



RF Exposure Report

(Part 0: SAR Characterization Evaluation)

FCC ID : A4RGP4BC
Equipment : Phone
Applicant : Google LLC
1600 Amphitheatre Parkway,
Mountain View, California, 94043 USA
Standard : FCC 47 CFR Part 2 (2.1093)

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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Approved by: Cona Huang / Deputy Manager

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1. Introduction

The FCC RF exposure limit is based on time-averaged RF exposure. SAR regulatory specifications are defined over certain measurement duration allowing for time-averaging. The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm has been designed to meet the compliance limits over the required duration, while still allowing dynamic control of transmit power for meeting system performance.

This report shows SAR characterization of sub6GHz. The characterization is achieved by determination of P_{limit}. In the case of sub6GHz, power is measured by antenna connection port power. P_{limit} is the power level that corresponds to the exposure design target. Design target is defined as SAR_{design target} for sub6GHz.

The compliance test under static transmission and simultaneous transmission are performed and summarized in Part 1 report. The validation of TAS algorithm under the dynamic transmission scenarios are conducted are reported in Part 2. Terminologies for this report are listed up in the table below.

P _{max}	Maximum Tx power that can be transmitted physically from RFIC for a given RAT
SAR _{FCC_limit}	SAR limit specified by FCC 1.6 W/kg averaged over 1-gram, for head and body exposure, and 4 W/kg averaged over 10-gram, for extremity exposure
SAR _{target}	Target SAR level used in TAS algorithm. This SAR value should be less than FCC limit and should be determined after accounting for all uncertainties and other design considerations.
P _{limit}	The time-averaged RF power that corresponds to SAR _{target} .
SAR characterization	Characterization of SAR value for all sub6GHz technologies



2. Product Description

Product Feature & Specification	
Equipment Name	Phone
FCC ID	A4RGP4BC
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 788 MHz ~ 798 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 25: 1850 MHz ~ 1915 MHz LTE Band 26: 814 MHz ~ 849 MHz LTE Band 30: 2305 MHz ~ 2315 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41: 2496 MHz ~ 2690 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n14 : 788 MHz ~ 798 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n30 : 2305 MHz ~ 2315 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77: 3450MHz ~ 3550MHz, 3700 MHz ~ 3980 MHz WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2G Band: 5150 MHz ~ 5250 MHz WLAN 5.3G Band: 5250 MHz ~ 5350 MHz WLAN 5.5G Band: 5470 MHz ~ 5725 MHz WLAN 5.8G Band: 5725 MHz ~ 5850 MHz WLAN 5.8G UNII4 Band: 5850 MHz ~ 5895 MHz WLAN6E: 5925 MHz ~ 6425 MHz, 6425 MHz ~ 6525 MHz, 6525 MHz ~ 6875 MHz, 6875 MHz ~ 7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC: 13.56 MHz WPT: 110KHz ~ 148.5KHz UWB: 6489.6 MHz, 7987.2 MHz
Mode	GSM/GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM/CP-OFDM, Pi/2 BPSK/QPSK/16QAM/64QAM/256QAM WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE NFC:ASK WPT: ASK UWB: BPM-BPSK



3. SAR Characterization

SAR characterization must be performed to cover all radio configurations and usage scenarios that the wireless device supports for operating at 6 GHz or below. It will then be used as input for S.LSI TAS feature to control and manage RF exposure for $f < 6$ GHz.

