**3GPP T****SG-RAN WG4 Meeting#111**

**Fukuoka, Japan, 20 – 24 May 2024**

**Agenda item:** 6.1

**Source:** Moderator (Skyworks Solution Inc.)

**Title:** OfflineCommentTopic5&6 CR-TP review [110][105] NR\_Baskets\_Part\_1

**Document for:** Offline comment

# Introduction

AI 6.1 Issues arising from basket WIs but not subject to block approval

* AI 6.1 Topic 5: CR requiring attention from experts
* AI 6.1 Topic 6: Place holder: contributions transferred from block approval.

# AI 6.1 Topic #1: Band combination with intra-band ULCA

# Topic #2: Discussion on MSD test point for band combination with intra-band ULCA

# AI 6.1 Topic 3: Band combination with close proximity issues

# AI 6.1 Topic 4: Harmonic mixing

# AI 6.1 Topic 5: CR requiring attention from experts

## Companies’ contributions summary

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| **T-doc number** | **Title** | **Company** | **Proposals / Observations** |
| [**R4-2408039**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408039.zip) | CR for TS 38.307: Updates for new type of NE-DC configurations in Rel.18 | CHTTL | The following new intra-band NE-DC contiguous proposed in Rel.18 baskets will have impact on 38.307 specification if introduced to the 38.101-3 due to the increased number of E-UTRA CCs.  - DC\_40(n)AC  - DC\_40(n)AD  Note that this approach is aligned with the guideline:  When a new release independent feature is introduced, only the latest release of release independent specification shall be updated. The latest release of release independent specification refers to "release N", i.e. the release in which a feature is introduced into TS 38.101 or TS 38.133.  Update Table 8.2.2-1 NE-DC contiguous intra-band configurations within FR1 to aligned with the new configurations mentioned above.  Note that since the above two configurations are on-going before the meeting, the changes are proposed in a square bracket as this is the last meeting for this WI. And it is suggested that if the above two configurations are going to approved in this meeting, the CR can be revised by removing the square bracket can be removed.  Moderator: CR is reviewed directly in the CR review section offline before the Adhoc. A special thread will be created. |
| [**R4-2408187**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408187.zip) | CR for TS 38.846: Corrections on UL triple beat analysis table | CHTTL, Samsung | Some errors and misalignments are found in the uplink triple beat IMD products table.  Currently the first row for the 1st order TB in Table 6.5.3-1:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1st order TB | IfU3L -fU1L- fSCCL| | IfU2L -fU1L + fSCCL| | IfU2L -fU1L- fSCCH| | IfU3L -fU1L + fSCCH| |   However, if these equation are mapped to the TB1, TB2 in the WF R4-2220556.  - TB1 = |f1+f2-f3|  - TB2 = |f1-f2+f3|  (f1 is the fSCC, and assume f2 > f3)  Then table above will become:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1st order TB | minimum TB2 | minimum TB1 | maximum TB2 | maximum TB1 |   It should be corrected to the following table:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | 1st order TB | minimum TB2 | maximum TB2 | minimum TB1 | maximum TB1 |   So the middle two cells need to be swapped, so that the impacted range can displayed correctly.And some errors are found.  Moderator: CR is reviewed directly in the CR review section offline before the Adhoc. A special thread will be created. |
| [**R4-2408503**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408503.zip) | CR to TS 38.101-3 Rel18 Removal of Unnecessary NE-DC Requirements | Huawei, HiSilicon | Despite specification in 4.2 which indicates that NE-DC requirements are similar to EN-DC (unless specified otherwise) some unnecessary requirements have been specified. With this CR we plan to remove them and replace some of them with general statements. Some editorial corrections are performed, too.  NOTE: This CR is not for block approval  Moderator: CR is reviewed directly in the CR review section offline before the Adhoc. A special thread will be created. |
| [**R4-2408477**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408477.zip) | (DC\_R17\_1BLTE\_1BNR\_2DL2UL-Core) CR to TS 38.101-3 Rel17 Removal of Unnecessary NE-DC Requirements | Huawei, HiSilicon | Despite specification in 4.2 which indicates that NE-DC requirements are similar to EN-DC (unless specified otherwise) some unnecessary requirements have been specified. With this CR we plan to remove them and replace some of them with general statements. Some editorial corrections are performed, too.  NOTE: This CR is not for block approval  Moderator: CR is reviewed directly in the CR review section offline before the Adhoc. A special thread will be created. |
| [**R4-2408490**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408490.zip) | DC\_R16\_1BLTE\_1BNR\_2DL2UL) CR to TS 38.101-3 Rel16 Removal of Unnecessary NE-DC Requirements | Huawei, HiSilicon | Harmonize the NE-DC requirements in section 4.2 Rel16, as it is the case for Rel17 and 18. Remove the unnecessary NE-DC requirements. Some editorial corrections are performed, too. NOTE: This CR is not for block approval  Moderator: CR is reviewed directly in the CR review section offline before the Adhoc. A special thread will be created. |
| [**R4-2409467**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409467.zip) | Draft CR for TS 38101-3 to clarify 1 UL configuration for NR Inter-band CA configurations between FR1 and FR2 | Huawei, Hisilicon | This formal CR is the same with the endorsed draft CR R4-2405300. Its purpose is to clearly specify the single UL configurations in the current specification TS38.101-3.  Moderator: CR is reviewed directly in the CR review section offline before the Adhoc. A special thread will be created. Already endorsed in R4#110b |
| [**R4-2409468**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409468.zip) | (NR\_CADC\_R18\_yBDL\_xBUL) CR for TS 38101-2 to clarify 1 UL configuration for CA | Huawei, Hisilicon | This formal CR is the same with the endorsed draft CR R4-2405301 in the RAN4#110bis meeting.Its purpose is to clearly specify the single UL configurations for NR CA in the current specification TS38.101-2.  Moderator: CR is reviewed directly in the CR review section offline before the Adhoc. A special thread will be created. Already endorsed in R4#110b |
| [**R4-2409469**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409469.zip) | (NR\_CADC\_R18\_yBDL\_xBUL) CR for TS 38101-1 to clarify 1 UL configuration for NR CA | Huawei, Hisilicon, Skyworks Solutions Inc. | This formal CR is the same with the endorsed draft CR R4-2403714. Its purpose is to clearly specify the single UL configurations for NR CA in the current specification TS38.101-1.  Moderator: CR is reviewed directly in the CR review section offline before the Adhoc. A special thread will be created. Already endorsed in R4#110b |

