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## PART 0 SAR CHAR REPORT

<b>Applicant Name:</b> <b>SAMSUNG Electronics Co., Ltd.</b> 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677 Rep. of Korea	<b>Date of Issue:</b> Nov.16, 2020 <b>Test Report No.:</b> HCT-SR-2011-FC003-R2 <b>Test Site:</b> HCT CO., LTD.
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**FCC ID:**

**A3LSMG991U**

**Report Type:** Part 0 SAR Characterization  
**Equipment Type:** Mobile Phone  
**Model Name:** SM-G991U  
**Additional Model Name:** SM-G991U1

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Tested By

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**REVISION HISTORY**

The revision history for this test report is shown in table.

<b>Revision No.</b>	<b>Date of Issue</b>	<b>Description</b>
0	Nov. 02, 2020	Initial Release
1	Nov. 13, 2020	Revised. Sec.2.1,page 11
2	Nov. 16, 2020	Revised,page 11

This test results were applied only to the test methods required by the standard.

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## 1. Test Location

### 1.1 Test Laboratory

<b>Company Name</b>	HCT Co., Ltd.
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### 1.2 Test Facilities

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

<b>Korea</b>	National Radio Research Agency (Designation No. KR0032)
	KOLAS (Testing No. KT197)

## 2. DEVICE UNDER TEST

### 2.1 General Information of the EUT

Device Wireless specification overview		
Band & Mode	Operating Mode	Tx Frequency
CDMA/EVDO BC10	Voice / Data	817.90 MHz~ 823.10 MHz
CDMA/EVDO BC0	Voice / Data	824.70 MHz~ 848.31 MHz
PCS CDMA/EVDO	Voice / Data	1 851.25 MHz~ 1 908.75 MHz
GSM850	Voice / Data	824.2 MHz~ 848.8 MHz
GSM1900	Voice / Data	1 850.2 MHz~ 1 909.8 MHz
UMTS 850	Voice / Data	826.4 MHz~ 846.6 MHz
UMTS 1700	Voice / Data	1 712.4 MHz~ 1 752.6 MHz
UMTS 1900	Voice / Data	1 852.4 MHz~ 1 907.6 MHz
LTE Band 2 (PCS)	Voice / Data	1 850.7 MHz~ 1 909.3 MHz
LTE Band 4 (AWS)	Voice / Data	1 710.7 MHz~ 1 754.3 MHz
LTE Band 5 (Cell)	Voice / Data	824.7 MHz~ 848.3 MHz
LTE Band 7	Voice / Data	2 502.5 MHz~ 2 567.5 MHz
LTE Band 12	Voice / Data	699.7 MHz~ 715.3 MHz
LTE Band 13	Voice / Data	779.5 MHz~ 784.5 MHz
LTE Band 14	Voice / Data	790.5 MHz~ 795.5 MHz
LTE Band 25	Voice / Data	1 850.7 MHz~ 1 914.3 MHz
LTE Band 26	Voice / Data	814.7 MHz~ 848.3 MHz
LTE Band 30	Voice / Data	2 307.5 MHz ~ 2 312.5 MHz
LTE TDD Band 38	Voice / Data	2 572.5 MHz ~ 2 617.5 MHz
LTE TDD Band 40	Voice / Data	2 302.5 MHz ~ 2 397.5 MHz
LTE TDD Band 41	Voice / Data	2 498.5 MHz~ 2 687.5 MHz
LTE TDD Band 48	Voice / Data	3 552.5 MHz~ 3697.5 MHz
LTE Band 66 (AWS)	Voice / Data	1 710.7 MHz ~ 1 779.3 MHz
LTE Band 71	Voice / Data	665.5 MHz~ 695.5 MHz
NR Band n2	Data	1 852.5 MHz~ 1 907.5 MHz
NR Band n5	Data	826.5 MHz~ 846.5 MHz
NR Band n12	Data	701.5 MHz~ 713.5 MHz
NR Band n25	Data	1 852.5 MHz ~ 1 912.5 MHz
NR Band n30	Data	2307.5 MHz~ 2312.5 MHz
NR Band n41	Data	2 506.02 MHz~ 2 679.99 MHz
NR Band n66	Data	1 712.5 MHz~ 1 777.5 MHz
NR Band n71	Data	665.5 MHz - 695.5 MHz
NR Band n77	Data	3710 MHz~ 3969.99 MHz
NR Band n260	Data	37000 – 40000 MHz
NR Band n261	Data	27500 – 28350 MHz
U-NII-1	Voice / Data	5 180 MHz ~ 5 240 MHz
U-NII-2A	Voice / Data	5 260 MHz ~ 5 320 MHz
U-NII-2C	Voice / Data	5 500 MHz ~ 5 720 MHz
U-NII-3	Voice / Data	5 745 MHz ~ 5 825 MHz
2.4 GHz WLAN	Voice / Data	2 412 MHz ~ 2 462 MHz
Bluetooth / LE 5.0	Data	2 402 MHz ~ 2 480 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 technologies 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 WWAN is in compliance with FCC requirements.

This Part 0 report shows SAR and Power Density characterization of WWAN radios for 2G/3G/4G and 5G Sub-6 NR respectively. Characterization is achieved by determining P<sub>limit</sub> for 2G/3G/4G and 5G Sub-6 NR correspond to the exposure design targets after accounting for all device design related uncertainties, i.e. SAR<sub>design\_target</sub> (< FCC SAR limit) for sub-6 radio.

The SAR characterization is denoted as SAR Char in this report. Section 2.3 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 Sub 6 NR	P <sub>limit</sub>	Power level that corresponds to the exposure design target ( <i>SAR<sub>design_target</sub></i> ) after accounting for all device design related uncertainties
	P <sub>max</sub>	Maximum tune up output power
	SAR <sub>design_target</sub>	Target SAR level < FCC SAR limit after accounting for all device design related uncertainties.
	SAR Char	Table containing <i>P<sub>limit</sub></i> for all technologies and bands

### 3. SAR MEASUREMENTS

#### 3.1 SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative of the incremental electromagnetic energy ( $dW$ ) absorbed by (dissipated in) an incremental mass ( $dm$ ) contained in a volume element ( $dV$ ) of a given density ( $r$ ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body

$$SAR = \frac{d}{dt} \left( \frac{dU}{dm} \right)$$

SAR Mathematical Equation

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \sigma E^2 / \rho$$

Where:

- $\sigma$  = conductivity of the tissue-simulant material (S/m)
- $\rho$  = mass density of the tissue-simulant material (kg/m<sup>3</sup>)
- $E$  = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relations to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.

### 3.2 SAR Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no more than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the DUT's head and body area and the horizontal grid resolution was depending on the FCC KDB 865664 D01v01r04 (see table 3-1) & IEEE 1528-2013.
2. Based on step, the area of the maximum absorption was determined by sophisticated interpolations routines implemented in DASY software. When an Area Scan has measured all reachable point. DASY system computes the field maximal found in the scanned are, within a range of the maximum. SAR at this fixed point was measured and used as a reference value.
3. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB 865664 D01v01r04 table 4-1 and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (reference from the DASY manual.)
  - a. The data at the surface were extrapolated, since the center of the dipoles is no more than 2.7 mm away from the tip of the probe (it is different from the probe type) and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
  - b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
  - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan. If the value changed by more than 5 %, the SAR evaluation and drift measurements were repeated.

**Table 3-1**

Frequency	Maximum Area Scan Resolution(mm) ( $\Delta x_{area}, \Delta y_{area}$ )	Maximum Zoom Scan Resolution (mm) ( $\Delta x_{zoom}, \Delta y_{zoom}$ )	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x,y,z)
			Uniform Grid	Graded Grid		
			$\Delta z_{zoom}(n)$	$\Delta z_{zoom}(1)^*$	$\Delta z_{zoom}(n>1)^*$	
≤2 GHz	≤15	≤8	≤5	≤4	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥30
2-3 GHz	≤12	≤5	≤5	≤4	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥30
3-4 GHz	≤12	≤5	≤4	≤3	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥28
4-5 GHz	≤10	≤4	≤3	≤2.5	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥25
5-6 GHz	≤10	≤4	≤2	≤2	$\leq 1.5 * \Delta z_{zoom}(n-1)$	≥22

**Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04\***



## 4. SAR CHARACTERIZATION

### 4.1 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 4-1 represent different exposure scenarios.

Scenario	Description	SAR Test Cases
Head (DSI = 2)	<input type="checkbox"/> Device positioned next to head <input type="checkbox"/> Receiver Active	<i>Head SAR per KDB Publication 648474 D04</i>
Hotspot mode (DSI = 3)	<input type="checkbox"/> Device transmits in hotspot mode near body <input type="checkbox"/> Hotspot Mode Active	<i>Hotspot SAR per KDB Publication 941225 D06</i>
Phablet Grip (DSI=1 or 4)	<input type="checkbox"/> Device is held with hand and grip sensor is triggered <input type="checkbox"/> Grip sensor triggered or earjack is active	<i>Phablet SAR per KDB Publication 648474 D04 &amp; KDB Publication 616217 D04</i>
Phablet (DSI = 0)	<input type="checkbox"/> Device is held with hand and grip sensor is not triggered <input type="checkbox"/> Distance grip sensor not triggered	<i>Phablet SAR per KDB Publication 648474 D04 &amp; KDB Publication 616217 D04</i>
Body-worn (DSI = 0)	<input type="checkbox"/> Device being used with a body-worn accessory	<i>Body-worn SAR per KDB Publication 648474 D04</i>

**Table 4-1 DSI and Corresponding Exposure Scenarios**

### 4.2 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 4-2).

<b>SAR<sub>design_target</sub></b>			
$SAR_{design\_target} < SAR_{regulatory\_limit} \times 10^{-Total\ Uncertainty/10}$			
<b>1g SAR (W/kg)</b>		<b>10g SAR (W/kg)</b>	
<i>Total Uncertainty</i>	1.0 dB	<i>Total Uncertainty</i>	1.0 dB
<i>SAR<sub>regulatory_limit</sub></i>	1.6 W/kg	<i>SAR<sub>regulatory_limit</sub></i>	4.0 W/kg
<i>SAR<sub>design_target</sub></i>	1.0 W/kg	<i>SAR<sub>design_target</sub></i>	2.5 W/kg

**Table 4-2 SAR<sub>design\_target</sub> Calculations**

### 4.3 SAR Characterization

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

<b>Device State Index (DSI)</b>	<b><math>P_{Limit}</math> Determination Scenarios</b>
0	The worst-case SAR exposure is determined as maximum SAR normalized to the limit among: 1. Body Worn SAR 2. Extremity SAR measured at 8, 6 and 11 mm spacing for back, front, bottom respectively 3. Extremity SAR measured at 0 mm for left and right surfaces
2	$P_{limit}$ is calculated based on 1g Head SAR
3	$P_{limit}$ is calculated based on 1g Hotspot SAR at 10 mm
1 & 4	$P_{limit}$ is calculated based on 10g Extremity SAR at 0 mm for back, front, and bottom surfaces. Ear jack inseted mode.

shown in Table 4-3.

