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PART 0 SAR CHAR REPORT

Applicant Name:

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Test Site: HCT CO., LTD.

FCC ID:

A3LSMG990U

Report Type:

Part 0 SAR Characterization

Equipment Type:

Mobile Phone

Model Name:

SM-G990U

Additional Model Name:

SM-G990U1/DS, SM-G990U1

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.

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REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	May.26, 2021	Initial Release
1	Jun. 08, 2021	Revised Section 4.3
2	Jun 15, 2021	Add Additional Model Name.

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

Table of Contents

1. Test Location.....	4
2. DEVICE UNDER TEST	5
3. SAR MEASUREMENTS.....	7
4. SAR CHARAC TERIZATION	9
5. Equipment List.....	12
6. Measurement Uncertainty.....	14
Appendix A: SAR Test Results For P limit CALCULATIONS.....	15

1. Test Location

1.1 Test Laboratory

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1.2 Test Facilities

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

Korea	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 ~ 3 697.5 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	2 307.5 MHz ~ 2 312.5 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	3 710 MHz ~ 3 969.99 MHz
NR Band n260	Data	37000 MHz ~ 40000 MHz
NR Band n261	Data	27500 MHz ~ 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 *Plimit* 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_design_target* (< 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	<i>Plimit</i>	Power level that corresponds to the exposure design target (<i>SAR_design_target</i>) after accounting for all device design related uncertainties
	<i>Pmax</i>	Maximum tune up output power
	<i>SAR_design_target</i>	Target SAR level < FCC SAR limit after accounting for all device design related uncertainties.
	SAR Char	Table containing <i>Plimit</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 (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body

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

SAR Mathematical Equation

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

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

Where:

σ = conductivity of the tissue-simulant material (S/m)
 ρ = mass density of the tissue-simulant material (kg/m³)
 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) (Δx_{area} , Δy_{area})	Maximum Zoom Scan Resolution (mm) (Δx_{zoom} , Δy_{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	≤1.5* $\Delta z_{zoom}(n-1)$	≥30
2-3 GHz	≤12	≤5	≤5	≤4	≤1.5* $\Delta z_{zoom}(n-1)$	≥30
3-4 GHz	≤12	≤5	≤4	≤3	≤1.5* $\Delta z_{zoom}(n-1)$	≥28
4-5 GHz	≤10	≤4	≤3	≤2.5	≤1.5* $\Delta z_{zoom}(n-1)$	≥25
5-6 GHz	≤10	≤4	≤2	≤2	≤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.

Table 4-1 DSI and Corresponding Exposure Scenarios

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

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).

SAR_{design_target}			
$SAR_{design_target} < SAR_{regulatory_limit} \times 10^{-Total\ Uncertainty/10}$			
1g SAR (W/kg)		10g SAR (W/kg)	
<i>Total Uncertainty</i>	1.0 dB	<i>Total Uncertainty</i>	1.0 dB
<i>SAR_regulatory_limit</i>	1.6 W/kg	<i>SAR_regulatory_limit</i>	4.0 W/kg
<i>SAR_design_target</i>	1.0 W/kg	<i>SAR_design_target</i>	2.5 W/kg

Table 4-2 SAR_{design_target} 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 shown in Table 4-3.

Device State Index (DSI)	P_{limit} Determination Scenarios
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 13 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.

Table 4-3 P_{limit} Determination

Note:

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

$P_{limit} = \min\{$ P_{limit} cooresponding to 1g Body Worn SAR evaluation at 15mm spacing,
 P_{limit} cooresponding to 10g Extremity SAR evaluation at 6(Front), 8(Rear) and 13mm(bottom) spacing,
 P_{limit} cooresponding to 10g Extremity SAR evaluation at 0mm for Left and right surface }

SAR Exposure Position			Plim (all values are time average)					Pmax			Max reduction
			Body worn/ Phablet	Phablet (Grip On)	Head (RCV ON)	Hotspot	EarJack	Burst Average Power [dBm]	Frame Averaged Power [dBm]	UL:DL Ratio	
Averaging volume			1g/10g	10g	1g	1g	10g				
Mode	Band	Antenna	DSI = 0	DSI = 1	DSI = 2	DSI = 3	DSI = 4				
CDMA	BC10	A	24.0	24.0	24.0	24.0	24.0	24.0	24.0	100%	N/A
CDMA	BC0	A	24.0	24.0	24.0	24.0	24.0	24.0	24.0	100%	N/A
CDMA	BC1	A	23.5	19.5	23.5	19.5	19.5	23.5	23.5	100%	4.0
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						31.0	25.0	25.0%	N/A
GSM 3-slot	850	A						29.0	24.7	37.5%	N/A
GSM 4-slot	850	A						27.0	24.0	50.0%	N/A
GSM 1-slot	1900	A	22.7	18.5	22.7	18.5	18.5	29.5	20.5	12.5%	2.0
GSM 2-slot	1900	A						28.5	22.5	25.0%	4.0
GSM 3-slot	1900	A						27.0	22.7	37.5%	4.2
GSM 4-slot	1900	A						25.0	22.0	50.0%	3.5
UMTS	5	A	24.0	24.0	24.0	24.0	24.0	24.0	24.0	100%	N/A
UMTS	4	A	23.5	18.5	23.5	18.5	18.5	23.5	23.5	100%	5.0
UMTS	2	A	23.5	18.5	23.5	18.5	18.5	23.5	23.5	100%	5.0
LTE FDD	12	A	24.5	24.5	24.5	24.5	24.5	24.5	24.5	100%	N/A
LTE FDD	13	A	24.5	24.5	24.5	24.5	24.5	24.5	24.5	100%	N/A
LTE FDD	14	A	24.5	24.5	24.5	24.5	24.5	24.5	24.5	100%	N/A
LTE FDD	26	A	24.5	24.5	24.5	24.5	24.5	24.5	24.5	100%	N/A
LTE FDD	5	A	24.5	24.5	24.5	24.5	24.5	24.5	24.5	100%	N/A
LTE FDD	66	A	23.5	20.0	23.5	19.0	20.0	23.5	23.5	100%	4.5
LTE FDD	4	A	23.5	20.0	23.5	19.0	20.0	23.5	23.5	100%	4.5
LTE FDD	2	A	24.0	20.5	24.0	18.5	20.5	24.0	24.0	100%	5.5
LTE FDD	25	A	24.0	20.5	24.0	18.5	20.5	24.0	24.0	100%	5.5
LTE FDD	71	A	24.5	24.5	24.5	24.5	24.5	24.5	24.5	100%	N/A
LTE FDD	7	B	23.5	19.5	23.5	19.5	19.5	23.5	23.5	100%	4.0
LTE FDD	30	B	22.0	18.0	22.0	18.0	18.0	22.0	22.0	100%	4.0
LTE TDD	40	B	11.0	11.0	11.0	11.0	11.0	13.0	11.0	63.3%	N/A
LTE TDD	48	H	21.0	21.0	14.5	18.0	21.0	23.0	21.0	63.3%	6.5
LTE TDD PC3	41	B	22.5	19.5	22.5	19.5	19.5	24.5	22.5	63.3%	3.0
LTE TDD PC2	41	B	22.9	17.9	22.9	17.9	17.9	26.5	22.9	43.3%	5.0
LTE TDD	38	B	22.0	17.5	22.0	17.5	17.5	24.0	22.0	63.3%	4.5
NR FDD	5	A	24.5	24.5	24.5	24.5	24.5	24.5	24.5	100%	N/A
NR FDD	12	A	24.5	24.5	24.5	24.5	24.5	24.5	24.5	100%	N/A
NR FDD	71	A	24.5	24.5	24.5	24.5	24.5	24.5	24.5	100%	N/A
NR FDD	30	B	23.5	17.5	23.5	17.5	17.5	23.5	23.5	100%	6.0
NR FDD	66	A	23.5	19.5	23.5	19.5	19.5	23.5	23.5	100%	4.0
NR FDD	2	A	23.5	18.5	23.5	18.5	18.5	23.5	23.5	100%	5.0
NR FDD	25	A	23.5	18.5	23.5	18.5	18.5	23.5	23.5	100%	5.0
NR TDD PC3	77	H	18.0	18.0	15.0	18.0	18.0	24.0	18.0	25.0%	3.0
NR TDD PC2	77	H	20.5	20.5	15.0	20.5	20.5	26.5	20.5	25.0%	5.5
NR TDD PC3	41	B	18.0	17.0	18.0	17.0	17.0	24.0	18.0	25.0%	1.0
NR TDD PC2	41	B	20.0	17.0	20.0	17.0	17.0	26.0	20.0	25.0%	3.0

Table 4-4 SAR Characterization

Note:

