3GPP TSG-RAN WG2 #110-e DRAFT R2-200xxxx

Electronic meeting, 1st - 12th June, 2020

Agenda Item: 6.20

Source: RAN2 Chairman

Title: Draft Report Email 035 on TEI16 new proposals

Document for: Decision

# 1 Background

**This is the Report for the following email discussion.**

* [AT110-e][035][TEI16] New Proposals (R2 Chairman)

Scope: Treat R2-2005159, R2-2005175, R2-2004535, R2-2004536, R2-2004537, R2-2004538, R2-2004539, R2-2005121, R2-2005184, R2-2004618, R2-2004863, R2-2005662, R2-2004601 (proponents are responsible to explain and drive)

Part 1: Identify agreeable changes. Deadline: June 5, 0700 UTC.

Part 2: For agreeable parts, continuation to agree CRs (may split the email discussion). Deadline: EOM

**Chairman’s overall assessment:**

* Background: NR TEI16 is a fairly large WI in R2, especially since TEI work in other groups also impact R2. Nevertheless given the nature of R15 it is natural that a significant number of small complementary fixes would be needed/desired on top of R15, some of which do not fit naturally in any other R16 WI, so this has been allowed. R2 110-e is the last point in time to look at any new TEI16 proposal that goes beyond bug-fixing (or do not stem from important operator issues).
* In order to agree a new proposal:
  + New proposal shall be small, simple and not generate much additional discussion. It should nominally be possible to finish the CR in this meeting (1Q), and realistically MUST be possible to finish with high quality in Q3. (*Note that for TEI16 in R2, also for simple proposals, frequently companies has requested more time to think about details. Such additional time have so far been granted to have better quality and wider involvement, even if it has meant a general divergence from the 1Q-rule for TEI proposals. Now there isn’t much time in R16 any longer*).
  + The new proposal shall pass the usual pain-gain analysis, i.e. it need to have significant support, usefulness, and limited drawbacks.
* With this in mind we can take a last look at TEI16 proposals. The following proposals has been included: Proposals that has been breifly discussed before but not yet agreed and non-discussed new proposals with >= 4 supporting companies.

# 2 Proposals and Discussion

Missing reportAddNeighMeas

Treated by email [035]

[R2-2005159](file:///D:/Documents/3GPP/tsg_ran/WG2/RAN2/2005_R2_110-e/Docs/R2-2005159.zip) Missing reportAddNeighMeas in periodic measurement reporting Nokia, Nokia Shanghai Bell, Ericsson, NTT DOCOMO CR Rel-16 38.331 16.0.0 1290 3 F TEI16 R2-2003109

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| Company | Comment (support/other-opinion/not acceptable), reasons |
| Ericsson | As one of the proponent companies, we agree with the CR. Our understanding is that this was a mismatch between the procedural text (that is already supporting this) and the ASN.1, where the field was missing. |
| Nokia | *Support.* |
| vivo | *Support* |
| Turkcell | *Support* |
| ZTE | No strong opinion, would be fine to support it. |
| NEC | Support basically. A question just for clarification is whether we need a field descrption for the field having exactly the same meaning as the existing one (for event-trigger) within the same *ReportConfigNR* IE? |
| Samsung | Support. |

Inter Node Request of measurement identities

Treated by email [035]

[R2-2005175](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2005175.zip) Introduction of SN request of measurement identities in INM Ericsson, NEC, ZTE Corporation, Sanechips, Vivo, Softbank, Turkcell, Deutsche Telekom, NTT DOCOMO INC., China Unicom, Qualcomm Incorporated, InterDigital discussion Rel-16 TEI16

