3GPP TSG-RAN WG2 #116bis-e DocNumber

Electronic meeting, 16th – 25th January 2022

Agenda Item: 8.13.2.1

Source: Ericsson

Title: Report of [Post116-e][887.5][SONMDT] Leftover issues on SON (Ericsson)

Document for: Discussion, Decision

# Introduction

This contribution addresses the following offline discussion:

* **[Post116-e][887.5][SON/MDT] Leftover issues on SON (Ericsson )**

Scope: Continue the discussion on the left issues in R2-2111507. Any other critical issues should also be included.

Intended outcome: report

Deadline: long

To aid better communication between the respective delegates handling this topic from different companies, it is requested to fill-in the contact information.

**Contact Information**

|  |  |  |
| --- | --- | --- |
| Company | Name | Email |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Discussion

In the following sections, we discuss for each topic the pending issues from previous meetings, as well as the editor´s note captured in the current version of the TS 38.331 running CR.

## CHO/DAPS related

### 2.1.1 Open issues from running CR

The following editor´s note related to CHO issue were captured in the TS 38.331 running CR

* Editor´s note: FFS how/if to represent the time between the CHO configuration in the cell and the RLF in the same cell, e.g. reuse *timeSinceCHOReconfig*.

The current field description of *timeSinceCHOReconfig* as captured in the running CR is based on the agreement from RAN2#114-e:

|  |
| --- |
| *From RAN2#114-e:*  To represent Timer C, i.e. the “Time elapsed between the first CHO execution and the corresponding latest CHO configuration received for the selected target cell” introduce a new timer, e.g. timeSinceCHOReconfig. |

However, RAN2 has not agreed on whether the UE should log the timeSinceCHOReconfig, if an RLF occurs in a cell after the CHO configuration is provided

* **Q1: In case the UE experiences an RLF in a cell after being configured with CHO configuration, shall the UE log the time elapsed between the CHO configuration and the RLF?**
  + **Option A:** Yes, the UE shall reuse the timeSinceCHOReconfig as the time elapsed between the RLF in a given cell and the latest CHO configuration received while connected to that cell
  + **Option B:** Yes, the UE shall reuse the timeSinceCHOReconfig as the time elapsed between the RLF in a given cell and the first CHO configuration received while connected to that cell
  + **Option C:** The UE shall not log this information at all
  + **Option D:** Other. Please provide the description of your preferred option

|  |  |  |
| --- | --- | --- |
| **Company** | **Preferred option** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

The next editor´s note in the running CR related to CHO is about the following:

* Editor´s note: FFS the granularity of the *timeConnSourceDAPSFailure*, e.g. seconds or milliseconds.
* Editor´s note: FFS the granularity of the *timeSinceCHOReconfig*, e.g. seconds or milliseconds
* Editor´s note: FFS the granularity of the *timeBetweenEvents*, e.g. seconds or milliseconds.

Rapporteurs notes that in most cases, the time value that should be captured by those timers might be very small. For example, the time between a DAPS execution and an RLF failure in the source while T304 is running might be in the order of few ms. Simlarly, the time between the fullfillment of an A3 (A5) event and an A5 (A3) event might be in the order of few ms. Also for the case of the *timeSinceCHOReconfig*, the time elapsed between the CHO configuration and the execution might be in the order of milliseconds in a network implementation.

* **Q2: Which granularity do you prefer for the timers timeConnSourceDAPSFailure, timeSinceCHOReconfig, timeBetweenEvents?**

|  |  |  |  |
| --- | --- | --- | --- |
| **Company** | **timeConnSourceDAPSFailure**  **(seconds/milliseconds)** | **timeSinceCHOReconfig**  **(seconds/milliseconds)** | **timeBetweenEvents**  **(seconds/milliseconds)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Rapporteur summary:**

To be added later

### 2.1.2 Other open issues related to CHO/DAPS

In this section, companies are invited to bring up other open issues. Note however that according to chairman recommendation, we should avoid discussing new issues unless there is some critical/outstanding problem.