## Open issues summary

Moderator: unless otherwise needed, the draft CRs will not be discussed in details in the Ad-hoc. Companies are

### Sub-topic 5-1 Draft CR review

Recommended WF: The CR should be reviewed offline to preserve ad-hoc time. A separate email thread will be used with below table to review offline and check during Ad-hoc.

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| **T-doc** | **Company/Review comment** |
| [**R4-2408039**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408039.zip)CR for TS 38.307: Updates for new type of NE-DC configurations in Rel.18 | Company A |
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| [**R4-2408187**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408187.zip)CR for TS 38.846: Corrections on UL triple beat analysis table | Skyworks: Thank you for aligning the convention with our previous WF R4-2220556 guidelines.  If this CR gets agreed, it may be good to further cross-align the text of clause 6.5.3 brought in this CR with the text previously captured at the end of clause 7.4 regarding for the case of 3 band DL CA.  Could we consider capturing the text highlighted in yellow below from clause 7.4 into this CR clause 6.5.3?  “For type 3 UL configurations (e.g. CA\_n3A-n41C or DC\_3C\_n1A-n75A)  For the case when the victim band may be affected by a 1st order triple-beat product Proponents should systematically check if the downlink band may be affected by dual uplink IMD3 interference. If the test point is missing, a dual UL IMD3 MSD test point should be specified.  If TB frequency is composed of the frequency sum of the 2 discrete RBs in the contiguous UL CA, there is no need to specify the TB test configuration as the requirement can already be verified by the fallback 2UL IMD3. With reference to WF R4-2220556 [9], only the TB1 product |f1+f2-f3| and TB2 product |f1-f2+f3| should be considered – refer to TB landscape example of Figure 7.4-1. “  This would bring further consistency between these two clauses. |
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| [**R4-2408503**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408503.zip)CR to TS 38.101-3 Rel18 Removal of Unnecessary NE-DC Requirements | Company A |
| Skyworks: Thanks for bringing this CR. We have some comments:   * It may not be necessary to repeat the sentence “The requirements for EN-DC applies for NE-DC unless otherwise specified” in multiple places since Nokia pointed out in #110-bis that clause 4.2 already contains the sentence: “A terminal which supports NE-DC configurations shall meet the minimum requirements for corresponding EN-DC configuration, unless otherwise specified.” * Clauses for which requirements are deleted should be voided, not deleted. * Not sure the grammatical corrections are need |
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| [**R4-2409467**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409467.zip)Draft CR for TS 38101-3 to clarify 1 UL configuration for NR Inter-band CA configurations between FR1 and FR2 | Company A |
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| [**R4-2409468**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409468.zip) (NR\_CADC\_R18\_yBDL\_xBUL) CR for TS 38101-2 to clarify 1 UL configuration for CA | Company A |
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| [**R4-2409469**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409469.zip) (NR\_CADC\_R18\_yBDL\_xBUL) CR for TS 38101-2 to clarify 1 UL configuration for CA | Company A |
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| [**R4-2408477**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408477.zip) (DC\_R17\_1BLTE\_1BNR\_2DL2UL-Core) CR to TS 38.101-3 Rel17 Removal of Unnecessary NE-DC Requirements | Skyworks: Same comment as R4-2408503 |
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| [**R4-2408490**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408490.zip)DC\_R16\_1BLTE\_1BNR\_2DL2UL) CR to TS 38.101-3 Rel16 Removal of Unnecessary NE-DC Requirements | Skyworks: Same comment as R4-2408503 |
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# AI 6.1 Topic 6: Place holder: contributions transferred from block approval.

