**3GPP TSG-RAN WG4 Meeting #101-bis-e R4-21XXXXX**

**Electronic Meeting, January 17-25, 2022**

**Agenda item:** 6.3.1, 6.3.2

**Source:** Moderator (Huawei, HiSilicon)

**Title:** Email discussion summary for [101-bis-e][118] NR\_RF\_FR1\_enh\_IntraHPUE

**Document for:** Information

# Introduction

Thread [118] includes following topics:

1. Topic #1: UL MIMO coherence for Tx switching
2. Topic #2: PC2 intra-band contiguous UL CA w/ and w/o UL MIMO
3. Topic #3: PC2 Intra-band NC UL CA which is for agenda
4. Topic #4: solution for Scell dropping which is for agenda

# Topic #1: UL MIMO coherence for Tx switching

## Companies’ contributions summary

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| **T-doc number** | **T-doc name** | **Company** | **Proposals / Observations** |
| [**R4-2200019**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200019.zip) | draft CR: UL MIMO coherence for Tx switching | China Telecom | **Updated the exception for coherent UL MIMO requirement to accommodate the Rel-17 Tx switching scenarios.** |

## Open issues summary

### Sub-topic 1-1: CR for 38.101-1 UL MIMO coherence for Tx switching

***Proposal: To Update the exception for coherent UL MIMO requirement to accommodate the Rel-17 Tx switching scenarios.***

* ***Option 1: Yes***
* ***Option 2: No***

***Moderator’s recommendation:***

* Recommended WF
	+ To agree the CR

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| **Company** | **Comments** |
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## Companies views’ collection for 1st round

### Open issues

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

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| **CR/TP number** | **Comments collection** |
| [**R4-2200019**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200019.zip) | Company A |
| Company B |
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## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

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|  | **Status summary**  |
| **Sub-topic#1** | *Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

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| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

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| **T-doc number** | **Company** | **Proposals / Observations** |
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# Topic #2: PC2 intra-band contiguous UL CA w/ and w/o UL MIMO

## Companies’ contributions summary

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| **T-doc number** | **T-doc name** | **Company** | **Proposals / Observations** |
| [**R4-2200334**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200334.zip) | Requirements for different architectures and their capabilities | Qualcomm Incorporated | **Observation 1: For contiguous UL CA, which MPR is applicable for 26+23 dBm implementation is not agreed.** **Observation 2: Full BW TX chains is the only possible way to support CA + UL MIMO with two PA’s.** **Proposal 1: Current MPR in 6.2A.2 for PC2 applies for contiguous UL CA with 26+23 dBm PA implementation** **Proposal 2: Current MPR in 6.2A.2 for contiguous UL CA PC2 applies for all cases when UE does not indicate TxD****Proposal 3: Current MPR in 6.2A.2 for PC2 applies for contiguous UL CA + UL MIMO with 26+23 dBm PA implementation** **Proposal 4: Current MPR in 6.2A.2 for contiguous UL CA + UL MIMO PC2 applies for all cases when UE does not indicate TxD** |
| [**R4-2200495**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200495.zip) | MPR for PC2 intra-band contiguous ULCA&MIMO 26+23 case | Skyworks Solutions Inc. | **Proposal for 26+23dBm delta MPR: same delta MPR is adopted than for 23+23dBm case**

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| **Allocation type** | **CP-OFDM** | **DFT-s-OFDM** |
| **contiguous inner** | **+0.5** | **+1** |
| **contiguous outer** | **+0.5** | **+1** |
| **non-contiguous inner** | **+0.5** | **+1** |
| **non-contiguous outer 1** | **+1** | **+1** |
| **non-contiguous outer 2** | **+1** | **+1** |

**Proposal on PC2 ULCA+MIMO MPR mapping to *TxD* and *modifiedMPR-Behaviour***

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| **Architecture** | **2Tx Delta MPR** | **1Tx MPR** | ***TxD*** | ***modifiedMPR-Behaviour*** |
| **23+23dBm** | **Yes as in section 1.1 in WF R4-2119954** | **Same as 2TX** | **yes** | **no** |
| **26+23dBm** | **Yes (same as 23+23dBm)** | **1Tx PC2 MPR in section 6.2A.2.1** | **no** | **no** |
| **26+26dBm** | **no** | **1Tx PC2 MPR in section 6.2A.2.1** | **no** | **yes** |

