HCT Co., Ltd.
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Tel. +82 31 645 6300 Fax. +82 31 645 6401

PART 0 SAR CHAR REPORT

Applicant Name: **SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677 Rep. of Korea	**Date of Issue: May 09, 2023** **Test Report No.: HCT-SR-2305-FC001** **Test Site: HCT CO., LTD.**

FCC ID: **A3LSMX818U**

Report Type:	**Part 0 SAR Characterization**
Equipment Type:	**Tablet**
Model Name:	**SM-X818U**
Date of Test:	**Mar. 16. 2023 ~ Apr. 28. 2023**

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

Dong Seon, Kim
Test Engineer
SAR Team
Certification Division

Reviewed By

Yun-jeang, Heo
Technical Manager
SAR Team
Certification Division

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	May 09, 2023	Initial Release

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

The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA.

Table of Contents

1. Test Location

1.1 Test Laboratory

Company Name	HCT Co., Ltd.
Address	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Telephone	031-645-6300
Fax.	031-645-6401

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**
UMTS Band 5	Data	826.4 ㎒ ~ 846.6 ㎒
UMTS Band 4	Data	1 712.4 ㎒ ~ 1 752.6 ㎒
UMTS Band 2	Data	1 852.4 ㎒ ~ 1 907.6 ㎒
LTE Band 2 (PCS)	Data	1 850.7 ㎒ ~ 1 909.3 ㎒
LTE Band 4 (AWS)	Data	1 710.7 ㎒ ~ 1 754.3 ㎒
LTE Band 5 (Cell)	Data	824.7 ㎒ ~ 848.3 ㎒
LTE Band 7	Data	2 502.5 ㎒ ~ 2 567.5 ㎒
LTE Band 12	Data	699.7 ㎒ ~ 715.3 ㎒
LTE Band 13	Data	779.5 ㎒ ~ 784.5 ㎒
LTE Band 14	Data	790.5 ㎒ ~ 795.5 ㎒
LTE Band 25 (PCS)	Data	1 850.7 ㎒ ~ 1 914.3 ㎒
LTE Band 26	Data	814.7 ㎒ ~ 848.3 ㎒
LTE Band 30	Data	2 307.5 ㎒ ~ 2 312.5 ㎒
LTE TDD Band 41	Data	2 498.5 ㎒ ~ 2 687.5 ㎒
LTE TDD Band 48	Data	3 552.5 ㎒ ~ 3 697.5 ㎒
LTE Band 66 (AWS)	Data	1 710.7 ㎒ ~ 1 779.3 ㎒
LTE Band 71	Data	665.5 ㎒ ~ 695.5 ㎒
NR Band n2	Data	1 852.5 ㎒ ~ 1 907.5 ㎒
NR Band n5	Data	826.5 ㎒ ~ 846.5 ㎒
NR Band n7	Data	2502.5 ㎒ ~ 2567.5 ㎒
NR Band n12	Data	701.5 ㎒ ~ 713.5 ㎒
NR Band n25	Data	1 852.5 ㎒ ~ 1912.5 ㎒
NR Band n26	Data	816.5 ㎒ ~ 846.5 ㎒
NR Band n30	Data	2 307.5 ㎒ ~ 2 312.5 ㎒
NR Band n41	Data	2 501.01 ㎒ ~ 2 685 ㎒
NR Band n48	Data	3 560.01 ㎒ ~ 3 690 ㎒
NR Band n66	Data	1 712.5 ㎒ ~ 1 777.5 ㎒
NR Band n71	Data	665.5 ㎒ - 695.5 ㎒
NR Band n77	Data	3 705 ㎒ ~ 3 975 ㎒
NR Band n77 DoD	Data	3 450 ㎒ ~ 3 550 ㎒
NR Band n258	Data	24 250 ㎒ ~ 24 450 ㎒; 24 750 ㎒ ~ 25 250 ㎒
NR Band n260	Data	37 000 ㎒ ~ 40 000 ㎒
NR Band n261	Data	27 500 ㎒ ~ 28 350 ㎒
2.4 ㎓ WLAN	Data	2 412 ㎒ ~ 2 462 ㎒
U-NII-1	Data	5 180 ㎒ ~ 5 240 ㎒
U-NII-2A	Data	5 260 ㎒ ~ 5 320 ㎒
U-NII-2C	Data	5 500 ㎒ ~ 5 720 ㎒
U-NII-3	Data	5 745 ㎒ ~ 5 825 ㎒
U-NII-4	Data	5 845 ㎒ ~ 5 885 ㎒
U-NII-5	Data	5 935 ㎒ ~ 6 415 ㎒
U-NII-6	Data	6 435 ㎒ ~ 6 515 ㎒
U-NII-7	Data	6 535 ㎒ ~ 6 875 ㎒
U-NII-8	Data	6 875 ㎒ ~ 7 115 ㎒
Bluetooth / LE 5.3	Data	2 402 ㎒ ~ 2 480 ㎒
S-Pen	Data	531 ㎑

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 3G/4G/5G WWAN operations. Additionally, this device supports WLAN/BT technologies, but the output power of these modems is not controlled by the Smart Transmit algorithm

2.2 Time-Averaging for SAR

This device is enabled with Qualcomm® Smart Transmit algorithm to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from 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 3G/4G and 5G Sub-6 NR respectively. Characterization is achieved by determining Plimit for 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
3G/4G/5G Sub 6 NR	*Plimit*	Power level that corresponds to the exposure design target (*SAR_design_target)* after accounting for all device design related uncertainties.
	Pmax	Maximum tune up output power.
	SAR_design_target	Target SAR level < FCC SAR limit after accounting for all device design related uncertainties
	SAR Char	Table containing *Plimit* for all technologies and bands

3. SAR MEASUREMENTS

3.1 SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative of the incremental electromagnetic energy (d*W*) absorbed by (dissipated in) an incremental mass (d*m*) contained in a volume element (d*V*) 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

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

Figure 1. 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/m^3)

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 measuredat a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device head and body interface andthe horizontal grid resolution was determined per FCC KDB Publication865664 D01v01r04 and IEEE 1528-2013.

2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.

3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (SeeTable 3-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with: the following procedure (see references or the DASY manual online for more details)

a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in
b. Table 3-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
c. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 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 then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
d. 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-easured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

Frequency	Maximum Area Scan Resolution (mm) (Δxarea, Δyarea)	Maximum Zoom Scan Resolution (mm) (Δxzoom, Δyzoom)	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x,y,z)
			Uniform Grid	Graded Grid		
			Δzzoom(n)	Δzzoom(1)*	Δzzoom(n>1)*	
≤2 GHz	≤15	≤8	≤5	≤4	≤1.5*Δzzoom(n-1)	≥30
2-3 GHz	≤12	≤5	≤5	≤4	≤1.5*Δzzoom(n-1)	≥30
3-4 GHz	≤12	≤5	≤4	≤3	≤1.5*Δzzoom(n-1)	≥28
4-5 GHz	≤10	≤4	≤3	≤2.5	≤1.5*Δzzoom(n-1)	≥25
5-6 GHz	≤10	≤4	≤2	≤2	≤1.5*Δzzoom(n-1)	≥22

Table 3-1

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

4. SAR CHARAC TERIZATION

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
Max Power (DSI = 0)	▪ Device is held with hand and grip sensor is not triggered ▪ Distance grip sensor not triggered Max Power Condition	*KDB Publication 616217 D04*
Grip on (DSI=1)	▪ Device is held with hand and grip sensor is triggered Reduced Power condition	*KDB Publication 616217 D04*

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).

