3GPP TSG-RAN WG2 Meeting #119-e ***R2-22xxxxx***

Electronic Meeting, August 17 – 29, 2022

**Agenda item:** 6.18

**Source:** Ericsson

**Title:** Summary of [AT119-e][307][RA Part] CP open issues and CR 38.331 (Ericsson)

**Document for:**  Discussion

# 1. Introduction

This document summarizes the following email discussion:

* [AT119-e][307][RA Part] CP open issues and CR 38.331 (Ericsson)

CP open issues and CR capturing agreed corrections

Deadline: To be set by rapporteur

-        **Comment deadline:**Monday W2, 1900 UTC (for collecting views)

-        **Rapporteur proposals:** Wednesday W2, 0900 UTC (proposed outcome)

# 2. Discussion on proposed corrections CP

1. [R2-2207679](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207679.zip) Miscellaneous corrections to slice-specific RACH configuration Spreadtrum Communications discussion Rel-17
2. [R2-2207820](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207820.zip) Correction on TS 38 331 for RACH common CATT CR Rel-17 38.331 17.1.0 3317 - F NR\_cov\_enh-Core, NR\_slice-Core, NR\_SmallData\_INACTIVE-Core, NR\_redcap-Core
3. [R2-2207981](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207981.zip) Correction on startPreambleForThisPartition ZTE Corporation, Sanechips, Ericsson CR Rel-17 38.331 17.1.0 3341 - F NR\_redcap-Core
4. [R2-2207982](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207982.zip) Configuration of preambles for feature combination ZTE Corporation, Sanechips discussion
5. [R2-2207989](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207989.zip) RRC corrections to common RACH framework Huawei, HiSilicon draftCR Rel-17 38.331 17.1.0 NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core
6. [R2-2207997](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207997.zip) On the number of RACH partitions MediaTek Inc. discussion Rel-17 NR\_cov\_enh-Core, NR\_slice-Core, NR\_SmallData\_INACTIVE-Core, NR\_redcap-Core
7. [R2-2208240](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2208240.zip) Miscellaneous corrections to common signalling for RACH partitioning Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.1.0 3389 - F NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core, NR\_slice-Core
8. [R2-2208399](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2208399.zip) Correction on Feature Combination LG Electronics Inc. CR Rel-17 38.331 17.1.0 3415 - F NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core
9. [R2-2208910](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2208910.zip) Correction on the featurePriorities Huawei, HiSilicon discussion Rel-17

## Update of field description for startPreambleForThisPartition

Document 2, 3 and 7 are proposing updates to the field description startPreambleForThisPartition.

[2]:

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| ***startPreambleForThisPartition***  It defines the first preamble associated with the Feature Combination. If N<1 the first preamble in each PRACH occasion is the one having the same index indicated by this field. If N>=1 in each PRACH occasion N blocks of preambles associated with the Feature Combination are define, each having start index + startPreambleForThisPartition (, where N referes to the number of SSB block indexes associated with one PRACH occasion referring to *ssb-perRACH-OccasionAndCB-PreamblesPerSSB*, n refers to SSB block index and is provided by *totalNumberOfRA-Preambles* see TS 38.213 [13]). |

[3]:

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| ***startPreambleForThisPartition***  It defines the first preamble associated with the Feature Combination. The definition of the first preamble depends on the number of SSBs per RACH occasion, N. If N<1 the first preamble in each PRACH occasion is the one having the same index *indicated by this field*. If N>=1 in each PRACH occasion N blocks of preambles associated with the Feature Combination are defined, each having start index + *startPreambleForThisPartition*, where , and is provided by *totalNumberOfRA-Preambles* for 4-step RA, or by *msgA-TotalNumberOfRA-Preambles* for 2-step RA with separate configuration of PRACH occasions from 4-step RA (see 38.213). |

[7]

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| ***startPreambleForThisPartition***  It defines the first preamble associated with the Feature Combination. If the UE is provided with a number of SS/PBCH block indexes associated with one PRACH occasion and N<1, the first preamble in each PRACH occasion is the one having the same index indicated by this field. If N>=1 in each PRACH occasion N blocks of preambles associated with the Feature Combination are defined, each having start index + *startPreambleForThisPartition* (see TS 38.213 [13], clause 8.1). |

**Question 1:** Do you agree that updates to the field description of startPreambleForThisPartition is essential?

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| Company | Essential Correction Yes/No | Comments |
| ZTE | Yes | The field description seems odd without this correction. |
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**Question 2:** Which approach should RAN2 adopt as baseline among [2], [3] and [7]? Note: Polishing can be done in a later phase.

