**3GPP TSG-RAN WG2 Meeting #119 electronic R2-22xxxxx**

**Online, 17th – 29th August, 2022**

**Agenda Item:**  **8.13.3**

**Source: Huawei (Summary rapporteur)**

**Title:** **Pre-meeting summary of 8.13.3 (Huawei)**

**WI code(s): NR\_ENDC\_SON\_MDT\_enh2-Core**

**Document for: Discussion and Decision**

## 1 Introduction

This contribution is the summary of 8.13.3 Miscellaneous SON MDT enhancements. According to the [1], the contributions [2]~[36] are summarized. In addition, some papers under 8.13.2 ([37], [38], [39]) are also added in this summary, because they are also covering the relevant features like MR-DC CPAC, Successful Pscell change report.

Since this RAN2 meeting is the 1st meeting for this WI, it is suggested to focus on use cases for listed features in the WID.

## 2 Summary

### 2.1 MR-DC CPAC

#### 2.1.1 Use cases

The use cases can be discussed in this meeting, and here are the related proposals:

**[8] Proposal 3: RAN2 to discuss which type of CPAC need to be considered for MRO and which information should be reported by UE.**

* **R16 intra-SN CPC without MN involvement**
* **R17 CPA**
* **R17 MN initiated inter-SN CPC**
* **R17 SN initiated inter-SN CPC**

**[9] Proposal 1: In R18, MRO for CPC in NR-NR DC should be prioritized, and MRO for CPA and other type MR-DC are de-prioritized. The following failure cases should be considered:**

* **an SCG failure occurs before CPC is executed;**
* **an SCG failure occurs during CPC execution phase;**
* **an SCG failure occurs shortly after successful CPC execution.**

**[19] Proposal 1: RAN2 should consider enhancements of SCGFailureInformation for the following CPA and CPC failure scenarios,**

* **NO CPC execution and SCG RLF**
* **Failed CPC or CPA executions**
* **Successful CPC or CPA execution but RLF at target PSCell immediately after Successful CPC or CPA execution**

**[31] Proposal 3: For CPAC MRO discussion, NR-DC scenario is prioritized while other DC scenarios can be discussed if time permits.**

**[34] Proposal 4 To support MR-DC CPAC, specification impact to 36.331 should be avoided.**

**[34] Proposal 5 For SCG failure report enhancement for MR-DC CPAC, only NR-DC and NE-DC cases are supported.**

**[37] Proposal 4: For CPAC failure relevant MRO, RAN2 prioritize the discussion on NR-DC, while other scenarios can be further discussed if time permits.**

#### 2.1.2 Potential solutions

The potential solutions include:

* UE reporting information
* which signalling method to be used for CPAC related failure information reporting

**The following proposals are related to potential solutions:**

[2]

**Proposal 1: RAN2 to agree that one indication, explicit or implicit, for highlighting whether or not the SCG failure is related to CPAC is captured in the related reporting.**

**Proposal 2: RAN2 to discuss and down select the approach of determining whether or not the SCG failure information report regarding CPC should be sent towards the SN from MN, though we prefer MN-base method for which RAN2 impact is avoided:**

* **MN-based method: MN memorizes the fact that SN initializes a CPC procedure, when the MN receives the *SN Modification Request Acknowledge* msg.**
* **UE-based method: an indication of the initializer of the CPC procedure needs to be included in the RRC Reconfiguration msg and SCG failure information report.**

**Proposal 3: RAN2 to agree that the execution triggering condition set for the UE for the CPC is included in the SCG failure information report for the SN-initialized CPC procedure.**

[4]

**Proposal 1: Include the following parameters in CPAC failure report.**

* **An indication shows whether the failure an CPA failure or CPC failure**
* **An indication shows whether the failure is MN initiated CPA/CPC or SN initiated CPC.**
* **Candidate PSCell info (including PCI, carrierFreq, measurement result)**
* **timeSinceCPACReconfig**

[8]

**Proposal 1: RAN2 to take R17 CHO study as baseline to start the discussion of R18 CPAC.**

**Proposal 2: RAN2 focuses on the basic scenarios firstly, then discuss the mixed scenarios if time allows.**

**Proposal 4: RAN2 to discuss which** **signalling method to be used for CPAC related failure information reporting.**

* **SCG failure information message**
* **Introduce new RRC message**
* **Introduce new SCG RLF report**

[9]

**Proposal 2: SCG Failure Information procedure can be enhanced to support MRO for CPC.**

**Proposal 3: The UE reports the time elapsed between the SCG failure in source SCG and the latest CPC configuration is received.**

**Proposal 4: The UE reports the time elapsed between the CPC execution towards the target PSCell and the corresponding latest CPC configuration is received for the target PSCell, and the time elapsed since the CPC execution towards the target PSCell until the SCG failure.**

**Proposal 5: The UE reports the type of PSCell change, i.e. CPC.**

**Proposal 6: The UE reports the latest configured CPC configuration including the latest CPC execution condition(s) and the list of latest CPC candidate PSCells.**

[16]

**Proposal 1: RAN2 to discuss the SON enhancement of SCG failure due to CPAC.**

**Proposal 2: CPAC failure information can be included in the existing *SCGFailureInformation* if MCG transmission is not suspended*.***

**Proposal 3: RAN2 to discuss whether/how CPAC failure information is reported when the MCG is suspended.**

**Proposal 4: RAN2 to discuss the contents of the CPAC failure information in case of “too late PSCell change”, the following information is at least included:**

1. **Candidate target cell ID;**
2. **latest radio measurements of the candidate target cells;**
3. **latest radio measurements of neighbour cell(s);**
4. **the time between reception of the CPC configuration and SCG failure.**

**Proposal 5: The indication to indicate that the SCG failure is due to CPAC is needed. RAN2 to further discuss whether to indicate CPAC type (e.g., CPA, MN initiated inter-SN CPC, SN initiated inter-SN CPC, SN initiated intra-SN).**

**Proposal 6: RAN2 to discuss the contents of the CPAC failure information in case of “too late early PSCell addition/change” and “PSCell addition/change to wrong cell”, the following information can be considered:**

1. **Target PSCell ID;**
2. **Candidate target cell ID;**
3. **latest radio measurements of the candidate target cells;**
4. **latest radio measurements of neighbour cell(s);**
5. **the time between reception of CPAC configuration and CPAC execution;**
6. **the time between CPAC execution and SCG failure.**

[19]

**Proposal 2: Minimize the impact on SCGFailureInformation size by only including the relevant information for CPAC failure not available or retrieved at the network.**

**Proposal 3: Include the following information in the SCGFailure for CPAC optimization:**

* **Indicate which configured execution event has been met if multiple execution conditions are configured at the UE**
* **The time gap between the reception of CPA or CPC configuration until execution or SCGFailure**
* **The time gap between configured execution conditions if multiple execution conditions are configured at the UE and CPA or CPC execution is performed**

**Proposal 4: RAN2 should deprioritize studying coexisting failure scenarios such as legacy HOF, CHO failure, or PCell RLF with CPAC failures, at least until RAN2 makes initial agreements on standalone CPAC failure scenarios.**

[30]

**Proposal 1: RAN2 is proposed to discuss following connection failures of CPA:**

- Too Late CPA Execution: an RLF occurs in MCG before any CPA execution conditions is satisfied; a suitable different PSCell is found based on the measurements reported from the UE.