SAR_design_target	
$SAR\_design\_target < SAR\_regulatory\_limit \times 10^{-Total\ Uncertainty/10}$	
1g SAR (W/kg)	
Total Uncertainty	1.0 dB
SAR_regulatory_limit	1.6 W/kg
SAR_design_target	1.0 W/kg

Table 4-2 *SAR_design_target* Calculations

4.3 SAR Characterization

SAR test results corresponding to *Pmax* for each antenna/technology/band/DSI can be found in Appendix A. *Plimit* is calculated by linearly scaling with the measured SAR at the *Pmax* to correspond to the SAR_design_target. *Plimit* determination for each exposure scenario corresponding to *SAR_design_target* are shown in Table 4-3.

Table 4-3 *PLimit* Determination

Device State Index (DSI)	*PLimit* Determination Scenarios
0	The worst-case SAR exposure is determined as maximum SAR normalized to the limit among: 1. Body SAR measured at 19mm, 19mm spacing for Rear, Top for Main 1 Ant 2. Body SAR measured at 0mm spacing for Left, Right surfaces for Main 1 Ant 3. Body SAR measured at 19mm, 22mm, 9mm spacing for Rear, Bottom, Left for Main 2 Ant 4. Body SAR measured at 0 mm spacing for Right for Main 2 Ant 5. Body SAR measured at 19mm, 24mm spacing for Rear, Bottom for Sub 2& Sub 4 Ant 6. Body SAR measured at 0mm spacing for Right, Left surfaces for Sub 2& Sub 4 Ant 7. Body SAR measured at 19mm, 17mm, 9mm spacing for Rear, Top, Left for Sub 3 Ant 8. Body SAR measured at 0mm spacing for Right surfaces for Sub 3 Ant
1	1. P_{limit} is calculated based on 1g Body SAR at 0 mm for Rear and Top surfaces (Main Ant 1) 2. P_{limit} is calculated based on 1g Body SAR at 0 mm for Rear, Bottom and Left surfaces (Main Ant 2) 3. P_{limit} is calculated based on 1g Body SAR at 0 mm for Rear and Bottom surfaces (Sub 2& Sub 4 Ant) 4. P_{limit} is calculated based on 1g Body SAR at 0 mm for Rear, Top and Left surfaces (Sub 3 Ant)

Note:
Main 1 Ant) For DSI=0, *Plimit* is calculated by :
Plimit = min{ *Plimit* corresponding to 1g Body SAR evaluation at 19mm (Rear), 19mm(Top) spacing *Plimit* corresponding to 1g Body SAR evaluation at 0mm for Left, Right surfaces}

Main Ant 2) For DSI=0,*Plimit* is calculated by :
Plimit = min{ *Plimit* corresponding to 1g Body SAR evaluation at 19mm(Rear), 22mm(Bottom), 9mm(Left) spacing,*Plimit* corresponding to 1g Body SAR evaluation at 0mm for Right surfaces}

Sub 2& Sub 4 Ant) For DSI=0,*Plimit* is calculated by :
Plimit = min{ *Plimit* corresponding to 1g Body SAR evaluation at 19mm(Rear), 24mm(Bottom) spacing, *Plimit* corresponding to 1g Body SAR evaluation at 0mm for Right, Left surfaces}

Sub 3 Ant) For DSI=0,*Plimit* is calculated by :
Plimit = min{ *Plimit* corresponding to 1g Body SAR evaluation at 19mm(Rear), 17mm(Top), 9mm(Left) spacing,*Plimit* corresponding to 1g Body SAR evaluation at 0mm for Right surfaces}

Plim values in green indicate Plimt < Pmax					Plim values in grey indicate Plim > Pmax			
Plimt corresponding to 1 W/kg (1g) SAR_Design_target						Pmax	Pmax	
SAR Exposure condition				Body at Max Power	Body Grip on Back-off	Maximum Tune-up Output Power (Burst Average Power) [dBm]	Maximum Tune-up Output Power (Frame Averaged Power) [dBm]	UL:DL Ratio
Averaging volume				1g	1g			
seperation Distance				19,22,24,9,17 mm	0			
Mode	Band	Antenna	Antenna Group	DSI = 0	DSI = 1			
UMTS	5	Main 1	AG0	25.1	16.0	23.5	23.5	100%
UMTS	4	Main 1	AG0	27.5	13.5	23.5	23.5	100%
UMTS	2	Main 1	AG0	25.5	14.0	23.5	23.5	100%
LTE FDD	7	Main 1	AG0	25.2	11.5	23.0	23.0	100%
LTE FDD	7	SUB 2	AG1	30.3	11.5	23.0	23.0	100%
LTE FDD	12	Main 1	AG0	28.3	15.5	24.0	24.0	100%
LTE FDD	13	Main 1	AG0	25.9	16.0	24.0	24.0	100%
LTE FDD	14	Main 1	AG0	26.3	16.0	24.0	24.0	100%
LTE FDD	25(2)	Main 1	AG0	26.0	14.5	24.0	24.0	100%
LTE FDD	25(2)	SUB 2	AG1	27.5	13.0	23.0	23.0	100%
LTE FDD	26(5)	Main 1	AG0	25.4	15.0	24.0	24.0	100%
LTE FDD	30	Main 1	AG0	28.4	12.0	22.5	22.5	100%
LTE FDD	30	SUB 2	AG1	26.7	12.0	22.5	22.5	100%
LTE TDD PC3	41	Main 1	AG0	27.2	11.5	22.0	20.0	63.3%
LTE TDD PC2	41	Main 1	AG0	29.3	9.9	22.4	18.7	43.3%
LTE TDD	48	Main 2	AG1	25.0	9.5	19.5	17.5	63.3%
LTE FDD	66(4)	Main 1	AG0	27.2	14.0	24.0	24.0	100.0%
LTE FDD	66(4)	SUB 2	AG1	29.3	14.0	23.5	23.5	100%
LTE FDD	71	Main 1	AG0	27.7	17.0	24.0	24.0	100%
NR FDD	7	Main 1	AG0	27.7	11.5	24.0	24.0	100%
NR FDD	12	Main 1	AG0	29.4	15.5	24.0	24.0	100%
NR FDD	25(2)	Main 1	AG0	29.0	15.0	24.0	24.0	100%
NR FDD	26(5)	Main 1	AG0	26.4	15.0	24.0	24.0	100%
NR FDD	30	Main 1	AG0	28.4	12.0	22.5	22.5	100%
NR TDD (PC2)	41	Main 1	AG0	18.5	11.5	27.0	27.0	100%
NR TDD SRS2(PC2)	41	SUB 2	AG1	11.5	10.0	17.0	17.0	100%
NR TDD SRS3(PC2)	41	SUB 4	AG1	13.0	10.0	18.5	18.5	100%
NR TDD SRS4(PC2)	41	SUB 1	AG1	8.5	8.5	14.0	14.0	100%
NR TDD (PC3)	41	Main 1	AG0	18.5	11.5	24.0	24.0	100%
NR TDD SRS2(PC3)	41	SUB 2	AG1	11.5	10.0	17.0	17.0	100%
NR TDD SRS3(PC3)	41	SUB 4	AG1	13.0	10.0	18.5	18.5	100%
NR TDD SRS4(PC3)	41	SUB 1	AG1	8.5	8.5	14.0	14.0	100%
NR TDD	48	Main 2	AG1	16.0	10.5	21.5	21.5	100%
NR TDD SRS2	48	Sub 2	AG1	9.5	9.0	15.0	15.0	100%
NR TDD SRS3	48	Sub 4	AG1	13.0	9.0	18.5	18.5	100%
NR TDD SRS4	48	SUB 3	AG0	16.0	9.0	21.5	21.5	100%
NR FDD	66(4)	Main 1	AG0	24.0	14.5	24.0	24.0	100%
NR FDD	71	Main 1	AG0	24.0	17.0	24.0	24.0	100%
NR TDD (PC2)	77	Main2	AG1	18.5	10.0	27.0	27.0	100%
NR TDD SRS2(PC2)	77	SUB 2	AG1	11.5	8.5	17.0	17.0	100%
NR TDD SRS3(PC2)	77	SUB 4	AG1	14.5	8.5	20.0	20.0	100%
NR TDD SRS4(PC2)	77	SUB 3	AG0	17.0	8.5	22.5	22.5	100%
NR TDD (PC3)	77	Main2	AG1	18.5	10.0	24.0	24.0	100%
NR TDD SRS2(PC3)	77	SUB 2	AG1	11.5	8.5	17.0	17.0	100%
NR TDD SRS3(PC3)	77	SUB 4	AG1	14.5	8.5	20.0	20.0	100%
NR TDD SRS4(PC3)	77	SUB 3	AG0	17.0	8.5	22.5	22.5	100%
NR DoD (PC3)	77	Main2	AG1	18.5	10.0	24.0	24.0	100%
NR DoD SRS2(PC3)	77	SUB 2	AG1	11.5	8.5	17.0	17.0	100%
NR DoD SRS3(PC3)	77	SUB 4	AG1	14.5	8.5	20.0	20.0	100%
NR DoD SRS4(PC3)	77	SUB 3	AG0	17.0	8.5	22.5	22.5	100%
NR DoD (PC2)	77	Main2	AG1	18.5	10.0	27.0	27.0	100%
NR DoD SRS2(PC2)	77	SUB 2	AG1	11.5	8.5	17.0	17.0	100%
NR DoD SRS3(PC2)	77	SUB 4	AG1	14.5	8.5	20.0	20.0	100%
NR DoD SRS4(PC2)	77	SUB 3	AG0	17.0	8.5	22.5	22.5	100%

