* is configured. |
| ***pdsch-HARQ-ACK-Retx, pdsch-HARQ-ACK-RetxSecondaryPUCCHgroup***  When configured, the DCI format 1\_1 can request the UE to perform a HARQ-ACK re-transmission on a PUCCH resource in the primary PUCCH group and the secondary PUCCH group, respectively (see TS 38.213 [13], clause 9.1.5). |
| ***prioLowDG-HighCG***  Enable PHY prioritization for the case where low-priority dynamic grant-PUSCH collides with high-priority configured grant-PUSCH on a BWP of a serving cell (see TS 38.213 [13], clause 9), when the UE has generated transport blocks for both DG-PUSCH and CG-PUSCH as described in TS 38.321 [3]. |
| ***prioHighDG-LowCG***  Enable PHY prioritization for the case where high-priority dynamic grant PUSCH collides with low-priority configured grant PUSCH on a BWP of a serving cell (see TS 38.213 [13], clause 9), when the UE has generated transport blocks for both DG-PUSCH and CG-PUSCH as described in TS 38.321 [3]. |
| ***ps-RNTI***  RNTI value for scrambling CRC of DCI format 2\_6 used for power saving (see TS 38.213 [13], clause 10.1). |
| ***ps-Offset***  The start of the search-time of DCI format 2\_6 with CRC scrambled by PS-RNTI relative to the start of the *drx-onDurationTimer* of Long DRX (see TS 38.213 [13], clause 10.3). Value in multiples of 0.125ms (milliseconds). 1 corresponds to 0.125 ms, 2corresponds to 0.25 ms, 3 corresponds to 0.375 ms and so on. |
| ***ps-WakeUp***  Indicates the UE to wake-up if DCI format 2\_6 is not detected outside active time (see TS 38.321 [3], clause 5.7). If the field is absent, the UE does not wake-up if DCI format 2-6 is not detected outside active time. |
| ***ps-PositionDCI-2-6***  Starting position of UE wakeup and SCell dormancy indication in DCI format 2\_6 (see TS 38.213 [13], clause 10.3). |
| ***ps-TransmitPeriodicL1-RSRP***  Indicates the UE to transmit periodic L1-RSRP report(s) when the *drx-onDurationTimer* does not start (see TS 38.321 [3], clause 5.7). If the field is absent, the UE does not transmit periodic L1-RSRP report(s) when the *drx-onDurationTimer* does not start. |
| ***ps-TransmitOtherPeriodicCSI***  Indicates the UE to transmit periodic CSI report(s) other than L1-RSRP reports when the *drx-onDurationTimer* does not start (see TS 38.321 [3], clause 5.7). If the field is absent, the UE does not transmit periodic CSI report(s) other than L1-RSRP reports when the *drx-onDurationTimer* does not start. |
| ***pucch-sSCell, pucch-sSCellSecondaryPUCCHgroup***  indictates the alternative PUCCH cells for PUCCH cell switching in the primary and the secondary PUCCH group, respectively. For the primary PUCCH group, it is configured for cells on top of SpCell. For the secondary PUCCH group, it is configured for cell on top of the PUCCH SCell. |
| ***pucch-sSCellDyn, pucch-sSCellDynsecondaryPUCCHgroup***  When configured, PUCCH cell switching based on dynamic indication in DCI format 1\_1 is enabled (see TS 38.213 [13], clause 9.A, clause 9.1.5), respectively for the primary PUCCH group and the secondary PUCCH group. |
| ***pucch-sSCellPattern, pucch-sSCellPatternSecondaryPUCCHgroup***  When configured, the UE applies the semi-static PUCCH cell switching (see TS 38.213 [13], clause 9.A) using the time domain pattern of applicable PUCCH cells indicated by this field, respectively for the primary PUCCH group and the secondary PUCCH group. |
| ***p-NR-FR1***  The maximum total transmit power to be used by the UE in this NR cell group across all serving cells in frequency range 1 (FR1). The maximum transmit power that the UE may use may be additionally limited by *p-Max* (configured in *FrequencyInfoUL*) and by *p-UE-FR1* (configured total for all serving cells operating on FR1). |
| ***p-NR-FR2***  The maximum total transmit power to be used by the UE in this NR cell group across all serving cells in frequency range 2 (FR2). The maximum transmit power that the UE may use may be additionally limited by *p-Max* (configured in *FrequencyInfoUL*) and by *p-UE-FR2* (configured total for all serving cells operating on FR2). This field is only used in NR-DC. A UE does not expect to be configured with this parameter in this release of the specification. |
| ***p-UE-FR1***  The maximum total transmit power to be used by the UE across all serving cells in frequency range 1 (FR1) across all cell groups. The maximum transmit power that the UE may use may be additionally limited by *p-Max* (configured in *FrequencyInfoUL*) and by *p-NR-FR1* (configured for the cell group). |
| ***p-UE-FR2***  The maximum total transmit power to be used by the UE across all serving cells in frequency range 2 (FR2) across all cell groups. The maximum transmit power that the UE may use may be additionally limited by *p-Max* (configured in *FrequencyInfoUL*) and by p-NR-FR2 (configured for the cell group). A UE does not expect to be configured with this parameter in this release of the specification. |
| ***simultaneousPUCCH-PUSCH, simultaneousPUCCH-PUSCH-SecondaryPUCCHgroup***  Enables simultaneous PUCCH and PUSCH transmissions with different priorities for the primary PUCCH group and the secondary PUCCH group, respectively. |
| ***simultaneousPUCCH-PUSCH-SamePriority, simultaneousPUCCH-PUSCH-SamePriority-SecondaryPUCCHgroup***  Enables simultaneous PUCCH and PUSCH transmissions on different cells in different bands with same priority for the primary PUCCH group and the secondary PUCCH group, respectively, as specified in clause 9 of TS 38.213 [13]. |
| ***simultaneousSR-PUSCH-diffPUCCH-Groups***  Enables simultaneous SR and PUSCH transmissions in different PUCCH groups (see TS 38.321 [3], clause 5.4.1, clause 5.4.4). |
| ***sizeDCI-2-6***  Size of DCI format 2\_6 (see TS 38.213 [13], clause 10.3). |
| ***sp-CSI-RNTI***  RNTI for Semi-Persistent CSI reporting on PUSCH (see *CSI-ReportConfig*) (see TS 38.214 [19], clause 5.2.1.5.2). Network always configures the UE with a value for this field when at least one *CSI-ReportConfig* with *reportConfigType* set to *semiPersistentOnPUSCH* is configured. |
| ***tpc-PUCCH-RNTI***  RNTI used for PUCCH TPC commands on DCI (see TS 38.213 [13], clause 10.1). |
| ***tpc-PUSCH-RNTI***  RNTI used for PUSCH TPC commands on DCI (see TS 38.213 [13], clause 10.1). |
| ***tpc-SRS-RNTI***  RNTI used for SRS TPC commands on DCI (see TS 38.213 [13], clause 10.1). |
| ***twoQCL-TypeD-ForMultiDCI***  Indicates whether a UE is expected to identify and monitor two QCL-TypeD properties for multiple overlapping CORESETs, where the first QCL-TypeD is associated with *coresetPoolIndex* value 0, and the second QCL-TypeD is associated with *coresetPoolIndex* value 1. (See TS 38,213 [13], clause 10). |
| ***twoQCLTypeDforPDCCHRepetition***  Indicates whether a UE is expected UE to identify and monitor two QCL-TypeD properties for multiple overlapping CORESETs in the case of PDCCH repetition. |
| ***uci-MuxWithDiffPrio, uci-MuxWithDiffPrio-secondaryPUCCHgroup***  When configured, enables multiplexing a high-priority (HP) HARQ-ACK UCI and a low-priority (LP) HARQ-ACK UCI into a PUCCH or PUSCH for the primary PUCCH group and the secondary PUCCH group, respectively. |
| ***ul-TotalDAI-Included***  Indicates whether the total DAI fields of the additional PDSCH group is included in the non-fallback UL grant DCI (see TS 38.212 [17], clause 7.3.1). The network configures this only when enhanced dynamic codebook is configured (*pdsch-HARQ-ACK-Codebook* is set to *enhancedDynamic*). |
| ***xScale***  The UE is allowed to drop NR only if the power scaling applied to NR results in a difference between scaled and unscaled NR UL of more than *xScale* dB (see TS 38.213 [13]). If the value is not configured for dynamic power sharing, the UE assumes default value of 6 dB. |

|  |
| --- |
| ***MulticastConfig* field descriptions** |
| ***pdsch-HARQ-ACK-CodebookListMulticast***  A list of configurations for one or two HARQ-ACK codebooks for MBS multicast. Each configuration in the list is defined in the same way as *pdsch-HARQ-ACK-Codebook* (see TS 38.212 [17], clause 7.3.1.2.2 and TS 38.213 [13], clauses 7.2.1, 9.1.2, 9.1.3 and 9.2.1). If this field is present, the field *pdsch-HARQ-ACK-Codebook* is ignored. If this field is present, the value of this field is applied for primary PUCCH group and for secondary PUCCH group (if configured). |
| ***type1CodebookGenerationMode***  Indicates the mode of Type-1 HARQ-ACK codebook generation, as specified in TS 38.213 [13]. Mode 1 is based on the k1 values that are in the intersection of K1 set for unicast and K1 set for multicast. Mode 2 is based on the k1 values that are in the union of K1 set for unicast and K1 set for multicast. |

|  |
| --- |
| ***PDSCH-HARQ-ACK-EnhType3* field descriptions** |
| ***pdsch-HARQ-ACK-EnhType3CBG***  When configured, the DCI format 1\_1 or DCI format 1\_2 can request the UE to include CBG level A/N for each CC with CBG level transmission configured of the enhanced Type 3 HARQ-ACK codebook. When not configured, the UE will report TB level A/N even if CBG level transmission is configured for a CC. |
| ***pdsch-HARQ-ACK-EnhType3NDI***  When configured, the DCI format 1\_1 or DCI format 1\_2 can request the UE to include NDI for each A/N reported of the enhanced Type 3 HARQ-ACK codebook. |
| ***perCC***  Configures enhanced Type 3 HARQ-ACK codebook using per CC configuration. |
| ***perHARQ, perHARQ-Ext***  Configures enhanced Type 3 HARQ-ACK codebook using per HARQ process and CC configuration. *perHARQ-Ext* is present only when *nrofHARQ-ProcessesForPDSCH-v1700* is present in *pdsch-ServingCellConfig* of at least one serving cell in the PUCCH group. If *perHARQ-Ext* is present, the UE ignores *perHARQ*. |

|  |
| --- |
| ***CellDTRX-DCI-config* field descriptions** |
| ***cellDTRX-RNTI***  The RNTI value for scrambling CRC of DCI format 2\_9 for activating and/or deactivating Cell DTX and/or Cell DRX and/or NES mode for CHO indication. |
| ***sizeDCI-2-9***  The size of DCI format 2\_9. |

