3GPP TSG-RAN WG2 Meeting #110-e [R2-200xxxx](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-200xxxx.zip)

Elbonia, 1 – 13 June 2020

**Agenda item: 5.4.1.1**

**Source: Nokia**

**Title: Summary of discussion [AT110e][006][NR15] Release of Configuration (Nokia)**

**Document for: Discussion and Decision**

# 1 Brief scope of the handled contributions

This document contains the summary of 6 documents from agenda item 5.4.1.1 ("Connection Control”) as shown below:

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| --- |
| Release of Configuration   * [AT110e][006][NR15] Release of Configuration (Nokia)   Scope: Treat [R2-2004903](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004903.zip), [R2-2004904](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004904.zip), [R2-2004905](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004905.zip), [R2-2005009](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005009.zip), [R2-2005002](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip), [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip) (proponents are responsible to explain and drive)  Part 1: Decision whether to make corrections or not, identify agreeable corrections. Deadline: June 4, 0700 UTC.  Part 2: For agreeable parts, continuation to agree CRs. Deadline: June 10, 0700 UTC  *AddModList release and CORESET and PDCCH TCI state*  [R2-2004903](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004903.zip) Corrections to CORESET and PDCCH TCI state release Nokia, Nokia Shanghai Bell discussion Rel-15 NR\_newRAT-Core  [R2-2004904](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004904.zip) Corrections to CORESET and PDCCH TCI state release Nokia, Nokia Shanghai Bell CR Rel-15 38.331 15.9.0 1633 - F NR\_newRAT-Core  [R2-2004905](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004905.zip) Corrections to CORESET and PDCCH TCI state release Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.0.0 1634 - A NR\_newRAT-Core  *3 Treated by email [006]*  *SCell release*  [R2-2005009](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005009.zip) Clarification on SCell release Huawei, HiSilicon discussion Rel-15 NR\_newRAT-Core  [R2-2005002](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip) Clarification on release and addition of the uplink for Scell Huawei, HiSilicon CR Rel-15 38.331 15.9.0 1643 - F NR\_newRAT-Core  [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip) Clarification on release and addition of the uplink for Scell Huawei, HiSilicon CR Rel-16 38.331 16.0.0 1644 - A NR\_newRAT-Core  *3 Treated by email [006]* |

# 2 Release of LTE legacy summary

## 2.1 AddModList release and CORESET and PDCCH TCI state [1-3]

The document in [R2-2004903](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004903.zip) [1] discusses four topics:

1. Release of common CORESET in PDCCH-ConfigCommon
2. Release of TCI states within PDCCH-Config when no dedicated CORESETs are configured
3. Release of TCI states within PDCCH-Config and PDSCH-Config
4. Whether additional clarification is needed to RRC guidlines on AddModLists

Correspondingly, the CRs in [12] and [3] illustrating the proposed changes as per the document [R2-2004903](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004903.zip) [1].

Since each of the above topics are connected but also separate, we briefly summarize the points raised by [R2-2004903](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004903.zip) [1] in the table below

|  |  |
| --- | --- |
| **Topic** | **Summary and proposals** |
| 1) Release of common CORESET in PDCCH-ConfigCommon | **Summary:**  The common CORESET is different from dedicated CORESETs, and it’s possible to misinterpret that it can be released via dedicated signalling during handover. Since UE behaviour in the field is observed to cause issues, RAN2 should discuss how to approach the problem.  **Observations/Proposals:**  Observation 1: The common and dedicated CORESET configurations can change during reconfiguration with sync if source and target cells utilize different configurations.  Observation 2: When commonSearchSpaceList is (re)configured in reconfiguration with sync, all the SearchSpace entries are treated as newly created from need code viewpoint, so the CORESET ID within a SearchSpace can be changed.  Observation 3: It is not clear what UE does when network releases a previously used dedicated CORESET with the same ID as used by common CORESET in current configuration.  Proposal 1: RAN2 to confirm that UE shall not release the *PDCCH-ConfigCommon*::*commonControlResourceSet* in via *PDCCH-Config:: controlResourceSetToReleaseList*.  Proposal 2: Discuss whether UE capability is needed for the clarification in proposal 1. |
| 2) Release of TCI states within PDCCH-Config when no dedicated CORESETs are configured | **Summary:**  According to normal RRC principles, TCI states may be configured via AddModList and remain until released. However, it could be clarified whether this also applies to when all dedicated CORESETs are released for the TCI state IDs configured inside PDCCH-Config.  **Observations/Proposals:**  Proposal 3: RAN2 to confirm that entries added by ToAddModList remain until released by ToReleaseList even if the original parent field adding those is released.  Proposal 4: RAN2 to confirm that a PDCCH TCI state ID configured via common CORESET can be released by a dedicated CORESET and vice versa according to current Rel-15 RRC specification without any changes. |
| 3) Release of TCI states within PDCCH-Config and PDSCH-Config | **Summary:**  TCI state IDs inside *PDCCH-Config* actually refer to TCI states defined in *PDSCH-Config*. It is not clear if releasing the TCI state within *PDSCH-Config* would require network to also release the corresponding TCI State **IDs** inside *PDCCH-Config*.  **Observations/Proposals:**  Observation 4: Current AddModReleaseList behaviour implies that releasing all CORESETs does NOT release the TCI State IDs configured by any of those CORESETs.  Proposal 5: Clarify in RRC that the PDCCH TCI state IDs configured in *ControlResourceSet* remain until released by *ControlResourceSet:: tci-StatesPDCCH-ToReleaseList*.  Proposal 6: RAN2 to confirm that it’s up to network implementation to release the TCI State IDs that are no longer used (as per normal assumptions for network to maintain a sensible RRC configuration for a UE). No specification changes are required for that. |
| 4) RRC guidelines on release of AddModList entries. | **Summary:** Current guidelines do not consider the parent-child AddModList relations at all, which has caused the potential ambiguity indicated in this contribution.  **Observations/Proposals:**  Proposal 7: Clarify the general RRC guidelines about ToAddModList usage in A.3.9 that UE shall store the entries provided in the ToAddModList until explicitly released by the network. |

