**3GPP TSG-RAN2 Meeting #109-e *R2-2000xxx***

**Online, , 24th Feb 2020 - 6th Mar 2020**

|  |
| --- |
| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **36.331** | **CR** | **4137** | **rev** | **5** | **Current version:** | **15.8.0** |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed changeaffects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | CR of TS 36.331 for introducing NavIC in LTE – core part |
|  |  |
| ***Source to WG:*** | Reliance Jio, CEWiT, Huawei, ISRO, MediaTek Inc., Qualcomm Incorporated, Saankhya Labs Private Limited, Tejas Networks Ltd. |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | LCS\_NAVIC-Core |  | ***Date:*** | 2020-01-28 |
|  |  |  |  |  |
| ***Category:*** | B |  | ***Release:*** | Rel-16 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | Introduce the network-assisted NAVigation with Indian Constellation(NavIC) positioning method in LTE |
|  |  |
| ***Summary of change:*** | NavIC Navigation Satellite System position related information is introduced.1. Navic added to the VictimSystemType sequence in section 6.2.2.
2. New position Sib Type 2 introduced for NavIC in section 6.2.2.
3. NavicGNSS-ID enumerated under section 6.3.6

- Migrated the CR to latest version of specification.- NavIC PosSIBType2 numbers updated as per outcome of PosSIB numbering harmonisation exercise. |
|  |  |
| ***Consequences if not approved:*** | Network-assisted NAVigation with Indian Constellation(NavIC) positioning method will not be supported in LTE. |
|  |  |
| ***Clauses affected:*** | 6.2.2, 6.3.6 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 37.355, TS 36.305  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Revision of R2-2000157 |

----------------------------Start of change----------------------

### 6.2.2 Message definitions

**< Unchanged parts are omitted >**

#### *– InDeviceCoexIndication*

The *InDeviceCoexIndication* message is used to inform E-UTRAN about IDC problems which can not be solved by the UE itself, as well as to provide information that may assist E-UTRAN when resolving these problems.

Signalling radio bearer: SRB1

RLC-SAP: AM

Logical channel: DCCH

Direction: UE to E‑UTRAN

*InDeviceCoexIndication message*

-- ASN1START

InDeviceCoexIndication-r11 ::= SEQUENCE {

 criticalExtensions CHOICE {

 c1 CHOICE {

 inDeviceCoexIndication-r11 InDeviceCoexIndication-r11-IEs,

 spare3 NULL, spare2 NULL, spare1 NULL

 },

 criticalExtensionsFuture SEQUENCE {}

 }

}

InDeviceCoexIndication-r11-IEs ::= SEQUENCE {

 affectedCarrierFreqList-r11 AffectedCarrierFreqList-r11 OPTIONAL,

 tdm-AssistanceInfo-r11 TDM-AssistanceInfo-r11 OPTIONAL,

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension InDeviceCoexIndication-v11d0-IEs OPTIONAL

}

InDeviceCoexIndication-v11d0-IEs ::= SEQUENCE {

 ul-CA-AssistanceInfo-r11 SEQUENCE {

 affectedCarrierFreqCombList-r11 AffectedCarrierFreqCombList-r11 OPTIONAL,

 victimSystemType-r11 VictimSystemType-r11

 } OPTIONAL,

 nonCriticalExtension InDeviceCoexIndication-v1310-IEs OPTIONAL

}

InDeviceCoexIndication-v1310-IEs ::= SEQUENCE {

 affectedCarrierFreqList-v1310 AffectedCarrierFreqList-v1310 OPTIONAL,

 affectedCarrierFreqCombList-r13 AffectedCarrierFreqCombList-r13 OPTIONAL,

 nonCriticalExtension InDeviceCoexIndication-v1360-IEs OPTIONAL

}

InDeviceCoexIndication-v1360-IEs ::= SEQUENCE {

 hardwareSharingProblem-r13 ENUMERATED {true} OPTIONAL,

 nonCriticalExtension InDeviceCoexIndication-v1530-IEs OPTIONAL

}

InDeviceCoexIndication-v1530-IEs ::= SEQUENCE {

 mrdc-AssistanceInfo-r15 MRDC-AssistanceInfo-r15 OPTIONAL,

 nonCriticalExtension InDeviceCoexIndication-v16xy-IEs OPTIONAL

}

InDeviceCoexIndication-v16xy-IEs::= SEQUENCE {

 victimSystemType-v16xy VictimSystemType-v16xy,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