|  |
| --- |
| *LPWUS-Config* field descriptions |
| ***lpwus-ActualDuration***  Indicates the actual duration for LP-WUS in the cell for RRC CONNECTED (see TS 38.213 [13], clause 10.4D), in number of OFDM symbols. |
| ***lpwus-AvailableSlot***  Indicates the available slot(s) for LP-WUS using a unit level bitmap with a periodicity 10, 20, or 40 units (see TS 38.213 [13], clause 10.4D) in RRC CONNECTED, where the unit is one slot if 14-bit symbol level bitmap is used, or the unit is two slots if 28-bits symbol level bitmap is used, as configured by *lpwus-AvailableSymbol*. The most significant bit of the bit string represents the first unit and the second most significant bit represents the second unit and so on. Value 1 in the bitmap indicates that the corresponding unit is available, value 0 indicates that the corresponding unit is not available. This slot pattern repeats itself continuously. |
| ***lpwus-AvailableSymbol***  Indicates the available symbol(s) for LP-WUS within the slot(s) that are indicated as available for LP-WUS configured by *lpwus-AvailableSlot* (see TS 38.213 [13], clause 10.4D) in RRC CONNECTED. A 14-bit or 28-bit symbol level bitmap that covers one or two slots can be configured.  For *oneSlot*, the 14 bits represent the symbols within the slot.  For *twoSlots*, the first 14 bits represent the symbols within the first slot and the next 14 bits represent the symbols in the second slot.  For the bits representing symbols in a slot, the most significant bit of the bit string represents the first symbol in the slot and the second most significant bit represents the second symbol in the slot and so on.  Value 1 in the bitmap indicates that the corresponding symbol is available, value 0 indicates that the corresponding symbol is not available. |
| ***lpwus-Codepoint***  Indicates the codepoints that the UE monitors per MO for LP-WUS (see TS 38.213 [13], clause 10.4D). |
| ***lpwus-Mo11***  Indicates the periodicity and time offset relative to the start of SFN#0 for LP-WUS MO for LP-WUS operation option 1-1 (see TS 38.213 [13], clause 10.4D). [To be updated based on further progress.] |
| ***lpwus-Mo12***  Indicates the periodicity and time offset relative to the start of SFN#0 for LP-WUS MO for LP-WUS operation option 1-2 (see TS 38.213 [13], clause 10.4D). [To be updated based on further progress.] |
| ***lpwus-MvalueAndSeqConfigFR1***  Indicates the number of OOK symbols in an OFDM symbol for LP-WUS in FR1 for RRC CONNECTED (corresponding to parameter *MWUS*, see TS 38.211 [16], clause 7.4.4.1.1) and the LP-WUS sequence configuration in the cell for RRC\_IDLE/INACTIVE. A value of nOne means M value is set to 1, a value of nTwo means M value is set to 2, and so on. |
| ***lpwus-MvalueAndSeqConfigFR2***  Indicates the number of OOK symbols in an OFDM symbol for LP-WUS in FR2 for RRC CONNECTED (corresponding to parameter *MWUS*, see TS 38.211 [16], clause 7.4.4.1.1) and the LP-WUS sequence configuration in the cell for RRC\_IDLE/INACTIVE. A value of nOne means M value is set to 1 only for SCS of 120KHz and 60KHz, a value of nTwo means M value is set to 2 only for SCS of 60KHz |
| ***lpwus-NominalMoDuration***  Indicates the nominal MO duration for LP-WUS in the cell for RRC CONNECTED (see TS 38.213 [13], clause 10.4D), in number of OFDM symbols. |
| ***lpwus-NumOfMo11***  Indicates the number of the earliest LP-WUS MOs to be monitored by UE from time offset prior to a slot where the *drx-onDurationTimer* of Long DRX would start for LP-WUS operation option 1-1 (see TS 38.213 [13], clause 10.4D). |
| ***lpwus-NumOfMo12***  Indicates the number of LP-WUS MOs to be monitored by UE per periodicity for LP-WUS operation option 1-2 (see TS 38.213 [13], clause 10.4D). |
| ***lpwus-OverlaidSeqNum***  Indicates the number of candidate overlaid sequences to carry LP-WUS information per OOK ON chip for LP-WUS in the cell for RRC CONNECTED (corresponding to parameter *Nseq*, see TS 38.211 [16], clause 7.4.4.1.1). |
| ***lpwus-OverlaidSeqNum-SCS-120kHz***  Indicates the number of candidate overlaid sequences to carry LP-WUS information per OOK ON chip for LP-WUS in the cell for RRC CONNECTED for SCS of 120KHz in FR2 (see TS 38.211 [16], clause 7.4.4.1.1). |
| ***lpwus-OverlaidSeqNum-SCS-60kHz***  Indicates the number of candidate overlaid sequences to carry LP-WUS information per OOK ON chip for LP-WUS in the cell for RRC CONNECTED for SCS of 60KHz in FR2 (see TS 38.211 [16], clause 7.4.4.1.1). |
| ***lpwus-OverlaidSeqRoots***  Indicates the configuration of overlaid sequence root for LP-WUS in the cell for RRC CONNECTED (see TS 38.211 [16], clause 7.4.4.1.1). |
| ***lpwus-PDCCH-MonitoringTimer***  Indicates the length of the timer for UE to monitor PDCCH after LP-WUS is detected for LP-WUS operation option 1-2 (see TS 38.321 [3], clause 5.7). [RIL]: C030, LPWUS |
| ***lpwus-StartRB***  Indicates the starting RB of LP-WUS for RRC CONNECTED (see TS 38.213 [13], clause 10.4D). The starting RB index reference to carrier boundary determined by *offsetToCarrier* corresponding to SCS of the active BWP is configured by gNB. |
| ***lpwus-TCI-States***  Indicates the configuration for UE to derive the active TCI state for LP-WUS in RRC CONNECTED (see TS 38.213 [13], clause 10.4D). Value n1 means the CORESET#1, and value n2 means the CORESET#2, and so on. This field is configured if the UE is not configured with *dl-OrJointTCI-StateList* for unified TCI state. |
| ***lpwus-TimeOffset11***  Indicates the time offset determines the start of LP-WUS monitoring relative to the start of the *drx-onDurationTimer* of Long DRX for LP-WUS operation option 1-1 (see TS 38.213 [13], clause 10.4D). [ffs Value in multiples of 0.125ms (milliseconds). 1 corresponds to 0.125 ms, 2corresponds to 0.25 ms, 3 corresponds to 0.375 ms and so on.] The network will not configure *lpwus-TimeOffset11* and *lpwus-TimeOffset12* for a UE in one cell simultaneously. |
| ***lpwus-TimeOffset12***  Indicates the time offset determines the start of UE PDCCH monitoring via the start of *lpwus-PDCCH-MonitoringTimer* after LP-WUS is detected for LP-WUS operation option 1-2 (see TS 38.213 [13], clause 10.4D). [ffs Value in multiples of 0.125ms (milliseconds). 1 corresponds to 0.125 ms, 2corresponds to 0.25 ms, 3 corresponds to 0.375 ms and so on.] The network will not configure *lpwus-TimeOffset11* and *lpwus-TimeOffset12* for a UE in one cell simultaneously. |
| ***lpwus-TransmitPeriodicL1-RSRP***  Indicates the UE to transmit periodic L1-RSRP report(s) during the time given by the configured *drx-onDurationTimer* if the UE is not indicated to wake-up (see TS 38.321 [3], clause 5.7). If the field is absent, the UE does not transmit periodic L1-RSRP report(s) during the time given by the configured *drx-onDurationTimer* if the UE is not indicated to wake-up. |
| ***lpwus-TransmitOtherPeriodicCSI***  Indicates the UE to transmit periodic CSI report(s) other than L1-RSRP reports during the time given by the configured *drx-onDurationTimer* if the UE is not indicated to wake-up (see TS 38.321 [3], clause 5.7). If the field is absent, the UE does not transmit periodic CSI report(s) other than L1-RSRP reports during the time given by the configured *drx-onDurationTimer* if the UE is not indicated to wake-up. |
| ***root1***  Indicates the first overlaid sequence root for LP-WUS in the cell for RRC CONNECTED (see TS 38.211 [16], clause 7.4.4.1.1). |
| ***root2***  Indicates the second overlaid sequence root for LP-WUS in the cell for RRC CONNECTED (see TS 38.211 [16], clause 7.4.4.1.1). |

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *MCG-Only* | This field is optionally present, Need R, in the *PhysicalCellGroupConfig* of the MCG. It is absent otherwise. |
| *NCR* | This field is optionally present, Need M for NCR-MT. It is absent otherwise. |
| *SCG-Only* | This field is optionally present, Need S, in the *PhysicalCellGroupConfig* of the SCG in (NG)EN-DC as defined in TS 38.213 [13]. It is absent otherwise. |
| *twoPUCCHgroup* | This field is optionally present, Need R, if secondary PUCCH group is configured. It is absent otherwise, Need R. |
| *FR1-Only* | This field is mandatory present for an FR1 carrier frequency. It is absent otherwise and UE releases any configured value. |
| *FR2-Only* | This field is mandatory present for an FR2 carrier frequency. It is absent otherwise and UE releases any configured value. |
| *Option11* | This field is mandatory present for LP-WUS operation option 1-1. It is absent otherwise and UE releases any configured value. |
| *Option12* | This field is mandatory present for LP-WUS operation option 1-2[RIL]: H055, LPWUS. It is absent otherwise and UE releases any configured value. |

Nex change

#### – *ThresholdP-LR*

The IE *ThresholdLR* is used to indicate a measured RSRP threshold for LP-WUS. Actual value of threshold = field value \* 2 [dBm].

*ThresholdP-LR* information element

-- ASN1START

-- TAG-THRESHOLDP-LR-START

ThresholdP-LR-r19 ::= INTEGER (-80..0)

-- TAG-THRESHOLDP-LR-STOP

-- ASN1STOP

#### – *ThresholdQ-LR*

The IE *ThresholdQ-LR* is used to indicate a measured RSRQ threshold for LP-WUS. Actual value of threshold = field value [dB].

*ThresholdQ-LR* information element

-- ASN1START

-- TAG-THRESHOLDQ-LR-START

ThresholdQ-LR-r19 ::= INTEGER (-34..0)

-- TAG-THRESHOLDQ-LR-STOP

-- ASN1STOP

Nex change

6.3.4 Other information elements

– *OtherConfig*

The IE *OtherConfig* contains configuration related to miscellaneous other configurations.

***OtherConfig* information element**

-- ASN1START

-- TAG-OTHERCONFIG-START

OtherConfig ::= SEQUENCE {

delayBudgetReportingConfig CHOICE{

release NULL,

setup SEQUENCE{

delayBudgetReportingProhibitTimer ENUMERATED {s0, s0dot4, s0dot8, s1dot6, s3, s6, s12, s30}

}

} OPTIONAL -- Need M

}

OtherConfig-v1540 ::= SEQUENCE {

overheatingAssistanceConfig SetupRelease {OverheatingAssistanceConfig} OPTIONAL, -- Need M

...

}

OtherConfig-v1610 ::= SEQUENCE {

idc-AssistanceConfig-r16 SetupRelease {IDC-AssistanceConfig-r16} OPTIONAL, -- Need M

drx-PreferenceConfig-r16 SetupRelease {DRX-PreferenceConfig-r16} OPTIONAL, -- Need M

maxBW-PreferenceConfig-r16 SetupRelease {MaxBW-PreferenceConfig-r16} OPTIONAL, -- Need M

maxCC-PreferenceConfig-r16 SetupRelease {MaxCC-PreferenceConfig-r16} OPTIONAL, -- Need M

maxMIMO-LayerPreferenceConfig-r16 SetupRelease {MaxMIMO-LayerPreferenceConfig-r16} OPTIONAL, -- Need M

minSchedulingOffsetPreferenceConfig-r16 SetupRelease {MinSchedulingOffsetPreferenceConfig-r16} OPTIONAL, -- Need M

releasePreferenceConfig-r16 SetupRelease {ReleasePreferenceConfig-r16} OPTIONAL, -- Need M

referenceTimePreferenceReporting-r16 ENUMERATED {true} OPTIONAL, -- Need R

btNameList-r16 SetupRelease {BT-NameList-r16} OPTIONAL, -- Need M

wlanNameList-r16 SetupRelease {WLAN-NameList-r16} OPTIONAL, -- Need M

sensorNameList-r16 SetupRelease {Sensor-NameList-r16} OPTIONAL, -- Need M

obtainCommonLocation-r16 ENUMERATED {true} OPTIONAL, -- Need R

sl-AssistanceConfigNR-r16 ENUMERATED{true} OPTIONAL -- Need R

}

OtherConfig-v1700 ::= SEQUENCE {

ul-GapFR2-PreferenceConfig-r17 ENUMERATED {true} OPTIONAL, -- Need R

musim-GapAssistanceConfig-r17 SetupRelease {MUSIM-GapAssistanceConfig-r17} OPTIONAL, -- Need M

musim-LeaveAssistanceConfig-r17 SetupRelease {MUSIM-LeaveAssistanceConfig-r17} OPTIONAL, -- Need M

successHO-Config-r17 SetupRelease {SuccessHO-Config-r17} OPTIONAL, -- Need M

maxBW-PreferenceConfigFR2-2-r17 ENUMERATED {true} OPTIONAL, -- Cond maxBW

maxMIMO-LayerPreferenceConfigFR2-2-r17 ENUMERATED {true} OPTIONAL, -- Cond maxMIMO

minSchedulingOffsetPreferenceConfigExt-r17 ENUMERATED {true} OPTIONAL, -- Cond minOffset

rlm-RelaxationReportingConfig-r17 SetupRelease {RLM-RelaxationReportingConfig-r17} OPTIONAL, -- Need M

bfd-RelaxationReportingConfig-r17 SetupRelease {BFD-RelaxationReportingConfig-r17} OPTIONAL, -- Need M

scg-DeactivationPreferenceConfig-r17 SetupRelease {SCG-DeactivationPreferenceConfig-r17} OPTIONAL, -- Cond SCG

rrm-MeasRelaxationReportingConfig-r17 SetupRelease {RRM-MeasRelaxationReportingConfig-r17} OPTIONAL, -- Need M

propDelayDiffReportConfig-r17 SetupRelease {PropDelayDiffReportConfig-r17} OPTIONAL -- Need M

}

OtherConfig-v1800 ::= SEQUENCE {

idc-AssistanceConfig-v1800 SetupRelease {IDC-AssistanceConfig-v1800} OPTIONAL, -- Need M

multiRx-PreferenceReportingConfigFR2-r18 SetupRelease {MultiRx-PreferenceReportingConfigFR2-r18} OPTIONAL, -- Need M

aerial-FlightPathAvailabilityConfig-r18 ENUMERATED {true} OPTIONAL, -- Need R

ul-TrafficInfoReportingConfig-r18 SetupRelease {UL-TrafficInfoReportingConfig-r18} OPTIONAL, -- Need M

n3c-RelayUE-InfoReportConfig-r18 ENUMERATED {true} OPTIONAL, -- Need R

successPSCell-Config-r18 SetupRelease {SuccessPSCell-Config-r18} OPTIONAL, -- Need M

sn-InitiatedPSCellChange-r18 ENUMERATED {true} OPTIONAL, -- Need R

musim-GapPriorityAssistanceConfig-r18 ENUMERATED {true} OPTIONAL, -- Cond musimGapConfig

musim-CapabilityRestrictionConfig-r18 SetupRelease {MUSIM-CapabilityRestrictionConfig-r18} OPTIONAL -- Need M

}

OtherConfig-v1830 ::= SEQUENCE {

sl-PRS-AssistanceConfigNR-r18 ENUMERATED{true} OPTIONAL -- Need R

}

OtherConfig-v19xx ::= SEQUENCE {

lpwus-OffsetPreferenceConfig-r19 SetupRelease {LPWUS-OffsetPreferenceConfig-r19} OPTIONAL -- Need M

}

IDC-AssistanceConfig-v1800 ::= SEQUENCE {

idc-FDM-AssistanceConfig-r18 SetupRelease {IDC-FDM-AssistanceConfig-r18} OPTIONAL, -- Need M

idc-TDM-AssistanceConfig-r18 ENUMERATED {setup} OPTIONAL -- Cond FDM

}

MultiRx-PreferenceReportingConfigFR2-r18 ::= SEQUENCE {

multiRx-PreferenceReportingConfigFR2ProhibitTimer-r18 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

CandidateServingFreqListNR-r16 ::= SEQUENCE (SIZE (1..maxFreqIDC-r16)) OF ARFCN-ValueNR

MUSIM-GapAssistanceConfig-r17 ::= SEQUENCE {

musim-GapProhibitTimer-r17 ENUMERATED {s0, s0dot1, s0dot2, s0dot3, s0dot4, s0dot5, s1, s2, s3, s4, s5, s6, s7, s8, s9, s10}

}

MUSIM-LeaveAssistanceConfig-r17 ::= SEQUENCE {

musim-LeaveWithoutResponseTimer-r17 ENUMERATED {ms10, ms20, ms40, ms60, ms80, ms100, spare2, spare1}

}

MUSIM-CapabilityRestrictionConfig-r18 ::= SEQUENCE {

musim-CandidateBandList-r18 MUSIM-CandidateBandList-r18 OPTIONAL, -- Need R

musim-WaitTimer-r18 ENUMERATED {ms10, ms20, ms40, ms60, ms80, ms100, spare2, spare1},

musim-ProhibitTimer-r18 ENUMERATED {s0, s0dot1, s0dot2, s0dot3, s0dot4, s0dot5, s1, s2, s3, s4, s5, s6, s7, s8,

s9, s10}

}

MUSIM-CandidateBandList-r18::= SEQUENCE (SIZE (1..maxCandidateBandIndex-r18)) OF FreqBandIndicatorNR

SuccessHO-Config-r17 ::= SEQUENCE {

thresholdPercentageT304-r17 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT310-r17 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT312-r17 ENUMERATED {p20, p40, p60, p80, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

sourceDAPS-FailureReporting-r17 ENUMERATED {true} OPTIONAL, --Need R

...

}

SuccessPSCell-Config-r18 ::= SEQUENCE {

thresholdPercentageT304-SCG-r18 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT310-SCG-r18 ENUMERATED {p40, p60, p80, spare5, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

thresholdPercentageT312-SCG-r18 ENUMERATED {p20, p40, p60, p80, spare4, spare3, spare2, spare1} OPTIONAL, --Need R

...