- 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 plimt at each DSI configurations.
- When $P_{max} < P_{limit}$, the DUT will operate at a power level up to P_{max} .
- 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).
- 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	SAM Phantom	-	N/A	N/A	N/A
HP	SAR System Control PC	-	N/A	N/A	N/A
Staubli 1-1	CS8Cspeag-TX90	F01/ 5K08A1/ C/ 01	N/A	N/A	N/A
Staubli 3	CS8Cspeag-TX90	F12/ 5K9GA1/ C/ 01	N/A	N/A	N/A
Staubli 4	CS8Cspeag-TX90	F17/ 59CHA1/ C/ 01	N/A	N/A	N/A
Staubli 5	CS8Cspeag-TX90	F17/ 59RAA1/ C/ 0	N/A	N/A	N/A
Staubli 6	CS8Cspeag-TX90	F13/ 5R4XF1/ C/ 01	N/A	N/A	N/A
Staubli	TX90 XLSpeag	F01/ 5K08A1/ 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	F13/ 5R4XF1/ A/ 01	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	01.13P 00679	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
SPEAG	DAE4	868	09/29/2020	Annual	09/29/2021
SPEAG	DAE4	504	02/19/2021	Annual	02/19/2022
SPEAG	DAE4	1225	08/07/2020	Annual	08/07/2021
SPEAG	DAE4	446	07/29/2020	Annual	07/29/2021
SPEAG	DAE4	466	04/23/2021	Annual	04/23/2022
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	7622	11/06/2020	Annual	11/06/2021
SPEAG	E-Field Probe EX3DV4	3797	11/25/2020	Annual	11/25/2021
SPEAG	E-Field Probe EX3DV4	3903	03/24/2021	Annual	03/24/2022
SPEAG	E-Field Probe EX3DV4	7352	10/28/2020	Annua	10/28/2021
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	5d032	01/28/2021	Annual	01/28/2022
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	02/17/2021	Annual	02/17/2022
SPEAG	Dipole D3700V2	1066	11/19/2020	Annual	11/19/2021
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
Agilent	Power Divider	11636B	02/26/2021	Annual	02/26/2022
SPEAG	DAKS 3.5	1038	03/17/2021	Annual	03/17/2022
ROHDE&SCHWARZ	Signal Generator	SMB100A	07/13/2020	Annual	07/13/2021
H.P	Network Analyzer /8753ES	JP39240221	01/11/2021	Annual	01/11/2022
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	01/26/2021	Annual	01/26/2022
TESTO	175-H1/Thermometer	40331936309	01/26/2021	Annual	01/26/2022
TESTO	175-H1/Thermometer	40331953309	01/26/2021	Annual	01/26/2022
TESTO	175-H1/Thermometer	40331915309	01/26/2021	Annual	01/26/2022
TESTO	175-H1/Thermometer	40331922309	01/26/2021	Annual	01/26/2022
TESTO	175-H1/Thermometer	40332651310	01/26/2021	Annual	01/26/2022
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	10/05/2020	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	09/18/2020	Annual	09/18/2021
HP	Attenuator (20dB) 8493C	09271	09/18/2020	Annual	09/18/2021
Agilent	Directional Bridge	3140A03878	06/08/2020	Annual	06/08/2021
OSI	Power Divider	12	07/15/2020		07/15/2021
OSI	Power Divider	9	07/15/2020	Annual	07/15/2021
OSI	Power Divider	10	07/15/2020	Annual	07/15/2021
OSI	Power Divider	8	07/15/2020	Annual	07/15/2021
OSI	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 Test Station MT8000A	6262036812	12/22/2020	Annual	12/22/2021
Anritsu	Radio Communication Test Station MT8000A	6261949673	11/09/2020	Annual	11/09/2021
Anritsu	Radio Communication Tester MT8820C	6201074225	02/26/2021	Annual	02/26/2022
Anritsu	Radio Communication Tester MT8820C	6200695605	04/15/2021	Annual	04/15/2022
Anritsu	Radio Communication Tester MT8820C	6200628628	09/18/2020	Annual	09/18/2021
Anritsu	Radio Communication Tester MT8821C	6262192348	11/09/2020	Annual	11/09/2021
Anritsu	Radio Communication Tester MT8821C	6262116770	07/22/2020	Annual	07/22/2021
Anritsu	Radio Communication Tester MT8821C	6201502997	08/06/2020	Annual	08/06/2021
Anritsu	Radio Communication Tester MT8821C	6262044720	12/22/2020	Annual	12/22/2021
ROHDE&SCHWARZ	BLUETOOTH TESTER CBT	100272	02/26/2021	Annual	02/26/2022

* 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		Frame Averaged 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	24.79	Right Cheek	1:1	0.202	31.7	31.7
820	560	RC3 / SO55	CDMA BC10	24.79	Right Tilt	1:1	0.104	34.6	
820	560	RC3 / SO55	CDMA BC10	24.79	Left Cheek	1:1	0.156	32.9	
820	560	RC3 / SO55	CDMA BC10	24.79	Left Tilt	1:1	0.097	34.9	
820	560	EVDO Rev. A	CDMA BC10	24.01	Right Cheek	1:1	0.158	32.0	
820	560	EVDO Rev. A	CDMA BC10	24.01	Right Tilt	1:1	0.082	34.9	
820	560	EVDO Rev. A	CDMA BC10	24.01	Left Cheek	1:1	0.110	33.6	
820	560	EVDO Rev. A	CDMA BC10	24.01	Left Tilt	1:1	0.074	35.3	
836.52	384	RC3 / SO55	CDMA BC0	24.83	Right Cheek	1:1	0.217	31.5	31.5
836.52	384	RC3 / SO55	CDMA BC0	24.83	Right Tilt	1:1	0.103	34.7	
836.52	384	RC3 / SO55	CDMA BC0	24.83	Left Cheek	1:1	0.132	33.6	
836.52	384	RC3 / SO55	CDMA BC0	24.83	Left Tilt	1:1	0.097	35.0	
836.52	384	EVDO Rev. A	CDMA BC0	24.06	Right Cheek	1:1	0.167	31.8	
836.52	384	EVDO Rev. A	CDMA BC0	24.06	Right Tilt	1:1	0.086	34.7	
836.52	384	EVDO Rev. A	CDMA BC0	24.06	Left Cheek	1:1	0.107	33.8	
836.52	384	EVDO Rev. A	CDMA BC0	24.06	Left Tilt	1:1	0.082	34.9	
1880.0	600	RC3 / SO55	PCS	23.41	Right Cheek	1:1	0.080	34.4	28.3
1880.0	600	RC3 / SO55	PCS	23.41	Right Tilt	1:1	0.022	40.0	
1880.0	600	RC3 / SO55	PCS	23.41	Left Cheek	1:1	0.184	30.8	
1880.0	600	RC3 / SO55	PCS	23.41	Left Tilt	1:1	0.054	36.1	
1908.75	1175	EVDO Rev. A	PCS	23.41	Right Cheek	1:1	0.326	28.3	
1908.75	1175	EVDO Rev. A	PCS	23.41	Right Tilt	1:1	0.176	31.0	
1908.75	1175	EVDO Rev. A	PCS	23.41	Left Cheek	1:1	0.199	30.4	
1908.75	1175	EVDO Rev. A	PCS	23.41	Left Tilt	1:1	0.151	31.6	

MEASUREMENT RESULTS									
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimi
Mhz	Ch.			(dBm)			(W/kg)	(dBm)	(dBm)
836.6	190	GSM 850	GPRS 2Tx	25.94	Right Cheek	2:8	0.226	32.4	32.4
836.6	190	GSM 850		25.94	Right Tilt	2:8	0.119	35.2	
836.6	190	GSM 850		25.94	Left Cheek	2:8	0.146	34.3	
836.6	190	GSM 850		25.94	Left Tilt	2:8	0.147	34.3	
1 880	661	GSM 1900	GPRS 3Tx	23.30	Right Cheek	3:8	0.087	33.9	31.6
1 880	661	GSM 1900		23.30	Right Tilt	3:8	0.064	35.2	
1 880	661	GSM 1900		23.30	Left Cheek	3:8	0.149	31.6	
1 880	661	GSM 1900		23.30	Left Tilt	3:8	0.040	37.3	
836.6	4183	UMTS 850	RMC	24.16	Right Cheek	1:1	0.194	31.3	31.3
836.6	4183	UMTS 850	RMC	24.16	Right Tilt	1:1	0.090	34.6	
836.6	4183	UMTS 850	RMC	24.16	Left Cheek	1:1	0.139	32.7	
836.6	4183	UMTS 850	RMC	24.16	Left Tilt	1:1	0.075	35.4	
1 732.4	1412	UMTS 1700	RMC	23.77	Right Cheek	1:1	0.109	33.4	32.7
1 732.4	1412	UMTS 1700	RMC	23.77	Right Tilt	1:1	0.075	35.0	
1 732.4	1412	UMTS 1700	RMC	23.77	Left Cheek	1:1	0.129	32.7	
1 732.4	1412	UMTS 1700	RMC	23.77	Left Tilt	1:1	0.079	34.8	
1 880	9400	UMTS 1900	RMC	24.31	Right Cheek	1:1	0.105	34.1	32.5
1 880	9400	UMTS 1900	RMC	24.31	Right Tilt	1:1	0.085	35.0	
1 880	9400	UMTS 1900	RMC	24.31	Left Cheek	1:1	0.153	32.5	
1 880	9400	UMTS 1900	RMC	24.31	Left Tilt	1:1	0.053	37.1	

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

MEASUREMENT RESULTS													
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			(dBm)	(dBm)		(dB)				(W/kg)	(dBm)	(dBm)
2 560	21350	LTE Band 7	High	20	23.82	Right Cheek	0	1	99	1:1	0.082	34.7	33.3
2 560	21350	LTE Band 7	High	20	23.82	Right Tilt	0	1	99	1:1	0.084	34.6	
2 560	21350	LTE Band 7	High	20	23.82	Left Cheek	0	1	99	1:1	0.112	33.3	
2 560	21350	LTE Band 7	High	20	23.82	Left Tilt	0	1	99	1:1	0.073	35.2	
707.5	23095	LTE Band 12	Mid	10	23.99	Right Cheek	0	1	0	1:1	0.140	32.5	32.5
707.5	23095	LTE Band 12	Mid	10	23.99	Right Tilt	0	1	0	1:1	0.056	36.5	
707.5	23095	LTE Band 12	Mid	10	23.99	Left Cheek	0	1	0	1:1	0.112	33.5	
707.5	23095	LTE Band 12	Mid	10	23.99	Left Tilt	0	1	0	1:1	0.037	38.3	
782	23230	LTE Band 13	Mid	10	23.89	Right Cheek	0	1	24	1:1	0.166	31.7	31.7
782	23230	LTE Band 13	Mid	10	23.89	Right Tilt	0	1	24	1:1	0.073	35.3	
782	23230	LTE Band 13	Mid	10	23.89	Left Cheek	0	1	24	1:1	0.107	33.6	
782	23230	LTE Band 13	Mid	10	23.89	Left Tilt	0	1	24	1:1	0.059	36.2	
793	23330	LTE Band 14	Mid	10	24.70	Right Cheek	0	1	0	1:1	0.191	31.9	31.9
793	23330	LTE Band 14	Mid	10	24.70	Right Tilt	0	1	0	1:1	0.087	35.3	
793	23330	LTE Band 14	Mid	10	24.70	Left Cheek	0	1	0	1:1	0.143	33.1	
793	23330	LTE Band 14	Mid	10	24.70	Left Tilt	0	1	0	1:1	0.107	34.4	
1 882.5	26365	LTE Band 25	Mid	20	24.61	Right Cheek	0	1	0	1:1	0.105	34.4	32.1
1 882.5	26365	LTE Band 25	Mid	20	24.61	Right Tilt	0	1	0	1:1	0.070	36.2	
1 882.5	26365	LTE Band 25	Mid	20	24.61	Left Cheek	0	1	0	1:1	0.178	32.1	
1 882.5	26365	LTE Band 25	Mid	20	24.61	Left Tilt	0	1	0	1:1	0.064	36.5	
831.5	26865	LTE Band 26	Mid	15	24.02	Right Cheek	0	1	0	1:1	0.182	31.4	31.4
831.5	26865	LTE Band 26	Mid	15	24.02	Right Tilt	0	1	0	1:1	0.084	34.8	
831.5	26865	LTE Band 26	Mid	15	24.02	Left Cheek	0	1	0	1:1	0.138	32.6	
831.5	26865	LTE Band 26	Mid	15	24.02	Left Tilt	0	1	0	1:1	0.109	33.6	
2 310	27710	LTE Band 30	Mid	10	22.31	Right Cheek	0	1	24	1:1	0.094	32.6	32.4
2 310	27710	LTE Band 30	Mid	10	22.31	Right Tilt	0	1	24	1:1	0.054	35.0	
2 310	27710	LTE Band 30	Mid	10	22.31	Left Cheek	0	1	24	1:1	0.097	32.4	
2 310	27710	LTE Band 30	Mid	10	22.31	Left Tilt	0	1	24	1:1	0.043	36.0	
2 310	38750	LTE Band 40	Mid	10	11.44	Right Cheek	0	1	24	1:1.58	0.003	36.7	34.5
2 310	38750	LTE Band 40	Mid	10	11.44	Right Tilt	0	1	24	1:1.58	0.000	41.4	
2 310	38750	LTE Band 40	Mid	10	11.44	Left Cheek	0	1	24	1:1.58	0.005	34.5	
2 310	38750	LTE Band 40	Mid	10	11.44	Left Tilt	0	1	24	1:1.58	0.000	41.4	
2 355	39200	LTE Band 40	Mid	10	11.44	Right Cheek	0	1	24	1:1.58	0.004	35.4	34.5
2 355	39200	LTE Band 40	Mid	10	11.44	Right Tilt	0	1	24	1:1.58	0.001	41.4	
2 355	39200	LTE Band 40	Mid	10	11.44	Left Cheek	0	1	24	1:1.58	0.005	34.5	
2 355	39200	LTE Band 40	Mid	10	11.44	Left Tilt	0	1	24	1:1.58	0.002	38.4	

