TEST REPORT

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1. Report No : DRRFCC1809-0107(1)
2. Customer
   - Name : LG Electronics USA, Inc.
   - Address : 1000 Sylvan Ave. Englewood Cliffs, New Jersey, United States 07632
3. Use of Report : FCC Original Grant
4. Product Name / Model Name : Mobile Phone / KX1801
   FCC ID : ZNFKX1801
5. Test Method Used : IEEE 1528-2013, FCC SAR KDB Publications (Details in test report)
   Test Specification : CFR §2.1093
6. Date of Test : 2018.09.03 ~ 2018.09.21
7. Testing Environment : Refer to appended test report.
8. Test Result : Refer to attached test report.

Affirmation	Tested by Name : HoSik Sim (signature)	Reviewed by Name : HakMin Kim (signature)

2018 . 10 . 05 .

DT&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description
DRRFCC1809-0107	Sep. 28, 2018	Initial issue
DRRFCC1809-0107(1)	Oct. 05, 2018	Revise of section 2.

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1. DESCRIPTION OF DEVICE

1.1 General Information

EUT type	Mobile Phone				
FCC ID	ZNFKX1801				
Equipment model name	KX1801				
Equipment add model name	N/A				
Equipment serial no.	Identical prototype				
Mode(s) of Operation	GSM 850, GSM 1900, WCDMA 1700, WCDMA 1900, LTE Band 12, 17, 4, 2, 2.4 G W-LAN (802.11b/g/n-HT20/ac-VHT20), 5 G W-LAN (802.11a/n-HT20/n-HT40/ac-VHT20/ac-VHT40/ac-VHT80), Bluetooth				
TX Frequency Range	**Band**	**Mode**	**Operating Modes**	**Bandwidth**	**Frequency**
	GSM 850	GSM/GPRS	Voice/Data	-	824.2 ~ 848.8 MHz
	GSM 1900	GSM/GPRS	Voice/Data	-	1850.2 ~ 1909.8 MHz
	WCDMA 1700	WCDMA	Voice/Data	-	1712.4 ~ 1752.6 MHz
	WCDMA 1900	WCDMA	Voice/Data	-	1852.4 ~ 1907.6 MHz
	LTE Band 12	LTE	Voice/Data	1.4/3/5/10MHz	699.7 ~ 715.3 MHz
	LTE Band 17	LTE	Voice/Data	5/10MHz	706.5 ~ 713.5 MHz
	LTE Band 4	LTE	Voice/Data	1.4/3/5/10/15/20MHz	1710.7 ~ 1754.3 MHz
	LTE Band 2	LTE	Voice/Data	1.4/3/5/10/15/20MHz	1850.7 ~ 1909.3 MHz
	2.4 GHz W-LAN	802.11b/g/n/ac	Voice/Data	HT20/VHT20	2412 ~ 2472 MHz
	5.2 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5180 ~ 5240 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5190 ~ 5230 MHz
		802.11ac	Voice/Data	VHT80	5210 MHz
	5.3 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5260 ~ 5320 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5270 ~ 5310 MHz
		802.11ac	Voice/Data	VHT80	5290 MHz
	5.6 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5500 ~ 5720 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5510 ~ 5710 MHz
		802.11ac	Voice/Data	VHT80	5530 ~ 5690 MHz
	5.8 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5745 ~ 5825 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5755 ~ 5795 MHz
		802.11ac	Voice/Data	VHT80	5775 MHz
	Bluetooth	-	Data	-	2402 ~ 2480 MHz
RX Frequency Range	GSM 850	GSM/GPRS	Voice/Data	-	869.2 ~ 893.8 MHz
	GSM 1900	GSM/GPRS	Voice/Data	-	1930.2 ~ 1989.8 MHz
	WCDMA 1700	WCDMA	Voice/Data	-	2112.4 ~ 2152.6 MHz
	WCDMA 1900	WCDMA	Voice/Data	-	1932.4 ~ 1987.6 MHz
	LTE Band 12	LTE	Voice/Data	1.4/3/5/10MHz	729.7 ~ 745.3 MHz
	LTE Band 17	LTE	Voice/Data	5/10MHz	736.5 ~ 743.5 MHz
	LTE Band 4	LTE	Voice/Data	1.4/3/5/10/15/20MHz	2110.7 ~ 2154.3 MHz
	LTE Band 2	LTE	Voice/Data	1.4/3/5/10/15/20MHz	1930.7 ~ 1989.3 MHz
	2.4 GHz W-LAN	802.11b/g/n/ac	Voice/Data	HT20/VHT20	2412 ~ 2472 MHz
	5.2 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5180 ~ 5240 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5190 ~ 5230 MHz
		802.11ac	Voice/Data	VHT80	5210 MHz
	5.3 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT200	5260 ~ 5320 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5270 ~ 5310 MHz
		802.11ac	Voice/Data	VHT80	5290 MHz
	5.6 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5500 ~ 5720 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5510 ~ 5710 MHz
		802.11ac	Voice/Data	VHT80	5530 ~ 5690 MHz
	5.8 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5745 ~ 5825 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5755 ~ 5795 MHz
		802.11ac	Voice/Data	VHT80	5775 MHz
	Bluetooth	-	Data	-	2402 ~ 2480 MHz

SAR Summary Table

Equipment Class	Band	Reported SAR			
		1g SAR (W/kg)			10g SAR (W/kg)
		Head	Body-Worn	Hotspot	Phablet
PCE	GSM 850	0.15	0.39	-	-
PCE	GPRS 850	0.29	0.62	0.62	-
PCE	GSM 1900	0.12	0.38	-	-
PCE	GPRS 1900	0.16	0.58	1.10	-
PCE	WCDMA 1700	0.15	0.52	0.73	-
PCE	WCDMA 1900	0.14	0.53	0.93	-
PCE	LTE Band 12	0.15	0.49	0.49	-
PCE	LTE Band 17	-	-	-	--
PCE	LTE Band 4	0.21	0.53	0.73	-
PCE	LTE Band 2	0.14	0.58	0.87	-
DTS(SISO)	2.4 GHz W-LAN	0.34	0.16	0.16	-
DTS(MIMO)	2.4 GHz W-LAN	0.31	0.12	0.12	-
U-NII-1(SISO)	5.2 GHz W-LAN	0.31	0.67	0.67	-
U-NII-1(MIMO)	5.2 GHz W-LAN	0.29	0.75	0.75	-
U-NII-2A(SISO)	5.3 GHz W-LAN	-	-	-	1.36
U-NII-2A(MIMO)	5.3 GHz W-LAN	-	-	-	1.45
U-NII-2C(SISO)	5.6 GHz W-LAN	0.46	0.57	-	1.22
U-NII-2C(MIMO)	5.6 GHz W-LAN	0.42	0.61	-	1.64
U-NII-3(SISO)	5.8 GHz W-LAN	0.35	0.47	0.47	1.17
U-NII-3(MIMO)	5.8 GHz W-LAN	0.25	0.44	0.44	1.29
DSS	Bluetooth	< 0.1	< 0.1	< 0.1	-
Simultaneous SAR per KDB 690783 D01v01r03		0.83	1.46	1.46	-
FCC Equipment Class	Licensed Portable Transmitter Held to Ear (PCE) Part 15 Spread Spectrum Transmitter(DSS) Digital Transmission System(DTS) Unlicensed National Information Infrastructure (UNII)				
Date(s) of Tests	2018.09.03 ~ 2018.09.21				
Antenna Type	Internal Antenna				
Functions	● GSM/GPRS (GPRS Class: 12) supported. * DTM not supported. ● No simultaneous transmission between BT & 2.4GHz WLAN ● Simultaneous transmission between GSM, WCDMA voice & WLAN / GPRS, WCDMA & WLAN / LTE & WLAN. ● VoIP is supported. ● W-LAN 2.4GHz is supported Hotspot. ● W-LAN 5 GHz is supported WiFi-Direct GC/GO in UNII B1, B3.				