All of these topics relate to the release of the fields, notably:

* How does UE store the AddModList entries in case the parent field is released?
* Is the common CORESET configuration separate from the dedicated CORESETs?
* Does release of TCI state also invalidate the TCI State ID-fields referring to that TCI state?
* Should something be captured in RRC guidelines concerning release of nested AddModList-fields?

**DISC S1\_1:** Discuss whether UE shall release the PDCCH-ConfigCommon::commonControlResourceSet in via PDCCH-Config:: controlResourceSetToReleaseList.

**DISC S1\_2:** Discuss whether a PDCCH TCI state ID configured via common CORESET can be released by a dedicated CORESET and vice versa.

**DISC S1\_3:** Discuss whether UE should retain configuration of a TCI State ID when the corresponding TCI State is released.

**DISC S1\_4:** Discuss whether to adopt some changes to the RRC guidelines in A.3.9 for the AddModList usage regarding the release of parent/child IEs with nested AddModLists.

Since the DISC S1\_4 is more generic questions, it is discussed separately under section 3.4 (together with DISC S2\_2).

## 2.2 SCell release and release/addition of uplink for SCell [4]

The document in [R2-2005009](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005009.zip) [4] returns to a topic already discussed in previous meeting(s), where the main point is to consider what happens to configurations related to SCells (e.g. CSI-RS resources referring to SCell IDs) when those SCells are released. in particular, the following example case is considered:

1. The UE has an NR SpCell and one NR SCell, with *sCellIndex* = 1.
2. The SpCell configuration includes *CSI-MeasConfig* with one *CSI-ReportConfig* {*carrier*: 1, *reportConfigType*: periodic}
3. In a reconfiguration, the network releases the SCell but does not release the *CSI-ReportConfig*, which is still using resources of the released SCell.
4. Given the description of the carrier field as “Indicates in which serving cell the *CSI-ResourceConfig* indicated below are to be found. If the field is absent, the resources are on the same serving cell as this report configuration.”, what happens to the *CSI-ResourceConfig*?

In particular, the contribution request to clarify at least in chairman’s notes the answers to four questions as shown below:

* **Q1:** Upon receiving *sCellToReleaseList* with an *sCellIndex*, is the UE required to release only the *SCellConfig* with the corresponding sCellID?
* **Q2:** Is it a valid reconfiguration to release an SCell via *sCellToReleaseList* but not to release a CSI-ReportConfig of the SpCell cell with resources in that SCell?
* **Q3:** Is the UE required to consider as valid a reconfiguration that keeps a reference to a non-existent SCell?
* **Q4:** If it is valid in Q3, is the UE expected to use the stored *CSI-ReportConfig* configuration when the SCell with the same SCell index is added again later on?

Since these questions are already well-laid out and easily structured, it seems reasonable to just follow them.

**DISC S2\_1:** Discuss the Q1-Q4 from [**R2-2005009**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005009.zip)to determine what is the common understanding in RAN2 concerning them.

However, it should also be noted that these questions are similar question posed in *DISC S1\_3*: Does UE retain configurations that are not “used” at the moment but can be again used later on?

**DISC S2\_2:** Discuss the general principle on UE configurations: If a field (e.g. *field1* with IE type is ***Config1***) contains a child field (e.g. *field2* with IE type ***ID2***) that refers to another IE (i.e. field that is identified according to ***ID2***) and the referred IE is released, does the UE still retain the *field1*?

Since this is a more general question so could be discussed separately so is considered separately in section 3.4 (together with DISC S1\_4).

## 2.3 Release/addition of uplink configuration for SCell [5-6]

The contributions [R2-2005002](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip) [5] and [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip) [6] note that it is currently not captured whether addition/release of uplink configuration for an SCell requires release and addition of the SCell (like it does in LTE), and proposes to add that to the description of *ServingCellConfig*. This seems aligned with earlier (similar) agreements in LTE, so it could be discussed whether the intent is agreeable and whether the CRs seem agreeable.

