3GPP TSG RAN WG1 #110 R1-22xxxxx

Toulouse, Aug 22-26, 2022

**Agenda item: 8.13**

**Source: Moderator (Ericsson)**

**Title: Summary of Rel17 Maintenance on NR Dynamic spectrum sharing (DSS)**

**WI: NR\_DSS**

**Document for: Discussion and Decision**

# 1 Introduction

This document summarizes discussions for RAN1#110 for Rel17 NR DSS WI considering below documents submitted for A.I. 8.13

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| --- | --- | --- | --- | --- |
| **Ref#** | **TDoc** | **Title** | **Source** | **Agenda item** |
| 1 | [R1-2205760](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_110/Docs/R1-2205760.zip) | Discussion on minimum scheduling offset restriction | Huawei, HiSilicon | 8.13 |
| 2 | [R1-2205952](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_110/Docs/R1-2205952.zip) | Maintenance of Rel-17 DSS | ZTE | 8.13 |
| 3 | [R1-2206564](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_110/Docs/R1-2206564.zip) | Correction on different SCS between P(S)Cell and sSCell | Intel Corporation | 8.13 |
| 4 | [R1-2206565](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_110/Docs/R1-2206565.zip) | Discussion on different SCS between P(S)Cell and sSCell | Intel Corporation | 8.13 |
| 5 | [R1-2206806](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_110/Docs/R1-2206806.zip) | Discussion on DCI size alignment for Rel-17 DSS | Samsung | 8.13 |
| 6 | [R1-2206807](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_110/Docs/R1-2206807.zip) | Draft CR for DCI size alignment for Rel-17 DSS | Samsung | 8.13 |
| 7 | [R1-2207667](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_110/Docs/R1-2207667.zip) | Correction on dormancy indication on SCell | Huawei, HiSilicon | 8.13 |
| 8 | [R1-2207668](https://www.3gpp.org/ftp/TSG_RAN/WG1_RL1/TSGR1_110/Docs/R1-2207668.zip) | Correction on dormancy indication on SCell | Huawei, HiSilicon | 8.13 |

# 2 Topics for discussion

## 2.1 Topics for discussion

1. Clarification on minimum scheduling offset restriction – [1]
2. SCell dormancy indication on sSCell - [2][,[7],[8]
3. Draft CR to 38.213 related to P(S)Cell SCS > sSCell SCS case – [3],[4]
4. Draft CR to 38.212 related to DCI Size alignment – [5],[6]

Some parts of 1, 2 and 4 above were also discussed in RAN1#109-e (Topics 2,1,5 in R1-2205583 respectively). Proponents have provided more information/discussion points for these topics in this meeting.

Companies are requested to provide comments (if any) on above four topics for discussion