1.2 Power Reduction for SAR

There is no power reduction used for any band/mode implemented in this device for SAR purposes.

1.3 Nominal and Maximum Output Power Specifications

The Nominal and Maximum Output Power Specifications are in section 9 of this test report.

1.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device of the device antenna can be found in ZNFKX1801_Antenna Location. Since the diagonal dimension of this device is > 160 mm and < 200 mm. it is considered a “phablet”.

Mode	Device Sides for SAR Testing					
	Top	Bottom	Front	Rear	Right	Left
GSM/GPRS 850	X	O	O	O	O	O
GSM/GPRS 1900	X	O	O	O	X	O
WCDMA 1700	X	O	O	O	X	O
WCDMA 1900	X	O	O	O	X	O
LTE Band 12	X	O	O	O	O	O
LTE Band 17	X	O	O	O	O	O
LTE Band 4	X	O	O	O	X	O
LTE Band 2	X	O	O	O	X	O
2.4G W-LAN Ant.1	O	X	O	O	X	O
2.4G W-LAN Ant.2	O	X	O	O	X	O
2.4G W-LAN MIMO	O	X	O	O	X	O
5G W-LAN Ant.1	O Note 2	X	O	O	X	O Note 2
5G W-LAN Ant.2	O Note 2	X	O	O	X	O Note 2
5G W-LAN MIMO	O Note 2	X	O	O	X	O Note 2
Bluetooth	O	X	O	O	X	O

Note 1: Particular DUT edges were not required to be evaluated for Hotspot SAR or Phablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 648474 D04v01r03.The antenna document shows the distances between the transmit antennas and the edges of the device.

Note 2: W-LAN 5 GHz is supported WiFi-Direct GC/GO in UNII B1, B3.

Note 3: O - Test / X - Not test.

Note 4: This DUT has NFC operations. The NFC antenna is integrated into the back side.
The SAR tests were performed with NFC antenna already incorporated.
A diagram showing the location of the device antenna can be found in ZNFKX1801_Antenna Location.

1.5 Simultaneous Transmission Capabilities

The Simultaneous Transmission Capabilities are in section 12 of this test report.

1.6 Miscellaneous SAR Test Considerations

(A) WiFI/BT

Since the maximum output power of U-NII-1 band is higher than the U-NII-2A band and the highest reported SAR for U-NII-1 is less than 1.2 W/kg, SAR is not required for U-NII-2A band according to FCC KDB publication 248227 D01v02r02.

Since Wireless Router operations are not allowed by the chipset firmware using U-NII-2A & U-NII-2C WIFI, so only 2.4GHz, U-NII-1, U-NII-3 WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v02r01.

Per FCC KDB 447498 D01v06, the 1g SAR exclusion threshold for distances < 50 mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel\ (mW)}{Test\ Separation\ Dist\ (mm)} * \sqrt{Frequency(GHz)} \leq 3.0$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, body-worn and hotspot **Bluetooth SAR were not required; [(12/10)*√2.480] = 1.9 (< 3.0)**. Per KDB Publication 447498 D01 v06, the maximum power of the channel was rounded to the nearest mW before calculation.

Per FCC KDB 447498 D01v06, the 10g SAR exclusion threshold for distance < 50 mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel\ (mW)}{Test\ Separation\ Dist\ (mm)} * \sqrt{Frequency(GHz)} \leq 7.5$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, phablet **Bluetooth SAR was not required; [(12/5)*√2.480] = 3.8 (< 7.5)**. Per KDB Publication 447498 D01v06, the maximum power of the channel was rounded to the nearest mW before calculation.

Per FCC KDB Publication 648474 D04v01r03, this device is considered a “phablet” since the diagonal dimension is greater than 160 mm and less than 200 mm. Phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Because wireless router operations are not supported for U-NII-2A & U-NII-2C & U-NII-3 WLAN(CH 165), phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

(B) Licensed Transmitter(s)

GSM/GPRS DTM is not supported for US bands. Therefore, the GSM Voice modes in this report do not transmit simultaneously with GPRS Data.

LTE SAR for the higher modulations and lower bandwidths were not tested according to the FCC KDB 941225 D05v02r04. Because the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth and reported LTE SAR for the highest bandwidth was less than 1.45 W/kg.

Per FCC KDB Publication 648474 D04 v01r03, this device is considered a “phablet” since the diagonal dimension is greater than 160 mm and less than 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or when wireless router 1g SAR > 1.2 W/kg.

This device supports LTE capabilities with overlapping transmission frequency ranges. When the supported frequency range of an LTE Band falls completely within an LTE band with a larger transmission frequency range, both LTE bands have the same target power (or the band with the lager transmission frequency range has a higher target power), and both LTE bands share the same transmission path and signal characteristics, SAR was only assessed for the band with the larger transmission frequency range.

1.7 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01 (3G SAR Procedures)
- FCC KDB Publication 941225 D05v02r05 (SAR for LTE Devices)
- FCC KDB Publication 941225 D05Av01r02 (LTE Rel.10 KDB Inquiry Sheet)
- FCC KDB Publication 941225 D06v02r01(Hotspot Mode)
- FCC KDB Publication 248227 D01v02r02 (802.11 Wi-Fi SAR)
- FCC KDB Publication 447498 D01v06 (General RF Exposure Guidance)
- FCC KDB Publication 648474 D04v01r03 (Handset SAR)
- FCC KDB Publication 690783 D01v01r03 (SAR Listings on Grants)
- FCC KDB Publication 865664 D01v01r04 (SAR Measurement 100 MHz to 6 GHz)
- FCC KDB Publication 865664 D02v01r02 (RF Exposure Reporting)
- October 2013 TCB Workshop Notes (GPRS testing criteria)
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)
- October 2016 TCB Workshop Notes (Bluetooth Duty Factor)

1.8 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 11.