**DISC S3\_1:** Discuss whether the intent of the CRs [R2-2005002](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip) and [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip) is agreeable and whether the CRs are agreeable.

# 3 Company comments to the contributions

## 3.1 [R2-2004903](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004903.zip), [R2-2004904](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004904.zip), [R2-2004905](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004905.zip): Corrections to CORESET and PDCCH TCI state release (Nokia)

This section deals with DISC\_S1\_1, 2 and 3:

***DISC S1\_1:*** *Discuss whether UE shall release the PDCCH-ConfigCommon::commonControlResourceSet in via PDCCH-Config:: controlResourceSetToReleaseList.*

***DISC S1\_2:*** *Discuss whether a PDCCH TCI state ID configured via common CORESET can be released by a dedicated CORESET and vice versa.*

***DISC S1\_3:*** *Discuss whether UE should retain configuration of a TCI State ID when the corresponding TCI State is released.*

Companies are requested to provide comments in the tables 1-3 below (one row for each new comment to better keep track of the discussion – please don’t edit the previous comments.

|  |  |
| --- | --- |
| **Company** | **Views on DISC S1\_1 (i.e. whether UE shall release the PDCCH-ConfigCommon::commonControlResourceSet in via PDCCH-Config:: controlResourceSetToReleaseList): Do you agree with Observation 1, Observation 2, Observation 3, Proposal 1 and Proposal 2?** |
| MediaTek | We understand there is some confusion to use same CORSET ID in command PDCCH and dedicated PDCCH configuration. We think Observation 1 and 3 are correct. Observation 2 is fine but seems not directly related to the issue we discussed.  We consider that the CORSET configured by common PDCCH as “common” CORESET and the CORESET configured by dedicated PDCCH as “dedicated” CORSET. We think releasing of dedicated CORESET does not release the common CORESET with the same ID.  It is more simple and clear that the common configuration and dedicated configuration could control the common CORSET and dedicated CORSET separately. If the resultant configuration ended in same CORSET ID, the dedicated CORSET “takes precedence”, which means that the UE will only use the dedicated CORSET.  Therefore, we support P1  Proposal 1: RAN2 to confirm that UE shall **not** release the *PDCCH-ConfigCommon*::*commonControlResourceSet* in via *PDCCH-Config:: controlResourceSetToReleaseList*.  And P2 (adding capability) could be further discussed once we have common understanding. |
| NTT DOCOMO | Agree on Observation 1 that it is likely scenario, e.g. if the source cell and the target cell are served by gNBs from different vendors. Observation 2 is correct, according to the past agreement. As such, we’re of opinion that Proposal 1 is correct and common understanding and so fine to be confirmed. The necessity of capability signalling (i.e. Proposal 2) hinges on the current UE behaviour in the market, though it seems not needed to our knowledge. |
| Nokia, Nokia Shanghai Bell | As proponent, we think P1 is needed and would prefer not to have UE capability. But we would like to ensure there are no IODT problems with this. |
| Ericsson | **Observation 1**: Agree  **Observation 2:** We agree that the NW is allowed to include the controlResourceSetId when sending the commonSearchSpaceList.  **Observation 3:** We tend to say that this is not unclear. It should certainly be allowable to release the dedicatedly configured SearchSpace while adding the common. It should also be noted that RAN2 concluded already long ago that a UE should assess validity of the entire configuration. I.e., a UE must catch a case where it first processes the commonSearchSpace#1 configuration and afterwards get a coresetToReleaseList[#1].  **Proposal 1**: **Agree**  **Proposal 2: Disagree**. If a UE fails in the described reconfiguration that is a bug. We don’t need capability bits for bug-fixes. What should the above-mentioned target gNB do with a UE that does not set the bit? |
| Huawei, Hisilicon | P1 is also ok to us, and we have not seen a need yet of such capability signalling. |
| ZTE | We think observation 1, 2, 3 are correct.  Regarding proposal 1, we think it works, but we would like to clarify that, in this case, when target cell provides the common CORESET with the same CORESET ID (as previous used by dedicated CORESET), the UE will abandon the previous configuration, and apply the entire configuration signalled in commonControlResourceSet, which means delta config based on previous dedicated CORESET is not supported.  On the other hand, except the handover case identified in the paper, we are wondering about other cases, e.g. change the CORESET (with same ID) from one BWP to another BWP? Will it be supported? Should Proposal 1 be interpreted as “*PDCCH-Config:: controlResourceSetToReleaseList* can only release the dedicated CORESET configured by the same BWP” ?  Regarding UE capability, we prefer to not have it. If capability is anyway needed, then we would suggest to also consider another solution (without release list), that UE simply replace the old CORESET, as long as the newly configured CORESET have the same ID, and this can be applicable to all cases, including handover, and configuration update among BWPs. |
| Samsung | We agree Observation 1, 2, 3 and Proposal 1, but for Proposal 2, we don’t think new capability is needed because it seems this feature can be supported for the current UE. |
| Intel | We agree with observations 1,2. May be for observation 3.  There is no direct link explicitly captured between the common lists and AddMod list from ASN.1 point of view even though the CORESET ID is the same. So we agree with proposal #1.  Proposal #2 depends on the different implementations and whether there is an inter-operability issue. |
| CATT | We agree with the proposal 1, the CORESET configured in the PDCCH-ConfigCommon is need R, the NW can release the CORESET configured in the PDCCH-ConfigCommon by the field absent. The PDCCH-Config:: controlResourceSetToReleaseList can only be used to release the CORESET configured by the PDCCH-Config  We disagree with the proposal 2, the proposal 1 is common understanding, it is just a further clarification. So extra UE capability doesn’t need, it also not backward compatibility. |

