3GPP TSG-RAN WG2 Meeting #129-bis Tdoc R2-25xxxxx

Wuhan, China, April 7 – 11, 2025

Agenda: x.x.x

Source: Ericsson

Title: Comments on MIMO Running CR for TS 38.331

Document for: Discussion, Decision

# 1 Introduction

This document collects comments for the following e-mail discussion:

**[Post129][207][MIMO\_Ph5] Running CR for TS 38.331 (Ericsson)**

**Intended outcome: Running CR for submission to the next meeting**

**Deadline: Long**

Companies are invited to provide contact details on the table below.

|  |  |  |
| --- | --- | --- |
| Company | Name | E-mail |
| OPPO | Yumin Wu | wuyumin@oppo.com |
| CATT | Da Wang | wangda@catt.cn |
| Sharp | Chongming Zhang | Chongming.zhang@cn.sharp-world.com |
| CMCC | Changhao Han | hanchanghao@chinamobile.com |
| Samsung | Shiyang Leng | shiyang.leng@samsung.com |
| Nokia | Andrew Lappalainen | andrew.lappalainen@nokia.com |

# 2 Discussion

The running CR implements the latest stable parameters from the list provided by RAN1 (R1-2501645). For reference, the parameter list is included in the draft discussion folder with green highlight for the parameters implemented and the column “RAN2 ASN.1 name” filled in. The additions compared to the previous version (R2-2408909) are with user “RAN2#129-bis”.

Please do not make changes/comments directly on the running CR - companies are invited to provide suggested changes/comments on the table below. To make it easier to track and reply to the comments, please label each comment i.e. [Issue 1], [Issue 2], and so on.

