3GPP TSG-RAN WG Meeting #90 Electronic [RP-20xxxx](http://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_90e/Docs/RP-20xxxx.zip)

Online, 7 – 11 December 2020

**Agenda item: 14**

**Source: Nokia (rapporteur)**

**Title: Summary of [90E][40][BWCS\_reporting]**

**WID/SID: NR\_NewRAT-Core - Release 15**

**Document for: Discussion and Decision**

# 1 Introduction

This discussion handles the following document:

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| **Tdoc** | **Title** | **Source** |
| [RP-202514](http://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_90e/Docs/RP-202514.zip) | BWCS reporting of intra-band parts of inter-band EN-DC | TELUS, Bell Mobility, Samsung |

The document content which is related to the RAN2#112 discussion on the same subject:

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| New Input  R2-2011044 Clarification on BWCS for inter-ENDC BC with intra-ENDC band combination Bell Mobility, Telus, Nokia, Nokia Shanghai Bell  DISCUSSION  - Oppo wonder if the problem is that UEs in the field don’t apply the CR. Is that the issue? Nokia confirms, and have some additional questions. Oppo winder if this is mandatory for the UE. Yes this is how Nokia understands the R2 TS, but think this understanding is not for everyone.  - Ericsson wonder if we really need to clarify, the field descr seems to indicate that the UE shall report. Ericsson think we might need to check wider.  - ZTE wonders if there is other cases than 3A 3A. Nokia think this is one example, not sure there are more. ZTE are also ok to postpone.  - Apple are ok with email, but also ok to just postpone.  - Huawei are ok with intention, but need time to check ok to postpone,  - vivo wonder if UE doesn't support 3A 3A what to report. Nokia think we need to check UL configuration,  - Nokia suggest 1 week email to clarify the intentions, maybe no CR is needed.   * [Post112-e][052][NR15] BWCS for inter-ENDC BC with intra-ENDC band combination (Nokia)   Scope: Based on R2-2011044, collect comments, determine agreeable clarifications.  Intended outcome: Report, possibly draft CR, (unclear what ambition level can be possible).  Deadline: short email discussion (not for RP).  => Postponed |

As per the guidance, the goal of this disucssion is generate an agreeable way forward. To that end, section 2 first summarizes the technical background of [RP-202514](http://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_90e/Docs/RP-202514.zip), whereas the section 3 is used for the questions and company responses that are used to generate the way forward.

# 2 Background

The discussion in [RP-202514](http://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_90e/Docs/RP-202514.zip) boils down to a simple question: **Does what UE supports for UL for an EN-DC band combination determine whether the band combination can be characterized as an intra-band EN-DC?**

More specifically, the document highlights the example band combination DC\_2A-7A-7A-66A-n66A, which is shown below:



Figure 1: Illustration of example intra-band EN-DC band combination with additional inter-band NR/LTE CA component

As is typical with such EN-DC band combinations (with multiple bands), the support of UL can be on multiple parts. In particular, the above example requires UE to support UL on either 2A+n66A, 7A+66A or 66A+n66A, but NOT necessarily on all of those, as per the figure below (illustrating how to interpret the excerpt from 38.101-3):



Figure 2: Illustration of possible UL capabilities for the example band combination

According to RAN2 fallback BC definition, if UE supports BC DC\_**2A**-7A-7A-66A-**n66A**(with UL support using shown with **bolding**), UE shall support also all band combinations that arise from dropping away SCell, UL part of an SCell or SCG. Since RAN2 agreed CRs [R2-2002390](http://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2002390.zip) & [R2-2002127](http://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_109_e/Docs/R2-2002127.zip) mandate the reporting of the capability supportedBandwidthCombinationSetIntraENDC for band combinations involving intra-band EN-DC with additional inter-band NR/LTE CA component, it needs to be clear whether a UE indication BC DC\_**2A**-7A-7A-66A-**n66A** is counted as intra-band EN-DC with additional inter-band NR/LTE CA component or not when UE does NOT support

Finally, we note (for discussion reference) that the document [RP-202514](http://www.3gpp.org/ftp/tsg_ran/TSG_RAN/TSGR_90e/Docs/RP-202514.zip) makes the following observations and one proposal based on those:

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| **Observation 1: The reporting of the supportedBandwidthCombinationSetIntraENDC is mandatory for an intra-band EN-DC combination with an additinal inter-band NR/LTE CA component.**  **Observation 2: The current RAN2 CRs unnecessarily impose constraints on deployed UE’s only supporting the inter-band EN-DC and future UEs which do not intend to support the intra-band EN-DC portion of the bigger combination.**  **Proposal 1: Only if the UE supports the intra-band EN-DC and can additionally support the larger inter-band EN\_DC, then the UE and the NW can view the DC combination as an intra-band EN-DC with inter-band components. The network assumes the intra-band EN-DC is not supported if the IE:supportedBandwidthCombinationSetIntraENDC is not reported, and the network is allowed to configure the larger inter-band EN-DC part (including the fallback BCs) for this band combination. .** |

# 3 Discussion

The discussion in this section focuses on attempting to find out how to characterize the intra-band EN-DC band combinations, and what are the implications of the decision.

**Question 1 (concrete example band combination)**: If UE supports the band combination DC\_**2A**-7A-7A-66A\_**n66A**, so that UL (for DC) is only supported for 2A and n66A (i.e. UE does NOT support UL on 66A and n66A). Should UE indicate the capability *supportedBandwidthCombinationSetIntraENDC* (which is mandatory for intra-band EN-DC band combinations) in its capabilities for that band combination?

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| Answers to Question 1 | | |
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**Summary 1**: TBD.

**Proposal 1**: TBD.

**Question 2 (general definition)**: Does the support of UL on intra-band parts determine whether UE considers a band combination as "intra-band EN-DC with additional inter-band NR/LTE CA component"?

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| Answers to Question 2 | | |
| Company | Yes/No | Technical Arguments |
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**Summary 2**: TBD.

**Proposal 2**: TBD.

**Question 3 (field issue)**: If UE doesn't indicate *supportedBandwidthCombinationSetIntraENDC* for a band combination that is intra-band EN-DC with additional inter-band NR/LTE CA component, how is the UE support of BCS for the intra-band EN-DC downlink band entries determined?

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**Summary 3**: TBD.

**Proposal 3**: TBD.

# 4 Conclusion

TBA

# Annex – Contact Points

Respondents to the email discussion are kindly asked to fill in the following table.

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| --- | --- | --- |
| Company | Name | Email Address |
| Discussion moderator | Tero Henttonen | tero.henttonen@nokia.com |
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