AffectedCarrierFreqList-r11 ::= SEQUENCE (SIZE (1..maxFreqIDC-r11)) OF AffectedCarrierFreq-r11

AffectedCarrierFreqList-v1310 ::= SEQUENCE (SIZE (1..maxFreqIDC-r11)) OF AffectedCarrierFreq-v1310

AffectedCarrierFreq-r11 ::= SEQUENCE {

 carrierFreq-r11 MeasObjectId,

 interferenceDirection-r11 ENUMERATED {eutra, other, both, spare}

}

AffectedCarrierFreq-v1310 ::= SEQUENCE {

 carrierFreq-v1310 MeasObjectId-v1310 OPTIONAL

}

AffectedCarrierFreqCombList-r11 ::= SEQUENCE (SIZE (1..maxCombIDC-r11)) OF AffectedCarrierFreqComb-r11

AffectedCarrierFreqCombList-r13 ::= SEQUENCE (SIZE (1..maxCombIDC-r11)) OF AffectedCarrierFreqComb-r13

AffectedCarrierFreqComb-r11 ::= SEQUENCE (SIZE (2..maxServCell-r10)) OF MeasObjectId

AffectedCarrierFreqComb-r13 ::= SEQUENCE (SIZE (2..maxServCell-r13)) OF MeasObjectId-r13

TDM-AssistanceInfo-r11 ::= CHOICE {

 drx-AssistanceInfo-r11 SEQUENCE {

 drx-CycleLength-r11 ENUMERATED {sf40, sf64, sf80, sf128, sf160,

 sf256, spare2, spare1},

 drx-Offset-r11 INTEGER (0..255) OPTIONAL,

 drx-ActiveTime-r11 ENUMERATED {sf20, sf30, sf40, sf60, sf80,

 sf100, spare2, spare1}

 },

 idc-SubframePatternList-r11 IDC-SubframePatternList-r11,

 ...

}

IDC-SubframePatternList-r11 ::= SEQUENCE (SIZE (1..maxSubframePatternIDC-r11)) OF IDC-SubframePattern-r11

IDC-SubframePattern-r11 ::= CHOICE {

 subframePatternFDD-r11 BIT STRING (SIZE (4)),

 subframePatternTDD-r11 CHOICE {

 subframeConfig0-r11 BIT STRING (SIZE (70)),

 subframeConfig1-5-r11 BIT STRING (SIZE (10)),

 subframeConfig6-r11 BIT STRING (SIZE (60))

 },

 ...

}

VictimSystemType-r11 ::= SEQUENCE {

 gps-r11 ENUMERATED {true} OPTIONAL,

 glonass-r11 ENUMERATED {true} OPTIONAL,

 bds-r11 ENUMERATED {true} OPTIONAL,

 galileo-r11 ENUMERATED {true} OPTIONAL,

 wlan-r11 ENUMERATED {true} OPTIONAL,

 bluetooth-r11 ENUMERATED {true} OPTIONAL

}

VictimSystemType-v16xy ::= SEQUENCE {

 navic-r16 ENUMERATED {true} OPTIONAL,

}

MRDC-AssistanceInfo-r15 ::= SEQUENCE {

 affectedCarrierFreqCombInfoListMRDC-r15 SEQUENCE (SIZE (1..maxCombIDC-r11)) OF AffectedCarrierFreqCombInfoMRDC-r15,

 ...

}

AffectedCarrierFreqCombInfoMRDC-r15 ::= SEQUENCE {

 victimSystemType-r15 VictimSystemType-r11,

 interferenceDirectionMRDC-r15 ENUMERATED {eutra-nr, nr, other, eutra-nr-other,

 nr-other, spare3, spare2, spare1},

 affectedCarrierFreqCombMRDC-r15 SEQUENCE {

 affectedCarrierFreqCombEUTRA-r15 AffectedCarrierFreqComb-r15 OPTIONAL,

 affectedCarrierFreqCombNR-r15 AffectedCarrierFreqCombNR-r15

 } OPTIONAL

}

AffectedCarrierFreqComb-r15 ::= SEQUENCE (SIZE (1..maxServCell-r13)) OF MeasObjectId-r13

AffectedCarrierFreqCombNR-r15 ::= SEQUENCE (SIZE (1..maxServCellNR-r15)) OF ARFCN-ValueNR-r15