Table 4-4 SAR Characterization

Note:

1. When the Proximity sensor is triggered ,the *Plimit* for DSI=1 is set
2. When *Pmax* < *Plimit*, the DUT will operate at a power level up to *Pmax*.
3. When DSI=1, *Plimit((Tune-up)*< *Plimit(cal),* the DUT will operate at a power level up to *Plimit as tune-up document*
4. Maximum Tune up Power,P*max*. Is configured in NV settings in EUT to limit maximum transmitting power
5. In the case of TDD Signal Bands, Plimit was evaluated by applying the maximum transmission duty. The LTE TDD B41, B48 (PC3) was applied 63.3%, the LTE TDD B41 (PC2) was 43.3%, and the NR TDD Band was applied 100%.

5. Equipment List

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	ELI Phantom	-	N/A	N/A	N/A
HP	SAR System Control PC	-	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	F13/ 5SD0A1/ C/ 01	N/A	N/A	N/A
Staubli	CS9spe-TX2-60	F/21/0029145/C/001	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F07/55B8A1/C/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 Xl speag	F13/ 5SD0A1/ A/ 01	N/A	N/A	N/A
Staubli	TX2-60 Lspe	F/21/0029145/A/001	N/A	N/A	N/A
Staubli	TX90 XL speag	F07/55B8A1/A/01	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)	001729	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D21144507C	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-0306	N/A	N/A	N/A
TESTO	175-H1/Thermometer	40331939309	12/29/2022	Annual	12/29/2023
TESTO	175-H1/Thermometer	40331915309	12/29/2022	Annual	12/29/2023
TESTO	608-H1/Thermometer	83348029	04/29/2022	Annual	04/29/2023
TESTO	608-H1/Thermometer	83348029	03/27/2023	Annual	03/27/2024
TESTO	608-H1/Thermometer	2183499992	11/29/2022	Annual	11/29/2023
TESTO	608-H1/Thermometer	83348021	04/29/2022	Annual	04/29/2023
TESTO	608-H1/Thermometer	83348021	03/27/2023	Annual	03/27/2024
SPEAG	DAE4	446	11/16/2022	Annual	11/16/2023
SPEAG	DAE4	1687	07/18/2022	Annual	07/18/2023
SPEAG	DAE4	1629	08/17/2022	Annual	08/17/2023
SPEAG	DAE4	1254	06/15/2022	Annual	06/15/2023
SPEAG	DAE4	1750	10/10/2022	Annual	10/10/2023
SPEAG	DAE4	780	06/14/2022	Annual	06/14/2023
SPEAG	E-Field Probe EX3DV4	7681	11/21/2022	Annual	11/21/2023
SPEAG	E-Field Probe EX3DV4	7680	09/29/2022	Annual	09/29/2023
SPEAG	E-Field Probe EX3DV4	7370	08/19/2022	Annual	08/19/2023
SPEAG	E-Field Probe EX3DV4	7654	05/31/2022	Annual	05/31/2023
SPEAG	E-Field Probe EX3DV4	3768	06/30/2022	Annual	06/30/2023
SPEAG	E-Field Probe EX3DV4	3968	09/28/2022	Annual	09/28/2023
SPEAG	Dipole D750V3	1014	05/25/2022	Annual	05/25/2023
SPEAG	Dipole D835V2	441	07/15/2022	Annual	07/15/2023
SPEAG	Dipole D1800V2	2d007	07/18/2022	Annual	07/18/2023
SPEAG	Dipole D1900V2	5d061	01/23/2023	Annual	01/23/2024
SPEAG	Dipole D2300V2	1010	08/18/2022	Annual	08/18/2023
SPEAG	Dipole D2450V2	743	05/31/2022	Annual	05/31/2023
SPEAG	Dipole D2600V2	1015	07/15/2022	Annual	07/15/2023
SPEAG	Dipole D3500V2	1040	01/22/2023	Annual	01/22/2024
SPEAG	Dipole D3700V2	1066	11/14/2022	Annual	11/14/2023
SPEAG	Dipole D3900V2	1086	05/25/2022	Annual	05/25/2023
Agilent	Power Meter E4419B	MY41291386	09/27/2022	Annual	09/27/2023
Agilent	Power Meter N1911A	MY45101406	06/27/2022	Annual	06/27/2023
Agilent	Power Sensor 8481A	SG1091286	09/272022	Annual	09/27/2023
Agilent	Power Sensor 8481A	MY41090675	09/27/2022	Annual	09/27/2023
Agilent	Wideband Power Sensor N1921A	MY55220026	08/02/2022	Annual	08/02/2023
Agilent	11636B/Power Divider	58698	01/26/2023	Annual	01/26/2024
SPEAG	DAKS 3.5	1038	01/25/2023	Annual	01/25/2024
SPEAG	Vector Reflectometer	0141013	02/13/2023	Annual	02/13/2024
SPEAG	MXA Signal Analyzer	MY49100108	01/13/2023	Annual	01/13/2024
Agilent	WIRELESS COMMUNICATION E5515C	MY48361100	09/27/2022	Annual	09/27/2023

