

**LG Electronics Model : LM-V600TM**

## **PART 0 SAR CHAR REPORT**

**Rev. F**

**Jan. 08, 2020**

**FCC ID : ZNFV600TM**

**Report Type:** Part 0 SAR Characterization

**DUT Type:** Portable Handset

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**Test Lab : LG MC R&D Lab**

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**Tested by Jun-Kyu Kim**



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**Reported by Tae-Yoon Kim**



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## 1. INTRODUCTION

Qualcomm Smart Transmit cannot operate without SAR at the device level, beforehand. The parameters obtained from SAR (referred to as SAR char) will be used as input for Smart Transmit. SAR char will be entered via the Embedded File System (EFS) to enable the Smart Transmit feature.

## 2. DEVICE UNDER TEST

### 2.1. Device Overview

Band & Mode	Operating Modes	Tx Frequency
Cell. BC10 CDMA/EVDO	Voice/Data	817 - 824MHz
Cell. BC0 CDMA/EVDO	Voice/Data	824 - 849 MHz
PCS CDMA/EVDO	Voice/Data	1850 - 1910 MHz
GSM/GPRS/EDGE 850	Voice/Data	824.2 - 848.8 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.2 - 1909.8 MHz
UMTS 850	Voice/Data	827 - 846.6 MHz
UMTS 1900	Voice/Data	1854.2 - 1906.6 MHz
UMTS 1700	Voice/Data	1712 - 1753 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 17	Voice/Data	706.5 – 713.5 MHz
LTE Band 25	Voice/Data	1850.7 – 1914.3 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 30	Voice/Data	2305 - 2315 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 71	Voice/Data	665.5 – 695.5 MHz
LTE Band 48	Voice/Data	3552.5 - 3697.5 MHz
NR n2	Data	1852.5 – 1907.5 MHz
NR n25	Data	1852.5 – 1912.5 MHz
NR n66	Data	1712.5 – 1777.5 MHz
NR n71	Data	665.5 695.5 MHz
NR n41 (PC3)	Data	2506 – 2680 MHz
NR n41 (PC2)	Data	2516 – 2670 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz

This device uses the Qualcomm® Smart Transmit feature to control and manage transmitting power in real time and to ensure the time-averaged RF exposure is in compliance with the FCC requirement at all times for 2G/3G/4G/5G WWAN operations. Additionally, this device supports WLAN/BT/NFC technologies but the output power of these modems is not controlled by the Smart Transmit algorithm.

## 2.2 Time-Averaging for SAR

This device is enabled with Qualcomm® Smart Transmit algorithm to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from 2G/3G/4G/5G NR Sub6 WWAN is in compliance with FCC requirements. This Part 0 report shows SAR characterization of WWAN radios for 2G/3G/4G/5G NR Sub6. Characterization is achieved by determining PLimit for 2G/3G/4G/5G NR Sub6 that correspond to the exposure design targets after accounting for all device design related uncertainties, i.e., SAR\_design\_target (< FCC SAR limit) for sub-6 radio. The SAR characterization is denoted as SAR Char in this report. Section 3.3 includes a nomenclature of the specific terms used in this report. The compliance test under the static transmission scenario and simultaneous transmission analysis are reported in Part 1 report. The validation of the time-averaging algorithm and compliance under the dynamic (time- varying) transmission scenario for WWAN technologies are reported in Part 2 report

## 2.3 Nomenclature for Part 0 Report

Technology	Term	Description
2G/3G/4G/ 5G NR Sub6	Plimit	Power level that corresponds to the exposure design target (SAR_design_target) after accounting for all device design related uncertainties
	Pmax	Maximum tune up output power
	SAR_design_target	Target SAR level < FCC SAR limit after accounting for all device design related uncertainties
	SAR Char	Table containing PLimit for all technologies and bands
	Reserve_power_margin	The margin, in dB, below the PLimit to reserve for future transmission with a minimum transmit power

### 3 SAR CHARACTERIZATION

#### 3.1 DSI and SAR Determination

This device uses different Device State Index (DSI) to configure different time averaged power levels based on certain exposure scenarios. Depending on the detection scheme implemented in the smartphone, the worst-case SAR was determined by measurements for the relevant exposure conditions for that DSI. Detailed descriptions of the detection mechanisms are included in the operational description.

When 1g SAR and 10g SAR exposure comparison is needed, the worst-case was determined from SAR normalized to 1g or 10g SAR limit. The device state index (DSI) conditions used in Table 3-1 represent different exposure scenarios.

**Table 3-1 DSI and Corresponding Exposure Scenarios**

Scenario	Description	SAR Test Cases
Hotspot mode (DSI = 5)	<ul style="list-style-type: none"> <li>■ Device transmits in hotspot mode near body</li> <li>■ Hotspot Mode Active</li> </ul>	Hotspot SAR per KDB Publication 941225 D06
Proximity sensor active (DSI=8)	<ul style="list-style-type: none"> <li>■ Device transmits near body and proximity sensor is triggered</li> <li>■ Proximity sensor triggered</li> </ul>	Phablet SAR per KDB Publication 648474 D04 & KDB Publication 616217 D04

#### 3.2 SAR Design Target

*SAR\_design\_target* is determined by ensuring that it is less than FCC SAR limit after accounting for total device designed related uncertainties specified by the manufacturer (see Table 3-2). The *reserve\_power\_margin* is 3dB.

**Table 3-2 SAR\_design\_target Calculations**

SAR_design_target			
$SAR\_design\_target < SAR\_regulatory\_limit \times 10^{-Total\ Uncertainty/10}$			
1g SAR (W/kg)		10g SAR (W/kg)	
Total Uncertainty	0.5 dB	Total Uncertainty	0.5 dB
SAR_regulatory_limit	1.6 W/kg	SAR_regulatory_limit	4.0 W/kg
SAR_design_target	1.13 W/kg	SAR_design_target	2.83 W/kg

### 3.3 SAR Char

SAR test results corresponding to  $P_{max}$  for each antenna/technology/band/DSI can be found in Appendix A.  $P_{limit}$  is calculated by linearly scaling with the measured SAR at the  $P_{max}$  to correspond to the  $SAR_{design\_target}$ .  $P_{limit}$  determination for each exposure scenario corresponding to  $SAR_{design\_target}$  are shown in Table 3-3.

**Table 3-3  $P_{Limit}$  Determination**

Device State Index (DSI)	$P_{Limit}$ Determination Scenarios
1	The worst-case SAR exposure is determined as maximum SAR normalized to the limit among: 1. 1g Head SAR and 2. Body Worn SAR and 3. Extremity SAR measured at 2, 1 and 3 mm spacing for back, front, bottom respectively 4. Extremity SAR measured at 0mm for left and right surfaces
5	$P_{limit}$ is calculated based on 1g Hotspot SAR at 10 mm
6	Dual screen attaches at 0 or 360 degrees
7	Dual screen attaches at 180 degree
8	$P_{limit}$ is calculated based on 10g Extremity SAR at 0 mm for back, bottom, and front surfaces

**Note:**

For DSI = 1,  $P_{limit}$  is calculated by:

$$P_{limit} = \min\{P_{limit} \text{ corresponding to 1g Head SAR at 0 mm spacing, } \\ P_{limit} \text{ corresponding to 1g Body Worn SAR evaluation at 10 mm spacing, } \\ P_{limit} \text{ corresponding to 10g Extremity SAR evaluation at 1~3 mm spacing, } \\ P_{limit} \text{ corresponding to 10g Extremity SAR evaluation at 0 mm for left and right surfaces}\}$$

**Table 4-1 SAR Characterizations**

Mode/Band	DSI=1	DSI=6	DSI=7	DSI=5	DSI=8	Pmax*
	proximity sensor de-active	Dual Screen 0 or 360 degree	Dual Screen 180 degree	Hotspot mode	proximity sensor active	
	PLimit	PLimit	PLimit	PLimit	PLimit	
	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	
CDMA BC10	28.8	28.8	28.8	28.8	28.8	25
CDMA BC0	27.8	27.8	27.8	27.8	27.8	25
CDMA BC1	25.9	25.9	25.9	22.2	22.2	24.7
GSM850**	28.4	28.4	28.4	28.4	28.4	25.5
GSM1900**	24.8	24.8	24.8	24.8	24.8	22.5
WCDMA B5	27.4	27.4	27.4	27.4	27.4	25.0
WCDMA B2	25.7	25.7	25.7	22.2	22.2	24.7
WCDMA B4	26.5	26.5	26.5	22.2	22.2	24.7
LTE B12(17)	29.8	29.8	29.8	29.8	29.8	25.0
LTE B13	28.9	28.9	28.9	28.9	28.9	25.0
LTE B5(26)	27.6	27.6	27.6	27.6	27.6	25.0
LTE B71	29.6	29.6	29.6	29.6	29.6	25.0
LTE B2(25)	25.2	25.2	25.2	22.2	22.2	24.7
LTE B66(4)	25.6	25.6	25.6	22.2	22.2	24.7
LTE B7	26.2	26.2	26.2	21.2	21.2	23.2
LTE B30	24.3	24.3	24.3	24.3	24.3	22.2
LTE B41 (PC3)**	23.8	23.8	23.8	23.8	23.8	22.7
LTE B41 (PC2)**	23.8	23.8	23.8	23.8	23.8	23.6
LTE B48**	20.3	20.3	20.3	20.3	20.3	20.0
NR n71	29.9	29.9	29.9	29.9	29.9	25.0
NR n25(2)	23.0	23.0	23.0	23.0	23.0	25.0
NR n66	21.5	21.5	21.5	21.5	21.5	25.0
NR n41(PC3)	23.2	23.2	23.2	23.2	23.2	18.9
NR n41(PC2)	23.2	23.2	23.2	23.2	23.2	20.9

**Notes:**

1. DSI=1 is corresponding to head SAR, body-worn SAR and extremity SAR at larger separation distances that do not trigger the proximity sensor.
2. When Hotspot Mode (DSI=5) and Extremity sensor (DSI=8) are triggered at the same time, DSI=5 takes priority, thus the  $P_{limit}$  for DSI=5 is set to be less or equal to  $P_{limit}$  for DSI=8.
3. When Dual screen attached (DSI=6 or 7) and Extremity sensor (DSI=8) are triggered at the same time, DSI=8 takes priority.
4. Plimits for DSI=6 and 7 is equal to Plimits for DSI=1.
5. When  $P_{max} < P_{Limit}$ , the DUT will operate at a power level up to  $P_{max}$ .

\*Pmax is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + device uncertainty.

\*\*All PLimit power levels entered in Table 3-4 correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).

\*\*\*Plimit in the EFS for LTE B41 need to be configured with the minimum of (PC2) and (PC3) Plimits = 23.8dBm. And Plimit in the EFS for NR n41 need to be configured with the PC2 Plimits = 23.2dBm.

