3GPP TSG-RAN WG2 Meeting #124 R2-23xxxx

Chicago, USA, November 13 – 17, 2023

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **38.331** | **CR** | **-** | **rev** | **-** | **Current version:** |  |  |
|  | | | | | | | | |
| *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 on support of BDS B1C SSR broadcasting | | | | | | | | | |
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| ***Source to WG:*** | CATT, CAICT, CMCC, China Telecom, China Unicom, Huawei, ZTE Corporation, MediaTek Inc., OPPO, xiaomi, vivo, Spreadtrum | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_pos\_enh-Core | | | | |  | Date: | | | 2023-10-16 |
|  |  | | | |  | |  | | |  |
| ***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 can be 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)* | |
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| ***Reason for change:*** | | The BDS SSR information for B1I is not the same as BDS SSR information for B1C. To avoid miss-understanding, a note was introduced and clarified that B1I was the default reference signal. But in some region, only BDS B1C SSR information was provided. So it is important to support broadcasting SSR information of B1C.  Considering legacy UE behavior, a new posSibType is defined in LPP spec which to carry BDS SSR information based on B1C. So 38.331 should be corrected accordingly.  **Impact analysis**  Architecture options  NR SA, NSA  Impacted functionality:  PosSIB scheduling.  Inter-operability:  If only the network is implemented according to the CR and the UE is not, no interoperability problems are foreseen.  If only the UE is implemented according to the CR and the network is not, no interoperability problems are foreseen. | | | | | | | | |
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| ***Summary of change:*** | | A new posSibType2-26 is added in *SI-SchedulingInfo* and in *DedicatedSIBRequest*. | | | | | | | | |
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| ***Consequences if not approved:*** | | SSR information of BDS B1C could not be broadcasted. | | | | | | | | |
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| ***Clauses affected:*** | | 6.2.2, 6.3.2 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS37.355 CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| **Start of change** |

### 6.2.2 Message definitions

– *DedicatedSIBRequest*

The *DedicatedSIBRequest* message is used to request SIB(s) required by the UE in RRC\_CONNECTED as specified in clause 5.2.2.3.5.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to Network

***DedicatedSIBRequest message***

-- ASN1START

-- TAG-DEDICATEDSIBREQUEST-START

DedicatedSIBRequest-r16 ::= SEQUENCE {

criticalExtensions CHOICE {

dedicatedSIBRequest-r16 DedicatedSIBRequest-r16-IEs,

criticalExtensionsFuture SEQUENCE {}

}

}

DedicatedSIBRequest-r16-IEs ::= SEQUENCE {

onDemandSIB-RequestList-r16 SEQUENCE {

requestedSIB-List-r16 SEQUENCE (SIZE (1..maxOnDemandSIB-r16)) OF SIB-ReqInfo-r16 OPTIONAL,

requestedPosSIB-List-r16 SEQUENCE (SIZE (1..maxOnDemandPosSIB-r16)) OF PosSIB-ReqInfo-r16 OPTIONAL

} OPTIONAL,

lateNonCriticalExtension OCTET STRING OPTIONAL,

nonCriticalExtension SEQUENCE {} OPTIONAL

}

SIB-ReqInfo-r16 ::= ENUMERATED { sib12, sib13, sib14, sib20-v1700, sib21-v1700, spare3, spare2, spare1 }

PosSIB-ReqInfo-r16 ::= SEQUENCE {

gnss-id-r16 GNSS-ID-r16 OPTIONAL,

sbas-id-r16 SBAS-ID-r16 OPTIONAL,

posSibType-r16 ENUMERATED { posSibType1-1, posSibType1-2, posSibType1-3, posSibType1-4, posSibType1-5, posSibType1-6,

posSibType1-7, posSibType1-8, posSibType2-1, posSibType2-2, posSibType2-3, posSibType2-4,

posSibType2-5, posSibType2-6, posSibType2-7, posSibType2-8, posSibType2-9, posSibType2-10,

posSibType2-11, posSibType2-12, posSibType2-13, posSibType2-14, posSibType2-15,

posSibType2-16, posSibType2-17, posSibType2-18, posSibType2-19, posSibType2-20,

posSibType2-21, posSibType2-22, posSibType2-23, posSibType3-1, posSibType4-1,

posSibType5-1, posSibType6-1, posSibType6-2, posSibType6-3,..., posSibType1-9-v1710,

posSibType1-10-v1710, posSibType2-24-v1710, posSibType2-25-v1710,

posSibType6-4-v1710, posSibType6-5-v1710, posSibType6-6-v1710, posSibType2-26-v1770 }

}

-- TAG-DEDICATEDSIBREQUEST-STOP

-- ASN1STOP

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| ***DedicatedSIBRequest field descriptions*** |
| ***requestedSIB-List***  Contains a list of SIB(s) the UE requests while in RRC\_CONNECTED. |
| ***requestedPosSIB-List***  Contains a list of posSIB(s) the UE requests while in RRC\_CONNECTED. |

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| ***PosSIB-ReqInfo* field descriptions** |
| ***gnss-id***  The presence of this field indicates that the request positioning SIB type is for a specific GNSS. Indicates a specific GNSS (see also TS 37.355 [49]) |
| ***sbas-id***  The presence of this field indicates that the request positioning SIB type is for a specific SBAS. Indicates a specific SBAS (see also TS 37.355 [49]). |

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| **The next change** |

### 6.3.2 Radio resource control information elements

– *SI-SchedulingInfo*

The IE *SI-SchedulingInfo* contains information needed for acquisition of SI messages.

