3GPP TSG-RAN WG2 #118-e Tdoc R2-22xxxxx

Electronic meeting, 2022-05-09 - 2022-05-20

Agenda Item: 6.11.2.9

Source: Ericsson

Title: [AT118-e][623][POS] 38331 positioning CR (Ericsson)

Document for: Discussion, Decision

# 1 Introduction

# 1 Introduction

This document is to collect comments for the CR:

* [AT118-e][623][POS] 38331 positioning CR (Ericsson)

      Scope: Review and update the rapporteur CR, taking into account decisions of this meeting.  Discussion should coordinate with the handling of agenda item summaries.

      Intended outcome: Agreeable CR

      Deadline:  Tuesday 2022-05-17 1800 UTC

Further, there are RILs which need input.

[R2-2205811](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202205%20-%20RAN2_118-e,%20Online\Extracts\R2-2205811%20RIL%20E064%20TEG%20Reporting.docx) [RILE064] Moving TEG Reporting Configuration from SRS-Config to RRCReconfig Ericsson CR Rel-17 38.331 17.0.0 3118 - F NR\_pos\_enh-Core

[R2-2204998](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202205%20-%20RAN2_118-e,%20Online\Extracts\R2-2204998%20%5bH568%5d%20Correction%20for%20periodic%20TEG%20reporting.docx) [H568] Correction for periodic TEG reporting Huawei, HiSilicon CR Rel-17 38.331 17.0.0 3025 - F NR\_pos\_enh-Core

[R2-2205498](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202205%20-%20RAN2_118-e,%20Online\Extracts\R2-2205498_(6.11.2.9)%20%5bE066%5d%20Correction%20on%20structure%20of%20UEPositioningAssistInfo%20message%20contents%20for%20reducing%20unnecessary%20data%20transmission.docx) [E066] Correction on structure of UEPositioningAssistInfo message contents for reducing unnecessary data transmission Samsung R&D Institute UK discussion

[R2-2205585](file:///C:\Users\mtk16923\Documents\3GPP%20Meetings\202205%20-%20RAN2_118-e,%20Online\Extracts\R2-2205585%20Discussion%20on%20positioning%20RRC%20ASN.1%20issues.docx) Discussion on positioning RRC ASN.1 issues vivo discussion Rel-17 NR\_pos\_enh-Core

# 2 Contact Information

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| --- | --- |
| Company | Contact: Name (E-mail) |
| Huawei, HiSilicon | Yinghao Guo (yinghaoguo@huawei.com) |
| CATT | Jianxiang Li (lijianxiang@catt.cn) |
| Samsung | June Hwang (june77.hwang@samsung.com) |
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# 3 Comments

## 3.1 Moving TEG Reporting Configuration from SRS-Config to RRCReconfig

For RIL E064 [R2-2205811](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205811.zip)

The CR provides the motivation as why TEG reporting should be decouple from SRS-Config and the corresponding changes.

**Please provide the comments on the RIL E064 here:**

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| Company | CR Acceptable (Yes/No) | Comments |
| Qualcomm | No | This has been discussed and agreed previously and keeping it in the SRS config looks more clear and simpler, since only applicable to SRS. |
| Huawei, HiSilicon | Yes | This report should be a per UE report. No need to configure it under BWP |
| CATT | Yes | Agree with Huawei |
| Apple | Yes |  |
| Xiaomi | Yes |  |
| vivo | Yes |  |
| Samsung | No | By quoting QC’s comment that this is already discussed and agreed, then we think keeping current structure doesn’t do harm, and also agree with that this is only for SRS configuration. |
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## **3.2** [H568] Correction for periodic TEG reporting

[R2-2204998](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2204998.zip) provides the changes on how to capture the periodic TEG reporting. Pls check the current rapporteur CR (R2-22xxxxx RRC Positioning CR\_v00) and express if any particular details from R2-2204998 is still needed.