3.1 SAR design target and uncertainty

Wireless technology/ band	Config	Antenna	Duty cycle	Head		Hotspot	Body-worn		Body-worn/Extremity		power tolerance (dB)
				Standalone	Simultaneous	Simultaneous	Standalone	Simultaneous	Standalone	Simultaneous	
				Index 2	Index 3	Index 4	Index 5	Index 6	Index 5	Index 6	
				1g SAR design target (W/Kg)						10g SAR design target (W/Kg)	
GSM850 GSM/GPRS 1TX	Main TX0	0	12.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 GPRS 2TX	Main TX0	0	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 GPRS 3TX	Main TX0	0	37.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 GPRS 4TX	Main TX0	0	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 EDGE 1TX	Main TX0	0	12.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 EDGE 2TX	Main TX0	0	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 EDGE 3TX	Main TX0	0	37.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 EDGE 4TX	Main TX0	0	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM1900 GSM/GPRS 1TX	Main TX0	2	12.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM1900 GPRS 2TX	Main TX0	2	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM1900 GPRS 3TX	Main TX0	2	37.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM1900 GPRS 4TX	Main TX0	2	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM1900 EDGE 1TX	Main TX0	2	12.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM1900 EDGE 2TX	Main TX0	2	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM1900 EDGE 3TX	Main TX0	2	37.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM1900 EDGE 4TX	Main TX0	2	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
WCDMA B2	Main TX0	2	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
WCDMA B4	Main TX0	2	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
WCDMA B5	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B7	Main TX0	2	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
LTE B12/B17	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B13	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B14	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B25/B2	Main TX0	2	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
LTE B26/B5	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B30	Main TX0	2	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
LTE-B38 PC3	Main TX0	2	63.30%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
LTE-B38 PC2	Main TX0	2	43.30%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
LTE B41 PC3	Main TX0	2	63.30%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
LTE B41 PC2	Main TX0	2	43.30%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
LTE B48 PC3	Main TX0	6	63.30%	0.91	0.68	0.68	0.91	0.68	2.28	1.71	1.20
LTE B66/B4	Main TX0	2	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
LTE B71	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n5	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n7	Main TX0	2	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n12	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n14	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n25/n2	Main TX0	2	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
FR1 n30	Main TX0	2	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n38 PC3	Main TX0	2	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC3	Main TX0	2	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00



FR1 n41 PC2	Main TX0	2	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC1.5 MIMO	Main TX0	2	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n48 PC3	Main TX0	6	100.00%	0.91	0.68	0.68	0.91	0.68	2.28	1.71	1.20
FR1 n66	Main TX0	2	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
FR1 n71	Main TX0	0	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n77 PC3	Main TX0	6	100.00%	0.93	0.70	0.70	0.93	0.70	2.33	1.75	1.10
FR1 n77 PC2	Main TX0	6	50.00%	0.93	0.70	0.70	0.93	0.70	2.33	1.75	1.10
LTE B2 Sub	Sub TX0	1	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
LTE B66/B4 Sub	Sub TX0	1	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
FR1 n2 Sub	Sub TX0	1	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
FR1 n38 PC3 Sub	Sub TX0	1	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC3 Sub	Sub TX0	1	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC2 Sub	Sub TX0	1	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC1.5 Sub MIMO	Sub TX0	1	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n48 PC3 Sub MIMO	Sub TX0	1	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n66 Sub	Sub TX0	1	100.00%	0.98	0.73	0.73	0.98	0.73	2.44	1.83	0.90
FR1 n77 PC3 Sub	Sub TX0	1	100.00%	0.91	0.68	0.68	0.91	0.68	2.28	1.71	1.20

The power table index 5 and 6 will be designed to meet both 1g and 10 SAR design target