**Table 1. Comments to DISC S1\_1**

**Conclusions (DISC\_S1\_1): TBA**

|  |  |
| --- | --- |
| **Company** | **Views on DISC S1\_2 (i.e. whether a PDCCH TCI state ID configured via common CORESET can be released by a dedicated CORESET and vice versa): Do you agree with proposal 3 and 4?** |
| MediaTek | Similar concept from our comment in previous question. We should not mixed the configuration of common CORSET and dedicated CORSET. We believe that the general RRC rule is that once the parent IE is released, all configuration in its sub-fields are released. Thus we **disagree** proposal 3 and proposal 4. |
| NTT DOCOMO | From specification viewpoints, We agree on both Proposal 3 and Proposal 4. On proposal 3, there is no explicit relation between the child AddMod-entry and the parent AddMod-entry, specified in the spec. In other words, it is straight forward that Add, Mod and release are done on the same level, individually. |
| Nokia, Nokia Shanghai Bell | We think that P3/P4 are the current specification handling. Theoretically, the common CORESET could be handled differently than the dedicated CORESETs since it has a “special” role similar to CORESET#0, but so far this has never been made clear in specifications. We would be happy to confirm this to ensure there are no IODT problems. |
| Ericsson | Same view as MediaTek:  **Proposal 3: Disagree**. When a parent IE is released, the contained child collections are released... no matter whether they were created by a regular list or an AddMod/Release list.  If that was not the case (i.e., if the only way to release UE-internal elements that were added by an AddMod list would be to explicitly list them by the Release-list), one would need many RRCReconfigurations to release all child IEs from the deepest child-list upwards. E.g., if the NW wanted to remove an SCell, it would ...   * First have to include the SCellConfigToAddMod in an RRCReconfiguration and include the ServingCellConfig-> downlinkServingCell->PDCCH-Config-> ControlResourceSetToAddMod-> TCI-StateIdToRelease. * Then, when the TCI states are gone, the NW would have to send another RRCReconfiguration in which one it the CORESETs (one level above the TCI-StateIDs). * If this was in a dedicated BWP, the NW would need a third Reconfiguration to release that BWP. * And only in a final RRC-Reconfiguration it could release the SCell.   **Proposal 4: Disagree**. The ASN.1 lists in the common and dedicated branch are configured separately. But the content of the latter (if present) supersedes the content of the former.  If the NW configures a CORESET#1 via the common branch and then add a CORESET#1 configuration via the dedicated branch, the latter overrides the former. When the NW explicitly release the dedicated CORESET#1 (by PDCCH-Config-> controlResourceSetToReleaseList[1]) the UE shall also forget all child configurations (TCI-StateIDs). If there is still a common CORESET#1 configuration, the UE applies that again.  Btw., please note that it is not possible to configure TCI states via PDCCH-ConfigCommon-> commonControlResourceSet-> tci-StatesPDCCH-ToAddList/ReleaseList. The ASN.1 conditional of that field forbids that. Only the dedicated CORESET configuration for the same CORESET-ID can be used to add TCI states to the CORESET that was originally configured via commonControlResourceSet. |
| Huawei, Hisilicon | First, we think it should be a common understanding that the child configuration should be released when its parent field is released, so P3 is not ok to us.  Secondly, we share the similar understanding as MediaTek that common CORESETs which are configured in PDCCH-ConfigCommon and dedicated CORESETs which are configured in PDCCH-Config are two separate configurations, and we should keep them separate as much as possible. Therefore, P4 is not agreeable to us. |
| ZTE | We disagree with proposal 3 and proposal 4.  As we replied in previous question, we think delta configuration between common CORESET and dedicated CORESET is not supported (no matter which solution is adopted). Once network configures a Common CORESET, the previous dedicated CORESET with same ID should be discard entirely. |
| Samsung | We disagree the proposal 3 and proposal 4.  From our understanding, Add, Mod and release, especially for release can be associated i.e. child IE is released if parent IE is released by ToReleaseList structure. This interpretation follows general guideline in A.3.9. See below excerpt for A.3.9.  If no procedural text is provided for a set of ToAddModList and ToReleaseList, the following generic procedure applies:  The UE shall:  1> for each *ElementId* in the *elementsToReleaseList*,:  2> if the current UE configuration includes an *Element* with the given *ElementId*:  3> release the *Element* from the current UE configuration;  1> for each *Element* in the *elementsToAddModList*:  2> if the current UE configuration includes an *Element* with the given *ElementId*:  3> modify the configured *Element* in accordance with the received *Element*;  2> else:  3> add received *Element* to the UE configuration. |
| Intel | We disagree with proposal 3 and 4.  As motioned in previous response, and also commented by MediaTek, the common and dedicated lists are independent from ASN.1 convention. Further, releasing a parent field releases also all the child fields. |
| CATT | We disagree with the proposal 3 and proposal 4. If the parent IE is released, all the child IE shoud be released, due to the child IEs belongs to the configuration of the parent IE.  As for the P4, the PDCCH TCI state ID is associated one CORESET ID, the release of the PDCCH TCI state ID by via a COREST is the the association with the CORESET is released, so a PDCCH TCI state ID should only be released via the same CORESET that via which it is configured. |