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| OPTION 15.7.14.2 Initiation A UE capable of providing the association between UL SRS Resource for positioning and UE Tx TEG ID in RRC\_CONNECTED may initiate the procedure upon being configured to provide this association information.  Upon initiation of the procedure, the UE shall:  1> initiate transmission of the UEPositioningAssistanceInfo message in accordance with 5.7.14.3 to provide the association. 5.7.14.3 Actions related to transmission of *UEPositioningAssistanceInfo* message The UE shall set the contents of the *UEPositioningAssistanceInfo* message as follows:  1> if transmission of the *UEPositioningAssistanceInfo* message is initiated to provide the association between UL SRS Resource for positioning and Tx TEG according to 5.7.14.2;  2> if *ue-TxTEG-RequestUL-TDOA-Config* in *SRS-Config IE* is configured with *periodicReporting*;  3> include *ue-TxTEG-AssociationList* in the *UEPositioningAssistanceInfo* message on expiry of each configured period;  2> else if *ue-TxTEG-RequestUL-TDOA-Config* in *SRS-Config IE* is configured with *oneShot*:  3> include *ue-TxTEG-AssociationList* in the *UEPositioningAssistanceInfo* message only one time. | OPTION 25.7.14.2 Initiation A UE capable of providing the association between UL SRS Resource for positioning and UE Tx TEG ID in RRC\_CONNECTED may initiate the procedure upon being configured to provide this association information.  Upon initiation of the procedure, the UE shall:  1> initiate transmission of the *UEPositioningAssistanceInfo* message in accordance with 5.7.14.3 to provide the association.  1> if the UE is configured with *periodicReporting* within the field *ue-TxTEG-RequestUL-TDOA-Config*:  2> start the periodical reporting timer with the value of *periodicReporting* as defined within the field *ue-TxTEG-RequestUL-TDOA-Config*  The UE shall:  1> upon expiry of the periodical reporting timer:  2> initiate the reporting procedure for UE Tx TEG assocaition, as specified in 5.7.14.3.  2> re-start the periodical reporting timer with the value of *periodicReporting* as defined within the field *ue-TxTEG-RequestUL-TDOA-Config.* 5.7.14.3 Actions related to transmission of *UEPositioningAssistanceInfo* message The UE shall set the contents of the *UEPositioningAssistanceInfo* message as follows:  1> if *oneShot* is configured within the field *ue-TxTEG-RequestUL-TDOA-Config*; or  1> if *periodicReporting* is configured within the field *ue-TxTEG-RequestUL-TDOA-Config* and this is the first transmission of *UEPositioningInfo* message after initiation:  2> include in *ue-TxTEG-AssociationList* in the *UEPositioningAssistanceInfo* messagethe association between UL-SRS resources for positioning and the UE Tx TEG at the time when the configuration is received;  1> if *periodicReporting* is configured within the field *ue-TxTEG-RequestUL-TDOA-Config* and this is not the first transmission of *UEPositioningInfo* message after initiation:  2> include in the *ue-TxTEG-AssocaitionList* in the *UEPositioningAssistanceInfo* the associations between the UL-SRS resources for positioning and the UE Tx TEG since the last transmission of the *UEPositioningAssistanceInfo*. |

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| Company | Which version is preferred (Option 1 or Option 2) | Comments |
| Huawei, HiSIlicon | OPTION1 | 5.7.14.2 is used to capture the conditions for Initiation |
| CATT | Option 1 | No need to specify the report timer here. |
| Apple | Option 1, but see comments | There is an ongoing discussion in the other thread about periodic reporting, so need to check the status of that discussion before agreeing |
| Xiaomi | Option 1 | For the option 2 on 5.7.14.3, we think this is correct understanding, but it is not needed to capture it in the spec. |
| vivo | Option 1, see comments | ue-TxTEG-RequestUL-TDOA-Config will not be configured in SRS-Config IE if it is moved to RRCReconfiguration. |
| Samsung | Option 1 |  |
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## 3.3 [E066] Correction on structure of UEPositioningAssistInfo

[R2-2205498](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205498.zip) provides option to have addMod and release list delta style code structure for signaling optimization of TEG reporting.