}

OverheatingAssistanceConfig ::= SEQUENCE {

overheatingIndicationProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, spare3, spare2, spare1}

}

IDC-AssistanceConfig-r16 ::= SEQUENCE {

candidateServingFreqListNR-r16 CandidateServingFreqListNR-r16 OPTIONAL, -- Need R

...

}

DRX-PreferenceConfig-r16 ::= SEQUENCE {

drx-PreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MaxBW-PreferenceConfig-r16 ::= SEQUENCE {

maxBW-PreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MaxCC-PreferenceConfig-r16 ::= SEQUENCE {

maxCC-PreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MaxMIMO-LayerPreferenceConfig-r16 ::= SEQUENCE {

maxMIMO-LayerPreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

MinSchedulingOffsetPreferenceConfig-r16 ::= SEQUENCE {

minSchedulingOffsetPreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, spare2, spare1}

}

ReleasePreferenceConfig-r16 ::= SEQUENCE {

releasePreferenceProhibitTimer-r16 ENUMERATED {

s0, s0dot5, s1, s2, s3, s4, s5, s6, s7,

s8, s9, s10, s20, s30, infinity, spare1},

connectedReporting ENUMERATED {true} OPTIONAL -- Need R

}

RLM-RelaxationReportingConfig-r17 ::= SEQUENCE {

rlm-RelaxtionReportingProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, infinity, spare2, spare1}

}

BFD-RelaxationReportingConfig-r17 ::= SEQUENCE {

bfd-RelaxtionReportingProhibitTimer ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, infinity, spare2, spare1}

}

SCG-DeactivationPreferenceConfig-r17 ::= SEQUENCE {

scg-DeactivationPreferenceProhibitTimer-r17 ENUMERATED {

s0, s1, s2, s4, s8, s10, s15, s30,

s60, s120, s180, s240, s300, s600, s900, s1800}

}

RRM-MeasRelaxationReportingConfig-r17 ::= SEQUENCE {

s-SearchDeltaP-Stationary-r17 ENUMERATED {dB2, dB3, dB6, dB9, dB12, dB15, spare2, spare1},

t-SearchDeltaP-Stationary-r17 ENUMERATED {s5, s10, s20, s30, s60, s120, s180, s240, s300, spare7, spare6, spare5,

spare4, spare3, spare2, spare1}

}

PropDelayDiffReportConfig-r17 ::= SEQUENCE {

threshPropDelayDiff-r17 ENUMERATED {ms0dot5, ms1, ms2, ms3, ms4, ms5, ms6 ,ms7, ms8, ms9, ms10, spare5,

spare4, spare3, spare2, spare1} OPTIONAL, -- Need M

neighCellInfoList-r17 SEQUENCE (SIZE (1..maxCellNTN-r17)) OF NeighbourCellInfo-r17 OPTIONAL -- Need M

}

NeighbourCellInfo-r17 ::= SEQUENCE {

epochTime-r17 EpochTime-r17,

ephemerisInfo-r17 EphemerisInfo-r17

}

IDC-FDM-AssistanceConfig-r18 ::= SEQUENCE {

candidateServingFreqRangeListNR-r18 CandidateServingFreqRangeListNR-r18 OPTIONAL, -- Need R

...

}

CandidateServingFreqRangeListNR-r18 ::= SEQUENCE (SIZE (1..maxFreqIDC-r16)) OF CandidateServingFreqRangeNR-r18

CandidateServingFreqRangeNR-r18 ::= SEQUENCE {

candidateCenterFreq-r18 ARFCN-ValueNR,

candidateBandwidth-r18 ENUMERATED {khz200, khz400, khz600, khz800, mhz1, mhz2, mhz3, mhz4, mhz5,

mhz6, mhz8, mhz10, mhz20, mhz30, mhz40, mhz50, mhz60, mhz80, mhz100,

mhz200, mhz300, mhz400} OPTIONAL -- Need R

}

UL-TrafficInfoReportingConfig-r18 ::= SEQUENCE {

pdu-SessionsToReportUL-TrafficInfoList-r18 SEQUENCE (SIZE (1.. maxNrofPDU-Sessions-r17)) OF PDU-SessionToReportUL-TrafficInfo-r18,

ul-TrafficInfoProhibitTimer-r18 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, spare3, spare2, spare1}

}

PDU-SessionToReportUL-TrafficInfo-r18 ::= SEQUENCE {

pdu-SessionID-r18 PDU-SessionID,

qfi-ToReportUL-TrafficInfoList-r18 SEQUENCE (SIZE (1..maxNrofQFIs)) OF QFI

}

LPWUS-OffsetPreferenceConfig-r19 ::= SEQUENCE {

lpwus-OffsetPreferenceProhibitTimer-r19 ENUMERATED {s0, s0dot5, s1, s2, s5, s10, s20, s30,

s60, s90, s120, s300, s600, spare3, spare2, spare1}

}

-- TAG-OTHERCONFIG-STOP

-- ASN1STOP

| ***OtherConfig* field descriptions** |
| --- |
| ***aerial-FlightPathAvailabilityConfig***  Configuration for the UE to indicate the availability of flight path information for Aerial UE operation. |
| ***bfd-RelaxationReportingConfig***  Configuration for the UE to report the relaxation state of BFD measurements. |
| ***btNameList***  Configuration for the UE to report measurements from specific Bluetooth beacons. NG-RAN configures the field if *includeBT-Meas* is configured for one or more measurements. |
| ***candidateBandwidth***  Indicates the bandwidth of the candidate frequency range around the center frequency. |
| ***candidateCenterFreq***  Indicates the center frequency of the candidate frequency range. |
| ***candidateServingFreqListNR***  Indicates for each candidate NR serving cells, the center frequency around which UE is requested to report IDC issues. |
| ***candidateServingFreqRangeListNR***  Indicates the candidate frequency range with the combination of the center frequency and the candidate bandwidth, around which the UE is requested to report IDC issues. |
| ***connectedReporting***  Indicates that the UE can report a preference to remain in RRC\_CONNECTED state following a report to leave RRC\_CONNECTED state. If absent, the UE cannot report a preference to stay in RRC\_CONNECTED state. |
| ***delayBudgetReportingProhibitTimer***  Prohibit timer for delay budget reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot4* means prohibit timer is set to 0.4 seconds, and so on. |
| ***drx-PreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's DRX preferences for power saving. |
| ***drx-PreferenceProhibitTimer***  Prohibit timer for DRX preferences assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***idc-AssistanceConfig***  Configuration for the UE to report assistance information to inform the gNB about UE detected IDC problem. |
| ***lpwus-OffsetPreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE’s preferred time offset for LP-WUS monitoring. [RIL]: C029, LPWUS |
| ***lpwus-OffsetPreferenceProhibitTimer***  Prohibit timer for offset preferences assistance information reporting for LP-WUS monitoring. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***maxBW-PreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred bandwidth for power saving. |
| ***maxBW-PreferenceProhibitTimer***  Prohibit timer for preferred bandwidth assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***maxCC-PreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred number of carriers for power saving. |
| ***maxBW-PreferenceConfigFR2-2***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred bandwidth for power saving for FR2-2. |
| ***maxCC-PreferenceProhibitTimer***  Prohibit timer for preferred number of carriers assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***maxMIMO-LayerPreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred number of MIMO layers for power saving. |
| ***maxMIMO-LayerPreferenceConfigFR2-2***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred number of MIMO layers for power saving for FR2-2. |
| ***maxMIMO-LayerPreferenceProhibitTimer***  Prohibit timer for preferred number of number of MIMO layers assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***minSchedulingOffsetPreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred *minimumSchedulingOffset* value for cross-slot scheduling for power saving. |
| ***minSchedulingOffsetPreferenceConfigExt***  Configuration for the UE to report assistance information to inform the gNB about the UE's preferred *minimumSchedulingOffset* value for cross-slot scheduling for power saving for SCS 480 kHz and/or 960 kHz. |
| ***minSchedulingOffsetPreferenceProhibitTimer***  Prohibit timer for preferred *minimumSchedulingOffset* assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***multiRx-PreferenceReportingConfigFR2***  Configuration for the UE to report assistance information to inform gNB about the UE's preference on multi-Rx operation for FR2. |
| ***multiRx-PreferenceReportingConfigFR2ProhibitTimer***  Prohibit timer for multi-Rx operation preference reporting for FR2. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***musim-CandidateBandList***  A list of candidate bands that the network intends to use, e.g., for serving cells and for which the UE is requested to provide information on temporary restricted capabilities for MUSIM operation as specified in clause 5.7.4.3. |
| ***musim-GapAssistanceConfig***  Configuration for the UE to report assistance information for gap preference. |
| ***musim-GapPriorityAssistanceConfig***  Indicates the UE is allowed to provide MUSIM assistance information for gap(s) priority and/or MUSIM gaps keep preference. |
| ***musim-GapProhibitTimer***  Prohibit timer for MUSIM assistance information reporting for gap preference. |
| ***musim-LeaveAssistanceConfig***  Configuration for the UE to report assistance information for leaving RRC\_CONNECTED for MUSIM purpose. |
| ***musim-LeaveWithoutResponseTimer***  Indicates the timer for the UE to enter RRC\_IDLE for MUSIM purpose as defined in clause 5.3.8.6. |
| ***musim-ProhibitTimer***  Indicates the prohibit timer for UE temporary restricted capabilities for MUSIM operation. Value in milliseconds. Value *ms0* means prohibit timer is set to 0 milliseconds, value *ms10* means prohibit timer is set to 10 milliseconds and so on. |
| ***musim-WaitTimer***  Indicates the wait timer for UE temporary restricted capabilities for MUSIM operation. Value in milliseconds. Value *ms10* means wait timer is set to 10 milliseconds, value *ms20* means wait timer is set to 20 milliseconds and so on. |
| ***obtainCommonLocation***  Requests the UE to attempt to have detailed location information available using GNSS. NR configures the field if *includeCommonLocationInfo* is configured for one or more measurements. |
| ***overheatingAssistanceConfig***  Configuration for the UE to report assistance information to inform the gNB about UE detected internal overheating. |
| ***overheatingIndicationProhibitTimer***  Prohibit timer for overheating assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***pdu-SessionsToReportUL-TrafficInfoList***  A list of PDU sessions for which the UE shall report UL traffic information. |
| ***propDelayDiffReportConfig***  Configuration for the UE to report service link propagation delay difference between serving cell and neighbour cell(s). |
| ***qfi-ToReportUL-TrafficInfoList***  A list of QFIs of a PDU session for which the UE shall report UL traffic information. |
| ***referenceTimePreferenceReporting***  If present, the field indicates the UE is configured to provide reference time assistance information. |
| ***releasePreferenceConfig***  Configuration for the UE to report assistance information to inform the gNB about the UE's preference to leave RRC\_CONNECTED state. |
| ***rlm-RelaxationReportingConfig***  Configuration for the UE to report the relaxation state of RLM measurements. |
| ***releasePreferenceProhibitTimer***  Prohibit timer for release preference assistance information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. Value *infinity* means that once a UE has reported a release preference, the UE cannot report a release preference again during the RRC connection. |
| ***s-SearchDeltaP-Stationary***  Parameter "SSearchDeltaP-StationaryConnected" in 5.7.4.4. Value dB2 corresponds to 2 dB, dB3 corresponds to 3 dB and so on. |
| ***scg-DeactivationPreferenceConfig***  Configuration of the UE to indicate its preference for SCG deactivation. |
| ***scg -StatePreferenceProhibitTimer***  Prohibit timer for UE indication of its preference for SCG deactivation. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***sensorNameList***  Configuration for the UE to report measurements from specific sensors. NG-RAN configures the field if *includeSensor-Meas* is configured for one or more measurements. |
| ***sl-AssistanceConfigNR***  Indicate whether UE is configured to provide configured grant assistance information for NR sidelink communication. |
| ***sl-PRS-AssistanceConfigNR***  Indicate whether UE is configured to provide configured grant assistance information for NR sidelink positioning. |
| ***sn-InitiatedPSCellChange***  This field indicates whether the PSCell change procedure or the CPC included in the *RRCReconfiguration* message is SN initiated or not. In case of SN initiated inter-SN PSCell change procedure or SN configured inter-SN CPC, MN includes this field in the MCG RRC Reconfiguration message. In case of intra-SN PSCell change, or intra-SN CPC, source SN includes the field in the SCG RRC Reconfiguration. |
| ***sourceDAPS-FailureReporting***  This field indicates whether the UE shall generate the SHR upon successfully completing the DAPS handover to the target cell and if a radio link failure was experienced in the source PCell while executing the DAPS handover. This field is set in the *otherConfig* configured by the source cell of the DAPS handover. |
| ***successHO-Config***  Configuration for the UE to report the successful handover information to the network. |
| ***successPSCell-Config***  Configuration for the UE to report the successful PSCell change or addition information to the network. When this field is configured in CG-Config, the *thresholdPercentageT304-SCG* is absent. |
| ***t-SearchDeltaP-Stationary***  Parameter "TSearchDeltaP-StationaryConnected" in 5.7.4.4. Value in seconds. Value s5 means 5 seconds, value s10 means 10 seconds and so on. |
| ***thresholdPercentageT304***  This field indicates the threshold for the ratio in percentage between the elapsed T304 timer and the configured value of the T304 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the target cell of the handover. |
| ***thresholdPercentageT310***  This field indicates the threshold for the ratio in percentage between the elapsed T310 timer and the configured value of the T310 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the source cell of the handover. |
| ***thresholdPercentageT312***  This field indicates the threshold for the ratio in percentage between the elapsed T312 timer and the configured value(s) of the T312 timer. Value *p20* corresponds to 20%, value *p40* corresponds to 40% and so on. This field is set in the *otherConfig* configured by the source cell of the handover. |
| ***thresholdPercentageT304-SCG***  This field indicates the threshold for the ratio in percentage between the elapsed T304 timer associated to the target PSCell and the configured value of the T304 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the target PSCell of the PSCell change or addition. |
| ***thresholdPercentageT310-SCG***  This field indicates the threshold for the ratio in percentage between the elapsed T310 timer associated to the source PSCell and the configured value of the T310 timer. Value *p40* corresponds to 40%, value *p60* corresponds to 60% and so on. This field is set in the *otherConfig* configured by the source PSCell of the PSCell change or CPC, or in the *otherConfig* configured by the PCell for the PSCell change or CPC. This field is not configured at the time of PSCell change via SRB3. |
| ***thresholdPercentageT312-SCG***  This field indicates the threshold for the ratio in percentage between the elapsed T312 timer associated to the measurement identity of the target PSCell and the configured value of the T312 timer. Value *p20* corresponds to 20%, value *p40* corresponds to 40% and so on. This field is set in the *otherConfig* configured by the source PSCell of the PSCell change or CPC, or in the *otherConfig* configured by the PCell for the PSCell change or CPC. This field is not configured at the time of PSCell change via SRB3. |
| ***threshPropDelayDiff***  Threshold for one-way service link propagation delay difference report as specified in 5.7.4.2. |
| ***ul-GapFR2-PreferenceConfig***  Indicates whether UE is configured to request for FR2 UL gap activation/deactivation and preferred FR2 UL gap pattern. |
| ***wlanNameList***  Configuration for the UE to report measurements from specific WLAN APs. NG-RAN configures the field if *includeWLAN-Meas* is configured for one or more measurements. |
| ***ul-TrafficInfoProhibitTimer***  Prohibit timer for UL traffic information reporting. Value in seconds. Value *s0* means prohibit timer is set to 0 seconds, value *s0dot5* means prohibit timer is set to 0.5 seconds, value *s1* means prohibit timer is set to 1 second and so on. |
| ***ul-TrafficInfoReportingConfig***  Configuration for the UE to report UL traffic information. |

|  |  |
| --- | --- |
| **Conditional Presence** | **Explanation** |
| *FDM* | This field is optionally present, need R, if *idc-AssistanceConfig-r16* or *idc-FDM-AssistanceConfig* is setup. Otherwise, it is absent, need R. |
| *maxBW* | This field is optionally present, need R, if *maxBW-PreferenceConfig-r16* is setup; otherwise it is absent, need R. |
| *maxMIMO* | This field is optionally present, need R, if *maxMIMO-LayerPreferenceConfig-r16* is setup; otherwise it is absent, need R. |
| *minOffset* | This field is optionally present, need R, if *minSchedulingOffsetPreferenceConfig-r16* is setup; otherwise it is absent, need R. |
| *musimGapConfig* | This field is optionally present, need R, if *musim-GapAssistanceConfig-r17* is setup; otherwise it is absent, need R. |
| *SCG* | This field is optionally present, need M, in an *RRCReconfiguration* message not within *mrdc-SecondaryCellGroup* and received, either via SRB3 within *DLInformationTransferMRDC* or via SRB1. Otherwise, it is absent. |