MEASUREMENT RESULTS

Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			(dBm)	(dBm)		(dB)				(W/kg)	(dBm)	(dBm)
2 593	40620	LTE Band41(PC3)	High	20	22.80	Right Cheek	0	1	99	1:1.58	0.074	32.1	32.9
2 593	40620	LTE Band41(PC3)	High	20	22.80	Right Tilt	0	1	99	1:1.58	0.096	31.0	
2 593	40620	LTE Band41(PC3)	High	20	22.80	Left Cheek	0	1	99	1:1.58	0.098	30.9	
2 593	40620	LTE Band41(PC3)	High	20	22.80	Left Tilt	0	1	99	1:1.58	0.060	33.0	
2 593	40620	LTE Band41(PC2)	High	20	22.91	Left Cheek	0	1	99	0.433	0.111	32.5	32.5
3603.3	55773	LTE Band 48	Low	20	14.71	Right Cheek	0	1	99	1:1.58	0.496	17.8	17.8
3603.3	55773	LTE Band 48	Low	20	14.71	Right Tilt	0	1	99	1:1.58	0.459	18.1	
3603.3	55773	LTE Band 48	Low	20	14.71	Left Cheek	0	1	99	1:1.58	0.117	24.0	
3603.3	55773	LTE Band 48	Low	20	14.71	Left Tilt	0	1	99	1:1.58	0.112	24.2	
1 770	132572	LTE Band 66	High	20	24.01	Right Cheek	0	1	0	1:1	0.136	32.7	31.2
1 770	132572	LTE Band 66	High	20	24.01	Right Tilt	0	1	0	1:1	0.112	33.5	
1 770	132572	LTE Band 66	High	20	24.01	Left Cheek	0	1	0	1:1	0.193	31.2	
1 770	132572	LTE Band 66	High	20	24.01	Left Tilt	0	1	0	1:1	0.061	36.2	
680.5	133297	LTE Band 71	Mid	20	24.35	Right Cheek	0	1	0	1:1	0.105	34.1	34.1
680.5	133297	LTE Band 71	Mid	20	24.35	Right Tilt	0	1	0	1:1	0.026	40.2	
680.5	133297	LTE Band 71	Mid	20	24.35	Left Cheek	0	1	0	1:1	0.085	35.1	
680.5	133297	LTE Band 71	Mid	20	24.35	Left Tilt	0	1	0	1:1	0.038	38.6	
2 595	38000	LTE Band 38	Mid	20	22.54	Right Cheek	0	1	49	1:1.58	0.074	32.1	30.9
2 595	38000	LTE Band 38	Mid	20	22.54	Right Tilt	0	1	49	1:1.58	0.096	31.0	
2 595	38000	LTE Band 38	Mid	20	22.54	Left Cheek	0	1	49	1:1.58	0.098	30.9	
2 595	38000	LTE Band 38	Mid	20	22.54	Left Tilt	0	1	49	1:1.58	0.060	33.0	

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	Frame Averaged Conducted Power	Test Configurations		MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimu Plimit
Mhz	Ch.													
836.5	167300	NR Band n5	Mid	20	23.80	Right Cheek	DFT-s-OFDM QPSK	0	1	53	1:1	0.171	31.5	31.5
836.5	167300	NR Band n5	Mid	20	23.80	Right Tilt	DFT-s-OFDM QPSK	0	1	53	1:1	0.089	34.3	
836.5	167300	NR Band n5	Mid	20	23.80	Left Cheek	DFT-s-OFDM QPSK	0	1	53	1:1	0.115	33.2	
836.5	167300	NR Band n5	Mid	20	23.80	Left Tilt	DFT-s-OFDM QPSK	0	1	53	1:1	0.094	34.1	
707.5	141500	NR Band n12	Mid	15	23.92	Right Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.115	33.3	33.3
707.5	141500	NR Band n12	Mid	15	23.92	Right Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.047	37.2	
707.5	141500	NR Band n12	Mid	15	23.92	Left Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.099	34.0	
707.5	141500	NR Band n12	Mid	15	23.92	Left Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.044	37.5	
1 882.5	376500	NR Band n25	Mid	40	24.08	Right Cheek	DFT-s-OFDM QPSK	0	1	108	1:1	0.084	34.8	32.2
1 882.5	376500	NR Band n25	Mid	40	24.08	Right Tilt	DFT-s-OFDM QPSK	0	1	108	1:1	0.081	35.0	
1 882.5	376500	NR Band n25	Mid	40	24.08	Left Cheek	DFT-s-OFDM QPSK	0	1	108	1:1	0.155	32.2	
1 882.5	376500	NR Band n25	Mid	40	24.08	Left Tilt	DFT-s-OFDM QPSK	0	1	108	1:1	0.121	33.3	
2 310	462000	NR Band n30	Mid	10	23.06	Right Cheek	DFT-s-OFDM QPSK	0	1	26	1:1	0.107	32.8	32.8
2 310	462000	NR Band n30	Mid	10	23.06	Right Tilt	DFT-s-OFDM QPSK	0	1	26	1:1	0.069	34.7	
2 310	462000	NR Band n30	Mid	10	23.06	Left Cheek	DFT-s-OFDM QPSK	0	1	26	1:1	0.100	33.1	
2 310	462000	NR Band n30	Mid	10	23.06	Left Tilt	DFT-s-OFDM QPSK	0	1	26	1:1	0.049	36.2	
2 592.99	518598	NR Band n41(PC3)	Mid	100	17.73	Right Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.043	31.4	30.4
2 592.99	518598	NR Band n41(PC3)	Mid	100	17.73	Right Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.054	30.4	
2 592.99	518598	NR Band n41(PC3)	Mid	100	17.73	Left Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.054	30.4	
2 592.99	518598	NR Band n41(PC3)	Mid	100	17.73	Left Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.035	32.3	
2 592.99	518598	NR Band n41(PC2)	Mid	100	19.81	Right Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.047	33.1	30.5
2 592.99	518598	NR Band n41(PC2)	Mid	100	19.81	Right Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.073	31.2	
2 592.99	518598	NR Band n41(PC2)	Mid	100	19.81	Left Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.086	30.5	
2 592.99	518598	NR Band n41(PC2)	Mid	100	19.81	Left Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.045	33.3	
1 745	349000	NR Band n66	High	40	24.00	Right Cheek	DFT-s-OFDM QPSK	0	1	108	1:1	0.051	36.9	34.1
1 745	349000	NR Band n66	High	40	24.00	Right Tilt	DFT-s-OFDM QPSK	0	1	108	1:1	0.051	36.9	
1 745	349000	NR Band n66	High	40	24.00	Left Cheek	DFT-s-OFDM QPSK	0	1	108	1:1	0.098	34.1	
1 745	349000	NR Band n66	High	40	24.00	Left Tilt	DFT-s-OFDM QPSK	0	1	108	1:1	0.039	38.1	
680.5	136100	NR Band n71	Mid	20	24.35	Right Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.085	35.1	35.1
680.5	136100	NR Band n71	Mid	20	24.33	Right Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.057	36.8	
680.5	136100	NR Band n71	Mid	20	24.35	Left Cheek	DFT-s-OFDM QPSK	0	1	1	1:1	0.067	36.1	
680.5	136100	NR Band n71	Mid	20	24.35	Left Tilt	DFT-s-OFDM QPSK	0	1	1	1:1	0.046	37.7	
3 930	652000	NR Band 77(PC3)	High	100	15.63	Right Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.661	17.4	17.4
3 930	652000	NR Band 77(PC3)	High	100	15.63	Right Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.470	18.9	
3 930	652000	NR Bandn77(PC3)	High	100	15.63	Left Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.079	26.7	
3 930	652000	NR Bandn77(PC3)	High	100	15.63	Left Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.080	26.6	
3 930	652000	NR Bandn77(PC2)	High	100	15.54	Right Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.561	18.1	18.1
3 930	652000	NR Bandn77(PC2)	High	100	15.54	Right Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.471	18.8	
3 930	652000	NR Bandn77(PC2)	High	100	15.54	Left Cheek	DFT-s-OFDM QPSK	0	1	137	1:1	0.132	24.3	
3 930	652000	NR Bandn77(PC2)	High	100	15.54	Left Tilt	DFT-s-OFDM QPSK	0	1	137	1:1	0.135	24.2	