**Table 4-3  $P_{Limit}$  Determination**

Note:

For DSI=0,  $P_{limit}$  is calculated by :

$$P_{limit} = \min\{ P_{limit} \text{ cooresponding to 1g Body Worn SAR evaluation at 15mm spacing, } \\ P_{limit} \text{ cooresponding to 10g Extremity SAR evaluation at 6(Front), 8(rear) and 11mm(bottom) spacing, } \\ P_{limit} \text{ cooresponding to 10g Extremity SAR evaluation at 0mm for Left and right surface } \}$$

SAR Exposure Configurations			Body-Worn	Phablet	Phablet	Head	Hotspot	Ear jack	Burst Average Power [dBm]	Frame Averaged Power [dBm]	UL:DL Ratio	Max reduction [dBm]
Averaging volume			1g	10g	10g	1g	1g	10g				
Spacing (mm)			15 mm	8,6,11mm	0 mm	0 mm	10 mm	0 mm				
DSI			0	1	2	3	4					
Mode	Band	Antenna	Plimt					Pmax				
CDMA	BC10	A	24.8	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A
CDMA	BC0	A	24.8	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A
CDMA	BC1	A	23.5	19.0	23.5	18.5	19.0	23.5	FDD	100%	5.0	
GSM 1-slot	850	A	25.0	25.0	25.0	25.0	25.0	32.5	23.5	12.5%	N/A	
GSM 2-slot	850	A						31	25.0	25.0%	N/A	
GSM 3-slot	850	A						29	24.7	37.5%	N/A	
GSM 4-slot	850	A						27	24.0	50.0%	N/A	
GSM 1-slot	1900	A	22.2	18.5	22.2	17.5	18.5	29	20.0	12.5%	2.5	
GSM 2-slot	1900	A						27.5	21.5	25.0%	4.0	
GSM 3-slot	1900	A						26.5	22.2	37.5%	4.8	
GSM 4-slot	1900	A						24.5	21.5	50.0%	4.0	
WCDMA	5	A	24.5	24.5	24.5	24.5	24.5	24.5	FDD	100%	N/A	
WCDMA	4	A	23.5	19.5	23.5	18.5	19.5	23.5	FDD	100%	5.0	
WCDMA	2	A	23.5	19.0	23.5	18.5	19.0	23.5	FDD	100%	5.0	
LTE FDD	12	A	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A	
LTE FDD	13	A	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A	
LTE FDD	14	A	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A	
LTE FDD	26	A	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A	
LTE FDD	5	A	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A	
LTE FDD	66	A	23.5	20.0	23.5	18.5	20.0	23.5	FDD	100%	5.0	
LTE FDD	4	A	23.5	20.0	23.5	18.5	20.0	23.5	FDD	100%	5.0	
LTE FDD	2	A	23.5	19.5	23.5	18.0	19.5	23.5	FDD	100%	5.5	
LTE FDD	25	A	23.5	19.5	23.5	18.0	19.5	23.5	FDD	100%	5.5	
LTE FDD	71	A	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A	
LTE FDD	7	B	23.0	19.5	23.0	19.5	19.5	23.0	FDD	100%	3.5	
LTE FDD	30	B	23.2	21.0	23.2	18.5	21.0	23.2	FDD	100%	4.7	
LTE TDD	48	G	21.5	21.5	17.0	21.5	21.5	23.5	21.5	63.3%	4.5	
LTE TDD PC3	41	B	22.0	20.0	22.0	18.0	20.0	24.0	22.0	63.3%	4.0	
LTE TDD PC2	41	B	22.7	20.4	22.7	18.4	20.4	26.3	22.7	43.3%	4.3	
LTE TDD	38	B	22.0	19.0	22.0	17.4	19.0	24.0	22.0	63.3%	4.6	
LTE TDD	40	B	11.0	11.0	11.0	11.0	11.0	13.0	11.0	63.3%	N/A	
NR FDD	5	A	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A	
NR FDD	12	A	24.5	24.5	24.5	24.5	24.5	24.5	FDD	100%	N/A	
NR FDD	71	A	24.8	24.8	24.8	24.8	24.8	24.8	FDD	100%	N/A	
NR FDD	30	B	23.0	21.0	23.0	18.5	21.0	23.0	FDD	100%	4.5	
NR TDD (PC3)	77	G	18.0	18.0	12.0	18.0	18.0	24.0	18.0	25%	6.0	
NR TDD (PC2)	77	G	19.5	19.5	12.0	19.5	19.5	25.5	19.5	25%	7.5	
NR TDD (PC3)	41	F	18.5	18.5	13.0	18.5	18.5	24.5	18.5	25%	5.5	
NR TDD (PC2)	41	F	19.5	19.5	13.0	19.5	19.5	25.5	19.5	25.0%	6.5	
NR TDD (PC3)	41	B	18.5	14.5	18.5	14.0	14.5	24.5	18.5	25.0%	4.5	
NR FDD	66	A	23.5	19.0	23.5	18.0	19.0	23.5	FDD	100%	5.5	
NR FDD	2	A	23.5	19.5	23.5	18.0	19.5	23.5	FDD	100%	5.5	
NR FDD	25	A	23.5	19.5	23.5	18.0	19.5	23.5	FDD	100%	5.5	

Table 4-4 SAR Characterization

Note:

1. Compared with the Plimt (Tune up Powers) declared in each DSI by the manufacturer and the plimt (calculation) calculated by the SAR measurement of each DSI, the lower power were applied to the EFS as the plimit at each DSI configurations.
2. When  $P_{max} < P_{limit}$ , the DUT will operate at a power level up to  $P_{max}$ .
3. when Hotspot Mode (DSI=3) Grip sensor (DSI=1) and Ear-jack mode (DSI=4) are triggered at the same time, DSI=3(Hotspot) takes more higher priority.the Priority for power reduction was given in the order of hotspot(DSI=3), earjack.(DSI=4), and grip (DSI=1),.
4. Maximum Tune up Power,  $P_{max}$ . Is configured in NV settings in EUT to limit maximum transmitting power. This power is converted into peak power in NV setting for TDD schemes.(GPRS, LTE TDD ,NR TDD)

### 5. Equipment List

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	Triple Modular Phantom	-	N/A	N/A	N/A
SPEAG	SAM Phantom	-	N/A	N/A	N/A
HP	SAR System Control PC	-	N/A	N/A	N/A
Staubli	CS8Cspeag-TX60	F10/ 5D1CA1/C/01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F12/ 5K9GA1/ C/ 01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F17/ 59CHA1/ C/ 01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F17/ 59RAA1/ C/ 0	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F13/ 5R4XF1/ C/ 01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F11/5K3RA1/C/01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F/20/0018446/C/001	N/A	N/A	N/A
Staubli	TX60 Lspeag	F10/ 5D1CA1/A/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F12/ 5K9GA1/ A/ 01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F17/ 59CHA1/ A/ 01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F17/ 59RAA1/ A/ 01	N/A	N/A	N/A
Staubli	TX90 XLspeag	011578	N/A	N/A	N/A
Staubli	TX90 XLspeag	F13/ 5R4XF1/ A/ 01	N/A	N/A	N/A
Staubli	TX90 XLspeag	11/5K3RA1/A/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F/20/0018446/A/001	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-0123	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-1206 0513	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	010963	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	011578	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-1338 1332	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-1203 0309	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	D21142608A	N/A	N/A	N/A
SPEAG	DAE4	868	09/29/2020	Annual	09/29/2021
SPEAG	DAE4	652	02/03/2020	Annual	02/03/2021
SPEAG	DAE3	504	02/26/2020	Annual	02/26/2021
SPEAG	DAE4	1225	08/07/2020	Annual	08/07/2021
SPEAG	DAE4	1567	03/20/2020	Annual	03/20/2021
SPEAG	DAE4	446	07/29/2020	Annual	07/29/2021
SPEAG	DAE4	1417	02/26/2020	Annual	02/26/2021
SPEAG	DAE4	614	01/27/2020	Annual	01/27/2021
SPEAG	DAE4	648	05/25/2020	Annual	05/25/2021
SPEAG	DAE4	1629	08/11/2020	Annual	08/11/2021
SPEAG	E-Field Probe EX3DV4	3797	11/28/2019	Annual	11/28/2020
SPEAG	E-Field Probe EX3DV4	3903	03/25/2020	Annual	03/25/2021
SPEAG	E-Field Probe EX3DV4	7314	05/29/2020	Annual	05/29/2021
SPEAG	E-Field Probe EX3DV4	7370	08/31/2020	Annual	08/31/2021
SPEAG	E-Field Probe ET3DV6	1630	02/26/2020	Annual	02/26/2021
SPEAG	E-Field Probe EX3DV4	3697	03/26/2020	Annual	03/26/2021
SPEAG	E-Field Probe ES3DV3	3076	07/31/2020	Annual	07/31/2021
SPEAG	E-Field Probe ES3DV3	7352	10/28/2019	Annual	10/28/2020
SPEAG	E-Field Probe ES3DV3	3967	08/20/2020	Annual	08/20/2021
SPEAG	E-Field Probe EX3DV4	3968	09/28/2020	Annual	09/28/2021
SPEAG	Dipole D750V3	1014	05/19/2020	Annual	05/19/2021
SPEAG	Dipole D835V2	4d266	08/27/2020	Annual	08/27/2021
SPEAG	Dipole D1800V2	2d007	08/26/2020	Annual	08/26/2021
SPEAG	Dipole D1900V2	5d061	01/21/2020	Annual	01/21/2021
SPEAG	Dipole D2300V2	1010	08/26/2020	Annual	08/26/2021
SPEAG	Dipole D2450V2	1049	08/26/2020	Annual	08/26/2021
SPEAG	Dipole D2600V2	1015	08/26/2020	Annual	08/26/2021
SPEAG	Dipole D3500V2	1040	01/28/2020	Annual	01/28/2021
SPEAG	Dipole D3700V2	1066	12/31/2019	Annual	12/31/2020
SPEAG	Dipole D3900V2	1019	05/22/2020	Annual	05/22/2021
SPEAG	Dipole D5GHzV2	1253	08/31/2020	Annual	08/31/2021

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
Agilent	Power Meter E4419B	MY41291386	10/23/2020	Annual	10/23/2021
Agilent	Power Meter N1911A	MY45101406	08/31/2020	Annual	08/31/2021
Agilent	Power Sensor 8481A	SG1091286	10/05/2020	Annual	10/05/2021
Agilent	Power Sensor 8481A	MY41090873	10/05/2020	Annual	10/05/2021
Agilent	Power Sensor N1921A	MY55220026	08/31/2020	Annual	08/31/2021
SPEAG	DAKS 3.5	1038	03/24/2020	Annual	03/24/2021
H.P	Network Analyzer /8753ES	JP39240221	01/28/2020	Annual	01/28/2021
Agilent	WIRELESS COMMUNICATION E5515C	MY48361100	10/06/2020	Annual	10/06/2021
Agilent	WIRELESS COMMUNICATION E5515C	MY48360252	08/06/2020	Annual	08/06/2021
Agilent	WIRELESS COMMUNICATION E5515C	GB44051865	06/01/2020	Annual	06/01/2021
Agilent	Signal Generator N5182A	MY47070230	05/06/2020	Annual	05/06/2021
Agilent	11636B/Power Divider	58698	02/28/2020	Annual	02/28/2021
TESTO	175-H1/Thermometer	40331936309	01/29/2020	Annual	01/29/2021
TESTO	175-H1/Thermometer	40331953309	01/29/2020	Annual	01/29/2021
TESTO	175-H1/Thermometer	40331939309	01/29/2020	Annual	01/29/2021
TESTO	175-H1/Thermometer	40331915309	01/29/2020	Annual	01/29/2021
TESTO	175-H1/Thermometer	40331922309	01/29/2020	Annual	01/29/2021
TESTO	175-H1/Thermometer	40332651310	01/29/2020	Annual	01/29/2021
TESTO	175-H1/Thermometer	40331949309	01/29/2020	Annual	01/29/2021
TESTO	175-H1/Thermometer	44606559906	01/29/2020	Annual	01/29/2021
EMPOWER	RF Power Amplifier	1084	07/01/2020	Annual	07/01/2021
EMPOWER	RF Power Amplifier	1011	07/30/2020	Annual	07/30/2021
MICRO LAB	LP Filter / LA-15N	10453	10/07/2019	Annual	10/07/2020
MICRO LAB	LP Filter / LA-30N	-	10/07/2019	Annual	10/07/2020
MICRO LAB	LP Filter / LA-60N	32011	10/07/2019	Annual	10/07/2020
MICRO LAB	LP Filter / LA-15N	10453	10/05/2020	Annual	10/05/2021
MICRO LAB	LP Filter / LA-30N	-	10/05/2020	Annual	10/05/2021
MICRO LAB	LP Filter / LA-60N	32011	10/05/2020	Annual	10/05/2021
Agilent	Attenuator (3dB) 8693B	MY39260298	09/18/2019	Annual	09/18/2020
Agilent	Attenuator (3dB) 8693B	MY39260298	09/17/2020	Annual	09/17/2021
HP	Attenuator (20dB) 8493C	09271	09/18/2019	Annual	09/18/2020
HP	Attenuator (20dB) 8493C	09271	09/17/2020	Annual	09/17/2021
Agilent	Directional Bridge	3140A03878	06/08/2020	Annual	06/08/2021
Agilent	Power Divider	10	07/15/2020	Annual	07/15/2021
Agilent	Power Divider	4	07/13/2020	Annual	07/13/2021
Agilent	Power Divider	2	07/13/2020	Annual	07/13/2021
Agilent	Power Divider	11	07/15/2020	Annual	07/15/2021
Agilent	MXA Signal Analyzer N9020A	MY50510407	10/23/2020	Annual	10/23/2021
HP	Dual Directional Coupler	16072	10/05/2020	Annual	10/05/2021
Anritsu	Radio Communication Tester MT8820C	6201074225	03/02/2020	Annual	03/02/2021
Anritsu	Radio Communication Tester MT8820C	6200695605	05/06/2020	Annual	05/06/2021
Anritsu	Radio Communication Tester MT8820C	6200628628	09/18/2020	Annual	09/18/2021
Anritsu	Radio Communication Tester MT8821C	6201502997	08/06/2020	Annual	08/06/2021
Anritsu	Radio Communication Tester MT8821C	6262044720	01/06/2020	Annual	01/06/2021
Anritsu	Radio Communication Test Station MT8000A	6262036812	01/06/2020	Annual	01/06/2021
R&S	Bluetooth CBT	100272	03/02/2020	Annual	03/02/2021

\* The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Verification measurement is performed by HCT Lab. before each test. The brain/body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity (dielectric constant) of the brain/body-equivalent material.