Wireless technology/ band	Config	Antenna	Duty cycle	Head		Hotspot	Body-worn		Body-worn/Extremity		power tolerance (dB)
				Standalone	Simultaneous	Simultaneous	Standalone	Simultaneous	Standalone	Simultaneous	
				Index 2	Index 3	Index 4	Index 5	Index 6	Index 5	Index 6	
				1g SAR design target (W/Kg)						10g SAR design target (W/Kg)	
GSM850 GSM/GPRS 1TX	Main TX1	1	12.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 GPRS 2TX	Main TX1	1	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 GPRS 3TX	Main TX1	1	37.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 GPRS 4TX	Main TX1	1	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 EDGE 1TX	Main TX1	1	12.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 EDGE 2TX	Main TX1	1	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 EDGE 3TX	Main TX1	1	37.50%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM850 EDGE 4TX	Main TX1	1	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
GSM1900 GSM/GPRS 1TX	Main TX1	0	12.50%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
GSM1900 GPRS 2TX	Main TX1	0	25.00%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
GSM1900 GPRS 3TX	Main TX1	0	37.50%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
GSM1900 GPRS 4TX	Main TX1	0	50.00%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
GSM1900 EDGE 1TX	Main TX1	0	12.50%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
GSM1900 EDGE 2TX	Main TX1	0	25.00%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
GSM1900 EDGE 3TX	Main TX1	0	37.50%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
GSM1900 EDGE 4TX	Main TX1	0	50.00%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
WCDMA B2	Main TX1	0	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
WCDMA B4	Main TX1	0	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
WCDMA B5	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B7	Main TX1	0	100.00%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
LTE B12/B17	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B13	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B14	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B25/B2	Main TX1	0	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
LTE B26/B5	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
LTE B30	Main TX1	0	100.00%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
LTE-B38 PC3	Main TX1	0	63.30%	1.05	0.78	0.78	1.05	0.78	2.61	1.96	0.60
LTE-B38 PC2	Main TX1	0	43.30%	1.07	0.80	0.80	1.07	0.80	2.67	2.01	0.50
LTE B41 PC3	Main TX1	0	63.30%	1.05	0.78	0.78	1.05	0.78	2.61	1.96	0.60
LTE B41 PC2	Main TX1	0	43.30%	1.05	0.78	0.78	1.05	0.78	2.61	1.96	0.60
LTE B48 PC3	Main TX1	7	63.30%	0.81	0.61	0.61	0.81	0.61	2.03	1.52	1.70



LTE B66/B4	Main TX1	0	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
LTE B71	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n5	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n7	Main TX1	0	100.00%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
FR1 n12	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n14	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n25/n2	Main TX1	0	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
FR1 n30	Main TX1	0	100.00%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
FR1 n38 PC3	Main TX1	0	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC3	Main TX1	0	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC2	Main TX1	0	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC1.5 MIMO	Main TX1	0	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n48 PC3	Main TX1	7	100.00%	0.81	0.61	0.61	0.81	0.61	2.03	1.52	1.70
FR1 n66	Main TX1	0	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
FR1 n71	Main TX1	1	100.00%	1.00	0.75	0.75	1.00	0.75	2.50	1.87	0.80
FR1 n77 PC3	Main TX1	7	100.00%	0.74	0.55	0.55	0.74	0.55	1.85	1.39	2.10
FR1 n77 PC2	Main TX1	7	50.00%	0.83	0.62	0.62	0.83	0.62	2.08	1.56	1.60
LTE B2 Sub	Sub TX1	5	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
LTE B66/B4 Sub	Sub TX1	5	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
FR1 n2 Sub	Sub TX1	5	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
FR1 n38 PC3 Sub	Sub TX1	5	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC3 Sub	Sub TX1	5	100.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC2 Sub	Sub TX1	5	50.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n41 PC1.5 Sub MIMO	Sub TX1	5	25.00%	0.95	0.71	0.71	0.95	0.71	2.38	1.79	1.00
FR1 n48 PC3 Sub MIMO	Sub TX1	5	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
FR1 n66 Sub	Sub TX1	5	100.00%	0.85	0.64	0.64	0.85	0.64	2.12	1.59	1.50
FR1 n77 PC3 Sub	Sub TX1	5	100.00%	0.81	0.61	0.61	0.81	0.61	2.03	1.52	1.70

The power table index 5 and 6 will be designed to meet both 1g and 10 SAR design target

Accounting for total uncertainty, SAR_design_target should meet the following condition:

$$SAR_design_target < SAR_{regulatory_limit} \times 10^{\frac{-total\ uncertainty}{10}}$$



3.2 SAR Characterization – Power Table

1. The P_{limit} values correspond to SAR_{design_target}.
2. GSM and WCDMA don't support time average feature of dynamic power varying, the power will be fixed at the static reduce power level at different exposure conditions for RF exposure compliance. For the GSM (TDD) P_{limit} power levels in the table correspond to the burst average power levels which don't account for TX duty cycle.

