[106bis-e][222] NR_netcon_repeater - Version 0.0.3
RAN4
https://nwm-trial.etsi.org/#/documents/8460

3GPP TSG-RAN WG4 Meeting#106bis

R4-2306170

Emeeting, April 17 – April 26,2023

Agenda item: 5.29.7

Source: Moderator (ZTE)

Title: Email discussion summary for [106bis-e][222] NR_netcon_repeater

Document for: Information

1 Introduction

Briefly introduce background, the scope of this email discussion (e.g. list of treated agenda items) and provide some guidelines for email discussion if necessary.

List of candidate target of email discussion for 1st round and 2nd round

- 1st round: TBA
- 2nd round: TBA

2 Topic #1: Study of RRM function and RRM core requirements

2.1 Companies' contributions summary

(Cat A CRs are not listed)

Table 1:

T-doc number	Company	Proposals / Observations

R4-2304279	Nokia, Nokia Shanghai Bell	On NCR RRM Requirements Since the transmit timings of the NCR-Fwd backhaul link is determined by the activation of the uplink amplifier of NCR-Fwd, the NCR shall meet the activation requirements as specified for Release-17 NR Repeater. **No timing advance procedure requirements need to be specified for NCR-Fwd backhaul link.** Moderator note: This has been agreed in last RAN4 meeting, so it is not captured for further discussion. · Agreement To define initial transmit timing requirement Te for NCR-MT and to reuse the requirement in clause 12.2.1 of Rel-16 TS 38.174. No RRM requirements need to be specified for the transmit timings of backhaul and access link of NCR-Fwd;
R4-2304414	CATT	Discussion on RRM core requirements for NR Network-controlled Repeaters
R4-2305321	Huawei, HiSilicon	Discussion on RRM requirements for NR network-controlled repeaters
R4-2305416	ZTE Corporation	Further discussion on RRM requirements for NCR-MT
R4-2305739	Dell Technologies	Further Discussion for NCR RRM requirements
R4-2305790	Ericsson	Further analysis of RRM requirements for network controlled repeater

2.2 Open issues summary

Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies' contributions.

2.2.1 RRC Connection Mobility Control

Sub-topic description:

Open issues and candidate options before e-meeting:

Issue 1-1: RRC re-establishment

- Proposals
  - Proposal 1: to define the RRC re-establishment requirement for LA NCR-MT in Rel-18 only. [ZTE R4-2305416]
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 1: Comments collection for Issue 1-1

1 – ZTE Corporation.

Since this is not clarified during last RAN4 meeting, we propose to make the clear clarification for this agreement. It's applicable for LA NCR-MT only.

2 – Nokia Germany

Our understanding is that if we have an agreement that does not clarify specifically applicability to NCR type, then it is generic, i.e., applicable both the WA and LA.

In general, we can use the applicability rule for RRM requirements from IAB TS 38.174 as a starting point.