|  |  |  |
| --- | --- | --- |
| Company | Comments | Rapporteur response |
| OPPO | Some parameters (e.g. startingBitOfFormat2-3 and plOffset) are missing in the running CR. |  |
| CATT [Issue 1] | For the description of prachAssociationDCI-1-0, according to the below RAN1 agreement, one condition is missing, i.e., “ a UE provided with *SSB-MTC-AddtionalPCI*“.**Agreement**For a UE provided with *SSB-MTC-AddtionalPCI* and not configured with multi-DCI based mTRP, support to reuse the DCI field ‘PRACH association indicator’ in DCI format 1\_0 to indicate PL RS for PDCCH-order PRACH:* The bit field index 0 of this field indicates the DL RS that DMRS of PDCCH order DCI is QCLed with is used as PL RS for PRACH;
* The bit field index 1 of this field is mapped to the additional PCI associated with the active TCI states and indicates the indicated SSB in this DCI is used as PL RS for PRACH:
	+ In this case, the PRACH configuration associated with addition PCI is used.
* This DCI field is present when the corresponding RRC parameter is configured and multi-DCI based mTRP is not configured.
 |  |
| CATT [Issue 2] | **Agreement**For the Rel-19 Type-II codebook refinement for 48, 64, and 128 CSI-RS ports, except for Parameter Combination 8 from Rel-17 FeType-II PS, all legacy Parameter Combinations from Rel-16 eType-II (regular), Rel-18 Type-II Doppler (regular), and Rel-17 FeType-II PS are supported.According to the above RAN1 agreement, the following value of paramCombination-r19 should be INTEGER (1..7)typeII-FePortSelection-r19 SEQUENCE { typeII-FePortSelectionRI-Restriction-r19 BIT STRING (SIZE (4)), numberOfPMI-SubbandsPerCQI-Subband-r19 INTEGER(1..2), paramCombination-r19 INTEGER (1..8), valueOfN-r19 ENUMERATED {n2, n4} OPTIONAL, -- Need R }, |  |
| CATT [Issue 3] | typeII-DopplerPortSelection-r19 SEQUENCE { typeII-PortSelectionRI-Restriction-r19 BIT STRING (SIZE (4)), numberOfPMI-SubbandsPerCQI-Subband-r19 INTEGER(1..2) }***additionalOneSlotOffsetDoppler***Configures 1-slot offset (per NZP-CSI-RS-Resource Group) relative to the slot offset configured by *aperiodicTriggeringOffset* in *NZP-CSI-RS-ResourceSet*. This field is only configured for codebook *typeII-Doppler-r19* and *typeII-DopplerPortSelection-r19*.In Rel-19， there is no enhancement of doppler port selection. Thus, the above parameter *typeII-DopplerPortSelection* should be deleted. |  |
| CATT [Issue 4] | Regarding to the description of *additionalOneSlotOffset*, based on the following RAN1 agreement, this field is also only configured for codebook typeII-FePortSelection-r19. Thus, typeII-FePortSelection-r19 should be added in the end of description, i.e., “This field is only configured for codebook *typeI-SinglePanel-r19*, *typeI-MultiPanel-r19,* e*typeII-r19* and *typeII-FePortSelection-r19*”.**Agreement**For the Rel-19 Type-I and Type-II codebook refinement for 48, 64, and 128 CSI-RS ports, regarding NZP CSI-RS resource aggregation to attain 32 < P (or PCSI-RS) ≤ 128, for AP-CSI-RS where the K NZP CSI-RS resources are located in two consecutive slots, • Except for codebook refinement based on Rel-18 Type-II Doppler, introduce per-resource higher-layer (RRC) configuration to indicate (via 1-bit per resource) whether 1-slot offset relative to the legacy resource-set-level slot offset configuration should be assumed or not• For codebook refinement based on Rel-18 Type-II Doppler, introduce per-resource higher-layer (RRC) configuration to indicate (via 1-bit per resource) whether 1-slot offset relative to the resource group slot offset should be assumed or not |  |
| CATT [Issue 5] | SRS-ResourceSet ::= SEQUENCE {...omit... [[ associatedCSI-RS-Set-r19 NZP-CSI-RS-ResourceSetId OPTIONAL, -- Need R srs-TwoSeparatePowerControlAdjustmentStates-r19 ENUMERATED {enabled} OPTIONAL, -- Need R srs-PortGrouping-r19 ENUMERATED {enabled} OPTIONAL, -- Need R tpcOfSRS-ClosedLoopIndexInDCI-1-1-r19 ENUMERATED {enabled} OPTIONAL, -- Need R srsClosedLoopIndexIndicatorInDCI-1-1-r19 ENUMERATED {enabled} OPTIONAL -- Need R fourPortSRS-3Tx-r19 ENUMERATED {enabled} OPTIONAL -- Need R ]]}The highlight two parameters are not per *SRS-ResourceSet* configuration. Suggest to configure these two parameters in *SRS-Config*. |  |
| CATT [Issue 6] | There are no description of *tpcOfSRS-ClosedLoopIndexInDCI-1-1-r19* and *srsClosedLoopIndexIndicatorInDCI-1-1-r19*. Suggest to add the descriptions. |  |
| CATT [Issue 7] | CSI-ReportCJTC-r19 ::= SEQUENCE { valueOfAD-r19 ENUMERATED {dot5, one}, valueOfMD-r19 ENUMERATED {n32, n64, n128, n256}, valueOfAFO-r19 ENUMERATED {zeroDot1, zeroDot2}, valueOfMFO-r19 ENUMERATED {n16, n32, n256 }, valueOfMPhi-r19 ENUMERATED {n16, n32}, linkedCJTCReport CSI-ReportConfigID, OPTIONAL -- Need R subbandSize ENUMERATED {n1, n2, n4, n8, n16, wideband}, }The above 6 highlight parameters shoule be optional, since which parameter is configured depends on the configuration of *reportQuantityCJTC-r19*. |  |