**Proposal** **for contiguous UL CA without MIMO for PC2: A case for bandwidth class B and C is added in section 6.2A.2.1** **of 38.101-1for UE signaling *TxD* with delta MPR vs Table 6.2A.2.1-1a and Table 6.2A.2.1-3, as in section 1.1 in WF R4-2119954.** |
| [**R4-2200497**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200497.zip) | Signaling for contiguous ULCA cases | Skyworks Solutions Inc. | **Proposal on MPR applicability for contiguous UL CA without MIMO for PC3 and PC2*** **Applicable to Tables 6.2A.2.1-1, 6.2A.2.1-2, 6.2A.2.1-1a and 6.2A.2.1-3**
* **Remove limitation to absence of *dualPA-Architecture* IE reporting**
* **Add that *uplinkTxDC-TwoCarrierReport-r16* is applicable to bandwidth class C**
 |
| [**R4-2200956**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200956.zip) | Discussion on MPR applicability and reference architectures for CA +UL MIMO and TxD | vivo | **Observation 1:** For CA+MIMO, the MPR performance of 26 + 23 dBm architecture is somewhere between 26+26 and 23+23;**Observation 2:** For single carrier TxD, 26+23 dBm architecture is similar to CA+UL-MIMO case in that its MPR performance should between 26+26 and 23+23;**Observation 3:** Too many requirements and signalling would make the spec unnecessarily complex.**Observation 4:** RAN4 seldom define reference architectures in the spec.**Observation 5**: 23 + 26 to declare TxD and achieve PC2 may not be typical case currently, for both single carrier and CA case.**Proposal 1: Not to explictyly define architectures, such as 23+23/26+23/26+26 in the spec.****Proposal 2: Do not introduce new signalling apart from existing TxD indication for CA+UL-MIMO requirements.** **Proposal 3: Define CA+UL-MIMO requirements as one of the following options:****Option 1:** Using TxD signalling as the only indication for PC2 requirements. Declaring TxD: requirements with delta to 1Tx (designed for 23+23); Not declaring TxD: 1Tx requirements.**Option 2:** Using delta requirements for all architectures for CA+UL-MIMO; |
| [**R4-2201069**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201069.zip) | MPR and capability signaling for 2Tx PC2 intra-band contiguous UL CA with UL MIMO | Samsung | ***Observation 1: For the same PA configuration, same PC2 2Tx MPR should be applied to TxD and UL MIMO for single CC or contiguous ULCA.******Observation 2: Leave TxD as implementation aspect means it depends on UE’s claim whether to support TxD and assume that UE that does not declare TxD meets 1Tx requirements and has at least one full power PA******Observation 3: To achieve PC2, the PA architecture, MPR options and UE capability for TxD or UL MIMO for single CC or contiguous UL CA are as below Table1.******Observation 4: We share the similar view that [0.5-1] dB difference between 2Tx and 1Tx or different 2TX PA configuration may not enough to introduce a new UE capability. Furthermore, some UE vendors may not want to disclose the RF architecture design.******Proposal 1: It is proposed to specify the same MPR for 2Tx PC2 contiguous UL CA with UL MIMO when UE claims supporting TxD. Accordingly, No new signaling needed to differentiate 23+23 and 23+26.******Observation 5：To sum up, for 26+26 PA configuration to achieve PC2, TxD is not allowed per GTW agreement and we also support this. In Rel-17 the 1Tx MPR can be reused for PC2 2Tx ULCA with UL MIMO, this is similar with 23+23 PA configuration to achieve 23, MPR for PC3 contiguous CA with 1TX should be used according to [6].******Proposal 2: Based on above discussion and choices, Table 1 could be simplified to Table 2, it can be conclude that reusing TxD is enough to differentiate MPR requirement for different PA architecture.*****Table 2 Proposed MPR for different PA architecture to achieve PC2**

|  |  |  |  |
| --- | --- | --- | --- |
| PA architecture (To achieve PC2) | Whether declare TxD | MPR options | Whether **additional** capability needed  |
| 23+23 | Yes | 23+23  | No |
| 23+26 | No | 1 PC2 Tx  | No |
| Yes | 23+23 | No |
| 26+26 | No | 1 PC2Tx  | No |

