1033GPP TSG-RAN WG2 Meeting #109bis e Tdoc R2-2003898

Electronic 20th – 30th April 2020

**Source: Ericsson (Email discussion rapporteur)**

**Title: [AT109bis-e][102][EMIMO] RRC aspects (Ericsson)**

**Agenda Item: 6.16.2**

**Document for: Discussion**

# 1 Introduction

This discussion is to progress RRC issues for eMIMO WI as per below email discussion:

[R2-2003181](file:///C:\Data\3GPP\Extracts\R2-2003181_eMIMORRCOpenIssues_submitted.docx) [Post109e#34][EMIMO] RRC Open Issues (Ericsson) Ericsson discussion Rel-16 NR\_eMIMO-Core

* Moved to offline email discussion [102] with the intention to go back online during the web conference call(s)
* [AT109bis-e][102][EMIMO] RRC aspects (Ericsson)

Scope: Continue the discussion on RRC aspects, based on [R2-2003181](file:///C:\Data\3GPP\Extracts\R2-2003181_eMIMORRCOpenIssues_submitted.docx)

Initial intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals with almost full consensus to discuss in the follow up conference call
    - Set of open issues and proposals to postpone to next meeting

Initial deadline (for companies' feedback): Wednesday 2020-04-22 16:00 UTC

Initial deadline (for rapporteur's summary in R2-2003892): Thursday 2020-04-23 10:00 UTC

Proposed agreements in R2-2003892 indicated for email agreement and not challenged until Thursday 2020-04-23 22:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

Updated scope: Continue the discussion on RRC open issues, including the proposals in [R2-2003345](file:///C:\Data\3GPP\Extracts\R2-2003345%20on%20TCI%20state%20MAC%20CE%20and%20DCI%20format1_2.docx)

Updated intended outcome: summary of the offline discussion with e.g.:

* + - Set of proposals with full consensus, if any (agreeable over email)
    - Set of proposals to discuss in the follow up conference call

Second intermediate deadline (for companies' feedback): Tuesday 2020-04-28 16:00 UTC

Second intermediate deadline (for rapporteur's summary in R2-2003898): Tuesday 2020-04-28 22:00 UTC

Proposed agreements in R2-2003898 indicated for email agreement and not challenged until Wednesday 2020-04-29 10:00 UTC will be declared as agreed by the session chair. For the other ones, the discussion will continue online.

This discussion is organized as follows. In Section 2, we have open issues that are suggested to be treated during this e-meeting. In Section 3 we list issues proposed to be postponed to next meeting. In Appendic A the total list of open issues is maintained.

# 2 Discussion on open issues to be handled during this meeting

2.1 coresetPoolIndex-r16 in ControlResourceSet

During the first online, RAN2 reached to the following agreement:

1. UE is configured with CORESETPoolIndex only if it support (assumed) mPDCCH mTRP capability
2. rephrase the existing condition into "If the field is absent, the UE applies the value 0." in the CORESETPoolIndex field description

Remaining aspects are how the different modes of operation are referred elsewhere in TS 38.331 and TS 38.321 (possibly also TS 38.306). See E.g. field description of maxNrofPorts where this is needed.

mPDCCH mTRP mode is referred to:

Option 1 CORESETPoolIndex is configured with value 1 for at least one of the CORESETs in this serving cell

Option 2 CORESETPoolIndex is configured for at least of the CORESETs in this serving cell

Option 3 there is other parameters involved

sPDCCH mTRP mode is referred to:

Option1 CORESETPoolIndex is not configured with value 1 for any of the CORESETs in this serving cell

Option 2 CORESETPoolIndex is not configured for any of the CORESETs in this serving cell

Option 3 Purely reception of the Enhanced PDSCH MAC CE mapping two TCI states to a DCI codepoint

Option 4 Conditions for using sPDCCH m-TRP as specified in TS 38.214 Clause 5.1.

-> When a UE is configured by **higher layer parameter *RepSchemeEnabler* set to one of '*FDMSchemeA'*, '*FDMSchemeB'*, '*TDMSchemeA'***, if the UE is **indicated with two TCI states in a codepoint of the DCI field *'Transmission Configuration Indication'*** and **DM-RS port(s) within one CDM group in the DCI field "*Antenna Port(s)"*** 🡪 Note that this is for one of ‘FDMSchemeA’, ‘FDMSchemeB’, or ‘TDMSchemeA’ where each scheme relies on sPDCCH M-TRP.

