**3GPP TSG-RAN WG4 Meeting #102-e R4-21XXXXX**

**Electronic Meeting, Feb 21- Mar 03, 2022**

**Agenda item:** 10.3.1, 10.3.2

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

**Title:** Email discussion summary for [102-e][124] NR\_RF\_FR1\_enh\_IntraHPUE

**Document for:** Information

# Introduction

Thread [124] includes following topics:

1. Topic #1: Clarification of dualPA-architecture capability
2. Topic #2: PC2 Intra-band NC UL CA 1CC fallback
3. Topic #3: Solution for SCell dropping
4. Topic #4: Others (endorsed CRs in last meeting)

# Topic #1: Clarification of dualPA-architecture capability

## Companies’ contributions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **T-doc name** | **Company** | **Proposals / Observations** |
| [**R4-2204827**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204827.zip) | R17 FR1 clarification of dualPA-architecture capability | OPPO | ***Observation 1: dualPA-Architecture capability was introduced in Rel-15 to indicate whether this UE has one PA or two PAs to support the whole intra-band UL CA and doesn’t mention about the LO.******Observation 2: In Rel-17 intra-band UL CA requirement definition, dualPA-Architecture capability was referred to indicate that this UE has two LO.******Proposal 1: It is proposed to send LS to clarify in RAN2 38.306 that this capability is also used to indicate UE using two LO to support one intra-band UL CA.*** |

## Open issues summary

### Sub-topic 1-1: clarification in RAN2 spec for *dualPA-Architecture* capability

***Proposal: send LS to clarify in RAN2 38.306 that this capability is also used to indicate UE using two LO to support one intra-band UL CA.***

| ***dualPA-Architecture***For band combinations with single-band with UL CA, this field indicates the support of dual PA and dual LO. If absent in such band combinations, the UE supports single PA and single LO for all the ULs. For other band combinations, this field is not applicable. | BC | No | N/A | N/A |
| --- | --- | --- | --- | --- |

***Moderator’s recommendation:***

* Recommended WF
	+ Check whether the draft LS is agreeable

|  |  |
| --- | --- |
| **Company** | **Comments** |
| OPPO | Support the LS.dualPA-Architecture capability was introduced in Rel-15 to indicate whether this UE has one PA or two PAs to support the whole intra-band UL CA and doesn’t mention about the LO. Then in Rel-17 intra-band UL CA requirement definition, dualPA-Architecture capability was referred in many places to indicate that this UE has two LO. With current RAN2 spec it might cause misunderstanding in the referred architecture about PAs or LOs since it is not one to one mapping sometimes if no restriction in the capability signaling. Therefore, it is proposed to send LS to clarify in RAN2 38.306 that this capability is also used to indicate UE using two LO to support one intra-band UL CA. |
|  |  |
|  |  |

## 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.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
|  | Company A |
| Company B |
|  |

## 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.*

|  |  |
| --- | --- |
|  | **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)

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

# Topic #2: PC2 Intra-band NC UL CA 1CC fallback

## Companies’ contributions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **T-doc name** | **Company** | **Proposals / Observations** |
| [**R4-2204225**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204225.zip) | 1CC Fall-Back MPR for NC UL CA with 1LO Architecture | Qualcomm Incorporated | **NC-ULCA MPR can fallback to 1CC MPR when allocation size >= [9/11.5] MHz for PC3/PC2 respectively else Backoff varies with allocation size according to Figure 2.3-4. The maximum backoff of the 1CC MPR and fallback MPR should be taken.** |
| [**R4-2204977**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204977.zip) | Corrections on PC3 intra-band non-contiguous UL CA requirements for 2LO case | vivo, Huawei, Skyworks | **According to the discussion in R17 UE FR1 enhancement WI, for 2LO architecture, single carrier MPR requirements should be applied to 1CC allocation for NC CA case as indicated in WF R4-2202340.** **In current Release 16 requirements, 1 CC allocation was not specifically separated. It was agreed to also update Rel-16 requirements with this latest agreement to keep spec consistency and clearance.****Revise the MPR applicability to single carrier requirements for 1 CC allocation for 2LO and power class 3.** |
| R4-2204978 | Corrections on PC3 intra-band non-contiguous UL CA requirements for 2LO case | vivo, Huawei, Skyworks | **reserved CR** |
| [**R4-2204979**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204979.zip) | Adding intra-band non-contiguous UL CA requirements for PC2 2LO and PC2&3 1LO case | vivo, Huawei, Skyworks | **Adding the 1CC requirements of 2LO case for PC2 and 1LO case for PC2 and PC3. It is based on endorsed CR R4-2202298 and revision part are highlightened.****Add tentative value of [7] dB for the case 36 ≤ B in section 6.2A.2.2.2.3.** |

