3GPP TSG-RAN WG2 Meeting #109bis electronic R2-2003802

20 Apr – 30 Apr 2020

**Agenda item: 8.2**

**Source: Vice Chairman (ZTE Corporation)**

**Title: Report from Break-out session on SRVCC, CLI, PRN, eMIMO, RACS**

**Document for: Approval**

General

Recording of voice or video at meetings is not used in 3GPP. This applies also to this e-Meeting. At this e-Meeting, no specific actions are taken to prevent the recording of web conferences. Companies that have concerns related to recordings, if any, may express those by email in the main meeting organizational thread [AT109bis-e][000]

Organizational

1. With a few exceptions, only email discussions reports and summary discussion papers will be treated during the e-meeting (indicated clearly in the meeting notes)
2. No Stage 2 CRs will be discussed
3. All organization emails and notes will be shared over the following email discussion throughout the two meeting weeks:

* [AT109bis-e][100] Organizational Sergio's session (SRVCC, CLI, PRN, eMIMO, RACS)

Scope:

* + - Share plans for the meeting and list of ongoing email discussions for the sessions related to SRVCC, CLI, PRN, eMIMO, RACS
    - Share meetings notes and agreements for review and endorsement

Schedule/Plan

RACS:

This WI will only be handled via an offline email discussion kicked off at the e-meeting start (108).

SRVCC:

No documents were submitted for this WI. No discussion is expected.

CLI:

This WI will be handled by an initial web conference call and will then continue via offline email discussion(s) (109, …) kicked off after the web conference call.

Tuesday April 21st, 12:00 - 13:30 UTC (likely the last 20-30 mintes)

* Check incoming LSs and decide on follow-up offline email discussion(s)

eMIMO:

This WI will be handled via offline email discussions kicked off at the e-meeting start (101, 102, 103, 104) or later during the e-meeting and by web conference calls.

Friday April 24th, 4:00 - 5:30 UTC

* Check the status of email discussion 101 on MAC corrections
* Check the status of email discussion 102 on RRC aspects
* Check the status of email discussion 103 on BFR on SpCell
* (if time allows) check the status of email discussion 104 on Timer based BFR MAC CE Transmission

Wednesday April 29th, 13:00 - 14:30 UTC

* Check the status of email discussion 101, 102, 103 and 104

PRN:

This WI will be handled via offline email discussions kicked off at the e-meeting start (105) or later during the e-meeting and by web conference calls (106, 107)

Tuesday April 21st, 12:00 - 13:30 UTC

* Check the status of email discussion 105 on PRN open issues
* Decide on follow-up offline email discussion(s)

Monday April 27th, 14:30 - 16:00 UTC

* Check the status of email discussion 105, 106 and 107

List and status of offline email discussions

NOTE: No offline email discussions will be kicked off before Monday April 20th, 07:00 UTC

* [AT109bis-e][101][EMIMO] MAC corrections (Samsung)

Scope: Continue the discussion on MAC corrections, based on [R2-2003795](file:///C:\Data\3GPP\RAN2\Docs\R2-2003795.zip)

Initial intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals with almost full consensus to discuss in the follow up conference call
    - Set of open issues and proposals to postpone to next meeting

Initial deadline (for companies' feedback): Wednesday 2020-04-22 16:00 UTC

Initial deadline (for rapporteur's summary in [R2-2003891](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003891.zip)): Thursday 2020-04-23 10:00 UTC

Update Scope: Continue the discussion on proposals 8, 14, 15, 16 and 17 and start preparing a MAC CR reflecting the agreements in this meeting:

Updated intended outcome:

1. summary of the offline discussion with e.g.:
   * + Set of proposals with full consensus, if any (agreeable over email)
     + Set of proposals to discuss in the follow up conference call
2. Updated MAC CR

Second intermediate deadline (for companies' feedback): Tuesday 2020-04-28 16:00 UTC

Second intermediate deadline (for rapporteur's summary in [R2-2003900](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003900.zip) and possibly for updated MAC CR in [R2-2003901](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003901.zip)): Tuesday 2020-04-28 22:00 UTC

Proposed agreements in [R2-2003900](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003900.zip) indicated for email agreement and not challenged until Wednesday 2020-04-29 10:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

Status: Ongoing

* [AT109bis-e][102][EMIMO] RRC aspects (Ericsson)

Scope: Continue the discussion on RRC aspects, based on [R2-2003181](file:///C:\Data\3GPP\Extracts\R2-2003181_eMIMORRCOpenIssues_submitted.docx)

Initial intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals with almost full consensus to discuss in the follow up conference call
    - Set of open issues and proposals to postpone to next meeting

Initial deadline (for companies' feedback): Wednesday 2020-04-22 16:00 UTC

Initial deadline (for rapporteur's summary in [R2-2003892](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003892.zip)): Thursday 2020-04-23 10:00 UTC

Updated scope: Continue the discussion on RRC open issues, including the proposals in [R2-2003345](file:///C:\Data\3GPP\Extracts\R2-2003345%20on%20TCI%20state%20MAC%20CE%20and%20DCI%20format1_2.docx)

Updated intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to discuss in the follow up conference call

Second intermediate deadline (for companies' feedback): Tuesday 2020-04-28 16:00 UTC

Second intermediate deadline (for rapporteur's summary in R2-2003898): Tuesday 2020-04-28 22:00 UTC

Proposed agreements in R2-2003898 indicated for email agreement and not challenged until Wednesday 2020-04-29 10:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

Status: Ongoing

* [AT109bis-e][103][EMIMO] BFR on SpCell (Apple)

Scope: Continue the discussion on BFR MAC CE for BFR on SpCell, based on [R2-2002795](file:///C:\Data\3GPP\Extracts\._R2-2002795_Report%20of%20109e%2317%20BFR%20MAC%20CE%20for%20BFR%20on%20SpCell_Summary_v2.docx)

Initial intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals with to discuss in the follow up conference call

Initial deadline (for companies' feedback): Wednesday 2020-04-22 16:00 UTC

Initial deadline (for rapporteur's summary in [R2-2003893](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003893.zip)): Thursday 2020-04-23 10:00 UTC

Update Scope: Continue the discussion on the Working Assumptions:

Updated intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to discuss in the follow up conference call

Second intermediate deadline (for companies' feedback): Tuesday 2020-04-28 16:00 UTC

Second intermediate deadline (for rapporteur's summary in [R2-2003902](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003902.zip)): Tuesday 2020-04-28 22:00 UTC

Proposed agreements in [R2-2003902](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003902.zip) indicated for email agreement and not challenged until Wednesday 2020-04-29 10:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

Status: Closed

* [AT109bis-e][104][EMIMO] Timer based BFR MAC CE Transmission (Nokia)

Scope: Discuss the proposals for timer based BFR MAC CE Transmission based on [R2-2002796](file:///C:\Data\3GPP\RAN2\Docs\R2-2002796.zip), [R2-2003589](file:///C:\Data\3GPP\Extracts\R2-2003589-%20Discussion%20on%20Beam%20Failure%20Recovery%20on%20SCell.doc) and [R2-2003712](file:///C:\Data\3GPP\Extracts\R2-2003712.docx)

Initial intended outcome: summary of the offline discussion with list of proposals

Initial deadline (for companies' feedback): Thursday 2020-04-23 07:00 UTC

Initial deadline (for rapporteur's summary in [R2-2003894](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003894.zip)): Thursday 2020-04-23 16:00 UTC

Update Scope: Continue the discussion together with proposal 6 from [R2-2003891](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003891.zip):

Updated intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to discuss in the follow up conference call

Second intermediate deadline (for companies' feedback): Tuesday 2020-04-28 16:00 UTC

Second intermediate deadline (for rapporteur's summary in [R2-2003903](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003903.zip)): Tuesday 2020-04-28 22:00 UTC

Proposed agreements in [R2-2003903](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003903.zip) indicated for email agreement and not challenged until Wednesday 2020-04-29 10:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

Status: Closed

* [AT109bis-e][105][PRN] Open issues (Nokia)

Initial scope: Continue the discussion on PRN open issues, based on [R2-2002659](file:///C:\Data\3GPP\Extracts\R2-2002659-Post109e-18-PRN-OpenIssues.docx)

Initial intended outcome: Set of proposals with full consensus agreeable via email, based on

the list in Section 4.1 of [R2-2002659](file:///C:\Data\3GPP\Extracts\R2-2002659-Post109e-18-PRN-OpenIssues.docx) (final list to be reflected in [R2-2003895](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003895.zip))

Initial intermediate deadline (for companies' feedback): Tuesday 2020-04-21 09:00 UTC

Updated scope:

* + - for open issue 8: discuss the possibility to introduce an indication in SIB1 to allow UEs to search other cells on the same frequency
    - for open issue 9: discuss the possibility to signal PCI range(s) per PLMN per frequency vs just per frequency
    - continue the discussion on open issues 11 and 16

Updated intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to discuss in the follow up conference call

Second intermediate deadline (for companies' feedback): Friday 2020-04-24 06:00 UTC

Second intermediate deadline (for rapporteur's summary in [R2-2003896](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003896.zip)): Friday 2020-04-24 10:00 UTC

Final scope: discuss whether PCI ranges can be optionally broadcast by all cells (both public cells and private cells) and the PCI range validity time

Final intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to postpone to after the meeting

Final deadline (for companies' feedback): Wednesday 2020-04-29 10:00 UTC

Final deadline (for rapporteur's summary in R2-2003907): Wednesday 2020-04-29 16:00 UTC

Proposed agreements in R2-2003907 indicated for email agreement and not challenged until Thursday 2020-04-30 06:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue after the meeting.

Status: Ongoing

* [AT109bis-e][106][PRN] RRC CR (Nokia)

Scope: Update the 38.331 CR, based on the progress on the remaining open issues

Intended outcome: In-principle agreed 38.331 CR

Deadline for companies' feedback: Wednesday 2020-04-29 10:00 UTC

Deadline for rapporteur's version for agreement in R2-2002658: Thursday 2020-04-30 10:00 UTC

Status: Ongoing

* [AT109bis-e][107][PRN] 38.304 CR (Qualcomm)

Scope: Update the 38.304 CR, based on the progress on the remaining open issues

Intended outcome: In-principle agreed 38.304 CR

Deadline for companies' feedback: Wednesday 2020-04-29 10:00 UTC

Deadline for rapporteur's version for agreement in R2-2003908: Thursday 2020-04-30 10:00 UTC

Status: Ongoing

* [AT109bis-e][108][RACS] Stage 3 CRs (ZTE)

Scope: discuss the 36.331 and 38.331 CRs in [R2-2003290](file:///C:\Data\3GPP\Extracts\R2-2003290_38.331_(REL_16)_CR1553_Correction%20to%20transfer%20of%20UE%20capabilities%20at%20HO%20forRACS%20(38.331).docx) and [R2-2003305](file:///C:\Data\3GPP\Extracts\R2-2003305.docx) and the additional proposals in [R2-2002881](file:///C:\Data\3GPP\Extracts\R2-2002881.doc) and [R2-2003471](file:///C:\Data\3GPP\Extracts\R2-2003471%20UE%20capability%20indication%20for%20segmentation.doc)

Intended outcome: In-principle agreed 36.331 and 38.331 CRs

Deadline for companies' feedback: Thursday 2020-04-23 10:00 UTC

Deadline for rapporteur's version for agreement: Friday 2020-04-24 10:00 UTC

Status: Closed

* [AT109bis-e][109][CLI] RRC CR (LG)

Scope: discuss the 38.331 CRs based on [R2-2002911](file:///C:\Data\3GPP\Extracts\R2-2002911%20CR%20on%20additional%20configuration%20for%20CLI%20resources.docx)

Intended outcome: In-principle agreed 38.331 CR

Deadline for companies' feedback: Tuesday 2020-04-2810:00 UTC

Deadline for rapporteur's version for agreement: Wednesday 2020-04-29 10:00 UTC

Status: Ongoing

## 6.5 Optimisations on UE radio capability signalling

(RACS-RAN-Core; leading WG: RAN2; REL-16; started: Mar 19; target; Jun 20; WID: [RP-191088](file:///C:\Data\3GPP\archive\RAN\RAN%2384\Tdocs\RP-191088.zip), SR: RP-200163). Documents in this agenda item will be handled in a break out session.

