3GPP TSG-RAN WG2 Meeting #109 electronic R2-19xxxxx

**Home, 24 Feb – 6 Mar 2020**

Agenda Item:

Source: Session chair (CMCC)

Title: Report from breakout session

Document for: Approval

Recording of voice or video at meetings is not used in 3GPP. This applies also to this e-Meeting. At this e-Meeting, no specific actions are taken to prevent the recording of web conferences. Companies that have concerns related to recordings, if any, may express those by email in the main meeting organizational thread [AT109e][000]

**Organizational:**

1. LSs – contact companies should flag LSs that need presenting. Otherwise we will directly note them
2. Running CRs will be endorsed to be used as baseline and moved to email discussion. Further agreements will be captured on that baseline CR.
3. Only Email discussions and summary discussions will be treated during e-meetings (indicated clearly in the meeting notes in 6.12.6)
4. All organization emails and notes will be shared over the following email discussion throughout the two meeting weeks:
* [AT109e][800][SON/MDT] Organizational Hu

Scope:

* + - Share plans for the meetings and list of ongoing email discussions for the sessions related to SON/MDT
		- Share meetings notes and agreements for review and endorsement

## 6.12 SON/MDT support for NR

(NR\_SON\_MDT-Core; leading WG: RAN3; REL-16; started: Jun 19; target; Mar 20; WID: [RP-191](file:///C%3A%5CData%5C3GPP%5CTSGR%5CTSGR_84%5Cdocs%5CRP-191594.zip)776). Documents in this agenda item will be handled in a break out session

Time budget: 1 TU

Tdoc Limitation: 10 tdocs

### 6.12.1 General

Including LSs, work plan, rapporteur inputs, running TS

Including outcome of the email discussion [108#91][NR/L2M] running 38.314 CR (CMCC)

Including outcome of the email discussion [108#42][NR/MDT] running 38.331 CR to support SON/MDT (Huawei and Ericsson )

Including outcome of the email discussion [108#43][NR/MDT] Running 36.331CR for MDT (Huawei)

Including outcome of the email discussion [108#92][NR/MDT] Running 37.320 CR for MDT (CMCC, Nokia)

Including outcome of the email discussion [108#93][NR/MDT] running 38.321 CR (Ericsson)

Including outcome of the email discussion [108#49][NR MDT] running 38.306 CR (vivo)

### 6.12.2 MDT

The procedure, signaling and corresponding measurement quantities for MDT

ONLY CRITICAL OPEN Issues that makes MDT cannot work will be discussed. No new feature/function will be discussed this meeting.

Summary on MDT (Huawei)

R2-2000001 Remaining issues of UE Location Information Qualcomm Incorporated discussion Rel-16 NR\_SON\_MDT-Core

R2-2000100 Discussion on logged MDT CATT discussion Rel-16 NR\_SON\_MDT-Core

R2-2000101 Corrections for CEF and RLF Report CATT discussion Rel-16 NR\_SON\_MDT-Core

R2-2000102 Failure Indication about SCG CATT discussion Rel-16 NR\_SON\_MDT-Core

R2-2000300 Remaining issues on MDT vivo discussion

R2-2000807 Remaining issues on MDT ZTE Corporation, Sanechips discussion Rel-16 NR\_SON\_MDT-Core

R2-2001100 Clarification on CEF report ZTE Corporation, Sanechips discussion Rel-16

R2-2001111 [DRAFT] LS on MDT configurations Ericsson LS out Rel-16 NR\_SON\_MDT-Core To:TSG SA5, TSG RAN3

R2-2001114 Measurement configuration options for immediate and logged MDT in NR Ericsson discussion

R2-2001115 Neighbor frequency coverage hole indication in logged MDT Ericsson discussion

R2-2001117 Open issues related to current logged MDT contents in running CR Ericsson discussion

R2-2001143 A2-like measurement results in Logged MDT Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_SON\_MDT

R2-2001144 CGI in MDT reports Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_SON\_MDT

R2-2001145 Location information encoding in NR MDT Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_SON\_MDT

R2-2001146 Principle on Rareport entry logging Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_SON\_MDT

R2-2001366 Enhancements on logged MDT and accessibility measurements Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core R2-1915855

R2-2001367 Discusison on sensor measurement reporting Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

R2-2001436 Clarification on Cell ID Applied to NR MDT Samsung discussion NR\_SON\_MDT-Core

R2-2001438 Introducing Further Information Useful for NR MDT Samsung discussion NR\_SON\_MDT-Core

R2-2001439 On supporting Event-triggered Logged MDT Samsung discussion NR\_SON\_MDT-Core

R2-2001441 RLF Report Enhancement Samsung discussion NR\_SON\_MDT-Core

R2-2001443 Stage-3 Miscellaneous for NR MDT Samsung discussion NR\_SON\_MDT-Core

### 6.12.3 L2 measurements

Definition of L2 measurements in TS 38.314.