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| Company | Which approach as baseline?  2, 3, or 7 | Comments |
| ZTE | Rapporteur to finalise, but | Note that all the above descriptions seem to assume that the actual preamble index is from 0-63. If the actual index is from 1-64 as currently defined in the ASN.1, then we need a “-1” in some places in the field description for the actual preamble index.  But, if we agree to make the NBC change as proposed in [R2-2207981](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207981.zip) for the actual range of the preambles, then the description according to either 2 or 3 could work. Rapporteur can fine tune the final wording based on the agreement for the NBC change of 7981. So, these two aspects should go together (as noted in [3]). |
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## [1] Miscellaneous corrections to slice-specific RACH configuration

[*R2-2207679*](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2207679.zip) *Miscellaneous corrections to slice-specific RACH configuration Spreadtrum Communications*

Contribution [1] describes a potential conflict for the configuration of msgA-RSRP-Threshold, and made the following observations and proposals:  
**Observation 1:** For RA type selection, the conflict of the configuration of msgA-RSRP-Threshold exists between slice session and common RACH session.  
**Proposal 1:** The msgA-RSRP-Threshold conflict between slice session and common RACH session should be addressed, following two options can be considered:  
Option 1: Change the agreement “Reuse the legacy threshold for the selection between 2-step and 4-step slice initiated RACH” made by slice session to “Partition-specific threshold can be used for the selection between 2-step and 4-step slice initiated RACH”.  
Option 2: Reflect the slice agreement in the field description of msgA-RSRP-Threshold. The attached CR in Annex can be used as a reference.

**Rapporteurs comment:**

If a clarification in field description on what is expected can be made straightforwardly, this should be preferred, rather than iterate new agreements that may involve discussion in potentially both Slicing and RA Partitioning.

**Question 3:** Do you agree that the proposed changes in [1] are an essential to correct? If yes, do you have any comments on the options provided in [1]?

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| Company | Essential Correction Yes/No | Comments |
| ZTE | No | The agreements made in the RICS session override those in the slicing session and the final implementation should be according to the outcome in RICS. |
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## [2] Correction on TS 38 331 for RACH common 38.331 CR 3317

[*R2-2207820*](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs/R2-2207820.zip)*Correction on TS 38 331 for RACH common* ***CATT***

Beyond changes to the field description for *startPreambleForThisPartion*, this CR also proposes this field description change:

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| ***numberOfPreamblesPerSSB-ForThisPartition***  It determines how many consecutive preambles are associated to the Feature Combination starting from the starting preamble(s) per SSB. |

**Rapporteur's Comments:**

Seems like a straightforward correction which could be adopted.

**Question 4:** Do you agree with the change to the field description and is an essential correction as shown above?

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| Company | Do you agree to the change above? | Comments |
| ZTE | No | No strong view, but the actual meaning seems clear from the field description. Can leave it up to the rapporteur. |
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## [3] Correction on startPreambleForThisPartition 38.331 CR

[*R2-2207981*](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs/R2-2207981.zip)*Correction on startPreambleForThisPartition* ***ZTE Corporation, Sanechips, Ericsson***

Beyond changes to the field description for startPreambleForThisPartion, this CR also proposes to change the value range of startPreambleForThisPartition from 1-64 to 0-63, as follows:

FeatureCombinationPreambles-r17 ::= SEQUENCE {

featureCombination-r17 FeatureCombination-r17,

startPreambleForThisPartition-r17 INTEGER (0..63),

**Rapp assessment:**

A correction seems necessary. As the change is NBC and a decision should be made, this is a candidate to be concluded online. Rapporteur suggests collecting views offline prior to discussion and decision.