Companies are requested to provide their view.

Note: SRS-PosResourceSet is however has to be removed from TEG reporting based upon RAN1 LS.

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| Company | CR Acceptable (Yes/No) | Comments |
| Huawei, HiSilicon | NO | AddModList is used for configuration. not for a UL RRC mesage |
| CATT | No | It will bring extra effort to UE to store the previous reports. |
| Apple | No |  |
| Xiaomi | No |  |
| vivo | No |  |
| Samsung | Yes | This optimization doesn’t have only cons as there must be a reduction of data waste for reporting repeated information. However if majority wants to keep the legacy style as commented above, i.e., UL RRC message doesn’t have delta style message etc, we are ok with not pursuing. |
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## 3.4 Discussion on positioning RRC ASN.1 issues

[R2-2205585](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_118-e/Docs/R2-2205585.zip) discuees the need of below two fields and proposes to add it.

UE-TxTEG-Association-r17 ::= SEQUENCE {

ue-TxTEG-ID-r17 INTEGER (1.. maxUE-Tx-TEG-ID-r17),

absoluteFrequencyPointA ARFCN-ValueNR,

offsetToPointA INTEGER (0..2199),

nr-TimeStamp-r17 NR-TimeStamp-r17,

Proposal : Add the *absoluteFrequencyPointA* and *offsetToPointA* in *UE-TxTEG-Association* to provide frequency information about the SRS for positioning resources in multiple CCs.

Do companies agree to the proposal?

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| Company | Proposal Acceptable (Yes/No) | Comments |
| Qualcomm | Yes | This is also missing in current LPP. |
| Huawei, HiSIlicon | No | Serving cell id will be sufficient |
| CATT | Partial | offsetToPointA is not required. |
| Apple | Yes |  |
| Xiaomi | Yes | Fine to add the frequency information based on the RAN1 LS. |
| vivo | Yes, but | Share some sympathy with HW’s comment that cellIndex can be used to identify the frequency information, in this case, the gNB shall transfer it into specific frequency info of SRS when it retransmit the TEG report to LMF. |
| Samsung | Yes | We need to keep the RAN1 indicated information. |
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# 4 Comments For Complete CR “R2-22xxxxx RRC Positioning CR\_v00”

**Please provide the comments on the** [**CR**](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_118-e/Inbox/Drafts/%5BOffline-623%5D%5BPOS%5D%2038331%20positioning%20CR%20(Ericsson)/R2-22xxxxx%20RRC%20Positioning%20CR_v00.docx) **here:**