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| [**R4-2201270**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201270.zip) | R17 FR1 UL CA and UL MIMO MPR | OPPO | ***Observation 1: If 23+26 follows 26+26 UL MIMO MPR, TxD capability can be used to discriminate UE implementations with or without full power PA.******Proposal 1: For UE with 23+26 PAs the UL MIMO MPR follows 26+26 UL MIMO MPR.******Proposal 2: TxD capability is used to discriminate UEs with or without full power PAs.*** |
| [**R4-2201593**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201593.zip) | Draft CR TS 38.101-1 R17: Introduction of PC2 contiguous ULCA MPR for 2Tx | Skyworks Solutions Inc. | **1. Correct the restriction to *dualPA-Architecture* IE absent and add applicability of *uplinkTxDC-TwoCarrierReport-r16* to bandwidth class C****2. Introduction of delta MPR for 2Tx in tables** |
| [**R4-2201800**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201800.zip) | DraftCR on TS 38.101-1 on ULCA + ULMIMO | ZTE Wistron Telecom AB | 1. **Correct all section heads for suffix ‘H’ with the proposed changes**
2. **Some editorial errors are corrected.**
 |
| [**R4-2201946**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201946.zip) | On RF requirements for PC2 intra-band UL CA with UL MIMO | Huawei, HiSilicon | ***Observation 1: Based on previous agreements, two sets of MPR requirements are considered for 23+23dBm and 26+26dBm PA configurations, the issue is how to distinguish the applicable MPR requirements and which one is applicable to 23+26dBm.******Proposal 1: No new capability is needed for the applicable requirements for 23+26dBm. The applicable requirements can be distinguished by indication of dualPA-Architecture, or additionally with indication of TxD.*** |
| [**R4-2201947**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201947.zip) | Big CR for TS 38.101-1: contiguous CA with UL MIMO for power class 2 | Huawei, HiSilicon | **Specify the PC2 MPR requirements for Intra-band UL CA with UL MIMO.** |

## Open issues summary

### Sub-topic 2-1: MPR for contiguous UL CA

***Issue 2-1-1: MPR for 23+26dBm***

* Proposal:
	+ Option 1. 1T PC2 MPR for CA is applied (i.e. Current MPR in 6.2A.2 for PC2)
	+ Option 2: Same as 2T 23+23 with delta MPR based on measurement data

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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***Issue 2-1-2: Signalling for UL CA***

* Proposals ([**R4-2200497**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200497.zip)):
	+ Remove limitation to absence of *dualPA-Architecture* IE reporting
	+ Add that *uplinkTxDC-TwoCarrierReport-r16* is applicable to bandwidth class C

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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***Issue 2-1-3: Spec change for delta MPR with indication of TxD/dualPA***

* + Clarification Note in the existing MPR table for PC3 and PC2
	+ Separate Tables with relaxed MPR

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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### Sub-topic 2-2: MPR for contiguous UL CA + UL MIMO

***Issue 2-2-1: Whether UE architectures of 23+23, 23+26, 26+26 should be explicitly indicated in the spec***

* + Option 1. yes
	+ Option 2. no

***Moderator’s recommendation:***

* Recommended WF
	+ Moderator’s observation is that most companies prefer not to explicitly define the UE implementation architectures
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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***Issue 2-2-2: Whether new UE capabilities needed to be introduced for CA+MIMO other than existing capabilities;***

* + Option 1. yes
	+ Option 2. no

***Moderator’s recommendation:***

* Recommended WF
	+ Moderator’s observation is that most companies prefer using TxD as indication to distinguish applicable requirements
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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***Issue*** ***2-2-3: MPR for 23+26dBm***

* Proposal:
	+ Option 1. 1T PC2 MPR for CA is applied (i.e. Current MPR in 6.2A.2 for PC2)
	+ Option 2. Depends on whether TxD is indicated, i.e.
		- 1T PC2 MPR for CA w/o TxD
		- 2T 23+23 relaxed MPR w/ TxD
	+ Option 3. Using delta requirements (i.e. 2T 23+23 relaxed MPR) for all architectures for CA+UL-MIMO.