Table A-4 DSI = 0 P_{Limit} Calculations - 2G/3G Body-Worn SAR

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

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Pli
MHz	Ch.			(dBm)				(W/kg)	(dBm)	(dBm)
820	560	TDSO RC32/SO55	CDMA BC10	24.77	Back	15	1:1	0.295	30.1	29.6
820	560	TDSO RC32/SO55	CDMA BC10	24.77	Front	15	1:1	0.296	30.1	
820	560	EVDO Rev.A	CDMA BC10	24.01	Back	15	1:1	0.277	29.6	
820	560	EVDO Rev.A	CDMA BC10	24.01	Front	15	1:1	0.233	30.3	
836.52	384	TDSO RC32/SO55	CDMA BC 0	24.83	Back	15	1:1	0.304	29.2	29.2
836.52	384	TDSO RC32/SO55	CDMA BC 0	24.83	Front	15	1:1	0.240	30.3	
836.52	384	EVDO Rev. A	CDMA BC 0	24.06	Back	15	1:1	0.367	29.2	
836.52	384	EVDO Rev. A	CDMA BC 0	24.06	Front	15	1:1	0.290	30.2	
1 908.75	1175	TDSO RC32/SO55	PCS	23.37	Back	15	1:1	0.678	25.1	25.1
1 908.75	1175	TDSO RC32/SO55	PCS	23.37	Front	15	1:1	0.529	26.1	
1 908.75	1175	EVDO Rev. A	PCS	23.41	Back	15	1:1	0.629	25.4	
1 908.75	1175	EVDO Rev. A	PCS	23.41	Front	15	1:1	0.603	25.6	
836.6	190	GSM 850	GPRS2Tx	25.94	Back	15	2:8	0.380	30.1	30.1
836.6	190	GSM 850	GPRS2Tx	25.94	Front	15	2:8	0.340	30.6	
1 880	661	GSM 1900	GPRS3Tx	23.30	Back	15	3:8	0.432	26.9	26.9
1 880	661	GSM 1900	GPRS3Tx	23.30	Front	15	3:8	0.380	27.5	
826.4	4132	UMTS 850	RMC	24.16	Back	15	1:1	0.197	31.2	30.7
826.4	4132	UMTS 850	RMC	24.16	Front	15	1:1	0.220	30.7	
1 732.4	1412	UMTS 1700	RMC	23.77	Back	15	1:1	0.781	24.8	24.8
1 732.4	1412	UMTS 1700	RMC	23.77	Front	15	1:1	0.625	25.8	
1 880	9400	UMTS 1900	RMC	24.31	Back	15	1:1	0.621	26.4	26.1
1 880	9400	UMTS 1900	RMC	24.31	Front	15	1:1	0.658	26.1	

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	Frame Averaged Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
2 560	21350	LTE Band 7	High	20	23.82	Back	15	0	1	99	1:1	0.504	26.8	26.8
2 560	21350	LTE Band 7	High	20	23.82	Front	15	0	1	99	1:1	0.430	27.5	
707.5	23095	LTE Band 12	Mid	10	23.99	Back	15	0	1	0	1:1	0.186	31.3	31.3
707.5	23095	LTE Band 12	Mid	10	23.99	Front	15	0	1	0	1:1	0.172	31.6	
782	23230	LTE Band 13	Mid	10	23.89	Back	15	0	1	24	1:1	0.227	30.3	30.3
782	23230	LTE Band 13	Mid	10	23.89	Front	15	0	1	24	1:1	0.222	30.4	
793	23330	LTE Band 14	Mid	10	24.70	Back	15	0	1	0	1:1	0.245	30.8	30.4
793	23330	LTE Band 14	Mid	10	24.70	Front	15	0	1	0	1:1	0.272	30.4	
1 882.5	26365	LTE Band 25	Mid	20	24.61	Back	15	0	1	0	1:1	0.612	26.7	26.7
1 882.5	26365	LTE Band 25	Mid	20	24.61	Front	15	0	1	0	1:1	0.614	26.7	
831.5	26865	LTE Band 26	Mid	15	24.02	Back	15	0	1	0	1:1	0.242	30.2	30.2
831.5	26865	LTE Band 26	Mid	15	24.02	Front	15	0	1	0	1:1	0.210	30.8	
2 310	27710	LTE Band 30	Mid	10	22.31	Back	15	0	1	24	1:1	0.581	24.7	24.4
2 310	27710	LTE Band 30	Mid	10	22.31	Front	15	0	1	24	1:1	0.621	24.4	
2 310	38750	LTE Band 40	Mid	10	11.44	Back	15	0	1	24	0.633	0.037	25.8	25.5
2 310	38750	LTE Band 40	Mid	10	11.44	Front	15	0	1	24	0.633	0.039	25.5	
2 535	39200	LTE Band 40	Mid	10	11.44	Back	15	0	1	24	0.633	0.040	25.4	25.4
2 535	39200	LTE Band 40	Mid	10	11.44	Front	15	0	1	24	0.633	0.001	41.4	
1 770	132572	LTE Band 66	High	20	24.01	Back	15	0	1	0	1:1	0.412	27.9	27.9
1 770	132572	LTE Band 66	High	20	24.01	Front	15	0	1	0	1:1	0.412	27.9	
2 593	40620	LTE Band 41(PC3)	High	20	22.80	Back	15	0	1	99	0.633	0.217	29.4	28.7
2 593	40620	LTE Band 41(PC3)	High	20	22.80	Front	15	0	1	99	0.633	0.256	28.7	
2 593	40620	LTE Band 41(PC2)	High	20	22.91	Front	15	0	1	99	0.433	0.270	28.6	28.6
3 560	55340	LTE Band 48	Low	20	21.81	Back	15	0	1	99	0.633	0.167	29.6	29.6
3 560	55340	LTE Band 48	Low	20	21.81	Front	15	0	1	99	0.633	0.156	29.9	
680.5	133297	LTE Band 71	Mid	20	24.35	Back	15	0	1	0	1:1	0.169	32.1	32.1
680.5	133297	LTE Band 71	Mid	20	24.35	Front	15	0	1	0	1:1	0.143	32.8	
2 595	38000	LTE Band 38	Mid	20	22.54	Back	15	0	1	49	1:1.58	0.217	29.2	28.5
2 595	38000	LTE Band 38	Mid	20	22.54	Front	15	0	1	49	1:1.58	0.256	28.5	

Table A-6 DSI = 0 P_{Limit} Calculations - NR Body-Worn SAR

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

NR TDD Bands : In the case of the NR TDD bands, the P_{limit} 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	Frame Averaged Conducted Power	Test Configurations		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
836.5	167300	NR Band n5	Mid	20	23.80	Back	DFT-s-OFDM QPSK	0	15	1	53	1:1	0.209	30.6	30.6
836.5	167300	NR Band n5	Mid	20	23.80	Front	DFT-s-OFDM QPSK	0	15	1	53	1:1	0.197	30.9	
707.5	141500	NR Band n12	Mid	15	23.92	Back	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.391	28.0	28.0
707.5	141500	NR Band n12	Mid	15	23.92	Front	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.326	28.8	
1 882.5	376500	NR Band n25	Mid	40	23.87	Back	DFT-s-OFDM QPSK	0	15	1	108	1:1	0.509	26.8	26.8
1 882.5	376500	NR Band n25	Mid	40	23.87	Front	DFT-s-OFDM QPSK	0	15	1	108	1:1	0.381	28.1	
2 310	462000	NR Band n30	Mid	10	22.79	Back	DFT-s-OFDM QPSK	0	15	1	26	1:1	0.563	25.3	25.3
2 310	462000	NR Band n30	Mid	10	22.79	Front	DFT-s-OFDM QPSK	0	15	1	26	1:1	0.526	25.6	
2 592.99	518598	NR Bandn41(PC3)	Mid	100	17.74	Back	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.188	25.0	24.9
2 592.99	518598	NR Bandn41(PC3)	Mid	100	17.74	Front	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.193	24.9	
2 592.99	518598	NR Bandn41(PC2)	Mid	100	19.79	Back	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.267	25.5	25.1
2 592.99	518598	NR Bandn41(PC2)	Mid	100	19.79	Front	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.294	25.1	
1 745	349000	NR Band n66	Mid	40	24.00	Back	DFT-s-OFDM QPSK	0	15	1	108	1:1	0.592	26.3	26.3
1 745	349000	NR Band n66	Mid	40	24.00	Front	DFT-s-OFDM QPSK	0	15	1	108	1:1	0.533	26.7	
680.5	136100	NR Band n71	Mid	20	24.35	Back	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.149	32.6	32.6
680.5	136100	NR Band n71	Mid	20	24.35	Front	DFT-s-OFDM QPSK	0	15	1	1	1:1	0.132	33.1	
3 930	662000	NR Bandn77(PC3)	High	100	18.02	Back	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.085	28.7	28.7
3 930	662000	NR Bandn77(PC3)	High	100	18.02	Front	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.083	28.8	
3 930	662000	NR Bandn77(PC2)	High	100	20.45	Back	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.128	29.4	29.1
3 930	662000	NR Bandn77(PC2)	High	100	20.45	Front	DFT-s-OFDM QPSK	0	15	1	137	1:1	0.138	29.1	

Table A-7 DSI = 3 P_{Limit} Calculations – 2G/3G Hotspot SAR

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

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.			(dBm)				(W/kg)	(dBm)	(dBm)
820	560	EVDO Rev.0	CDMA BC10	23.95	Back	10	1:1	0.577	26.3	26.3
820	560	EVDO Rev.0	CDMA BC10	23.95	Front	10	1:1	0.419	27.7	
820	560	EVDO Rev.0	CDMA BC10	23.95	Bottom	10	1:1	0.273	29.6	
820	560	EVDO Rev.0	CDMA BC10	23.95	Right	10	1:1	0.259	29.8	
820	560	EVDO Rev.0	CDMA BC10	23.95	Left	10	1:1	0.084	34.7	
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Back	10	1:1	0.641	26.0	26.0
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Front	10	1:1	0.448	27.6	
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Bottom	10	1:1	0.293	29.4	
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Right	10	1:1	0.222	30.6	
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Left	10	1:1	0.071	35.6	
1 908.75	1175	EVDO Rev.0	PCS	20.10	Back	10	1:1	0.377	24.3	20.3
1 908.75	1175	EVDO Rev.0	PCS	20.10	Front	10	1:1	0.383	24.3	
1 908.75	1175	EVDO Rev.0	PCS	20.10	Bottom	10	1:1	0.951	20.3	
1 908.75	1175	EVDO Rev.0	PCS	20.10	Right	10	1:1	0.040	34.1	
1 908.75	1175	EVDO Rev.0	PCS	20.10	Left	10	1:1	0.102	30.0	

