**3GPP TSG-RAN WG2 Meeting #125R2-24xxxxx**

**Athens, Greece, 26th Feb – 1st March 2024**

Agenda Item: 7.2.1

Source: Ericsson

Title: [Post125][409][POS] 38.331 Rel-18 positioning CR (Ericsson)

Document for: Discussion, Decision

# Introduction

This is to kick off the email discussion.

* [Post125][409][POS] 38.331 Rel-18 positioning CR (Ericsson)

Scope: Update and check the CR in R2-2401318.

Intended outcome: Agreed CR in R2-2401632

Deadline: Short (for RP)

# 2 Discussion

## 2.1 LPHAP

Please provide your comments on the LPHAP changes

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| Company Name | Comments |
| HW | 1/ if it is running should not be removed  2> if *srs-PosRRC-InactiveValidityAreaConfigList* is configured:  3> instruct the MAC entity to stop the *inactivePosSRS-ValidityAreaTAT*;  2/ The following change should be added to the paragraph for “suspendConfig”  1> if the *RRCRelease* provides configuration *srs-PosRRC-InactiveValidityAreaPreConfigList*:  2> store *srs-PosRRC-InactiveValidityAreaConfig*;1> if the *RRCRelease* indicates release of *srs-PosRRC-InactiveValidityAreaPreConfigList*:  2> remove all *srs-PosRRC-InactiveValidityAreaPreConfigList*, if available;  3/ The pre-configured SRS should not be applied immediately after the configuration is received. It is pre-configured  2> if *srs-PosRRC-Inactive* is configured:  3> apply the SRS for positioning configuration in RRC\_INACTIVE and instruct MAC to start the *inactivePosSRS-TimeAlignmentTimer*;  2> if *srs-PosRRC-InactiveValidityAreaNonPreConfig* is configured:  3> apply the SRS for positioning configuration in RRC\_INACTIVE and instruct MAC to start the *inactivePosSRS-ValidityAreaTAT*;  4/ Not sure why we need to consider for the emergency services here or what is the correspoding agreement?  2> if the resumption of the RRC connection is triggered for activation of *srs-PosRRC-InactiveValidityAreaPreConfigList* when the UE is camped in one of the cells indicated in *srs-PosConfigValidityArea*;  3> if an emergency service is ongoing:  4> select '2' as the Access Category;  4> set the *resumeCause* to *emergency*;  5/ The following paragraph is not needed. The procedure is specified in the MAC spec when TAT is received in the RAR and contention resolution is successful. See Section 5.2 of TS 38.321  1> if the resume procedure is initiated with *ResumeCause* set to *srs-PosConfigOrActivationReq* for the activation of *srs-PosRRC-InactiveValidityAreaPreConfigList*:  2> instruct the MAC entity to start *inactivePosSRS-ValidityAreaTAT*,  6/ These two "ifs“ can be merged since the UE procedures are the same  1> if *srs-PosRRC-InactiveValidityAreaNonPreConfig* is configured:  2> instruct the MAC entity to stop *inactivePosSRS-ValidityAreaTAT*, if it is running;  1> else if field *srs-PosRRC-InactiveValidityAreaPreConfigList* is configured and if the cell is not listed in *srs-PosConfigValidityArea*;  2> instruct the MAC entity to stop *inactivePosSRS-ValidityAreaTAT*, if it is running;7/ Editorials: The indentation is wrong The name is wrong  1> else if cell reselection occurs when *srs-PosRRC-InactiveValidityAreaPreConfig* or *srs-PosRRC-InactiveValidityAreaNonPreConfig* is configured and if there is an on-going SRS for positioning transmission procedure in RRC\_INACTIVE:  2> if the selected cell is not included in the *srs-PosConfigValidityArea*  3> indicate to the lower layer to stop *inactivePosSRS-ValidityAreaTAT*;  3> initiate RRC connection resume procedure in 5.3.13.2;  2> else if the cell is included in the *srs-PosRRC-InactiveValidityArea*:  3> if the selected cell and the previously camped cell are in the same *srs-PosConfigValidityArea*;  4> if *autonomousTA-AdjustmentEnabled* is configured;  5> indicate to the lower layer to update Timing Advance and stored RSRP provided the Timing Advance validation requirements specified in clause 5.6.6.3 of TS 38.133 [14] is met;  4> instruct lower layers to continue transmitting SRS if Timing Advance validation condition as specified in TS 38.321 [3] are satisfied;  3> if the selected cell and previously camped cell are in the different *srs-PosConfigValidityArea*;  4> initiate RRC connection resume procedure in 5.3.13.2;  4> apply the SRS configuration *srs-PosConfigValidityAreaConfig* corresponding to the validity area of the selected cell and instruct lower layers to initiate SRS transmission.  8/ The sentence below is not needed. Nothing has changed in this case and the TA validation is performed for each SRS transmission  1> else if cell reselection occurs when *srs-PosRRC-InactiveValidityAreaPreConfig* or *srs-PosRRC-InactiveValidityAreaNonPreConfig* is configured and if there is an on-going SRS for positioning transmission procedure in RRC\_INACTIVE:  2> if the selected cell is not included in the *srs-PosConfigValidityArea*  3> indicate to the lower layer to stop *inactivePosSRS-ValidityAreaTAT*;  3> initiate RRC connection resume procedure in 5.3.13.2;  2> else if the cell is included in the *srs-PosRRC-InactiveValidityArea*:  3> if the selected cell and the previously camped cell are in the same *srs-PosConfigValidityArea*;  4> if *autonomousTA-AdjustmentEnabled* is configured;  5> indicate to the lower layer to update Timing Advance and stored RSRP provided the Timing Advance validation requirements specified in clause 5.6.6.3 of TS 38.133 [14] is met;  4> instruct lower layers to continue transmitting SRS if Timing Advance validation condition as specified in TS 38.321 [3] are satisfied;  3> if the selected cell and previously camped cell are in the different *srs-PosConfigValidityArea*;  4> initiate RRC connection resume procedure in 5.3.13.2;  4> apply the SRS configuration *srs-PosConfigValidityAreaConfig* corresponding to the validity area of the selected cell and instruct lower layers to initiate SRS transmission.  9/ When SRS is not pre-configured and a cell is reselected out of the validity area, the SRS configuration should be released  My general suggestion in the paragraph above is to separate the case of pre-configured and non-preconfigured, with srs-PosRRC-InactiveValidityAreaPreConfig or srs-PosRRC-InactiveValidityAreaNonPreConfig, respectively.  10/ Prefer to add something like "SRS preiodicity configuration" into the name of the field to indicate that it is for periodicity configuration. This field is only needed when the resource type is configured as “periodic”  ...,  [[  srs-PosHyperSFN-Index-r18 ENUMERATED {even0, odd1} OPTIONAL, --Need R  txHoppingConfig-r18 TxHoppingConfig-r18 OPTIONAL --Need R  ]]  } |
| ZTE001 | srs-PosRRC-InactiveValidityAreaPreConfigList-r18 SetupRelease { SRS-PosRRC-InactiveValidityAreaPreConfigList-r18 } OPTIONAL, -- Need M  Do we agreed that SetupRelease structure should not be used in List? |
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## 2.2 Sidelink

