3GPP TSG-RAN WG2 Meeting #118 Electronic R2-2206350

Online, May 9th – May 20th, 2022

Agenda Item: 6.5.2

Source: Ericsson

Title: Summary of [AT118-e][505][IIoT] CP open issues and CR 38.331 (Ericsson)

Document for: Discussion, Decision

# 1 Introduction

This paper collects companies’ views for the remaining issues after (first week) Tuesday’s online session.

* [AT118-e][505][IIoT] CP open issues and CR 38.331 (Ericsson)

 CP open issues and CR capturing agreed corrections

Deadline: To be set by rapporteur aiming to have company inputs and proposals by

Contact person(s) for each participating company:

|  |  |  |
| --- | --- | --- |
| **Company** | **Name** | **Email** |
| Ericsson | Zhenhua Zou | zhenhua.zou@ericsson.com |
| CATT | Pierre Bertrand | pierrebertrand@catt.cn |
| OPPO | Zhe Fu  | fuzhe@OPPO.com |
| Apple | Ralf Rossbach | rrossbach@apple.com |

# 2 Discussion

## 2.1 *RRCReconfiguration* or *DLInformationTransfer* message

The paper [2] proposes to move *ta-PDC* and *sib9Fallback* to *RRCReconfiguration* message.

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| R2-2206006 Discussion on ta-PDC and sib9Fallback for IIoT ZTE Corporation, SanechipsMoreover, we think handover case need to be further considered. With *ta-PDC* in *DLInformationTransfer*, if *ta-PDC* is activated in the source cell and then UE moves to the target cell, the target cell cannot know this and may configure UE with *rxTxTimeDiff-gNB-r17*. This is not allowed. So it seems more suitable to put ta-PDC in *RRCReconfiguration*. For *sib9Fallback*, similar issue may exist in handover case. Therefore, we suggest RAN2 further discuss whether it’s better to move *ta-PDC* and *sib9Fallback* to *RRCReconfiguration* message.**Proposal 3: RAN2 is suggested to further discuss whether it’s better to move *ta-PDC* and *sib9Fallback* to *RRCReconfiguration* message.** |

The above proposal 3 is further discussed online without a conclusion. Chair notes copied below

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| [R2-2206006](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_118-e%5CDocs%5CR2-2206006.zip) Discussion on ta-PDC and sib9Fallback for IIoT ZTE Corporation, Sanechips discussion Rel-17 NR\_IIOT\_URLLC\_enh-CoreProposal 3: RAN2 is suggested to further discuss whether it’s better to move ta-PDC and sib9Fallback to RRCReconfiguration message- Nokia thinks that this has nothing to do with the NAS message so no need to have in DL transfer message, so there may be some point. - Ericsson points out that this was discussed in previous releases and it ended up where it is now. - Qualcomm thinks that Nokia is correct but this may create more problems with the sib9fallback=> Noted |

**Why in RRC Reconfiguration message?**

1. DL Information transfer was primarily defined for transfer of NAS containers that are transparent to AS.
2. During handover, the target cell may not be aware of the configuration in the source cell which is transmitted in the DLInformationTransfer. It seems suitable to add the field in the *RRCReconfiguration* so that the configuration (like ta-PDC or sib9Fallback) can be done together with handover commands. Otherwise, the network needs to, e.g., configure *sib9Fallback* separately in DLInformationTransfer, in the case that the source cell transmitted in unicast while the target cell intends to transmit in SIB9.
3. [More] ?

**Why in DLInformationTransfer message?**

1. Reference time information has been agreed to be part of the DL Information transfer since LTE Rel-15. Also the usage of the DL information transfer has been extended not only to reference time information, but also to IAB-DU specific F1-C related information, see below text.

The *DLInformationTransfer* message is used for the downlink transfer of NAS dedicated information, timing information for the 5G internal system clock, or IAB-DU specific F1-C related information.

1. If configurations are in two different RRC messages, then it incurs overhead/problems. For example, if the network decides to de-activate *ta-PDC* while activate UE RTT-based method, then the network has to transmit both RRC Reconfiguration message and DLInformationTransfer message. It is not clear how it would work unless all reference time related information is moved to RRCReconfiguration, which seems not possible due to NBC.
2. The RRC Reconfiguration message may almost be empty with a single filed of ta-PDC or sib9Fallback in the case there is no handover or RRC reestablishment.
3. [More] ?

**Q1. Do companies prefer RRCReconfiguration message or DLInformationTransfer message? Additional comments are highly appreciated.**

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| --- | --- | --- |
| **Company** | **RRCReconf or DLInfoTransfer ?** | **Additional comments** |
| CATT | *DLInformationTransfer* | From our perspective, the main drawback is that expressed in point 2 under “Why in DLInformationTransfer message?”. We prefer keeping all time-related info in the same place, i.e. *DLInformationTransfer*. We don't see that a too big issue to send *DLInformationTransfer* message after handover procedure. |
| OPPO | *DLInformationTransfer* | We agree with the rapporteur’s analysis, and the main drawbacks are clearly mentioned in bullet 2 and 3 under “Why in DLInformationTransfer message?”. For the issue raised by the proponent company, it can be resolved by the gNB implementation, i.e. the target gNB sends *DLInformationTransfer* message after HO ASAP. |
| Ericsson | *DLInformationTrasnfer* |  |
| Apple | *DLInformationTransfer* | We have some sympathy to RRCReconfiguration message. But as we are already in the maintenance phase, we prefer to stick to the previous agreement unless severe technical issues are observed. In this case, there seems to be more technical issues if we use RRCReconfiguration message rather than *DLInformationTransfer.* |

**Conclusion**

## 2.2 Multi TB scheduling in CG

In Rel-16, multi-TB CGs are NOT supported for licensed band with a UE capability restriction, i.e., only supported in unlicensed band. The capability bit “*cg-resourceConfig-r16*” is only in the IE *SharedSpectrumChAccessParamsPerBand*.

In Rel-17, when *cg-retransmissionTimer* is not configured in unlicensed band, the HARQ formula is used and it indicates the same HARQ ID for each of the slots/occasions within the same CG period. This is wrong in case when multiple TBs are used. There were proposals to solve this issue, but none agreed. The paper [1] proposes to capture this restriction in RRC spec.

**Q2. Do companies agree with the below proposal?**

 **Multi-TB in CG is supported only when cg-retransmissionTimer is configured for unlicensed band**

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| --- | --- | --- |
| **Company** | **Yes, No?** | **Comments** |
| CATT | No | There is no reason to introduce such artificial restriction as there is no technical system issue identified. Current spec works perfectly fine as is. |
| OPPO | No | We see no critical issue if we keep the current spec as it is.  |
| Ericsson | Yes | It remains unclear whether multi TB is supported with cg-retransmissionTimer not configured in the unlicensed band.  |
| Apple | Yes | We are concerned about impacts to implementation due to potential ambiguity at this stage. |
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**Q3. If companies reply yes to the previous question, do you agree with TP in [1] ?**

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| --- | --- | --- |
| **Company** | **Yes, No?** | **Comments** |
| Ericsson | Yes |  |
| Apple | Yes |  |
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**Conclusion**

# 3 Conclusion

TBD

# 4 References

1. R2-2205508 Multi-TB scheduling in UCE Ericsson discussion
2. R2-2206006 Discussion on ta-PDC and sib9Fallback for IIoT ZTE Corporation, Sanechips discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core