<P_{limit} for supported technologies and bands (P_{limit} corresponding to SAR design target)>

Wireless technology/ band (No Accounting duty cycle)	Config	Antenna	Duty cycle	Mobile Condition	Head		Hotspot	Body-worn/Extremity		P Max Burst average power (dBm)
					Standalone	Simultaneous	Simultaneous	Standalone	Simultaneous	
				Index 1	Index 2	Index 3	Index 4	Index 5	Index 6	
				P limit						
GSM850 GSM/GPRS 1TX	Main TX0	0	12.50%	32.5	35.6	34.4	29.5	30.7	29.5	32.5
GSM850 GPRS 2TX	Main TX0	0	25.00%	31.5	34.6	33.4	29	30.2	29	31.5
GSM850 GPRS 3TX	Main TX0	0	37.50%	30.5	33.6	32.4	27.5	28.7	27.5	30.5
GSM850 GPRS 4TX	Main TX0	0	50.00%	29.5	32.6	31.4	26.5	27.7	26.5	29.5
GSM850 EDGE 1TX	Main TX0	0	12.50%	27	27	27	27	27	27	27
GSM850 EDGE 2TX	Main TX0	0	25.00%	26.5	26.5	26.5	26.5	26.5	26.5	26.5
GSM850 EDGE 3TX	Main TX0	0	37.50%	26.5	26.5	26.5	26.5	26.5	26.5	26.5
GSM850 EDGE 4TX	Main TX0	0	50.00%	24.5	24.5	24.5	24.5	24.5	24.5	24.5
GSM1900 GSM/GPRS 1TX	Main TX0	2	12.50%	30	33	31.8	30	31.2	30	30
GSM1900 GPRS 2TX	Main TX0	2	25.00%	28.5	31.5	30.3	27.2	28.4	27.2	28.5
GSM1900 GPRS 3TX	Main TX0	2	37.50%	28	31	29.8	25.4	26.6	25.4	28
GSM1900 GPRS 4TX	Main TX0	2	50.00%	27	30	28.8	24.2	25.4	24.2	27
GSM1900 EDGE 1TX	Main TX0	0	12.50%	25	25	25	25	25	25	25
GSM1900 EDGE 2TX	Main TX0	0	25.00%	24	24	24	24	24	24	24
GSM1900 EDGE 3TX	Main TX0	0	37.50%	24	24	24	24	24	24	24
GSM1900 EDGE 4TX	Main TX0	0	50.00%	23	23	23	23	23	23	23
WCDMA B2	Main TX0	2	100.00%	24.6	26.7	25.5	22.6	23.8	22.6	24.6
WCDMA B4	Main TX0	2	100.00%	24.6	28.3	27.1	23.2	24.4	23.2	24.6
WCDMA B5	Main TX0	0	100.00%	24.7	30.3	29.1	22.7	23.9	22.7	24.7

Wireless technology/ band(No Accounting duty cycle)	Config	Antenna	Duty cycle	Mobile Condition	Head		Hotspot	Body-worn/Extremity		P Max Burst average power (dBm)
					Standalone	Simultaneous	Simultaneous	Standalone	Simultaneous	
				Index 1	Index 2	Index 3	Index 4	Index 5	Index 6	
				P limit						
GSM850 GSM/GPRS 1TX	Main TX1	1	12.50%	32.5	32.2	31	37.7	38.9	37.7	32.5
GSM850 GPRS 2TX	Main TX1	1	25.00%	31.5	29.5	28.3	34.7	35.9	34.7	31.5
GSM850 GPRS 3TX	Main TX1	1	37.50%	30.5	27.5	26.3	32.9	34.1	32.9	30.5
GSM850 GPRS 4TX	Main TX1	1	50.00%	29.5	26.5	25.3	31.7	30.7	29.5	29.5
GSM850 EDGE 1TX	Main TX1	1	12.50%	27	27	27	27	27	27	27
GSM850 EDGE 2TX	Main TX1	1	25.00%	26.5	26.5	26.5	26.5	26.5	26.5	26.5
GSM850 EDGE 3TX	Main TX1	1	37.50%	26.5	26.5	26.5	26.5	26.5	26.5	26.5
GSM850 EDGE 4TX	Main TX1	1	50.00%	24.5	24.5	24.5	24.5	24.5	24.5	24.5
GSM1900 GSM/GPRS 1TX	Main TX1	0	12.50%	29.2	42.3	41.1	23.6	24.8	23.6	29.2
GSM1900 GPRS 2TX	Main TX1	0	25.00%	27.7	39.3	38.1	22.1	23.3	22.1	27.7
GSM1900 GPRS 3TX	Main TX1	0	37.50%	27.2	37.5	36.3	21.1	22.3	21.1	27.2
GSM1900 GPRS 4TX	Main TX1	0	50.00%	26.2	36.3	35.1	20.1	21.3	20.1	26.2
GSM1900 EDGE 1TX	Main TX1	1	12.50%	24.2	24.2	24.2	21.7	22.9	21.7	24.2
GSM1900 EDGE 2TX	Main TX1	1	25.00%	23.2	23.2	23.2	20.7	21.9	20.7	23.2
GSM1900 EDGE 3TX	Main TX1	1	37.50%	23.2	23.2	23.2	20.7	21.9	20.7	23.2
GSM1900 EDGE 4TX	Main TX1	1	50.00%	22.2	22.2	22.2	19.7	20.9	19.7	22.2
WCDMA B2	Main TX1	0	100.00%	23.8	35.5	34.3	17.4	20.4	19.2	23.8
WCDMA B4	Main TX1	0	100.00%	23.8	33.9	32.7	17.9	19.1	17.9	23.8
WCDMA B5	Main TX1	1	100.00%	24.7	23.5	22.3	27.3	28.5	27.3	24.7