2. LTE INFORMATION

LTE Information					
FCC ID	**ZNFKX1801**				
Form Factor	Mobile Phone				
Frequency Range of each LTE transmission Band	LTE Band 12 (699.7 ~ 715.3 MHz) LTE Band 17 (706.5 ~ 713.5 MHz) LTE Band 4 (AWS) (1710.7 ~ 1754.3 MHz) LTE Band 2 (PCS) (1850.7 ~ 1909.3 MHz)				
Channel Bandwidths	LTE Band 12 : 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 17 : 5 MHz, 10 MHz LTE Band 4 : 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 2 : 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Number and Frequencies(MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)	N/A	707.5 (23095)	N/A	715.3 (23173)
LTE Band 12: 3 MHz	700.5 (23025)	N/A	707.5 (23095)	N/A	714.5 (23165)
LTE Band 12: 5 MHz	701.5 (23035)	N/A	707.5 (23095)	N/A	713.5 (23155)
LTE Band 12: 10 MHz	704.0 (23060)	N/A	**707.5 (23095)**[Note1]	N/A	711.0 (23130)
LTE Band 17: 5 MHz	706.5(23755)	N/A	710.0(23790)	N/A	713.5(23825)
LTE Band 17: 10 MHz	709.0(23780)	N/A	710.0(23790)	N/A	711.0(23800)
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)	N/A	1732.5 (20175)	N/A	1754.3 (20393)
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)	N/A	1732.5 (20175)	N/A	1753.5 (20385)
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)	N/A	1732.5 (20175)	N/A	1752.5 (20375)
LTE Band 4 (AWS): 10 MHz	1715.0 (20000)	N/A	1732.5 (20175)	N/A	1750.0 (20350)
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)	N/A	1732.5 (20175)	N/A	1747.5 (20325)
LTE Band 4 (AWS): 20 MHz	1720.0 (20050)	N/A	**1732.5 (20175)**[Note2]	N/A	1745.0 (20300)
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)	N/A	1880.0 (18900)	N/A	1909.3 (19193)
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)	N/A	1880.0 (18900)	N/A	1908.5 (19185)
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)	N/A	1880.0 (18900)	N/A	1907.5 (19175)
LTE Band 2 (PCS): 10 MHz	1855.0 (18650)	N/A	1880.0 (18900)	N/A	1905.0 (19150)
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)	N/A	1880.0 (18900)	N/A	1902.5 (19125)
LTE Band 2 (PCS): 20 MHz	**1860.0 (18700)**	N/A	**1880.0 (18900)**	N/A	**1900.0 (19100)**
UE Category	11				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	Yes				
A-MPR (Additional MPR) disabled for SAR Testing?	Yes				
LTE Carrier Aggregation Possible Combinations	LTE Carrier Aggregation is not supported.				
LTE Additional Information	This device does not support CA features on 3GPP Release 11. All uplink communications are identical to the Release 8 Specifications. The following LTE Release 11 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, MDH, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

Note(s)
1. LTE B12 can not contain three non-overlapping channels of 10 MHz bandwidth.
   Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
2. LTE B4 (AWS) can not contain three non-overlapping channels of 20 MHz bandwidth.
   Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

3. INTROCUCTION

The FCC and Industry Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices.

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave is used for guidance in measuring SAR due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86 NCRP, 1986, Bethesda, MD 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative (rate) of the incremental energy (dU) 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 (see Fig. 3.1)

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

Fig. 3.1 SAR Mathematical Equation

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

$$SAR = \frac{\sigma \cdot E^2}{\rho}$$

where:

σ = conductivity of the tissue-simulating material (S/m)

ρ = mass density of the tissue-simulating 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.

4. DOSIMETRIC ASSESSMENT

4.1 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 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 and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4.1) and IEEE1528-2013.

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.

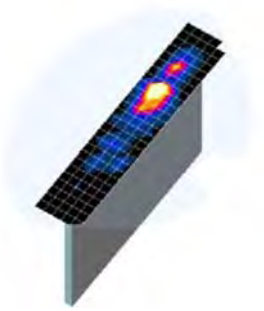

Figure 4.1
Sample SAR Area Scan

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 (See 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 (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 Table 4.1. 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).

   b. 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.

   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 was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 mm ± 1 mm	½·δ·ln(2) mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

Table 4.1 Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*

5. DEFINITION OF REFERENCE POINTS

5.1 Ear Reference Point

Figure 5.1 shows the front, back and side views of the SAM Twin Phantom. The point"M" is the reference point for the center of the mouth, "LE" is the left ear reference point(ERP), and "RE" is the right ERP. The ERPs are 15mm posterior to the entrance to the Ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 5.1. The plane Passing, through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck- Front) is perpendicular to the reference plane and passing through the RE (or LE) is called the Reference Pivoting Line (see Figure 5.1). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning.

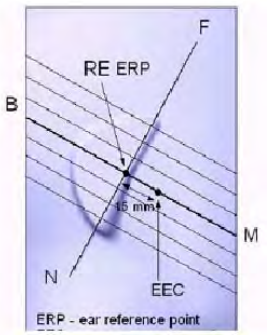

Figure 5.1
Close-up side view of ERP

5.2 Handset Reference Points

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the "test device reference point" located along the "vertical centerline" on the front of the device aligned to the "ear reference point" (See Fig. 5.3). The "test device reference point" was than located at the same level as the center of the ear reference point. The test device was positioned so that the "vertical centerline" was bisecting the front surface of the handset at it's top and bottom edges, positioning the "ear reference point" on the outer surface of the both the left and right head phantoms on the ear reference point.

Figure 5.2 Front, back and side view SAM Twin Phantom

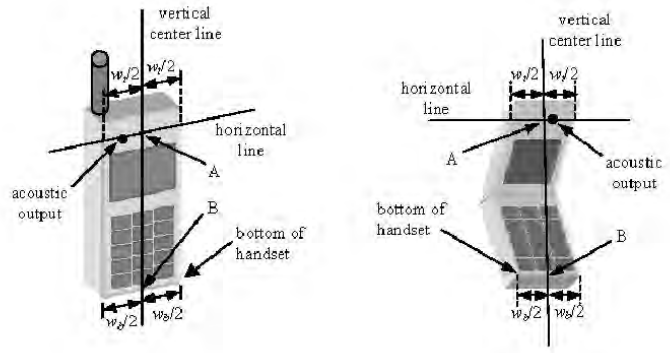

Figure 5.3 Handset Vertical Center & Horizontal Line Reference Points

6. TEST CONFIGURATION POSITIONS FOR HANDSETS

6.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02.

6.2 Positioning for Cheek/Touch

1. The test device was positioned with the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6.1), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

Figure 6.1 Front, Side and Top View of Cheek/Touch Position

2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the ear.
3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the plane normal to MB-NF including the line MB (reference plane).
4. The phone was hen rotated around the vertical centerline until the phone (horizontal line) was symmetrical was respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the phone contact with the ear, the handset was rotated about the line NF until any point on the handset made contact with a phantom point below the ear (cheek). (See Figure 6.2)

6.3 Positioning for Ear / 15 ° Tilt

With the test device aligned in the “Cheek/Touch Position”:

1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15 degree.
2. The phone was then rotated around the horizontal line by 15 degree.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the phone touches the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. The tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 6.3).

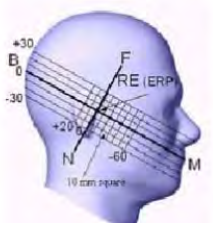

Figure 6.2 Side view w/relevant markings

Figure 6.3 Front, Side and Top View of Ear/15º Position

6.4 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6.4). Per FCC KDB Publication 648474 D04v01r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

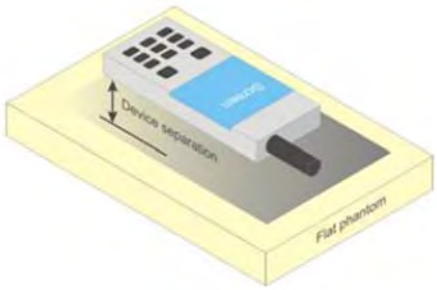

Figure 6.4 Sample Body-Worn Diagram

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented.
Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

6.5 Extremity Exposure Configurations

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1-g body and 10-g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01v06 should be applied to determine SAR test requirements.

Per KDB Publication 447498 D01v06, Cell phones (handsets) are not normally designed to be used on extremities or operated in extremity only exposure conditions. The maximum output power levels of handsets generally do not require extremity SAR testing to show compliance. Therefore, extremity SAR was not evaluated for this device.