## 6. Measurement Uncertainty

The measured SAR was  $<1.5$  W/Kg for 1g SAR and  $<3.75$  W/Kg For 10g SAR for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE1528-2013 was not required.

## Appendix A: SAR Test Results For P limit CALCULATIONS

**Table A-1 DSI = 2 PLimit Calculations – 2G/3G Head SAR**

MEASUREMENT RESULTS									
Frequency		Mode/ Band		Conducted Power	Test Position	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			(dBm)			(W/kg)	(dBm)	(dBm)
820	560	RC3 / SO55	CDMA BC10	24.77	Right Cheek	1:1	0.164	32.6	32.1
820	560	RC3 / SO55	CDMA BC10	24.77	Right Tilt	1:1	0.085	35.5	
820	560	RC3 / SO55	CDMA BC10	24.77	Left Cheek	1:1	0.128	33.7	
820	560	RC3 / SO55	CDMA BC10	24.77	Left Tilt	1:1	0.060	37.0	
820	560	EVDO Rev. A	CDMA BC10	24.54	Right Cheek	1:1	0.174	32.1	
820	560	EVDO Rev. A	CDMA BC10	24.54	Right Tilt	1:1	0.076	35.7	
820	560	EVDO Rev. A	CDMA BC10	24.54	Left Cheek	1:1	0.122	33.7	
820	560	EVDO Rev. A	CDMA BC10	24.54	Left Tilt	1:1	0.086	35.2	
836.52	384	RC3 / SO55	CDMA BC0	24.51	Right Cheek	1:1	0.244	30.6	30.6
836.52	384	RC3 / SO55	CDMA BC0	24.51	Right Tilt	1:1	0.086	35.2	
836.52	384	RC3 / SO55	CDMA BC0	24.51	Left Cheek	1:1	0.150	32.7	
836.52	384	RC3 / SO55	CDMA BC0	24.51	Left Tilt	1:1	0.102	34.4	
836.52	384	EVDO Rev. A	CDMA BC0	24.42	Right Cheek	1:1	0.207	31.3	
836.52	384	EVDO Rev. A	CDMA BC0	24.42	Right Tilt	1:1	0.094	34.7	
836.52	384	EVDO Rev. A	CDMA BC0	24.42	Left Cheek	1:1	0.132	33.2	
836.52	384	EVDO Rev. A	CDMA BC0	24.42	Left Tilt	1:1	0.086	35.1	
1880.0	600	RC3 / SO55	PCS	23.56	Right Cheek	1:1	0.180	31.0	29.8
1880.0	600	RC3 / SO55	PCS	23.56	Right Tilt	1:1	0.142	32.0	
1880.0	600	RC3 / SO55	PCS	23.56	Left Cheek	1:1	0.238	29.8	
1880.0	600	RC3 / SO55	PCS	23.56	Left Tilt	1:1	0.153	31.7	
1880.0	600	EVDO Rev. A	PCS	23.48	Right Cheek	1:1	0.197	30.5	
1880.0	600	EVDO Rev. A	PCS	23.48	Right Tilt	1:1	0.164	31.3	
1880.0	600	EVDO Rev. A	PCS	23.48	Left Cheek	1:1	0.223	30.0	
1880.0	600	EVDO Rev. A	PCS	23.48	Left Tilt	1:1	0.176	31.0	



MEASUREMENT RESULTS									
Frequency		Mode/ Band		Conducted Power (dBm)	Test Position	Duty Cycle	Meas. SAR(1g) (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Mhz	Ch.								
836.6	190	GSM 850	GSM	32.77	Right Cheek	1:8.3	0.067	35.5	35.5
836.6	190	GSM 850	GSM	32.77	Right Tilt	1:8.3	0.027	39.4	
836.6	190	GSM 850	GSM	32.77	Left Cheek	1:8.3	0.045	37.2	
836.6	190	GSM 850	GSM	32.77	Left Tilt	1:8.3	0.026	39.6	
1 880	661	GSM 1900	GSM	28.85	Right Cheek	1:8.3	0.087	30.4	28.6
1 880	661	GSM 1900	GSM	28.85	Right Tilt	1:8.3	0.098	29.9	
1 880	661	GSM 1900	GSM	28.85	Left Cheek	1:8.3	0.133	28.6	
1 880	661	GSM 1900	GSM	28.85	Left Tilt	1:8.3	0.085	30.5	
836.6	4183	UMTS 850	RMC	24.76	Right Cheek	1:1	0.205	31.6	31.6
836.6	4183	UMTS 850	RMC	24.76	Right Tilt	1:1	0.103	34.6	
836.6	4183	UMTS 850	RMC	24.76	Left Cheek	1:1	0.182	32.2	
836.6	4183	UMTS 850	RMC	24.76	Left Tilt	1:1	0.122	33.9	
1 732.4	1412	UMTS 1700	RMC	24.48	Right Cheek	1:1	0.145	32.9	30.1
1 732.4	1412	UMTS 1700	RMC	24.48	Right Tilt	1:1	0.118	33.8	
1 732.4	1412	UMTS 1700	RMC	24.48	Left Cheek	1:1	0.273	30.1	
1 732.4	1412	UMTS 1700	RMC	24.48	Left Tilt	1:1	0.181	31.9	
1 880	9400	UMTS 1900	RMC	24.18	Right Cheek	1:1	0.139	32.7	30.8
1 880	9400	UMTS 1900	RMC	24.18	Right Tilt	1:1	0.107	33.9	
1 880	9400	UMTS 1900	RMC	24.18	Left Cheek	1:1	0.218	30.8	
1 880	9400	UMTS 1900	RMC	24.18	Left Tilt	1:1	0.072	35.6	

**Table A-2 DSI = 2 PLimit Calculations – 4G Head SAR**

MEASUREMENT RESULTS													
Frequency		Mode		Band width	Conducted Power	Test Position	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.												
680.5	133297	LTE Band 71	Mid	20	24.92	Right Cheek	0	1	0	1:1	0.140	33.5	33.5
680.5	133297	LTE Band 71	Mid	20	24.92	Right Tilt	0	1	0	1:1	0.055	37.5	
680.5	133297	LTE Band 71	Mid	20	24.92	Left Cheek	0	1	0	1:1	0.116	34.3	
680.5	133297	LTE Band 71	Mid	20	24.92	Left Tilt	0	1	0	1:1	0.059	37.2	
707.5	23095	LTE Band 12	Mid	10	24.92	Right Cheek	0	1	0	1:1	0.164	32.8	32.8
707.5	23095	LTE Band 12	Mid	10	24.92	Right Tilt	0	1	0	1:1	0.085	35.6	
707.5	23095	LTE Band 12	Mid	10	24.92	Left Cheek	0	1	0	1:1	0.128	33.8	
707.5	23095	LTE Band 12	Mid	10	24.92	Left Tilt	0	1	0	1:1	0.060	37.1	
782	23230	LTE Band 13	Mid	10	24.21	Right Cheek	0	1	0	1:1	0.193	31.4	31.4
782	23230	LTE Band 13	Mid	10	24.21	Right Tilt	0	1	0	1:1	0.099	34.3	
782	23230	LTE Band 13	Mid	10	24.21	Left Cheek	0	1	0	1:1	0.107	33.9	
782	23230	LTE Band 13	Mid	10	24.21	Left Tilt	0	1	0	1:1	0.077	35.3	
793	23330	LTE Band 14	Mid	10	24.42	Right Cheek	0	1	0	1:1	0.209	31.2	31.2
793	23330	LTE Band 14	Mid	10	24.42	Right Tilt	0	1	0	1:1	0.102	34.3	
793	23330	LTE Band 14	Mid	10	24.42	Left Cheek	0	1	0	1:1	0.144	32.8	
793	23330	LTE Band 14	Mid	10	24.42	Left Tilt	0	1	0	1:1	0.099	34.5	
831.5	26865	LTE Band 26	Mid	15	24.52	Right Cheek	0	1	0	1:1	0.213	31.2	31.2
831.5	26865	LTE Band 26	Mid	15	24.52	Right Tilt	0	1	0	1:1	0.107	34.2	
831.5	26865	LTE Band 26	Mid	15	24.52	Left Cheek	0	1	0	1:1	0.039	38.6	
831.5	26865	LTE Band 26	Mid	15	24.52	Left Tilt	0	1	0	1:1	0.023	40.9	
1 745	132322	LTE Band 66	Mid	20	23.75	Right Cheek	0	1	0	1:1	0.139	32.3	30.6
1 745	132322	LTE Band 66	Mid	20	23.75	Right Tilt	0	1	0	1:1	0.110	33.3	
1 745	132322	LTE Band 66	Mid	20	23.98	Left Cheek	0	1	0	1:1	0.205	30.6	
1 745	132322	LTE Band 66	Mid	20	23.75	Left Tilt	0	1	0	1:1	0.109	33.4	
1 882.5	26365	LTE Band 25	Mid	20	23.65	Right Cheek	0	1	0	1:1	0.117	33.0	33.0
1 882.5	26365	LTE Band 25	Mid	20	23.65	Right Tilt	0	1	0	1:1	0.099	33.7	
1 882.5	26365	LTE Band 25	Mid	20	23.65	Left Cheek	0	1	0	1:1	0.111	33.2	
1 882.5	26365	LTE Band 25	Mid	20	23.65	Left Tilt	0	1	0	1:1	0.095	33.9	

**MEASUREMENT RESULTS**

Frequency		Mode		Band width	Conducted Power	Test Position	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			Mhz	(dBm)		(dB)				(W/kg)	(dBm)	(dBm)
2 310	27710	LTE Band 30	Mid	10	23.51	Right Cheek	0	1	0	1:1	0.072	34.9	31.4
2 310	27710	LTE Band 30	Mid	10	23.51	Right Tilt	0	1	0	1:1	0.089	34.0	
2 310	27710	LTE Band 30	Mid	10	23.51	Left Cheek	0	1	0	1:1	0.164	31.4	
2 310	27710	LTE Band 30	Mid	10	23.51	Left Tilt	0	1	0	1:1	0.059	35.8	
2 680.0	41490	LTE Band 41(PC3)	High	20	23.99	Right Cheek	0	1	0	1:1.58	0.077	33.1	30.5
2 680.0	41490	LTE Band 41(PC3)	High	20	23.99	Right Tilt	0	1	0	1:1.58	0.070	33.6	
2 680.0	41490	LTE Band 41(PC3)	High	20	23.99	Left Cheek	0	1	0	1:1.58	0.141	30.5	
2 680.0	41490	LTE Band 41(PC3)	High	20	23.99	Left Tilt	0	1	0	1:1.58	0.058	34.4	
2 680.0	41490	LTE Band 41(PC2)	High	20	26.20	Right Cheek	0	1	0	1:1.58	0.116	31.9	30.6
2 680.0	41490	LTE Band 41(PC2)	High	20	26.20	Right Tilt	0	1	0	1:1.58	0.066	34.4	
2 680.0	41490	LTE Band 41(PC2)	High	20	26.20	Left Cheek	0	1	0	1:1.58	0.157	30.6	
2 680.0	41490	LTE Band 41(PC2)	High	20	26.20	Left Tilt	0	1	0	1:1.58	0.078	33.6	
2 510	20850	LTE Band 7	Low	20	23.25	Right Cheek	0	1	0	1:1	0.083	34.1	32.2
2 510	20850	LTE Band 7	Low	20	23.25	Right Tilt	0	1	0	1:1	0.092	33.6	
2 510	20850	LTE Band 7	Low	20	23.25	Left Cheek	0	1	0	1:1	0.126	32.2	
2 510	20850	LTE Band 7	Low	20	23.25	Left Tilt	0	1	0	1:1	0.059	35.5	
3 690	56640	LTE Band 48	High	20	19.20	Right Cheek	0	1	0	1:1.58	0.488	20.3	20.3
3 690	56640	LTE Band 48	High	20	19.20	Right Tilt	0	1	0	1:1.58	0.030	32.4	
3 690	56640	LTE Band 48	High	20	19.20	Left Cheek	0	1	0	1:1.58	0.321	22.1	
3 690	56640	LTE Band 48	High	20	19.20	Left Tilt	0	1	0	1:1.58	0.067	29.0	

**Table A-3 DSI = 2 PLimit Calculations – NR Head SAR**

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

NR TDD Bands : In the case of the NR TDD bands, the Plimit were calculated as the Frame average power to which the duty factor was applied to the burst power.

SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Conducted Power	Test Configurations		MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	PLimit	Minimum PLimit
Mhz	Ch.													
680.5	136100	NR Band n71	Mid	20	24.18	Right Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.114	33.6	33.6
680.5	136100	NR Band n71	Mid	20	24.18	Right Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.076	35.4	
680.5	136100	NR Band n71	Mid	20	24.18	Left Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.090	34.6	
680.5	136100	NR Band n71	Mid	20	24.18	Left Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.062	36.3	
836.5	167300	NR Band n5	Mid	20	24.87	Right Cheek	DFT-s-OFDM QPSK	0	1	53	1:1	0.191	32.1	32.1
836.5	167300	NR Band n5	Mid	20	24.87	Right Tilt	DFT-s-OFDM QPSK	0	1	53	1:1	0.082	35.7	
836.5	167300	NR Band n5	Mid	20	24.87	Left Cheek	DFT-s-OFDM QPSK	0	1	53	1:1	0.141	33.4	
836.5	167300	NR Band n5	Mid	20	24.87	Left Tilt	DFT-s-OFDM QPSK	0	1	53	1:1	0.096	35.0	
1770	354000	NR Band n66	High	20	24.27	Right Cheek	DFT-s-OFDM QPSK	0	1	104	1:1	0.199	31.3	29.9
1770	354000	NR Band n66	High	20	24.27	Right Tilt	DFT-s-OFDM QPSK	0	1	104	1:1	0.157	32.3	
1770	354000	NR Band n66	High	20	24.27	Left Cheek	DFT-s-OFDM QPSK	0	1	104	1:1	0.274	29.9	
1770	354000	NR Band n66	High	20	24.27	Left Tilt	DFT-s-OFDM QPSK	0	1	104	1:1	0.253	30.2	
1 882.5	376500	NR Band n25	Mid	40	23.83	Right Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.122	33.0	30.0
1 882.5	376500	NR Band n25	Mid	40	23.83	Right Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.135	32.5	
1 882.5	376500	NR Band n25	Mid	40	23.83	Left Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.241	30.0	
1 882.5	376500	NR Band n25	Mid	40	23.83	Left Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.120	33.0	
707.5	141500	NR Band n12	Mid	15	24.88	Right Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.128	33.8	33.8
707.5	141500	NR Band n12	Mid	15	24.88	Right Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.070	36.4	
707.5	141500	NR Band n12	Mid	15	24.88	Left Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.106	34.6	
707.5	141500	NR Band n12	Mid	15	24.88	Left Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.101	34.8	
2 310	462000	NR Band n30	Mid	10	23.55	Right Cheek	DFT-s-OFDM QPSK	0	1	26	1:1	0.066	35.4	33.3
2 310	462000	NR Band n30	Mid	10	23.55	Right Tilt	DFT-s-OFDM QPSK	0	1	26	1:1	0.085	34.3	
2 310	462000	NR Band n30	Mid	10	23.55	Left Cheek	DFT-s-OFDM QPSK	0	1	26	1:1	0.106	33.3	
2 310	462000	NR Band n30	Mid	10	23.55	Left Tilt	DFT-s-OFDM QPSK	0	1	26	1:1	0.050	36.6	
2 592.99	518598	NR Band n41 (PC3)Upper	Mid	100	13.92	Right Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.083	24.7	22.0
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	13.92	Right Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.076	25.1	
2 592.99	518598	NR Band n41 (PC3)Upper	Mid	100	13.92	Left Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.132	22.7	
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	13.92	Left Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.157	22.0	
2 592.99	518598	NR Band n41(PC2)	Mid	100	13.93	Right Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.087	24.5	21.7
2 592.99	518598	NR Band n41(PC2)	Mid	100	13.93	Right Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.078	25.0	
2 592.99	518598	NR Band n41(PC2)	Mid	100	13.93	Left Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.148	22.2	
2 592.99	518598	NR Band n41(PC2)	Mid	100	13.93	Left Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.169	21.7	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Right Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.025	34.9	33.2
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Right Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.029	34.3	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Left Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.037	33.2	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Left Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.018	36.3	

**MEASUREMENT RESULTS**

Frequency		Mode	Band width	Conducted Power	Test Configurations		MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit	
Mhz	Ch.													Mhz
3840	656000	NR Band 77(PC3)	Mid	100	18.80	Right Cheek	DFT-s-OFDM QPSK	0	1	271	1:1	0.118	28.1	28.1
3840	656000	NR Band 77(PC3)	Mid	100	18.80	Right Tilt	DFT-s-OFDM QPSK	0	1	271	1:1	0.014	37.3	
3840	656000	NR Bandn77(PC3)	Mid	100	18.80	Left Cheek	DFT-s-OFDM QPSK	0	1	271	1:1	0.052	31.6	
3840	656000	NR Bandn77(PC3)	Mid	100	18.80	Left Tilt	DFT-s-OFDM QPSK	0	1	271	1:1	0.006	41.0	
3840	656000	NR Bandn77(PC2)	Mid	100	12.73	Right Cheek	DFT-s-OFDM QPSK	0	1	271	1:1	0.154	20.9	20.9
3840	656000	NR Bandn77(PC2)	Mid	100	12.73	Right Tilt	DFT-s-OFDM QPSK	0	1	271	1:1	0.004	36.7	
3840	656000	NR Bandn77(PC2)	Mid	100	12.73	Left Cheek	DFT-s-OFDM QPSK	0	1	271	1:1	0.046	26.1	
3840	656000	NR Bandn77(PC2)	Mid	100	12.73	Left Tilt	DFT-s-OFDM QPSK	0	1	271	1:1	0.037	27.0	

**Table A-4 DSI = 0 P<sub>Limit</sub> Calculations - 2G/3G Body-Worn SAR**

For some bands/modes, a lower P<sub>Limit</sub> was selected as a more conservative evaluation.

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Conducted Power (dBm)	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g) (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Mhz	Ch.									
820	560	TDSO RC32/SO55	CDMA BC10	24.77	Back	15	1:1	0.268	30.5	30.5
820	560	TDSO RC32/SO55	CDMA BC10	24.77	Front	15	1:1	0.248	30.8	
820	560	EVDO Rev.A	CDMA BC10	24.54	Back	15	1:1	0.252	30.5	
820	560	EVDO Rev.A	CDMA BC10	24.54	Front	15	1:1	0.225	31.0	
836.52	384	TDSO RC32/SO55	CDMA BC 0	24.51	Back	15	1:1	0.313	29.6	29.7
836.52	384	TDSO RC32/SO55	CDMA BC 0	24.51	Front	15	1:1	0.271	30.2	
836.52	384	EVDO Rev. A	CDMA BC 0	24.42	Back	15	1:1	0.297	29.7	
836.52	384	EVDO Rev. A	CDMA BC 0	24.42	Front	15	1:1	0.244	30.5	
1880.0	600	TDSO RC32/SO55	PCS	23.56	Back	15	1:1	0.930	23.9	23.9
1880.0	600	TDSO RC32/SO55	PCS	23.56	Front	15	1:1	0.706	25.1	
1880.0	600	EVDO Rev. A	PCS	23.38	Back	15	1:1	0.879	23.9	
1880.0	600	EVDO Rev. A	PCS	23.38	Front	15	1:1	0.650	25.3	
836.6	190	GSM 850	GSM	32.77	Back	15	1:8.3	0.209	29.6	29.6
836.6	190	GSM 850	GSM	32.77	Front	15	1:8.3	0.194	30.0	
1 880	661	GSM 1900	GSM	28.85	Back	15	1:8.3	0.385	24.0	24.0
1 880	661	GSM 1900	GSM	28.85	Front	15	1:8.3	0.320	24.8	
826.4	4132	UMTS 850	RMC	24.76	Back	15	1:1	0.303	29.9	29.9
826.4	4132	UMTS 850	RMC	24.76	Front	15	1:1	0.300	30.0	
1 732.4	1412	UMTS 1700	RMC	24.48	Back	15	1:1	0.900	24.9	24.9
1 732.4	1412	UMTS 1700	RMC	24.48	Front	15	1:1	0.879	25.0	
1 880	9400	UMTS 1900	RMC	24.18	Back	15	1:1	0.962	24.3	24.3
1 880	9400	UMTS 1900	RMC	24.18	Front	15	1:1	0.814	25.1	

**Table A-5 DSI = 0  $P_{Limit}$  Calculations - 4G Body-Worn SAR**

For some bands/modes, a lower  $P_{Limit}$  was selected as a more conservative evaluation.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Conducted Power	Test Position	Spacing (mm)	MPR (dB)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			Mhz	(dBm)							(W/kg)	(dBm)	(dBm)
680.5	133297	LTE Band 71	Mid	20	24.92	Back	15	0	1	0	1:1	0.228	31.3	31.3
680.5	133297	LTE Band 71	Mid	20	24.92	Front	15	0	1	0	1:1	0.188	32.2	
707.5	23095	LTE Band 12	Mid	10	24.92	Back	15	0	1	0	1:1	0.241	31.1	31.0
707.5	23095	LTE Band 12	Mid	10	24.92	Front	15	0	1	0	1:1	0.245	31.0	
782	23230	LTE Band 13	Mid	10	24.21	Back	15	0	1	0	1:1	0.273	29.8	29.8
782	23230	LTE Band 13	Mid	10	24.21	Front	15	0	1	0	1:1	0.250	30.2	
793	23330	LTE Band 14	Mid	10	24.42	Back	15	0	1	0	1:1	0.335	29.2	29.2
793	23330	LTE Band 14	Mid	10	24.42	Front	15	0	1	0	1:1	0.276	30.0	
831.5	26865	LTE Band 26	Mid	15	24.52	Back	15	0	1	0	1:1	0.314	29.6	29.6
831.5	26865	LTE Band 26	Mid	15	24.52	Front	15	0	1	0	1:1	0.249	30.6	
1 745	132322	LTE Band 66	Mid	20	23.75	Back	15	0	1	0	1:1	0.842	24.5	24.5
1 745	132322	LTE Band 66	Mid	20	23.75	Front	15	0	1	0	1:1	0.707	25.3	
1 882.5	26365	LTE Band 25	Mid	20	23.65	Back	15	0	1	0	1:1	0.550	26.2	26.2
1 882.5	26365	LTE Band 25	Mid	20	23.65	Front	15	0	1	0	1:1	0.430	27.3	
2 310	27710	LTE Band 30	Mid	10	23.51	Back	15	0	1	0	1:1	0.498	26.5	26.3
2 310	27710	LTE Band 30	Mid	10	23.51	Front	15	0	1	0	1:1	0.530	26.3	
2 510	20850	LTE Band 7	Low	20	23.25	Back	15	0	1	0	1:1	0.363	27.7	27.7
2 510	20850	LTE Band 7	Low	20	23.25	Front	15	0	1	0	1:1	0.320	28.2	
3 690	56640	LTE Band 48	High	20	23.44	Back	15	0	1	0	1:1	0.102	31.4	31.2
3 690	56640	LTE Band 48	High	20	23.44	Front	15	0	1	0	1:1	0.106	31.2	
2 680	41490	LTE Band 41(PC3)	High	20	23.99	Back	15	0	1	0	1:1	0.243	28.1	27.3
2 680	41490	LTE Band 41(PC3)	High	20	23.99	Front	15	0	1	0	1:1	0.298	27.3	
2 680	41490	LTE Band 41(PC2)	High	20	26.20	Back	15	0	1	0	1:1	0.348	27.1	27.1
2 680	41490	LTE Band 41(PC2)	High	20	26.20	Front	15	0	1	0	1:1	0.349	27.1	

**Table A-6 DSI = 0 P<sub>Limit</sub> Calculations - NR Body-Worn SAR**

For some bands/modes, a lower *P<sub>Limit</sub>* was selected as a more conservative evaluation.