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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***Issue 2-2-4: MPR for 23+23, 26+26dBm***

* Proposals:
	+ Option 1: 1T PC2 MPR or 2T 23+23 relaxed MPR based on TxD indication
		- Only 23+23 implementation is allowed to indicate TxD
	+ Option 2: Using delta requirements (i.e. 2T 23+23 relaxed MPR) for all architectures for CA+UL-MIMO.

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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## Companies views’ collection for 1st round

### Open issues

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

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| **CR/TP number** | **Comments collection** |
| [**R4-2201593**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201593.zip)(Skyworks) | Company A |
| Company B |
|  |
| [**R4-2201800**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201800.zip)(ZTE) | Moderator observation: draft CR R4-2119516 in last meeting was already endorsed |
| Company A |
|  |
| [**R4-2201947**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201947.zip) (Huawei) | Company A |
| Company B |
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## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

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|  | **Status summary**  |
| **Sub-topic#1** | *Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

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| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

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| **T-doc number** | **Company** | **Proposals / Observations** |
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# Topic #3: Intra-band NC UL CA for FR1 power class 2

## Companies’ contributions summary

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| **T-doc number** | **T-doc name** | **Company** | **Proposals / Observations** |
| [**R4-2200334**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200334.zip) | Requirements for different architectures and their capabilities | Qualcomm Incorporated | **Observation 3: MPR for NC UL CA is transparent to TxD indication.** **Observation 4: MPR for 26+23 dBm PA architecture for NC UL CA can be chosen by the UE based on dualPA capability indication.** **Proposal 5: Applicable NC UL CA MPR is determined by *dualPA* IE and power class** |
| [**R4-2200336**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200336.zip) | 2CC LO location reportting and dualPA capability in rel-16 | Qualcomm Incorporated | **Observation 1: Specification for dualPA=0 is not a feasible from implementation point of view****Observation 2: If dualPA=0 is not feasible, frequency separation class is not needed**We made the following proposals**Proposal 1: Make rel-16 TS 38.101-1 specification transparent to *dualPA* capabilty**  |
| [**R4-2200493**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200493.zip) | Signalling on PC2 intra-band NC UL CA for FR1 | Nokia, Nokia Shanghai Bell | **Observation 1: Regarding differentiation of 2LOs or 1LO, *dualPA-Architecture* would be the most promising for the purpose of differentiating MPR for two LOs and that for one LO if using this capability as two PAs with two LOs does not impact on all the other requirements relevant to this capability in 38.101-1 and -3.****Observation 2: Regarding differentiation of 1LO 1x26 dBm PA and 1LO 2x23 dBm PAs, *modifiedMPR-*Behaviour would be the most promising for the purpose of differentiating MPR for 1LOs 1x26 dBm PA and that for 1LO 2x23 dBm PAs. Using per band capability of TxD would make UE implementation too restrictive and using a combination of two optional capabilities of TxD and ul-FullPwrMode(s) would make the specifications too complicated.****Observation 3: Whichever capability is used to differentiate applicable MPR, the side conditions such as relation between a gap and channel bandwidths shall be written in a crystal clear manner.** |
| [**R4-2200498**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200498.zip) | Requirement and signaling aspect of non-contiguous ULCA | Skyworks Solutions Inc. | **Proposal on 1LO/2LO signaling:*** **1LO and 2LO cases are differentiated by using *uplinkTxDC-TwoCarrierReport-r16* rather than *dualPA-Architecture* for both PC3 and PC2**
* ***uplinkTxDC-TwoCarrierReport-r16* is reported for the 2LO PC3 and MPR in sections 6.2A.2.2.1 and 6.2A.2.2.1 and PC2 MPR in section 3.3 of way forward R4-2114948**
* ***uplinkTxDC-TwoCarrierReport-r16* is not reported for the 1LO architectures using 1PA (*TxD* is not signaled) or 2x1/2 (*TxD* is signaled) and PC2 MPR in section 1.3 of way forward R4-2119955 applies.**

