**3GPP TSG-RAN WG2 Meeting #121bis-eR2-2304555**

**Online, 17th – 26th April 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **3968** | **rev** | 1 | **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 to RRC for 71 GHz on channel occupancy duration | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ext\_to\_71GHz-Core | | | | |  | ***Date:*** | | | 2023-04-26 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | 1. Changes for RAN1 LS R1- 2302185   In this LS, RAN1 has informs RAN2 about the below agreements   |  | | --- | | Agreement  The values 120/480/960 kHz can be configured as reference subcarrier spacing in CO-DurationsPerCell-r17, and the values 15/30/60 kHz cannot be configured as reference subcarrier spacing in CO-DurationsPerCell-r17.   * + Send an LS to RAN2 informative of the clarification |   Corresponding update to the field description of *CO-DurationsPerCell* needs to be done. | | | | | | | | |
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| ***Summary of change:*** | | 1. Update the field description of *subcarrierSpacing*in *CO-DurationsPerCell*. Similar changes as other fields *subcarrierSpacing* in RRC have been adopted, i.e., below texts are added to the field description of *subcarrierSpacing*in *CO-DurationsPerCell*   *Only the following values are applicable depending on the used frequency:*  *FR1: 15, 30, or 60 kHz*  *FR2-2: 120, 480, or 960 kHz*  However, values for FR2-1 are not included due to that there is no unlicensed operation in FR2-1 for the moment.  **Impact Analysis**  Impacted 5G architecture options: NR SA, (NG)EN-DC, NE-DC,NR-DC  Impacted functionality:  Group common PDCCH  Inter-operability:  if the network implements the change according to the CR and the UE does not, there is no inter-operability issue since the network will not configure the invalid *subcarrierSpacing* values*.*  If the UE implements the change according to the CR and the network is not, there will be inter-operability issues since the network may configure a *subcarrierSpacing* value in *CO-DurationsPerCell-r17* which the UE doesn’t support. | | | | | | | | |
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| ***Consequences if not approved:*** | | If the change is not approved, the network may configure invalid *subcarrierSpacing* values in *CO-DurationsPerCell-r17* to UE. | | | | | | | | |
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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 ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | | Revision 0: basic changes captured in the CR R2-2302842  Revision 1: wording change: “the used frequency” is changed to “the used frequency range” | | | | | | | | |

*Start of change*

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# 6 Protocol data units, formats and parameters (ASN.1)

## 6.3 RRC information elements

### 6.3.2 Radio resource control information elements

**<<<<Skipped>>>>**

#### – *SlotFormatIndicator*

The IE *SlotFormatIndicator* is used to configure monitoring a Group-Common-PDCCH for Slot-Format-Indicators (SFI).

*SlotFormatIndicator* information element

-- ASN1START

-- TAG-SLOTFORMATINDICATOR-START

SlotFormatIndicator ::= SEQUENCE {

sfi-RNTI RNTI-Value,

dci-PayloadSize INTEGER (1..maxSFI-DCI-PayloadSize),

slotFormatCombToAddModList SEQUENCE (SIZE(1..maxNrofAggregatedCellsPerCellGroup)) OF SlotFormatCombinationsPerCell

OPTIONAL, -- Need N

slotFormatCombToReleaseList SEQUENCE (SIZE(1..maxNrofAggregatedCellsPerCellGroup)) OF ServCellIndex OPTIONAL, -- Need N

...,

[[

availableRB-SetsToAddModList-r16 SEQUENCE (SIZE(1..maxNrofAggregatedCellsPerCellGroup)) OF AvailableRB-SetsPerCell-r16 OPTIONAL, -- Need N

availableRB-SetsToReleaseList-r16 SEQUENCE (SIZE(1..maxNrofAggregatedCellsPerCellGroup)) OF ServCellIndex OPTIONAL, -- Need N

switchTriggerToAddModList-r16 SEQUENCE (SIZE(1..4)) OF SearchSpaceSwitchTrigger-r16 OPTIONAL, -- Need N

switchTriggerToReleaseList-r16 SEQUENCE (SIZE(1..4)) OF ServCellIndex OPTIONAL, -- Need N

co-DurationsPerCellToAddModList-r16 SEQUENCE (SIZE(1..maxNrofAggregatedCellsPerCellGroup)) OF CO-DurationsPerCell-r16 OPTIONAL, -- Need N

co-DurationsPerCellToReleaseList-r16 SEQUENCE (SIZE(1..maxNrofAggregatedCellsPerCellGroup)) OF ServCellIndex OPTIONAL -- Need N

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switchTriggerToAddModListSizeExt-r16 SEQUENCE (SIZE(1..maxNrofAggregatedCellsPerCellGroupMinus4-r16)) OF

SearchSpaceSwitchTrigger-r16 OPTIONAL, -- Need N

switchTriggerToReleaseListSizeExt-r16 SEQUENCE (SIZE(1.. maxNrofAggregatedCellsPerCellGroupMinus4-r16)) OF

ServCellIndex OPTIONAL -- Need N

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co-DurationsPerCellToAddModList-r17 SEQUENCE (SIZE(1..maxNrofAggregatedCellsPerCellGroup)) OF CO-DurationsPerCell-r17 OPTIONAL -- Need N