It is said in clause 4.7.1 that

```
The RRM requirements on the signalling characteristics for IAB MTs
   specified in section 12.3 shall apply only for the  local area IAB
   class defined in section 4.4.
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RRC re-establishment requirement is RRC CONNECTED state mobility requirement (i.e., not Signaling Characteristics Requirement). Hence, this requirement should be applicable both to WA and LA.

In general, re-establishment procedure is equally important for WA and LA NCR-MTs.

3 – HiSilicon Technologies Co. Ltd

Proposal 1 is fine for us.

4 – CATT

Support option 1.

Issue 1-2: Random access

- Proposals
  - Proposal 1: to only define the 4 step RACH requirement for LA NCR-MT and leave 2 step RACH by the implementation. [ZTE R4-2305416]
  - Observation 1: For NCR- MT RACH transmission, initial access/random access procedures in Rel.15 is supported without enhancements in NCR-MT C-link. [Dell Technologies,R4-2305739]
  - Proposal 2: Based on Rel.16, it is suggested for NCR-MT to support 2-step RACH procedure as well. [Dell Technologies,R4-2305739]
  - Observation 2: The 2-step RACH not only reduces the latency involved in the overall RA procedure but also reduces the control signaling overhead. [Dell Technologies,R4-2305739]
  - Proposal 3: Similar as 4-step RACH, the 2-step RACH requirement for NCR-MT can be defined and use the UE requirement for 2-step RACH in clause 6.2.2.2 of TS38.133 Rel.16. [Dell Technologies,R4-2305739].
  - Observation 3: 2-step RACH does not provide any significant benefit for NCR because NCR does not support handover and latency reduction achieved by 2-step RACH does not provide any benefit to UEs served by the NCR. [Nokia, R4-2304279]
  - Proposal 4: NCR-MT need not support 2-step RACH. Even if it is supported, no requirements need to be specified for 2-step RACH. [Nokia, R4-2304279]
  - 2-step RACH requirements: [Ericsson,R4-2305790]
    - Observation #1: 2-step RACH involves shorter delay but can be used in smaller cells.
    - Observation #2: For fixed node like NCR, shorter PRACH transmission delay is not critical .
  - Proposal #1: Do not specify 2-step RACH requirements for local area NCR class. [Ericsson,R4-2305790]
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 2: Comments collection for Issue 1-2

1 – ZTE Corporation. After reviewing the companies' comments, it seems that the majority support to define 4 step rach, we propose to define the 4 step RACH requirement for LA NCR-MT only
2 – Nokia Germany Similarly to the previous Issue, we think that 4-step RACH requirements should be defined both for LA and WA. Regarding, 2-step RACH procedure, we do not expect it to be beneficial and frequently used in NCR deployments. The absence of the requirement does not mean, though, that 2-step RACH procedure is prohibited.
3 – HiSilicon Technologies Co. Ltd We suggest only to define 4-step RACH requirements. The enhancement with 2-step RACH is not necessary for NCR-MT.
4 – CATT Prefer to define 4-step RACH requirements for LA NCR-MT only.

2.2.2 Transmit timing requirement for NCR-MT

Sub-topic description:

Open issues and candidate options before e-meeting:

Issue 2-1: Initial transmit timing requirement Te

- Proposals
  - Proposal 1: to define initial transmit timing requirement Te for LA NCR-MT in Rel-18 only. [ZTE R4-2305416]
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 3: Comments collection for Issue 2-1

1 – ZTE Corporation. We support this proposal and it should be applicable for LA NCR-MT ONLY

2 – Nokia Germany Again, as above, we see Transmit timing requirements as generic for any type of NCR-MT, both for LA and WA, similarly to IAB-MT. There is one clarification in the TS 38.174, Clause 12.2.1.1 requirements that when CA is used, then LA IAB-MT can use SpCell as the reference. However, we do not think that this is relevant in NCR-MT context.
3 – HiSilicon Technologies Co. Ltd Proposal 1 is fine for us.
4 – CATT Proposal 1 is ok for us.

Issue 2-2: the gradual timing adjustment requirement Tp and Tq

- Proposals
  - Proposal 1: For the gradual timing adjustment requirement Tp and Tq for LA NCR-MT, propose to reuse the requirement defined for IAB-MT in Rel-16.[ZTE R4-2305416]
