3GPP TSG-RAN WG2 Meeting #119bis-e R2-22xxxxx

Online, October 2022

Source: Session Chair (Apple)

Title: Report from session on NCR

# Status of At-Meeting Email Discussions

This subclause is not an Agenda Item. It contains a running summary of the email discussions assigned to take place during the meeting weeks. This section will be moved to an appendix in the final version of the report.

* [AT119-e][700][NCR] Organisational Sasha – NCR (Apple)

 Scope: Organisational discussions and announcements, as needed throughout the meeting weeks

 Intended outcome: Well-informed participants

 Deadline: Wednesday 2022-10-19 1000 UTC

## 8.1 NR network-controlled repeaters

(NR\_NetConRepeater; leading WG: RAN1; REL-18; WID: RP-222673)

Time budget: 0.5 TU

Tdoc Limitation: 1 tdocs

### 8.1.1 Organizational

Including LSs and any rapporteur inputs.

[R2-2209328](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209328.zip) LS on NCR Solutions (R3-225253; contact: ZTE) RAN3 LS in Rel-18 FS\_NR\_netcon\_repeater To:SA3, SA5 Cc:RAN2, SA2

* Noted

[R2-2209329](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209329.zip) Progress on NCR identification and authorization (R3-225254; contact: ZTE) RAN3 LS in Rel-18 FS\_NR\_netcon\_repeater To:RAN1 Cc:RAN2

* Noted

[R2-2210294](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210294.zip) Work plan for Network-controlled repeaters ZTE Corporation, Sanechips Work Plan Rel-18 FS\_NR\_netcon\_repeater

* Noted

### 8.1.2 Signalling for side control information

Signalling and procedures for for side control information, based on RAN1 agreements. Additionally, any other RAN2 reletated aspects, if needed.

[R2-2210920](Inbox/R2-2210920.zip) Report of [AT119bis-e][NCR] NCR open issues (ZTE)

Proposal 1 RAN2 confirms to use RRC signalling to configure NCR-MT to receive side control information. How the side control information itself is transmitted (e.g. via RRC or DCI or MAC CE) is up to RAN1.

DISCUSSION

* E///: we have a concern about the side control information being up to RAN1; this should be up to RAN2 to decide
* Samsung: We are OK with P1, it is not unusual for RAN1 to decide on such matters and RAN2 can revise that decision if needed. OK to clarify that. ZTE agree. QCOM, Apple and Nokia agree.
* CATT: isn’t it too premature to exclude option 3 (OAM)
* LGE: agree with Samsung and support P1

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| Agreement:RAN2 confirms to use RRC signalling to configure NCR-MT to receive side control information. How the side control information itself is transmitted (i.e. via RRC or DCI or MAC CE) is up to RAN1 (RAN2 may discussion the initial RAN1 decision and revisit if needed). |

Proposal 2 NCR-MT supports RRC\_CONNECTED and RRC\_IDLE states, FFS on RRC\_INACTIVE state (e.g. optional support or not support).

* LGE: should be revised as “NCR-MT can support…”, the issue is whether NCR-MT shall or shall not support RRC\_INACTIVE. RRC\_INACTIVE shall be optional
* ZTE: the majority supports the proposal
* Samsung: agree with ZTE, RRC\_INACTIVE can be made optional
* QCOM: RRC\_INACTIVE is not really needed. Vivo agree.
* Apple: there is no need for RRC\_INACTIVE
* Nokia: P2 is OK as it is
* Huawei: we can accept the FFS

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| Agreement:NCR-MT supports RRC\_CONNECTED and RRC\_IDLE states, FFS on RRC\_INACTIVE state (e.g. optional support or not support). |

Proposal 3 NCR-MT supports SRB0/1/2 and DRB. FFS whether DRB is optional feature for NCR-MT.

* Huawei: RAN3 have already agreed that NCR need to support OAM, but we are still not sure whether DRB is needed as there may be other ways to provide OAM connectivity. Mediate agree.
* LGE: the question is whether NCR-MT can or shall support DRB, so it can be optional
* ZTE: the majority prefer to support DRB, “the other” solutions to transfer OAM traffic are not within 3GPP scope. DRB being optional is a reasonable way forward.
* Samsung: what’s the benefit of making it optional? Why not mandatory.
* QCOM: disagree with Huawei, OAM can be supported in many different ways. The discussion should focus on DRB. Why would we want to explicitly preclude DRB. We prefer DRB being optional.
* E///: we propose to have an FFS on number of DRBs. QCOM agree.
* Intel: agree with HW
* Apple: agree with HW to make DRB optional

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| AgreementNCR-MT supports SRB0/1/2 and DRB is optional. FFS on maximum number of DRBs. |

Proposal 4 The association between RRC states of NCR-MT and NCR-Fwd ON/OFF is pending RAN1 progress.

* LGE, Apple: support P4
* QCOM: On/off is switched by side control, we are not sure about the association with RRC states. RRC states are semi-stationary.
* ZTE: RAN1 are discussing this issue. Agree with Samsung.
* Mediatek: we share the concerns raised by QCOM
* P4 is Noted

Proposal 5 NCR-MT should ignore cellBarred, cellReservedForOperatorUse, cellReservedForFutureUse，cellReservedForOtherUse, intraFreqReselection indications and UAC configuration if broadcast in system information.

