**3GPP TSG-RAN WG2 Meeting #113 electronic R2-2xxxxxx**

**Online, January, 2021**

Agenda Item: 10.6

Source: Session chair (CMCC)

Title: Report from SON/MDT 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 [AT113e][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)
4. All organization emails and notes will be shared over the following email discussion throughout the two meeting weeks:

* [AT113][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

## 6.10 SON/MDT support for NR

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

Documents in this agenda item will be handled in a break out session

Tdoc Limitation: 9 tdocs. See also tdoc limitation for Agenda Item 6

### 6.10.1 General and stage-2 corrections

Including incoming LSs, TS 37.320 corrections

R2-2100078 Reply LS on the user consent for trace reporting (S5-204542; contact: Huawei) SA5 LS in Rel-16 NR\_SON\_MDT-Core To:RAN2, RAN3, SA3

R2-2100037 Reply LS on QoS Monitoring for URLLC (R3-207177; contact: Ericsson) RAN3 LS in Rel-16 NR\_SON\_MDT-Core To:SA2, SA5 Cc:RAN2

R2-2100045 LS to SA5 on MDT Stage 2 and Stage 3 alignment (R3-207222; contact: Ericsson) RAN3 LS in Rel-16 To:SA5, RAN2 Cc:SA2

R2-2100077 LS Reply on QoS Monitoring for URLLC (S5-204537; contact: Intel) SA5 LS in Rel-16 To:RAN3, SA2 Cc:RAN2

R2-2101426 [Draft] Reply LS on MDT Stage 2 and Stage 3 alignment Ericsson LS out Rel-16 NR\_SON\_MDT-Core To:RAN3 Cc:SA5

R2-2100692 Correction on the configuration effectiveness of Logged MDT vivo CR Rel-16 37.320 16.3.0 0099 - F NR\_SON\_MDT-Core

=> Treated in email discussion 804

R2-2100693 Miscellaneous corrections to TS 37.320 vivo CR Rel-16 37.320 16.3.0 0100 - F NR\_SON\_MDT-Core

=> Treated in email discussion 804

R2-2101416 On clarifications in stage-2 description Ericsson CR Rel-16 37.320 16.3.0 0101 - F NR\_SON\_MDT-Core

=> Treated in email discussion 804

R2-2101592 Correction on time stamp for event triggered logged MDT ZTE Corporation, Sanechips CR Rel-16 37.320 16.3.0 0102 - B NR\_SON\_MDT-Core

=> Treated in email discussion 804

R2-2101651 Clarification on Average UE throughout measurement Samsung discussion NR\_SON\_MDT-Core

=> Treated in email discussion 804

* [AT113-e][804][NR/R17 SON/MDT]  Stage-2 corrections (CMCC, Nokia)

-     The discussion including R2-2100692, R2-2100693, R2-2101416, R2-2101592, R2-2101651.

-     Every change in these documents should be addressed with clear conclusion (i.e., either agreed or not pursued)

-     All the agreed changes will be merged into one CR (R2-2102131).

- The email discussion will be started at Thursday 28/01/2021

      Intended outcome: Agreeable CR and report (R2-2102141)

Deadline: Thursday 01/02/2021

R2-2102141 Report of [AT113-e][804][NR/R16 SON/MDT] Stage-2 corrections (CMCC, Nokia)

=> noted

=> Post meeting email discussion for the issue of “Timestamp of event triggered logged MDT” (Ericsson )

* [Post113-e][NR/R17 SON/MDT]  Timestamp of event triggered MDT (Ericsson)

- Focus on the issue “Timestamp of event triggered logged MDT” in R2-2102141.

- Figure out the UE behavior

Intended outcome: Report

Deadline: Next meeting

R2-2102131 Merged Corrections to TS 37.320 CMCC, Nokia CR Rel-16 37.320 16.3.0 0103 - F NR\_SON\_MDT-Core

=> CR is agreed

### 6.10.2 TS 38.314 corrections

R2-2100694 Miscellaneous corrections to TS 38.314 vivo CR Rel-16 38.314 16.2.0 0013 - F NR\_SON\_MDT-Core

=> Revised to R2-2102132

R2-2101638 Summary for AI 6.10.2 TS 38.314 corrections CMCC discussion Rel-16 NR\_SON\_MDT-Core Late

=> Noted

* [AT113-e][805][NR/R17 SON/MDT]  L2 measurements (vivo, CMCC)

-     The discussion including R2-2100694.

-     Every change in these documents should be addressed with clear conclusion (i.e., either agreed or not pursued)

-     All the agreed changes will be merged into one CR.

- The email discussion will be started at Thursday 28/01/2021

      Intended outcome: Agreed CR (R2-2102132)

Deadline: Thursday 01/02/2021

R2-2102132 Miscellaneous corrections to TS 38.314 vivo CR Rel-16 38.314 16.2.0 0013 1 F NR\_SON\_MDT-Core

=> CR is agreed

### 6.10.3 RRC corrections

Potential easily agreed ones:

R2-2100427 Correction on RLF Report Content Handover from NR to LTE Failure MediaTek Inc. CR Rel-16 38.331 16.3.1 2324 - F NR\_SON\_MDT

=> The change is agreed and will be merged into the big CR provided by email discussion 801.