-> When a UE is configured by the **higher layer parameter *PDSCH-config* that indicates at least one entry in *pdsch-TimeDomainAllocationList* containing *RepNumR16* in *PDSCH-TimeDomainResourceAllocatio*n**, the UE may expect to be indicated with **two TCI states in a codepoint of the DCI field *'Transmission Configuration Indication'*** together with the **DCI field "*Time domain resource assignment*' indicating an entry in *pdsch-TimeDomainAllocationList* which contain *RepNum16* in *PDSCH-TimeDomainResourceAllocatio*n** and **DM-RS port(s) within one CDM group in the DCI field "*Antenna Port(s)"***

-> Note that this is for slot based repetition with sPDCCH M-TRP

-> **When a UE is not indicated with a DCI that DCI field "*Time domain resource assignment*' indicating an entry in *pdsch-TimeDomainAllocationList* which contain *RepNumR16* in *PDSCH-TimeDomainResourceAllocatio*n**, and **it is indicated with two TCI states in a codepoint of the DCI field *'Transmission Configuration Indication'*** and **DM-RS port(s) within two CDM group in the DCI field "*Antenna Port(s)"*,**

Note that this is for NC-JT scheme with sPDCCH M-TRP

*Q1. Companies are asked comment on the definitions*

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| Company | Agree/disagree |
| CATT | We agree with Option 1. |
| Ericsson | mPDCCH mTRP mode is referred to:  Option 1 CORESETPoolIndex is configured with value 1 for at least one of the CORESETs in this serving cell  sPDCCH mTRP mode is referred to:  Option 4 Conditions for using sPDCCH m-TRP as specified in TS 38.214 Clause 5.1.  Further, RAN2 to confirm RAN1 if these definitions are ok. Addinionally RAN2 should ask RAN1 about the mixed operation. |
| ZTE | For mPDCCH mTRP transmission mode, we think it depends on whether we have common understand on the assumption that “AND not all CORESETs can be configured with value 1”, which has been proposed as part of proposal 2 in the summary of email discussion R2-2003892, but has not been agreed so far. If companies agree the assumption, then we think option 1 is sufficient, otherwise, we have to address the case that all the CORESETs can be configured with value CORESETPoolIndex 1.  For the sPDCCH mTRP mode, we are fine with both option 3 and option 4, and have slight preference on option 4, which seems simpler to capture.  In addition, since the CORESETs can be configured per BWP and only one BWP can be activated at a time, we think the mPDCCH mTRP mode and sPDCCH mTRP mode should be determined per BWP instead of per cell. |
| Qualcomm | For mPDCCH mTRP, option 1 is preferred. i.e. CORESETPoolIndex is configured with value 1 for at least one of the CORESETs in this serving cell.  For sPDCCH mTRP, option 2 is preferred. i.e. CORESETPoolIndex is not configured for any of the CORESETs in this serving cell.  The option 3 is the behaviour for sPDCCH mTRP, i.e. one DCI codepoint mapping to one or two TCI states.  The option 4 is fine to quote from RAN1 spec for sPDCCH mTRP case. |
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2.2 nrofReportedRS-ForSINR in CSI-ReportConfig

During the first online, RAN2 reached to the following agreement:

1. If nrofReportedRSForSINR is used only with quantityConfig-r16, RAN2 to agree as baseline the REVISED TP in Appendix A for the nrofReportedRS-ForSINR in CSI-ReportConfig.

What remains to be resolved is whether the below text in the 214 specification results in further changes in TS 38.331

*if the UE is configured with the higher layer parameter groupBasedBeamReporting set to 'disabled', the UE shall report [in a single report] nrofReportedRSForSINR (higher layer configured) different CRI or SSBRI for each report setting.*

*Q2 Companies are asked to provide their views whether on further actions needed?*