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 4: Comments collection for Issue 2-2

1 – ZTE Corporation. in the last RAN4 meeting, we only approve the 1st sentence, therefore we propose to clarify the applicable requirement for it in the proposal 1. o Local area NCR Define gradual timing adjustment requirement Tp and Tq
2 – Nokia Germany It is OK for us to reuse IAB-NCR requirements for Gradual timing adjustment.
3 – HiSilicon Technologies Co. Ltd Proposal 1 is fine for us
4 – CATT Proposal 1 is ok for us.

Issue 2-3: the timer accuracy requirement

- Proposals
  - Proposal 1: to define the timer accuracy requirement for LA NCR-MT and reuse the requirement in clause 7.2.1 of TS38.133. [ZTE R4-2305416]
  - Proposal 2: RAN4 shall specify the timer accuracy requirements for NCR-MT as described in Clause 7.2 of 38.133. [CATT,R4-2304414]
  - Proposal 3: RAN4 shall specify the timer accuracy requirements for NCR-MT as described in Clause 7.2 of 38.133. [Nokia, R4-2304279]
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 5: Comments collection for Issue 2-3

1 – ZTE Corporation. it seems that all companies agree to define the timer accuracy requirement for NCR-MT and we propose to agree with any proposals listed above since there are the same and it should be applicable for LA NCR-MT ONLY.
2 – Nokia Germany Since we have defined failure recovery requirements, the accuracy of timers should be followed both for LA and WA NCR-MTs.
3 – CATT Proposal 2 and Proposal 3 seem to be the same. And we also can support proposal 1, which should be aligned with other transmit timing requirements on LA or both LA and WA.

Issue 2-4: TA adjustment accuracy requirement

- Proposals
  - Proposal 1: to define TA adjustment accuracy requirement for LA NCR-MT and reuse the same requirement as Rel-16 IAB-MT. [ZTE R4-2305416]
  - Proposal 2: RAN4 to define TA adjustment accuracy requirement for NCR-MT and reuse the same requirement as Rel-16 IAB-MT. [CATT,R4-2304414]
  - Proposal 3: RAN4 shall specify the requirements for the timing advance procedure for NCR-MT as described in clause 7.2 of TS 38.133.[Nokia, R4-2304279]
- Recommended WF

- Companies' views are encouraged during the meeting.

Feedback Form 6: Comments collection for Issue 2-4

1 – ZTE Corporation. This is just similar as timer accuracy requirement and we propose to go with proposal 1.
2 – Nokia Germany Since Gradual timing adjustment requirements are not defined for WA NCR-MTS, our opinion is that NCR-MT should accurately apply TA signaled by the NW. This is applicable both for LA and WA NCR-MTs.
3 – CATT Proposal 2 and Proposal 3 seem to be the same. And we also can support proposal 1, which should be aligned with other transmit timing requirements on LA or both LA and WA.

2.2.3 Active BWP switching for NCR-MT

Issue 3-1: Active BWP switching requirement

- Proposals
  - Proposal 1: not to define the active BWP switching requirement for WA and LA NCR-MT in Rel-18. [ZTE R4-2305416]
  - Proposal 1: There is no need to define active BWP switching requirements for NCR-MT. [Huawei,R4-2305321]
  - Proposal #2: Do not specify any active BWP switchin related requirements for any of the NCR classes. [Ericsson,R4-2305790]
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 7: Comments collection for Issue 3-1

1 – ZTE Corporation. it seems that all companies agree not to define active BWP switching requirement for NCR-MT and we propose to go with any proposals listed above.
2 – Nokia Germany Agree not to define.

3 – HiSilicon Technologies Co. Ltd Agree not to define
4 – CATT Agree not to define

2.2.4 adaptive beamforming for NCR-MT

Sub-topic description:

Open issues and candidate options before e-meeting:

Issue 4-1: adaptive beamforming for NCR-MT

- Proposals/Observations
  - Proposal 1: not to define the active TCI switching requirements for WA and LA NCR-MT in Rel-18. [ZTE R4-2305416]
  - Proposal 2: The is no need to define beam management related RRM requirements for adaptive beamforming NCR-MT since the serving beam(s) for NCR-MT can be assumed to be fairly certain. [Huawei,R4-2305321]
  - Proposal 3: The beam management related requirements for adaptive beamforming are not quite necessary for NCR-MT. [CATT,R4-2304414]
  - Proposal #4: Do not specify active TCI state switching requirements for at least wide area NCR class. [Ericsson,R4-2305790]
