**3GPP TSG-RAN WG4 Meeting #100-eR4-211xxxx**

**Electronic Meeting, August 16-27, 2021**

**Title: LS on UE capability for UE power class 2 NR inter-band CA and SUL configurations**

**Response to:**

**Release: Release 17**

**Work Item: NR\_SAR\_PC2\_interB\_SUL\_2BUL**

**Source: RAN WG4**

**To: RAN WG2**

**Cc:**

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# 1 Overall description

The power class 2 NR inter-band CA include 4 cases as shown in the WID RP-201584.

|  |  |  |  |
| --- | --- | --- | --- |
|  | UE power class | NR Carrier x power class | NR Carrier y power class |
| Case a | 26dBm | 23dBm | 23dBm |
| Case b | 26dBm | 23dBm | 26dBm |
| Case c | 26dBm | 26dBm | 23dBm |
| Case d | 26dBm | 26dBm | 26dBm |

The power class 2 NR SUL configurations include 1 case as shown in the WID RP-201584.

|  |  |
| --- | --- |
| UE power class on SUL band | UE power class on NR TDD band |
| 23dBm | 26dBm |

RAN4 has discussed the SAR solutions for UE power class 2 NR inter-band CA and SUL configurations, and achieved the agreements on duty cycle based SAR solution.

It is agreed to report one total dutycycle capability of *maxUplinkDutyCycle-interBandCA-PC2* independent of power class cases for power class 2 NR inter-band CA, and report one total dutycycle capability of *maxUplinkDutyCycle- SULcombination-PC2* for power class 2 NR SUL configurations. The dutycycle capability indicates the maximum uplink duty threshold that UE can guarantee to keep working on power class 2.

***maxUplinkDutyCycle-interBandCA-PC2***

The *maxUplinkDutyCycle-interBandCA-PC2* capability indicates the maximum weighted percentage of symbols during a certain evaluation period that can be scheduled for uplink transmission so as to ensure compliance with applicable electromagnetic energy absorption requirements provided by regulatory bodies. The weighted percentage of uplink symbols is specified in 6.2A.1.3 in 38101-1 and the capability applies to the CA combinations listed in table 6.2A.1.3-1 in 38101.The capability is optional and only for FR1.

The *maxUplinkDutyCycle-interBandCA-PC2* capability is reported by UE as per band combination capability. The values and range is listed as below, if the field is absent, 50% shall be applied.

*maxUplinkDutyCycle-interBandCA-PC2* ∈{ n60, n70, n80, n90, n100 }

where, value n60 corresponds to 60%, value n70 corresponds to 70% and so on.

***maxUplinkDutyCycle-SULcombination-PC2***

The *maxUplinkDutyCycle-SULcombination-PC2* capability indicates the maximum weighted percentage of symbols during a certain evaluation period that can be scheduled for uplink transmission so as to ensure compliance with applicable electromagnetic energy absorption requirements provided by regulatory bodies. The weighted percentage of uplink symbols is specified in 6.2C.1 in 38101-1 and the capability applies to all the SUL configurations with 1 SUL band + 1 TDD band.The capability is optional and only for FR1.

The *maxUplinkDutyCycle-SULcombination-PC2* capability is reported by UE as per band combination capability. The values and range is listed as below, if the field is absent, 50% shall be applied.

*maxUplinkDutyCycle-SULcombination-PC2* ∈{ n60, n70, n80, n90, n100 }

where, value n60 corresponds to 60%, value n70 corresponds to 70% and so on.

# 2 Actions

**To RAN WG2**

**ACTION:** RAN4 kindly asks RAN2 to take the above agreements into consideration and design the capability signalling.

# 3 Dates of next TSG-RAN WG4 meetings

3GPP TSG-RAN WG4 Meeting #101-e Nov. 01-12, 2021, Electronic Meeting

3GPP TSG-RAN WG4 Meeting #102 Feb. 21-25, 2022, Electronic Meeting