Nex change

6.4 RRC multiplicity and type constraint values

– Multiplicity and type constraint definitions

-- ASN1START

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-START

maxAdditionalRACH-r17 INTEGER ::= 256 -- Maximum number of additional RACH configurations.

maxAI-DCI-PayloadSize-r16 INTEGER ::= 128 --Maximum size of the DCI payload scrambled with ai-RNTI

maxAI-DCI-PayloadSize-1-r16 INTEGER ::= 127 --Maximum size of the DCI payload scrambled with ai-RNTI minus 1

maxBandComb INTEGER ::= 65536 -- Maximum number of DL band combinations

maxBandComb-MUSIM-r18 INTEGER ::= 64 -- Maximum number of MUSIM bands and/or band combinations

maxBandsUTRA-FDD-r16 INTEGER ::= 64 -- Maximum number of bands listed in UTRA-FDD UE caps

maxCandidateBandIndex-r18 INTEGER ::= 8 -- Maximum number of band entry index for MUSIM capability

maxBH-RLC-ChannelID-r16 INTEGER ::= 65536 -- Maximum value of BH RLC Channel ID

maxBT-IdReport-r16 INTEGER ::= 32 -- Maximum number of Bluetooth IDs to report

maxBT-Name-r16 INTEGER ::= 4 -- Maximum number of Bluetooth name

maxCAG-Cell-r16 INTEGER ::= 16 -- Maximum number of NR CAG cell ranges in SIB3, SIB4

maxTwoPUCCH-Grp-ConfigList-r16 INTEGER ::= 32 -- Maximum number of supported configuration(s) of {primary PUCCH group

-- config, secondary PUCCH group config}

maxTwoPUCCH-Grp-ConfigList-r17 INTEGER ::= 16 -- Maximum number of supported configuration(s) of {primary PUCCH group

-- config, secondary PUCCH group config} for PUCCH cell switching

maxCBR-Config-r16 INTEGER ::= 8 -- Maximum number of CBR range configurations for sidelink communication

-- congestion control

maxCBR-Config-1-r16 INTEGER ::= 7 -- Maximum number of CBR range configurations for sidelink communication

-- congestion control minus 1

maxCBR-Level-r16 INTEGER ::= 16 -- Maximum number of CBR levels

maxCBR-Level-1-r16 INTEGER ::= 15 -- Maximum number of CBR levels minus 1

maxCellATG-r18 INTEGER ::= 8 -- Maximum number of ATG neighbour cells for which assistance information is

-- provided

maxCellExcluded INTEGER ::= 16 -- Maximum number of NR exclude-listed cell ranges in SIB3, SIB4

maxCellGroupings-r16 INTEGER ::= 32 -- Maximum number of cell groupings for NR-DC

maxCellHistory-r16 INTEGER ::= 16 -- Maximum number of visited PCells reported

maxPSCellHistory-r17 INTEGER ::= 16 -- Maximum number of visited PSCells across all reported PCells

maxCellInter INTEGER ::= 16 -- Maximum number of inter-Freq cells listed in SIB4

maxCellIntra INTEGER ::= 16 -- Maximum number of intra-Freq cells listed in SIB3

maxCellMeasEUTRA INTEGER ::= 32 -- Maximum number of cells in E-UTRAN

maxCellMeasIdle-r16 INTEGER ::= 8 -- Maximum number of cells per carrier for idle/inactive measurements

maxCellMeasUTRA-FDD-r16 INTEGER ::= 32 -- Maximum number of cells in FDD UTRAN

maxCellNTN-r17 INTEGER ::= 4 -- Maximum number of NTN neighbour cells for which assistance information is

-- provided

maxCarrierTypePairList-r16 INTEGER ::= 16 -- Maximum number of supported carrier type pair of (carrier type on which

-- CSI measurement is performed, carrier type on which CSI reporting is

-- performed) for CSI reporting cross PUCCH group

maxCellAllowed INTEGER ::= 16 -- Maximum number of NR allow-listed cell ranges in SIB3, SIB4

maxEARFCN INTEGER ::= 262143 -- Maximum value of E-UTRA carrier frequency

maxEUTRA-CellExcluded INTEGER ::= 16 -- Maximum number of E-UTRA exclude-listed physical cell identity ranges

-- in SIB5

maxEUTRA-NS-Pmax INTEGER ::= 8 -- Maximum number of NS and P-Max values per band

maxFeatureCombPreamblesPerRACHResource-r17 INTEGER ::= 256 -- Maximum number of feature combination preambles.

maxLogMeasReport-r16 INTEGER ::= 520 -- Maximum number of entries for logged measurements

maxMultiBands INTEGER ::= 8 -- Maximum number of additional frequency bands that a cell belongs to

maxNARFCN INTEGER ::= 3279165 -- Maximum value of NR carrier frequency

maxNR-NS-Pmax INTEGER ::= 8 -- Maximum number of NS and P-Max values per band

maxFreqIdle-r16 INTEGER ::= 8 -- Maximum number of carrier frequencies for idle/inactive measurements

maxNrofServingCells INTEGER ::= 32 -- Max number of serving cells (SpCells + SCells)

maxNrofServingCells-1 INTEGER ::= 31 -- Max number of serving cells (SpCells + SCells) minus 1

maxNrofAggregatedCellsPerCellGroup INTEGER ::= 16

maxNrofAggregatedCellsPerCellGroupMinus4-r16 INTEGER ::= 12

maxNrofAperiodicFwdTimeResource-r18 INTEGER ::= 112 -- Max number of aperiodic fowarding time resources for NCR

maxNrofAperiodicFwdTimeResource-1-r18 INTEGER ::= 111 -- Max number of aperiodic fowarding time resources for NCR minus 1

maxNrofDUCells-r16 INTEGER ::= 512 -- Max number of cells configured on the collocated IAB-DU

maxNrofAppLayerMeas-r17 INTEGER ::= 16 -- Max number of simultaneous application layer measurements

maxNrofAppLayerMeas-1-r17 INTEGER ::= 15 -- Max number of simultaneous application layer measurements minus 1

maxNrofAppLayerReports-r18 INTEGER ::= 16 -- Max number of application layer measurement reports with the same

-- measConfigAppLayerId included in the same

-- MeasurementReportAppLayerMessage

maxNrofAvailabilityCombinationsPerSet-r16 INTEGER ::= 512 -- Max number of AvailabilityCombinationId used in the DCI format 2\_5

maxNrofAvailabilityCombinationsPerSet-1-r16 INTEGER ::= 511 -- Max number of AvailabilityCombinationId used in the DCI format 2\_5 minus 1

maxNrofIABResourceConfig-r17 INTEGER ::= 65536 -- Max number of IAB-ResourceConfigID used in MAC CE

maxNrofIABResourceConfig-1-r17 INTEGER ::= 65535 -- Max number of IAB-ResourceConfigID used in MAC CE minus 1

maxNrofPeriodicFwdResourceSet-r18 INTEGER ::= 32 -- Max number of periodic fowarding resource sets for NCR

maxNrofPeriodicFwdResourceSet-1-r18 INTEGER ::= 31 -- Max number of periodic fowarding resource sets for NCR minus 1

maxNrofPeriodicFwdResource-r18 INTEGER ::= 1024 -- Max number of periodic fowarding resources for NCR

maxNrofPeriodicFwdResource-1-r18 INTEGER ::= 1023 -- Max number of periodic fowarding resources for NCR minus 1

maxNrofSemiPersistentFwdResourceSet-r18 INTEGER ::= 32 -- Max number of semi-persistent fowarding resource sets for NCR

maxNrofSemiPersistentFwdResourceSet-1-r18 INTEGER ::= 31 -- Max number of semi-persistent fowarding resource sets for NCR minus 1

maxNrofSemiPersistentFwdResource-r18 INTEGER ::= 128 -- Max number of semi-persistent fowarding resources for NCR

maxNrofSemiPersistentFwdResource-1-r18 INTEGER ::= 127 -- Max number of semi-persistent fowarding resources for NCR minus 1

maxNrofSCellActRS-r17 INTEGER ::= 255 -- Max number of RS configurations per SCell for SCell activation

maxNrofSCells INTEGER ::= 31 -- Max number of secondary serving cells per cell group

maxNrofCellMeas INTEGER ::= 32 -- Maximum number of entries in each of the cell lists in a measurement object

maxNrofCRS-IM-InterfCell-r17 INTEGER ::= 8 -- Maximum number of LTE interference cells for CRS-IM per UE

maxNrofRelayMeas-r17 INTEGER ::= 32 -- Maximum number of L2 U2N Relay UEs to measure for each measurement object

-- on sidelink frequency

maxNrofCG-SL-r16 INTEGER ::= 8 -- Max number of sidelink configured grant

maxNrofCG-SL-1-r16 INTEGER ::= 7 -- Max number of sidelink configured grant minus 1

maxSL-GC-BC-DRX-QoS-r17 INTEGER ::= 16 -- Max number of sidelink DRX configurations for NR

-- sidelink groupcast/broadcast communication

maxNrofSL-RxInfoSet-r17 INTEGER ::= 4 -- Max number of sidelink DRX configuration sets in sidelink DRX assistant

-- information

maxNrofSS-BlocksToAverage INTEGER ::= 16 -- Max number for the (max) number of SS blocks to average to determine cell measurement

maxNrofCondCells-r16 INTEGER ::= 8 -- Max number of conditional candidate SpCells

maxNrofCondCells-1-r17 INTEGER ::= 7 -- Max number of conditional candidate SpCells minus 1

maxNrofCSI-RS-ResourcesToAverage INTEGER ::= 16 -- Max number for the (max) number of CSI-RS to average to determine cell measurement

maxNrofDL-Allocations INTEGER ::= 16 -- Maximum number of PDSCH time domain resource allocations

maxNrofDL-AllocationsExt-r17 INTEGER ::= 64 -- Maximum number of PDSCH time domain resource allocations for multi-PDSCH

-- scheduling

maxNrofDL-Allocations-1-r18 INTEGER ::= 15 -- Maximum number of PDSCH time domain resource allocations minus 1

maxNrofPDU-Sessions-r17 INTEGER ::= 256 -- Maximum number of PDU Sessions

maxNrofSR-ConfigPerCellGroup INTEGER ::= 8 -- Maximum number of SR configurations per cell group

maxNrofLCGs-r18 INTEGER ::= 8 -- Maximum number of LCGs

maxLCG-ID INTEGER ::= 7 -- Maximum value of LCG ID

maxLCG-ID-IAB-r17 INTEGER ::= 255 -- Maximum value of LCG ID for IAB-MT

maxLC-ID INTEGER ::= 32 -- Maximum value of Logical Channel ID

maxLC-ID-Iab-r16 INTEGER ::= 65855 -- Maximum value of BH Logical Channel ID extension

maxLTE-CRS-Patterns-r16 INTEGER ::= 3 -- Maximum number of additional LTE CRS rate matching patterns

maxNrOfLinkedSRS-CarriersInactive-1-r18 INTEGER ::= 2 -- Maximum number of carriers for positioning SRS CA in RRC\_INACTIVE minus 1

maxNrofTAGs INTEGER ::= 4 -- Maximum number of Timing Advance Groups

maxNrofTAGs-1 INTEGER ::= 3 -- Maximum number of Timing Advance Groups minus 1

maxNrofBWPs INTEGER ::= 4 -- Maximum number of BWPs per serving cell

maxNrofCombIDC INTEGER ::= 128 -- Maximum number of reported MR-DC combinations for IDC

maxNrofSymbols-1 INTEGER ::= 13 -- Maximum index identifying a symbol within a slot (14 symbols, indexed from 0..13)

maxNrofSlots INTEGER ::= 320 -- Maximum number of slots in a 10 ms period

maxNrofSlots-1 INTEGER ::= 319 -- Maximum number of slots in a 10 ms period minus 1

maxNrofPhysicalResourceBlocks INTEGER ::= 275 -- Maximum number of PRBs

maxNrofPhysicalResourceBlocks-1 INTEGER ::= 274 -- Maximum number of PRBs minus 1

maxNrofPhysicalResourceBlocksPlus1 INTEGER ::= 276 -- Maximum number of PRBs plus 1

maxNrofControlResourceSets INTEGER ::= 12 -- Max number of CoReSets configurable on a serving cell

maxNrofControlResourceSets-1 INTEGER ::= 11 -- Max number of CoReSets configurable on a serving cell minus 1

maxNrofControlResourceSets-1-r16 INTEGER ::= 15 -- Max number of CoReSets configurable on a serving cell extended in minus 1

maxNrofCoresetPools-r16 INTEGER ::= 2 -- Maximum number of CORESET pools

maxCoReSetDuration INTEGER ::= 3 -- Max number of OFDM symbols in a control resource set

maxNrofSearchSpaces-1 INTEGER ::= 39 -- Max number of Search Spaces minus 1

maxNrofSearchSpacesLinks-1-r17 INTEGER ::= 39 -- Max number of Search Space links minus 1