R2 part is 100%. Only corrections.

Tdoc limitation: 1 per company

### 6.5.1 Organisational

Including incoming LSs, rapporteur inputs, etc.

Contributions in this AI are reserved for WI rapporteur inputs and do not count towards the tdoc limits.

[R2-2002725](file:///C:\Data\3GPP\Extracts\R2-2002725.docx) Work plan for RACS-RAN work item MediaTek Inc., CATT discussion Rel-16

* Noted

R2-2002726 Work plan for RACS-RAN work item MediaTek Inc., CATT discussion Rel-16 Withdrawn

[R2-2003290](file:///C:\Data\3GPP\Extracts\R2-2003290_38.331_(REL_16)_CR1553_Correction%20to%20transfer%20of%20UE%20capabilities%20at%20HO%20forRACS%20(38.331).docx) Correction to transfer of UE capabilities at HO for RACS (38.331) ZTE Corporation, Ericsson,MediaTek Inc.,Sanechips CR Rel-16 38.331 16.0.0 1553 - F RACS-RAN-Core

* to be discussed in offline [108]

[R2-2003905](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003905.zip) Correction to transfer of UE capabilities at HO for RACS (38.331) ZTE Corporation, Ericsson,MediaTek Inc.,Sanechips CR Rel-16 38.331 16.0.0 1553 1 F RACS-RAN-Core

* In-principle agreed

[R2-2003305](file:///C:\Data\3GPP\Extracts\R2-2003305.docx) Correction to transfer of UE capabilities at HO for RACS (36.331) MediaTek Inc., Ericsson, ZTE Corporation, Sanechips CR Rel-16 36.331 16.0.0 4256 - F RACS-RAN-Core

* to be discussed in offline [108]

[R2-2003906](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003906.zip) Correction to transfer of UE capabilities at HO for RACS (36.331) MediaTek Inc., Ericsson, ZTE Corporation, Sanechips CR Rel-16 36.331 16.0.0 4256 1 F RACS-RAN-Core

* In-principle agreed
* [AT109bis-e][108][RACS] Stage 3 CRs (ZTE)

Scope: discuss the 36.331 and 38.331 CRs in [R2-2003290](file:///C:\Data\3GPP\Extracts\R2-2003290_38.331_(REL_16)_CR1553_Correction%20to%20transfer%20of%20UE%20capabilities%20at%20HO%20forRACS%20(38.331).docx) and [R2-2003305](file:///C:\Data\3GPP\Extracts\R2-2003305.docx) and the additional proposals in [R2-2002881](file:///C:\Data\3GPP\Extracts\R2-2002881.doc) and [R2-2003471](file:///C:\Data\3GPP\Extracts\R2-2003471%20UE%20capability%20indication%20for%20segmentation.doc)

Intended outcome: In-principle agreed 36.331 and 38.331 CRs

Deadline for companies' feedback: Thursday 2020-04-23 10:00 UTC

Deadline for rapporteur's version for agreement: Friday 2020-04-24 10:00 UTC

[R2-2003904](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003904.zip) Offline discussion 108: RACS Stage 3 CRs ZTE (Rapporteur) discussion Rel-16 RACS-RAN-Core

1. The 38.331 CR and 36.331 CR have been updated to capture the proposed change formally instead of a note.
2. There is not much support for the two new proposals. Thus, no proposal is needed and we will not discuss these two issues anymore at least in this release.

* Proposals in [R2-2002881](file:///C:\Data\3GPP\Extracts\R2-2002881.doc) and [R2-2003471](file:///C:\Data\3GPP\Extracts\R2-2003471%20UE%20capability%20indication%20for%20segmentation.doc) not agreed and not further discussed for this release.

### 6.5.2 Corrections

Including contributions/TPs/DraftCRs on RACS-specific Class 3 ASN.1 review aspects, if any. For these, no individual company CRs should be submitted: please consult with the RRC CR rapporteurs first ([Nathan.Tenny@mediatek.com](mailto:Nathan.Tenny@mediatek.com) for 36.331 and [Gao.Yuan66@zte.com.cn](mailto:Gao.Yuan66@zte.com.cn) for 38.331).

[R2-2002881](file:///C:\Data\3GPP\Extracts\R2-2002881.doc) Transfer of segmented UECapabilityInformation by SRB2 Samsung discussion Rel-16 RACS-RAN-Core [R2-2000765](file:///C:\Data\3GPP\archive\RAN2\RAN2%23109\Tdocs\R2-2000765.zip)

* to be discussed in offline [108]
* Noted

[R2-2003471](file:///C:\Data\3GPP\Extracts\R2-2003471%20UE%20capability%20indication%20for%20segmentation.doc) UE capability indication for segmentation Huawei, HiSilicon discussion Rel-16 RACS-RAN-Core [R2-2001329](file:///C:\Data\3GPP\archive\RAN2\RAN2%23109\Tdocs\R2-2001329.zip)

* to be discussed in offline [108]
* Noted

## 6.14 Single Radio Voice Call Continuity from 5G to 3G

(SRVCC\_NR\_to\_UMTS-Core; leading WG: RAN2; REL-16; started: Dec 18; target; Mar 20; WID: [RP-190713](file:///C:\Data\3GPP\archive\RAN\RAN%2383\Tdocs\RP-190713.zip); SR: RP-200436) Documents in this agenda item will be handled in a break out session

Tdoc Limitation: 1 tdoc

The Core part of this WI is 100% Only corrections.

### 6.14.1 Organisational

Including incoming LSs, rapporteur inputs, etc.

Contributions in this AI are reserved for WI rapporteur inputs and do not count towards the tdoc limits.

### 6.14.2 Corrections

Including contributions/TPs/DraftCRs on SRVCC-specific Class 3 ASN.1 review aspects, if any. For these, no individual company CRs should be submitted: please consult with the RRC CR rapporteur first ([tangxun@huawei.com](mailto:tangxun@huawei.com)).

## 6.15 Cross Link Interference (CLI) handling and Remote Interference Management (RIM) for NR

(NR\_CLI\_RIM; leading WG: RAN1; REL-16; started: Dec 18; target; Jun 20; WID: [RP-191997](file:///C:\Data\3GPP\archive\RAN\RAN%2385\Tdocs\RP-191997.zip); SR: RP-200453) Documents in this agenda item will be handled in a break out session.

Tdoc Limitation: 1 tdoc

Apart from corrections, it's possible to contribute to sub agenda item 6.15.2 for the remaining open issues requiring feedback from other groups.

### 6.15.1 Organisational

Including incoming LSs, rapporteur inputs, etc.

Contributions in this AI are reserved for WI rapporteur inputs and do not count towards the tdoc limits.

Incoming LSs

[R2-2002510](file:///C:\Data\3GPP\Extracts\R2-2002510_R1-2001319.doc) Reply LS on clarification of CLI resource configuration (R1-2001319; contact: LGE) RAN1 LS in Rel-16 NR\_CLI\_RIM-Core To:RAN2 Cc:RAN4

* QC thinks the first line in the first response "SRS measurement configuration is based on the frequency grid of victim UE’s serving cell" is not reflected anywhere and wonder whether it makes sense to reflect this in Stage 2.
* Companies are invited to check and consult with the CR rapporteur of the affected spec and come back at the next meeting with a TP/CR if needed.
* Noted. Detailed discussion can happen in the RRC CR discussion.

[R2-2002511](file:///C:\Data\3GPP\Extracts\R2-2002511_R1-2001320.doc) LS on CLI measurement and reporting (R1-2001320; contact: LGE) RAN1 LS in Rel-16 NR\_CLI\_RIM-Core To:RAN4 Cc:RAN2

* Noted

[R2-2002528](file:///C:\Data\3GPP\Extracts\R2-2002528_R4-2002221.doc) Reply LS on CLI measurement capability (R4-2002221; contact: Huawei) RAN4 LS in Rel-16 NR\_CLI\_RIM-Core To:RAN2 Cc:RAN1

* Ericsson and QC are fine with the indication from RAN4 and then revert the RAN2 agreement.
* We revert our previous agreement, i.e. we follow RAN4 decision. No update is anticipated to our specs for this.

Stage 2 CRs - not handled at this meeting

[R2-2003365](file:///C:\Data\3GPP\Extracts\R2-2003365.docx) CLI Featurre overview - Additional changes Nokia Solutions & Networks (I) CR Rel-16 38.300 16.1.0 0217 - D NR\_CLI\_RIM-Core

* Noted

### 6.15.2 Remaining open issues

Including the open issues for which feedback has been requested to other groups.

Including contributions/TPs/DraftCRs on corrections and CLI-specific Class 3 ASN.1 review aspects, if any. For the latter (ASN.1 aspects), no individual company CRs should be submitted: please consult with the RRC CR rapporteur first ([sangwon7.kim@lge.com](mailto:sangwon7.kim@lge.com)).

[R2-2002911](file:///C:\Data\3GPP\Extracts\R2-2002911%20CR%20on%20additional%20configuration%20for%20CLI%20resources.docx) CR on additional configuration for CLI resources LG Electronics Inc. CR Rel-16 38.331 16.0.0 1533 - F NR\_CLI\_RIM

* to be discussed in offline [109]
* [AT109bis-e][109][CLI] RRC CR (LG)

Scope: discuss the 38.331 CRs based on [R2-2002911](file:///C:\Data\3GPP\Extracts\R2-2002911%20CR%20on%20additional%20configuration%20for%20CLI%20resources.docx)

Intended outcome: In-principle agreed 38.331 CR

Deadline for companies' feedback: Tuesday 2020-04-28 10:00 UTC

Deadline for rapporteur's version for agreement: Wednesday 2020-04-29 10:00 UTC

R2-2003909 CLI configuration LG Electronics Inc. CR Rel-16 38.331 16.0.0 1533 1 F NR\_CLI\_RIM

[R2-2002885](file:///C:\Data\3GPP\Extracts\R2-2002885.docx) Additional frequency information for CLI measurements Samsung CR Rel-16 38.331 16.0.0 1531 - F NR\_CLI\_RIM

* WI rapporteur CR to be used as a baseline. Further comments can be made in offline [109]
* Noted

[R2-2002909](file:///C:\Data\3GPP\Extracts\R2-2002909%20Additional%20configuration%20for%20CLI%20resources.doc) Additional configuration for CLI resources LG Electronics Inc. discussion Rel-16

* Noted

[R2-2003380](file:///C:\Data\3GPP\Extracts\R2-2003380%20-%20Remaining%20issues%20for%20CLI.docx) Remaining issues for RIM/CLI Ericsson discussion Rel-16 NR\_CLI\_RIM

* Noted

## 6.16 Enhancements on MIMO for NR

(NR\_eMIMO-Core; leading WG: RAN1; REL-16; started: Jun 18; target; June 20; WID: RP-200474; SR: RP-200473). Documents in this agenda item will be handled in a break out session.