* **Q3: Is there any further issue related to CHO/DAPS you would like to discuss? Please describe it below:**

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Rapporteur summary:**

To be added later

## SHR related

### 2.2.1 Open issues from RAN2#116 meeting

#### 2.2.1.1 RA Info in SHR

A topic discussed in #899 email discussion and in offline#850 is related to if and when the UE includes the RA-InformationCommon in the SHR.

Proposal 5 RAN2 to further discuss whether RA-InformationCommon is included in SHR when T304 is above the threshold.

The following technical reasonings are mentioned in the respones of the #899 email discussion:

1. Companies supporting option-A
   1. RA-InformationCommon corresponding to SHR could be replaced or deleted from RA report.
   2. There is currently no way to link a specific RA report in the RA report list with the SHR
   3. There is no indicator or timestamp to associate the SHR to a specific entry in the RA-Report
2. Companies supporting option-B
   1. Already part of RA-report. No need to duplicate it..

During RAN2#116 meeting, it was not possible to reach any concludion on this topic as companies’ views were split halfway. The proponents point out that it is not possible to correlate the RA related information in the RA report and a SHR if SHR does not include the RA related information. However, opponents argue that the cellID in the SHR and RAReport should suffice to do such a correlation.

Based on the above reasoning from the companies, rapporteur belives that same question can be reposed as more technical arguements from RAN2#116 meeting might have changed each company’s position on this topic.

* **Q4: Which is the option do you prefer for the inclusion of RA-InformationCommon in the SHR?**
  + **Option A: RA-InformationCommon is included in SHR when T304 is above the threshold**
  + **Option B: RA-InformationCommon is not included in SHR**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option-A / Option-B** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

#### 2.2.1.2 SHR and RLF-Report being generated for same HO

Another topic discussed in Offline#850 discussion is related to the impact of SHR and RLF report being generated for the same HO event.

Proposal 6 RAN2 to further discuss whether and how to handle the scenario of SHR and RLF-Report being generated for the same HO.

The scenario under consideration is the following.

1. UE is being handed over from cell-A to cell-B
2. The handover is successful and the UE also generates a SHR report
3. SHR report is fetched by cell-B and sent to Cell-A
4. UE declares RLF in Cell-B and generates the RLF report
5. UE reports the RLF report to Cell-X (this could be very late in time compared to when RLF was declared i.e., timeSinceFailure is a large value).
6. Cell-A receives the RLF report and realizes that it was a *HO to wrong cell* from Cell-A to Cell-B

The problem identified is that the same HO has resulted in both SHR generation and RLF report generation and both these reports would result in correcting HO parameters i.e., SHR might result in reducing the A3Offset whereas RLF report might result in increasing the A3Offset. Opponents of this proposal believe that there is no possibility at the network side to identify that both reports are for the same HO.

The following technical reasonings are mentioned in the respones of the Offline#850 discussion:

1. Companies who believes there is an issue:
   1. Since the two reports were caused by the single event, it may be beneficial to correlate them for further parameters analysis
   2. The UE will report to the network both the SHR and the RLF-Report for the same HO event.
   3. It is not clear how the network implementation can fix this issue, given that there will not be any indicator or timestamp linking the RLF-Report to the SHR (and viceversa).
2. Companies who believe there is no issue:
   1. The two reports have different optimization objectives
   2. This is related to network implementation issue
   3. The network needs to collect enough SON reports and then can do a full anaysis on the issues.

Based on this, rapporteur would like to ask the following question.

* **Q5: Is it possible for the network to identify that the SHR and RLF report are generated for the same HO in the scenario described above?**
  + **If YES, please indicate how in the comments as to how you intend to perform such a correlation**
  + **If NO, please indicate what additional information is needed to perform such a correlation**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

#### UP measurements in SHR

User plane interruption time was one of the topics for which we could not make any agreement in RAN2#116 meeting. Based on the inputs from the companeis, it seemed agreeable that the UP interruption time is measured at the PDCP layer and the measurement is based on the non-duplicated packets i.e., duplicated packets should not be considered.