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			(dBm)				(W/kg)	(dBm)	(dBm)
836.6	190	GSM 850	GPRS2Tx	25.94	Back	10	1:4.15	0.693	27.5	27.5
836.6	190	GSM 850	GPRS2Tx	25.94	Front	10	1:4.15	0.544	28.6	
836.6	190	GSM 850	GPRS2Tx	25.94	Bottom	10	1:4.15	0.405	29.9	
836.6	190	GSM 850	GPRS2Tx	25.94	Right	10	1:4.15	0.346	30.5	
836.6	190	GSM 850	GPRS2Tx	25.94	Left	10	1:4.15	0.124	35.0	
1 880.0	661	GSM 1900	GPRS2Tx	18.00	Back	10	1:4.15	0.255	26.9	24.0
1 880.0	661	GSM 1900	GPRS2Tx	18.00	Front	10	1:4.15	0.235	27.3	
1 880.0	661	GSM 1900	GPRS2Tx	18.00	Bottom	10	1:4.15	0.499	24.0	
1 880.0	661	GSM 1900	GPRS2Tx	18.00	Right	10	1:4.15	0.041	34.9	
1 880.0	661	GSM 1900	GPRS2Tx	18.00	Left	10	1:4.15	0.059	33.3	
836.6	4183	UMTS 850	RMC	24.16	Back	10	1:1	0.609	26.3	26.3
836.6	4183	UMTS 850	RMC	24.16	Front	10	1:1	0.433	27.8	
836.6	4183	UMTS 850	RMC	24.16	Bottom	10	1:1	0.294	29.5	
836.6	4183	UMTS 850	RMC	24.16	Right	10	1:1	0.208	31.0	
836.6	4183	UMTS 850	RMC	24.16	Left	10	1:1	0.124	33.2	
1 732.4	1412	UMTS 1700	RMC	18.82	Back	10	1:1	0.303	24.0	20.0
1 732.4	1412	UMTS 1700	RMC	18.82	Front	10	1:1	0.307	23.9	
1 732.4	1412	UMTS 1700	RMC	18.82	Bottom	10	1:1	0.771	20.0	
1 732.4	1412	UMTS 1700	RMC	18.82	Right	10	1:1	0.077	30.0	
1 732.4	1412	UMTS 1700	RMC	18.82	Left	10	1:1	0.044	32.4	
1 880	9400	UMTS 1900	RMC	19.24	Back	10	1:1	0.300	24.5	20.6
1 880	9400	UMTS 1900	RMC	19.24	Front	10	1:1	0.294	24.6	
1 880	9400	UMTS 1900	RMC	19.24	Bottom	10	1:1	0.732	20.6	
1 880	9400	UMTS 1900	RMC	19.24	Right	10	1:1	0.049	32.3	
1 880	9400	UMTS 1900	RMC	19.24	Left	10	1:1	0.061	31.4	

Table A-8 DSI = 3 P_{Limit} Calculations - - 4G Hotspot SAR

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

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.													
2 560	21350	LTE Band 7	High	20	19.57	Back	10	0	1	0	1:1	0.314	24.6	20.7
2 560	21350	LTE Band 7	High	20	19.57	Front	10	0	1	0	1:1	0.352	24.1	
2 560	21350	LTE Band 7	High	20	19.57	Bottom	10	0	1	0	1:1	0.764	20.7	
2 560	21350	LTE Band 7	High	20	19.57	Left	10	0	1	0	1:1	0.110	29.2	
707.5	23095	LTE Band 12	Mid	10	23.99	Back	10	1	1	0	1:1	0.323	28.9	28.9
707.5	23095	LTE Band 12	Mid	10	23.99	Front	10	0	1	0	1:1	0.236	30.3	
707.5	23095	LTE Band 12	Mid	10	23.99	Bottom	10	0	1	0	1:1	0.259	29.9	
707.5	23095	LTE Band 12	Mid	10	23.99	Right	10	0	1	0	1:1	0.206	30.9	
707.5	23095	LTE Band 12	Mid	10	23.99	Left	10	0	1	0	1:1	0.074	35.3	
782	23230	LTE Band 13	Mid	10	23.89	Back	10	0	1	24	1:1	0.394	27.9	27.9
782	23230	LTE Band 13	Mid	10	23.89	Front	10	0	1	24	1:1	0.270	29.6	
782	23230	LTE Band 13	Mid	10	23.89	Bottom	10	0	1	24	1:1	0.266	29.6	
782	23230	LTE Band 13	Mid	10	23.89	Right	10	0	1	24	1:1	0.273	29.5	
782	23230	LTE Band 13	Mid	10	23.89	Left	10	0	1	24	1:1	0.114	33.3	
793	23330	LTE Band 14	Mid	10	24.70	Back	10	0	1	0	1:1	0.485	27.8	27.8
793	23330	LTE Band 14	Mid	10	24.70	Front	10	0	1	0	1:1	0.329	29.5	
793	23330	LTE Band 14	Mid	10	24.70	Bottom	10	0	1	0	1:1	0.333	29.5	
793	23330	LTE Band 14	Mid	10	24.70	Right	10	0	1	0	1:1	0.330	29.5	
793	23330	LTE Band 14	Mid	10	24.70	Left	10	0	1	0	1:1	0.150	32.9	
1 882.5	26365	LTE Band 25	Mid	20	18.41	Back	10	0	1	0	1:1	0.291	23.8	19.7
1 882.5	26365	LTE Band 25	Mid	20	18.41	Front	10	0	1	0	1:1	0.239	24.6	
1 882.5	26365	LTE Band 25	Mid	20	18.41	Bottom	10	0	1	0	1:1	0.750	19.7	
1 882.5	26365	LTE Band 25	Mid	20	18.41	Right	10	0	1	0	1:1	0.052	31.2	
1 882.5	26365	LTE Band 25	Mid	20	18.41	Left	10	0	1	0	1:1	0.087	29.0	
831.5	26865	LTE Band 26	Mid	15	24.02	Back	10	0	1	0	1:1	0.558	26.6	26.6
831.5	26865	LTE Band 26	Mid	15	24.02	Front	10	0	1	0	1:1	0.363	28.4	
831.5	26865	LTE Band 26	Mid	15	24.02	Bottom	10	0	1	0	1:1	0.369	28.3	
831.5	26865	LTE Band 26	Mid	15	24.02	Right	10	0	1	0	1:1	0.262	29.8	
831.5	26865	LTE Band 26	Mid	15	24.02	Left	10	0	1	0	1:1	0.093	34.3	
2 310	27710	LTE Band 30	Mid	10	17.97	Back	10	0	1	24	1:1	0.376	22.2	18.8
2 310	27710	LTE Band 30	Mid	10	17.97	Front	10	0	1	24	1:1	0.436	21.6	
2 310	27710	LTE Band 30	Mid	10	17.97	Bottom	10	0	1	24	1:1	0.821	18.8	
2 310	27710	LTE Band 30	Mid	10	17.97	Left	10	0	1	24	1:1	0.055	30.6	
2 310	38750	LTE Band 40 (Low)	Mid	10	11.44	Back	10	0	1	24	1:1.58	0.077	22.6	19.8
2 310	38750	LTE Band 40 (Low)	Mid	10	11.44	Front	10	0	1	24	1:1.58	0.076	22.6	
2 310	38750	LTE Band 40 (Low)	Mid	10	11.44	Bottom	10	0	1	24	1:1.58	0.147	19.8	
2 310	38750	LTE Band 40 (Low)	Mid	10	11.44	Left	10	0	1	24	1:1.58	0.011	31.0	
2 355	39200	LTE Band 40 (Upper)	Mid	10	11.44	Back	10	0	1	24	1:1.58	0.067	23.2	18.7
2 355	39200	LTE Band 40 (Upper)	Mid	10	11.44	Front	10	0	1	24	1:1.58	0.035	26.0	
2 355	39200	LTE Band 40 (Upper)	Mid	10	11.44	Bottom	10	0	1	24	1:1.58	0.186	18.7	
2 355	39200	LTE Band 40 (Upper)	Mid	10	11.44	Left	10	0	1	24	1:1.58	0.013	30.3	

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Frame Averaged 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)
2 593	40620	LTE Band 41(PC3)	High	20	19.734	Back	10	0	1	99	1:1.58	0.193	26.9	22.9
2 593	40620	LTE Band 41(PC3)	High	20	19.734	Front	10	0	1	99	1:1.58	0.246	25.8	
2 593	40620	LTE Band 41(PC3)	High	20	19.734	Bottom	10	0	1	99	1:1.58	0.480	22.9	
2 593	40620	LTE Band 41(PC3)	High	20	19.734	Left	10	0	1	99	1:1.58	0.063	31.7	
3603.3	55773	LTE Band 48	Low	20	18.04	Back	10	0	1	99	1:1.58	0.129	26.9	24.5
3603.3	55773	LTE Band 48	Low	20	18.04	Front	10	0	1	99	1:1.58	0.100	28.0	
3603.3	55773	LTE Band 48	Low	20	18.04	Bottom	10	0	1	99	1:1.58	0.186	25.3	
3603.3	55773	LTE Band 48	Low	20	18.04	Left	10	0	1	99	1:1.58	0.227	24.5	
1 720	132072	LTE Band 66	Low	20	19.81	Back	10	0	1	99	1:1	0.404	23.7	20.8
1 720	132072	LTE Band 66	Low	20	19.81	Front	10	0	1	99	1:1	0.387	23.9	
1 720	132072	LTE Band 66	Low	20	19.81	Bottom	10	0	1	99	1:1	0.798	20.8	
1 720	132072	LTE Band 66	Low	20	19.81	Right	10	0	1	99	1:1	0.082	30.7	
1 720	132072	LTE Band 66	Low	20	19.81	Left	10	0	1	99	1:1	0.071	31.3	
680.5	133297	LTE Band 71	Mid	20	24.35	Back	10	0	1	0	1:1	0.293	29.7	29.7
680.5	133297	LTE Band 71	Mid	20	24.35	Front	10	0	1	0	1:1	0.174	31.9	
680.5	133297	LTE Band 71	Mid	20	24.35	Bottom	10	0	1	0	1:1	0.182	31.7	
680.5	133297	LTE Band 71	Mid	20	24.35	Right	10	0	1	0	1:1	0.210	31.1	
680.5	133297	LTE Band 71	Mid	20	24.35	Left	10	0	1	0	1:1	0.078	35.4	
2 595	38000	LTE Band 38	Mid	20	17.65	Back	10	0	1	49	1:1.58	0.193	24.8	20.8
2 595	38000	LTE Band 38	Mid	20	17.65	Front	10	0	1	49	1:1.58	0.246	23.7	
2 595	38000	LTE Band 38	Mid	20	17.65	Bottom	10	0	1	49	1:1.58	0.480	20.8	
2 595	38000	LTE Band 38	Mid	20	17.65	Left	10	0	1	49	1:1.58	0.063	29.7	