Tdoc Limitation: 2 tdocs

It's possible to contribute to all sub agenda items, to address the remaining open issues.

### 6.16.1 Organisational

Including incoming LSs, rapporteur inputs, etc.

Contributions in this AI are reserved for WI rapporteur inputs and do not count towards the tdoc limits.

[R2-2002883](file:///C:\Data\3GPP\Extracts\R2-2002883.docx) Miscellaneous corrections on eMIMO Samsung CR Rel-16 38.321 16.0.0 0711 - F NR\_eMIMO-Core

* revised into [R2-2003901](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003901.zip) to consider the outcome of offline [101]

[R2-2003901](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003901.zip) Miscellaneous corrections on eMIMO Samsung CR Rel-16 38.321 16.0.0 0711 1 F NR\_eMIMO-Core

### 6.16.2 RRC open issues

Including output of email discussion [Post109e#34][eMIMO] RRC Open issues (Ericsson). Contributions related to issues addressed by this email discussions should be avoided and are discouraged for this AI.

Including contributions/TPs/DraftCRs on eMIMO-specific Class 3 ASN.1 review aspects, if any. For these, no individual company CRs should be submitted: please consult with the RRC CR rapporteur first (helka-liina.maattanen@ericsson.com).

[R2-2003181](file:///C:\Data\3GPP\Extracts\R2-2003181_eMIMORRCOpenIssues_submitted.docx) [Post109e#34][EMIMO] RRC Open Issues (Ericsson) Ericsson discussion Rel-16 NR\_eMIMO-Core

* Moved to offline email discussion [102] with the intention to go back online during the web conference call(s)
* [AT109bis-e][102][EMIMO] RRC aspects (Ericsson)

Scope: Continue the discussion on RRC aspects, based on [R2-2003181](file:///C:\Data\3GPP\Extracts\R2-2003181_eMIMORRCOpenIssues_submitted.docx)

Initial intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals with almost full consensus to discuss in the follow up conference call
    - Set of open issues and proposals to postpone to next meeting

Initial deadline (for companies' feedback): Wednesday 2020-04-22 16:00 UTC

Initial deadline (for rapporteur's summary in [R2-2003892](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003892.zip)): Thursday 2020-04-23 10:00 UTC

Updated scope: Continue the discussion on RRC open issues, including the proposals in [R2-2003345](file:///C:\Data\3GPP\Extracts\R2-2003345%20on%20TCI%20state%20MAC%20CE%20and%20DCI%20format1_2.docx)

Updated intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to discuss in the follow up conference call

Second intermediate deadline (for companies' feedback): Tuesday 2020-04-28 16:00 UTC

Second intermediate deadline (for rapporteur's summary in R2-2003898): Tuesday 2020-04-28 22:00 UTC

Proposed agreements in R2-2003898 indicated for email agreement and not challenged until Wednesday 2020-04-29 10:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

[R2-2003892](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003892.zip) Offline discussion 102: eMIMO RRC aspects - first round Ericsson (Rapporteur) discussion Rel-16 NR\_eMIMO-Core

Proposal 1 RAN2 to discuss whether the above list of issues is true and if that is all issues related CORESETPoolIndex

Proposal 2 RAN2 to consider if the following approach would resolve the issues:

a. UE is configured with CORESETPoolIndex only if it support (assumed) mPDCCH mTRP capability

b. AND CORESETPoolIndex can only take value 1

c. AND not all CORESETs can be configured with value 1

d. AND other CORESETs assume value 0 if CORESETPoolIndex 1(or enable) is configured

- Nokia thinks that the only thing we need is to add some simple text to the field description

- Ericsson thinks that there were complaints on the current approach

- Huawei thinks we can go with any solution provided that everything is clear

- Nokia thinks that if mPDCCH mTRP is not supported the UE is not expected to receive CORESETPoolIndex. We could put a network restriction. Nokia thinks that RAN1 spec describe all the aspects.

- QC agrees that if mPDCCh mTRP is not supported the UE is not expected to receive CORESETPoolIndex. For singlePDDCH mTRP the CORESETPoolIndex for all CORESET would be set to default value

- Ericsson thinks one problem is that we don't have a definition for single-PDCCH based multi-TRP operation and in some cases (e.g. proposal 7b in the report) there would be a problem.

- Ericsson thinks that in our specs we could specify that if a UE is configured with mPDCCH mTRP we don't use default values (this only stays in RAN1 spec). Docomo agrees.

* UE is configured with CORESETPoolIndex only if it support (assumed) mPDCCH mTRP capability
* rephrase the existing condition into "If the field is absent, the UE applies the value 0." in the CORESETPoolIndex field description
* Further discuss offline how to refer to single-PDCCH based multi-TRP operation in our specs

Proposal 3 Discuss based on the below comment whether nrofReportedRSForSINR is used only with quantityConfig-r16 or it has a meaning also separately

Proposal 4 If nrofReportedRSForSINR is used only with quantityConfig-r16, RAN2 to agree as baseline the REVISED TP in Appendix A for the nrofReportedRS-ForSINR in CSI-ReportConfig

* CATT raised an additional issue based on RAN1 text. Ericsson thinks this should be further checked
* Agreed
* Further check offline the issue raised by CATT

Proposal 5 RAN2 to agree on the TP in Appendix A for the dmrs-Downlink and dmrs-Uplink field descriptions

* Agreed

Proposal 6 lte-CRS-PatternList-r16 and lte-CRS-PatternListSecond-r16 should be placed under ServingCellConfig

* Agreed

Proposal 7 Agree with the proposed change

a. Change the signalling of maxNrofPorts from ENUMERATED {n2} to ENUMERATED {n1, n2}

b. add the condition when n2 can be selected in the field description: 2 PT-RS ports can only be configured for single-PDCCH based multi-TRP operation.

* Agreed (wording of the condition to be checked)

Proposal 8 Agree with the proposed change for slotBased: "Configures UE with slot-based repetition scheme. Network always configures this field when the parameter repetitionNumber is present in IE PDSCH-TimeDomainResourceAllocationList"

* Agreed

Proposal 9 Not agree with the proposed change above=> no change based on the raised issue

* Agreed

Proposal 10 Not agree with the proposed change above=> wait for BFR discussion

* Agreed

Proposal 11 Discuss below issues

Agreements:

1. UE is configured with CORESETPoolIndex only if it support (assumed) mPDCCH mTRP capability
2. rephrase the existing condition into "If the field is absent, the UE applies the value 0." in the CORESETPoolIndex field description
3. Agree on the TP in Appendix A for the dmrs-Downlink and dmrs-Uplink field descriptions
4. lte-CRS-PatternList-r16 and lte-CRS-PatternListSecond-r16 should be placed under ServingCellConfig
5. Agree with the proposed change

a) Change the signalling of maxNrofPorts from ENUMERATED {n2} to ENUMERATED {n1, n2}

b) add the condition when n2 can be selected in the field description: 2 PT-RS ports can only be configured for single-PDCCH based multi-TRP operation.

1. Agree with the proposed change for slotBased: "Configures UE with slot-based repetition scheme. Network always configures this field when the parameter repetitionNumber is present in IE PDSCH-TimeDomainResourceAllocationList"
2. If nrofReportedRSForSINR is used only with quantityConfig-r16, RAN2 to agree as baseline the REVISED TP in Appendix A for the nrofReportedRS-ForSINR in CSI-ReportConfig.
3. Agree proposals 9 and10 in the report (i.e. not to change anything based on the issues raised)

R2-2003898 Offline discussion 102: eMIMO RRC aspects - second round Ericsson (Rapporteur) discussion Rel-16 NR\_eMIMO-Core

[R2-2003897](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003897.zip) eMIMO corrections       Ericsson (Rapporteur) DraftCR Rel-16 38.331 16.0.0 NR\_eMIMO-Core

* To be further revised based on agreements and further discussion in offline 102.

R2-2003899 eMIMO corrections       Ericsson (Rapporteur) DraftCR Rel-16 38.331 16.0.0 NR\_eMIMO-Core

[R2-2002870](file:///C:\Data\3GPP\Extracts\R2-2002870_Correction%20on%20the%20number%20of%20CORESETs%20per%20BWP%20(RIL%20v101).docx) Correction on the number of CORESETs per BWP (RIL v101) vivo CR Rel-16 38.331 16.0.0 1529 - F NR\_eMIMO-Core

* to be discussed in offline [102]
* Noted

[R2-2002871](file:///C:\Data\3GPP\Extracts\R2-2002871_Correction%20on%20RLM%20RS%20configuration%20(RIL%20v102).docx) Correction on RLM RS configuration (RIL v102) vivo CR Rel-16 38.331 16.0.0 1530 - F NR\_eMIMO-Core

* to be discussed in offline [102]
* Noted

R2-2003710 Correction on Multi-DCI based multi-TRP transmission for eMBB Huawei, HiSilicon draftCR Rel-16 38.331 16.0.0 F NR\_eMIMO-Core Late

R2-2003711 Corrections on multi-TRP transmission for URLLC Huawei, HiSilicon draftCR Rel-16 38.331 16.0.0 F NR\_eMIMO-Core Late

### 6.16.3 Other open issues

Including output of email discussion [Post109e#17][eMIMO] BFR MAC CE for BFR on SpCell (Apple). Contributions related to issues addressed by this email discussions should be avoided and are discouraged for this AI.

MAC Corrections. The proposals in the following papers are summarized in [R2-2003795](file:///C:\Data\3GPP\RAN2\Docs\R2-2003795.zip)

[R2-2002557](file:///C:\Data\3GPP\Extracts\R2-2002557_Issues%20for%20SCell%20BFR.doc) Issues - SCell BFR Samsung Electronics Co., Ltd discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2002605](file:///C:\Data\3GPP\Extracts\R2-2002605.doc) Discussion on pending BFR SR upon SCell deactivation Sharp, Samsung discussion NR\_eMIMO-Core

* Noted

[R2-2002796](file:///C:\Data\3GPP\RAN2\Docs\R2-2002796.zip) Timer based BFR MAC CE Transmission Apple, Nokia, Nokia Shanghai Bell discussion NR\_eMIMO-Core

* Noted

[R2-2002872](file:///C:\Data\3GPP\Extracts\R2-2002872%20Discussion%20on%20the%20SCell%20BFD%20on%20the%20deactivated%20SCell.docx) Discussion on the SCell BFD on the deactivated SCell vivo discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2002873](file:///C:\Data\3GPP\Extracts\R2-2002873%20Correction%20on%20the%20SP%20SRS%20ActivationDeactivation%20MAC%20CE.docx) Correction on the SP SRS ActivationDeactivation MAC CE vivo discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2002882](file:///C:\Data\3GPP\Extracts\R2-2002882.doc) Considerations on the number of pathloss RSs indicated by MAC CE Samsung discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2002926](file:///C:\Data\3GPP\Extracts\R2-2002926.doc) SR configuration for SCell beam failure recovery Lenovo, Motorola Mobility discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2002954](file:///C:\Data\3GPP\Extracts\R2-2002954%20-%20CC%20list-based%20SRS%20Activation%20%20MAC%20CE.doc) CC list-based SRS Activation/Deactivation MAC CE design OPPO discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2002957](file:///C:\Data\3GPP\RAN2\Docs\R2-2002957.zip) [Post109e#17] Identified other open issues Fujitsu discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2003051](file:///C:\Data\3GPP\Extracts\R2-2003051%20Draft%20CR%20on%20bitmap%20length%20determination%20for%20BFR%20MAC%20CE.docx) Draft CR on bitmap length determination for BFR MAC CE Nokia, Nokia Shanghai Bell, Apple draftCR Rel-16 38.321 16.0.0 NR\_eMIMO-Core

