**3GPP TSG-RAN WG2 Meeting #110-e *R2-200xxxx***

**Electronic meeting, 1 – 12 June 2020**

**Agenda item: 6.0.1**

**Source: Intel Corporation (rapporteur)**

**Title: Summary of [AT110-e][066][NR16] NR ASN1 2 (Intel)**

**Document for: Discussion and Decision**

# Introduction

The scope of the discussion:

Scope (with some additional clarifications beyond the chair’s notes):

**List extension single element list**

[S654, S655], R2-2005258 [38.331][H230] Extension of a single Need M item to a list of this item,

**Extending List not ToAddMod**

[S655] [H005], [R2-2005259](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005259.zip) [38.331][H231] Extending the number of entries of a list not using ToAddMod list,

**“Otherwise the field is absent" in Condition: Sub-issue 1: Field cannot be released**

H246, R2-2005263 [38.331][H246] Usage of presence conditions for SetupRelease structures

**Otherwise the field is absent" in Condition: Sub-issue 2: Missing Need node for absence:**

R2-2005264 [38.331][H247] Missing need codes for absence in presence

**Mechanism to release Rel-16 field**

I633, I805, I803, I840, H248, I806, I804, I815, I807, I808, I820, I809, I810, I811, I812, I816, I813, I814, I818, S496, R2-2005265 [38.331][H248] Fields that cannot be released,

# Discussion

## List extension single element list

[S654, S655], R2-2005258 [38.331][H230] Extension of a single Need M item to a list of this item,

The original problem here was that a single element field in Rel-15 was extended to a list in Rel-16 and the relationship between them was not clear. This has subsequently been updated. The updated draft version of the spec says:

SRS-ResourceSet ::= SEQUENCE {

[..]

 pathlossReferenceRS PathlossReferenceRS-Config OPTIONAL, -- Need M

[..]

 ...,

 [[

 pathlossReferenceRSToAddModList-r16 SEQUENCE (SIZE (1..maxNrofSRS-PathlossReferenceRSs-r16)) OF PathlossReferenceRS-r16 OPTIONAL, -- Need N

 pathlossReferenceRSToReleaseList-r16 SEQUENCE (SIZE (1..maxNrofSRS-PathlossReferenceRSs-r16)) OF SRS-PathlossReferenceRS-Id-r16 OPTIONAL -- Need N

 ]]

}

|  |
| --- |
| ***pathlossReferenceRS***A reference signal (e.g. a CSI-RS config or a SS block) to be used for SRS path loss estimation (see TS 38.213 [13], clause 7.3). |
| ***pathlossReferenceRSToAddModList***Multiple candidate pathloss reference RS(s) for SRS power control, where one candidate RS can be mapped to SRS Resource Set via MAC CE (Section xxx in TS 38.321). The network can only include this field if pathlossReferenceRS is not configured in the same SRS-ResourceSet. |

Since the SRS-ResourceSet itself is an IE to an addMod list, there is no real reason to reconfigure the SRS-ResourceSet from the original field pathlossReferenceRS to the athlossReferenceRS-r16 field for the same SRS-ResourceSet element – network can simply configure another entry of SRS-ResourceSet and release the original one. Hence the current text is sufficient and no further clarification on the relationship between the original and r16 list is needed.

**Conclusion#1: No further change is necessary.**

**Q1: Companies are invited to indicate if they have any concerns with the above conclusion.**

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| --- | --- |
| **Company** | **Any concerns with the above conclusion** |
| **Huawei, HiSilicon** | It works but isn't ToAddModList complete overkill for a list of a single 9-bits field (1 bit for CHOICE and 6 or 8 bits)?We could just have a simple list, that compliments the existing item, like in Q2. |
| **Intel** | The conclusion and updates previously agreed seems OK. |
| **Ericsson** | No concern with conclusion |
| **Samsung** | We understand that proposed way forward means that R16 field is replacement of original field i.e. like a critical extension.We understand that for the R16 field we additionally signal an ID (srs-PathlossReferenceRS-Id) as also used by MAC. It however seems possible to still do the extension in a non-critical extension (NCE) manner i.e. by clarifying that for the legacy field value 0 applies for srs-PathlossReferenceRS-Id (and further that the R16 list is an extension i.e. additional entries, similar to what we do in 2.2)  |
| **MediaTek** | Agree that a change is not strictly necessary, but Huawei’s suggestion seems OK. We could have a flat list Need M, and the list is either signalled (and replaced in its entirety—no ambiguity as there are no Need M fields contained in it) or not signalled (and maintained in accordance with the Need M code). |

## Extending List not ToAddMod

[S655]: [S655] [H005], [R2-2005259](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005259.zip) [38.331][H231] Extending the number of entries of a list not using ToAddMod list