<P_{limit} for supported technologies and bands (P_{limit} corresponding to SAR design target)>

Wireless technology/ band (Accounting duty cycle)	Config	Antenna	Duty cycle	Mobile Condition	Head		Hotspot	Body-worn/Extremity		P Max Time-average power (dBm)
				Index 1	Standalone	Simultaneous	Simultaneous	Standalone	Simultaneous	
					Index 2	Index 3	Index 4	Index 5	Index 6	
				P limit						
LTE B7	Main TX0	2	100.00%	24.5	24.3	23.1	20.5	21.7	20.5	24.5
LTE B12/B17	Main TX0	0	100.00%	24.7	33.6	32.4	27.8	29.4	28.2	24.7
LTE B13	Main TX0	0	100.00%	24.7	29.4	28.2	25.8	27.5	26.3	24.7
LTE B14	Main TX0	0	100.00%	24.7	28.8	27.6	25.7	27.3	26.1	24.7
LTE B25/B2	Main TX0	2	100.00%	24.6	26.7	25.5	22.6	23.8	22.6	24.6
LTE B26/B5	Main TX0	0	100.00%	24.7	28.7	27.5	24.7	26.1	24.9	24.7
LTE B30	Main TX0	2	100.00%	21.9	27.4	26.2	19.9	21.1	19.9	21.9
LTE-B38 PC3	Main TX0	2	63.30%	22.5	26.2	25	20.9	22.1	20.9	22.5
LTE-B38 PC2	Main TX0	2	43.30%							22.4
LTE B41 PC3	Main TX0	2	63.30%	22.9	26.2	25	20.9	22.1	20.9	22.5
LTE B41 PC2	Main TX0	2	43.30%							22.9
LTE B48 PC3	Main TX0	6	63.30%	22.3	32.9	31.7	23.7	27	25.8	21.5
LTE B66/B4	Main TX0	2	100.00%	24.6	27.8	26.6	22.8	24	22.8	24.6
LTE B71	Main TX0	0	100.00%	24.7	31.8	30.6	28	30.2	29	24.7
FR1 n5	Main TX0	0	100.00%	24.7	30.4	29.2	23.4	25.9	24.7	24.7
FR1 n7	Main TX0	2	100.00%	24.5	25.3	24.1	20	21.2	20	24.5
FR1 n12	Main TX0	0	100.00%	24.7	32.6	31.4	27.3	28.9	27.7	24.7
FR1 n14	Main TX0	0	100.00%	24.7	32.7	31.5	26.5	28.2	27	24.7
FR1 n25/n2	Main TX0	2	100.00%	24.6	27.5	26.3	21.2	22.4	21.2	24.6
FR1 n30	Main TX0	2	100.00%	21.9	23.1	21.9	19.8	21	19.8	21.9
FR1 n38 PC3	Main TX0	2	100.00%	24.5	25.7	24.5	20.2	21.7	20.5	24.5
FR1 n41 PC3	Main TX0	2	100.00%	24.5	25.7	24.5	20.2	21.7	20.5	24.5
FR1 n41 PC2	Main TX0	2	50.00%							23.5
FR1 n41 UL MIMO PC1.5	Main TX0	2	25.00%							19.5
FR1 n48 PC3	Main TX0	6	100.00%	24.3	32.7	31.5	24.6	26.7	25.5	23.5
FR1 n66	Main TX0	2	100.00%	24.6	30.2	29	22.1	23.3	22.1	24.6
FR1 n71	Main TX0	0	100.00%	24.7	35	33.8	27.7	30.5	29.3	24.7
FR1 n77 PC3	Main TX0	6	100.00%	23	30	28.8	21.2	22.4	21.2	23
FR1 n77 PC2	Main TX0	6	50.00%	23						23
LTE B2 Sub	Sub TX0	1	100.00%	24.6	15.8	14.6	20.3	23.8	22.6	24.6
LTE B66/B4 Sub	Sub TX0	1	100.00%	24.6	18.3	17.1	22.4	23.6	22.4	24.6
FR1 n2 Sub	Sub TX0	1	100.00%	24.6	16.6	15.4	18.4	25.3	24.1	24.6
FR1 n38 PC3 Sub	Sub TX0	1	100.00%	24.5	17.7	16.5	20.2	25.7	24.5	24.5
FR1 n41 PC3 Sub	Sub TX0	1	100.00%	24.5	17.7	16.5	20.2	25.7	24.5	24.5
FR1 n41 PC2 Sub	Sub TX0	1	50.00%							23.5
FR1 n41 PC1.5 Sub UL MIMO	Sub TX0	1	25.00%							19.5
FR1 n48 Sub UL MIMO	Sub TX0	1	100.00%	19.8	19.9	18.7	27	29.2	28	19.8
FR1 n66 Sub	Sub TX0	1	100.00%	24.6	16.9	15.7	21.6	22.8	21.6	24.6
FR1 n77 PC3 Sub	Sub TX0	1	100.00%	24.3	18.9	17.7	19.6	20.8	19.6	24.3