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| Company | Answer |
| CATT | In our view the ran1 text means that if *groupBasedBeamReporting* set to disabled, UE shall be configured with a value of *nrofReportedRSForSINR.*  There are then two ways to achieve that, i.e.,  Option 1: to add requirement in RRC spec, i.e., in the field description of *nrofReportedRSForSINR,* so that it is mandatory if *groupBasedBeamReporting* set to disabled. or  Option 2: to clarify in ran1 spec to something like  *nrofReportedRSForSINR (higher layer configured, or the default value if not configured)*  We slightly prefer option1.  If we go for Option 2, we might need to let ran1 know.  And, small issues with option 2  For option 2 we need to add back the description that if this is not configured it take the default value (dropped in appendix A of #3892..). Now that with proposal in #3892 nrofReportedRS-ForSINR-r16 becomes mandatory under SINRQuantityConfig-r16, we cannot say “when the field is absent”. |
| ZTE | We prefer the option 2, which is similar as the agreement we made for IE CORESETPoolIndex , and then the current wording in field description for nrofReportedRS-ForSINR, that “When the field is absent the UE applies the value 1.”, can be kept. |
| Qualcomm | Only if *groupBasedBeamReporting* is set to disabled, *nrofReportedRSForSINR* shall be configured. These two parameters have dependency indeed.  We prefer to option 1 to clarify it in RRC spec instead of bothering RAN1 spec. |
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2.2 DCI format 1\_2 applicability

DCI format 1\_2 applicability

[R2-2003345](file:///C:\Data\3GPP\Extracts\R2-2003345%20on%20TCI%20state%20MAC%20CE%20and%20DCI%20format1_2.docx) On DCI format 1\_2 applicability with NR eMIMO Ericsson discussion Rel-16 NR\_eMIMO-Core

* To be discussed as part of offline 102

[Observation 1 A UE can be configured with both DCI format 1\_1 and DCI format 1\_2 with TCI field, either in the same or different CORESETs.](#_Toc37349557)

[Observation 2 Similar to DCI format 1\_1, DCI format 1\_2 may have TCI state(s) to TCI field codepoint different mapping depending on CORESETPoolIndex](#_Toc37349558)

[Observation 3 The number of codepoints in the TCI field of DCI format 1\_2 can be different between different CORESETs.](#_Toc37349559)

[Observation 4 It is not clear if both PDSCH MAC CEs apply also to DCI format 1\_2 to what extent.](#_Toc37349560)

[Observation 5 When same MAC CEs are used for DCI format 1\_1 and 1\_2 the mapping is preferably captured in RAN1 specification.](#_Toc37349561)

*Q3 Companies are asked whether they agree with the observations 1-5?*

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| Company | Answer |
| CATT | Our preference is to apply the same MAC-CE to both DCI 1-1 and 1-2. It is the same UE and there is no reason to have separate beam managements MAC-CE just for different DCI formats. In our view the entire MAC-CE based TCI states update for PDCCH should be used regardless of the DCI format.  Agree with O5. |
| Ericsson | One MAC CE is enough. TO double check has RAN1 updated the parameter for TCI states for DCI1\_2 |
| ZTE | We also think one MAC CE is enough. We can inform RAN1 our preference and ask RAN1 to check if any change is needed in RAN1 specs. |
| Qualcomm | We are fine to send LS to RAN1 for clarification. But we suggest RAN2 to wait for RAN1 reply and then make any decision, especially the ones may have RAN1 spec impact. |
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Draft LS to RAN1

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| **Title:** draft LS on DCI format 1\_2 applicability to NR eMIMO  **Release:** Rel-16  **Work Item:** eMIMO  **Source:** Ericsson [To be RAN2]  **To:** RAN1  **1. Overall Description:**  RAN2 has discussed the applicability of DCI format 1\_2 in context of eMIMO and has the following questions.  Question 1  Can the UE be configured with both DCI format 1\_1 and DCI format 1\_2 with TCI field, either in the same or different CORESETs?  Question 2  Is the DCI format 1\_2 supported with mPDCCH operation? If yes, similar to DCI format 1\_1, DCI format 1\_2 may have different TCI state(s) to TCI field codepoint mapping depending on CORESETPoolIndex?  Question 3  Can the number of codepoints in the TCI field of DCI format 1\_2 be different between different CORESETs?  Question 4  Which PDSCH MAC CEs can be used for DCI format 1\_2? Further, whether the CORESETPoolIndex in the “TCI States Activation/Deactivation for UE-specific PDSCH MAC CE” in 6.1.3.14 is applicable or not?  Question 5  When same MAC CEs are used for DCI format 1\_1 and 1\_2 the mapping is preferably captured in RAN1 specification. Does RAN1 agree?  **2. Actions:**  **To RAN1 group.**  **ACTION:**RAN2 asks RAN1 to respond to above questions |

*Q3 Companies are asked whether they agree to send the LS and to provide comments on the content?*

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2.5 Unclear if open issues but brought up in previous RRC email discussions

Out of the total list of open issues, presented in Appendix C, marked with ASN1, these do NOT have RIL associated.