R2-2100198 Corrections on RLF report content determination for inter-RAT HO failure Samsung Electronics Co., Ltd CR Rel-16 38.331 16.3.1 2313 - F NR\_SON\_MDT-Core

Note: RA info related change is required. Other changes are captured in R2-2100427

=> The second change is agreed and will be merged into the big CR provided by email discussion 801.

R2-2101722 Discussion on some issues for MDT and SON Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

=> Not pursued in R16.

R2-2100584 Correction on reporting of NR cells for CEF, RLF and logMDT Samsung Telecommunications, Ericsson CR Rel-16 36.331 16.3.0 4552 - F NR\_SON\_MDT-Core

=> The change is in principle agreed and will be merged into the big CR provided by email discussion 802.

R2-2100874 Correction on neighbor cell measurement results report in SON/MDT Apple CR Rel-16 36.331 16.3.0 4554 - F NR\_SON\_MDT-Core

=> Not pursued

*Straightforward ones:*

R2-2100184 Corrections on mobility from NR failure for inter-RAT MRO EUTRA Samsung Electronics Co., Ltd CR Rel-16 38.331 16.3.1 2307 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2100185 Corrections on Mobility History Information in 38.331 CATT CR Rel-16 38.331 16.3.1 2308 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2100187 Corrections on the Release of CEF/RLF/RA Report in 38.331 CATT CR Rel-16 38.331 16.3.1 2309 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2100197 Correction on periodical logging in any cell selection state Samsung Electronics Co., Ltd CR Rel-16 38.331 16.3.1 2312 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2101099 Correction to MDT Google Inc. CR Rel-16 38.331 16.3.1 2141 1 F NR\_SON\_MDT-Core R2-2009882

=> Treated in email discussion 801

R2-2101688 Corrections on NR MDT and SON (Rapporteur CR) Huawei CR Rel-16 38.331 16.3.1 2429 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2101846 Corrections for RLF Report OPPO CR Rel-16 38.331 16.3.1 2442 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2100088 Miscellaneous Corrections on WLAN and BT for MDT in 36.331 CATT CR Rel-15 36.331 15.12.0 4540 - F LTE\_MDT\_BT\_WLAN-Core

=> Treated in email discussion 801

R2-2100089 Miscellaneous Corrections on WLAN and BT for MDT in 36.331 CATT CR Rel-16 36.331 16.3.0 4541 - A LTE\_MDT\_BT\_WLAN-Core

=> Treated in email discussion 801

R2-2100189 Correction on RLF Report for Re-connection CATT CR Rel-16 36.331 16.3.0 4546 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2100199 Miscellaneous corrections on inter-RAT MRO Samsung Electronics Co., Ltd CR Rel-16 36.331 16.3.0 4547 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2100859 Corrections on RLF Report Apple CR Rel-16 36.331 16.3.0 4553 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2101689 Corrections on NR MDT and SON (Rapporteur CR) Huawei CR Rel-16 36.331 16.3.0 4589 - F NR\_SON\_MDT-Core

=> Treated in email discussion 801

R2-2101714 Correction to logged MDT configuration in full configuration Google Inc. CR Rel-16 36.331 16.3.0 4590 - F LTE\_5GCN\_connect-Core, NR\_SON\_MDT-Core

=> Treated in email discussion 801

Ones needed and also needing discussion…

R2-2100858 Corrections on RLF Report Apple CR Rel-16 38.331 16.3.1 2358 - F NR\_SON\_MDT-Core

=> The second and third changes are agreed and will be merged into the big CR provided by email discussion 801.

=> The change “Set the failedPCellId-EUTRA value accordingly in 5.7.10.3 to indicate the PCell in which RLF was detected or the source PCell of the failed handover in an E-UTRA RLF Report” is agreed and will be merged into the CR from email 808.

R2-2101419 On open issues of RA report, MHI and logged MDT Ericsson CR Rel-16 38.331 16.3.1 2409 - F NR\_SON\_MDT-Core

=> The changes of issue 1 are agreed and will be merged into the big CR provided by email discussion 801.

=> issue 2 will be discussed in 808.

=> issue 4 is not pursued.

R2-2101690 Discussion on location issues for MDT and SON Huawei, HiSilicon discussion Rel-16 NR\_SON\_MDT-Core

=> continue the discussion in 808. If no consensus achieved, the CR will not be pursued in R16.

Others:

R2-2100696 Correction to TS 38.331 on logged MDT configuration vivo CR Rel-16 38.331 16.3.1 2348 - F NR\_SON\_MDT-Core

=> CR is not pursued.

R2-2100448 Misalignment of LTE and NR on neighbour cell measurements logging in any cell selection state Samsung Electronics Co., Ltd discussion Rel-16 NR\_SON\_MDT-Core

=> Try to align with LTE and continue the discussion in 808.