**Table 2. Comments to DISC S1\_2**

**Conclusions (DISC\_S1\_2): TBA**

|  |  |
| --- | --- |
| **Company** | **Views on DISC S1\_3 (i.e. whether UE should retain configuration of a TCI State ID when the corresponding TCI State is released): Do you agree with Observation 4, Proposal 5 and Proposal 6?** |
| MediaTek | Again similar concept in previous one.The general concept is that once the parent IE is released, all configuration in its sub-fields are released. Thus we **disagreed** on O4 and P5. Regarding to P6, we are fine to say that the sensible network will provide proper configuration. |
| NTT DOCOMO | Due to the fact that TCI states are used for both PDCCH and PDSCH, releasing CORESETs does not affect TCI states configured for a UE (via PDSCH-Config). As such, we agree on Proposal 5 an 6. |
| Nokia, Nokia Shanghai Bell | We think P5 conforms with the general principle, but as MediaTek said, another interpretation would be that releasing all parent field also releases the child fields. The AddMod complicates this. We would be fine to clarify that release of PDSCH also releases all TCI states and referred TCI state IDs, but also here our main motivation is to understand what happens with UEs in the field: Do all UEs behave according to P6? |
| Ericsson | **Proposal 5:** Disagree. See Observation 4 and Proposal 3 for explanation  **Proposal 6**: Agree that the NW has to remove TCI-StateIDs from PDCCH-Config-> CORESET if it removes the TCI-State instances from PDSCH-Config. Whether it does that by releasing the entire CORESET (using the release-list) or by releasing individual TCI-StateIDs in the CORESET is up to the NW. |
| Huawei, Hisilicon | There are two separate issues discussed here.  Above O4 and P5, it says “TCI state IDs inside *PDCCH-Config* actually refer to TCI states defined in *PDSCH-Config*. It is not clear if releasing the TCI state within *PDSCH-Config* would require network to also release the corresponding TCI State **IDs** inside *PDCCH-Config*.”, which is related to P6 and we think P6 is ok.  O4 and P5 basically mean that TCI state IDs configured in a CORESET will not be released even if the CORESET is released, which is not our understanding. In this case, where are these ID configuration stored if its parent is already released? We think a general understanding is already the child configuration should be released when its parent field is released; otherwise, there will be a lot of similar issues. |
| ZTE | We share the same view as MediaTek, once the parent IE is release, all sub-fields will be released as well.  But it would be good to clarify if companies have the same understanding. |
| Samsung | We disagree on Proposal 5 but proposal 6 is fine.  As we mentioned in above, we think that child IE is released if parent IE is released by ToReleaseList structure.  For P6, it is not directly impact on main concerns i.e. NW implementation to release the TCI state IDs that are no longer used. |
| Intel | We disagree with observation 4 and P5.  As with the previous response, releasing the parent field releases all the child fields by default, even if the child is an AddMod list.  P6 is OK. |
| CATT | Similar with the DISC\_S1\_2, disagree.If the parent IE is released, all the child IE shoud be released |

**Table 3. Comments to DISC S1\_3**

**Conclusions (DISC\_S1\_3): TBA**

## 3.2 [R2-2005009](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005009.zip): Clarification on SCell release (Huawei)

This section deals with DISC\_S2\_1:

***DISC S2\_1:*** *Discuss the Q1-Q4 from* [*R2-2005009*](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005009.zip)*to determine what is the common understanding in RAN2 concerning them.*

For each of the questions, it should be discussed what the common understanding is.

Companies are requested to provide comments in the tables 4-7 below (one row for each new comment to better keep track of the discussion – please don’t edit the previous comments.

