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| **3GPP TSG-RAN WG1 Meeting #101-e *R1-200xxxx***  **e-Meeting, May 25 – June 5, 2020**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | *CR-Form-v12.0* | | | | | | | | | | **DRAFT CHANGE REQUEST** | | | | | | | | | |  | | | | | | | | | |  | **38.213** | **CR** |  | **rev** | **-** | **Current version:** | **16.1.0** |  | |  | | | | | | | | | | *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)*.* | | | | | | | | | |  | | | | | | | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network | **x** | Core Network |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | | | | | | | | | | | | ***Title:*** | Corrections on half-duplex operation in CA with unpaired spectrum | | | | | | | | | | |  |  | | | | | | | | | | | ***Source to WG:*** | Samsung | | | | | | | | | | | ***Source to TSG:*** | R1 | | | | | | | | | | |  |  | | | | | | | | | | | ***Work item code:*** | TEI16 | | | | |  | ***Date:*** | | | 2020-06-08 | |  |  | | | |  | |  | | |  | | ***Category:*** | **F** |  | | | | | ***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 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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | | |  |  | | | | | | | | | | | ***Reason for change:*** | | Align specification with following agreement  **Agreement:**   * *Half-duplex CA UE determines reference cell per symbol as a cell with the lowest cell ID among multiple serving cells in a band or band combination having direction determined by RRC D/U or semi SFI D/U* * *Note: this overrides earlier agreement ”Reference (Ref) cell is the cell with the lowest cell ID among cells: (i) within the band or band combination and (ii) with conflicting directions, and “Other cell” is any cell within the band or band combination other than the Ref cell. “* * *Note: Agreed cases 12, 14, 17 and 18 are not needed anymore* * *Note: Agreed cases 9 and 10 should apply to collisions between two cells irrespective of a cell being reference or other* | | | | | | | | | |  | |  | | | | | | | | | | ***Summary of change:*** | | Clarify that a cell configured with a flexible symbol by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated* is not reference cell for that symbol ([100b-e-NR-TEIs-02])  Capture that a reference cell for a symbol is an active cell ([101-e-NR-TEIs-02]) | | | | | | | | | |  | |  | | | | | | | | | | ***Consequences if not approved:*** | | Specification is not according to agreement | | | | | | | | | |  | |  | | | | | | | | | | ***Clauses affected:*** | | 11.1 | | | | | | | | | |  | |  | | | | | | | | | |  | | **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:*** | | **Isolated Impact Analysis:** | | | | | | | | | |  | |  | | | | | | | | | | ***This CR's revision history:*** | |  | | | | | | | | | |

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## 11.1 Slot configuration

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

If a UE

- is configured with multiple serving cells and is provided *half-duplex-behavior-r16* = 'enable', and

- is not capable of simultaneous transmission and reception on any of the multiple serving cells, and

- indicates support of capability for half-duplex operation in CA with unpaired spectrum, and

- is not configured to monitor PDCCH for detection of DCI format 2\_0 on any of the multiple serving cells,

for a set of symbols of a slot that are indicated to the UE for reception of SS/PBCH blocks in any of multiple serving cells by *ssb-PositionsInBurst* in *SystemInformationBlockType1* or by *ssb-PositionsInBurst* in *ServingCellConfigCommon*, when provided to the UE, the UE does not transmit PUSCH, PUCCH, or PRACH in the slot if a transmission would overlap with any symbol from the set of symbols, and the UE does not transmit SRS in the set of symbols of the slot in any of multiple serving cells.

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

If a UE

- is configured with multiple serving cells and is provided *half-duplex-behavior-r16* = 'enable', and

- is not capable of simultaneous transmission and reception on any of the multiple serving cells, and

- indicates support of capability for half-duplex operation in CA with unpaired spectrum, and

- is not configured to monitor PDCCH for detection of DCI format 2-0 on any of the multiple serving cells,

the UE determines a reference cell for a symbol as an active cell with the smallest cell index among serving cells where the symbol is configured as

- downlink, or uplink as indicated by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated*

- uplink, if the symbol is flexible and the UE is configured to transmit SRS, PUCCH, PUSCH, or PRACH on the symbol

-downlink, if the symbol is flexible and the UE is configured to receive PDCCH, PDSCH or CSI-RS on the