## Open issues summary

### Sub-topic 2-1: 1CC Fall-Back MPR for NC UL CA

***Issue 2-1-1: Fall-Back MPR for NC UL CA with 1LO Architecture***

* Proposal:
	+ NC-ULCA MPR can fallback to 1CC MPR when allocation size >= [9/11.5] MHz for PC3/PC2 respectively else Backoff varies with allocation size according to Figure 2.3-4. The maximum backoff of the 1CC MPR and fallback MPR should be taken.

***Moderator’s recommendation:***

* Recommended WF
	+ Agree the proposal and take look of the draft CR in [**R4-2204979**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204979.zip)

|  |  |
| --- | --- |
| **Company** | **Comments** |
| OPPO | Ok with proposal. |
|  |  |
|  |  |

***Issue 2-1-2: PC3 intra-band non-contiguous UL CA MPR requirements for 2LO case***

* draft CR in ([**R4-2200497**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_101-bis-e/Docs/R4-2200497.zip)):
	+ Revise the MPR applicability to single carrier requirements for 1 CC allocation for 2LO and power class 3.

***Moderator’s recommendation:***

* Recommended WF
	+ endorse the draft CR in 1st round discussion

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |

***Issue 2-1-3: intra-band non-contiguous UL CA MPR requirements for PC2 2LO and PC2&3 1LO case***

* draft CR in ([**R4-2204979**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204979.zip)):
	+ Clarification Note in the existing MPR table for PC3 and PC2 Adding the 1CC requirments of 2LO case for PC2 and 1LO case for PC2 and PC3. It is based on endorsed CR R4-2202298 and revision part are highlightened.
	+ Add tentative value of [7] dB for the case 36 ≤ B in section 6.2A.2.2.2.3.

***Moderator’s recommendation:***

* Recommended WF
	+ endorse the draft CR in 1st round discussion

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |

## 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.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| [**R4-2204977**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204977.zip) (vivo) |  |
|  |
|  |
| [**R4-2204979**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204979.zip) (vivo) |  |
|  |
|  |

## 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.*

|  |  |
| --- | --- |
|  | **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)

