**3GPP TSG-RAN WG2 Meeting #123-bis *R2-23xxxxx***

**Xiamen, China, 9 – 13 October, 2023**

|  |
| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **36.331** | **CR** | **Draft** | **rev** | **-** | **Current version:** | **17.4.0** |  |
|  |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Running 36.331 CR for logged MDT enhancements |
|  |  |
| ***Source to WG:*** | Huawei, HiSilicon |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | NR\_ENDC\_SON\_MDT\_enh2-Core |  | ***Date:*** | 2023-08-30 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *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 canbe 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | Introduction of logged MDT enhancements in Rel-18. |
|  |  |
| ***Summary of change:*** | Capture RAN2 agreements up to RAN2#123. |
|  |  |
| ***Consequences if not approved:*** | Logged MDT enhancements are not supported in Rel-18. |
|  |  |
| ***Clauses affected:*** | 5.6.6.3, 6.2.2, 7.1 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 38.331 CRxxxx |
| ***affected:*** |  | **X** |  Test specifications |  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

### 5.6.6 Logged Measurement Configuration

#### 5.6.6.1 General



Figure 5.6.6.1-1: Logged measurement configuration

The purpose of this procedure is to configure the UE to perform logging of measurement results while in RRC\_IDLE and to perform logging of measurement results for MBSFN in both RRC\_IDLE and RRC\_CONNECTED. The procedure applies to logged measurements capable UEs that are in RRC\_CONNECTED.

NOTE: E-UTRAN may retrieve stored logged measurement information by means of the UE information procedure.

#### 5.6.6.2 Initiation

E-UTRAN initiates the logged measurement configuration procedure to UE in RRC\_CONNECTED by sending the *LoggedMeasurementConfiguration* message.

#### 5.6.6.3 Reception of the *LoggedMeasurementConfiguration* by the UE

Upon receiving the *LoggedMeasurementConfiguration* message the UE shall:

1> discard the logged measurement configuration as well as the logged measurement information as specified in 5.6.7;

1> store the received *loggingDuration*, *loggingInterval* and *areaConfiguration*, if included, in *VarLogMeasConfig*;

1> if the *LoggedMeasurementConfiguration* message includes *plmn-IdentityList*:

2> set *plmn-IdentityList* in *VarLogMeasReport* to include the RPLMN as well as the PLMNs included in *plmn-IdentityList*;

1> else:

2> set *plmn-IdentityList* in *VarLogMeasReport* to include the RPLMN;

1> store the received *absoluteTimeInfo*, *traceReference,* *traceRecordingSessionRef* and *tce-Id* in *VarLogMeasReport*;

1> store the received *targetMBSFN-AreaList*, if included, in *VarLogMeasConfig*;

1> store the received *bt-NameList*, if included, in *VarLogMeasConfig*;

1> store the received *wlan-NameList*, if included, in *VarLogMeasConfig*;

1> store the received *loggedEventTriggerConfig*, if included, in *VarLogMeasConfig*;

1> store the received *measUncomBarPre*, if included, in *VarLogMeasConfig*;

1> start timer T330 with the timer value set to the *loggingDuration*;

1> store the received *sigLoggedMeasType,* if included, in *VarLogMeasReport*;

#### 5.6.6.4 T330 expiry

Upon expiry of T330 the UE shall:

1> release *VarLogMeasConfig*;

The UE is allowed to discard stored logged measurements, i.e. to release *VarLogMeasReport*, 48 hours after T330 expiry.

### 5.6.7 Release of Logged Measurement Configuration

#### 5.6.7.1 General

The purpose of this procedure is to release the logged measurement configuration as well as the logged measurement information.

#### 5.6.7.2 Initiation

The UE shall initiate the procedure upon receiving a logged measurement configuration in another RAT. The UE shall also initiate the procedure upon power off or detach.