**Q1: Upon receiving *sCellToReleaseList* with an *sCellIndex*, is the UE required to release only the *SCellConfig* with the corresponding *sCellID*?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments (if any)** |
| MediaTek | Yes | That’s how this signaling supposed to be use. |
| NTT DOCOMO | Yes |  |
| Nokia, Nokia Shanghai Bell | Yes |  |
| Ericsson | Yes | And as discussed in the previous meeting, the NW must clean up possibly remaining orphan IDs/configurations (e.g. in the CSI-RS configuration) explicitly. |
| Huawei, Hisilicon | Yes |  |
| ZTE | Yes |  |
| Samsung | Yes |  |
| Intel | Yes |  |
| CATT | Yes |  |

**Table 4. DISC S2\_1: Comments to Q1**

**Conclusions (Q1 of DISC S2\_1): TBA**

**Q2: Is it a valid reconfiguration to release an SCell via *sCellToReleaseList* but not to release a *CSI-ReportConfig* of the SpCell cell with resources in that SCell?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments (if any)** |
| MediaTek | No | We think that a sensible NW will not have a configuration that result in some configuration refer to non-existing point. It looks like a BAD configuration to us and no need to specify too much UE behaviour on this kind of configuration. |
| NTT DOCOMO | No | Seems misconfiguration by NW. Usually, NW releases all resources related to an SCell to be released. |
| Nokia, Nokia Shanghai Bell | No? | All of the CSI configurations are given inside *CSI-MeasConfig* and *CSI-RS-ConfigForMobility*, so releasing the relevant resources can be done via those IEs. We would assume network normally releases the configurations.  When analysing the issue a bit more, we noticed that for aperiodic or semi-persistent triggerState configurations, releasing only the SCell-index-related configurations will create larger message sizes: For example, the aperiodic CSI trigger states are defined as follows:  aperiodicTriggerStateList SetupRelease { CSI-AperiodicTriggerStateList } OPTIONAL, -- Need M  CSI-AperiodicTriggerStateList ::= SEQUENCE (SIZE (1..maxNrOfCSI-AperiodicTriggers)) OF CSI-AperiodicTriggerState  CSI-AperiodicTriggerState ::= SEQUENCE {  associatedReportConfigInfoList SEQUENCE (SIZE(1..maxNrofReportConfigPerAperiodicTrigger)) OF CSI-AssociatedReportConfigInfo,  ...  }  CSI-AssociatedReportConfigInfo ::= SEQUENCE {  reportConfigId CSI-ReportConfigId,  Hence, the SetupRelease contains a SEQUENCE of N SEQUENCEs, each of which may contain another M SEQUENCEs that use CSI-ReportConfigId (which may refer to an SCell). Hence, to release the innermost structure, network has to signal each SEQUENCE(SIZE(1..X)) from scratch given the agreement that each “plain” list is considered to be re-initialized. Hence, SCell release basically means that also the other serving cells’ aperiodic and semi-persistent triggerStates need to be re-signalled. Given this, we can understand why it could be thought that UE retains those configurations that are not (currently) used as that would save signalling overhead for network.  We think that this is a general problem overall with the structure of Rel-15 CSI-MeasConfig as it has been already earlier analyzed that this IE can grow to be very big. It just seems difficult to change it now, given that we are finalizing Rel-16 and changes would anyway not affect legacy UEs. |
| Ericsson | No | As others said above, the network is supposed to clean up. E.g., there should not be orphan/hanging CSI-ReportConfig:s pointing to an SCell which does not exist anymore. |
| Huawei, Hisilicon | No |  |
| ZTE | No | We also think the network should release corresponding resources associated with released SCell in the same message. |
| Samsung | No | Same view with MediaTek and Docomo i.e. such misconfiguration should be avoided by NW. |
| Intel | No | We have a general principle that network should not leave hanging configuration. It may also cause issues with a subsequent configuration. |
| CATT | NO, but | It is up to NW implementation to avoid this case occur, the NW can ensure the configuration referred to the released SCell will be released or reconfiguration by signalling. |

**Table 5. DISC S2\_1: Comments to Q2**

**Conclusions (Q2 of DISC S2\_1): TBA**

**Q3: Is the UE required to consider as valid a reconfiguration that keeps a reference to a non-existent SCell?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments (if any)** |
| MediaTek | No | As our comment in Q2, this is a BAD configuration. It would be up to UE implementation on how to handle it (it may reject or try to do some work around) |
| NTT DOCOMO | No | Such a strange configuration is out of the scope to be taken care of. |
| Nokia, Nokia Shanghai Bell | No? | We would note that such configurations are normally not allowed except in RRM measurements, where ReportConfigNR may not always be linked to a measID. See also our reply to Q2 of DISC S2\_1 – there are some inefficiencies with the existing Rel-15 signalling, so we would be very interested to know if there are UEs in the field that can cope with such configurations as it could enable signaling savings. But without knowing for sure, network will have to just release everything as per normal principles. |
| Ericsson | No | The network is supposed to clean up. (see above) |
| Huawei, Hisilicon | No |  |
| ZTE | No | Not necessary. |
| Samsung | No |  |
| Intel | No. | As above, hanging configurations are not allowed by default. It would be bad network implementation. |
| CATT | No | The NW can ensure this case occur. |

