3GPP TSG RAN WG2#115-e                                             R2-210XXXX

Electronic meeting, 16th Aug – 27th Aug, 2021

Agenda Item: 8.13.3.2

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Title: Summary on agenda item 8.13.3.2 Logged MDT enhancements

Document for: Discussion and Decision

# Introduction

This document provides the summary of the contributions submitted to agenda item 8.13.3.2 of #115-e meeting [1-14]. Taking the company proposals into account, section 3 provides sets of proposals for easy agreement, as well as for further discussions.

# Discussion

## The scenarios and contents for on-demand SI

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| **TDoc** | **Company name** | **Proposals** |
| R2-2107720 | vivo | Proposal 1 UE records intended SIBs for successful case for on-demand SI request enhancements.Proposal 3 RAN2 to discuss whether on-demand SI request enhancement also applies to posSIB and the need to record the corresponding GNSS-ID and SBAS-ID of the requested posSIB. |
| R2-2107827 | CATT | Proposal 1: The following contents are suggested to record and report for on-demand SI:- The times each SIB UE intends to request;- Failed or successful on-demand SI indicator;Proposal 4: The following parameters can be included in on-demand SI request statistics configuration:- The maximum number of SIB that can be recorded and reported;- Statistics duration;- Statistical trigger conditions;- SIBs requiring statistics;Proposal 5: RAN2 to take the connected on-demand SI request cases into consideration. |
| R2-2108306 | Ericsson | Proposal 4 UE shall log the failure type (failure at RA procedure or failure at acquiring SI messages) associated to a failed SI request.Proposal 5 UE shall log the information of the beams used to acquire the requested SI messages for successful and failed SI request procedures.Proposal 6 UE shall log the time between consecutive SI requests.Proposal 7 UE shall log the location information at the time of performing the SI request. |
| R2-2108357 | ZTE | Proposal 1: successful Msg1/Msg3 on-demand SI request information is considered in on-demand SI information report. |
| R2-2108650 | Samsung | Proposal 3: In the RA Report, a new indicator is introduced to indicate if the RA due to SI request succeeded or failed.Proposal 4: In the RA Report, an indicator is introduced to indicate if SI request was performed over either NUL or SUL.Proposal 5: RAN2 clarifies whether to also consider Positioning SI/SIB in SI request optimization. |

This issue is mainly about the scenarios and contents for on-demand SI report.

* Two companies propose to consider the successful case for on-demand SI request enhancements
* Two companies propose to discuss whether to also consider Positioning SI/SIB in SI request optimization
* One company proposes to consider the on-demand SI request enhancements in connected state

In addition, some companies also provide some contents which need to be recorded and reported for SI request optimization. However, these contents provided by companies are different.

Therefore, it seems more discussions are needed on the scenarios and contents for on-demand SI request enhancements.

**Proposal 1 RAN2 discuss which scenarios need to be considered in on-demand SI request optimization**

1. **Successful on-demand SI request**
2. **Positioning SI/SIB request**
3. **On-demand SI request in connected state**

**Proposal 2 RAN2 discuss which contents need to be recorded and reported for on-demand SI request optimization**

1. **The times each SIB UE intends to request**
2. **Failed or successful on-demand SI indicator**
3. **Failure type (failure at RA procedure or failure at acquiring SI messages)**
4. **The information of the beams used to acquire the requested SI messages**
5. **The time between consecutive SI requests**
6. **The location information at the time of performing the SI request**
7. **an indicator to indicate if SI request was performed over either NUL or SUL**

One company proposes the logged configuration information for on-demand SI. Rapporteur suggests discussing the signalling design for on-demand SI first, so no proposal is made regarding this aspect.