* **Q6: Do you agree that the UP interruption time at HO is evaluated at PDCP layer without considering duplicates?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

Further, RAN3 LS (R3-212935) had asked for UE based UP interruption time measurements and RAN2 has already agreed that the UP interruption time is part of the SHR as agreed in RAN2#115 meeting.

Therefore, RAN3 respectfully asks RAN2 to further study the introduction of User Plane measurements (e.g. user plane interruption time at HO) in the SHR.

R2-2108419 LS Reply On user plane masurements for successful handover report Ericsson discussion NR\_ENDC\_SON\_MDT\_enh-Core

Agreement from RAN2#115:

1 UP measurements for Successful Handover Report will be introduced as RAN3 required. FFS the details.

However, during RAN2#116 meeting some companies indicated that network based solution should be introduced. Therefore, rapporteur would like to ask the following question.

* **Q7: Do you agree that the UE should perform the user plane interruption time measurements at the HO i.e., inline with agreements from RAN2#115 meeting?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

Further, during RAN2#116 meeting one company indicated that the user plane interruption time measurement should be limited to DAPS handover.

* **Q8: Under which scenarios, should the ’user plane interruption time’ measurements be computed?**
  + **Option A: For both ordinary HO and DAPS HO**
  + **Option B: Only at DAPS HO**
  + **Option C: For all HO types (ordinary HO, DAPS, CHO)**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option-A/B/C** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

### 2.2.2 Open issues from running CR

Related to SHR, the following editor´s note was captured in the TS 38.331 running CR:

* Editor’s NOTE: FFS on whether we need an indication in successHO-Config for triggering of SHR when source RLF is declared in DAPS

The SHR configuration includes as agreed the T304/T310/T312 thresholds. Additionally, as agreed, the successful handover information are logged by the UE only if the UE was configured with the SHR configuration.

|  |
| --- |
| From current TS 38.331 running CR:  SuccessHO-Config-r17 SEQUENCE {  thresholdT304 ENUMERATED {s0dot4, s0dot6, s0dot8, spare5, spare4, spare3, spare2, spare1 } OPTIONAL, --Need M  thresholdT310 ENUMERATED {s0dot4, s0dot6, s0dot8, spare5, spare4, spare3, spare2, spare1 } OPTIONAL, --Need M  thresholdT312 ENUMERATED {s0dot2, s0dot4, s0dot6, s0dot8, spare4, spare3, spare2, spare1 } OPTIONAL, --Need M  ...  }  3> if the UE was configured with *successHO-Config* when connected to the source PCell:  4> perform the actions for the successful handover report determination, as specified in clause 5.7.10.x; |

The above implies that in the current running CR, there is no configuration for the reporting of the RLF in source cell during the DAPS handover, i.e. for the report of the “*rlfInSource-DAPS-r17*” in the SHR. Hence, if the UE is configured with any of the above thresholds T304/T310/T312, the UE shall always generate a SHR to include the *rlfInSource-DAPS-r17* if the RLF occurs in the source cell during the DAPS handover, even if the values of T304/T310/T312 were below the thresholds.   
For example, according to the current running CR, if the SHR configuration only contains the T304 threshold configured by the target, then the UE may log the *rlfInSource-DAPS-r17*, even if the source cell was not interested in the SHR.

* **Q9: Shall the UE generate a SHR due to RLF in the source cell during a DAPS HO, only if it is configured to do so in the SHR configuration (i.e. in the *successHO-Config*)?**
  + If the answer is yes, an additional configuration field will be included the successHO-Config, e.g. *dapsRlfInSource-trigger*. Otherwise no changes are needed to the current running CR.

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

### 2.2.2 Other open issues related to SHR

In this section, companies are invited to bring up other open issues. Note however that according to chairman recommendation, we should avoid discussing new issues unless there is some critical/outstanding problem.