- Too Early CPA Execution: an SCG failure occurs shortly after a successful PSCell addition or a PSCell addition failure occurs during the PSCell addition procedure; No suitable different PSCell is found based on the measurements reported from the UE.

- Triggering wrong PSCell addition: an SCG failure occurs shortly after a successful PSCell addition or a PSCell addition failure occurs during the PSCell addition procedure; a suitable PSCell different with target PSCell is found based on the measurements reported from the UE.

**Proposal 2: For CPA, UE reports following information for SON MDT optimization:**

* Time between the first CPA execution and the corresponding CPA configuration received at UE
* Time elapsed since CPA execution until SCG failure
* The target cell towards which the CPA was executed
* The latest radio measurement results, and include an indication on whether a measured neighbour cell was configured as a CPA candidate or not
* List of candidate CPA cells IDs

**Proposal 3: Reuse existing PSCell change failures for CPC.**

* Too late PSCell change: an SCG failure occurs after the UE has stayed for a long period of time in the PSCell; a suitable different PSCell is found based on the measurements reported from the UE.

- Too early PSCell change: an SCG failure occurs shortly after a successful PSCell change from a source PSCell to a target PSCell or a PSCell change failure occurs during the PSCell change procedure; source PSCell is still the suitable PSCell based on the measurements reported from the UE.

- Triggering PSCell change to wrong PSCell: an SCG failure occurs shortly after a successful PSCell change from a source PSCell to a target PSCell or a PSCell change failure occurs during the PSCell change procedure; a suitable PSCell different with source PSCell or target PSCell is found based on the measurements reported from the UE.

**Proposal 4: For CPC, UE reports following information for SON MDT optimization:**

* The node (i.e., MN or SN) that initiates the CPC;
* Time between the first CPC execution and the corresponding CPC command received at UE
* Time elapsed since CPC execution until connection failure
* The target cell towards which the CPC was executed
* The latest radio measurement results, and include an indication on whether a measured neighbour cell was configured as a CPC candidate or not
* List of candidate PSCells IDs
* Configured CPC execution condition(s)
* The first satisfied event or condition
* Time between fulfillment of triggering conditions

[31]

**Proposal 4: Enhance SCGFailureInformation for CPAC MRO in case of CPC and CPA failure, where at least below parameters can be added:**

* ***failedPSCellId* : the physical cell identity and carrier frequency of the failed PSCell ;**
* ***previousPSCellId:* the physical cell identity and carrier frequency of the source PSCell if any;**
* ***timeSCGFailure:* the elapsed time since reception of the last *RRCReconfiguration* message including the *reconfigurationWithSync* for the SCG until declaring the SCG failure;**
* ***perRAInfoList* in case failureType is synchReconfigFailureSCG or randomAccessProblem while T304 was running**

**Proposal 5: Information in SCGFailureInformation is needed to differentiate CPAC failure from conventional SCG failure**

[33]

**Proposal 1: Enhance SCGFailureInformation for including CPAC related failures.**

**Proposal 2: Consider the following additional information in SCGFailureInformation for CPAC failure**

* **CPAC failure Indication**
* **Condition which is fulfilled**
* **Time elapsed between condition is satisfied till SCG Failure, this could be modified timeSCGFailure**
* **Time between the fulfillments of two events.**

**Proposal 3: There is no need for explicit reporting of candidate cell list and execution conditions in SCGFailureInformation for CPAC failure.**

**Proposal 4: RAN2 to discuss enhancements for SCGFailureInformationEUTRA for CPAC failure.**

[34]

**Proposal 6 To support NR-DC and NE-DC scenario for SCG failure report enhancement for MR-DC CPAC, SCGFailureInformation/SCGFailureInformationEUTRA of 38.331 are enhanced to include CPAC candidate, CPAC configuration, triggered event information and time between CPAC reconfig and CPAC execution.**

[38]

**Proposal 1:** RAN2 to consider enhancements to SCGFailureInformation and SCGFailureInformationEUTRA for CPAC.

#### 2.1.3 Conclusions

Based on section 2.1.1, the following proposals are made:

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

**Summary proposal 2: The following types of CPAC for MRO are considered:**

* **(1) R16 intra-SN CPC without MN involvement**
* **(2) R17 CPA**
* **(3) R17 MN initiated inter-SN CPC**
* **(4) R17 SN initiated inter-SN CPC**

### 2.2 Successful Pscell change report

#### 2.2.1 Use cases

The use cases can be discussed in this meeting, and here are the related proposals:

**[8] Proposal 5: RAN2 to take the solution of R17 PCell SHR as the baseline to start the R18 successful PSCell change report discussion.**

**[10] Proposal 6: In R18, Successful PSCell change report in NR-NR DC should be prioritized.**

**Proposal 7: In R18, the following cases should be considered for successful PSCell change report:**

* **MN initiated PSCell change;**
* **SN initiated PSCell change;**
* **MN initiated CPC;**
* **SN initiated CPC.**

**[17] Proposal 1: RAN2 to focus on the following scenarios for the successful PSCell change report:**

1. **ordinary PSCell change;**
2. **conditional PSCell change;**
3. **ordinary PSCell addition;**
4. **conditional PSCell addition.**

**[29] Proposal 1: Both the regular PSCell change and the Conditional PSCell Change (CPC) are considered for Successful PScell Change Report.**

**[15] Proposal 2: It is proposed RAN2 to discuss which of cases should be considered or prioritized:**

* **MR-DC cases: (NG)EN-DC, NE-DC, and NR-DC**
* **PSCell change procedures:**
1. **MN initiated PSCell change**
2. **SN initiated PSCell change**
3. **MN initiated CPC**
4. **SN initiated CPC**

