3GPP TSG-RAN WG2 #116-e R2-21xxxxx

Electronic, 1st – 12th Nov, 2021

Agenda Item: 5.4.1

Source: R2 Chair (MediaTek inc)

Title: [AT116-e][049][TEI17] TEI17 NR proposals (Chairman)

Document for: Discussion, Decision

# Introduction

This document is to kick off the following email discussion:

* [AT116-e][049][TEI17] TEI17 NR proposals (Chairman)

 Scope: Collect comments on selected NR TEI17 proposals
Intended outcome: Report
Deadline: Tuesday W2

The intention with this offline discussion is to collect comments to identify proposals that could be agreeable.

**Chair on TEI proposals**

A TEI item shall have a limited scope, it should be possible to complete the work in 1 quarter (given sufficient attention and focus). The work should be limited to one WG (small exceptions are allowed).

TEI proposals are usually judged differently according to novelty - in a range, e.g.

* Corrections not implemented in a previous release, small proposals that should obviously/reasonably have been implemented in a previous WI but was missed for some reason.
* Well known earlier WI proposals with some support but were not done e.g. due to lack of time. Small features that were implemented in earlier system.
* New items, giving better performance, or enabling a new use case etc.

Corrections or almost corrections are typically judged similarly to corrections, e.g. the motivation for the full story is assumed pre-known. Discussions can be quite simple, straightforward opinions on impact vs gain and the bar for acceptance is usually medium (higher or somewhat higher than for pure corrections).

New features most often require a more comprehensive analysis and understanding, sometimes similar to judging new WI proposals at Plenary. Understanding justifications vs impact/possibility to deploy etc is important. Operator input is sometimes helpful to verify validity of justifications. The bar for acceptance is usually quite high.

Other aspects are usually considered, e.g. proposals that has recently been rejected would be considered again if the situation has changed somehow, but not otherwise. Proposals that were rejected for an ongoing WI should generally not be considered for TEI.

As usual and always, for all kinds of proposals, technical sanity check is fundamental. Does the proposal work? Is it feasible? Does the proposal address the intended issue / intended case.

Please consider these aspects when you provide comments in this discussion so there can be a balanced result.

**Opinions and Comments**

Please provide opinions. It is appreciated that you give a concise motivation. You can refer to other company’s motivation if your’s is the same. You can also ask questions, and make comments that you think may impact the perception of the proposal.

Opinions will be interpreted as follows:

Support = Support the proposal, think it is useful

Not Support = Don’t support the proposal, not useful etc. Could be acceptable.

Not Acceptable = This is objected to.

Unclear = Don’t know yet, asking some questions, may decide later if there are replies.

**Updating this document**

This is a big document so collision updates may happen. When naming your file update, please:

1) Increase the revision one step compared to your baseline version.

2) Keep the previous editor company name and add your company name last (i.e. two company names)

E.g. CATT revision based on Nokias:
*[AT116-e][049][TEI17] TEI17 NR proposals\_v12\_Nokia\_CATT.docx*

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# Discussion

## Undecided proposal (has been treated no decision)

### CGI Report extension

CGI Report Extension Proposal

[R2-2110981](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110981.zip) On the support of NG-based handover using CGI report Huawei, HiSilicon, CMCC, China Telecom, China Unicom discussion Rel-17 TEI17

[R2-2109716](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2109716.zip) CR to 38.331 on support of NG-based (i.e. via CN) handover based using CGI report China Telecom, Huawei, HiSilicon CR Rel-17 38.331 16.6.0 2816 - F TEI17

Some Comments has already been provided in the following tdoc

[R2-2110856](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110856.zip) On using RAN3 based solution for unsupported SCS+BW of neighbor cell Ericsson discussion

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| Company | Support / NSupport / NAccept / unclear | Comments |
| Huawei, HiSilicon | Support(Proponent)  | Issue: unmatched capability of SCS/BW between UE and target cell leads to HO failureTwo options on the table:a) RAN2 solution: add SCS and BW into CGI report;b) RAN3 solution (proposed by Ericsson): enhance the ’cause’ values in the HANDOVER FAILURE message to reflect unsupported SCS and/or BWWe think RAN2 solution is better. For UEs configured to report CGI, SCS/BW info of target cell is already obtained by the UE and the UE will send the CGI report anyway. No big effort to include extra known fields into the CGI report. Besides, the HO failure can be prevented.Drawback of RAN3 solution: 1) The HO has to be failed first to know the SCS/BW is(/are) unsupported;2) Even though the source node know the reason for failure, it is not aware about the exact the SCS/BW of target node, thus future failures can happen again. |
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### Location Privacy in RRC