* **Q10: Is there any further issue related to SHR you would like to discuss? Please describe it below:**

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Rapporteur summary:**

To be added later

## RA report related

### 2.3.1 Open issues from RAN2#116 meeting

#### 2.3.1.1 2-step RA related

During RAN2#116 meeting, the following agreement was made.

3 Introduce MSGA PUSCH resource related information in 2-step RA report and the details within the following information: the payload size transmitted in MSGA for a 2-step RACH attempt. FFS the detail and how to reduce overhead.

It has been agreed that the UE shall include the payload side transmitted in MSGA. However, it is FFS regarding how to reduce the overhead. There are three issues (at least from rapporteur point of view) associated to this FFS.

1. Whether the payload size to be reported is with padding or without padding?
2. Whether the payload size is reported ’per RA procedure’ or ’per RA attempt’?
3. How to represent the payload size?

These questions are included as part of the questions below.

Based on the discussions in RAN2#116 meeting, it was found beneficial to report msgA payload size as this reduces the need to include all the aditional information. However, it was also said during online session that the payload size without padding is the most valuable information. As this has not been agreed yet, the following question is proposed.

* **Q11: Which of the following contents of payload size is reported by the UE?**
  + **Option-1: With padding**
  + **Option-2: Without padding**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option-1 / Option-2** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

The current agreement indicates that the payload size is transmitted per RA attempt.

1. Introduce MSGA PUSCH resource related information in 2-step RA report and the details within the following information: the payload size transmitted in MSGA for a 2-step RACH attempt

As including msgA size per RA attempt could increase the size of the RA report, rapporteur would like to ask if it is correct understanding from all companies as to whether the msgA payload size is included per RA attempt or RA procedure.

* **Q12: Which of the following granularity of payload size is reported by the UE?**
  + **Option-1: Per RA attempt**
  + **Option-2: Per RA procedure**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option-1 / Option-2** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

How to represent the payload size is not yet agreed. A few options are listed below on the method that can be used for reporting the payload size. Companies are requested to indicate which one they prefer and if they have additional way to indicate the same, then it is most welcome.

* **Q13: Which of the following options is used to report payload size?**
  + **Option-1: Actual size of the payload in bytes (with a maximum of ’X’ bytes i.e., if the payload size is large than ’X’ then the UE reports ’X’ but if the payload size is less than ’X’ then it reports the actual value)**
  + **Option-2: ENUMERATED {noPayload, sizeRange1, sizeRange2, sizeRange3, sizeRange4, sizeRange5, spare1, spare0} wherein each RANGE is known, e.g. hardcoded in the specification**
  + **Option-3: Others. Please add and describe your option**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option-1 / Option-2 / Option-3** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

#### On-demand SI related

The following aspect associated to on-demand SI was postponed in RAN2#115 meeting.

Proposal 5 Decision on inclusion of an indicator in the on-demand SI request related report indicating whether the on-demand SI request was successful or not is postponed to next RAN2 meeting.

While implementing the running CR, it was noticed that there is no further changes requried to the ASN.1 while supporting successful on-deamnd SI as the RA report is already incldued for successful msg1 based SI request and successful msg-3 based SI request. Only the procedural text needs to be changed so that the SI related information included for failed on demand SI (*intendedSIBs*, *ssbsForSI-Acquisition*) are also included for successful on demand SI procedure. Based on this rapporteur would like to ask the following.

* **Q14: Do you agree to include *intendedSIBs*, *ssbsForSI-Acquisition* in the RA report for a successfully completed on-demand SI procedure?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

#### 2.3.1.3 Other RA report related

In offline#802 in RAN2#113, including the PCell in the RA report in case RA occurred in an SCell was discussed, but eventually this was not agreed in RAN2#113bis-e due to lack of time although there was marge support:

a): UE also includes the PCell in the RA report in case the RA occurred in an SCell.