maxNrofBFDResourcePerSet-r17 INTEGER ::= 64 -- Max number of reference signal in one BFD set

maxSFI-DCI-PayloadSize INTEGER ::= 128 -- Max number payload of a DCI scrambled with SFI-RNTI

maxSFI-DCI-PayloadSize-1 INTEGER ::= 127 -- Max number payload of a DCI scrambled with SFI-RNTI minus 1

maxIAB-IP-Address-r16 INTEGER ::= 32 -- Max number of assigned IP addresses

maxINT-DCI-PayloadSize INTEGER ::= 126 -- Max number payload of a DCI scrambled with INT-RNTI

maxINT-DCI-PayloadSize-1 INTEGER ::= 125 -- Max number payload of a DCI scrambled with INT-RNTI minus 1

maxNrofRateMatchPatterns INTEGER ::= 4 -- Max number of rate matching patterns that may be configured

maxNrofRateMatchPatterns-1 INTEGER ::= 3 -- Max number of rate matching patterns that may be configured minus 1

maxNrofRateMatchPatternsPerGroup INTEGER ::= 8 -- Max number of rate matching patterns that may be configured in one group

maxNrofCSI-ReportConfigurations INTEGER ::= 48 -- Maximum number of report configurations

maxNrofCSI-ReportConfigurations-1 INTEGER ::= 47 -- Maximum number of report configurations minus 1

maxNrofCSI-ResourceConfigurations INTEGER ::= 112 -- Maximum number of resource configurations

maxNrofCSI-ResourceConfigurations-1 INTEGER ::= 111 -- Maximum number of resource configurations minus 1

maxNrofAP-CSI-RS-ResourcesPerSet INTEGER ::= 16

maxNrOfCSI-AperiodicTriggers INTEGER ::= 128 -- Maximum number of triggers for aperiodic CSI reporting

maxNrofReportConfigPerAperiodicTrigger INTEGER ::= 16 -- Maximum number of report configurations per trigger state for aperiodic reporting

maxNrofNZP-CSI-RS-Resources INTEGER ::= 192 -- Maximum number of Non-Zero-Power (NZP) CSI-RS resources

maxNrofNZP-CSI-RS-Resources-1 INTEGER ::= 191 -- Maximum number of Non-Zero-Power (NZP) CSI-RS resources minus 1

maxNrofNZP-CSI-RS-ResourcesPerSet INTEGER ::= 64 -- Maximum number of NZP CSI-RS resources per resource set

maxNrofNZP-CSI-RS-ResourcesPerSet-1-r18 INTEGER ::= 63 -- Maximum number of NZP CSI-RS resources per resource set minus 1

maxNrofNZP-CSI-RS-ResourceSets INTEGER ::= 64 -- Maximum number of NZP CSI-RS resource sets per cell

maxNrofNZP-CSI-RS-ResourceSets-1 INTEGER ::= 63 -- Maximum number of NZP CSI-RS resource sets per cell minus 1

maxNrofNZP-CSI-RS-ResourceSetsPerConfig INTEGER ::= 16 -- Maximum number of resource sets per resource configuration

maxNrofNZP-CSI-RS-ResourcesPerConfig INTEGER ::= 128 -- Maximum number of resources per resource configuration

maxNrofZP-CSI-RS-Resources INTEGER ::= 32 -- Maximum number of Zero-Power (ZP) CSI-RS resources

maxNrofZP-CSI-RS-Resources-1 INTEGER ::= 31 -- Maximum number of Zero-Power (ZP) CSI-RS resources minus 1

maxNrofZP-CSI-RS-ResourceSets-1 INTEGER ::= 15

maxNrofZP-CSI-RS-ResourcesPerSet INTEGER ::= 16

maxNrofZP-CSI-RS-ResourceSets INTEGER ::= 16

maxNrofCSI-IM-Resources INTEGER ::= 32 -- Maximum number of CSI-IM resources

maxNrofCSI-IM-Resources-1 INTEGER ::= 31 -- Maximum number of CSI-IM resources minus 1

maxNrofCSI-IM-ResourcesPerSet INTEGER ::= 8 -- Maximum number of CSI-IM resources per set

maxNrofCSI-IM-ResourceSets INTEGER ::= 64 -- Maximum number of NZP CSI-IM resource sets per cell

maxNrofCSI-IM-ResourceSets-1 INTEGER ::= 63 -- Maximum number of NZP CSI-IM resource sets per cell minus 1

maxNrofCSI-IM-ResourceSetsPerConfig INTEGER ::= 16 -- Maximum number of CSI IM resource sets per resource configuration

maxNrofCSI-SSB-ResourcePerSet INTEGER ::= 64 -- Maximum number of SSB resources in a resource set

maxNrofCSI-SSB-ResourceSets INTEGER ::= 64 -- Maximum number of CSI SSB resource sets per cell

maxNrofCSI-SSB-ResourceSets-1 INTEGER ::= 63 -- Maximum number of CSI SSB resource sets per cell minus 1

maxNrofCSI-SSB-ResourceSetsPerConfig INTEGER ::= 1 -- Maximum number of CSI SSB resource sets per resource configuration

maxNrofCSI-SSB-ResourceSetsPerConfigExt INTEGER ::= 2 -- Maximum number of CSI SSB resource sets per resource configuration

-- extended

maxNrofFailureDetectionResources INTEGER ::= 10 -- Maximum number of failure detection resources

maxNrofFailureDetectionResources-1 INTEGER ::= 9 -- Maximum number of failure detection resources minus 1

maxNrofFailureDetectionResources-1-r17 INTEGER ::= 63 -- Maximum number of the enhanced failure detection resources minus 1

maxNrofFreqSL-r16 INTEGER ::= 8 -- Maximum number of carrier frequency for NR sidelink communication

maxNrofFreqSL-1-r18 INTEGER ::= 7 -- Maximum number of carrier frequency for NR sidelink communication minus 1

maxNrofSL-BWPs-r16 INTEGER ::= 4 -- Maximum number of BWP for NR sidelink communication

maxNrofSL-CarrierSetConfig-r18 INTEGER ::= 96 -- Maximum number of SCCH carrier set configuration for NR sidelink

-- communication

maxFreqSL-EUTRA-r16 INTEGER ::= 8 -- Maximum number of EUTRA anchor carrier frequency for NR sidelink

-- communication

maxNrofSL-MeasId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement identity (RSRP) per destination

maxNrofSL-ObjectId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement objects (RSRP) per destination

maxNrofSL-ReportConfigId-r16 INTEGER ::= 64 -- Maximum number of sidelink measurement reporting configuration(RSRP) per destination

maxNrofSL-PoolToMeasureNR-r16 INTEGER ::= 8 -- Maximum number of resource pool for NR sidelink measurement to measure

-- for each measurement object (for CBR)

maxNrofDedicatedSL-PRS-PoolToMeas-r18 INTEGER ::= 8 -- Maximum number of SL-PRS dedicated resource pool for positioning

-- measurement to measure for each measurement object (for SL-PRS CBR)

maxFreqSL-NR-r16 INTEGER ::= 8 -- Maximum number of NR anchor carrier frequency for NR sidelink communication

maxNrofSL-QFIs-r16 INTEGER ::= 2048 -- Maximum number of QoS flow for NR sidelink communication per UE

maxNrofSL-QFIsPerDest-r16 INTEGER ::= 64 -- Maximum number of QoS flow per destination for NR sidelink communication

maxNrofObjectId INTEGER ::= 64 -- Maximum number of measurement objects

maxNrofPageRec INTEGER ::= 32 -- Maximum number of page records

maxNrofPCI-Ranges INTEGER ::= 8 -- Maximum number of PCI ranges

maxPLMN INTEGER ::= 12 -- Maximum number of PLMNs broadcast and reported by UE at establishment

maxTAC-r17 INTEGER ::= 12 -- Maximum number of Tracking Area Codes to which a cell belongs to

maxNrofCSI-RS-ResourcesRRM INTEGER ::= 96 -- Maximum number of CSI-RS resources per cell for an RRM measurement object

maxNrofCSI-RS-ResourcesRRM-1 INTEGER ::= 95 -- Maximum number of CSI-RS resources per cell for an RRM measurement object

-- minus 1.

maxNrofMeasId INTEGER ::= 64 -- Maximum number of configured measurements

maxNrofQuantityConfig INTEGER ::= 2 -- Maximum number of quantity configurations

maxNrofCSI-RS-CellsRRM INTEGER ::= 96 -- Maximum number of cells with CSI-RS resources for an RRM measurement object

maxNrofSL-Dest-r16 INTEGER ::= 32 -- Maximum number of destination for NR sidelink communication and discovery

maxNrofSL-Dest-1-r16 INTEGER ::= 31 -- Highest index of destination for NR sidelink communication and discovery

maxNrofSL-PRS-PerDest-r18 INTEGER ::= 8 -- Max number of SL-PRS transmission supported per destination UE

maxNrofSLRB-r16 INTEGER ::= 512 -- Maximum number of radio bearer for NR sidelink communication per UE without duplication

maxSL-LCID-Plus1-r18 INTEGER ::= 513 -- Maximum number of RLC bearer for NR sidelink communication per UE without duplication plus 1

maxSL-LCID-r18 INTEGER ::= 1024 -- Maximum number of RLC bearer for NR sidelink communication per UE with duplication

maxSL-NonAnchorRBsets INTEGER ::= 4 -- Maximum number of non-anchor RB sets

maxSL-LCID-r16 INTEGER ::= 512 -- Maximum number of RLC bearer for NR sidelink communication per UE

maxSL-SyncConfig-r16 INTEGER ::= 16 -- Maximum number of sidelink Sync configurations

maxNrofRXPool-r16 INTEGER ::= 16 -- Maximum number of Rx resource pool for NR sidelink communication and

-- discovery

maxNrofTXPool-r16 INTEGER ::= 8 -- Maximum number of Tx resource pool for NR sidelink communication and

-- discovery

maxNrofPoolID-r16 INTEGER ::= 16 -- Maximum index of resource pool for NR sidelink communication and

-- discovery

maxNrofSRS-PathlossReferenceRS-r16 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for SRS power control.

maxNrofSRS-PathlossReferenceRS-1-r16 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for SRS power control

-- minus 1.

maxNrofSRS-ResourceSets INTEGER ::= 16 -- Maximum number of SRS resource sets in a BWP.

maxNrofSRS-ResourceSets-1 INTEGER ::= 15 -- Maximum number of SRS resource sets in a BWP minus 1.

maxNrofSRS-PosResourceSets-r16 INTEGER ::= 16 -- Maximum number of SRS Positioning resource sets in a BWP.

maxNrofSRS-PosResourceSets-1-r16 INTEGER ::= 15 -- Maximum number of SRS Positioning resource sets in a BWP minus 1.

maxNrofSRS-Resources INTEGER ::= 64 -- Maximum number of SRS resources.

maxNrofSRS-Resources-1 INTEGER ::= 63 -- Maximum number of SRS resources minus 1.

maxNrofSRS-PosResources-r16 INTEGER ::= 64 -- Maximum number of SRS Positioning resources.

maxNrofSRS-PosResources-1-r16 INTEGER ::= 63 -- Maximum number of SRS Positioning resources minus 1.

maxNrofSRS-ResourcesPerSet INTEGER ::= 16 -- Maximum number of SRS resources in an SRS resource set

maxNrofSRS-TriggerStates-1 INTEGER ::= 3 -- Maximum number of SRS trigger states minus 1, i.e., the largest code point.

maxNrofSRS-TriggerStates-2 INTEGER ::= 2 -- Maximum number of SRS trigger states minus 2.

maxRAT-CapabilityContainers INTEGER ::= 8 -- Maximum number of interworking RAT containers (incl NR and MRDC)

maxSimultaneousBands INTEGER ::= 32 -- Maximum number of simultaneously aggregated bands

maxSimultaneousBands-2-r18 INTEGER ::= 30 -- Maximum number of simultaneously aggregated bands minus 2.

maxULTxSwitchingBandPairs INTEGER ::= 32 -- Maximum number of band pairs supporting dynamic UL Tx switching in a band

-- combination.

maxULTxSwitchingBetweenBandPairs-r18 INTEGER ::= 32 -- Maximum number of combinations of a band pair and another band pair/band

-- between which dynamic UL Tx switching requires additional switching

-- period.

maxSchedulingBandCombination-r18 INTEGER ::= 32 -- Maximum number of combinations of scheduling cell and co-scheduled cells

-- have same or different carrier type.

maxNrofSlotFormatCombinationsPerSet INTEGER ::= 512 -- Maximum number of Slot Format Combinations in a SF-Set.

maxNrofSlotFormatCombinationsPerSet-1 INTEGER ::= 511 -- Maximum number of Slot Format Combinations in a SF-Set minus 1.

maxNrofTrafficPattern-r16 INTEGER ::= 8 -- Maximum number of Traffic Pattern for NR sidelink communication.

maxNrofPUCCH-Resources INTEGER ::= 128

maxNrofPUCCH-Resources-1 INTEGER ::= 127

maxNrofPUCCH-ResourceSets INTEGER ::= 4 -- Maximum number of PUCCH Resource Sets

maxNrofPUCCH-ResourceSets-1 INTEGER ::= 3 -- Maximum number of PUCCH Resource Sets minus 1.

maxNrofPUCCH-ResourcesPerSet INTEGER ::= 32 -- Maximum number of PUCCH Resources per PUCCH-ResourceSet

maxNrofPUCCH-P0-PerSet INTEGER ::= 8 -- Maximum number of P0-pucch present in a p0-pucch set

maxNrofPUCCH-PathlossReferenceRSs INTEGER ::= 4 -- Maximum number of RSs used as pathloss reference for PUCCH power control.

maxNrofPUCCH-PathlossReferenceRSs-1 INTEGER ::= 3 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- minus 1.

maxNrofPUCCH-PathlossReferenceRSs-r16 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- extended.

maxNrofPUCCH-PathlossReferenceRSs-1-r16 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- minus 1 extended.

maxNrofPUCCH-PathlossReferenceRSs-1-r17 INTEGER ::= 7 -- Maximum number of RSs used as pathloss reference for PUCCH power control

-- minus 1.

maxNrofPUCCH-PathlossReferenceRSsDiff-r16 INTEGER ::= 60 -- Difference between the extended maximum and the non-extended maximum

maxNrofPUCCH-ResourceGroups-r16 INTEGER ::= 4 -- Maximum number of PUCCH resources groups.

maxNrofPUCCH-ResourcesPerGroup-r16 INTEGER ::= 128 -- Maximum number of PUCCH resources in a PUCCH group.