NR TDD Bands : In the case of the NR TDD bands, the P<sub>limit</sub> were calculated as the Frame average power to which the duty factor was applied to the burst power.

SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS															
Frequency		Mode	Band width	Conducted Power	Test Configurations	MPR	Spacing	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	P <sub>limit</sub>	Minim P <sub>limit</sub>		
Mhz	Ch.													Mhz	(dBm)
836.5	167300	NR Band n5	Mid	20	24.87	Back	DFT-s-OFDM QPSK	0	15	1	53	1:1	0.232	31.2	31.0
836.5	167300	NR Band n5	Mid	20	24.87	Front	DFT-s-OFDM QPSK	0	15	1	53	1:1	0.243	31.0	
707.5	141500	NR Band n12	Mid	15	24.88	Back	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.216	31.5	31.5
707.5	141500	NR Band n12	Mid	15	24.88	Front	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.190	32.1	
1 882.5	376500	NR Band n25	Mid	40	23.83	Back	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.596	26.1	26.1
1 882.5	376500	NR Band n25	Mid	40	23.83	Front	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.540	26.5	
2 310	462000	NR Band n30	Mid	10	23.55	Back	DFT-s-OFDM QPSK	0	15	1	26	1:1	0.329	28.4	27.7
2 310	462000	NR Band n30	Mid	10	23.55	Front	DFT-s-OFDM QPSK	0	15	1	26	1:1	0.389	27.7	
2 592.99	518598	NR Band n41 (PC3)Upper	Mid	100	18.90	Back	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.055	31.5	31.5
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	18.90	Front	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.025	34.9	
2 592.99	518598	NR Band n41(PC2)	Mid	100	20.19	Back	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.062	32.3	32.3
2 592.99	518598	NR Band n41(PC2)	Mid	100	20.19	Front	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.060	32.4	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Back	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.090	29.4	29.0
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Front	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.097	29.0	
1 745	349000	NR Band n66	Mid	40	24.27	Back	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.900	24.7	24.7
1 745	349000	NR Band n66	Mid	40	24.27	Front	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.700	25.8	
680.5	136100	NR Band n71	Mid	20	24.18	Back	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.178	31.7	31.7
680.5	136100	NR Band n71	Mid	20	24.18	Front	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.145	32.6	
3840	656000	NR Band n77(PC3)	Mid	100	18.41	Back	DFT-s-OFDM QPSK	0	15	1	271	1:1	0.015	36.6	32.5
3840	656000	NR Band n77(PC3)	Mid	100	18.41	Front	DFT-s-OFDM QPSK	0	15	1	271	1:1	0.039	32.5	
3840	656000	NR Band n77(PC2)	Mid	100	19.76	Back	DFT-s-OFDM QPSK	0	15	1	271	1:1	0.032	34.7	32.4
3840	656000	NR Band n77(PC2)	Mid	100	19.76	Front	DFT-s-OFDM QPSK	0	15	1	271	1:1	0.055	32.4	



**Table A-7 DSI = 3 P<sub>Limit</sub> Calculations - - 2G/3G Hotspot SAR**

For some bands/modes, a lower P<sub>Limit</sub> was selected as a more conservative evaluation.

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Conducted Power (dBm)	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.							(W/kg)	(dBm)	(dBm)
820	560	EVDO Rev.0	CDMA BC10	24.56	Back	10	1:1	0.561	27.1	27.1
820	560	EVDO Rev.0	CDMA BC10	24.56	Front	10	1:1	0.325	29.4	
820	560	EVDO Rev.0	CDMA BC10	24.56	Bottom	10	1:1	0.284	30.0	
820	560	EVDO Rev.0	CDMA BC10	24.56	Right	10	1:1	0.283	30.0	
820	560	EVDO Rev.0	CDMA BC10	24.56	Left	10	1:1	0.131	33.4	
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Back	10	1:1	0.714	26.0	26.0
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Front	10	1:1	0.400	28.5	
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Bottom	10	1:1	0.330	29.4	
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Right	10	1:1	0.316	29.6	
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Left	10	1:1	0.121	33.7	
1880.0	600	EVDO Rev.0	PCS	18.98	Back	10	1:1	0.564	21.5	19.2
1880.0	600	EVDO Rev.0	PCS	18.98	Front	10	1:1	0.435	22.6	
1880.0	600	EVDO Rev.0	PCS	18.98	Bottom	10	1:1	0.946	19.2	
1880.0	600	EVDO Rev.0	PCS	18.98	Right	10	1:1	0.253	24.9	
1880.0	600	EVDO Rev.0	PCS	18.98	Left	10	1:1	0.307	24.1	

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Conducted Power (dBm)	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g) (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Mhz	Ch.									
836.6	190	GSM 850	GPRS2Tx	31.87	Back	10	1:4.15	0.771	27.0	27.0
836.6	190	GSM 850	GPRS2Tx	31.87	Front	10	1:4.15	0.526	28.6	
836.6	190	GSM 850	GPRS2Tx	31.87	Bottom	10	1:4.15	0.429	29.5	
836.6	190	GSM 850	GPRS2Tx	31.87	Right	10	1:4.15	0.429	29.5	
836.6	190	GSM 850	GPRS2Tx	31.87	Left	10	1:4.15	0.157	33.9	
1 880.0	661	GSM 1900	GPRS 4Tx	19.91	Back	10	1:2.075	0.263	22.7	19.7
1 880.0	661	GSM 1900	GPRS 4Tx	19.91	Front	10	1:2.075	0.240	23.1	
1 880.0	661	GSM 1900	GPRS 4Tx	19.91	Bottom	10	1:2.075	0.523	19.7	
1 880.0	661	GSM 1900	GPRS 4Tx	19.91	Right	10	1:2.075	0.052	29.7	
1 880.0	661	GSM 1900	GPRS 4Tx	19.91	Left	10	1:2.075	0.056	29.4	
836.6	4183	UMTS 850	RMC	24.76	Back	10	1:1	0.612	26.9	26.9
836.6	4183	UMTS 850	RMC	24.76	Front	10	1:1	0.482	27.9	
836.6	4183	UMTS 850	RMC	24.76	Bottom	10	1:1	0.387	28.9	
836.6	4183	UMTS 850	RMC	24.76	Right	10	1:1	0.397	28.8	
836.6	4183	UMTS 850	RMC	24.76	Left	10	1:1	0.178	32.3	
1 732.4	1412	UMTS 1700	RMC	19.44	Back	10	1:1	0.519	22.3	20.6
1 732.4	1412	UMTS 1700	RMC	19.44	Front	10	1:1	0.550	22.0	
1 732.4	1412	UMTS 1700	RMC	19.44	Bottom	10	1:1	0.757	20.6	
1 732.4	1412	UMTS 1700	RMC	19.44	Right	10	1:1	0.062	31.5	
1 732.4	1412	UMTS 1700	RMC	19.44	Left	10	1:1	0.085	30.1	
1 880	9400	UMTS 1900	RMC	19.12	Back	10	1:1	0.393	23.2	19.5
1 880	9400	UMTS 1900	RMC	19.12	Front	10	1:1	0.430	22.8	
1 880	9400	UMTS 1900	RMC	19.12	Bottom	10	1:1	0.907	19.5	
1 880	9400	UMTS 1900	RMC	19.12	Right	10	1:1	0.056	31.6	
1 880	9400	UMTS 1900	RMC	19.12	Left	10	1:1	0.074	30.4	

**Table A-8 DSI = 3 P<sub>Limit</sub> Calculations - - 4G Hotspot SAR**

For some bands/modes, a lower P<sub>Limit</sub> was selected as a more conservative evaluation.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	P <sub>limit</sub>	Minimum P <sub>limit</sub>
Mhz	Ch.													
680.5	133297	LTE Band 71	Mid	20	24.92	Back	10	0	1	0	1:1	0.385	29.1	29.1
680.5	133297	LTE Band 71	Mid	20	24.92	Front	10	0	1	0	1:1	0.219	31.5	
680.5	133297	LTE Band 71	Mid	20	24.92	Bottom	10	0	1	0	1:1	0.226	31.4	
680.5	133297	LTE Band 71	Mid	20	24.92	Right	10	0	1	0	1:1	0.193	32.1	
680.5	133297	LTE Band 71	Mid	20	24.92	Left	10	0	1	0	1:1	0.105	34.7	
707.5	23095	LTE Band 12	Mid	10	24.92	Back	10	1	1	0	1:1	0.447	28.4	28.4
707.5	23095	LTE Band 12	Mid	10	24.92	Front	10	0	1	0	1:1	0.264	30.7	
707.5	23095	LTE Band 12	Mid	10	24.92	Bottom	10	0	1	0	1:1	0.248	31.0	
707.5	23095	LTE Band 12	Mid	10	24.92	Right	10	0	1	0	1:1	0.281	30.4	
707.5	23095	LTE Band 12	Mid	10	24.92	Left	10	0	1	0	1:1	0.179	32.4	
782	23230	LTE Band 13	Mid	10	24.21	Back	10	0	1	0	1:1	0.515	27.1	27.1
782	23230	LTE Band 13	Mid	10	24.21	Front	10	0	1	0	1:1	0.350	28.8	
782	23230	LTE Band 13	Mid	10	24.21	Bottom	10	0	1	0	1:1	0.279	29.8	
782	23230	LTE Band 13	Mid	10	24.21	Right	10	0	1	0	1:1	0.326	29.1	
782	23230	LTE Band 13	Mid	10	24.21	Left	10	0	1	0	1:1	0.196	31.3	
793	23330	LTE Band 14	Mid	10	24.42	Back	10	0	1	0	1:1	0.631	26.4	26.4
793	23330	LTE Band 14	Mid	10	24.42	Front	10	0	1	0	1:1	0.350	29.0	
793	23330	LTE Band 14	Mid	10	24.42	Bottom	10	0	1	0	1:1	0.334	29.2	
793	23330	LTE Band 14	Mid	10	24.42	Right	10	0	1	0	1:1	0.335	29.2	
793	23330	LTE Band 14	Mid	10	24.42	Left	10	0	1	0	1:1	0.222	31.0	
831.5	26865	LTE Band 26	Mid	15	24.52	Back	10	0	1	0	1:1	0.602	26.7	26.7
831.5	26865	LTE Band 26	Mid	15	24.52	Front	10	0	1	0	1:1	0.402	28.5	
831.5	26865	LTE Band 26	Mid	15	24.52	Bottom	10	0	1	0	1:1	0.374	28.8	
831.5	26865	LTE Band 26	Mid	15	24.52	Right	10	0	1	0	1:1	0.375	28.8	
831.5	26865	LTE Band 26	Mid	15	24.52	Left	10	0	1	0	1:1	0.127	33.5	
1 770	132572	LTE Band 66	High	20	18.46	Back	10	0	1	0	1:1	0.346	23.1	20.8
1 770	132572	LTE Band 66	High	20	18.46	Front	10	0	1	0	1:1	0.272	24.1	
1 770	132572	LTE Band 66	High	20	18.46	Bottom	10	0	1	0	1:1	0.587	20.8	
1 770	132572	LTE Band 66	High	20	18.46	Right	10	0	1	0	1:1	0.077	29.6	
1 770	132572	LTE Band 66	High	20	18.46	Left	10	0	1	0	1:1	0.066	30.3	
2 510	20850	LTE Band 7	Low	20	19.74	Back	10	0	1	0	1:1	0.381	23.9	22.2
2 510	20850	LTE Band 7	Low	20	19.74	Front	10	0	1	0	1:1	0.313	24.8	
2 510	20850	LTE Band 7	Low	20	19.74	Bottom	10	0	1	0	1:1	0.568	22.2	
2 510	20850	LTE Band 7	Low	20	19.74	Left	10	0	1	0	1:1	0.170	27.4	