| ZTE[Issue 1] | The field description of the “pathlossOffsetPRACH-DCI-1-0-r19” has not been added yet |  |
| ZTE[Issue 2] | The paramCombination-r19/ paramCombination-Doppler-r19 should also be added to the field descriptipon of the “ paramCombination, paramCombination-CJT-r18, paramCombination-CJT-L-r18, paramCombination-CJT-PS-r18, paramCombination-CJT-PS-alpha, paramCombinationDoppler-r18, paramCombinationDoppler-PS-r18” and add the referred chapters in the 38.214  |  |
| ZTE[Issue 3] | csi-CRI-ValueOfM: In the field description, the restriction for the type 1 was not included “1,2,…,min(4,Ks) for Type-I, where Ks={2,3,4,…,8} is the number of CSI-RS resources”, we think it’s useful as a restriction for the network configuration. |  |
| ZTE[Issue 4] | srs-PortGrouping: If configured, it indicates that SRS port grouping is enabled.The below restriction is missed, Applicable only for reportQuantity = ‘cri-RI-CQI’ and when SRS for AS is xT6R or xT8R |  |
| ZTE[Issue 5] | For the bwp ID, it depends on whether the new beams configuration also include the BWP ID (as the legacy CSI-Report Config, the corresponding bwp-id was indicated in the CSI-ResourceConfig) For the servCellIndex, now the cross carrier scheduling scheme is still not so clear, thus, we can add some Editor’s note to these 2 elements. resourceForSecondChannelOfModeB-r19 SEQUENCE { configuredGrantConfigIndex-r19 ConfiguredGrantConfigIndex-r16, bwp-Id-r19 BWP-Id, servCellIndex-r19 ServCellIndex }  |  |
| ZTE[Issue 6] | ***additionalOneSlotOffset***Configures 1-slot offset (per NZP-CSI-RS Resource) relative to the slot offset configured by *aperiodicTriggeringOffset* in *NZP-CSI-RS-ResourceSet*. This field is only configured for codebook *typeI-SinglePanel-r19*, *typeI-MultiPanel-r19* and e*typeII-r19*.We think the this field can also be configured for codebook typeII-FePortSelection-r19  |  |
| Sharp[Issue 1] | Considering ***csi-ReportUE-IBM***is included in the IE ***CSI-ReportConfig***, the existing description may need update. – *CSI-ReportConfig*The IE *CSI-ReportConfig* is used to configure a periodic or semi-persistent report sent on PUCCH on the cell in which the *CSI-ReportConfig* is included, or to configure a semi-persistent or aperiodic report sent on PUSCH triggered by DCI received on the cell in which the *CSI-ReportConfig* is included (in this case, the cell on which the report is sent is determined by the received DCI). See TS 38.214 [19], clause 5.2.1. |  |
| Sharp[Issue 2] | Regarding to the choice of periodicityAndOffset, the value range has not been defined yet from my understanding, maybe a note could be added for future updating.firstPUCCHResourceConfig-r19 SEQUENCE { periodicityAndOffset CHOICE { sym2 NULL, sym6or7 NULL, sl1 NULL, -- Recurs in every slot sl2 INTEGER (0..1), sl4 INTEGER (0..3), sl5 INTEGER (0..4), sl8 INTEGER (0..7), sl10 INTEGER (0..9), sl16 INTEGER (0..15), sl20 INTEGER (0..19), sl40 INTEGER (0..39), sl80 INTEGER (0..79), sl160 INTEGER (0..159), sl320 INTEGER (0..319), sl640 INTEGER (0..639) }, |  |
| CMCC[Issue 1] | **Agreement RAN2#128**Absolute value of PL offset is indicated in the new MAC CE. For the offset value, the value range is [-12, 60] dB and the step size is 4dB.The parameter plOffset is not included in this running CR, though it is included in the agreements of RAN2#128. |  |
| CMCC[Issue 2] | The paramCombination-r19/ paramCombination-Doppler-r19 should be added in the paramCombination field descriptipon. |  |
| CMCC[Issue 3] | SRS-ResourceSet ::= SEQUENCE {...omit... [[ associatedCSI-RS-Set-r19 NZP-CSI-RS-ResourceSetId OPTIONAL, -- Need R srs-TwoSeparatePowerControlAdjustmentStates-r19 ENUMERATED {enabled} OPTIONAL, -- Need R srs-PortGrouping-r19 ENUMERATED {enabled} OPTIONAL, -- Need R tpcOfSRS-ClosedLoopIndexInDCI-1-1-r19 ENUMERATED {enabled} OPTIONAL, -- Need R srsClosedLoopIndexIndicatorInDCI-1-1-r19 ENUMERATED {enabled} OPTIONAL -- Need R fourPortSRS-3Tx-r19 ENUMERATED {enabled} OPTIONAL -- Need R ]]}We think these three parameters should be configured per SRS-Config. |  |
| CMCC[Issue 4] | For the new beam, there is also a BWP-ID of the DL CSI-RS indicated in the CSI-ResourceConfig. For this bwp-Id for Second Channel of ModeB, we think that it should be expressed as UL-bwp-Id-r19. resourceForSecondChannelOfModeB-r19 SEQUENCE { configuredGrantConfigIndex-r19 ConfiguredGrantConfigIndex-r16, UL-bwp-Id-r19 BWP-Id, servCellIndex-r19 ServCellIndex }  |  |