  - Proposal #5: Do not specify uplink spatial relation switching requirements for at least wide area NCR class. [Ericsson,R4-2305790]
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 8: Comments collection for Issue 4-1

1 – ZTE Corporation. We support not to define TCI switching requirement and uplink spatial relation requirement as proposed by other companies.
2 – Nokia Germany We prefer to agree specifically on the requirements that does not need to be defined, i.e., beam management seems to us too generic. Hence, we support Proposals 4 and 5.

For LA NCR-MT beam switching over the C-link might be more relevant, e.g., in the case of blocking. We are open to discuss.

3 – HiSilicon Technologies Co. Ltd

We support proposal 2 and proposal 3. We also agree not to specify active TCI state switching and uplink spatial relation switching requirements.

4 – CATT

We support proposal 2 and proposal 3.

For active TCI state switching and uplink spatial relation switching requirements, proposal 4 and proposal 5 are ok for us, and whether to define the requirements for LA NCR-MT should be further discussed.

Issue 4-2: adaptive beamforming for NCR access link

- Proposals/Observations
  - Proposal 1: not to define the RRM requirement for WA and LA NCR-MT dynamic beam indication on the access link. [ZTE R4-2305416]
  - Proposal 2: RAN4 should wait for the signaling details of periodic beam indication procedure to be specified by RAN1/RAN2 before working on its requirements. [CATT,R4-2304414]
  - Proposal 3: RAN4 to study how RAN1 agreements on NCR Access link beam configuration could be reflected in RRM core requirements. [Nokia, R4-2304279]
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 9: Comments collection for Issue 4-2

1 – ZTE Corporation.

Regarding the beam information for NCR-Fwd access link, indeed beam information for access link are informed to gNB and NCR via OAM agreed in last RAN1#111 meeting and network could further indicate the beam index of access link via the DCI indication (periodic beam indication) or RRC indication (aperiodic beam indication), however this is somehow quite different from the legacy TCI switching delay based on the previous L1-RSRP measurement report and further DCI or RRC indication for TCI state switch. For beam switching of NCR-Fwd access link, it could be done by the implementation (RRC decoding or DCI decoding time together with additional hardware beam switching delay) without waiting for first SSB transmission after reception of RRC configuration.

2 – HiSilicon Technologies Co. Ltd

For this WI, RAN4 only needs to specify the necessary RRM requirements for NCR-MT. The discussion on NCR-Fwd access link is out of scope.

3 – Nokia Germany

We think that Access link beam switching is one of the essential new features of the NCR node. It is different from the C-link TCI state switch when UE/NCR-MT shall synchronize to the new beam, hence, additional SSB/T-RS might be needed.

For the NW it is important that Access beam switch latency is strictly followed because it impacts the scheduling of the Access UEs.

RAN1 has already agreed at RAN1#112 what are the latencies of Access beam application based on signaling:

Agreements:

For the aperiodic beam indication, the reference of slot offset for each time resource is defined as the slot n+k where n refers to the slot that NCR-MT receive the DCI carrying the indication and:

- Option-2: k refers to the offset value [defined by NCR-MT capability and/or declared by vendor].
- Note: This k is different from the parameter used to define the Slot offset for the time resource.

For the semi-persistent beam indication, the indicated information should be applied starting from the first slot that is after slot n+3N_slot^(subframe u), where n refers to the slot that NCR-MT would transmit HARQ-ACK information corresponding to the PDSCH carrying the activation command and u is the SCS configuration for the channel carrying the HARQ-ACK information.

Thus, RAN4 needs to define corresponding requirements on the NCR-Fwd access beam switching latency.

4 – CATT

Agree with Nokia.

Issue 4-3: adaptive beamforming for NCR backhaul link

- Proposals/Observations