## Companies’ contributions summary

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| **T-doc number** | **Title** | **Company** | **Proposals / Observations** |
| [**R4-2408860**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408860.zip__;!!MyQQGECaxY11k7S_!aOd8Vnq1t6yP9nRo27qchW31HagTTn-euIAjhx_Bcm3DARJ8dnfobFIXqDpfiQ3rI5EcICw7wFKQlJYvHG0toF2Yxua7piym3Es$) | Draft CR for EN-DC Harmonic Mixing clean-up PC3 | Qualcomm France | Corrects MSD test points to meet the guidelines on CBW, LCRB and RB start |
| [**R4-2409422**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409422.zip__;!!MyQQGECaxY11k7S_!aOd8Vnq1t6yP9nRo27qchW31HagTTn-euIAjhx_Bcm3DARJ8dnfobFIXqDpfiQ3rI5EcICw7wFKQlJYvHG0toF2Yxua73Al16yc$) | Draft CR for EN-DC Uplink Harmonic clean-up PC3 | Skyworks Solutions Inc. | Corrects MSD test points to meet the guidelines on CBW, LCRB and RB start |
| [**R4-2408862**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408862.zip__;!!MyQQGECaxY11k7S_!a9NfVrtaiq7xZ-wtirgNn0Utrah4fy4cXxqC36-Ib3n1eBy3KWsxYJcPd-Z4fRzj6BEb5MEhxnRy98oagJe7J8lVakbz2_lH$) | Draft CR for NR CA Harmonic Mixing clean-up PC3 PC5 | Qualcomm France | Corrects MSD test points to meet the guidelines on CBW, LCRB and RB start |
| [**R4-2409420**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409420.zip__;!!MyQQGECaxY11k7S_!a9NfVrtaiq7xZ-wtirgNn0Utrah4fy4cXxqC36-Ib3n1eBy3KWsxYJcPd-Z4fRzj6BEb5MEhxnRy98oagJe7J8lValfUbTfG$) | Draft CR for NR CA Uplink Harmonic clean-up PC3 | Skyworks Solutions Inc. | Corrects MSD test points to meet the guidelines on CBW, LCRB and RB start |
| [**R4-2407224**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407224.zip__;!!MyQQGECaxY11k7S_!cLEDTbV10_zOQRKALJy1anBxTVIe9J9akUH0N8YlJmHKX1RAfYhUjNhVTFfhQd35InMD2iXuPKyZuN9RNaIznSU4cSLhcBrf$) | CR Bug Fixes 38101-3-i51\_s00-05 | Apple | This is a former CR, and includes several bakset WIDs, so it is not proper to discuss it in one specific basket  WID agenda. It is suggest to move to thread #105 |
| [**R4-2409315**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409315.zip__;!!MyQQGECaxY11k7S_!cLEDTbV10_zOQRKALJy1anBxTVIe9J9akUH0N8YlJmHKX1RAfYhUjNhVTFfhQd35InMD2iXuPKyZuN9RNaIznSU4cf77UvRS$) | TP for TR 38.718-02-01 to remove brackets and complete CA\_n78A-n104A | Huawei, HiSilicon | Since this TP was discussed in non-block approval in last meeting, so it would be better to move it to thread #105 for further check. (Still there are several barckets kept in the TP) |

