**3GPP TSG-RAN WG2 Meeting #119 electronic R2-220**

**Electronic, 17th - 29th August, 2022**

Source: Huawei, HiSilicon

Title: [Offline-406][POS] Rel-15 16 positioning RRC (Huawei)

Agenda Item: 5.3.2

Document for: Discussion and Decision

# Introduction

This document provides a summary of the following contributions for R15/R16 RRC corrections for the following email discussion

* [AT119-e][406][POS] Rel-15/16 positioning RRC (Huawei)

 Scope: Evaluate the CRs in R2-2207408/R2-2207561/R2-2207873/R2-2207874/R2-2207875/R2-2207876 and check for agreeability.

 Intended outcome: Agreed CRs

 Deadline: Tuesday 2022-08-23 1200 UTC

The following has been submitted to AI 5.3.2

|  |  |  |
| --- | --- | --- |
| [**R2-2207408**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207408.zip) | Change request about Periodicity in SRSp configuration | vivo |
| [**R2-2207561**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207561.zip) | Change request about Periodicity in SRSp configuration | vivo |
| [**R2-2207873**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207873.zip) | Correction for SRS-PeriodicityAndOffset-R16 | Huawei, HiSilicon |
| [**R2-2207874**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207874.zip) | Correction for SRS-PeriodicityAndOffset-R17 | Huawei, HiSilicon |
| [**R2-2207875**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207875.zip) | Correction for the capability of SRS-PeriodicityAndOffset-R16 | Huawei, HiSilicon |
| [**R2-2207876**](https://www.3gpp.org/ftp/TSG_RAN/WG2_RL2/TSGR2_119-e/Docs/R2-2207876.zip) | Correction for the capability of SRS-PeriodicityAndOffset-R17 | Huawei, HiSilicon |

## Contacts

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| --- | --- | --- |
| Name | Company | Email |
|  |  |  |

# Discussion on SRS periodicities

## Correction to RRC spec

### 2.1.1 SRS periodicity and SCS

In R2-2207873/R2-2207874, it is also mentioned that certain SRS periodicity should only be restricted to certain SCS.



In R2-2207409/R2-2207561, it is mentioned that there are the following restrictions on the periodicity and SCS

|  |
| --- |
| for 30/60/120kHz onlysl20480 INTEGER(0..20479)for 60/120kHz onlysl40960 INTEGER(0..40959)for 120kHz onlysl81920 INTEGER(0..81919) |

Hence, the following change is proposed

***Question1, do companies agree that restriction should be added for RRC spec for the configuration of SRS periodicity that***

* ***Periodicity sl20480 is only applicable for scs of 30/60/120kHz***
* ***Periodicity sl40960 is only applicable for scs of 60/120kHz***
* ***Periodicity sl81920 is only applicable for scs of 120kHz***

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| Intel |  | Should not it be partially covered by the change in R2-2207873 as “For SRS-PosResource, *sl20480*, *sl40960* and *sl81920* cannot be configured for SCS=15kHz, *sl40960* and *sl81920* cannot be configured for SCS=30kHz, and *sl81920* cannot be configured for SCS=60kHz. “? |
| ZTE | Yes |  |
| Qualcomm | Yes | Not essential, but O.K. to merge into another CR. |
| CATT | Yes |  |
| Ericsson | Yes | Same view as QC, can be merged to Huawei CR below |
| vivo | Yes | Agree to follow HW’s version to add the restrictions in the ***periodicityAndOffset*** fields***.***  |

### 2.2.2 Missing SRS periodicities,

In R2-2207873/R2-2207874, it is mentioned that the following agreements have been made regarding the periodicities of SRS configuration.

|  |
| --- |
| Agreement:The following periodicity values of DL PRS resource allocation are supported depending on SCS* $2^{μ}${4, 5, 8, 10, 16, 20, 32, 40, 64, 80, 160, 320, 640, 1280, 2560, 5120, 10240} slots, µ = 0, 1, 2, 3 for SCS 15, 30, 60 and 120kHz respectively
 |

However, for the current list of periodicities, it is found that the values corresponding to 64\*$2^{μ}$ for $μ^{}$=1,2,3 are missing and the values corresponding to $10240\*2^{μ}$ for $μ^{}$=1. Thus, it is proposed that these new values need to be added.

***Question2, do companies agree that the new value for SRS periodicities sl128, sl256, sl512, and sl20480 should be added for periodic and semi-persistent SRS?***

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| Intel | Yes | Looks ok, the space should be removed between extension mark and comma.  |
| ZTE | Yes |  |
| Qualcomm | Yes |  |
| CATT | Yes |  |
| Ericsson | Yes |  |
| vivo | Yes |  |

## Correction to UE capability spec

With the newly introduced SRS periodicity, there are backward compatibility issues that old UE may not support the newly added values.

Then, in R2-2207873/R2-2207874, it is proposed that a new capability is added for the newly added SRS periodicities. The field description for this new capability field is added in R2-2207875/R2-2207876

***Question3: Do companies agree that new capability is needed for the newly added periodicities for SRS?***

|  |  |  |
| --- | --- | --- |
| Company | Yes/No | Comments |
| Intel | Yes | Looks ok, for 306 CR, the suffix -r16 should be added for the field name srs-PeriodicityAndOffsetExt in the field description.  |
| ZTE | Yes |  |
| Qualcomm | Yes |  |
| CATT | Yes | Mulit-RTT positioning will be added in the cover sheet.**Impacted functionality:**UL-TDOA positioning, and UL-AOA positioning |
| Ericsson | Yes |  |
| vivo | Yes |  |

# Conclusion

Based on the summary as above, we propose the following for discussion:

***TBD***