Table A-9 DSI = 3 P_{Limit} Calculations - - NR Hotspot SAR

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

NR TDD Bands : In the case of the NR TDD bands, the P_{Limit} 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	Frame Averaged Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit	
												Mhz	Ch.	Mhz	(dBm)
836.5	167300	NR Band n5	Mid	20	23.80	Back	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.330	28.6	28.6
836.5	167300	NR Band n5	Mid	20	23.80	Front	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.263	29.6	
836.5	167300	NR Band n5	Mid	20	23.80	Bottom	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.208	30.6	
836.5	167300	NR Band n5	Mid	20	23.80	Right	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.178	31.3	
836.5	167300	NR Band n5	Mid	20	23.80	Left	DFT-s-OFDM QPSK	0	10	1	53	1:1	0.044	37.4	
707.5	141500	NR Band n12	Mid	15	23.92	Back	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.391	28.0	28.0
707.5	141500	NR Band n12	Mid	15	23.92	Front	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.343	28.6	
707.5	141500	NR Band n12	Mid	15	23.92	Bottom	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.313	29.0	
707.5	141500	NR Band n12	Mid	15	23.92	Right	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.217	30.6	
707.5	141500	NR Band n12	Mid	15	23.92	Left	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.176	31.5	
1 882.5	376500	NR Band n25	Mid	40	18.58	Back	DFT-s-OFDM QPSK	0	10	1	108	1:1	0.299	23.8	19.9
1 882.5	376500	NR Band n25	Mid	40	18.58	Front	DFT-s-OFDM QPSK	0	10	1	108	1:1	0.250	24.6	
1 882.5	376500	NR Band n25	Mid	40	18.58	Bottom	DFT-s-OFDM QPSK	0	10	1	108	1:1	0.738	19.9	
1 882.5	376500	NR Band n25	Mid	40	18.58	Right	DFT-s-OFDM QPSK	0	10	1	108	1:1	0.036	33.0	
1 882.5	376500	NR Band n25	Mid	40	18.58	Left	DFT-s-OFDM QPSK	0	10	1	108	1:1	0.042	32.3	
2 310	462000	NR Band n30	Mid	10	18.17	Back	DFT-s-OFDM QPSK	0	10	1	26	1:1	0.375	22.4	18.4
2 310	462000	NR Band n30	Mid	10	18.17	Front	DFT-s-OFDM QPSK	0	10	1	26	1:1	0.350	22.7	
2 310	462000	NR Band n30	Mid	10	18.17	Bottom	DFT-s-OFDM QPSK	0	10	1	26	1:1	0.942	18.4	
2 310	462000	NR Band n30	Mid	10	18.17	Left	DFT-s-OFDM QPSK	0	10	1	26	1:1	0.075	29.4	
2 592.99	518598	NR Bandn41(PC3)	Mid	100	17.74	Back	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.382	21.9	18.9
2 592.99	518598	NR Bandn41(PC3)	Mid	100	17.74	Front	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.379	22.0	
2 592.99	518598	NR Bandn41(PC3)	Mid	100	17.74	Bottom	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.769	18.9	
2 592.99	518598	NR Bandn41(PC3)	Mid	100	17.74	Left	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.213	24.5	
2 592.99	518598	NR Bandn41(PC2)	Mid	100	17.19	Back	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.267	22.9	19.3
2 592.99	518598	NR Bandn41(PC2)	Mid	100	17.19	Front	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.274	22.8	
2 592.99	518598	NR Bandn41(PC2)	Mid	100	17.19	Bottom	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.610	19.3	
2 592.99	518598	NR Bandn41(PC2)	Mid	100	17.19	Left	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.166	25.0	
1 745	349000	NR Band n66	Mid	40	19.31	Back	DFT-s-OFDM QPSK	0	10	1	214	1:1	0.538	22.9	20.1
1 745	349000	NR Band n66	Mid	40	19.31	Front	DFT-s-OFDM QPSK	0	10	1	214	1:1	0.480	22.8	
1 745	349000	NR Band n66	Mid	40	19.31	Bottom	DFT-s-OFDM QPSK	0	10	1	214	1:1	0.827	19.3	
1 745	349000	NR Band n66	Mid	40	19.31	Right	DFT-s-OFDM QPSK	0	10	1	214	1:1	0.076	30.5	
1 745	349000	NR Band n66	Mid	40	19.31	Left	DFT-s-OFDM QPSK	0	10	1	214	1:1	0.061	31.5	

MEASUREMENT RESULTS															
Frequency		Mode		Band width	Frame Averaged Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
680.5	136100	NR Band n71	Mid	20	24.35	Back	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.311	29.4	29.4
680.5	136100	NR Band n71	Mid	20	24.35	Front	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.232	30.7	
680.5	136100	NR Band n71	Mid	20	24.35	Bottom	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.189	31.6	
680.5	136100	NR Band n71	Mid	20	24.35	Right	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.212	31.1	
680.5	136100	NR Band n71	Mid	20	24.35	Left	DFT-s-OFDM QPSK	0	10	1	1	1:1	0.158	32.4	
3930	662000	NR Band n77(PC3)	High	100	18.02	Back	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.197	25.1	23.6
3930	662000	NR Band n77(PC3)	High	100	18.02	Front	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.225	24.5	
3930	662000	NR Band n77(PC3)	High	100	18.02	Bottom	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.200	25.0	
3930	662000	NR Band n77(PC3)	High	100	18.02	Left	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.278	23.6	
3930	662000	NR Band n77(PC2)	High	100	19.98	Back	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.450	23.4	23.4
3930	662000	NR Band n77(PC2)	High	100	19.98	Front	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.227	26.4	
3930	662000	NR Band n77(PC2)	High	100	19.98	Bottom	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.257	25.9	
3930	662000	NR Band n77(PC2)	High	100	19.98	Left	DFT-s-OFDM QPSK	0	10	1	137	1:1	0.372	24.3	

Table A-10 DSI = 0 P_{Limit} Calculations - – 2G/3G Phablet SAR (Grip Sensor is off)

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

MEASUREMENT RESULTS										
Frequency		Mode/ Band		Frame Averaged Conducted Power	Test Position	Spacing (mm)	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.			(dBm)				(W/kg)	(dBm)	(dBm)
1880.0	600	EVDO Rev.0	PCS	23.44	Back	8	1:1	0.974	27.5	27.0
1880.0	600	EVDO Rev.0	PCS	23.44	Front	6	1:1	1.110	27.0	
1880.0	600	EVDO Rev.0	PCS	23.44	Bottom	13	1:1	0.996	27.4	
1880.0	600	EVDO Rev.0	PCS	23.44	Right	0	1:1	0.263	33.2	
1880.0	600	EVDO Rev.0	PCS	23.44	Left	0	1:1	0.591	29.7	
1880.0	661	GSM 1900	GPRS 3Tx	23.30	Back	8	2:8	0.538	30.0	29.4
1880.0	661	GSM 1900	GPRS 3Tx	23.30	Front	6	2:8	0.617	29.4	
1880.0	661	GSM 1900	GPRS 3Tx	23.30	Bottom	13	2:8	0.594	29.5	
1880.0	661	GSM 1900	GPRS 3Tx	23.30	Right	0	2:8	0.236	33.6	
1880.0	661	GSM 1900	GPRS 3Tx	23.30	Left	0	2:8	0.330	32.1	
1 732.4	1412	UMTS 1700	RMC	23.77	Back	8	1:1	1.050	27.5	26.9
1 732.4	1412	UMTS 1700	RMC	23.77	Front	6	1:1	1.230	26.9	
1 732.4	1412	UMTS 1700	RMC	23.77	Bottom	13	1:1	0.966	27.9	
1 732.4	1412	UMTS 1700	RMC	23.77	Right	0	1:1	0.422	31.5	
1 732.4	1412	UMTS 1700	RMC	23.77	Left	0	1:1	0.697	29.3	
1 880.0	9400	UMTS 1900	RMC	24.31	Back	8	1:1	0.823	29.1	27.6
1 880.0	9400	UMTS 1900	RMC	24.31	Front	6	1:1	1.120	27.8	
1 880.0	9400	UMTS 1900	RMC	24.31	Bottom	13	1:1	1.160	27.6	
1 880.0	9400	UMTS 1900	RMC	24.31	Right	0	1:1	0.424	32.0	
1 880.0	9400	UMTS 1900	RMC	24.31	Left	0	1:1	0.843	29.0	
836.6	190	GPRS 2TX	GSM	25.94	Back	0	1:4.17	2.150	26.6	26.6
836.6	190	GPRS 2TX	GSM	25.94	Front	0	1:4.17	1.790	27.4	
836.6	190	GPRS 2TX	GSM	25.94	Bottom	0	1:4.17	0.676	31.6	
836.6	190	GPRS 2TX	GSM	25.94	Right	0	1:4.17	0.513	32.8	
836.6	190	GPRS 2TX	GSM	25.94	Left	0	1:4.17	0.415	33.7	