Please provide your comments on Sidelink changes.

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| Company Name | Comments |
| Intel | RAN1 sent LS R1-2401827, ask RAN2 to capture two new parameters „*sl-ThreshS- RSSI-PRS-CBR*“ and „*sl-FilterCoefficient*“, would be good to capture them in this version.  Rapporteur: The two parameters has been added in *SL-PRS-ResourcePool* in the RRC. |
| vivo001 | 5.2.2.4.13/5.2.2.4.25/5.8.3.3  3> if configured to receive NR sidelink control information for SL-PRS measurement:  From the perspective of RRC layer of UE, a relative higher layer to perform resource control, it cannot understand SCI of SL-PRS. It is PHY to actually receive SCI.  Prefer to change it into a high-level description as “to receive SL-PRS”.  Rapporteur: In the new version RRC, this has been revised as “to perform SL-PRS measurement” |
| vivo002 | 5.2.2.4.25  RAN2#125 meeting has agreed that “Support segmentation of SIB23”.  Thus, UE should ensure having the latest version of SIB23. The following clause should be captured.  “Upon receiving *SIB23*, the UE shall:  1> if the UE has stored at least one segment of *SIB23* and the value tag of *SIB23* has changed since a previous segment was stored:  2> discard all stored segments;  1> store the segment;  1> if all segments have been received:  2> assemble *SIB23-IEs* from the received segments;  2> if *sl-PosFreqInfoList* is included in *sl-PosConfigCommonNR*:  …”Rapporteur: Thanks for the comment, this has been addressed in the new CR. |
| vivo003 | 5.5.3.1  3> if configured with NR sidelink positioning and the cell chosen for NR sidelink positioning provides *SIB23* which includes *sl-TxPoolSelectedNormal*, *sl-TxPoolExceptional, sl-PRS-TxPoolSelectedNormal* or *sl-PRS-TxPoolExceptional* forthe concerned frequency:  4> perform CBR measurement on pool(s) in *sl-TxPoolSelectedNormal*, *sl-TxPoolExceptional, sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* for the concerned frequency in *SIB23*;  RAN2#125 meeting has agreed that “Configure the SL-PRS shared resource pool under SIB12 and the SL-PRS dedicated resource pool under SIB23.”  The pool of resources for SL-PRS dedicated resource pool in SIB23 and shared resource pool in SIB12 should be respectively described.  “3> if configured with NR sidelink positioning and the cell chosen for NR sidelink positioning provides *SIB23* which includes *sl-PRS-TxPoolSelectedNormal* or *sl-PRS-TxPoolExceptional*, or provides SIB12 which includes *sl-TxPoolSelectedNormal*, *sl-TxPoolExceptional* forthe concerned frequency:  4> perform CBR measurement on pool(s) in *sl-PRS-TxPoolSelectedNormal*, *sl-PRS-TxPoolExceptional, sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* for the concerned frequency;”  Rapporteur: Thanks for the comment, this has been addressed in the new CR. |
| vivo004 | Editorial change.  5.5.3.1  2> if the UE is in RRC\_CONNECTED:  3> if *tx-PoolMeasToAddModList* is included in *VarMeasConfig*:  4> perform CBR measurements on each transmission resource pool indicated in the *tx-PoolMeasToAddModList*;  3> if *sl-DiscTxPoolSelected*, *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling*, *sl-TxPoolExceptional, sl-PRS-TxPoolSelectedNormal*, *sl-PRS-TxPoolScheduling* or *sl-PRS-TxPoolExceptional* is included in *sl-ConfigDedicatedNR* for the concerned frequency within *RRCReconfiguration*:  4> perform CBR measurement on pool(s) in *sl-DiscTxPoolSelected*, *sl-TxPoolSelectedNormal*, *sl-TxPoolScheduling*, *sl-TxPoolExceptional, sl-PRS-TxPoolSelectedNormal*, *sl-PRS-TxPoolScheduling* and *sl-PRS-TxPoolExceptional* if included in *sl-ConfigDedicatedNR* for the concerned frequency within *RRCReconfiguration*;  3> else:  4> if configured