-- ASN1STOP

| *InDeviceCoexIndication* field descriptions |
| --- |
| ***AffectedCarrierFreq***If *carrierFreq-v1310* is included, *carrierFreq-r11* is ignored by eNB. |
| ***affectedCarrierFreqCombList***Indicates a list of E-UTRA carrier frequencies that are affected by IDC problems due to Inter-Modulation Distortion and harmonics from E-UTRA when configured with UL CA. *affectedCarrierFreqCombList-r13* is used when more than 5 serving cells are configured or affected combinations contain *MeasObjectId* larger than 32. If *affectedCarrierFreqCombList-r13* is included, *affectedCarrierFreqCombList-r11* shall not be included. |
| ***affectedCarrierFreqCombMRDC***Indicates a set of at least one NR carrier frequency and optionally one or more E-UTRA carrier frequency that is affected by IDC problems due to Inter-Modulation Distortion and harmonics when configured with MR-DC. |
| ***affectedCarrierFreqList***List of E-UTRA carrier frequencies affected by IDC problems. If E-UTRAN includes *affectedCarrierFreqList-v1310* it includes the same number of entries, and listed in the same order, as in *affectedCarrierFreqList-r11*. |
| ***drx-ActiveTime***Indicates the desired active time that the E-UTRAN is recommended to configure. Value in number of subframes. Value sf20 corresponds to 20 subframes, sf30 corresponds to 30 subframes and so on. |
| ***drx-CycleLength***Indicates the desired DRX cycle length that the E-UTRAN is recommended to configure. Value in number of subframes. Value sf40 corresponds to 40 subframes, sf64 corresponds to 64 subframes and so on. |
| ***drx-Offset***Indicates the desired DRX starting offset that the E-UTRAN is recommended to configure. The UE shall set the value of drx-Offset smaller than the value of *drx-CycleLength*. The starting frame and subframe satisfy the relation: [(SFN \* 10) + subframe number] modulo (*drx-CycleLength*) = *drx-Offset*. |
| ***hardwareSharingProblem***Indicates whether the UE has hardware sharing problems that the UE cannot solve by itself. The field is present (i.e. value *true*), if the UE has such hardware sharing problems. Otherwise the field is absent. |
| ***idc-SubframePatternList***A list of one or more subframe patterns indicating which HARQ process E-UTRAN is requested to abstain from using. Value 0 indicates that E-UTRAN is requested to abstain from using the subframe. For FDD, the radio frame in which the pattern starts (i.e. the radio frame in which the first/leftmost bit of the *subframePatternFDD* corresponds to subframe #0) occurs when SFN mod 2 = 0. For TDD, the first/leftmost bit corresponds to the subframe #0 of the radio frame satisfying SFN mod x = 0, where x is the size of the bit string divided by 10. The UE shall indicate a subframe pattern that follows HARQ time line, as specified in TS 36.213 [23], i.e, if a subframe is set to 1 in the subframe pattern, also the corresponding subframes carrying the potential UL grant, as specified in TS 36.213 [23], clause 8.0, the UL HARQ retransmission, as specified in TS 36.213 [23], clause 8.0, and the DL/UL HARQ feedback, as specified in TS 36.213 [23], clauses 7.3, 8.3 and 9.1.2, shall be set to 1. |
| ***interferenceDirection***Indicates the direction of IDC interference. Value *eutra* indicates that only E-UTRA is victim of IDC interference, value *other* indicates that only another radio is victim of IDC interference and value *both* indicates that both E-UTRA and another radio are victims of IDC interference. The other radio refers to either the ISM radio or GNSS (see TR 36.816 [63]). |
| ***interferenceDirectionMRDC***Indicates the direction of IDC interference. Value *eutra-nr* indicates E-UTRA and NR is victim, value *nr* indicates NR, value *other* indicates other radio system and so on. The other radio refers to either the ISM radio or GNSS (see TR 36.816 [63]). |
| ***victimSystemType***Indicate the list of victim system types to which IDC interference is caused from E-UTRA when configured with UL CA or from E-UTRA and NR when configured with MR-DC. Value *gps*, *glonass*, *bds* *galileo, and navic* indicates the type of GNSS. Value *wlan* indicates WLAN and value *bluetooth* indicates Bluetooth. |