2.5.1 General principle of old and new field assumptions

When an field is not to be used when a new field is configured:

- if the field not to be used is optional need R, then it should be the network responsibility not to configure both

- if the field not to be used is optional need M, we need to decide whether there should be a generic way to do that

- of the field not to be used is mandatory, it is ok to have "the UE shall ignore" for the mandatory field

For instance, in CSI-ReportConfig, codebookConfig is optional Need R so there should be no UE requirement to ignore it just in case a stupid network implementation would send it together with codebookConfig-r16.

*Q4 Companies are asked whether they agree to this principle here or whether this should be only discussed in general ASN1 review?*

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| Company | Answer |
| Ericsson | Unclear if this decision/issue belongs to WI specific discussion. |
| ZTE | It seems like some general principles and should be discussed in the main session.  Technically, we think if one IE is not expected to be used in some cases, then there should be a means to release the IE (i.e. Need R or SetupRelease), and it is up to NW implementation to ensure the IE will be released correctly. |
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2.5.2 pdsch-TimeDomainAllocationList-v16xy

**1) pdsch-TimeDomainAllocationList-v16xy**: for PUSCH-TimeDomainAllocationList (for URLLC and NR-U), a "-r16" IE (actually using suffix "New" but that should be corrected) is created which includes all the R15 parameters plus the R16 parameters and extension markers.

Here, for the same thing for PDSCH, we add only R16 parameters and the structure is still not extensible.

We suggest that the extensions of the TimeDomainAllocation lists for PUSCH and for PDSCH are done in the same way, either both -v16 (only R16 parameters) or both -r16 (R15 and R16 parameters plus extension markers).

In addition, for URLLC, there is a new R16 field which is SetupRelease of the R15 PDSCH-TimeDomainResourceAllocationList, If a PDSCH-TimeDomainResourceAllocationList-r16 with extension markers is created, it is better to use it there.

We raised this as H003 with R2-2003626.

*Q5 Companies are asked to provide their views on this issue?*

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| Company | Answer |
| Nokia, Nokia Shanghai Bell (OLD COMMENT) | 1) We agree with Huawei that it would be netter to use same for both PUSCH and PDSCH lists if possible: The difference her is that the PUSCH parameters only affect certain DCIs, whereas the PDSCH parameters affect all of them.  If we harmonize, NCE has to be used as the parameters relate to existing allocations: they cannot exist as stand-alone.  if we were to use critical extension, it has to replace the existing Rel-15 structure as the number of elements cannot increase. That is what was done for the PUSCH, and it’s clearly more complex. |
| Ericsson | Especially with PDSCH case we need to be careful the outcome respects RAN1 intention for DCI1\_1 and DCI 1\_2 usage |
| ZTE | The changes proposed by Huawei seems fine for us. |
| Qualcomm | We are not sure whether there are benefits to unify the TDRA with the same way for PUSCH and PDSCH list.  If the changing PDSCH list has RAN1 impact, we should be careful and need more time to check. |
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2.5.3 dmrs-UplinkTransformPrecoding-r16

**2) dmrs-UplinkTransformPrecoding-r16** in DMRS-UplinkConfig: the presence condition is "The field is optionally present if tp-pi2BPSK is included in **PUSCH-Config**. It is absent, Need R otherwise."

There are fields of type DMRS-UplinkConfig:  
- in PUSCH-Config, i.e. dmrs-UplinkForPUSCH-MappingTypeA/B(-ForDCI-Format0-2-r16)  
- in ConfiguredGrantConfig, i.e. cg-DMRS-Configuration

We should clarify  
a) can dmrs-UplinkTransformPrecoding-r16 be included for DCI 0-2 and in ConfiguredGrantConfig?  
b) which PUSCH-Config does the condition refer to

In PUSCH-Config, it is probably "in the PUSCH-Config in which this instance is included". Also, is this supported only for DCI format 0-2?

In ConfiguredGrantConfig, is this supported? Is it related to "whether tp-pi2BPSK is included in the PUSCH-Config included in the BWP-UplinkDedicated in which the ConfiguredGrantConfig is included"?