| Samsung Issue1 | pathlossOffsetPRACH-DCI-1-0-r19FD missing, according to RRC list “To indicate the presence of 1-bit DCI field in DCI format 1\_0 for indicating the PL offset for PDCCH-order PRACH transmission”Agreement in RAN1#118bisFor indicating PL offset for PDCCH-order PRACH, introduce a new 1-bit DCI field in DCI format 1\_0:• This DCI field exists when the corresponding RRC parameter (which is a new RRC used to configure the presence of this 1-bit DCI field) is enabled and at least one TCI state is configured with PL offset.• When one joint/UL TCI state is indicated in Rel-17 unified TCI, o the bit field index 0 of this field indicates that PL offset is not included in the PRACH transmission power calculation o the bit field index 1 of this field indicates that the PL offset associated with the indicated TCI state is included in the PRACH transmission power.• FFS: Whether the bit field can be used to indicate other information• FFS: When two joint/UL TCI states are indicated in Rel-18 unified TCIIt should be conditionally present: this field is optional present if at least one joint TCI state in dl-OrJointTCI-StateList or at least one UL TCI state in ul-TCI-StateList is configured with PL offset. |  |
| Samsung Issue2 | CodebookConfig-r19 ::= SEQUENCE { codebookType CHOICE { type1 SEQUENCE { subType CHOICE { typeI-SinglePanel-r19 SEQUENCE { codebookMode-r19 ENUMERATED {modeA,modeB}, typeI-SinglePanel-ri-Restriction-r19 BIT STRING (SIZE (8)) }, typeI-MultiPanel-r19 SEQUENCE { ri-Restriction-r19 BIT STRING (SIZE (4)) } }, }, type2 SEQUENCE { subType CHOICE {seems this subtype is not needed, we can directly use CHOICE as below?type1 CHOICE { typeI-SinglePanel-r19 typeI-MultiPanel-r19  }, |  |
| Samsung Issue3 | CSI-ReportUE-IBM-r19 ::= SEQUENCE { eventType-r19 ENUMERATED {event1, event2, event7}, valueOfQ-r19 INTEGER (1..8) OPTIONAL, -- Need R resourceForSecondChannelOfModeB-r19 SEQUENCE { configuredGrantConfigIndex-r19 ConfiguredGrantConfigIndex-r16,This field should be optional.In *configuredGrantConfig*, this index is mandatory present for a CG in *configuredGrantConfigToAddModList-r16*, otherwise the field is absent (i.e., there is only one CG per BWP config in Rel15 with no. Network can only configure CG in one BWP using **either** *configuredGrantConfig* **or** configuredGrantConfigToAddModList-r16.Also, a restriction should be added that this index can only refer to a type-1 CG, as RAN1 agreed. |  |
| Samsung Issue4 | firstPUCCHResourceConfig-r19 SEQUENCE { periodicityAndOffset CHOICE { sym2 NULL, sym6or7 NULL, sl1 NULL, -- Recurs in every slot sl2 INTEGER (0..1),this is copied from existing *periodicityAndOffset* since Rel-15, but just wonder why we need this originally? |  |
| Samsung Issue5 | ***firstPUCCHResourceConfig***Indicates the periodic PUCCH resource for first PUCCH for both mode-A and mode-B.There is only one PUCCH transmission, it can be rephrased, otherwise may cause confusing. Suggest “for the first step of PUCCH transmission for both mode-A and mode-B UE-initated beam reporting” ***resourceForSecondChannelOfModeB***Indicates Type-1 CG PUSCH resource for second channel in mode-B.Similarly, suggest to replace by “for the second step of PUSCH transmission in mode-B UE-initiated beam reporting.” |  |
| Samsung Issue6 | associatedCSI-RS-Set-r19 NZP-CSI-RS-ResourceSetId OPTIONAL, -- Need R**As RAN1 indicated this is only for SRS resource set used for noncodebook, do we need** -- Cond NonCodebook ?**then the description in FD can be removed?*****associatedCSI-RS-Set***ID of CSI-RS resource set associated with this SRS resource set in non-codebook based operation (see TS 38.214 [19], clause x.y). |  |
| Samsung Issue7 | srs-TwoSeparatePowerControlAdjustmentStates-r19This is per BWP as RAN1 indicated, not per SRS resource set, should be included in SRS-Config.  |  |
| Samsung Issue8 | tpcOfSRS-ClosedLoopIndexInDCI-1-1-r19This is per BWP as RAN1 indicated, not per SRS resource set, should be included in SRS-Config. |  |
| Samsung Issue9 | srsClosedLoopIndexIndicatorInDCI-1-1-r19This is per BWP as RAN1 indicated, not per SRS resource set, should be included in SRS-Config. Missing FDAlso, according to RAN1 agreement**Agreement in RAN1#119**The working assumption part of the following previous agreement is confirmed.Support DCI format 1\_1 to indicate TPC command for SRS CLPC adjustment state(s) separate from PUSCH:* (**Working Assumption**) Introduce a 2-bit TPC command field to indicate TPC command for SRS associated with separate SRS CLPC adjustment state where:
	+ The 2-bit TPC command field is present if UE reports supporting a dedicated UE capability, and a corresponding RRC parameter is configured (which is a new RRC to enable this).
* (**Working Assumption**) Introduce a 1-bit SRS close-loop indicator to indicate one of the two separate SRS CLPC adjustment states for the TPC command
	+ The 1-bit SRS close-loop indicator is present if UE reports supporting another dedicated UE capability and a corresponding RRC parameter is configured (which is a new RRC to enable this) and two separate SRS CLPC adjustment states are configured.