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| Company | Comment (support/other-opinion/not acceptable, reasons |
| Ericsson | As on oft he proposent companies, we agree on this. As a background, we already submitted the same contribution for Rel-15, and even if companies acknowledged that what we propose it has some benefits, they thought that this change was too late to be done for Rel-15.  Regarding the two issues mentioned in the paper, we think that it should be straightforward for the SN to release the measIDs to comply with the new limit, but since we agreed on this new signaling only in April we forgot to clarify all the missing aspects.  For the SN requesting a new measID limit to the MN, we believe that this it may be useful in efficiently managing the meanID space (that is common between the MN and SN) by avoiding that 1) no measID are wasted, 2) the SN have the chance to ask more measID if needed. The problem we see with the MN-initiated control of the measIDs is that is quite difficult for the MN to guess what a reasonable number of measID for the SN could be. Given that such limitations are send by the MN during the SN addition, there is still not a clear view on what is the situation at the SN. According to this, we would like to apply the same principle we have for the power sharing (on FR1 and FR2) and band combination in the inter-node message.  Regarding the complexity of the solution we want to propose, there is no RAN3 impact and I would say that no major impact on RAN2, apart adding two new fields in the CG-Config. Once we have done that, normal MR-DC procedures described in 37.340 are followed and there is no change at all in those. Therefore, the DC operations on the MN and SN will continue as they do nowadays, with the difference that the SN may ask for additional measurements when the SN addition/modification are triggered.  To help companies understand what ist he specification impact related to our proposal, we have uploaded tot he draft folder two CRs that show the needed changes. |
| Nokia | *There are currently other shared aspects where it is up to MN implementation for example to allocate the right amount of measurement identities between MN and SN independently. It is thus the MN that takes priority to reserve needed measurement identities no matter if the SN request is supported or not → not essential.* |
| vivo | *Support* |
| Turkcell | *Support* |
| ZTE | We are one of the proponent companies.  We share the same view with Ericsson, regarding the measID cooridination, based on RAN4 defined UE requirement, the space of supported measIDs is quite limited (e.g. In NR-DC, 10 inter-freq measIDs in total for both MN and SN configured measurements). However, different from splited number of measured frequencies, considering different application scenarios, the number of configured measurements may flactuate much more widely. So from network perspective, we would like to have a chance to allow SN to coordinate with MN about the limitations.  Similar to other corrdination parameters in INM, only two fields will be introduced in CG-Config, and MN/SN signalling are exactly the same as other coordination procedures, thus we believe there is no no major impact on RAN2 signalling. |
| NEC | As one of co-sources, this is useful for the network (especially SN) operation as already explained by Ericsson above. Actually this is simply to add one more information for which the SN can request for re-negotiation to the MN. And, unlike the previous discussion for Rel-15, there seems to be no specific issue seen for Rel-16. |
| Samsung | We understand the motivation. But this seems matter of taste, not essential one, since at least SN can respond negatively if SN cannot satisfy the given max meas Id number from MN. Then, this proposal seems the optimization at some situation. |

Simultaneous NR Unicast and LTE MBMS

Treated by email [035]

[R2-2004535](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004535.zip) Mechanisms to enable simultaneous operation of NR Unicast + LTE MBMS Qualcomm Incorporated, FirstNet, AT&T, Telstra, Academy of Broadcasting Science, Shanghai Jiao Tong University, British Broadcasting Corporation, European Broadcasting Union, Institut für Rundfunktechnik discussion Rel-16 TEI16

[R2-2004536](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004536.zip) Introduction of simultaneous operation of NR Unicast + LTE MBMS Qualcomm Incorporated, FirstNet, AT&T, Telstra, Academy of Broadcasting Science, Shanghai Jiao Tong University, British Broadcasting Corporation, European Broadcasting Union, Institut für Rundfunktechnik CR Rel-16 38.300 16.1.0 0228 - B TEI16

[R2-2004537](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004537.zip) Introduction of simultaneous operation of NR Unicast + LTE MBMS Qualcomm Incorporated, FirstNet, AT&T, Telstra, Academy of Broadcasting Science, Shanghai Jiao Tong University, British Broadcasting Corporation, European Broadcasting Union, Institut für Rundfunktechnik CR Rel-16 38.304 16.0.0 0159 - B TEI16

[R2-2004538](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004538.zip) Introduction of simultaneous operation of NR Unicast + LTE MBMS Qualcomm Incorporated, FirstNet, AT&T, Telstra, Academy of Broadcasting Science, Shanghai Jiao Tong University, British Broadcasting Corporation, European Broadcasting Union, Institut für Rundfunktechnik CR Rel-16 38.306 16.0.0 0310 - B TEI16