*Q8. Companies are asked to point out(and explain) if these are still relevant. If no comments these will be deleted going forward.*

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| Company | Answer |
| Nokia, Nokia Shanghai Bell (OLD COMMENT) | 2) In our understanding the PI/2 BPSK refers to the same PUSCH where ther transform precoding is configured. But this might be something to further clarify from RAN1 as this is not in RAN2 responsibility. |
| Ericsson (OLD COMMENT) | Our RAN1 input:  It seems we will agree this meeting that Rel-16 DMRS can be used with PUSCH scheduled from DCI 0\_2.  This means that when  Rel16. DMRS is enabled for PUSCH with transform precoding , then it applies for all PUSCH transmissions using pi/2-BPSK except Msg3 or when scheduled from DCI 0\_0 in common search space.  So it should be sufficient with a single on/off switch to enable Rel-16 DMRS, in PUSCH\_config. |
| ZTE | Further clarification from RAN1 is needed. |
| Qualcomm | Same view with ZTE. |
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2.5.4 Restiction to not to use cell list mased MAC CE operation with mPDCCH

Proposal 18: If the serving cell in the TCI States Activation/Deactivation for UE-specific PDSCH MAC CE is configured in one cell list which contains more than one serving cell,UE shall ignore the the CORESET Pool ID field when receiving the MAC CE.

Proposal 19: If the coresetPoolIndex is not configured for any CORESET, UEshall ignore the CORESET Pool ID field in the TCI States Activation/Deactivation for UE-specific PDSCH MAC CEwhen receiving the MAC CE.

Above is not an issue if UE cannot be configured with the serving cell in the cell list if that serving cell has CORESETPoolIndex=1 for one of the CORESETs? Then, does this apply to all those lists and possibly PUCCH list?

*Q9. Companies are asked reply if they agree to put the above limitation to RRC?*

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| Company | Answer |
| Ericsson | Have the limitation in RRC |
| ZTE | Share the view with Ericsson that some restriction can be added in ASN.1 |
| Qualcomm | The aim of above proposals is to capture the agreements made in the last RAN2 meeting. ‘multi-TRP case is not considered for MAC CEs regarding multiple CCs/BWPs, i.e. TCI States Activation/Deactivation for UE-specific PDSCH MAC CE. ‘  So, we think they should be agreed.  We are fine to think more on the limitation in RRC. |
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2.6 Editorials to be fixed in next RRC CR

*Q10. Companies are asked to provide more if found.*

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| Company | Issues found |
| Huawei, HiSilicon(last round) | In SRS-ResourceSet, field description of pathlossReferenceRS-List is missing.   1. *Rapporteur comment: List was changed to toAddMOdList and missing pathlossReferenceRS-Id was added. pathlossReferenceRS-Id was in parameter excel* |
| Huawei, HiSilicon(last round) | Change the variable name for maxNrofSRS-PathlossReferenceRS-r16-1 to maxNrofSRS-PathlossReferenceRS-1-r16 and need to define in the 6.4.  maxNrofSRS-PathlossReferenceRS-r16 INTEGER ::== 64  maxNrofSRS-PathlossReferenceRS-1-r16 INTEGER ::== 63  *Rapporteur comment:done* |
| Huawei, HiSilicon(last round) | Change IE name of PDSCH-TimeDomainResourceAllocation-v16 to PDSCH-TimeDomainResourceAllocation-r16.  *Rapporteur comment:This seems to be actually related to TDRA issue under separate discussion-> not done* |
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2.7 New open issues identified

*Q11. Companies are asked to provide more if found.*

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| Company | Issues found |
| Ericsson | In PUCCH-PowerControl, the  pathlossReferenceRSs SEQUENCE (SIZE (1..maxNrofPUCCH-PathlossReferenceRSs)) OF PUCCH-PathlossReferenceRS   1. has not been extended with the new ID space. Add toADDMOdList or new plain list? |
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# 3 List WI specific issues proposed to be postponed to next meeting

Issues listed here are proposed to be postponed to next meeting as these depend on RAN1 reply LS.