Agilent	WIRELESS COMMUNICATION E5515C	MY48360252	08/08/2022	Annual	08/08/2023
R&S	Wireless Communication Test Set CMW500	115733	03/23/2023	Annual	03/23/2024
R&S	Wireless Communication Test Set CMW500	139103	12/15/2022	Annual	12/15/2023
Agilent	SIGNAL GENERATOR N5182A	MY47070230	03/23/2023	Annual	03/23/2024
EMPOWER	RF Power Amplifier	1084	06/20/2022	Annual	06/20/2023
EMPOWER	RF Power Amplifier	1011	09/27/2022	Annual	09/27/2023
MICRO LAB	LP Filter / LA-15N	10453	09/27/2022	Annual	09/27/2023
MICRO LAB	LP Filter / LA-30N	-	09/27/2022	Annual	09/27/2023
MICRO LAB	LP Filter / LA-60N	32011	09/27/2022	Annual	09/27/2023
Agilent	Attenuator (3dB) 8693B	MY39260298	08/25/2022	Annual	08/25/2023
HP	Attenuator (3dB) 33340A	02427	08/25/2022	Annual	08/25/2023
HP	Attenuator (20dB) 8493C	09271	08/25/2022	Annual	08/25/2023
Agilent	Directional Bridge 86205A	3140A04581	05/26/2022	Annual	05/26/2023
OSI	Power Divider	#3	06/17/2022	Annual	06/17/2023
HP	Dual Directional Coupler	16072	09/27/2022	Annual	09/27/2023
Anritsu	Radio Communication Tester MT8000A	6261987928	01/25/2023	Annual	01/25/2024
Anritsu	Radio Communication Tester MT8000A	6262036812	12/08/2022	Annual	12/08/2023
Anritsu	Radio Communication Tester MT8820C	6200695605	03/23/2023	Annual	03/23/2024
Anritsu	Radio Communication Tester MT8821C	6201502997	06/27/2022	Annual	06/27/2023
Anritsu	Radio Communication Tester MT8821C	6262044720	12/07/2022	Annual	12/07/2023

* 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 = 0 *PLimit* Calculations - 3G Body SAR

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

MEASUREMENT RESULTS										
Frequency		Mode		Conducted Power	Test Position	Distance	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.			(dBm)		(mm)		(W/kg)	(dBm)	(dBm)
836.6	4183	UMTS Band 5	RMC	23.41	Rear	19	1:1	0.610	25.6	25.1
836.6	4183	UMTS Band 5	RMC	23.41	Top	19	1:1	0.672	25.1	
836.6	4183	UMTS Band 5	RMC	23.41	Right	0	1:1	0.233	29.7	
836.6	4183	UMTS Band 5	RMC	23.41	Left	0	1:1	0.160	31.4	
1 732.4	1412	UMTS Band 4	RMC	23.87	Rear	19	1:1	0.313	28.9	27.5
1 732.4	1412	UMTS Band 4	RMC	23.87	Top	19	1:1	0.425	27.6	
1 732.4	1412	UMTS Band 4	RMC	23.87	Right	0	1:1	0.433	27.5	
1 732.4	1412	UMTS Band 4	RMC	23.87	Left	0	1:1	0.259	29.7	
1 907.6	9538	UMTS Band 2	RMC	24.39	Rear	19	1:1	0.259	30.3	25.5
1 907.6	9538	UMTS Band 2	RMC	24.39	Top	19	1:1	0.321	29.3	
1 907.6	9538	UMTS Band 2	RMC	24.39	Right	0	1:1	0.772	25.5	
1 907.6	9538	UMTS Band 2	RMC	24.39	Left	0	1:1	0.291	29.8	

Table A-2 DSI = 0 PLimit Calculations - 4G Body 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	Distance	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.		(MHz)	(dBm)		(mm)	(dBm)				(W/kg)	(dBm)	(dBm)
2 535	21100	LTE Band 7	20	23.63	Rear	19	0	1	49	1:1	0.360	28.1	25.2
2 535	21100	LTE Band 7	20	23.63	Top	19	0	1	49	1:1	0.694	25.2	
2 535	21100	LTE Band 7	20	23.63	Right	0	0	1	49	1:1	0.599	25.9	
2 535	21100	LTE Band 7	20	23.63	Left	0	0	1	49	1:1	0.131	32.5	
707.5	23095	LTE Band 12	10	24.75	Rear	19	0	1	24	1:1	0.444	28.3	28.3
707.5	23095	LTE Band 12	10	24.75	Top	19	0	1	24	1:1	0.435	28.4	
707.5	23095	LTE Band 12	10	24.75	Right	0	0	1	24	1:1	0.203	31.7	
707.5	23095	LTE Band 12	10	24.75	Left	0	0	1	24	1:1	0.166	32.5	
782	23230	LTE Band 13	10	24.63	Rear	19	0	1	24	1:1	0.643	26.5	25.9
782	23230	LTE Band 13	10	24.63	Top	19	0	1	24	1:1	0.749	25.9	
782	23230	LTE Band 13	10	24.63	Right	0	0	1	24	1:1	0.223	31.1	
782	23230	LTE Band 13	10	24.63	Left	0	0	1	24	1:1	0.181	32.1	
793	23330	LTE Band 14	10	24.78	Rear	19	0	1	24	1:1	0.580	27.1	26.3
793	23330	LTE Band 14	10	24.78	Top	19	0	1	24	1:1	0.700	26.3	
793	23330	LTE Band 14	10	24.78	Right	0	0	1	24	1:1	0.192	31.9	
793	23330	LTE Band 14	10	24.78	Left	0	0	1	24	1:1	0.165	32.6	
1 905	26590	LTE Band 25	20	24.35	Rear	19	0	1	0	1:1	0.255	30.3	26.0
1 905	26590	LTE Band 25	20	24.35	Top	19	0	1	0	1:1	0.361	28.8	
1 905	26590	LTE Band 25	20	24.35	Right	0	0	1	0	1:1	0.683	26.0	
1 905	26590	LTE Band 25	20	24.35	Left	0	0	1	0	1:1	0.224	30.8	
831.5	26865	LTE Band 26	15	23.91	Rear	19	0	1	0	1:1	0.431	27.6	25.4
831.5	26865	LTE Band 26	15	23.91	Top	19	0	1	0	1:1	0.712	25.4	
831.5	26865	LTE Band 26	15	23.91	Right	0	0	1	0	1:1	0.191	31.1	
831.5	26865	LTE Band 26	15	23.91	Left	0	0	1	0	1:1	0.119	33.2	
2 310	27710	LTE Band 30	10	22.63	Rear	19	0	1	24	1:1	0.145	31.0	28.4
2 310	27710	LTE Band 30	10	22.63	Top	19	0	1	24	1:1	0.227	29.1	
2 310	27710	LTE Band 30	10	22.63	Right	0	0	1	24	1:1	0.102	32.5	
2 310	27710	LTE Band 30	10	22.63	Left	0	0	1	24	1:1	0.263	28.4	
2 549.5	40185	LTE Band 41(PC3)	20	24.43	Rear	19	0	1	0	1:1.58	0.267	30.2	27.2
2 549.5	40185	LTE Band 41(PC3)	20	24.43	Top	19	0	1	0	1:1.58	0.532	27.2	
2 549.5	40185	LTE Band 41(PC3)	20	24.43	Right	0	0	1	0	1:1.58	0.435	28.0	
2 549.5	40185	LTE Band 41(PC3)	20	24.43	Left	0	0	1	0	1:1.58	0.088	35.0	
2 549.5	40185	LTE Band 41(PC2)	20	26.78	Top	19	0	1	0	1:2.31	0.564	29.3	29.3
3 603.3	55773	LTE Band 48	20	22.11	Rear	19	0	1	99	1:1.58	0.062	34.2	25.0
3 603.3	55773	LTE Band 48	20	22.11	Bottom	19	0	1	99	1:1.58	0.043	35.8	
3 603.3	55773	LTE Band 48	20	22.11	Right	0	0	1	99	1:1.58	0.011	41.7	
3 603.3	55773	LTE Band 48	20	22.11	Left	9	0	1	99	1:1.58	0.518	25.0	