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| Company | Comments |
| Huawei, HiSilicon | 1> else if cell reselection occurs when *srs-PosRRC\_InactiveConfig* is configured:  2> indicate to the lower layer to stop *srs-TimeAlignmentTimer* transmission in RRC\_INACTIVE;  2> release the *srs-PosRRC-InactiveConfig*.  name of the timer is not correct |
| Qualcomm | DL-PPW-ID-r17 needs to be INTEGER (0..15). It is currently (0...3):  "The maximum number of preconfigured PRS processing window **per DL BWP** is 4"  The constant maxNrofPPW-Config can not be re-used for the PPW ID definition.  The introduction text for *DL-PPW-PreConfig* is not fully correct, and only applicable to Type2.: – *DL-PPW-PreConfig* The IE *DL- PPW-PreConfig* specifies measurement window where a UE may receive data (PDCCH/PDSCH) and CSI-RS while also perform DL-PRS measurements in the configured window.  This should be aligned with RAN1 agreements, e.g.:  The IE *DL-PPW-PreConfig*specifies a measurement window where a UE is expected to measure the DL PRS, if it is inside the active DL BWP and with the same numerology as the active DL BWP, subject to the UE determining that the DL PRS priority is higher than that of the other DL signals or channels; otherwise, the UE is not expected to measure the DL PRS and is expected to receive other DL signals and channels. |
| CATT | 1. In section “4.2.1 UE states and state transitions including inter RAT”  We think the bullet of “Transmission of SRS for Positioning” should be moved under “The UE” part, because this is only related to UE behaviour. Additionally, the “in RRC\_INACTIVE” may be deleted.  **- RRC\_INACTIVE**:  - …   * ~~Transmission of SRS for Positioning in RRC\_INACTIVE.~~   The UE:  - Monitors Short Messages transmitted with P-RNTI over DCI (see clause 6.5);  - ...  - If configured by upper layers for MBS broadcast reception, acquires MCCH change notification and MBS broadcast control information and data.  - Transmission of SRS for Positioning.  2. In section “5.3.8.3 Reception of the *RRCRelease* by the UE”  Expect for *srs-PosConfig*,there are also some other fields in *srs-PosRRC-InactiveConfig*, like BWP and RSRP change thresh information, which are also needed for SRS transmission. So we suggest to modify “*srs-PosConfig*” as “*srs-PosRRC-InactiveConfig*”.  2> if the *srs-PosRRC-InactiveConfig* is configured:  3> instruct MAC to start the *srs-TimeAlignmentTimer* and apply the configuration *srs-PosRRC-InactiveConfig~~srs-PosConfig~~*;  3. In section “5.7.14.3 Actions related to transmission of *UEPositioningAssistanceInfo* message”.  The sentence “The UE shall set the contents of the UEPositioningAssistanceInfo message as follows:” already implied that the transmission of the *UEPositioningAssistanceInfo* message is initiated. So similarly to RIL H568 and B101, we think “1> if transmission of the UEPositioningAssistanceInfo message is initiated to provide the association between UL SRS Resource for positioning and Tx TEG according to 5.7.14.2;” should be also deleted.  The UE shall set the contents of the *UEPositioningAssistanceInfo* message as follows:  ~~1> if transmission of the~~ *~~UEPositioningAssistanceInfo~~* ~~message is initiated to provide the association between UL SRS Resource for positioning and Tx TEG according to 5.7.14.2;~~  ~~2~~1> if *ue-TxTEG-RequestUL-TDOA-Config* in *SRS-Config IE* is configured with *periodicReporting*;  ~~3~~2> include *ue-TxTEG-AssociationList* in the *UEPositioningAssistanceInfo* message on expiry of each configured period;  ~~2~~1> else if *ue-TxTEG-RequestUL-TDOA-Config* in *SRS-Config IE* is configured with *oneShot*:  ~~3~~2> include *ue-TxTEG-AssociationList* in the *UEPositioningAssistanceInfo* message only one time.  4. In section “5.7.14.3 Actions related to transmission of *UEPositioningAssistanceInfo* message”.  The procedure only described to “*ue-TxTEG-AssociationList* in the *UEPositioningAssistanceInfo* message”, however the purpose of this section is to transmit the *UEPositioningAssistanceInfo* message to network, so a step of send this message should be added.  1> if transmission of the *UEPositioningAssistanceInfo* message is initiated to provide the association between UL SRS Resource for positioning and Tx TEG according to 5.7.14.2;  2> if *ue-TxTEG-RequestUL-TDOA-Config* in *SRS-Config IE* is configured with *periodicReporting*;  3> include *ue-TxTEG-AssociationList* in the *UEPositioningAssistanceInfo* message on expiry of each configured period;  2> else if *ue-TxTEG-RequestUL-TDOA-Config* in *SRS-Config IE* is configured with *oneShot*:  3> include *ue-TxTEG-AssociationList* in the *UEPositioningAssistanceInfo* message only one time.  2> submit the *UEPositioningAssistanceInfo* message to lower layers for transmission, upon which the procedure ends. |
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# Conclusion

In the previous sections we made the following observations: