3GPP TSG-RAN WG2 #118-e R2-2206344

Electronic meeting, 09th – 20th May 2022

Agenda Item: 8.13.4.1

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Title: Summary of RAN2-118 #801 offline discussion

Document for: Discussion

# 1 Introduction

This contribution summarizes the RIL issues discussed under #801 offline discussion during pre-RAN2-118 meeting.

# 2 Discussion

## 2.1 Easily agreeable RILs that are already implemented in the rapporteur CR

The following RILs are proposed as ‘propAgree’ in the offline discussions and no company has disputed the rapporteur’s proposal. The corresponding changes have been implemented in the rapporteur CR. Based on it, the rapporteur proposes to agree on the following RIL related changes.

1. RAN2 to agree the changes associated to the following RILs (as captured in the rapporteur CR):
	* E069, E070, E071, E072, E142, E113, E075, E078, E115, E116, E117, E118, E119, E123, E137,
	* S712, S703, S706, S713, S714, S707, S709, S710, S716 (Z413, E123)
	* Z403, Z404, Z405, Z414, Z416, Z417, Z420, Z413, Z424, Z418, Z415, Z421
	* H069, H070, H075, H588, H077, H079, H070, H098, H101, H195, H100, H076
	* N025, N029, N030, N091, NOKIA095, NOKIA100,
	* C301, C310, C308, C303, C304, C305, C320, C311, C312, C321, C329
	* I044, I006
	* B181

## 2.3 RIL comments that are ‘propReject’

Several of the RILs are proposed as ‘propReject’ in the offline discussions and no company has disputed the rapporteur’s proposal. Based on it, the rapporteur proposes to reject these RIL related changes. The reasoning for rejection is provided in the excel sheet.

For W006, the rapporteur had classified the RIL issue as ‘propReject’ for which NEC has commented otherwise and have also produce a CR [[R2-2205046](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205046.zip)]. However, rapporteur would like to point out that the changes proposed in [[R2-2205046](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Docs/R2-2205046.zip)] also leaves room for UE implementation and causes confusion in terms of how the UE can set the flag associated to SHR availability in RRCReconfigurationComplete message corresponding to a RRCReconfiguration message including reconfigurationWithSync. Based on the provided CR, when the UE sets the fields of the *VarSuccessHO-Report* is left to implementation as there is no section in RRC that calls the section 5.7.10.6. Further, the way the rapporteur had proposed the inclusion of contents of *VarSuccessHO-Report* allowed for UE implementation flexibility as to when the UE generates the RRCReconfigurationComplete message (e.g., while performing the RA towards the target). If this is to be discarded, then there is no way to specify the procedural text associated to T304 related condition checking before the generation of RRCReconfigurationComplete message (unless RAN2 agrees to include the SHR availability flag in all RRCReconfigurationComplete messages compared to the current restriction where SHR availability flag is included in the RRCReconfigurationComplete message associated to a RRCReconfiguration including reconfigurationWithSync). Thus, rapporteur proposes to leave the current implementation as is.

Regarding S702, RAN2 had agreed in the past to include the choCandidate flag for both RLF report and SHR. However, in the RAN2#117 meeting, it was agreed to include the entire choConfig for the RLF report. Thus, rapporteur believes we should not reopen this discussion.

For H108, Huawei proposes to use network based solution. However, the RAN3 discussions have been for the SHR and based on the LS reply received in RAN2 and the agreements in RAN2, the current implementation seems to be correct. Of course, RAN2 can further change our specification if RAN3 agrees any network based solution for too early handover and too late handover related RLF cases as well.

1. RAN2 to reject the changes associated to the following RILs:
	* S701, S702, S704, S705, S708, S715
	* W006
	* NOKIA097, N027, N025, N028, NOKIA094, NOKIA093, N029, N092,
	* H071, H072, H073, H104, H108
	* Z422
	* C316
	* O700, O701
	* B180

## 2.4 RILs for discussions

### 2.4.1 RILs that are partly agreed

In C306 two different aspects related to the signalling based MDT protection is discussed. In the first part we agree that there is no need to condition the protection of the signalling based logged MDT procedure to the PLMN. However the second part of the RIL discusses to change the *sigLogMeasConfigAvailable* flag to a ENUMERATED format. However, rapporteur believes the current implementation i.e., BOOLEAN format provides more valuable information to the network, namely, it is possible for the network to deduce that the available MDT report is a signalling based report or a management based report. Hence, we propose to keep the current implementation for the *sigLogMeasConfigAvailable* flag with BOOLEAN format.

1. [C306] RAN2 agree to keep the *sigLogMeasConfigAvailable* flag with BOOLEAN format.

In C327 it has been discussed that the CHO will not be executed for Mobility From NR as the inter-RAT CHO is not supported in Rel-16 CHO feature, therefore, the *timeSinceCHO-Reconfig* is not available (S706 also provides a similar proposal). Similarly, for *choCandidateCellList,* it should be “failure handover” instead of “failure conditional handover”. Rapporteur agrees with changing the “failed conditional handover” to a failed handover, however Rapporteur believes that UE can still log timeSinceCHOReconfig up to the moment of the failure. Hence the following is proposed.

1. [C327] RAN2 agree to keep the current implementation that UE logs the timeSinceCHOReconfig for the scenarios that UE performs mobility from NR while being configured with CHO configuration.

### 2.4.2 RILs that are implemented but are classified as propDisc

In [E075] Ericsson has proposed that the *timeSinceFailure* is not logged for the CEF report logged in the CEF report list. It is mentioned that for the simplicity of implementation at the UE side, UE can log the time between two failures, instead of keeping the trach of failure time for all the CEF reports logged in the CEF report list. Namely UE should keep track of time of one single failure (the current one and the last one). Hence Rapporteur proposes:

1. [E075] RAN2 decide UE loges time between failures (time between the current failure and the previous failure) in the CEF report list or the time since failure for every CEF report in the CEF report list

### 2.4.3 RILs that are classified as propDisc

Z406 and Z408 are related to the UE capabilities based inclusion of CHO and DAPS failure related information in the RLF report. This seems to be a straightforward implementation from the rapporteur’s point of view. However, it would be good to have an explicit agreement based on these RILs.

1. [Z406, Z408] RAN2 to agree to update the procedural text to include CHO and DAPS related RLF report contents based on explicit UE capability information.

For H095, Huawei proposes to use network based solution. However, the RAN3 discussions have been for the SHR and based on the LS reply received in RAN2 and the agreements in RAN2, the current implementation seems to be correct. Of course, RAN2 can further change our specification if RAN3 agrees any network based solution for too early handover and too late handover related RLF cases as well.

1. [H095] RAN2 to stick to the agreement reached in RAN2#117, i.e. keep the current handling of the too late CHO related RLF, unless a new LS is received from RAN3.

For Z410, ZTE propose to extend the inclusion of *failedPSCellID* for the PSCell addition scenarios and restrict the inclusion of previousPSCellID to the PSCell change scenarios. Rapporteur agree with the change and hence proposes the following.

1. [Z410] As part of *SCGFailureInformation* logging, RAN2 agree to extend the inclusion of *failedPSCellID* for the PSCell addition scenarios and restrict the inclusion of previousPSCellID to the PSCell change scenarios.

In H074 it has been indicated that the user plane interruption time is not covering all the scenarios e.g., when the UE didn’t receive any non-duplicated packet from the target RAN node. Rapporteur, agree that the use plane interruption time needs further discussion however does not believe the proposed solution would bring value to the network as the proposed solution does not reflect the user plane interruption time. Hence the rapporteur proposes the following.