There are two topics related to the following list discussed in next subsections:

BeamFailureRecoveryConfig ::= SEQUENCE {

 --

candidateBeamRSList SEQUENCE (SIZE(1..maxA)) OF PRACH-ResourceDedicatedBFR OPTIONAL, -- Need M

 ...,

 [[

candidateBeamRSListExt-r16 SEQUENCE (SIZE(0..maxB)) OF PRACH-ResourceDedicatedBFR OPTIONAL -- Need M

 ]]

}

### Is the new list is a critical extension or a non-critical extension?

In the above, an non-addMod list is extended in terms of number of entries (both lists use the same IE element). There are two options for this looking at the functionality:

**Option A: the new field (**candidateBeamRSListExt-r16**) is a non-critical extension to provide more entries to the list (i.e., ext is only signalled along with the original field and only when the number of entries is larger than maxA). If so use field name to candidateBeamRSListExt-vxy.**

**Option B: the new field (**candidateBeamRSListExt-r16**) is a critical extension and a replacement of the original list (i.e., only one of these can be signalled). If so, use field name candidateBeamRSList-r16**

In both options, since the element IE is the same and as this is a non-ToAddMod list, there is no index in the IE to extend. The UE only has one list and it doesn’t store which field was used to configure the list.

**Conclusion#2: Based on the meeting discussion and agreement to use non-critical extension by default, option A should be used.**

The TP for this change is also provided in [R2-2005259](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005259.zip).

|  |
| --- |
| ***candidateBeamRSList, candidateBeamRSListExt-vxy***The list of reference signals (CSI-RS and/or SSB) identifying the candidate beams for recovery and the associated RA parameters. The UE shall consider this list to include all elements of *candidateBeamRSList* (without suffix) and all elements of *candidateBeamRSListExt-r16*. The network configures these reference signals to be within the linked DL BWP (i.e., within the DL BWP with the same *bwp-Id*) of the UL BWP in which the *BeamFailureRecoveryConfig* is provided.  |

**Q2a: Companies are invited to indicate if they have any concerns with the above conclusion of choosing option A (non-critical extension option) for this specific list.**

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| **Company** | **Any concerns with using option A, the TP or the suggested field name** |
| **Huawei, HiSilicon** | **Ok** |
| **Intel** | **OK** |
| **Ericsson** | **OK** |
| **Samsung** | **OK** |
| **MediaTek** | **OK** |

### Can a list size 0 be used to release a non-AddMod list?

Another issue discussed in R2-2005258 is about using size 0 for the list. A list size 0 could be used to indicate release of an non-ToAddMode list. Another option is to use the SetupRelease structure if it is required to release the list.

**Q2b: Companies are invited to comment on whether to allow, as a general rule, use of size 0 for non-ToAddMod list to release of the list.**

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| --- | --- | --- |
| **Company** | **Yes/No** | **Comments**  |
| **Huawei, HiSilicon** | **Yes** | **This seems rather straightforward.** |
| **Intel** | **?** | **No strong view either way. We have a SetupRelease structure that can be used and don’t see a strong need for size 0 usage as well to do the same thing.**  |
| **Ericsson** | **No** | In general, a cleaner approach is to use the SetupRelease structure. We need no new method. Having size 0 as a “trick” to release the list it may cause compatibility problem in the feature. |
| **Samsung** | **No** | We have a slight preference for using SetupRelease |
| **MediaTek** | **Yes** | **We don’t see a problem with this—what else would size 0 mean? We agreed in Rel-15 that when a non-AddMod list is signalled, the new size overrides the old size, so it seems clear that this will replace any stored list with a list of size zero.** |

## “Otherwise the field is absent” in Condition:

There are two issues related to this to discuss.

### Sub-issue 1: Field cannot be releasedConditional presence with SetupRelease fields

[I801, I802] [R2-2004732](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2004732.zip) and R2-2005263 [38.331][H246] Usage of presence conditions for SetupRelease structures

As discussed in these documents, with conditional presence for SetupRelease fields, the original intention for the absence condition seems to be that the field is not configured. However, it can prevent the release of the field when the condition for absence is met, which was not the original intention. The following options are proposed to address this issue.

As discussed in the meeting, it was agreed to use:

**Remove conditional presence for SetupRelease fields (use Need M) and move the intended network behaviour on when the field should be configured to field description (for example, “Network configures this field only when ....”.**

A full TP for this is provided in Annex A.