**Table 6. DISC S2\_1: Comments to Q3**

**Conclusions (Q3 of DISC S2\_1): TBA**

**Q4: If it is valid in Q3, is the UE expected to use the stored configuration when the SCell with the same SCell index is added again later on?**

|  |  |  |
| --- | --- | --- |
| **Company** | **Yes/No** | **Comments (if any)** |
| Nokia, Nokia Shanghai Bell |  | See above – if this was allowed, then we would also assume UE can use the stored configuration. But first we should decide whether this is allowed behaviour for network. |
| Ericsson | No | This case shall not happen. (see above) |
|  |  |  |
|  |  |  |

**Table 7. DISC S2\_1: Comments to Q4**

**Conclusions (Q4 of DISC S2\_1): TBA**

## 3.3 [R2-2005002](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip), [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip): Clarification on release and addition of the uplink for Scell (Huawei)

This section deals with DISC\_S3\_1:

***DISC S3\_1:*** *Discuss whether the intent of the CRs* [*R2-2005002*](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip) *and [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip) is agreeable and whether the CRs are agreeable.*

Two aspects should be discussed: First, whether the intent of the correction is acceptable and second, if the intent is correct, whether the proposed CR is agreeable.

Companies are requested to provide comments in the table 8 and 9 below (one row for each new comment to better keep track of the discussion – please don’t edit the previous comments.

|  |  |
| --- | --- |
| **Company** | **Is the intent as explained in CRs** [**R2-2005002**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip) **and [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip) correct?** |
| MediaTek | No. Actually we the intention is quite vague.  What is considered "addition/release of the uplink of an SCell"? Is it addition/release of *uplinkConfig*? If it means that, then it is clear that it is possible only via rel/add of SCell, because *uplinkConfig* is need M and not *SetupRelease* type of field.  Or is it addition/release of PUCCH configuration? We already have sentence saying that “Reconfiguration between a PUCCH and PUCCHless SCell is only supported using an SCell release and add”. Why we want to add this one ?  Or is it addition/release of PUSCH configuration? |
| NTT DOCOMO | Yes |
| Nokia, Nokia Shanghai Bell | Yes – we used the same principle in LTE and it avoids any difficulties that might occur with update of UL resources otherwise. |
| Ericsson | **Yes.** The uplink or supplementary-uplink configuration should only be added upon adding the SCell and only be removed upon removing the SCell.  As MediaTek said, this is clear from the need code of ServingCellConfig-> uplinkConfig as far as the removal is concerned. But currently it seems allowable to add the uplinkConfig to an already existing SCell. |
| Huawei, Hisilicon | Yes, as the proponent |
| ZTE | Yes. |
| Intel | Yes. We should follow the LTE principle. |
| CATT | Yes, there is no explicit signalling to release the uplink configuration, so via release and addition of the SCell can be a solution. |

**Table 8. Intent of the CRs**

|  |  |
| --- | --- |
| **Company** | **Comments on the details of the CRs in** [**R2-2005002**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip) **and [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip)?** |
| MediaTek | We would suggest to specify the restrictions in appropriate field descriptions in unambiguous way. |
| Nokia, Nokia Shanghai Bell | We also think that it would be better to indicate these restrictions in the field descriptions or conditions for fields *uplinkConfig* and *supplementaryUplink*. |
| Ericsson | As Nokia and MediaTek said, clarify in the field description of uplinkConfig. |
| Huawei, Hisilicon | It is ok to further discuss where to place the change. |
| ZTE | No strong view, would be fine to capture in field descriptions. |
| Intel | No strong view. Proposed text also looks fine as there is already current text capturing similar restrictions. |
| CATT | Agree |

**Table 9. Details of the CRs**

**Conclusions (DISC S3\_1): TBA**

## 3.4 General RRC discussion

This section deals with DISC\_S1\_4 and DISC S2\_2:

***DISC S1\_4:*** *Discuss whether to adopt some changes to the RRC guidelines in A.3.9 for the AddModList usage regarding the release of parent/child IEs with nested AddModLists.*

***DISC S2\_2:*** *Discuss the general principle on UE configurations: If a field (e.g. field1 with IE type is* ***Config1****) contains a child field (e.g. field2 with IE type* ***ID2****) that refers to another IE (i.e. field that is identified according to* ***ID2****) and the referred IE is released, does the UE still retain the field1?*

Since these are general principles, they are discussed separately from the particular issues raised in the contributions.