**Question 3:** Do you agree that the proposed changes in [3] to the value range of startPreambleForThisPartion is an essential correction? If yes, do you have any comments on the change?

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| Company | Essential Correction Yes/No | Comments |
| ZTE | Yes | NBC change is cleaner.  If we want to do a BC change, the field description should point to the actual field value – 1. This needs to be updated in the field description then. Probably not so nice. |
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## [4] Configuration of preambles for feature combination

[R2-2207982](file:///C:\evutukuri\work\5G\RAN2\docs\R2-2207982.zip)Configuration of preambles for feature combination **ZTE Corporation, Sanechips**

In [4] The following observations and proposals are made:   
**Observation 1:** All possible preambles of an additional RACH configuration configured using additionalRACH-ConfigList should be associated with a feature/feature combination  
**Observation 2:** Only the preambles configured by FeatureCombinationPreambles-r17 (i.e. indicated by startPreambleForThisPartition-r17 and numberOfPreamblesForThisPartition-r17) are feature specific preambles. If the preambles are not associated to any entry of FeatureCombinationPreambles-r17, then the preamble is not associated to any feature.  
**Proposal 1:** Start preamble for each feature can point into the preamble space defined by CB-PreamblesPerSSB (in case of separate RO) to ensure that the network can associate all possible preambles of an additional RACH configuration to a feature or feature combination  
**Proposal 2:** RAN2 to agree the clarification in CR in Annex A.

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| ***startPreambleForThisPartition***  It defines the first preamble associated with the Feature Combination. If N<1 the first preamble in each PRACH occasion is the one having the same index indicated by this field. If N>=1 in each PRACH occasion N blocks of preambles associated with the Feature Combination are define, each having start index + startPreambleForThisPartition (see 38.213). The network may configure the value of this field such that the first preamble associated with the feature combination is within the preamble space reserved for contention based preambles per each SSB when the feature combination specific RACH resources use separate ROs compared to RACH resources that are not associated with any feature combination. |

**Consequences and Interoperability if not approved:**

TBD

**Rapp assessment:**

A decision is needed whether all possible preambles of an additional RACH configuration using additionalRACH-ConfigList must be associated with a feature/feature combination or if they can be used by Rel-17+ UEs as common preambles. Decision online if very varied views after a first offline discussion.

**Question 4:** Do you agree with the proposals in [4] and think this is an essential correction? If yes, do you have any comments on the draft CR text provided in [4]?

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| Company | Essential Correction Yes/No | Comments |
| ZTE | Yes | The main goal of the paper is to make sure companies have common understanding on how the network ensures that all preambles are mapped to some feature. It results in this “odd” setting where the network has to set the start preamble of the feature within the CB preamble space. Although it is not precluded, this may not be so obvious. So, worth clarifying in our view. |
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## [5] RRC corrections to common RACH framework

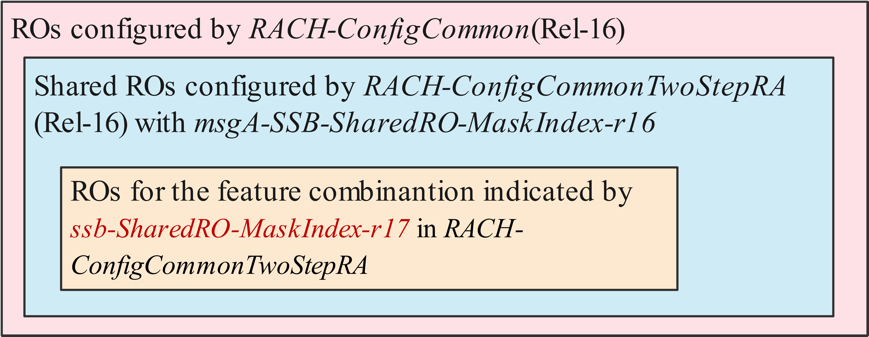
[R2-2207989](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs/R2-2207989.zip)RRC corrections to common RACH framework **Huawei, HiSilicon**