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| Parameter/issue | comments | WI/ASN1 |
| BDFactor to be placed under PhysicalCellGroupConfig or servingCellConfig. | Question is included in the LS in R2-2001683.  [Samsung] according to the RAN1 excel (R1-2001478) BDFactorR is Per DL serving cell (i.e. It should be directly under ServingCellConfig or PDCCH-servingCellConfig) | WI |
| Current value range for BDFactor is ENUMERATED {n1} and it is unclear if this is what is needed in the end. | The question in the LS does not include to update the value range of the parameter. Companies are encouraged to lift this internally so the reply would contain also the updated value range. | WI |
| Whether repetition schemes 2a/2b/3 (fdmSchemeA, fdmSchemeB and tdmScheme) and scheme 4 (slotBased) are mutually exclusive in all UE configuration options. | Question is included in the LS in R2-2001683. | WI |
| maximum number of PUCCH resources in a PUCCH group | Question is included in the LS in R2-2001683. | WI |
| maximum value of serving cells in per CC/BWP lists. | Question is included in the LS in R2-2001683. | WI |
| The variable name of the maximum number of serving cells in simultaneousTCI-UpdateList (i.e. maxNrofServingCells) is already exist, so no need to introduce the same variable.  If this maximum number of serving cells in simultaneousTCI-UpdateList is different from the current one, then change the name of field to distinguish between both. | To be checked when we get the value | WI |
| In RepetitionSchemeConfig, it should not be possible to configure both fdm-tdm and slotBased | Question is included in the LS in R2-2001683. | WI |

