3GPP TSG-RAN WG2 Meeting #116bis electronic R2-220xxxx

Online, January 17-25, 2022

Agenda Item: 8.24.2 RAN1 Led Items

Source: Ericsson

Title: Summary of [AT116bis-e][042][NR17] DSS (Ericsson)

Document for: Discussion, Decision

# 1 Introduction

This contribution summarizes the following discussion:

* [AT116bis-e][042][NR17] DSS (Ericsson)

Scope: Treat R2-2200294, R2-2201039, R2-2201040, R2-2201396, R2-2201618. If possible, offline only, if needed CB W2. 1 Determine Agreeable parts 2 Update Running CR(s) to reflect agreeable parts.

Intended outcome: Report, Endorsed updated CR.

Deadline: Friday W1

[R2-2200294](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2200294.zip) DSS and RA Procedure Samsung Electronics Co., Ltd discussion Rel-17 LTE\_NR\_DC\_enh2

[R2-2201039](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201039.zip) RRC running CR for DSS Ericsson draftCR Rel-16 38.331 16.7.0 NR\_DSS\_enh

[R2-2201040](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201040.zip) RAN2 impact in DSS WI Ericsson discussion NR\_DSS\_enh

[R2-2201396](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201396.zip) Discussion on Cross-Carrier Scheduling from sSCell to P(S)Cell vivo discussion NR\_DSS\_enh

[R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) Remaining issues on cross-carrier scheduling from SCell to P(S)Cell Huawei, HiSilicon discussion Rel-17 NR\_DSS-Core

Contact person(s) for each participating company:

|  |  |  |
| --- | --- | --- |
| Company | Name | Email |
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# 2 Discussion

## 2.1 RRC

### 2.1.1 Issue 1, one or two IEs

[R2-2201039](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201039.zip) RRC running CR for DSS Ericsson draftCR Rel-16 38.331 16.7.0 NR\_DSS\_enh

[R2-2201040](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201040.zip) RAN2 impact in DSS WI Ericsson discussion NR\_DSS\_enh

[R2-2201396](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201396.zip) Discussion on Cross-Carrier Scheduling from sSCell to P(S)Cell vivo discussion NR\_DSS\_enh

[R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) Remaining issues on cross-carrier scheduling from SCell to P(S)Cell Huawei, HiSilicon discussion Rel-17 NR\_DSS-Core

RRC running CR was discussed in the last meeting [1] but no conclusion was made. The open issue was on whether the presence of the CIF is configurable. All submitted papers have acknowledged the latest RAN1 agreements. Note the SCell configured with cross-carrier scheduling to SpCell is referred to as ‘sSCell’.

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| Agreement  Confirm the WA from RAN1#106bis-e with addition of below Note (shown in blue)  *Working Assumption*   * *When CIF for sSCell to Pcell cross-carrier scheduling is configured, non-fallback DCI formats on P(S)Cell include same number of CIF bits as the corresponding non-fallback DCI formats on sSCell that are used for sSCell to P(S)Cell scheduling* * Note: per RAN1#102-e agreement, when sSCell to P(S)Cell scheduling is configured for the UE, cross-carrier scheduling from P(S)Cell to another cell is not allowed. The CIF bits included in non-fallback DCI formats on P(S)Cell are considered reserved. |

In other words, when CIF for SCell to SpCell cross-carrier scheduling is configured, the CIF bits are also present in DCI sent on the PDCCH on the SpCell, i.e., there is no need nor possibility to configure the presence of these CIF bits explicitly.

Per the above agreements, [R2-2201039](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201039.zip) and [R2-2201396](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201396.zip) propose to adopt the below option to capture the RRC spec. Note that in the last email discussion [1] all companies have replied that this option works.

**Alternative 1: SCell scheduling SpCell is configured by configuring the field ‘*schedulingCellInfo*’ in *CrossCarrierSchedulingConfig* for SpCell as ‘*other*’**

[R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) proposes to introduce a new IE which would introduce additional RRC signalling overhead. The argument is for good readability.

**Alternative 2: Introduce a new IE to configure SCell scheduling SpCell.**

**Q1. Which one of the above alternatives does the company support?**

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| **Company** | **Alt 1 or Alt 2 ?** | **Comments** |
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### 2.1.2 Issue 2, carrierIndicatorSize

[R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) Remaining issues on cross-carrier scheduling from SCell to P(S)Cell Huawei, HiSilicon discussion Rel-17 NR\_DSS-Core

There are two legacy fields in the IE *CrossCarrierSchedulingConfig*. The paper [R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) proposes to discuss how the below field can be configured in light of the Rel-17 DSS feature.

*carrierIndicatorSize-r16*

According to the conditional presence, *carrierIndicatorSize* is configured only in the scheduling cell in the legacy. The paper R2-2201618 proposes that this can be extended to the Rel-17, i.e., configured only in the scheduling SCell for the SpCell but not in the SpCell.

It is rapporteur’s understanding from the RAN1 agreement that when SCell schedules SpCell, non-fallback DCI formats on SpCell includes the same number of CIF bits as the scheduling SCell. There is no need to configure this field in the SpCell (i.e., the scheduled cell), as in the legacy Rel-16.

