3GPP TSG-RAN WG2 Meeting #112 electronic R2-2010xxx

Online, November 2nd – 13th, 2020

Source: CATT

Title: Summary of [AT112-e][040][IIOT] RRC and UE cap Corrections

Agenda Item: 6.5.2

Document for: Discussion and Decision

# Introduction

This contribution provides a summary of the following email discussion:

* [AT112-e][040][IIOT] RRC and UE cap Corrections (CATT)

Scope: Treat tdocs in AI 6.5.2, and AI 6.5.5 (see below)

Intended outcome: Intermediate: Determine agreeable parts. Final: For agreeable parts, agreed CRs.

Deadline: Intermediate deadline(s) by Rapporteur, Final: Thu Nov 12, 1200 UTC

Short Deadline: UE Cap Endorsed CRs 38306 (if agreeable): Nov 6.

This email discussion addresses contributions [2][8]. [1] addresses the topic of UL skipping which is already covered by email discussion #16 and so is not treated in this offline.

In general the questions first discuss whether the raised issues are valid and require a CR, and then companies supporting fixing the issues are asked whether they support the proposed CR as is or would have an alternate CR.

The email discussion first addresses 38.306 CR which has a short deadline: Nov 6 24:00 UTC (Phase 1).

Then 38.331 CRs are discussed with Nov 9 24:00 UTC deadline, and which can be answered by companies in a 2nd phase.

**Contact from companies**

|  |  |
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# Discussion

# 38.306 CR (Nov 6 24:00 UTC deadline)

R2-2009376 Correction on the pre-requisite condition for dci-UL-PriorityIndicator-r16 Huawei, HiSilicon CR Rel-16 38.306 16.2.0 0426 - F NR\_IIOT-Core

This CR raises the issue that the RAN1-agreed dependency of the UL priority indication in DCI with mixed DCI formats capability (*dci-UL-PriorityIndicator-r16* = RAN1’s feature group 12-1a) on both “UL intra-UE multiplexing/prioritization of overlapping channel/signals with two priority levels in physical layer” (*dci-UL-PriorityIndicator-r16* = RAN1’s feature group 12-1) and “Monitoring DCI format 1\_2 and DCI format 0\_2” (*dci-Format1-2And0-2-r16* = RAN1’s feature group 11-1) is missing in TS 38.306.

| Definitions for parameters | Per | M | FDD-TDD  DIFF | FR1-FR2  DIFF |
| --- | --- | --- | --- | --- |
| ***dci-UL-PriorityIndicator-r16***  Indicates whether the UE supports the priority indicator field configured in DCI formats 0\_1 and 0\_2 in a BWP when configured to monitor both DCI formats 0\_1 and 0\_2 in the BWP. | UE | No | No | No |

**Q1a: Do you agree the dependency of *dci-UL-PriorityIndicator-r16* with *ul-IntraUE-Mux-r16* and *dci-Format1-2And0-2-r16* should be captured in its parameter definition?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| CATT | Yes |  |
| Samsung | Yes |  |
| Ericsson | Yes |  |
| Sharp | Yes |  |
| Nokia | Yes |  |
| LG | Yes |  |
| Huawei | Yes |  |
| OPPO | Yes |  |
| Xiaomi | Yes |  |

**Q1b: If you answered “Yes” to Q1a, do you also agree the CR? And if not, please propose an alternate TP.**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments/alternate TP |
| CATT | Yes |  |
| Samsung | Yes |  |
|  |  |  |
| Ericsson | Yes for the content | We are fine with the changes in the proposed CR. Since there will be a Mega CR for capability (see [AT112-e][015][NR16] UE cap Main (Intel)), the agreed change should be merged into the Mega CR.  As a matter of fact, this paper should be submitted in AI 6.1.2 not in IIoT WI.  6.1.2 NR Feature Lists and UE capabilities  Includes NR UE capability updates related to R1 and R4 feature lists. Including [Post111-e][900][NR16] UE capabilites (Intel) |
| Sharp | Yes |  |
| Nokia | Yes | Agree with Ericsson this should be integrated into the Mega CR |
| LG | Yes | Agree with Ericsson |
| Huawei | Yes |  |
| OPPO | Yes | Agree with Ericsson |
| Xiaomi | Yes |  |

