Companies are to share their inputs on the excel spreadsheet in /tsg\_ran/WG1\_RL1/TSGR1\_106b-e/Inbox/drafts/8.1.2.3/RRC parameters/ herein.

## Inputs on version 00

Please share your inputs, if any, in the following table

Table 1 Inputs: Initial version

|  |  |
| --- | --- |
| **Company** | **Input** |
| Qualcomm | For the row “new beam identification threshold for TRP 2”, suggest to add the following FFS. The use case for separate thresholds is unclear.FFS: whether this parameter can reuse “new beam identification threshold for TRP 1”, i.e. same threshold for both TRPsFor the row #8 and 9, suggest to add PCI field to indicate SSB is from which cell. resource list (including periodic CSI-RS resource configuration indexes and/or SS/PBCH block indexes and corresponding PCI if different from serving cell PCI) for M-TRP new beam identification set 1 |
| MediaTek | Regarding row #5 and #6, we share similar view with QC that one threshold for both TRPs should be sufficient.According to preivoius agreements, we may also need to add one more resource set list for the 2nd CMR set for P/SP resource setting, e.g., *csi-RS-ResourceSetList2.***Agreement from RAN1#106**For aperiodic report of beam reporting option 2, * When associated with aperiodic resource setting, extend the existing RRC parameter *CSI-AssociatedReportConfigInfo* to be configured with two CMR resource sets where each may be configured with their corresponding QCL information.
	+ FFS: Detailed association scheme
* When associated with periodic/semi-persist resource setting, the resource setting comprises two CMR resource sets.

CSI-ResourceConfig ::= SEQUENCE { csi-ResourceConfigId CSI-ResourceConfigId, csi-RS-ResourceSetList CHOICE { nzp-CSI-RS-SSB SEQUENCE { nzp-CSI-RS-ResourceSetList SEQUENCE (SIZE (1..maxNrofNZP-CSI-RS-ResourceSetsPerConfig)) OF NZP-CSI-RS-ResourceSetId OPTIONAL, -- Need R csi-SSB-ResourceSetList SEQUENCE (SIZE (1..maxNrofCSI-SSB-ResourceSetsPerConfig)) OF CSI-SSB-ResourceSetId OPTIONAL -- Need R }, csi-IM-ResourceSetList SEQUENCE (SIZE (1..maxNrofCSI-IM-ResourceSetsPerConfig)) OF CSI-IM-ResourceSetId },  bwp-Id BWP-Id, resourceType ENUMERATED { aperiodic, semiPersistent, periodic }, ...} |
| OPPO | A new IE shall be added to indicate the configuration of per-TRP BFR on one BWP, similar to the “*BeamFailureRecoverySCellConfig-r16*” for SCell BFR in rel16 |
| Lenovo/MotM | For row #5 and row #6, we share same view with QC that one threshold for both TRPs is sufficient. If different thresholds for different TRPs is supported, then an agreement related to this should be made first. However, there is no such agreement yet. |
| ZTE | Regarding QC’s comment, we do not have strong preference, and separate or common threshold may not be a serious issue. Regarding issue raised by MTK, considering that *maxNrofNZP-CSI-RS-ResourceSetsPerConfig* = 16 and *maxNrofCSI-SSB-ResourceSetsPerConfig* =1, we only need to raise the upper bound for CSI-RS resource set in 38.214, i.e., to change ‘*maxNrofCSI-SSB-ResourceSetsPerConfig*’ to 2.* Note: For periodic and semi-persistent CSI Resource Settings, the number of CSI-RS Resource Sets configured is limited to S=1 in TS 38.214 Section 5.2.1.2.

For moving forward this issue, we slightly prefer to capture this suggestion in the RRC list as what we do for Item-8.1.1 multi-beam operation.

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| --- | --- | --- | --- | --- |
| maxNrofCSI-SSB-ResourceSetsPerConfig | existing |   | Maximum number of CSI-SSB-Resouce set per CSI-ResourceConfig | {1} is replaced by {2} |

 |
| NTT DOCOMO | For row #5 and row #6, we also think one threshold for two TRPs is sufficient.For row #8 and 9, we need to discuss and agree whether to support SSB associated with a different PCI from serving cell PCI can be configured as BFD-RS and NBI-RS.For the issue mentioned by MTK/ZTE, we agree with ZTE to change ‘*maxNrofCSI-SSB-ResourceSetsPerConfig*’ to 2. In addition, we should also clarify ‘*maxNrofNZP-CSI-RS-ResourceSetsPerConfig*’ to be 2 for periodic/semi-persist resource setting (which is 1 in Rel-16). |
| vivo | Regarding “candidateBeamResourceList1” and “candidateBeamResourceList2”, it is not necessary to be mandatorily configured when M-TRP BFR is configured. From the perspective of system overhead, optional configuration is better. Therefore, we suggest changing “mandatorily” to “optionally” in the part of the comment.Regarding the issue raised by MTK, we share the similar view with ZTE that raising the upper bound for CSI-RS resource set in 38.214, i.e., to change ‘maxNrofCSI-SSB-ResourceSetsPerConfig’ to 2 is enough, no need to introduce a new parameter.Besides RRC parameters listed in the table, some other RRC parameters about TRP-specific beam failure detection also should be considered, e.g., beamFailureInstanceMaxCount-1, beamFailureInstanceMaxCount-2, and beamFailureDetectionTimer-1, beamFailureDetectionTimer-2. |
| Mod | Based on the discussion above, the table of RRC parameters is updated in V01. To be specific, * Row 6 is deleted and row 5 is revised, so that one threshold can be configured for two TRPs.
* Regarding the issue raised by MTK, the table is updated according to ZTE’s suggestion.