1. [H074] RAN2 discuss what/if changes are needed to the current handling of the user plane interruption time, e.g.
	* The UE includes the *upInterruptionTimeAtHO* only if a PDCP PDU was received from the source cell of the concerned HO, and a non-duplicated PDCP PDU was received from the target cell of the concerned HO

And in NOKIA096 Nokia mentioned that from current procedural text it is not clear whether all the triggering conditions are applied to the DAPS HO or not. Rapporteur believes that SHR triggering conditions such as T304 threshold or T310 and T312 thresholds are not dependent to any HO type and hence are applicable to HO including the DAPS HO (namely, the specification does not preclude applying such thresholds to the DAPS HO). Hence no changes is required in the specification, but RAN2 can explicitly agree to this.

1. [NOKIA096] RAN2 agree that all the SHR triggering thresholds including T304, T310 and T312 thresholds are applicable to the DAPS HO, beside the sourceDAPS-FailureReporting (no changes to the current spec needed).

In E079 Ericsson has discussed during a DAPS HO failure if the RLF is due to random access problem in the source cell, it would be beneficial if the UE includes the RA-InformationCommon associated to the source PCell. Rapporteur thinks we have not discussed whether the UE shuold include RA-InformationCommon in case of source RLF in DAPS HO due to RA problems, as we do for the legacy RLF-Report case. Hence Rapporteur proposes the following.

1. [E079] RAN2 discuss whether the UE includes the RA-InformationCommon when UE experience source RLF in DAPS HO due to RA problems.

In C326 CATT mentions that in SHR, the CHO candidate cells, those which were not logged as part of neighbor cell measurements, can be logged in CHOCandidateCellList, similar to the RLF report. Rapporteur believes it has been agreed that not to include the CHOCandidateCellList in the SHR report, but it can be further discussed.

1. [C326] RAN2 discuss the need to include the CHOCandidateCellList in the SHR report for the cells for which their measurements are not logged in the neighbor cell measurements.

In H106, Huawei discusses that timeSinceCHOReconfig may not need to be set for the scenarios that RLF occurs and there is no CHO configuration. Rapporteur agrees with the scenarios, but believes that the current implementation already cover such scenarios as the current procedure says: “*if configuration of the conditional handover is available in VarConditionalReconfig at the moment of declaring the radio link failure*:”. Hence Rapporteur thinks no change is needed but RAN2 can confirm the scenario.

1. [H106] For the case of connection failures, RAN2 confirms that *timeSinceCHOReconfig* will be logged when configuration of conditional handover is available in *VarConditionalReconfig* at the moment of declaring the radio link failure, or handover failure (no changes to the current spec).

### 2.4.3.1 On MHI

To fix the issue the RILs on MHI, Rapporteur proposes first discussing the principle that should be followed for the PSCell MHI. In the current specification, the PSCell MHI is handled in a similar way as the Rel.16 PCell MHI, i.e. the PSCell visited while connected to a certain PCell X are appended to the MHI in the nested structure upon PCell change, e.g. when the UE moves from PCell X to PCell Y.

1. RAN2 to discuss if for the PSCell MHI we can adopt the same principles as the Rel.16 PCell MHI, i.e. the PSCells visited while connected to a certain PCell X are appended to the MHI in the nested structure upon PCell change or when entering 'any cell selection', e.g when the UE moves from PCell X to PCell Y, or when the UE enters IDLE mode.

If the above is agreeable, it is necessary that the UE maintains a temporary variable where all the PSCell visited while connected to the PCell X are temporarily stored. Then, when the UE transits from the PCell X to the PCell Y, the UE should append to the visitedCellInfoList of the variable VarMobilityHistoryReport, both the PCell X information (as in Rel.16) and within the nested structure, all the associated PSCell changes stored in the temporarily variable.

1. If Proposal 14 is agreed, RAN2 to discuss if a new temporary variable is needed to collect all the visited PSCells while the UE is connected to a certain PCell.

If the above is agreeable, the temporary variable including the visited PSCells while connected to a certain PCell should be appended to the visitedCellInfoList of the variable VarMobilityHistoryReport upon PCell change, i.e. the PSCells visited while connected to PCell X and stored in the temporary variable are included in the visitedCellInfoList of the variable VarMobilityHistoryReport, when the UE moves from PCell X to PCell Y, or when the UE enters any cell selection state. This would reflect the same principles as the Rel.16 PCell MHI.