38.331 CR

-  
**Reason for change:**

1. In Rel-17, the *additionalRACH-ConfigList* containing one or more *AdditionalRACH-Config* IE is used to indicate a list of feature or feature combination-specific RACH configurations. However, it is possible that the RACH configuration provided by the *AdditionalRACH-Config* IE is not associated with any feature or feature combination as per the current ASN.1 signalling. Therefore, a condition should be added to restrict that the *featureCombinationPreamblesList* field should be mandatory in *RACH-ConfigCommon* and *MsgA-ConfigCommon* included in *additionalRACH-ConfigList*.
2. Besides, the *featureCombinationPreamblesList* field should also be mandatory in the RACH configurations in *initialUplinkBWP-RedCap* to indicate the associated feature combination explicitly, even when the *rach-ConfigCommon* (i.e. not included in *additionalRACH-ConfigList*) is used for RedCap (i.e. without combination with other features).
3. For the RedCap-specific BWP, it should be clarified that all the feature combinations configured in the *initialUplinkBWP-RedCap* should refer to RedCap, i.e., when the *featureCombination* is provided in the *FeatureCombinationPreambles* included in the RACH configuration of *initialUplinkBWP-RedCap*, the network always sets at least *redCap* to *true* within this field.
4. It has been agreed that for the RedCap-specific BWP, the network configures a RACH partition which is applicable to RedCap (i.e. without combination with other features), similar to “legacy” RACH partition in non-Redcap initial BWP. But this is not captured in any specifications.
5. In Rel-16, the *transformPrecoder* field in *PUSCH-Config* or *ConfiguredGrantConfig* indicates the transformer precoder and when the field is absent, the UE applies the value of the field *msg3-transformPrecoder*. In Rel-16, it is clear which *msg3-transformPrecoder* should be used. But considering several additional RACH configurations can be provided in each BWP in Rel-17, it is not clear which RACH configuration in the active BWP should be used for obtaining *msg3-transformPrecoder* when the *transformPrecoder* field is absent.
6. In the current ASN.1, if the *ssb-SharedRO-MaskIndex-r17* field is configured within *FeatureCombinationPreambles* which is included in *RACH-ConfigCommonTwoStepRA*, it indicates a subset of ROs configured within this *RACH-ConfigCommonTwoStepRA*.

However, when the *FeatureCombinationPreambles* is part of legacy 2-step RA configuration (i.e., *rach-ConfigCommonTwoStepRA*) and the ROs configured in *rach-ConfigCommonTwoStepRA* are shared with legacy 4-step RA configuration indicated by *msgA-SSB-SharedRO-MaskIndex-r16*, the *ssb-SharedRO-MaskIndex-r17* field cannot be applied to the subset of ROs configured within this *RACH-ConfigCommonTwoStepRA*, since we do not extend or change the definition of mask index in TS 38.321.



1. In the current ASN.1, for several parameters configured for 2-step RACH, when each of these parameters is absent, the UE needs to apply the value of the corresponding parameter configured for 4-step RACH for the same feature/feature combination. Currently, the signalling allows to configure 2-step RACH for a specific feature and 4-step RACH for the same feature in two different additional RACH configurations. Such approach makes UE implementation complex as the UE might need to check all other RACH configurations to check the value of a certain parameter. Such cross-RACH-configuration paremeter dependency should be avoided and this can be achieved by providing the 4-step RACH configuration and the 2-step RACH configurations of one feature combination always in the same *AdditionalRACH-Config*.
2. Alternative to bullet 7: If it cannot be agreed that the 2-step and 4-step RACH configuration of the same feature are always provided in the same *AdditionalRACH-Config* (which is the preferred solution to the issue), then another approach to simplify UE implementation should be adopted. I.e., when the parameters which are related to the RO/preamble configuration (e.g. *msgA-PRACH-ConfigurationIndex*, *msgA-RO-FDM*, *msgA-RO-FrequencyStart*) in *RACH-ConfigCommonTwoStepRA* and *RACH-ConfigGenericTwoStepRA* are absent, UE should apply the values in *RACH-ConfigCommon* in the same *AdditionalRACH-Config*.
3. *groupBconfigured* in *FeatureCombinationPreambles* IE has Need S code, but there is no field description. *groupBconfigured* parameter from pre-Rel-17 specifications (in *RACH-ConfigCommon*) has no field description, but its need code is Need R and we can also apply the same principle for the enwly introduced parameter.

