**3GPP TSG-RAN WG2 Meeting #119e *R2-220xxxx***

**Electronic Meeting, August. 2022**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **.306** | **CR** | 0761 | **rev** | **1** | **Current version:** | 17.10.0 |  |
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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:***  | Clarification on powe sharing UE capability |
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| ***Source to WG:*** | O |
| ***Source to TSG:*** | R2 |
|  |  |
| ***Work item code:*** | LTE\_NR\_DC\_CA\_enh-Core |  | ***Date:*** | 2022-08-23 |
|  |  |  |  |  |
| ***Category:*** | A |  | ***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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | In LS R1-2205448, RAN1 indicated that for 3 UE capability parameters i.e. *intraFR-NR-DC-PwrSharingMode1-r16, intraFR-NR-DC-PwrSharingMode2-r16 and intraFR-NR-DC-DynamicPwrSharing-r16,* it should be clarified:• For capabilities intraFR-NR-DC-PwrSharingMode1-r16, intraFR-NR-DC-PwrSharingMode2-r16 and intraFR-NR-DC-DynamicPwrSharing-r16 (FGs 18-1/1a/1b):o In case MCG and/or SCG have cells in different frequency ranges, this FG indicates the capability of the power sharing only between those MCG and SCG cells with UL in FR1.• Note: above clarification for FG18-1/1a/1b does not mean that Rel-16 Ues are mandated to support power sharing mechanisms like FG18-1/1a/1b for FR2-FR2 DC. |
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| ***Summary of change:*** | For all 3 mentioned UE capability parameter:Change 1: to clarify that the UE capability is only applied for cells of MCG and SCG with UL in FR1, but this doesn’t mandate UE to support power sharing for intra-FR2 DCChange 2: the 4th column is changed from “No” to be “FR1 only” to reflect that they are not applied for FR2.Impacted 5G architecture options:NR-DCImpacted functionality:Power sharingInter-operability:1. If the UE is implemented according to the CR and the NW is not, there is no impact
2. If the network is implemented according to the CR and the UE is not, NW may signal unexpected parameter to the UE.
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| ***Consequences if not approved:*** | There is discrepancy between NW and UE on how power sharing works for intra FR2 DC  |
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| ***Clauses affected:*** | 4.2.7.12 |
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|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS 38.331 CR 3281 ...  |
| ***affected:*** |  |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

#### 4.2.7.12 *NRDC-Parameters*

| Definitions for parameters | Per | M | FDD-TDDDIFF | FR1-FR2DIFF |
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| ***asyncNRDC-r16***Indicates whether the UE supports asynchronous NR-DC with MRTD and MTTD as specified in clause 7.5 and 7.6 of TS 38.133 [5]. If the band combination is comprised of a single band entry for more than two carriers, the UE shall support any permutations of carriers to CGs. If the band combination is comprised of at least two band entries, the carriers corresponding to a band entry shall belong to only one cell group.A UE indicating this capability shall support asynchronous NR-DC configuration where all serving cells of the MCG are in FR1 and all serving cells of the SCG are in FR2. | BC | FFS | No | No |
| ***condPSCellAdditionNRDC-r17***Indicates whether the UE supports conditional PSCell addition in NR-DC. The UE supporting this feature shall also support 2 trigger events for same execution condition in conditional PSCell addition in NR-DC. | BC | No | No | No |
| ***intraFR-NR-DC-PwrSharingMode1-r16***Indicates whether the UE supports intra-FR NR DC with semi-static power sharing mode1 between MCG and SCG cells of same frequency range as defined in TS 38.213 [11]. If this field is absent, the UE does not support intra-FR NR DC. In case MCG and SCG have cells in different frequency ranges, this field indicates the support of power sharing only between MCG and SCG cells with UL in FR1. | BC | No | No | FR1 only |
| ***intraFR-NR-DC-PwrSharingMode2-r16***Indicates whether the UE supports semi-static power sharing mode2 between MCG and SCG cells of same frequency range for synchronous intra-FR NR DC as defined in TS 38.213 [11]. The UE indicating the support of this also indicates the support of *intraFR-NR-DC-PwrSharingMode1-r16.*In case MCG and SCG have cells in different frequency ranges, this field indicates the support of power sharing only between MCG and SCG cells with UL in FR1. | BC | No | No | FR1 only |
| ***intraFR-NR-DC-DynamicPwrSharing-r16***Indicates the UE support of dynamic power sharing for intra-FR NR DC between MCG and SCG cells of same frequency range with long or short offset as specified in TS 38.213 [11]. The UE indicating the support of this also indicates the support of *intraFR-NR-DC-PwrSharingMode1-r16.*In case MCG and SCG have cells in different frequency ranges, this field indicates the support of power sharing only between MCG and SCG cells with UL in FR1.  | BC | No | No | FR1 only |
| ***scg-ActivationDeactivationNRDC-r17***Indicates whether the UE supports activation (with or without RACH) and deactivation on SCG in NR-DC, upon SCG addition and upon reconfiguration of the SCG, as specified in TS 38.331 [9]. A UE supporting this feature shall indicate support of NR-DC as specified in TS 38.331 [9]. For the UE supporting this feature, it is mandatory to report *maxNumberCSI-RS-BFD* and *maxNumberSSB-BFD* for all NR bands of this band combination where the UE supports SpCell. | BC | No | No | No |
| ***scg-ActivationDeactivationResumeNRDC-r17***Indicates whether the UE supports activation (with or without RACH) and deactivation on SCG in NR-DC, upon reception of an *RRCReconfiguration* included in an *RRCResume* message, as specified in TS 38.331 [9]. A UE supporting this feature shall indicate support of NR-DC and of *resumeWithSCG-Config-r16* as specified in TS 38.331 [9]. For the UE supporting this feature, it is mandatory to report *maxNumberCSI-RS-BFD* and *maxNumberSSB-BFD* for all NR bands of this band combination where the UE supports SpCell. | BC | No | No | No |
| ***sfn-SyncNRDC***Indicates the UE supports NR-DC only with SFN and frame synchronization between PCell and PSCell. If not included by the UE supporting NR-DC, the UE supports NR-DC with slot-level synchronization without condition on SFN and frame synchronization. In this release of the specification, the UE shall not report this UE capability. | UE | No | No | No |
| ***supportedCellGrouping-r16***Indicates which NR-DC cell groupings the UE supports for the given NR DC band combination, i.e., mapping of serving cells to MCG and SCG, and the operation mode (synchronous or asynchronous), as requested by the network via *requestedCellGrouping-r16*.The IDs reported in this field refer to the cell groupings that the network requested in *requestedCellGrouping-r16*. ID#0 corresponds to the first element in *requestedCellGrouping-r16*, ID#1 corresponds to the second element in *requestedCellGrouping-r16* and so on.NOTE: Irrespective of the indicated *supportedCellGrouping-r16*, the UE shall also support NR-DC where all FR1 serving cells are in the MCG and all FR2 serving cells are in the SCG, as described in *ca-ParametersNRDC*. | BC | No | No | No |