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

# Topic #3: solution for Scell dropping

## Companies’ contributions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **T-doc name** | **Company** | **Proposals / Observations** |
| [**R4-2203689**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203689.zip) | SCell dropping issue for UL CA | Apple | **Proposal 1: If the intention to prevent SCell dropping is to resolve the RAN5 conformance test issue, there is no need to introduce new RAN4 requirement to serve the said purpose.****Proposal 2: New RAN4 requirement may be considered if RAN1 and RAN4 jointly confirm that SCell dropping can a real field issue.****Proposal 3: If new RAN4 requirement would be introduced to avoid SCell dropping issue, no new RF test shall be developed to aggregate additional UE pass/fail criteria.** |
| [**R4-2204609**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204609.zip) | Further details on resolving the Scell dropping (power prioritization) problem by power limits: signaling | Ericsson | **the configured maximum power Pcmax,f,c for the serving cells are modified by UE-specific configured power limits, a straighforward change and RAN4 scope, no change of timing requirements or UE behaviour****the power limits are relative to account for the actual power back-off used and the implementation-specific plane of reference for Pcmax,f,c for FR2, can be applied to all UL serving cells for complete network control of the power per serving cell****can be enabled/disabled and modified by MAC/CE for fast adaptation to changing radio conditions and applies for concurrent transmissions; reduces the need for enabling/disabling limits by MAC-CE signaling****backwards compatible****the limits can also be made absolute (similar to the cell-specific P-Max) by configuration****“equal” PSD can be achieved for the purpose of conformance testing**The solution requires RRC changes and a MAC-CE element for activating/deactivating and modifying the limits. The power limits are proposed for the Rel-17 specifications, but a UE capability indicating support of the functionality could be used for indicating support in earlier releases (early indication). The RAN1 specifications are not affected.  |
| [**R4-2204610**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204610.zip) | Introduction of power limits for serving cells of UL CA | Ericsson | **CR 38.101-1: Introduction of power limits for serving cells of UL CA** |
| [**R4-2204611**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204611.zip) | Introduction of power limits for serving cells of UL CA | Ericsson | **CR 38.101-2: Introduction of power limits for serving cells of UL CA** |
| [**R4-2204826**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204826.zip) | R17 FR1 CA PHR reporting in SCC drop | OPPO | ***Observation 1: The MPR difference can achieve more than 10dB b/w single CC and UL CA, and it makes the Pcmax under single CC is quite different from UL CA.******Observation 2: The Pcmax and PHR for CA is unknown to the NW with current single CC based PHR reporting which makes NW have no idea of how much total power left in UL CA. And it leads to NW doesn’t know when to enable/disable the max power limit to prevent SCC drop.******Proposal 1: It is proposed to report PHRCA for intra-band UL CA.******Observation 3: The PHRCA reporting is used to provide the information of total power headroom which are not be able to be derived via current PHR reporting.******Proposal 2: Clarify that the newly introduced CA PHR is not overriding per CC PHR, instead it can provide additional information that is needed for UL CA SCC dropping solutions.******Proposal 3: PHRCA reporting needs to be supported for UEs which support SCC dropping solutions.******Proposal 4: PHRCA can be reported via current PHR framework or newly defined MAC CE signaling to achieve faster reporting.*** |
| [**R4-2204966**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204966.zip) | Further discussion on Scell dropping | vivo | **Observation: Though tentative signalling is tentatively agreed, detailed solution is difficult to converge.****Proposal 1: Further discuss and see whether a consensus can be made based on one option;****Proposal 2: The verification and testing method need to be considered in the process.****Proposal 3: If no consensus can be made in a reasonable timeframe, it is suggested to consider removing the objective in RAN.** |
| [**R4-2205589**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205589.zip) | On SCell dropping | Huawei, HiSilicon | ***Proposal 1: It is proposed to consider the SCell dropping solution which has enough flexibility for NW to better adjust UE output power among serving cells taken requirements specifying assumptions, resource allocation manner, serving cell priority, etc. into account.*** ***Proposal 2: No need to consider the SCell dropping solution for FR1 and FR2 inter-band CA cases in current stage.*** ***Proposal 3: RAN4 should avoid to add additional test case when consider the solution to ‘scell dropping’ issue.******Proposal 4: RAN4 should consider reporting Pcmax,CA and PHR for CA.******Proposal 5: RAN4 should complete the feature groups for SCell dropping prevention and PHR reporting for CA in the Rel-17 feature list.*** |
| [**R4-2205590**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205590.zip) | draft CR for TS 38.101-1 Power configuration for CA | Huawei, HiSilicon | **draft CR for TS 38.101-1: Power ratio configuration for CA** |
| [**R4-2205591**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205591.zip) | draft CR for TS 38.101-2 Power configuration for CA | Huawei, HiSilicon | **draft CR for TS 38.101-2: Power ratio configuration for CA** |
| [**R4-2205885**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205885.zip) | Discussion on UE behavior and root cause for dropping SCell | Qualcomm Incorporated | **Observation 1: Problem of SCell dropping occurs when two SCells are configured with channels with equal priority and UE is maximum power limited****Observation 2: It is not clear how will limiting UE maximum power more solve a problem that was caused by UE not having enough output power?** **Observation 3: Cell and UE specific Pcmax must be set to 3 dB lower than UE pcmax for 2 cell case for it to have any impact on steering the power to cells with lower or equal priority.** **Observation 4: In order the cell specific power limitation to work, the cell specific pcmax must be set to > 4.8 dB for it to solve the problem of scell dropping.** **Observation 5: Network has the means to solve the scell dropping by priority or avoiding overlap[ping grants when UE is reporting zero PHR.** And made one proposal:**Proposal 1: Solve the Scell dropping issue with the solution that address the problem source i.e. equal priorities between the cells.** **Proposal 2: The new parameter for impacting UE power control should be optional for UE under a capability.** |