***SI-SchedulingInfo* information element**

-- ASN1START

-- TAG-SI-SCHEDULINGINFO-START

SI-SchedulingInfo ::= SEQUENCE {

schedulingInfoList SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo,

si-WindowLength ENUMERATED {s5, s10, s20, s40, s80, s160, s320, s640, s1280, s2560-v1710, s5120-v1710 },

si-RequestConfig SI-RequestConfig OPTIONAL, -- Cond MSG-1

si-RequestConfigSUL SI-RequestConfig OPTIONAL, -- Cond SUL-MSG-1

systemInformationAreaID BIT STRING (SIZE (24)) OPTIONAL, -- Need R

...

}

SchedulingInfo ::= SEQUENCE {

si-BroadcastStatus ENUMERATED {broadcasting, notBroadcasting},

si-Periodicity ENUMERATED {rf8, rf16, rf32, rf64, rf128, rf256, rf512},

sib-MappingInfo SIB-Mapping

}

SI-SchedulingInfo-v1700 ::= SEQUENCE {

schedulingInfoList2-r17 SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo2-r17,

dummy SI-RequestConfig OPTIONAL

}

SI-SchedulingInfo-v1740 ::= SEQUENCE {

si-RequestConfigRedCap-r17 SI-RequestConfig OPTIONAL -- Cond REDCAP-MSG-1

}

SchedulingInfo2-r17 ::= SEQUENCE {

si-BroadcastStatus-r17 ENUMERATED {broadcasting, notBroadcasting},

si-WindowPosition-r17 INTEGER (1..256),

si-Periodicity-r17 ENUMERATED {rf8, rf16, rf32, rf64, rf128, rf256, rf512},

sib-MappingInfo-r17 SIB-Mapping-v1700

}

SIB-Mapping ::= SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo

SIB-Mapping-v1700 ::= SEQUENCE (SIZE (1..maxSIB)) OF SIB-TypeInfo-v1700

SIB-TypeInfo ::= SEQUENCE {

type ENUMERATED {sibType2, sibType3, sibType4, sibType5, sibType6, sibType7, sibType8, sibType9,

sibType10-v1610, sibType11-v1610, sibType12-v1610, sibType13-v1610,

sibType14-v1610, spare3, spare2, spare1,... },

valueTag INTEGER (0..31) OPTIONAL, -- Cond SIB-TYPE

areaScope ENUMERATED {true} OPTIONAL -- Need S

}

SIB-TypeInfo-v1700 ::= SEQUENCE {

sibType-r17 CHOICE {

type1-r17 ENUMERATED {sibType15, sibType16, sibType17, sibType18, sibType19, sibType20, sibType21,

spare9, spare8, spare7, spare6, spare5, spare4, spare3, spare2, spare1,...},

type2-r17 SEQUENCE {

posSibType-r17 ENUMERATED {posSibType1-9, posSibType1-10, posSibType2-24, posSibType2-25,

posSibType6-4, posSibType6-5, posSibType6-6, posSibType2-26, spare8, spare7, spare6,