[R2-2004539](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004539.zip) Introduction of simultaneous operation of NR Unicast + LTE MBMS Qualcomm Incorporated, FirstNet, AT&T, Telstra, Academy of Broadcasting Science, Shanghai Jiao Tong University, British Broadcasting Corporation, European Broadcasting Union, Institut für Rundfunktechnik CR Rel-16 38.331 16.0.0 1611 - B TEI16

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| Company | Comment (support/other-opinion/not acceptable, reasons |
| Nokia | *Prefer to handle this as part of the Rel-17 WI.* |
| vivo | *For the 304 CR, maybe the UE should set the LTE MBMS frequency as the highest priority as the legacy way. The drawback of using the lowest frequency is that if the LTE MBMS frequency is not available due to a lower RSRP value. Then all the other frequencies will be at the same frequency level of the lowest.* |
| LG | *It should not be discussed in TEI16.* |
| ZTE | We agree the motivation and support the CRs. |
| NEC | We understand the concerns, while our feeling is that this would have much impact compared to other TEI proposals and probably need some work in other WGs? It seems better to discuss in RAN1 (or RAN4?) first.. |
| Samsung | We have the same view as Nokia. |
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FreqBandIndicator in NR redirection

Treated by email [035]

[R2-2005121](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2005121.zip) CR to 38.331 on missing freqBandIndicator in NR redirection Qualcomm Incorporated, Ericsson, MediaTek Inc., ZTE Corporation, Sanechips, Apple, Intel, OPPO draftCR Rel-16 38.331 16.0.0 F TEI16

[R2-2005184](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2005184.zip) CR to 36.331 on missing freqBandIndicator in NR redirection Qualcomm Incorporated, Ericsson, MediaTek Inc., ZTE Corporation, Sanechips, Apple, Intel, OPPO draftCR Rel-16 36.331 16.0.0 F TEI16

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| Company | Comment (support/other-opinion/not acceptable, reasons |
| Ericsson | As one oft he proponent companies, we agree on this CRs. |
| Nokia | We do not see any issue of not giving frequency band indicator. UE will get ARFCN and will be able to decode SSB/SIBs and get frequency band information from broadcast information. So the proposal seems to be quite unnecessary.  Additionally in our understanding existing requirements for release 15 consider that UE is not given frequency band indicator as it is not present in the redirection. Thus we do not see any need to add this in release 16. Of course if we add we could make the requirements more strict in RAN4 but then we would need to consult RAN4 on the issue. |
| vivo | *Support* |
| Turkcell | *Support* |
| ZTE | Support. |
| NEC | This seems very important information and thus we support. |

Reestablishment

Treated by email [035]

[R2-2004618](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004618.zip) Updates to reestablishment procedure ZTE Corporation, Sanechips, Intel Corporation, CATT, Mediatek CR Rel-16 38.331 16.0.0 1143 6 C TEI16 R2-2002970