@QC: for row 8 and 9, further discussion seems to be needed regarding whether the SSB associated with a PCI different from serving cell PCI can be configured as a new beam.@vivo: to our understanding, 2 NBI-RS sets should be configured to support TRP-specific BFR. We have agreed to support TRP-specific BFD counter and timer in the MAC procedure. It doesn’t necessarily mean that an additional set of beamFailureInstanceMaxCount and beamFailureDetectionTimer is needed.@OPPO: configuration of per-TRP BFR can be indicated by the presence of 2 BFD-RS/NBI-RS sets.  |
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## Inputs on version 01

Please share your inputs, if any, in the following table

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| --- | --- |
| **Company** | **Input** |
| Mod | The following two comments from Convida and HW respectively are copied from the first table. Please provide your views on v01 in this table |
| Convida | For row #5 and #6, one threshold should be sufficient, since we haven’t agreed to introduce a 2nd threshold. For row #5, “new” may be changed to “up to RAN2”, since it’s up to RAN2 if they reuse the existing parameter for threshold.For row #8, “new” may be changed to “up to RAN2”, since it’s up to RAN2 if they reuse the first CB RS list.For row#9 and #9, we also think they should be mandatorily configured with at least one resource, if M-TRP BFR is configured.For explicitly configured BFD-RS sets, at least a second list seems to be needed:*failureDetectionResourcesToAddModList2**failureDetectionResourcesToReleaseList2*RAN2 may decide if they want to reuse the existing list for the first explicit BFD-RS set.Regarding *beamFailureInstanceMaxCount* and *beamFailureDetectionTimer*, there seems to be no need to introduce new parameters.Agree with FL that per-TRP BFR can be indicated by the presence of 2 BFD-RS/NBI-RS sets. |
| Huawei, HiSilicon | We share similar view as FL that more discussions are needed on whether SSBs associated with PCI different from serving cell PCI can be configured as resources for new beam identification (the discussions in 8.1.2.3 thus far focused on intra-cell multi-TRP operation). In addition, we want to point out that group-based reporting in R16 reused the RRC enabler in R15, and it can also be reused for R17. To be specific, once *groupBasedBeamReporting* is configured as enabled, the UE knows group-based beam reporting is configured, and it can further determine whether it is R15 or R17 group-based beam reporting according to the number of CMR sets to be measured, which is different between R15 and R17. In this way, there is no need to introduce a new RRC parameter *groupBasedBeamReportingR17*, which helps reducing signaling overhead and specification effort. |
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## Inputs on version 02

Please share your inputs, if any, in the following table

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| **Company** | **Input** |
| Mod | According to suggestions above, the RRC parameter table is updated in v02. Please provide your comments on v02 in this table.  |
| ZTE | First of all, we suggest to add ‘groupBasedBeamReportingR17’ back and prefer the previous version.We do NOT agree that introducing a new RRC parameter groupBasedBeamReportingR17 will increase signaling overhead and spec efforts. It is just a RRC parameter of ‘on/off’. In Rel-16, we additionally introduce SINR based group based reporting, and can use a new report-quantity for enabling this Rel-16 new function. In Rel-17, with a new L1-RSRP based group based reporting, we prefer to have an explicit RRC parameter for enabling this function, rather than being based on number of CMR sets. On the other hand, if using the number of CMR sets, it will make RAN1 spec unreadable and is unbeneficial for forward compatibility (especially considering that we have different configurations for two sets for AP and SP&P CSI report). Then, RRC or MAC-CE based BFD configuration is still on-going discussion, and so we suggest to wait for the final RAN1 decision before adding ‘failureDetectionResourcesToAddModList[1]’, or ‘failureDetectionResourcesToAddModList2’. |
| Mod | @ZTE: regarding ‘groupBasedBeamReportingR17’, I would like to hear from more companies.For ZTE’s second comment, in the last meeting, we already have the following agreement on explicit configuration of BFD-RS set. So, no matter MAC-CE based updated is supported or not, at least RRC parameter for explicit configuration is needed. **Agreement**Support the following BFD-RS configurations in Rel.17 for UEs with one activated TCI state per CORESET:* Explicit configuration of BFD-RS resources in BFD-RS set k, k = 0, 1
* FFS: CORESETs with more than 1 activated TCI state.
 |
| MediaTek | On row 2: We share similar view with ZTE. Rel-17 group based beam reporting is a whole new feature and there will be a UE capability signaling for it. Then, it is natural to introduce an RRC parameter to enable this new feature.On row 10: We are fine with the ZTE’s suggestion. However, we may also need to clarify in 331 that ‘*maxNrofNZP-CSI-RS-ResourceSetsPerConfig*’ can be 2 for periodic/semi-persist resource setting, as suggested by DCM.