No new measureemnts will be introduced to TS38.314 this meeting. Discussion only focus on current running 38.314.

Summary on L2 measurmeents (China Mobile)

R2-2000000 Remaining Issues of UL PDCP Packet Average Queuing Delay Measurement Qualcomm Incorporated discussion Rel-16 38.314 NR\_SON\_MDT-Core

R2-2000103 Correction and Open Issues of UL Delay Measurement CATT discussion Rel-16 NR\_SON\_MDT-Core

R2-2000806 Further consideration on INACTIVE UE counting ZTE Corporation, Sanechips discussion Rel-16 NR\_SON\_MDT-Core

R2-2000909 Summary of L2M open points and proposals CMCC discussion NR\_SON\_MDT-Core Late

R2-2000910 Clarification for per cell PRB usage CMCC, Ericsson, Huawei discussion NR\_SON\_MDT-Core Revised

R2-2001110 [DRAFT] LS on throughput measurement in DC based PDCP duplication scenario Ericsson LS out Rel-16 NR\_SON\_MDT-Core To:TSG RAN3, SA5

R2-2001112 Definition of number of active UEs Ericsson, CMCC discussion

R2-2001113 Handling PDCP queueing delay measurements in split bearer scenario Ericsson discussion

R2-2001119 Throughput measurement in duplication scenario Ericsson discussion

R2-2001147 Per DRB measurements in TS38.314 Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_SON\_MDT Late

R2-2001368 Discussion on per DRB and excess delay measurement for L2M Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

R2-2001369 TP on per DRB measurements for L2M Huawei, HiSilicon pCR Rel-16 38.314 0.0.3 NR\_SON\_MDT-Core

R2-2001370 Discussion on min and max value for delay measurements for L2M Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

R2-2001371 Discussion on UL delay measurements in non MR-DC Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

R2-2001372 Discussion on DL delay measurements Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

R2-2001373 Discussion on delay measurements for MR-DC and CA Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core R2-1915856

R2-2001419 Clarification on PRB usage ZTE Corporation, Sanechips discussion Rel-16 R2-1915418 Withdrawn

R2-2001440 On Mapping 5QI to DRB Mediatek Inc discussion

R2-2001603 Clarification for per cell PRB usage CMCC, Ericsson, Huawei, ZTE discussion NR\_SON\_MDT-Core R2-2000910

### 6.12.4 SON

UE reporting necessary to enhance the network configuration for MRO, MLB and RACH optimization

ONLY CRITICAL OPEN Issues that makes SON cannot work will be discussed. No new feature/function will be discussed this meeting.

Summary on SON (Ericsson)

R2-2000002 Cross-system RLF report Qualcomm Incorporated discussion Rel-16 NR\_SON\_MDT-Core R2-1915049

R2-2000104 Analysis about MRO Issues Request by RAN3 CATT discussion Rel-16 NR\_SON\_MDT-Core

R2-2000105 Corrections for RACH Records Structure CATT discussion Rel-16 NR\_SON\_MDT-Core

R2-2000106 Corrections for the Content of RACH Records CATT discussion Rel-16 NR\_SON\_MDT-Core

R2-2000107 Draft Reply LS on Information Needed for MRO in UE RLF Report CATT LS out Rel-16 NR\_SON\_MDT-Core To:RAN3

R2-2000801 Remaining issues on RLF report ZTE Corporation, Sanechips discussion Rel-16 NR\_SON\_MDT-Core

R2-2000802 CR to 38300 on Introducing RLF report in NR ZTE Corporation, Sanechips CR Rel-16 38.300 16.0.0 0192 - B NR\_SON\_MDT-Core

R2-2000803 Draft Reply LS to RAN3 on RLF report ZTE Corporation, Sanechips LS out Rel-16 NR\_SON\_MDT-Core To:RAN3

R2-2000804 Remaining issues on RACH report procedure ZTE Corporation, Sanechips discussion Rel-16 NR\_SON\_MDT-Core