**MEASUREMENT RESULTS**

Frequency		Mode		Band width	Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			Mhz	(dBm)			(dB)				(W/kg)	(dBm)	(dBm)
1860	26140	LTE Band 25	Low	20	18.17	Back	10	0	1	0	1:1	0.322	23.1	19.7
1860	26140	LTE Band 25	Low	20	18.17	Front	10	0	1	0	1:1	0.296	23.5	
1860	26140	LTE Band 25	Low	20	18.17	Bottom	10	0	1	0	1:1	0.699	19.7	
1860	26140	LTE Band 25	Low	20	18.17	Right	10	0	1	0	1:1	0.065	30.0	
1860	26140	LTE Band 25	Low	20	18.17	Left	10	0	1	0	1:1	0.050	31.2	
2 310	27710	LTE Band 30	Mid	10	18.98	Back	10	0	1	0	1:1	0.323	23.9	20.1
2 310	27710	LTE Band 30	Mid	10	18.98	Front	10	0	1	0	1:1	0.381	23.2	
2 310	27710	LTE Band 30	Mid	10	18.98	Bottom	10	0	1	0	1:1	0.780	20.1	
2 310	27710	LTE Band 30	Mid	10	18.98	Left	10	0	1	0	1:1	0.053	31.7	
2 506.0	39750	LTE Band 41(PC3)	Low	20	20.50	Back	10	0	1	0	1:1.58	0.278	24.1	19.6
2 506.0	39750	LTE Band 41(PC3)	Low	20	20.50	Front	10	0	1	0	1:1.58	0.276	24.1	
2 506.0	39750	LTE Band 41(PC2)	Low	20	20.50	Bottom	10	0	1	0	1:1.58	0.781	19.6	
2 506.0	39750	LTE Band 41(PC2)	Low	20	20.50	Left	10	0	1	0	1:1.58	0.162	26.4	
2 506.0	39750	LTE Band 41(PC3)	Low	20	22.09	Back	10	0	1	0	1:1.58	0.223	25.0	19.9
2 506.0	39750	LTE Band 41(PC3)	Low	20	22.09	Front	10	0	1	0	1:1.58	0.282	24.0	
2 506.0	39750	LTE Band 41(PC2)	Low	20	22.09	Bottom	10	0	1	0	1:1.58	0.723	19.9	
2 506.0	39750	LTE Band 41(PC2)	Low	20	22.09	Left	10	0	1	0	1:1.58	0.155	26.6	
3 690	56640	LTE Band 48	High	20	23.44	Back	10	0	1	0	1:1.58	0.191	28.6	25.5
3 690	56640	LTE Band 48	High	20	23.44	Front	10	0	1	0	1:1.58	0.237	27.7	
3 690	56640	LTE Band 48	High	20	23.44	Right	10	0	1	0	1:1.58	0.392	25.5	

**Table A-9 DSI = 3 P<sub>Limit</sub> Calculations - - NR Hotspot SAR**

For some bands/modes, a lower P<sub>Limit</sub> was selected as a more conservative evaluation.

NR TDD Bands : In the case of the NR TDD bands, the P<sub>limit</sub> were calculated as the Frame average power to which the duty factor was applied to the burst power.

SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS															
Frequency		Mode		Band width	Conducted Power	Test Position		MPR	Spacing	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	P <sub>limit</sub>	Minimum P <sub>limit</sub>
Mhz	Ch.			Mhz	(dBm)			(dB)	(mm)				(W/kg)	(dBm)	(dBm)
680.5	136100	NR Band n71	Mid	20	24.18	Back	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.292	29.5	29.5
680.5	136100	NR Band n71	Mid	20	24.18	Front	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.183	31.6	
680.5	136100	NR Band n71	Mid	20	24.18	Bottom	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.154	32.3	
680.5	136100	NR Band n71	Mid	20	24.18	Right	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.086	34.8	
680.5	136100	NR Band n71	Mid	20	24.18	Left	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.153	32.3	
836.5	167300	NR Band n5	Mid	20	24.87	Back	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.529	27.6	27.6
836.5	167300	NR Band n5	Mid	20	24.87	Front	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.331	29.7	
836.5	167300	NR Band n5	Mid	20	24.87	Bottom	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.261	30.7	
836.5	167300	NR Band n5	Mid	20	24.87	Right	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.300	30.1	
836.5	167300	NR Band n5	Mid	20	24.87	Left	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.122	34.0	
1 745	349000	NR Band n66	Mid	20	18.71	Back	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.484	21.9	19.6
1 745	349000	NR Band n66	Mid	20	18.71	Front	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.433	22.3	
1 745	349000	NR Band n66	Mid	20	18.71	Bottom	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.807	19.6	
1 745	349000	NR Band n66	Mid	20	18.71	Right	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.095	28.9	
1 745	349000	NR Band n66	Mid	20	18.71	Left	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.119	28.0	
1 882.5	376500	NR Band n25	Mid	40	18.62	Back	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.405	22.5	19.6
1 882.5	376500	NR Band n25	Mid	40	18.62	Front	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.384	22.8	
1 882.5	376500	NR Band n25	Mid	40	18.62	Bottom	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.805	19.6	
1 882.5	376500	NR Band n25	Mid	40	18.62	Right	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.071	30.1	
1 882.5	376500	NR Band n25	Mid	40	18.62	Left	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.065	30.5	
2 592.99	518598	NR Band n41 (PC3)Upper	Mid	100	18.90	Back	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.067	30.6	30.6
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	18.90	Front	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.058	31.3	
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	18.90	Bottom	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.062	31.0	
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	18.90	Left	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.024	35.1	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	14.48	Back	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.108	24.1	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	14.48	Front	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.090	24.9	20.8
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	14.48	Top	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.232	20.8	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	14.48	Right	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.060	26.7	
2 592.99	518598	NR Band n41(PC2)	Mid	100	20.19	Back	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.103	30.1	30.1
2 592.99	518598	NR Band n41(PC2)	Mid	100	20.19	Front	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.075	31.4	
2 592.99	518598	NR Band n41(PC2)	Mid	100	20.19	Top	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.091	30.6	
2 592.99	518598	NR Band n41(PC2)	Mid	100	20.19	Right	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.043	33.9	
707.5	141500	NR Band n12	Mid	15	24.88	Back	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.360	29.3	29.3
707.5	141500	NR Band n12	Mid	15	24.88	Front	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.236	31.2	
707.5	141500	NR Band n12	Mid	15	24.88	Bottom	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.169	32.6	
707.5	141500	NR Band n12	Mid	15	24.88	Right	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.202	31.8	
707.5	141500	NR Band n12	Mid	15	24.88	Left	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.118	34.2	

**MEASUREMENT RESULTS**

Frequency		Mode		Band width	Conducted Power	Test Position		MPR	Spacing	RB	RB	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			Mhz	(dBm)			(dB)	(mm)	Size	offset		(W/kg)	(dBm)	(dBm)
2 310	462000	NR Band n30	Mid	10	19.17	Back	DFT-s-OFDM QPSK	0	10	1	50	1:1	0.397	23.2	20.3
2 310	462000	NR Band n30	Mid	10	19.17	Front	DFT-s-OFDM QPSK	0	10	1	50	1:1	0.426	22.9	
2 310	462000	NR Band n30	Mid	10	19.17	Bottom	DFT-s-OFDM QPSK	0	10	1	50	1:1	0.765	20.3	
2 310	462000	NR Band n30	Mid	10	19.17	Left	DFT-s-OFDM QPSK	0	10	1	50	1:1	0.173	26.8	
3840	656000	NR Band n77(PC3)	Mid	100	18.41	Back	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.030	33.6	30.3
3840	656000	NR Band n77(PC3)	Mid	100	18.41	Front	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.065	30.3	
3840	656000	NR Band n77(PC3)	Mid	100	18.41	Right	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.060	30.6	
3840	656000	NR Band n77(PC2)	Mid	100	19.76	Back	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.087	30.4	28.6
3840	656000	NR Band n77(PC2)	Mid	100	19.76	Front	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.130	28.6	
3840	656000	NR Band n77(PC2)	Mid	100	19.76	Right	DFT-s-OFDM QPSK	0	10	1	271	1:1	0.125	28.8	

**Table A-10 DSI = 0 P<sub>Limit</sub> Calculations - – 2G/3G Phablet SAR (Grip Sensor is off )**  
 For some bands/modes, a lower P<sub>Limit</sub> was selected as a more conservative evaluation.

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Conducted Power (dBm)	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g) (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Mhz	Ch.									
820	560	CDMA BC10	EVDO	24.56	Back	0	1:1	1.570	26.6	26.6
820	560	CDMA BC10	EVDO	24.56	Front	0	1:1	1.400	27.1	
820	560	CDMA BC10	EVDO	24.56	Bottom	0	1:1	1.270	27.5	
820	560	CDMA BC10	EVDO	24.56	Right	0	1:1	0.233	34.9	
820	560	CDMA BC10	EVDO	24.56	Left	0	1:1	0.178	36.0	
836.52	384	CDMA BC 0	EVDO	24.56	Back	0	1:1	1.520	26.7	26.7
836.52	384	CDMA BC 0	EVDO	24.56	Front	0	1:1	1.430	27.0	
836.52	384	CDMA BC 0	EVDO	24.56	Bottom	0	1:1	1.280	27.5	
836.52	384	CDMA BC 0	EVDO	24.56	Right	0	1:1	0.263	34.3	
836.52	384	CDMA BC 0	EVDO	24.56	Left	0	1:1	0.179	36.0	
836.6	4183	UMTS 850	RMC	24.76	Back	0	1:1	1.540	26.9	26.6
836.6	4183	UMTS 850	RMC	24.76	Front	0	1:1	1.650	26.6	
836.6	4183	UMTS 850	RMC	24.76	Bottom	0	1:1	1.080	28.4	
836.6	4183	UMTS 850	RMC	24.76	Right	0	1:1	0.291	34.1	
836.6	4183	UMTS 850	RMC	24.76	Left	0	1:1	0.175	36.3	
824.2	128	GSM 850	GPRS2Tx	31.87	Back	0	1:4.15	1.800	27.3	27.3
824.2	128	GSM 850	GPRS2Tx	31.87	Front	0	1:4.15	1.620	27.7	
824.2	128	GSM 850	GPRS2Tx	31.87	Bottom	0	1:4.15	0.915	30.2	
824.2	128	GSM 850	GPRS2Tx	31.87	Right	0	1:4.15	0.288	35.2	
824.2	128	GSM 850	GPRS2Tx	31.87	Left	0	1:4.15	0.181	37.3	
1880.0	661	GSM 1900	GPRS 3Tx	26.18	Back	8	1:2.77	1.150	25.3	23.0
1880.0	661	GSM 1900	GPRS 3Tx	26.18	Front	6	1:2.77	1.220	25.0	
1880.0	661	GSM 1900	GPRS 3Tx	26.18	Bottom	11	1:2.77	1.930	23.0	
1880.0	661	GSM 1900	GPRS 3Tx	26.18	Right	0	1:2.77	0.397	29.9	
1880.0	661	GSM 1900	GPRS 3Tx	26.18	Left	0	1:2.77	0.523	28.7	
1 732.4	1412	UMTS 1700	RMC	24.48	Back	8	1:1	1.190	27.7	27.2
1 732.4	1412	UMTS 1700	RMC	24.48	Front	6	1:1	1.340	27.2	
1 732.4	1412	UMTS 1700	RMC	24.48	Bottom	11	1:1	1.290	27.4	
1 732.4	1412	UMTS 1700	RMC	24.48	Right	0	1:1	0.489	31.6	
1 732.4	1412	UMTS 1700	RMC	24.48	Left	0	1:1	0.657	30.3	
1 880.0	9400	UMTS 1900	RMC	24.18	Back	8	1:1	1.120	27.7	26.6
1 880.0	9400	UMTS 1900	RMC	24.18	Front	6	1:1	1.170	27.5	
1 880.0	9400	UMTS 1900	RMC	24.18	Bottom	11	1:1	1.440	26.6	
1 880.0	9400	UMTS 1900	RMC	24.18	Right	0	1:1	0.600	30.4	
1 880.0	9400	UMTS 1900	RMC	24.18	Left	0	1:1	0.431	31.8	
1880.0	600	EVDO Rev.0	PCS	23.46	Back	8	1:1	1.310	26.3	24.8
1880.0	600	EVDO Rev.0	PCS	23.46	Front	6	1:1	1.660	25.2	
1880.0	600	EVDO Rev.0	PCS	23.46	Bottom	11	1:1	1.820	24.8	
1880.0	600	EVDO Rev.0	PCS	23.46	Right	0	1:1	0.262	33.3	
1880.0	600	EVDO Rev.0	PCS	23.46	Left	0	1:1	0.530	30.2	