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| --- | --- |
| Company Name | Comments |
| Apple | Issue 1: We are open to discuss the need of different minimum scheduling offset for sSCell, SpCell.  Issue 2: We do not see the necessity of supporting SCell dormancy indication on sSCell. If supported, we also need to discuss if that SCell can be indicated to be dormant  Issue 3: We are open to discuss the CR  Issue 4: We are open to discuss the CR |
| Qualcomm | Issue 1: We do not think new RRC parameters that configure different values of min K0/K2 offset for the same scheduled cell should be introduced. If this is considered as an issue, a potential option that we can discuss could be to interpret the configured value of min K0/K2 offset based on the SCS of P(S)Cell, regardless of which of P(S)Cell and sSCell the DCI scheduling PDSCH/PUSCH on P(S)Cell is detected.  Issue 2: RAN1 has already discussed this at the last meeting. We think we should not re-open the discussion.  Issue 3: We do not think the changes are necessary. If the intention is to enable “dynamic switch between R17 DSS and legacy CA” by switching the SCS combinations of the BWPs for {P(S)Cell, sSCell}, such option was not agreed and hence should not be allowed. In addition, P(S)Cell SCS not 15kHz is not a target scenario of the DSS – so the proposal will not be used in reality.  Issue 4: We are open to discuss the proposals. For the first proposal, we may be able to find simpler text change. |
| ZTE | We are open to discuss all these issues.  Regarding Issue 2, during the previous discussion in last meeting, companies raised the potential concern that too many different variance of FGs for PDCCH budget sharing between MCG and SCG are introduced since Rel-16. However, our current CR is trying to focus this issue for Rel-15 PDCCH budget sharing capability to alleviate companies’ potential concern. Some new discussion is worth it. |
| Samsung | Issue 1: we prefer to not consider introduction of RRC parameters for an enhancement given the ASN.1 freeze. If the intended flexibility can be achieved by L1-only methods, the issue can be further discussed.  Issue 2: Already discussed and concluded. There is no correction to be made to the specifications.  Issue 3 and Issue 4: OK to discuss. |
| Intel | We are open to discuss all these issues. Issue 3 & 4 are new hence should be handled with high priority if down-selection is necessary.  To reply a comment from Qualcomm on issue 3, we don’t think the issue was discussed before. RAN1 just concludes DSS feature is only applicable when PCell SCS <= sSCell SCS. However, the relation between DSS and BWP switching of PCell/sSCell was not clarified. Therefore, it should be discussed for common understanding. |
| Spreadtrum | Issue 1 has already discussed at the last meeting, but the majority of companies see no need to clarify the issue and think that the min K0/K2 offset is applied to the scheduled cell.  Issue 2 have already discussed at the last meeting, but there seems to be no conclusion. We are open to discuss the issue.  Issue 3 and Issue 4: OK to discuss |
| OPPO | Issue 1: The proposal in [1] leaves three HARQ timing requirements on two carriers. We do not see much benefit for this additional complexity, given the K0 requirement does not directly determine the flexibility -- the actual delay does.  Issue 2: RAN1 should not repeat what was discussed before unless the proposal targets an issue not identified before and meanwhile does not leave create new issues. Although it is true that the type-A UE not supporting DCI 2\_6 reception can have difficulty in taking Rel-16 PS benefit if CR is not agreed, the problems are:   * It is not clear what should be done for the DCI 1\_1 that converts SCell from dormancy to non-dormancy. * It is not clear whether the proposed CR would bring additional spec impacts given condition of cell dormancy leaves quite some footprints in the current spec.   Therefore we see the proposals in Issue 2 as new feature proposal after R17 maintenance phase starts. So it should be skipped.  Issue 3: We share the view with Qualcomm. If the Issues targets the UE behavior of Rel-17 DSS under condition that SCS of PCell is larger than SCS of sSCell, RAN1 already concluded this is not part of Rel-17 DSS; if the Issue targets the UE behavior not relating to Rel-17 sSCell scheduling PCell under the condition that SCS of PCell is larger than SCS of sSCell, it seems out of section concerned by the CR and irrelevant to this agenda. Explanation above from Intel does not convince us, because the whole section of 10.1.1 of 38.213 is for Rel-17 sScell scheduling PCell. A paragraph like below (copied from [3]) does seem to extend the support of Rel-17 DSS to the SCS combination case which is agreed by RAN1 not to support.  “*The SCS configuration for the active DL BWP on the primary cell is smaller than or equal to the SCS configuration for the active DL BWP on the secondary cell. Otherwise, the procedures are as described in clause 10.1 applies.*”  But if the majority think it is necessary to discuss Issue 3, we can be fine.  Issue 4: Open to discuss. |
| vivo | We are open to discuss all the issues.  Issue 3: RAN1 concludes DSS feature is only applicable when Pcell SCS <= sSCell SCS. Therefore, If SCS of active BWP1 in Pcell is larger than SCS of active BWP2 in sScell, there should be no search space linkage between BWP1 and BWP2 so that no DCI scheduling from sScell to Pcell is available. According to current spec, the procedures in sScell scheduling Pcell section still works which means alpha applies to BD/CCE budget allocation in Pcell. Actually, this is a waste of BD/CCE budget since there is no DCI in sScell anymore. One solution is to fallback to legacy case if there is no search space linkage between active BWPs of Pcell and sScell. |