**3GPP TSG-RAN WG2 Meeting #109bis-e R2-20XXXXX**

**Electronic, 20 April – 30 April 2020**

**Agenda item: 5.4.1.1**

**Source: Samsung, ZTE Corporation, Sanechips**

**Title: Offline-006: L2 Configuration-Issue 1-Part 2**

**Document for: Discussion & Decision**

# Introduction

This is a summary of the following offline discussion on L2 parameters and configuration:

* [AT109bis-e][006][NR15] L2 Configuration (Samsung, ZTE)

Scope: Treat R2-2002917, R2-2002948, R2-2002949, R2-2002886

Part 1: Determine which issues that need resolution, find agreeable proposals. Deadline: April 23 0700 UTC

Part 2: For the parts that are agreeable, discussion will continue to agree on CRs

This document continues the part 2 discussion of issue 1.

# Discussion:

## Issue #1. Presence of *ssb-perRACH-Occasion* for the CSI-RS based CFRA

### Part 1

The first issue from **[R2-2002917](http://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109bis-e/Docs/R2-2002917.zip)** is about presence condition of *ssb-perRACH-Occasion.*

In the current TS38.331, the field *ssb-perRACH-Occasion* is mandatory present if the field resources in CFRA is set to ssb; otherwise it is absent, which means this field is absent when the field resources in CFRA is set to csirs.

However, according to the following description in TS38.213, the *ssb-perRACH-Occasion* is still needed for UE to decide the association pattern period and understand the index of the PRACH occasions indicated by *ra-OccasionList*.

------------------------------------------------------From TS38.213- start----------------------------------------------------

*An association pattern period includes one or more association periods and is determined so that a pattern between PRACH occasions and SS/PBCH blocks repeats at most every 160 msec.*

*.....*

*For a PRACH transmission triggered upon request by higher layers, a value of ra-OccasionList [12, TS 38.331], if csirs-ResourceList is provided, indicates a list of PRACH occasions for the PRACH transmission where the PRACH occasions are associated with the selected CSI-RS index indicated by csi-RS. The indexing of the PRACH occasions indicated by ra-OccasionList is reset per association pattern period.*

------------------------------------------------------From TS38.213- end-----------------------------------------------------

Thus, it is suggested in R2-2002917 to change the presence condition of *ssb-perRACH-Occasion* and this field should be mandatory present when the field resources in CFRA is set to ssb or csirs.

**Q1) Do companies agree that *ssb-perRACH-Occasion* is mandatorily present?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments (if any)** |
| Huawei, Hisilicon | Double check needed | Simply changing the presence condition from “conditional absent” to “mandatory” may introduce NBC issues, as the old UE may not store the parameter signalled by the new gNB, and may assume some other parameter used in this case. |
| Ericsson | Yes |  |
| Nokia | Maybe not | We don't fully understand the reason for change - 213 does not mention anywhere the ssb-perRACH-Occasion parameter would be needed to derive the RACH occasions (ROs) with parameter ra-OccasionList. In principle, each RO is an individual RO regardless of how many SSBs is mapped to it and, hence, the indexing with ra-OccasionList should work without the other parameter.  We think this should be checked with RAN1 if this is the case as this is out of RAN2 scope. |
| CATT |  | After checking we tend to agree that there is an issue. Basically, RAN1 spec is so that the association pattern period relates to PRACH occasions and SS/PBCH blocks. So for the case when *resources* is set to csirs ssb-perRACH-Occasion may still be needed.  We can discuss further how to fix this issue. Huawei has a point that this is going to be NBC. |
| Samsung | Yes/No | We think the issue is valid. There is a misalignment between 213 and RRC spec. So, we need to resolve it.  We also tend to agree with Huawei and CATT that it may introduce NBC issues of ASN.1. To avoid NBC issue, we could have an alternative option to clarify in RAN1 spec as follows  *The indexing of the PRACH occasions indicated by ra-OccasionList is reset per rach configuration period.*  Note that both (RRC change or PHY change) will have interoperability issue. |
| LG |  | We think this seems an issue, but RAN1 needs to check whether this should be resolved. |
| ZTE | Yes | According to the description in 213 that “The indexing of the PRACH occasions indicated by *ra-OccasionList* is reset per association pattern period.”, the RO with index 0 will be located on the radio frame where SFN mod n = 0, and the n is the association pattern period, which is derived based on the ssb-perRACH-Occasion.  We agree the CR is literarily NBC. However, considering the change proposed is essential for the CSI-RS based CFRA (i.e. without the IE ”ssb-perRACH-Occasion”, the CSI-RS based CFRA seems not work), we hope all the UEs in the market have the same understanding as the CR proposed. Otherwise, the NW has to disable the CSI-RS based CFRA for all the legacy UE and a new capability shall be introduced for the NW to identify the UE which can support the CSI-RS based CFRA. |
| QCOM | Yes | We support the intention and the change proposed by the CR |
| NTT DOCOMO | Yes | Although the change results in NBC, strictly speaking, it is also clear that ssb-perRACH-Occasion is needed for the case of CSI-RS. We’re also O.K with the alternative proposed by Samsung. On the other hand anyway, it also looks like NBC. |
| Apple |  | We acknowledge the misalignment between RAN1 and RAN2 spec, but would like to double check it with RAN1. |
| MediaTek | Yes | We support the intention. We understand there may be some NBC concern but it seems that original feature is somehow broken. Thus we are fine with the change. |

*< Rapporteur’s Summary >*

*10 companies acknowledge that the issue raised in this CR is valid.*

*5 companies support the RAN2 solution in this CR (i.e. change the presence condition of ssb-perRACH-Occasion into “Cond Mandatory”).*

*2 companies propose to have RAN1 solution (i.e. change the RAN1 spec to show that the indexing of the PRACH occasions indicated by ra-OccasionList is reset per rach configuration period instead of per association pattern period.)*

*4 companies would like to double check considering the change (no matter we go for RAN1 solution or RAN2 solution) would be NBC.*

*Considering the CR is targeted to a Rel-15 function and the change proposed is literally NBC, more time will be allowed for companies to do further check, especially for current implementation on UE side, and the proposed solutions can be discussed in this offline discussion part 2 based on the feedback from internal checking.*

**Proposal 1. Select one from the following two solutions to have consistent understanding between RAN1 and RAN2 on the configuration of CSI-RS based CFRA:**

* **Option 1(RAN2 solution): Change the presence condition of *ssb-perRACH-Occasion* in CFRA into “Cond Mandatory”.**
* **Option 2(RAN1 solution): Confirm the issue from RAN2 aspect, and send LS to RAN1 to double check the issue and also inform RAN1 the potential solution proposed in the CR.**

### Part 2

**Q2) Regarding the two options listed in Proposal 1 to address the discrepancy between RAN1 and RAN2 on CSI-RS based CFRA configuration, which one is preferred by companies?**

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| --- | --- | --- |
| **Company** | **Option 1/2** | **Comments (if any)** |
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# Conclusion: Issue 1-Part 2

To be added.