**3GPP TSG-1 Meeting #102-e *R1-200xxxx***

**, August 17 – 28, 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **rev** |  | **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 |  | Radio Access Network | **X** | Core Network |  |

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| ***Title:***  |  |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***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 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-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:*** | Current specification does not have any limitation on PDCCH monitoring overbooking during DAPS HO. However, this was not the intent of the original RAN1 agreement. The original RAN1 agreement was to limit configuration of PDCCH monitoring overbooking in both target and source cells, allow either target or source cell to enable PDCCH monitoring overbooking. |
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| ***Summary of change:*** | Add paragraph to state that UE does not expect PDCCH monitoring overbooking to occur in both and source and target cell simultaneously. |
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| ***Consequences if not approved:*** | UE may be required to perform additional PDCCH monitoring processing that it may not be capabled of performing. |
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| ***Clauses affected:*** | 15 |
|  |  |
|  | **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 ...  |
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| ***Other comments:*** | **Isolated Impact Analysis:**UE that has implemented this CR connected gNB that has not implemented this CR:* If gNB configured PDCCH monitoring overbooking to the UE, UE may not regonize the configuration and result in undefine UE behavior during DAPS HO.

UE that has not implemented this CR connected to gNB that has implemented this CR:* gNB will not configure PDCCH monitoring overbooking for both source and target cell, and no impact will be visiable in the network.
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| ***This CR's revision history:*** |  |

# 15 Dual active protocol stack based handover

If a UE indicates a capability for dual active protocol stack based handover (DAPS HO), the UE can be provided with a source MCG and a target MCG.

If a UE is configured with a target MCG and a source MCG using NR radio access in FR1 and/or in FR2, the UE is configured a maximum power $P\_{MCG}$ for transmissions on the target MCG by *p-DAPS-Target* and a maximum power $P\_{SCG}$ for transmissions on the source MCG by *p-DAPS-Source* and with an inter-CG power sharing mode by *uplinkPowerSharingDAPS-Mode* for FR1 and/or by *uplinkPowerSharingDAPS-Mode* for FR2. The UE determines a transmission power on the target MCG and a transmission power on the source MCG per frequency range.

If the UE indicates support for semi-static power sharing mode1and is provided *uplinkPowerSharingDAPS-Mode* = *Semi-static-mode1*, the UE determines a transmission power for the target MCG or for the source MCG as described in Clause 7.6.2 for *NR-DC-PC-mode* = *Semi-static-mode1* by considering the target MCG as the MCG and the source MCG as the SCG.

If the UE indicates support for semi-static power sharing mode2 and is provided *uplinkPowerSharingDAPS-Mode* = *Semi-static-mode2*, the UE determines a transmission power for the target MCG or for the source SCG as described in Clause 7.6.2 for *NR-DC-PC-mode* = *Semi-static-mode2* by considering the target MCG as the MCG and the source MCG as the SCG. The UE expects to be provided *uplinkPowerSharingDAPS-Mode* = *Semi-static-mode2* only for synchronous DAPS HO operation [10, TS 38.133].

If the UE indicates support for dynamic power sharingand is provided *uplinkPowerSharingDAPS-Mode* = *Dynamic*, the UE determines a transmission power for the target MCG or for the source MCG as described in Clause 7.6.2 for *NR-DC-PC-mode* = *Dynamic* by considering the target MCG as the MCG and the source MCG as the SCG.

If

- the UE does not provide *UplinkPowerSharingDAPS-HO*, and

- UE transmissions on the target cell and the source cell overlap

the UE transmits only on the target cell and cancels the transmission on the source cell if the first symbol of the transmission on the source cell is after $T\_{proc,2}+d$. The UE does not expect to cancel a transmission on the source cell if a first symbol of the transmission on the source cell is less than $T\_{proc,2}+d$after a last symbol of a CORESET where the UE receives a PDCCH providing a DCI format scheduling a transmission on the target cell. $T\_{proc,2}$ is the PUSCH preparation time for the corresponding PUSCH processing capability [6, TS 38.214] assuming $d\_{2,1}=1$, $d$ is a time duration corresponding to 2 symbols for SCS configuration $μ$, and $μ$ is the smallest SCS configuration between the SCS configuration of the PDCCH providing the DCI format and the SCS configuration for the transmission on the source cell. If the UE transmits PRACH using 1.25 kHz or 5 kHz SCS on the source cell, the UE determines $T\_{proc,2}$ assuming SCS configuration $μ=0$.

UE transmissions on the target cell and the source cell overlap if they are in

- overlapping time resources if the carrier frequencies for the target MCG and the source MCG are intra-frequency and intra-band

- overlapping time resources and overlapping frequency resources if the carrier frequencies for the target MCG and the source MCG are not intra-frequency and intra-band

For intra-frequency DAPS HO operation, the UE expects that an active DL BWP and an active UL BWP on the target cell are within an active DL BWP and an active UL BWP on the source cell, respectively.

If a UE is provided search space sets on both the target MCG and the source MCG, in any slot the UE does not expect to have USS sets on both the target MCG and the source MCG that result in the number of monitored PDCCH candidates and the total number of non-overlapped CCEs in both cells that each exceed the corresponding maximum numbers per slot defined in Table 10.1-2 and Table 10.1-3.

For DAPS operation in a same frequency band, a UE does not transmit PUSCH/PUCCH/SRS to the source MCG in a slot overlapping in time with a PRACH transmission to the target MCG or when a gap between a first or last symbol of a PRACH transmission to the target MCG in a first slot would be separated by less than $N$ symbols from a last or first symbol, respectively, of the PUSCH/PUCCH/SRS transmission to the source MCG in a second slot. For DAPS operation in a same frequency band, a UE does not transmit PRACH on the source MCG in a slot overlapping in time with a PUSCH/PUCCH/SRS transmission on the target MCG or when a gap between the first or last symbol of a PUSCH/PUCCH/SRS transmission on the target MCG is separated by less than $N$ symbols from a last or a first symbol, respectively, of a PRACH transmission on the source MCG. $N=2$ for $μ=0$ or $μ=1$, $N=4$ for $μ=2$ or $μ=3$, and $μ$ is the SCS configuration of the active UL BWP for the PUSCH/PUCCH/SRS transmission to source MCG.