**[33] Proposal 5: SPCR can be applicable for both CPC and legacy PSCell change.**

**[34] Proposal 8 For successful PScell change report, only NR-DC and NE-DC are considered.**

**[39] Proposal 1 RAN2 prioritize NR-DC scenario for successful PSCell change/addition report.**

**[39] Proposal 2 Both successful PSCell addition and PSCell changes are considered as part of the successful PSCell report (SPR).**

#### 2.2.2 Potential solutions

The potential solutions include:

* Configurations (e.g. triggering conditions)
* UE reporting information
* which signalling method to be used for SPCR reporting

[4]

**Proposal 2: Include the following parameters in successful PSCell change report.**

* **An indication show whether the failure is MN initiated CPC or SN initiated CPC.**
* **source PSCell info (including PCI/CGI, measResult)**
* **Target PScell info (including PCI/CGI, measResult)**
* **Candidate PSCell info (including PCI/CGI, measurement result)**
* **Success PSCell change cause (e.g. t304 cause)**
* **ra-InformationCommon**
* **timeSinceCPCReconfig**
* **LocationInfo**

**Proposal 3: create a new UE variable for successful PSCell change report.**

**Proposal 4: RAN2 to discuss which message is used for successful PSCell change reporting**

[8]

**Proposal 6: RAN2 to discuss the content of trigger conditions and which node i.e. MN or SN should configure the trigger condition to the UE.**

**Proposal 7: RAN2 to discuss the report information and signalling design for successful PSCell addition/change report.**

**Proposal 8: The encoding/decoding of SHR and the corresponding transmission between interfaces should be left to RAN3 to discuss and decide.**

[10]

**Proposal 8: Configuration for generating successful PSCell change report is transmitted to the UE by the MN.**

**Proposal 9: When at least one trigger condition for successful PSCell change report is fulfilled, the successful PSCell change report is stored by the UE including:**

* **Source PSCell ID**
* **Target PSCell ID**
* **Cause of successful PSCell change report**
* **Measurement results when PSCell change is** **executed and completed**
* **In case of CPC, the time elapsed between the CPC execution towards the target PSCell and the corresponding latest CPC configuration is received for the target PSCell**

**Proposal 10: The UE may transmit the stored successful PSCell change report to MN after PSCell change is successfully completed.**

[14]

**Proposal 1: the following content of should be included for SPCR.**

* **source PSCell ID**
* **target PSCell ID**
* **measurement results**
* **location information**
* **random access information**
* **cause of SPCR**

**Proposal 2: same as SHR, network configures triggering conditions for SPCR, and UE only stores SPCR information when triggering condition is fulfilled.**

**Proposal 3: the following triggering conditions can be supported for SPCR:**

* **the elapsed time of the timer T304 is greater than a threshold**
* **the elapsed time of the timer T310 is greater than a threshold**
* **the elapsed time of the timer T312 is greater than a threshold**

**Proposal 4: RAN2 discuss how to configure and how to report SPCR for MN-initiated PSCell change and SN-initiated PSCell change.**

[17]

**Proposal 2：The triggering conditions for generating the successful PSCell change report should at least include:**

1. **T310 elapsed time for the source PSCell exceeds a threshold;**
2. **T312 elapsed time for the source PSCell exceeds a threshold;**
3. **T304 elapsed time for the target PSCell exceeds a threshold.**

**Proposal 3: For the content of the successful PSCell change report, the following information can be considered:**

1. **identifiers and measurements of the source cell and target cell;**
2. **the latest radio link quality of neighbour cells before HO execution;**
3. **for CPAC, the latest radio measurement results of the candidate cells;**
4. **for CPAC, the time elapsed between the CPAC execution towards the target cell and the corresponding latest CPAC configuration received for the selected target cell;**
5. **the cause of the successful PSCell change report.**

**Proposal 4: RAN2 to discuss the procedure for transmitting the successful PSCell change report. The following options can be considered:**

* **Option 1: UE initiates the successful PSCell change report procedure upon the random access towards PSCell is completed and the trigger condition is satisfied;**
* **Option 2: UE stores the successful PSCell change report upon the random access towards PSCell is completed and the trigger condition is satisfied. The available indication of the report is in the RRC complete message and theUE information procedure is used to transmit the report.**

**Proposal 5: If SRB3 is not configured, UE should submit the successful PSCell change report via SRB3 to lower layers for transmission.**

**Proposal 6: If SRB3 is configured, RAN2 to further discuss how the UE determines the path to transmit the successful PSCell change report. The triggering condition of the report or which node initiated the PSCell change shall be considered.**

[29]

**Proposal 2: For regular PSCell change, following information is included in Successful PSCell change report:**

* The node (i.e., MN or SN) that initiates the PSCell change
* Source PScell information
* Target PScell information
* The latest radio link quality of serving and neighbour cells before PSCell change execution
* C-RNTI assigned by the target PSCell
* Location information
* RA-InformationCommon of target PSCell when T304 is above the threshold
* Successful PSCell change Report cause, i.e., T304 or T310 or T312 exceeds corresponding configured threshold

**Proposal 3: For CPC, the time elapsed between the initiation of the last conditional reconfiguration execution towards the target PSCell and the reception of the latest conditional reconfiguration for this target PSCell is included in Successful PSCell change report.**

[19]

**Proposal 5: Define SCG T310, T312, and T304 thresholds for generating the SPC report.**

**Observation 3: PSCell change or addition procedure can fail due to the MCG RLF.**

**Proposal 6: Define MCG T310 and T312 thresholds for generating the SPC report.**

**Proposal 7: For the reporting of the SPC report, RAN2 can have the following options:**

1. **Nested PSCell change report within SHR: The latest successful PSCell change report is nested within the SHR report.**
2. **Independent PSCell change report: An independent successful PSCell change report can be introduced to report lower layer issues during the successful PSCell change or addition.**

**Proposal 8: RAN2 should consider the following two options for clearing the successful PSCell change report,**

1. **Clear after 48 hours if not retrieved by network: UE generates the PSCell change report when configured trigger condition meets. Send the availability indicator in RRCReconfigurationComplete (containing RRCReconfigurationWithSYNC for SCG), and other RRC complete messages. Clear after 48 hours if not retrieved by the network.**
2. **Clear upon PCell change: UE generates the PSCell change report when configured trigger condition meets. Send the availability indicator in RRCReconfigurationComplete (containing RRCReconfigurationWithSYNC for SCG) messages. Clear after UE changes PCell.**