In the case of TDD Signal mode, Plimit was evaluated by applying the maximum transmission duty. The LTE TDD B41, B48 was applied 63.3%, the LTE TDD B41 (PC2) was 43.3%, and the NR TDD Band was applied 100%.

MEASUREMENT RESULTS													
Frequency		Mode	Band width	Conducted Power	Test Position	Distance	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.		(MHz)	(dBm)		(mm)	(dBm)				(W/kg)	(dBm)	(dBm)
1 770	132572	LTE Band 66	20	24.40	Rear	19	0	1	99	1:1	0.328	29.2	27.2
1 770	132572	LTE Band 66	20	24.40	Top	19	0	1	99	1:1	0.482	27.6	
1 770	132572	LTE Band 66	20	24.40	Right	0	0	1	99	1:1	0.527	27.2	
1 770	132572	LTE Band 66	20	24.40	Left	0	0	1	99	1:1	0.191	31.6	
680.5	133297	LTE Band 71	20	24.21	Rear	19	0	1	99	1:1	0.395	28.2	27.7
680.5	133297	LTE Band 71	20	24.21	Top	19	0	1	99	1:1	0.450	27.7	
680.5	133297	LTE Band 71	20	24.21	Right	0	0	1	99	1:1	0.180	31.7	
680.5	133297	LTE Band 71	20	24.21	Left	0	0	1	99	1:1	0.123	33.3	
2 535	21100	LTE Band 7 (Sub 2)	20	23.14	Rear	19	0	1	0	1:1	0.119	32.4	30.3
2 535	21100	LTE Band 7 (Sub 2)	20	23.14	Bottom	24	0	1	0	1:1	0.120	32.3	
2 535	21100	LTE Band 7 (Sub 2)	20	23.14	Right	0	0	1	0	1:1	0.191	30.3	
2 535	21100	LTE Band 7 (Sub 2)	20	23.14	Left	0	0	1	0	1:1	0.084	33.9	
1 905	26590	LTE Band 25 (Sub 2)	20	23.57	Rear	19	0	1	0	1:1	0.161	31.5	27.5
1 905	26590	LTE Band 25 (Sub 2)	20	23.57	Bottom	24	0	1	0	1:1	0.133	32.3	
1 905	26590	LTE Band 25 (Sub 2)	20	23.57	Right	0	0	1	0	1:1	0.402	27.5	
1 905	26590	LTE Band 25 (Sub 2)	20	23.57	Left	0	0	1	0	1:1	0.082	34.4	
2 310	27710	LTE Band 30 (Sub 2)	10	22.72	Rear	19	0	1	24	1:1	0.097	32.9	26.7
2 310	27710	LTE Band 30 (Sub 2)	10	22.72	Bottom	24	0	1	24	1:1	0.094	33.0	
2 310	27710	LTE Band 30 (Sub 2)	10	22.72	Right	0	0	1	24	1:1	0.397	26.7	
2 310	27710	LTE Band 30 (Sub 2)	10	22.72	Left	0	0	1	24	1:1	0.056	35.2	
1 770	132572	LTE Band 66 (Sub 2)	20	24.00	Rear	19	0	1	99	1:1	0.295	29.3	29.3
1 770	132572	LTE Band 66 (Sub 2)	20	24.00	Bottom	24	0	1	99	1:1	0.152	32.2	
1 770	132572	LTE Band 66 (Sub 2)	20	24.00	Right	0	0	1	99	1:1	0.186	31.3	
1 770	132572	LTE Band 66 (Sub 2)	20	24.00	Left	0	0	1	99	1:1	0.201	31.0	