**Q3a: Companies are invited to comment on the text proposal in Annex A (split per WI)**

|  |  |
| --- | --- |
| **Company** | **Comments** |
| **Huawei, HiSilicon** | ***lte-CRS-PatternList1*** *lte-CRS-ToMatchAround* is a *SetupRelease* field. Is it clear enough that in “Network configures this field only if the field *lte-CRS-ToMatchAround* is not configured.”, “is not configured” includes the case where it is included and set to *release* in the same message? Or should we add “or set to *release*”?***lte-CRS-PatternList2*** “ Network configures this field only if the field *lte-CRS-ToMatchAround* is not configured and CORESETPoolIndex configured with 1.”Same remark but also: this field is in ServingCellConfig while coresetPoolIndex (this is the correct name) is in ControlResourceSet, of which there can be multiple instances in the PDCCH-Config of each DL BWP. If we really need a statement, it would be “there is at least one ControlResourceSet in one DL BWP of this serving cell with coresetPoolIndex set to 1”. But do we really need that?***defaultDownlinkBWP-Id***The initial bandwidth part is referred to by BWP-Id = 0. ID of the downlink bandwidth part to be used upon expiry of the BWP inactivity timer. This field is UE specific. When the field is absent the UE uses the initial BWP as default BWP. (see TS 38.213 [13], clause 12 and TS 38.321 [3], clause 5.15). Network configures this field only for a (non-PUCCH) Scell when the SCell is configured with a dormant BWP.***firstWithinActiveTimeBWP-Id***tihs -> this, witha -> with a***t316***Prefers keeping a condition for the MCG as this is already done elsewhere. For the wording better to use “in the masterCellGroup” (as “for the MCG” could be understood in other ways).  |
| **(continued)** | **(Response to Intel's responses)**:***lte-CRS-PatternList1/2***Our comment was misunderstood (probably it was not clear enough). The issue we want to raise is that in "if the XX is configured", it is unclear whether this is according to the configuration **before** reception of the message or **after** reception of the message.Another wording avoiding this issue would be "The network does not configure this field and lte-CRS-ToMatchAround **simultaneously**".**t316** (by the way, this is DCCA, not MobEnh)We have a concern with " The network configures only this field for the NR MCG, if the UE is configured with split SRB1 or SRB3." To us, "configures only this field" means "does not configure any other field", so this is clearly wrong. In general, sentences with "only" are not so clear.If we want everything in the field description, we suggest "The network does not configure this field in the secondaryCellGroup. The network does not configure this field in the masterCellGroup if neither split SRB1 nor SRB3 is configured".That said, the existing MCG-Only condition could be used together with "The network does not configure this field if neither split SRB1 nor SRB3 is configured".**(Comment on Ericsson's and Samsung's comments**)We agree with Ericsson's comment but think "may" is not a very nice wording, using a negative form can avoid this, e.g."The network does not configure this field for a non-dormant BWP". |
| **Intel** | Response to Huawei comments:Regarding “should we add “or set to *release*”?”:The usage “network configures this field …” has been used in 38.331 before. The configuration of the field is not the same as or directly indicate the presence of the field (RAN1 usage of “presence” for “configuration” seems to not consider the RAN2 concept of delta configuration and Need codes). This was discussed previously in Rel-15. If there is confusion about it, we can add some guidelines on the difference between “configuring a field” and “presence of a field”. ***Lte-CRS-PatternList2***I took the proposed statement from the draft spec Conditional presence text. If it is not clear or incorrect, I am happy with go with the majority suggestion.**T316**We have used MCG-Only once for a SetupRelease field *dataInactivityTimer* (and few times for other fields) but in that case, the condition doesn’t seem to change from presence (“for the *MAC-CellGroupConfig”*) to absence and hence that usage seems OK. This is not the case here as there could be change of condition from presence to absence if split SRB1 or SRB3 is changed. My suggestion to use the field description here as well but will go with the majority view. |
| **Ericsson** | In principle we are fine to move the intended network behaviour of the conditional presence in the field description. However, we have a small comment regarding the formulation used. In fact, if we use “Network configures this field only when…” it gives the impression that the network needs to configure the field in a mandatory way under the condition described. Since in most of the cases (at least the ones addressed in the papers) there is optionality, we would prefer to add a “may” in the proposed formulation. Therefor our proposal would be to use:“Network may configure this field only when….”**On “configuring a field” vs “presence of a field”:** agree we should have some guideline, since topic is often re-discussion.***Lte-CRS-PatternList2:*** Need to look more**t316:** We tend to agree with Intel. Proposed wording “The network configures this field in the masterCellGroup only, f the UE is configured with split SRB1 or SRB3.” |
| **Samsung** | We agree to capture network constraints by statements in field descriptions. As suggested by Intel we can add a general statement to clarify what is meant by network configures for setupRelease cases.Assuming we already have cases where we state ‘network configures’ we are somewhat reluctant to start using ‘network may configure’ as this may cause confusion |
| **MediaTek** | Agree with others that “network configures this field only when X” has been used before and should be OK. We tend to disagree with Ericsson’s concern about the appearance of mandatory behaviour—if we intended to capture that the network does it in a mandatory way, we would say “if and only if”.About t316, what does the condition actually mean now, since we moved the field to be contained directly in the message NCEs rather than part of the RLF timers and constants for the MCG? It looks like the network can now include it in any reconfiguration and no conditional language is necessary. If we keep a conditional, we think “network configures only this field for the NR MCG” should have been “network configures this field only for the NR MCG” or a similar construction. |