* Noted

[R2-2003052](file:///C:\Data\3GPP\Extracts\R2-2003052%20Draft%20CR%20on%20Corrections%20for%20SCell%20BFR%20procedure.docx) Draft CR on Corrections for SCell BFR procedure Nokia, Nokia Shanghai Bell, Apple draftCR Rel-16 38.321 16.0.0 NR\_eMIMO-Core

* Noted

[R2-2003252](file:///C:\Data\3GPP\Extracts\R2-2003252_Correction%20on%20new%20DL%20MIMO%20MAC%20CE_v2.docx) Correction on new DL MIMO MAC CE Qualcomm Incorporated discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2003253](file:///C:\Data\3GPP\Extracts\R2-2003253_Corrections%20on%20cancellation%20the%20pending%20BFR%20SR_v1.docx) Cancellation the pending BFR SR Qualcomm Incorporated discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2003358](file:///C:\Data\3GPP\Extracts\R2-2003358%20-%20Change%20LCID%20to%20eLCID%20for%20MIMO%20MAC%20CEs.docx) Change LCID to eLCID for MIMO MAC CEs Ericsson CR Rel-16 38.321 16.0.0 0723 - F NR\_eMIMO-Core

* Noted

[R2-2003588](file:///C:\Data\3GPP\Extracts\R2-2003588-%20Considerations%20on%20aborting%20of%20ongoing%20RACH%20triggered%20by%20SR.doc) Remaining issue on aborting of ongoing RACH triggred by SR ZTE, Sanechips discussion Rel-16 NR\_eMIMO-Core

* Noted

[R2-2003618](file:///C:\Data\3GPP\Extracts\R2-2003618.doc) Discussion on open issues on BFR MAC CE Google Inc. discussion Rel-16

* Noted

[R2-2003650](file:///C:\Data\3GPP\Extracts\R2-2003650%20Remaining%20issues%20regarding%20cancellation%20of%20triggered%20BFRs%20for%20SCell.docx) Remaining issues regarding cancellation of triggered BFRs for SCell ASUSTeK discussion Rel-16 38.321 NR\_eMIMO-Core

* Noted

[R2-2003651](file:///C:\Data\3GPP\Extracts\R2-2003651%20Discussion%20on%20completion%20of%20RA%20procedure%20for%20SCell%20beam%20failure%20recovery.docx) Discussion on completion of RA procedure for SCell beam failure recovery ASUSTeK discussion Rel-16 38.321 NR\_eMIMO-Core

* Noted

[R2-2003663](file:///C:\Data\3GPP\Extracts\R2-2003663.docx) Clarification on scheduling request for SCell beam failure recovery Google Inc. draftCR Rel-16 38.321 16.0.0 F NR\_eMIMO-Core

* Noted

[R2-2003795](file:///C:\Data\3GPP\RAN2\Docs\R2-2003795.zip) Summary of proposed corrections (AI 6.16.3) Samsung discussion Rel-16 NR\_eMIMO-Core

* Moved to offline email discussion [101] with the intention to go back online during the web conference call(s)
* [AT109bis-e][101][EMIMO] MAC corrections (Samsung)

Scope: Continue the discussion on MAC corrections, based on [R2-2003795](file:///C:\Data\3GPP\RAN2\Docs\R2-2003795.zip)

Initial intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals with almost full consensus to discuss in the follow up conference call
    - Set of open issues and proposals to postpone to next meeting

Initial deadline (for companies' feedback): Wednesday 2020-04-22 16:00 UTC

Initial deadline (for rapporteur's summary in [R2-2003891](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003891.zip)): Thursday 2020-04-23 10:00 UTC

Update Scope: Continue the discussion on proposals 8, 14, 15, 16 and 17 and start preparing a MAC CR reflecting the agreements in this meeting:

Updated intended outcome:

1. summary of the offline discussion with e.g.:
   * + Set of proposals with full consensus, if any (agreeable over email)
     + Set of proposals to discuss in the follow up conference call
2. updated MAC CR

Second intermediate deadline (for companies' feedback): Tuesday 2020-04-28 16:00 UTC

Second intermediate deadline (for rapporteur's summary in [R2-2003900](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003900.zip) and possibly for updated MAC CR in [R2-2003901](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003901.zip)): Tuesday 2020-04-28 22:00 UTC

Proposed agreements in [R2-2003900](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003900.zip) indicated for email agreement and not challenged until Wednesday 2020-04-29 10:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

[R2-2003891](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003891.zip) Offline discussion 101: eMIMO MAC corrections - first round Samsung discussion Rel-16 NR\_eMIMO-Core

Proposal 1: A single octet bitmap is used when the highest ServCellIndex of the MAC entity's SCell for which beam failure is detected is less than 8, otherwise four octets are used.

* Agreed

Proposal 2: Clarify in MAC that the SR configuration configured for Scell beam failure recovery can be shared with other LCHs.

* Agreed

Proposal 3: Clarify in MAC that SCell beam failure recovery may be mapped to zero SR configuration.

* Agreed

Proposal 4: If UL-SCH resources are available for a new transmission and if the UL-SCH resources can accommodate neither the SCell BFR MAC CE plus its subheader nor the truncated SCell BFR MAC CE plus its subheader as a result of logical channel prioritization, UE shall trigger Scheduling request for SCell beam failure recovery.

* Agreed

Proposal 5: Pending SR triggered for beam failure recovery of a SCell shall be cancelled upon deactivation of that SCell.

* Agreed

Proposal 6: Discuss whether to cancel BFRs triggered prior to MAC PDU assembly for beam failure recovery for a SCell when a MAC PDU is transmitted and this PDU includes a SCell BFR MAC CE or Truncated SCell BFR MAC CE which contains beam failure information of that SCell.

* QC thinks this should be discussed together with Q6 in the offline discussion: "Do you agree that pending SR triggered prior to the MAC PDU assembly for beam failure recovery of a SCell shall be cancelled when the MAC PDU is transmitted and this PDU includes a SCell BFR MAC CE or truncated SCell BFR MAC CE?"
* Ericsson thinks this is also related to Q4 in the offline discussion: " Do you agree that if UL-SCH resources are available for a new transmission and if the UL-SCH resources cannot accommodate the SCell BFR MAC CE but the Truncated BFR MAC CE can be accomodated in UL-SCH resources, the BFR SR should be triggered for the SCells that were not indicated in Truncated BFR MAC CE?". Ericsson wants to make sure the network is able to receive the “full” BFR MAC CE after receiving the Truncated BFR, i.e. by providing an additional (large enough) grant.
* Samsung thinks that Q6 and Q7 are not really related and similarly for Q4 and Q7.
* Huawei thinks there are some differences w.r.t BSR (triggered per MAC entity) and BFR (per cell)
* Samsung also thinks this is related to the proposal to have a timer.
* Discussed this together with the proposal in offline 104

Proposal 7: For SR triggered by BFR case, only RACH triggered by a pending BFR SR without any valid PUCCH resources can be aborted. TP to be discussed based on the result of email discussion #016.

* Agreed

Proposal 8: Ongoing Random Access procedure for SCell beam failure recovery may be stopped when all triggered BFRs for SCells are cancelled (this is to cover the case where all Scells are deactiveted)

* Ericsson wonders what is the worst thing that could happen if we let the RA procedure complete? Aborting RA procedures incurs a cost in the gNB (and system overall, wasted resources etc.) and would then like to know what the gain/alternate cost is.
* Samsung says the scenario is when Scell is deactivated and MAC CE is not transmitted. QC don't want the UE to make unnecessary UL transmission
* LG thinks this is covered by P7. Nokia thinks P7 doesn't say how this can be cancelled, so P7 and P8 are different
* LG needs time to check
* Further continue offline

Proposal 9: Contention resolution of RA procedures for SCell beam failure recovery is only based on a PDCCH transmission addressed to the C-RNTI which contains a UL grant for a new transmission.

* Agreed

Proposal 10: BFD RS monitoring aspects are in scope of RAN1 and any issue related to that should be raised and discussed in RAN1.

* Agreed

Proposal 11:All DL MAC CEs for Rel-16 eMIMO are assigned an eLCID values and their current LCID values are reserved for future use.

* Agreed

Proposal 12: eLCID values are not assigned for UL MAC CEs for Rel-16 eMIMO.

* Ericsson has some strong concerns assigning all four UL MAC CEs to LCID space. At least the four-octet variants should be in eLCID (single-octet space) if we are going to have any reserved values left.
* LG/ZTE shares similar concern as Ericsson
* QC supports current proposal 12.
* Nokia has no strong view, but both the single octet variants should remain with legacy LCID
* QC/Samsung could accept the compromise to have eLCID for four-octet variants
* eLCID values are assigned only for UL MAC CEs with four-octet variants for Rel-16 eMIMO (MAC CEs for Rel-15 are not changed)

Proposal 13:RAN2 wait for RAN1 responses to design MAC CE for CC list-based SRS Activation/Deactivation.

* Agreed

Proposal 14:RAN2 determines whether re-design PUSCH Pathloss Reference RS Activation/Deactivation MAC CE or add UE restrictions to correct the operation (If re-design is accepted, multiple SRI IDs can be mapped to a single Pathloss RS ID.)

* Samsung suggests to re-design the MAC CE
* Ericsson thinks that the re-design should take into account the activation/deactivation
* Consider to re-design PUSCH Pathloss Reference RS Activation/Deactivation MAC CE. Discuss further implication offline, including whether we need to consult with RAN1

Proposal 15: Re-design the SP SRS Activation/Deactivation MAC CE to support 192 NZP CSI-RS resource(s). FFS whether this new MAC CE includes Aperiodic SRS case or not.

* Agreed. Continue offline

Proposal 16:Change the name of SRS Pathloss Reference RS Activation/Deactivation MAC CE to SRS Pathloss Reference RS Indication MAC CE.

* Further discuss offline

Proposal 17: Change the name of PUSCH Pathloss Reference RS Activation/Deactivation MAC CE to PUSCH Pathloss Reference RS Indication MAC CE.

* Further discuss offline

On Q19 (for which it was concluded not to have any restrictions): "Do you agree that UE should ignore the MAC CE updating for deactivated serving cells on the list and applies the MAC CE updating only for activated serving cells on the list? If yes, do we need to clarify this in the specification?"

* To address QC concerns, Ericsson thinks we can be flexible when the UE applies the configuration in the MAC CE. As long as it is applied when the SCell is reactivated, it's good: a smart network would not send MAC CEs relating to deactivated SCells, but the fact is that the MAC CEs may be reordered and we should take that into consideration. The way Ericsson reads the specification now, the UE has this flexibility when to apply the configuration in the MAC CE

Proposal 18: If the serving cell in the TCI States Activation/Deactivation for UE-specific PDSCH MAC CE is configured in one cell list which contains more than one serving cell, the CORESET Pool ID field should be ignored.