**< Unchanged parts are omitted >**

#### – *SystemInformation*

The *SystemInformation* message is used to convey one or more System Information Blocks or Positioning System Information Blocks. All the SIBs or posSIBs included are transmitted with the same periodicity. *SystemInformation-BR* and *SystemInformation-MBMS* use the same structure as *SystemInformation.*

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channels: BCCH and BR-BCCH

Direction: E‑UTRAN to UE

*SystemInformation message*

-- ASN1START

SystemInformation-BR-r13 ::= SystemInformation

SystemInformation-MBMS-r14 ::= SystemInformation

SystemInformation ::= SEQUENCE {

 criticalExtensions CHOICE {

 systemInformation-r8 SystemInformation-r8-IEs,

 criticalExtensionsFuture-r15 CHOICE {

 posSystemInformation-r15 PosSystemInformation-r15-IEs,

 criticalExtensionsFuture SEQUENCE {}

 }

 }

}

SystemInformation-r8-IEs ::= SEQUENCE {

 sib-TypeAndInfo SEQUENCE (SIZE (1..maxSIB)) OF CHOICE {

 sib2 SystemInformationBlockType2,

 sib3 SystemInformationBlockType3,

 sib4 SystemInformationBlockType4,

 sib5 SystemInformationBlockType5,

 sib6 SystemInformationBlockType6,

 sib7 SystemInformationBlockType7,

 sib8 SystemInformationBlockType8,

 sib9 SystemInformationBlockType9,

 sib10 SystemInformationBlockType10,

 sib11 SystemInformationBlockType11,

 ...,

 sib12-v920 SystemInformationBlockType12-r9,

 sib13-v920 SystemInformationBlockType13-r9,

 sib14-v1130 SystemInformationBlockType14-r11,

 sib15-v1130 SystemInformationBlockType15-r11,

 sib16-v1130 SystemInformationBlockType16-r11,

 sib17-v1250 SystemInformationBlockType17-r12,

 sib18-v1250 SystemInformationBlockType18-r12,

 sib19-v1250 SystemInformationBlockType19-r12,

 sib20-v1310 SystemInformationBlockType20-r13,

 sib21-v1430 SystemInformationBlockType21-r14,

 sib24-v1530 SystemInformationBlockType24-r15,

 sib25-v1530 SystemInformationBlockType25-r15,

 sib26-v1530 SystemInformationBlockType26-r15

 },

 nonCriticalExtension SystemInformation-v8a0-IEs OPTIONAL

}

SystemInformation-v8a0-IEs ::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