### Sub-issue 2: Missing Need node for absence:

[I632] and R2-2005264 [38.331][H247] Missing need codes for absence in presence

RAN2 had previously agreed that Need codes should be used for the absence condition in Conditional presence if there is any risk of inter-operability issues. This was also captured in the RRC spec. Need codes for these are missing in some places.

A TP to correct this was provided in R2-2005264.

**Q3b: Companies are invited to comment on the TP provided in Annex B (split per WI) to add Need code for absence (extracted from R2-2005264). Please also indicate any additional missing Need codes for absence**

|  |  |
| --- | --- |
| **Company** | **Comments/suggestions** |
| Intel | The usage of Need Code for absence from 38.331 says: “A need code is not provided when the transition from another part of the condition to this part of the condition is not supported, when the field clearly is a one-shot or there is no difference whether UE maintains or releases the value (e.g., in case the field is mandatory present according to the other part of the condition).”Based on this criteria, Need code for absence doesnt’ seem required for:PDCP-Config -> *SplitBearer2* (due to mandatory presence for presence condition)*PUSCH-Config -> RepTypeB* (due to Need S for presence condition)*RACH-ConfigCommonTwoStepRA -> 2StepSUL, 2Step4Step, GroupBConfigured* (due to mandatory presence for presence condition) |
| Ericsson | TP is ok.We also agree on the additional findings by Intel. |
| Samsung | It seems that addition of need codes upon absence will result that in several cases UE will have to do some kind of autonomous cleanup (rather than network initiating the release). E.g. lets look at the first 2 cases:* PDCP-Config: moreThanTwoRLC; why not add setupRelease with need M?
* harq-ACK-SpatialBundlingPUCCH-secondaryPUCCH-group: Why not use an optional Boolean with need OR (as this is behind extension marker, for which we in general should try to avoid field always has to be signalled to keep it configured)?
 |
| Huawei, HiSilicon | TP is ok and agree with Intel's comment. Of course, what is in ServingCellConfig is no more relevant due to Annex A.For "Need S" and "Mandatory presence", it may be good to update the guidelines. |
| MediaTek | For the change in PUSCH-Config, isn’t the Need S condition still valid? We would prefer to avoid having different need codes in different cases whenever possible, so we tend to think this should be changed to “absent, Need S”.For the changes in RACH-ConfigCommonTwoStepRA, no really strong view, but aren’t these all cases where the value is irrelevant if the condition is not met? It seems that under the guidelines we adopted, no need code is required for these cases.For the changes in ServingCellConfig, these also seem to be cases where the value is irrelevant if the condition is not met. These changes all introduce divergent need codes (Need M if the value is relevant, Need R otherwise) and we would prefer to avoid this. They are also all SetupRelease structures, so there’s no concern about not being able to release the values.For the change in SRS-Config, same comment; it seems avoidable to have the divergent need codes because the serving cell ID will never be used if the condition is not met—the Need S explanation in the field description of servingCellId already makes this clear. |

## Mechanism to release Rel-16 fields

I633, I805, I803, I840, H248, I806, I804, I815, I807, I808, I820, I809, I810, I811, I812, I816, I813, I814, I818, S496, R2-2005265 [38.331][H248] Fields that cannot be released,

A text proposal to allow releasing these fields that originally used Need M, separated per WI (to allow easier WI specific checking/potential merging), is provided in Annex C. Though use of Need R is not optimal in extension groups, it is suggested in some cases for example, where there are other fields are already using Need S or R in the extension group or the other fields are not likely to change often.