R2-2000805 Further considerations on RACH optimization ZTE Corporation, Sanechips discussion Rel-16 NR\_SON\_MDT-Core

R2-2001116 Open issues associated to RA report Ericsson discussion

R2-2001118 SCGFailureInformation message content alignment with RLFReport Ericsson discussion

R2-2001148 TP to 38.300 on SON support Nokia, Nokia Shanghai Bell discussion Rel-16 NR\_SON\_MDT

R2-2001374 Discussion on remaining aspects on SON Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

R2-2001444 Inter-RAT RLF reporting for MRO Samsung discussion NR\_SON\_MDT-Core

R2-2001446 Remaining Aspects on UE History Information Mediatek Inc discussion

R2-2001479 Discussion on UE capability for location reporting in SCG failure NTT DOCOMO INC. discussion Rel-16 NR\_SON\_MDT-Core

### 6.12.5 Others

R2-2001166 Review of UE information in NR, alignment and harmonisation Samsung Telecommunications discussion Rel-16 TEI16 Late

R2-2001375 Discussion on UE history information in RRC reestablishment Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

### 6.12.6 Treatment Plan for this eMeeting

**Note: all the documents not listed in 6.12.6 will not be treated in this emeeting.**

R2-2000012 Reply LS on PRACH configuration conflict detection (R1-1913578; contact: CATT) RAN1 LS in Rel-16 NR\_SON\_MDT To:RAN3 Cc:RAN2

R2-2000028 LS on information needed for MRO in UE RLF Report (R3-197668; contact: CATT) RAN3 LS in Rel-16 NR\_SON\_MDT-Core To:RAN2

=> Noted without presentation

### 6.12.6.1 R16 CRs to be agreed

Try to endorse as the baseline through WebCon slot1

R2-2001364 CR for introducing MDT and SON Huawei, Ericsson, HiSilicon CR Rel-16 38.331 15.8.0 1488 - B NR\_SON\_MDT-Core Late

=> Endorsed as baseline. If the content of CR is conflict with agreements from this meeting, the content should be changed accordingly.

R2-2001365 CR on enhancements on LTE MDT and SON Huawei, CMCC, HiSilicon CR Rel-16 36.331 15.8.0 4218 - B NR\_SON\_MDT-Core

=> Endorsed as baseline. If the content of CR is conflict with agreements from this meeting, the content should be changed accordingly.

R2-2000908 Running TS 38.314 CMCC draft TS Rel-16 38.314 0.0.4 NR\_SON\_MDT-Core

=> Endorsed as baseline. If the content of CR is conflict with agreements from this meeting, the content should be changed accordingly.

R2-2000925 Running TS 37.320 CR CMCC,Nokia draftCR Rel-16 37.320 15.0.0 B NR\_SON\_MDT-Core

=> Endorsed as baseline. If the content of CR is conflict with agreements from this meeting, the content should be changed accordingly.

R2-2000299 Running CR to 38.306 for NR\_SON\_MDT vivo, CMCC draftCR Rel-15 38.306 15.8.0 NR\_SON\_MDT-Core

=> Endorsed as baseline. If the content of CR is conflict with agreements from this meeting, the content should be changed accordingly.

### 6.12.6.2 Documents will be treated in WebCon slot1

R2-2001363 Report of email discussion [108#42] Huawei other Rel-16 NR\_SON\_MDT-Core Late

Agreements:

1 RAN2 confirms the inclusion of cellID in the RAReport.

2 RAN2 confirms the naming requestForOtherSI as an option for raPurpose.

4 RAN2 to confirm the inclusion of VarRAReport as a UE variable.

5 RAN2 to discuss renaming the logged MDT events using L1, L2 nomenclature.

6 RAN2 confirms that SINR cannot be used as a trigger quantity for A2 event configuration of logged MDT.

R2-2002076 Summary on MDT Huawei discussion Rel-16 NR\_SON\_MDT-Core

Agreements:

1 Add “No suitable cell found” flag in the NR RLF report when T311 expires.

2 The potential values (ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120, ms10240, ms20480, ms40960, min1,min6, min12, min30)of the existing ReportInterval can be reused for the field reportInterval in ul-DelayRatioConfig and ul-DelayValueConfig. reportInterval should not be used for UE measurement performing.

3 After successful deliver of the UEInformationResponse carrying the CEF report, UE will discard the CEF report stored in VarConnEstFailReport.