## Signalling design for on-demand SI

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| **TDoc** | **Company name** | **Proposals** |
| R2-2107720 | vivo | Proposal 2 Extend RA report to include on-demand SI related information (including both successful and failed case). |
| R2-2107827 | CATT | Proposal 2: The on-demand SI related information should not be recorded in RACH report, as on-demand SI related information and RACH information is for different purpose, and should not be recorded in one RACH report and report to network together.Proposal 3: Logged MDT mechanism can be used for reporting on-demand SI request information. |
| R2-2108306 | Ericsson | Proposal 3 RAN2 defines a separate and dedicated report for on-demand SI request procedure data collection. |
| R2-2108357 | ZTE | Proposal 2: It is proposed that RAN2 to select in the following solution for on-demand SI information logging:* Extend RA report to log both successful and failure on-demand SI information
* Use logged MDT to store both failure and successful on-demand SI
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| R2-2108566 | Huawei | Proposal 1: It is proposed to go with a compromised solution among option 2, 3 and 4. |
| R2-2108650 | Samsung | Proposal 1: RA report is extended to consider even failure of RA initiated due to on-demand SI request only.Proposal 2: Represent “requested SIBs” in a compact bitmap with a configurable size (e.g., a 16-bit bitmap or 24-bit bitmap) to represent “requested-SIB-List” and interpret the SIB number starting with SIB2 instead of SIB1. |

From the contributions, companies focus on the following options:

Option 1: Extend Logged MDT ‎(CATT, ZTE)

Option 2: Extend RA report

Option 2a: (vivo, ZTE, Samsung)

Extend RA report for both successful and failure on-demand SI request

Option 2b: (Huawei)

Extend RA report for successful on-demand SI request

Extend other report (RA report, CEF report, new report) for failure on-demand SI request

Option 3: A separate and dedicated report (Ericsson)

Companies supporting option1 believe option 1 brings more flexibility for network, it allows the network to provide the configuration information to UE. Companies supporting Option 2a think RA report can be extended to include the failure case, and the current RA report has already provided RA related information. For option 2b, one company thinks other report can be consider to use to include the failed on-demand SI request information. The company which proposes Option 3 thinks neither option 1 nor option 2 is appropriate, the on-demand SI request related information should be included in a separate and dedicated report. It seems more discussions are needed on the options.

**Proposal 3 RAN2 discuss which option should be selected for the signaling for on-demand SI**

**Option 1: Extend Logged MDT**

**Option 2: Extend RA report**

**Option 2a:**

**Extend RA report for both successful and failure on-demand SI request**

**Option 2b:**

**Extend RA report for successful on-demand SI request**

**Extend other report (RA report, CEF report, new report) for failure on-demand SI request**

**Option 3: A separate and dedicated report**

One company proposes to represent “requested SIBs” in a compact bitmap. Rapporteur suggests discussing the signalling design for on-demand SI first, and the specific content format can be discussed later. So no proposal is made regarding this aspect.

## Signalling-based logged MDT prioritization

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| **TDoc** | **Company name** | **Proposals** |
| R2-2107395 | OPPO | Proposal 1: RAN2 to agree that avoidance of overwriting of the signalling-based MDT configuration by the management-based MDT configuration is needed, i.e., the UE needs to send the flag towards network in the scenario that logged MDT is configured & no results are available or all previously stored results retrieved.Proposal 2: RAN2 to agree that avoidance of overwriting of the signalling-based MDT configuration by the management-based MDT configuration is not needed in the scenario that logged MDT configuration is released, but UE still has un-retrieved results that would be discarded upon accepting a new configuration.Proposal 3: RAN2 to agree that UE should report the T330 related information towards the network also, e.g., the duration between current timer and the time that the T330 to be expired, for the network to determine from when it is proper to send the management based MDT configuration towards the UE. |
| R2-2107508 | Nokia | Proposal 1: *LoggedMeasurementsConfiguration* is extended with “Logged MDT type” IE, which indicates involvement in Signaling based MDT.Proposal 2: The UE provides assistance information to the network on involvement in Signaling based MDT. I.e. repeats “Logged MDT type” IE provided in preconfigured *LoggedMeasurementsConfiguration* together with data availability bit, |
| R2-2108306 | Ericsson | Proposal 8 The signaling based MDT availability flag is included only in RRCSetupComplete/ RRCConnectionSetupComplete and the RRCResumeComplete/ RRCConnectionResumeComplete messages.Proposal 9 The UE sends the signaling based MDT availability flag to an LTE cell even if the UE has an NR signaling based logged MDT configuration and vice-versa i.e., the UE sends the signaling based MDT availability flag to an NR cell even if the UE has an LTE signaling based logged MDT configuration.Proposal 10 The UE sends the signaling based MDT availability flag to a cell belonging to a PLMN that is not in the *plmn-IdentityList*.Proposal 11 UE does not include remaining T330 timer in the RRCSetupComplete/RRCResumeComplete messagesProposal 12 UE informs network regarding T330 timer expiry via *UEAssistanceInformation* message |
| R2-2108331 | Qualcomm | Proposal 1: Based on observation 1 and observation 2, the network (the serving gNB or eNB) can determine whether signaling-based logged MDT is configured at a specific UE.Proposal 2: UE uses an indication/flag in RRC complete message to notify the network “whether T330 is running” if signalling-based MDT is configured at the UE. |
| R2-2108566 | Huawei | Proposal 2: The UE should set the UE-assisted information when one of the following conditions is met:1) Signalling based Logged MDT is configured, but no results are available e.g. so far nothing stored, or all previously stored results retrieved2) Signalling based Logged MDT configuration is stopped (i.e. the expiry of T330), but UE still has un-retrieved results that would be discarded upon accepting a new configuration |
| R2-2108739 | Samsung | Proposal A.1 Avoid discarding of sig-LogMDT results not yet retrieved by network (e.g. if UE following T330 expiry, did not connect to the RAT that configured sig-LogMDT)Proposal A.2 To support UE assistance introduce a flag (single bit) that UE sets if it has pending LogMDT i.e. configuration is ongoing or logging results are availableo Limited to sig-LogMDT and intra-PLMN caseso No distinction whether pending sig-LogMDT concerns current or another RAT (i.e. also used upon return from idle, possibly involving IRAT reselectionProposal A.3 UE sets the logMDT pending flag in the following cases:o Upon transition to connected: I.e. same cases as for reporting availability of logMDT i.e. in setupComp, resumeComp, reconfigComp (includes HO to NR), reestablishComp. By extension of IE UE-MeasurementsAvailable (NR case)o (UE does not provide updated assistance e.g. upon T330 expiry or retrieval)Proposal A.4 Transfer UE assistance between network nodes (change of MN, including IRAT mobility)Proposal A.5 Consider making the feature conditionally mandatory (i.e. for R17 UE supporting logMDT)a) If agreed, introduce a field in SI/ broadcast indicating network support of the featureb) Otherwise, introduce a field in OtherConfig by which network configures whether UE shall provide the assistance and a corresponding UE capability |