**Q4: Companies are invited to provide comments on the TP in Annex C (split per WI) or provide alternative suggestions to support releasing these configurations. Please also include any additional ones identified.**

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| --- | --- |
| **Company** | **Comments/suggestions** |
| Ericsson | In general, we agree with the approach taken by the Rapporteur. However, we have a small comment regarding the field discardTimerExt-r16. According to what is proposed in Q3a, if the proposal is agreed we would need to move the intended network behaviour of the Conditional presence ( -- DRB2) to the Feld description.On the bap-Address-r16, we consider SetupRelease is not needed. Parent IE bap-Config-r16 has a SetupRelease structure, and there is no reason to release the bap-Adress.r16 only. |
| Huawei, HiSilicon | Agree in general.Though, some SetupRelease may not be that useful, e.g. fo pusch-PowerControl-v16xy in PUSCH-Config, as it only contains Need N (ToAddModList/ToReleaseList) and Need R fields. |
| MediaTek | We are OK with most of the changes. However, we noticed that there are many instances of SetupRelease with an unnamed SEQUENCE inside it (see PUCCH-PowerControl for an example); per the guidelines in Annex A.3.8, this is not allowed and the SEQUENCE in brackets should be given its own IE.For the quantityConfigUTRA-FDD and quantityConfigCLI-r16 (SRVCC and CLI changes), we don’t see that there’s a big need to release these fields, and it may be more important to keep delta signalling and be able to have the extension group empty most of the time. There is no great harm from a hanging quantity configuration—the procedural text already makes it clear which configuration applies to which measurements, especially with the resolution of issue E055. |

# Annex

## Annex A (TP related to “Otherwise the field is absent" in Condition)

### WI: eMIMO

#### – ServingCellConfig

 lte-CRS-PatternList1-r16 SetupRelease {LTE-CRS-PatternList-r16} OPTIONAL, -- Need M

 lte-CRS-PatternList2-r16 SetupRelease {LTE-CRS-PatternList-r16} OPTIONAL -- Need M

|  |
| --- |
| ***lte-CRS-PatternList1*** A list of LTE CRS patterns around which the UE shall do rate matching for PDSCH. The LTE CRS patterns in this list shall be non-overlapping in frequency. Network configures this field only if the field lte-CRS-ToMatchAround is not configured. |
| ***lte-CRS-PatternList2***A list of LTE CRS patterns around which the UE shall do rate matching for PDSCH scheduled with a DCI detected on a CORESET with CORESETPoolIndex configured with 1. This list is configured only if CORESETPoolIndex configured with 1. The first LTE CRS pattern in this list shall be fully overlapping in frequency with the first LTE CRS pattern in lte-CRS-PatternList, The second LTE CRS pattern in this list shall be fully overlapping in frequency with the second LTE CRS pattern in lte-CRS-PatternList, and so on. Network configures this field only if the field *lte-CRS-ToMatchAround* is not configured and CORESETPoolIndex configured with 1. |

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| --- | --- |
|  |  |
|  |  |

### WI DCCA

#### – ServingCellConfig

 dormantDownlinkBWP-Id-r16 SetupRelease{BWP-Id} OPTIONAL, -- Need M

 firstWithinActiveTimeBWP-Id-r16 SetupRelease{BWP-Id} OPTIONAL, -- Need M

 firstOutsideActiveTimeBWP-Id-r16 SetupRelease{BWP-Id} OPTIONAL, -- Need M

|  |
| --- |
| *ServingCellConfig* field descriptions |
| ***defaultDownlinkBWP-Id***The initial bandwidth part is referred to by BWP-Id = 0. ID of the downlink bandwidth part to be used upon expiry of the BWP inactivity timer. This field is UE specific. When the field is absent the UE uses the initial BWP as default BWP. (see TS 38.213 [13], clause 12 and TS 38.321 [3], clause 5.15). Network configures this field only for a (non-PUCCH) SCell when the UE is configured with a dormant BWP. |
| ***firstOutsideActiveTimeBWP-Id*** This field contains the ID of the downlink bandwidth part to be activated when receiving a DCI indication for SCell dormancy outside active time, as specified in TS 38.213 [13]. Network configures this field only when the SCell is configured with WUS and a dormant BWP. |
| ***firstWithinActiveTimeBWP-Id*** This field contains the ID of the downlink bandwidth part to be activated when receiving a DCI indication for SCell dormancy within active time, as specified in TS 38.213 [13]. Network configures tihs field only when the SCell is configured witha dormant BWP. |

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|  |  |

### WI MobEnh

– *RRCReconfiguration*

RRCReconfiguration-v16xy-IEs ::= SEQUENCE {

 t316-r16 SetupRelease {T316-r16 } OPTIONAL, -- Need M

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

|  |
| --- |
| ***t316***Indicates the value for timer T316 as described in clause 7.1. Value *ms50* corresponds to 50 ms, value *ms100* corresponds to 100 ms and so on. The network configures only this field for the NR MCG, if the UE is configured with split SRB1 or SRB3. |

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## Annex B: TP related to Missing Need node for absence:

The following text suggestion is From [R2-2005264](file:///D%3A%5CDocuments%5C3GPP%5Ctsg_ran%5CWG2%5CTSGR2_110-e%5CDocs%5CR2-2005264.zip) (copying only relevant text – please refer to original document for more context)