R2-2100583 Clarification on logged MDT for IRAT and non-SIB4 frequencies Samsung Telecommunications, Ericsson CR Rel-16 38.331 16.3.1 1805 2 F NR\_SON\_MDT-Core R2-2010083

=> The correction is needed and the details will be addressed by email discussion 808 (Ericsson)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*we are family\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

R2-2100607 Logged MDT Info extension Nokia, Nokia Shanghai Bell, Ericsson discussion Rel-16 NR\_SON\_MDT-Core

=> Noted

R2-2100608 Logged MDT Info extendibility (Solution 1) Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.3.1 2341 - F NR\_SON\_MDT-Core

=> Will be CB on next Friday session.

=> Will be merged into the NBC CR.

R2-2100609 Logged MDT Info extendibility (Solution 3) Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.3.1 2342 - F NR\_SON\_MDT-Core

=> Not pursued

R2-2100610 Logged MDT Info extendibility (Solution 4) Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.3.1 2343 - F NR\_SON\_MDT-Core

=> not pursued

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R2-2100695 Miscellaneous corrections to TS 38.331 on SON and MDT vivo CR Rel-16 38.331 16.3.1 2347 - F NR\_SON\_MDT-Core

=> The first, second and third changes are not pursued.

=> The last change is agreed and will be merged into 803.

R2-2100860 Correction on UE check of NW configuration of obtaining location information Apple, Qualcomm CR Rel-16 38.331 16.3.1 2359 - F NR\_SON\_MDT-Core

=> The second change is agreed and will merged in 803.

=> The first change is not pursued.

R2-2100873 Cleanup on miscellaneous issues in SON/MDT Apple CR Rel-16 38.331 16.3.1 2362 - F NR\_SON\_MDT-Core

=> Treated in email discussion 808

R2-2101420 ON RA Report extension possibilities Ericsson, Nokia, Nokia Shanghai Bell discussion

=> Treated in email discussion 808

R2-2101421 On the lack measResultServingCell availability in Any Cell Selection state Ericsson discussion

=> Treated in email discussion 808

R2-2101425 On WLAN-BT-sensor configration related Ericsson CR Rel-16 38.331 16.3.1 2412 - F NR\_SON\_MDT-Core

=> Treated in email discussion 808

R2-2101943 Clarification on location configuration in MDT ZTE Corporation, Sanechips discussion Rel-16

=> Treated in email discussion 808

Editorial ones:

R2-2100186 Miscellaneous Corrections for SON and MDT in 36.331 CATT CR Rel-16 36.331 16.3.0 4545 - F NR\_SON\_MDT-Core

=> Treated in email discussion 803

R2-2100188 Miscellaneous Corrections for SON and MDT in 38.331 CATT CR Rel-16 38.331 16.3.1 2310 - F NR\_SON\_MDT-Core

=> Treated in email discussion 803

R2-2100190 Correction on RLF Report for Re-connection CATT CR Rel-16 38.331 16.3.1 2311 - F NR\_SON\_MDT-Core

=> Treated in email discussion 803

R2-2101847 Corrections for SON&MDT Logging Capability OPPO CR Rel-16 38.331 16.3.1 2443 - F NR\_SON\_MDT-Core

=> Treated in email discussion 803

R2-2101848 Miscellaneous Corrections for SON&MDT OPPO CR Rel-16 38.331 16.3.1 2444 - F NR\_SON\_MDT-Core

=> Treated in email discussion 803

R2-2101938 Corrections for Cross-RAT RLF Report OPPO CR Rel-16 38.331 16.3.1 2454 - F NR\_SON\_MDT-Core

=> Treated in email discussion 803

R2-2101939 Corrections for Sensor OPPO CR Rel-16 38.331 16.3.1 2455 - F NR\_SON\_MDT-Core

=> Treated in email discussion 803

* [AT113-e][801][NR/R16 SON/MDT]  Merged 38.331 CR (Huawei, Ericsson)

- The discussion including R2-2100184, R2-2100185, R2-2100187, R2-2100197, R2-2101099, R2-2101688, R2-2101846.

- Every change in these documents should be addressed with clear conclusion (i.e., either agreed or not pursued)

- All the agreed changes will be merged into one CR.

Intended outcome: Agreeable CR (R2-2102134 for the report)

Deadline: Thursday 28/02/2021

R2-2102280 Corrections on NR MDT and SON Huawei, Ericsson CR Rel-16 38.331 16.3.1 2429 1 F NR\_SON\_MDT-Core

=> CR is agreed.

* [AT113-e][802][NR/R16 SON/MDT]  Merged 36.331 CR (Huawei, Ericsson)

- The discussion including R2-2100088, R2-2100089 R2-2100189, R2-2100199, R2-2100859, R2-2101689, R2-2101714.

- Every change in these documents should be addressed with clear conclusion (i.e., either agreed or not pursued)

- All the agreed changes will be merged into one CR.