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}

CO-DurationsPerCell-r16 ::= SEQUENCE {

servingCellId-r16 ServCellIndex,

positionInDCI-r16 INTEGER(0..maxSFI-DCI-PayloadSize-1),

subcarrierSpacing-r16 SubcarrierSpacing,

co-DurationList-r16 SEQUENCE (SIZE(1..64)) OF CO-Duration-r16

}

CO-DurationsPerCell-r17 ::= SEQUENCE {

servingCellId-r17 ServCellIndex,

positionInDCI-r17 INTEGER(0..maxSFI-DCI-PayloadSize-1),

subcarrierSpacing-r17 SubcarrierSpacing,

co-DurationList-r17 SEQUENCE (SIZE(1..64)) OF CO-Duration-r17

}

CO-Duration-r16 ::= INTEGER (0..1120)

CO-Duration-r17 ::= INTEGER (0..4480)

AvailableRB-SetsPerCell-r16 ::= SEQUENCE {

servingCellId-r16 ServCellIndex,

positionInDCI-r16 INTEGER(0..maxSFI-DCI-PayloadSize-1)

}

SearchSpaceSwitchTrigger-r16 ::= SEQUENCE {

servingCellId-r16 ServCellIndex,

positionInDCI-r16 INTEGER(0..maxSFI-DCI-PayloadSize-1)

}

-- TAG-SLOTFORMATINDICATOR-STOP

-- ASN1STOP

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| *SlotFormatIndicator* field descriptions |
| ***availableRB-SetsToAddModList***  A list of *AvailableRB-SetsPerCell* objects (see TS 38.213 [13], clause 11.1.1). |
| ***co-DurationsPerCellToAddModList***  A list of *CO-DurationsPerCell* objects. If not configured, the UE uses the slot format indicator (SFI), if available, to determine the channel occupancy duration (see TS 38.213 [13], clause 11.1.1). |
| ***co-DurationsPerCellToReleaseList***  A list of *CO-DurationsPerCell* objects to be released. An entry created using *co-DurationsPerCellToAddModList-r16* or *co-DurationsPerCellToAddModList-r17* can be deleted using *co-DurationsPerCellToReleaseList****.*** |
| ***dci-PayloadSize***  Total length of the DCI payload scrambled with SFI-RNTI (see TS 38.213 [13], clause 11.1.1). |
| ***sfi-RNTI***  RNTI used for SFI on the given cell (see TS 38.213 [13], clause 11.1.1). |
| ***slotFormatCombToAddModList***  A list of SlotFormatCombinations for the UE's serving cells (see TS 38.213 [13], clause 11.1.1). |
| ***switchTriggerToAddModList, switchTriggerToAddModListSizeExt***  A list of *SearchSpaceSwitchTrigger* objects. Each *SearchSpaceSwitchTrigger* object provides position in DCI of the bit field indicating search space switching flag for a serving cell or, if *cellGroupsForSwitchList* is configured, group of serving cells (see TS 38.213 [13], clause 10.4). If *cellGroupsForSwitchList* is configured, only one of the cells belonging to the same cell group is added/modified, and the configuration applies to all cells belonging to the *cellGroupsForSwitchList* (see TS 38.213 [13], clause 10.4). The network configures more than 4 *SearchSpaceSwitchTrigger* objects only if *cellGroupsForSwitchList* is not configured. The UE shall consider entries in *switchTriggerToAddModList* and in *switchTriggerToAddModListSizeExt* as a single list, i.e. an entry created using *switchTriggerToAddModList* can be modifed using *switchTriggerToAddModListSizeExt* and vice-versa. |
| ***switchTriggerToReleaseModList, switchTriggerToReleaseListSizeExt***  A list of *SearchSpaceSwitchTriggers* to be released. If *cellGroupsForSwitchList* is configured, the *SearchSpaceSwitchTrigger* is released for all serving cells belonging to the same *CellGroupForSwitch*. The UE shall consider entries in *switchTriggerToReleaseList* and in *switchTriggerToReleaseListSizeExt* as a single list, i.e. an entry created using *switchTriggerToAddModList* or *switchTriggerToAddModListSizeExt* can be deleted using *switchTriggerToReleaseList* or *switchTriggerToReleaseListSizeExt*. |

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| *AvailableRB-SetsPerCell* field descriptions |
| ***positionInDCI***  The (starting) position of the bits within DCI payload indicating the availability of the RB sets of a serving cell (see TS 38.213 [13], clause 11.1.1). |
| ***servingCelIId***  The ID of the serving cell for which the configuration is applicable. |

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| *CO-DurationsPerCell* field descriptions |
| ***co-DurationList***  A list of Channel Occupancy duration in symbols.  The maximum duration that can be configured for the following SCS:  - 15 kHz: 280.  - 30 kHz: 560.  - 60 kHz: 1120.  - 120 kHz: 560.  - 480 kHz: 2240.  - 960 kHz: 4480. |
| ***positionInDCI***  Position in DCI of the bit field indicating Channel Occupancy duration for UE's serving cells (see TS 38.213 [13], clause 11.1.1). |
| ***servingCelIId***  The ID of the serving cell for which the configuration is applicable. |
| ***subcarrierSpacing***  Reference subcarrier spacing for the list of Channel Occupancy durations (see TS 38.213 [13], clause 11.1.1).  Only the following values are applicable depending on the used frequency range:  FR1: 15, 30, or 60 kHz  FR2-2: 120, 480, or 960 kHz |

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| *SearchSpaceSwitchTrigger* field descriptions |
| ***positionInDCI***  The position of the bit within DCI payload containing a search space switching flag (see TS 38.213 [13], clause 11.1.1). |
| ***servingCellId***  The ID of the serving cell for which the configuration is applicable or the group of serving cells as indicated by *CellGroupsForSwitch-r16* containing this *servingCellId*. |