**3GPP TSG-RAN WG4 Meeting #110bis R4-2406579**

**Changsha, China, April 15 – 19, 2024**

**Title:** Draft LS on 3Tx SAR solution for inter-band CA with PC1.5

**Response to:**

**Release:** Rel-18

**Work Item:** 4Rx\_low\_NR\_band\_handheld\_3Tx\_NR\_CA\_ENDC-Core

**Source:** RAN4

**To:** RAN2

**Cc:**

**Contact Person:**

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**Attachments**: R4-2406580

**1. Overall Description:**

In TS38.101-1, for 3Tx inter-band UL CA in power class 1.5 with either UL MIMO or Tx diversity in one band, the UE capability *maxUplinkDutyCycle-interBandCA-PC2* is re-used from power class 2 and applied as a duty threshold in the SAR solution in the reference R4-2406580. From RAN4’s perspective, the reuse of the duty cycle value indicated by the capability is more convenient than introducing another capability, without causing technical issue in RAN4 specification.

* **Question#1: From RAN2’s view, is there any technical problem of reusing the capability of *maxUplinkDutyCycle-interBandCA-PC2* to the SAR solution in PC1dot5?**

Per TS 38.306, however, the expected UE behavior if the capability *maxUplinkDutyCycle-interBandCA-PC2-r17* is absent is that the UE ‘shall work on power class 2’ by default. Per TS 38.101-1, if the capability is absent, the UE reported inter-band CA power class (i.e. power class 2 or 1.5 via *powerclass* IE) will be applied. In this case, the capability *maxUplinkDutyCycle-interBandCA-PC2-r17* requires update in TS 38.306.

| **Definitions for parameters** | **Per** | **M** | FDD-TDD  DIFF | FR1-FR2  DIFF |
| --- | --- | --- | --- | --- |
| ***maxUplinkDutyCycle-interBandCA-PC2-r17***  Indicates the maximum average 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 average percentage of uplink symbols is specified in 6.2A.1.3 in TS 38101-1[2] and the capability applies to the CA combinations listed in table 6.2A.1.3-1 in TS 38101-1[2]. If the field is absent, UE may use P-MPRc as defined in 6.2.4 in TS 38101-1[2] if necessary.  Value n50 corresponds to 50%, value n60 corresponds to 60% and so on.  NOTE: Specific targeted UL duty cycle percentage is not assumed if the field is absent. | BC | No | N/A | FR1 only |

**Question#2: If there is no other technical problem in Q1, would RAN2 consider the approach above to update TS38.306?**



**2. Actions:**

**To RAN2:**

**ACTION:** RAN4 respectfully asks RAN2 to assess Question#1, and update the capability of *maxUplinkDutyCycle-interBandCA-PC2* to accommodate the SAR solution for 3Tx inter-band UL CA in power class 1.5, with either UL MIMO or Tx diversity in one band, if needed.

**3. Date of Next TSG WG RAN4 Meetings:**

TSG-RAN4 Meeting#111 20 - 24 May 2024 Fukuoka, Japan

TSG-RAN4 Meeting#112 19 – 23 August 2024 Maastricht, Netherlands