Location Privacy in RRC

[R2-2110047](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110047.zip) User preferences to control location information sharing Apple, Samsung, Google, Xiaomi, Vivo, BT Plc, Rakuten Mobile, MediaTek Inc discussion TEI17

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| Company | Support / NSupport / NAccept / unclear | Comments |
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### System Information Scheduling

System Information Scheduling Proposal

[R2-2111248](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2111248.zip) On the need of providing explicit SI start position for SI Scheduling Ericsson, Verizon, Deutsche Telekom, Softbank, Swift Navigation, ESA, T-Mobile USA discussion Rel-17

Some comments has already been provided in the following tdoc

[R2-2110799](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110799.zip) SIB and posSIB scheduling constraints MediaTek Inc. discussion Rel-17 TEI17

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| Company | Support / NSupport / NAccept / unclear | Comments |
| Ericsson | (Proponent for R2-2111248) | Some comments on R2-2110799.It is difficult to solve (avoid collision and have more rooms for SI) just by means of changing parameters in deployment.Reducing SI window length implies:* Reducing coverage
* decreased Transport Block Size; which may increase latency for PWS SI which then would have to be provided in very small segments
* Not possible to have large number of beam sweeps. Each beam needs to have the SI information and if the SI window length is small; NW can’t provide large number of beams for UE beam sweeping procedure

Increasing SI periodicity implies:* Increased latency. Longer time for UE to preform cell selection and cell reselection which will also impact how quickly a UE can access a cell for RACH procedures etc. Can consume more UE power.

For DSS:* Even in a legacy deployment the current solution is not good and there might be a need to introduce e.g. more MBSFN subframes to counter for the legacy SIBs. However, without a future proof solution for NR new SIBs (MBS, UE power savings in rel-17 may introduce new SIBs) and posSIBs we see a high risk that there will not be possible to support new functionality together with DSS without deteriorating the performance.

For Positioning SIBs: Also, R2-2110799 analysis show need of at least 9 SIs for positioning.* One version of RTK (~5 SI messages)
* GNSS assistance data for one constellation (~3 SI messages)
* DL positioning (1 SI message)

Even with 80ms offset solution; we will not be able to schedule 9 positioning SIs. Pls note that these offsets based will anyway have the same constraints as mentioned in Observation **Observation 1:** If the shortest SI periodicity is *x\*si-WindowLength*, the SI scheduling mechanism can only accommodate *x* SI messages.That is as 80ms SI needs to be repeated and hence we will be able to accommodate only 7 positioning SIs at maximum. It would become x-1 in fact.Further in Rel-17, there will be further new posSIBs (around 10) |
| ESA | Support | We agree with Ericsson´s analysis. The number of posSIBs is already high and it is expected to increase even more in Rel17. There is need to find a way to be able to schedule more posSIBs. |
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### C-DRX enhancements for 5G applications

[R2-2109730](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2109730.zip) C-DRX enhancements for 5G applications vivo, CMCC, China Telecom, China Unicom, Spreadtrum, Guangdong Genius discussion Rel-17 TEI17 R2-2107416

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| Company | Support / NSupport / NAccept / unclear | Comments |
| LG | NSupport | At the beginning of NR, RAN2 has discussed this issue, i.e., Active Time is not well aligned with frame boundary or Active Time does not incldue sufficient PDCCH Monitoring opportunity. However, it was considered difficult to keept the PDCCH-subframe concept in NR because of various numberologies. Thus, we are not in favor of introducing PDCCH-subframe like concept to NR at this moment (option1)Given that DRX cycle is defined in an absolute value, we are not sure how solution2 solves this problem. Our understanding is that solution3 would be the today’s implementation, i.e., no need to specify. |
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## New Proposals (has not been treated yet for R17)

### EPS Fallback

EPS Fallback

[R2-2110485](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110485.zip) EPS fallback enhancements for UEs in IDLE/INACTIVE Huawei, HiSilicon, CMCC, China Telecom, China Unicom, LG Uplus discussion Rel-17 TEI17