#### – PDCP-Config

|  |  |
| --- | --- |
| *SplitBearer2* | The field is mandatory present, in case of a split bearer. Otherwise the field is absent, Need R. |

#### – PhysicalCellGroupConfig

|  |  |
| --- | --- |
| *twoPUCCHgroup* | This field is optionally present, Need R, if secondary PUCCH group is configured. It is absent otherwise, Need R.  |

#### – PUSCH-Config

|  |  |
| --- | --- |
| *RepTypeB* | The field is optionally present, Need S, if *pusch-RepTypeIndicatorForDCI-Format0-1* is set to pusch-RepTypeB. It is absent otherwise, Need R. |

#### – RACH-ConfigCommonTwoStepRA

|  |  |
| --- | --- |
| *2StepSUL* | The field is mandatory present in *initialUplinkBWP* in *supplementaryUplink* when both 2-step and 4-step RA type is configured; otherwise, the field is absent, Need R. |
| *2Step4Step* | The field is mandatory present if both 2-step random access type and 4-step random access type are configured in the BWP, otherwise the field is not present, Need R.  |
| *GroupBConfigured* | The field is mandatory present if msgA-PUSCH-ResourceGroupB is configured, otherwise the field is absent, Need R. |

#### – ServingCellConfig

|  |  |
| --- | --- |
| *CORESETPool* | This field is optionally present, Need M, if the field *lte-CRS-ToMatchAround* is not configured and CORESETPoolIndex configured with 1. It is absent, Need R, otherwise. |
| *DormantBWP* | The field is optionally present, Need M, for a (non-PUCCH) SCell when the UE is configured with a dormant BWP. It is absent, Need R, otherwise.  |
| *LTE-CRS* | This field is optionally present, Need M, if the field *lte-CRS-ToMatchAround* is not configured. It is absent, Need R, otherwise. |
| *MultipleNonDormantBWP* | The field is optionally present, Need M, when the SCell is configured witha dormant bandwidth part. It is absent, Need R, otherwise. |
| *MultipleNonDormantBWP-WUS* | The field is optionally present, Need M, when the SCell is configured with WUS and a dormant bandwidth part. It is absent, Need R, otherwise. |

#### – SRS-Config

|  |  |
| --- | --- |
| *NonNeighSSBorPRS* | This field is optionally present, Need S, if ssb-IndexServing, or csi-RS-IndexServing, or srs-SpatialRelation is configured. This field is absent, Need R, if SSB or PRS from the neighbouring cell is configured |

## Annex C: TP related to Mechanism to release Rel-16 fields

### WI: URLLC

– CSI-MeasConfig

CSI-MeasConfig ::= SEQUENCE {

[..]

 ...,

 [[

 reportTriggerSizeForDCI-Format0-2-r16 INTEGER (0..6) OPTIONAL -- Need R

 ]]

}

– *PDCP-Config*

PDCP-Config ::= SEQUENCE {

[..]

 [[

 discardTimerExt-r16 SetupRelease {ENUMERATED {ms0dot5, ms1, ms2, ms4, ms6, ms8, spare3, spare2, spare1}} OPTIONAL, -- Cond DRB2

[..]

 ]]

}

– *PDSCH-Config*

PDSCH-Config ::= SEQUENCE {

[..]

 prb-BundlingTypeForDCI-Format1-2-r16 CHOICE {

 staticBundling-r16 SEQUENCE {

 bundleSize-r16 ENUMERATED { n4, wideband } OPTIONAL -- Need S

 },

 dynamicBundling-r16 SEQUENCE {

 bundleSizeSet1-r16 ENUMERATED { n4, wideband, n2-wideband, n4-wideband } OPTIONAL, -- Need S

 bundleSizeSet2-r16 ENUMERATED { n4, wideband } OPTIONAL -- Need S

 }

 } OPTIONAL, -- Need R

[..]

 configurableFieldForDCI-Format1-2 SEQUENCE {

 harq-ProcessNumberSizeForDCI-Format1-2-r16 INTEGER (0..4) \*\* URLLC OPTIONAL, -- Need R

 dmrs-SequenceInitializationForDCI-Format1-2-r16 ENUMERATED {enabled} OPTIONAL, -- Need S

 numberOfBitsForRV-ForDCI-Format1-2-r16 INTEGER (0..2) OPTIONAL, -- Need R

 antennaPortsFieldPresenceForDCI-Format1-2-r16 ENUMERATED {enabled} OPTIONAL, -- Need S

 ...

 },

[..]

