**3GPP TSG-RAN WG2 Meeting #119 electronic R2-2xxxxxx**

Online, August, 2022

Agenda Item: xx

Source: Session chair (CMCC)

Title: Report from SON/MDT session

Document for: Approval

**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)
4. All organization emails and notes will be shared over the following email discussion throughout the two meeting weeks:
* [AT119][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

## 6.13 SON MDT

(NR\_ENDC\_SON\_MDT\_enh-Core; leading WG: RAN3; REL-17; WID: RP-201281)

Tdoc Limitation: 4 tdocs

WI is declared 100% complete

### 6.13.1 Organizational and Stage-2

LS in etc. CR Rapporteurs to provide input CRs, and Provide resolution proposals for smaller and editorial corrections. For Editorial corrections please discuss with CR Rapporteur. Stage-2 corrections and system level discussions, if needed

R2-2206934 LS on M6 Delay Threshold (R3-224079; contact: CATT) RAN3 LS in Rel-17 NR\_ENDC\_SON\_MDT\_enh To:SA5 Cc:RAN2

R2-2206979 LS on Reply LS on beam measurement reports (S5-223524; contact: Ericsson) SA5 LS in Rel-17 NR\_ENDC\_SON\_MDT\_enh To:RAN3, RAN2

R2-2207472 Addition of SON Features Enhancement in Stage 2 CATT CR Rel-17 38.300 17.1.0 0511 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2208539 CR to 38300 on SHR and RACH optimization ZTE Corporation, Sanechips CR Rel-17 38.300 17.1.0 0541 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2208234 Correction to Logged MDT type handling Nokia, Nokia Shanghai Bell CR Rel-17 37.320 17.1.0 0120 - F NR\_ENDC\_SON\_MDT\_enh-Core

### 6.13.3 SON Corrections

R2-2208929 Pre-meeting summary of 6.13.3 (Ericsson) Ericsson

MHI

Agreements:

1 Logging the PSCell history information in a variable (*visitedPSCellInfoList*) while the UE is connected to the current PCell and plugging the content to the *visitedPSCellInfoListReport* inside the PCell MHI when the PCell entry is created upon change of the PCell

 2 RAN2 agree to discuss to clarify deletion of the oldest PSCell entry from MHI i.e., the UE shall delete the oldest entry from *visitedPSCellInfoList* if there is no PSCell entry in the *visitedCellInfoList*, otherwise the UE deletes the oldest PSCell entry from *visitedCellInfoList*. Same clarification is needed for discussion for MHI reporting in the UE information Response procedure.

3 RAN2 agree on the correction to log the time without PSCell since entering to the RRC\_Connected state (as of now the spec only covers time without PSCell for the cases that UE release or fails in PSCell)

MRO and RACH

Agreements:

1 When the UE experiences an RLF in the CHO recovery cell, the UE does not include in the RLF-Report, the previousPCellID, the timeConnFailure, and the lastHO-Type.

2 Clarify that the UE includes in the RLF-Report the HO parameters (i.e. nrPreviousCell, lastHO-Type, timeConnFailure) associated to the last executed RRCReconfiguration message including the reconfigurationWithSync that was received while connected to the actual previous PCell.

3 RAN2 agree to remove the expression “*before executing the last reconfiguration with sync*” from the SHR procedure as pointed in [[R2-2208235](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs/R2-2208235.zip)].

4 RAN2 agree to change the filed description of *measResultListNR* to reflect that the *measResultListNR-r17* is only usedin SHR, as proposed in [[R2-2207474](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs/R2-2207474.zip)].

5 RAN2 agree to change the *conditional reconfiguration execution, or radio link failure* to *the detected failure* in the procedural text on setting the first and second event of CHO triggering conditions in RLF report.