* P5 is agreed

Proposal 6 From RAN2 perspective, the following RRM functions are applicable to NCR-MT:

* Cell (re)selection;
* RLM;
* BFD, BFR;
* FFS the applicable features are mandatory or optional
* Huawei: support cell selection but not cell reselection, for other functions (RLM, BFD, BFR) need to wait for RAN1
* Apple: agree with Huawei
* LGE: we support P6, RLF/BFD/BFR are essential without them it would be hard to control NCR-FWD
* E///: we only support cell selection and reselection, the reset might be needed but it is too early to decide
* ZTE: we think that even though NCR-MT is stationary some changes in the environment may block the signal; what’s the benefit of precluding support for cell reselection. Regarding the other functions, RAN1 is not responsible for the RRM objective according to the WID.
* AT&T: For RLM/BFD/BFR RAN2 agree from RAN2 perspective and ask RAN1 to confirm. Reselection may not be frequent but still beneficial from operational point of view.
* QCOM: agree with AT&T. We do not need to preclude these functions.
* Samsung: OK to have these functions optional
* Intel: agree with Huawei, reselection may not be needed. The relationship between NCR-MT and NCR-FWD is not clear yet.
* Nokia: RLF/BFD/BFR should be considered
* Sony: we think we are overoptimizing, so for us it is OK to have them optional
* QCOM: in IAB we have many features as optional which are normally mandatory for a regular UE
* NEC: RLM/BFD/BFR are essential and making them optional would make network implementation more complex
* E///: the discussion is going towards capabilities but we think we should first discuss what features NCR should support
* Apple: have concerns about cell reselection being optional
* ZTE: RAN4 is waiting for this decision; the majority support RLF, BFD, BFR
* QCOM: stripping down features from a UE makes NCR more complex. LGE, AT&T, Sony, vivo, ZTE agree with QCOM.
* AT&T: we should follow the same approach as we did for IAB
* Intel: don’t understand the urgency, prefer to keep RLF, BFD, BFR FFS. Samsung agree.

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| AgreementsRRM functions supported by NCR-MR:* Cell selection is mandatory
* Cell reselection, RLM, BFD, BFR are FFS
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Proposal 7 To discuss whether the following RRM functions are applicable to NCR-MT:

* RRM measurements in RRC\_IDLE and RRC\_INACTIVE (if supported);
* RRM measurements in RRC\_CONNECTED;
* Handover
* QCOM: not point in discussing P7 withput P6, AT&T, Samsung, and LGE agree.
* ZTE: considering we only agreed cell selection there is no need to send LS. QCOM and CATT agree.
* P4 is Noted

[R2-2210155](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210155.zip) Discussion on signalling for side control information CMCC discussion Rel-18 NR\_netcon\_repeater

[R2-2210279](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210279.zip) Signalling for NCR side control information MediaTek Inc. discussion Rel-18

[R2-2210334](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210334.zip) Discussion on RAN2 topics for NCR Ericsson discussion Rel-18 FS\_NR\_netcon\_repeater

[R2-2210295](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210295.zip) Consideration on NCR signalling and RRM functions ZTE Corporation, Sanechips discussion Rel-18 FS\_NR\_netcon\_repeater

[R2-2210454](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210454.zip) Discussion on NCR capability framework Philips International B.V. discussion Rel-18 FS\_NR\_netcon\_repeater

[R2-2209367](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209367.zip) Signaling for side control information and RRM functions CATT discussion Rel-18 FS\_NR\_netcon\_repeater

[R2-2209630](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209630.zip) Discussion on C-plane aspects for NCR-MT Fujitsu discussion Rel-18 NR\_netcon\_repeater

[R2-2209639](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209639.zip) Signalling of side control information for NCR Intel Corporation discussion Rel-18 NR\_netcon\_repeater

[R2-2209667](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209667.zip) Discussion on NCR configuration signaling and RRM functions Huawei, HiSilicon discussion Rel-18 NR\_netcon\_repeater

[R2-2209680](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209680.zip) NCR side control signalling and other RRC and RRM aspects Nokia, Nokia Shanghai Bell discussion NR\_netcon\_repeater

[R2-2209697](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209697.zip) Signalling for side control information to support NR network-controlled repeaters AT&T, FirstNet discussion

[R2-2209705](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209705.zip) Configuration of signaling for side control information Qualcomm Inc. discussion Rel-18 FS\_NR\_netcon\_repeater

[R2-2209773](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209773.zip) Discussion on Signaling for Side Control Information Apple discussion Rel-18 DUMMY

[R2-2209933](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209933.zip) Discussion on Signaling and procedures for side control information Lenovo discussion Rel-18

[R2-2210135](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210135.zip) Control plane signaling and procedures of network-controlled repeater NEC Corporation discussion

[R2-2210155](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210155.zip) Discussion on signalling for side control information CMCC discussion Rel-18 NR\_netcon\_repeater

[R2-2210200](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210200.zip) Network-controlled repeaters - key issues Samsung R&D Institute UK discussion

[R2-2210207](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210207.zip) Considerations on NCR fwd link config Sony discussion Rel-18 NR\_netcon\_repeater

[R2-2210386](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210386.zip) Discussion on NCR Related Procedures vivo discussion Rel-18

[R2-2210431](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210431.zip) Consideration of network-controlled repeaters Kyocera discussion Rel-18 R2-2208293

[R2-2210563](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210563.zip) Discussion on RAN2 issues for NCR LG Electronics discussion Rel-18 NR\_netcon\_repeater

[R2-2210572](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2210572.zip) On RAN2 impact of Network-Controlled Repeaters China Telecom Corporation Ltd. discussion

### 8.1.3 Repeater management

Including Identification and authorization of network-controlled repeaters, taking into accout feedback from SA3.

Note: we will wait for SA3 reply, so no contributions are expected to be treated in RAN2#119-bis.

[R2-2209706](file:///C%3A%5CUsers%5Cmtk65284%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2_RL2%5CTSGR2_119bis-e%5CDocs%5CR2-2209706.zip) Management of Network-Controlled Repeater Qualcomm Inc. discussion Rel-18 FS\_NR\_netcon\_repeater