## APPENDIX A: SAR TEST RESULTS FOR $P_{Limit}$ CALCULATIONS

Table A-1 DSI = 1  $P_{Limit}$  Calculations – 2G/3G Head SAR

Frequency		Mode	Service	Conducted Power	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[dBm]				[W/kg]	[W/kg]		[dBm]
820.1	564	CDMABC10	RC3	25	Right	Cheek	1:1	0.112	1.13	35.0	33.6
820.1	564	CDMABC10	RC3	25	Right	Tilt	1:1	0.060	1.13	37.8	
820.1	564	CDMABC10	RC3	25	Left	Cheek	1:1	0.157	1.13	33.6	
820.1	564	CDMABC10	RC3	25	Left	Tilt	1:1	0.049	1.13	38.6	
820.1	564	CDMABC10	EVDO Rev.A	25	Right	Cheek	1:1	0.070	1.13	37.1	
820.1	564	CDMABC10	EVDO Rev.A	25	Right	Tilt	1:1	0.022	1.13	42.2	
820.1	564	CDMABC10	EVDO Rev.A	25	Left	Cheek	1:1	0.136	1.13	34.2	
820.1	564	CDMABC10	EVDO Rev.A	25	Left	Tilt	1:1	0.015	1.13	43.9	
836.52	384	CDMABC0	RC3	25	Right	Cheek	1:1	0.160	1.13	33.5	33.5
836.52	384	CDMABC0	RC3	25	Right	Tilt	1:1	0.084	1.13	36.3	
836.52	384	CDMABC0	RC3	25	Left	Cheek	1:1	0.148	1.13	33.8	
836.52	384	CDMABC0	RC3	25	Left	Tilt	1:1	0.079	1.13	36.6	
836.52	384	CDMABC0	EVDO Rev.A	25	Right	Cheek	1:1	0.151	1.13	33.8	
836.52	384	CDMABC0	EVDO Rev.A	25	Right	Tilt	1:1	0.079	1.13	36.6	
836.52	384	CDMABC0	EVDO Rev.A	25	Left	Cheek	1:1	0.151	1.13	33.7	
836.52	384	CDMABC0	EVDO Rev.A	25	Left	Tilt	1:1	0.080	1.13	36.5	
1880	600	PCS CDMA	RC3	24.7	Right	Cheek	1:1	0.086	1.13	35.9	35.7
1880	600	PCS CDMA	RC3	24.7	Right	Tilt	1:1	0.074	1.13	36.5	
1880	600	PCS CDMA	RC3	24.7	Left	Cheek	1:1	0.087	1.13	35.8	
1880	600	PCS CDMA	RC3	24.7	Left	Tilt	1:1	0.079	1.13	36.3	
1880	600	PCS CDMA	EVDO Rev.A	24.7	Right	Cheek	1:1	0.085	1.13	35.9	
1880	600	PCS CDMA	EVDO Rev.A	24.7	Right	Tilt	1:1	0.081	1.13	36.2	
1880	600	PCS CDMA	EVDO Rev.A	24.7	Left	Cheek	1:1	0.089	1.13	35.7	
1880	600	PCS CDMA	EVDO Rev.A	24.7	Left	Tilt	1:1	0.080	1.13	36.2	
836.6	190	GSM850	GSM	32.9	Right	Cheek	1:8.3	0.090	1.13	34.7	34.2
836.6	190	GSM850	GSM	32.9	Right	Tilt	1:8.3	0.044	1.13	37.8	
836.6	190	GSM850	GSM	32.9	Left	Cheek	1:8.3	0.094	1.13	34.5	
836.6	190	GSM850	GSM	32.9	Left	Tilt	1:8.3	0.044	1.13	37.8	
836.6	190	GSM850	GPRS	28.7	Right	Cheek	1:2.076	0.153	1.13	34.2	
836.6	190	GSM850	GPRS	28.7	Right	Tilt	1:2.076	0.076	1.13	37.3	
836.6	190	GSM850	GPRS	28.7	Left	Cheek	1:2.076	0.134	1.13	34.8	
836.6	190	GSM850	GPRS	28.7	Left	Tilt	1:2.076	0.070	1.13	37.6	
1880	661	GSM1900	GSM	29.7	Right	Cheek	1:8.3	0.028	1.13	36.6	36.2
1880	661	GSM1900	GSM	29.7	Right	Tilt	1:8.3	0.026	1.13	36.9	
1880	661	GSM1900	GSM	29.7	Left	Cheek	1:8.3	0.029	1.13	36.4	
1880	661	GSM1900	GSM	29.7	Left	Tilt	1:8.3	0.025	1.13	37.1	
1880	661	GSM1900	GPRS	26.7	Right	Cheek	1:2.76	0.046	1.13	36.2	
1880	661	GSM1900	GPRS	26.7	Right	Tilt	1:2.76	0.036	1.13	37.3	
1880	661	GSM1900	GPRS	26.7	Left	Cheek	1:2.76	0.043	1.13	36.5	
1880	661	GSM1900	GPRS	26.7	Left	Tilt	1:2.76	0.037	1.13	37.1	
836.6	4183	UMTS850	WCDMA	25	Right	Cheek	1:1	0.141	1.13	34.1	33.0
836.6	4183	UMTS850	WCDMA	25	Right	Tilt	1:1	0.102	1.13	35.5	
836.6	4183	UMTS850	WCDMA	25	Left	Cheek	1:1	0.180	1.13	33.0	
836.6	4183	UMTS850	WCDMA	25	Left	Tilt	1:1	0.050	1.13	38.5	
1880	9400	UMTS1900	WCDMA	24.7	Right	Cheek	1:1	0.085	1.13	35.9	35.8
1880	9400	UMTS1900	WCDMA	24.7	Right	Tilt	1:1	0.089	1.13	35.8	
1880	9400	UMTS1900	WCDMA	24.7	Left	Cheek	1:1	0.087	1.13	35.8	
1880	9400	UMTS1900	WCDMA	24.7	Left	Tilt	1:1	0.070	1.13	36.8	
1732.4	1412	UMTS1750	WCDMA	24.7	Right	Cheek	1:1	0.058	1.13	37.6	36.2
1732.4	1412	UMTS1750	WCDMA	24.7	Right	Tilt	1:1	0.080	1.13	36.2	
1732.4	1412	UMTS1750	WCDMA	24.7	Left	Cheek	1:1	0.078	1.13	36.3	
1732.4	1412	UMTS1750	WCDMA	24.7	Left	Tilt	1:1	0.045	1.13	38.7	



**Table A-2 DSI = 1  $P_{Limit}$  Calculations – LTE B12/13/26/5/71 Head SAR**

Frequency		Mode	Bandwidth	Conducted Power	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.		[MHz]	[dBm]							[W/kg]	[W/kg]	[dBm]	[dBm]
707.5	23095	LTE Band12	10	25	QPSK	1	49	Right	Cheek	1:1	0.155	1.13	33.6	33.2
707.5	23095	LTE Band12	10	24	QPSK	25	25	Right	Cheek	1:1	0.122	1.13	33.7	
707.5	23095	LTE Band12	10	25	QPSK	1	49	Right	Tilt	1:1	0.088	1.13	36.1	
707.5	23095	LTE Band12	10	24	QPSK	25	25	Right	Tilt	1:1	0.072	1.13	36.0	
707.5	23095	LTE Band12	10	25	QPSK	1	49	Left	Cheek	1:1	0.170	1.13	33.2	
707.5	23095	LTE Band12	10	24	QPSK	25	25	Left	Cheek	1:1	0.137	1.13	33.2	
707.5	23095	LTE Band12	10	25	QPSK	1	49	Left	Tilt	1:1	0.092	1.13	35.9	
707.5	23095	LTE Band12	10	24	QPSK	25	25	Left	Tilt	1:1	0.076	1.13	35.7	
782	23230	LTE Band13	10	25	QPSK	1	25	Right	Cheek	1:1	0.164	1.13	33.4	32.8
782	23230	LTE Band13	10	24	QPSK	25	12	Right	Cheek	1:1	0.127	1.13	33.5	
782	23230	LTE Band13	10	25	QPSK	1	25	Right	Tilt	1:1	0.096	1.13	35.7	
782	23230	LTE Band13	10	24	QPSK	25	12	Right	Tilt	1:1	0.075	1.13	35.8	
782	23230	LTE Band13	10	25	QPSK	1	25	Left	Cheek	1:1	0.187	1.13	32.8	
782	23230	LTE Band13	10	24	QPSK	25	12	Left	Cheek	1:1	0.145	1.13	32.9	
782	23230	LTE Band13	10	25	QPSK	1	25	Left	Tilt	1:1	0.087	1.13	36.1	
782	23230	LTE Band13	10	24	QPSK	25	12	Left	Tilt	1:1	0.071	1.13	36.1	
831.5	26865	LTE Band26	15	25	QPSK	1	36	Right	Cheek	1:1	0.165	1.13	33.4	33.4
831.5	26865	LTE Band26	15	24	QPSK	36	37	Right	Cheek	1:1	0.129	1.13	33.4	
831.5	26865	LTE Band26	15	25	QPSK	1	36	Right	Tilt	1:1	0.101	1.13	35.5	
831.5	26865	LTE Band26	15	24	QPSK	36	37	Right	Tilt	1:1	0.079	1.13	35.5	
831.5	26865	LTE Band26	15	25	QPSK	1	36	Left	Cheek	1:1	0.153	1.13	33.7	
831.5	26865	LTE Band26	15	24	QPSK	36	37	Left	Cheek	1:1	0.123	1.13	33.6	
831.5	26865	LTE Band26	15	25	QPSK	1	36	Left	Tilt	1:1	0.086	1.13	36.2	
831.5	26865	LTE Band26	15	24	QPSK	36	37	Left	Tilt	1:1	0.068	1.13	36.2	
836.5	20525	LTE Band5	10	25	QPSK	1	49	Right	Cheek	1:1	0.144	1.13	33.9	33.7
836.5	20525	LTE Band5	10	24	QPSK	25	12	Right	Cheek	1:1	0.112	1.13	34.0	
836.5	20525	LTE Band5	10	25	QPSK	1	49	Right	Tilt	1:1	0.079	1.13	36.6	
836.5	20525	LTE Band5	10	24	QPSK	25	12	Right	Tilt	1:1	0.061	1.13	36.7	
836.5	20525	LTE Band5	10	25	QPSK	1	49	Left	Cheek	1:1	0.152	1.13	33.7	
836.5	20525	LTE Band5	10	24	QPSK	25	12	Left	Cheek	1:1	0.121	1.13	33.7	
836.5	20525	LTE Band5	10	25	QPSK	1	49	Left	Tilt	1:1	0.078	1.13	36.6	
836.5	20525	LTE Band5	10	24	QPSK	25	12	Left	Tilt	1:1	0.061	1.13	36.7	
680.5	133297	LTE Band71	20	25	QPSK	1	0	Right	Cheek	1:1	0.176	1.13	33.1	33.1
680.5	133297	LTE Band71	20	24	QPSK	50	0	Right	Cheek	1:1	0.136	1.13	33.2	
680.5	133297	LTE Band71	20	25	QPSK	1	0	Right	Tilt	1:1	0.089	1.13	36.0	
680.5	133297	LTE Band71	20	24	QPSK	50	0	Right	Tilt	1:1	0.068	1.13	36.2	
680.5	133297	LTE Band71	20	25	QPSK	1	0	Left	Cheek	1:1	0.176	1.13	33.1	
680.5	133297	LTE Band71	20	24	QPSK	50	0	Left	Cheek	1:1	0.137	1.13	33.2	
680.5	133297	LTE Band71	20	25	QPSK	1	0	Left	Tilt	1:1	0.078	1.13	36.6	
680.5	133297	LTE Band71	20	24	QPSK	50	0	Left	Tilt	1:1	0.065	1.13	36.4	