Table A-3 DSI = 0 PLimit Calculations - NR Body 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		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.		(MHz)	(dBm)			(dBm)					(W/kg)	(dBm)	(dBm)
2 535	507000	NR Band n7	40	24.00	Rear	DFT-s-OFDM QPSK	0	19	108	54	1:1	0.251	30.0	27.7
2 535	507000	NR Band n7	40	24.00	Top	DFT-s-OFDM QPSK	0	19	108	54	1:1	0.424	27.7	
2 535	507000	NR Band n7	40	24.00	Right	DFT-s-OFDM QPSK	0	0	108	54	1:1	0.334	28.8	
2 535	507000	NR Band n7	40	24.00	Left	DFT-s-OFDM QPSK	0	0	108	54	1:1	0.229	30.4	
707.5	141500	NR Band n12	15	24.01	Rear	DFT-s-OFDM QPSK	0	19	1	40	1:1	0.225	30.5	29.4
707.5	141500	NR Band n12	15	24.01	Top	DFT-s-OFDM QPSK	0	19	1	40	1:1	0.288	29.4	
707.5	141500	NR Band n12	15	24.01	Right	DFT-s-OFDM QPSK	0	0	1	40	1:1	0.086	34.7	
707.5	141500	NR Band n12	15	24.01	Left	DFT-s-OFDM QPSK	0	0	1	40	1:1	0.059	36.3	
1 882.5	376500	NR Band n25	40	24.05	Rear	DFT-s-OFDM QPSK	0	19	108	54	1:1	0.321	29.0	29.0
1 882.5	376500	NR Band n25	40	24.05	Top	DFT-s-OFDM QPSK	0	19	108	54	1:1	0.294	29.4	
1 882.5	376500	NR Band n25	40	24.05	Right	DFT-s-OFDM QPSK	0	0	108	54	1:1	0.046	37.4	
1 882.5	376500	NR Band n25	40	24.05	Left	DFT-s-OFDM QPSK	0	0	108	54	1:1	0.042	37.8	
831.5	166300	NR Band n26	20	24.48	Rear	DFT-s-OFDM QPSK	0	19	50	28	1:1	0.079	35.5	26.4
831.5	166300	NR Band n26	20	24.48	Top	DFT-s-OFDM QPSK	0	19	50	28	1:1	0.636	26.4	
831.5	166300	NR Band n26	20	24.48	Right	DFT-s-OFDM QPSK	0	0	50	28	1:1	0.034	39.2	
831.5	166300	NR Band n26	20	24.48	Left	DFT-s-OFDM QPSK	0	0	50	28	1:1	0.019	41.7	
2 310	462000	NR Band n30	10	22.79	Rear	DFT-s-OFDM QPSK	0	19	25	14	1:1	0.180	30.2	28.4
2 310	462000	NR Band n30	10	22.79	Top	DFT-s-OFDM QPSK	0	19	25	14	1:1	0.272	28.4	
2 310	462000	NR Band n30	10	22.79	Right	DFT-s-OFDM QPSK	0	0	25	14	1:1	0.138	31.4	
2 310	462000	NR Band n30	10	22.79	Left	DFT-s-OFDM QPSK	0	0	25	14	1:1	0.276	28.4	
2 592.99	518598	NR Band 41(PC3)	100	18.62	Rear	DFT-s-OFDM QPSK	0	19	135	69	1:1	0.062	30.7	26.0
2 592.99	518598	NR Band 41(PC3)	100	18.62	Top	DFT-s-OFDM QPSK	0	19	135	69	1:1	0.143	27.1	
2 592.99	518598	NR Band 41(PC3)	100	18.62	Right	DFT-s-OFDM QPSK	0	0	135	69	1:1	0.184	26.0	
2 592.99	518598	NR Band 41(PC3)	100	18.62	Left	DFT-s-OFDM QPSK	0	0	135	69	1:1	0.061	30.8	
2 592.99	518598	NR Band 41(PC3) SRS#2	100	11.40	Rear	DFT-s-OFDM QPSK	0	19	1	1	1:1	0.009 92	31.4	27.4
2 592.99	518598	NR Band 41(PC3) SRS#2	100	11.40	Bottom	DFT-s-OFDM QPSK	0	24	1	1	1:1	0.005	34.4	
2 592.99	518598	NR Band 41(PC3) SRS#2	100	11.40	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.025	27.4	
2 592.99	518598	NR Band 41(PC3) SRS#2	100	11.40	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0	-	
2 592.99	518598	NR Band 41(PC3) SRS#3	100	13.6	Rear	DFT-s-OFDM QPSK	0	19	1	1	1:1	0.023	30.0	17.6
2 592.99	518598	NR Band 41(PC3) SRS#3	100	13.6	Bottom	DFT-s-OFDM QPSK	0	24	1	1	1:1	0.016	31.6	
2 592.99	518598	NR Band 41(PC3) SRS#3	100	13.6	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.020	30.6	
2 592.99	518598	NR Band 41(PC3) SRS#3	100	13.6	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.400	17.6	

MEASUREMENT RESULTS														
Frequency		Mode	Band width	Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimu Plimit
Mhz	Ch.		(Mhz)	(dBm)			(dBm)					(W/kg)	(dBm)	(dBm)
2592.99	518598	NR Band 41(PC3) SRS#4	100	8.50	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.280	14.0	14.0
2592.99	518598	NR Band 41(PC3) SRS#4	100	8.50	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.158	16.5	
2592.99	518598	NR Band 41(PC3) SRS#4	100	8.50	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0	-	
2592.99	518598	NR Band 41(PC3) SRS#4	100	8.50	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.155	16.5	
3570	638000	NR Band 48(PC3)	40	16.14	Rear	DFT-s-OFDM QPSK	0	19	1	1	1:1	0.046	29.5	23.6
3570	638000	NR Band 48(PC3)	40	16.14	Bottom	DFT-s-OFDM QPSK	0	22	1	1	1:1	0.027	31.8	
3570	638000	NR Band 48(PC3)	40	16.14	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.009 17	36.6	
3570	638000	NR Band 48(PC3)	40	16.14	Left	DFT-s-OFDM QPSK	0	9	1	1	1:1	0.178	23.6	
3680.01	645334	NR Band 48(PC3) SRS#2	40	10.15	Rear	DFT-s-OFDM QPSK	0	19	1	1	1:1	0.008	31.1	20.7
3680.01	645334	NR Band 48(PC3) SRS#2	40	10.15	Bottom	DFT-s-OFDM QPSK	0	24	1	1	1:1	0.006	32.4	
3680.01	645334	NR Band 48(PC3) SRS#2	40	10.15	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.089	20.7	
3680.01	645334	NR Band 48(PC3) SRS#2	40	10.15	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.014	28.7	
3680.01	645334	NR Band 48(PC3) SRS#3	40	13.48	Rear	DFT-s-OFDM QPSK	0	19	1	1	1:1	0.016	31.4	24.3
3680.01	645334	NR Band 48(PC3) SRS#3	40	13.48	Bottom	DFT-s-OFDM QPSK	0	24	1	1	1:1	0.01	33.5	
3680.01	645334	NR Band 48(PC3) SRS#3	40	13.48	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.019	30.7	
3680.01	645334	NR Band 48(PC3) SRS#3	40	13.48	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.083	24.3	
3680.01	645334	NR Band 48(PC3) SRS#4	40	16.18	Rear	DFT-s-OFDM QPSK	0	19	1	1	1:1	0.018	33.6	26.2
3680.01	645334	NR Band 48(PC3) SRS#4	40	16.18	Top	DFT-s-OFDM QPSK	0	17	1	1	1:1	0.014	34.7	
3680.01	645334	NR Band 48(PC3) SRS#4	40	16.18	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.001	46.2	
3680.01	645334	NR Band 48(PC3) SRS#4	40	16.18	Left	DFT-s-OFDM QPSK	0	9	1	1	1:1	0.100	26.2	
1745	349000	NR Band n66	40	24.75	Rear	DFT-s-OFDM QPSK	0	19	108	54	1:1	0.059	37.0	29.0
1745	349000	NR Band n66	40	24.75	Top	DFT-s-OFDM QPSK	0	19	108	54	1:1	0.377	29.0	
1745	349000	NR Band n66	40	24.75	Right	DFT-s-OFDM QPSK	0	0	108	54	1:1	0.085	35.5	
1745	349000	NR Band n66	40	24.75	Left	DFT-s-OFDM QPSK	0	0	108	54	1:1	0.045	38.2	
680.5	136100	NR Band n71	20	23.64	Rear	DFT-s-OFDM QPSK	0	19	50	28	1:1	0.263	29.4	29.0
680.5	136100	NR Band n71	20	23.64	Top	DFT-s-OFDM QPSK	0	19	50	28	1:1	0.292	29.0	
680.5	136100	NR Band n71	20	23.64	Right	DFT-s-OFDM QPSK	0	0	50	28	1:1	0.068	31.3	
680.5	136100	NR Band n71	20	23.64	Left	DFT-s-OFDM QPSK	0	0	50	28	1:1	0.173	35.3	