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 10: Comments collection for Issue 4-3

1 – ZTE Corporation.

Based on the following agreement reached in last RAN1 meeting for beam indication of NCR-Fwd backhaul link, NCR-Fwd should follow the beam indication for NCR-MT, then it seems that we don't need to define the corresponding requirement for it similar as TCI switching requirement of NCR-MT.

Agreement

In the time domain resource without simultaneous downlink reception or uplink transmission in C-link and

backhaul link, if the NCR does not support capability with the new signalling for backhaul beam indication or if no beam is indicated for backhaul link by the dedicated signal,

· When Rel-17 beam indication framework is used for C-link,

o If no unified TCI is applied for C-link, the beam determined by QCL assumption for CORESET with the lowest ID and spatial relationship for PUCCH with lowest PUCCH resource ID in the C-link is applied for the DL and UL of backhaul link, respectively. (i.e. same as the default beam defined for Rel-15/16 beam indication framework)

· If there is unified TCI applied for C-link, the indicated unified TCI for C-link DL and UL is applied for the DL and UL of backhaul link, respectively.

2 – ZTE Corporation.

There are other two relevant agreements reached in the RAN1#112 meeting, for the beam indication of NCR-Fwd backhaul link, it should follow the indication from the set of beams for C-link, just as we mentioned before, it is not supposed to define any TCI switching related requirement for NCR-MT and this is somehow also not necessary for NCR-Fwd backhaul link.

Agreement

If adaptive beams are adopted for C-link and backhaul link, new signaling is supported to indicate a beam(s) used for backhaul link from the set of beams for C-link.

- Predefined rule is used to define the beam in case there is no indication via the new signalling

- FFS: Details of the predefined rule

- FFS: Application of predefined rule for other cases

- Note: The beam(s) used for backhaul link should be from the RRC-configured list of beams for C-link.

- The new signalling, if needed, is an optional NCR capability

Agreement

The semi-static beam indication for backhaul link is supported as:

- If the beam indication framework in Rel-15 is used for NCR-MT

- The DL beam is indicated by MAC CE to select one of TCI state ID from the RRC-configured list of beams for C-link

- The UL beam is indicated by SRI on C-link via MAC CE.

- If the beam indication framework in Rel-17 is used for NCR-MT

- The DL and UL beam are indicated by MAC CE to select one of TCI state ID from the RRC-configured list of beams for C-link

3 – HiSilicon Technologies Co. Ltd

Similar comments as issue 4-2. This discussion is out of RAN4 scope.

4 – Nokia Germany

We think that NCR-Fwd Backhaul link switching discussion is more related to C-link switching (Issue 4-1) than to the Access link switching (Issue 4-2).

Firstly, we do not think that any requirements for the WA NCR node, because Backhaul link beam is expected to be static for this nodes.

It might be more relevant for the LA node, but again, we do not expect this operation to be frequent even for LA NCR, and the requirement seems not to be needed.

2.2.5 BFD/BFR/RLM for NCR-MT

Issue 5-1: BFD/BFR/RLM for NCR-MT

- Proposals/Observations
  - Proposal 1: to define the BFD/BFR/RLM requirement for LA NCR-MT and reuse the existing IAB-MT RRM requirement in T38.174 clause 12.3 as baseline and further consider the DRX configuration for NCR-MT. [ZTE R4-2305416]
  - Proposal 2: There is no need to define BFD/BFR/RLM requirements for NCR-MT since the link quality monitoring on C-link are not essential for NCR-MT.[Huawei,R4-2305321]
  - Proposal 3: RAN4 not to define BFD/BFR/RLM requirements for NCR-MT. [CATT,R4-2304414]
  - Proposal 4: RAN4 to introduce requirements on radio link monitoring for NCR-MT and reuse IAB-MT requirements from Clause 12.3.1 of TS 38.174. [Nokia, R4-2304279]
  - Proposal 5: RAN4 to introduce requirements on link recovery procedure for LA NCR-MT only and reuse IAB-MT requirements from Clause 12.3.2 of TS 38.174. [Nokia, R4-2304279]
  - Proposal #6: Do not specify requirements for BFD, BFR and RLM for NCR-MT on the C-link.[Ericsson,R4-2305790]

- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 11: Comments collection for Issue 5-1