**Table A-3 DSI = 1  $P_{Limit}$  Calculations – LTE B66/25/27/30/41/48 Head SAR**

Frequency		Mode	Bandwidth	Conducted Power	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.		[MHz]	[dBm]							[W/kg]	[W/kg]	[dBm]	[dBm]
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	Right	Cheek	1:1	0.081	1.13	36.2	35.5
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	25	Right	Cheek	1:1	0.065	1.13	36.1	
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	Right	Tilt	1:1	0.073	1.13	36.6	
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	25	Right	Tilt	1:1	0.060	1.13	36.5	
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	Left	Cheek	1:1	0.095	1.13	35.5	
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	25	Left	Cheek	1:1	0.072	1.13	35.6	
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	Left	Tilt	1:1	0.078	1.13	36.3	
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	25	Left	Tilt	1:1	0.061	1.13	36.4	
1745	132322	LTE Band66	20	24.7	QPSK	1	50	Right	Cheek	1:1	0.058	1.13	37.6	36.0
1745	132322	LTE Band66	20	23.7	QPSK	50	25	Right	Cheek	1:1	0.045	1.13	37.7	
1745	132322	LTE Band66	20	24.7	QPSK	1	50	Right	Tilt	1:1	0.077	1.13	36.4	
1745	132322	LTE Band66	20	23.7	QPSK	50	25	Right	Tilt	1:1	0.059	1.13	36.5	
1745	132322	LTE Band66	20	24.7	QPSK	1	50	Left	Cheek	1:1	0.085	1.13	36.0	
1745	132322	LTE Band66	20	23.7	QPSK	50	25	Left	Cheek	1:1	0.065	1.13	36.1	
1745	132322	LTE Band66	20	24.7	QPSK	1	50	Left	Tilt	1:1	0.056	1.13	37.8	
1745	132322	LTE Band66	20	23.7	QPSK	50	25	Left	Tilt	1:1	0.044	1.13	37.8	
2535	21100	LTE Band7	20	23.2	QPSK	1	0	Right	Cheek	1:1	0.032	1.13	38.7	35.8
2535	21100	LTE Band7	20	22.2	QPSK	50	50	Right	Cheek	1:1	0.026	1.13	38.6	
2535	21100	LTE Band7	20	23.2	QPSK	1	0	Right	Tilt	1:1	0.010	1.13	43.7	
2535	21100	LTE Band7	20	22.2	QPSK	50	50	Right	Tilt	1:1	0.008	1.13	43.6	
2535	21100	LTE Band7	20	23.2	QPSK	1	0	Left	Cheek	1:1	0.062	1.13	35.8	
2535	21100	LTE Band7	20	22.2	QPSK	50	50	Left	Cheek	1:1	0.047	1.13	36.0	
2535	21100	LTE Band7	20	23.2	QPSK	1	0	Left	Tilt	1:1	0.021	1.13	40.6	
2535	21100	LTE Band7	20	22.2	QPSK	50	50	Left	Tilt	1:1	0.016	1.13	40.7	
2310	27710	LTE Band30	10	22.2	QPSK	1	0	Right	Cheek	1:1	0.036	1.13	37.2	35.9
2310	27710	LTE Band30	10	21.2	QPSK	25	12	Right	Cheek	1:1	0.029	1.13	37.2	
2310	27710	LTE Band30	10	22.2	QPSK	1	0	Right	Tilt	1:1	0.013	1.13	41.6	
2310	27710	LTE Band30	10	21.2	QPSK	25	12	Right	Tilt	1:1	0.010	1.13	41.8	
2310	27710	LTE Band30	10	22.2	QPSK	1	0	Left	Cheek	1:1	0.047	1.13	36.0	
2310	27710	LTE Band30	10	21.2	QPSK	25	12	Left	Cheek	1:1	0.039	1.13	35.9	
2310	27710	LTE Band30	10	22.2	QPSK	1	0	Left	Tilt	1:1	0.014	1.13	41.2	
2310	27710	LTE Band30	10	21.2	QPSK	25	12	Left	Tilt	1:1	0.011	1.13	41.3	
2506	39750	LTE Band41(PC3)	20	24.7	QPSK	1	0	Right	Cheek	1:1.58	0.022	1.13	39.9	35.9
2506	39750	LTE Band41(PC3)	20	23.7	QPSK	50	25	Right	Cheek	1:1.58	0.017	1.13	39.9	
2506	39750	LTE Band41(PC3)	20	24.7	QPSK	1	0	Right	Tilt	1:1.58	0.020	1.13	40.2	
2506	39750	LTE Band41(PC3)	20	23.7	QPSK	50	25	Right	Tilt	1:1.58	0.016	1.13	40.2	
2506	39750	LTE Band41(PC3)	20	24.7	QPSK	1	0	Left	Cheek	1:1.58	0.055	1.13	35.9	
2506	39750	LTE Band41(PC3)	20	23.7	QPSK	50	25	Left	Cheek	1:1.58	0.042	1.13	36.0	
2506	39750	LTE Band41(PC3)	20	24.7	QPSK	1	0	Left	Tilt	1:1.58	0.023	1.13	39.6	
2506	39750	LTE Band41(PC3)	20	23.7	QPSK	50	25	Left	Tilt	1:1.58	0.019	1.13	39.5	
2506	39750	LTE Band41(PC2)	20	27.2	QPSK	1	0	Right	Cheek	1:2.31	0.029	1.13	39.5	36.3
2506	39750	LTE Band41(PC2)	20	26.2	QPSK	50	25	Right	Cheek	1:2.31	0.023	1.13	39.6	
2506	39750	LTE Band41(PC2)	20	27.2	QPSK	1	0	Right	Tilt	1:2.31	0.020	1.13	41.2	
2506	39750	LTE Band41(PC2)	20	26.2	QPSK	50	25	Right	Tilt	1:2.31	0.015	1.13	41.2	
2506	39750	LTE Band41(PC2)	20	27.2	QPSK	1	0	Left	Cheek	1:2.31	0.060	1.13	36.3	
2506	39750	LTE Band41(PC2)	20	26.2	QPSK	50	25	Left	Cheek	1:2.31	0.045	1.13	36.5	
2506	39750	LTE Band41(PC2)	20	27.2	QPSK	1	0	Left	Tilt	1:2.31	0.024	1.13	40.2	
2506	39750	LTE Band41(PC2)	20	26.2	QPSK	50	25	Left	Tilt	1:2.31	0.019	1.13	40.2	
3646.7	56207	LTE Band48	20	22	QPSK	1	50	Right	Cheek	1:1.58	0.187	1.13	27.8	27.7
3646.7	56207	LTE Band48	20	21	QPSK	50	25	Right	Cheek	1:1.58	0.154	1.13	27.7	
3646.7	56207	LTE Band48	20	22	QPSK	1	50	Right	Tilt	1:1.58	0.028	1.13	36.1	
3646.7	56207	LTE Band48	20	21	QPSK	50	25	Right	Tilt	1:1.58	0.022	1.13	36.2	
3646.7	56207	LTE Band48	20	22	QPSK	1	50	Left	Cheek	1:1.58	0.115	1.13	30.0	
3646.7	56207	LTE Band48	20	21	QPSK	50	25	Left	Cheek	1:1.58	0.089	1.13	30.0	
3646.7	56207	LTE Band48	20	22	QPSK	1	50	Left	Tilt	1:1.58	0.071	1.13	32.1	
3646.7	56207	LTE Band48	20	21	QPSK	50	25	Left	Tilt	1:1.58	0.055	1.13	32.1	

**Table A-4 DSI = 1  $P_{Limit}$  Calculations – 5G NR n71/n25/n2/n66/n41 Head SAR**

Frequency		Mode	Bandwidth	Conducted Power	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit						
MHz	Ch.		[MHz]	[dBm]							[W/kg]	[W/kg]	[dBm]	[dBm]						
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	104	Right	Cheek	1:1	0.098	1.13	35.6	35.6						
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	Right	Cheek	1:1	0.094	1.13	35.8		35.6					
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	104	Right	Tilt	1:1	0.056	1.13	38.1			35.6				
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	Right	Tilt	1:1	0.053	1.13	38.3				35.6			
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	104	Left	Cheek	1:1	0.095	1.13	35.7					35.6		
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	Left	Cheek	1:1	0.093	1.13	35.9						35.6	
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	104	Left	Tilt	1:1	0.051	1.13	38.4							35.6
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	Left	Tilt	1:1	0.049	1.13	38.6							
1905	381000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	Right	Cheek	1:1	0.435	1.13	29.2	29.1						
1905	381000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	1	Right	Cheek	1:1	0.436	1.13	29.1		29.1					
1905	381000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	Right	Tilt	1:1	0.146	1.13	33.9			29.1				
1905	381000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	1	Right	Tilt	1:1	0.138	1.13	34.1				29.1			
1905	381000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	Left	Cheek	1:1	0.188	1.13	32.8					29.1		
1905	381000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	1	Left	Cheek	1:1	0.190	1.13	32.7						29.1	
1905	381000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	Left	Tilt	1:1	0.169	1.13	33.3							29.1
1905	381000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	1	Left	Tilt	1:1	0.164	1.13	33.4							
1770	354000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:1	0.475	1.13	28.8	28.6						
1770	354000	NR Band n66	20	25	CP-OFDM-QPSK	1	1	Right	Cheek	1:1	0.499	1.13	28.6		28.6					
1770	354000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:1	0.130	1.13	34.4			28.6				
1770	354000	NR Band n66	20	25	CP-OFDM-QPSK	1	1	Right	Tilt	1:1	0.137	1.13	34.2				28.6			
1770	354000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:1	0.116	1.13	34.9					28.6		
1770	354000	NR Band n66	20	25	CP-OFDM-QPSK	1	1	Left	Cheek	1:1	0.124	1.13	34.6						28.6	
1770	354000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:1	0.079	1.13	36.6							28.6
1770	354000	NR Band n66	20	25	CP-OFDM-QPSK	1	1	Left	Tilt	1:1	0.081	1.13	36.5							
2592.99	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	1	Right	Cheek	1:4.29	0.091	1.13	31.8	31.7						
2592.99	518598	NR Band n41(PC2)	100	27.2	CP-OFDM-QPSK	1	1	Right	Cheek	1:4.29	0.093	1.13	31.7		31.7					
2592.99	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	1	Right	Tilt	1:4.29	0.023	1.13	37.8			31.7				
2592.99	518598	NR Band n41(PC2)	100	27.2	CP-OFDM-QPSK	1	1	Right	Tilt	1:4.29	0.023	1.13	37.8				31.7			
2592.99	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	1	Left	Cheek	1:4.29	0.059	1.13	33.7					31.7		
2592.99	518598	NR Band n41(PC2)	100	27.2	CP-OFDM-QPSK	1	1	Left	Cheek	1:4.29	0.058	1.13	33.8						31.7	
2592.99	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	1	Left	Tilt	1:4.29	0.054	1.13	34.1							31.7
2592.99	518598	NR Band n41(PC2)	100	27.2	CP-OFDM-QPSK	1	1	Left	Tilt	1:4.29	0.052	1.13	34.2							