**[Step1-Q4] Is Proposal 12 agreeable to you?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes or No** | **Comments if any proposal(s) not agreeable** |
| **CATT** | No strong view. |  |
| Sharp | Yes |  |
| vivo | No strong view. |  |
| ZTE | Yes | We think this is useful since for RA initiated in SCell, UE will monitor the RARs in SpCells. |
| Ericsson | Yes |  |
| Qualcomm | No strong view. |  |
| Samsung | Yes | As a generic enhancement, we also suggest that the UE identifies the type of the cell such as PCell, SCell, and PSCell in which RA occurred. |
| Intel |  | Try to understand why the gNB cannot identify gNB/Scell based on scell ID and the frequency. And how can Pcell ID help. |
| Huawei, HiSilicom | Yes | There is a majority support for this so we are OK to go with that. |
| OPPO | No strong view |  |
| CMCC | Yes |  |
| Nokia | Yes |  |
|  |  |  |
|  |  |  |
|  |  |  |

The issue is as follows.

1. UE has its PCell as Cell-X.
2. UE performs a RA procedure on SCell, cell-A of Frequency-1
3. UE stores the corresponding RAReport and includes only the associated PCI and the frequency
   1. Ue includes only PCI + ARFCN because it does not have CGI info of SCells as the UE is not required to read the SIB1
4. UE changes its PCell (via handover or via cell reselection after transitioning to Idle/Inactive) and comes to connected in Cell-N
5. UE reports the RA report to cell-N but cell-N does not know where to forward RA report associated to PCI-A of frequency-1.

To resolve this, it was suggested to include the PCell ID for the RA procedure performed on a SCell of MCG and to include the PSCell ID for the RA procedure performed on a SCell of SCG as the UE is aware of CGI of PCell and PSCell via reading the SIB1.

Based on this , rapporeur would like to ask the following.

* **Q15: Do you agree to include the PCell ID for the RA procedure performed on a SCell of MCG and to include the PSCell ID for the RA procedure performed on a SCell of SCG?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

### 2.3.2 Open issues from running CR

The running CR captures the following Editor’s Note associated to the RS report enhancements.

* Editor´s note: Whether to include RA report entry upon successful completion of on demand system information acquisition is FFS.

This issue has been already brought up in section 2.3.1.2.

* Editor’s Note: FFS- How to encode the msgA-PUSCH-PayloadSize

This issue has been already brought up in section 2.3.1.1.

### 2.3.3 Other open issues related to RA-report

In this section, companies are invited to bring up other open issues related to the RA-Report. Note however that according to chairman recommendation, we should avoid discussing new issues unless there is some critical/outstanding problem.

* **Q16: Is there any further issue related to the RA-Report you would like to discuss? Please describe it below:**

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Rapporteur summary:**

To be added later

## SCG related MRO

### Open issues from RAN2#116 meeting

During RAN2#116 meeting, we have agreed the following.

Agreements:

1: The UE needs to include RA information in case that failureType is set to randomAccessProblem or beamFailureRecoveryFailure-r16.

2: RA-InformationCommon-r16 is used as a baseline to indicate random-access related information set by the PSCell.

3: The parameter connectionFailureType could reuse the current failureType in SCG failure message. FFS on enhancements.

4 The condition “failureType is set to synchReconfigFailureSCG” for including RA information.

=> FFS: Introduce one bit flag to indicate whether T304 is running or not in SCG failure message.

There are two issues that needs to be addressed here. One is regarding which message carries the RA information associated to the SCG failure and the other is associated to the T304 running flag.

There are two messages that can be used to carry the RA information.

1. SCGFailureInformation
   1. Pros: The network gets all the failure related information in a single message
   2. Cons: The size of a mandatory message increases significantly.
2. RA report
   1. Pros: The size of a mandatory message is kept to its original size
   2. Cons: The network needs to coordinate the collection of RA report and SCGFailureInformation.

Based on the above, rapporteue requests companies to provide their views on the following question.

