**3GPP TSG-RAN WG2 Meeting #111 Electronic *R2-2009544***

**Elbonia, 17 – 28 August 2020 *R2-2007065***

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  | **38.331** | **CR** | **1775** | **rev** | **1** | **Current version:** | **16.2.0** |  |
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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:***  | NR CA additional spectrum emission requirements |
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| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | R2 |
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| ***Work item code:*** | NR\_RF\_FR1-Core |  | ***Date:*** | 2020-10-22 |
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| ***Category:*** | B |  | ***Release:*** | 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)* |
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| ***Reason for change:*** | 1. .In the WI NR\_RF\_FR1-Core a support for CA is being added. In LTE we have limitation that for each serving cell of same band a same emission requirements should be configured but this is missing in NR.
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| ***Summary of change:*** | 1. Added missing limitation that same emission requirements should be applied for each uplink carrier on same band and configured value is applicable for all uplink carriers of same band.

**Impact analysis**Impacted functionality: NR CAInter-operability: 1. If the network is implemented according to the CR and the UE is not there are no interoperability problems
2. If the UE is implemented according to the CR and the network is not UE could be configured with invalid configuration
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| ***Consequences if not approved:*** | UE may not apply guard band configuration for DL |
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| ***Clauses affected:*** | 6.3.2 |
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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:*** |  |
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| ***This CR's revision history:*** |  |

#### – *FrequencyInfoUL*

The IE *FrequencyInfoUL* provides basic parameters of an uplink carrier and transmission thereon.

*FrequencyInfoUL* information element

-- ASN1START

-- TAG-FREQUENCYINFOUL-START

FrequencyInfoUL ::= SEQUENCE {

 frequencyBandList MultiFrequencyBandListNR OPTIONAL, -- Cond FDD-OrSUL

 absoluteFrequencyPointA ARFCN-ValueNR OPTIONAL, -- Cond FDD-OrSUL

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

 additionalSpectrumEmission AdditionalSpectrumEmission OPTIONAL, -- Need S

 p-Max P-Max OPTIONAL, -- Need S

 frequencyShift7p5khz ENUMERATED {true} OPTIONAL, -- Cond FDD-TDD-OrSUL-Optional

 ...

}

-- TAG-FREQUENCYINFOUL-STOP

-- ASN1STOP

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| *FrequencyInfoUL* field descriptions |
| ***absoluteFrequencyPointA***Absolute frequency of the reference resource block (Common RB 0). Its lowest subcarrier is also known as Point A. Note that the lower edge of the actual carrier is not defined by this field but rather in the *scs-SpecificCarrierList* (see TS 38.211 [16], clause 4.4.4.2). |
| ***additionalSpectrumEmission***The additional spectrum emission requirements to be applied by the UE on this uplink. If the field is absent, the UE uses value 0 for the *additionalSpectrumEmission* (see TS 38.101-1 [15], table 6.2.3.1-1A, and TS 38.101-2 [39], table 6.2.3.1-2). Network configures the same value in *additionalSpectrumEmission* for all uplink carrier(s) of the same band with UL configured. The *additionalSpectrumEmission* is applicable for all uplink carriers of the same band with UL configured. |
| ***frequencyBandList***List containing only one frequency band to which this carrier(s) belongs. Multiple values are not supported. |
| ***frequencyShift7p5khz***Enable the NR UL transmission with a 7.5 kHz shift to the LTE raster. If the field is absent, the frequency shift is disabled. |
| ***p-Max***Maximum transmit power allowed in this serving cell. The maximum transmit power that the UE may use on this serving cell may be additionally limited by *p-NR-FR1* (configured for the cell group) and by *p-UE-FR1* (configured total for all serving cells operating on FR1). If absent, the UE applies the maximum power according to TS 38.101-1 [15]. Value in dBm. |
| ***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 |
| *FDD-OrSUL* | The field is mandatory present if this *FrequencyInfoUL* is for the paired UL for a DL (defined in a *FrequencyInfoDL*) or if this *FrequencyInfoUL* is for a supplementary uplink (SUL). It is absent, Need R, otherwise (if this *FrequencyInfoUL* is for an unpaired UL (TDD). |
| *FDD-TDD-OrSUL-Optional* | The field is optionally present, Need R, if this *FrequencyInfoUL* is for the paired UL for a DL (defined in a *FrequencyInfoDL*), or if this *FrequencyInfoUL* is for an unpaired UL (TDD) in certain bands (as defined in clause 5.4.2.1 of TS 38.101-1 and in clause 5.4.2.1 of TS 38.104 [12]), or if this *FrequencyInfoUL* is for a supplementary uplink (SUL). It is absent, Need R, otherwise. |

*Next Modified Subclause*