**3GPP TSG RAN WG2 Meeting #130 R2-2504705
St Julian’s, Malta, May 19th – 23rd, 2025**

**Agenda item: 8.5.1**

**Source: Apple (Rapporteur)**

**Title: Summary report of [AT130][105][NES] (Apple)**

**WID/SID: Netw\_Energy\_NR\_enh-Core– Release 19**

**Document for: Discussion and Decision**

# 1 Introduction

This is a summary document on below offline discussion:

* [AT130][105][NES] (Apple)

 **Scope:** Discuss and attempt to make conclusions on the following issues:

* FFS whether the UE always ignores the legacy excluded cell lists received from a cell in which SIBxx is provided, irrespective of whether dedicated excluded cell lists being provided.
* FFS whether to explicitly capture the failure case of OD-SIB1 window expiry in 38.304.

 **Intended outcome:** Discussion summary in R2-2504705.

**Deadline:** 30min f2f offline discussion (time and location will be announced by Apple)

# 2 Discussion

## 2.1 Open issue 1

On the following open issue 1:

* FFS whether the UE always ignores the legacy excluded cell lists received from a cell in which SIBxx is provided, irrespective of whether dedicated excluded cell lists being provided.

Several companies discussed in this contributions, and 3 solutions can be identified:

* Solution 1: UE supporting OD-SIB1 ignores legacy excluded cell list only if NES excluded cell list is present (current running CR).
	+ Apple (P7 in R2-2503711), Ericsson (P1 in R2-2503636), Sharp (P4 in R2-2504606)
* Solution 2: UE supporting OD-SIB1 always ignores the legacy excluded cell lists received from a cell in which SIBxx is provided, irrespective of whether dedicated excluded cell lists being provided.
	+ CATT (P1 in R2-2503415), Samsung (P5 in R2-2503391), Fujitsu (P5 in R2-2503806), LG (P1 in R2-2503839), DCM (P1 in R2-2504419)
* Solution 3: Rel-19 excluded cell list can be configured as an empty list.
	+ LG (P1 in R2-2503839), DCM (P1 in R2-2504419)

According to company contribution, Rapporteur understand the main divergence is whether to support the following 2 cases:

1. Case 1: the legacy excluded cell list contains only normal cells.
	* NW intends to prevent both legacy UEs and the OD-SIB1 UEs to consider these normal cells for reselection.
	* Solution 1 and Solution 3 can work for this case.
2. Case 2: the legacy excluded cell list contains only NES cells, and NW does not want to include any (normal) cells in the Rel-19 excluded list.
	* NW intends to only prevent legacy UEs to consider NES cells for cell reselection.
	* Solution 2 and Solution 3 can work for this case.

Thus, it seems that solution 3 can support both cases and provide NW the most flexibility:

* If NW intends to support Case 1, it doesn’t provide Rel-19 excluded cell list, and the Rel-19 UE will apply the legacy cell list.
* If NW intends to support Case 2, it provides an empty list for Rel-19 excluded cell list, and the Rel-19 UE will ignore the legacy cell list.

Thus, Rapporteur propose:

Observation 1: Solution 3 (Rel-19 excluded cell list can be configured as an empty list) can support both cases and provide NW the most flexibility:

* If NW intends to support Case 1, it doesn’t provide Rel-19 excluded cell list, and the Rel-19 UE will apply the legacy cell list.
* If NW intends to support Case 2, it provides an empty list for Rel-19 excluded cell list, and the Rel-19 UE will ignore the legacy cell list.

**Proposal 1 (compromised solution): Rel-19 excluded cell list can be configured as an empty list. No new UE behaviour is introduced (i.e. the UE supporting OD-SIB1 ignores legacy excluded cell list only if NES excluded cell list is present).**

**=>Agreed**

On required RRC change, there are two options:

1. Via combination of presence / absence of the dedicated cell list IE (interFreqODSIB1-ExcludedCellList) and its parent IE (interFreqCarrierFreqList)
	* As only inter-frequency dedicated cell list uses the structure of including dedicated cell list in existing parent IE, we may need to modify intra-frequency dedicated cell list like below way:

[[

   IntraFreqODSIB1-ExludedCellListnfo-v1900 ::=  SEQUENCE {

    intraFreqODSIB1-ExcludedCellList-r19    IntraFreqExcludedCellList         OPTIONAL,   -- Need R

}

]]

1. Via revising smallest value of dedicated cell list from 1 to 0 (e.g. InterFreqCarrierFreqList-v1900 ::=  SEQUENCE (SIZE (0~~1~~..maxFreq)) OF InterFreqCarrierFreqInfo-v1900).

Discussion:

* During offline, supported by Apple, Samsung, OPPO, Huawei, vivo, Qualcomm
* Lenovo think No need of dedicated cell list.
* Ericsson and Samsung pointed out that it was agreed in RAN2.
* Fujitsu wonder whether we can go solution 2.
* Huawei and Nokia can accept the compromised solution.

## 2.2 Open issue 2

On the following open issue 2:

* FFS whether to explicitly capture the failure case of OD-SIB1 window expiry in 38.304.