# Appendix A

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| Parameter/issue | comments | WI/ASN1 |
| BDFactor to be placed under PhysicalCellGroupConfig or servingCellConfig. | Question is included in the LS in R2-2001683.  [Samsung] according to the RAN1 excel (R1-2001478) BDFactorR is Per DL serving cell (i.e. It should be directly under ServingCellConfig or PDCCH-servingCellConfig) | WI |
| Current value range for BDFactor is ENUMERATED {n1} and it is unclear if this is what is needed in the end. | The question in the LS does not include to update the value range of the parameter. Companies are encouraged to lift this internally so the reply would contain also the updated value range. | WI |
| Whether repetition schemes 2a/2b/3 (fdmSchemeA, fdmSchemeB and tdmScheme) and scheme 4 (slotBased) are mutually exclusive in all UE configuration options. | Question is included in the LS in R2-2001683. | WI |
| maximum number of PUCCH resources in a PUCCH group | Question is included in the LS in R2-2001683. | WI |
| maximum value of serving cells in per CC/BWP lists. | Question is included in the LS in R2-2001683. | WI |
| coresetPoolIndex-r16 in ControlResourceSet has value range (0..1), what kind of limitations need to specified e.g.:  value “1” should be configured only if “0” is configured  if configuration with “0” is removed, is configuration with “1” removed or only the index is removed?  If only one set is configured, is index “0” configured | See Question 1 and Proposals 1 and 2 in this email discussion. | WI |
| nrofReportedRS-ForSINR in CSI-ReportConfig | See Question 2 and Proposal 3 with TP in this email discussion. | WI |
| nrofReportedRS-ForSINR in CSI-ReportConfig | See Question 3 and Proposal 3 with TP in this email discussion. | WI |
| Field description for  dmrs-Downlink in DMRS-DownlinkConfig | See Question 4 and Proposal 4 with TP in this email discussion. | WI |
| lte-CRS-PatternList-r16 and lte-CRS-PatternListSecond-r16 are placed under uplinkConfig while lte-CRS-ToMatchAround is placed directly under ServingCellConfig. We think it should be aligned i.e. lte-CRS-PatternList-r16 and lte-CRS-PatternListSecond-r16 should be placed under ServingCellConfig | Suggestion is to agree | WI |
| The variable name of the maximum number of serving cells in simultaneousTCI-UpdateList (i.e. maxNrofServingCells) is already exist, so no need to introduce the same variable.  If this maximum number of serving cells in simultaneousTCI-UpdateList is different from the current one, then change the name of field to distinguish between both. | To be checked when we get the value | WI |
| No need two-level CHOICE structure in CodebookConfig-r16 IE because there are no more entries in this CHOICE structure.  Proposed change:  Remove codebookType CHOICE structure and type2 SEQUENCE structure. Then change the field name of subType to codebookType-r16. | [Huawei, HiSilicon] According to field description of codebookType, this parameter includes the parameters for each type, so numberOfPMI-SubbandsPerCQI-Subband-r16 and paramCombination-r16 should remain inside codebookType, which is not the case with this proposal. No strong view on the CHOICE, but it makes no coding difference and it may be more readable to keep the same format like R15.  One remark: do we need the "-16" suffixes everywhere? If yes, this is not consistently done.  [Ericsson] This was originally without the extra CHOICE but as per Nokia’s view it was changed. Reason was to aling with RAN1 specification. | WI |
| Change the signalling of maxNrofPorts from ENUMERATED {n2} to ENUMERATED {n1, n2} as RAN1 suggested.  In addition, add the condition when n2 can be selected in the field description.  Proposed change:  maxNrofPorts  The maximum number of DL PTRS ports specified in TS 38.214 [19] (clause 5.1.6.3). 2 PT-RS ports can only be configured for single-PDCCH based multi-TRP operation. | [Ericsson] Reference for the suggestion? | WI |
| pdsch-TimeDomainAllocationList-v16xy must always and only be configured when slotBased is configured in repetitionSchemeConfig, while they now look like independent configuration. |  | WI |
| In RepetitionSchemeConfig, it should not be possible to configure both fdm-tdm and slotBased | Question is included in the LS in R2-2001683. | WI |
| In PDSCH-TimeDomainResourceAllocation, it should be possible to signal n1 for repetitionNumber (suggest changing to Need S and capture that when the field is absent, the UE uses n1). |  | WI |
| Suggest capturing in the field description of schedulingRequestID-BFR-SCell in MAC-CellGroupConfig that this value is not used in any LogicalChannelConfig |  | WI |
| candidateBeamRSListExt-r16 in BeamFailureRecoveryConfig | Nokia: The intent here is to extend the maximum number of RS resources from 16 tro 64.  However: Now it’s also not clear what UE does if it’s signalled with both lists – does the R16 list fully replace the previous (as it seems since it’s done as CR) and what does UE do with the R15 version if the R16 is signalled?  Or if this is a size extension to the existing list, we should mark it with Ext.  Also, this list doesn’t seem, to be releasable withoöut releasing the whole upper level IE.  This is a “plain list” without AddModRelease – structure, for which there was some ambiguity earlier wrt. how to change the number of entries in the list. It might be better to change the (new list) structure to use AddModRel instead?  HW: Could make the R16 parameter a list of additional candidateBeamRS with size 0 (release) to 48 which is used together with the R15 list.  ZTE: Since the maximum number of candidate beam has been extended to 64, we think it would be nice to have AddModList/ ReleaseList for the candidateBeamRS | ASN1 |
| ControlResourceSetId-r16 in ControlResourceSetId | ER: Should start from 12 (to be defined as maxNrofControlResourceSets) because there is no need to repeat the existing values. | ASN1 |
| Cond PI2-BPSK  The field is optionally present if tp-pi2BPSK is included in PUSCH-Config. It is absent, Need R otherwise. | HW: Does this(PUSCHConfig) refer the field of the instance of PUSCH-Config in which the DMRS-Uplink is configured or does it also refer tp the PUSCH-Config in UL BPW in which the DRMS-Config is configured within configuredGrantConfig? | ASN1 |