4 A Threshold defining measurement trigger quantity for event triggered Logged MDT is MDT specific.

5 UE configured for the event-triggerd logged MDT logs the cell ID, location information if available and time stamp information on

 - last serving cell UE camped on before OOC happens, and

 - first serving cell after leaving the OOC

 It is the leaving condition.

All the following points should be pursued via email discussion:

All the issues in 2.3 will be included in the email discussion. Also the following issues will be included in the email discussion.

Proposal 2: ul-DelayRatioConfig and ul-DelayValueConfig are configured per CG, i.e.,

- to configure at most one measurement identity per CG using a reporting configuration with the ul-DelayRatioConfig;

- to configure at most one measurement identity per CG using a reporting configuration with the ul-DelayValueConfig;

Proposal 7: plmn Identity identifies the PLMN of the cell for the reported cellIdentity.

Proposal 8: The IE CGI-InfoNR is not used to indicate a NR cell. (P1, [18], Samsung)

- Note: During email discusison 108#42 on 38.331 CR, lots of companies also preferred to not use CGI-InfoNR. So the next step is to go to section 2.3.4 to discuss CGI info details.

Proposal 12 (Based on comments from Nokia in this email discussion) – (specification clarification related) - RAN2 to discuss the way in which the ssbRLMConfigBitmap and csi-rsRLMConfigBitmap are encoded in the latest RRC specification:

a. To use the format used in the current NR RRC specification.

b. To use a 1-bit field per beam (SSB or CSI-RS) level measurements included in the RLF report.

P3 RAN2 confirms the inclusion of msg1-FrequencyStart and msg1-SubcarrierSpacing in the RAReport

Proposal 1: RAN2 is kindly to discuss whether it is an extra burden for UE to obtain the SSB index of neighbouring cells.

Proposal 2: UE does not log the SSB index of the neighbour cells if additional burden is introduced.

Proposal 3: UE reports the latest number of consecutive connection failures per cell the UE has experienced within the last 48 hours.

Proposal 4: The actual process of logging within the UE, takes place in RRC IDLE state could continue in RRC INACTIVE state.

* [AT 109e][803][MDT]MDT open issues (Huawei)

 Intended outcome: email discussion report in R2-2001991

 Deadline: CET 23:00, 2020/02/28

R2-2000924 Leftovers for TS 37.320 to support NR MDT CMCC discussion Rel-16

R2-2001123 Report of email discussion [108#93] running 38.331 CR to support RACH report Ericsson discussion

R2-2002025 Summary on SON Ericsson discussion Rel-16 NR\_SON\_MDT-Core

Agreements:

1 The UE shall include the LTE RLF report in the UEInformationResponse message to NR node.

2 The UE shall include the TAC of the failed cell (failedPCellId-r16) in the RLF report.

3 The UE shall include the information of RA attempts over different SSBs/CSI-RSs in the chronological order of RA attempts in the RLF report when the cause for RLF is beam failure recovery.

4 The UE shall include TAC of the cell in which the UE performs the RA procedure as part of the RA report.

All the following points should be pursued via email discussion:

Proposal for Discussion 1 RAN2 to agree on one of the following:

a. RAN2 confirms that reporting LTE RLF Report to NR is supported, and reporting NR RLF report to LTE is not supported.

b. The UE shall include nr-RlfInfoAvailable flag (in RRCConnectionReconfigurationComplete, RRCConnectionReestablishmentComplete, RRCConnectionResumeComplete or RRCConnectionSetupComplete message) when the UE has NR RLF report and the UE is connected to an LTE node.

c. The UE can report the RLF report associated to an NR cell to an ng-eNB.

d. The UE can report NR RLF report related contents to LTE.

Proposal for Discussion 2 RAN2 to agree on one of the following formats for encoding the LTE RLF report to be reported to an NR node.

a. The UE shall use LTE RRC format and report the contents of RLF report as an LTE RRC encoded OCTET STRING to the NR node.

b. The UE shall use NR RRC format.

c. The UE shall include the failedPCellId using the NR RRC format and include the RLF report as an LTE RRC encoded OCTET STRING to the NR node.

Proposal for Discussion 3 RAN2 to agree on one of the following.

a. RAN2 does not support NR RLF reporting to LTE.

b. The UE shall include the failedPCellId using the LTE RRC format and include the RLF report as an NR RRC encoded OCTET STRING to the LTE node.