PosSystemInformation-r15-IEs ::= SEQUENCE {

 posSIB-TypeAndInfo-r15 SEQUENCE (SIZE (1..maxSIB)) OF CHOICE {

 posSib1-1-r15 SystemInformationBlockPos-r15,

 posSib1-2-r15 SystemInformationBlockPos-r15,

 posSib1-3-r15 SystemInformationBlockPos-r15,

 posSib1-4-r15 SystemInformationBlockPos-r15,

 posSib1-5-r15 SystemInformationBlockPos-r15,

 posSib1-6-r15 SystemInformationBlockPos-r15,

 posSib1-7-r15 SystemInformationBlockPos-r15,

 posSib2-1-r15 SystemInformationBlockPos-r15,

 posSib2-2-r15 SystemInformationBlockPos-r15,

 posSib2-3-r15 SystemInformationBlockPos-r15,

 posSib2-4-r15 SystemInformationBlockPos-r15,

 posSib2-5-r15 SystemInformationBlockPos-r15,

 posSib2-6-r15 SystemInformationBlockPos-r15,

 posSib2-7-r15 SystemInformationBlockPos-r15,

 posSib2-8-r15 SystemInformationBlockPos-r15,

 posSib2-9-r15 SystemInformationBlockPos-r15,

 posSib2-10-r15 SystemInformationBlockPos-r15,

 posSib2-11-r15 SystemInformationBlockPos-r15,

 posSib2-12-r15 SystemInformationBlockPos-r15,

 posSib2-13-r15 SystemInformationBlockPos-r15,

 posSib2-14-r15 SystemInformationBlockPos-r15,

 posSib2-15-r15 SystemInformationBlockPos-r15,

 posSib2-16-r15 SystemInformationBlockPos-r15,

 posSib2-17-r15 SystemInformationBlockPos-r15,

 posSib2-18-r15 SystemInformationBlockPos-r15,

 posSib2-19-r15 SystemInformationBlockPos-r15,

 posSib3-1-r15 SystemInformationBlockPos-r15,

 ... ,

 posSib2-24-r16 SystemInformationBlockPos-r15,

 posSib2-25-r16 SystemInformationBlockPos-r15

 },

 lateNonCriticalExtension OCTET STRING OPTIONAL,

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- ASN1STOP

#### – *SystemInformationBlockType1*

*SystemInformationBlockType1* contains information relevant when evaluating if a UE is allowed to access a cell and defines the scheduling of other system information. *SystemInformationBlockType1-BR* uses the same structure as *SystemInformationBlockType1*.

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channels: BCCH and BR-BCCH

Direction: E‑UTRAN to UE

*SystemInformationBlockType1 message*

-- ASN1START

SystemInformationBlockType1-BR-r13 ::= SystemInformationBlockType1

SystemInformationBlockType1 ::= SEQUENCE {

 cellAccessRelatedInfo SEQUENCE {

 plmn-IdentityList PLMN-IdentityList,

 trackingAreaCode TrackingAreaCode,

 cellIdentity CellIdentity,

 cellBarred ENUMERATED {barred, notBarred},

 intraFreqReselection ENUMERATED {allowed, notAllowed},

 csg-Indication BOOLEAN,

 csg-Identity CSG-Identity OPTIONAL -- Need OR

 },

 cellSelectionInfo SEQUENCE {

 q-RxLevMin Q-RxLevMin,

 q-RxLevMinOffset INTEGER (1..8) OPTIONAL -- Need OP

 },

 p-Max P-Max OPTIONAL, -- Need OP

 freqBandIndicator FreqBandIndicator,

 schedulingInfoList SchedulingInfoList,

 tdd-Config TDD-Config OPTIONAL, -- Cond TDD

 si-WindowLength ENUMERATED {

 ms1, ms2, ms5, ms10, ms15, ms20,

 ms40},

 systemInfoValueTag INTEGER (0..31),

 nonCriticalExtension SystemInformationBlockType1-v890-IEs OPTIONAL

}

SystemInformationBlockType1-v890-IEs::= SEQUENCE {

 lateNonCriticalExtension OCTET STRING (CONTAINING SystemInformationBlockType1-v8h0-IEs) OPTIONAL,