If a UE

- is configured with multiple serving cells in a frequency band and is provided *half-duplex-behavior-r16* = 'enable', and

- is not capable of simultaneous transmission and reception on any of the multiple serving cells, and

- indicates support of capability for half-duplex operation in CA with unpaired spectrum, and

- is not configured to monitor PDCCH for detection of DCI format 2\_0 on any of the multiple serving cells,

the UE does not expect

- a symbol to be indicated as downlink or uplink on the reference cell and as uplink or downlink on another cell, respectively, by *tdd-UL-DL-ConfigurationCommon* or by *tdd-UL-DL-ConfigurationDedicated*,

- *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigDedicated* to indicate a symbol as downlink on the reference cell and to detect a DCI format scheduling a transmission on the symbol on another cell, and

- to be configured by higher layers to receive PDCCH, PDSCH, or CSI-RS on a flexible symbol on the reference cell and to detect a DCI format scheduling a transmission on the symbol on another cell.

If the reference cell and another cell for a UE operate in different frequency bands and if the UE

- is configured with multiple serving cells and is provided *half-duplex-behavior-r16* = 'enable', and

- is not capable of simultaneous transmission and reception on any of the multiple serving cells, and

- indicates support of capability for half-duplex operation in CA with unpaired spectrum, and

- is not configured to monitor PDCCH for detection of DCI format 2-0 on any of the multiple serving cells,

the UE

- UE assumes symbol as flexible, is not required to receive higher layer configured PDCCH, PDSCH, or CSI-RS and not expected to transmit higher layers configured SRS, PUCCH, PUSCH, or PRACH, when *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated* indicates symbol as downlink or uplink on the other cell and as uplink or downlink for the reference cell, respectively,

- transmits a signal/channel scheduled by a DCI format on a symbol of the other cell when the symbol is indicated as downlink by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigDedicated* for the reference cell,

- is not required to receive a higher layer configured PDCCH, PDSCH, or CSI-RS on flexible symbols on the reference cell in a set of symbols, if the UE detects a DCI format scheduling a transmission on one or more symbols in the set of symbols on the other cell.

If a UE

- is configured with multiple serving cells and is provided *half-duplex-behavior-r16* = 'enable', and

- is not capable of simultaneous transmission and reception on any cell from the multiple serving cells, and

- indicates support of capability for half-duplex operation in CA with unpaired spectrum, and

- is not configured to monitor PDCCH for detection of DCI format 2-0 on any of the multiple serving cells,

the UE

- does not expect *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated* for the reference cell to indicate a symbol as uplink and to detect a DCI format scheduling a reception on the symbol on another cell

- does not expect to be configured by higher layers to transmit SRS, PUCCH, PUSCH, or PRACH on a flexible symbol on the reference cell and to detect a DCI format scheduling a reception on the symbol on another cell

- does not transmit a PUCCH, PUSCH or PRACH that is configured by higher layers on a set of symbols on another cell if at least one symbol from the set of symbols is indicated as downlink by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated* or is a symbol corresponding to a PDCCH, PDSCH, or CSI-RS reception that is configured by higher layers on the reference cell

- does not transmit a SRS that is configured by higher layers on a set of symbols on another cell if the set of symbols is indicated as downlink by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated* or corresponds to a PDCCH, PDSCH or CSI-RS reception that is configured by higher layers on the reference cell

- does not receive a PDCCH, PDSCH or CSI-RS that is configured by higher layers on a set of symbols on another cell if at least one symbol from the set of symbols is indicated as uplink by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated* or is a symbol corresponding to a SRS, PUCCH, PUSCH, or PRACH transmission that is configured by higher layers on the reference cell

- assumes a symbol indicated as downlink or uplink by *tdd-UL-DL-ConfigurationCommon* or *tdd-UL-DL-ConfigurationDedicated* on another cell to be flexible, if the UE is respectively configured by higher layers to transmit SRS, PUCCH, PUSCH, or PRACH or to receive PDCCH, PDSCH, or CSI-RS on the reference cell

- does not expect to detect a first DCI format scheduling a transmission or reception on a symbol on a first cell and a second DCI format scheduling a reception or transmission on the symbol on a second cell, respectively

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