maxNrofPowerControlSetInfos-r17 INTEGER ::= 8 -- Maximum number of PUCCH power control set infos

maxNrofMultiplePUSCHs-r16 INTEGER ::= 8 -- Maximum number of multiple PUSCHs in PUSCH TDRA list

maxNrofP0-PUSCH-AlphaSets INTEGER ::= 30 -- Maximum number of P0-pusch-alpha-sets (see TS 38.213 [13], clause 7.1)

maxNrofP0-PUSCH-AlphaSets-1 INTEGER ::= 29 -- Maximum number of P0-pusch-alpha-sets minus 1 (see TS 38.213 [13], clause 7.1)

maxNrofPUSCH-PathlossReferenceRSs INTEGER ::= 4 -- Maximum number of RSs used as pathloss reference for PUSCH power control.

maxNrofPUSCH-PathlossReferenceRSs-1 INTEGER ::= 3 -- Maximum number of RSs used as pathloss reference for PUSCH power control

-- minus 1.

maxNrofPUSCH-PathlossReferenceRSs-r16 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for PUSCH power control

-- extended

maxNrofPUSCH-PathlossReferenceRSs-1-r16 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for PUSCH power control

-- extended minus 1

maxNrofPUSCH-PathlossReferenceRSsDiff-r16 INTEGER ::= 60 -- Difference between maxNrofPUSCH-PathlossReferenceRSs-r16 and

-- maxNrofPUSCH-PathlossReferenceRSs

maxNrofPathlossReferenceRSs-r17 INTEGER ::= 64 -- Maximum number of RSs used as pathloss reference for PUSCH, PUCCH, SRS

-- power control for unified TCI state operation

maxNrofPathlossReferenceRSs-1-r17 INTEGER ::= 63 -- Maximum number of RSs used as pathloss reference for PUSCH, PUCCH, SRS

-- power control for unified TCI state operation minus 1

maxNrofNAICS-Entries INTEGER ::= 8 -- Maximum number of supported NAICS capability set

maxBands INTEGER ::= 1024 -- Maximum number of supported bands in UE capability.

maxBandsMRDC INTEGER ::= 1280

maxBandsEUTRA INTEGER ::= 256

maxCellReport INTEGER ::= 8

maxDRB INTEGER ::= 29 -- Maximum number of DRBs (that can be added in DRB-ToAddModList).

maxFreq INTEGER ::= 8 -- Max number of frequencies.

maxFreqLayers INTEGER ::= 4 -- Max number of frequency layers.

maxFreqPlus1 INTEGER ::= 9 -- Max number of frequencies for Slicing.

maxFreqIDC-r16 INTEGER ::= 128 -- Max number of frequencies for IDC indication.

maxCombIDC-r16 INTEGER ::= 128 -- Max number of reported UL CA for IDC indication.

maxFreqIDC-MRDC INTEGER ::= 32 -- Maximum number of candidate NR frequencies for MR-DC IDC indication

maxNrofCandidateBeams INTEGER ::= 16 -- Max number of PRACH-ResourceDedicatedBFR in BFR config.

maxNrofCandidateBeams-r16 INTEGER ::= 64 -- Max number of candidate beam resources in BFR config.

maxNrofCandidateBeamsExt-r16 INTEGER ::= 48 -- Max number of PRACH-ResourceDedicatedBFR in the CandidateBeamRSListExt

maxNrofPCIsPerSMTC INTEGER ::= 64 -- Maximum number of PCIs per SMTC.

maxNrofQFIs INTEGER ::= 64

maxNrofResourceAvailabilityPerCombination-r16 INTEGER ::= 256

maxNrOfSemiPersistentPUSCH-Triggers INTEGER ::= 64 -- Maximum number of triggers for semi persistent reporting on PUSCH

maxNrofSR-Resources INTEGER ::= 8 -- Maximum number of SR resources per BWP in a cell.

maxNrofSlotFormatsPerCombination INTEGER ::= 256

maxNrofSpatialRelationInfos INTEGER ::= 8

maxNrofSpatialRelationInfos-plus-1 INTEGER ::= 9

maxNrofSpatialRelationInfos-r16 INTEGER ::= 64

maxNrofSpatialRelationInfosDiff-r16 INTEGER ::= 56 -- Difference between maxNrofSpatialRelationInfos-r16 and maxNrofSpatialRelationInfos

maxNrofIndexesToReport INTEGER ::= 32

maxNrofIndexesToReport2 INTEGER ::= 64

maxNrofSSBs-r16 INTEGER ::= 64 -- Maximum number of SSB resources in a resource set.

maxNrofSSBs-1 INTEGER ::= 63 -- Maximum number of SSB resources in a resource set minus 1.

maxNrofS-NSSAI INTEGER ::= 8 -- Maximum number of S-NSSAI.

maxNrofTCI-StatesPDCCH INTEGER ::= 64

maxNrofTCI-States INTEGER ::= 128 -- Maximum number of TCI states.

maxNrofTCI-States-1 INTEGER ::= 127 -- Maximum number of TCI states minus 1.

maxUL-TCI-r17 INTEGER ::= 64 -- Maximum number of TCI states.

maxUL-TCI-1-r17 INTEGER ::= 63 -- Maximum number of TCI states minus 1.

maxNrofAdditionalPCI-r17 INTEGER ::= 7 -- Maximum number of additional PCI

maxNrofAdditionalPRACHConfigs-r18 INTEGER ::= 7 -- Maximum number of additional PRACH configurations for 2TA

maxNrofdelayD-r18 INTEGER ::= 4 -- Maximum number of delayD values.

maxMPE-Resources-r17 INTEGER ::= 64 -- Maximum number of pooled MPE resources

maxNrofUL-Allocations INTEGER ::= 16 -- Maximum number of PUSCH time domain resource allocations.

maxQFI INTEGER ::= 63

maxRA-CSIRS-Resources INTEGER ::= 96

maxRA-OccasionsPerCSIRS INTEGER ::= 64 -- Maximum number of RA occasions for one CSI-RS

maxRA-Occasions-1 INTEGER ::= 511 -- Maximum number of RA occasions in the system

maxRA-SSB-Resources INTEGER ::= 64

maxSCSs INTEGER ::= 5

maxSecondaryCellGroups INTEGER ::= 3

maxNrofServingCellsEUTRA INTEGER ::= 32

maxMBSFN-Allocations INTEGER ::= 8

maxNrofMultiBands INTEGER ::= 8

maxCellSFTD INTEGER ::= 3 -- Maximum number of cells for SFTD reporting

maxReportConfigId INTEGER ::= 64

maxNrofCodebooks INTEGER ::= 16 -- Maximum number of codebooks supported by the UE

maxNrofCSI-RS-ResourcesExt-r16 INTEGER ::= 16 -- Maximum number of codebook resources supported by the UE for eType2/Codebook combo

maxNrofCSI-RS-ResourcesExt-r17 INTEGER ::= 8 -- Maximum number of codebook resources for fetype2R1 and fetype2R2

maxNrofCSI-RS-Resources INTEGER ::= 7 -- Maximum number of codebook resources supported by the UE

maxNrofCSI-RS-ResourcesAlt-r16 INTEGER ::= 512 -- Maximum number of alternative codebook resources supported by the UE

maxNrofCSI-RS-ResourcesAlt-1-r16 INTEGER ::= 511 -- Maximum number of alternative codebook resources supported by the UE minus 1

maxNrofSRI-PUSCH-Mappings INTEGER ::= 16

maxNrofSRI-PUSCH-Mappings-1 INTEGER ::= 15

maxSIB INTEGER::= 32 -- Maximum number of SIBs

maxSI-Message INTEGER::= 32 -- Maximum number of SI messages

maxSIB-MessagePlus1-r17 INTEGER::= 33 -- Maximum number of SIB messages plus 1

maxPO-perPF INTEGER ::= 4 -- Maximum number of paging occasion per paging frame

maxPEI-perPF-r17 INTEGER ::= 4 -- Maximum number of PEI occasion per paging frame

maxAccessCat-1 INTEGER ::= 63 -- Maximum number of Access Categories minus 1

maxBarringInfoSet INTEGER ::= 8 -- Maximum number of access control parameter sets

maxCellEUTRA INTEGER ::= 8 -- Maximum number of E-UTRA cells in SIB list

maxEUTRA-Carrier INTEGER ::= 8 -- Maximum number of E-UTRA carriers in SIB list

maxPLMNIdentities INTEGER ::= 8 -- Maximum number of PLMN identities in RAN area configurations

maxDownlinkFeatureSets INTEGER ::= 1024 -- (for NR DL) Total number of FeatureSets (size of the pool)

maxUplinkFeatureSets INTEGER ::= 1024 -- (for NR UL) Total number of FeatureSets (size of the pool)

maxEUTRA-DL-FeatureSets INTEGER ::= 256 -- (for E-UTRA) Total number of FeatureSets (size of the pool)

maxEUTRA-UL-FeatureSets INTEGER ::= 256 -- (for E-UTRA) Total number of FeatureSets (size of the pool)

maxFeatureSetsPerBand INTEGER ::= 128 -- (for NR) The number of feature sets associated with one band.

maxPerCC-FeatureSets INTEGER ::= 1024 -- (for NR) Total number of CC-specific FeatureSets (size of the pool)

maxFeatureSetCombinations INTEGER ::= 1024 -- (for MR-DC/NR)Total number of Feature set combinations (size of the pool)

maxInterRAT-RSTD-Freq INTEGER ::= 3

maxGIN-r17 INTEGER ::= 24 -- Maximum number of broadcast GINs

maxHRNN-Len-r16 INTEGER ::= 48 -- Maximum length of HRNNs

maxNPN-r16 INTEGER ::= 12 -- Maximum number of NPNs broadcast and reported by UE at establishment

maxSNPN-ConfigCellId-r18 INTEGER ::= 32 -- Maximum number of Cell ID subject for SNPNS for MDT scope

maxSNPN-ConfigID-r18 INTEGER ::= 16 -- Maximum number of SNPNs subject for MDT scope

maxSNPN-ConfigTAI-r18 INTEGER ::= 8 -- Maximum number of TA subject for MDT scope

maxNrOfMinSchedulingOffsetValues-r16 INTEGER ::= 2 -- Maximum number of min. scheduling offset (K0/K2) configurations

maxK0-SchedulingOffset-r16 INTEGER ::= 16 -- Maximum number of slots configured as min. scheduling offset (K0)

maxK2-SchedulingOffset-r16 INTEGER ::= 16 -- Maximum number of slots configured as min. scheduling offset (K2)

maxK0-SchedulingOffset-r17 INTEGER ::= 64 -- Maximum number of slots configured as min. scheduling offset (K0)

maxK2-SchedulingOffset-r17 INTEGER ::= 64 -- Maximum number of slots configured as min. scheduling offset (K2)

maxDCI-2-6-Size-r16 INTEGER ::= 140 -- Maximum size of DCI format 2-6

maxDCI-2-7-Size-r17 INTEGER ::= 43 -- Maximum size of DCI format 2-7

maxDCI-2-6-Size-1-r16 INTEGER ::= 139 -- Maximum DCI format 2-6 size minus 1

maxDCI-2-9-Size-r18 INTEGER ::= 140 -- Maximum DCI format 2-9 size

maxDCI-2-9-Size-1-r18 INTEGER ::= 139 -- Maximum DCI format 2-9 size minus 1

maxNrofUL-Allocations-r16 INTEGER ::= 64 -- Maximum number of PUSCH time domain resource allocations

maxNrofUL-Allocations-1-r18 INTEGER ::= 63 -- Maximum number of PUSCH time domain resource allocations minus 1

maxNrofP0-PUSCH-Set-r16 INTEGER ::= 2 -- Maximum number of P0 PUSCH set(s)

maxOnDemandSIB-r16 INTEGER ::= 8 -- Maximum number of SIB(s) that can be requested on-demand

maxOnDemandPosSIB-r16 INTEGER ::= 32 -- Maximum number of posSIB(s) that can be requested on-demand

maxCI-DCI-PayloadSize-r16 INTEGER ::= 126 -- Maximum number of the DCI size for CI

maxCI-DCI-PayloadSize-1-r16 INTEGER ::= 125 -- Maximum number of the DCI size for CI minus 1

maxUu-RelayRLC-ChannelID-r17 INTEGER ::= 32 -- Maximum value of Uu Relay RLC channel ID

maxWLAN-Id-Report-r16 INTEGER ::= 32 -- Maximum number of WLAN IDs to report

maxWLAN-Name-r16 INTEGER ::= 4 -- Maximum number of WLAN name

maxRAReport-r16 INTEGER ::= 8 -- Maximum number of RA procedures information to be included in the RA report

maxTxConfig-r16 INTEGER ::= 64 -- Maximum number of sidelink transmission parameters configurations

maxTxConfig-1-r16 INTEGER ::= 63 -- Maximum number of sidelink transmission parameters configurations minus 1

maxPSSCH-TxConfig-r16 INTEGER ::= 16 -- Maximum number of PSSCH TX configurations

maxNrofCLI-RSSI-Resources-r16 INTEGER ::= 64 -- Maximum number of CLI-RSSI resources for UE

maxNrofCLI-RSSI-Resources-1-r16 INTEGER ::= 63 -- Maximum number of CLI-RSSI resources for UE minus 1

maxNrofCLI-SRS-Resources-r16 INTEGER ::= 32 -- Maximum number of SRS resources for CLI measurement for UE

maxCLI-Report-r16 INTEGER ::= 8

maxNrofCC-Group-r17 INTEGER ::= 16 -- Maximum number of CC groups for DC location report

maxNrofConfiguredGrantConfig-r16 INTEGER ::= 12 -- Maximum number of configured grant configurations per BWP

maxNrofConfiguredGrantConfig-1-r16 INTEGER ::= 11 -- Maximum number of configured grant configurations per BWP minus 1

maxNrofCG-Type2DeactivationState INTEGER ::= 16 -- Maximum number of deactivation state for type 2 configured grants per BWP

maxNrofConfiguredGrantConfigMAC-1-r16 INTEGER ::= 31 -- Maximum number of configured grant configurations per MAC entity minus 1

maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-r18 INTEGER ::= 8 -- Maximum number of CSI report subconfigurations per CSI report

-- configuration

maxNrofCSI-ReportSubconfigPerCSI-ReportConfig-1-r18 INTEGER ::= 7 -- Maximum number of CSI report subconfigurations per CSI report