**Proposal on 1CC fall-back MPR for NC UL CA*** **When RBs are allocated only in one CC the following MPR applies for PC3:**
	+ **For PC3, there is no 2Tx cases, Table6.2.2-1 applies.**
* **When RBs are allocated only in one CC the following MPR applies for PC2:**
	+ **When *uplinkTxDC-TwoCarrierReport-r16* is reported Table6.2.2-2 applies.**
	+ **When *uplinkTxDC-TwoCarrierReport-r16* is not reported:**
		- **If *TxD* is signaled, 2Tx PC2 table in R4-2119971 applies**
		- **If *TxD* is not signaled, 1Tx PC2 in Table6.2.2-2 applies.**

**Proposal on NC ULCA+MIMO: If NC ULCA+MIMO is not pursued in Release 17, we recommend that it be on the agenda for Release 18 for discussion, as 2x1 architectures are common in TDD bands above 2.5GHz and offer de facto to support such feature.** |
| [**R4-2201674**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201674.zip) | Draft CR TS 38.101-1 R17: Addition of PC2 non-contiguous ULCA MPR requirements | Skyworks Solutions Inc. | **1. Correct the restriction to *dualPA-Architecture* IE absent and add applicability of *uplinkTxDC-TwoCarrierReport-r16* to bandwidth class C****2. Introduction of delta MPR for 2Tx in tables** |
| [**R4-2201943**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201943.zip) | Big CR for PC2 intra-band non-contiguous UL CA | Huawei, HiSilicon, Qualcomm | **Introduce the MPR requirements comply with -30dBm/Mhz and -13dBm/MHz requirements for:*** **PC2 UE with indicating dualPA-Architecture supported**
* **PC3 UE without indicating dualPA-Architecture supported**
* **PC2 UE without indicating dualPA-Architecture supported**
 |
| [**R4-2201944**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201944.zip) | Consideration on signalling to differentiate MPR for different architectures | Huawei, HiSilicon | ***Observation 1: IE dualPA-Architecture indication is appropriate and enough to differentiate applicable requirements for different architectures for both PC3 and PC2 UEs. The NC CA requirements may not need to be determined together with consideration with other UE features, e.g. UL MIMO, ULFPTx, etc.******Proposal 1: It is proposed to just use w/ and w/o dualPA-Architecture as indications to differentiate the applicable NC CA MPR requirements for both PC3 and PC2 UE with different implementation architectures.*** ***Proposal 2: The spec for the UL NC CA MPR requirement should be reorganized to facilitate capturing requirements for both PC3 and PC2 UE with different architectures.*** |

## Open issues summary

### Sub-topic 3-1: Intra-band NC CA requirements

***Issue 3-1-1: Capabilities utilized to distinguish the available MPR requirements for PC3 and PC2 NC CA with different implementation architectures***

* Proposal:
	+ Option 1: ***dualPA-Architecture***
	+ Option 2: ***uplinkTxDC-TwoCarrierReport-r16***
	+ Option 3: *Other*

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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***Issue 3-1-2: 1CC fall-back MPR for NC UL CA***

Proposal on 1CC fall-back MPR for NC UL CA

* + Option 1:
* When RBs are allocated only in one CC the following MPR applies for PC3:
	+ For PC3, there is no 2Tx cases, Table6.2.2-1 applies.
* When RBs are allocated only in one CC the following MPR applies for PC2:
	+ When *uplinkTxDC-TwoCarrierReport-r16* is reported Table6.2.2-2 applies.
	+ When *uplinkTxDC-TwoCarrierReport-r16* is not reported:
		- If *TxD* is signaled, 2Tx PC2 table in R4-2119971 applies
		- If *TxD* is not signaled, 1Tx PC2 in Table6.2.2-2 applies.
	+ Option 2: Other suggestions

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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***Issue 3-1-3: Can rel-16 TS 38.101-1 specification be transparent to dualPA capability?***

* Options:
	+ Yes, see proposal in [**R4-2200336**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200336.zip).
	+ No.