[31]

**Proposal 8: The triggering evens and measurements of SHR in MN can be seen as baseline for PSCell change report except for DAPS related triggering event and measurements.**

**Proposal 9: RAN2 discuss whether to support PSCell change report for inter MN change with secondary change scenario before discussing the detailed signalling design.**

[33]

**Proposal 6: SPCR may be reported either for all the successful PSCell change or based on configured conditions.**

**Proposal 7: UE can include the following information in SPCR.**

* **Source PSCell Information**
* **Target PSCell Information**
* **Neighbor cell measurements**
* **PSCell change type**
* **UE location**
* **Random Access information**
* **UP interruption time.**

[34]

**Proposal 7 For successful PScell change report enhancement for MR-DC CPAC, successful PScell change Report should include CPAC candidate and time between CPAC reconfig and CPAC execution.**

**Proposal 9 Network can configure the following trigger condition for successul PScell change report through otherConfig: T304 threshold, T310 threshold, T312 threshold.**

**Proposal 10 Successul PScell change report can include the following contents:**

**- plmn-IdentityList**

**- c-RNTI of target PSCell**

**- source PSCell ID, source PSCell measurement**

**- target PSCell ID, target PSCell measurement**

**- successful PScell change report cause, and random-access related information**

**- measurement results of neighbor cells and whether the neighbor cell is CPAC candidate**

**- For CPAC, the time elapsed between the config of CPAC and the execution of CPAC**

**- available location information**

**Proposal 11 UE indicates the availability of a Successful PScell change Report in complete message. gNB can fetch the successful PScell change report via UE Information Request/Response mechanism.**

[39]

Proposal 3 RAN2 to develop a new report that consists of a list of successful PSCell reports generated due to successful PSCell changes or addition under a given PCell.

#### 2.2.3 Conclusions

Based on section 2.2.1, the following proposals are made:

**Summary proposal 3: RAN2 to take the solution of R17 PCell SHR as the baseline to start the R18 successful PSCell change report discussion.**

**Summary proposal 4: In R18, Successful PSCell change report in NR-NR DC should be prioritized.**

**Summary proposal 5: RAN2 to focus on the following scenarios for the successful PSCell change report:**

* **(1) ordinary PSCell change**
* **(2) conditional PSCell change**
* **(3) ordinary PSCell addition**
* **(4) conditional PSCell addition**

### 2.3 Successful Handover Report (e.g. inter-RAT)

#### 2.3.1 Use cases

The use cases can be discussed in this meeting, and here are the related proposals:

**[10] Proposal 1: SHR for intra-system inter-RAT HO from NR to EUTRAN should be prioritized in R18.**

**[15] Proposal 3: It is proposed RAN2 to discuss the following scenarios for inter-RAT SHR:**

* Scenario 1: a successful HO from 5G to 4G
* Scenario 2: a successful HO from 4G to 5G

**[19] Proposal 9: Cross-RAT SHR reporting is not needed for inter-RAT handover scenarios.**

**[34] Proposal 2 RAN2 to consider support both HO from NG-eNB/eNB to gNB and HO from gNB to NG-eNB/eNB.**

#### 2.3.2 Potential solutions

The potential solutions include:

* Configurations (e.g. triggering conditions)
* UE reporting information
* which signalling method to be used for SHR for inter-RAT HO

[10]

**Proposal 2: Configuration of triggering SHR for intra-system inter-RAT HO is** **transmitted to the UE via the MobilityFromNRCommand message.**

**Proposal 3: SHR for intra-system inter-RAT HO is stored and reported if at least one configured trigger condition is fulfilled.**

**Proposal 4: RAN2 discuss how to encode the SHR for intra-system inter-RAT HO.**

**Proposal 5: The UE reports the ID of the cell which generates the condition that triggers the inter-RAT SHR, outside of the** **inter-RAT SHR.**

[31]

**Proposal 6: RAN2 discus and decide which of below options are supported for inter-RAT SHR:**

* **Opt1: Logging of SHR for inter-RAT mobility scenarios**
* **Opt2: Inter-RAT SHR report**
* **Both opt1/2**

**Proposal 7: Introduce new trigger to allow SHR storing when RACH configuration is sub-optimal. Details are ffs.**

[34]

**Proposal 3 For HO from NG-eNB/eNB to gNB and HO from gNB to NG-eNB/eNB, the configuration, recording and reporting of SHR should be implemented at NR side.**

[35]

**Proposal 1: Similar to Inter-RAT RLF Report, UE may report LTE SHR to gNB.**

[39]

Proposal 7 RAN2 to develop an Inter-RAT Successful Handover Report for improving NR mobility i.e., only gNB provides the SHR triggering configuration. No changes on E-UTRA is foreseen for inter-RAT SHR.

(the following 2 proposals are about Successful Handover Report enhancement)

Proposal 8 The UE logs the user plane interruption time as part of SHR for legacy HO and conditional HO.

Proposal 9 Add a threshold on the user plane interruption time as a triggering condition for the SHR generation.

#### 2.3.3 Conclusions

Based on section 2.3.1, the following proposals are made:

**Summary proposal 6: It is proposed RAN2 to discuss which of the following scenarios should be considered for inter-RAT SHR:**

* (1) a successful HO from gNB to ng-eNB
* (2) a successful HO from gNB to eNB
* (3) a successful HO from ng-eNB to gNB
* (4) a successful HO from eNB to gNB

### 2.4 NPN

#### 2.4.1 Use cases

The use cases can be discussed in this meeting. Based on companies’ contributions, SON features, MDT features and L2M features are proposed for NPN purposes. For NPN, SNPN and PNI-NPN are typical use cases for SON/MDT enhancements.