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| *CSI-ResourceConfig* field descriptions |
| ***nzp-CSI-RS-ResourceSetList***List of references to NZP CSI-RS resources used for beam measurement and reporting in a CSI-RS resource set. Contains up to *maxNrofNZP-CSI-RS-ResourceSetsPerConfig* resource sets if *resourceType* is 'aperiodic' and 1 otherwise (see TS 38.214 [19], clause 5.2.1.2). |
|  |

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| vivo | @Mod, further explanations for our comments are listed as follows:First of all, for NBI-RS configuration, the motivation for optional configuration is to save the overhead on UE side and facilitate scheduling flexibility on gNB side. It is assumed UE always measures those NBI-RS once configured in Rel-16 UE capability discussion. Mandatory configuration of NBI-RS would create additional constraints for network scheduling since the UE capability to measure RS within a slot is bounded by reported values. Then, for the configuration of two sets of beamFailureInstanceMaxCount and beamFailureDetectionTimer, we think it should not be precluded directly by RAN1. Since all the agreed TRP-specific BFI counters and TRP-specific BFD timers work in the MAC layer, therefore whether to introduce an additional set of beamFailureInstanceMaxCount and beamFailureDetectionTimer should be determined by RAN2. |
| Mod | Regarding ‘groupBasedBeamReportingR17’, ZTE and MTK suggest to keep this parameter, while HW prefer to remove it. From FL perspective,the system can work with both approaches. @All: all the companies are invited to show your views on this issue.@DCM and MTK: as raised by ZTE that *maxNrofNZP-CSI-RS-ResourceSetsPerConfig* = 16 in 331, so what needs to be clarified is that in the following descriotion, it contains uo to 2 resource sets if *resourceType* is not 'aperiodic'. Is that the correct understanding? If so, I think we need some cladification in 331to support two CMR sets for periodic/semi-persist resource setting, but changing of ‘*maxNrofNZP-CSI-RS-ResourceSetsPerConfig*’ is not needed. Please correct me if I’m wrong.

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| *CSI-ResourceConfig* field descriptions |
| ***nzp-CSI-RS-ResourceSetList***List of references to NZP CSI-RS resources used for beam measurement and reporting in a CSI-RS resource set. Contains up to *maxNrofNZP-CSI-RS-ResourceSetsPerConfig* resource sets if *resourceType* is 'aperiodic' and up to 2 otherwise (see TS 38.214 [19], clause 5.2.1.2). |

@vivo: for the configuration of two sets of beamFailureInstanceMaxCount and beamFailureDetectionTimer, we are not precluding that by RAN1. We can just let RAN2 to know our decision on supporting TRP-specific BFD counter and timer. Whether an additional set of beamFailureInstanceMaxCount and beamFailureDetectionTimer is needed can be determined by RAN2.@vivo: for the configuration of NBI-RS, your explanation is reasaonable from flexibility and overhead perspective. However, it looks like other companies still have concern on optional configuration of NBI-RS. |

## Inputs on version 03

Please share your inputs, if any, in the following table

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| **Company** | **Input** |
| Mod | Based on comments from ZTE, MTK and HW, ‘groupBasedBeamReportingR17’ is put into square brackets . Further discussion seems needed.  |
| MediaTek | @Mod, thanks. Our undetstading is aligned with yours, we only need the clarification on the field description in 331. |
| LGE | * OK with new ‘groupBasedBeamReportingR17’ IE
* Single NBI threshold is fine
* Regarding NBI-RS sets, it should be medatorily configured.
 |

## Inputs on version 04

Please share your inputs, if any, in the following table

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| **Company** | **Input** |
| Mod | @MTK: thanks for the confirmation. The following clarification is captured in version 04.

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| *CSI-ResourceConfig* field descriptions |
| ***nzp-CSI-RS-ResourceSetList***List of references to NZP CSI-RS resources used for beam measurement and reporting in a CSI-RS resource set. Contains up to *maxNrofNZP-CSI-RS-ResourceSetsPerConfig* resource sets if *resourceType* is 'aperiodic' and ~~1~~ up to 2 otherwise (see TS 38.214 [19], clause 5.2.1.2). |

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| ZTE | Regarding Mod’s reply on BFD-RS configuration, ‘at least RRC parameter for explicit configuration is needed’ was discussed during last meeting. Clearly, there is no consensus that RRC parameter is at least needed, and the corresponding bullet was finally removed in the approved agreement. In short, for many MAC-CE, e.g., spatial relation activation for SRS, we do not need to a RRC pool in such case. BFD-RS can be provided directly in MAC-CE. So, we still suggest to wait for the final RAN1 decision before adding ‘failureDetectionResourcesToAddModList[1]’, or ‘failureDetectionResourcesToAddModList2’. |