Several aspects are discussed in the contributions.

On scenario(s) for overwriting avoidance

From the contributions, two scenarios could be considered regarding whether to avoid overwriting of the signalling-based MDT configuration by the management-based MDT configuration.

Scenario1: Signalling based Logged MDT is configured, but no results are available e.g. so far nothing stored, or all previously stored results retrieved

Scenario2: Signalling based Logged MDT configuration is stopped (i.e. the expiry of T330), but UE still has un-retrieved results that would be discarded upon accepting a new configuration

Three companies think it should be avoided that management-based MDT configuration overrides the signalling-based MDT configuration in scenario1, and two of them also think it should be avoided for scenario2 and UE should report the assistant information to network. It seems further discussions are needed.

**Proposal 4 RAN2 further discuss whether there is a need to avoid signalling based Logged MDT being overridden by the management-based MDT configuration in the following scenarios**

* **Scenario1: Signalling based Logged MDT is configured, but no results are available e.g. so far nothing stored, or all previously stored results retrieved**
* **Scenario2: Signalling based Logged MDT configuration is stopped (i.e. the expiry of T330), but UE still has un-retrieved results that would be discarded upon accepting a new configuration**

Signaling used for assistant information

In the last meeting, we have agreed the follow:

* In order to avoid overwriting of signalling-based logged MDT, UE-assisted and network-based solution, which relying on network implementation through UE providing assistance, is introduced.

From the company contributions, it seems there is a general understanding that the UE reports the assistant information (a flag) to network to inform that the UE is configured with signaling based MDT configuration.

Then, there are discussions on the signaling for such assistant information, i.e.,

* Three companies propose the assistant information can be reported to network by UL complete messages
* One of them thinks the assistant information can be reported only by RRCSetupComplete/ RRCConnectionSetupComplete and the RRCResumeComplete/ RRCConnectionResumeComplete messages
* One of them thinks the assistant information can be reported by all UL complete messages.
* One company thinks the network can determine whether signaling-based logged MDT is configured at a specific UE.

It seems more discussions are needed for the signaling used for assistant information report.