The UE shall:

1> stop timer T330, if running;

1> if stored, discard the logged measurement configuration as well as the logged measurement information, i.e. release the UE variables *VarLogMeasConfig* and *VarLogMeasReport*;

### 5.6.8 Measurements logging

#### 5.6.8.1 General

This procedure specifies the logging of available measurements by a UE in RRC\_IDLE that has a logged measurement configuration and the logging of available measurements by a UE in both RRC\_IDLE and RRC\_CONNECTED if *targetMBSFN-AreaList* is included in *VarLogMeasConfig*.

When UE is configured to perform logging of measurements, measurements are performed with CRS.

#### 5.6.8.2 Initiation

While T330 is running, the UE shall:

1> if measurement logging is suspended:

2> if during the last logging interval the IDC problems detected by the UE is resolved, resume measurement logging;

1> if not suspended, perform the logging in accordance with the following:

2> if *targetMBSFN-AreaList* is included in *VarLogMeasConfig*:

3> if the UE is camping normally on an E-UTRA cell or is connected to E-UTRA; and

3> if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*;and

3> if the PCell (in RRC\_CONNECTED) or cell where the UE is camping (in RRC\_IDLE) is part of the area indicated by *areaConfiguration* if configured in *VarLogMeasConfig*:

4> for MBSFN areas, indicated in *targetMBSFN-AreaList,* from which the UE is receiving MBMS service:

5> perform MBSFN measurements in accordance with the performance requirements as specified in TS 36.133 [16];

NOTE 1: When configured to perform MBSFN measurement logging by *targetMBSFN-AreaList*, the UE is not required to receive additional MBSFN subframes, i.e. logging is based on the subframes corresponding to the MBMS services the UE is receiving.

5> perform logging at regular time intervals as defined by the *loggingInterval* in *VarLogMeasConfig,* but only for those intervals for which MBSFN measurement results are available as specified in TS 36.133 [16];

2> else:

3> if the *loggedEventTriggerConfig* is configured in *VarLogMeasConfig*, and *eventType* is set to *outOfCoverage*:

4> perform the logging at regular time intervals as defined by the *loggingInterval* in *VarLogMeasConfig* only when the UE is in *any cell selection* state;

4> upon transition from *any cell selection* state to *camped normally* state in E-UTRA:

5> if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*; and

5> if *areaConfiguration* is not included in *VarLogMeasConfig* or if the current camping cell is part of the area indicated by *areaConfiguration* in *VarLogMeasConfig*:

6> perform the logging;

3> else if the *loggedEventTriggerConfig* is configured in *VarLogMeasConfig* and *eventType* is set to *eventL1*:

4> if the UE is in *camped normally* state on an E-UTRA cell and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport*:

5> if *areaConfiguration* is not included in *VarLogMeasConfig*; or

5> if the serving cell is part of the area indicated by *areaConfiguration* in *VarLogMeasConfig*:

6> perform the logging at regular time intervals as defined by the *loggingInterval* in *VarLogMeasConfig* only when the conditions indicated by the *eventL1* are met;

3> else if the UE is in *any cell selection* state (as specified in TS 36.304 [4]):

4> perform the logging at regular time intervals, as defined by the *loggingInterval* in *VarLogMeasConfig*;

3> else if the UE is camping normally on an E-UTRA cell and if the RPLMN is included in *plmn-IdentityList* stored in *VarLogMeasReport* and, if the cell is part of the area indicated by *areaConfiguration* if configured in *VarLogMeasConfig*:

4> perform the logging at regular time intervals, as defined by the *loggingInterval* in *VarLogMeasConfig*;

2> when adding a logged measurement entry in *VarLogMeasReport*, include the fields in accordance with the following:

3> if the UE detected IDC problems during the last logging interval:

4> if *measResultServCell* in *VarLogMeasReport* is not empty:

5> include *inDeviceCoexDetected*;

5> suspend measurement logging from the next logging interval;

4> else:

5> suspend measurement logging;

NOTE 1A: The UE may detect the start of IDC problems as early as Phase 1 as described in clause 23.4 of TS 36.300 [9].

