**3GPP TSG-RAN2 Meeting #129 *R2-250xx***

**Athens, Greece, Feb 17-21, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **5249** | **rev** | **1** | **Current version:** | **18.4.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network | **X** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | SSB position restrictions for less-than-5MHz SCells | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_FR1\_lessthan\_5MHz\_BW\_Ph2-Core | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | RAN4 sent LS in R4-2420383/ R2-2500040 stating that RAN4 has agreed to restrict SSB positions of less-than-5MHz NR SCells to be always on the sync raster and capture the restriction in Tables 5.4.3.1-2 and 5.4.3.1-3 in TS 38.101-1. Restriction applies independent of whether the operation is in CA, NR-DC or EN-DC.  After discussion in RAN2#129, the changes are being introduced from Rel-19 with early implementation possibility from Rel-18. | | | | | | | | |
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| ***Summary of change:*** | | 1. Update the field description of *absoluteFrequencySSB* in *FrequencyInfoDL* in accordance with the RAN4 LS. 2. Add entry in Annex C (informative) for early implemenation from Rel-18.   **Implementation of this CR from Rel-18 will not cause interoperability issues.** | | | | | | | | |
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| ***Consequences if not approved:*** | | The RRC specification remains incomplete. | | | | | | | | |
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| ***Clauses affected:*** | | 6.3.2, Annex C | | | | | | | | |
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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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev ‘1’: Changed to Rel-19 with early implementation from Rel-18.  Rev ‘-’ : Initial version in R2-2500950 | | | | | | | | |

First Change

### 6.3.2 Radio resource control information elements

<<unchanged text skipped>>

#### – *FrequencyInfoDL*

The IE *FrequencyInfoDL* provides basic parameters of a downlink carrier and transmission thereon.

*FrequencyInfoDL* information element

-- ASN1START

-- TAG-FREQUENCYINFODL-START

FrequencyInfoDL ::= SEQUENCE {

absoluteFrequencySSB ARFCN-ValueNR OPTIONAL, -- Cond SpCellAdd

frequencyBandList MultiFrequencyBandListNR,

absoluteFrequencyPointA ARFCN-ValueNR,

scs-SpecificCarrierList SEQUENCE (SIZE (1..maxSCSs)) OF SCS-SpecificCarrier,

...,

[[

referenceCell-r18 ServCellIndex OPTIONAL -- Cond SSBlessSCell

]]

}

-- TAG-FREQUENCYINFODL-STOP

-- ASN1STOP

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| *FrequencyInfoDL* field descriptions |
| ***absoluteFrequencyPointA***  Absolute frequency position of the reference resource block (Common RB 0). Its lowest subcarrier is also known as Point A (see TS 38.211 [16], clause 4.4.4.2). Note that the lower edge of the actual carrier is not defined by this field but rather in the *scs-SpecificCarrierList*. |
| ***absoluteFrequencySSB***  Frequency of the SSB to be used for this serving cell. SSB related parameters (e.g. SSB index) provided for a serving cell refer to this SSB frequency unless mentioned otherwise. The CD-SSB of the PCell is always on the sync raster. The SSB of the SCell supporting 12 PRB, 15 PRB or 20 PRB transmission bandwidth configuration as defined in TS 38.101-1 [15], TS 38.211 [16] and TS 38.213 [13] is always on the sync raster. Frequencies are considered to be on the sync raster if they are also identifiable with a GSCN value (see TS 38.101-1 [15] or TS 38.101-5 [75]). If the field is absent, the SSB related parameters should be absent, e.g. *ssb-PositionsInBurst*, *ssb-periodicityServingCell* and *subcarrierSpacing* in *ServingCellConfigCommon* IE. If the field is absent, the UE obtains timing reference from the intra-band SpCell or intra-band SCell if applicable as described in TS 38.213 [13], clause 4.1, or from the SpCell or an SCell indicated by *referenceCell,* or from the reference serving cell defined in TS 38.133 [14]. This is supported in case the SCell for which the UE obtains the timing reference is in the same or different frequency band as the cell (i.e. the SpCell or the SCell, respectively) from which the UE obtains the timing reference.  For PCell, this field corresponds to the CD-SSB. |
| ***frequencyBandList***  List containing only one frequency band to which this carrier(s) belongs. Multiple values are not supported. |
| ***referenceCell***  Indicates the reference cell, i.e. the cell which provides the timing reference and AGC source for the inter-band SSB-less SCell. If the reference cell is an SCell or PSCell, it should be an activated SCell or activated PSCell.  If this field is absent for an inter-band SSB-less SCell, the reference serving cell is defined in TS 38.133 [14]. |
| ***scs-SpecificCarrierList***  A set of carriers for different subcarrier spacings (numerologies). Defined in relation to Point A. The network configures a *scs-SpecificCarrier* at least for each numerology (SCS) that is used e.g. in a BWP (see TS 38.211 [16], clause 5.3). |

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| Conditional Presence | Explanation |
| *SpCellAdd* | The field is mandatory present if this *FrequencyInfoDL* is for SpCell. Otherwise the field is optionally present, Need S. |
| *SSBlessSCell* | The field is optionally present, Need S, if the inter-band SSB-less SCell is configured for this cell and *absoluteFrequencySSB* is absent. It is absent otherwise, Need R. |

Next Change

Annex C (normative): List of CRs Containing Early Implementable Features and Corrections

This annex lists the Change Requests (CRs) whose changes may be implemented by a UE of an earlier release than which the CR was approved in (i.e. CRs that contain on their coversheets the sentence "Implementation of this CR from Rel-N will not cause interoperability issues").