Here are the related proposals:

**Common for SON/MDT with NPN**

**[12] Proposal 1: The support of SON/MDT enhancement in both SNPN and PNI-NPN scenarios can be considered.**

**[7] Proposal 1: Only consider the optimization of R16 basic NPN functionality in R18 SONMDT.**

**[7] Proposal 2: The NPN optimization in SONMDT can be studied from MRO, MDT and L2 measurement perspectives.**

**SON with NPN**

**[21] Proposal 1 The storing of NPN-related SON reports e.g., RLF/RA report/SHR etc, should not impact/damage the storing of PN- related SON reports and vice versa.**

**[21] Proposal 2 RAN2 discuss whether inter PN-NPN SON reporting for the legacy/existing SON reports is allowed or not (e.g., reporting MHI of an NPN to another NPN or PN).**

**[15] Proposal 4: For SNPN and PNI-NPN, it is proposed RAN2 to take the existing SON features as baseline, and some enhancements for SNPN can be discussed.**

**MDT with NPN**

**[15] Proposal 5: For logged MDT in both SNPN and PNI-NPN, it is proposed RAN2 to take the existing logged MDT scheme as baseline, and some enhancements can be discussed.**

**[19] Proposal 10: Both Signalling and management based MDT and for NPNs should be supported.**

**[19] Proposal 11: Both immediate MDT and logged MDT for NPNs should be supported.**

**[32] Proposal 4: Enhance existing MDT framework to support logging of MDT results in both SNPN and PNI NPN.**

#### 2.4.2 Potential solutions

The potential solutions include:

* Consider to add NPN information of the cell for SON/MDT reports
* NPN check for SON/MDT
* Impacts on the areaConfiguration in logged MDT configuration for supporting NPN

[12]

**Proposal 2: To support the SON/MDT enhancement for NPN, UE can record the NPN information of the cell (e.g. NPN ID) during to accessing and mobility.**

**Proposal 3: Including the NPN information (e.g. NPN ID) into all existing reports can be considered as baseline.**

[24]

**Proposal 1:** Rel-18 Logged MDT and RLF report supports SNPN check.

**Proposal 2:** MDT and SON reports should enable SNPN Cell identification.

[19]

**Proposal 12: Enhance NID in the CGI report to uniquely identify NPN cells.**

**Proposal 13: UE report NPN SON reports availability and report only after checking if registered SNPN lies within the NPN identity list stored in the UE variable for the corresponding SON report.**

[32]

**Proposal 5:** **The areaConfiguration in logged MDT configuration needs to be enhanced to allow indicating one or more NPNs, including SNPN identified by PLMN+NID and PNI NPN identified by PLMN + CAG ID.**

**Proposal 6: The CGI information included logged MDT results needs to be enhanced to allow indicating cellIdentity within a NPN network, including SNPN identified by PLMN+NID and PNI NPN identified by PLMN + CAG ID.**

**Proposal 7: Support logging of OOC instance in logged MDT for NPN in R18.**

[35]

**Proposal 2: Include NPN identifier in UE variables for storing SON/MDT reports.**

**Proposal 3: When the NPN identifier is included in SON/MDT reports, UE indicates the availability of the report in RRC complete messages if registered SNPN identifier is included in NPN-IdentityList.**

**Proposal 4: RAN2 to discuss further enhancements of SON/MDT reports with NPN specific information.**

#### 2.4.3 Conclusions

Based on section 2.4.1, the following proposals are made:

**Summary proposal 7: The support of SON/MDT enhancement in both SNPN and PNI-NPN scenarios are considered.**

**Summary proposal 8: It is proposed RAN2 to focus on R16 basic NPN functionality for R18 SONMDT.**

**Summary proposal 9: The storing of NPN-related SON reports e.g., RLF/RA report/SHR etc, should not impact/damage the storing of PN- related SON reports and vice versa.**

**Summary proposal 10: Enhance existing MDT framework to support logging of MDT results in both SNPN and PNI NPN.**

### 2.5 RACH report

#### 2.5.1 RACH report for RACH partitioning

##### 2.5.1.1 Use cases

The use cases can be discussed in this meeting, and here are the related proposals:

**[6] Proposal 1: consider enhancing RA-Report, and possibly also RLF-Report and SuccessHO-Report, by adding to RA-InformationCommon information indicating which feature set triggered random access and which feature set the UE would have preferred.**

**[12] Proposal 6: Extend current RA report to include the RACH partitioning related information.**

**[12] Proposal 7: The RACH related information included in R16 and R17 RA report can also be applied for RACH partitioning RA report, with the extension to include the feature combination associated with the selected RACH partition.**

**[12] Proposal 8: To include the UE intended feature combination as part of RACH partitioning RA report.**

**[13] Proposal: RAN2 considers to store and report information with regarding the following RACH enhancement in Rel-17**

* **RACH partition**

**[28] Proposal 7: Confirm to support SON/MDT optimisation for RACH partitioning and RAN2 is asked to work on the UE assistance information.**

**[7] Proposal 4: The UE indicates the feature /feature combination to the network to facilitate the RACH resource utilization.**

***Observation 1: The RACH feature/feature combination which is selected by the UE may not be same as the RACH feature/feature combination that is available for the UE.***

**[7] Proposal 5: RAN2 to study whether and how to address the issue in observation 1.**

**[15] Proposal 8: It is proposed RAN2 to discuss RACH partition for RACH report enhancements.**

**[31] Proposal 2: Enhance RA report to allow both resource and performance information for RA procedure associated to features indicated in featureCombination.**

**[35] Proposal 5: Consider enhancements to RACH report to support RA partitioning.**

**[39] Proposal 11 RAN2 consider RA partitioning related information in RA report for feature-based RACH configuration optimization.**

##### 2.5.1.2 Potential solutions

No papers are mentioning potential solutions.

##### 2.5.1.3 Conclusions

Based on section 2.5.1.1, the following proposals are made:

**Summary proposal 11: It is proposed RAN2 to discuss RACH partitioning for RACH report enhancements.**

#### 2.5.2 RACH report enhancements for MR-DC

##### 2.5.2.1 Use cases

The use cases can be discussed in this meeting, and here are the related proposals:

**[12] Proposal 4: To support the SN RACH report in the NE-DC scenario, UE shall support to log the E-UTRAN RACH information and report to the NR MN.**

**[12] Proposal 5: To avoid the LTE impacts, the NR SN fetching the list of NR RA reports via SRB3 can be considered for the SN RACH report in the (NG) EN-DC scenario.**

**[28] Proposal 4: The misalignment between RAN3 and RAN2 about SN RACH report in MR-DC should be resolved.**

**[28] Proposal 5: RAN2 is asked to discuss the support of all the MR-DC scenarios for SN RACH report and to include PScell identity information outside the report.**

**[28] Proposal 6: RAN2 is asked to discuss on the support of UE based solution.**

**[36] Proposal 1: SN RA reports need to be supported in both NR-DC and EN-DC scenarios.**

**[7] Proposal 3: Study and support the SgNB RACH report of (NG)EN-DC scenario in R18.**

##### 2.5.2.2 Potential solutions

The potential solutions include:

* SN RACH report information
* Configuration/reporting signalling

[36]

**Proposal 2: The SN RA report could be included in the extension of *raPurpose-16 in NR-DC case*.**

**Proposal 3: To enable the SN to identify the UE making the report, the RA report should contain the UE ID, or be signalled along with the AP IDs of the UE.**

**Proposal 4: To specify a new container to convey SN RA report in EN-DC case.**

[15]

**Proposal 7: It is proposed RAN2 to agree that for the PSCell identity of stored SN RA report, encoded in NR format for (NG)EN-DC and in LTE format for NE-DC and put outside SN RA report container.**

[31]

**Proposal 1: RAN2 discuss detailed signalling required to support SN RACH report in (NG)EN-DC based on the principle below:**

* **UE reports the SN RACH report to the MN, and then MN sends the SN RACH report to SN.**

[39]

Proposal 10 Include information in the RA report on whether the random access procedure was executed towards MCG or SCG.

