

APPENDIX G POWER REDUCTION VERIFICATION

Per the May 2017 TCBC Workshop Notes, demonstration of proper functioning of the power reduction mechanisms is required to support the corresponding SAR configurations. The verification process was divided into two parts: (1) evaluation of output power levels for individual or multiple triggering mechanisms and (2) evaluation of the triggering distances for proximity-based sensors.

G.1 Power Verification Procedure

The power verification was performed according to the following procedure:

1. A base station simulator was used to establish a conducted RF connection and the output power was monitored. The power measurements were confirmed to be within expected tolerances for all states before and after a power reduction mechanism was triggered.
2. Step 1 was repeated for all relevant modes and frequency bands for the mechanism being investigated.

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G.2 Main Antenna Verification Summary

Table G-1
Power Measurement Verification for Main Antenna

	On Table	On Body	On Table	In Hand
Mode	Measured Power [dBm]	Measured Power [dBm]	Measured Power [dBm]	Measured Power [dBm]
NR Band n66	Pmax Verified	16.77	Pmax Verified	16.64
NR Band n2	Pmax Verified	16.59	Pmax Verified	16.31
UMTS B4 AMR	Pmax Verified	15.7	Pmax Verified	15.69
UMTS B2 AMR	Pmax Verified	15.7	Pmax Verified	15.68
GSM 1900 Voice	Pmax Verified	26.83	Pmax Verified	26.81
GPRS 1900 4 Tx Slot	Pmax Verified	21.42	Pmax Verified	21.03
LTE Band 66	Pmax Verified	15.87	Pmax Verified	15.84
LTE Band 4	Pmax Verified	15.75	Pmax Verified	15.77
LTE Band 25	Pmax Verified	15.44	Pmax Verified	15.07
LTE Band 2	Pmax Verified	15.55	Pmax Verified	15.13
LTE Band 7	Pmax Verified	15.02	Pmax Verified	15.05
LTE Band 41 PC3	Pmax Verified	13.81	Pmax Verified	13.76
LTE Band 48	Pmax Verified	14.24	Pmax Verified	14.17

The device supports manufacturer's proprietary mechanism which can detect the motion of the device and then configure the DSI during portable use scenarios. Details of this mechanism can be found in the Operational Description. When the device is being used near the user, the device will detect motion and reduce the time-averaged output power of the main antenna. The motion detection operation was verified for two test cases, on-body and held in hand to represent conservative use cases for a handset devices, including head and body-worn scenarios. The verification results are above. For the purposes of this evaluation, the Reserve_power_margin (Qualcomm® Smart Transmit EFS entry) was set to 0dB, so that the EUT transmits continuously at Plimit for DSI=5 when the mechanism was triggered.

The power level data measured for the untriggered condition (not applicable for SAR testing and this SAR report), is described in the Confidential Technical Description in the FCC filing.

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	Exposure Condition	
	Hotspot Off	Hotspot On
Mode	Measured Power [dBm]	Measured Power [dBm]
NR Band n66	Pmax Verified	14.46
NR Band n2	Pmax Verified	14.8
UMTS B4 AMR	Pmax Verified	16.24
UMTS B2 AMR	Pmax Verified	16.17
GSM 1900 Voice	Pmax Verified	27.6
GPRS 1900 4 Tx Slot	Pmax Verified	21.4
LTE Band 66	Pmax Verified	16.10
LTE Band 4	Pmax Verified	16.00
LTE Band 25	Pmax Verified	15.97
LTE Band 2	Pmax Verified	16.21
LTE Band 7	Pmax Verified	15.61
LTE Band 41 PC3	Pmax Verified	13.46
LTE Band 48	Pmax Verified	13.93

The device configures the DSI when the hotspot mode is activated by the user in the UI. The verification results are above. For the purposes of this evaluation, the Reserve_power_margin (Qualcomm® Smart Transmit EFS entry) was set to 0dB, so that the EUT transmits continuously at Plimit for DSI=6 when the hotspot was active.

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