**Table A-5 DSI = 1  $P_{Limit}$  Calculations – 2G/3G Body-Worn SAR**

Frequency		Mode	Service	Conducted Power	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[dBm]				[W/kg]	[W/kg]		[dBm]
820.1	564	CDMABC10	TDSO	25	back	10mm	1:1	0.469	1.13	28.8	28.8
824.7	1013	CDMABC0	TDSO	25	back	10mm	1:1	0.498	1.13	28.6	27.8
836.52	384	CDMABC0	TDSO	25	back	10mm	1:1	0.595	1.13	27.8	
848.31	777	CDMABC0	TDSO	25	back	10mm	1:1	0.592	1.13	27.8	26.8
1851.25	25	CDMABC1	TDSO	24.7	back	10mm	1:1	0.703	1.13	26.8	
1880	600	CDMABC1	TDSO	24.7	back	10mm	1:1	0.680	1.13	26.9	
1908.75	1175	CDMABC1	TDSO	24.7	back	10mm	1:1	0.644	1.13	27.2	28.4
836.6	190	GSM850	GSM	32.9	back	10mm	1:8.3	0.386	1.13	28.4	
836.6	190	GSM850	GPRS	28.7	back	10mm	1:2.076	0.560	1.13	28.6	26.7
1880	661	GSM1900	GSM	29.7	back	10mm	1:8.3	0.274	1.13	26.7	
1880	661	GSM1900	GPRS	26.7	back	10mm	1:2.76	0.316	1.13	27.8	
826.4	4132	UMTS850	RMC	25	back	10mm	1:1	0.530	1.13	28.3	27.4
836	4183	UMTS850	RMC	25	back	10mm	1:1	0.609	1.13	27.7	
846.6	4233	UMTS850	RMC	25	back	10mm	1:1	0.653	1.13	27.4	
1880	9400	UMTS1900	RMC	24.7	back	10mm	1:1	0.787	1.13	26.3	26.3
1732.4	1412	UMTS1750	RMC	24.7	back	10mm	1:1	0.730	1.13	26.6	26.6

**Table A-6 DSI = 1  $P_{Limit}$  Calculations – 4G Body-Worn SAR**

Frequency		Mode	Bandwidth	Conducted Power	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.										[MHz]	[dBm]		[W/kg]
707.5	23095	LTE Band12	10	25	QPSK	1	49	back	10mm	1:1	0.379	1.13	29.8	29.8
707.5	23095	LTE Band12	10	24	QPSK	25	25	back	10mm	1:1	0.291	1.13	29.9	28.9
782	23230	LTE Band13	10	25	QPSK	1	25	back	10mm	1:1	0.453	1.13	29.0	
782	23230	LTE Band13	10	24	QPSK	25	12	back	10mm	1:1	0.366	1.13	28.9	27.8
831.5	26865	LTE Band26	15	25	QPSK	1	36	back	10mm	1:1	0.564	1.13	28.0	
831.5	26865	LTE Band26	15	24	QPSK	36	37	back	10mm	1:1	0.474	1.13	27.8	31.0
680.5	133297	LTE Band71	20	25	QPSK	1	99	back	10mm	1:1	0.284	1.13	31.0	
680.5	133297	LTE Band71	20	24	QPSK	50	25	back	10mm	1:1	0.217	1.13	31.2	26.0
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	back	10mm	1:1	0.836	1.13	26.0	
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	25	back	10mm	1:1	0.654	1.13	26.1	25.8
1745	132322	LTE Band66	20	24.7	QPSK	1	50	back	10mm	1:1	0.879	1.13	25.8	
1745	132322	LTE Band66	20	23.7	QPSK	50	25	back	10mm	1:1	0.704	1.13	25.8	26.7
2560	21350	LTE Band7	20	23.2	QPSK	1	0	back	10mm	1:1	0.511	1.13	26.7	
2560	21350	LTE Band7	20	22.2	QPSK	50	50	back	10mm	1:1	0.398	1.13	26.7	26.5
2310	27710	LTE Band30	10	22.2	QPSK	1	0	back	10mm	1:1	0.424	1.13	26.5	
2310	27710	LTE Band30	10	21.2	QPSK	25	12	back	10mm	1:1	0.334	1.13	26.5	26.1
2506	39750	LTE Band41(PC3)	20	24.7	QPSK	1	0	back	10mm	1:1.58	0.517	1.13	26.1	
2506	39750	LTE Band41(PC3)	20	23.7	QPSK	50	25	back	10mm	1:1.58	0.398	1.13	26.3	26.3
2506	39750	LTE Band41(PC2)	20	27.2	QPSK	1	50	back	10mm	1:2.31	0.601	1.13	26.3	
2506	39750	LTE Band41(PC2)	20	27.2	QPSK	50	25	back	10mm	1:2.31	0.587	1.13	26.4	20.3
3560	55340	LTE Band48	20	22	QPSK	1	0	back	10mm	1:1.58	1.065	1.13	20.3	
3560	55340	LTE Band48	20	21	QPSK	50	25	back	10mm	1:1.58	0.820	1.13	20.4	

**Table A-7 DSI = 1  $P_{Limit}$  Calculations – 5G NR Sub6 Body-Worn SAR**

Frequency		Mode	Bandwidth	Conducted Power	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.										[MHz]	[dBm]		[W/kg]
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	104	back	10mm	1:1	0.282	1.13	31.0	30.6
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	back	10mm	1:1	0.311	1.13	30.6	
1905	381000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	back	10mm	1:1	0.505	1.13	28.5	28.2
1905	381000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	1	back	10mm	1:1	0.541	1.13	28.2	
1770	354000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	1	back	10mm	1:1	0.435	1.13	29.2	28.6
1770	354000	NR Band n66	20	25	CP-OFDM-QPSK	1	1	back	10mm	1:1	0.497	1.13	28.6	
2593	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	1	back	10mm	1:4.29	0.158	1.13	29.4	29.4
2593	518598	NR Band n41(PC2)	100	27.2	CP-OFDM-QPSK	1	1	back	10mm	1:4.29	0.158	1.13	29.4	

**Table A-8 DSI = 5  $P_{Limit}$  Calculations – 2G/3G Hotspot SAR**

Frequency		Mode	Service	Conducted Power	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[dBm]				[W/kg]	[W/kg]		[dBm]
820.1	564	CDMABC10	EVDO Rev.0	25	back	10mm	1:1	0.440	1.13	29.1	29.0
820.1	564	CDMABC10	EVDO Rev.0	25	front	10mm	1:1	0.449	1.13	29.0	
820.1	564	CDMABC10	EVDO Rev.0	25	bottom	10mm	1:1	0.185	1.13	32.9	
820.1	564	CDMABC10	EVDO Rev.0	25	right	10mm	1:1	0.216	1.13	32.2	
836.52	384	CDMABC0	EVDO Rev.0	25	back	10mm	1:1	0.553	1.13	28.1	28.1
836.52	384	CDMABC0	EVDO Rev.0	25	front	10mm	1:1	0.558	1.13	28.1	
836.52	384	CDMABC0	EVDO Rev.0	25	bottom	10mm	1:1	0.242	1.13	31.7	
836.52	384	CDMABC0	EVDO Rev.0	25	right	10mm	1:1	0.188	1.13	32.8	
1880	600	PCS CDMA	EVDO Rev.0	24.7	back	10mm	1:1	0.668	1.13	27.0	23.6
1880	600	PCS CDMA	EVDO Rev.0	24.7	front	10mm	1:1	0.581	1.13	27.6	
1851.25	25	PCS CDMA	EVDO Rev.0	24.7	bottom	10mm	1:1	1.358	1.13	23.9	
1880	600	PCS CDMA	EVDO Rev.0	24.7	bottom	10mm	1:1	1.421	1.13	23.7	
1908.75	1175	PCS CDMA	EVDO Rev.0	24.7	bottom	10mm	1:1	1.460	1.13	23.6	
1880	600	PCS CDMA	EVDO Rev.0	24.7	left	10mm	1:1	0.167	1.13	33.0	
836.6	190	GSM850	GPRS	28.7	back	10mm	1:2.076	0.559	1.13	28.6	28.6
836.6	190	GSM850	GPRS	28.7	front	10mm	1:2.076	0.525	1.13	28.9	
836.6	190	GSM850	GPRS	28.7	bottom	10mm	1:2.076	0.230	1.13	32.5	
836.6	190	GSM850	GPRS	28.7	right	10mm	1:2.076	0.192	1.13	33.2	
1880	661	GSM1900	GPRS	26.7	back	10mm	1:2.76	0.316	1.13	27.8	24.9
1880	661	GSM1900	GPRS	26.7	front	10mm	1:2.76	0.352	1.13	27.4	
1880	661	GSM1900	GPRS	26.7	bottom	10mm	1:2.76	0.624	1.13	24.9	
1880	661	GSM1900	GPRS	26.7	left	10mm	1:2.76	0.094	1.13	33.1	
836.6	4183	UMTS850	RMC	25	back	10mm	1:1	0.611	1.13	27.7	27.7
836.6	4183	UMTS850	RMC	25	front	10mm	1:1	0.592	1.13	27.8	
836.6	4183	UMTS850	RMC	25	bottom	10mm	1:1	0.233	1.13	31.9	
836.6	4183	UMTS850	RMC	25	right	10mm	1:1	0.217	1.13	32.2	
1880	9400	UMTS1900	RMC	24.7	back	10mm	1:1	0.726	1.13	26.6	23.5
1880	9400	UMTS1900	RMC	24.7	front	10mm	1:1	0.731	1.13	26.6	
1852.4	9262	UMTS1900	RMC	24.7	bottom	10mm	1:1	1.330	1.13	24.0	
1880	9400	UMTS1900	RMC	24.7	bottom	10mm	1:1	1.414	1.13	23.7	
1907.6	9538	UMTS1900	RMC	24.7	bottom	10mm	1:1	1.492	1.13	23.5	
1880	9400	UMTS1900	RMC	24.7	left	10mm	1:1	0.207	1.13	32.1	
1732.4	1412	UMTS1750	RMC	24.7	back	10mm	1:1	0.770	1.13	26.4	24.1
1732.4	1412	UMTS1750	RMC	24.7	front	10mm	1:1	0.683	1.13	26.9	
1712.4	1312	UMTS1750	RMC	24.7	bottom	10mm	1:1	0.990	1.13	25.3	
1732.4	1412	UMTS1750	RMC	24.7	bottom	10mm	1:1	1.174	1.13	24.5	
1752.6	1513	UMTS1750	RMC	24.7	bottom	10mm	1:1	1.295	1.13	24.1	
1740	1450	UMTS1750	RMC	24.7	left	10mm	1:1	0.207	1.13	32.1	

For some bands/modes, a lower PLimit was selected as a more conservative evaluation.