-- configuration minus 1

maxNrofSPS-Config-r16 INTEGER ::= 8 -- Maximum number of SPS configurations per BWP

maxNrofSPS-Config-1-r16 INTEGER ::= 7 -- Maximum number of SPS configurations per BWP minus 1

maxNrofSPS-DeactivationState INTEGER ::= 16 -- Maximum number of deactivation state for SPS per BWP

maxNrofPPW-Config-r17 INTEGER ::= 4 -- Maximum number of Preconfigured PRS processing windows per DL BWP

maxNrofPPW-ID-1-r17 INTEGER ::= 15 -- Maximum number of Preconfigured PRS processing windows minus 1

maxNrOfTxTEGReport-r17 INTEGER ::= 256 -- Maximum number of UE Tx Timing Error Group Report

maxNrOfTxTEG-ID-1-r17 INTEGER ::= 7 -- Maximum number of UE Tx Timing Error Group ID minus 1

maxNrofPagingSubgroups-r17 INTEGER ::= 8 -- Maximum number of paging subgroups per paging occasion

maxNrofPagingSubgroupsLP-r19 INTEGER ::= 31 -- Maximum number of paging subgroups per paging occasion for LP-WUS

maxNrofPUCCH-ResourceGroups-1-r16 INTEGER ::= 3

maxNrofReqComDC-Location-r17 INTEGER ::= 128 -- Maximum number of requested carriers/BWPs combinations for DC location

-- report

maxNrofServingCellsTCI-r16 INTEGER ::= 32 -- Maximum number of serving cells in simultaneousTCI-UpdateList

maxNrofTxDC-TwoCarrier-r16 INTEGER ::= 64 -- Maximum number of UL Tx DC locations reported by the UE for 2CC uplink CA

maxNrofRB-SetGroups-r17 INTEGER ::= 8 -- Maximum number of RB set groups

maxNrofRB-Sets-r17 INTEGER ::= 8 -- Maximum number of RB sets

maxNrofEnhType3HARQ-ACK-r17 INTEGER ::= 8 -- Maximum number of enhanced type 3 HARQ-ACK codebook

maxNrofEnhType3HARQ-ACK-1-r17 INTEGER ::= 7 -- Maximum number of enhanced type 3 HARQ-ACK codebook minus 1

maxNrofPRS-ResourcesPerSet-r17 INTEGER ::= 64 -- Maximum number of PRS resources for one set

maxNrofPRS-ResourcesPerSet-1-r17 INTEGER ::= 63 -- Maximum number of PRS resources for one set minus 1

maxNrofPRS-ResourceOffsetValue-1-r17 INTEGER ::= 511

maxNrofGapId-r17 INTEGER ::= 8 -- Maximum number of measurement gap ID

maxNrofPreConfigPosGapId-r17 INTEGER ::= 16 -- Maximum number of preconfigured positioning measurement gap

maxNrOfGapPri-r17 INTEGER ::= 16 -- Maximum number of gap priority level

maxCEFReport-r17 INTEGER ::= 4 -- Maximum number of CEF reports by the UE

maxNrofMultiplePDSCHs-r17 INTEGER ::= 8 -- Maximum number of PDSCHs in PDSCH TDRA list

maxSliceInfo-r17 INTEGER ::= 8 -- Maximum number of NSAGs

maxCellSlice-r17 INTEGER ::= 16 -- Maximum number of cells supporting the NSAG

maxNrofTRS-ResourceSets-r17 INTEGER ::= 64 -- Maximum number of TRS resource sets

maxNrofSearchSpaceGroups-1-r17 INTEGER ::= 2 -- Maximum number of search space groups minus 1

maxNrofRemoteUE-r17 INTEGER ::= 32 -- Maximum number of connected L2 U2N Remote UEs

maxDCI-4-2-Size-r17 INTEGER ::= 140 -- Maximum size of DCI format 4-2

maxFreqMBS-r17 INTEGER ::= 16 -- Maximum number of MBS frequencies reported in MBSInterestIndication

maxNrofDRX-ConfigPTM-r17 INTEGER ::= 64 -- Max number of DRX configuration for PTM provided in MBS broadcast in a

-- cell

maxNrofDRX-ConfigPTM-1-r17 INTEGER ::= 63 -- Max number of DRX configuration for PTM provided in MBS broadcast in a

-- cell minus 1

maxNrofMBS-ServiceListPerUE-r17 INTEGER ::= 16 -- Maximum number of services which the UE can include in the MBS interest

-- indication

maxNrofMBS-Session-r17 INTEGER ::= 1024 -- Maximum number of MBS sessions provided in MBS broadcast or multicast in

-- a cell

maxNrofMTCH-SSB-MappingWindow-r17 INTEGER ::= 16 -- Maximum number of MTCH to SSB beam mapping pattern

maxNrofMTCH-SSB-MappingWindow-1-r17 INTEGER ::= 15 -- Maximum number of MTCH to SSB beam mapping pattern minus 1

maxNrofMRB-Broadcast-r17 INTEGER ::= 4 -- Maximum number of broadcast MRBs configured for one MBS broadcast service

maxNrofPageGroup-r17 INTEGER ::= 32 -- Maximum number of paging groups in a paging message

maxNrofPDSCH-ConfigPTM-r17 INTEGER ::= 16 -- Maximum number of PDSCH configuration groups for PTM

maxNrofPDSCH-ConfigPTM-1-r17 INTEGER ::= 15 -- Maximum number of PDSCH configuration groups for PTM minus 1

maxG-RNTI-r17 INTEGER ::= 16 -- Maximum number of G-RNTI that can be configured for a UE.

maxG-RNTI-1-r17 INTEGER ::= 15 -- Maximum number of G-RNTI that can be configured for a UE minus 1.

maxG-CS-RNTI-r17 INTEGER ::= 8 -- Maximum number of G-CS-RNTI that can be configured for a UE.

maxG-CS-RNTI-1-r17 INTEGER ::= 7 -- Maximum number of G-CS-RNTI that can be configured for a UE minus 1.

maxMRB-r17 INTEGER ::= 32 -- Maximum number of multicast MRBs (that can be added in MRB-ToAddModLIst)

maxFSAI-MBS-r17 INTEGER ::= 64 -- Maximum number of MBS frequency selection area identities

maxNeighCellMBS-r17 INTEGER ::= 8 -- Maximum number of MBS broadcast neighbour cells

maxNrofPdcch-BlindDetectionMixed-1-r16 INTEGER ::= 7 -- Maximum number of combinations of mixed Rel-16 and Rel-15 PDCCH

-- monitoring capabilities minus 1

maxNrofPdcch-BlindDetection-r17 INTEGER ::= 16 -- Maximum number of combinations of PDCCH blind detection monitoring

-- capabilities

maxNrofAltitudeRanges-r18 INTEGER ::= 8 -- Maximum number of altitude ranges for altitude-based measurement configurations

maxWayPoint-r18 INTEGER ::= 20 -- Maximum number of flight path information waypoints

maxAltitude-r18 INTEGER ::= 10000 -- Maximum altitude in meters

minAltitude-r18 INTEGER ::= -420 -- Minimum altitude in meters

maxMeasSequence-r18 INTEGER ::= 64 -- Maximum number of configured sequence for measurement

maxNrofHops-1-r18 INTEGER ::= 5 -- Maximum number of Hops that can be configured for Positioning SRS Transmission

maxNrOfCellsInVA-r18 INTEGER ::= 16 -- Maximum number of cells in validity area for Positioning SRS

maxNrOfCellsInVA-Ext-r18 INTEGER ::= 16 -- Maximum number of additional cells in validity area for Positioning SRS

maxNrOfLinkedSRS-PosResourceSet-r18 INTEGER ::= 3 -- Maximum number of linked SRSPosResourceSets that can be aggregated across

-- CCs

maxNrOfLinkedSRS-PosResSetComb-r18 INTEGER ::= 32 -- Maximum number of combinations of linked SRSPosResourceSets that can be

-- aggregated in RRC\_CONNECTED state

maxNrOfLinkedSRS-PosResSetCombInactive-r18 INTEGER ::= 16 -- Maximum number of combinations of linked SRSPosResourceSets that can be

-- aggregated in RRC\_INACTIVE state

maxCBR-ConfigDedSL-PRS-1-r18 INTEGER ::= 7 -- Maximum number of CBR ranges for dedicated SL PRS resource pool

maxCBR-LevelDedSL-PRS-1-r18 INTEGER ::= 15 -- Maximum number of CBR levels for dedicated SL PRS resource pool

maxNrofSL-PRS-TxPool-r18 INTEGER ::= 8 -- Maximum number of Tx dedicated SL-PRS resource pool for NR sidelink positioning

maxNrofSL-PRS-TxConfig-r18 INTEGER ::= 64 -- Maximum number of SL PRS transmission parameter configurations

maxNrOfVA-r18 INTEGER ::= 16 -- Maximum number of validity area

maxNrofLTM-Configs-r18 INTEGER ::= 8 -- Maximum number of LTM candidate cells

maxNrofLTM-Configs-plus1-r18 INTEGER ::= 9 -- Maximum number of LTM candidate cells plus 1

maxNrofLTM-CSI-ReportConfigurations-r18 INTEGER ::= 48 -- Maximum number of LTM CSI reporting configurations

maxNrofLTM-CSI-ReportConfigurations-1-r18 INTEGER ::= 47 -- Maximum number of LTM CSI reporting configurations minus 1

maxNrofLTM-CSI-SSB-ResourcesPerSet-r18 INTEGER ::= 512 -- Maximum number of LTM CSI SSB resource per set

maxNrofLTM-CSI-ResourceConfigurations-r18 INTEGER ::= 112 -- Maximum number of LTM CSI resource configurations

maxNrofLTM-CSI-ResourceConfigurations-1-r18 INTEGER ::= 111 -- Maximum number of LTM CSI resource configurations minus 1

maxNrofCandidateTCI-State-r18 INTEGER ::= 128 -- Maximum number of LTM TCI states

maxNrofCandidateUL-TCI-r18 INTEGER ::= 64 -- Maximum number of LTM UL TCI states

maxSecurityCellSet-r18 INTEGER ::= 9 -- Maximum number of cell sets for subsequent CPAC.

maxSK-Counter-r18 INTEGER ::= 8 -- Maximum number of SK-counters configured for a cell set for subsequent CPAC.

maxNrofThresholdMBS-r18 INTEGER ::= 8 -- Max number of thresholds of MBS sessions for RRC connection resume for a

-- UE receiving multicast in RRC\_INACTIVE

maxNrofThresholdMBS-1-r18 INTEGER ::= 7 -- Max number of thresholds of MBS sessions for RRC connection resume for a

-- UE receiving multicast in RRC\_INACTIVE minus 1

maxTN-AreaInfo-r18 INTEGER ::= 32 -- Maximum number of TN coverage areas for which assistance info is

-- provided in an NTN cell

maxNrofSetsOfCells-r18 INTEGER ::= 4 -- Maximum number of sets of cells for multi-cell PDSCH/PUSCH scheduling

maxNrofSetsOfCells-1-r18 INTEGER ::= 3 -- Maximum number of sets of cells for multi-cell PDSCH/PUSCH scheduling

-- minus 1

maxNrofCellsInSet-r18 INTEGER ::= 4 -- Maximum number of cells configured in a set of cells for multi-cell

-- PDSCH/PUSCH scheduling

maxNrofCellsInSet-1-r18 INTEGER ::= 3 -- Maximum number of cells configured in a set of cells for multi-cell

-- PDSCH/PUSCH scheduling minus 1

maxNrofCellCombos-r18 INTEGER ::= 16 -- Maximum number of combinations of co-scheduled cells for multi-cell

-- PDSCH/PUSCH scheduling

maxNrofBWPsInSetOfCells-r18 INTEGER ::= 16 -- Maximum number of BWPs configured in a set of cells for multi-cell

-- PDSCH/PUSCH scheduling

maxLowerMSD-r18 INTEGER ::= 256 -- Maximum number of lower MSD capability sets for a victim band

maxLowerMSDInfo-r18 INTEGER ::= 64 -- Maximum number of lower MSD capability sets for a band combination

maxNrofIntraEndc-Components-r17 INTEGER ::= 4 -- Maximum number of intra-band (NG)EN-DC band components in an inter-band