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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### Sub-topic 3-2: Spec structure reorganization for NC intra-band CA

***Issue 3-2-1: Spec reorganization for UL intra-band NC CA***

* Option 1:
	+ Add clause 6.2A.2.2.0 to address the hanging paragraph issue
	+ Existing NC MPR requirements to meet -30dBm/MHz and -13dBm/MHz are put under new sub-clauses for PC3 with indicating of *dualPA-Architecture* supported.
	+ New MPR requirements comply with -30dBm/Mhz and -13dBm/MHz requirements are captured in sub-clauses for:
	+ PC2 UE with indicating dualPA-Architecture supported
	+ PC3 UE without indicating dualPA-Architecture supported
	+ PC2 UE without indicating dualPA-Architecture supported
* Option 2:
	+ Other, FFS

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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## Companies views’ collection for 1st round

### Open issues

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

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| **CR/TP number** | **Comments collection** |
| [**R4-2201674**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201674.zip) (Skyworks) | Company A |
| Company B |
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| [**R4-2201943**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201943.zip) (Huawei, Qualcomm) | Company A |
| Company B |
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|  | Company A |
| Company B |
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## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

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|  | **Status summary**  |
| **Sub-topic#1** | *Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

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| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

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| **T-doc number** | **Company** | **Proposals / Observations** |
|  |  |  |

# Topic #4: solution for Scell dropping

## Companies’ contributions summary

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| **T-doc number** | **T-doc name** | **Company** | **Proposals / Observations** |
| [**R4-2200337**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200337.zip) | Solution for SCell dropping | Qualcomm Incorporated | **Observation 1: Adding a new cell specific limiting parameter to UE Pcmax does not prevent UE from dropping cells with higher Pcmax limit****Observation 2: To solve the problem of UE dropping scell and giving more control for the network, new parameter that indicates UE the preferred priority of cells is needed.****Proposal 1: Define new parameter to indicate priority between configured UL cells for the UE.****Proposal 2: RAN4 will not agree a solution before receiving RAN1 feedback about the feasibility of one of the proposed solutions.** **Proposal 3: Supporting Ran4 based solution introducing any new network controlled parameters should be optional for the UE**  |
| [**R4-2200853**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200853.zip) | Further details on resolving the Scell dropping (power prioritization) problem by power limits | Ericsson | * **The solution feasible for both FR1 and at least for intra-band FR2**
	+ **Inter-band within FR2 not yet finalized**
* **No RAN1 impact, only PCMAX,f,c per cell affected**
	+ **The priority mechanisms in 38.213 not affected, the UE power per cell is limited by PCMAX,f,c for any transmission regardless of its priority**
* **Solves the ”equal PSD” issue in RAN5**
* **Can also be used for setting UE-specific absolute limits on cells**

**...and can also be used in the field** |
| [**R4-2200854**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200854.zip) | Introduction of power limits for serving cells of UL CA | Ericsson | **CR for 38.101-1: Introduction of power limits for serving cells of UL CA** |
| [**R4-2200855**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200855.zip) | Introduction of power limits for serving cells of UL CA | Ericsson | **CR for 38.101-2: Introduction of power limits for serving cells of UL CA** |
| [**R4-2200957**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200957.zip) | Further discussion on Scell dropping | vivo | **Observation:** Complicated new scheme is not attractive in this late stage, let alone the possible RAN1/2 impact.**Proposal:** Considering postpone this work to future release if no consensus can be made. |
| [**R4-2201068**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201068.zip) | Discussion on transmission power dropping on cell with low priority | Samsung | **Observation 1: Allows UE-specific configured power limits on all serving cells introduced in [2] is a straight forward and simple way to prevent dropping issue no matter the priority is PCell or SCell****Observation 2: Reporting total PHR to NW seems enough to facilitate the NW enable/disable the configured power limit when it is necessary.****Observation 3: The general procedure could be: when there is margin for the total PHR, the additional configured power limit for each cell is not triggered, when the margin for the total PHR is approaching zero, the mechanism could be triggered by NW and the UE-specific configured power limit apply, meanwhile per CC PHR should be used to guarantee per CC power not exceeding the configured maximum power with UE-specific limit.** |
| [**R4-2201945**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2201945.zip) | On SCell dropping | Huawei, HiSilicon | ***Proposal 1: It is proposed to consider the SCell dropping solution taken the MPR/A-MPR requirements with same PSD assumption into account.*** ***Proposal 2: Spec changes for FR2 should be further considered after the SCell dropping solution for FR1 is solid enough.******Proposal 3: RAN4 should avoid to add additional test case when consider the solution to ‘scell dropping’ issue.*** |