In the field description of msgA-RSRP-Threshold in FeatureCombinationPreambles, the parameter is only configured when both 2-step and 4-step RA type are configured for the BWP, which is not captured in the field description properly.

**Summary of change:**

1. A condition for *featureCombinationPreamblesList* is added to restrict that the *featureCombinationPreamblesList* should be mandatory in *RACH-ConfigCommon* and *MsgA-ConfigCommon* included in *additionalRACH-ConfigList*.
2. The condition also clarifies that *featureCombinationPreamblesList* field is mandatory in the RACH configurations in *initialUplinkBWP-RedCap*.
3. Clarififcaiton is added that when the *featureCombination* is provided in the *FeatureCombinationPreambles* included in the RACH configuration of *initialUplinkBWP-RedCap*, the network always sets at least *redCap* to *true* within this field.
4. It is clarified for *initialUplinkBWP-RedCap* that, if configured, the network should always configure a *RACH-ConfigCommon* associated with *RedCap* (i.e. without combination with other features).
5. Clarified that when the *transformPrecoder* field is absent in *PUSCH-Config* or *ConfiguredGrantConfig,* the UE applies the value of the field *msg3-transformPrecoder* in *rach-ConfigCommon* included directly within BWP configuration (i.e. not included in *additionalRACH-ConfigList*).
6. Clarified that if the *ssb-SharedRO-MaskIndex-r17* field is configured within *FeatureCombinationPreambles* which is included in *RACH-ConfigCommonTwoStepRA*, in case of separate ROs for 4-step and 2-step random access, this field indicates a subset of ROs configured for 2-step random access, and in case of shared ROs, it indicates the subset of ROs configured for 4-step random access.
7. Clarified that the 4-step RACH configuration and the 2-step RACH configurations of one feature combination should be provided in the same *AdditionalRACH-Config*.
8. Alternative to Change 7: Clarified that when the parameters which are related to the RO/preamble configuration in *RACH-ConfigCommonTwoStepRA* and *RACH-ConfigGenericTwoStepRA* are absent, UE should apply the values in *RACH-ConfigCommon* in the same *AdditionalRACH-Config*.
9. The need code of *groupBconfigured* is changed to Need R, as for the same field in Rel-16 specifications.
10. Clarified that MsgA-RSRP-Threshold is only present if both 2-step and 4-step RA type for the partition are configured for the BWP.

**Consequences if not approved:**

1. It is unclear for UE how to handle the RACH configuration provided by the *AdditionalRACH-Config* IE which is not associated with any feature or feature combination.
2. The network may provide the RACH configurations by the *rach-ConfigCommon* in *initialUplinkBWP-RedCap*, which is not associated with any feaure combination while no UE will be able to use it.
3. The network may be allowed to provide RACH configurations not associated with RedCap in the RedCap-specific BWP, and these RACH configurations could never be used.
4. The network may not configure the RACH partition for RedCap-only as the default RACH partition in the RedCap-specific BWP.
5. The UE will not know which *msg3-transformPrecoder* field should be used and if the understandings between the UE and network is different, the UL transmission failure may occur.
6. The *ssb-SharedRO-MaskIndex-r17* cannot be used in some cases.
7. It is complex for UE to identify the parameters to be used.
8. Alternative to Change 7: The UE can not sure whether to use the parameters in the *rach-ConfigCommon* in the same *AdditionalRACH-Config* or the *rach-ConfigCommon* in the *AdditionalRACH-Config* including the *rach-ConfigCommon* for the same feature combination.
9. The need code for *groupBconfigured* parameter is wrong.
10. The field description of msgA-RSRP-Threshold in FeatureCombinationPreambles is not correct.