##### 2.5.2.3 Conclusions

Based on section 2.5.2.1, the following proposals are made:

**Summary proposal 12: RAN2 is asked to discuss the support of (NG)EN-DC and NE-DC scenarios for SN RACH report.**

**Summary proposal 13: RAN2 is asked to discuss on the support of UE based solution.**

#### 2.5.3 RACH report enhancements for others

For RACH report enhancements for others, they may not be discussed in this meeting, as RAN2 should focus on features listed in section 2.5.1 and 2.5.2.

[13]

**Proposal: RAN2 considers to store and report information with regarding the following RACH enhancement in Rel-17**

* **Msg3 repetition**
* **SCG activation/deactivation**
* **BFR recovery for two BFD-RS sets**

[18]

**Proposal 1: RAN2 to discuss whether to introduce the on-demand posSI report for RACH report enhancement.**

**Proposal 2: The GNSS-ID and SBAS-ID of the requested posSIB shall be included in the on-demand posSI report.**

[25]

**Proposal 1: The scope of RACH report in the Rel-18 SON/MDT WID comprises RACH Report retrieval enhancements.**

[15]

**Proposal 6: It is proposed RAN2 to discuss the availability indicator of RACH reports.**

[35]

**Proposal 6: Consider enhancements for feature specific RACH like SDT, slicing and msg3 repetition.**

**Proposal 7: Consider adding new RACH purpose for SCG activation.**

### 2.6 Fast MCG recovery

#### 2.6.1 Use cases

The use cases can be discussed in this meeting, and here are the related proposals:

**[3] Proposal 1: RAN2 to specify the fast MCG recovery report to help the network perform optimization of the T316.**

**[9] Proposal 7: MRO for fast MCG link recovery in NR-NR DC should be prioritized in R18.**

**[9] Proposal 8: The following cases should be considered for MRO for fast MCG link recovery:**

* **The UE performs RRC re-establishment procedure when the timer T316 expires;**
* **The UE performs RRC re-establishment procedure when SCG failure happens while T316 is running.**

**[25] Proposal 2: RAN2 to investigate T316 optimization and relevant scenarios.**

**[28] Proposal 1: Optimisation for failure of fast MCG recovery and near failure fast MCG recovery should be considered.**

**[7] Proposal 6: Discuss the scope of MCG recovery enhancement related scenarios, which include:**

* **MCG failure only;**
* **MCG failure occurred, and then SCG failure;**
* **MCG failure occurred, and SCG has already failed.**

**[15] Proposal 9: It is proposed RAN2 to discuss fast MCG recovery failure cases due to the following reasons:**

* **SCG RLF**
* **SCG deactivated**
* **XN/X2/Uu signalling delay.**

**[15] Proposal 10: It is proposed RAN2 to discuss the CHO based recovery failure case after fast MCG recovery failure.**

**[15] Proposal 11: It is proposed RAN2 to capture the subsequent failure case after successful fast MCG recovery.**

#### 2.6.2 Potential solutions

The potential solutions include:

* UE reporting information
* which signalling method to be used for Fast MCG recovery related information reporting

[3]

**Proposal 2: RAN2 to at least include following information in the fast MCG recovery report for optimization of the T316:**

* **Location information up to the MCG failure occurrence**
* **Failed PCell ID**
* **Indication of the fast MCG recovery failure occurrence**
* **The measurement result of the SCG**

[9]

**Proposal 9: The UE reports fast MCG recovery failure information in the RLF-Report.**

[28]

**Proposal 2: RAN2 is kindly asked to discuss following assistance information reported by the UE to enable efficient optimisation for fast MCG link recovery:**

* The cause of the fast MCG link recovery failure, e.g., T316 expires, SCG failure, SCG deactivation.
* Time between MCG failure and SCG failure
* Time between transmitting MCGFailureInformation and receiving RRC reconfiguration message

**Proposal 3: For near failure fast MCG link recovery, one T316 related triggering threshold is configured, and UE only generates the report when the threshold is met.**

[19]

**Proposal 14: Upon the detection of fast MCG recovery failure, enhance the RLF report to include the following additional information,**

* **Upon t316 expiry, include an indicator to indicate fast MCG recovery failure**
* **Introduce an indicator to indicate if SCG Failure is detected during the MCG recovery procedure**
* **Include the cause of SCG failure, if SCG failure detected before the t316 expiry**
* **Include configured SCG RRM measurements in the RLF report, if SCG RLF is detected during the fast MCG recovery procedure**

[32]

**Proposal 1: It is proposed to include location information in MCG failure information.**

**Proposal 2: To add fast MCG recovery failure as connectionFailureType in RLF report when radio link is detected in MN and fast MCG recovery fails.**

**Proposal 3: To includes information to indicate the fast MCG recovery cause (e.g. T316 expiry or both SCG/MCG fails) in RLF-report.**

[33]

**Proposal 8: A new indicator is introduced to indicate Fast MCG link recovery failure, in RLF report.**

**Proposal 9: If the UE has been configured for fast MCG Link Recovery and if the recovery was not successful, UE might log the reason in the RLF report.**

**Proposal 10: UE may report Location information, RA information etc. for MCG Failure Recovery to the network through one of the below options**

**a. Enhancements to MCGFailureInformation**

**b. Keeping RLF report even when MCG link recovery was successful with an indication.**

[34]

**Proposal 12 If fast MCG recovery is failed, UE records whether MCG recovery failure is due to T316 expiry and if so, records the configured T316 value.**