* Agreed with the following rewording:

"If the serving cell in the TCI States Activation/Deactivation for UE-specific PDSCH MAC CE is configured in one cell list which contains more than one serving cell, UE shall ignore the CORESET Pool ID field when receiving the MAC CE"

Proposal 19: If the coresetPoolIndex is not configured for any CORESET, UE should ignore the CORESET Pool ID field in the TCI States Activation/Deactivation for UE-specific PDSCH MAC CE.

* Agreed with the following rewording:

"If the coresetPoolIndex is not configured for any CORESET, UE shall ignore the CORESET Pool ID field in the TCI States Activation/Deactivation for UE-specific PDSCH MAC CE when receiving the MAC CE"

On Q21: "Do you agree that UE is restricted that simultaneous configuration of single-DCI based and multi-DCI based M-TRP is not allowed? If yes, do we need to clarify this in the specification?" offline rapporteur reported that majority commented that simultaneous configuration of single-DCI based and multi-DCI based M-TRP seems not supported and it is now discussed by RAN1. RAN2 do nothing unless RAN1 request to add this restriction, but no proposal was made.

* Vice-chair thinks we'd better reflect the RAN2 understanding in the minutes
* Ericsson think we need to discuss the implication of RAN1 decisions: in our specification this is unclear at the moment
* From RAN2 point of view it's unclear whether simultaneous configuration of single-DCI based and multi-DCI based M-TRP is supported. We wait for RAN1 decision before working on this.

Agreements via email (from [101][EMIMO]):

1. A single octet bitmap is used when the highest ServCellIndex of the MAC entity's SCell for which beam failure is detected is less than 8, otherwise four octets are used.
2. Clarify in MAC that the SR configuration configured for Scell beam failure recovery can be shared with other LCHs.
3. Clarify in MAC that SCell beam failure recovery may be mapped to zero SR configuration.
4. If UL-SCH resources are available for a new transmission and if the UL-SCH resources can accommodate neither the SCell BFR MAC CE plus its subheader nor the truncated SCell BFR MAC CE plus its subheader as a result of logical channel prioritization, UE shall trigger Scheduling request for SCell beam failure recovery.
5. Pending SR triggered for beam failure recovery of a SCell shall be cancelled upon deactivation of that SCell.
6. For SR triggered by BFR case, only RACH triggered by a pending BFR SR without any valid PUCCH resources can be aborted. TP to be discussed based on the result of email discussion #016.
7. Contention resolution of RA procedures for SCell beam failure recovery is only based on a PDCCH transmission addressed to the C-RNTI which contains a UL grant for a new transmission.
8. BFD RS monitoring aspects are in scope of RAN1 and any issue related to that should be raised and discussed in RAN1.
9. All DL MAC CEs for Rel-16 eMIMO are assigned an eLCID values and their current LCID values are reserved for future use.
10. RAN2 wait for RAN1 responses to design MAC CE for CC list-based SRS Activation/Deactivation.
11. If the serving cell in the TCI States Activation/Deactivation for UE-specific PDSCH MAC CE is configured in one cell list which contains more than one serving cell, UE shall ignore the CORESET Pool ID field when receiving the MAC CE.
12. If the coresetPoolIndex is not configured for any CORESET, UE shall ignore the CORESET Pool ID field in the TCI States Activation/Deactivation for UE-specific PDSCH MAC CE when receiving the MAC CE.

Agreements online:

1. eLCID values are assigned only for UL MAC CEs with four-octet variants for Rel-16 eMIMO (MAC CEs for Rel-15 are not changed)
2. Consider to re-design PUSCH Pathloss Reference RS Activation/Deactivation MAC CE. Discuss further implication offline, including whether we need to consult with RAN1
3. Re-design the SP SRS Activation/Deactivation MAC CE to support 192 NZP CSI-RS resource(s). FFS whether this new MAC CE includes Aperiodic SRS case or not.
4. From RAN2 point of view it's unclear whether simultaneous configuration of single-DCI based and multi-DCI based M-TRP is supported. We wait for RAN1 decision before working on this.

[R2-2003900](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003900.zip) Offline discussion 101: eMIMO MAC corrections - second round Samsung discussion Rel-16 NR\_eMIMO-Core

Proposal 1: Ongoing Random Access procedure triggered by a pending BFR SR without any valid PUCCH resources may be stopped when all triggered BFRs for SCells are cancelled.

* Agreed

Proposal 2: Multiple SRI IDs can be mapped to the same pathloss RS in PUSCH Pathloss RS Activation/Deactivation MAC CE.

* Agreed

Proposal 3: Change the name of PUSCH Pathloss Reference RS Activation/Deactivation MAC CE to PUSCH Pathloss Reference RS Update MAC CE.

* Agreed

Proposal 4: FFS RAN2 further check the following issues:

- Whether PUSCH Pathloss RS Activation/Deactivation MAC CE have A/D field to deactivate the PUSCH Pathloss RS which is mapped with SRI ID(s).

- What is the initial state of RRC configured PL RSs when RRC configures more than 4 PL RSs (e.g. all are deactivated or first 4 PL RSs are activated.)

* To be discussed after further RAN1 progress

Proposal 5: Change the name of SRS Pathloss Reference RS Activation/Deactivation MAC CE to SRS Pathloss Reference RS Update MAC CE.

* Agreed

Proposal 6: Re-design the SP SRS Activation/Deactivation MAC CE to support 192 NZP CSI-RS resource(s), and one new MAC CE covers AP SRS and SP SRS cases.

* Agreed

Proposal 7: Enhanced SP/AP SRS Activation/Deactivation MAC CE includes the A/D field to support deactivation function for SP/AP SRS resource set.

* …

Agreements via email (from [101][EMIMO]):

1. Ongoing Random Access procedure triggered by a pending BFR SR without any valid PUCCH resources may be stopped when all triggered BFRs for SCells are cancelled.
2. Multiple SRI IDs can be mapped to the same pathloss RS in PUSCH Pathloss RS Activation/Deactivation MAC CE.
3. Change the name of PUSCH Pathloss Reference RS Activation/Deactivation MAC CE to PUSCH Pathloss Reference RS Update MAC CE.

4. Change the name of SRS Pathloss Reference RS Activation/Deactivation MAC CE to SRS Pathloss Reference RS Update MAC CE.

5. Re-design the SP SRS Activation/Deactivation MAC CE to support 192 NZP CSI-RS resource(s), and one new MAC CE covers AP SRS and SP SRS cases.

FFSs:

- Whether PUSCH Pathloss RS Activation/Deactivation MAC CE have A/D field to deactivate the PUSCH Pathloss RS which is mapped with SRI ID(s).

- What is the initial state of RRC configured PL RSs when RRC configures more than 4 PL RSs (e.g. all are deactivated or first 4 PL RSs are activated.)

BFR on SpCell

[R2-2002795](file:///C:\Data\3GPP\RAN2\Docs\R2-2002795.zip) Report of [Post109e#17][EMIMO] BFR MAC CE for BFR on SpCell Apple discussion NR\_eMIMO-Core

* Moved to offline email discussion [103] with the intention to go back online during the web conference call(s)
* [AT109bis-e][103][EMIMO] BFR on SpCell (Apple)

Scope: Continue the discussion on BFR MAC CE for BFR on SpCell, based on [R2-2002795](file:///C:\Data\3GPP\Extracts\._R2-2002795_Report%20of%20109e%2317%20BFR%20MAC%20CE%20for%20BFR%20on%20SpCell_Summary_v2.docx)

Initial intended outcome: summary of the offline discussion with e.g.:

* + 1. Set of proposals with full consensus, if any (agreeable over email)
    2. Set of proposals with to discuss in the follow up conference call

Initial deadline (for companies' feedback): Wednesday 2020-04-22 16:00 UTC

Initial deadline (for rapporteur's summary in [R2-2003893](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003893.zip)): Thursday 2020-04-23 10:00 UTC

Update Scope: Continue the discussion on the Working Assumptions:

Updated intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to discuss in the follow up conference call

Second intermediate deadline (for companies' feedback): Tuesday 2020-04-28 16:00 UTC

Second intermediate deadline (for rapporteur's summary in [R2-2003902](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003902.zip)): Tuesday 2020-04-28 22:00 UTC

Proposed agreements in [R2-2003902](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003902.zip) indicated for email agreement and not challenged until Wednesday 2020-04-29 10:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

[R2-2003893](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003893.zip) Offline discussion 103: BFR on SpCell - first round Apple discussion NR\_eMIMO-Core

Proposal 1: SpCell BFR enhancement is supported in R16.

* Huawei thinks that if we support this does this mean that Rel-15 BFR does not work, but would not object this improvement
* Agreed

Proposal 2: BFR MAC CE for SCell BFR is used for SpCell BFR reporting (i.e. no new BFR MAC CE is introduced).

* Agreed

Proposal 2a: A single octet bitmap should be used if SpCell beam failure is detected and truncated BFR MAC CE cannot be accommodated in available UL grant.

* Agreed

Proposal 3: BFR MAC CE for SpCell is only transmitted in Msg3 and MsgA via CBRA.

* QC would like to have the option to discuss P3 and P4
* Oppo thinks the feature is only applicable when the UL BWP is only configured with CBRA resources
* Samsung does not agree: this is needed whenever the UE uses CBRA.
* Endorsed as working assumption. Further discuss offline

Proposal 4: AC and candidate beam ID is not contained in the BFR MAC CE for SpCell.

* Endorsed as working assumption. Further discuss offline

Agreements:

1. SpCell BFR enhancement is supported in R16.
2. BFR MAC CE for SCell BFR is used for SpCell BFR reporting (i.e. no new BFR MAC CE is introduced).
3. A single octet bitmap should be used if SpCell beam failure is detected and truncated BFR MAC CE cannot be accommodated in available UL grant.

Working assumptions (later confirmed as formal agreements, see below):

1. BFR MAC CE for SpCell is only transmitted in Msg3 and MsgA via CBRA. Further discuss offline
2. AC and candidate beam ID is not contained in the BFR MAC CE for SpCell. Further discuss offline

[R2-2003902](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003902.zip) Offline discussion 103: BFR on SpCell - second round Apple discussion NR\_eMIMO-Core

Proposal 1: BFR MAC CE for SpCell is only transmitted in Msg3 and MsgA via CBRA.

* Agreed

Proposal 2: AC and candidate beam ID is not contained in the BFR MAC CE for SpCell.

* Agreed

Proposal 3: Capture the TP in section 4 in the EMIMO MAC CR.

