**3GPP TSG-RAN WG1 Meeting #110 *R1-2208022***

**Toulouse, France, August 22 – 26, 2022**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **TS 38.213** | **CR** | 336 | **rev** | **-** | **Current version:** | **17.2.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  | Correction of BWP for SRS |
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| ***Source to WG:*** | Moderator (Huawei), HiSilicon |
| ***Source to TSG:*** | RAN1 |
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| ***Work item code:*** | NR\_pos\_enh-Core |  | ***Date:*** | 2022-08-25 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | The current positioning SRS power control uses BWP of the SRS, which is not fully aligned with the SRS transmission in RRC\_INACTIVE state option 2.RAN2 specification uses “BWP” configuration to contain the SCS/CP and bandwidth, but this virtual BWP does not have any BWP ID, which is different from a regular BWP configuration.SRS-PosRRC-InactiveConfig-r17 ::= SEQUENCE { srs-PosConfigNUL-r17 SRS-PosConfig-r17 OPTIONAL, -- Need R srs-PosConfigSUL-r17 SRS-PosConfig-r17 OPTIONAL, -- Need R bwp-NUL-r17 BWP OPTIONAL, -- Need S bwp-SUL-r17 BWP OPTIONAL, -- Need S inactivePosSRS-TimeAlignmentTimer-r17 TimeAlignmentTimer OPTIONAL, -- Need M inactivePosSRS-RSRP-changeThreshold-r17 RSRP-ChangeThreshold-r17 OPTIONAL -- Need M}To fix this misalignment, the description of SRS power control should be revised. |
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| ***Summary of change:*** | Add description for the applicable BWP for the power control of SRS transmission in RRC\_INACTIVE state. |
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| ***Consequences if not approved:*** | The SRS power control description is not aligned with the INACTIVE state SRS transmission option 2 (outside initial UL BWP). |
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| ***Clauses affected:*** | 7.3.1 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** | **Isolated Impact Analysis:**No inter-operability issue is identified. |
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| ***This CR's revision history:*** |  |

7.3.1 UE behaviour

========================= Unchanged parts =========================

If a UE transmits SRS based on a configuration by *SRS-PosResourceSet* on active UL BWP $b$ of carrier $f$ of serving cell $c$, the UE determines the SRS transmission power $P\_{SRS,b,f,c}\left(i,q\_{s}\right)$ in SRS transmission occasion $i$ as

 [dBm]

where,

- $P\_{O\\_SRS,b,f,c}\left(q\_{s}\right)$ and $α\_{SRS,b,f,c}\left(q\_{s}\right)$ are provided by *p0-r16* and *alpha-r16* respectively, for active UL BWP $b$ of carrier $f$ of serving cell $c$, and SRS resource set $q\_{s}$ is indicated by *SRS-PosResourceSetId* from *SRS-PosResourceSet*, and

- $PL\_{b,f,c}\left(q\_{d}\right)$ is a downlink pathloss estimate in dB calculated by the UE, as described in clause 7.1.1 in case of an active DL BWP of a serving cell $c$, using RS resource indexed $q\_{d}$ in a serving or non-serving cell for SRS resource set $q\_{s}$ [6, TS 38.214]. A configuration for RS resource index $q\_{d}$ associated with SRS resource set $q\_{s}$ is provided by *pathlossReferenceRS-Pos*

- if a *ssb-IndexNcell* is provided, *referenceSignalPower* is provided by *ss-PBCH-BlockPower-r16*

- if a *dl-PRS-ResourceId* is provided, *referenceSignalPower* is provided by *dl-PRS-ResourcePower*

 If the UE is in the RRC\_CONNECTED state and determines that the UE is not able to accurately measure $PL\_{b,f,c}\left(q\_{d}\right)$, or the UE is not provided with *pathlossReferenceRS-Pos*, the UE calculates $PL\_{b,f,c}\left(q\_{d}\right)$ using a RS resource obtained from the SS/PBCH block of the serving cell that the UE uses to obtain *MIB*. If the UE is in the RRC\_INACTIVE state and determines that the UE is not able to accurately measure $PL\_{b,f,c}\left(q\_{d}\right)$, the UE does not transmit SRS for the SRS resource set.

 The UE may indicate a capability for a number of pathloss estimates that the UE can simultaneously maintain for all SRS resource sets provided by *SRS-PosResourceSet* in addition to the up to four pathloss estimates that the UE maintains per serving cell for PUSCH/PUCCH transmissions and for SRS transmissions configured by *SRS-Resource*.

If a UE transmits SRS based on a configuration by *SRS-PosResourceSet* outside initial UL BWP of carrier *f* of serving cell *c* in RRC\_INACTIVE state, the active UL BWP *b* refers to the BWP configuration provided by the higher layer parameter *bwp-NUL* or *bwp-SUL* contained in *SRS-PosRRC-InactiveConfig* for the corresponding carrier.

========================= Unchanged parts =========================