**Table A-11 DSI = 0 P<sub>Limit</sub> Calculations - – 4G Phablet SAR(Grip Sensor is off )**  
 For some bands/modes, a lower P<sub>Limit</sub> was selected as a more conservative evaluation.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	P <sub>limit</sub>	Minimum P <sub>limit</sub>
Mhz	Ch.			Mhz	(dBm)			(dB)				(W/kg)	(dBm)	(dBm)
1 745	132322	LTE Band 66	Mid	20	23.75	Back	8	0	1	0	1:1	0.850	28.4	26.7
1 745	132322	LTE Band 66	Mid	20	23.75	Front	6	0	1	0	1:1	1.260	26.7	
1 745	132322	LTE Band 66	Mid	20	23.75	Bottom	11	0	1	0	1:1	1.090	27.4	
1 745	132322	LTE Band 66	Mid	20	23.75	Left	0	0	1	0	1:1	0.414	31.6	
1 745	132322	LTE Band 66	Mid	20	23.75	Right	0	0	1	0	1:1	0.569	30.2	
2 310	27710	LTE Band 30	Mid	10	23.51	Back	8	0	1	0	1:1	0.647	29.4	27.2
2 310	27710	LTE Band 30	Mid	10	23.51	Front	6	0	1	0	1:1	1.060	27.2	
2 310	27710	LTE Band 30	Mid	10	23.51	Bottom	11	0	1	0	1:1	0.871	28.1	
2 310	27710	LTE Band 30	Mid	10	23.51	Left	0	0	1	0	1:1	0.318	32.5	
2 680.0	41490	LTE Band 41(PC3)	High	20	23.99	Back	8	0	1	0	1:1.58	0.259	31.9	28.6
2 680.0	41490	LTE Band 41(PC3)	High	20	23.99	Front	6	0	1	0	1:1.58	0.412	29.8	
2 680.0	41490	LTE Band 41(PC3)	High	20	23.99	Bottom	11	0	1	0	1:1.58	0.483	29.1	
2 680.0	41490	LTE Band 41(PC3)	High	20	23.99	Left	0	0	1	0	1:1.58	0.546	28.6	
2 680.0	41490	LTE Band 41(PC2)	High	20	26.20	Back	8	0	1	0	1:1.58	1.850	23.9	23.9
2 680.0	41490	LTE Band 41(PC2)	High	20	26.20	Front	6	0	1	0	1:1.58	1.210	25.7	
2 680.0	41490	LTE Band 41(PC2)	High	20	26.20	Bottom	11	0	1	0	1:1.58	1.110	26.1	
2 680.0	41490	LTE Band 41(PC2)	High	20	26.20	Left	0	0	1	0	1:1.58	0.955	26.7	
2 510	20850	LTE Band 7	Low	20	23.25	Back	8	0	1	0	1:1	0.471	30.5	27.8
2 510	20850	LTE Band 7	Low	20	23.25	Front	6	0	1	0	1:1	0.597	29.5	
2 510	20850	LTE Band 7	Low	20	23.25	Bottom	11	0	1	0	1:1	0.579	29.6	
2 510	20850	LTE Band 7	Low	20	23.25	Left	0	0	1	0	1:1	0.869	27.8	
1 882.5	26365	LTE Band 25	Mid	20	23.65	Back	8	0	1	0	1:1	0.793	28.6	26.8
1 882.5	26365	LTE Band 25	Mid	20	23.65	Front	6	0	1	0	1:1	0.900	28.1	
1 882.5	26365	LTE Band 25	Mid	20	23.65	Bottom	11	0	1	0	1:1	1.210	26.8	
1 882.5	26365	LTE Band 25	Mid	20	23.65	Right	0	0	1	0	1:1	0.401	31.6	
1 882.5	26365	LTE Band 25	Mid	20	23.65	Left	0	0	1	0	1:1	0.492	30.7	
3 690	56640	LTE Band 48	High	20	23.44	Back	0	0	1	0	1:1	0.717	26.9	22.4
3 690	56640	LTE Band 48	High	20	23.44	Front	0	0	1	0	1:1	1.070	25.1	
3 690	56640	LTE Band 48	High	20	23.44	Right	0	0	1	0	1:1	2.030	22.4	



**Table A-11 DSI = 0 P<sub>Limit</sub> Calculations - – NR Phablet SAR (Grip Sensor is off )**

For some bands/modes, a lower P<sub>Limit</sub> was selected as a more conservative evaluation.

NR TDD Bands : In the case of the NR TDD bands, the P<sub>limit</sub> were calculated as the Frame average power to which the duty factor was applied to the burst power.

SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS															
Frequency		Mode		Band width	Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	P <sub>limit</sub>	Minimum P <sub>limit</sub>
Mhz	Ch.														
1 745	349000	NR Band n66	Mid	40	24.27	Back	DFT-s-OFDM QPSK	0	8	1	1	1:1	1.110	27.8	24.3
1 745	349000	NR Band n66	Mid	40	24.27	Front	DFT-s-OFDM QPSK	0	6	1	1	1:1	1.250	27.3	
1 745	349000	NR Band n66	Mid	40	24.27	Bottom	DFT-s-OFDM QPSK	0	11	1	1	1:1	1.370	26.9	
1 745	349000	NR Band n66	Mid	40	24.27	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.528	25.5	
1 745	349000	NR Band n66	Mid	40	24.27	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.692	24.3	
1 882.5	26365	NR Band n25	Mid	40	23.83	Back	DFT-s-OFDM QPSK	0	8	1	1	1:1	0.970	27.9	26.0
1 882.5	26365	NR Band n25	Mid	40	23.83	Front	DFT-s-OFDM QPSK	0	6	1	1	1:1	1.520	26.0	
1 882.5	26365	NR Band n25	Mid	40	23.83	Bottom	DFT-s-OFDM QPSK	0	11	1	1	1:1	1.340	26.5	
1 882.5	26365	NR Band n25	Mid	40	23.83	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.350	32.4	
1 882.5	26365	NR Band n25	Mid	40	23.83	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.500	30.8	
2 310	462000	NR Band n30	Mid	10	23.55	Back	DFT-s-OFDM QPSK	0	8	1	26	1:1	0.509	30.5	25.9
2 310	462000	NR Band n30	Mid	10	23.55	Front	DFT-s-OFDM QPSK	0	6	1	26	1:1	0.636	29.5	
2 310	462000	NR Band n30	Mid	10	23.55	Bottom	DFT-s-OFDM QPSK	0	11	1	26	1:1	0.743	28.8	
2 310	462000	NR Band n30	Mid	10	23.55	Left	DFT-s-OFDM QPSK	0	0	1	26	1:1	0.769	25.9	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Back	DFT-s-OFDM QPSK	0	8	1	1	1:1	0.107	32.6	28.6
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Front	DFT-s-OFDM QPSK	0	6	1	1	1:1	0.157	30.9	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Bottom	DFT-s-OFDM QPSK	0	11	1	1	1:1	0.217	29.5	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	18.90	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.268	28.6	

**Table A-11 DSI = 1 ,4 (except GSM Mode) $P_{Limit}$  Calculations - - 2G/3G Phablet SAR**

(Grip Sensor is on, Earjack inserted )

For some bands/modes, a lower  $P_{Limit}$  was selected as a more conservative evaluation.

Please see the table below for the earjack inserted mode of GSM Bands

MEASUREMENT RESULTS										
Frequency		Mode		Conducted Power	Test Position	Distance	Duty Cycle	Meas. SAR(10g)	P <sub>limit</sub>	Minimum P <sub>limit</sub>
Mhz	Ch.									
820	560	EVDO Rev.0	CDMA BC10	24.56	Rear	0	1:1	1.570	26.6	26.6
820	560	EVDO Rev.0	CDMA BC10	24.56	Front	0	1:1	1.400	27.1	
820	560	EVDO Rev.0	CDMA BC10	24.56	Bottom	0	1:1	1.270	27.5	
820	560	EVDO Rev.0	CDMA BC10	24.56	Right	0	1:1	0.233	34.9	
820	560	EVDO Rev.0	CDMA BC10	24.56	Left	0	1:1	0.178	36.0	
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Rear	0	1:1	1.520	26.7	26.7
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Front	0	1:1	1.430	27.0	
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Bottom	0	1:1	1.280	27.5	
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Right	0	1:1	0.263	34.3	
836.52	384	EVDO Rev.0	CDMA BC 0	24.56	Left	0	1:1	0.179	36.0	
1880.0	600	EVDO Rev.0	PCS	19.77	Rear	0	1:1	1.770	21.3	20.2
1880.0	600	EVDO Rev.0	PCS	19.77	Front	0	1:1	1.720	21.4	
1880.0	600	EVDO Rev.0	PCS	19.77	Bottom	0	1:1	2.260	20.2	
836.6	190	GPRS 2TX	GSM	31.87	Back	0	1:4.17	1.800	27.3	27.3
836.6	190	GPRS 2TX	GSM	31.87	Front	0	1:4.17	1.620	27.7	
836.6	190	GPRS 2TX	GSM	31.87	Bottom	0	1:4.17	0.915	30.2	
836.6	190	GPRS 2TX	GSM	31.87	Right	0	1:4.17	0.288	35.2	
836.6	190	GPRS 2TX	GSM	31.87	Left	0	1:4.17	0.181	37.3	
1880.0	661	GPRS 4Tx	GSM	21.78	Rear	0	1:2.075	0.471	26.0	22.0
1880.0	661	GPRS 4Tx	GSM	21.78	Front	0	1:2.075	0.466	26.1	
1880.0	661	GPRS 4Tx	GSM	21.78	Bottom	0	1:2.075	1.190	22.0	
826.4	4132	UMTS 850	RMC	24.76	Rear	0	1:1	1.54	26.9	26.6
826.4	4132	UMTS 850	RMC	24.76	Front	0	1:1	1.65	26.6	
826.4	4132	UMTS 850	RMC	24.76	Bottom	0	1:1	1.08	28.4	
1 732.4	1412	UMTS 1700	RMC	20.42	Rear	0	1:1	1.410	22.9	21.5
1 732.4	1412	UMTS 1700	RMC	20.42	Front	0	1:1	1.730	22.0	
1 732.4	1412	UMTS 1700	RMC	20.42	Bottom	0	1:1	1.940	21.5	
1880.0	9400	UMTS 1900	RMC	19.59	Rear	0	1:1	0.988	23.6	21.7
1880.0	9400	UMTS 1900	RMC	19.59	Front	0	1:1	1.200	22.8	
1880.0	9400	UMTS 1900	RMC	19.59	Bottom	0	1:1	1.530	21.7	

**Table A-11 DSI = 4 GSM Mode  $P_{Limit}$  Calculations - - 2G/3G Phablet SAR (Ear-jack inserted)**

MEASUREMENT RESULTS										
Frequency		Mode		Conducted Power (dBm)	Test Position	Distance (mm)	Duty Cycle	Meas. SAR(10g) (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Mhz	Ch.									
835.6	190	GPRS 2Tx	GSM	31.87	Rear	0	1:4.17	1.800	27.3	27.3
835.6	190	GPRS 2Tx	GSM	31.87	Front	0	1:4.17	1.620	27.7	
835.6	190	GPRS 2Tx	GSM	31.87	Right	0	1:4.17	0.915	30.2	
835.6	190	GPRS 2Tx	GSM	31.87	Left	0	1:4.17	0.181	37.3	
1 880.0	661	GPRS 3Tx	GSM	26.18	Rear	0	1:2.77	1.150	25.3	23.0
1 880.0	661	GPRS 3Tx	GSM	26.18	Front	0	1:2.77	1.220	25.0	
1 880.0	661	GPRS 3Tx	GSM	26.18	Right	0	1:2.77	1.930	23.0	
1 880.0	661	GPRS 3Tx	GSM	26.18	Left	0	1:2.77	0.523	28.7	

**Table A-13 DSI = 3 ,4 P<sub>Limit</sub> Calculations - - 4G Phablet SAR(Grip Sensor is on, Earjack inserted )**  
 For some bands/modes, a lower P<sub>Limit</sub> was selected as a more conservative evaluation.