Proposal for Discussion 4 RAN2 to agree on one of the following.

a. Introduce a capability in 38.306 for cross-RAT RLF report delivery.

b. No new capability is introduced in 38.306 for cross-RAT RLF report delivery.

Proposal for Discussion 5 RAN2 to agree on one of the following;

a. The UE shall include the TAC of the source cell (previousPCellId-r16) in the RLF report.

b. The UE shall not include the TAC of the source cell (previousPCellId-r16) in the RLF report.

Proposal for Discussion 6 RAN2 to agree on one of the following RLF report content.

a. The UE shall include the re-connection attempt cell CGI when the re-connection attempt cell is a EUTRA cell.

b. The UE shall include the re-connection attempt cell CGI when the re-connection attempt cell is a NR cell.

c. The UE shall include the re-connection attempt cell CGI when the re-connection attempt cell is either a EUTRA cell or a NR cell.

d. Do not include re-connection attempt cell in the RLF report.

Proposal for Discussion 7 RAN2 to discuss on whether the UE shall include absoluteFrequencyPointA-r16, locationAndBandwidth, subcarrierSpacing, msg1-FrequencyStart, msg1-FDMInfo and msg1-SubcarrierSpacing in the RLF report when the rlf-Cause is set to beamFailureRecoveryFailure or randomAccessProblem.

Proposal for Discussion 8 RAN2 to discuss which of the following option is to be adopted for RAReport retaining at the UE:

a. UE will stop logging RA info if all 8 entries is filled in RA report, and starts to count the duration. If not fetched within 48 hours, then the whole RA report will be deleted.

b. (Related to the phrasing used in the current running RRC spec) The oldest RA entry will be continuously replaced by new RA entry if the RA report is not fetched and if the UE already has 8 entries in its RA report. If the RA report has not been fetched and if the UE has not executed a new successful RA procedure in the last 48 hours, then the RA report will be deleted.

c. The oldest RA entry will be replaced by new RA entry if the corresponding RA report is full (i.e., all entries are filled) and has not been fetched. A RA entry within a RA report will be deleted if it is already been stored for 48 hours.

Agreeable Proposal 4 The UE shall include msg1-FDM associated to the used RA resources in the RA report.?

Proposal 5 The UE shall reset the entire RA Report when the UE performs cell reselection to a cell belonging to a new PLMN which is not part of the current RPLMN list.

Agreeable Proposal 7 RAN2 confirms that no new capability is introduced for the locationInformation inclusion in SCGFailureInformationNR and SCGFailureInformation messages.

* [AT109e][804][SON/MDT]SON open issues (Ericsson)

 Intended outcome: email discussion report in R2-2001992

 Deadline: CET 23:00, 2020/02/28

R2-2000907 Summary of open points in [108#91][NR/L2M] running 38.314 CR (CMCC) CMCC discussion Rel-16 NR\_SON\_MDT-Core

R2-2000909 Summary on L2 measurement CMCC discussion Rel-16 NR\_SON\_MDT-Core

Agreements:

1 Granularity for per UE measurement performed by UE (i.e. D1 queueing delay) is per DRB per UE for non-split case.

2 Granularity for per UE measurement performed by network (i.e D2 delay, loss rate) is per DRB per UE.

4 Capture in TS 38.314 that for PRB usage measurements that have been defined in TS 28.552, i.e. DL/UL Total PRB Usage, Distribution of DL/UL Total PRB Usage, M(T), M1(T), P(T) are measured per cell level. P(T) is the total available PRBs for this cell. M1(T) is the PRBs used for traffic transmission in this cell.

5 For EN-DC UL D1 delay measurement configuration for non-split bearer,

- D1 measurement of MN terminated bearer(including non-split bearer) can be configured by MN,

- D1 measurement of SN terminated bearer(including non-split bearer) can be configured by SN via RRC message (SRB3 or SRB1).

- For the SN terminated bearers, it is the SN to configure and calculate the UL/DL delay.

6 Capture a general definition of DL measurement in TS 38.314:

Packet delay includes RAN part of delay and CN part of delay. For RAN part, the DL delay comprises:

- D1 (the DL delay in gNB-DU), referring to 5.1.1.1.1 Average delay DL air-interface in TS 28.552

- D2 (the DL delay on F1-U), referring to 5.1.3.3.2 Average delay on F1-U in TS 28.552

- D3 (the DL delay in CU-UP), referring to 5.1.3.3.1 Average delay DL in CU-UP in TS 28.552

7 The flooring operation associated to the definition of mean number of active UEs is removed.

 All the following points should be pursued via email discussion:

Proposal 7(Cat b): RAN2 is kindly asked to make decision among following options:

Option 1:

- For the UL PDCP packet average queuing delay measurement for split bearer, UE reports a single D1 value to the node where it receives the measurement configuration.