| controlResourceSetToAddModList-r16 in PDCCH-Config | Size of this list needs to be discussed as well as extension.  HW: This makes it possible to configure 8 coresets, using the legacy parameter and this one. Isn't it sufficient to have a list of 2?  Nokia: This should be the R16 version.  Also, we might want to clarify that the R16 version of the list can release also the entries configured by R15 field and vice versa (where possible) to avoid similar ambiguities that were observed in LTE Rel-10 vs. Rel-13 CA.  Samsung: Agree with Nokia i.e. release mechanism of SCell in LTE can be re-used.  BTW, can we introduce ListExt for this?  HW: We should avoid ambiguities but would suggest also avoiding multiple options for the same action, e.g. if ControlResourceSetId-r16 is values from 13 to 64 only, this is clear that the R15 ToReleaseList is to release the CORESET with IDs in R15 range and the R16 ToReleaseList is used to release CORESETS with IDs in the R16 range.  (For addition, there is no restriction but we need to clarify that there is a single list maintained by the UE.).  About "ListExt": so far there is no guideline for extension of list using ToAddModList and ToReleaseList. | ASN1 |
| pdsch-TimeDomainAllocationList-v16xy in PDSCHConfig | Nokia: See definitions of the IE – better use NCE for the list.  Nokia: The point here is that the list extends the existing list, so the entries should be appended to the existing one. This then also allows network to retain Rel-15 version while only adding the Rel-16 part when needed.  HW: Have some doubts on the benefits, see below. | ASN1 |
| dataScramblingIdentityPDSCH, dataScramblingIdentityPDSCH2 in PDSCH-Config | HW: Is it so likely that the network can just add the r16 parameters without changing the value of any r15 parameter of any entry in the list?  No strong view but have some doubts that NCE is the best choice (supposing we keep NCE because we think this is likely that the network can add r16 parameters only, it is unclear in the field description whether the network can release the r16 parameters for all entries by setting the r16 parameter to release.). | ASN1 |
| spatialRelationInfoToAddModList-r16 in PUCCHConfig | Need to discuss is Ext is used. Further the size needs to be discussed.  HW: We need clarifications in the field description on how this is expected to be used in combination with the r15 field (depends on what we want to do exactly with the r16 structure as commented in PUCCH-SpatialRelationInfo | ASN1 |
| PUCCH-SpatialRelationInfoId-r16 in PUCCH-SpatialRelationInfo | HW: If the new structure is fully identical to the old structure except for the ID range, the extended ID range could only start from the first misssing ID value and the r16 ToAddModList in PUCCH-Config would be used only for entries with ID values not in the r15 range.  That said: if we want to add extension markers (might be a good idea?) for the new structure and make it possible to it use also for entries with IDs in the r15 range, we need to keep the full range. Nevertheless, we should try to avoid unnecesary use of two parameters for the same purpose. For instance, upon and after configuration of entries via the r16 ToAddModList, the network does not use the r15 ToAddModList and ToReleaseList until all entries or the parent structure are released. | ASN1 |
| pathlossReferenceRSToAddModList-r16 in PUSCH-PowerControl | Samsung: Do we need to discuss whether to introduce ListExt for pathlossReferenceRSToAddModList-r16? | ASN1 |
| pathlossReferenceRS-List-r16 is allowed for delta configuration but there are no ways to release the list.  pathlossReferenceRS-List-r16 SEQUENCE (SIZE(1..maxNrofSRS-PathlossReferenceRS-r16-1)) OF PathlossReferenceRS-Config OPTIONAL, -- Need M  To be able to release the list, Need code should be R or SetupRelease structure is needed. | [Huawei, HiSilicon] According to A.3.10, "Need M" for a list that is not using ToAddModList means the same like "Need R" (but this should be avoided because it is a source of confusion). | ASN1  In ASN1 Rew file |
| There is no clarification where both pathlossReferenceRS and pathlossReferenceRS-List-r16 are signalled. Like other cases, we can add the sentence in the field description as pathlossReferenceRS is ignored/released if pathlossReferenceRS-List-r16 is signalled. | [Huawei, HiSilicon] Introduction of an alternative to a Need M field (here in a list using ToAddModList) is a generic problem that should be discussed in ASN.1 review session. | ASN1 |
| What is the intention of size(0) of candidateBeamRSListExt-r16 though this field is optional? We assume that it allows the delta configuration by using Need M for this list, but if there are no additional meaning for this zero signalling it would be better to use SetupRelease structure, or size(1) with Need R (i.e. if delta configuration is not needed). | [Huawei, HiSilicon] Introduction of more items to a list not using ToAddModList should be discussed in ASN.1 review session. | ASN1 |
| It is not clear how SearchSpace-v16xy is configured. It seems this IE is the additional configuration using SearchSpace but there are no other configuration in this IE i.e. no searchSpaceId, etc.  Is it better to define searchSpace-r16? Or we can add more descriptions how it works.  For example, if the ControlResourceSetId-r16 in SearchSpace-v16xy is configured, UE ignore the ControlResourceSetId but use the same configuration in SearchSpace which ControlResourceSetId was configured. However we need at least earchSpaceId in this case. | [Huawei, HiSilicon] Again, the problem here is very generic, i.e. adding a missing parameter to non-extensible list using ToAddModList, this requires a general ASN.1 discussion. | ASN1 |
| Minor correction:  Change IE name of PDSCH-TimeDomainResourceAllocation-v16 to PDSCH-TimeDomainResourceAllocation-r16. |  | ASN1 |
| Change the variable name for maxNrofSRS-PathlossReferenceRS-r16-1 to maxNrofSRS-PathlossReferenceRS-1-r16 and need to define in the 6.4.  maxNrofSRS-PathlossReferenceRS-r16 INTEGER ::== 64  maxNrofSRS-PathlossReferenceRS-1-r16 INTEGER ::== 63 |  | ASN1 |
| When an field is not to be used when a new field is configured:  - if the field not to be used is optional need R, then it should be the network responsibility not to configure both  - if the field not to be used is optional need M, we need to decide whether there should be a generic way to do that  - of the field not to be used is mandatory, it is ok to have "the UE shall ignore" for the mandatory field  For instance, in CSI-ReportConfig, codebookConfig is optional Need R so there should be no UE requirement to ignore it just in case a stupid network implementation would send it together with codebookConfig-r16. |  | ASN1 |
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