General Note:

1. The device additional support uplink MIMO on n41, n48 and n77.
2. n41 PC1.5 Main Tx0 Ant2 and Sub Tx0 Ant 1, n48 PC3 Sub Tx0 Ant1 of device only support uplink MIMO.
3. LTE and 5GNR TDD: P_{limit} power levels in the table correspond to the time-averaged power levels which accounts for TX duty cycle.
4. Maximum target power, P_{max}, is configured in NV settings in EUT to limit maximum transmitting power. This power is converted into peak power in NV settings for TDD schemes.



<P_{limit} for supported technologies and bands (P_{limit} corresponding to SAR design target)>

Wireless technology/ band (Accounting duty cycle)	Config	Antenna	Duty cycle	Mobile Condition	Head		Hotspot	Body-worn/Extremity		P Max Time-average power (dBm)
				Index 1	Standalone	Simultaneous	Simultaneous	Standalone	Simultaneous	
					Index 2	Index 3	Index 4	Index 5	Index 6	
				P limit						
LTE B7	Main TX1	0	100.00%	23.5	39.4	38.2	17.5	21	19.8	23.5
LTE B12/B17	Main TX1	1	100.00%	24.7	26.6	25.4	30.4	31.6	30.4	24.7
LTE B13	Main TX1	1	100.00%	24.7	23.4	22.2	27.7	28.9	27.7	24.7
LTE B14	Main TX1	1	100.00%	24.7	23.2	22	28.4	29.6	28.4	24.7
LTE B25/B2	Main TX1	0	100.00%	23.8	37.3	36.1	17.7	20.7	19.5	23.8
LTE B26/B5	Main TX1	1	100.00%	24.7	22.9	21.7	26.9	28.1	26.9	24.7
LTE B30	Main TX1	0	100.00%	21.5	30.6	29.4	17.6	21.3	20.1	21.5
LTE-B38 PC3	Main TX1	0	63.30%	22.5	33.2	32	20.2	21.6	20.4	22.5
LTE-B38 PC2	Main TX1	0	43.30%							22.4
LTE B41 PC3	Main TX1	0	63.30%	22.9	33.2	32	20.2	21.7	20.5	22.5
LTE B41 PC2	Main TX1	0	43.30%							22.9
LTE B48 PC3	Main TX1	7	63.30%	21.2	32	30.8	21.2	25.3	24.1	20.5
LTE B66/B4	Main TX1	0	100.00%	23.8	35.2	34	19	20.2	19	23.8
LTE B71	Main TX1	1	100.00%	24.7	24.2	23	31.2	32.6	31.4	24.7
FR1 n5	Main TX1	1	100.00%	24.7	24.2	23	28	29.2	28	24.7
FR1 n7	Main TX1	0	100.00%	23.5	30	28.8	18	20.4	19.2	23.5