Intended outcome: Agreeable CR (R2-2102135 for the CR and R2-2102136 for the report)

Deadline: Thursday 28/01/2021

R2-2102286 Corrections on EUTRA MDT and SON (Rapporteur CR) Ericsson, Huawei CR Rel-16 36.331 16.3.0 4589 1 F NR\_SON\_MDT-Core

=> revised to R2-2102331

R2-2102331 Corrections on EUTRA MDT and SON (Rapporteur CR) Ericsson, Huawei CR Rel-16 36.331 16.3.0 4589 2 F NR\_SON\_MDT-Core

=> CR is agreed

R2-2102319 Corrections on EUTRA MDT and SON (Rapporteur CR) Ericsson, Huawei CR Rel-15 36.331 16.3.0 4601 - F NR\_SON\_MDT-Core

=> CR is agreed

* [AT113-e][803][NR/R16 SON/MDT]  Editorial corrections of 38.331and 36.331 CR (CATT)

 -     The discussion including R2-2100186, R2-2100188, R2-2100190, R2-2101847, R2-2101848, R2-2101938,R2-2101939.

-     Every change in these documents should be addressed with clear conclusion (i.e., either agreed or not pursued)

-     All the agreed changes will be merged into one CR.

      Intended outcome: Agreeable CR (R2-2102137 for the CR and R2-2102138 for the report)

      Deadline: Thursday 28/01/2021

R2-2102273 Miscl corrections on SON and MDT CATT, OPPO, vivo, Apple, Qualcomm Incorporated CR Rel-16 38.331 16.3.1 2457 - F NR\_SON\_MDT-Core

=> CR is agreed.

R2-2102272 Editorial corrections on SON and MDT CATT CR Rel-16 36.331 16.3.1 4599 - D NR\_SON\_MDT-Core

=> CR is agreed

* [AT113-e][808][NR/R16 SON/MDT]  Controversial corrections of 38.331(Ericsson)

- The discussion including R2-2100873, R2-2101420, R2-2101421, R2-2101425, R2-2101943, R2-2101419 (only issue 2 ), R2-2101690, R2-2100448, R2-2100583.

- Every change in these documents should be addressed with clear conclusion (i.e., either agreed or not pursued)

- All the agreed changes will be merged into one CR.

Intended outcome: Agreeable CR (R2-2102139 for the CR and R2-2102140 for the report)

Deadline: Thursday 04/02/2021

=> Extend RA report in a NBC way. This NBC change should be merged with R2-2100608

R2-2102140 Report of controversial corrections of 38.331 (Ericsson) Ericsson

=> Noted

R2-2102464 RA report and Logged MDT Info extendibility Nokia, Nokia Shanghai Bell, Ericsson CR Rel-16 38.331 16.3.1 2341 1 F NR\_SON\_MDT-Core

=> CR is agreed

R2-2102465 Corrections on NR MDT and SON Ericsson CR Rel-16 38.331 16.3.1 2467 - F NR\_SON\_MDT-Core

=> CR is agreed

=> All the CRs raised in 6.10.3 in RAN2-113e are treated. All the needed change requests are already addressed in the agreed CRs. All the other change requests will not be pursued in R16.

## 8.13 SON/MDT

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

Time budget: 1 TU

Tdoc Limitation: 6 tdocs

Email max expectation: 6 threads

### 8.13.1 Organizational

R2-2100036 LS on UE based solution related to Logged MDT (R3-207176; contact: Ericsson) RAN3 LS in Rel-16 TEI16 To:RAN2

=> Introduce UE based solutions in Rel17 to fulfil the requirement that management based logged MDT should not overwrite signalling based logged MDT. FFS the details.

R2-2100047 LS on Mobility Enhancement Optimization (R3-207229; contact: Lenovo) RAN3 LS in Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core To:RAN2

=> Noted

=> The RAN3 agreements will be taken into account. How to specify the corresponding UE behavior is FFS.

R2-2100049 LS on corrections for F1-U delay reporting when gNB-DU and gNB-CU-UP are not split (R3-207233; contact: Ericsson) RAN3 LS in Rel-17 NR\_ENDC\_SON\_MDT\_enh To:RAN2

=> Noted

R2-2100031 Reply LS on on energy efficiency (R3-207014; contact: Ericsson) RAN3 LS in Rel-17 NR\_ENDC\_SON\_MDT\_enh To:SA5 Cc:RAN2, SA

R2-2101424 On UE based solution related to Logged MDT (reply LS to R3-207176) Ericsson discussion

### 8.13.2 SON

R2-2101451 [Post112-e][853][NR R17 SON/MDT] R17 Information needed in UE report for CHO cases (Ericsson) Ericsson discussion NR\_ENDC\_SON\_MDT\_enh-Core

Agreements:

1 Include in the RLF report the “Time elapsed since CHO execution until connection failure”. How to convey this information is FFS. (email discussion 886, Qualcomm)

2 Reuse the following legacy timers in the RLF report also for CHO: timeUntilReconnection, timeSinceFailure.

3 In the RLF report for CHO, the UE includes of the latest radio measurement results. FFS: to indicate whether or not it is candidate target cell. (email discussion 887, Ericsson)

Signalling model for RLF report:

FFS: Separate IEs/fields within the existing RLF-report are used to represent the second HOF. Also consider the second HO is successful case together. What measurements also need to be considered.