6.6 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front the front, rear and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. When the same wireless transmission configuration is used for testing body-worn accessory and hotspot mode SAR, respectively, in voice and data mode, SAR results for the most conservative test separation distance configuration may be used to support both SAR conditions.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitter often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each KDB Publication 447498 D01v06 procedures. The “Portable Hotspot” feature on the handset was not activated during SAR assessment, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

6.7 Phablet Configurations

For smart phones with a display diagonal > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04v01r03 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally required head and body-worn accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna ≤ 25mm from that surface or edge, in direct contact with the phantom, for 10g SAR. The UMPC mini-tablet 1g SAR at 5 mm is not required. When hotspot mode applies, 10g SAR is required only for the surfaces and edges with hotspot mode 1g SAR > 1.2 W/kg.

7. RF EXPOSURE LIMITS

Uncontrolled Environment:

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Controlled Environment:

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 8.1.SAR Human Exposure Specified in ANSI/IEEE C95.1-1992

	HUMAN EXPOSURE LIMITS	
	General Public Exposure (W/kg) or (mW/g)	Occupational Exposure (W/kg) or (mW/g)
SPATIAL PEAK SAR * (Brain)	1.60	8.00
SPATIAL AVERAGE SAR ** (Whole Body)	0.08	0.40
SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist)	4.00	20.0

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e.as a result of employment or occupation).

8. FCC MEASUREMENT PROCEDURES

Power measurements were performed using a base station simulator under digital average power.

8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, When SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as reported SAR. The highest reported SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

8.2 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03r01.

The device was placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test were evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device was tested throughout the SAR test at maximum output power, the SAR measurement system measures a “point SAR” at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviated by more than 5%, the SAR test and drift measurements were repeated.

8.3 SAR Measurement Conditions for WCDMA (UMTS)

8.3.1 Output Power Verification

Maximum output power is measured on the High, Middle and Low channels for each applicable transmission band according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all “1s”.

Maximum output power is verified on the High, Middle and Low channels according to the general, descriptions in section 5.2 of 3GPP TS 34.121 (release 5), using the appropriate RMC with TPC,(transmit power control) set to all “1s” or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

8.3.2 Head SAR Measurements for Handsets

SAR for head exposure configurations is measured using the 12.2 kbps RMC with TPC bits configured to all “1s”. SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2 kbps AMR is less than 0.25 dB higher than that measured in12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2 AMR with a 3.4 kbps SRB (signaling radio bearer) using the exposure configuration that resulted in the highest SAR for that RF channel in the 12.2 kbps RMC mode.

8.3.3 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all“1s”.

8.3.4 Release 5 HSDPA Data Devices

The following procedures are applicable to HSDPA data devices operating under 3GPP Release 5. SAR is required for devices in body-worn accessory and other body exposure conditions, including handsets and data modems operating in various electronic devices. HSDPA operates in conjunction with WCDMA and requires an active DPCCH. The default test configuration is to measure SAR in WCDMA with HSDPA remain inactive, to establish a radio link between the test device and a communication test set using a 12.2 kbps RMC configured in Test Loop Mode 1. SAR for HSDPA is selectively measured using the highest reported SAR configuration in WCDMA, with an FRC in H-set 1 and a 12.2 kbps RMC. SAR is selectively confirmed for other physical channel configurations (DPCCH & DPDCHn) according to exposure conditions, device operating capabilities and maximum output power specified for production units, including tune-up tolerance by applying the 3G SAR test reduction procedures. Maximum output power is verified according to the applicable versions of 3GPP TS 34.121. SAR must be measured based on these maximum output conditions and requirements in KDB Publication 447498, with respect to the UE Categories, and explained in the SAR report. When Maximum Power Reduction (MPR) applies, the implementations must be clearly identified in the SAR report to support test results according to Cubic Metric (CM) and, as appropriate, Enhanced MPR (E-MPR) requirements.

Sub-test	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{hs} (1)	CM (dB) (2)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 (3)	15/15 (3)	64	12/15 (3)	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15.
Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

Figure 9.1 Table 1

8.3.5 Release 6 HSUPA Data Devices

The following procedures are applicable to HSPA (HSUPA/HSDPA) data devices operating under 3GPP Release 6. SAR is required for devices in body-worn accessory and other body exposure conditions, including handsets and data modems operating in various electronic devices. HSUPA operates in conjunction with WCDMA and HSDPA. SAR is initially measured in WCDMA test configurations with HSPA remain inactive. The default test configuration is to establish a radio link between the test device and a communication test set to configure a 12.2 kbps RMC in Test Loop Mode 1. SAR for HSPA is selectively measured with HS-DPCCH, E-DPCCH and E-DPDCH, all enabled, along with a 12.2 kbps RMC using the highest reported SAR configuration in WCDMA with 12.2 kbps RMC only.
An FRC is configured according to HS-DPCCH Sub-test 1 using H-set 1 and QPSK. HSPA is configured according to E-DCH Sub-test 5 requirements. SAR for other HSPA sub-test configurations is confirmed selectively according to exposure conditions, E-DCH UE Category and maximum output power of production units, including tune-up tolerance by applying the 3G SAR test reduction procedure. Maximum output power is verified according to procedures in applicable versions of 3GPP TS 34.121. SAR must be measured based on these maximum output conditions and requirements in KDB Publication 447498, with respect to the UE Categories for HS-DPCCH and HSPA, and explained in the SAR report. When Maximum Power Reduction (MPR) applies, the implementations must be clearly identified in the SAR report to support test results according to Cubic Metric (CM) and, as appropriate, Enhanced MPR (E-MPR) requirements.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}: 47/15 β_{ed2}: 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 8 ⇔ $A_{hs} = \beta_{hs}/\beta_c$ = 30/15 ⇔ β_{hs}= 30/15 *β_c.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
Note 6: β_{ed} cannot be set directly; it is set by Absolute Grant Value.

Figure 9.2 Table 2

8.4 SAR Measurement Conditions for LTE

LTE modes were tested according to FCC KDB 941225 D05v02r05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR. The call simulator was used for LTE output power measurement and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

8.4.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

8.4.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36. 101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

8.4.3 A-MPR

A-MPR (Addition MPR) has been disable for all SAR tests by setting NS=01 on the base station simulator.

8.4.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r05:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   i. The required channel and offset combination with the highest maximum output power is required for SAR.
   ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channel is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
   iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to 0.5 dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/kg.

8.4.5 64QAM uplink : Applying KDB inquiry # 331653

According to the Response to Inquiry to FCC (KDB Inquiry Tracking Number: 331653), the SAR Power Measurement Plan is as follows.

(1) Per KDB 941225 D05 V02r05, we'll measure conducted powers per Section 5.1 for all uplink modulations (QPSK, 16QAM, 64QAM) and include in the test report.

(2) From these power measurements, we will apply the procedures in Section 5.2.4 ("Higher Order Modulations") to determine SAR test reduction for 16QAM and 64QAM test cases.

8.5 SAR Testing with 802.11 Transmitters

The normal network operating configurations are not suitable for measuring the SAR of 802.11 b/g/n transmitters. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227D01v02r02 for more details.

8.5.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the in the transmission, a maximum transmission duty factor of 92-96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

8.5.2 U-NII and U-NII-2A

For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following, with respect to the highest reported SAR and maximum output power specified for production units. The procedures are applied independently to each exposure configuration; for example, head, body, hotspot mode etc.

1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.
2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, each band is tested independently for SAR.

8.5.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements.

When Terminal Doppler Weather Rader (TDWR) restriction applies, the channels at 5.60 – 5.65 GHz in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification.