**Proposal 5 RAN2 discuss whether the UE-assisted information (a flag) can be reported in UL complete messages and which UL message can be used.**

Additional aspects

In addition, two companies propose to report the T330 related information, e.g. whether the T330 is running or the duration between current timer and the time that the T330 to be expired. One company think UE does not include remaining T330 timer in the RRCSetupComplete/RRCResumeComplete messages, but T330 expires can be reported in *UEAssistanceInformation* message. However, one company thinks T330 expires should not be reported.

**Proposal 6 RAN2 discuss whether the following T330 related information should be reported**

1. **Whether the T330 timer is running**
2. **The remaining T330 timer**
3. **T330 expires**

Furthermore, there are some other aspects discussed by companies, but seems no common views are observed. So it seems these can be discussed if time allows. This is reflected by the following proposal.

**Proposal 7 RAN2 further discuss the following aspects**

1. **Extended “Logged MDT type”** (**R2-2107508)**
2. **Send the signaling based MDT availability flag to another RAT(R2-2108306)**
3. **Send the signaling based MDT availability flag to another PLMN (R2-2108306)**
4. **Avoid discarding of sig-LogMDT results not yet retrieved by network (R2-2108739)**
5. **Transfer UE assistance between network nodes (R2-2108739)**
6. **Consider making the feature conditionally mandatory (R2-2108739)**

## Other aspects

‎Early measurements logging in logged MDT report

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| **TDoc** | **Company name** | **Proposals** |
| R2-2108306 | Ericsson | Proposal 1 Measurement values related to Early measurement carriers are incorporated into logged MDT report irrespective of the *qualityThreshold* criterion configured in the early measurement configuration.Proposal 2 The neighbor cell measurements in the logged MDT includes information indicating whether the measurements are associated to overlapping carriers (carriers included in early measurement configuration) or non-overlapping carriers (carriers included only in reselection SIBs). |
| R2-2108331 | Qualcomm | Proposal 5: In the logged measurement configuration (for enabling/disabling the logging of measurement on idle model measurement configured cells and frequencies for the entire duration of T330) or idle mode measurement configuration (for enabling/disabling the logging of measurement on idle model measurement configured cells and frequencies per idle mode measurement configuration), the network may use a flag to indicate whether an idle mode measurement configuration has relevance for logged measurement. |
| R2-2108739 | Samsung | Proposal C.1 Introduce a flag in SI/ broadcast indicating network support for nonSIB frequencies1. One flag, common for interFreq (nonSIB4) and interRAT (nonSIB5), as extension of SIB12. Only if flag is set, UE reports results of nonSIB frequencies3. Only if flag is set, UE will consider nonSIB frequencies for setting availabilityProposal C.2 Do not introduce further signaling changes, meaning that:1. No separate flag in logMDT config indicating whether UE shall log available results for nonSIB frequencies2. No separate field to indicate availability of results for non-SIB frequencies (but setting of existing availability indication is affected by field specifying target frequencies or flag)3. No separate field by which network requests results for non-SIB frequencies (but provides results of non-SIB frequencies based on field specifying target frequencies or flag)4. No separate field for results for non-SIB frequencies i.e. results are provided in separate entry of per frequency list of neighbouring results (according to current ASN.1)Proposal C.3 Consider introducing a field indicating target IRAT frequenciesProposal C.4 Consider making the feature conditionally mandatory in R17 (mandatory for an R17 UE supporting logMD and EMR) |

Three companies discuss logging the early measurements results in logged MDT report. One company proposes that the neighbour cell measurements in the logged MDT include information indicating whether the measurements are associated to overlapping carriers or non-overlapping carriers. One company proposes that the network may use a flag in the logged measurement configuration or idle mode measurement configuration, to indicate whether an idle mode measurement configuration has relevance for logged measurement. One company proposes to introduce a flag in SI/ broadcast indicating network support for nonSIB frequencies. It seems more discussions are needed on this issue.

**Proposal 8 RAN2 further discuss early measurements logging in logged MDT report.**

Then there are several other aspects discussed in the contributions.

Area scope configuration and Frequency band info in MDT configuration based on RAN3 LS R3-212824

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| **TDoc** | **Company name** | **Proposals** |
| R2-2108568 | Huawei | Proposal 1: It is proposed RAN2 to discuss whether the area scope of neighbour cells is dependent on the area scope of serving cells or not:- If there is a dependency, from Rel-17, one option (for RAN3) is to add a clarificaiton to TS 38.413 that “Area Scope of Neighbour Cells” should be simultaneously configued with “the Area Scope of MDT is configured as PLMN wide”- If there is no dependency, from Rel-17, one option (for RAN2) is to introduce AreaConfiguration-r17 including areaConfig-r16 and interFreqTargetList-r16 inside, and both fields are optional- Rel-16 specifications are unchanged (leave it to network implementation)Proposal 2: It is proposed to reply to RAN3 that NR Frequency Band is not supported for the Area Scope of Neighbour Cells. |

As there is incoming LS, it seems further discussions are needed on this matter.