3> set the *relativeTimeStamp* to indicate the elapsed time since the moment at which the logged measurement configuration was received;

3> if detailed location information became available during the last logging interval, set the content of the *locationInfo* as follows:

4> include the *locationCoordinates*;

3> if *wlan-NameList* is included in *VarLogMeasConfig*:

4> if detailed WLAN measurements are available:

5> include *logMeasResultListWLAN*, in order of decreasing RSSI for WLAN APs;

3> if *bt-NameList* is included in *VarLogMeasConfig*:

4> if detailed Bluetooth measurements are available:

5> include *logMeasResultListBT*, in order of decreasing RSSI for Bluetooth beacons;

3> if *measUncomBarPre* is included in *VarLogMeasConfig*:

4> if available, include the *uncomBarPreMeasResult*;

3> if *targetMBSFN-AreaList* is included in *VarLogMeasConfig*:

4> for each MBSFN area, for which the mandatory measurements result fields became available during the last logging interval:

5> set the *rsrpResultMBSFN*, *rsrqResultMBSFN* to include measurement results that became available during the last logging interval;

5> include the fields *signallingBLER-Result* or *dataBLER-MCH-ResultList* if the concerned BLER results are availble,

5> set the *mbsfn-AreaId* and *carrierFreq* to indicate the MBSFN area in which the UE is receiving MBSFN transmission;

4> if in RRC\_CONNECTED:

5> set the *servCellIdentity* to indicate global cell identity of the PCell;

5> set the *measResultServCell* to include the layer 3 filtered measured results of the PCell;

5> if available, set the *measResultNeighCells* to include the layer 3 filtered measured results of SCell(s) and neighbouring cell(s) measurements that became available during the last logging interval, in order of decreasing RSRP, for at most the following number of cells: 6 intra-frequency and 3 inter-frequency cells per frequency and according to the following:

6> for each cell included, include the optional fields that are available;

5> if available, optionally set the *measResultNeighCells* to include the layer 3 filtered measured results of neighbouring cell(s) measurements that became available during the last logging interval, in order of decreasing RSCP(UTRA)/RSSI(GERAN)/PilotStrength(cdma2000), for at most the following number of cells: 3 inter-RAT cells per frequency/set of frequencies (GERAN), and according to the following:

6> for each cell included, include the optional fields that are available;

4> if in RRC\_IDLE:

5> set the *servCellIdentity* to indicate global cell identity of the serving cell;

5> set the *measResultServCell* to include the quantities of the serving cell;

5> if available, set the *measResultNeighCells*, in order of decreasing ranking-criterion as used for cell re-selection, to include neighbouring cell measurements that became available during the last logging interval for at most the following number of neighbouring cells: 6 intra-frequency and 3 inter-frequency neighbours per frequency and according to the following:

6> for each neighbour cell included, include the optional fields that are available;

5> if available, optionally set the *measResultNeighCells,* in order of decreasing ranking-criterion as used for cell re-selection, to include neighbouring cell measurements that became available during the last logging interval, for at most the following number of cells: 3 inter-RAT cells per frequency/set of frequencies (GERAN), and according to the following:

6> for each cell included, include the optional fields that are available;

4> for the cells included according to the previous (i.e. covering previous and current serving cells as well as neighbouring EUTRA cells) include results according to the extended RSRQ if corresponding results are available according to the associated performance requirements defined in TS 36.133 [16];

4> for the cells included according to the previous (i.e. covering previous and current serving cells as well as neighbouring EUTRA cells) include RSRQ type if the result was based on measurements using a wider band or using all OFDM symbols;

NOTE 2: The UE includes the latest results in accordance with the performance requirements as specified in TS 36.133 [16]. E.g. RSRP and RSRQ results are available only if the UE has a sufficient number of results/ receives a sufficient number of subframes during the logging interval.