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| **Summary:** |

# 38.331 CRs (Nov 9 24:00 UTC deadline)

### Time aspects

R2-2008864 Clarification on referenceTimePreferenceReporting in RRC Reconfiguration Procedure CATT CR Rel-16 38.331 16.2.0 2021 - F NR\_IIOT-Core

This proposed CR addresses the functionality of UE reporting a preference in being provisioned with reference time information. It points out that the description of *referenceTimePreferenceReporting* in clause 5.3.5.9 “Other configuration” is missing, which makes the description of RRC reconfiguration procedure incomplete. This prevents UE to report *referenceTimeInfoPreference* even if gNB configured *referenceTimePreferenceReporting* to the UE.

**Q2a: Do you agree that the description of *referenceTimePreferenceReporting* in clause 5.3.5.9 “Other configuration” is missing and requires a CR?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| CATT | Yes |  |
| Samsung | Yes |  |
| Ericsson | Yes | The current RRC spec is correct, but it just jumps over the subclause 5.3.5.9 and goes directly into the subclause 5.7.4.2, as shown below in the subclause 5.7.4.2  1> if configured with *referenceTimePreferenceReporting* to provide preference in being provisioned with reference time information:  With that being said, we should align procedure text for all UE assistance information related info sent in the *otherConfig*. |
| Nokia | Yes |  |
| LG | Yes |  |
| Huawei | Yes |  |
| OPPO | Yes |  |
| Xiaomi | Yes |  |

**Q2b: If you answered “Yes” to Q2a, do you also agree the CR? And if not, please propose an alternate TP.**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments/alternate TP |
| CATT | Yes |  |
| Samsung | Yes |  |
| Ericsson | No | There are other impacted parts not considered if the intention of the CR is agreed.  The first is to make sure the network can “turn off” UE reporting.  5.3.5.9 Other configuration  1> if the received *otherConfig* includes the *referenceTimePreferenceReporting*:  2> consider itself to be configured to provide UE reference time assistance information in accordance with 5.7.4;  1> else  2> consider itself not to be configured to provide UE reference time assistance information in accordance with 5.7.4  The second change is to remove the RRC configuration parameter *referenceTimePreferenceReporting* to align with the rest of the spec and also align with the newly added text in 5.3.5.9.  5.7.4.2 Initiation  1> if configured with *referenceTimePreferenceReporting* to provide preference in being provisioned with reference time information:  2> if the UE did not transmit a *UEAssistanceInformation* message with *referenceTimeInfoPreference* since it was configured to provide preference; or  2> if the UE's preference changed from the last time UE initiated transmission of the *UEAssistanceInformation* message including *referenceTimeInfoInterestPreference*:  3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide preference in being provisioned with reference time information. |
| Nokia | Yes |  |
| LG | Yes |  |
| Huawei | No | Ericsson’s version seems better |
| OPPO | No | Slightly prefer Ericsson’s version. |
| Xiaomi | Yes |  |

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| **Summary:** |

R2-2010101 Correction on UE preference for reference time information provisioning Huawei, HiSilicon CR Rel-16 38.331 16.2.0 2173 - F NR\_IIOT-Core

This CR addresses the UE assistance information for reference time information provisioning and points out that such preference can explicitly mention that the UE prefers not to be provisioned with reference time information. Therefore it is suggested to clarify this possibility in the related RRC procedures, which would then also align with stage 2 description.