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

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Frame Averaged 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)
2 560	21350	LTE Band 7	High	20	23.82	Back	8	0	1	99	1:1	0.536	30.5	27.8
2 560	21350	LTE Band 7	High	20	23.82	Front	6	0	1	99	1:1	1.010	27.8	
2 560	21350	LTE Band 7	High	20	23.82	Bottom	13	0	1	99	1:1	0.808	28.7	
2 560	21350	LTE Band 7	High	20	23.82	Left	0	0	1	99	1:1	0.687	29.4	
1 882.5	26365	LTE Band 25	Mid	20	24.61	Back	8	0	1	0	1:1	0.786	29.6	27.7
1 882.5	26365	LTE Band 25	Mid	20	24.61	Front	6	0	1	0	1:1	1.240	27.7	
1 882.5	26365	LTE Band 25	Mid	20	24.61	Bottom	13	0	1	0	1:1	1.070	28.3	
1 882.5	26365	LTE Band 25	Mid	20	24.61	Right	0	0	1	0	1:1	0.366	33.0	
1 882.5	26365	LTE Band 25	Mid	20	24.61	Left	0	0	1	0	1:1	0.614	30.7	
2 310	27710	LTE Band 30	Mid	10	22.31	Back	8	0	1	24	1:1	0.778	27.4	25.1
2 310	27710	LTE Band 30	Mid	10	22.31	Front	6	0	1	24	1:1	1.330	25.1	
2 310	27710	LTE Band 30	Mid	10	22.31	Bottom	13	0	1	24	1:1	1.010	26.2	
2 310	27710	LTE Band 30	Mid	10	22.31	Left	0	0	1	24	1:1	0.661	28.1	
2 593	40620	LTE Band 41(PC3)	Mid	20	22.80	Back	8	0	1	99	0.633	0.314	31.8	26.9
2 593	40620	LTE Band 41(PC3)	Mid	20	22.80	Front	6	0	1	99	0.633	0.525	29.6	
2 593	40620	LTE Band 41(PC3)	Mid	20	22.80	Bottom	13	0	1	99	0.633	0.529	29.5	
2 593	40620	LTE Band 41(PC3)	Mid	20	22.80	Left	0	0	1	99	0.633	0.611	26.9	
1 770	132572	LTE Band 66	High	20	24.01	Back	8	0	1	0	1:1	0.925	28.3	27.3
1 770	132572	LTE Band 66	High	20	24.01	Front	6	0	1	0	1:1	1.160	27.3	
1 770	132572	LTE Band 66	High	20	24.01	Bottom	13	0	1	0	1:1	0.802	28.9	
1 770	132572	LTE Band 66	High	20	24.01	Right	0	0	1	0	1:1	0.348	32.6	
1 770	132572	LTE Band 66	High	20	24.01	Left	0	0	1	0	1:1	0.246	34.1	

Table A-11 DSI = 0 P_{Limit} Calculations - – NR Phablet SAR (Grip Sensor is off, Maximum Power)

For some bands/modes, a lower P_{Limit} 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	Frame Averaged Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
1 882.5	376500	NR Band n25	Mid	40	23.87	Back	DFT-s-OFDM QPSK	0	8	1	108	1:1	0.651	29.7	28.5
1 882.5	376500	NR Band n25	Mid	40	23.87	Front	DFT-s-OFDM QPSK	0	6	1	108	1:1	0.859	28.5	
1 882.5	376500	NR Band n25	Mid	40	23.87	Bottom	DFT-s-OFDM QPSK	0	13	1	108	1:1	0.707	29.4	
1 882.5	376500	NR Band n25	Mid	40	23.87	Right	DFT-s-OFDM QPSK	0	0	1	108	1:1	0.181	35.3	
1 882.5	376500	NR Band n25	Mid	40	23.87	Left	DFT-s-OFDM QPSK	0	0	1	108	1:1	0.188	35.1	
2 310	462000	NR Band n30	Mid	10	22.79	Back	DFT-s-OFDM QPSK	0	8	1	26	1:1	0.663	28.6	26.5
2 310	462000	NR Band n30	Mid	10	22.79	Front	DFT-s-OFDM QPSK	0	6	1	26	1:1	1.060	26.5	
2 310	462000	NR Band n30	Mid	10	22.79	Bottom	DFT-s-OFDM QPSK	0	13	1	26	1:1	1.060	26.5	
2 310	462000	NR Band n30	Mid	10	22.79	Left	DFT-s-OFDM QPSK	0	0	1	26	1:1	0.623	28.8	
1 745	349000	NR Band n66	Mid	40	24.00	Back	DFT-s-OFDM QPSK	0	8	1	108	1:1	0.886	28.5	27.9
1 745	349000	NR Band n66	Mid	40	24.00	Front	DFT-s-OFDM QPSK	0	6	1	108	1:1	1.020	27.9	
1 745	349000	NR Band n66	Mid	40	24.00	Bottom	DFT-s-OFDM QPSK	0	13	1	108	1:1	0.766	29.1	
1 745	349000	NR Band n66	Mid	40	24.00	Right	DFT-s-OFDM QPSK	0	0	1	108	1:1	0.142	36.5	
1 745	349000	NR Band n66	Mid	40	24.00	Left	DFT-s-OFDM QPSK	0	0	1	108	1:1	0.125	37.0	

Table A-11 DSI = 1 (Grip Sensor is not activated) P_{Limit} Calculations - – 2G/3G Phablet SAR
For some bands/modes, a lower P_{Limit} was selected as a more conservative evaluation.

MEASUREMENT RESULTS										
Frequency		Mode		Frame Averaged Conducted Power	Test Position	Distance	Duty Cycle	Meas. SAR(10g)	Plimit	Minimum Plimit
MHz	Ch.			(dBm)		(mm)		(W/kg)	(dBm)	(dBm)
820	560	EVDO Rev.0	CDMA BC10	23.95	Back	0	1:1	1.220	27.1	27.0
820	560	EVDO Rev.0	CDMA BC10	23.95	Front	0	1:1	1.240	27.0	
820	560	EVDO Rev.0	CDMA BC10	23.95	Bottom	0	1:1	0.580	30.3	
820	560	EVDO Rev.0	CDMA BC10	23.95	Right	0	1:1	0.232	34.3	
820	560	EVDO Rev.0	CDMA BC10	23.95	Left	0	1:1	0.264	33.7	
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Back	0	1:1	1.290	27.0	26.7
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Front	0	1:1	1.370	26.7	
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Bottom	0	1:1	0.684	29.7	
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Right	0	1:1	0.235	34.4	
836.52	384	EVDO Rev.0	CDMA BC 0	24.10	Left	0	1:1	0.252	34.1	
1880.0	600	EVDO Rev.0	PCS	20.03	Back	0	1:1	1.170	23.3	22.6
1880.0	600	EVDO Rev.0	PCS	20.03	Front	0	1:1	1.360	22.7	
1880.0	600	EVDO Rev.0	PCS	20.03	Bottom	0	1:1	1.390	22.6	
826.4	4132	UMTS 850	RMC	24.16	Back	0	1:1	1.280	27.1	26.8
826.4	4132	UMTS 850	RMC	24.16	Front	0	1:1	1.350	26.8	
826.4	4132	UMTS 850	RMC	24.16	Bottom	0	1:1	0.844	28.9	
826.4	4132	UMTS 850	RMC	24.16	Right	0	1:1	0.253	34.1	
826.4	4132	UMTS 850	RMC	24.16	Left	0	1:1	0.315	33.2	
1 732.4	1412	UMTS 1700	RMC	18.89	Back	0	1:1	1.040	22.7	20.9
1 732.4	1412	UMTS 1700	RMC	18.89	Front	0	1:1	1.290	21.8	
1 732.4	1412	UMTS 1700	RMC	18.89	Bottom	0	1:1	1.560	20.9	
1880.0	9400	UMTS 1900	RMC	19.20	Back	0	1:1	1.020	23.1	21.4
1880.0	9400	UMTS 1900	RMC	19.20	Front	0	1:1	1.110	22.7	
1880.0	9400	UMTS 1900	RMC	19.20	Bottom	0	1:1	1.500	21.4	

Table A-11 DSI = 0 GSM Mode P_{Limit} Calculations - – 2G/3G Phablet SAR (Grip off)

MEASUREMENT RESULTS										
Frequency		Mode		Frame Averaged	Test Position	Distance	Duty Cycle	Meas. SAR(10g)	Plimit	Minimum Plimit
MHz	Ch.			Conducted						
				(dBm)		(mm)		(W/kg)	(dBm)	(dBm)
836.6	190	GPRS 2TX	GSM	25.94	Back	0	1:4.17	2.150	26.6	26.6
836.6	190	GPRS 2TX	GSM	25.94	Front	0	1:4.17	1.790	27.4	
836.6	190	GPRS 2TX	GSM	25.94	Bottom	0	1:4.17	0.676	31.6	
836.6	190	GPRS 2TX	GSM	25.94	Right	0	1:4.17	0.513	32.8	
836.6	190	GPRS 2TX	GSM	25.94	Left	0	1:4.17	0.415	33.7	

Table A-13 DSI =1,4 P_{Limit} Calculations - – 4G Phablet SAR(Grip Sensor is on, Earjack inserted)