* Agreed

Agreements via email (from [103][EMIMO]):

1. BFR MAC CE for SpCell is only transmitted in Msg3 and MsgA via CBRA.
2. AC and candidate beam ID is not contained in the BFR MAC CE for SpCell.
3. Capture the TP in section 4 of R2-2003902 in the EMIMO MAC CR

[R2-2003034](file:///C:\Data\3GPP\Extracts\R2-2003034_Consideration%20on%20SpCell%20BFR%20MAC%20CE.DOCX) Consideration on SpCell BFR MAC CE LG Electronics Inc. discussion NR\_eMIMO-Core

* Noted

[R2-2003713](file:///C:\Data\3GPP\Extracts\R2-2003713.docx) BFR MAC CE for SpCell Huawei, HiSilicon discussion Rel-16 NR\_eMIMO-Core

* Noted

Timer based BFR MAC CE Transmission

[R2-2002796](file:///C:\Data\3GPP\RAN2\Docs\R2-2002796.zip) Timer based BFR MAC CE Transmission Apple, Nokia, Nokia Shanghai Bell discussion NR\_eMIMO-Core

* to be discussed in offline [104]
* Noted

[R2-2003589](file:///C:\Data\3GPP\Extracts\R2-2003589-%20Discussion%20on%20Beam%20Failure%20Recovery%20on%20SCell.doc) Remaining issues on BFR on SCell ZTE, Sanechips discussion Rel-16 NR\_eMIMO-Core

* to be discussed in offline [104]
* Noted

[R2-2003712](file:///C:\Data\3GPP\Extracts\R2-2003712.docx) Remaining issues on SCell BFR Huawei, HiSilicon discussion Rel-16 NR\_eMIMO-Core

* to be discussed in offline [104]
* Noted
* [AT109bis-e][104][EMIMO] Timer based BFR MAC CE Transmission (Nokia)

Scope: Discuss the proposals for timer based BFR MAC CE Transmission based on [R2-2002796](file:///C:\Data\3GPP\RAN2\Docs\R2-2002796.zip), [R2-2003589](file:///C:\Data\3GPP\Extracts\R2-2003589-%20Discussion%20on%20Beam%20Failure%20Recovery%20on%20SCell.doc) and [R2-2003712](file:///C:\Data\3GPP\Extracts\R2-2003712.docx)

Initial intended outcome: summary of the offline discussion with list of proposals

Initial deadline (for companies' feedback): Thursday 2020-04-23 07:00 UTC

Initial deadline (for rapporteur's summary in [R2-2003894](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003894.zip)): Thursday 2020-04-23 16:00 UTC

Update Scope: Continue the discussion together with proposal 6 from [R2-2003891](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003891.zip):

Updated intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to discuss in the follow up conference call

Second intermediate deadline (for companies' feedback): Tuesday 2020-04-28 16:00 UTC

Second intermediate deadline (for rapporteur's summary in [R2-2003903](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003903.zip)): Tuesday 2020-04-28 22:00 UTC

Proposed agreements in [R2-2003903](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003903.zip) indicated for email agreement and not challenged until Wednesday 2020-04-29 10:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

[R2-2003894](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003894.zip) Offline discussion 104: Timer based BFR MAC CE Transmission Nokia discussion NR\_eMIMO-Core

Proposal 1: A mechanism is introduced to prevent UE from triggering a transmission of SCell BFR MAC CE and/or SCell BFR SR frequently due to frequent BFR triggers.

Proposal 2: A timer is introduced as the mechanism to prevent UE from triggering a transmission of SCell BFR MAC CE and/or SCell BFR SR frequently.

Proposal 3: Continue discussing the details how the timer operates.

* Continue the discussion as part of the second round of offline 104, including also proposal 6 from [R2-2003891](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003891.zip)

[R2-2003903](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003903.zip) Offline discussion 104: Timer based BFR MAC CE Transmission - second round Nokia discussion NR\_eMIMO-Core

Proposal 1: A mechanism is introduced to prevent UE from triggering a transmission of SCell BFR MAC CE and/or SCell BFR SR frequently due to frequent BFR triggers.

Proposal 2: Introduce a timer as the mechanism to prevent frequent BFR triggers for a SCell.

Proposal 3: All BFRs triggered prior to MAC PDU assembly for beam failure recovery are cancelled for a SCell when a MAC PDU is transmitted and this PDU includes a SCell BFR MAC CE or Truncated SCell BFR MAC CE which contains beam failure information of that SCell.

* QC thinks that "if BFR triggering are cancelled and meanwhile the BFR MAC CE is not transmitted successfully due to the bad uplink condition (which is possible), UE will have to wait for next round SCell BFR triggering when BFD counter reaching the max which may cause large latency. I think this is the reason why RAN1 has already agreed that the cancellation BFR should base on the ‘ACK’ from gNB (PDCCH addressed by C-RNTI)."
* Nokia thinks that "when BFR is triggered and UE transmits BFR MAC CE, the BFR remains pending; MAC procedure requires UE to multiplex the BFR MAC CE also to the next available UL grant (if available) or trigger SR procedure regardless of the BFR MAC CE was already sent – this should really not be the intended behaviour and it has been avoided for other MAC procedures by cancelling the pending trigger when a MAC CE is transmitted. At the same time BFI\_COUNTER remains to be above the beamFailureInstanceMaxCount and upon next beam failure instance indication the BFR is again triggered; majority of the companies also think that this even is an issue we need to avoid as this can also lead to transmission of BFR MAC CE too frequently while the NW was still preparing to respond to the previous BFR MAC CE transmission. Furthermore, RAN1 did not consider anything about BFR trigger cancellation (as this is purely MAC procedure related thing), they agreed the BFR procedure is successful when the “ACK” is received from the NW which is clearly specified in MAC – cancelling a BFR trigger does not cancel the BFR procedure. On the other hand, we naturally also cancel any new BFR triggers for the given SCell if the response from the NW is received, as already specified."

DCI format 1\_2 applicability

[R2-2003345](file:///C:\Data\3GPP\Extracts\R2-2003345%20on%20TCI%20state%20MAC%20CE%20and%20DCI%20format1_2.docx) On DCI format 1\_2 applicability with NR eMIMO Ericsson discussion Rel-16 NR\_eMIMO-Core

* To be discussed as part of offline 102

## 6.18 Private Network Support for NG-RAN

(NG\_RAN\_PRN-Core; leading WG: RAN3; REL-16; started: Mar 19; target; June 20; WID: [RP-](file:///C:\Data\3GPP\archive\RAN\RAN%2384\Tdocs\RP-191563.zip)200122 SR; RP-200441) Documents in this agenda item will be handled in a break out session.

Tdoc Limitation: 2 tdocs

It's possible to contribute to all sub agenda items, to address the remaining open issues.

### 6.18.1 Organisational

Including incoming LSs, rapporteur inputs, etc.

Contributions in this AI are reserved for WI rapporteur inputs and do not count towards the tdoc limits.

[R2-2002502](file:///C:\Data\3GPP\Extracts\R2-2002502_C1-201027.doc) Reply LS on sending CAG ID (C1-201027; contact: Ericsson) CT1 LS in Rel-16 Vertical\_LAN To:SA, SA2 Cc:RAN2, RAN3, SA3

* Noted

[R2-2004177](file:///C:\Data\3GPP\RAN2\Inbox\R2-2004177.zip) Reply LS on Manual CAG ID selection and granularity of UAC parameters for PNI-NPNs (C1-202846; contact: Huawei) CT1 LS in Rel-16 Vertical\_LAN To:RAN2 Cc:RAN3, SA1, SA2

* To be discussed as part of a (long) [POST109bis-e][xx] email discussion on PRN remaining open isses
* Noted

[R2-2004178](file:///C:\Data\3GPP\RAN2\Inbox\R2-2004178.zip) LS on manual CAG selection (C1-202927; contact: Nokia)

* Vice-chair think we should attempt to provide an early response to the question from CT1
* To be discussed in a (1-week) [POST109bis-e][xy] email discussion, with the intention to provide an LS response to CT1. Actual changes for RAN2 specs to be discussed as part of a (long) [POST109bis-e][xx] email discussion on PRN remaining open issues
* Noted.
* [POST109bis-e][xy][PRN] Reply LS to CT1 (Nokia)

Intended outcome: Reply LS to CT1 for the question in [R2-2004178](file:///C:\Data\3GPP\RAN2\Inbox\R2-2004178.zip).

Deadline: 1-week

### 6.18.2 RRC open issues

Including output of email discussion [Post109e#18][PRN] Remaining open issues (Nokia). Contributions related to issues addressed by this email discussions should be avoided and are discouraged for this AI.

Including contributions/TPs/DraftCRs on PRN-specific Class 3 ASN.1 review aspects, if any. For these, no individual company CRs should be submitted: please consult with the RRC CR rapporteur first (gyorgy.wolfner@nokia.com).

* [AT109bis-e][106][PRN] RRC CR (Nokia)

Scope: Update the 38.331 CR, based on the progress on the remaining open issues

Intended outcome: In-principle agreed 38.331 CR

Deadline for companies' feedback: Wednesday 2020-04-29 10:00 UTC

Deadline for rapporteur's version for agreement in R2-2002658: Thursday 2020-04-30 10:00 UTC

R2-2002658 Finalization of the support of Non-Public Networks Nokia (Rapporteur) CR Rel-16 38.331 16.0.0 1513 - F NG\_RAN\_PRN-Core Late

[R2-2002659](file:///C:\Data\3GPP\Extracts\R2-2002659-Post109e-18-PRN-OpenIssues.docx) Report from email discussion [Post109e#18][PRN] Remaining open issues Nokia (Rapporteur) discussion Rel-16 NG\_RAN\_PRN-Core

* Discussion on Section 4.1 moved to offline email discussion [105] with the intention to go back online during the web conference call(s)

Issues from R2-2002659 to be discussed:

Open issue 1: Emergency sessions from CAG-only cell with non-NPN-capable Rel-16 UEs. Whether a Non-NPN-capable Rel-16 UE treats a cell with cellReservedForOtherUse=true as acceptable cell or as barred cell.

Rapporteur suggestion: Before making the decision that non-CAG-capable Rel-16 UEs cannot ignore the “cellReservedForOtherUse=true” to perform emergency session from a NPN-only cell based on the majority’s view, it should be discussed whether the concerns and comments in section 3.1 are not so strong that would require to select another approach.

* QC wonders whether there is only a concern on the UE implementation.
* Mediatek wonders if it's really so easy for the UE.
* Nokia thinks that the solution for Rel-15 UEs is not a real solution.
* Ericsson thinks this forces to test all Rel-16 UEs against this feature.
* Huawei think we should allow as many UEs as possible to perform emergency calls, i.e. also Rel-15 UEs. So it's better to use the solution for Rel-15 UEs also for non-NPN-capable Rel-16 UEs
* Vodafone/CMCC don’t think there is an issue in using a dummy PLMN ID.
* LG shares the same view as Vodafone
* A Non-NPN-capable Rel-16 UE treats a cell with cellReservedForOtherUse=true as barred cell
* Qualcomm thinks this is still an unnecessary limitation.

Open issue 6: The UE behaviour in SNPN AM in licensed bands is FFS when the highest ranked cell or best cell according to absolute priority reselection rules is a cell which is not suitable due to not broadcasting the registered or selected SNPN ID

Proposal attempted in the email discussion: "For a UE in SNPN AM, if the highest ranked cell or best cell according to absolute priority reselection rules is a cell which is not suitable due to not broadcasting the registered or selected SNPN ID, the UE shall not consider this cell as candidate for cell reselection but should continue to consider other cells on the same frequency for cell reselection."

Rapporteur suggestion: Before making the decision to follow the PLMN approach for NPNs based on the majority’s view in licensed bands (“If this cell belongs to a PLMN which is not indicated as being equivalent to the registered PLMN, the UE shall not consider this cell and, for operation in licensed spectrum, other cells on the same frequency as candidates for reselection for a maximum of 300 seconds.”), it should be discussed whether the concerns and comments in section 3.6 are not so strong that would require to select another approach.