}

#### – PUCCH-Config

PUCCH-Config ::= SEQUENCE {

[..]

 subslotLengthForPUCCH-r16 ENUMERATED {n2,n7} OPTIONAL, -- Need R

 dl-DataToUL-ACK-ForDCI-Format1-2-r16 SetupRelease {SEQUENCE (SIZE (1..8)) OF INTEGER (0..15)} OPTIONAL, -- Need M

 numberOfBitsForPUCCH-ResourceIndicatorForDCI-Format1-2-r16 INTEGER (0..3) OPTIONAL, -- Need R

[..]

 ]]

}

#### – PUSCH-Config

PUSCH-Config ::= SEQUENCE {

[..]

 pusch-RepTypeIndicator SEQUENCE {

 pusch-RepTypeIndicatorForDCI-Format0-2-r16 ENUMERATED { pusch-RepTypeA, pusch-RepTypeB} OPTIONAL, -- Need R

 pusch-RepTypeIndicatorForDCI-Format0-1-r16 ENUMERATED { pusch-RepTypeA, pusch-RepTypeB} OPTIONAL -- Need R

 },

 configurableFieldForDCI-Format0-2 SEQUENCE {

 harq-ProcessNumberSizeForDCI-Format0-2-r16 INTEGER (0..4) OPTIONAL, -- Need R

 dmrs-SequenceInitializationForDCI-Format0-2-r16 ENUMERATED {enabled} OPTIONAL, -- Need S

 numberOfBitsForRV-ForDCI-Format0-2-r16 INTEGER (0..2) OPTIONAL, -- Need R

 antennaPortsFieldPresenceForDCI-Format0-2-r16 ENUMERATED {enabled} OPTIONAL, -- Need S

 ...

 },

[..]

 frequencyHoppingOffsetListsForDCI-Format0-2-r16 SetupRelease {SEQUENCE (SIZE (1..4)) OF INTEGER (1.. maxNrofPhysicalResourceBlocks-1)}

 OPTIONAL, -- Need M

[..]

 uci-OnPUSCH-ListForDCI-Format0-2-r16 SetupRelease {SEQUENCE (SIZE (1..2)) OF UCI-OnPUSCH-ForDCI-Format0-2-r16} OPTIONAL, -- Need M

 uci-OnPUSCH-ListForDCI-Format0-1-r16 SetupRelease {SEQUENCE (SIZE (1..2)) OF UCI-OnPUSCH } OPTIONAL, -- Need M

[..]

 resourceAllocationForDCI-Format0-2-r16 ENUMERATED { resourceAllocationType0, resourceAllocationType1, dynamicSwitch} OPTIONAL, -- Need R

[..]

}

####

#### – PUSCH-PowerControl

PUSCH-PowerControl-v16xy ::= SEQUENCE {

[..]

 olpc-ParameterSet SEQUENCE {

 olpc-ParameterSetForDCI-Format0-1-r16 INTEGER (1..2) OPTIONAL, -- Need R

 olpc-ParameterSetForDCI-Format0-2-r16 INTEGER (1..2) OPTIONAL -- Need R

 } OPTIONAL, -- Need M

 ...

}

####

#### – PUSCH-ServingCellConfig

PUSCH-ServingCellConfig ::= SEQUENCE {

 [..]

 [[

 maxMIMO-LayersForDCI-Format0-2-r16 SetupRelease {INTEGER (1..4)} OPTIONAL -- Need M

 ]]

}

### WI: eMIMO

– *DMRS-UplinkConfig*

MRS-UplinkConfig ::= SEQUENCE {

[..]

 [[

 dmrs-UplinkTransformPrecoding-r16 SetupRelease {DMRS-UplinkTransformPrecoding-r16} OPTIONAL -- Need M

 ]]

 } OPTIONAL, -- Need R

 ...

}

DMRS-UplinkTransformPrecoding-r16 ::= SEQUENCE {

 pi2BPSK-ScramblingID0 INTEGER(0..65535) OPTIONAL, -- Need S

 pi2BPSK-ScramblingID1 INTEGER(0..65535) OPTIONAL -- Need S

}

-- TAG-DMRS-UPLINKCONFIG-STOP

-- ASN1STOP

|  |
| --- |
| ***dmrs-UplinkTransformPrecoding***This field indicates whether low PAPR DMRS is used for PUSCH with pi/2 BPSK modulation, as specified in TS38.211 [16], clause 6.4.1.1.1.2. The network configures this field only if *tp-pi2BPSK* is configured in *PUSCH-Config*. |

|  |  |
| --- | --- |
|  |  |
|  |  |

#### – PUCCH-PowerControl

PUCCH-PowerControl ::= SEQUENCE {

[..]