**Inter-operability:**

For the Change 1,2,3,4 and 7:

If the UE is implemented according to the CR while the network is not, the UE may deem the conifguration as erroneous and discard it.

If the network is implemented according to the CR while the UE is not, there is no Inter-operability issue.

For the Change 5,6,8:

If the UE is implemented according to the CR while the network is not, the the UE and the network will use/assume different parameters settings which may lead to transmission performance degrdation or errors.

If the UE is implemented according to the CR while the network is not, the the UE and the network will use/assume different parameters settings which may lead to transmission performance degradation or errors.

For the Change 9 and 10:

If the UE is implemented according to the CR while the network is not, there is no Inter-operability issue.

If the UE is implemented according to the CR while the network is not, there is no Inter-operability issue.

**Rapp assessment:**

Most changes seem ok, but for some it should be discussed if this can be up to implementation. Ex. Changes 1-4 etc

**Question 5:** Do you agree that each of the proposed changes 1-10 in [5] are essential corrections? Do you have any comments on the CR and on any of the individual changes provided in [5]?

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| Company | Essential Correction Yes/No | Comments |
| ZTE |  | |  | | --- | | ***additionalRACH-ConfigList***  List of feature or feature combination-specific RACH configurations, i.e. the RACH configurations configured in addition to the one configured by *rach-ConfigCommon* and by *msgA-ConfigCommon*. The network associates all possible preambles of an additional RACH configuration to one or more feature(s) or feature combination(s). If both *rach-ConfigCommon* and *msgA-ConfigCommon* are configured for a specific feature or feature combination, the network always provides them in the same *additionalRACH-Config*. |   Agree with the intention. But, maybe we can leave this to NW implementation. i.e. the change is not essential. Okay to go with majority view.   |  | | --- | | ***ssb-SharedRO-MaskIndex***  Mask index (see TS 38.321 [3]).  Indicates a subset of ROs where preambles are allocated for this feature combination. If this field is configured within *FeatureCombinationPreambles* which is included in *RACH-ConfigCommonTwoStepRA*, in case of separate ROs are configured for 4-step and 2-step random access, this field indicates a subset of ROs configured for 2-step random access, and in case shared ROs are used for 4-step and 2-step random access, it indicates the subset of ROs configured for 4-step random access. This field is configured when there is more than one RO per SSB. If the field is absent, all ROs configured in *RACH-ConfigCommon* or *RACH-ConfigCommonTwoStepRA* containing this *FeatureCombinationPreambles* are shared. |   The issue is not clear to us. We think the current text is fine. |
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## [6] On the number of RACH partitions

[R2-2207997](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs/R2-2207997.zip)On the number of RACH partitions **MediaTek Inc.**

In [6] the following observations are made:  
**Observation 1:** As per the current RRC specification, a RedCap UE is expected to store up to 131584 RACH partitions per BWP.  
**Observation 2:** The maximum number of RACH partitions as currently defined cannot be signalled to the UE.  
Based on these observations, we propose:  
**Proposal 1:** maxAdditionalRACH-r17 and maxFeatureCombPreamblesPerRACHResource-r17 are reduced to 8.  
A TP is provided in the Annex for this proposal.  
  
  
**Rapp assessment:**

RAN2 should discuss if instead of changing the ASN.1 check the capabilities for a RedCap UE. If a RedCap UE can support all the (other) features then there is no straightforward solution. At most in an actual system in Rel-17 there will be 32\*nrofSlices partitions (every feature combination + 2step/4step). If we consider possible future extension (e.g.: 2 more 1-bit features) we get 128\*nrofSlices partitions, this is partly the reasonon why we have 256. In the end this is a UE implementation detail as in reality there will never be so many partitions to support

**Question 6:** Do you agree with the observations and proposals in [6] and think they should be applied as essential corrections? Please provide you view to the content and proposals provided in [6]?