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| Company | Comment (support/other-opinion/not acceptable, reasons |
| Ericsson | We disagree with the proposal. It is proposed to define a basic L1 configuration, but isn’t exactly what the UE does when it applies the following below?  5.3.7.3 Actions following cell selection while T311 is running  Upon selecting a suitable NR cell, the UE shall:  […]  1> apply the default L1 parameter values as specified in corresponding physical layer specifications except for the parameters for which values are provided in *SIB1*;  1> apply the default MAC Cell Group configuration as specified in 9.2.2;  1> apply the CCCH configuration as specified in 9.1.1.2;  1> apply the *timeAlignmentTimerCommon* included in *SIB1*;  1> initiate transmission of the *RRCReestablishmentRequest* message in accordance with 5.3.7.4;  […]  5.3.7.4 Actions related to transmission of *RRCReestablishmentRequest* message  The UE shall set the contents of *RRCReestablishmentRequest* message as follows:  […]  1> re-establish PDCP for SRB1;  1> re-establish RLC for SRB1;  1> apply the specified configuration defined in 9.2.1 for SRB1;  […]  We acknoledge that this it may be not as efficient as in LTE, but our understanding is that what is proposed it only happens in case the network does not multiplex the RRCReconfiguration with the RRCReestablishment. Therefore, network implementation may avoid the case pointed out in the CR. |
| Nokia | We agree that it would be beneficial to enhance re-establishment procedure so that *ServingCellConfig* can be configured already in the early phase. However, we think that this can be solved in similar way than in LTE where RRC Connection Reconfiguration and RRC Re-establishment can be sent in the same TTI. Therefore, our proposal is to agree CR in R2-2004950. |
| vivo | *Support* |
| LG | *Not support*  *For the first change, the UE can use default configuration to send RRC reestablishment complete message. We understand that there may be double RACH issue, but subsequent reconfiguration message can avoid the double RACH.*  *For the second change, we don’t want to add another case to allow reconfiguration of those parameters.* |
| ZTE | *Support*  With regards to the comment from Ericsson above, in addition to the issues pointed out by Nokia, we would like to clarify that the issue is mainly about lack of dedicated SR (or PUCCH) resource, which will trigger the RACH. This is not in the default configuration. Note that sending reconfiguration together with reestablishment won’t solve this issue because the reestablishment is first processed by the UE and the complete message is submitted as explained in the reason for change and this will trigger RACH if there is no UL grant in the meanwhile. The issue can only be solved currently by speculative grants within the unknown UE processing time until it processes the reconfiguration message and this is not efficient. So, the proposal is to simply adopt something similar to LTE. |
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PDCP security issue

Treated by email [035]

[R2-2004863](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004863.zip) CR on PDCP security issue about duplicate detection Samsung, LG Electronics Inc., Nokia, Nokia Shanghai Bell, LG Uplus, Deutsche Telekom, NTT DOCOMO, Intel, Huawei, HiSilicon CR Rel-16 38.323 16.0.0 0032 6 F TEI16 R2-2003825

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| Company | Comment (support/other-opinion/not acceptable, reasons |
| Nokia | *Support* |
| vivo | *Support* |
| LG | *Support* |
| ZTE | Support |
| NEC | We support the propsal including early implementation. |
| Samsung | *Support* |
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Retransmission of an RLC SDU with a poll after discard

[R2-2005662](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2005662.zip) Retransmission of an RLC SDU with a poll after discard procedure LG Electronics Inc., Ericsson, NTT Docomo, LG Uplus, Sharp discussion Rel-16 TEI16 R2-2002998

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| Company | Comment (support/other-opinion/not acceptable, reasons |
| Nokia | *We are not sure if this is a critical issue although we acknowledge such occasion is possible to happen:*  *- for the case the last RLC SDU becomes unavailable right before transmission due to PDCP discardTimer expiry seems a corner case;*  *- for the case of PDCP duplication deactivation, NW can proactively transmit a STATUS PDU for the secondary RLC entity after deactivating the duplication.* |
| vivo | *We think that this issue can be handled by the network implementation (e.g. by sending the STATUS PDU at the PDCP duplication deactivation).* |
| LG | *With PDCP duplication, the RLC SDU with a poll would be frequently discarded (e.g. when a PDCP PDU is successfully transmitted by one RLC entity, the PDCP indicates all other RLC entities to discard the duplicated PDCP PDU). If there is no RLC SDU in the UE buffer after the SDU discard, the RLC entity would be stuck because there is no RLC SDU to transmit a poll. In other words, the fail-safe mechanism which triggers the poll for the last RLC PDU in the buffer doesn't work when the last RLC SDU in the buffer is discarded.*  *Comment on Nokia and vivo’s answer above:*  *Even if the NW proactively transmits a STATUS PDU after PDCP duplication deactivation, if the receiving RLC entity at the NW fails to receive the last transmitted data from the transmitting RLC entity, the STATUS PDU cannot contain this missing data information and finally the problem cannot be solved.* |
| Samsung | We have some sympathy with this motivation. However, we think this issue is mainly about the second AM RLC entity. Regardless of activation or deactivation, we still have the primary AM RLC entity. Even if the secondary AM RLC entity is stuck and no new data comes, data transmission and reception would be still on-going via the primary AM RLC entity, e.g. PDCP SDU corresponding to last transmitted data(RLC PDU via the secondary RLC entity) will somehow arrive at the receiver via the primary AM RLC entity. Upon reactivation and the reception of new data, the secondary RLC entity gets free from being stuck. So no critical problem would be foreseen. |
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CFRA resource handling for BFR upon TAT expiry