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(10g)	P <sub>limit</sub>	Minimum P <sub>limit</sub>
Mhz	Ch.			Mhz	(dBm)			(dB)				(W/kg)	(dBm)	(dBm)
683	133322	LTE Band 71	Mid	20	24.92	Rear	0	0	1	0	1:1	1.210	28.1	27.7
683	133322	LTE Band 71	Mid	20	24.92	Front	0	0	1	0	1:1	1.310	27.7	
683	133322	LTE Band 71	Mid	20	24.92	Bottom	0	0	1	0	1:1	0.787	29.9	
683	133322	LTE Band 71	Mid	20	24.92	Right	0	0	1	0	1:1	0.201	35.9	
683	133322	LTE Band 71	Mid	20	24.92	Left	0	0	1	0	1:1	0.113	38.4	
707.5	23095	LTE Band 12	Mid	10	24.92	Rear	0	0	1	0	1:1	1.490	27.2	27.0
707.5	23095	LTE Band 12	Mid	10	24.92	Front	0	0	1	0	1:1	1.560	27.0	
707.5	23095	LTE Band 12	Mid	10	24.92	Bottom	0	0	1	0	1:1	1.090	28.5	
707.5	23095	LTE Band 12	Mid	10	24.92	Right	0	0	1	0	1:1	0.243	35.0	
707.5	23095	LTE Band 12	Mid	10	24.92	Left	0	0	1	0	1:1	0.112	38.4	
782	23230	LTE Band 13	Mid	10	24.21	Rear	0	0	1	0	1:1	1.270	27.2	26.6
782	23230	LTE Band 13	Mid	10	24.21	Front	0	0	1	0	1:1	1.440	26.6	
782	23230	LTE Band 13	Mid	10	24.21	Bottom	0	0	1	0	1:1	0.727	29.6	
782	23230	LTE Band 13	Mid	10	24.21	Right	0	0	1	0	1:1	0.293	33.5	
782	23230	LTE Band 13	Mid	10	24.21	Left	0	0	1	0	1:1	0.199	35.2	
793	23330	LTE Band 14	Mid	10	24.42	Rear	0	0	1	0	1:1	1.660	26.2	26.2
793	23330	LTE Band 14	Mid	10	24.42	Front	0	0	1	0	1:1	1.460	26.8	
793	23330	LTE Band 14	Mid	10	24.42	Bottom	0	0	1	0	1:1	1.190	27.6	
793	23330	LTE Band 14	Mid	10	24.42	Right	0	0	1	0	1:1	0.253	34.4	
793	23330	LTE Band 14	Mid	10	24.42	Left	0	0	1	0	1:1	0.174	36.0	
831.5	26865	LTE Band 26	Mid	15	24.52	Rear	0	0	1	0	1:1	1.620	26.4	26.4
831.5	26865	LTE Band 26	Mid	15	24.52	Front	0	0	1	0	1:1	1.630	26.4	
831.5	26865	LTE Band 26	Mid	15	24.52	Bottom	0	0	1	0	1:1	1.410	27.0	
831.5	26865	LTE Band 26	Mid	15	24.52	Right	0	0	1	0	1:1	0.388	32.6	
831.5	26865	LTE Band 26	Mid	15	24.52	Left	0	0	1	0	1:1	0.213	35.2	
1 745	132322	LTE Band 66	Mid	20	20.33	Rear	0	0	1	0	1:1	1.220	23.4	22.5
1 745	132322	LTE Band 66	Mid	20	20.33	Front	0	0	1	0	1:1	1.480	22.6	
1 745	132322	LTE Band 66	Mid	20	20.33	Bottom	0	0	1	0	1:1	1.520	22.5	
1 882.5	26365	LTE Band 25	Mid	20	19.33	Rear	0	0	1	0	1:1	1.020	23.2	22.0
1 882.5	26365	LTE Band 25	Mid	20	19.33	Front	0	0	1	0	1:1	1.090	22.9	
1 882.5	26365	LTE Band 25	Mid	20	19.33	Bottom	0	0	1	0	1:1	1.340	22.0	
2 310	27710	LTE Band 30	Mid	10	21.31	Rear	0	0	1	0	1:1	2.090	22.1	22.1
2 310	27710	LTE Band 30	Mid	10	21.31	Front	0	0	1	0	1:1	0.869	25.9	
2 310	27710	LTE Band 30	Mid	10	21.31	Bottom	0	0	1	0	1:1	1.210	24.5	
2 506.0	39750	LTE Band 41(PC3)	Low	20	22.45	Rear	0	0	1	0	1:1.58	1.900	21.7	21.7
2 506.0	39750	LTE Band 41(PC2)	Low	20	22.45	Front	0	0	1	0	1:1.58	1.090	24.1	
2 506.0	39750	LTE Band 41(PC2)	Low	20	22.45	Bottom	0	0	1	0	1:1.58	1.350	23.1	
2 506.0	39750	LTE Band 41(PC3)	Low	20	23.75	Rear	0	0	1	0	1:1.58	1.850	21.4	21.4
2 506.0	39750	LTE Band 41(PC3)	Low	20	23.75	Front	0	0	1	0	1:1.58	1.210	23.3	
2 506.0	39750	LTE Band 41(PC2)	Low	20	23.75	Bottom	0	0	1	0	1:1.58	1.110	23.6	
2 510	20850	LTE Band 7	Low	20	19.76	Rear	0	0	1	0	1:1	1.530	21.9	21.9
2 510	20850	LTE Band 7	Low	20	19.76	Front	0	0	1	0	1:1	1.090	23.4	
2 510	20850	LTE Band 7	Low	20	19.76	Bottom	0	0	1	0	1:1	1.220	22.9	
3 690	56640	LTE Band 48	High	20	23.44	Back	0	0	1	0	1:1	0.717	26.9	22.4
3 690	56640	LTE Band 48	High	20	23.44	Front	0	0	1	0	1:1	1.070	25.1	
3 690	56640	LTE Band 48	High	20	23.44	Right	0	0	1	0	1:1	2.030	22.4	

**Table A-15 DSI = 3,4 P<sub>Limit</sub> Calculations - - NR Phablet SAR(grip on , Ear jack inserted)**

For some bands/modes, a lower P<sub>Limit</sub> was selected as a more conservative evaluation.

NR TDD Bands : In the case of the NR TDD bands, the P<sub>limit</sub> were calculated as the Frame average power to which the duty factor was applied to the burst power.

SAR measurements of all NR bands were measured in FTM Mode.

MEASUREMENT RESULTS															
Frequency		Mode	Band width	Conducted Power	Test Position		MPR	Spacing	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	P <sub>limit</sub>	Minimum P <sub>limit</sub>	
Mhz	Ch.														Mhz
680.5	136100	NR Band n71	Mid	20	24.18	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.180	27.4	27.0
680.5	136100	NR Band n71	Mid	20	24.18	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.300	27.0	
680.5	136100	NR Band n71	Mid	20	24.18	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.864	28.8	
680.5	136100	NR Band n71	Mid	20	24.18	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.149	36.4	
680.5	136100	NR Band n71	Mid	20	24.18	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.071	39.6	
836.5	167300	NR Band n5	Mid	20	24.87	Back	DFT-s-OFDM QPSK	0	0	1	53	1:1	1.500	27.1	26.6
836.5	167300	NR Band n5	Mid	20	24.87	Front	DFT-s-OFDM QPSK	0	0	1	53	1:1	1.660	26.6	
836.5	167300	NR Band n5	Mid	20	24.87	Bottom	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.717	30.3	
836.5	167300	NR Band n5	Mid	20	24.87	Right	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.256	34.8	
836.5	167300	NR Band n5	Mid	20	24.87	Left	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.156	36.9	
1 745	349000	NR Band n66	Mid	20	18.71	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.450	21.1	20.4
1 745	349000	NR Band n66	Mid	20	18.71	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.630	20.6	
1 745	349000	NR Band n66	Mid	20	18.71	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.680	20.4	
1 882.5	376500	NR Band n25	Mid	40	20.14	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.300	23.0	22.4
1 882.5	376500	NR Band n25	Mid	40	20.14	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.480	22.4	
1 882.5	376500	NR Band n25	Mid	40	20.14	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.460	22.5	
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	18.90	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.217	29.5	26.8
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	18.90	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.380	27.1	
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	18.90	Top	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.403	26.8	
2 592.99	518598	NR Band n41(PC3)Upper	Mid	100	18.90	Righ	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.051	35.8	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	14.28	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.548	20.9	
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	14.28	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.318	23.2	20.9
2 592.99	518598	NR Band n41(PC3)Lower	Mid	100	14.28	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.488	21.4	
2 592.99	518598	NR Band n41(PC2)upper	Mid	100	20.19	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.232	30.5	27.1
2 592.99	518598	NR Band n41(PC2)upper	Mid	100	20.19	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.408	28.1	
2 592.99	518598	NR Band n41(PC2)upper	Mid	100	20.19	Top	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.505	27.1	
2 592.99	518598	NR Band n41(PC2)upper	Mid	100	20.19	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.120	33.4	
707.5	141500	NR Band n12	Mid	15	24.88	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.400	27.4	27.1
707.5	141500	NR Band n12	Mid	15	24.88	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.490	27.1	
707.5	141500	NR Band n12	Mid	15	24.88	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.842	29.6	
707.5	141500	NR Band n12	Mid	15	24.88	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.169	36.6	
707.5	141500	NR Band n12	Mid	15	24.88	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.090	39.3	

**MEASUREMENT RESULTS**

Frequency		Mode		Band width	Conducted Power	Test Position		MPR	Spacing	RB	RB	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			Mhz	(dBm)			(dB)	(mm)	Size	offset		(W/kg)	(dBm)	(dBm)
2 310	462000	NR Band n30	Mid	10	20.73	Back	DFT-s-OFDM QPSK	0	0	1	50	1:1	1.380	23.3	23.3
2 310	462000	NR Band n30	Mid	10	20.73	Front	DFT-s-OFDM QPSK	0	0	1	50	1:1	0.962	24.9	
2 310	462000	NR Band n30	Mid	10	20.73	Bottom	DFT-s-OFDM QPSK	0	0	1	50	1:1	0.943	25.0	
3840	656000	NR Band n77(PC3)	Mid	100	18.41	Back	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.285	27.8	21.9
3840	656000	NR Band n77(PC3)	Mid	100	18.41	Front	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.537	25.1	
3840	656000	NR Band n77(PC3)	Mid	100	18.41	Right	DFT-s-OFDM QPSK	0	0	1	271	1:1	1.120	21.9	
3840	656000	NR Band n77(PC2)	Mid	100	19.76	Back	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.415	27.6	21.9
3840	656000	NR Band n77(PC2)	Mid	100	19.76	Front	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.820	24.6	
3840	656000	NR Band n77(PC2)	Mid	100	19.76	Right	DFT-s-OFDM QPSK	0	0	1	271	1:1	1.530	21.9	