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| Company | Support / NSupport / NAccept / unclear | Comments |
| Huawei, HiSilicon | Support (Proponent) | Following legacy procedure, when an IDLE/IACTIVE UE is paged for voice, the EPS falllback latency includes 1) UE response paging and establish/resume RRC in NR Cell, 2) the HO/redirection procedure triggered by the NR cell blindly or based on UE measurement reporting, 3) UE initiates access to LTE cell to get voice service.The EMR based solution proposed by vivo is trying to save the time of measurement configuration and reporting time in NR side.While the key point in this contribution is that after UE receives the paging message indicating EPS fallback, UE can directly select and access to the LTE cell, which can save the time of all procedure in NR side. This also omits the measurement reporting, while we understand the real scenario in the field is largely blind HO/redirection scenarios, assuming LTE coverage is better than NR. |
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### UL Skipping Control

UL Skipping Control

[R2-2110198](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110198.zip) Fast Control of UL Skipping NTT DOCOMO INC., Ericsson, CMCC, Verizon discussion Rel-17

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| Company | Support / NSupport / NAccept / unclear | Comments |
| LG | NAccept | P2 has been discussed in RAN2#115 and not pursued, hence it should be excluded in this discussion.Regarding P1: Such dynamic on/off may complicate the UE behaviour because the generation of the MAC PDU may need to depend on the timing of receiving such MAC CE. For example, sudden change to skipping ON while the UE is already preparing a MAC PDU or sudden change to skipping OFF while the UE has already generated a MAC PDU. We already have a similar experience, e.g., CSI reporting considering sudden Active Time or sudden non-Active Time in DRX, which is complex even today.In addition, we don’t think the SINR situation is so dynamically change and requires very dyanmic on/off of skipping.Lastly, for false detection case, the UE ignores the received grant for the skipped transmission. So, we don’t agree with the view that the gNB will have problem with soft combining issue or the UE may use this wrong grant for UCI multiplexing. |
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### SRS in Dormancy

SRS in Dormancy
Had some support in R16 but wasn't done in the end

[R2-2110836](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110836.zip) Periodic SRS in SCell dormant BWP Qualcomm Incorporated, ZTE Corporation, Futurewei discussion Rel-17

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| Company | Support / NSupport / NAccept / unclear | Comments |
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### Skip RACH on Data Arrival

Skip RACH on Data Arrival

[R2-2111161](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2111161.zip) Skipping RACH upon data arrival NTT DOCOMO, INC. discussion Rel-17

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| Company | Support / NSupport / NAccept / unclear | Comments |
|  | NSupport | We have some sympathy to the intention that the network may want to poll the BSR rather than the UE by itself always trigger the BSR and consequently SR/RA. Currently, the only way to prevent BSR trigger by UE is not to allocate a LCG. However, it prevents BSR report as well because BS is reported per LCG.R2-2111171 has proposed to allow skipping RA for this case, which we don’t think is the only solution. For example, we could enhace BSR so that BSR is not triggered by UE itself. Therefore, we are open to discuss more but not limited to RA skip. |
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### Fast RLF

Fast RLF

[R2-2110055](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110055.zip) Discussion on Fast RLF recovery Apple, Verizon discussion Rel-17 TEI17

[R2-2110056](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110056.zip) 38.331 CR to introduce fast RLF recovery (Option 1) Apple, Verizon draftCR Rel-17 38.331 16.6.0 B TEI17

[R2-2110057](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110057.zip) 38.331 CR to introduce fast RLF recovery (Option 2) Apple, Verizon draftCR Rel-17 38.331 16.6.0 B TEI17

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| Company | Support / NSupport / NAccept / unclear | Comments |
| Ericsson (Tony) | NSupport | We think that this is an optimization that basically bring no benefits. With the proposed solution(s) we think that gaining e.g., around 20-30ms, is not really essential taking into account that the reestablishment procedure itself can last several second (from the moment to when is initiated to the moment in which the RRCReestblishmentRequest is sent). Therefore, we gain few milliseconds in a procedure that last several seconds. A further doubt that we have is that, sometime, the RLF may be due to a reconfiguration error and thus restoring the previous configuration it will bring yet to another RLF (in this case the proposed solutions do not help at all). On top of this, when a UE performs reestablishment, the network may also want to give a different configuration at the UE for e.g., load balancing reasons, and this will basically void the small benefits given by the proposed solutions. Also, we are wondering if the case that is describing (UE with temporary out-of-coverage) can be simply resolved by extending the timer T310 (also simply set the maximum allowed time). For all these reasons, the benefits for restoring the previous RRC configuration during reestablishment it seems to be very limited. |
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### Idle / Inactive Measurements w SUL