**Proposal 9 RAN2 discuss the mismatch of the parameters of Area scope configuration and Frequency band info in RAN2 and RAN3 spec, and reply to the RAN3 LS.**

Logged MDT enhancement regarding RAT-specific coverage hole

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| **TDoc** | **Company name** | **Proposals** |
| R2-2107394 | OPPO | Proposal 1: RAN2 to agree to start the specification work for logging RAT-specific coverage hole in the logged measurement report in R17. |
| R2-2108331 | Qualcomm | Proposal 3: Introduce RAT-specific *eventTriggered* measurements logging, i.e., the UE starts measurement logging when UE cannot find a suitable cell in a specific RAT and stops measurement logging once it finds a suitable cell in that specific RAT.Proposal 4: Introduce frequency-specific *eventTriggered* measurements logging, i.e., UE starts measurement logging when UE cannot find a suitable cell operating on a given frequency or a list of frequencies and stops measurement logging once it finds a suitable cell operating on a given frequency or a list of frequencies. |

UL/DL coverage imbalance

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| **TDoc** | **Company name** | **Proposals** |
| R2-2107508 | Nokia | Proposal 3: RLF report is extended with “DL quality” information for better characterization of the DL signal during an UL outage. |
| R2-2108543 | CMCC | Proposal 1: For the scenario that UE experienced multiple CEF in the same cell, UE could just keep one CEF Report for the cell, especially when locations of multiple CEF are quite near, or the time elapsed between the consecutive CEFs is short. |

SNPN related

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| **TDoc** | **Company name** | **Proposals** |
| R2-2107508 | Nokia | Proposal 4: Rel-17 Logged MDT and RLF report supports SNPN check.Proposal 5: The cell identification in MDT and SON messages should allow the use of SNPN. |

MDT for Slice unavailability

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| **TDoc** | **Company name** | **Proposals** |
| R2-2108505 | CMCC, Ericsson, Huawei | Proposal 1: Support to report the rejected NSSAI, when the higher layer triggered the service request for a slice but rejected by UE NAS layer due to NSSAI is unavailable in current registration area.Proposal 2: The slice unavailability after HO for the area specific slice can be reported.Proposal 3: One candidate solution to address the issue is to let UE report the slice rejection only if the UE is still inside the geographical area where the slice is intended to provide coverage. |

IRAT continuation/ handling in EN-DC

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| **TDoc** | **Company name** | **Proposals** |
| R2-2108739 | Samsung | Proposal B.1 No R17 are needed to capture agreement that SN configuration is not supported for logged MDT |

IDC and logged MDT

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| **TDoc** | **Company name** | **Proposals** |
| R2-2108739 | Samsung | Proposal D.1 Upon detecting IDC, the UE continues event based measurement logging. When adding an entry in VarLogMeasReport due to triggering an event, the UE includes a field indicating the UE experiended IDC, if applicableProposal D.2 Upon detecting IDC, the UE suspends periodic measurement logging and if VarLogMeasReport has entries it adds an entry only comprising a field indicating that IDC was detected. When IDC problems are resolved, the UE resumes periodic measurement logging. I.e. do same as in LTE |

The above issues are only discussed by a few contributions. So these can be discussed further if time allows. The following proposal is made to reflect that.

**Proposal 10 RAN2 further discuss the following aspects**

* 1. **logging RAT-specific and frequency-specific coverage hole**
	2. **IDC issues in logged MDT**
	3. **UL/DL imbalance**
	4. **SNPN related issues in logged MDT**
	5. **MDT for slice unavailability**
	6. **IRAT continuation/ handling in EN-DC**

# Conclusion

Based on summary of [1]-[14], we have the following proposals. The proposals are highlighted as such

* for discussions and potential agreements in this meeting, and
* for further discussions if time allows

**‎*The scenarios and contents for on-demand SI***

**Proposal 1 RAN2 discuss which scenarios need to be considered in on-demand SI request optimization**

1. **Successful on-demand SI request**
2. **Positioning SI/SIB request**
3. **On-demand SI request in connected state**