**Q3a: Do you agree that RRC procedures related to UE assistance information for reference time information provisioning should be clarified to also capture that the UE can use this assistance information to indicate that it prefers not to be provisioned with reference time information?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| CATT | Yes | Although not so critical, we think this clarification contributes to make the procedural text more consistent with the ASN.1 and 38.300.  Note while checking the CR we spotted another typo in the RRC text related to *referenceTimeInfoPreference*, see Q3b. So we think at least one CR is needed related to UE assistance information for reference time information provisioning. |
| Samsung | No strong view | This is not an essential correction but a clarification without UE behavior. UAI format already supports UE indicates the time provisioning is not necessary. We are also fine to agree the CR, since there is no functional change. |
| Ericsson | No | In the subclause 5.7.4.3, it is clearly written that the UE can set the bit either to true or to false.  1> if transmission of the *UEAssistanceInformation* message is initiated to provide an indication of preference in being provisioned with reference time information according to 5.7.4.2 or 5.3.5.3:  2> if the UE has a preference in being provisioned with reference time information:  3> set *referenceTimeInfoPreference* to *true*;  2> else:  3> set *referenceTimeInfoPreference* to *false*.  There is no need to complicate the previous two procedure parts in 5.7.4.1 and 5.7.4.2 to fill in the details. If one follows the same logic in the CR, then we need to add all the details for all other types of the UE assistance information, such as IDC assistance information, DRX parameters, etc..  Lastly, there is no issue with the current text. Also, we don’t see any discrepancy between stage 2 and RRC, stage 2 is supposed to provide a high-level description that might not be easy to get from RRC spec. |
| Nokia | No | We do not see the necessity for such change |
| LG | No |  |
| Huawei | Yes | It is simple clarification. The possible ambiguity of other UE assistance information should not prevent this clarification. The session 5.7.4.3 might be the very place that such clarification would add value: when UE set *referenceTimeInfoPreference* to *false,* the first line shall cover: if transmission of the *UEAssistanceInformation* message is initiated to provide an indication of preference in not being provisioned with reference time information according to 5.7.4.2 or 5.3.5.3. |
| OPPO | No | It seems not necessary. |
| Xiaomi | No |  |

**Q3b: If you answered “Yes” to Q3a, do you also agree the CR? And if not, please propose an alternate TP.**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments/alternate TP |
| CATT | No | The Huawei’s CR is good but as mentioned above it should also fix the below typo in RRC text clause 5.7.4.2 (we just spotted):  2> if the UE's preference changed from the last time UE initiated transmission of the *UEAssistanceInformation* message including *referenceTimeInfo~~Interest~~Preference*:  3> initiate transmission of the *UEAssistanceInformation* message in accordance with 5.7.4.3 to provide preference in (not) being provisioned with reference time information. |
| Huawei |  | Fine to correct the above typo. |
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| **Summary:** |

R2-2010102 Correction regarding TimeReferenceSFN only for CG Type 1 Huawei, HiSilicon CR Rel-16 38.331 16.2.0 2174 - F NR\_IIOT-Core

This proposed CR addresses the configured grant configuration and aims at clarifying in its field description that the parameter *timeReferenceSFN* is only applied to Type 1 configured grants. One argument being that this already explicitly mentioned for the equivalent sidelink parameter, *sl-TimeReferenceSFN-Type1*.

**Q4a: Do you agree a clarification is needed in the field description of *timeReferenceSFN* explicitly capturing that it only applies to Type 1 configured grants?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| CATT | No | We think the field description refers to the appropriate clause in MAC specification and there is no room for ambiguity. |
| Samsung | No strong view | It is a simple text clarification which is correct. For type 2 CG, SFN does not to be configured at all. |
| Ericsson | No | The field is included in the rrc-ConfiguredUplinkGrant and every field within rrc-ConfiguredUplinkGrant is for type 1  No fields within rrc-ConfiguredUplinkGrant have added the suffix type-1 or have clarification that it is for type 1. If we follow the same logic in the CR, then every field inside rrc-ConfiguredUplinkGrant needs to be changed including the legacy Rel-15 fields.. |
| Nokia | No | We do not see the necessity for such change |
| LG | No |  |
| Huawei | Yes | It is simple clarification for the benefit of a reader who might search directly into this field description. So a simple addition of “type 1” before “configured grant configuration” could help a bit. We observe that every field for rrc-ConfiguredSidelinkGrant-r16 do have type-1 suffix. |
| OPPO | No | Current spec is clear. |
| Xiaomi | NO | Agree with the understanding from Ericsson |