Table A-9 DSI = 5  $P_{Limit}$  Calculations – LTE B12/13/26/5/71 Hotspot SAR

Frequency		Mode	Bandwidth		Conducted Power	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.		[MHz]	[dBm]								[W/kg]	[W/kg]	[dBm]	[dBm]
707.5	23095	LTE Band12	10	25	QPSK	1	49	back	10mm	1:1	0.376	1.13	29.8	29.8	
707.5	23095	LTE Band12	10	24	QPSK	25	25	back	10mm	1:1	0.287	1.13	30.0		
707.5	23095	LTE Band12	10	25	QPSK	1	49	front	10mm	1:1	0.353	1.13	30.1		
707.5	23095	LTE Band12	10	24	QPSK	25	25	front	10mm	1:1	0.278	1.13	30.1		
707.5	23095	LTE Band12	10	25	QPSK	1	49	bottom	10mm	1:1	0.113	1.13	35.0		
707.5	23095	LTE Band12	10	24	QPSK	25	25	bottom	10mm	1:1	0.091	1.13	35.0		
707.5	23095	LTE Band12	10	25	QPSK	1	49	right	10mm	1:1	0.249	1.13	31.6		
707.5	23095	LTE Band12	10	24	QPSK	25	25	right	10mm	1:1	0.193	1.13	31.7		
782	23230	LTE Band13	10	25	QPSK	1	0	back	10mm	1:1	0.451	1.13	29.0	28.9	
782	23230	LTE Band13	10	24	QPSK	25	25	back	10mm	1:1	0.365	1.13	28.9		
782	23230	LTE Band13	10	25	QPSK	1	0	front	10mm	1:1	0.446	1.13	29.0		
782	23230	LTE Band13	10	24	QPSK	25	25	front	10mm	1:1	0.364	1.13	28.9		
782	23230	LTE Band13	10	25	QPSK	1	0	bottom	10mm	1:1	0.147	1.13	33.9		
782	23230	LTE Band13	10	24	QPSK	25	25	bottom	10mm	1:1	0.119	1.13	33.8		
782	23230	LTE Band13	10	25	QPSK	1	0	right	10mm	1:1	0.208	1.13	32.4		
782	23230	LTE Band13	10	24	QPSK	25	25	right	10mm	1:1	0.163	1.13	32.4		
831.5	26865	LTE Band26	15	25	QPSK	1	36	back	10mm	1:1	0.568	1.13	28.0	27.6	
831.5	26865	LTE Band26	15	24	QPSK	36	37	back	10mm	1:1	0.473	1.13	27.8		
831.5	26865	LTE Band26	15	25	QPSK	1	36	front	10mm	1:1	0.587	1.13	27.8		
831.5	26865	LTE Band26	15	24	QPSK	36	37	front	10mm	1:1	0.496	1.13	27.6		
831.5	26865	LTE Band26	15	25	QPSK	1	36	bottom	10mm	1:1	0.237	1.13	31.8		
831.5	26865	LTE Band26	15	24	QPSK	36	37	bottom	10mm	1:1	0.194	1.13	31.7		
831.5	26865	LTE Band26	15	25	QPSK	1	36	right	10mm	1:1	0.212	1.13	32.3		
831.5	26865	LTE Band26	15	24	QPSK	36	37	right	10mm	1:1	0.167	1.13	32.3		
836.5	20525	LTE Band5	10	25	QPSK	1	49	back	10mm	1:1	0.569	1.13	28.0	28.0	
836.5	20525	LTE Band5	10	24	QPSK	25	12	back	10mm	1:1	0.428	1.13	28.2		
836.5	20525	LTE Band5	10	25	QPSK	1	49	front	10mm	1:1	0.485	1.13	28.7		
836.5	20525	LTE Band5	10	24	QPSK	25	12	front	10mm	1:1	0.391	1.13	28.6		
836.5	20525	LTE Band5	10	25	QPSK	1	49	bottom	10mm	1:1	0.202	1.13	32.5		
836.5	20525	LTE Band5	10	24	QPSK	25	12	bottom	10mm	1:1	0.157	1.13	32.6		
836.5	20525	LTE Band5	10	25	QPSK	1	49	right	10mm	1:1	0.174	1.13	33.1		
836.5	20525	LTE Band5	10	24	QPSK	25	12	right	10mm	1:1	0.140	1.13	33.1		
680.5	133297	LTE Band71	20	25	QPSK	1	0	back	10mm	1:1	0.284	1.13	31.0	29.6	
680.5	133297	LTE Band71	20	24	QPSK	50	0	back	10mm	1:1	0.220	1.13	31.1		
680.5	133297	LTE Band71	20	25	QPSK	1	0	front	10mm	1:1	0.252	1.13	31.5		
680.5	133297	LTE Band71	20	24	QPSK	50	0	front	10mm	1:1	0.200	1.13	31.5		
680.5	133297	LTE Band71	20	25	QPSK	1	0	bottom	10mm	1:1	0.083	1.13	36.3		
680.5	133297	LTE Band71	20	24	QPSK	50	0	bottom	10mm	1:1	0.064	1.13	36.5		
680.5	133297	LTE Band71	20	25	QPSK	1	0	right	10mm	1:1	0.391	1.13	29.6		
680.5	133297	LTE Band71	20	24	QPSK	50	0	right	10mm	1:1	0.308	1.13	29.6		

Table A-10 DSI = 5  $P_{Limit}$  Calculations – LTE B66/25/2/7/30/41/48 Hotspot SAR

Frequency		Mode	Bandwidth	Conducted Power	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	PLimit	Min PLimit								
MHz	Ch.		[MHz]	[dBm]							[W/kg]	[W/kg]	[dBm]	[dBm]								
1860	26140	LTE Band25(2)	20	24.7	QPSK	1	0	back	10mm	1:1	0.868	1.13	25.9	23.1								
1860	26140	LTE Band25(2)	20	23.7	QPSK	50	0	back	10mm	1:1	0.716	1.13	25.7		23.1							
1860	26140	LTE Band25(2)	20	24.7	QPSK	1	0	front	10mm	1:1	0.744	1.13	26.5			23.1						
1860	26140	LTE Band25(2)	20	23.7	QPSK	50	0	front	10mm	1:1	0.620	1.13	26.3				23.1					
1860	26140	LTE Band25(2)	20	24.7	QPSK	1	0	bottom	10mm	1:1	1.423	1.13	23.7					23.1				
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	bottom	10mm	1:1	1.472	1.13	23.6						23.1			
1905	26590	LTE Band25(2)	20	23.7	QPSK	50	25	bottom	10mm	1:1	1.300	1.13	23.1							23.1		
1860	26140	LTE Band25(2)	20	24.7	QPSK	1	0	left	10mm	1:1	0.224	1.13	31.7								23.1	
1860	26140	LTE Band25(2)	20	23.7	QPSK	50	0	left	10mm	1:1	0.183	1.13	31.6									23.1
1745	132322	LTE Band66	20	24.7	QPSK	1	50	back	10mm	1:1	0.899	1.13	25.7									
1745	132322	LTE Band66	20	23.7	QPSK	50	25	back	10mm	1:1	0.712	1.13	25.7	23.4								
1745	132322	LTE Band66	20	24.7	QPSK	1	50	front	10mm	1:1	0.846	1.13	26.0		23.4							
1745	132322	LTE Band66	20	23.7	QPSK	50	25	front	10mm	1:1	0.675	1.13	25.9			23.4						
1720	132072	LTE Band66	20	24.7	QPSK	1	50	bottom	10mm	1:1	1.275	1.13	24.2				23.4					
1745	132322	LTE Band66	20	24.7	QPSK	1	50	bottom	10mm	1:1	1.374	1.13	23.9					23.4				
1770	132572	LTE Band66	20	24.7	QPSK	1	50	bottom	10mm	1:1	1.526	1.13	23.4						23.4			
1745	132322	LTE Band66	20	23.7	QPSK	50	25	bottom	10mm	1:1	1.091	1.13	23.9							23.4		
1745	132322	LTE Band66	20	24.7	QPSK	1	50	left	10mm	1:1	0.254	1.13	31.2								23.4	
1745	132322	LTE Band66	20	23.7	QPSK	50	25	left	10mm	1:1	0.206	1.13	31.1									23.4
2560	21350	LTE Band7	20	23.7	QPSK	1	50	back	10mm	1:1	0.547	1.13	26.9									
2560	21350	LTE Band7	20	22.7	QPSK	50	25	back	10mm	1:1	0.439	1.13	26.8	24.7								
2560	21350	LTE Band7	20	23.7	QPSK	1	50	front	10mm	1:1	0.286	1.13	29.7		24.7							
2560	21350	LTE Band7	20	22.7	QPSK	50	25	front	10mm	1:1	0.233	1.13	29.6			24.7						
2560	21350	LTE Band7	20	23.7	QPSK	1	50	bottom	10mm	1:1	0.907	1.13	24.7				24.7					
2560	21350	LTE Band7	20	22.7	QPSK	50	25	bottom	10mm	1:1	0.679	1.13	24.9					24.7				
2560	21350	LTE Band7	20	23.7	QPSK	1	50	left	10mm	1:1	0.104	1.13	34.0						24.7			
2560	21350	LTE Band7	20	22.7	QPSK	50	25	left	10mm	1:1	0.082	1.13	34.1							24.7		
2310	27710	LTE Band30	10	22.2	QPSK	1	0	back	10mm	1:1	0.427	1.13	26.4								24.3	
2310	27710	LTE Band30	10	21.2	QPSK	25	12	back	10mm	1:1	0.334	1.13	26.5									24.3
2310	27710	LTE Band30	10	22.2	QPSK	1	0	front	10mm	1:1	0.388	1.13	26.9									
2310	27710	LTE Band30	10	21.2	QPSK	25	12	front	10mm	1:1	0.301	1.13	26.9	24.3								
2310	27710	LTE Band30	10	22.2	QPSK	1	0	bottom	10mm	1:1	0.700	1.13	24.3		24.3							
2310	27710	LTE Band30	10	21.2	QPSK	25	12	bottom	10mm	1:1	0.536	1.13	24.4			24.3						
2310	27710	LTE Band30	10	22.2	QPSK	1	0	left	10mm	1:1	0.098	1.13	32.8				24.3					
2310	27710	LTE Band30	10	21.2	QPSK	25	12	left	10mm	1:1	0.075	1.13	33.0					24.3				
2636.5	41055	LTE Band41(PC3)	20	24.7	QPSK	1	50	back	10mm	1:1.58	0.501	1.13	26.3						24.3			
2636.5	41055	LTE Band41(PC3)	20	23.7	QPSK	50	25	back	10mm	1:1.58	0.401	1.13	26.2							24.3		
2636.5	41055	LTE Band41(PC3)	20	24.7	QPSK	1	50	front	10mm	1:1.58	0.332	1.13	28.0								24.3	
2636.5	41055	LTE Band41(PC3)	20	23.7	QPSK	50	25	front	10mm	1:1.58	0.256	1.13	28.2									24.3
2636.5	41055	LTE Band41(PC3)	20	24.7	QPSK	1	50	bottom	10mm	1:1.58	0.745	1.13	24.5									
2636.5	41055	LTE Band41(PC3)	20	23.7	QPSK	50	0	bottom	10mm	1:1.58	0.630	1.13	24.3	24.3								
2636.5	41055	LTE Band41(PC3)	20	24.7	QPSK	1	50	left	10mm	1:1.58	0.092	1.13	33.6		24.3							
2636.5	41055	LTE Band41(PC3)	20	23.7	QPSK	50	0	left	10mm	1:1.58	0.070	1.13	33.8			24.3						
2636.5	41055	LTE Band41(PC2)	20	27.2	QPSK	1	0	back	10mm	1:2.31	0.608	1.13	26.3				24.6					
2636.5	41055	LTE Band41(PC2)	20	26.2	QPSK	50	25	back	10mm	1:2.31	0.480	1.13	26.3					24.6				
2636.5	41055	LTE Band41(PC2)	20	27.2	QPSK	1	0	front	10mm	1:2.31	0.403	1.13	28.1						24.6			
2636.5	41055	LTE Band41(PC2)	20	26.2	QPSK	50	25	front	10mm	1:2.31	0.299	1.13	28.3							24.6		
2636.5	41055	LTE Band41(PC2)	20	27.2	QPSK	1	0	bottom	10mm	1:2.31	0.900	1.13	24.6								24.6	
2636.5	41055	LTE Band41(PC2)	20	27.2	QPSK	50	25	bottom	10mm	1:2.31	0.853	1.13	24.8									24.6
2636.5	41055	LTE Band41(PC2)	20	27.2	QPSK	1	0	left	10mm	1:2.31	0.109	1.13	33.7									
2636.5	41055	LTE Band41(PC2)	20	26.2	QPSK	50	25	left	10mm	1:2.31	0.082	1.13	33.9	24.6								
3690	56640	LTE Band48	20	22	QPSK	1	50	back	10mm	1:1.58	0.981	1.13	20.6		20.6							
3690	56640	LTE Band48	20	21	QPSK	50	25	back	10mm	1:1.58	0.785	1.13	20.6			20.6						
3690	56640	LTE Band48	20	22	QPSK	1	50	front	10mm	1:1.58	0.021	1.13	37.3				20.6					
3690	56640	LTE Band48	20	21	QPSK	50	25	front	10mm	1:1.58	0.017	1.13	37.3					20.6				
3690	56640	LTE Band48	20	22	QPSK	1	50	right	10mm	1:1.58	0.289	1.13	25.9						20.6			
3690	56640	LTE Band48	20	21	QPSK	50	25	right	10mm	1:1.58	0.229	1.13	26.0							20.6		