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| Company | Essential Correction Yes/No | Comments |
| ZTE | May be no | The network will not configure a large number of partitions anyway. Depends on how many partitions the UE is tested with. May be RAN5 can come with a reasonable number for testing purposes and the protocol can be left as it is (i.e. to support max number from a protocol perspective). |
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## [7] Miscellaneous corrections to common signalling for RACH partitioning

[R2-2208240](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs/R2-2208240.zip)Miscellaneous corrections to common signalling for RACH partitioning **Nokia, Nokia Shanghai Bell**

38.331 CR 3389 rev –

Beyond changes to the field description for *startPreambleForThisPartion*, this CR also proposes these two editorial changes:

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| ***featurePriorities***  Indicates priorities for features, such as RedCap, Slicing, SDT and MSG3-Repetitions for Coverage Enhancements. These priorities are used to determine which *FeatureCombinationPreambles* the UE shall use when a feature maps to more than one *FeatureCombinationPreambles*, as specified in TS 38.321 [3]. A lower value means a higher priority. The network does not signal the same priority for more than one feature. The network signals a priority for all features that map to at least one *FeatureCombinationPreambles*. |

#### – *FeatureCombination*

The IE *FeatureCombination* indicates a feature or a combination of features to be associated with a set of Random Access resources (i.e. an instance of *FeatureCombinationPreambles*).

*FeatureCombination* information element

-- ASN1START

-- TAG-FEATURECOMBINATION-START

FeatureCombination-r17 ::= SEQUENCE {

redCap-r17 ENUMERATED {true} OPTIONAL, -- Need R

smallData-r17 ENUMERATED {true} OPTIONAL, -- Need R

nsag-r17 NSAG-List-r17 OPTIONAL, -- Need R

msg3-Repetitions-r17 ENUMERATED {true} OPTIONAL, -- Need R

spare4 ENUMERATED {true} OPTIONAL, -- Need R

spare3 ENUMERATED {true} OPTIONAL, -- Need R

spare2 ENUMERATED {true} OPTIONAL, -- Need R

spare1 ENUMERATED {true} OPTIONAL -- Need R

}

NSAG-List-r17 ::= SEQUENCE (SIZE (1.. maxSliceInfo-r17)) OF NSAG-ID-r17

-- TAG-FEATURECOMBINATION-STOP

-- ASN1STOP

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| --- |
| *FeatureCombination* field descriptions |
| ***redCap***  If present, this field indicates that RedCap is part of this feature combination. |
| ***smallData***  If present, this field indicates that Small Data is part of this feature combination. |
| ***nsag***  If present, this field indicates NSAG(s) that are part of this feature combination. |
| ***msg3-Repetitions***  If present, this field indicates that signalling of msg3 repetition is part of this feature combination. This field is not configured in a set of preambles that is configured with 2-step random-access type. |

**Rapp assessment:**  
Should be uncontroversial corrections to be adopted.

**Question 7:** Do you agree to the two proposed editorial changes in [7]?

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| --- | --- | --- |
| Company | Essential Correction Yes/No | Comments |
| ZTE | Yes | Merge into rapporteur CR |
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## [8] Correction on Feature Combination

[R2-2208399](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_119-e/Docs/R2-2208399.zip)Correction on Feature Combination **LG Electronics Inc.**

CR CR xxx rev –

***Reason for change:***

When the FeatureCombination indicates a combination of feature including the feature defined the future release, the correponding set of Random Access resource shall not be used.

However, in the current 38.331 specification, the field description is as follows, which is not clear enough:

* The IE FeatureCombination indicates a combination of features to be associated with a RA partition (i.e. an instance of FeatureCombinationPreambles). The UE ignores a RACH resource defined by this FeatureCombinationPreambles if any feature within the featureCombination is not supported by the UE **or has an unknown value.**

Specifically, if at least one or spare fields is set to {true}, it is not ‘unknown value’ since the UE is able to decode the value of spare field. Given that the number of spare fields and the possible value of each spare field is defined in this release (i.e., spare field can only be set to ENUMERATED {true}), the spare field is not considered as ‘unknown field’ or ‘unknown value’, even though the name of the spare field could be re-defined in the future releases.

When a RACH partition associated with the feature that is not supported by the UE, the RACH partition shall not be used by the UE. Similarly, when a RACH partition associated with the feature(s) which are defined in the future relases, the RACH partition shall not be used by Rel-17 UEs since the feature(s) will not be supported by Rel-17 UEs.