Option 2:

- MN and SN can independently configure the UE with D1 measurements in the split bearer configurations.

- The UE shall perform two independent D1 delay measurements in the split bearer configuration, one for MN associated D1 delay measurement and the other for SN associated D1 delay measurement.

- The UE shall report the MN configured D1 delay measurement to the MN and the SN configured D1 delay measurement to the SN.

Option 3:

- the UE should report two D1s in MR-DC to the RAN node where it receives the measurement configuration.

Proposal 8(Cat b): For the split bearer, the node hosting the PDCP entity derives the delay of the split bearers based on the delay of two paths.

- For split bearer with PDCP duplication, the final delay is the min value of measured results of two paths

- For split bearer without PDCP duplication, the final delay is the average value of measured results of two paths

Proposal 13(Cat b): It is proposed to introduce min and max value for delay measurement in addition to the average delay.

P3 Granularity for per cell measurement performed by network is per DRB per cell. And add a clarification in 38.314 that the per DRB per cell measurement can be aggregated into per QoS level per cell by network implementation

Proposal 5(Cat b): Capture in TS 38.314 that the counting unit for PRB usage measurement is 1 RB x 1 symbol. (1 RB=12 sub-carrier)

Proposal 10(Cat b): Confirm the unit of the UL PDCP queuing delay reported by UE is “ms” and add a section of “UL F1 delay” in TS38.314 with “ms” unit.

Proposal 11(Cat b): RAN2 to confirm the unit of UL PDCP queueing delay is 0.1ms (Current 38.331CR) or 1ms (last agreement).

Proposal 12(Cat b): Set the value range of the reportInterval field for UL delay measurement to:

- For PDCP queuing excess delay measurement, use “ms1024, ms2048, ms5120 or ms10240” (if the measurement is maintained in NR);

- For average PDCP queuing delay measurement, use “ms120, ms240, ms480, ms640, ms1024, ms2048, ms5120 or ms10240”.

Proposal 16(Cat b): M6 measurement in NR in TS 37.320 should cover at least delay ratio and average delay measurements.

Proposal 21(Cat b): The mean number of active UEs is represented using BIT STRING (SIZE(X)) format and RAN3 can further discuss the value of ‘X’ and if BIT STRING (SIZE(X)) format is best suited to represent mean number of active UEs whose granularity of reporting will be 0.1.

* [AT109e][805][SON/MDT]L2 open issues (CMCC)

 Intended outcome: email discussion report in R2-2001993

 Deadline: CET 23:00, 2020/02/28

### 6.12.6.3 Documents will be treated in WebCon slot2

R2-2001994 SON/MDT agreements from email discussions Session chair (CMCC)

**Agreements:**

MDT:

1 The maximum number of cellIndentity to be configured as part of AreaConfigForNeighbour is 32.

2 Include ‘infinity’,’640ms’ and ‘320ms’ as options for loggingInterval value range.

3 ul-DelayValueConfig is configured per CG, i.e.,

 - to configure at most one measurement identity per CG using a reporting configuration with the ul-DelayValueConfig;

4 For logged MDT, UE does not log the SSB index of the neighbour cells.

5 The actual process of logging within the UE, takes place in RRC IDLE state could continue in RRC INACTIVE state.

6 For RLF Report, add the TrackingAreaCode IE into CGI info for the failed cell and source cell.

7 Send a LS to RAN3, SA5, and SA2. The LS includes RAN2-109-e agreements and the targeted WGs can finalize their work.

SON:

9 The UE shall reset the entire RA Report when the UE performs a successful random access procedure to a cell belonging to a new PLMN which is not part of the current RPLMN list.

10 RAN2 confirms the inclusion of the following frequency location related information of the RA resources used by the UE in the RAReport:

 a. absoluteFrequencyPointA (e.g., in FrequencyInfoUL)

 b. locationAndBandwidth (e.g., in UL BWP)

 c. subcarrierSpacing (e.g., in UL BWP)

L2:

11 Number of active UE is measured per DRB per cell by network.

12 Capture a clarification in 38.314 that all the per DRB per cell measurements and per DRB per UE measurements can be aggregated into per QoS level per cell by network implementation.