**Q4b: If you answered “Yes” to Q4a, do you also agree the CR? And if not, please propose an alternate TP.**

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| --- | --- | --- |
| Company | Yes/No | Comments/alternate TP |
| Samsung | Yes |  |
| Huawei | Yes |  |
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| **Summary:** |

### EHC

R2-2010103 Correction regarding reconfigure EHC Huawei, HiSilicon CR Rel-16 38.331 16.2.0 2175 - F NR\_IIOT-Core

This CR addresses the Ethernet Header Compression configuration field (*ethernetHeaderCompression*) and proposes adding the condition that *drb-ContinueEHC-DL* or *drb-ContinueEHC-UL* are not configured for expecting the network to reconfigure EHC upon reconfiguration involving PDCP re-establishment.

**Q5a: Do you agree it is needed to clarify that *drb-ContinueEHC-DL* and *drb-ContinueEHC-UL* should not be configured for the network to reconfigure *ethernetHeaderCompression* upon reconfiguration involving PDCP re-establishment for downlink or uplink, respectively?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| CATT | Yes |  |
| Samsung | Yes |  |
| Ericsson | Yes |  |
| Sharp | Yes |  |
| Nokia | Yes |  |
| LG | Yes |  |
| Huawei | Yes |  |
| OPPO | Yes |  |
| Xiaomi | Yes |  |

**Q5b: If you answered “Yes” to Q5a, do you also agree the CR? And if not, please propose an alternate TP.**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments/alternate TP |
| CATT | No | The network reconfigures *ethernetHeaderCompression* only upon reconfiguration involving PDCP re-establishment for downlink or uplink, and when *drb-ContinueEHC-DL* or *drb-ContinueEHC-UL* are not configured respectively. |
| Samsung | No | We don’t need to specify downlink or uplink because the parameter name already implies that information as follows:  The network reconfigures *ethernetHeaderCompression* only upon reconfiguration involving PDCP re-establishment without *drb-ContinueEHC-DL* and *drb-ContinueEHC-UL*. |
| Ericsson | No | The *ethernetHeaderCompression* field states that it is only for bi-directional DRB, so both DL and UL are involved. The understanding is that both directions get PDCP re-establishment at the same time. In other words, PDCP re-establishment is always triggered for both UL/DL at the same time. The simpler change can be that  The network reconfigures *ethernetHeaderCompression* only upon reconfiguration involving PDCP re-establishment and with neither *drb-ContinueEHC-DL* nor *drb-ContinueEHC-UL* configured |
| Sharp | Yes |  |
| Nokia | No | Samsung’s suggestion seems to be the simplest |
| LG | No | We prefer Samsung’s text. |
| Huawei |  | CATT version is fine for us. EHC is configured for DL and UL separately and we want to reflect this principle here. When PDCP re-establishment triggered for both UL/DL at the same time, our version and CATT version shall cover this case. |
| OPPO | Yes | CATT’s version is also ok. |
| Xiaomi | No | We prefer the proposed changes from Samsung. |

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| **Summary:** |

### Other

R2-2009909 CR on 38.331 for DL BWP configuration and LCH configuration for NRIIOT ZTE Corporation, Sanechips CR Rel-16 38.331 16.2.0 2142 - F NR\_IIOT-Core

This CR addresses two issues.