 nonCriticalExtension SystemInformationBlockType1-v920-IEs OPTIONAL

}

-- Late non critical extensions

SystemInformationBlockType1-v8h0-IEs ::= SEQUENCE {

 multiBandInfoList MultiBandInfoList OPTIONAL, -- Need OR

 nonCriticalExtension SystemInformationBlockType1-v9e0-IEs OPTIONAL

}

SystemInformationBlockType1-v9e0-IEs ::= SEQUENCE {

 freqBandIndicator-v9e0 FreqBandIndicator-v9e0 OPTIONAL, -- Cond FBI-max

 multiBandInfoList-v9e0 MultiBandInfoList-v9e0 OPTIONAL, -- Cond mFBI-max

 nonCriticalExtension SystemInformationBlockType1-v10j0-IEs OPTIONAL

}

SystemInformationBlockType1-v10j0-IEs ::= SEQUENCE {

 freqBandInfo-r10 NS-PmaxList-r10 OPTIONAL, -- Need OR

 multiBandInfoList-v10j0 MultiBandInfoList-v10j0 OPTIONAL, -- Need OR

 nonCriticalExtension SystemInformationBlockType1-v10l0-IEs OPTIONAL

}

SystemInformationBlockType1-v10l0-IEs ::= SEQUENCE {

 freqBandInfo-v10l0 NS-PmaxList-v10l0 OPTIONAL, -- Need OR

 multiBandInfoList-v10l0 MultiBandInfoList-v10l0 OPTIONAL, -- Need OR

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

-- Regular non critical extensions

SystemInformationBlockType1-v920-IEs ::= SEQUENCE {

 ims-EmergencySupport-r9 ENUMERATED {true} OPTIONAL, -- Need OR

 cellSelectionInfo-v920 CellSelectionInfo-v920 OPTIONAL, -- Cond RSRQ

 nonCriticalExtension SystemInformationBlockType1-v1130-IEs OPTIONAL

}

SystemInformationBlockType1-v1130-IEs ::= SEQUENCE {

 tdd-Config-v1130 TDD-Config-v1130 OPTIONAL, -- Cond TDD-OR

 cellSelectionInfo-v1130 CellSelectionInfo-v1130 OPTIONAL, -- Cond WB-RSRQ

 nonCriticalExtension SystemInformationBlockType1-v1250-IEs OPTIONAL

}

SystemInformationBlockType1-v1250-IEs ::= SEQUENCE {

 cellAccessRelatedInfo-v1250 SEQUENCE {

 category0Allowed-r12 ENUMERATED {true} OPTIONAL -- Need OP

 },

 cellSelectionInfo-v1250 CellSelectionInfo-v1250 OPTIONAL, -- Cond RSRQ2

 freqBandIndicatorPriority-r12 ENUMERATED {true} OPTIONAL, -- Cond mFBI

 nonCriticalExtension SystemInformationBlockType1-v1310-IEs OPTIONAL

}

SystemInformationBlockType1-v1310-IEs ::= SEQUENCE {

 hyperSFN-r13 BIT STRING (SIZE (10)) OPTIONAL, -- Need OR

 eDRX-Allowed-r13 ENUMERATED {true} OPTIONAL, -- Need OR

 cellSelectionInfoCE-r13 CellSelectionInfoCE-r13 OPTIONAL, -- Need OP

 bandwidthReducedAccessRelatedInfo-r13 SEQUENCE {

 si-WindowLength-BR-r13 ENUMERATED {

 ms20, ms40, ms60, ms80, ms120,

 ms160, ms200, spare},

 si-RepetitionPattern-r13 ENUMERATED {everyRF, every2ndRF, every4thRF,

 every8thRF},

 schedulingInfoList-BR-r13 SchedulingInfoList-BR-r13 OPTIONAL, -- Cond SI-BR

 fdd-DownlinkOrTddSubframeBitmapBR-r13 CHOICE {

 subframePattern10-r13 BIT STRING (SIZE (10)),

 subframePattern40-r13 BIT STRING (SIZE (40))

 } OPTIONAL, -- Need OP

 fdd-UplinkSubframeBitmapBR-r13 BIT STRING (SIZE (10)) OPTIONAL, -- Need OP

 startSymbolBR-r13 INTEGER (1..4),

 si-HoppingConfigCommon-r13 ENUMERATED {on,off},

 si-ValidityTime-r13 ENUMERATED {true} OPTIONAL, -- Need OP

 systemInfoValueTagList-r13 SystemInfoValueTagList-r13 OPTIONAL -- Need OR

 } OPTIONAL, -- Cond BW-reduced

 nonCriticalExtension SystemInformationBlockType1-v1320-IEs OPTIONAL

}

SystemInformationBlockType1-v1320-IEs ::= SEQUENCE {

 freqHoppingParametersDL-r13 SEQUENCE {

 mpdcch-pdsch-HoppingNB-r13 ENUMERATED {nb2, nb4} OPTIONAL, -- Need OR

 interval-DLHoppingConfigCommonModeA-r13 CHOICE {

 interval-FDD-r13 ENUMERATED {int1, int2, int4, int8},

 interval-TDD-r13 ENUMERATED {int1, int5, int10, int20}

 } OPTIONAL, -- Need OR

 interval-DLHoppingConfigCommonModeB-r13 CHOICE {

 interval-FDD-r13 ENUMERATED {int2, int4, int8, int16},

 interval-TDD-r13 ENUMERATED { int5, int10, int20, int40}

 } OPTIONAL, -- Need OR

 mpdcch-pdsch-HoppingOffset-r13 INTEGER (1..maxAvailNarrowBands-r13) OPTIONAL -- Need OR

 } OPTIONAL, -- Cond Hopping

 nonCriticalExtension SystemInformationBlockType1-v1350-IEs OPTIONAL

}

SystemInformationBlockType1-v1350-IEs ::= SEQUENCE {

 cellSelectionInfoCE1-r13 CellSelectionInfoCE1-r13 OPTIONAL, -- Need OP

 nonCriticalExtension SystemInformationBlockType1-v1360-IEs OPTIONAL

}

SystemInformationBlockType1-v1360-IEs ::= SEQUENCE {

 cellSelectionInfoCE1-v1360 CellSelectionInfoCE1-v1360 OPTIONAL, -- Cond QrxlevminCE1