* **Q17: Which message would you prefer to carry the RA Information associated to a SCG failure (when failureType is set to randomAccessProblem or beamFailureRecoveryFailure-r16)?:**
  + **Option-1: SCGFailureInformation**
  + **Option-2: RA report**

|  |  |  |
| --- | --- | --- |
| **Company** | **Option-1 / Option-2** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

Regarding the procedural text associated to failureType, there were some uncertainties regarding what value does the UE include in failureType when the UE RRC has random access problem indications from the lower layers while T304 was running. Associated to this problem, the current procedural text is as follows.

##### 5.3.5.8.3 T304 expiry (Reconfiguration with sync Failure)

The UE shall:

…

1> else if T304 of a secondary cell group expires:

2> if MCG transmission is not suspended:

3> release dedicated preambles provided in *rach-ConfigDedicated,* if configured;

3> initiate the SCG failure information procedure as specified in subclause 5.7.3 to report SCG reconfiguration with sync failure, upon which the RRC reconfiguration procedure ends;

#### 5.3.10.3 Detection of radio link failure

The UE shall:

…

1> upon T310 expiry in PSCell; or

1> upon T312 expiry in PSCell; or

1> upon random access problem indication from SCG MAC; or

1> upon indication from SCG RLC that the maximum number of retransmissions has been reached; or

1> if connected as an IAB-node, upon BH RLF indication received on BAP entity from the SCG; or

1> upon consistent uplink LBT failure indication from SCG MAC:

2> if the indication is from SCG RLC and CA duplication is configured and activated for SCG, and for the corresponding logical channel *allowedServingCells* only includes SCell(s):

3> initiate the failure information procedure as specified in 5.7.5 to report RLC failure.

2> else:

3> consider radio link failure to be detected for the SCG, i.e. SCG RLF;

3> if MCG transmission is not suspended:

4> initiate the SCG failure information procedure as specified in 5.7.3 to report SCG radio link failure.

#### 5.7.3.3 Failure type determination for (NG)EN-DC

The UE shall set the SCG failure type as follows:

1> if the UE initiates transmission of the *SCGFailureInformationNR* message due to T310 expiry:

2> set the *failureType* as t310-Expiry;

1> else if the UE initiates transmission of the *SCGFailureInformationNR* message due to T312 expiry:

2> set the *failureType* as any valueand set the *failureType-v1610* as t312-Expiry;

1> else if the UE initiates transmission of the *SCGFailureInformationNR* message to provide reconfiguration with sync failure information for an SCG:

2> set the *failureType* as *synchReconfigFailureSCG*;

1> else if the UE initiates transmission of the *SCGFailureInformationNR* message to provide random access problem indication from SCG MAC:

2> if the random access procedure was initiated for beam failure recovery:

3> set the *failureType* as *randomAccessProblem* and set the *failureType-v1610* as *beamFailureRecoveryFailure*;

2> else:

3> set the *failureType* as *randomAccessProblem*;

Based on the above procedural text, there could be two different interpretations of what value does the UE set for *failureType* when the UE experiences random access problem indication from the SCG MAC while T304 is running for the SCG.

Interpretation-1: The UE sets the *failureType* to *synchReconfigFailureSCG* as the UE initiates transmission of the SCGFailureInformationNR message to provide reconfiguration with sync failure information.

Interpretation-2: The UE sets the *failureType* to *randomAccessProblem* as the UE initiates transmission of the SCGFailureInformationNR message to indicate that the reason for decalrign failure is the random access problem indication from the SCG MAC.

The rapporteur would like to request companies on what is their interpretation of the above text.

* **Q18: Which of the following is your interpretation of the existing procedural text when the UE experiences random access problem indication from the SCG MAC while T304 is running for the SCG?:**
  + **Interpretation-1: The UE sets the failureType to synchReconfigFailureSCG as the UE initiates transmission of the SCGFailureInformationNR message to provide reconfiguration with sync failure information.**
  + **Interpretation -2: The UE sets the failureType to randomAccessProblem as the UE initiates transmission of the SCGFailureInformationNR message to indicate that the reason for decalrign failure is the random access problem indication from the SCG MAC**

|  |  |  |
| --- | --- | --- |
| **Company** | **Interpretation-1 / Interpretation-2** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

If the answer to the previous question is interpretation-2, then the rapporteur would like to know if companies support the inclusion of a 1 bit flag in the SCGFailureInformation to indicate that the T304 was running when the UE declared the SCG failure due to random access problem indication from the SCG MAC.