**Proposal 13 Upon MCG RLF, UE records whether SCG transmission is suspended.**

#### 2.6.3 Conclusions

Based on section 2.6.1, the following proposals are made:

**Summary proposal 14: MRO for fast MCG link recovery in NR-NR DC should be prioritized in R18.**

**Summary proposal 15: Discuss the scope of MCG recovery enhancement related scenarios, which include:**

* (1) MCG failure only, and the MCG recovery is failed, i.e. RAN2 to investigate T316 optimization
* (2) MCG failure only, and the MCG recovery is successful
* (3) MCG failure occurred, and then SCG failure
* (4) MCG failure occurred, and SCG has already failed/SCG deactivated

### 2.7 NR-U (MRO and UL MLB)

#### 2.7.1 Use cases

The use cases can be discussed in this meeting, and here are the related proposals:

**[5] Observation 1: it may be beneficial to consider enhancing Successful HO Report to include LBT\_COUNT.**

**[5] Observation 2: additional Successful HO Report enhancements for NR-U (e.g. additional measurements such as RSSI and CO) need to be carefully weighted in terms of potential benefit vs. UE burden, complexity and power implications.**

**[5] Observation 3: RLF report already supports consistent LBT failure indication; additional enhancements should be carefully weighted considering UE impact.**

**[5] Observation 4: the current MHI mechanism appears to be sufficiently generic to cover both licensed and NR-U cells; additional enhancements may not be needed.**

**[20] Proposal 1: RAN2 can determine if the following scenarios of MRO should be considered**

* **Failure scenarios, such as RLF, SCG Failure, CEF**
* **Near failure scenario, consistent uplink LBT failures are detected on *multiple UL BWPs with configured RACH resources, however,* eventually, it does not result in the RLF, HoF, SCG failure, or PSCell addition or change failure**

**[20] Proposal 2: Rel-18 can study solutions to optimize RACH failures, connection establishment failures, and handover failures due to consistent UL LBT failures.**

**[15] Proposal 12: It is proposed RAN2 to discuss the scenarios for MRO for NR-U, e.g. inappropriate HO parameters, heavy load scenario, and see if there are problems.**

**[31] Proposal 10: Consistent LBT failure recovery configuration optimization is considered for NR-U MRO.**

**[32] Proposal 11: It is preferred to enhance existing report to store the NR-U related information for MRO.**

**[35] Proposal 8: RAN2 to discuss enhancements for SON/MDT reports considering LBT and channel occupancy measurements for NR-U.**

#### 2.7.2 Potential solutions

The potential solutions include:

* UE reporting information
* which signalling method to be used for NR-U related information reporting

[11]

**Proposal 1: In NR-U, an indication to indicate HOF or SCG failure is due to consistent LBT failure can be included in the RLF report or SCG Failure Information message.**

**Proposal 2: In NR-U, configuration related with LBT failure detection and recovery (e.g. lbt-FailureRecoveryConfig) can be included in the RLF report or SCG Failure Information message.**

**Proposal 3: The measured RSSI and channel occupancy in the unlicensed spectrum of target SpCell can be included in the RLF report or SCG Failure Information message.**

**Proposal 4: The time duration for LBT during SpCell change procedure can be included in the RLF report or SCG Failure Information message.**

[20]

**Proposal 3: RAN2 should introduce a new SON message as *LBTFailureInformation* for NR-U related enhancements.**

**Proposal 4: The SON report for NR-U can contain the following IEs**

1. **Cell information on which LBTFailure happened**
2. **Timestamp (the time when LBT failure is detected by the MAC)**
3. **Indicator whether the LBTFailure resulted in RACH/RLF/SCGFailure (for differentiating failure and non-failure scenarios)**
4. **BWP information and no. of LBT failures statistics**
5. **RSSI and CO measurement when consistent LBT failure is detected by the MAC, if available**

[22]

**Proposal 1 RAN2 to focus (at least in the beginning of the discussion) on existing SON/MDT signaling reports, e.g. the RA-Report/RA-Information enhancements, the RLF-Report enhancements (for RLF and HOF), the SHR enhancements, the Successful PSCell report (SPR) enhancements, the L2 measurements enhancements, the mobility state enhancements.**

[22]

**Proposal 2 To introduce a new raPurpose in the RA-Report to indicate that the RA was initiated following a “consistent LBT failures” in the SpCell.**

**Proposal 3 If at the moment of successfully completing the random access procedure, the UE had consistent UL LBT failures triggered in one or more BWPs at MAC layer, the RA-Report includes information associated to those random access procedures that were initiated due to such consistent UL LBT failures.**

**Proposal 4 For each RA attempt, it is indicated whether the corresponding RA attempt (i.e. preamble transmission) was blocked by LBT.**

**Proposal 5 The UE includes in the RA-InformationCommon the LBT configuration, e.g. the configured “lbt-FailureInstanceMaxCount”.**

**Proposal 6 Include in the RLF-Report information on whether UL consistent LBT failures were triggered in the SpCell at MAC layer at the moment of RLF or during the HO.**

**Proposal 7 If at the moment of RLF/HOF, the UE had consistent UL LBT failures triggered in one or more BWPs at MAC layer, the RLF-Report includes information associated to the random access procedures that were initiated due to such consistent UL LBT failures just before the RLF/HOF.**

**Proposal 8 To introduce new SHR triggering conditions for NR-U, e.g. UL consistent LBT failure prior to successfully completing the HO.**

**Proposal 9 If at the moment of successful HO completion, the UE had consistent UL LBT failures triggered in one or more BWPs at MAC layer, the SHR includes information associated to the random access procedures that were initiated due to such consistent UL LBT failures just before the successful HO completion.**

**Proposal 10 RAN2 to consider in the L2 measurement framework, the LBT delays affecting scheduled transmission, the scheduling delays due to LBT issues on SR transmissions/UL grants receptions, the potential inaccuracy of the BSR content due to LBT blockages on the BSR transmission.**

**Proposal 11 RAN2 to discuss enhancements to mobility state framework to aid the UE to determine more correctly its mobility state in case of missing reference signals due to LBT issues that the gNB.**

[26]

**Proposal 1:** For application of MRO in NR-U, it is proposed to introduce information in the RLF report which allows to distinguish between RLFs caused by wrongly configured handover parameters (useful for MRO) and those spoiled by LBT caused channel access delays (not useful for MRO).

**Proposal 2:** Introduce logging of channel access delay information experienced during the handover process (e.g., in RLF Report) to enable a correct treatment of the reported RLFs with respect to MRO and other SON methods.