=>srsClosedLoopIndexIndicatorInDCI-1-1-r19 can be configured only if srs-TwoSeparatePowerControlAdjustmentStates-r19 is configured |  |
| Samsung Issue10 | ***p0AlphaSetforPUSCH, p0AlphaSetforPUCCH, p0AlphaSetforSRS***Configures power control parameters for PUSCH, PUCCH and SRS (see TS 38.213 [13], clause 7.2). When the field *alpha* is absent in *p0AlphaSetforPUSCH*, the UE applies the value 1 for PUSCH power control. When the field *alpha* is absent in *p0AlphaSetforSRS*, the UE applies the value 1 for SRS power control. In *p0AlphaSetForPUCCH*, the field alpha is absent (not used). If *srs-TwoSeparatePowerControlAdjustmentStates* is configured and *srs-PowerControlAdjustmentStates* is set to *separateClosedLoop*, the field *closedLoopIndex* in *p0AlphaSetforSRS* indicates one of the separate SRS power control adjustment states i.e. value of *i0* and *i1* refer to the first and the second power control adjustment state separate from PUSH, respectively.Typo, => PUSCH |  |
| Nokia[Issue 1] | *portSubsetIndicator* is defined as below for R18 and R19. In R18, the network cannot indicate *portSubsetIndicator* simultaneously with *a2-parameters.* Presumably, the same restriction applies for R19. However, the field description for *portSubsetIndicator* only states that *“*The network does not configure *portSubsetIndicator* and *portSubsetIndicator-v19xy* simultaneously.”, which does not prevent indicating R18 *a2-parameters* simultaneously with *portSubsetIndicator-v19xy*. Therefore, wouldn’t a further restriction be needed to state that “The network does not configure *a2-parameters* and *portSubsetIndicator-v19xy* simultaneously?”CSI-ReportSubConfig-r18 ::= SEQUENCE { reportSubConfigId-r18 CSI-ReportSubConfigId-r18, reportSubConfigParams-r18 CHOICE { a1-parameters SEQUENCE { codebookSubConfig-r18 CodebookConfig OPTIONAL, -- Need R portSubsetIndicator-r18 CHOICE { p2 BIT STRING (SIZE (2)), p4 BIT STRING (SIZE (4)), p8 BIT STRING (SIZE (8)), p12 BIT STRING (SIZE (12)), p16 BIT STRING (SIZE (16)), p24 BIT STRING (SIZE (24)), p32 BIT STRING (SIZE (32)) } OPTIONAL, -- Need R non-PMI-PortIndication-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerConfig)) OF PortIndexFor8Ranks OPTIONAL -- Need R }, a2-parameters SEQUENCE { nzp-CSI-RS-ResourceList-r18 SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourcesPerSet)) OF NZP-CSI-RS-ResourceIndex-r18 } } OPTIONAL, -- Need R powerOffset-r18 INTEGER(0..23) OPTIONAL -- Need R}CSI-ReportSubConfig-r19 ::= SEQUENCE { portSubsetIndicator-v19xy CHOICE { p48 BIT STRING (SIZE (48)), p64 BIT STRING (SIZE (64)), p128 BIT STRING (SIZE (128)) } OPTIONAL -- Need R}***portSubsetIndicator, portSubsetIndicator-v19xy***Indicates the (sub)set of CSI-RS antenna ports used for CSI calculation of the sub-configuration. In the bit string, each bit corresponds to an antenna port. When a bit is set to 1, the corresponding port is enabled for CSI calculation corresponding to the sub-configuration. When the bit is set to zero, the corresponding port is not enabled for CSI calcualton corresponding to the sub-configuration. The size of the bit string equals P bits, where P=2/4/8/12/16/24/32/48/64/128 represents the number of ports of the NZP CSI-RS resource(s) in the resource set for channel measurement associated with the *CSI-ReportConfig*. The network does not configure *portSubsetIndicator* and *portSubsetIndicator-v19xy* simultaneously. |  |