* **Q19: If you answer Interpretation-2 for the previous question, do you agree to the inclusion of a 1 bit flag in the SCGFailureInformation to indicate that the T304 was running when the UE declared the SCG failure due to random access problem indication from the SCG MAC?:**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Rapporteur summary:**

To be added later

### 2.4.2 Other open issues on SCG related MRO

In this section, companies are invited to bring up other open issues on SCG related MRO. Note however that according to chairman recommendation, we should avoid discussing new issues unless there is some critical/outstanding problem.

* **Q20: Is there any further issue on SCG related MRO that you would like to discuss? Please describe it below:**

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Rapporteur summary:**

To be added later

## MHI related

### 2.5.1 Open issues from running CR

The following Editor’s note is captured in the running CR.

Editor´s note: FFS: Whether there should be an explicit capability bit for the PSCell related mobility history information in the *visitedCellInfoList*

This issue arises because there is no explicit capability indicating the UE’s ability to store the PCell related MHI in rel-16 and the indication, *mobilityHistoryAvail*, included in RRCSetupComplete and RRCResumeComplete acts as this indicator implicitly. However, when the PSCell related information is included in the MHI in Rel17, RAN2 has not agreed thus far about how the network gets to know about this capability of the UE. Based on this, rapporteur would like to ask the following.

* **Q21: Which of the following method associated to PSCell MHI related indication is acceptable to you?**
  + **Option-1: Introduce an explicit capability indicator that indicates that the UE is capable of storing the PSCell related MHI.**
  + **Option-2: Introduce an explicit indicator (*mobilityHistoryPSCellAvail*) in RRCSetupComplete and RRCResumeComplete indicating whether the UE has PSCell related information available in its stored *visitedCellInfoList*.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Company** | **Agree/Disagree** | **Comments** | |
|  |  |  | |
|  |  |  | |
|  |  |  | |
|  |  |  | |
|  |  |  | |
|  |  | |  |
|  |  | |  |
|  |  | |  |
|  |  | |  |

**Rapporteur summary:**

To be added later

Another MHI related Editor’s note is captured in the running CR.

Editor’s Note: The value of maxPSCellHistory is FFS.

The current size of the PCell information in MHI is 16. It has already been agreed that PSCell information is stored within the corresponding PCell related information. Some companies had concerns on the size of MHI in Rel17 if each PCell can include upto 16 PSCell information thus leading to upto 256 (PSCell) + 16 (PCell) cell related information to be stored in the MHI. One could impose a restriction of up to 16 PSCells (independent of whether this is only in the last PCell or across multiple PCells).

As nothing has been agreed on this aspect in RAN2, rapporteur would like to ask the following.

* **Q22: What is the total number of PSCell (across all PCells) related information that should be stored by the UE in the MHI?**
  + **Option-1: 16**
  + **Option-2: 256**
  + **Option-3: ??**

|  |  |  |  |
| --- | --- | --- | --- |
| **Company** | **Option-1/2/3** | **Comments** | |
|  |  |  | |
|  |  |  | |
|  |  |  | |
|  |  |  | |
|  |  |  | |
|  |  | |  |
|  |  | |  |
|  |  | |  |
|  |  | |  |

**Rapporteur summary:**

To be added later

### 2.5.2 Other open issues related to MHI

In this section, companies are invited to bring up other open issues related to MHI. Note however that according to chairman recommendation, we should avoid discussing new issues unless there is some critical/outstanding problem.

* **Q23: Is there any further issue related to MHI that you would like to discuss? Please describe it below:**

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Rapporteur summary:**

To be added later

# Conclusion

**To be added later.**