MEASUREMENT RESULTS													
Frequency		Mode	Band width	Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimu Plimi
MHz	Ch.		(MHz)	(dBm)			(dBm)					(W/kg)	(dBm)	(dBm)
3 930	662000	NR Band n77(PC3)	100	18.53	Rear	DFT-s-OFDM QPSK	19	19	1	1	1:1	0.062	30.6	21.5
3 930	662000	NR Band n77(PC3)	100	18.53	Bottom	DFT-s-OFDM QPSK	22	22	1	1	1:1	0.038	32.7	
3 930	662000	NR Band n77(PC3)	100	18.53	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.017	36.2	
3 930	662000	NR Band n77(PC3)	100	18.53	Left	DFT-s-OFDM QPSK	9	9	1	1	1:1	0.503	22.6	
3 930	662000	NR Band 77(PC3) SRS#2	100	11.36	Rear	DFT-s-OFDM QPSK	0	19	1	1	1:1	0.029	26.7	16.6
3 930	662000	NR Band 77(PC3) SRS#2	100	11.36	Bottom	DFT-s-OFDM QPSK	0	24	1	1	1:1	0.002 53	36.6	
3 930	662000	NR Band 77(PC3) SRS#2	100	11.36	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.299	16.6	
3 930	662000	NR Band 77(PC3) SRS#2	100	11.36	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.005 92	33.6	
3 930	662000	NR Band 77(PC3) SRS#3	100	14.94	Rear	DFT-s-OFDM QPSK	0	19	1	1	1:1	0.119	24.2	19.8
3 930	662000	NR Band 77(PC3) SRS#3	100	14.94	Bottom	DFT-s-OFDM QPSK	0	24	1	1	1:1	0.051	27.9	
3 930	662000	NR Band 77(PC3) SRS#3	100	14.94	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.071	26.4	
3 930	662000	NR Band 77(PC3) SRS#3	100	14.94	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.329	19.8	
3 930	662000	NR Band 77(PC3) SRS#4	100	17.13	Back	DFT-s-OFDM QPSK	0	19	1	1	1:1	0.034	31.8	24.3
3 930	662000	NR Band 77(PC3) SRS#4	100	17.13	Top	DFT-s-OFDM QPSK	0	17	1	1	1:1	0.013	36.0	
3 930	662000	NR Band 77(PC3) SRS#4	100	17.13	Right	DFT-s-OFDM QPSK	0	0	1	1	1:1	0	-	
3 930	662000	NR Band 77(PC3) SRS#4	100	17.13	Left	DFT-s-OFDM QPSK	0	9	1	1	1:1	0.193	24.3	

Table A-4 DSI = 1 PLimit Calculations - 3G Body SAR

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

MEASUREMENT RESULTS										
Frequency		Mode		Conducted Power	Test Position	Distance	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.			(dBm)		(mm)		(W/kg)	(dBm)	(dBm)
836.6	4183	UMTS Band 5	RMC	15.64	Rear	0	1:1	0.554	18.2	16.8
836.6	4183	UMTS Band 5	RMC	15.64	Top	0	1:1	0.768	16.8	
1 712.4	1312	UMTS Band 4	RMC	13.55	Rear	0	1:1	0.472	16.8	15.2
1 712.4	1312	UMTS Band 4	RMC	13.55	Top	0	1:1	0.686	15.2	
1 907.6	9538	UMTS Band 2	RMC	14.58	Rear	0	1:1	0.717	16.0	16.0
1 907.6	9538	UMTS Band 2	RMC	14.58	Top	0	1:1	0.653	16.4	

Table A-5 DSI = 1 PLimit Calculations - 4G Body 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	Distance	MPR	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.		(MHz)	(dBm)		(mm)	(dBm)				(W/kg)	(dBm)	(dBm)
2 535	21100	LTE Band 7	20	12.36	Rear	0	0	50	25	1:1	0.927	12.7	12.7
2 535	21100	LTE Band 7	20	12.36	Top	0	0	50	25	1:1	0.860	13.0	
707.5	23095	LTE Band 12	10	16.41	Rear	0	0	1	24	1:1	0.518	19.3	17.9
707.5	23095	LTE Band 12	10	16.41	Top	0	0	1	24	1:1	0.714	17.9	
782	23230	LTE Band 13	10	16.52	Rear	0	0	25	0	1:1	0.586	18.8	17.0
782	23230	LTE Band 13	10	16.52	Top	0	0	25	0	1:1	0.890	17.0	
793	23330	LTE Band 14	10	16.25	Rear	0	0	1	24	1:1	0.542	18.9	17.5
793	23330	LTE Band 14	10	16.25	Top	0	0	1	24	1:1	0.745	17.5	
1 905	26590	LTE Band 25	20	14.96	Rear	0	0	50	25	1:1	0.823	15.8	15.8
1 905	26590	LTE Band 25	20	14.96	Top	0	0	50	25	1:1	0.697	16.5	
831.5	26865	LTE Band 26	15	14.68	Rear	0	0	1	36	1:1	0.386	18.8	16.3
831.5	26865	LTE Band 26	15	14.68	Top	0	0	1	36	1:1	0.693	16.3	
2 310	27710	LTE Band 30	10	11.99	Rear	0	0	1	0	1:1	0.418	15.8	13.3
2 310	27710	LTE Band 30	10	11.99	Top	0	0	1	0	1:1	0.733	13.3	
2 549.5	40185	LTE Band 41 (PC3)	20	13.31	Rear	0	0	50	0	1:1.58	0.710	14.8	14.8
2 549.5	40185	LTE Band 41 (PC3)	20	13.31	Top	0	0	50	0	1:1.58	0.612	15.4	
3 603.3	55773	LTE Band 48 (PC3)	20	12.21	Rear	0	0	50	49	1:1.58	0.480	15.4	13.4
3 603.3	55773	LTE Band 48 (PC3)	20	12.21	Bottom	0	0	50	49	1:1.58	0.193	19.4	
3 603.3	55773	LTE Band 48 (PC3)	20	12.21	Left	0	0	50	49	1:1.58	0.767	13.4	
1 770	132572	LTE Band 66	20	14.36	Rear	0	0	1	99	1:1	0.615	16.5	15.4
1 770	132572	LTE Band 66	20	14.36	Top	0	0	1	99	1:1	0.782	15.4	
680.5	133297	LTE Band 71	20	17.37	Rear	0	0	1	99	1:1	0.708	18.9	18.7
680.5	133297	LTE Band 71	20	17.37	Top	0	0	1	99	1:1	0.737	18.7	
2 535	21100	LTE Band 7 (Sub 2)	20	11.81	Rear	0	0	50	0	1:1	0.528	14.6	13.1
2 535	21100	LTE Band 7 (Sub 2)	20	11.81	Top	0	0	50	0	1:1	0.735	13.1	
1 905	26590	LTE Band 25 (Sub 2)	20	13.46	Rear	0	0	1	99	1:1	0.531	16.2	16.2
1 905	26590	LTE Band 25 (Sub 2)	20	13.46	Top	0	0	1	99	1:1	0.425	17.2	
2 310	27710	LTE Band 30 (Sub 2)	10	12.07	Rear	0	0	1	0	1:1	0.667	13.8	13.6
2 310	27710	LTE Band 30 (Sub 2)	10	12.07	Top	0	0	1	0	1:1	0.703	13.6	
1 770	132572	LTE Band 66 (Sub 2)	20	14.37	Rear	0	0	1	49	1:1	0.711	15.9	15.9
1 770	132572	LTE Band 66 (Sub 2)	20	14.37	Top	0	0	1	49	1:1	0.400	18.3	