* Ericsson/Nokia/Samsung/LG would like to stick to the existing PLMN behaviour
* CATT thinks we could do something different than existing PLMN behaviour
* Sony suggests to rely on the IFRI bit
* We stick to the existing PLMN behaviour. For a UE in SNPN AM, if the highest ranked cell or best cell according to absolute priority reselection rules is a cell which is not suitable due to not broadcasting the registered or selected SNPN ID, the UE shall not consider this cell and, for operation in licensed spectrum, other cells on the same frequency as candidates for reselection for a maximum of 300 seconds.

Open issue 8: The UE behaviour in unlicensed band is FFS when the cell belongs to the correct operator but it’s not a CAG member cell.

Proposal attempted in the email discussion (but challenged in [105]): "In unlicensed band the case when the highest ranked cell or best cell is not suitable due to belonging to the correct operator, but it is not a CAG member cell is handled in the same way as the cell does not belong to the correct operator (i.e. the UE may search for the next strongest cell if the highest ranked cell is not suitable). The relevant changes are to be captured in 38.304."

Alternative proposal: "CAG UE does not consider other cells on an unlicensed frequency if the strongest cell belongs to the correct network (i.e. the broadcasted PLMN ID matches the selected/registered PLMN ID or an equivalent PLMN ID)".

* Ericsson/Samsung/LG initially misunderstood the proposal in the email discussion and this is why they now suggest the alternative proposal
* ZTE think this depends on whether operators will deploy different CAGs on the same frequency
* Nokia think that for unlicensed band we can consider the case of multiple CAGs on the same frequency
* Vodafone/CMCC did not consider the use of unlicensed band for CAGs
* CTC don’t want to have restriction and then allow different CAGs on the same frequency
* Huawei/Sony think that the same should be considered also for licensed bands.
* LG think that with the alternative proposal and the time limitation there should be no problem
* Ericsson thinks we should still minimize inter-cell interference
* CATT would like to follow the NR-U agreement and increase the chances for the UE to find the cell. Nokia agrees
* Ericsson that in case we want to allow the UE to consider other cells, this should be configurable, i.e. with the IFRI bit
* Nokia think we should not reinterpret the IFRI bit. Sony/QC think we are not changing the meaning bit. ZTE thinks we check the IFRI bit only if the cell is barred; if we now to decide to use the IFRI bit for this then this is a new meaning of the IFRI bit and it has a spec impact. QC agrees on the spec impact but not on the impact on UE power consumption. LG/Samsung do now want to change the meaning of IFRI bit either.
* Ericsson think we could introduce another indication in SIB1 for this purpose.
* Discuss in followup offline [105] the possibility to introduce another indication in SIB1 for this purpose.

Open issue 9: FFS whether PCI values for CAGs are signalled per PLMN per frequency or no new ASN.1 IEs are introduced in Rel-16 for signalling of PCI values for CAGs.

Possible options:

1. Signal PCI range(s) for all CAGs. Number of ranges FFS.

2. Signal PCI range(s) per PLMN per frequency. Number of ranges FFS.

3. Signal PCI range(s) per CAG ID per frequency. Number of ranges FFS.

4. CAG PCI range is introduced as a list of blacklisted/whitelisted cells (no changes required to ASN.1 and NR-U CRs are the baseline).

Rapporteur suggestion: Focus the discussion about PCI value signalling for CAG IDs on the selection between Option 2 (Signal PCI range(s) per PLMN per frequency) and Option 4 (using the existing white- and blacklists without ASN.1 change).

(If we conclude how to indicate PCI ranges, we may attempt to discuss other related aspects, eg. the PCI validity time)

* QC don't think that option 4 works. Sony thinks blacklist are supported by legacy UEs but for whitelists we can clarify this in the description
* Lenovo supports option 4 and wonder if there is a real use case for option 2.
* CTC prefers option 2.
* ZTE also has concerns on option 4.
* Nokia wonders if we go for option 2, will this only be limited to CAG only cells or to no CAG cells as well?
* Discuss in followup offline [105] the possibility/feasibility to signal PCI range(s) per PLMN per frequency vs just per frequency

Open issue 11: It is FFS if all Rel-16 are required to be able to report the npn-IdentityInfoList

Possible options:

Option A: Reporting about the npn-IdentityInfoList is mandatory for all Rel-16 UEs

Option B: Reporting about the npn-IdentityInfoList is mandatory for all NPN-capable UEs, but optional for non-NPN capable UEs (separate capability indication)

Option C: Reporting about the npn-IdentityInfoList is mandatory for all NPN-capable UEs, and not supported by non-NPN capable UEs

Rapporteur suggestion: Before selecting Option C (Reporting about the npn-IdentityInfoList is mandatory for all NPN-capable UEs, and not supported by non-NPN capable UEs), it should be discussed whether the concerns and comments in section 3.11 are not so strong that some of the options should be excluded.

Open issue 16: Views on UE NPN feature support and necessary capabilities: is AS level capability indication needed for NPN support

Rapporteur suggestion: Discuss the need for NPN capability indication after the decision on issue 11.

Agreements:

1. A Non-NPN-capable Rel-16 UE treats a cell with cellReservedForOtherUse=true as barred cell
2. For a UE in SNPN AM, if the highest ranked cell or best cell according to absolute priority reselection rules is a cell which is not suitable due to not broadcasting the registered or selected SNPN ID, the UE shall not consider this cell and, for operation in licensed spectrum, other cells on the same frequency as candidates for reselection for a maximum of 300 seconds.

* [AT109bis-e][105][PRN] Open issues (Nokia)

Initial scope: Continue the discussion on PRN open issues, based on [R2-2002659](file:///C:\Data\3GPP\Extracts\R2-2002659-Post109e-18-PRN-OpenIssues.docx)

Initial intended outcome: Set of proposals with full consensus agreeable via email, based on

the list in Section 4.1 of [R2-2002659](file:///C:\Data\3GPP\Extracts\R2-2002659-Post109e-18-PRN-OpenIssues.docx) (final list to be reflected in [R2-2003895](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003895.zip))

Initial intermediate deadline (for companies' feedback): Tuesday 2020-04-21 09:00 UTC

Updated scope:

* + - for open issue 8: discuss the possibility to introduce an indication in SIB1 to allow UEs to search other cells on the same frequency
    - for open issue 9: discuss the possibility to signal PCI range(s) per PLMN per frequency vs just per frequency
    - continue the discussion on open issues 11 and 16

Updated intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to discuss in the follow up conference call

Second intermediate deadline (for companies' feedback): Friday 2020-04-24 06:00 UTC

Second intermediate deadline (for rapporteur's summary in [R2-2003896](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003896.zip)): Friday 2020-04-24 10:00 UTC

Final scope: discuss whether PCI ranges can be optionally broadcast by all cells (both public cells and private cells) and the PCI range validity time

Final intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to postpone to after the meeting

Final deadline (for companies' feedback): Wednesday 2020-04-29 10:00 UTC

Final deadline (for rapporteur's summary in R2-2003907): Wednesday 2020-04-29 16:00 UTC

Proposed agreements in R2-2003907 indicated for email agreement and not challenged until Thursday 2020-04-30 06:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue after the meeting.

[R2-2003895](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003895.zip) Offline discussion 105: PRN open issues - first round Nokia (Rapporteur) discussion Rel-16 NG\_RAN\_PRN-Core

* All proposals apart from Proposal 8 from R2-2002659 are agreed via email

Agreements via email (from [105][PRN])

1. (Proposal 4 from R2-2002659): Remove the Editor’s Note: “It is FFS whether the above needs to capture the condition that the cell is “not reserved for operator use for UEs not belonging to AC 11 or 15” from Table 4.2-1 of 38.304.

2. (Proposal 7 from R2-2002659): The PRN rapporteur of 38.304 will create a documentation proposal for the following agreement: “For unlicensed spectrum and for a UE with non-empty allowed CAG list, if the highest ranked cell or best cell according to absolute priority reselection rules is a cell which is not suitable due to not broadcasting the selected/registered/equivalent PLMN, the UE with no empty allowed CAG list shall behave according to NR-U agreement.” as a part of the running CR.

3. (Proposal 13 from R2-2002659): Follow the CT4 agreement on NID size in RRC specification. To be captured into ASN.1 review file as RIL comment (by the rapporteur).

4. (Proposal 14 from R2-2002659): TAC is “mandatory” within NPN-IdentityInfoList. To be captured into ASN.1 review file as RIL comment (by the rapporteur).

5. (Proposal 15 from R2-2002659): Use 48 octets (Option C) as the maximum size of HRNNs. To be captured into ASN.1 review file as RIL comment (by the rapporteur).

6. (Proposal 18 from R2-2002659): Follow the NR-U agreement in unlicensed on the use of the IFRI flag (agreement is to be captured in TS 38.304):

- For the SNPN case, UE only follows the IFRI in MIB of a barred cell if the cell belongs to a SNPN which matches the registered SNPN of the UE. Otherwise the UE may select other cell in the same frequency

- For the CAG (PNI-NPN) case, there is no change to the existing NR-U behaviour: UE only follows the IFRI in MIB of a barred cell if the cell belongs to a registered/selected (e)PLMN. Otherwise the UE may select other cell in the same frequency.

[R2-2003896](file:///C:\Data\3GPP\RAN2\Inbox\R2-2003896.zip) Offline discussion 105: PRN open issues - second round Nokia (Rapporteur) discussion Rel-16 NG\_RAN\_PRN-Core

Proposal 1: Follow the NR-U behaviour when the highest ranked cell or best cell is not suitable due to belonging to the correct operator, but it is not a CAG member cell:

(In unlicensed band when the highest ranked cell or best cell is not suitable due to belonging to the correct operator, but it is not a CAG member cell, the UE shall not consider this cell as candidate for reselection for a maximum of 300 seconds. If the second highest ranked cell on this frequency is not suitable due to belonging to the correct operator, but it is not a CAG member cell, the UE may consider this frequency to be the lowest priority for a maximum of 300 seconds.)

* Agreed

Proposal 2: The PCI range(s) can be optionally signalled per PLMN and per frequency when the CAG cell is shared among different PLMNs.

* Agreed

Optionality to support reporting about the npn-IdentityInfoList and AS level UE capabilities

The following options have been considered:

• Option A: Reporting about the npn-IdentityInfoList is mandatory for all Rel-16 UEs

• Option B: Reporting about the npn-IdentityInfoList is mandatory for all NPN-capable UEs, but optional for non-NPN capable UEs (separate capability indication about CGI reporting for NPN may be needed)

• Option C: Reporting about the npn-IdentityInfoList is mandatory for all NPN-capable UEs, and not supported by non-NPN capable UEs (separate capability indication about NPN may be needed)

It should be discussed online

a) Whether selecting option B or option C requires AS level capability indication

b) Whether option C is acceptable for all companies considering the outcome of discussion of bullet a) above

c) It should be decided based on discussion and decision on the above points whether AS level capability indication is needed, as NPN reporting capability can be a reason for AS level capability indication.

- Huawei don’t think that option C implies an AS level capability

- Lenovo wonders about the need for option A and B

- Nokia thinks the AMF has no information about the SNPN subscription. From ANR perspective it would be much cleaner to go for Option A.

- Mediatek thinks that Option A is not agreeable and still prefer Option C

- Ericsson prefers option B and agrees that this would require a reporting capability.

- QC are ok to go for a compromise option B

- Samsung prefers Option C which does not require a capability. Option B would require a capability.

- CATT and Huawei also prefer option C.

- Nokia could accept both Option B and C provided that we have an AS level capability for this.

- Samsung wonder which capability we are talking about: NPN capability or reporting capability.