R2-2102265 Summary of AI 8.13.2 Ericsson discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

Following DAPS HO scenarios are considered:

a. Failed DAPS handover to the target cell but successfully fallback to source

b. UE declares RLF on the source cell before successfully DAPS handover towards target cell

Agreements

2-step RA related SON:

1 The reporting granularity of whether the DL beam quality, associated to the used 2 step RA resource, is above or below the msgA-RSRP-ThresholdSSB is per-RA-attempt.

2 The RA report includes an indication that enables the network to know that the fallback from 2 step RA to 4 step RA was performed by the UE. FFS: Implicit vs explicit indication.

3 Choose ‘per RA procedure’ for the granularity of RA type (2 step RA vs 4 step RA) indication. FFS: Implicit vs explicit indication.

FFS: The RA report includes as indication of whether the DL beam quality, associated to the used 2 step RA resource, is above or below the msgA-RSRP-Threshold. (email discussion 888, ZTE)

Agreements:

Contents of the HO success report:

The source cell and target cell related identifiers and measurements are to be included in the successful HO report.

R2-2100842 Consideration on handover related SON OPPO discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

#### 8.13.2.1 Handover related SON aspects

Including conditional handover and DAPS

R2-2100191 Further Consideration on CHO and DAPS Mobility Enhancement CATT discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100600 Successful HO report Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100697 Discussion on scenarios, signalling and content for DAPS HO report vivo discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100711 Discussion on RLF report in CHO case SHARP Corporation discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core R2-2009632

R2-2100776 Discussion on successful handover report NTT DOCOMO, INC. discussion Rel-17 R2-2010459

R2-2100780 Discussion on RLF report for DAPS SHARP Corporation discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101102 SON Enhancements for CHO Lenovo, Motorola Mobility discussion Rel-17

R2-2101103 SON Enhancement for DAPS Handover Lenovo, Motorola Mobility discussion Rel-17

R2-2101251 Discussion on handover related SON aspects Huawei, HiSilicon discussion Rel-17

R2-2101343 SON aspects of DAPS HO and Fast MCG Recovery Optimizations QUALCOMM INCORPORATED discussion Rel-17

R2-2101438 CHO- and DAPS-related aspects of SON Ericsson discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101586 Consideration on RLF report enhancements for CHO and DAPS ZTE Corporation, Sanechips discussion Rel-17

R2-2101595 RLF Enhancements for CHO Samsung discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101602 RLF Enhancements for DAPS HO Samsung discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101639 SON Enhancement for CHO CMCC discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101640 SON Enhancement for DAPS CMCC discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101668 Discussion on successive CHO failure scenarios Google Inc. discussion 38.331 NR\_ENDC\_SON\_MDT\_enh-Core

#### 8.13.2.2 2-step RA related SON aspects

R2-2100192 Discussion on RACH Report for 2-step RACH CATT discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100286 Further discussion on SON aspects of 2-step RA China Telecommunication discussion Rel-17

R2-2100601 RACH report logging of 2-step and 4-step RACH information Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100698 Discussion on contents and signalling model of 2-step RACH report vivo discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100710 Discussion on RA information for 2-step RA SHARP Corporation discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core R2-2009631

R2-2101252 Discussion on 2 step RA related SON aspects Huawei, HiSilicon discussion Rel-17

R2-2101439 2-Step RA information for SON purposes Ericsson discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101587 RA related enhancements ZTE Corporation, Sanechips discussion Rel-17

R2-2101603 RA Report Enhanements for 2-step RA Samsung discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101641 SON Enhancement for 2-step RA CMCC discussion NR\_ENDC\_SON\_MDT\_enh-Core

#### 8.13.2.3 Other WID related SON features

Including RAN3 input features, successful handover report, MRO for SN change failure, RACH optimization enhancements, UL-DL coverage mismatch, …

R2-2100193 Further Consideration on the UE RACH Report for SN CATT discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100194 Enhancement on Mobility History Information CATT discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100602 Refined UL Coverage Outage Detection Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100699 Discussion and reply on R3 LS for SgNB RACH report vivo discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100700 Discussion on SON enhancements for Successful HO vivo discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100748 Discussion on successful handover report NEC discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100774 Discussion on collection of UE history information in EN-DC NTT DOCOMO, INC. discussion Rel-17

R2-2100779 Discussion on conditional PSCell addition/change failure report NTT DOCOMO, INC. discussion Rel-17

R2-2100845 Consideration on successful handover report and UE history information in EN-DC OPPO discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101082 Discussion on rel-17 Radio Link Failure Report enhancement NTT DOCOMO INC. discussion Rel-17

R2-2101104 SON enhancement for Inter-RAT handover Lenovo, Motorola Mobility discussion Rel-17