Unless band gap channels are permanently disabled, SAR must be considered for these channels. When band gap channels are disabled, each band is tested independently according to the normally required OFDM SAR measurements and probe calibration frequency points requirements.

8.5.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all position in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR position until the reported SAR result is ≤ 0.8 W/kg or all test position are measured.

8.5.5 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
2) When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed.

8.5.6 OFDM Transmission Mode and SAR Test Channel Selection

For the 2.4 GHz and 5 GHz bands, when the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a and 802.11n or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 80211n or 802.11g then 802.11n is used for SAR measurement. When the maximum output power ware the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

8.5.7 Initial Test Configuration Procedure

For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, and lowest data rate. The channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required.
Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured.

8.5.8 Subsequent Test Configuration Procedures

For OFDM configurations, in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure, when applicable. When the highest reported SAR for the initial test configuration, adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power is ≤ 1.2 W/kg, no additional SAR testing for the subsequent test configurations is required.

8.5.9 MIMO SAR Considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB Publication 447498 D01v06 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

9. RF CONDUCTED POWERS

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06

9.1 GSM Nominal and Maximum Output Power Spec and Conducted Powers

Band & Mode		Voice [dBm]	Burst Average GMSK [dBm]			
		1 TX Slot	1 TX Slot	2 TX Slot	3 TX Slot	4 TX Slot
GSM/GPRS 850	Maximum	33.7	33.7	32.7	30.7	28.7
	Nominal	33.2	33.2	32.2	30.2	28.2
GSM/GPRS 1900	Maximum	30.7	30.7	29.7	27.7	25.7
	Nominal	30.2	30.2	29.2	27.2	25.2

Table 9.1.1 GSM Nominal and Maximum Output Power Spec

Band	Channel	Maximum Burst-Averaged Output Power [dBm]				
		Voice	GPRS Data (GMSK)			
		GSM CS 1 Slot	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot
GSM850	128	33.1	33.1	32.4	30.4	28.4
	190	33.2	33.2	32.3	30.3	28.4
	251	33.1	33.1	32.5	30.5	28.4
PCS 1900	512	30.3	30.3	29.5	27.5	25.2
	661	30.3	30.3	29.5	27.5	25.2
	810	30.3	30.3	29.5	27.5	25.2
Band	**Channel**	**Calculated Maximum Frame-Averaged Output Power [dBm]**				
		Voice	GPRS Data (GMSK)			
		GSM CS 1 Slot	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot
GSM850	128	24.07	24.07	26.38	26.14	25.39
	190	24.17	24.17	26.28	26.04	25.39
	251	24.07	24.07	26.48	26.24	25.39
PCS 1900	512	21.27	21.27	23.48	23.24	22.19
	661	21.27	21.27	23.48	23.24	22.19
	810	21.27	21.27	23.48	23.24	22.19
GSM850	**Frame Avg. Targets:**	24.17	24.17	26.18	25.94	25.19
PCS 1900		21.17	21.17	23.18	22.94	22.19

Table 9.1.2 GSM Conducted Power and Frame Avg. Power Target

Note:

1. Both burst-averaged and calculated frame-averaged powers are included. Frame-averaged power was calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 8 timeslots.
2. GPRS (GMSK) output powers were measured with coding scheme setting of 1 (CS1) on the base station simulator. CS1 was configured to measure GPRS output power measurements and SAR to ensure GMSK modulation in the signal. Our Investigation has shown that CS1 - CS4 settings do not have any impact on the output levels or modulation in the GPRS modes.

GPRS Multislot class: 12 (max 4 TX Uplink slots)
EDGE Multislot class: N/A
DTM Multislot Class: N/A

Figure 9.1 Power Measurement Setup

9.2 WCDMA Nominal and Maximum Output Power Spec and Conducted Powers

Band & Mode		Modulated Average [dBm]		
		3GPP WCDMA (Rel.99)	3GPP HSDPA	3GPP HSUPA
WCDMA 1700 (AWS)	Maximum	23.7	23.7	23.7
	Nominal	23.2	23.2	23.2
WCDMA 1900 (PCS)	Maximum	23.4	23.4	23.4
	Nominal	22.9	22.9	22.9

Table 9.2.1 WCDMA Nominal and Maximum Output Power Spec

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band (dBm)			PCS Band (dBm)			3GPP MPR (dB)
			1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.60	23.70	23.60	23.20	23.10	23.10	-
99		12.2 kbps AMR	23.54	23.68	23.55	23.18	23.09	23.09	-
5	HSDPA	Subtest 1	23.59	23.69	23.59	23.17	23.10	23.09	0
5		Subtest 2	23.59	23.70	23.58	23.18	23.09	23.10	0
5		Subtest 3	23.11	23.15	23.12	22.70	22.64	22.60	0.5
5		Subtest 4	23.09	23.12	23.11	22.69	22.62	22.61	0.5
6	HSUPA	Subtest 1	23.33	23.38	23.35	22.41	22.29	22.32	0
6		Subtest 2	20.47	20.30	20.20	20.21	20.12	20.13	2
6		Subtest 3	21.46	21.62	21.58	21.20	21.12	21.10	1
6		Subtest 4	20.57	20.70	20.61	20.23	20.12	20.12	2
6		Subtest 5	23.59	23.69	23.59	23.19	23.09	23.09	0

Table 9.2.2 WCDMA Conducted Power

WCDMA SAR was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.

The manufacturer declares that the HSUPA transmitter's power will not exceed the R99 maximum transmit power in devices based on Qualcomm's HSPA chipset solutions.

Figure 9.2 Power Measurement Setup

9.3 LTE Nominal and Maximum Output Power Spec and Conducted Powers

Band & Mode		Modulated Average[dBm]
LTE Band 12 & 17	Maximum	25.5
	Nominal	25.0

Table 9.3.1 Nominal and Maximum Output Power Spec

1) LTE Band 12

LTE Band 12 Conducted Power– 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power (dBm)	MPR Allowed Per 3GPP(dB)	MPR (dB)
QPSK	1	0	25.28	0	0
	1	25	25.34		
	1	**49**	**25.41**		
	25	0	24.12	0-1	1
	25	12	24.18		
	25	**25**	**24.22**		
	50	0	24.14	0-1	1
16QAM	1	0	24.23	0-1	1
	1	25	24.45		
	1	49	24.49		
	25	0	23.11	0-2	2
	25	12	23.15		
	25	25	23.18		
	50	0	23.10	0-2	2
64QAM	1	0	23.13	0-2	2
	1	25	23.34		
	1	49	23.44		
	25	0	22.15	0-3	3
	25	12	22.15		
	25	25	22.17		
	50	0	22.15	0-3	3

Table 9.3.2 LTE Conducted Power

Note 1: LTE B12 can not contain three non-overlapping channels of 10 MHz bandwidth.
Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

LTE Band 12 Conducted Power– 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz) Conducted Power (dBm)	MPR Allowed Per 3GPP(dB)	MPR (dB)
QPSK	1	0	25.29	25.35	25.26	0	0
	1	12	25.36	25.37	25.39		
	1	24	25.39	25.32	25.32		
	12	0	24.02	24.03	24.03	0-1	1
	12	6	24.06	24.07	24.08		
	12	13	24.03	24.04	24.02		
	25	0	23.99	24.02	24.02	0-1	1
16QAM	1	0	24.34	24.23	24.23	0-1	1
	1	12	24.27	24.23	24.30		
	1	24	24.26	24.23	24.35		
	12	0	23.08	23.12	23.07	0-2	2
	12	6	23.08	23.08	23.10		
	12	13	23.01	23.05	23.08		
	25	0	23.06	23.03	23.06	0-2	2
64QAM	1	0	23.19	23.19	23.25	0-2	2
	1	12	23.26	23.26	23.44		
	1	24	23.25	23.22	23.25		
	12	0	22.09	22.10	22.07	0-3	3
	12	6	22.12	22.15	22.11		
	12	13	22.11	22.12	22.09		
	15	0	22.04	22.07	22.09	0-3	3