**Proposal 3:** Extend MDT reports to provide a solution for recording of a cancellation of an LBT failure.

[27]

**Proposal: UE does not clear the stored RLF-report when receiving an RRCReeconfiguration or RRCRelease message in response to MCGFailureInformation message in fast MCG recovery case.**

[7]

**Proposal 7: Add a new RA purpose of LBT on SpCell.**

[34]

**Proposal 14 For UE measurements for MRO, RAN2 to discuss whether the following are introduced or not: RSSI, Channel Occupancy, waiting periods due to LBT, LBT failure recovery configuration parameter, Energy detection threshold.**

**Proposal 15 For UE measurements for UL MLB, RAN2 to discuss whether the following are introduced or not: UL SINR.**

#### 2.7.3 Conclusions

Based on section 2.7.1, the following proposals are made:

**Summary proposal 16: RAN2 can determine if the following scenarios of MRO should be considered**

* (1) Successful HO Report
* (2) Failure scenarios, such as RLF, SCG Failure, CEF
* (3) Near failure scenario, consistent uplink LBT failures are detected on multiple UL BWPs with configured RACH resources, however, eventually, it does not result in the RLF, HoF, SCG failure, or PSCell addition or change failure

### 2.8 Co-ordinations between RAN2 and RAN3

[7]

RAN3/RAN2 work split

**Proposal 8: RAN2 first to discuss the features as below:**

1. **MDT and L2 measurement part of NPN enhancement;**
2. **SgNB RACH report for (NG)EN-DC;**
3. **Fast MCG recovery enhancement.**

[15]

**Proposal 1: For MR-DC CPAC, it is proposed RAN2 to wait for RAN3 progress on the scenarios and requirements.**

[8]

**Proposal 9: RAN2 to discuss the following features after some progress in RAN3:**

1. **MR-DC CPAC;**
2. **Successful PScell change report;**
3. **Successful Handover Report (e.g. inter-RAT).**

[34]

**Proposal 1 To support inter RAT SHR, specification impact to 36.331 should be avoided. RAN3 to decide whether to support both inter-system and intra-system inter-RAT SHR or only intra-system inter-RAT SHR.**

[20]

**Proposal 5: Wait for RAN3 discussion on identifying load metrics that are needed to be exchanged between NG-RAN nodes to support MLB for NR-U in UL.**

Based on the contributions above, the following features are proposed to wait for RAN3 progress (e.g. the scenarios and requirements):

**MR-DC CPAC, Successful Pscell change report, SHR for inter-RAT, load metrics for MLB for NR-U in UL**

So it is proposed:

**Summary proposal 0: RAN2 to discuss whether RAN2 should wait for RAN3 progress (e.g. the scenarios and requirements) for the following features:**

* **(1) MR-DC CPAC**
* **(2) Successful Pscell change report**
* **(3) SHR for inter-RAT**
* **(4) load metrics for MLB for NR-U in UL**

### 2.9 Others

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

## 3 Conclusions

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

**Summary proposal 0: RAN2 to discuss whether RAN2 should wait for RAN3 progress (e.g. the scenarios and requirements) for the following features:**

* **(1) MR-DC CPAC**
* **(2) Successful Pscell change report**
* **(3) SHR for inter-RAT**
* **(4) load metrics for MLB for NR-U in UL**

MR-DC CPAC

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

**Summary proposal 2: The following types of CPAC for MRO are considered:**

* **(1) R16 intra-SN CPC without MN involvement**
* **(2) R17 CPA**
* **(3) R17 MN initiated inter-SN CPC**
* **(4) R17 SN initiated inter-SN CPC**

Successful Pscell change report

**Summary proposal 3: RAN2 to take the solution of R17 PCell SHR as the baseline to start the R18 successful PSCell change report discussion.**

**Summary proposal 4: In R18, Successful PSCell change report in NR-NR DC should be prioritized.**

**Summary proposal 5: RAN2 to focus on the following scenarios for the successful PSCell change report:**

* **(1) ordinary PSCell change**
* **(2) conditional PSCell change**
* **(3) ordinary PSCell addition**
* **(4) conditional PSCell addition**

Successful Handover Report (e.g. inter-RAT)

**Summary proposal 6: It is proposed RAN2 to discuss which of the following scenarios should be considered for inter-RAT SHR:**

* (1) a successful HO from gNB to ng-eNB
* (2) a successful HO from gNB to eNB
* (3) a successful HO from ng-eNB to gNB
* (4) a successful HO from eNB to gNB

NPN

**Summary proposal 7: The support of SON/MDT enhancement in both SNPN and PNI-NPN scenarios are considered.**

**Summary proposal 8: It is proposed RAN2 to focus on R16 basic NPN functionality for R18 SONMDT.**

**Summary proposal 9: The storing of NPN-related SON reports e.g., RLF/RA report/SHR etc, should not impact/damage the storing of PN- related SON reports and vice versa.**

**Summary proposal 10: Enhance existing MDT framework to support logging of MDT results in both SNPN and PNI NPN.**

RACH report

**Summary proposal 11: It is proposed RAN2 to discuss RACH partitioning for RACH report enhancements.**

**Summary proposal 12: RAN2 is asked to discuss the support of (NG)EN-DC and NE-DC scenarios for SN RACH report.**

**Summary proposal 13: RAN2 is asked to discuss on the support of UE based solution.**

Fast MCG recovery

**Summary proposal 14: MRO for fast MCG link recovery in NR-NR DC should be prioritized in R18.**

**Summary proposal 15: Discuss the scope of MCG recovery enhancement related scenarios, which include:**

* (1) MCG failure only, and the MCG recovery is failed, i.e. RAN2 to investigate T316 optimization
* (2) MCG failure only, and the MCG recovery is successful
* (3) MCG failure occurred, and then SCG failure
* (4) MCG failure occurred, and SCG has already failed/SCG deactivated

NR-U

**Summary proposal 16: RAN2 can determine if the following scenarios of MRO should be considered**

* (1) Successful HO Report
* (2) Failure scenarios, such as RLF, SCG Failure, CEF
* (3) Near failure scenario, consistent uplink LBT failures are detected on multiple UL BWPs with configured RACH resources, however, eventually, it does not result in the RLF, HoF, SCG failure, or PSCell addition or change failure

## 4 Relevant Tdocs

[1] R2\_119-e\_Skeleton v1

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

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

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

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

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

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

[8] 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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

[37] 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

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

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