R2-2101105 SON enhancement for fast MCG link recovery Lenovo, Motorola Mobility discussion Rel-17

R2-2101253 Discussion on other SON aspects Huawei, HiSilicon discussion Rel-17

R2-2101348 Successful Handover Report QUALCOMM INCORPORATED discussion Rel-17

R2-2101350 Open Issues in Other WID related SON features QUALCOMM INCORPORATED discussion Rel-17

R2-2101440 Other WID related SON features Ericsson discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101588 Considerations on successful HO report ZTE Corporation, Sanechips discussion Rel-17

R2-2101589 Consideration on MHI and UL/DL imbalance ZTE Corporation, Sanechips discussion Rel-17

R2-2101604 SON Enhancements Samsung discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101643 Discussion on Successful Handover Report CMCC discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101644 Enhancement for Mobility History Information CMCC discussion NR\_ENDC\_SON\_MDT\_enh-Core

### 8.13.3 MDT

#### 8.13.3.1 Immediate MDT enhancements

including M5/M6/M7 in all bearer type scenarios, immediate MDT for MR-DC

R2-2102250 Summary on 8.13.3 MDT Huawei discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

Note: 2.3 logged MDT will be the focus of the online discussion.

Email discussion on 2.3.1 proposals (844, Huawei)

Email discussion on 2.3.2 proposals (845, CMCC)

R2-2100587 Immediate MDT with MR-DC and Intermediate MDT for early measurements Samsung Telecommunications discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100588 Progressing Logged MDT for R17 concerning MR-DC, IRAT and IDC Samsung Telecommunications discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core Revised

R2-2101945 Progressing Logged MDT for R17 concerning MR-DC, IRAT and IDC Samsung Telecommunications discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core R2-2100588

R2-2100195 Further Consideration on Immediate MDT Enhancements CATT discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100493 On the need for enhancements to the MDT framework Fraunhofer HHI, Fraunhofer IIS discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core R2-2009263

R2-2100605 Delay measurement configuration for DC cases Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100701 Discussion on immediate MDT enhancements vivo discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101342 On the configuration and accuracy of M5, M6, and M7 measurements in split-bearer QUALCOMM INCORPORATED discussion Rel-17

R2-2101414 On Immediate MDT Enhancements Ericsson discussion

R2-2101590 Consideration on immediate MDT enhancements ZTE Corporation, Sanechips discussion Rel-17

R2-2101696 Discussion on immediate MDT enhancements Huawei, HiSilicon discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

#### 8.13.3.2 Logged MDT enhancements

R2-2100196 Enhancement on Logged MDT in DC Scenario CATT discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100287 Discussion on logged MDT in MR-DC China Telecommunication discussion Rel-17

R2-2100603 Enhancements for Logged MDT and RLFreporting Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100604 MDT use for management of System Information area Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100702 Discussion on logged MDT enhancements in EN-DC vivo discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100843 Consideration of logged MDT enhancements OPPO discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101341 Logged measurement Enhancements QUALCOMM INCORPORATED discussion Rel-17

R2-2101418 On logged MDT related enhancements Ericsson discussion

R2-2101591 Consideration on Logged MDT enhancements and early measurements ZTE Corporation, Sanechips discussion Rel-17

R2-2101642 MDT enhancement for on-demand SI CMCC discussion NR\_ENDC\_SON\_MDT\_enh-Core

R2-2101697 Discussion on logged MDT enhancements Huawei, HiSilicon discussion Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

### 8.13.4 L2 Measurements

R2-2100703 Report of [Post112-e][852][NR R17 SONMDT] R17 L2M enhancement (vivo) vivo report Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

Agreements:

1 Support counting the number of received random access preamble per cell/per SSB separately for 2step RA and 4step RA type.

2 L2 measurements for IAB will NOT be introduced in Rel-17 SON/MDT WI.

3 RAN2 will NOT enhance the current delay measurement mechanism.

4 In case split bearer data goes through Xn/X2 interface, the delay over Xn/X2 interface should be taken into account in M6 for split bearers.

5 D3 is re-used to reflect the DL delay on F1-U/X2/Xn, D2.3 is re-used to reflect the UL delay on F1-U/X2/Xn, LS to RAN3 for further confirmation.

6 The delay over Xn/X2/F1-U interface should be taken into account in M6 for MN terminated SCG bearers and SN terminated MCG bearers.

7 For QoS monitoring related delay reporting to CN, the minimum value between two legs is defined as the total delay measurement M6 over MCG/SCG for split bearers WITH PDCP duplication.

8 For QoS monitoring related delay reporting to CN, the delay estimation coordination (forwarding) between MN and SN is needed for split bearers.

9 For QoS monitoring related delay reporting to CN, the delay estimation coordination (forwarding) between MN and SN is needed for MN terminated SCG bearers and SN terminated MCG bearers.

FFS in email discussion (822, vivo) For QoS monitoring related delay reporting to CN, RAN2 to choose one of the following options for the total delay measurement M6 over MCG/SCG for split bearers WITHOUT PDCP duplication.