**Proposal 2 RAN2 discuss which contents need to be recorded and reported for on-demand SI request optimization**

1. **The times each SIB UE intends to request**
2. **Failed or successful on-demand SI indicator**
3. **Failure type (failure at RA procedure or failure at acquiring SI messages)**
4. **The information of the beams used to acquire the requested SI messages**
5. **The time between consecutive SI requests**
6. **The location information at the time of performing the SI request**
7. **an indicator to indicate if SI request was performed over either NUL or SUL**

***Signalling design for on-demand SI***

**Proposal 3 RAN2 discuss which option should be selected for the signaling for on-demand SI**

* **Option 1: Extend Logged MDT**
* **Option 2: Extend RA report**
* **Option 2a:**

**- Extend RA report for both successful and failure on-demand SI request**

* **Option 2b:**

**- Extend RA report for successful on-demand SI request**

**- Extend other report (RA report, CEF report, new report) for failure on-demand SI request**

* **Option 3: A separate and dedicated report**

***Signalling-based logged MDT prioritization***

**Proposal 4 RAN2 further discuss whether there is a need to avoid signalling based Logged MDT being overridden by the management-based MDT configuration in the following scenarios**

* **Scenario1: Signalling based Logged MDT is configured, but no results are available e.g. so far nothing stored, or all previously stored results retrieved**
* **Scenario2: Signalling based Logged MDT configuration is stopped (i.e. the expiry of T330), but UE still has un-retrieved results that would be discarded upon accepting a new configuration**

**Proposal 5 RAN2 discuss whether the UE-assisted information (a flag) can be reported in UL complete messages and which UL message can be used.**

**Proposal 6 RAN2 discuss whether the following T330 related information should be reported**

1. **Whether the T330 timer is running**
2. **The remaining T330 timer**
3. **T330 expires**

**Proposal 7 RAN2 further discuss the following aspects**

1. **Extended “Logged MDT type”** (**R2-2107508)**
2. **Send the signaling based MDT availability flag to another RAT(R2-2108306)**
3. **Send the signaling based MDT availability flag to another PLMN (R2-2108306)**
4. **Avoid discarding of sig-LogMDT results not yet retrieved by network (R2-2108739)**
5. **Transfer UE assistance between network nodes (R2-2108739)**
6. **Consider making the feature conditionally mandatory (R2-2108739)**

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***Other aspects***

**Proposal 8 RAN2 further discuss early measurements logging in logged MDT report.**

**Proposal 9 RAN2 discuss the mismatch of the parameters of Area scope configuration and Frequency band info in RAN2 and RAN3 spec, and reply to the RAN3 LS.**

**Proposal 10 RAN2 further discuss the following aspects**

1. **logging RAT-specific and frequency-specific coverage hole**
2. **IDC issues in logged MDT**
3. **UL/DL imbalance**
4. **SNPN related issues in logged MDT**
5. **MDT for slice unavailability**
6. **IRAT continuation/ handling in EN-DC**

# Reference

1. R2-2107394 logged MDT enhancement regarding RAT-specific coverage hole OPPO
2. R2-2107395 Futher consideration of MDT configuration priority OPPO
3. R2-2107508 Logged MDT in EN-DC and other enhancements Nokia, Nokia Shanghai Bell
4. R2-2107720 On-demand SI request enhancements vivo
5. R2-2107827 Considerations on MDT Enhancements for On-demand SI CATT
6. R2-2108306 On logged MDT related enhancements Ericsson
7. R2-2108331 Logged measurement Enhancements QUALCOMM INCORPORATED
8. R2-2108357 Consideration on on-demand SI request information report ZTE Corporation, Sanechips
9. R2-2108505 MDT for Slice unavailability CMCC, Ericsson, Huawei discussion
10. R2-2108543 Further consideration on UL-DL coverage mismatch CMCC
11. R2-2108566 Discussion on logged MDT enhancements Huawei, HiSilicon
12. R2-2108568 Discussion on Area scope configuration and Frequency band info in MDT configuration based on RAN3 LS R3-212824 Huawei, HiSilicon
13. R2-2108650 SON Enhancements for SI Request Optimization Samsung
14. R2-2108739 Discussion on Logged MDT issues Samsung Electronics Co., Ltd