For some bands/modes, a lower PLimit was selected as a more conservative evaluation.

Table A-11 DSI = 5 PLimit Calculations – 5G NR n71/n25/n2/n66/n41 Hotspot SAR

Frequency		Mode	Bandwidth	Conducted Power	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (1g)	SAR design target	Plimit	Min Plimit
MHz	Ch.		[MHz]	[dBm]							[W/kg]	[W/kg]	[dBm]	[dBm]
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	104	back	10mm	1:1	0.284	1.13	31.0	29.9
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	back	10mm	1:1	0.311	1.13	30.6	
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	104	front	10mm	1:1	0.227	1.13	32.0	
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	front	10mm	1:1	0.251	1.13	31.5	
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	104	bottom	10mm	1:1	0.078	1.13	36.6	
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	bottom	10mm	1:1	0.075	1.13	36.8	
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	104	right	10mm	1:1	0.370	1.13	29.9	
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	right	10mm	1:1	0.294	1.13	30.9	
1905	381000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	back	10mm	1:1	0.510	1.13	28.5	24.1
1905	381000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	1	back	10mm	1:1	0.536	1.13	28.2	
1905	381000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	front	10mm	1:1	0.606	1.13	27.7	
1905	381000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	1	front	10mm	1:1	0.633	1.13	27.5	
1905	381000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	bottom	10mm	1:1	0.123	1.13	34.7	
1905	381000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	1	bottom	10mm	1:1	0.119	1.13	34.8	
1905	381000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	right	10mm	1:1	1.366	1.13	24.2	
1905	381000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	1	right	10mm	1:1	1.392	1.13	24.1	
1770	354000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	53	back	10mm	1:1	0.430	1.13	29.2	27.0
1770	354000	NR Band n66	20	25	CP-OFDM-QPSK	1	1	back	10mm	1:1	0.500	1.13	28.5	
1770	354000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	53	front	10mm	1:1	0.589	1.13	27.8	
1770	354000	NR Band n66	20	25	CP-OFDM-QPSK	1	1	front	10mm	1:1	0.692	1.13	27.1	
1770	354000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	53	bottom	10mm	1:1	0.033	1.13	40.3	
1770	354000	NR Band n66	20	25	CP-OFDM-QPSK	1	1	bottom	10mm	1:1	0.032	1.13	40.4	
1770	354000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	53	right	10mm	1:1	0.638	1.13	27.5	
1770	354000	NR Band n66	20	25	CP-OFDM-QPSK	1	1	right	10mm	1:1	0.712	1.13	27.0	
2592.99	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	1	back	10mm	1:4.29	0.158	1.13	29.4	27.8
2592.99	518598	NR Band n41(PC2)	100	27.2	CP-OFDM-QPSK	1	1	back	10mm	1:4.29	0.159	1.13	29.4	
2592.99	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	1	front	10mm	1:4.29	0.219	1.13	28.0	
2592.99	518598	NR Band n41(PC2)	100	27.2	CP-OFDM-QPSK	1	1	front	10mm	1:4.29	0.233	1.13	27.8	
2592.99	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	1	bottom	10mm	1:4.29	0.032	1.13	36.3	
2592.99	518598	NR Band n41(PC2)	100	27.2	CP-OFDM-QPSK	1	1	bottom	10mm	1:4.29	0.037	1.13	35.7	
2592.99	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	1	right	10mm	1:4.29	0.155	1.13	29.5	
2592.99	518598	NR Band n41(PC2)	100	27.2	CP-OFDM-QPSK	1	1	right	10mm	1:4.29	0.166	1.13	29.2	

Table A-12 DSI = 1  $P_{Limit}$  Calculations – 2G/3G Phablet SAR



Frequency		Mode	Service	Conducted Power	Test Position	Spacing	Duty Cycle	SAR (10g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[dBm]				[W/kg]	[W/kg]		[dBm]
820.1	564	CDMABC10	EVDO Rev.0	25	back	0mm	1:1	0.878	2.83	30.1	30.1
820.1	564	CDMABC10	EVDO Rev.0	25	front	0mm	1:1	0.779	2.83	30.6	
820.1	564	CDMABC10	EVDO Rev.0	25	bottom	0mm	1:1	0.268	2.83	35.2	
820.1	564	CDMABC10	EVDO Rev.0	25	right	0mm	1:1	0.323	2.83	34.4	
836.52	384	CDMABC0	EVDO Rev.0	25	back	0mm	1:1	1.055	2.83	29.3	29.3
836.52	384	CDMABC0	EVDO Rev.0	25	front	0mm	1:1	0.846	2.83	30.2	
836.52	384	CDMABC0	EVDO Rev.0	25	bottom	0mm	1:1	0.338	2.83	34.2	
836.52	384	CDMABC0	EVDO Rev.0	25	right	0mm	1:1	0.320	2.83	34.5	
1880	600	PCS CDMA	EVDO Rev.0	24.7	back	2mm	1:1	1.640	2.83	27.1	25.9
1880	600	PCS CDMA	EVDO Rev.0	24.7	front	1mm	1:1	2.107	2.83	26.0	
1880	600	PCS CDMA	EVDO Rev.0	24.7	bottom	3mm	1:1	2.133	2.83	25.9	
1880	600	PCS CDMA	EVDO Rev.0	24.7	left	0mm	1:1	0.520	2.83	32.1	
836.6	190	GSM850	GPRS	28.7	back	0mm	1:2.076	1.224	2.83	29.2	29.2
836.6	190	GSM850	GPRS	28.7	front	0mm	1:2.076	1.089	2.83	29.7	
836.6	190	GSM850	GPRS	28.7	bottom	0mm	1:2.076	0.416	2.83	33.9	
836.6	190	GSM850	GPRS	28.7	right	0mm	1:2.076	0.313	2.83	35.1	
1880	661	GSM1900	GPRS	26.7	back	0mm	1:2.76	0.959	2.83	27.0	24.8
1880	661	GSM1900	GPRS	26.7	front	0mm	1:2.76	0.963	2.83	27.0	
1880	661	GSM1900	GPRS	26.7	bottom	0mm	1:2.76	1.601	2.83	24.8	
1880	661	GSM1900	GPRS	26.7	left	0mm	1:2.76	0.258	2.83	32.7	
836.6	4183	UMTS850	RMC	25	back	0mm	1:1	1.466	2.83	27.9	27.9
836.6	4183	UMTS850	RMC	25	front	0mm	1:1	1.457	2.83	27.9	
836.6	4183	UMTS850	RMC	25	bottom	0mm	1:1	0.453	2.83	33.0	
836.6	4183	UMTS850	RMC	25	right	0mm	1:1	0.587	2.83	31.8	
1880	9400	UMTS 1900	RMC	24.7	back	2mm	1:1	2.169	2.83	25.9	25.7
1880	9400	UMTS 1900	RMC	24.7	front	1mm	1:1	2.246	2.83	25.7	
1880	9400	UMTS 1900	RMC	24.7	bottom	3mm	1:1	2.178	2.83	25.8	
1880	9400	UMTS 1900	RMC	24.7	left	0mm	1:1	0.171	2.83	36.9	
1732.4	1412	UMTS1750	RMC	24.7	back	2mm	1:1	1.667	2.83	27.0	26.5
1732.4	1412	UMTS1750	RMC	24.7	front	1mm	1:1	1.866	2.83	26.5	
1732.4	1412	UMTS1750	RMC	24.7	bottom	3mm	1:1	1.810	2.83	26.6	
1732.4	1412	UMTS1750	RMC	24.7	left	0mm	1:1	0.632	2.83	31.2	