[R2-2004601](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004601.zip) CFRA resource handling for BFR upon TAT expiry Nokia, Nokia Shanghai Bell, Apple, ASUSTek discussion Rel-16 TEI16

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| Company | Comment (support/other-opinion/not acceptable, reasons |
| Nokia | *Support.* |
| vivo | *In the Rel-16 2-step RACH WI, we have already introduced a new 12 bit TAC MAC CE (i.e.* Absolute Timing Advance Command MAC CE*) which could be used in this case.* |
| LG | *We think it would be better to reuse already defined MAC CE, i.e. Absolute Timing Advance MAC CE, in this case. We understand that this MAC CE is currently limited to 2-step RA case, but we don’t see any problem to use this MAC CE for other cases. Thus, we propose to remove the restriction in section 5.2. as follows.*  1> when an Absolute Timing Advance Commandis received:  2> apply the Timing Advance Command for PTAG;  2> start or restart the *timeAlignmentTimer* associated with PTAG. |
| NEC | *support to solve the issue. For the way of solving, it seems the alternative proposal from LG, if applicable, looks better (but no strong view for solution).* |
| Samsung | We do not see any issue here, and thus no changes are needed. First of all, the case itself is a corner case: BFR happens and TAT expires at the same time. As in the contribution, even if it happens, network can send PDCCH order after completion of CFRA for BFR, so nothing is broken. Furthermore, network can also respond with PDCCH order—which is also addressed to C-RNTI—in response to CFRA BFR preamble, which will also complete the CFRA BFR and network can provide proper TA value after receiving another preamble. To release the dedicated resources upon expiry of TAT which requires reconfiguration seems a bit overengineering and unnecessary. |
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Dynamic LCP mapping restrictions – not yet agreed

Treat on-line

[R2-2004512](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004512.zip) Dynamic LCP Mapping Restrictions Nokia, Deutsche Telekom, Ericsson, Fujitsu, Nokia Shanghai Bell, NTT DOCOMO INC., T-Mobile CR Rel-16 38.300 16.1.0 0226 - B TEI16

[R2-2004514](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004514.zip) Dynamic LCP Mapping Restrictions Nokia, Deutsche Telekom, Ericsson, Fujitsu, Nokia Shanghai Bell, NTT DOCOMO INC., T-Mobile CR Rel-16 38.321 16.0.0 0740 - B TEI16

[R2-2004515](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004515.zip) Dynamic LCP Mapping Restrictions Nokia, Deutsche Telekom, Ericsson, Fujitsu, Nokia Shanghai Bell, NTT DOCOMO INC., T-Mobile CR Rel-16 38.331 16.0.0 1610 - B TEI16

[R2-2004519](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004519.zip) Dynamic LCP Mapping Restrictions Nokia, Deutsche Telekom, Ericsson, Fujitsu, Nokia Shanghai Bell, NTT DOCOMO INC., T-Mobile CR Rel-16 38.306 16.0.0 0309 - B TEI16

[R2-2005663](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2005663.zip) Consideration on LCP mapping restrictions LG Electronics Inc. discussion Rel-16 TEI16

[R2-2004511](file:///D:\Documents\3GPP\tsg_ran\WG2\TSGR2_110-e\Docs\R2-2004511.zip) Offline 053 on LCP Mapping Restrictions Nokia (Rapporteur) discussion Rel-16 TEI16 R2-2004114

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| Company | Comment (support/other-opinion/not acceptable, reasons |
| **Chairman** | **NOTE:** IF you commented last meeting you don’t need to comment in this table/email discussion. The Offline Summary from last meeting in R2-2004511 (above) will be taken into account and treated. Please do not repeat comments from last meeting, List here **only** delta comments or additional information. |
| LG | The Oppo’s proposal R2-2004556, R2-2004557 should be discussed together. We think Oppo’s proposal is better, if RAN2 decides to do something. |
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# 4 Proposals