3GPP TSG-RAN WG2 #109bis-e R2-2004233

Electronic, 20 April – 30 April 2020

Agenda Item: 6.7.2.3

Source: Ericsson

Title: Summary on [AT109bis-e][027][IIOT] RRC (Ericsson)

Document for: Discussion, Decision

# 1 Introduction

In this paper, we summarize the part 1 of the following email discussion.

**[AT109bis-e][027][IIOT] RRC (Ericsson)**

Status: Started

Scope: Treat topics in 6.7.2.3, include to make CRs.

Part 1: Determine which issues that need resolution, find agreeable proposals. Deadline: April 24 0700 UTC

Part 2: RRC CRs implementing IIOT decisions from this meeting.

# 2 Discussion

Five papers are submitted [1][2][3][4][5]. To endorse draft CRs [1][2][3][4], we need agreements and these topics are under discussion in relevant sub-agenda summary. Thus, only paper [5] is needed to be further discussed.

Two issues are identified in paper [5]: 1) multi-SPS with only one SPS per BWP, and 2) clarify on PUCCH resources being common. The proposed solution is to move the sps-PUCCH-AN-ListPerCodebook into the PUCCH-Config, since each PUCCH-Config corresponding to one HARQ-ACK codebook, see below endorsed TP in the last RAN1 meeting [6].



The other candidate solution in paper [5] are related with RIL class 1 issue 44-51, which are expected to be accepted. On the other hand, regardless of the outcome, rapporteur agrees that the solution in [5] leads to a better ASN.1 design and we propose to re-struct the IE/field as follows

1. Add “sps-PUCCH-AN-CodebookResource-r16” to “PUCCH-Config” and remove IE SPS-PUCCH-AN-ListandIE SPS-PUCCH-AN-ListPerCodebook

**A draft CR can be found in the same draft folder.**

The intention is to have a better ASN.1 structure, not to change RAN1 agreement. Since this is different from the indicated RRC parameter list from RAN1, **companies are invited to provide comments below if they do not agree on the ASN.1 re-structuring proposal. Comments on the draft CRs are also appreciated.**

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| Company | Further comments (if any) |
| Huawei, Hisilicon | It is very much a RAN1 issue. We would like to double check if this change would have further RAN1 impacts. From signaling point of view, in legacy SPS-config, PUCCH feedback resource is configured, i.e. n1PUCCH-AN. It is natural to follow the same principle when we extend the SPS configuration list.Our current understanding of the existing ASN.1 structure is, each SPS-Config includes a harq-CodebookID(1 or 2) that can be used to indicate the associated PUCCH Config when two PUCCH Configs are configured. Therefore, it is clear about the mapping and there is no ambiguity issue. Our RAN1 colleague told us that RAN1 has never discussed the details of how to configure the SPS ACK in this case and only focus on the CSI and SR case. We would suggest to postpone this change, to allow companies to double check if there is a real issue. |
| Nokia | We think the restructuring proposed by Ericsson works OK in general. We should just consider that RAN1 specifications are referring to SPS-PUCCH-AN-List parameter (e.g. e.g. 38.213 Sec 9.2.1). I would suggest we modify the name of sps-PUCCH-AN-CodebookResource-r16 to sps-PUCCH-AN-List-r16.On the other hand, we still think it would make sense to introduce another change suggested by QCM in R2-2003526, i.e. allow to configure a single SPS configuration in sps-ConfigList as well. If the UE supports multiple SPS configuration, it is more straightforward to always use the list, also in case a single SPS is configured. It seems the only changes that would be required are the following:– *SPS-ConfigList*The IE *SPS-ConfigList* is used to configure ~~multiple~~ downlink SPS configurations in one BWP.And:

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| *BWP-DownlinkDedicated* field descriptions |
| ***beamFailureRecoverySCellConfig***Configuration of candidate RS for beam failure recovery in SCells. |
| ***pdcch-Config***UE specific PDCCH configuration for one BWP. |
| ***pdsch-Config***UE specific PDSCH configuration for one BWP. |
| ***sps-Config***UE specific SPS (Semi-Persistent Scheduling) configuration for one BWP. Except for reconfiguration with sync, the NW does not reconfigure *sps-Config* when there is an active configured downlink assignment (see TS 38.321 [3]). However, the NW may release the *sps-Config* at any time.  |
| ***sps-ConfigList***UE specific ~~multiple~~ SPS (Semi-Persistent Scheduling) configuration(s) for one BWP. Except for reconfiguration with sync, the NW does not reconfigure a SPS configuration when it is active (see TS 38.321 [3]). However, the NW may release a SPS configuration at any time. |
| ***radioLinkMonitoringConfig***UE specific configuration of radio link monitoring for detecting cell- and beam radio link failure occasions. The maximum number of failure detection resources should be limited up to 8 for both cell and beam radio link failure detection. For SCells, only periodic 1-port CSI-RS can be configured in IE *RadioLinkMonitoringConfig*. |

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**Summary:**

Only one company has concerns and wants to double-check the change. We propose to implement the changes in the running CR and revisit in the next meeting to confirm this. A further comment on the name (should be *sps-PUCCH-AN-List*) to align with RAN1 spec is stated. With this, we propose that

**Proposal 1 Remove sps-PUCCH-AN-ListPerCodebook from SPS-ConfigList and add sps-PUCCH-AN-List in PUCCH-Config. This can be revisited if RAN1 impacts are identified.**

There is another comment by one company that the field description of SPS-ConfigList indicates that it is only applied for more than one configuration. This is also pointed by paper [5] and raised up as RIL class 1 issue 44-51. Nevertheless, it would be good to confirm, and the detailed implementation can be coordinated later.

**Proposal 2 SPS-ConfigList can be used to configure one SPS Configuration per BWP.**

# 3 Conclusion

Based on the discussions, the following are proposed:

**Proposal 1 Remove sps-PUCCH-AN-ListPerCodebook from SPS-ConfigList and add sps-PUCCH-AN-List in PUCCH-Config. This can be revisited if RAN1 impacts are identified.**

**Proposal 2 SPS-ConfigList can be used to configure one SPS Configuration per BWP.**

4 References

1. R2-2002754, DraftCR of RRC Open Issues, CATT
2. R2-2002974, Draft-CR on RRC open issues of 38.331, OPPO
3. R2-2002975, Draft-CR on split transmission of 38.323, OPPO
4. R2-2003377, Draft CR on introduction of EHC in LTE, Huawei, HiSilicon
5. R2-2003526, SPS Ack configuration in RRC, Qualcomm Incorporated
6. R1-2001227, Summary of email thread [100e-NR-L1enh\_URLLC-UCI\_Enh-02], Oppo