- ZTE support option B and think that we might need a capability for option C.

- Vodafone first preference is C but can live with Option B

* Agree option B: Reporting about the npn-IdentityInfoList is mandatory for all NPN-capable UEs, but optional for non-NPN capable UEs. Introduce a separate AS capability indication for NPN CGI reporting. This capability is conditionally mandatory for NPN-capable UEs.

The UE behaviour in licensed band is FFS when the cell belongs to the correct operator but it’s not a CAG member cell

The following options have been considered/proposed during the email discussion:

• Option A) Follow the NR-U behaviour:

In licensed band when the highest ranked cell or best cell is not suitable due to belonging to the correct operator, but it is not a CAG member cell, the UE shall not consider this cell as candidate for reselection for a maximum of 300 seconds. If the second highest ranked cell on this frequency is not suitable due to belonging to the correct operator, but it is not a CAG member cell, the UE may consider this frequency to be the lowest priority for a maximum of 300 seconds.

• Option B) Follow the licensed behaviour:

In licensed band when the highest ranked cell or best cell is not suitable due to belonging to the correct operator, but it is not a CAG member cell, the UE shall not consider this cell and other cells on the same frequency, as candidates for reselection for a maximum of 300 seconds.

• Option C) Flag to indicate UE if it can select non-best cell

Introduce a new flag in SIB1 that indicates whether the UE may (or shall not) consider other cells on the same frequency, as candidates for reselection.

• Option D) Follow LTE CSG behaviour

If the highest ranked cell or best cell is CAG cell and it is not suitable due to belonging to the correct operator, but it is not a CAG member cell, the UE shall not consider this cell as candidate for cell reselection but shall continue considering other cells on the same frequency for cell reselection.)

* Samsung accepted the compromise for unlicensed but we shouldn't deviate from the licensed case here, i.e. we should go for option B. Ericsson agrees and think we should not follow the LTE CSG behaviour, which was not a good design. Nokia agrees. China Telecom and Vodafone agree as well. ZTE and Intel also support option B.
* Lenovo thinks the CAG-only indicator is not being considered in this discussion. Nokia think we need to handle all the scenarios where the cell is not suitable.
* Mediatek/Huawei would prefer to go for option D.
* CATT prefers option A but can accept D
* Sony first preference is Option C, but D is also ok.
* QC thinks the difference with CSG is that CAG is meant for mission critical services so prefer option C or B
* Agree to go for Option B (for all unsuitable cases).
* QC wonders about the case where CAG-only indicator is set. Nokia/Ericsson wonder whether there is any difference. Huawei agrees that the CAG-only indicator should not make a difference

Agreements via email (from [105][PRN])

1. Follow the NR-U behaviour when the highest ranked cell or best cell is not suitable due to belonging to the correct operator, but it is not a CAG member cell:

(In unlicensed band when the highest ranked cell or best cell is not suitable due to belonging to the correct operator, but it is not a CAG member cell, the UE shall not consider this cell as candidate for reselection for a maximum of 300 seconds. If the second highest ranked cell on this frequency is not suitable due to belonging to the correct operator, but it is not a CAG member cell, the UE may consider this frequency to be the lowest priority for a maximum of 300 seconds.)

1. The PCI range(s) can be optionally signalled per PLMN and per frequency when the CAG cell is shared among different PLMNs.

Agreements:

1. The UE behaviour in licensed band when the cell belongs to the correct operator but either it’s not a CAG member cell or the cell is a public cell and the CAG-only indicator in the UE is set to true: the UE shall not consider this cell and other cells on the same frequency, as candidates for reselection for a maximum of 300 seconds.
2. Reporting about the npn-IdentityInfoList is mandatory for all NPN-capable UEs, but optional for non-NPN capable UEs. Introduce a separate AS capability indication for NPN CGI reporting. This capability is conditionally mandatory for NPN-capable UEs

Further detalls on PCI range

[R2-2002745](file:///C:\Data\3GPP\Extracts\R2-2002745.docx) Further consideration on the PCI range ZTE Corporation, Sanechips discussion Rel-16 NG\_RAN\_PRN-Core

Proposal 2: The PCI range is valid among the whole frequency within the same PLMN for 24 hours.

* Lenovo thinks than in NR with a 3h validity time and we can stick to that.
* Huawei agrees with 2 and 3 but wonders whether 2.1 can be left to UE implementation
* Ericsson think that if the UE needs to read SIB every 3h then why do we need to introduce 24h?
* Further discuss in offline [105] whether PCI ranges can be optionally broadcast by all cells (both public cells and private cells) and the PCI range validity time

Proposal 2.1: Ran2 to confirm that the UE can use the stored PCI range for a certain PLMN when camped on a CAG cell with the same PLMN but without broadcasting any PCI range Info.

Proposal 3: Ran2 to clarify whether to signal the PCI range of the inter frequencies in SIB4.

* Agreed

Agreements:

1. PCI ranges are signalled in SIB4

R2-2003907 Offline discussion 105: PRN open issues - third round Nokia (Rapporteur) discussion Rel-16 NG\_RAN\_PRN-Core

* [POST109bis-e][xx][PRN] Remaining open issues (Nokia)

Intended outcome: Discuss and resolve the remaining PRN open issues.

Deadline: until the next meeting

The proposals in the following papers are basically covered by the discussion in [Post109e#18] and if needed can be further discussed as part of the followup offline discussion(s).

[R2-2002666](file:///C:\Data\3GPP\Extracts\R2-2002666_PCI%20range_v2.docx) Blacklist/whitelist for PCI range signaling and stage-3 details Sony discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2002746](file:///C:\Data\3GPP\Extracts\R2-2002746.docx) Further consideration on the cell reselection for the licensed spectrum ZTE Corporation, Sanechips discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2003319](file:///C:\Data\3GPP\Extracts\R2-2003319-MobilityIssue_v00.docx) Cell reselection restriction for SNPN and CAG Intel Corporation discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2003501](file:///C:\Data\3GPP\Extracts\R2-2003501%20Remaining%20Issues%20the%20PCI%20Range.docx) Remaining Issues the PCI Range CMCC discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2003604](file:///C:\Data\3GPP\Extracts\R2-2003604%20Emergency%20sessions%20on%20CAG-only%20cell%20for%20non-CAG%20capable%20%20R16%20UEs.docx) Emergency sessions on CAG-only cell for non-CAG capable R16 UEs LG Electronics France discussion NG\_RAN\_PRN-Core

* Noted

[R2-2003606](file:///C:\Data\3GPP\Extracts\R2-2003606_On%20SNPN%20Cell%20Reselection%20in%20Licensed%20Bands.docx) On SNPN Cell Reselection in Licensed Bands NEC Telecom MODUS Ltd. discussion

* Noted

The proposals in the following papers are covered by [Post109e#18] and/or feedback from other groups is needed first.

[R2-2003507](file:///C:\Data\3GPP\Extracts\R2-2003507%20Remaining%20issues%20on%20access%20and%20mobility%20control%20for%20NPN.docx) Remaining issues on access and mobility control for NPN CMCC discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

Other (only addressed if time allows)

[R2-2003529](file:///C:\Data\3GPP\Extracts\R2-2003529%20Discussion%20on%20ANR%20for%20NPN.docx) Discussion on the ANR for NPN vivo discussion

### 6.18.3 Other open issues

Including non-RRC issues not addressed in [Post109e#18].

38.304 CR

[R2-2003421](file:///C:\Data\3GPP\Extracts\R2-2003421.docx) Running CR to TS 38.304 for PRN Qualcomm Incorporated CR Rel-16 38.304 16.0.0 0156 - F NG\_RAN\_PRN

* to be discussed in offline [107]
* [AT109bis-e][107][PRN] 38.304 CR (Qualcomm)

Scope: Update the 38.304 CR, based on the progress on the remaining open issues

Intended outcome: In-principle agreed 38.304 CR

Deadline for companies' feedback: Wednesday 2020-04-29 10:00 UTC

Deadline for rapporteur's version for agreement in R2-2003908: Thursday 2020-04-30 10:00 UTC

R2-2003908 Running CR to TS 38.304 for PRN Qualcomm Incorporated CR Rel-16 38.304 16.0.0 0156 1 F NG\_RAN\_PRN

The proposals in the following papers are basically covered by the discussion in [Post109e#18] and if needed can be further discussed as part of the followup offline discussion(s).

[R2-2002593](file:///C:\Data\3GPP\Extracts\R2-2002593%20-%20Cell%20selection%20and%20reselection%20for%20NPN.docx) Cell selection and reselection for NPN Ericsson discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2002734](file:///C:\Data\3GPP\Extracts\R2-2002734%20Discussion%20on%20HRNNs%20Reporting%20Issue.docx) Discussion on HRNNs Reporting Issue CATT discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2002736](file:///C:\Data\3GPP\Extracts\R2-2002736%20Discussion%20on%20UE%20Behavior%20in%20Licensed%20Band%20with%20Non-CAG%20Member%20Cell.docx) Discussion on UE Behavior in Licensed Band with Non-CAG Member Cell CATT discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2003261](file:///C:\Data\3GPP\Extracts\R2-2003261%20Remaining%20issues%20discussion%20on%20NPN.doc) Remaining issues discussion on NPN China Telecom discussion Rel-16

* Noted

[R2-2003394](file:///C:\Data\3GPP\Extracts\R2-2003394%20Emergency%20Call%20Support%20in%20CAG-only%20cells.doc) Emergency call support on CAG-only cells Qualcomm Incorporated discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2003475](file:///C:\Data\3GPP\Extracts\R2-2003475%20Discussion%20on%20mechanisms%20for%20the%20network%20to%20control%20manual%20NPN%20selection.doc) Discussion on mechanisms for the network to control manual NPN selection Huawei, HiSilicon, China Telecom discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2003558](file:///C:\Data\3GPP\Extracts\R2-2003558_PRN_38304_Issues.docx) Some Issues related to 38.304 Samsung R&D Institute India discussion

* Noted

[R2-2003605](file:///C:\Data\3GPP\Extracts\R2-2003605%20Intra-frequency%20reselection%20upon%20selecting%20non-suitable%20SNPN%20cell.docx) Intra-frequency reselection upon selecting non-suitable SNPN cell LG Electronics France discussion NG\_RAN\_PRN-Core

* Noted

The proposals in the following papers are covered by [Post109e#18] and/or feedback from other groups is needed first.

[R2-2002594](file:///C:\Data\3GPP\Extracts\R2-2002594%20-%20Manual%20selection%20of%20PNI%20NPN.docx) Manual selection of PNI NPNs when CAG is broadcast Ericsson discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2003259](file:///C:\Data\3GPP\Extracts\R2-2003259%20Consideration%20of%20HRNN%20and%20UAC%20in%20PRN.doc) Consideration of HRNN and UAC in PRN China Telecom discussion Rel-16

* Noted

[R2-2003474](file:///C:\Data\3GPP\Extracts\R2-2003474%20Discussion%20on%20manual%20CAG%20selection.doc) Discussion on manual CAG selection Huawei, HiSilicon, China Telecom discussion Rel-16 NG\_RAN\_PRN-Core

* Noted

[R2-2003608](file:///C:\Data\3GPP\Extracts\R2-2003608_PRN_Manual_CAG_Selection.docx) Remaining issues related to Manual CAG Selection Samsung R&D Institute India discussion

* Noted

## Summary

TBD