Table 9.3.3 LTE Conducted Power

LTE Band 12 Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			23025 (700.5 MHz)	23095 (707.5 MHz)	23165 (714.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	25.33	25.34	25.32	0	0
	1	7	25.33	25.30	25.30		
	1	14	25.31	25.30	25.29		
	8	0	23.99	24.05	24.03	0-1	1
	8	4	24.02	24.06	24.05		
	8	7	23.99	24.03	23.98		
	15	0	24.02	24.03	24.02	0-1	1
16QAM	1	0	24.25	24.34	24.46	0-1	1
	1	7	24.23	24.30	24.38		
	1	14	24.26	24.27	24.41		
	8	0	23.11	23.11	23.09	0-2	2
	8	4	23.10	23.16	23.15		
	8	7	23.02	23.07	23.11		
	15	0	23.05	23.07	23.06	0-2	2
64QAM	1	0	23.34	23.23	23.26	0-2	2
	1	7	23.35	23.27	23.24		
	1	14	23.19	23.28	23.31		
	8	0	22.09	22.15	22.15	0-3	3
	8	4	22.14	22.16	22.10		
	8	7	22.08	22.07	22.09		
	15	0	22.02	22.12	22.11	0-3	3

Table 9.3.4 LTE Conducted Power

LTE Band 12 Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			23017 (699.7 MHz)	23095 (707.5 MHz)	23173 (715.3 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	25.28	25.26	25.20	0	0
	1	2	25.34	25.33	25.32		
	1	5	25.27	25.24	25.23		
	3	0	25.26	25.27	25.23	0	0
	3	2	25.33	25.31	25.26		
	3	3	25.29	25.27	25.23		
	6	0	23.98	23.98	23.92	0-1	1
16QAM	1	0	24.11	24.18	24.40	0-1	1
	1	2	24.26	24.31	24.42		
	1	5	24.18	24.11	24.37		
	3	0	24.13	24.17	24.11	0-1	1
	3	2	24.17	24.19	24.16		
	3	3	24.11	24.13	24.10		
	6	0	23.09	23.11	22.99	0-2	2
64QAM	1	0	23.17	23.28	23.22	0-2	2
	1	2	23.23	23.25	23.28		
	1	5	23.14	23.13	23.20		
	3	0	23.14	23.18	23.09	0-2	2
	3	2	23.23	23.23	23.16		
	3	3	23.18	23.20	23.18		
	6	0	22.01	21.99	21.96	0-3	3

Table 9.3.5 LTE Conducted Power

Band & Mode		Modulated Average[dBm]
LTE Band 4	Maximum	23.7
	Nominal	23.2

Table 9.3.6 Nominal and Maximum Output Power Spec

2) LTE Band 4

LTE Band 4 (AWS) Conducted Power– 20 MHz Bandwidth					
RB Offset	RB Offset	RB Offset	Mid Channel 20175 (1732.5 MHz) Conducted Power (dBm)	MPR Allowed Per 3GPP(dB)	MPR (dB)
QPSK	**1**	**0**	**23.43**	0	0
	1	50	23.19		
	1	99	23.06		
	50	**0**	**22.35**	0-1	1
	50	25	22.28		
	50	50	22.09		
	100	0	22.28	0-1	1
16QAM	1	0	22.59	0-1	1
	1	50	22.33		
	1	99	22.25		
	50	0	21.40	0-2	2
	50	25	21.31		
	50	50	21.13		
	100	0	21.30	0-2	2
64QAM	1	0	21.62	0-2	2
	1	50	21.34		
	1	99	21.24		
	50	0	20.35	0-3	3
	50	25	20.33		
	50	50	20.14		
	100	0	20.31	0-3	3

Table 9.3.7 LTE Conducted Power

Note: LTE B4 (AWS) can not contain three non-overlapping channels of 20 MHz bandwidth.
Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

LTE Band 4 (AWS) Conducted Power– 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20025 (1717.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20325 (1747.5 MHz) Conducted Power (dBm)	MPR Allowed Per 3GPP(dB)	MPR (dB)
QPSK	1	0	23.26	23.36	23.29	0	0
	1	36	23.15	23.15	23.14		
	1	74	23.16	23.10	23.05		
	36	0	22.21	22.29	22.22	0-1	1
	36	18	22.24	22.16	22.26		
	36	37	22.23	22.09	22.09		
	75	0	22.30	22.13	22.17	0-1	1
16QAM	1	0	22.42	22.50	22.45	0-1	1
	1	36	22.30	22.33	22.33		
	1	74	22.35	22.28	22.22		
	36	0	21.20	21.31	21.22	0-2	2
	36	18	21.29	21.16	21.32		
	36	37	21.24	21.12	21.11		
	75	0	21.30	21.18	21.16	0-2	2
64QAM	1	0	21.44	21.55	21.44	0-2	2
	1	36	21.33	21.34	21.32		
	1	74	21.35	21.28	21.22		
	36	0	20.24	20.35	20.22	0-3	3
	36	18	20.31	20.20	20.29		
	36	37	20.27	20.17	20.12		
	75	0	20.26	20.16	20.18	0-3	3

Table 9.3.12 LTE Conducted Power

LTE Band 4 (AWS) Conducted Power– 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			20000 (1715.0 MHz)	20175 (1732.5 MHz)	20350 (1750.0 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.17	23.22	23.27	0	0
	1	25	23.04	23.17	23.15		
	1	49	23.16	23.04	23.01		
	25	0	22.17	22.16	22.27	0-1	1
	25	12	22.13	22.20	22.19		
	25	25	22.21	22.17	22.06		
	50	0	22.11	22.22	22.20	0-1	1
16QAM	1	0	22.33	22.41	22.46	0-1	1
	1	25	22.23	22.35	22.34		
	1	49	22.31	22.22	22.19		
	25	0	21.17	21.17	21.28	0-2	2
	25	12	21.15	21.27	21.26		
	25	25	21.20	21.20	21.09		
	50	0	21.17	21.26	21.27	0-2	2
64QAM	1	0	21.36	21.41	21.46	0-2	2
	1	25	21.20	21.36	21.33		
	1	49	21.32	21.23	21.12		
	25	0	20.20	20.21	20.30	0-3	3
	25	12	20.18	20.28	20.28		
	25	25	20.24	20.25	20.09		
	50	0	20.20	20.27	20.28	0-3	3

