**3GPP TSG RAN WG1 #109-e** **R1-22xxxxx**

**e-Meeting, May 9th – 20th, 2022**

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| *CR-Form-v12.2* |
| **DRAFT CHANGE REQUEST** |
|  |
|  | **38.213** | **CR** |  | **rev** |  | **Current version:** | **17.1.0** |  |
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| *For* [***HELP***](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:***  | Corrections on dynamic spectrum sharing enhancements in NR |
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| ***Source to WG:*** | Samsung |
| ***Source to TSG:*** | R1 |
|  |  |
| ***Work item code:*** | NR\_DSS-Core |  | ***Date:*** | 2022-05-24 |
|  |  |  |  |  |
| ***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 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | 1. Unclear whether, for search space sharing, the associated PDCCH candidates are for search space sets of a same scheduling cell in clause 10.1.
2. Unclear n\_CI value for P(S)Cell self-scheduling when SCell to P(S)Cell scheduling is configured for a UE (CIF value in DCI format 0\_1,1\_1,0\_2,1\_2 of P(S)Cell is reserved) in clause 10.1.
3. Unclear fall-back procedure to single scheduling cell operation when scheduling from sSCell on P(S)Cell is disabled based on <FG 34-3> or <FG 34-4> in clause 10.1.1.
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| ***Summary of change:*** | 1. Clarify that for search space sharing, the associated PDCCH candidates are for search space sets of a same scheduling cell in clause 10.1.
2. Clarify that n\_CI=0 applies for P(S)Cell self-scheduling when SCell to P(S)Cell scheduling is configured for a UE in clause 10.1.
3. Clarify fall-back procedure to single scheduling cell operation when scheduling from sSCell on P(S)Cell is disabled based on <FG 34-3> or <FG 34-4> in clause 10.1.1.
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| ***Consequences if not approved:*** | Incomplete support for dynamic spectrum sharing enhancements in NR. |
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| ***Clauses affected:*** | 10.1, 10.1.1 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  |  |  Other core specifications  | TS 38.331 |
| ***affected:*** |  |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\* Unchanged text is omitted \*\*\*

## 10.1 UE procedure for determining physical downlink control channel assignment

\*\*\* Unchanged text is omitted \*\*\*

A UE does not expect to monitor PDCCH candidates on an active DL BWP of a secondary cell if the UE is configured to monitor PDCCH candidates with carrier indicator field corresponding to that secondary cell in another serving cell. For the active DL BWP of a serving cell on which the UE monitors PDCCH candidates, the UE monitors PDCCH candidates at least for the same serving cell.

For a search space set associated with CORESET , the CCE indexes for aggregation level corresponding to PDCCH candidate of the search space set in slot for an active DL BWP of a serving cell corresponding to carrier indicator field value are given by

where

for any CSS, ;

for a USS, , , for , for , for , and ;

;

 is the number of CCEs, numbered from 0 to , in CORESET and, if any, per RB set;

 is the carrier indicator field value if the UE is configured with a carrier indicator field by *CrossCarrierSchedulingConfig* for the serving cell on which PDCCH is monitored, except for scheduling of the serving cell from the same serving cell in which case ; otherwise, including for any CSS, ;

, where is the number of PDCCH candidates the UE is configured to monitor for aggregation level of a search space set for a serving cell corresponding to ;

for any CSS, ;

for a USS, is the maximum of over all configured values for a CCE aggregation level of search space set ;

the RNTI value used for is the C-RNTI.

\*\*\* Unchanged text is omitted \*\*\*

A UE does not expect to be provided *freqMonitorLocations* for a search space set in a serving cell if *intraCellGuardBandsDL-List* indicates that no intra-cell guard-bands are configured for the serving cell.

A UE that

- is configured for operation with carrier aggregation, and

- indicates support of search space sharing through *searchSpaceSharingCA-UL* or through *searchSpaceSharingCA-DL*, and

- has a PDCCH candidate with CCE aggregation level in CORESET associated with search space set of a scheduling cell for detection of a first DCI format, other than DCI format 0\_0 or DCI format 1\_0, having a first size and scheduling

- PUSCH transmission or configured grant Type 2 PUSCH release on serving cell , or

- PDSCH reception or having associated HARQ-ACK information without scheduling PDSCH reception on serving cell

can receive a corresponding PDCCH through a PDCCH candidate with CCE aggregation level in CORESET associated with search space set of the scheduling cell for detection of a second DCI format having a second size and associated with scheduling on serving cell if the first size and the second size are same and if neither of search space sets and includes *searchSpaceLinking*.

\*\*\* Unchanged text is omitted \*\*\*

For search space sets and that include *searchSpaceLinking* with values and , and for search space set that does not include *searchSpaceLinking*, when a UE

- monitors PDCCH candidates for detection of a first DCI format,

- monitors PDCCH candidate for detection of a second DCI format having a same size as the first DCI format,

- the PDCCH candidate , or the PDCCH candidate , and the PDCCH candidate have identical scrambling and use a same set of CCEs over same symbols in a slot in a CORESET ,

the PDCCH candidate is not counted for monitoring and the UE assumes that a detected DCI format is the first DCI format. A UE may monitor PDCCH candidate depending on a corresponding capability [18, TS 38.306].

\*\*\* Unchanged text is omitted \*\*\*

### 10.1.1 Self-carrier and cross-carrier scheduling on the primary cell

A UE can be configured for scheduling on the primary cell from the primary cell and from a secondary cell [12, TS 38.331]. The UE is either not provided *monitoringCapabilityConfig* or the UE is provided only *monitoringCapabilityConfig* = *r15monitoringcapability* for the primary cell and for the secondary cell. The UE is not provided *coresetPoolIndex* on the primary cell or on the secondary cell.

The SCS configuration for the active DL BWP on the primary cell is smaller than or equal to the SCS configuration for the active DL BWP on the secondary cell.

If a UE indicates capability <FG 34-3> [18, TS 38.306] and the secondary cell is deactivated, or if the UE indicates capability <FG 34-4> [18, TS 38.306] and the active DL BWP of the secondary cell is a dormant DL BWP for the UE,  applies for the procedures described in the remaining of this clause. If , the UE determines and , and determines and , by including the primary cell only in the downlink cells in , as described in clause 10.1. If , the UE determines and by including the primary cell once in the downlink cells in , as described in clause 10.1.

For scheduling on the primary cell from the primary cell, the UE is not required to monitor more than PDCCH candidates per slot or more than non-overlapping CCEs per slot on the active DL BWP of the primary cell, where is provided by *ccs-BlindDetectionSplit*.

For scheduling on the primary cell from the secondary cell, the UE is not required to monitor on the active DL BWP of the secondary cell more than

- PDCCH candidates per slot or more than non-overlapping CCEs per slot of the active DL BWP of the secondary cell

- PDCCH candidates per slot or more than non-overlapping CCEs per slot of the active DL BWP of the primary cell

If , the UE does not count PDCCH candidates and non-overlapping CCEs that the UE monitors for scheduling on the primary cell from the secondary cell towards and , respectively.

If , the UE counts PDCCH candidates and non-overlapping CCEs that the UE monitors for scheduling on the primary cell from the secondary cell towards and , respectively.

For allocation of PDCCH candidates and non-overlapping CCEs to search space sets for scheduling on the primary cell from the primary cell, the UE applies the procedure in clause 10.1 using instead of , and using instead of for the primary cell.

\*\*\* Unchanged text is omitted \*\*\*