Table A-6 DSI = 1 PLimit Calculations - NR Body 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		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
Mhz	Ch.		(Mhz)	(dBm)			(dBm)					(W/kg)	(dBm)	(dBm)
2 535	507000	NR Band n7	40	12.11	Rear	DFT-s-OFDM QPSK	0	0	108	54	1:1	0.362	16.5	15.5
2 535	507000	NR Band n7	40	12.11	Top	DFT-s-OFDM QPSK	0	0	108	54	1:1	0.453	15.5	
707.5	141500	NR Band n12	15	16.28	Rear	DFT-s-OFDM QPSK	0	0	1	40	1:1	0.221	22.8	22.8
707.5	141500	NR Band n12	15	16.28	Top	DFT-s-OFDM QPSK	0	0	1	40	1:1	0.224	22.8	
1 882.5	376500	NR Band n25	40	15.31	Rear	DFT-s-OFDM QPSK	0	0	108	108	1:1	0.512	18.2	18.2
1 882.5	376500	NR Band n25	40	15.31	Top	DFT-s-OFDM QPSK	0	0	108	108	1:1	0.275	20.9	
831.5	166300	NR Band n26	20	14.70	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.608	16.9	16.8
831.5	166300	NR Band n26	20	14.70	Top	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.610	16.8	
2 310	462000	NR Band n30	10	12.04	Rear	DFT-s-OFDM QPSK	0	0	25	14	1:1	0.686	13.7	13.7
2 310	462000	NR Band n30	10	12.04	Top	DFT-s-OFDM QPSK	0	0	25	14	1:1	0.673	13.8	
2 592.99	518598	NR Band 41(PC3)	100	11.49	Rear	DFT-s-OFDM QPSK	0	0	135	69	1:1	0.628	13.5	13.5
2 592.99	518598	NR Band 41(PC3)	100	11.49	Top	DFT-s-OFDM QPSK	0	0	135	69	1:1	0.466	14.8	
2 592.99	518598	NR Band 41(PC3) SRS#2	100	10.30	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.195	17.4	14.4
2 592.99	518598	NR Band 41(PC3) SRS#2	100	10.30	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.391	14.4	
2 592.99	518598	NR Band 41(PC3) SRS#3	100	10.70	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.373	15.0	14.7
2 592.99	518598	NR Band 41(PC3) SRS#3	100	10.70	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.397	14.7	
3 570	638000	NR Band 48(PC3)	40	10.18	Rear	DFT-s-OFDM QPSK	0	0	50	0	1:1	0.436	13.8	13.4
3 570	638000	NR Band 48(PC3)	40	10.18	Bottom	DFT-s-OFDM QPSK	0	0	50	0	1:1	0.184	17.5	
3 570	638000	NR Band 48(PC3)	40	10.18	Left	DFT-s-OFDM QPSK	0	0	50	0	1:1	0.477	13.4	
3 680.01	645334	NR Band 48(PC3) SRS#2	40	9.61	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.652	11.5	11.5
3 680.01	645334	NR Band 48(PC3) SRS#2	40	9.61	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.109	19.2	
3 680.01	645334	NR Band 48(PC3) SRS#3	40	9.41	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.488	12.5	12.5
3 680.01	645334	NR Band 48(PC3) SRS#3	40	9.41	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.239	15.6	
3 680.01	645334	NR Band 48(PC3) SRS#4	40	9.55	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.192	16.7	13.8
3 680.01	645334	NR Band 48(PC3) SRS#4	40	9.55	Top	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.050	22.6	
3 680.01	645334	NR Band 48(PC3) SRS#4	40	9.55	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.372	13.8	

MEASUREMENT RESULTS														
Frequency		Mode	Band width	Conducted Power	Test Position		MPR	Spacing (mm)	RB Size	RB offset	Duty Cycle	Meas. SAR(1g)	Plimit	Minimum Plimit
MHz	Ch.		(MHz)	(dBm)			(dBm)					(W/kg)	(dBm)	(dBm)
1 745	349000	NR Band n66	40	15.41	Rear	DFT-s-OFDM QPSK	0	0	108	108	1:1	0.246	21.5	16.6
1 745	349000	NR Band n66	40	15.41	Top	DFT-s-OFDM QPSK	0	0	108	108	1:1	0.769	16.6	
680.5	136100	NR Band n71	40	17.30	Rear	DFT-s-OFDM QPSK	0	0	50	0	1:1	0.539	20.0	20.0
680.5	136100	NR Band n71	40	17.30	Top	DFT-s-OFDM QPSK	0	0	50	0	1:1	0.377	21.5	
3 930	662000	NR Band n77 PC3	100	9.50	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.429	13.2	10.9
3 930	662000	NR Band n77 PC3	100	9.50	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.150	17.7	
3 930	662000	NR Band n77 PC3	100	9.50	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.718	10.9	
3 500.01	633334	NR Band n77 PC3 (DoD)	100	9.61	Left	DFT-s-OFDM QPSK	0	0	1	271	1:1	0.595	11.9	11.9
3 500.01	633334	NR Band n77 PC3 (DoD) SRS #2	100	8.19	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.608	10.4	10.4
3 500.01	633334	NR Band n77 PC3 (DoD) SRS #3	100	8.36	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.321	13.3	13.3
3 500.01	633334	NR Band n77 PC3 (DoD) SRS #4	100	8.31	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.322	13.1	13.1
3 500.01	633334	NR Band n77 PC3 SRS #2	100	8.74	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.663	10.5	10.5
3 500.01	633334	NR Band n77 PC3 SRS #2	100	8.74	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.120	17.9	
3 500.01	633334	NR Band n77 PC3 SRS #3	100	8.87	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.481	12.0	12.0
3 500.01	633334	NR Band n77 PC3 SRS #3	100	8.87	Bottom	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.298	14.1	
3 500.01	633334	NR Band n77 PC3 SRS #4	100	8.79	Rear	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.285	14.2	13.1
3 500.01	633334	NR Band n77 PC3 SRS #4	100	8.79	Top	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.233	15.1	
3 500.01	633334	NR Band n77 PC3SRS #4	100	8.79	Left	DFT-s-OFDM QPSK	0	0	1	1	1:1	0.372	13.1	