**3GPP TSG-RAN WG2 Meeting #110 electronic *R2-2005489***

**1-12 June 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.306** | **CR** | **1770** | **rev** | **1** | **Current version:** | **16.0.0** |  |
|  | | | | | | | | |
| *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:*** | Introduction of UE capabilities for DL MIMO efficiency enhancement | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_DL\_MIMO\_EE-Core | | | | |  | ***Date:*** | | | 2020-06-01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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)* | |
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| ***Reason for change:*** | | As per the endoresed UE feature for Rel-16 LTE in R1-2006096, corresponding RRC UE capabilities need to be added to support DL MIMO efficiency enhancement. | | | | | | | | |
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| ***Summary of change:*** | | Add UE capabilities for supporting DL MIMO efficiency enhancement. | | | | | | | | |
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| ***Consequences if not approved:*** | | UE capabilities for DL MIMO efficiency enhancement are not included in the specification. | | | | | | | | |
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| ***Clauses affected:*** | | 4.3.4.n (New), 4.3.4.o (New), 4.3.4.p (New), 4.3.4.q (New), 4.3.4.r (New), 4.3.4.s (New),4.3.4.t (New),4.3.4.u (New), 4.3.4.v (New), 4.3.4.w (New), 4.3.4.x (New), 4.3.4.y (New), 4.3.4.z (New) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 36.331 CR 4334 | | |
| ***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:*** |  |

Beginning of changes

4.3.4 Physical layer parameters

*/unchanged parts are omitted/*

#### 4.3.4.n *addSRS*

Presence of this field indicates the UE supports the additional SRS symbol(s) within the normal UL subframes in TDD as described in TS 36.213 [23].

#### 4.3.4.n.1 *addSRS-1T2R*

Indicates whether the UE supports selecting one antenna among two antennas to transmit additional SRS symbol(s) for the corresponding band of the band combination as described in TS 36.213 [23].

#### 4.3.4.p *addSRS-1T4R*

Indicates whether the UE supports selecting one antenna among four antennas to transmit additional SRS symbol(s) for the corresponding band of the band combination as described in TS 36.213 [23].

#### 4.3.4.q *addSRS-2T4R-2Pairs*

Indicates whether the UE supports selecting one antenna pair between two antenna pairs to transmit additional SRS symbol(s) simultaneously for the corresponding band of the band combination as described in TS 36.213 [23].

#### 4.3.4.r *addSRS-2T4R-3Pairs*

Indicates whether the UE supports selecting one antenna pair among three antenna pairs to transmit additional SRS symbol(s) simultaneously for the corresponding band of the band combination as described in TS 36.213 [23].

#### 4.3.4.s *addSRS-AntennaSwitching*

Indicates the antenna switching capabilities for additional SRS symbol(s).

If signalled in *addSRS,* value *useLegacy* indicates the antenna switching capabilities for additional SRS symbol(s) for a band of band combination for which the capability is not signalled in *bandParameterList-v16xy* is the same as indicated by *bandParameterList-v1380* and/or *bandParameterList-v1530* for the concerned band of band combination.

If signalled in *bandParameterList-v16xy*, the field indicates the antenna switching capabilities for additional SRS symbol(s) for the concerned band of band combination.

#### 4.3.4.u *addSRS-CarrierSwitching*

Indicates whether carrier switching is supported for additional SRS symbol(s) for all band pairs of band combinations for which UE supports SRS carrier switching. This field is included only if *srs-CapabilityPerBandPairList* is included. If this field is included, *addSRS-CarrierSwitching* (in *BandParameters-v16xy*) is not included.

#### 4.3.4.v *addSRS-CarrierSwitching (in BandParameters-v16xy)*

Indicates whether carrier switching is supported for additional SRS symbol(s) for the concerned band pair of band combination. If this field is included, *addSRS-CarrierSwitching* (in *addSRS*) is not included.

#### 4.3.4.w *addSRS-FrequencyHopping (in addSRS)*

Indicates whether frequency hopping is supported for additional SRS symbol(s) for all bands of band combinations for which the capability is not signalled in *BandParameters-v16xy*.

#### 4.3.4.x *addSRS-FrequencyHopping (in BandParameters-v16xy)*

If signalled, the field indicates whether frequency hopping is supported for additional SRS symbol(s) for the concerned band of band combination.

#### 4.3.4.y *virtualCellID-LegacySRS-r16*

This field indicates whether the UE supports virtual cell ID for legacy SRS symbol(s).

#### 4.3.4.z *virtualCellID-AddSRS-r16*

This field indicates whether the UE supports virtual cell ID for additional SRS symbol(s).End of changes