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

MEASUREMENT RESULTS														
Frequency		Mode		Band width	Frame Averaged Conducted	Test Position	Spacing (mm)	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(10g)	Plimit	Minimum Plimit
Mhz	Ch.			Mhz	(dBm)			(dB)				(W/kg)	(dBm)	(dBm)
2 560	21350	LTE Band 7	High	20	19.57	Back	0	0	1	0	1:1	1.640	21.4	21.4
2 560	21350	LTE Band 7	High	20	19.57	Front	0	0	1	0	1:1	1.290	22.4	
2 560	21350	LTE Band 7	High	20	19.57	Bottom	0	0	1	0	1:1	1.620	21.5	
707.5	23095	LTE Band 12	Mid	10	23.99	Back	0	0	1	0	1:1	1.230	27.1	25.8
707.5	23095	LTE Band 12	Mid	10	23.99	Front	0	0	1	0	1:1	1.650	25.8	
707.5	23095	LTE Band 12	Mid	10	23.99	Bottom	0	0	1	0	1:1	0.749	29.2	
707.5	23095	LTE Band 12	Mid	10	23.99	Right	0	0	1	0	1:1	0.182	35.4	
707.5	23095	LTE Band 12	Mid	10	23.99	Left	0	0	1	0	1:1	0.105	37.8	
782	23230	LTE Band 13	Mid	10	23.89	Back	0	0	1	0	1:1	1.280	26.8	26.6
782	23230	LTE Band 13	Mid	10	23.89	Front	0	0	1	0	1:1	1.340	26.6	
782	23230	LTE Band 13	Mid	10	23.89	Bottom	0	0	1	0	1:1	0.801	28.8	
782	23230	LTE Band 13	Mid	10	23.89	Right	0	0	1	0	1:1	0.271	33.5	
782	23230	LTE Band 13	Mid	10	23.89	Left	0	0	1	0	1:1	0.233	34.2	
793	23330	LTE Band 14	Mid	10	24.70	Back	0	0	1	0	1:1	1.480	27.0	27.0
793	23330	LTE Band 14	Mid	10	24.70	Front	0	0	1	0	1:1	1.370	27.3	
793	23330	LTE Band 14	Mid	10	24.70	Bottom	0	0	1	0	1:1	0.884	29.2	
793	23330	LTE Band 14	Mid	10	24.70	Right	0	0	1	0	1:1	0.358	33.1	
793	23330	LTE Band 14	Mid	10	24.70	Left	0	0	1	0	1:1	0.287	34.1	22.8
1 882.5	26365	LTE Band 25	Mid	20	20.43	Back	0	0	1	99	1:1	1.340	23.1	
1 882.5	26365	LTE Band 25	Mid	20	20.43	Front	0	0	1	99	1:1	1.360	23.1	
1 882.5	26365	LTE Band 25	Mid	20	20.43	Bottom	0	0	1	99	1:1	1.440	22.8	27.0
831.5	26865	LTE Band 26	Mid	15	24.02	Back	0	0	1	0	1:1	0.909	28.4	
831.5	26865	LTE Band 26	Mid	15	24.02	Front	0	0	1	0	1:1	1.270	27.0	
831.5	26865	LTE Band 26	Mid	15	24.02	Bottom	0	0	1	0	1:1	0.726	29.4	
831.5	26865	LTE Band 26	Mid	15	24.02	Right	0	0	1	0	1:1	0.164	35.9	
831.5	26865	LTE Band 26	Mid	15	24.02	Left	0	0	1	0	1:1	0.157	36.0	21.6
2 310	27710	LTE Band 30	Mid	10	18.18	Back	0	0	1	0	1:1	0.030	37.4	
2 310	27710	LTE Band 30	Mid	10	18.18	Front	0	0	1	0	1:1	0.780	23.2	
2 310	27710	LTE Band 30	Mid	10	18.18	Bottom	0	0	1	0	1:1	1.150	21.6	23.3
2 593	40620	LTE Band 41(PC3)	High	20	19.784	Rear	0	0	1	99	0.633	1.100	23.3	
2 593	40620	LTE Band 41(PC3)	High	20	19.784	Front	0	0	1	99	0.633	1.050	23.6	
2 593	40620	LTE Band 41(PC3)	High	20	19.784	Bottom	0	0	1	99	0.633	0.967	23.9	22.2
3 690	56640	LTE Band 48	Low	20	21.81	Back	0	0	1	0	0.633	2.290	22.2	
3 690	56640	LTE Band 48	Low	20	21.81	Front	0	0	1	0	0.633	0.363	30.2	
3 690	56640	LTE Band 48	Low	20	21.81	Bottom	0	0	1	0	0.633	2.190	22.4	
3 690	56640	LTE Band 48	Low	20	21.81	Right	0	0	1	0	0.633	0.018	43.2	
3 690	56640	LTE Band 48	Low	20	21.81	Left	0	0	1	0	0.633	2.650	22.5	21.2
1 745	132322	LTE Band 66	Mid	20	19.74	Back	0	0	1	99	1:1	1.080	23.4	
1 745	132322	LTE Band 66	Mid	20	19.74	Front	0	0	1	99	1:1	1.360	22.4	
1 745	132322	LTE Band 66	Mid	20	19.74	Bottom	0	0	1	99	1:1	1.800	21.2	26.6
683	133322	LTE Band 71	Mid	20	24.35	Back	0	0	1	0	1:1	1.150	27.7	
683	133322	LTE Band 71	Mid	20	24.35	Front	0	0	1	0	1:1	1.480	26.6	
683	133322	LTE Band 71	Mid	20	24.35	Bottom	0	0	1	0	1:1	0.947	28.6	
683	133322	LTE Band 71	Mid	20	24.35	Right	0	0	1	0	1:1	0.152	36.5	
683	133322	LTE Band 71	Mid	20	24.35	Left	0	0	1	0	1:1	0.081	39.2	26.7
2 595	38000	LTE Band 38	Mid	20	22.54	Back	0	0	1	49	1:1.58	0.314	31.6	
2 595	38000	LTE Band 38	Mid	20	22.54	Front	0	0	1	49	1:1.58	0.525	29.3	
2 595	38000	LTE Band 38	Mid	20	22.54	Bottom	0	0	1	49	1:1.58	0.529	29.3	
2 595	38000	LTE Band 38	Mid	20	22.54	Left	0	0	1	49	1:1.58	0.611	26.7	

Table A-15 DSI = 1,4 P_{Limit} Calculations - - NR Phablet SAR(grip on , Ear jack inserted)

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

NR TDD Bands : In the case of the NR TDD bands, the P_{limit} 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	Frame Averaged Conducted	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
836.5	167300	NR Band n5	Mid	20	24.07	Back	DFT-s-OFDM QPSK	0	0	1	53	1:1	1.050	27.8	27.7
836.5	167300	NR Band n5	Mid	20	24.07	Front	DFT-s-OFDM QPSK	0	0	1	53	1:1	1.080	27.7	
836.5	167300	NR Band n5	Mid	20	24.07	Bottom	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.798	29.0	
836.5	167300	NR Band n5	Mid	20	24.07	Right	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.213	34.8	
836.5	167300	NR Band n5	Mid	20	23.80	Left	DFT-s-OFDM QPSK	0	0	1	53	1:1	0.147	36.1	
707.5	141500	NR Band n12	Mid	15	23.98	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.030	27.8	26.3
707.5	141500	NR Band n12	Mid	15	23.98	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.450	26.3	
707.5	141500	NR Band n12	Mid	15	23.98	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.050	27.7	
707.5	141500	NR Band n12	Mid	15	23.98	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.157	36.0	
707.5	141500	NR Band n12	Mid	15	23.98	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.103	37.8	
1 882.5	376500	NR Band n25	Mid	40	18.58	Back	DFT-s-OFDM QPSK	0	0	1	108	1:1	0.772	23.7	23.5
1 882.5	376500	NR Band n25	Mid	40	18.58	Front	DFT-s-OFDM QPSK	0	0	1	108	1:1	0.780	23.6	
1 882.5	376500	NR Band n25	Mid	40	18.58	Bottom	DFT-s-OFDM QPSK	0	0	1	108	1:1	0.808	23.5	
2 310	462000	NR Band n30	Mid	10	18.24	Back	DFT-s-OFDM QPSK	0	0	1	26	1:1	0.953	22.4	21.7
2 310	462000	NR Band n30	Mid	10	18.24	Front	DFT-s-OFDM QPSK	0	0	1	26	1:1	0.799	23.2	
2 310	462000	NR Band n30	Mid	10	18.24	Bottom	DFT-s-OFDM QPSK	0	0	1	26	1:1	1.140	21.7	
2 592.99	518598	NR Band n41(PC3)	Mid	100	17.74	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.732	23.1	22.4
2 592.99	518598	NR Band n41(PC3)	Mid	100	17.74	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.853	22.4	
2 592.99	518598	NR Band n41(PC3)	Mid	100	17.74	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.625	23.8	
2 592.99	518598	NR Band n41(PC3)	Mid	100	17.74	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.069	33.3	
2 592.99	518598	NR Band n41(PC3)	Mid	100	17.74	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.112	31.2	
2 592.99	518598	NR Band n41(PC2)	Mid	100	19.79	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.690	25.4	25.4
2 592.99	518598	NR Band n41(PC2)	Mid	100	19.79	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.629	25.8	
2 592.99	518598	NR Band n41(PC2)	Mid	100	19.79	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.542	26.4	
2 592.99	518598	NR Band n41(PC2)	Mid	100	19.79	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.040	37.7	
2 592.99	518598	NR Band n41(PC2)	Mid	100	19.79	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.183	31.1	
1 745	349000	NR Band n66	Mid	40	19.34	Back	DFT-s-OFDM QPSK	0	0	1	108	1:1	1.030	23.2	22.9
1 745	349000	NR Band n66	Mid	40	19.34	Front	DFT-s-OFDM QPSK	0	0	1	108	1:1	1.100	22.9	
1 745	349000	NR Band n66	Mid	40	19.34	Bottom	DFT-s-OFDM QPSK	0	0	1	108	1:1	0.978	23.4	

MEASUREMENT RESULTS															
Frequency		Mode		Band width	Frame Averaged Conducted	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.			MHz	(dBm)			(dB)					(W/kg)	(dBm)	(dBm)
680.5	136100	NR Band n71	Mid	20	24.01	Back	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.856	28.7	27.7
680.5	136100	NR Band n71	Mid	20	24.01	Front	DFT-s-OFDM QPSK	0	0	1	1	1:1	1.080	27.7	
680.5	136100	NR Band n71	Mid	20	24.01	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.571	30.4	
680.5	136100	NR Band n71	Mid	20	24.03	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.091	38.4	
680.5	136100	NR Band n71	Mid	20	24.03	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.146	36.4	
3 930	662000	NR Band n77(PC3)	High	100	18.04	Back	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.304	27.2	24.2
3 930	662000	NR Band n77(PC3)	High	100	18.04	Front	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.402	26.0	
3 930	662000	NR Band n77(PC3)	High	100	18.04	Bottom	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.322	26.9	
3 930	662000	NR Band n77(PC3)	High	100	18.04	Right	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.023	38.4	
3 930	662000	NR Band n77(PC3)	High	100	18.04	Left	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.608	24.2	
3 930	662000	NR Band n77(PC2)	High	100	20.45	Back	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.645	26.3	23.8
3 930	662000	NR Band n77(PC2)	High	100	20.45	Front	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.947	24.7	
3 930	662000	NR Band n77(PC2)	High	100	20.45	Bottom	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.681	26.1	
3 930	662000	NR Band n77(PC2)	High	100	20.45	Right	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.048	37.6	
3 930	662000	NR Band n77(PC2)	High	100	20.45	Left	DFT-s-OFDM QPSK	0	0	1	271	1:1	1.150	23.8	