6 RAN2 agree to the following changes:

1. The field onDemandSISuccess is changed from BOOLEAN to Enumerated {true}, so the procedural text and the field description are updated correspondlingly
2. For cell(s) in the field choCandidateCellList, the tracking area code is removed because the RLF report will not be routed to any CHO candidated cell.
3. For RLF case, the PCI and freq info are introduced in case that the CGI is unavailable for cell(s) in the field choCandidateCellList.

Proposal 10: Offline discussion on which should be captured in 38.300 (Nokia)

* **[AT119e][888][R17 SON/MDT] RRC Correction (Ericsson, Huawei)**

Merge all the agreements in 6.13.3, R2-2207475 and R2-2208237 into one big CR.

 Intended outcome: Agreed 38.331 CR

 Deadline: 04:44 UTC, Thursday Aug 25th

* **[AT119e][822][R17 SON/MDT] Stage2 correction (Nokia)**

Figure out what is needed to be captured in 38.300 for R17 SON/MDT based on R2-2207472, R2-2208539 and P10 in R2-2208929. If something is really needed, provide the 38.300 CR.

 Intended outcome: Report and if needed also agreeable 38.300 CR.

 Deadline: 04:44 UTC, Thursday Aug 25th

R2-2207156 Correction on RACH Optimization for 2-step RA vivo CR Rel-17 38.300 17.1.0 0499 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2207473 [C321] Correction on SHR Configuration Release CATT CR Rel-17 38.331 17.1.0 3268 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2207474 [C315] [C328] Clarification on Neighbour Cell Measurement CATT CR Rel-17 38.331 17.1.0 3269 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2207945 Discussion on logging of PSCell information in MHI Huawei, HiSilicon discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2207946 Introduction of SHR in TS 38.300 Huawei, HiSilicon CR Rel-17 38.300 17.1.0 0520 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2207947 Corrections to TS 38.331 on SON and MDT Huawei, HiSilicon CR Rel-17 38.331 17.1.0 3332 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2208166 Correction to time with no PSCell in mobility history information reporting Ericsson CR Rel-17 38.331 17.1.0 3366 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2208167 PSCell information storing in Mobility History Information [E120, E121, E122] Ericsson, Qualcomm, CMCC, CATT CR Rel-17 38.331 17.1.0 3367 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2208168 Corrections to the RLF-Report for the case of RLF in the CHO recovery cell Ericsson discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2208235 Avoidance of too premature successHO-Config release Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.1.0 3384 - F NR\_ENDC\_SON\_MDT\_enh-Core

R2-2208236 Correction on MHI setting upon UEInformationRequest Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.1.0 3385 - F NR\_ENDC\_SON\_MDT\_enh-Core

### 6.13.4 MDT Corrections

R2-2208921 Pre-meeting summary of 6.13.4 (Huawei) Huawei

R2-2207475 Corrections on MDT Aspect CATT CR Rel-17 38.331 17.1.0 3270 - F NR\_ENDC\_SON\_MDT\_enh-Core

=> The change is agreed and will be merged into the big CR. Details will be discussed in running CR discussion.

R2-2208237 Correction on IDC logging Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.1.0 3386 - F NR\_ENDC\_SON\_MDT\_enh-Core

=> The change is agreed and will be merged into the big CR.

R2-2207948 Discussion on capturing L2M agreements in TS 38.314 Huawei, HiSilicon discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2208165 Total RAN Delay calculation Ericsson CR Rel-17 38.331 17.1.0 3365 - F NR\_ENDC\_SON\_MDT\_enh-Core Withdrawn

R2-2208206 Total RAN Delay calculation Ericsson CR Rel-17 38.314 17.1.0 0024 - F NR\_ENDC\_SON\_MDT\_enh-Core

* **[AT119e][801][R17 SON/MDT] Total RAN delay calculation (Ericsson)**

Based on related agreement in RAN2#118, considering R2-2207948, R2-2208206 together, to discuss the necessity and how to calculate the total RAN delay.