**Table C-1: List of CRs Containing Early Implementable Features and Corrections**

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| --- | --- | --- | --- | --- |
| **TDoc Number (RP-xxxxxx): CR Title** | **CR Number(s)** | **CR Revision Number(s)** | **Earliest Implementable Release** | **Additional Information** |
| RP-200335: Correction on usage of access category 2 for UAC for RNA update | 1141 | 2 | Release 15 |  |
| RP-201185: Introduction of signalling for high-speed train scenarios | 1464 | 5 | Release 15 |  |
| RP-201216: Release-16 UE capabilities based on RAN1, RAN4 feature lists and RAN2 | 1665 | 2 | Release 15 | Early implementation part is referring to the aspect covered by  - R2-2006203: Extension of CSI-RS capabilities per codebook type  - R2-2006360: Intraband EN\_DC power class expansion for 29 dBm |
| RP-202768: UE behaviour when UL 7.5KHz shift is not supported | 2107 | 2 | Release 15 |  |
| RP-202790: Correction on uac-AccessCategory1-SelectionAssistanceInfo | 2130 | 1 | Release 15 |  |
| RP-211483: Clarification on the initiation of RNA update | 2581 | 1 | Release 15 |  |
| RP-201190: Introduction of eCall over IMS for NR | 1670 | - | Release 15 |  |
| RP-212598: Distinguishing support of extended band n77 | 2810 | 2 | Release 15 |  |
| RP-213342: Duty cycle signalling for power class 1.5 | 2817 | 1 | Release 15 |  |
| RP-213345: CR on 38.331 for introducing UE capability of txDiversity | 2859 | 1 | Release 15 |  |
| RP-220497: Introduction of function for RRM enhancements for Rel-17 NR FR1 HST | 2898 | 2 | Release 16 |  |
| RP-220838: Release-17 UE capabilities based on R1 and R4 feature lists (TS38.331) | 2901 | 1 | Release 15 | Early implementation part is referring to the aspect covered by:  - R2-2203898: Introduction of BCS4 and BCS5  - R2-2203836: Introducing UE capability for power class 5 for FR2 FWA |
| RP-221721: CR on the CBM/IBM reporting-38331 | 2916 | 2 | Release 16 |  |
| RP-221736: Distinguishing support of band n77 restrictions in Canada [n77 Canada] | 3078 | 2 | Release 15 |  |
| RP-222527: Correction to additionalSpectrumEmission for UL CA in n77 for the US | 3476 | - | Release 15 |  |
| RP-222527: Correction to additionalSpectrumEmission for UL CA in n77 for Canada | 3478 | - | Release 15 |  |
| RP-232570: Addition of extended number range for NS value | 3900 | 6 | Release 16 |  |
| RP-233888: Introduction of FR2 FBG2 CA BW classes | 2867 | 6 | Release 15 |  |
| RP-233882: Enhancing SCell A2 event reporting | 4375 | 2 | Release 15 |  |
| RP-233890: PTM retransmission reception for multicast DRX with HARQ feedback disabled [PTM\_ReTx\_Mcast\_HARQ\_Disb] | 4504 | - | Release 17 |  |
| RP-240667: UE capability for Enhanced channel raster | 4445 | 3 | Release 16 |  |
| RP-240658: Introduction of TxDiversity for 2Tx capability | 4639 | 2 | Release 17 |  |
| RP-241543: Introduction of barring exemption for RedCap UEs for emergency calls | 4570 | 4 | Release 17 |  |
| RP-241543: Correction on Redcap 1 Rx and 2 Rx barring | 4632 | 5 | Release 17 |  |
| RP-241544: Correction on TRS in idle and inactive | 4755 | 3 | Release 17 |  |
| RP-241544: Clarification RLM/BFD relaxation and short DRX | 4771 | 2 | Release 17 |  |
| RP-233915: Introduction of further measurement gap enhancements | 4063 | 6 | Release 17 | Early implementation part is referring to all aspects other than effective measurement window. Early implementation also includes the corresponding capability of R2-2311897 (within CR 4510 of RP-233940). |
| RP-243227: Introduction of network signalling of maximum number of UL segments [Max-RRC-SegUL] | 5004 | 3 | Release 16 |  |
| RP-243233: Correction on deprioritisationTimer | 5170 | 2 | Release 15 |  |
| RP-25xxxx: SSB position restrictions for less-than-5MHz SCells | 5249 | X | Release 18 |  |

End of Changes