1. If Proposal 14 and Proposal 15 are agreeable, RAN2 to discuss if the PSCells visited while connected to PCell X and collected in the temporary variable can be appended to the visitedCellInfoList of the variable VarMobilityHistoryReport when the UE moves from PCell X to PCell Y, or when the UE enters “any cell selection” state.

### 2.4.3.2 On RA RILs

The RILs C322 an E076 highlight that the actions related to msg1 CBRA should be performed after the actions for msgA CBRA. That is because some fields should not be set again if their values is the same as the 2-step RA counterparts, e.g. the msg1-FrequencyStart should be set only if that is different than msgA-RO-FrequencyStart. This seems to require that the 2-step RA parameters should be set before the msg1 parameters.

1. [C322, E076] RAN2 to discuss if the setting of the 2-step parameters can be moved before the setting of the 4-step RA parameters.

Related to H099, it is proposed whether to split into two if conditions the setting of the msg1-SubcarrierSpacing, wherein in the first “if” condition it is checked if msg1-SubcarrierSpacing is available, and in the second “if” condition it is checked if its value is different from the value of msgA-SubcarrierSpacing. Rapporteur´s view is that this seems to be a minor editorial correction.

1. [H099] RAN2 to discuss whether there is the need to split into two “if” conditions the setting of the msg1-SubcarrierSpacing, wherein in the first “if” condition it is checked if msg1-SubcarrierSpacing is available, and in the second “if” condition it is checked if its value is different from the value of msgA-SubcarrierSpacing.

In RIL H096, it is proposed to define a way to handle SN and MN RA-Report separately.

1. [H099] RAN2 to discuss whether there is the need to split into two “if” conditions the setting of the msg1-SubcarrierSpacing, wherein in the first “if” condition it is checked if msg1-SubcarrierSpacing is available, and in the second “if” condition it is checked if its value is different from the value of msgA-SubcarrierSpacing.

# Conclusion

Based on the discussion in the previous sections we propose the following:

[Proposal 1 RAN2 to agree the changes associated to the following RILs (as captured in the rapporteur CR):](#_Toc103069693)

[ E069, E070, E071, E072, E142, E113, E075, E078, E115, E116, E117, E118, E119, E123, E137,](#_Toc103069694)

[ S712, S703, S706, S713, S714, S707, S709, S710, S716 (Z413, E123)](#_Toc103069695)

[ Z403, Z404, Z405, Z414, Z416, Z417, Z420, Z413, Z424, Z418, Z415, Z421](#_Toc103069696)

[ H069, H070, H075, H588, H077, H079, H070, H098, H101, H195, H100, H076](#_Toc103069697)

[ N025, N029, N030, N091, NOKIA095, NOKIA100,](#_Toc103069698)

[ C301, C310, C308, C303, C304, C305, C320, C311, C312, C321, C329](#_Toc103069699)

[ I044, I006](#_Toc103069700)

[ B181](#_Toc103069701)

[Proposal 2 RAN2 to reject the changes associated to the following RILs:](#_Toc103069702)

[ S701, S702, S704, S705, S708, S715](#_Toc103069703)

[ W006](#_Toc103069704)

[ NOKIA097, N027, N025, N028, NOKIA094, NOKIA093, N029, N092,](#_Toc103069705)

[ H071, H072, H073, H104, H108](#_Toc103069706)

[ Z422](#_Toc103069707)

[ C316](#_Toc103069708)

[ O700, O701](#_Toc103069709)

[ B180](#_Toc103069710)

[Proposal 3 [C306] RAN2 agree to keep the *sigLogMeasConfigAvailable* flag with BOOLEAN format.](#_Toc103069711)

[Proposal 4 [C327] RAN2 agree to keep the current implementation that UE logs the timeSinceCHOReconfig for the scenarios that UE performs mobility from NR while being configured with CHO configuration.](#_Toc103069712)

