**3GPP TSG-RAN WG2 Meeting #131 *R2-25xxxxx***

**Bengaluru, India, 25 – 29 August, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.331** | **CR** | **draft** | **rev** | **-** | **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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:*** | Introduction of UE assistance information for cell DTX/DRX [UAI-cellDTRX] | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI19 | | | | |  | ***Date:*** | | | 2025-08-26 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | The cell-level DTX/DRX configuration may not suit the traffic characteristics of UE on-going services. It is beneficial for the network if UE indicates such information. | | | | | | | | |
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| ***Summary of change:*** | | Clarify in the spec that DRX-Preference-r16 can also be used by the network for cell DTX/DRX configuration.  Add a new UE capability for reusing DRX-Preference-r16 to indicate its preference for cell DTX/DRX. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The configured cell DTX/DRX configuration may not suit the UE services (e.g. large cell DTX periodicity leads to increased delay of UE traffic), impacting user experience. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.5.9, 5.7.4,1, 5.7.4.2, 5.7.4.3, 6.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***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 Changes

#### 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, and its preference on cell DTX/DRX related parameters for PCell if cell DTX/DRX is configured, 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 or its preference on cell DTX/DRX related parameters for PCell, 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 *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).

Next 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, and its preference on cell DTX/DRX related parameters; 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.

#### 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 or its preference on cell DTX/DRX related parameters 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 or cell DTX/DRX related parameters and upon change of its preference on DRX parameters or cell DTX/DRX related 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.

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 and its preference on cell DTX/DRX related parameters:

2> if the UE has a preference on DRX parameters of the cell group or cell DTX/DRX parameters 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 and cell DTX/DRX parameters; 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;

#### 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 or for cell DTX/DRX configuration preference 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 or cell DTX/DRX related parameters:

3> if the UE has a preference for the long DRX cycle or for *cellDTX-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;

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.

Next Change

### 6.2.2 Message definitions

[Unchanged parts omitted]

#### – *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 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

}

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. |
| ***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. This field may also indicate UE’s preference for *cellDTX-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.

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| *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. |

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| *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. |

End of Changes