with NR sidelink communication and the cell chosen for NR sidelink communication provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* forthe concerned frequency; or  4> if configured with NR sidelink discovery and the cell chosen for NR sidelink discovery provides *SIB12* which includes *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* but does not provide *sl-DiscTxPoolSelected* forthe concerned frequency:  5> perform CBR measurement on pool(s) in *sl-TxPoolSelectedNormal* or *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;  4> if configured with NR sidelink discovery and the cell chosen for NR sidelink discovery provides *SIB12* which includes *sl-DiscTxPoolSelected* forthe concerned frequency:  5> perform CBR measurement on pools in *sl-DiscTxPoolSelected* and *sl-TxPoolExceptional* for the concerned frequency in *SIB12*;  4> if configured with NR sidelink positioning and the cell chosen for NR sidelink positioning provides *SIB23* which includes *sl-PRS-TxPoolSelectedNormal* or *sl-PRS-TxPoolExceptional*, or provides SIB12 which includes *sl-TxPoolSelectedNormal*, *sl-TxPoolExceptional* forthe concerned frequency:  5> perform CBR measurement on pool(s) in *sl-TxPoolSelectedNormal*, *sl-TxPoolExceptional*, *sl-PRS-TxPoolSelectedNormal* or *sl-PRS-TxPoolExceptional* for the concerned frequency*.*  Rapporteur: Thanks for the comment, this has been addressed in the new CR. |
| vivo005 | 5.5.3.1  2> if configured with NR sidelink positioning and *sl-TxPoolSelectedNormal* or *sl-PRS-TxPoolSelectedNormal* is included in *SL-PreconfigurationNR* for the concerned frequency:  3> perform CBR measurement on pool(s) in *sl-TxPoolSelectedNormal* or *sl-PRS-TxPoolSelectedNormal* in *SidelinkPreconfigNR* for the concerned frequency.  RAN2#125 meeting(main session) has agreed that “=> rely on SL-PreconfigurationNR only and not define SL-PosPreconfigurationNR”. Therefore, SL-PRS dedicated resource pool should also be included in *SidelinkPreconfigNR.*  Rapporteur: Thanks for the comment, SL-PosPreconfigurationNR has been removed and SL-PRS dedicated resource pool are included in SidelinkPreconfigNR in the new version RRC. |
| vivo006 | 5.8.3.3  5> set the *sl-PosQoS-InfoList* to include the SL-PRS transmission QoS profile configured by the upper layer;  There is no such agreement on positioning QoS report to gNB in SUI. In our view, gNB is of no advantage to obtain the positioning QoS from UE. Prefer to remove it.  Rapporteur: we have changed the IE name to sl-PRS-QoS-Infolist and SL-PRS-QoS-Info, to clearly indicate this is the QoS for SL-PRS transmission, and not for SL positioning QoS. |
| vivo007 | 5.8.18.3 NR sidelink positioning transmission RAN2#125 meeting has agreed that “Configure the SL-PRS shared resource pool under SIB12 and the SL-PRS dedicated resource pool under SIB23.” In this sense, a UE capable of NR sidelink positioning that is configured by upper layers to transmit SL-PRS shall listen to the frequency used for NR sidelink positioning configured in RRC dedicated msg and SIB12/23, in order to obtain information for both shared/dedicated SL-PRS resource pool.  In summary, the description of UE performing SL-PRS transmission using *sl-TxPoolSelectedNormal* (i.e. shared resource pool) should also be included in this clause.  Rapporteur: 5.8.18.3 has been updated to include *sl-TxPoolSelectedNormal*. |