1 – ZTE Corporation.

We still support the proposal 1 since this could ensure the NCR-MT could have proper implementation on detect the link quality to ensure back to normal status.

2 – HiSilicon Technologies Co. Ltd

We support proposal 2/3/6, not to define BFD/BFR/RLM requirements for NCR-MT.

Whether to perform BFD/BFR/RLM is optional for NCR-MT, and how to perform BFD/BFR/RLM can be up to MT implementation.

3 – Nokia Germany

We think that the discussion should be divided for into RLM requirements and Link Recovery Procedures (,i.e., BFD/BFR).

We agree that Link Recovery Procedures should be defined for LA NCR-MTs only.

However, RLM requirements are more important both for the LA and WA NCR-MTs because connection Re-establishment requirements are agreed for both LA and WA. Basically, that is the only mechanism how NCR -MT can recover from the radio link problems, therefore we think that requirements on it are needed both for LA and WA.

4 – CATT

Prefer proposal 2/3/6, and agree that whether to perform BFD/BFR/RLM is optional for NCR-MT.

2.2.6 CA/DC related RRM requirements for NCR-MT

Issue 6-1 CA/DC related RRM requirements for NCR-MT

- Proposals/Observations
  - Proposal 1: don't define the RRM requirement with related CA/DC for NCR-MT. [ZTE R4-2305416]
  - Proposal 2: There is no need to define RRM requirements under CA/DC operation for NCR-MT. [Huawei,R4-2305321]
  - Proposal #3: Do not specify any CA/DC related requirements for any of the NCR classes.[Ericsson,R4-2305790]
- Recommended WF
  - Companies' views are encouraged during the meeting.

Feedback Form 12: Comments collection for Issue 6-1

1 – ZTE Corporation.

It seems that companies' views are quite aligned on CA/DC related requirements, we propose to not define any requirement related with CA/DC in Rel-18 for NCR-MT.

2 – HiSilicon Technologies Co. Ltd

We agree not to define.

3 – Nokia Germany

Agree not to define.

4 – CATT

Agree not to define.

2.3 Summary for 1st round

2.3.1 Open issues

Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.

Table 2:

	Status summary
Issue 1-1: RRC re-establishment	*Current status:* Nokia further clarified the status of IAB-MT RRM requirement in TS38.174 section 4.7.1, only signalling related requirement are applicable for LA IAB-MT, other RRM requirement should be applicable for both WA and LA IAB-MT. Option 1: Proposal 1: to define the RRC re-establishment requirement for LA NCR-MT in Rel-18 only. [ZTE, Huawei, CATT,Ericsson]; Option 2: RRC re-establishment requirement should be applicable for both WA and LA NCR-MT [Nokia, QC] *Recommendations for 2nd round:* Further discuss the option 1 and option 2 in the 2nd round, • whether Rel-16 IAB-MT approach could be used as baseline.

Issue 1-2: Random access	*Current status:* Except Dell proposed to define 2 step rach for IAB-MT, all other companies propose to define 4 step rach requirement only; To Nokia, in last RAN4 meeting,we agree to define the RA requirement for LA IAB-MT only. Agreement • Wide area NCR Do not define random access requirements • Local area NCR Define the 4-step RACH requirement for NCR-MT and reuse the existing UE requirement in clause 6.2.2 of TS38.133 *Recommendations WF:* • Only define the 4 step rach for NCR-MT. • Further discuss whether we need to overturn the previous agreement to define RA requirement for LA NCR
Issue 2-1: Initial transmit timing requirement Te	*Current status:* ZTE, Huawei, CATT propose to define Te requirement for LA NCR-MT, however Nokia clarify that Te should be applicable for both WA and LA NCR-MT *Recommendations for 2nd round:* • Option 1: to define Te requirement for LA NCR-MT [ZTE, Huawei, CATT, Ericsson] • Option 2: to define Te requirement for WA and LA NCR-MT [Nokia, QC]

Issue 2-2: the gradual timing adjustment requirement Tp and Tq	*Current status:* • No companies have concerns to reuse IAB-MT gradual timing adjustment requirement Tp and Tq. *Recommendations WF:* • Reuse IAB-MT gradual timing adjustment requirement Tp and Tq; • The requirement is applicable for LA NCR-MT only.