3> else:

4> if the UE is in *any cell selection* state (as specified in TS 36.304 [4]):

5> set *anyCellSelectionDetected* to indicate the detection of no suitable or no acceptable cell found;

5> if the *loggedEventTriggerConfig* is not configured in the *VarLogMeasConfig*;

6> set the *servCellIdentity* to indicate global cell identity of the last logged cell that the UE was camping on;

6> set the *measResultServCell* to include the quantities of the last logged cell the UE was camping on;

5> else if the RPLMN at the time of entering the *any cell selection* state is included in *plmn-IdentityList* stored in *VarLogMeasReport*; and

5> if *areaConfiguration* is not included in *VarLogMeasConfig* or if the last suitable cell that the UE was camping on is part of the area indicated by *areaConfiguration* in *VarLogMeasConfig*:

6> set the *servCellIdentity* to indicate global cell identity of the last suitable cell that the UE was camping on;

6> set the *measResultServingCell* to include the quantities of the last suitable cell the UE was camping on;

5> else:

6> set the fields within the *servCellIdentity* and *measResultServingCell* to all zeros to indicate unavailability of the *servCellIdentity* and *measResultServCell*.

4> else:

5> set the *servCellIdentity* to indicate global cell identity of the cell the UE is camping on;

5> set the *measResultServCell* to include the quantities of the cell the UE is camping on;

4> if available, set the *measResultNeighCells*, in order of decreasing ranking-criterion as used for cell re-selection, to include neighbouring cell measurements that became available during the last logging interval for at most the following number of neighbouring cells: 6 intra-frequency and 3 inter-frequency neighbours per frequency as well as 3 inter-RAT neighbours, per frequency/ set of frequencies (GERAN) per RAT and according to the following:

5> for each neighbour cell included, include the optional fields that are available;

4> for the cells included according to the previous (i.e. covering previous and current serving cells as well as neighbouring EUTRA cells) include results according to the extended RSRQ if corresponding results are available according to the associated performance requirements defined in TS 36.133 [16];

4> for the cells included according to the previous (i.e. covering previous and current serving cells as well as neighbouring EUTRA cells) include RSRQ type if the result was based on measurements using a wider band or using all OFDM symbols;

NOTE 3: The UE includes the latest results of the available measurements as used for cell reselection evaluation in RRC\_IDLE or as used for evaluation of reporting criteria or for measurement reporting according to 5.5.3 in RRC\_CONNECTED, which are performed in accordance with the performance requirements as specified in TS 36.133 [16].

2> when the memory reserved for the logged measurement information becomes full, stop timer T330 and perform the same actions as performed upon expiry of T330, as specified in 5.6.6.4;

*<Next modification>*

### 6.2.2 Message definitions

*<Partially omitted>*

#### – *LoggedMeasurementConfiguration*

The *LoggedMeasurementConfiguration* message is used by E-UTRAN to configure the UE to perform logging of measurement results while in RRC\_IDLE or to perform logging of measurement results for MBSFN while in both RRC\_IDLE and RRC\_CONNECTED. It is used to transfer the logged measurement configuration for network performance optimisation, see TS 37.320 [60].

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: E-UTRAN to UE

*LoggedMeasurementConfiguration message*

-- ASN1START

LoggedMeasurementConfiguration-r10 ::= SEQUENCE {

 criticalExtensions CHOICE {

 c1 CHOICE {

 loggedMeasurementConfiguration-r10 LoggedMeasurementConfiguration-r10-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

LoggedMeasurementConfiguration-r10-IEs ::= SEQUENCE {

 traceReference-r10 TraceReference-r10,

 traceRecordingSessionRef-r10 OCTET STRING (SIZE (2)),

 tce-Id-r10 OCTET STRING (SIZE (1)),

 absoluteTimeInfo-r10 AbsoluteTimeInfo-r10,

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL, -- Need OR

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10,

 nonCriticalExtension LoggedMeasurementConfiguration-v1080-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1080-IEs ::= SEQUENCE {

 lateNonCriticalExtension-r10 OCTET STRING OPTIONAL,

 nonCriticalExtension LoggedMeasurementConfiguration-v1130-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1130-IEs ::= SEQUENCE {