| vivo008 | – *SidelinkUEInformationNR* SL-PosTxResourceReq-r18 ::= SEQUENCE {  sl-PosDestinationIdentity-r18 SL-DestinationIdentity-r16,  sl-PosCastType-r18 ENUMERATED {broadcast, groupcast, unicast, spare1},  sl-PosTxInterestedFreqList-r18 SL-TxInterestedFreqList-r16 OPTIONAL,  sl-PosTypeTxSyncList-r18 SEQUENCE (SIZE (1..maxNrofFreqSL-r16)) OF SL-TypeTxSync-r16 OPTIONAL,  sl-PosQoS-InfoList-r18 SEQUENCE (SIZE (1..maxNrofSL-PRS-PerDest-r18)) OF SL-PosQoS-Info-r18 OPTIONAL,  sl-PosCapabilityInformationSidelink-r18 OCTET STRING OPTIONAL,  ...  }  Same comment as vivo006. We see no enhancement for gNB to get information of positioning QoS and positioning capability via SUI, since these parameters are transferred and exploited between UE and LMF.  Apart from that, seeing the exact content of *sl-PosQoS-InfoList*, it contains priority and delay budget of SL-PRS, which has been agreed to contain in UAI for request SL grant for SL-PRS. It is redundant to repeatedly included in SUI.  Prefer to remove the highlight part.  Rapporteur: we have removed'Pos', and use sl-CapabilityInformationSidelink-r18, which is not used for indicating SL positioning capability, while it is already part of legacy which includes UE RRC capability and can be reused. |
| vivo009 | ***sl-PRS-BW***  Indicates the desired bandwidth of the requested SL-PRS resources in the unit of MHz.  Should keep the name of IE aligned as *sl-PRS-Bandwidth* in ASN.1.  Rapporteur: we have updated the IE name.` |
| HW001 | 1/ not sure why the following section has been removed. This section is the same as 5.3.3.1a, and we have an agreement for this previously.  2/ should use the field name for configured grant on dedicated resource pool (follow the legacy)  5> if T311 is running, configure the lower layers to release the resources indicated by *rrc-ConfiguredSidelinkGrant* (if any) and CG Type 1 dedicated SL-PRS resource pool;  3/ should be SIB12/Sib23  5> else if *SIB23* includes *sl-PRS-TxPoolExceptional* or *SIB12* includes *sl-TxPoolExceptional* for the concerned frequency:  6> from the moment the UE initiates RRC connection establishment or RRC connection resume, until receiving an *RRCReconfiguration* including *sl-ConfigDedicatedNR*, or receiving an *RRCRelease* or an *RRCReject*; or  6> if a result of full sensing, if selected and is allowed by *sl-PosAllowedResourceSelectionConfig*, on the resources configured in *sl-PRS-TxPoolSelectedNormal* orif selected and is allowed by *sl-AllowedResourceSelectionConfig*, on the resources configured in *sl-TxPoolSelectedNormal* for the concerned frequency in *SIB12* is not available in accordance with TS 38.214 [19]:  7> configure lower layers to perform the sidelink resource allocation scheme 2 based on random selection (as defined in TS 38.321 [3]) using the pool of resources indicated by *sl-PRS-TxPoolExceptional* or *sl-TxPoolExceptional* for the concerned frequency;  4/ should be r18  SIB23-r18 ::= SEQUENCE {  segmentNumber-r16 INTEGER (0..63),  segmentType-r18 ENUMERATED {notLastSegment, lastSegment},  segmentContainer-r18 OCTET STRING  } |
| Q001 | sl-PRS-Bandwidth-r18 INTEGER (1..100) OPTIONAL,  ***sl-PRS-BW***  Indicates the desired bandwidth of the requested SL-PRS resources in the unit of MHz.  The minimum bandwidth is 10 PRBs. It needs to be clarified what e.g., 1 MHz would mean.  Bandwidth should better be specified in PRBs, as usual. Otherwise, we would need a new MAC-CE when e.g., FR2 or Unlicensed will be introduced. |
| ZTE001 | – *UEAssistanceInformation* SL-PRS-TxInfo-r18 ::= SEQUENCE {  sl-PRS-Periodicity-r18 ENUMERATED {ms100, ms200, ms300, ms400, ms500, ms600, ms700, ms800, ms900, ms1000, spare6,  spare5, spare4, spare3, spare2, spare1},  sl-PRS-Priority-r18 INTEGER (1..8) OPTIONAL,  sl-PRS-DelayBudget-r18 INTEGER (0..1023) OPTIONAL,  sl-PRS-Bandwidth-r18 INTEGER (1..100) OPTIONAL,  ...  }  These two is already included in SUI, no need to include in UAI again. Suggest to delete the yellow IEs in UAI |
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## 2.3 Bandwidth Aggregation

