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

Elbonia, Online, 01 – 12 June 2020

**Agenda item: 6.0.2**

**Source: Intel Corp, NTT DoCoMo**

**Title: E-mail discussion: [AT110e][963][NR16] UE capabilities**

**WID/SID: NR Release 16**

**Document for: Discussion and Decision**

# 1 Introduction

After the online discussion in RAN#110-e meeting, the following is agreed.

* [AT110-e][963][NR16] UE Capabilities (Intel, NTT Docomo)

 Scope: The Main NR UE caps Email Thread for R2 110-e.

 Follows the plan in R2-2006020. Relevant tdocs can be treated here

 Deadlines: See R2-2006020 and Rapporteur announcements.

In this document, the rapporteurs intend to collect feedback from companies on the CRs with the content from the so far agreed UE features from RAN1 and RAN4 list.

The rapporteurs intend to trigger another discussion (online and offline) once the final list is provided by RAN1 and RAN4 and so this is to collect the feedback on the content that is submitted so far.

# 2 Review of the capability CRs

NOTE: the companies are also encourage to provide review comments directly on the CRs by incrementing versions, if they wish.

## 2.1 38.331 CR

**Views on the CR**

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| Company | Comments |
| Huawei, HiSilicon | **General:**We understand the rapporteur would remove the FFS/TBD parts from the CR later. Perhaps it can be done after receiving the update from RAN1/RAN4 to avoid duplicated work.Then we realized that RAN1 actually took RAN plenary guidance in RP-200502 as the basic principle and the below part in RP-200502 seems already defined components for one feature group should have a joint indication. *Terminology definitions based on Rel-15 (TR38.822)** 1. *“Feature(s)”: It is a highest level grouping. In Rel-16, it is per-WI grouping.*
	2. *“Feature group(s)”: It is a kind of “subfeature(s)” within a “feature”, and is defined by each row in the UE features list.*
	3. *“Component(s)”: One feature group contains one or multiple components. When UE reports support of the feature group, basically it is applied to all components in the feature group.*

We understand some components from RAN1 would have value ranges, but the intention is that once the feature group is supported all the components should be supported together. In this case we think it is important that we should use a correct structure to reflect what RAN1 wants. We think we should have a generic principle. For example, if there is a feature group including components as below:FG-XComponent 1: support or notComponent 2: support or notComponent 3: value rangesComponent 4: value rangesComponent 5: support or notThen we should have an ASN.1 structure as a container for FG-X, sth. like below:Name of the feature group::= SEQUENCE {Component 3 {value ranges},Component 4 {value ranges},} OPTIONALOnce the FG is indicated supported, component 1, 2, 5 are automatically supported while component 3 and 4 needs to show exact value selected. In 38.306 we need to explicitly define component 1-5 are supported once indicated. We are OPEN to discuss whether there are any alternatives, but the intention is that RAN2 signaling needs to reflect RAN1’s logic.MR-DC/CA1. 18-4, we understand it should be “Support for SCell dormancy indication sent within the active time on SPCell in the same cell group with DCI format 0\_1/1\_1”. We could double check with RAN1. In addition, in draft 38.331 they are put under CA-ParametersNR-v16xy but in draft 38.306 they are put under Phy-Parameters which is per UE.
2. 18-2/18-3, RAN2 has defined *singleUL-Transmission* and *tdm-Pattern* in Rel-15, it is not clear what the relation is between them. 18-2/18-2a/18-2c/18-3/18-3a are missing in draft 38.331 and 38.306.
3. 18-5/18-5a/18-5b, RAN2 has already define a capability signaling for cross-carrier scheduling *crossCarrierScheduling-OtherSCS* and it is not used in Rel-15. Not sure if a new capability signaling needs to be introduced, it seems that Rel-15 signaling can be reused. In draft 38.331 new Rel-16 bits are added for 18-5/18-5a/18-5b, but in draft 38.306, corresponding capability descriptions are missing.
4. For asynchronous NR-DC, LS includes “RAN1 respectfully ask RAN2 to introduce an FG for indicating support of asynchronous NR-DC operation”, not sure why there is no such FG in the feature list for MR-DC/CA.

NR-U1. 10-24, for IE *mux-CG-UCI-HARQ-ACK*, the name should be *muxCG-UCI-HARQ-ACK*.
2. 10-27, for IE *prach-Wideband*, not clear why this should be an optional UE capability. It is configured by system information and all the UEs supporting NRU should support this.

2stepRACH1. Only FG 9-1 should be captured, as other FGs are with brackets.

UE power saving1. 19-1 should be captured in the draft 38.331 and 38.306.
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Rapporteur summary for Q1:

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## 2.2 38.306 CR

**Views on the CR**

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| Company | Comments |
| Huawei, HiSilicon | MR-DC/CA1. 18-1, the Prerequisite feature is intra-FR DC, we would like to confirm if 18-1 is conditional mandatory signaling. If it is, it needs to be captured in draft 38.306 clearly. In addition, in draft 38.331, 18-1/18-1a/18-1b are put under CA-ParametersNRDC-v16xy, but in draft 38.306, they are put under NRDC-Parameters which seems not right.
2. 18-6a, *defaultQCL-assumptionCrossCarrierAperiodicCS-RS* is missing in draft 38.306.
3. 18-8, the Prerequisite feature 6-7 is in per FS signalling, not sure why the 18-8 is per UE signalling. *harq-codebookTypeperPUCCH-group* is missing in draft 38.306.

IAB1. 20-5b and 20-8 are missing in draft 38.306, the name of 20-5a and 20-6 are not aligned between draft 38.331 and 38.306, the description of 20-6 needs update to align with the wording in the RAN1 feature list.
2. According to the RAN1 feature list, all the capability signalling for IAB should be optional, so the “CY” should be “No”, and the “The supported is mandated for an IAB MT UE.” Should be removed as it is not mentioned by RAN1 feature list.

NR-U1. In 38.306, the name of the parameters should be italic and bold.
2. 10-23, the parameter name “*cgi-AcquisitionOffSyncRasterSSB*” is not quite accurate. RAN1 is putting “*offSyncRasterSSB*” in bracket and have a high chance to remove it. The description of the parameter is redundant. Suggest to change it as: Indicates whether the UE supports acquisition of CGI in RMSI of the neighboring unlicensed cell and perform CGI reporting to the network.
3. For IE *dL-only*, it is removed from draft 38.331 while it is still in draft 38.306. If it is related to FG 10-1/1(a), it is about UL channel access for dynamic/semi-static channel access mode, rather than DL.
4. For IE *csi-RS-RLM-OutsideDiscBurstTxWindow*, *dl-RxWithRB-Subset*, *Standalone*, *pucch-F2-PRB-Interlace*, *pucch-F3-PRB-Interlace*, they are removed from draft 38.331 while still in draft 38.306.

UE power saving1. 19-2, the description for *crossSlotScheduling* is too simple, prefer to align with the text in the feature list, only “scheduling restriction by DCI format 0\_1 and 1\_1” is described in RAN1 spec instead of cross slot scheduling.
2. 19-4a, there is a typo for the name of 19-4a in draft 38.306, there is an extra space.
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Rapporteur summary for Q1:

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## 2.3 37.355 CR (note: the contents of this are to be treated also in separate online Positioning session)

**Views on the CR**

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| Company | Comments |
| Huawei, HiSilicon | We are confused why this part is needed. There is already an ongoing discussion [608][POS] Positioning capabilities (Intel) and we prefer not to duplicate the discussion.  |
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Rapporteur summary for Q1:

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