 plmn-IdentityList-r11 PLMN-IdentityList3-r11 OPTIONAL, -- Need OR

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL, -- Need OR

 nonCriticalExtension LoggedMeasurementConfiguration-v1250-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1250-IEs ::= SEQUENCE {

 targetMBSFN-AreaList-r12 TargetMBSFN-AreaList-r12 OPTIONAL, -- Need OP

 nonCriticalExtension LoggedMeasurementConfiguration-v1530-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1530-IEs ::= SEQUENCE {

 bt-NameList-r15 BT-NameList-r15 OPTIONAL, --Need OR

 wlan-NameList-r15 WLAN-NameList-r15 OPTIONAL, --Need OR

 nonCriticalExtension LoggedMeasurementConfiguration-v1700-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1700-IEs ::= SEQUENCE {

 loggedEventTriggerConfig-r17 LoggedEventTriggerConfig-r17 OPTIONAL, --Need OR

 measUncomBarPre-r17 ENUMERATED {true} OPTIONAL, --Need OR

 nonCriticalExtension LoggedMeasurementConfiguration-v1800-IEs OPTIONAL

}

LoggedMeasurementConfiguration-v1800-IEs ::= SEQUENCE {

 sigLoggedMeasType-r18 ENUMERATED {true} OPTIONAL, --Need OR

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

TargetMBSFN-AreaList-r12 ::= SEQUENCE (SIZE (0..maxMBSFN-Area)) OF TargetMBSFN-Area-r12

TargetMBSFN-Area-r12 ::= SEQUENCE {

 mbsfn-AreaId-r12 MBSFN-AreaId-r12 OPTIONAL, -- Need OR

 carrierFreq-r12 ARFCN-ValueEUTRA-r9,

 ...

}

LoggedEventTriggerConfig-r17 ::= SEQUENCE {

 eventType-r17 EventType-r17

}

EventType-r17 ::= CHOICE {

 outOfCoverage NULL,

 eventL1 SEQUENCE {

 l1-Threshold-r17 ThresholdEUTRA,

 hysteresis-r17 Hysteresis,

 timeToTrigger-r17 TimeToTrigger

 },

 ...

}

-- ASN1STOP

| *LoggedMeasurementConfiguration* field descriptions |
| --- |
| ***absoluteTimeInfo***Indicates the absolute time in the current cell.  |
| ***areaConfiguration***Used to restrict the area in which the UE performs measurement logging to cells broadcasting either one of the included cell identities or one of the included tracking area codes/ identities. |
| ***eventType***The value *outOfCoverage* indicates the UE to perform logging of measurements when the UE enters *any cell selection* state, and the value *eventL1* indicates the UE to perform logging of measurements when the triggering condition (similar as event A2 as specified in 5.5.4.3) as configured in the event is met for the camping cell in *camped normally* state. |
| ***measUncomBarPre***If configured, the UE attempts to perform the uncompensated Barometeric pressure measurement in RRC\_IDLE as defined in TS 37.355 [109]. |
| ***plmn-IdentityList***Indicates a set of PLMNs defining when the UE performs measurement logging as well as the associated status indication and information retrieval i.e. the UE performs these actions when the RPLMN is part of this set of PLMNs. |
| ***sigLoggedMeasType***If included, the field indicates a signalling based logged measurement configuration (See TS 37.320 [60]). |
| ***targetMBSFN-AreaList***Used to indicate logging of MBSFN measurements and further restrict the area and frequencies for which the UE performs measurement logging for MBSFN. If both MBSFN area id and carrier frequency are present, a specific MBSFN area is indicated. If only carrier frequency is present, all MBSFN areas on that carrier frequency are indicated. If there is no entry in the list, any MBSFN area is indicated.  |
| ***tce-Id***Parameter Trace Collection Entity Id: See TS 32.422 [58]. |
| ***traceRecordingSessionRef***Parameter Trace Recording Session Reference: See TS 32.422 [58] |

*<Next modification>*

## 7.1 UE variables

NOTE: To facilitate the specification of the UE behavioural requirements, UE variables are represented using ASN.1. Unless explicitly specified otherwise, it is however up to UE implementation how to store the variables. The optionality of the IEs in ASN.1 is used only to indicate that the values may not always be available.