## Open issues summary

### Sub-topic 4-1: Scell dropping

***Issue 4-1-1: SCell dropping solutions***

* Proposals:
	+ Option 1: the configured maximum power Pcmax,f,c for the serving cells are modified by UE-specific configured power limits, and can be modified/enabled/disabled by MAC/CE for fast adaptation to changing radio conditions and applies for concurrent transmissions; The relative limits apply for concurrent UL transmissions, if only transmission scheduled on one cell this would get all available power up to PCMAX
	+ Option 2: Power distribution among PCell and SCell proportionally should be considered at NW side according to the RB resource scheduling info for CCs, and the power ratio for PCell and SCell(s) can be configured to UE. The power ratio can be configured via RRC on UE specific basis, and enable/disable via DCI or MAC-CE for fast adaption of the dynamic RB resource allocation for PCell and SCell(s).
	+ Option 3: Define new parameter to indicate priority between configured UL cells for the UE. Supporting Ran4 based solution introducing any new network controlled parameters should be optional for the UE.
	+ Option 4: RAN4 will not agree a solution before receiving RAN1 feedback about the feasibility of one of the proposed solutions.
	+ Option 5: Considering postpone this work to future release if no consensus can be made.

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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***Issue 4-1-2: Pcmax,CA and PHR for CA***

* Proposals:
	+ Consider reporting Pcmax,CA and total PHR for band combination.

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

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| **Company** | **Comments** |
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## Companies views’ collection for 1st round

### Open issues

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

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| **CR/TP number** | **Comments collection** |
| [**R4-2200854**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200854.zip) (CR 38.101-1) | Company A |
| Company B |
|  |
| [**R4-2200855**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200855.zip) (CR 38.101-2) | Company A |
| Company B |
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|  | Company A |
| Company B |
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## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

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|  | **Status summary**  |
| **Sub-topic#1** | *Tentative agreements:**Candidate options:**Recommendations for 2nd round:* |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

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| **T-doc number** | **Company** | **Proposals / Observations** |
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1. Recommendations for Tdocs
	1. 1st round

**New tdocs**

|  |  |  |
| --- | --- | --- |
| **Title** | **Source** | **Comments** |
| WF on … | YYY |  |
| LS on … | ZZZ | To: RAN\_X; Cc: RAN\_Y |
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**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
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Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics incl. existing and new tdocs.
2. For the Recommendation column please include one of the following:
	1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
	2. Other documents: Agreeable, Revised, Noted
3. For new LS documents, please include information on To/Cc WGs in the comments column
4. Do not include hyper-links in the documents
	1. 2nd round

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| R4-210xxxx | WF on … | YYY | Agreeable, Revised, Noted |  |
| R4-210xxxx | LS on … | ZZZ | Agreeable, Revised, Noted |  |
|  |  |  |  |  |

Notes:

1. Please include the summary of recommendations for all tdocs across all sub-topics.
2. For the Recommendation column please include one of the following:
	1. CRs/TPs: Agreeable, Revised, Merged, Postponed, Not Pursued
	2. Other documents: Agreeable, Revised, Noted
3. Do not include hyper-links in the documents

# Annex

Contact information

|  |  |  |
| --- | --- | --- |
| **Company** | **Name** | **Email address** |
|  |  |  |

Note:

1. Please add your contact information in above table once you make comments on this email thread.
2. If multiple delegates from the same company make comments on single email thread, please add you name as suffix after company name when make comments i.e. Company A (XX, XX)