 nonCriticalExtension SystemInformationBlockType1-v1430-IEs OPTIONAL

}

SystemInformationBlockType1-v1430-IEs ::= SEQUENCE {

 eCallOverIMS-Support-r14 ENUMERATED {true} OPTIONAL, -- Need OR

 tdd-Config-v1430 TDD-Config-v1430 OPTIONAL, -- Cond TDD-OR

 cellAccessRelatedInfoList-r14 SEQUENCE (SIZE (1..maxPLMN-1-r14)) OF

 CellAccessRelatedInfo-r14 OPTIONAL, -- Need OR

 nonCriticalExtension SystemInformationBlockType1-v1450-IEs OPTIONAL

}

SystemInformationBlockType1-v1450-IEs ::= SEQUENCE {

 tdd-Config-v1450 TDD-Config-v1450 OPTIONAL, -- Cond TDD-OR

 nonCriticalExtension SystemInformationBlockType1-v1530-IEs OPTIONAL

}

SystemInformationBlockType1-v1530-IEs ::= SEQUENCE {

 hsdn-Cell-r15 ENUMERATED {true} OPTIONAL, -- Need OR

 cellSelectionInfoCE-v1530 CellSelectionInfoCE-v1530 OPTIONAL, -- Need OP

 crs-IntfMitigConfig-r15 CHOICE {

 crs-IntfMitigEnabled-15 NULL,

 crs-IntfMitigNumPRBs-r15 ENUMERATED {n6, n24}

 } OPTIONAL, -- Need OR

 cellBarred-CRS-r15 ENUMERATED {barred, notBarred},

 plmn-IdentityList-v1530 PLMN-IdentityList-v1530 OPTIONAL, -- Need OR

 posSchedulingInfoList-r15 PosSchedulingInfoList-r15 OPTIONAL, -- Need OR

 cellAccessRelatedInfo-5GC-r15 SEQUENCE {

 cellBarred-5GC-r15 ENUMERATED {barred, notBarred},

 cellBarred-5GC-CRS-r15 ENUMERATED {barred, notBarred},

 cellAccessRelatedInfoList-5GC-r15 SEQUENCE (SIZE (1..maxPLMN-r11)) OF

 CellAccessRelatedInfo-5GC-r15

 } OPTIONAL, -- Need OP

 ims-EmergencySupport5GC-r15 ENUMERATED {true} OPTIONAL, -- Need OR

 eCallOverIMS-Support5GC-r15 ENUMERATED {true} OPTIONAL, -- Need OR

 nonCriticalExtension SystemInformationBlockType1-v1540-IEs OPTIONAL

}

SystemInformationBlockType1-v1540-IEs ::= SEQUENCE {

 si-posOffset-r15 ENUMERATED {true} OPTIONAL, -- Need ON

 nonCriticalExtension SEQUENCE {} OPTIONAL

}

PLMN-IdentityList ::= SEQUENCE (SIZE (1..maxPLMN-r11)) OF PLMN-IdentityInfo

PLMN-IdentityInfo ::= SEQUENCE {

 plmn-Identity PLMN-Identity,

 cellReservedForOperatorUse ENUMERATED {reserved, notReserved}

}

PLMN-IdentityList-v1530 ::= SEQUENCE (SIZE (1..maxPLMN-r11)) OF PLMN-IdentityInfo-v1530

PLMN-IdentityInfo-v1530 ::= SEQUENCE {

 cellReservedForOperatorUse-CRS-r15 ENUMERATED {reserved, notReserved}

}

PLMN-IdentityList-r15::= SEQUENCE (SIZE (1..maxPLMN-r11)) OF PLMN-IdentityInfo-r15

PLMN-IdentityInfo-r15 ::= SEQUENCE {

 plmn-Identity-5GC-r15 CHOICE{

 plmn-Identity-r15 PLMN-Identity,

 plmn-Index-r15 INTEGER (1..maxPLMN-r11)

 },

 cellReservedForOperatorUse-r15 ENUMERATED {reserved, notReserved},

 cellReservedForOperatorUse-CRS-r15 ENUMERATED {reserved, notReserved}

}

SchedulingInfoList ::= SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo

SchedulingInfo ::= SEQUENCE {

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

 sib-MappingInfo SIB-MappingInfo

}

SchedulingInfoList-BR-r13 ::= SEQUENCE (SIZE (1..maxSI-Message)) OF SchedulingInfo-BR-r13