Table 9.3.14 LTE Conducted Power

LTE Band 4 (AWS) Conducted Power– 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			19975 (1712.5 MHz)	20175 (1732.5 MHz)	20375 (1752.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.09	23.15	23.21	0	0
	1	12	23.10	23.19	23.11		
	1	24	23.02	23.13	23.05		
	12	0	22.12	22.10	22.12	0-1	1
	12	6	22.10	22.21	22.10		
	12	13	22.04	22.19	22.05		
	25	0	22.06	22.19	22.07	0-1	1
16QAM	1	0	22.29	22.29	22.39	0-1	1
	1	12	22.30	22.38	22.29		
	1	24	22.17	22.25	22.21		
	12	0	21.17	21.13	21.15	0-2	2
	12	6	21.14	21.22	21.16		
	12	13	21.10	21.20	21.10		
	25	0	21.10	21.25	21.12	0-2	2
64QAM	1	0	21.26	21.31	21.40	0-2	2
	1	12	21.23	21.30	21.28		
	1	24	21.20	21.32	21.22		
	12	0	20.18	20.20	20.19	0-3	3
	12	6	20.18	20.33	20.18		
	12	13	20.15	20.28	20.15		
	25	0	20.13	20.24	20.11	0-3	3

Table 9.3.15 LTE Conducted Power

LTE Band 4 (AWS) Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			19965 (1711.5 MHz)	20175 (1732.5 MHz)	20385 (1753.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.09	23.06	23.03	0	0
	1	7	23.03	23.12	23.02		
	1	14	23.03	23.13	23.01		
	8	0	22.10	22.05	22.05	0-1	1
	8	4	22.10	22.18	22.06		
	8	7	22.04	22.19	22.03		
	15	0	22.09	22.16	22.06	0-1	1
16QAM	1	0	22.20	22.18	22.23	0-1	1
	1	7	22.23	22.27	22.21		
	1	14	22.20	22.30	22.17		
	8	0	21.15	21.14	21.14	0-2	2
	8	4	21.20	21.29	21.16		
	8	7	21.15	21.22	21.11		
	15	0	21.16	21.24	21.10	0-2	2
64QAM	1	0	21.27	21.20	21.22	0-2	2
	1	7	21.21	21.23	21.21		
	1	14	21.22	21.28	21.20		
	8	0	20.20	20.20	20.18	0-3	3
	8	4	20.19	20.34	20.19		
	8	7	20.16	20.28	20.13		
	15	0	20.11	20.25	20.12	0-3	3

Table 9.3.16 LTE Conducted Power

LTE Band 4 (AWS) Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	22.93	23.08	23.00	0	0
	1	2	23.02	23.16	23.07		
	1	5	22.97	23.05	22.96		
	3	0	23.00	22.96	22.99	0	0
	3	2	23.03	23.10	23.02		
	3	3	22.98	23.08	22.97		
	6	0	21.98	22.09	21.97	0-1	1
16QAM	1	0	22.10	22.23	22.13	0-1	1
	1	2	22.08	22.34	22.22		
	1	5	22.15	22.24	22.14		
	3	0	22.08	22.04	22.02	0-1	1
	3	2	22.09	22.15	22.06		
	3	3	22.07	22.09	21.99		
	6	0	21.11	21.21	21.09	0-2	2
64QAM	1	0	21.12	21.26	21.19	0-2	2
	1	2	21.10	21.31	21.26		
	1	5	21.16	21.20	21.15		
	3	0	21.18	21.14	21.15	0-2	2
	3	2	21.16	21.28	21.21		
	3	3	21.12	21.22	21.12		
	6	0	20.06	20.17	20.04	0-3	3

Table 9.3.17 LTE Conducted Power

Band & Mode		Modulated Average[dBm]
LTE Band 2(PCS)	Maximum	23.4
	Nominal	22.9

Table 9.3.18 Nominal and Maximum Output Power Spec

3) LTE Band 2 (PCS)

LTE Band 2 (PCS) Conducted Power– 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			18700 (1860.0 MHz)	18900 (1880.0 MHz)	19100 (1900.0 MHz)		
			Conducted Power (dBm)				
QPSK	**1**	**0**	23.35	23.30	23.38	0	0
	1	50	22.97	22.89	23.14		
	1	99	23.20	23.08	23.02		
	50	**0**	22.21	22.19	22.24	0-1	1
	50	25	22.05	22.00	22.21		
	50	50	22.05	22.05	22.19		
	100	0	22.07	22.05	22.18	0-1	1
16QAM	1	0	22.39	22.36	22.37	0-1	1
	1	50	22.16	22.08	22.26		
	1	99	22.38	22.25	22.15		
	50	0	21.27	21.24	21.29	0-2	2
	50	25	21.10	21.07	21.23		
	50	50	21.08	21.06	21.22		
	100	0	21.11	21.07	21.21	0-2	2
64QAM	1	0	21.35	21.28	21.33	0-2	2
	1	50	21.02	21.03	21.14		
	1	99	21.11	21.04	21.07		
	50	0	20.12	20.08	20.26	0-3	3
	50	25	19.98	20.01	20.10		
	50	50	19.94	19.91	20.02		
	100	0	19.96	19.93	20.01	0-3	3

Table 9.3.19 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			18675 (1857.5 MHz)	18900 (1880.0 MHz)	19125 (1902.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.18	23.17	23.30	0	0
	1	36	23.01	22.89	23.22		
	1	74	22.88	23.04	22.98		
	36	0	22.10	22.12	22.25	0-1	1
	36	18	22.10	22.00	22.23		
	36	37	21.96	21.96	22.16		
	75	0	22.09	22.00	22.21	0-1	1
16QAM	1	0	22.36	22.33	22.38	0-1	1
	1	36	22.16	22.09	22.36		
	1	74	22.08	22.17	22.18		
	36	0	21.15	21.20	21.27	0-2	2
	36	18	21.14	21.05	21.28		
	36	37	21.00	20.99	21.16		
	75	0	21.12	21.08	21.27	0-2	2
64QAM	1	0	21.32	21.24	21.37	0-2	2
	1	36	21.13	21.08	21.15		
	1	74	21.07	21.08	21.10		
	36	0	20.03	20.04	20.13	0-3	3
	36	18	20.02	20.02	20.09		
	36	37	19.90	20.00	20.07		
	75	0	19.99	20.01	20.05	0-3	3

Table 9.3.20 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			18650 (1855.0 MHz)	18900 (1880.0 MHz)	19150 (1905.0 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.34	23.29	23.17	0	0
	1	25	23.05	22.89	23.10		
	1	49	23.15	23.13	22.95		
	25	0	22.08	21.97	22.24	0-1	1
	25	12	22.13	21.98	22.20		
	25	25	22.06	21.97	22.07		
	50	0	22.08	21.99	22.18	0-1	1
16QAM	1	0	22.39	22.37	22.31	0-1	1
	1	25	22.19	22.05	22.28		
	1	49	22.26	22.31	22.10		
	25	0	21.15	21.04	21.24	0-2	2
	25	12	21.19	21.04	21.18		
	25	25	21.11	21.03	21.12		
	50	0	21.16	21.03	21.20	0-2	2
64QAM	1	0	21.36	21.32	21.21	0-2	2
	1	25	21.17	21.08	21.10		
	1	49	21.27	21.19	21.08		
	25	0	20.00	20.00	20.05	0-3	3
	25	12	20.03	19.96	20.05		
	25	25	19.96	19.96	20.00		
	50	0	20.03	19.98	20.02	0-3	3