[Proposal 5 [E075] RAN2 decide UE loges time between failures (time between the current failure and the previous failure) in the CEF report list or the time since failure for every CEF report in the CEF report list](#_Toc103069713)

[Proposal 6 [Z406, Z408] RAN2 to agree to update the procedural text to include CHO and DAPS related RLF report contents based on explicit UE capability information.](#_Toc103069714)

[Proposal 7 [H095] RAN2 to stick to the agreement reached in RAN2#117, i.e. keep the current handling of the too late CHO related RLF, unless a new LS is received from RAN3.](#_Toc103069715)

[Proposal 8 [Z410] As part of *SCGFailureInformation* logging, RAN2 agree to extend the inclusion of *failedPSCellID* for the PSCell addition scenarios and restrict the inclusion of previousPSCellID to the PSCell change scenarios.](#_Toc103069716)

[Proposal 9 [H074] RAN2 discuss what/if changes are needed to the current handling of the user plane interruption time, e.g.](#_Toc103069717)

[ The UE includes the *upInterruptionTimeAtHO* only if a PDCP PDU was received from the source cell of the concerned HO, and a non-duplicated PDCP PDU was received from the target cell of the concerned HO](#_Toc103069718)

[Proposal 10 [NOKIA096] RAN2 agree that all the SHR triggering thresholds including T304, T310 and T312 thresholds are applicable to the DAPS HO, beside the sourceDAPS-FailureReporting (no changes to the current spec needed).](#_Toc103069719)

[Proposal 11 [E079] RAN2 discuss whether the UE includes the RA-InformationCommon when UE experience source RLF in DAPS HO due to RA problems.](#_Toc103069720)

[Proposal 12 [C326] RAN2 discuss the need to include the CHOCandidateCellList in the SHR report for the cells for which their measurements are not logged in the neighbor cell measurements.](#_Toc103069721)

[Proposal 13 [H106] For the case of connection failures, RAN2 confirms that *timeSinceCHOReconfig* will be logged when configuration of conditional handover is available in *VarConditionalReconfig* at the moment of declaring the radio link failure, or handover failure (no changes to the current spec).](#_Toc103069722)

[Proposal 14 RAN2 to discuss if for the PSCell MHI we can adopt the same principles as the Rel.16 PCell MHI, i.e. the PSCells visited while connected to a certain PCell X are appended to the MHI in the nested structure upon PCell change or when entering 'any cell selection', e.g when the UE moves from PCell X to PCell Y, or when the UE enters IDLE mode.](#_Toc103069723)

[Proposal 15 If Proposal 14 is agreed, RAN2 to discuss if a new temporary variable is needed to collect all the visited PSCells while the UE is connected to a certain PCell.](#_Toc103069724)

[Proposal 16 If Proposal 14 and Proposal 15 are agreeable, RAN2 to discuss if the PSCells visited while connected to PCell X and collected in the temporary variable can be appended to the visitedCellInfoList of the variable VarMobilityHistoryReport when the UE moves from PCell X to PCell Y, or when the UE enters “any cell selection” state.](#_Toc103069725)

[Proposal 17 [C322, E076] RAN2 to discuss if the setting of the 2-step parameters can be moved before the setting of the 4-step RA parameters.](#_Toc103069726)

[Proposal 18 [H099] RAN2 to discuss whether there is the need to split into two “if” conditions the setting of the msg1-SubcarrierSpacing, wherein in the first “if” condition it is checked if msg1-SubcarrierSpacing is available, and in the second “if” condition it is checked if its value is different from the value of msgA-SubcarrierSpacing.](#_Toc103069727)

[Proposal 19 [H099] RAN2 to discuss whether there is the need to split into two “if” conditions the setting of the msg1-SubcarrierSpacing, wherein in the first “if” condition it is checked if msg1-SubcarrierSpacing is available, and in the second “if” condition it is checked if its value is different from the value of msgA-SubcarrierSpacing.](#_Toc103069728)