The first issue is a wrong reference to PHY specifications in the field description of *configuredGrantConfigType2DeactivationStateList* from *BWP-UplinkDedicated* I.E.

**Q6a: Do you agree the PHY specification referred to in the field description of *configuredGrantConfigType2DeactivationStateList* should be clause 10.2 in TS 38.213 instead of clause 6.1 in TS 38.214?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| CATT | Yes |  |
| Samsung | Yes |  |
| Ericsson | Yes |  |
| Sharp | Yes |  |
| Nokia | Yes |  |
| LG | Yes |  |
| Huawei | Yes |  |
| OPPO | Yes |  |
| Xiaomi | Yes |  |

**Q6b: If you answered “Yes” to Q6a, do you also agree the CR? And if not, please propose an alternate TP.**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments/alternate TP |
| CATT | Yes |  |
| Samsung | Yes |  |
| Ericsson | Yes |  |
| Sharp | Yes |  |
| Nokia | Yes |  |
| LG | Yes |  |
| Huawei | Yes |  |
| OPPO | Yes |  |
| Xiaomi | Yes |  |

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| **Summary:** |

The second issue is related to *allowedServingCell* parameter of an LCH configuration, which is mandatory with CA duplication, characterized by “the PDCP entity is associated with multiple RLC entities belonging to the same cell group”. The proponents claim that this excludes the case where the RLC entities are in one cell group and the PDCP is in another cell group which should also be considered as CA duplication.

**Q7a: Do you agree that the current description of CA duplication in RRC (*PDCP-CADuplication*) “*the PDCP entity is associated with multiple RLC entities belonging to the same cell group*” excludes the scenario where all RLC entities are in one cell group and the PDCP is in another cell group?**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| CATT | No | Such scenario falls in the CA duplication cases where *allowedServingCell* should be mandatorily configured and we interpret the above as the “multiple RLC entities” belong to the same cell group, but not necessarily that of the PDCP entity. |
| Samsung | No | The location of PDCP entity is not visible to UE and is not used. So this clarification is not needed. |
| Ericsson | No | The wording used in IIoT WI is that PDCP is associated with multiple RLC entities. There is no reference to where PDCP entity is, e.g., on MCG or SCG. |
| Sharp | No | We share above companies view. |
| Nokia | No | There is no problem with the existing text. As long as we have multiple RLC entities in a cell group, it could be deemed as CA duplication, regardless of where the PDCP is hosted. |
| LG | No |  |
| Huawei | No | Agree with CATT and Samsung, “belonging to the same cell group” is used for “multiple RLC entities”. There is no misinterpretation. |
| OPPO | No | Agree with Ericsson. |
| Xiaomi | No |  |

**Q7b: If you answered “Yes” to Q7a, do you also agree the CR? And if not, please propose an alternate TP.**

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| --- | --- | --- |
| Company | Yes/No | Comments/alternate TP |
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| **Summary:** |

R2-2009499 Clarification of Uplink Cancellation Priority Configuration Apple discussion Rel-16 NR\_IIOT-Core

This contribution raises the issue that the term “intra-UE priority indicator” in the below field description of *uplinkCancellationPriority* is undefined.

***uplinkCancellationPriority***

Configures uplink cancellation behavior if both UL CI and intra-UE priority indicator are configured for a given UE. If the field is present, then UL CI is only applicable to the UL transmissions indicated/configured as low priority level. If the field is absent, UL CI is applicable to UL transmission irrespective of its priority level (see TS 38.213 [13], clause 11.2A).