**Table A-13 DSI = 8  $P_{Limit}$  Calculations – 2G/3G Phablet SAR**

Frequency		Mode	Service	Conducted Power	Test Position	Spacing	Duty Cycle	SAR (10g)	SAR design target	Plimit	Min Plimit
MHz	Ch.			[dBm]				[W/kg]	[W/kg]		[dBm]
1880	600	PCS CDMA	EVDO Rev.0	24.7	back	0mm	1:1	2.614	2.83	25.0	22.9
1880	600	PCS CDMA	EVDO Rev.0	24.7	front	0mm	1:1	3.046	2.83	24.4	
1880	600	PCS CDMA	EVDO Rev.0	24.7	bottom	0mm	1:1	4.268	2.83	22.9	
1880	9400	UMTS1900	RMC	24.7	back	0mm	1:1	2.953	2.83	24.5	22.4
1880	9400	UMTS1900	RMC	24.7	front	0mm	1:1	3.124	2.83	24.3	
1852.4	9262	UMTS1900	RMC	24.7	bottom	0mm	1:1	4.439	2.83	22.7	
1880	9400	UMTS1900	RMC	24.7	bottom	0mm	1:1	4.616	2.83	22.6	
1907.6	9538	UMTS1900	RMC	24.7	bottom	0mm	1:1	4.772	2.83	22.4	23.8
1732.4	1412	UMTS1750	RMC	24.7	back	0mm	1:1	2.599	2.83	25.1	
1732.4	1412	UMTS1750	RMC	24.7	front	0mm	1:1	2.895	2.83	24.6	
1712.4	1312	UMTS1750	RMC	24.7	bottom	0mm	1:1	2.876	2.83	24.6	
1732.4	1412	UMTS1750	RMC	24.7	bottom	0mm	1:1	3.162	2.83	24.2	
1752.6	1513	UMTS1750	RMC	24.7	bottom	0mm	1:1	3.500	2.83	23.8	

For some bands/modes, a lower PLimit was selected as a more conservative evaluation.

**Table A-14 DSI = 1  $P_{Limit}$  Calculations – 4G Phablet SAR**

Frequency		Mode	Bandwidth [MHz]	Conducted Power [dBm]	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (10g)	SAR design target	Plimit	Min Plimit								
MHz	Ch.										[W/kg]	[W/kg]	[dBm]	[dBm]								
707.5	23095	LTE Band12	10	25	QPSK	1	49	back	0mm	1:1	0.643	2.83	31.4	30.1								
707.5	23095	LTE Band12	10	24	QPSK	25	12	back	0mm	1:1	0.531	2.83	31.3		30.1							
707.5	23095	LTE Band12	10	25	QPSK	1	49	front	0mm	1:1	0.644	2.83	31.4			30.1						
707.5	23095	LTE Band12	10	24	QPSK	25	12	front	0mm	1:1	0.515	2.83	31.4				30.1					
707.5	23095	LTE Band12	10	25	QPSK	1	49	bottom	0mm	1:1	0.207	2.83	36.4					30.1				
707.5	23095	LTE Band12	10	24	QPSK	25	12	bottom	0mm	1:1	0.160	2.83	36.5						30.1			
707.5	23095	LTE Band12	10	25	QPSK	1	49	right	0mm	1:1	0.832	2.83	30.3							30.1		
707.5	23095	LTE Band12	10	24	QPSK	25	12	right	0mm	1:1	0.702	2.83	30.1								30.1	
782	23230	LTE Band13	10	25	QPSK	1	0	back	0mm	1:1	0.906	2.83	29.9									29.9
782	23230	LTE Band13	10	24	QPSK	25	25	back	0mm	1:1	0.712	2.83	30.0									
782	23230	LTE Band13	10	25	QPSK	1	0	front	0mm	1:1	0.789	2.83	30.5	29.9								
782	23230	LTE Band13	10	24	QPSK	25	25	front	0mm	1:1	0.661	2.83	30.3		29.9							
782	23230	LTE Band13	10	25	QPSK	1	0	bottom	0mm	1:1	0.302	2.83	34.7			29.9						
782	23230	LTE Band13	10	24	QPSK	25	25	bottom	0mm	1:1	0.234	2.83	34.8				29.9					
782	23230	LTE Band13	10	25	QPSK	1	0	right	0mm	1:1	0.611	2.83	31.7					29.9				
782	23230	LTE Band13	10	24	QPSK	25	25	right	0mm	1:1	0.480	2.83	31.7						29.9			
836.5	20525	LTE Band5	10	25	QPSK	1	0	back	0mm	1:1	1.033	2.83	29.4							29.4		
836.5	20525	LTE Band5	10	24	QPSK	25	0	back	0mm	1:1	0.799	2.83	29.5								29.4	
836.5	20525	LTE Band5	10	25	QPSK	1	0	front	0mm	1:1	0.904	2.83	30.0									29.4
836.5	20525	LTE Band5	10	24	QPSK	25	0	front	0mm	1:1	0.725	2.83	29.9									
836.5	20525	LTE Band5	10	25	QPSK	1	0	bottom	0mm	1:1	0.295	2.83	34.8	29.4								
836.5	20525	LTE Band5	10	24	QPSK	25	0	bottom	0mm	1:1	0.237	2.83	34.8		29.4							
836.5	20525	LTE Band5	10	25	QPSK	1	0	right	0mm	1:1	0.322	2.83	34.4			29.4						
836.5	20525	LTE Band5	10	24	QPSK	25	0	right	0mm	1:1	0.271	2.83	34.2				29.4					
680.5	133297	LTE Band71	20	25	QPSK	1	99	back	0mm	1:1	0.685	2.83	31.2					29.7				
680.5	133297	LTE Band71	20	24	QPSK	50	25	back	0mm	1:1	0.545	2.83	31.2						29.7			
680.5	133297	LTE Band71	20	25	QPSK	1	99	front	0mm	1:1	0.672	2.83	31.2							29.7		
680.5	133297	LTE Band71	20	24	QPSK	50	25	front	0mm	1:1	0.520	2.83	31.4								29.7	
680.5	133297	LTE Band71	20	25	QPSK	1	99	bottom	0mm	1:1	0.183	2.83	36.9									29.7
680.5	133297	LTE Band71	20	24	QPSK	50	25	bottom	0mm	1:1	0.152	2.83	36.7									
680.5	133297	LTE Band71	20	25	QPSK	1	99	right	0mm	1:1	0.947	2.83	29.8	29.7								
680.5	133297	LTE Band71	20	24	QPSK	50	25	right	0mm	1:1	0.755	2.83	29.7		29.7							
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	back	2mm	1:1	1.558	2.83	27.3			25.2						
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	25	back	2mm	1:1	1.211	2.83	27.4				25.2					
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	front	1mm	1:1	2.405	2.83	25.4					25.2				
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	25	front	1mm	1:1	1.995	2.83	25.2						25.2			
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	bottom	3mm	1:1	2.200	2.83	25.8							25.2		
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	25	bottom	3mm	1:1	1.810	2.83	25.6								25.2	
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	left	0mm	1:1	0.615	2.83	31.3									25.2
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	25	left	0mm	1:1	0.467	2.83	31.5									
1745	132322	LTE Band66	20	24.7	QPSK	1	50	back	2mm	1:1	1.521	2.83	27.4	25.6								
1745	132322	LTE Band66	20	23.7	QPSK	50	25	back	2mm	1:1	1.245	2.83	27.3		25.6							
1745	132322	LTE Band66	20	24.7	QPSK	1	50	front	1mm	1:1	2.195	2.83	25.8			25.6						
1745	132322	LTE Band66	20	23.7	QPSK	50	25	front	1mm	1:1	1.844	2.83	25.6				25.6					
1745	132322	LTE Band66	20	24.7	QPSK	1	50	bottom	3mm	1:1	1.871	2.83	26.5					25.6				
1745	132322	LTE Band66	20	23.7	QPSK	50	25	bottom	3mm	1:1	1.563	2.83	26.3						25.6			
1745	132322	LTE Band66	20	24.7	QPSK	1	50	left	0mm	1:1	0.646	2.83	31.1							25.6		
1745	132322	LTE Band66	20	24.7	QPSK	50	25	left	0mm	1:1	0.676	2.83	30.9								25.6	
2535	21100	LTE Band7	20	23.2	QPSK	1	0	back	2mm	1:1	1.402	2.83	26.2									26.2
2535	21100	LTE Band7	20	22.2	QPSK	50	50	back	2mm	1:1	1.129	2.83	26.2									
2535	21100	LTE Band7	20	23.2	QPSK	1	0	front	1mm	1:1	1.198	2.83	26.9	26.2								
2535	21100	LTE Band7	20	22.2	QPSK	50	50	front	1mm	1:1	0.946	2.83	27.0		26.2							
2535	21100	LTE Band7	20	23.2	QPSK	1	0	bottom	3mm	1:1	1.193	2.83	27.0			26.2						
2535	21100	LTE Band7	20	22.2	QPSK	50	50	bottom	3mm	1:1	0.945	2.83	27.0				26.2					
2535	21100	LTE Band7	20	23.2	QPSK	1	0	left	0mm	1:1	0.350	2.83	32.3					26.2				
2535	21100	LTE Band7	20	22.2	QPSK	50	50	left	0mm	1:1	0.278	2.83	32.3						26.2			
2310	27710	LTE Band30	10	22.2	QPSK	1	0	back	0mm	1:1	0.693	2.83	28.3							25.0		
2310	27710	LTE Band30	10	21.2	QPSK	25	12	back	0mm	1:1	0.550	2.83	28.3								25.0	
2310	27710	LTE Band30	10	22.2	QPSK	1	0	front	0mm	1:1	0.666	2.83	28.5									25.0
2310	27710	LTE Band30	10	21.2	QPSK	25	12	front	0mm	1:1	0.535	2.83	28.4									
2310	27710	LTE Band30	10	22.2	QPSK	1	0	bottom	0mm	1:1	1.378	2.83	25.3	25.0								
2310	27710	LTE Band30	10	21.2	QPSK	25	12	bottom	0mm	1:1	1.174	2.83	25.0		25.0							
2506	39750	LTE Band41(PC3)	20	24.7	QPSK	1	50	back	0mm	1:1.58	1.149	2.83	26.6			23.8						
2506	39750	LTE Band41(PC3)	20	23.7	QPSK	50	25	back	0mm	1:1.58	0.903	2.83	26.7				23.8					
2506	39750	LTE Band41(PC3)	20	24.7	QPSK	1	50	front	0mm	1:1.58	1.186	2.83	26.5					23.8				
2506	39750	LTE Band41(PC3)	20	23.7	QPSK	50	25	front	0mm	1:1.58	0.914	2.83	26.6						23.8			
2506	39750	LTE Band41(PC3)	20	24.7	QPSK	1	50	bottom	0mm	1:1.58	2.223	2.83	23.8							23.8		
2506	39750	LTE Band41(PC3)	20	23.7	QPSK	50	0	bottom	0mm	1:1.58	1.766	2.83	23.8								23.8	
2506	39750	LTE Band41(PC2)	20	27.2	QPSK	1	0	back	0mm	1:2.31	2.056	2.83	25.0									23.8
2506	39750	LTE Band41(PC2)	20	26.2	QPSK	50	25	back	0mm	1:2.31	1.611	2.83	25.0									
2506	39750	LTE Band41(PC2)	20	27.2	QPSK	1	0	front	0mm	1:2.31	1.876	2.83	25.3	23.8								
2506	39750	LTE Band41(PC2)	20	26.2	QPSK	50	25	front	0mm	1:2.31	1.486	2.83	25.4		23.8							
2506	39750	LTE Band41(PC2)	20	27.2	QPSK	1	0	bottom	0mm	1:2.31	2.697	2.83	23.8			23.8						
2506	39750	LTE Band41(PC2)	20	26.2	QPSK	50	25	bottom	0mm	1:2.31	2.135	2.83	23.8				23.8					
3690	56640	LTE Band48	20	22	QPSK	1	50	back	0mm	1:1.58	2.578	2.83	20.4					20.4				
3690	56640	LTE Band48	20	21	QPSK	50	25	back	0mm	1:1.58	2.071	2.83	20.4						20.4			
3690	56640	LTE Band48	20	22	QPSK	1	50	front	0mm	1:1.58	1.260	2.83	23.5							20.4		
3690	56640	LTE Band48	20	21	QPSK	50	25	front	0mm	1:1.58	1.011	2.83	23.5								20.4	
3690	56640	LTE Band48	20	22	QPSK	1	50	right	0mm	1:1.58	1.651	2.83	22.4									20.4
3690	56640	LTE Band48	20	21	QPSK	50	25	right	0mm	1:1.58	1.313	2.83	22.3									