Issue 2-3: the timer accuracy requirement	*Current status:* All companies except Ericsson agree to reuse the requirement defined in Clause 7.2 of 38.133, Ericsson argue that this is not defined for IAB-MT and the impacts due to timer accuracy should be trivial. Further discuss whether this should be applicable for both WA and LA NCR-MT similar as previous discussion. *Recommendations for 2nd round:* • FFS whether define timer accuracy requirement for it. • If necessary, to reuse the requirement defined in Clause 7.2 of 38.133. Further discuss whether the requirement should be applicable for LA only or both WA and LA NCR-MT.
Issue 2-4: TA adjustment accuracy requirement	*Current status:* All companies agree to reuse the same requirement as Rel-16 IAB-MT. Further discuss whether this should be applicable for both WA and LA NCR-MT similar as previous discussion. Nokia propose that it should be applicable for both class. *Recommendations WF:* • reuse the same requirement as Rel-16 IAB-MT. *Recommendations for 2nd round:* Further discuss whether the requirement should be applicable for LA only or both WA and LA NCR-MT.

Issue 3-1: Active BWP switching requirement	*Current status:* All companies agree not to define the active BWP switching requirement for NCR-MT. *Recommendations WF:* • Not to define active BWP switching requirement for NCR-MT.
Issue 4-1: adaptive beamforming for NCR-MT	*Current status:* Based on the comments received so far, all companies agree not to define TCI switching requirement and uplink spatial relation switching requirement for WA NCR-MT. Nokia and CATT request to further discuss whether we need to define TCI switching and uplink spatial relation switching requirement for LA NCR-MT. QC still ask for further discussions on TCI switching requirement especially considering the BFR procedure. *Recommendations WF:* • Not to define the TCI switching and uplink spatial relationship switching requirement for WA NCR-MT • FFS for LA NCR-MT
Issue 4-2: adaptive beamforming for NCR access link	*Current status:* Huawei, CATT, Ericsson believe that RRM requirement for NCR-Fwd is out of scope. ZTE clarified that timing of beam switching of NCR-Fwd access link is indicated by the network. Only issue impacts the latency is RRC or DCI decoding time, this has already been defined by RAN1. The beam information configured by OAM and beam switching delay is usually in 100ns. *Recommendations for 2nd round:* Further discuss whether we need to define RRM requirement for NCR-Fwd access link.

Issue 4-3: adaptive beamforming for NCR backhaul link	*Current status:* ZTE, Huawei, Ericsson think that RRM requirement is not needed for NCR-Fwd backhual link. Nokia also think that RRM requirement are WA NCR-Fwd backhaul link is not needed For LA NCR-Fwd backhaul link, this might be also not necessary. Qualcomm ask for further discuss for it. *Recommendations WF:* FFS to define RRM requirement for NCR-Fwd backhaul link.
Issue 5-1: BFD/BFR/RLM for NCR-MT	*Current status:* Huawei, CATT and Ericsson propose not to define the BFD/BFR/RLM requirement. Nokia, QC think that RLM requirement should be defined for both WA and LA NCR-MT. While BRD/BFR requirement could be only applicable for LA NCR-MT. In addition, from moderator perspective, RLM should belong to signaling requirement and for Rel-16 IAB-MT, this should be only applicable for LA IAB-MT, not sure whether approach could be applied here. *Recommendations for 2nd round:* • Option 1: not to define the BFD/BFR/RLM requirement for NCR-MT; • Option 2: to define RLM requirement for WA and LA NCR-MT and define BFD/BFR requirement for LA NCR-MT • Option 2a: to define RLM requirement for LA NCR-MT and define BFD/BFR requirement for LA NCR-MT
Issue 6-1 CA/DC related RRM requirements for NCR-MT	*Current status:* All companies agree not to CA/DC related requirement for NCR-MT *Recommendations WF:* • Not to define CA/DC related RRM requirement for NCR-MT

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2.3.2 CRs/TPs

Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion

No CR/TP uploaded

2.4 Discussion on 2nd round (if applicable)

Moderator can provide summary of 2nd round here. Note that recommended decisions on tdocs should be provided in the section titled "Recommendations for Tdocs".

to be added...

3 Recommendations for Tdocs

3.1 1st round

New tdocs

Table 3:

New Tdoc number	Title	Source	Comments
	WF on NR_netcon_repeater	ZTE	

Existing tdocs

None