**Q2. Do companies agree that *carrierIndicatorSize-r16* is configured only in the scheduling SCell for the SpCell but not in the SpCell?**

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| **Company** | **Yes or No ?** | **Comments** |
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### 2.1.3 Issue 3, *enableDefaultBeamForCCS*

[R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) Remaining issues on cross-carrier scheduling from SCell to P(S)Cell Huawei, HiSilicon discussion Rel-17 NR\_DSS-Core

There are two legacy fields in the IE *CrossCarrierSchedulingConfig*. The paper [R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) proposes to discuss how the below field can be configured in light of the Rel-17 DSS feature.

*enableDefaultBeamForCCS-r16*

There is no configuration restriction in the Rel-16 RRC spec for this field. The understanding is that they can be configured in both scheduling cell and scheduled cell. The paper [R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) proposes that RAN1 should discuss and give a confirmation on if this field is configurable or not.

It is rapporteur’s understanding that *enableDefaultBeamForCCS* is introduced in the LTE\_NR\_DC\_CA-enhCore WI in Rel-16, see RAN1 RRC parameter list [R1-2003190](http://www.3gpp.org/ftp//tsg_ran/WG1_RL1/TSGR1_100b_e/Docs//R1-2003190.zip), line 14 of tab NRDCCA. The RRC parameter list indicates that this is applicable to a cross-carrier scheduled SCell only and used for cross carrier scheduling with different SCS. This is also a per-UE parameter. It is to the best of rapporteur’s knowledge that this was not discussed in the Rel-17 enhanced DSS WI.

**Q3. What are companies’ view for the field *enableDefaultBeamForCCS*, if SCell scheduling SpCell is configured?**

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| **Company** | **Views** | **Comments** |
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### 2.1.4 Issue 4, Monitoring capability

[R2-2201396](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201396.zip) Discussion on Cross-Carrier Scheduling from sSCell to P(S)Cell vivo discussion NR\_DSS\_enh

The paper proposes to capture the below RAN1 agreement in the RRC spec.

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| Agreement  • Alt1: When CCS from sSCell to P(S)Cell is configured for the UE,  o r16monitoringcapability is not configured for PDCCH monitoring on P(S)Cell and not configured for PDCCH monitoring on sSCell;  o r16monitoringcapability can be configured for PDCCH monitoring on Scells other than sSCell |

Per the rapporteur’s understanding, the *r16monitoringcapability* configuration restriction is already captured in the RAN1 spec, see clause 10.1.1, TS 38.213 v17.0.0.

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| A UE can be configured for scheduling on the primary cell from the primary cell and from a secondary cell [12, TS 38.331]. The UE is either not provided *monitoringCapabilityConfig* or the UE is provided only *monitoringCapabilityConfig* = *r15monitoringcapability* for the primary cell and for the secondary cell. The UE is not provided *coresetPoolIndex* on the primary cell or on the secondary cell. |

**Q4. Do companies agree to capture *r16monitoringcapability* restriction in the RRC spec?**

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| **Company** | **Yes or No ?** | **Comments** |
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### 2.1.5 Issue 5, search space linkage

[R2-2201396](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201396.zip) Discussion on Cross-Carrier Scheduling from sSCell to P(S)Cell vivo discussion NR\_DSS\_enh

The paper proposes to discuss how to capture the search space linkage for the Rel-17 DSS. Per rapporteur’s understanding, this has been discussed in the discussion point 13 in the [R1-2112884](http://www.3gpp.org/ftp//tsg_ran/WG1_RL1/TSGR1_107-e/Docs//R1-2112884.zip), the email summary from the RAN1#107e. It is in general not preferred to have parallel discussions in two different groups. Before summarizing and discussing the technical details, it is proposed to collect views on the need to discuss this in RAN2.

**Q5. Do companies agree to discuss search space linkage in RAN2?**

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| **Company** | **Yes or No ?** | **Comments** |
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## 2.2 MAC

[R2-2200294](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2200294.zip) DSS and RA Procedure Samsung Electronics Co., Ltd discussion Rel-17 LTE\_NR\_DC\_enh2

[R2-2201040](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201040.zip) RAN2 impact in DSS WI Ericsson discussion NR\_DSS\_enh

[R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) Remaining issues on cross-carrier scheduling from SCell to P(S)Cell Huawei, HiSilicon discussion Rel-17 NR\_DSS-Core

Neither [R2-2201040](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201040.zip) nor [R2-2201618](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2201618.zip) proposes any spec enhancements, e.g., leaving to network implementation, re-using the legacy procedure, or waiting for RAN1 inputs, and etc. Only the paper [R2-2200294](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2200294.zip) has proposed an enhancement for RA procedure.

[R2-2200294](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs//R2-2200294.zip): In legacy, contention resolution is received on the SpCell. In the case of DSS, PDCCH for contention resolution can be received via SCell. So, the paper proposes to consider in the contention resolution also a PDCCH transmission for the SpCell.

**Q6. Do companies agree that reception of a PDCCH for the SpCell from the scheduling SCell is considered for contention resolution in the MAC procedure?**

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| **Company** | **Yes or No ?** | **Comments** |
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## 2.3 Any Other Issues

**Q6. Any other issues?**

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| **Company** | **Issue and Comments** |
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# 3 Conclusion

TBD

# 4 References

1. [R2-2111459](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_116-e/Docs//R2-2111459.zip), Summary of [AT116-e][026][NR17] DSS (Ericsson), Ericsson
2. [R2-2110730](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116-e/Docs/R2-2110730.zip) , RRC running CR for DSS, Ericsson