FR1 n12	Main TX1	1	100.00%	24.7	26.5	25.3	30.4	31.6	30.4	24.7
FR1 n14	Main TX1	1	100.00%	24.7	23.7	22.5	30.1	31.3	30.1	24.7
FR1 n25/n2	Main TX1	0	100.00%	23.8	32.5	31.3	17.5	20.5	19.3	23.8
FR1 n30	Main TX1	0	100.00%	21.5	32.3	31.1	17.9	21.8	20.6	21.5
FR1 n38 PC3	Main TX1	0	100.00%	23.5	24.7	23.5	18.4	22.6	21.4	23.5
FR1 n41 PC3	Main TX1	0	100.00%	23.5	24.7	23.5	18.4	22.6	21.4	23.5
FR1 n41 PC2	Main TX1	0	50.00%							23.5
FR1 n41 PC1.5 UL MIMO	Main TX1	0	25.00%							19.5
FR1 n48 PC3	Main TX1	7	100.00%	23.2	30.9	29.7	20.1	21.3	20.1	22.5
FR1 n66	Main TX1	0	100.00%	23.8	35.3	34.1	17.6	18.8	30.7	23.8
FR1 n71	Main TX1	1	100.00%	24.7	24	22.8	29.5	30.7	29.5	24.7
FR1 n77 PC3	Main TX1	7	100.00%	21.9	30.2	29	22.1	23.3	22.1	21.9
FR1 n77 PC2	Main TX1	7	50.00%							21.9
LTE B2 Sub	Sub TX1	5	100.00%	23.8	23.8	22.6	22.5	25.5	24.3	23.8
LTE B66/4 Sub	Sub TX1	5	100.00%	23.8	24.8	23.6	24.2	28	26.8	23.8
FR1 n2 Sub	Sub TX1	5	100.00%	23.8	24	22.8	22.8	25.4	24.2	23.8
FR1 n38 PC3 Sub	Sub TX1	5	100.00%	23.5	23.2	22	20.7	21.9	20.7	23.5
FR1 n41 PC3 Sub	Sub TX1	5	100.00%	23.5	23.2	22	20.7	21.9	20.7	23.5
FR1 n41 PC2 Sub	Sub TX1	5	50.00%							22.5
FR1 n41 PC1.5 Sub UL MIMO	Sub TX1	5	25.00%							18.5
FR1 n48 Sub UL MIMO	Sub TX1	5	100.00%	18.7	22.4	21.2	22.2	25.7	24.5	18.7
FR1 n66 Sub	Sub TX1	5	100.00%	23.8	25	23.8	23.3	24.5	23.3	23.8
FR1 n77 Sub PC3	Sub TX1	5	100.00%	23.2	19.3	18.1	18.6	19.8	18.6	23.2

General Note:

1. The device additional support uplink MIMO on n41, n48 and n77.
2. n41 PC1.5 Main Tx1 Ant 0, Sub Tx1 Ant 5, and n48 PC3 Sub Tx1 Ant5 of device only support uplink MIMO.
3. LTE and 5GNR TDD: P_{limit} power levels in the table correspond to the time-averaged power levels which accounts for TX duty cycle.
4. Maximum target power, P_{max}, is configured in NV settings in EUT to limit maximum transmitting power. This power is converted into peak power in NV settings for TDD schemes.