Therefore, when at least one of the spare fields are set to {true}, the Rel-17 UE shall not use the associated RACH partition, since the considered RACH partition is reserved for the feature which is defined in the future releases.

**Summary of change:**

Add the field decription of IE FeatureCombination in order to clearly specify that the Rel-17 UE shall not use the set of Random Access resource when at least one of the spare fields are set to {true}.’

**Inter-operability:**If the network is implemented according to the CR while the UE is not, the UE may select wrong RACH partition even if the UE does not support the indicated Feature Combination.  
  
If the UE is implemented according to the CR while the network is not, no inter-operability problem is foreseen.  
  
**Consequences if not approved:**

UE may select wrong RACH partition even if the UE does not support the indicated Feature Combination.

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| ***featureCombination***  Indicates which combination of features that the preambles indicated by this IE are associated with. The UE ignores a RACH resource defined by this *FeatureCombinationPreambles* if any feature within the *featureCombination* is not supported by the UE or if any one of the spare fields within the *featureCombination* is set to *true*. |

**Rapp assessment:**  
Should be uncontroversial corrections to be adopted

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**Question 8:** Do you agree that the proposed changes in [8] are essential corrections? If yes, do you have any comments on the CR provided?

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| Company | Essential Correction Yes/No | Comments |
| ZTE | No | Intention is fine but seems not a critical correction. |
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## [9] Correction on the featurePriorities

[*R2-2208910*](http://www.3gpp.org/ftp//tsg_ran/WG2_RL2/TSGR2_119-e/Docs//R2-2208910.zip) *Correction on the featurePriorities Huawei, HiSilicon discussion Rel-17*

In [9] the following observations and proposals are made:

**Observation 1: It is currently possiable that there is no available *featurePriorities-r17* to be used by the UE in the CBRA handover procedure.**

**Proposal 1: Another *featurePriorities-r17* field should be introduced in the *ServingCellConfigCommon* IE.**

**Rapp assessment:**

(Below an extract only is used and text have been omitted, please refer to the contribution for a comprehensive description.)

RAN2 to discuss if the issue “When initiating the contention-based random access procedure, the UE needs to use the feature priority order of the target cell to determine the set of random access resources to be used between the resources for RedCap or the resources for CovEnh.

…

in the current ASN.1, the *featurePriorities-r17* field is only included in *SIB1* and the UE cannot obtain the feature priority order during the contention-based random access procedure for handover.”

Solution options:

1. “one possiable solution is to mandate the netwok to include the dedicatedSIB1-Delivery during the handover in this case. However, dedicated SIB1 delivery was introduced to address the case of SI update or UE handover to a BWP where CSS is not available. Considering the size of SIB1 may be large, mandating it to be included for each handover would deteriorate the performce of handover.”
2. introduce featurePriorities-r17 field in the ServingCellConfigCommon IE which is always included in the reconfigurationWithSync. The network should always signal the priorities for all the features that map to at least one FeatureCombinationPreambles, just like the limitation of the featurePriorities-r17 field in the SIB1.”

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| *featurePriorities*  Indicates priorities for features, such as RedCap, Slicing, SDT and MSG3-Repetitions for Coverage Enhancements. These priorities are used to determine which *FeatureCombinationPreambles* the UE shall use when a feature maps to more than one *FeatureCombinationPreambles*, as specified in TS 38.321 [3]. A lower value means a higher priority. The network does not signal the same priority for more than one feature. The network signals a priority for all features that map to at least one *FeatureCombinationPreambles*. |

**Question 9:** Do you agree with the proposals in [9] and that the issues are essential corrections? Please provide you view to the content and proposals including draft CR text provided in [9]?

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| Company | Essential Correction Yes/No | Comments |
| ZTE | Okay | We are fine with the proposed correction. |
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# 3. Phase-2 Discussion

CR review, and conclusion on outstanding items. To be determined based on company input in phase 1.

It is expected to produce a single CR for straightforward corrections. NBC corrections may need to be captured in individual CR(s).