## Open issues summary

### Sub-topic6-1 Draft CR/TPs review

Recommended WF: The CR/TP should be reviewed offline to preserve ad-hoc time. A separate email thread will be used with below table to review offline and check during Ad-hoc.

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| **T-doc** | **Company/Review comment** |
| [**R4-2408860**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408860.zip__;!!MyQQGECaxY11k7S_!aOd8Vnq1t6yP9nRo27qchW31HagTTn-euIAjhx_Bcm3DARJ8dnfobFIXqDpfiQ3rI5EcICw7wFKQlJYvHG0toF2Yxua7piym3Es$) Draft CR for EN-DC Harmonic Mixing clean-up PC3 | Skyworks / Laurent: We would like to thank Qualcomm for bringing these necessary corrections. We have received off-line comments that these changes combined with our changes may be problematic for RAN5 and need to have further offline discussions to find a way to clean-up the Rel-18 harmonic MSD test points. |
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| [**R4-2409422**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409422.zip__;!!MyQQGECaxY11k7S_!aOd8Vnq1t6yP9nRo27qchW31HagTTn-euIAjhx_Bcm3DARJ8dnfobFIXqDpfiQ3rI5EcICw7wFKQlJYvHG0toF2Yxua73Al16yc$) Draft CR for EN-DC Harmonic Mixing clean-up PC3 | Skyworks: Need further offline to address RAN5 concerns. |
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| [**R4-2408862**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2408862.zip__;!!MyQQGECaxY11k7S_!a9NfVrtaiq7xZ-wtirgNn0Utrah4fy4cXxqC36-Ib3n1eBy3KWsxYJcPd-Z4fRzj6BEb5MEhxnRy98oagJe7J8lVakbz2_lH$)Draft CR for NR CA Harmonic Mixing clean-up PC3 PC5 | Skyworks: same comment as R4-2408860. |
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| [**R4-2409420**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409420.zip__;!!MyQQGECaxY11k7S_!a9NfVrtaiq7xZ-wtirgNn0Utrah4fy4cXxqC36-Ib3n1eBy3KWsxYJcPd-Z4fRzj6BEb5MEhxnRy98oagJe7J8lValfUbTfG$)Draft CR for NR CA Uplink Harmonic clean-up PC3 | Skyworks: same comment as R4-2409420. Note that we also have:   * a PC2 NR-CA CR R4-2409421 in AI 6.17.2. * a discussion paper on further corrections needed for the UL configurations of all Harmonic MSD test points in R4-2407164 AI 5.3. This paper proposes a last set of changes for the August meeting where necessary changes are proposed for Lcrb, RBstart=0 to cross-align EN-DC test points with their NR-CA counterparts. |
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| [**R4-2407224**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2407224.zip__;!!MyQQGECaxY11k7S_!cLEDTbV10_zOQRKALJy1anBxTVIe9J9akUH0N8YlJmHKX1RAfYhUjNhVTFfhQd35InMD2iXuPKyZuN9RNaIznSU4cSLhcBrf$)CR Bug Fixes 38101-3-i51\_s00-05 | Company A |
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| [**R4-2409315**](https://urldefense.com/v3/__https:/www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_111/Docs/R4-2409315.zip__;!!MyQQGECaxY11k7S_!cLEDTbV10_zOQRKALJy1anBxTVIe9J9akUH0N8YlJmHKX1RAfYhUjNhVTFfhQd35InMD2iXuPKyZuN9RNaIznSU4cf77UvRS$)TP for TR 38.718-02-01 to remove brackets and complete CA\_n78A-n104A | Skyworks: We are ok to remove theses brackets. This reflects the discussions held in RAN4 meeting #110-bis. |
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