## Open issues summary

### Sub-topic 3-1: Scell dropping

***Issue 3-1-1: 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 limits can also be made absolute (similar to the cell-specific P-Max) by configuration; a UE capability indicating support of the functionality could be used for indicating support in earlier releases (early indication)
	+ 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. The new parameter for impacting UE power control should be optional for UE under a capability.
	+ Option 4: If only measurement issue, no new RAN4 requirement; otherwise, new RAN4 requirement may be considered if RAN1 and RAN4 jointly confirm that SCell dropping can a real field issue.
	+ Option 5: If no consensus can be made in a reasonable timeframe, removing the objective in RAN.

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

|  |  |
| --- | --- |
| **Company** | **Comments** |
| OPPO | Open to either solution, but if no conclusion then Option 5. |
|  |  |
|  |  |

***Issue 3-1-2: Pcmax,CA and PHR for CA***

* Proposals:
	+ Report Pcmax,CA and PHRCA for intra-band UL CA.
	+ Clarify that the newly introduced CA PHR is not overriding per CC PHR, instead it can provide additional information that is needed for UL CA SCC dropping solutions.
	+ PHRCA reporting needs to be supported for UEs which support SCC dropping solutions.
	+ PHRCA can be reported via current PHR framework or newly defined MAC CE signaling to achieve faster reporting.

***Moderator’s recommendation:***

* Recommended WF
	+ TBA based on 1st round discussion

|  |  |
| --- | --- |
| **Company** | **Comments** |
| OPPO | Support the proposals.It is observed that the MPR difference b/w single CC and UL CA can achieve more than 10dB, this is a very large gap, and it makes the Pcmax under single CC is quite different from UL CA.The Pcmax and PHR for CA is unknown to the NW with current single CC based PHR reporting which makes NW have no idea of how much total power left in UL CA. And it leads to NW doesn’t know when to enable/disable the max power limit to prevent SCC drop.Therefore, PHRCA reporting is necessary for intra-band UL CA Scell dropping solutions if gNB configuration based power limit is intended to avoid the SCC dropping since without the information of CA power headroom there is no chance gNB can make a correct judgement whether activate or deactivate the power limit.For the PHRca reporting it is preferred to reuse current PHR framework to reduce the workload, but new signaling to achieve even faster reporting is also acceptable.Besides, for Pcmax,ca it can be either reported together with PHRca or not reported, since the most important information is the PHRca. |
|  |  |
|  |  |

***Issue 3-1-3: UE feature for SCell dropping***

* Proposals:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 16. NR\_RF\_FR1\_enh | 16-7 | Support RRC configuration to prevent SCell dropping for CA | UE capability to indicate whether to support the function.NW configure a relative parameter for serving cells which is a UE specific RRC signalling for a set of values based on possible proportion of channel BW or allocated RB resources among the CCs, and the appropriate parameter according to CBW ratio or dynamic RB allocation ratio can be fast activated/deactivated by MAC-CE or DCI for each scheduling. The parameter set includes values of 10log10{5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, 100%}. |  | Yes | N/A | UE may drop SCell without enough transmission power according the current power control mechanism for CA |
| 16-8 | PHR reporting for CA | Support PCMAX,CA , and PHRCA reporting for CA |  | Yes | N/A | NW may not get the accurate information for the power head room for CA |

***Moderator’s recommendation:***

* Recommended WF
	+ TBA. Hold on the discussion for the detailed description in 1st round and focus on the discussion for solution in Issue 3-1-1

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |
|  |  |
|  |  |

## 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.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| [**R4-2204610**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204610.zip) (CR 38.101-1) |  |
|  |
|  |
| [**R4-2204611**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204611.zip) (CR 38.101-2) |  |
|  |
|  |
| [**R4-2205590**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205590.zip) (CR 38.101-1) |  |
|  |
|  |
| [**R4-2205591**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205591.zip) (CR 38.101-2) |  |
|  |
|  |

## 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.*

|  |  |
| --- | --- |
|  | **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)