Rapporteur respectfully indicates that the above term refers to the PHY parameter “priority indicator” for a PUSCH included in DCI format 0\_1/0\_2 (TS 38.212 clause 7.3.1) which presence is configured in *PUSCH-Config* I.E. in TS 38.331 by the parameters *priorityIndicatorDCI-0-1* and *priorityIndicatorDCI-0-2* for DCI formats 0\_1 and 0\_2 respectively:

|  |
| --- |
| ***priorityIndicatorDCI-0-1, priorityIndicatorDCI-0-2***  Configures the presence of "priority indicator" in DCI format 0\_1/0\_2. When the field is absent in the IE, then the UE shall apply 0 bit for "Priority indicator" in DCI format 0\_1/0\_2. The field *priorityIndicatorDCI-0-1* applies to DCI format 0\_1 and the field *priorityIndicatorDCI-0-2* applies to DCI format 0\_2 (see TS 38.212 [17] clause 7.3.1 and TS 38.213 [13] clause 9). |

And its usage is specified in TS 38.213 clause 9 as follows:

|  |
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| If in an active DL BWP a UE monitors PDCCH either for detection of DCI format 0\_1 and DCI format 1\_1 or for detection of DCI format 0\_2 and DCI format 1\_2, a priority index can be provided by a priority indicator field. If a UE indicates a capability to monitor, in an active DL BWP, PDCCH for detection of DCI format 0\_1 and DCI format 1\_1 and for detection of DCI format 0\_2 and DCI format 1\_2, a DCI format 0\_1 or a DCI format 0\_2 can schedule a PUSCH transmission of any priority and a DCI format 1\_1 or a DCI format 1\_2 can schedule a PDSCH reception and trigger a PUCCH transmission with corresponding HARQ-ACK information of any priority. |

**Q8: Do you think the term “intra-UE priority indicator” in the field description of *uplinkCancellationPriority* parameter needs to be clarified? If yes, please provide a TP.**

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| CATT | No | If companies do think it is unclear, maybe a simple reference to TS 38.213 clause 9 could be added right after the term. |
| Samsung | Yes | We agree that intra-UE priority indicator does not exist in the spec. As we discussed during the online discussion, PHY priority index can replace this.  We would suggest to change “priority indicator” to “phy-PriorityIndex” in the field description of uplinkCancellationPriority. |
| Ericsson | No | The intended behavior is clear from the second and the third sentence of the field description. This is a RAN1 only feature. Most likely the field description is copied and pasted from the RAN1 RRC parameter list. If RAN1 has provided this list, it means that they understand what it means. Further change in RRC needs to be carefully reviewed and, if needed, confirmed/consulted with RAN1 in case we don’t unintentionally change the meaning. Unless it is really needed (for example to correct a mis-understanding or to optimize ASN.1 code structure), we prefer keeping it as it is. |
| Sharp | No | We agree with Ericsson. |
| Nokia | No | As far as we know, the only priority information indicated in DCI is for intra-UE prioritization. We think it is sufficient clear and cannot be misinterpreted, so the change is not necessary. |
| LG | No |  |
| Huawei | No | Agree with CATT |
| OPPO | No | Agree with Ericsson. |
| Xiaomi | Yes | Agree with Samsung |

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| **Summary:** |

The 2nd proposal of the contribution to add a generic term as an umbrella for PHY-based prioritization was already discussed online and not agreed.

# Conclusion

# Reference

1. R2-2008863 Correction on dynamic PUSCH skipping when PUCCH with UCI overlaps with PUSCH; CATT
2. R2-2008864 Clarification on referenceTimePreferenceReporting in RRC Reconfiguration Procedure; CATT
3. R2-2009376 Correction on the pre-requisite condition for dci-UL-PriorityIndicator-r16; Huawei, HiSilicon
4. R2-2009499 Clarification of Uplink Cancellation Priority Configuration; Apple
5. R2-2009909 CR on 38.331 for DL BWP configuration and LCH configuration for NRIIOT; ZTE Corporation, Sanechips
6. R2-2010101 Correction on UE preference for reference time information provisioning; Huawei, HiSilicon
7. R2-2010102 Correction regarding TimeReferenceSFN only for CG Type 1; Huawei, HiSilicon
8. R2-2010103 Correction regarding reconfigure EHC; Huawei, HiSilicon