#### – *EUTRA-UE-Variables*

This ASN.1 segment is the start of the E‑UTRA UE variable definitions.

-- ASN1START

EUTRA-UE-Variables DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

IMPORTS

 AbsoluteTimeInfo-r10,

 AreaConfiguration-r10,

 AreaConfiguration-v1130,

 ARFCN-ValueNR-r15,

 BT-NameList-r15,

 CarrierFreqGERAN,

 CellIdentity,

 CellList-r15,

 CondReconfigurationToAddModList-r16,

 ConnEstFailReport-r11,

 EUTRA-CarrierList-r15,

 SpeedStateScaleFactors,

 C-RNTI,

 LoggedEventTriggerConfig-r17,

 LoggingDuration-r10,

 LoggingInterval-r10,

 LogMeasInfo-r10,

 MeasCSI-RS-Id-r12,

 MeasId,

 MeasId-v1250,

 MeasIdToAddModList,

 MeasIdToAddModListExt-r12,

 MeasIdToAddModList-v1310,

 MeasIdToAddModListExt-v1310,

 MeasObjectToAddModList,

 MeasObjectToAddModList-v9e0,

 MeasObjectToAddModListExt-r13,

 MeasResultListExtIdle-r16,

 MeasResultListIdle-r15,

 MeasResultListIdleNR-r16,

 MeasScaleFactor-r12,

 MobilityStateParameters,

 NeighCellConfig,

 NR-CarrierList-r16,

 PhysCellId,

 PhysCellIdCDMA2000,

 PhysCellIdGERAN,

 PhysCellIdUTRA-FDD,

 PhysCellIdUTRA-TDD,

 PLMN-Identity,

 PLMN-IdentityList3-r11,

 QuantityConfig,

 ReportConfigToAddModList,

 RLF-Report-r9,

 TargetMBSFN-AreaList-r12,

 TraceReference-r10,

 Tx-ResourcePoolMeasList-r14,

 VisitedCellInfoList-r12,

 maxCellMeas,

 maxCSI-RS-Meas-r12,

 maxMeasId,

 maxMeasId-r12,

 maxRS-Index-r15,

 PhysCellIdNR-r15,

 RS-IndexNR-r15,

 UL-DelayConfig-r13,

 ValidityAreaList-r16,

 WLAN-CarrierInfo-r13,

 WLAN-Identifiers-r12,

 WLAN-Id-List-r13,

 WLAN-NameList-r15,

 WLAN-Status-r13,

 WLAN-Status-v1430,

 WLAN-SuspendConfig-r14

FROM EUTRA-RRC-Definitions;

-- ASN1STOP

#### – *VarConditionalReconfiguration*

The UE variable *VarConditionalReconfiguration* includes the accumulated configuration of conditional reconfigurations (i.e. conditional handovers, conditional PSCell addition or inter-SN conditional PSCell change) including the configurations of triggering conditions to be monitored and the stored *RRCConnectionReconfiguration* per target candidate, to be applied upon the fulfilment of the associated triggering conditions.

*VarConditionalReconfiguration* UE variable

-- ASN1START

VarConditionalReconfiguration ::= SEQUENCE {

 -- Conditional reconfigurations list

 condReconfigurationList-r16 CondReconfigurationToAddModList-r16

 OPTIONAL

}

-- ASN1STOP

#### – *VarConnEstFailReport*

The UE variable *VarConnEstFailReport* includes the connection establishment failure information.