 Intended outcome: Report

 Deadline: 04:44 UTC, Thursday Aug 25th

R2-2208540 CR to 38331 on multiple CEF report ZTE Corporation, Sanechips CR Rel-17 38.331 17.1.0 3435 - F NR\_ENDC\_SON\_MDT\_enh-Core

=> Not pursued

R2-2208541 Remianing issues on multiple CEF report ZTE Corporation, Sanechips discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

=> Noted

## 5.4 SON MDT support for NR

(NR\_SON\_MDT-Core; leading WG: RAN3; REL-16; started: Jun 19; Completed June 20; WID: RP-191776).

### 5.4.1 General and stage-2 corrections

Including incoming LSs, TS 37.320 corrections

### 5.4.2 TS 38.314 corrections

### 5.4.3 RRC corrections

R2-2207527 Corrections to SON/MDT capabilities Lenovo CR Rel-16 38.306 16.9.0 0675 2 F NR\_SON\_MDT-Core R2-2204548

R2-2207528 Corrections to SON/MDT capabilities Lenovo CR Rel-17 38.306 17.1.0 0699 1 A NR\_SON\_MDT-Core R2-2204549

R2-2207942 Discussion on UE behaviours of delay measurements upon MO updates Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

R2-2207943 CR on UE behaviours of delay measurements upon MO updates Huawei, HiSilicon CR Rel-16 38.331 16.9.0 3330 - F NR\_SON\_MDT-Core

R2-2207944 CR on UE behaviours of delay measurements upon MO updates Huawei, HiSilicon CR Rel-17 38.331 17.1.0 3331 - A NR\_SON\_MDT-Core

R2-2208169 On DAPS handover failure handling Ericsson CR Rel-16 38.331 16.9.0 3368 - F NR\_SON\_MDT-Core

R2-2208170 On RLF cause determination when RLF occurs due to T312 expiry Ericsson CR Rel-16 38.331 16.9.0 3369 - F NR\_SON\_MDT-Core

R2-2208171 On RLF cause determination when RLF occurs due to T312 expiry Ericsson CR Rel-17 38.331 17.1.0 3370 - A NR\_SON\_MDT-Core

R2-2208172 On ObtainCommonLocation related configuration Ericsson CR Rel-16 38.331 16.9.0 3371 - F NR\_SON\_MDT-Core

R2-2208173 On ObtainCommonLocation related configuration Ericsson CR Rel-17 38.331 17.1.0 3372 - A NR\_SON\_MDT-Core

R2-2208174 On including SSB and CSI-RS measurements in RLF report Ericsson CR Rel-16 38.331 16.9.0 3373 - F NR\_SON\_MDT-Core

R2-2208175 On including SSB and CSI-RS measurements in RLF report Ericsson CR Rel-17 38.331 17.1.0 3374 - A NR\_SON\_MDT-Core

R2-2208373 Discrepancy on inclusion of reconnectCellId Samsung Electronics Co., Ltd discussion Rel-16 38.331 NR\_SON\_MDT-Core R2-2205760

## 8.13 Further enhancement of data collection for SON MDT in NR and EN-DC

(NR\_ENDC\_SON\_MDT\_enh2-Core; leading WG: RAN3; REL-18; WID: RP-221825)

Includes LS in’s related to AI/ML for NG-RAN

Time budget: 1 TU

Tdoc Limitation: 4 tdocs

### 8.13.1 Organizational

Ls in Rapporteur input.

R2-2208452 Work plan for Further Enhancement of Data Collection for SON\_MDT in NR standalone and MR-DC WI CMCC Work Plan Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

=> Noted

### 8.13.2 Data collection for MRO for MR DC SCG failure and Inter-system handover for voice fallback.

Focus on UE impact

R2-2208930 Pre-meeting summary of 8.13.2 (Ericsson) Ericsson

Agreements:

1 RAN2 to include an indication regarding voice fallback in the RLF report.

 FFS: implicit or explicit flag and other details.