13 ‘*drbid’* is used in the equation for each per DRB per UE measurement in 38.314, e.g. for average D1 delay: $M\left(T,drbid\right)=\left⌊\frac{\sum\_{∀i}^{}tDeliv\left(i, drbid\right)-tArrival\left(i, drbid\right)}{I\left(T\right)}\right⌋$

14 The equation for mean number of active UE is $M(T,drbid,p)=\frac{\left⌊\frac{\sum\_{∀i}^{}N(i,drbid)}{I(T,p)}\*10\right⌋}{10}$, FFS the definition for *drbid* in the description table of mean number of active UE.

15 Capture in TS 38.314 that the counting unit for PRB usage measurement is 1 Resource Block x 1 symbol. (1 Resource Block = 12 sub-carrier)

16 For the CA duplication bearer, the UE and gNB measure the UL/DL delay assuming the packets of multi-paths are different. No spec impact.

R2-2001991 Email discussion report on MDT open issues Huawei

Agreements:

1 For multiple CEF reports, it is proposed:

 (1) UE only records one entry of the detail parameters about the last CEF, while for the other previously experienced CEFs, only the per cell “Number of connection failures” field could be recorded.

 (2) If a new CEF occurs, the old CEF records except the per cell *numberOfConnFail* in UE variable should be replaced by the new CEF records and the counter of the newest cell where the UE experiences CEF should be added with 1.

 (3) UE reports the latest number of consecutive connection failures per cell the UE has experienced within the last 48 hours.

2a For the out of coverage event (i.e. related to EventType-r16 with the value outOfCoverage), it is proposed:

 (1) the entering condition is that UE enters Any Cell Selection.

 (2) the leaving condition is that UE enters Camped Normally state.

2b Remove “last serving cell UE camped on before OOC happens” from the RAN2 minutes, as it is agreed online that it is only the leaving condition.

3 CGI info of a NR cell includes: plmn-identity and cellIdentity.

Plmn-identity is defined:

identifies the PLMN of the cell for the reported cellIdentity: the first PLMN-Identity in plmn-IdentityList

CellIdentity belongs the first PLMN-IdentityInfo IE of PLMN-IdentityInfoList.

4 The ssbRLMConfigBitmap and csi-rsRLMConfigBitmap are encoded with using the format used in the current NR RRC specification.

=> Include location info in SCGFailureInformationEUTRA in NR spec and in SCGFailureInformationNR in LTE spec, and the related configuration parts. Details (e.g. which node to configure this) should be addressed through email.

=> Postpone the following issue to R17:

 Whether to have an indicator of controlling the beam level measurements in the logged MDT report.

 logged MDT in DC scenario

=> Postpone the following issue to R17:

 Whether to introduce RAT-Type as part of areaConfigForNeighbour along with frequency and cell list.

R2-2001992 Email discussion report on SON open issues Ericsson

Agreements:

1 Postpone the issue of NR RLF reporting to LTE to R17.

2 The UE shall include the failedPCellId using the NR RRC format and include the RLF report as an LTE RRC encoded OCTET STRING to the NR node. Details can be addressed in running CR.

Proposal 3 (Cat-B) RAN2 to agree on one of the following options related to UE capabilities for cross-RAT RLF report delivery.

a. Introduce a capability in 38.306 for cross-RAT RLF report delivery.

b. No new capability is introduced in 38.306 for cross-RAT RLF report delivery.

Proposal 4 (Cat-B) The UE shall include the TAC of the source cell (previousPCellId-r16) in the RLF report.

Proposal 5 (Cat-B) Re-connection attempt cell is not included in the RLF report.

Proposal 6 (Cat-B) RAN2 to agree on whether the UE shall include absoluteFrequencyPointA-r16, locationAndBandwidth, subcarrierSpacing, msg1-FrequencyStart, msg1-FDMInfo and msg1-SubcarrierSpacing in the RLF report when the rlf-Cause is set to beamFailureRecoveryFailure or randomAccessProblem.