*VarConnEstFailReport* UE variable

-- ASN1START

VarConnEstFailReport-r11 ::= SEQUENCE {

 connEstFailReport-r11 ConnEstFailReport-r11,

 plmn-Identity-r11 PLMN-Identity

}

-- ASN1STOP

#### – *VarLogMeasConfig*

The UE variable *VarLogMeasConfig* includes the configuration of the logging of measurements to be performed by the UE while in RRC\_IDLE, covering intra-frequency, inter-frequency, inter-RAT mobility and MBSFN related measurements. If MBSFN logging is configured, the UE performs logging of measurements while in both RRC\_IDLE and RRC\_CONNECTED. Otherwise, the UE performs logging of measurements only while in RRC\_IDLE.

*VarLogMeasConfig* UE variable

-- ASN1START

VarLogMeasConfig-r10 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10

}

VarLogMeasConfig-r11 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10

}

VarLogMeasConfig-r12 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10,

 targetMBSFN-AreaList-r12 TargetMBSFN-AreaList-r12 OPTIONAL

}

VarLogMeasConfig-r15 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10,

 targetMBSFN-AreaList-r12 TargetMBSFN-AreaList-r12 OPTIONAL,

 bt-NameList-r15 BT-NameList-r15 OPTIONAL,

 wlan-NameList-r15 WLAN-NameList-r15 OPTIONAL

}

VarLogMeasConfig-r17 ::= SEQUENCE {

 areaConfiguration-r10 AreaConfiguration-r10 OPTIONAL,

 areaConfiguration-v1130 AreaConfiguration-v1130 OPTIONAL,

 loggingDuration-r10 LoggingDuration-r10,

 loggingInterval-r10 LoggingInterval-r10,

 targetMBSFN-AreaList-r12 TargetMBSFN-AreaList-r12 OPTIONAL,

 bt-NameList-r15 BT-NameList-r15 OPTIONAL,

 wlan-NameList-r15 WLAN-NameList-r15 OPTIONAL,

 loggedEventTriggerConfig-r17 LoggedEventTriggerConfig-r17 OPTIONAL,

 measUncomBarPre-r17 ENUMERATED {true} OPTIONAL

}

-- ASN1STOP

#### – *VarLogMeasReport*

The UE variable *VarLogMeasReport* includes the logged measurements information.

*VarLogMeasReport* UE variable

-- ASN1START

VarLogMeasReport-r10 ::= SEQUENCE {

 traceReference-r10 TraceReference-r10,

 traceRecordingSessionRef-r10 OCTET STRING (SIZE (2)),

 tce-Id-r10 OCTET STRING (SIZE (1)),

 plmn-Identity-r10 PLMN-Identity,

 absoluteTimeInfo-r10 AbsoluteTimeInfo-r10,

 logMeasInfoList-r10 LogMeasInfoList2-r10

}

VarLogMeasReport-r11 ::= SEQUENCE {

 traceReference-r10 TraceReference-r10,

 traceRecordingSessionRef-r10 OCTET STRING (SIZE (2)),

 tce-Id-r10 OCTET STRING (SIZE (1)),

 plmn-IdentityList-r11 PLMN-IdentityList3-r11,

 absoluteTimeInfo-r10 AbsoluteTimeInfo-r10,

 logMeasInfoList-r10 LogMeasInfoList2-r10

}

VarLogMeasReport-r18 ::= SEQUENCE {

 traceReference-r10 TraceReference-r10,

 traceRecordingSessionRef-r10 OCTET STRING (SIZE (2)),

 tce-Id-r10 OCTET STRING (SIZE (1)),

 plmn-IdentityList-r11 PLMN-IdentityList3-r11,

 absoluteTimeInfo-r10 AbsoluteTimeInfo-r10,

 logMeasInfoList-r10 LogMeasInfoList2-r10,

 sigLoggedMeasType-r18 ENUMERATED {true}

}

LogMeasInfoList2-r10 ::= SEQUENCE (SIZE (1..maxLogMeas-r10)) OF LogMeasInfo-r10

-- ASN1STOP

#### – *VarMeasConfig*

The UE variable *VarMeasConfig* includes the accumulated configuration of the measurements to be performed by the UE, covering intra-frequency, inter-frequency and inter-RAT mobility related measurements.