2 RAN2 discuss the following scenarios:

 Suitable EUTRA cell found after MobilityFromNR failure

 No suitable EUTRA cell found after MobilityFromNR failure

R2-2208542 Consideration on MRO for EPS fallback via HO and MRDC SCG failure ZTE Corporation, Sanechips discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

Agreement:

 For CPAC failure relevant MRO, RAN2 prioritize the discussion on NR-DC, while other scenarios can be further discussed if time permits.

R2-2207093 Discussion on MRO of inter-system HO voice fallback OPPO discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207192 Discussion on MRO enhancement for inter-system handover for voice fallback NTT DOCOMO, INC. discussion Rel-18

R2-2207193 Discussion on MRO for MR-DC SCG failure scenario and fast MCG recovery failure NTT DOCOMO, INC. discussion Rel-18

R2-2207476 Data for MRO related Enhancements CATT discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207704 MRO for inter-system handover for voice fallback Lenovo discussion Rel-18

R2-2207954 Discussion on the inter-system handover for voice fallback Huawei, HiSilicon discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207955 Discussion on MR-DC SCG failure Huawei, HiSilicon discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208157 Data collection for MRO for MR-DC SCG failures and inter-system handover for voice fallback Qualcomm Incorporated discussion Rel-18

R2-2208177 On Mobility Robustness Optimization Ericsson discussion NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208436 Discussion on inter-system handover for voice fallback CMCC discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208583 Discussion on MRO for MR-DC SCG failure and inter-system handover voice fallback Xiaomi discussion Rel-18

R2-2208610 UE reporting to enhance mobility parameter tuning Samsung R&D Institute India discussion

### 8.13.3 Miscellaneous SON MDT enhancements

Determine and consolidate RAN2 impacts for Support of SON/MDT enhancements for [RAN3, RAN2]: MR-DC CPAC, Successful PScell change report, Successful Handover Report (e.g. inter-RAT), NPN, RACH report, fast MCG recovery, NR-U (MRO and UL MLB)

R2-2208939 Pre-meeting summary of 8.13.3 Huawei

Based on the analysis in section 2, the following summary proposals are made:

=> RAN2 should wait for RAN3 progress for one meeting (e.g. the scenarios and requirements) for the following features:

- (2) Successful Pscell change report

- (3) SHR for inter-RAT

Agreements

MR-DC CPAC

1 For MR-DC CPAC, NR-NR DC scenario is prioritized, and other MR-DC scenarios can be discussed later.

NPN

1 The support of SON/MDT enhancement in both SNPN and PNI-NPN scenarios are considered.

2 RAN2 to use R16 NPN functionality as baseline for R18 SONMDT.

RACH report

1 RAN2 to discuss RACH partitioning for RACH report enhancements.

2 RAN2 is asked to discuss the support of (NG)EN-DC and NE-DC scenarios for SN RACH report. Only focus on the leftover issues for completing the whole work which partly done in R17 in RAN3. Draft LS to RAN3 ask for clarification. (Ericsson)

* **[AT119e][802][R18 SON/MDT] RAN3 progress on SN RACH report in R17 (Ericsson)**

Drafting LS to RAN3 to consult their progress in R17 on the SN RACH report related issues for the purpose of completing the corresponding RAN2 work although in R18…

 Intended outcome: Approved LS

 Deadline: 04:44 UTC, Thursday Aug 25th

R2-2208178 Supporting NR-U in the SON/MDT framework Ericsson discussion NR\_ENDC\_SON\_MDT\_enh2-Core

Agreement:

1 RAN2 to prioritize (at least in the beginning of the discussion) the following scenarios for potential enhancement on existing SON signaling reports, e.g. the RA-Report/RA-Information, the RLF-Report (for RLF and HOF), the SHR.