Please provide your comments on the bandwidth aggregation changes.

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| Company Name | Comments |
| HW | 1/ is there an agreement that CA positoining and SRS with validity area cannot be configured at the same time??  SRS-PosRRC-InactiveValidityAreaConfig-r18 ::= SEQUENCE {  srs-PosConfigValidityArea-r18 SEQUENCE (SIZE(1..maxNrOfCellsInVA-r18)) OF CellIdentity,  srs-PosConfigNUL-r18 SRS-PosConfig-r17 OPTIONAL, -- Need R  srs-PosConfigSUL-r18 SRS-PosConfig-r17 OPTIONAL, -- Need R  bwp-NUL-r18 BWP OPTIONAL, -- Need S  bwp-SUL-r18 BWP OPTIONAL, -- Need S  areaValidityTA-Config-r18 AreaValidityTA-Config-r18 OPTIONAL, -- Need R  ...  }  2/ according to the feedback from RAN1 colleague, for CONECTED, RAN1 has agreed that the aggregated SRSs are configured under serving cell configuration. Then, the folllowing configuraiton is not needed for CONNECTED, while it is OK for INACITVE? We only need the serving cell index for CONNECTED. – *SRS-Pos**ResourceSetLinkedForAggBW* The IE *SRS-PosResourceSetLinkedForAggBW* provides the SRS Positioning Resource Sets that are linked for bandwidth aggregation.  *SRS-PosResourceSetLinkedForAggBW* information element  -- ASN1START  -- TAG- SRS-POSRESOURCESETLINKEDFORAGGBW-START  SRS-PosResourceSetLinkedForAggBW-r18 ::= SEQUENCE {  srs-PosResourceSetLinked-r18 SRS-PosResourceSetId-r16,  freqInfo-r18 ARFCN-ValueNR OPTIONAL, -- Need R  ul-bwp-ID-r18 BWP-Id OPTIONAL, -- Cond ConnectedMode  scs-SpecificCarrier-r18 SCS-SpecificCarrier OPTIONAL, -- Need R  ...  }  -- TAG- SRS-POSRESOURCESETLINKEDFORAGGBW-STOP  -- ASN1STOP |
| ZTE001 | SRS-PosResourceSetLinkedForAggBWList-r18 ::= SEQUENCE (SIZE(1..maxNrOfLinkedSRS-PosResourceSet-r18)) OF SRS-PosResourceSetLinkedForAggBW-r18  maxNrOfLinkedSRS-PosResourceSet-r18 INTEGER ::= 32 -- Maximum number of linked SRSPosResourceSets that can be aggregated across CCs  In Athens meeting, RAN1 has already agreed with maximum set linkage per UE should be 32. However the current interpretation is not correct. It should be two level structure, see the following TP as example:   |  | | --- | | RRCReconfiguration-v1800-IEs ::= SEQUENCE {  srs-PosResourceSetLinkedGroupList-r18 SetupRelease { SRS-PosResourceSetLinkedGroupList-r18 } OPTIONAL, -- Need M  nonCriticalExtension SEQUENCE {} OPTIONAL  }  SRS-PosResourceSetLinkedGroupList-r18 ::= SEQUENCE (SIZE(1..maxNrOfLinkedSRS-PosResourceSetGroup-r18)) OF SRS-PosResourceSetLinkedForAggBWList-r18  SRS-PosResourceSetLinkedForAggBWList-r18 ::= SEQUENCE (SIZE(1..maxNrOfLinkedSRS-PosResourceSet-r18)) OF SRS-PosResourceSetLinkedForAggBW-r18  maxNrOfLinkedSRS-PosResourceSet-r18 INTEGER ::= 3 -- Value is FFS Maximum number of linked SRSPosResourceSets per SRSPosResourceSets linked combinations  maxNrOfLinkedSRS-PosResourceSetGroup-r18 INTEGER ::= 32 -- Value is Maximum number of SRSPosResourceSets linked combinations across CCs | |
| ZTE002 | SRS-PosRRC-AggBW-InactiveConfigList-r18 ::= SEQUENCE (SIZE (1..2)) OF SRS-PosResourceSetLinkedForAggBW-r18  This structure of size{1..2} strictly follows RAN1’s agreement that introduce additional 1 or 2 carriers, that have the linkage with the previous carrier (i.e., Rel-17 SRS carrier in RRC\_INACTIVE).   |  | | --- | | ***srs-PosRRC-AggBW-InactiveConfigList***  SRS for positioning configuration with bandwidth aggregation for RRC\_INACTIVE state. |   So in the above field description, it should be clarified that, if this IE is present, SRS-PosRRC-InactiveConfig-r17 should also be present, and the bwp-SUL-r17 of SRS-PosRRC-InactiveConfig-r17 should not be present. |
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## 2.4 REDCAP CR

Please provide your comments on the RedCap changes

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| Company Name | Comments |
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## 2.5 Any other comments

Please provide any other comments below.

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| Company Name | Comments |
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# Conclusion

In the previous sections we made the following observations:

Based on the discussion in the previous sections we propose the following:

# References