Company view in their contribution:

* Yes: Google, LG
* No: Ericsson, DCM
	+ Main concern: if we explicitly capture it in 38.304 and 38.331, we may need to capture separately all the other cases why UE doesn’t receive SIB1.

Note that RAN2 **only agreed the following 3 cases** in which the UE is unable to acquire OD-SIB1.

1. UE had no corresponding UL WUS configuration,
2. MAC indicates max number of preamble transmission for the OD-SIB1 request, and
3. UE fails to acquire SIB1 upon the expiry of the SIB1 monitoring window.

|  |
| --- |
| **Agreement in RAN2#128*** The UE considers the cell as barred after MAC indicates max number of preamble transmission for the OD-SIB1 request.
* A UE bars the NES/SIB1 less cell and/or excludes it as a candidate for reselection since the UE had no corresponding UL WUS configuration, the UE would treat this cell as if cell status is “not barred” and consider it as candidate for cell reselection once it has received a UL-WUS configuration to request SIB1 for this cell.

**Agreement in RAN2#129bis*** If UE has not received the PDCCH scheduling SIB1 upon the expiry of the SIB1 monitoring window, UE may consider the cell as being barred.
 |

As the 1st/2nd cases have already been captured in running CR of both 38.331 and 38.304, Rapporteur think it is better to treat the agreed 3rd case in the same way. And it is better to have a unified UE handling for all the agreed cases when the UE is unable to acquire OD-SIB1.

Meanwhile, to address the concern, the Rapporteur further suggested the following compromise:

1. As running 38.213 CR has captured UE monitoring behaviour during the OD-SIB1 window, TS 38.304 can put a reference to 38.213.

============copy from running CR of 38.213==========================

If the UE identifies a RAPID associated with a corresponding PRACH transmission from the UE in a PDSCH reception scheduled by the DCI format 1\_0 with CRC scrambled by the RA-RNTI, the UE can be indicated by higher layers to monitor PDCCH on the second cell to detect a DCI format 1\_0 with CRC scrambled by the SI-RNTI according to a Type0-PDCCH CSS set provided by *SearchSpaceZero*. If the UE is provided *XYZ*, the UE monitors PDCCH only in monitoring occasions associated with the SS/PBCH block. The UE starts monitoring PDCCH to detect the DCI format 1\_0 with CRC scrambled by the SI-RNTI after a number of slots provided by *od-sib1-windowStartOffset* from the starting slot of the window controlled by *ra\_ResponseWindow*, and for a number of slots provided by *od-sib1-WindowDuration*.

============end================================================

1. Further clarify that no other cases need to be considered and specified in TS 38.304 or TS 38.331.

Observation 2: Running 38.213 CR has captured UE monitoring behaviour during the OD-SIB1 window.

**Proposal 2 (compromised solution): Same as the other 2 agreed cases of OD-SIB1 acquisition failure, capture the failure case of OD-SIB1 window expiry in TS 38.304. RAN2 confirm no other cases need to be considered and specified in TS 38.304.**

**=>Agreed**

38.304 can be revised like follows:

- If the field *intraFreqReselection* in *MIB* message is set to "allowed":

- the UE may select another cell on the same frequency if re-selection criteria are fulfilled;

- If the cell is to be treated as if the cell status is "barred" due to no available *SIB1* request configuration for the UE supporting OD-SIB1 as defined in section 5.2.2.3.1 of TS 38.331 [3]; or

- If the cell is to be treated as if the cell status is "barred" due to maximum number of PRACH attempts is reached for the UE supporting OD-SIB1 as defined in section 5.2.2.3.3x of TS 38.331 [3]; or

 - If the cell is to be treated as if the cell status is "barred" due to failing to acquire the *SIB1* upon the expiry of the *SIB1* monitoring window as defined in Section 23 of TS 38.213 [4] for the UE supporting OD-SIB1; or

- If the cell is to be treated as if the cell status is "barred" due to being unable to acquire the *SIB1*:

- the UE may exclude the barred cell as a candidate for cell selection/reselection for up to 300 seconds;

- else:

- the UE shall exclude the barred cell as a candidate for cell selection/reselection for 300 seconds.

Discussion:

 - Ericsson and Nokia prefer not to explicitly capture the OD-SIB1 window case in 38.304 because it can be covered by legacy branch of “being unable to acquire SIB1”.

 - Google and Samsung understand that OD-SIB1 window case is new OD-SIB1 special failure case. So, it should be captured in 38.304.

 - Lenovo think it is not a major issue – we are fine either way (to capture or not this third case). We can agree with Rapp’s suggestion here.

 - Apple remind that RAN2#129b has agreed the failure case of OD-SIB1 window expiry. So, running CR should capture the agreement.

# 3 Conclusion

Based on offline discussion, the following proposals were made for confirmation in CB session:

**Proposal 1 (compromised solution): Rel-19 excluded cell list can be configured as an empty list. No new UE behavior is introduced (i.e. the UE supporting OD-SIB1 ignores legacy excluded cell list only if NES excluded cell list is present).**

**Proposal 2 (compromised solution): Same as the other 2 agreed cases of OD-SIB1 acquisition failure, capture the failure case of OD-SIB1 window expiry in TS 38.304. RAN2 confirm no other cases need to be considered and specified in TS 38.304.**