R2-2207091 Discussion of SON on MR-DC CPAC OPPO discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207092 SON on fast MCG recovery OPPO discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207196 Discussion on SON for MR-DC CPAC NTT DOCOMO, INC. discussion Rel-18

R2-2207437 SON enhancements for NR-U Apple discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207438 SON enhancements for RACH partitioning Apple discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207477 General Considerations on SON MDT enhancements CATT discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207478 Discussion on CPAC and Successful Report for Inter-RAT Handover and PSCell Change CATT discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207705 SON enhancements for CPC and fast MCG link recovery Lenovo discussion Rel-18

R2-2207706 SON enhancements for successful PSCell change report and SHR for inter-RAT HO Lenovo discussion Rel-18

R2-2207707 MRO for handover failure or SCG failure in NR-U Lenovo discussion Rel-18

R2-2207721 Discussion on the SON/MDT enhancement for NPN and RACH report Beijing Xiaomi Software Tech discussion Rel-18

R2-2207908 SONMDT enhancements for RACH enhancements NEC discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207909 Discussion on successful PSCell change report NEC discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207956 Discussion on other SON enhancements Huawei, HiSilicon discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208066 Discussion on CPAC failure information vivo discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208067 Discussion on successful PSCell change report vivo discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208068 Discussion on RACH report enhancement vivo discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208159 Miscellaneous SON MDT enhancements Qualcomm Incorporated discussion Rel-18

R2-2208160 SON enhancements for NR-U Qualcomm Incorporated discussion Rel-18

R2-2208176 SON support for NPN Ericsson discussion NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208243 On mobile IAB deployment and interference mitigation Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_mobile\_IAB-Core

R2-2208244 Impact of SNPN on MDT and MRO Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208245 RACH report related enhancements and Fast MCG recovery optimizations Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208246 MRO enhancements for NR-U Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208285 SON aspects for fast MCG recovery Sharp discussion NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208433 SONMDT enhancement for fast MCG recovery and RACH report CMCC discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208434 Discussion on Successful PSCell change report CMCC discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208435 SON MDT enhancement for CPA and CPC CMCC discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208543 Consideration on miscellaneous issues on SON aspects ZTE Corporation, Sanechips discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208544 Consideration on miscellaneous issues on MDT aspects ZTE Corporation, Sanechips discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208572 SON/MDT enhancements for dual connectivity scenarios Samsung R&D Institute India discussion

R2-2208584 Discussion on Miscellaneous SON MDT enhancements Xiaomi discussion Rel-18

R2-2208603 Various SON/MDT Enhancements Samsung R&D Institute India discussion

R2-2208661 Discussion on UE RACH report enhancements China Telecom discussion

### 8.13.4 Other

E.g. Support of signaling based logged MDT override protection to address the scenario where the signaling based MDT is configured in E-UTRAN when [RAN2, RAN3]: UE resetttlects to NR while logged measurements are collected, UE reselects to NR after logged measurements are collected and before uploading the logged MDT report.

R2-2208933 Summary on 8.13.4 Nokia

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.

R2-2207479 Consideration on Inter-RAT Signaling Based Logged MDT Override Protection CATT discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2207480 Considerations on the signaling based logged MDT override protection for E-UTRAN Beijing Xiaomi Software Tech discussion Rel-18

R2-2207957 Discussion on the inter-system signalling based MDT override protection Huawei, HiSilicon discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208161 Signalling based logged MDT override protection Qualcomm Incorporated discussion Rel-18

R2-2208179 inter-RAT signalling based logged MDT protection Ericsson discussion NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208247 Signalling based logged MDT override protection in Rel-18 Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core

R2-2208535 Inter-RAT signaling based logged MDT override protection Samsung R&D Institute India discussion Withdrawn

R2-2208536 Inter-RAT signaling based logged MDT override protection Samsung R&D Institute India discussion

R2-2208545 Consideration on Signalling based MDT protection ZTE Corporation, Sanechips discussion Rel-18 NR\_ENDC\_SON\_MDT\_enh2-Core