-- (NG)EN-DC band combination

-- TAG-MULTIPLICITY-AND-TYPE-CONSTRAINT-DEFINITIONS-STOP

-- ASN1STOP

Nex change

### 7.1.1 Timers (Informative)

| Timer | Start | Stop | At expiry |
| --- | --- | --- | --- |
| T300 | Upon transmission of *RRCSetupRequest.* | Upon reception of *RRCSetup* or *RRCReject* message, cell re-selection, relay (re)selection or cell selection by a L2 U2N Remote UE, and upon abortion of connection establishment by upper layers. | Perform the actions as specified in 5.3.3.7. |
| T301 | Upon transmission of *RRCReestabilshmentRequest* | Upon reception of *RRCReestablishment* or *RRCSetup* message as well as when the selected cell becomes unsuitable or the (re)selected L2 U2N Relay UE becomes unsuitable, upon reception of *NotificationMessageSidelink* indicating *relayUE-HO* or *relayUE-CellReselection*. | Go to RRC\_IDLE |
| T302 | Upon reception of *RRCReject* while performing RRC connection establishment or resume, upon reception of *RRCRelease* with *waitTime*. | Upon entering RRC\_CONNECTED or RRC\_IDLE, upon cell re-selection, upon cell change due to relay (re)selection or cell selection by a L2 U2N Remote UE, and upon reception of *RRCReject* message. | Inform upper layers about barring alleviation as specified in 5.3.14.4 |
| T304 | Upon reception of *RRCReconfiguration* message including *reconfigurationWithSync* for the MCG which does not include *sl-PathSwitchConfig*, or upon reception of *RRCReconfiguration* message including *reconfigurationWithSync* for the SCG not indicated as deactivated in the NR or E-UTRA message containing the *RRCReconfiguration* message or upon conditional reconfiguration execution i.e. when applying a stored *RRCReconfiguration* message including *reconfigurationWithSync*.  Also, for the MCG and SCG upon an indication from lower layer that an LTM cell switch procedure is triggered and, for the MCG, upon performing an LTM cell switch procedure following cell selection performed while timer T311 is running. | Upon successful completion of random access on the corresponding SpCell.  Upon receiving an indication from lower layers of successful completion of Rach-less handover, or upon receiving an indication from lower layers of successful completion of an LTM RACH-less cell switch.  For T304 of SCG, upon SCG release. | For T304 of MCG, in case of the handover from NR or intra-NR handover, or path switch from a L2 U2N Relay UE to a NR cell, or an LTM cell switch procedure, initiate the RRC re-establishment procedure; In case of handover to NR, perform the actions defined in the specifications applicable for the source RAT. If any DAPS bearer is configured and if there is no RLF in source PCell, initiate the failure information procedure.  For T304 of SCG, inform network about the reconfiguration with sync failure by initiating the SCG failure information procedure as specified in 5.7.3. |
| T310 | Upon detecting physical layer problems for the SpCell i.e. upon receiving N310 consecutive out-of-sync indications from lower layers. | Upon receiving N311 consecutive in-sync indications from lower layers for the SpCell, upon receiving RRCReconfiguration with *reconfigurationWithSync* for that cell group, upon reception of *MobilityFromNRCommand*, upon the reconfiguration of *rlf-TimersAndConstant,* upon initiating the connection re-establishment procedure, upon conditional reconfiguration execution i.e. when applying a stored RRCReconfiguration message including *reconfigurationWithSync* for that cell group, upon an indication from lower layers that an LTM cell switch procedure is triggered, and upon initiating the MCG failure information procedure.  Upon SCG release, if the T310 is kept in SCG. | If the T310 is kept in MCG: If AS security is not activated: go to RRC\_IDLE else: initiate the MCG failure information procedure as specified in 5.7.3b or the connection re-establishment procedure as specified in 5.3.7 or the procedure as specified in 5.3.10.3 if any DAPS bearer is configured.  If the T310 is kept in SCG, Inform E-UTRAN/NR about the SCG radio link failure by initiating the SCG failure information procedure as specified in 5.7.3. |
| T311 | Upon initiating the RRC connection re-establishment procedure | Upon selection of a suitable NR cell, or upon selection of a suitable L2 U2N Relay UE, or a cell using another RAT. | Enter RRC\_IDLE |
| T312 | If T312 is configured in MCG: Upon triggering a measurement report for a measurement identity for which T312 has been configured and *useT312* has been set to true, while T310 in PCell is running.  If T312 is configured in SCG and *useT312* has been set to true: Upon triggering a measurement report for a measurement identity for which T312 has been configured, while T310 in PSCell is running. | Upon receiving N311 consecutive in-sync indications from lower layers for the SpCell, receiving *RRCReconfiguration* with *reconfigurationWithSync* for that cell group, upon reception of *MobilityFromNRCommand*, upon initiating the connection re-establishment procedure, upon the reconfiguration of *rlf-TimersAndConstant*, upon initiating the MCG failure information procedure, upon conditional reconfiguration execution i.e. when applying a stored RRCReconfiguration message including *reconfigurationWithSync* for that cell group, upon an indication from lower layers that an LTM cell switch procedure is triggered, and upon the expiry of T310 in corresponding SpCell.  Upon SCG release, if the T312 is kept in SCG | If the T312 is kept in MCG, initiate the MCG failure information procedure as specified in 5.7.3b or the connection re-establishment procedure.  If the T312 is kept in SCG, Inform E-UTRAN/NR about the SCG radio link failure by initiating the SCG failure information procedure.as specified in 5.7.3. |
| T316 | Upon transmission of the *MCGFailureInformation* message | Upon receiving *RRCRelease*, *RRCReconfiguration* with *reconfigurationwithSync* for the PCell, *MobilityFromNRCommand,* or upon initiating the re-establishment procedure | Perform the actions as specified in 5.7.3b.5. |
| T319 | Upon transmission of *RRCResumeRequest* or *RRCResumeRequest1 when the resume procedure is not initiated for SDT.* | Upon reception of *RRCResume,* *RRCSetup, RRCRelease, RRCRelease* with *suspendConfig* or *RRCReject* message, upon cell re-selection or upon relay (re)selection. | Perform the actions as specified in 5.3.13.5. |
| T319a | Upon transmission of *RRCResumeRequest* or *RRCResumeRequest1* when the resume procedure is initiated for SDT. | Upon reception of *RRCResume,* *RRCSetup, RRCRelease,* *RRCReject* message or upon failure to resume RRC connection for SDT as specified in 5.3.13.5 or upon cell reselection. | Perform the actions as specified in 5.3.13.5. |
| T320 | Upon reception of *t320* or upon cell (re)selection to NR from another RAT with validity time configured for dedicated priorities (in which case the remaining validity time is applied). | Upon entering RRC\_CONNECTED, upon reception of *RRCRelease*, when PLMN selection or SNPN selection is performed on request by NAS, when the UE enters RRC\_IDLE from RRC\_INACTIVE, or upon cell (re)selection to another RAT (in which case the timer is carried on to the other RAT). | Discard the cell reselection priority information provided by dedicated signalling. |
| T321 | Upon receiving *measConfig* including a *reportConfig* with the *reportType* set to *reportCGI* | Upon acquiring the information needed to set all fields of *cgi-info*, upon receiving *measConfig* that includes removal of the *reportConfig* with the *reportType* set to *reportCGI* and upon detecting that a cell is not broadcasting SIB1. | Initiate the measurement reporting procedure, stop performing the related measurements. |
| T322 | Upon receiving *measConfig* including *reportConfigNR* with the *reportType* set to *reportSFTD* and *drx-SFTD-NeighMeas* is set to *true*. | Upon acquiring the SFTD measurement results, upon receiving *measConfig* that includes removal of the *reportConfig* with the *reportType* set to *reportSFTD*. | Initiate the measurement reporting procedure, stop performing the related measurements*.* |
| T325 | Upon reception of *RRCRelease* message with *deprioritisationTimer*. | When PLMN selection or SNPN selection is performed on request by NAS according to TS 38.304 [20]. | Stop deprioritisation of all frequencies or NR signalled by *RRCRelease* and discard the stored deprioritisation request(s)*.* |
| T330 | Upon receiving *LoggedMeasurementConfiguration* message | Upon log volume exceeding the suitable UE memory, upon initiating the release of *LoggedMeasurementConfiguration* procedure | Perform the actions specified in 5.5a.1.4 |
| T331 | Upon receiving *RRCRelease* message with *measIdleDuration* | Upon receiving *RRCSetup, RRCResume*, *RRCRelease* with idle/inactive measurement configuration, upon cell selection/reselection to a cell that does not belong to the *validityArea* (if configured)*,* or upon cell re-selection to another RAT*.* | Perform the actions as specified in 5.7.8.3. |
| T342 | Upon transmitting *UEAssistanceInformation* message with *DelayBudgetReport*. | Upon releasing *delayBudgetReportingConfig* during the connection re-establishment/resume procedures, and upon receiving *delayBudgetReportingConfig* set to *release.* | No action. |
| T345 | Upon transmitting *UEAssistanceInformation* message with *overheatingAssistance* | Upon releasing *overheatingAssistanceConfig* during the connection re-establishment procedure, upon initiating the connection resumption procedure, and upon receiving *overheatingAssistanceConfig* set to *release.* | No action. |
| T346a (The UE maintains one instance of this timer per cell group) | Upon transmitting *UEAssistanceInformation* message with *drx-Preference*. | Upon releasing *drx-PreferenceConfig* during the connection re-establishment/resume procedures, upon receiving *drx-PreferenceConfig* set to *release*, or upon performing MR-DC release*.* | No action. |
| T346b (The UE maintains one instance of this timer per cell group) | Upon transmitting *UEAssistanceInformation* message with *maxBW-Preference*. | Upon releasing *maxBW-PreferenceConfig* during the connection re-establishment/resume procedures, upon receiving *maxBW-PreferenceConfig* set to *release*, or upon performing MR-DC release*.* | No action. |
| T346c (The UE maintains one instance of this timer per cell group) | Upon transmitting *UEAssistanceInformation* message with *maxCC-Preference*. | Upon releasing *maxCC-PreferenceConfig* during the connection re-establishment/resume procedures, upon receiving *maxCC-PreferenceConfig* set to *release*, or upon performing MR-DC release*.* | No action. |
| T346d (The UE maintains one instance of this timer per cell group) | Upon transmitting *UEAssistanceInformation* message with *maxMIMO-LayerPreference*. | Upon releasing *maxMIMO-LayerPreferenceConfig* during the connection re-establishment/resume procedures, upon receiving *maxMIMO-LayerPreferenceConfig* set to *release*, or upon performing MR-DC release*.* | No action. |
| T346e (The UE maintains one instance of this timer per cell group) | Upon transmitting *UEAssistanceInformation* message with *minSchedulingOffsetPreference*. | Upon releasing *minSchedulingOffsetPreferenceConfig* during the connection re-establishment/resume procedures, upon receiving *minSchedulingOffsetPreferenceConfig* set to *release*, or upon performing MR-DC release*.* | No action. |
| T346f | Upon transmitting *UEAssistanceInformation* message with *releasePreference*. | Upon releasing *releasePreferenceConfig* during the connection re-establishment/resume procedures, or upon receiving *releasePreferenceConfig* set to *release.* | No action. |
| T346g | Upon transmitting *UEAssistanceInformation* message with *musim-PreferredRRC-State*. | Upon receiving *RRCRelease*, or upon receiving *musim-LeaveAssistanceConfig* set to *release*. | Perform the actions as specified in 5.3.8.6. |
| T346h | Upon transmitting *UEAssistanceInformation* message with *musim-GapPreferenceList* and/or *musim-GapPriorityPreferenceList* and/or *musim-GapKeepPreference* Information. | Upon releasing *musim-GapAssistanceConfig* during the connection re-establishment/resume procedures, or upon receiving *musim-GapAssistanceConfig* set to *release*. | No action. |
| T346i | Upon transmitting *UEAssistanceInformation* message with *scg-DeactivationPreference* | Upon releasing *scg-DeactivationPreferenceConfig* during RRC connection re-establishment/resume or upon receiving *scg-DeactivationPreferenceConfig* set to *release*. | No action. |
| T346j (The UE maintains one instance of this timer per cell group) | Upon transmitting *UEAssistanceInformation* message with *rlm-RelaxationReportingConfig*. | Upon releasing *rlm-RelaxationReportingConfig* during the connection re-establishment/resume procedures, upon receiving *rlm-RelaxationReportingConfig* set to *release*, or upon performing MR-DC release*.* | No action. |
| T346k (The UE maintains one instance of this timer per cell group) | Upon transmitting *UEAssistanceInformation* message with *bfd-RelaxationReportingConfig*. | Upon releasing *bfd-RelaxationReportingConfig* during the connection re-establishment/resume procedures, upon receiving *bfd-RelaxationReportingConfig* set to *release*, or upon performing MR-DC release*.* | No action. |
| T346l  (The UE maintains one instance of this timer per QoS flow) | Upon transmitting *UEAssistanceInformation* message with *ul-TrafficInfo* for the concerned QoS flow. | Upon releasing *ul-TrafficInfoReportingConfig* during the connection re-establishment/resume procedures, or upon receiving *ul-TrafficInfoReportingConfig* set to *release.* | No action. |
| T346m | Upon transmitting *UEAssistanceInformation* message with *multiRx-PreferenceFR2*. | Upon releasing *multiRx-PreferenceReportingConfigFR2* during the connection re-establishment/resume procedures, upon receiving *multiRx-PreferenceReportingConfigFR2* set to release. | No action. |
| T346n | Upon transmission of MUSIM temporary restriction of *musim-CapRestriction* for affected bands or combination of bands and/or avoided band(s) or combination of bands. | Upon releasing *musim-CapabilityRestrictionConfig* during the connection re-establishment/resume procedures, or upon receiving *musim-CapabilityRestrictionConfig* set to *release.* | No action. |
| T346xx (The UE maintains one instance of this timer per cell group) | Upon transmitting *UEAssistanceInformation* message with *lpwus-OffsetPreference*. | Upon releasing *lpwus-OffsetPreferenceConfig* during the connection re-establishment/resume procedures, upon receiving *lpwus-OffsetPreferenceConfig* set to *release*, or upon performing MR-DC release*.* | No action. |
| T348 | Upon transmission of MUSIM temporary restriction of *musim-CapRestriction* for serving cell(s) with capabilities restricted, release of SCell or PSCell or release of SCG. | Upon reception of *RRCReconfiguration* message that does not exceed UE temporary capability restriction indicated via *musim-CapRestriction*. | UE may apply the temporary UE capability restriction in accordance with the one indicated in the last transmission of the *UEAssistanceInformation* message including *musim-CapRestriction*. UE may apply the temporary capability restriction that SCG is not supported if *ServCellIndex* of PSCell was included in indicated *MUSIM-CellToRelease-r18*. |
| T350 | Upon transmitting *DedicatedSIBRequest* message with *requestedSIB-List* and/or *requestedPosSIB-List*. | Upon acquiring the requested SIB(s) or posSIB(s), upon releasing *onDemandSIB-Request* during the connection re-establishment procedures, upon receiving *onDemandSIB-Request* set to release, upon reception of *RRCRelease* or upon successful change of PCell while in RRC\_CONNECTED. | No action |
| T380 | Upon reception of t380 in *RRCRelease.* | Upon reception of *RRCResume*, *RRCSetup* or *RRCRelease*. | Perform the actions as specified in 5.3.13. |
| T390 | When access attempt is barred at access barring check for an Access Category. The UE maintains one instance of this timer per Access Category. | Upon cell (re)selection, upon relay (re)selection, upon entering RRC\_CONNECTED, upon reception of *RRCReconfiguration* including *reconfigurationWithSync*, upon change of PCell while in RRC\_CONNECTED, upon reception of *MobilityFromNRCommand*, or upon reception of *RRCRelease*. | Perform the actions as specified in 5.3.14.4. |
| T400 | Upon transmission of RRCReconfigurationSidelink | Upon reception of RRCReconfigurationFailureSidelink or RRCReconfigurationCompleteSidelink | Perform the Sidelink radio link failure related actions as specified in 5.8.9.3. |
| T420 | Upon reception of the *RRCReconfiguration* message including *sl-PathSwitchConfig* where *sl-IndirectPathMaintain* is not included in *reconfigurationWithSync* | Upon successfully sending *RRCReconfigurationComplete* message (i.e., PC5 RLC acknowledgement is received from target L2 U2N Relay UE) | Perform the RRC re-establishment procedure as specified in 5.3.7. |
| T421 | Upon reception of the *RRCReconfiguration* message including *sl-IndirectPathAddChange* where *sl-IndirectPathMaintain* is not included in *reconfigurationWithSync* | Upon successfully sending *RRCReconfigurationComplete* message (i.e., PC5 RLC acknowledgement is received from target L2 U2N Relay UE) if split SRB1 with duplication is configured, or upon reception of *RRCReconfigurationCompleteSidelink* if split SRB1 with duplication is not configured, or upon initiation of indirect path failure information procedure. | Perform the Failure Information Reporting as specified in 5.7.3c. |
| T430 | Start or restart from the subframe indicated by *epochTime* upon reception of *SIB19*, or upon reception of *RRCReconfiguration* message for the target cell including *reconfigurationWithSync*, or upon conditional reconfiguration execution i.e. when applying a stored *RRCReconfiguration* message for the target cell including *reconfigurationWithSync,* or upon satellite switch with resynchronization*.* | Stop T430, if it is running, for the source cell upon reception of *RRCReconfiguration* message including *reconfigurationWithSync*, or upon conditional reconfiguration execution i.e. when applying a stored *RRCReconfiguration* message including *reconfigurationWithSync,* or upon satellite switch with resynchronization*.* | Perform the actions as specified in 5.2.2.6. |

End of change