Proposal 8 (Cat-B) RAN2 to agree on whether to include the following frequency location related information of the RA resources used by the UE in the RAReport:

a. msg1-FDM (e.g., in RACH-ConfigGeneric)

b. msg1-FrequencyStart (e.g., in RACH-ConfigGeneric)

c. msg1-SubcarrierSpacing (e.g., in RACH-ConfigCommon)

Proposal 9 (Cat-B) RAN2 to agree on one of the following option is to be adopted for RAReport retaining at the UE:

a. UE will stop logging RA info if all 8 entries is filled in RA report, and starts to count the duration. If not fetched within 48 hours, then the whole RA report will be deleted.

b. (Related to the phrasing used in the current running RRC spec) The oldest RA entry will be continuously replaced by new RA entry if the RA report is not fetched and if the UE already has 8 entries in its RA report. If the RA report has not been fetched and if the UE has not executed a new successful RA procedure in the last 48 hours, then the RA report will be deleted.

c. The oldest RA entry will be replaced by new RA entry if the corresponding RA report is full (i.e., all entries are filled) and has not been fetched. A RA entry within a RA report will be deleted if it is already been stored for 48 hours.

Proposal 11 (Cat-B) RAN2 to agree on whether to add a new UE capability indication or not regarding the ability to include the locationInformation in SCGFailureInformationNR and SCGFailureInformation messages.

R2-2001993 Email discussion report on L2 open issues CMCC

**Proposal 1: For per DRB per UE measurement (e.g. UL delay meas), add the following description inside the table, *drbid*: The identity of the measured DRB.**

**Proposal 2: For number of active UE, add the following description inside the table, *drbid* : the DRBs mapped with the same 5QI for NR SA or mapped with the same QCI for EN-DC.**

**Proposal 3: For the UL PDCP packet average queuing delay measurement for split bearer in EN-DC, UE reports a single D1 value to the node where it receives the measurement configuration.**

**Proposal 4: For split bearer with PDCP duplication, reuse the same mechanism as non-duplication case for UL D1 delay measurement.**

**Proposal 5: RAN2 to discuss which unit is applied for UL delay measurement: 1ms, 0.1ms or 1us.**

**Proposal 6: UL F1-U delay is measured using the same matrix as DL F1-U delay defined in TS 28.552.**

**Proposal 7: The following proposals are recommended to be postponed, since they are not the most critical issue for L2M or limited supporting companies.**

* **Postpone 1: min/max value for delay measurement.**
* **Postpone 2: excess delay measurement to next release.**
* **Postpone 3: Inform TCE that DC duplication is enabled for throughput measurement**
* **Postpone 4: Capture a Note on the total RAN part of DL packet delay measurement.**

### 6.12.6.4 Agreements made via email discussion[800]

R2-2001994 SON/MDT agreements from email discussions Session chair (CMCC)

=> Treated through email and we achieve the following agreements:

Agreements

1 Introduce a capability in 38.306 for cross-RAT RLF report delivery.

2 The UE shall include the TAC of the source cell (previousPCellId-r16) in the RLF report.

3 Re-connection attempt cell is not included in the RLF report.

4 For per DRB per UE measurement (e.g. UL delay meas), add the following description inside the table, *drbid*: The identity of the measured DRB.

5 For number of active UE, add the following description inside the table, *drbid* : the DRBs mapped with the same 5QI for NR SA or mapped with the same QCI for EN-DC.

6 UL F1-U delay is measured using the same matrix as DL F1-U delay defined in TS 28.552.

Note1: corresponding technical discussion can be found in email [803][804[805]

R2-2001995 SON/MDT agreements from email discussions part2 Session chair (CMCC)

### 6.12.6.5 Email discussion list

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Rapporteur  | Scope | Status |
| [AT109e][801][SONMDT] CR for introducing MDT and SON | Huawei, Ericsson  | Introduce MDT and SON in 38.331 and capture the agreements from this emeeting | Started |
| [AT109e][888][SONMDT] Running TS 38.314 | CMCC | Building the new TS 38.314 and update based on new agreements from this meeting | Not started |
| [AT109e][802][SONMDT] CR for introducing MDT and SON | Huawei | Introducing MDT and SON in 36.331 and capture the agreements from this emeeting | Started |
| [AT109e][800][SON/MDT] Organizational Hu | CMCC | Session minutes and related email discussion status | Started |
| [AT109e][805][SON/MDT]L2 open issues (CMCC) | CMCC | L2 open issues | Started |
| [AT109e][804][SON/MDT]SON open issues | Ericsson | SON open issues | Started |
| [AT109e][803][SON/MDT]SON open issues | Huawei | MDT open issues | Started |

Summary