Measurements

[R2-2109773](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2109773.zip) Idle/Inactive state measurement enhancement for UEs supporting SUL OPPO, Spreadtrum Communications, Qualcomm discussion Rel-17 TEI17

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### RMSI alignment and HARQ granularity

Miscellaneous

[R2-2110558](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110558.zip) RMSI alignment and HARQ granularity Nokia, Nokia Shanghai Bell discussion Rel-17 TEI17, NR\_unlic-Core

Note that this document has two proposals that should be considered individually:

**RMTC:** Enhance RMTC-Config to allow RSSI measurements to be contained in gNB idle periods.

**HARQ:** Allow more granular configuration of PDSCH HARQ processes for UE in Rel-17.

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### UE assistance information configuration in RRCResume

Miscellaneous

[R2-2109474](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2109474.zip) UE assistance information configuration in RRCResume message OPPO discussion Rel-17 TEI17

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### Efficient UL pre-scheduling

[R2-2110759](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2110759.zip) Efficient UL pre-scheduling operation MediaTek Inc., Qualcomm Inc. discussion Rel-17 TEI17 R2-2109019

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| Company | Support / NSupport / NAccept / unclear | Comments |
| LG | NSupport | We wonder why the network provides such useless UL grant axcessively. More safe and helpful way would be to report BSR=0 in this case so that the network does not provide more UL grant until the UE requests so.  |
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### Multi-TB CGs on licensed bands

[R2-2109652](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2109652.zip) Enabling Multi-TB CGs on licensed bands CATT discussion TEI17

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| Company | Support / NSupport / NAccept / unclear | Comments |
| LG | NSupport | Using HARQ formula when cg-RT is not configured but multi-TB CG is configured, it will allocates the same HPID to all HARQ processes within the CG period. In unlicensed, it is of not problem because the intention was to allow pending data transmission by using the same HPID. However, for licensed, retransmission of pending data is not an issue. If multi-TB CG is for transmitting new data in licensed, different HPID needs to be allocated, which we think is a specification impact. Also, multiple CG configuraiton would provide similar CG occasions, hence see not much need to support multi-TB CG in licensed.  |
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### Pending empty PDUs

[R2-2109651](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2109651.zip) Handling of pending empty PDUs after UCI multiplexing CATT, Lenovo, Motorola Mobility discussion TEI17

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| Company | Support / NSupport / NAccept / unclear | Comments |
| LG | NSupport | We have symphathy to the intention and are open to discuss. However, flushing the buffer is not sufficient because CGT is started and transmission using this CG will be blocked until CG expiry. We think CGT and CGRT should not be started for this empty PDU and HARQ process status should be kept as *not pending* regardless of LBT failure indication.  |
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### QoS Flow to DRB Mapping for MDBV Enforcement

[R2-2109851](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2109851.zip) Adaptation of QoS Flow to DRB Mapping for MDBV Enforcement Futurewei discussion Rel-17

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### Activation/Deactivation of QoS Flow to DRB Mapping for SMBR Enforcement

[R2-2109852](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2109852.zip) Activation/Deactivation of QoS Flow to DRB Mapping for SMBR Enforcement Futurewei discussion Rel-17

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### Stopping CGT for ignored or skipped UL grant

[R2-2111170](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2111170.zip) Stopping CGT for ignored or skipped UL grant LG Electronics Inc. discussion TEI17

[R2-2111172](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_116-e%5CDocs%5CR2-2111172.zip) CR to 38321 on stopping CGT for ignored or skipped UL grant LG Electronics Inc. CR Rel-17 38.321 16.6.0 1177 - F TEI17

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| Company | Support / NSupport / NAccept / unclear | Comments |
| LG | Support (Proponent) | Last meeting, companies understanding was that CGT is started at the gNB side when dynamic UL grant is skipped or ignored. However, for CG, neither CGT nore the CGRT starts. Therefore, we believe that even for dynamic UL grant, if it is ignored or skipped, the netowkr would not start CGT and CGRT. With this understanding, starting it only the UE side causes unsynchronized state of CGT and CGRT, which was the concern from the companies. So, rather than jumping into P3 for the suggested change, we would like to hear more on P1 and P2. |
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## Added after kick-off

### Secondary DRX

Added 2021-11-04 1430 UTC in v04

R2-2111460 Secondary DRX enhancements Verizon, Ericsson, Qualcomm Inc, T-Mobile USA Inc discussion Rel-17 TEI17

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# Conclusion

TBD