NOTE: The amount of measurement configuration information, which a UE is required to store, is specified in clause 11.1. If the number of frequencies configured for a particular RAT exceeds the minimum performance requirements specified in TS 36.133 [16], it is up to UE implementation which frequencies of that RAT are measured. If the total number of frequencies for all RATs provided to the UE in the measurement configuration exceeds the minimum performance requirements specified in TS 36.133 [16], it is up to UE implementation which frequencies/RATs are measured.

*VarMeasConfig* UE variable

-- ASN1START

VarMeasConfig ::= SEQUENCE {

 -- Measurement identities

 measIdList MeasIdToAddModList OPTIONAL,

 measIdListExt-r12 MeasIdToAddModListExt-r12 OPTIONAL,

 measIdList-v1310 MeasIdToAddModList-v1310 OPTIONAL,

 measIdListExt-v1310 MeasIdToAddModListExt-v1310 OPTIONAL,

 -- Measurement objects

 measObjectList MeasObjectToAddModList OPTIONAL,

 measObjectListExt-r13 MeasObjectToAddModListExt-r13 OPTIONAL,

 measObjectList-v9i0 MeasObjectToAddModList-v9e0 OPTIONAL,

 -- Reporting configurations

 reportConfigList ReportConfigToAddModList OPTIONAL,

 -- Other parameters

 quantityConfig QuantityConfig OPTIONAL,

 measScaleFactor-r12 MeasScaleFactor-r12 OPTIONAL,

 s-Measure INTEGER (-140..-44) OPTIONAL,

 speedStatePars CHOICE {

 release NULL,

 setup SEQUENCE {

 mobilityStateParameters MobilityStateParameters,

 timeToTrigger-SF SpeedStateScaleFactors

 }

 } OPTIONAL,

 allowInterruptions-r11 BOOLEAN OPTIONAL

}

-- ASN1STOP

# RAN2 agreements on logged MDT enhancements

**RAN2#123**

=> EUTRA signalling based logged MDT report to NR is not supported.

=> No need to introduce assisting information to identify the RAT type of the signalling based MDT configuration/reports stored, when UE report availability of signalling based MDT reports/configuration to NR base station.

**RAN2#122**

Agreements:

1 In NR, considering UE capability, UE reports availability of signalling based logged MDT configuration without checking the RAT information.

2 RAN2 confirms that sigLogMeasConfigAvailable can be re-used for to indicate the availability of the LTE signalling based logged MDT in NR.

**RAN2#121b-e**

This topic was not treated in RAN2#121b-e.

**RAN2#121**

=> Solution 2 is chosen for further specification work.

Agreements For solution 2:

1 Extend the LTE LoggedMeasurementConfiguration to include Logged MDT type indication information

2 NR signaling is needed to inform the gNB that signaling based MDT is configured by E-UTRA.

3 Try to reuse R17 NR signaling by the UE to inform gNB whether signaling based MDT is configured even when it is configured by E-UTRA.

**RAN2#120**

This topic was not treated in RAN2#120.

**RAN2#119b-e**

=> The scenario when the UE is configured with NR Signaling-based logged MDT measurement configuration and reselects to E-UTRAN is excluded in R18 scope.

=> RAN2 will investigate UE and NW impacts due to EUTRA MDT configuration override protection in inter-RAT scenario realized by simultaneous LTE and NR configuration in the UE.

=> FFS if the extension of the LTE LoggedMeasurementConfiguration (with Logged MDT type indication) is needed.

=> FFS Cross-RAT reporting for Logged MDT results (i.e. UE reports E-UTRAN logged MDT results in NR) is whether supported in R18.

=> Intra-EUTRA case will not be considered.

**RAN2#119-e**

Agreement:

1 RAN2 confirms the valid scenario for Rel-18 inter-RAT scenario for signalling based logged MDT override protection is set by the WID:

 a. Logged MDT is configured in E-UTRAN, the UE reselects to NR.

2 Rel-17 mechanism for signalling based logged MDT override protection in intra-NR scenario is the baseline for Rel-18 inter-RAT scenario.