SchedulingInfo-BR-r13 ::= SEQUENCE {

 si-Narrowband-r13 INTEGER (1..maxAvailNarrowBands-r13),

 si-TBS-r13 ENUMERATED {b152, b208, b256, b328, b408, b504, b600, b712, b808, b936}

}

SIB-MappingInfo ::= SEQUENCE (SIZE (0..maxSIB-1)) OF SIB-Type

SIB-Type ::= ENUMERATED {

 sibType3, sibType4, sibType5, sibType6,

 sibType7, sibType8, sibType9, sibType10,

 sibType11, sibType12-v920, sibType13-v920,

 sibType14-v1130, sibType15-v1130,

 sibType16-v1130, sibType17-v1250, sibType18-v1250,

 ..., sibType19-v1250, sibType20-v1310, sibType21-v1430,

 sibType24-v1530, sibType25-v1530, sibType26-v1530}

SystemInfoValueTagList-r13 ::= SEQUENCE (SIZE (1..maxSI-Message)) OF SystemInfoValueTagSI-r13

SystemInfoValueTagSI-r13 ::= INTEGER (0..3)

CellSelectionInfo-v920 ::= SEQUENCE {

 q-QualMin-r9 Q-QualMin-r9,

 q-QualMinOffset-r9 INTEGER (1..8) OPTIONAL -- Need OP

}

CellSelectionInfo-v1130 ::= SEQUENCE {

 q-QualMinWB-r11 Q-QualMin-r9

}

CellSelectionInfo-v1250 ::= SEQUENCE {

 q-QualMinRSRQ-OnAllSymbols-r12 Q-QualMin-r9

}

CellAccessRelatedInfo-r14 ::= SEQUENCE {

 plmn-IdentityList-r14 PLMN-IdentityList,

 trackingAreaCode-r14 TrackingAreaCode,

 cellIdentity-r14 CellIdentity

}

CellAccessRelatedInfo-5GC-r15 ::= SEQUENCE {

 plmn-IdentityList-r15 PLMN-IdentityList-r15,

 ran-AreaCode-r15 RAN-AreaCode-r15 OPTIONAL, -- Need OR

 trackingAreaCode-5GC-r15 TrackingAreaCode-5GC-r15,

 cellIdentity-5GC-r15 CellIdentity-5GC-r15

}

CellIdentity-5GC-r15 ::= CHOICE{

 cellIdentity-r15 CellIdentity,

 cellId-Index-r15 INTEGER (1..maxPLMN-r11)

}

PosSchedulingInfoList-r15 ::= SEQUENCE (SIZE (1..maxSI-Message)) OF PosSchedulingInfo-r15

PosSchedulingInfo-r15 ::= SEQUENCE {

 posSI-Periodicity-r15 ENUMERATED {rf8, rf16, rf32, rf64, rf128, rf256, rf512},

 posSIB-MappingInfo-r15 PosSIB-MappingInfo-r15

}

PosSIB-MappingInfo-r15 ::= SEQUENCE (SIZE (1..maxSIB)) OF PosSIB-Type-r15

PosSIB-Type-r15 ::= SEQUENCE {

 encrypted-r15 ENUMERATED { true } OPTIONAL, -- Need OP

 gnss-id-r15 GNSS-ID-r15 OPTIONAL, -- Need OP

 sbas-id-r15 SBAS-ID-r15 OPTIONAL, -- Need OP

 posSibType-r15 ENUMERATED { posSibType1-1,

 posSibType1-2,

 posSibType1-3,

 posSibType1-4,

 posSibType1-5,

 posSibType1-6,

 posSibType1-7,

 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,

 posSibType3-1,

 ... ,

 posSibType2-24,

 posSibType2-25

},

 ...

}

-- ASN1STOP

----------------------------the next change----------------------

### 6.3.6 Other information elements

**< Unchanged parts are omitted >**

#### – *GNSS-ID*

The IE *GNSS-ID* is used to indicate a specific GNSS (see also TS 36.355 [54]).

-- ASN1START

GNSS-ID-r15 ::= SEQUENCE {

 gnss-id-r15 ENUMERATED{gps, sbas, qzss, galileo, glonass, bds,..., navic-v16xy},

 ...

}

-- ASN1STOP

----------------------------End of change----------------------