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

# Topic #4: Others (endorsed CRs in last meeting)

## Companies’ contributions summary

|  |  |  |  |
| --- | --- | --- | --- |
| **T-doc number** | **T-doc name** | **Company** | **Proposals / Observations** |
| [**R4-2203824**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203824.zip) | CR on UL MIMO coherence for Tx switching | China Telecom | **This CR is the re-submission of the draft CR R4-2202297 endorsed at RAN4 101e-bis.** |
| R4-2205587 | Big CR for TS 38.101-1 introduction of PC2 intra-band non-contiguous UL CA | Huawei, HiSilicon, Qualcomm, Skyworks, vivo | **Reserved to capture new agreements in this meeting** |
| [**R4-2205588**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205588.zip) | Big CR for TS 38.101-1 contiguous CA with UL MIMO for power class 2 | Huawei, HiSilicon | **The big CR is based on endorsed CR in R4-2119516 and R4-2202299.** |

## Open issues summary

### Sub-topic

## 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.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| [**R4-2203824**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203824.zip) (China Telecom) |  |
|  |
|  |
| [**R4-2205588**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205588.zip) (Huawei) |  |
|  |
|  |
|  | Company A |
| Company B |
|  |
|  |

## 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.*

|  |  |
| --- | --- |
|  | **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)

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

1. Recommendations for Tdocs
	1. 1st round

**New tdocs**

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

**Existing tdocs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Tdoc number** | **Title** | **Source** | **Recommendation**  | **Comments** |
| R4-210xxxx | CR on … | XXX | Agreeable, Revised, Merged, Postponed, Not Pursued |  |
| [**R4-2203689**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203689.zip) | SCell dropping issue for UL CA | Apple |  |  |
| [**R4-2203824**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2203824.zip) | CR on UL MIMO coherence for Tx switching | China Telecom |  |  |
| [**R4-2204225**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204225.zip) | 1CC Fall-Back MPR for NC UL CA with 1LO Architecture | Qualcomm Incorporated |  |  |
| [**R4-2204609**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204609.zip) | Further details on resolving the Scell dropping (power prioritization) problem by power limits: signaling | Ericsson |  |  |
| [**R4-2204610**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204610.zip) | Introduction of power limits for serving cells of UL CA | Ericsson |  |  |
| [**R4-2204611**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204611.zip) | Introduction of power limits for serving cells of UL CA | Ericsson |  |  |
| [**R4-2204826**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204826.zip) | R17 FR1 CA PHR reporting in SCC drop | OPPO |  |  |
| [**R4-2204827**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204827.zip) | R17 FR1 clarification of dualPA-architecture capability | OPPO |  |  |
| [**R4-2204966**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204966.zip) | Further discussion on Scell dropping | vivo |  |  |
| [**R4-2204977**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204977.zip) | Corrections on PC3 intra-band non-contiguous UL CA requirements for 2LO case | vivo, Huawei, Skyworks |  |  |
| R4-2204978 | Corrections on PC3 intra-band non-contiguous UL CA requirements for 2LO case | vivo, Huawei, Skyworks |  | *Reserved Cat-A CR* |
| [**R4-2204979**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2204979.zip) | Adding intra-band non-contiguous UL CA requirements for PC2 2LO and PC2&3 1LO case | vivo, Huawei, Skyworks |  |  |
| R4-2205587 | Big CR for TS 38.101-1 introduction of PC2 intra-band non-contiguous UL CA | Huawei, HiSilicon, Qualcomm, Skyworks, vivo |  | *Reserved big CR* |
| [**R4-2205588**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205588.zip) | Big CR for TS 38.101-1 contiguous CA with UL MIMO for power class 2 | Huawei, HiSilicon |  |  |
| [**R4-2205589**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205589.zip) | On SCell dropping | Huawei, HiSilicon |  |  |
| [**R4-2205590**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205590.zip) | draft CR for TS 38.101-1 Power configuration for CA | Huawei, HiSilicon |  |  |
| [**R4-2205591**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205591.zip) | draft CR for TS 38.101-2 Power configuration for CA | Huawei, HiSilicon |  |  |
| [**R4-2205885**](https://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_102-e/Docs/R4-2205885.zip) | Discussion on UE behavior and root cause for dropping SCell | Qualcomm Incorporated |  |  |

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)