Companies are requested to provide comments in the tables 10-11 below (one row for each new comment to better keep track of the discussion – please don’t edit the previous comments.

|  |  |
| --- | --- |
| **Company** | **Should something be captured in A.3.9 concerning nested AddModLists?** |
| MediaTek | No. As our comments in S1\_X discussion, we think the change is incorrect and the current text is fine. |
| NTT DOCOMO | Agree to capture the general guideline. |
| Nokia, Nokia Shanghai Bell | As proponent, we obviously think something should be captured and the CR illustrates one possible way to do that. |
| Ericsson | **Proposal 7**: Disagree (see P3/P5).  If considered necessary, better clarify that “*When the NW releases a parent IE that contains AddMod/Release lists, the UE releases all child elements previously configured with the AddMod list.*” |
| Huawei, Hisilicon | Same view as MediaTek and Ericsson. |
| ZTE | Same view as MediaTek and Ericsson. |
| Samsung | We see no need for further clarification (other than possibly some general principle regarding switch between common and dedicated config, if not sufficiently clear). |
| Intel | If a clarification is felt necessary, we are OK to capture something. However, we have concerns with the text from Ericsson. It should not be a statement on its own as this can cause confusion on what else is not released. Instead, a clarification could say “…releases all child fields, including all the elements of any child AddMod lists” |
| CATT | No, the change is not correct |

**Table 10. DISC S1\_4: Guidelines on AddModLists**

**Conclusions (DISC S1\_4): TBA**

|  |  |
| --- | --- |
| **Company** | **Should something be captured on retaining fields that refer to other released fields?** |
| MediaTek | **“***If a field (e.g. field1 with IE type is* ***Config1****) contains a child field (e.g. field2 with IE type* ***ID2****) that refers to another IE (i.e. field that is identified according to* ***ID2****) and the referred IE is released, does the UE still retain the field1?***”**  In the above example, the result is that there is a parameter - *filed2* that refers to a **non-existing** IE. This does not make too much sense logically. We believe that sensible network will avoid this kind of configuration. We don’t think there should be general rule on UE behaviour for this kind of bad configuration. If we really want to capture something, we should specify NW does not configure in this way. But that is also not really necessary in our view. |
| NTT DOCOMO | Agree to capture the general guideline. |
| Nokia, Nokia Shanghai Bell | We are fine to capture something in guidlines if this has already appeared as problem for UEs in the field – otherwise similar IODT problems will come back in some other form. |
| Ericsson | OK to clarify that upon delta-configuration the network cleans-up hanging configurations (orphans) such as IDs pointing to an instance that does not longer exist as well as configurations that are not used. |
| Huawei, Hisilicon | We are not sure if such guidance would suddenly put requirements on networks and UEs for some unexpected cases.  We currently prefer to discuss problematic cases case by case. |
| ZTE | Same view as MediaTek. |
| Samsung | See our comment above. |
| Intel | The discussion text is not very clear to us. We could consider some clarification if felt necessary. |
| CATT | No need, the NW can avoid it via signalling. |

**Table 10. DISC S1\_4: Guidelines on retaining fields that refer to other released fields**

**Conclusions (DISC S2\_2): TBA**

# 4 Conclusions

**Agreements proposed to be agreed in this meeting (from all sub-topics)**

**TBA**

**Discussion items proposed at the start of the discussion:**

**DISC S1\_1:** Discuss whether UE shall release the PDCCH-ConfigCommon::commonControlResourceSet in via PDCCH-Config:: controlResourceSetToReleaseList.

**DISC S1\_2:** Discuss whether a PDCCH TCI state ID configured via common CORESET can be released by a dedicated CORESET and vice versa.

**DISC S1\_3:** Discuss whether UE should retain configuration of a TCI State ID when the corresponding TCI State is released.

**DISC S1\_4:** Discuss whether to adopt some changes to the RRC guidelines in A.3.9 for the AddModList usage regarding the release of parent/child IEs with nested AddModLists.

**DISC S2\_1:** Discuss the Q1-Q4 from [R2-2005009](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005009.zip)to determine what is the common understanding in RAN2 concerning them.

**DISC S2\_2:** Discuss the general principle on UE configurations: If a field (e.g. *field1* with IE type is ***Config1***) contains a child field (e.g. *field2* with IE type ***ID2***) that refers to another IE (i.e. field that is identified according to ***ID2***) and the referred IE is released, does the UE still retain the *field1*?

**DISC S3\_1:** Discuss whether the intent of the CRs [R2-2005002](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip) and [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip) is agreeable and whether the CRs are agreeable.

# 5 List of referenced documents

[1] [R2-2004903](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004903.zip) Corrections to CORESET and PDCCH TCI state release Nokia, Nokia Shanghai Bell discussion Rel-15 NR\_newRAT-Core

[2] [R2-2004904](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004904.zip) Corrections to CORESET and PDCCH TCI state release Nokia, Nokia Shanghai Bell CR Rel-15 38.331 15.9.0 1633 - F NR\_newRAT-Core

[3] [R2-2004905](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2004905.zip) Corrections to CORESET and PDCCH TCI state release Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.0.0 1634 - A NR\_newRAT-Core

[4] [R2-2005009](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005009.zip) Clarification on SCell release Huawei, HiSilicon discussion Rel-15 NR\_newRAT-Core

[5] [R2-2005002](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005002.zip) Clarification on release and addition of the uplink for Scell Huawei, HiSilicon CR Rel-15 38.331 15.9.0 1643 - F NR\_newRAT-Core

[6] [R2-2005003](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_110-e/Docs/R2-2005003.zip) Clarification on release and addition of the uplink for Scell Huawei, HiSilicon CR Rel-16 38.331 16.0.0 1644 - A NR\_newRAT-Core