 Option a: the maximum value between two legs;

 Option b: weighte average (consider the number of packets) over MN and SN;

 Option c: simply by average the values of M6 from MN and M6 from SN;

 Option d: raw data (separate delay in MN and SN);

 Option e: no differentiation

R2-2102236 Summary for 8.13.4 L2 Measurements CMCC Rel-17 NR\_ENDC\_SON\_MDT\_enh-Core

R2-2100288 Discussion on L2 measurements for split bearers China Telecommunication discussion Rel-17

R2-2101417 On layer-2 measurements Ericsson discussion

R2-2101698 Discussion on L2M Huawei, HiSilicon

* [AT113-e][886][NR/R17 SON/MDT]  How to address time information (Qualcomm)

- Based on the agreements that “Include in the RLF report the “Time elapsed since CHO execution until connection failure”.

- Figure out how to convey this information.

Intended outcome: Agreeable WF (R2-2102146)

Deadline: Thursday 04/02/2021

R2-2102146 The report of[Offline-e][886][NRR17 SONMDT] How to address time information Qualcomm

Agreements:

UE reports "Time elapsed since CHO execution until connection failure" implicitly or explicitly, i.e. UE either explicitly provides the aforementioned timing information or provides sufficient information for the network to compute it.

* [AT113-e][887][NR/R17 SON/MDT]  Indication of candidate target cell (Ericsson)

- Based on the agreements that “In the RLF report for CHO, the UE includes of the latest radio measurement results. FFS: to indicate whether or not it is candidate target cell.”.

- Figure out the necessity of introducing the indication.

Intended outcome: Agreeable WF (R2-2102145)

Deadline: Thursday 04/02/2021

R2-2102145 [AT113-e][887][NR/R17 SON/MDT]  Indication of candidate target cell Ericsson

=> Continue the discussion ”UE shall include the latest radio measurement results of the candidate target cells in the RLF-report.” through email. (Ericsson)

=> Before agreeing on including an indication indicating whether a neighbor cell, included as part of neighbor cell measurement result, is associated to a CHO candidate target cell or not, RAN2 waits RAN3 to confirm whether the source cell can keep the UE context, at least up to the point the RLF-report is received by the source cell. Draft LS to RAN3 for this.(#899, Ericsson)

* [AT113-e][888][NR/R17 SON/MDT]  Indication for 2-step RACH (ZTE)

- Working on the FFS part that “The RA report includes as indication of whether the DL beam quality, associated to the used 2 step RA resource, is above or below the msgA-RSRP-Threshold.”.

Intended outcome: Agreeable WF (R2-2102447)

Deadline: Thursday 04/02/2021

R2-2102446 Report of[Offline-888][NRR17 SONMDT] Indication for 2-step RACH ZTE

Agreement:

UE includes the measured RSRP of DL pathloss reference obtained just before performing RACH procedure in 2step RA report. FFS how to reduce the report overhead.

=> No need to include indication to indicate whether DL beam quality of associated 2 step RA resource is above or below the msgA-RSRP-Threshold in 2step RA report if P2 is agreed.

* [AT113-e][844][NR/R17 SON/MDT]  Logged MDT part I (Huawei)

- Discussion on 2.3.1 of R2-2102250

Intended outcome: Agreeable WF (R2-2102143)

Deadline: Thursday 04/02/2021

R2-2102143 Report of [AT113-e][844][NR/R17 SON/MDT]  Logged MDT part I Huawei

Agreement:

The network can use a flag in logged MDT configuration to indicate if an early measurement/idle mode configuration has relevance for logged measurement purposes. Upon such an indication, UE can log measurements on non-cellReselection (carrier frequencies not part of SIB4 or SIB5). AreaConfig and/or InterFreqTargetInfo can be used for filtering of SIB4 and non-SIB4 frequencies. Whether a flag is needed should be FFS.

* [AT113-e][845][NR/R17 SON/MDT]  Logged MDT part II (CMCC)

- Discussion on 2.3.2 of R2-2102250

Intended outcome: Agreeable WF (R2-2102142)

Deadline: Thursday 04/02/2021

R2-2102142 Report of [AT113-e][845] [NR/R17 SON/MDT] Logged MDT part II (CMCC) CMCC

=> UE records the on demand SI related information for following scenarios:

1. Failed on-demand SI request

2. Successful on-demand SI request

Agreements:

1 One specific raPurpose is introduced for MSG3 based on demand SI request.

All the following proposals can be discussed through post meeting email discussion.

FFS: UE reports its requested notBroadcasting SI message. It is FFS to only report the SIBs UE actually intends to request.

Proposal 2: It is FFS to consider following scenarios:

3. Cell reselection occurs during the RACH for SI request.

4. The required SI is already broadcast periodically by network

5. Detecting geographic areas that are (unintentionally) covered by a non-desired SIA

6. Connected on-demand SI request cases

Proposal 4: It is FFS for UE to report Time elapsed since the SI request initiation or the UE modem realizes the need for on demand SI until the successful SI acquisition or the acquisition failure.