 ...,

 [[

 pathlossReferenceRSs-r16 SetupRelease {SEQUENCE (SIZE (1..maxNrofPUCCH-PathlossReferenceRSs-r16)) OF PUCCH-PathlossReferenceRS-r16}

 OPTIONAL -- Need M

 ]]

}

#### – PUSCH-Config

PUSCH-Config ::= SEQUENCE {

[..]

 pusch-PowerControl-v16xy SetupRelease {PUSCH-PowerControl-v16xy} OPTIONAL, -- Need M

[..]

 ]]

}

### WI: SRVCC

####

#### – QuantityConfig

The IE *QuantityConfig* specifies the measurement quantities and layer 3 filtering coefficients for NR and inter-RAT measurements.

QuantityConfig information element

-- ASN1START

-- TAG-QUANTITYCONFIG-START

QuantityConfig ::= SEQUENCE {

 quantityConfigNR-List SEQUENCE (SIZE (1..maxNrofQuantityConfig)) OF QuantityConfigNR OPTIONAL, -- Need M

 ...,

 [[

 quantityConfigEUTRA FilterConfig OPTIONAL -- Need M

 ]],

 [[

 quantityConfigUTRA-FDD-r16 QuantityConfigUTRA-FDD-r16 OPTIONAL, -- Need R

 quantityConfigCLI-r16 FilterConfigCLI-r16 OPTIONAL -- Need M

 ]]

}

### WI: CLI\_RIM

#### – QuantityConfig

QuantityConfig ::= SEQUENCE {

 quantityConfigNR-List SEQUENCE (SIZE (1..maxNrofQuantityConfig)) OF QuantityConfigNR OPTIONAL, -- Need M

 ...,

 [[

 quantityConfigEUTRA FilterConfig OPTIONAL -- Need M

 ]],

 [[

 quantityConfigUTRA-FDD-r16 QuantityConfigUTRA-FDD-r16 OPTIONAL, -- Need M

 quantityConfigCLI-r16 FilterConfigCLI-r16 OPTIONAL -- Need R

 ]]

}

### WI: IIOT

####

#### – ConfiguredGrantConfig

-- ASN1START

-- TAG-CONFIGUREDGRANTCONFIG-START

ConfiguredGrantConfig ::= SEQUENCE {

[..]

 rrc-ConfiguredUplinkGrant SEQUENCE {

 [..]

 [[

 pusch-RepTypeIndicator-r16 ENUMERATED {pusch-RepTypeA,pusch-RepTypeB} OPTIONAL, -- Need R

 [..]

 ]]

[..]

 configuredGrantConfigIndex-r16 ConfiguredGrantConfigIndex-r16 OPTIONAL, -- Need R

 configuredGrantConfigIndexMAC-r16 ConfiguredGrantConfigIndexMAC-r16 OPTIONAL, -- Need R

 periodicityExt-r16 INTEGER (1..5120) OPTIONAL, -- Need R

 startingFromRV0-r16 ENUMERATED {on, off} OPTIONAL, -- Need R

 phy-PriorityIndex-r16 ENUMERATED {p0, p1} OPTIONAL, -- Need R

[..]

 ]]

}

####

#### – SPS-Config

SPS-Config ::= SEQUENCE {

[..]

 ...,

 [[

 sps-ConfigIndex-r16 SPS-ConfigIndex-r16 OPTIONAL, -- Need RN

 harq-ProcID-Offset-r16 INTEGER (0..15) OPTIONAL, -- Need RM

 periodicityExt-r16 INTEGER (1..5120) OPTIONAL, -- Need RM

 harq-CodebookID-r16 INTEGER (1..2) OPTIONAL, -- Need R

 pdsch-AggregationFactor-r16 ENUMERATED {n1, n2, n4, n8 } OPTIONAL -- Need S

 ]]

}

*Additional ones with Need M for which it is not felt necessary to make changes (with reasons in comments)*

*BWP-DownlinkDedicated (no change needed)*

BWP-DownlinkDedicated ::= SEQUENCE {

[..]

 ...,

 [[

 sps-ConfigMulti-r16 SPS-ConfigMulti-r16 OPTIONAL, -- Need M

[..]

]]

}

#### – BWP-UplinkDedicated (no change needed)

BWP-UplinkDedicated ::= SEQUENCE {

[..]

 configuredGrantConfigListconfigureGrantConfigMulti-r16 OPTIONAL -- Need M

 ]]

}

### WI: IAB

CellGroupConfig ::= SEQUENCE {

 [..]

 [[

 bap-Address-r16 SetupRelease {BIT STRING (SIZE (10))} OPTIONAL, -- Need M

[..]

}

### WI: Many

RRCReconfiguration-v16xy-IEs ::= SEQUENCE {

 otherConfig-v16xy OtherConfig-v16xy OPTIONAL, -- Need M

### WI: NR-U

All the NR-U related fields have already been included into the NR-U WI discussion.