**Table A-15 DSI = 8  $P_{Limit}$  Calculations – 4G Phablet SAR**

Frequency		Mode	Bandwidth [MHz]	Conducted Power [dBm]	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (10g)	SAR design target	Plimit	Min Plimit								
MHz	Ch.										[W/kg]	[W/kg]	[dBm]	[dBm]								
1860	26140	LTE Band25(2)	20	24.7	QPSK	1	0	back	0mm	1:1	2.831	2.83	24.7	22.9								
1860	26140	LTE Band25(2)	20	23.7	QPSK	50	0	back	0mm	1:1	2.413	2.83	24.4		22.9							
1860	26140	LTE Band25(2)	20	24.7	QPSK	1	0	front	0mm	1:1	3.214	2.83	24.1			22.9						
1860	26140	LTE Band25(2)	20	23.7	QPSK	50	0	front	0mm	1:1	2.714	2.83	23.9				22.9					
1860	26140	LTE Band25(2)	20	24.7	QPSK	1	0	bottom	0mm	1:1	3.876	2.83	23.3					22.9				
1882.5	26365	LTE Band25(2)	20	24.7	QPSK	1	0	bottom	0mm	1:1	4.121	2.83	23.1						22.9			
1905	26590	LTE Band25(2)	20	24.7	QPSK	1	0	bottom	0mm	1:1	4.228	2.83	23.0							22.9		
1860	26140	LTE Band25(2)	20	23.7	QPSK	50	0	bottom	0mm	1:1	3.188	2.83	23.2								22.9	
1882.5	26365	LTE Band25(2)	20	23.7	QPSK	50	0	bottom	0mm	1:1	3.266	2.83	23.1									22.9
1905	26590	LTE Band25(2)	20	23.7	QPSK	50	25	bottom	0mm	1:1	3.426	2.83	22.9									
1770	132572	LTE Band66	20	24.7	QPSK	1	50	back	0mm	1:1	2.771	2.83	24.8	22.8								
1770	132572	LTE Band66	20	23.7	QPSK	50	25	back	0mm	1:1	2.210	2.83	24.8		22.8							
1770	132572	LTE Band66	20	24.7	QPSK	1	50	front	0mm	1:1	2.640	2.83	25.0			22.8						
1770	132572	LTE Band66	20	23.7	QPSK	50	25	front	0mm	1:1	2.093	2.83	25.0				22.8					
1720	132072	LTE Band66	20	24.7	QPSK	1	50	bottom	0mm	1:1	3.683	2.83	23.6					22.8				
1745	132322	LTE Band66	20	24.7	QPSK	1	50	bottom	0mm	1:1	3.845	2.83	23.4						22.8			
1770	132572	LTE Band66	20	24.7	QPSK	1	50	bottom	0mm	1:1	4.366	2.83	22.8							22.8		
1720	132072	LTE Band66	20	23.7	QPSK	50	25	bottom	0mm	1:1	2.869	2.83	23.6								22.8	
1745	132322	LTE Band66	20	23.7	QPSK	50	25	bottom	0mm	1:1	3.090	2.83	23.3									22.8
1770	132572	LTE Band66	20	23.7	QPSK	50	25	bottom	0mm	1:1	3.444	2.83	22.8									
2560	21350	LTE Band7	20	23.7	QPSK	1	50	back	0mm	1:1	3.066	2.83	23.4	22.4								
2560	21350	LTE Band7	20	22.7	QPSK	50	25	back	0mm	1:1	2.486	2.83	23.3		22.4							
2560	21350	LTE Band7	20	23.7	QPSK	1	50	front	0mm	1:1	1.965	2.83	25.3			22.4						
2560	21350	LTE Band7	20	22.7	QPSK	50	25	front	0mm	1:1	1.593	2.83	25.2				22.4					
2510	20850	LTE Band7	20	23.7	QPSK	1	0	bottom	0mm	1:1	3.850	2.83	22.4					22.4				
2535	21100	LTE Band7	20	22.7	QPSK	50	50	bottom	0mm	1:1	2.951	2.83	22.5						22.4			
2560	21350	LTE Band7	20	22.7	QPSK	50	25	bottom	0mm	1:1	2.827	2.83	22.7							22.4		

For some bands/modes, a lower PLimit was selected as a more conservative evaluation.

**Table A-14 DSI = 1  $P_{Limit}$  Calculations – 5G Phablet SAR**

Frequency		Mode	Bandwidth [MHz]	Conducted Power [dBm]	Modulation	RB Size	RB offset	Test Position	Spacing	Duty Cycle	SAR (10g)	SAR design target	Plimit	Min Plimit								
MHz	Ch.										[W/kg]	[W/kg]	[dBm]	[dBm]								
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	1	back	0mm	1:1	0.255	2.83	35.5	32.9								
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	back	0mm	1:1	0.186	2.83	36.8		32.9							
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	1	front	0mm	1:1	0.216	2.83	36.2			32.9						
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	front	0mm	1:1	0.180	2.83	37.0				32.9					
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	1	bottom	0mm	1:1	0.052	2.83	42.3					32.9				
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	bottom	0mm	1:1	0.045	2.83	43.0						32.9			
680.5	136100	NR Band n71	20	25	DFT-s-OFDM-QPSK	1	1	right	0mm	1:1	0.462	2.83	32.9							32.9		
680.5	136100	NR Band n71	20	25	CP-OFDM-QPSK	1	1	right	0mm	1:1	0.338	2.83	34.2								32.9	
1880	376000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	right	0mm	1:1	4.089	2.83	23.4									23.4
1880	376000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	0	right	0mm	1:1	4.044	2.83	23.4									
1880	376000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	back	0mm	1:1	2.680	2.83	25.2	23.4								
1880	376000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	0	back	0mm	1:1	2.630	2.83	25.3		23.4							
1880	376000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	front	0mm	1:1	2.634	2.83	25.3			23.4						
1880	376000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	0	front	0mm	1:1	2.699	2.83	25.2				23.4					
1880	376000	NR Band n25(2)	20	25	DFT-s-OFDM-QPSK	1	53	bottom	0mm	1:1	2.291	2.83	25.9					23.4				
1880	376000	NR Band n25(2)	20	25	CP-OFDM-QPSK	1	0	bottom	0mm	1:1	2.190	2.83	26.1						23.4			
1745	349000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	53	right	0mm	1:1	4.640	2.83	22.9							22.9		
1745	349000	NR Band n66	20	25	CP-OFDM-QPSK	1	0	right	0mm	1:1	4.537	2.83	22.9								22.9	
1745	349000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	53	back	0mm	1:1	3.284	2.83	24.4									22.9
1745	349000	NR Band n66	20	25	CP-OFDM-QPSK	1	0	back	0mm	1:1	3.350	2.83	24.3									
1745	349000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	53	front	0mm	1:1	3.149	2.83	24.5	22.9								
1745	349000	NR Band n66	20	25	CP-OFDM-QPSK	1	0	front	0mm	1:1	3.276	2.83	24.4		22.9							
1745	349000	NR Band n66	20	25	DFT-s-OFDM-QPSK	1	53	bottom	0mm	1:1	1.906	2.83	26.7			22.9						
1745	349000	NR Band n66	20	25	CP-OFDM-QPSK	1	0	bottom	0mm	1:1	2.026	2.83	26.5				22.9					
2593	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	136	right	0mm	1:4.29	1.676	2.83	23.2					23.2				
2593	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-16QAM	1	136	right	0mm	1:4.29	1.630	2.83	23.3						23.2			
2593	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	136	back	0mm	1:4.29	1.235	2.83	24.5							23.2		
2593	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-16QAM	1	136	back	0mm	1:4.29	1.238	2.83	24.5	23.2								
2593	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	136	front	0mm	1:4.29	1.229	2.83	24.5		23.2							
2593	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-16QAM	1	136	front	0mm	1:4.29	1.213	2.83	24.6			23.2						
2593	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-QPSK	1	136	bottom	0mm	1:4.29	0.750	2.83	26.6				23.2					
2593	518598	NR Band n41(PC2)	100	27.2	DFT-s-OFDM-16QAM	1	136	bottom	0mm	1:4.29	0.700	2.83	26.9								23.2	