Proposal 6: It is FFS whether only Msg3-based SI request related information is reported.

Proposal 7: It is FFS whether to extend current RA-report to include the on demand SI information.

* [AT113-e][822][NR/R17 SON/MDT]  M6 (vivo)

For QoS monitoring related delay reporting to CN, RAN2 to choose one of the following options for the total delay measurement M6 over MCG/SCG for split bearers WITHOUT PDCP duplication.

Option a: the maximum value between two legs;

Option b: weighte average (consider the number of packets) over MN and SN;

Option c: simply by average the values of M6 from MN and M6 from SN;

Option d: raw data (separate delay in MN and SN);

Option e: no differentiation

Intended outcome: Agreeable WF (R2-2102147)

Deadline: Thursday 04/02/2021

R2-2102147 The report of[Offline-822][NR R17 SONMDT] M6 (vivo) vivo

Agreement:

For QoS monitoring related delay reporting to CN, ‘weighted average (consider the number of packets) over MN and SN’ is used to calculate the total delay measurement M6 over MCG/SCG for split bearers WITHOUT PDCP duplication.

R2-2101956

Report from SOM/MDT session

Session chair (CMCC)

Hu Nan

10.6

800-899

R2-2102148 – 2150

Agreed CRs:

BC CRs:

R2-2102131 Merged Corrections to TS 37.320 CMCC, Nokia CR Rel-16 37.320 16.3.0 0103 - F NR\_SON\_MDT-Core

=> CR is agreed

R2-2102132 Miscellaneous corrections to TS 38.314 vivo CR Rel-16 38.314 16.2.0 0013 1 F NR\_SON\_MDT-Core

=> CR is agreed

R2-2102280 Corrections on NR MDT and SON Huawei, Ericsson CR Rel-16 38.331 16.3.1 2429 1 F NR\_SON\_MDT-Core

=> CR is agreed.

R2-2102331 Corrections on EUTRA MDT and SON (Rapporteur CR) Ericsson, Huawei CR Rel-16 36.331 16.3.0 4589 2 F NR\_SON\_MDT-Core

=> CR is agreed

R2-2102319 Corrections on EUTRA MDT and SON (Rapporteur CR) Ericsson, Huawei CR Rel-15 36.331 16.3.0 4601 - F NR\_SON\_MDT-Core

=> CR is agreed

R2-2102273 Miscl corrections on SON and MDT CATT, OPPO, vivo, Apple, Qualcomm Incorporated CR Rel-16 38.331 16.3.1 2457 - F NR\_SON\_MDT-Core

=> CR is agreed.

R2-2102272 Editorial corrections on SON and MDT CATT CR Rel-16 36.331 16.3.1 4599 - D NR\_SON\_MDT-Core

=> CR is agreed

R2-2102465 Corrections on NR MDT and SON Ericsson CR Rel-16 38.331 16.3.1 2467 - F NR\_SON\_MDT-Core

=> CR is agreed

NBC CRs:

R2-2102464 RA report and Logged MDT Info extendibility Nokia, Nokia Shanghai Bell, Ericsson CR Rel-16 38.331 16.3.1 2341 1 F NR\_SON\_MDT-Core

=> CR is agreed

Email discussions after the meeting:

* [Post113-e][NR/R16 SON/MDT]  Timestamp of event triggered MDT (Ericsson)

- Focus on the issue “Timestamp of event triggered logged MDT” in R2-2102141.

- Figure out the UE behavior

Intended outcome: Report

Deadline: Next meeting

* [Post113-e][NR/R17 SON/MDT]  HO related SON changes (Ericsson)

- Scope:

impacts of CHO failure on RLF report

impacts of DAPS HO failure on RLF report

the successful HO report

- All the not-treated cat-a and cat-b proposals in 2.1.1, 2.1.2 and 2.31 of R2-2102265 should be taken into account

Intended outcome: Report

Deadline: Next meeting

* [Post113-e][NR/R17 SON/MDT]  2 step RA and other SON changes (CATT)

- Scope:

2 step RA report enhancements (also potentially reply to RAN3 LS in R2-2008731)

Mobility history information enhancements

RA report related enhancements (from RAN2#113 contributions and RAN3 LS R2-2008723)

Other SON functions as proposed by companies for RAN2#113 meeting

Intended outcome: Report

Deadline: Next meeting

* [Post113-e][NR/R17 SON/MDT]  IMM MDT (Huawei)

- Scope:

In R2-2102250 (MDT summary), cat (b) proposals on M6/M5/M7 should be progressed. Identify the candidate solutions and figure out pros/cons respectively

Intended outcome: Report

Deadline: Next meeting

* [Post113-e][NR/R17 SON/MDT]  Logged MDT (CMCC)

- Scope(should be decided after Friday CB)

In R2-2102250 (MDT summary), cat (b) proposals in 2.3 should be progressed.

Intended outcome: Report

Deadline: Next meeting