spare5, spare4, spare3, spare2, spare1,...},

encrypted-r17 ENUMERATED { true } OPTIONAL, -- Need R

gnss-id-r17 GNSS-ID-r16 OPTIONAL, -- Need R

sbas-id-r17 SBAS-ID-r16 OPTIONAL -- Need R

}

},

valueTag-r17 INTEGER (0..31) OPTIONAL, -- Cond NonPosSIB

areaScope-r17 ENUMERATED {true} OPTIONAL -- Need S

}

-- TAG-SI-SCHEDULINGINFO-STOP

-- ASN1STOP

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| ***SchedulingInfo* field descriptions** |
| ***areaScope***  Indicates that a SIB is area specific. If the field is absent, the SIB is cell specific. |
| ***si-BroadcastStatus***  Indicates if the SI message is being broadcasted or not. Change of *si-BroadcastStat*us should not result in system information change notifications in Short Message transmitted with P-RNTI over DCI (see clause 6.5). The value of the indication is valid until the end of the BCCH modification period when set to *broadcasting.* When *SIB19* is scheduled, the *si-BroadcastStatus* for the mapped *SIB19* is set to *broadcasting*.  If *si-SchedulingInfo-v1700* is present, the network ensures that the total number of SI messages with *si-BroadcastStatus* set to *notBroadcasting* in the list of concatenated SI messages configured by *schedulingInfoList* in *si-SchedulingInfo* and SI messages containing type1 SIB configured by *schedulingInfoList2* in *si-SchedulingInfo-v1700* does not exceed the limit of *maxSI-Message* when *si-RequestConfig*, *si-RequestConfigRedCap* or *si-RequestConfigSUL* is configured. |
| ***si-Periodicity***  Periodicity of the SI-message in radio frames. Value *rf8* corresponds to 8 radio frames, value *rf16* corresponds to 16 radio frames, and so on. |

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| ***SI-SchedulingInfo* field descriptions** |
| ***dummy***  This field is not used in this specification. If received, it is ignored by the UE. |
| ***si-RequestConfig***  Configuration of Msg1 resources that the UE uses for requesting SI-messages for which *si-BroadcastStatus* is set to *notBroadcasting*. |
| ***si-RequestConfigRedCap***  Configuration of Msg1 resources for *initialUplinkBWP-RedCap*that the RedCap UE uses for requesting SI-messages for which *si-BroadcastStatus* is set to *notBroadcasting*. |
| ***si-RequestConfigSUL***  Configuration of Msg1 resources that the UE uses for requesting SI-messages for which *si-BroadcastStatus* is set to *notBroadcasting*. |
| ***si-WindowLength***  The length of the SI scheduling window. Value *s5* corresponds to 5 slots, value *s10* corresponds to 10 slots and so on. The network always configures *si-WindowLength* to be shorter than or equal to the *si-Periodicity*. The values *s2560-v1710* and *s5120-v1710* are only applicable for SCS 480 kHz. |
| ***systemInformationAreaID***  Indicates the system information area that the cell belongs to, if any. Any SIB with *areaScope* within the SI is considered to belong to this *systemInformationAreaID*. The systemInformationAreaID is unique within a PLMN/SNPN. |

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| ***SchedulingInfo2* field descriptions** |
| ***encrypted***  The presence of this field indicates that the pos-sib-type is encrypted as specified in TS 37.355 [49]. |
| ***gnss-id***  The presence of this field indicates that the positioning SIB type is for a specific GNSS. Indicates a specific GNSS (see also TS 37.355 [49]) |
| ***posSibType***  The posSIBs as defined in TS 37.355 [49] mapped to SI for scheduling using*schedulingInfoList2*. |
| ***sbas-id***  The presence of this field indicates that the positioning SIB type is for a specific SBAS. Indicates a specific SBAS (see also TS 37.355 [49]). |
| ***si-WindowPosition***  This field indicates the SI window position of the associated SI-message. The network provides *si-WindowPosition* in an ascending order, i.e. *si-WindowPosition* in the subsequent entry in *schedulingInfoList2* has always value higher than in the previous entry of *schedulingInfoList2*. The network configures this field in a way that ensures that SI messages scheduled by *schedulingInfoList* and/or *posSchedulingInfoList* do not overlap with SI messages scheduled by *schedulingInfoList2*. |
| ***sib-MappingInfo***  Indicates which SIBs or posSIBs are contained in the SI message. |
| ***sibType***  The type of SIB(s) mapped to SI for scheduling using*schedulingInfoList2*. Value *type1* indicates SIBs and value *type2* indicates posSIBs. |

| **Conditional presence** | **Explanation** |
| --- | --- |
| *MSG-1* | The field is optionally present, Need R, if *si-BroadcastStatus* is set to *notBroadcasting* for any SI-message included in *schedulingInfoList* oranySI-message containing type1 SIB included in *schedulingInfoList2*. It is absent otherwise. |
| *SIB-TYPE* | The field is mandatory present if the SIB type is different from *SIB6*, *SIB7* or *SIB8*. For *SIB6*, *SIB7* and *SIB8* it is absent. |
| *NonPosSIB* | The field is mandatory present if the SIB type is *type1*. For *type2* it is absent. |
| *SUL-MSG-1* | The field is optionally present, Need R, if *supplementaryUplink* is configured in *ServingCellConfigCommonSIB* and if *si-BroadcastStatus* is set to *notBroadcasting* for any SI-message included in *schedulingInfoList* oranySI-message containing type1 SIB included in *schedulingInfoList2*. It is absent otherwise. |
| *REDCAP-MSG-1* | The field is optionally present, Need R, if *initialUplinkBWP-RedCap* is configured in *UplinkConfigCommonSIB* and if *si-BroadcastStatus* is set to *notBroadcasting* for any SI-message included in *schedulingInfoList* oranySI-message containing type1 SIB included in *schedulingInfoList2*. It is absent otherwise. |

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| **The end** |