Table 9.3.21 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			18625 (1852.5 MHz)	18900 (1880.0 MHz)	19175 (1907.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.06	22.97	23.15	0	0
	1	12	23.04	22.94	23.05		
	1	24	22.99	22.93	22.90		
	12	0	22.06	21.97	22.13	0-1	1
	12	6	22.07	21.96	22.10		
	12	13	22.02	21.92	22.03		
	25	0	22.03	21.94	22.03	0-1	1
16QAM	1	0	22.22	22.16	22.29	0-1	1
	1	12	22.24	22.14	22.17		
	1	24	22.17	22.04	22.05		
	12	0	21.15	21.02	21.18	0-2	2
	12	6	21.13	21.02	21.11		
	12	13	21.06	21.00	21.02		
	25	0	21.07	20.99	21.07	0-2	2
64QAM	1	0	21.18	21.14	21.23	0-2	2
	1	12	21.13	21.13	21.19		
	1	24	21.02	21.11	21.01		
	12	0	20.01	19.98	20.08	0-3	3
	12	6	19.98	20.00	20.06		
	12	13	19.94	19.97	19.97		
	25	0	19.96	19.94	19.98	0-3	3

Table 9.3.22 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			18615 (1851.5 MHz)	18900 (1880.0 MHz)	19185 (1908.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.02	22.93	23.03	0	0
	1	7	23.01	22.87	22.97		
	1	14	22.95	22.89	22.91		
	8	0	22.07	21.96	22.05	0-1	1
	8	4	22.03	21.94	22.05		
	8	7	21.98	21.93	22.01		
	15	0	22.03	21.93	22.02	0-1	1
16QAM	1	0	22.18	22.08	22.18	0-1	1
	1	7	22.19	22.07	22.11		
	1	14	22.15	22.03	22.09		
	8	0	21.13	21.02	21.12	0-2	2
	8	4	21.13	21.01	21.12		
	8	7	21.06	21.00	21.05		
	15	0	21.09	21.01	21.03	0-2	2
64QAM	1	0	21.11	21.07	21.11	0-2	2
	1	7	21.11	21.01	21.09		
	1	14	21.07	21.01	21.04		
	8	0	20.01	19.99	19.99	0-3	3
	8	4	19.99	20.01	19.97		
	8	7	19.95	19.97	19.95		
	15	0	19.95	19.92	19.93	0-3	3

Table 9.3.23 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			18607 (1850.7 MHz)	18900 (1880.0 MHz)	19193 (1909.3 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	22.94	22.87	22.91	0	0
	1	2	23.04	22.91	22.96		
	1	5	22.90	22.85	22.86		
	3	0	23.02	22.88	22.97	0	0
	3	2	23.07	22.95	22.99		
	3	3	23.00	22.89	22.95		
	6	0	21.98	21.88	21.91	0-1	1
16QAM	1	0	22.12	22.02	22.07	0-1	1
	1	2	22.18	22.10	22.14		
	1	5	22.09	22.05	22.01		
	3	0	21.99	21.86	21.97	0-1	1
	3	2	22.03	21.93	21.99		
	3	3	22.02	21.87	21.93		
	6	0	21.06	20.96	20.99	0-2	2
64QAM	1	0	21.08	21.02	20.99	0-2	2
	1	2	21.10	21.10	21.09		
	1	5	21.06	21.04	20.95		
	3	0	21.03	20.98	20.99	0-2	2
	3	2	21.02	21.06	21.02		
	3	3	20.97	20.99	20.96		
	6	0	19.90	19.85	19.83	0-3	3

Table 9.3.24 LTE Conducted Power

9.4 WLAN Nominal and Maximum Output Power Spec and Conducted Powers

Band (GHz)	Mode	Ch	Modulated Average[dBm]					
			Ant.1		Ant.2		MIMO(CDD/SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
2.4	802.11b	1~11	16.5	15.5	16.5	15.5	-	-
		12~13	1.0	0.0	1.0	0.0	-	-
	802.11g	1~11	16.0	15.0	16.0	15.0	19.0	18.0
		12~13	1.0	0.0	1.0	0.0	4.0	3.0
	802.11n	1~11	14.5	13.5	14.5	13.5	17.5	16.5
		12~13	1.0	0.0	1.0	0.0	4.0	3.0
	802.11ac	1~11	14.5	13.5	14.5	13.5	17.5	16.5
		12~13	1.0	0.0	1.0	0.0	4.0	3.0

Table 9.4.1 Nominal and Maximum Output Power Spec

Mode	Freq.	Channel	IEEE 802.11 (2.4 GHz) Conducted Power[dBm]			
	(MHz)		Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11b	2412	1	16.19	16.06	-	-
	2437	6	16.12	15.82	-	-
	2462	**11**	16.20	16.24	-	-
	2467	12	0.82	-0.30	-	-
	2472	13	0.98	0.42	-	-
802.11g	2412	1	15.13	14.17	17.69	-
	2437	**6**	15.11	15.14	18.52	-
	2462	11	15.11	15.46	18.30	-
	2467	12	0.74	0.21	3.49	-
	2472	13	0.27	0.04	3.17	-
802.11n (HT-20)	2412	1	13.78	13.78	16.79	16.60
	2437	6	13.60	13.20	16.41	16.59
	2462	11	13.78	13.73	16.77	16.84
	2467	12	0.50	-0.16	3.19	3.31
	2472	13	0.09	0.09	3.10	3.15
802.11ac (VHT-20)	2412	1	13.86	13.40	16.65	16.64
	2437	6	13.55	13.72	16.65	16.49
	2462	11	13.84	13.72	16.79	16.88
	2467	12	0.58	0.06	3.34	3.35
	2472	13	0.27	0.06	3.18	3.06

Table 9.4.2 IEEE 802.11 Average RF Power

Band (GHz)	Mode	Ch	Modulated Average[dBm]					
			Ant.1		Ant.2		MIMO(CDD/SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
5 (UNII)	802.11a	36	16.0	15.0	16.0	15.0	19.0	18.0
		40-48						
		52-60	15.0	14.0	15.0	14.0	18.0	17.0
		64						
		100	16.0	15.0	16.0	15.0	19.0	18.0
		104-136						
		140						
		144						
		149-161						
		165						
	802.11n/ac (20MHz)	36	14.5	13.5	14.5	13.5	17.5	16.5
		40-48						
		52-60						
		64						
		100						
		104-136						
		140						
		144						
		149-161						
		165						
	802.11n/ac (40MHz)	38	13.0	12.0	13.0	12.0	16.0	15.0
		46	14.5	13.5	14.5	13.5	17.5	16.5
		54						
		62	12.5	11.5	12.5	11.5	15.5	14.5
		102						
		110	14.5	13.5	14.5	13.5	17.5	16.5
		118						
		126						
		134						
		142						
		151						
		159						
	802.11ac (80MHz)	42	14.5	13.5	14.5	13.5	17.5	16.5
		58	10.5	9.5	10.5	9.5	13.5	12.5
		106	14.5	13.5	14.5	13.5	17.5	16.5
		122						
		138						
		155						

Table 9.4.3 Nominal and Maximum Output Power Spec

Mode	Freq. (MHz)	Channel	IEEE 802.11a (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11a	5180	36	15.45	15.36	18.42	-
	5200	40	15.63	15.25	18.45	-
	5220	44	15.61	15.22	18.43	-
	5240	**48**	15.64	15.74	18.70	-
	5260	52	14.67	14.31	17.50	-
	5280	56	14.48	14.45	17.48	-
	5300	60	14.51	14.42	17.48	-
	5320	**64**	14.74	14.68	17.72	-
	5500	100	15.85	15.86	18.87	-
	5600	**120**	15.93	15.98	18.97	-
	5660	132	15.82	15.84	18.84	-
	5720	144	15.83	15.97	18.91	-
	5745	149	15.90	15.97	18.95	-
	5785	**157**	15.98	15.99	19.00	-
	5825	**165**	15.79	15.91	18.86	-

Table 9.4.4 IEEE 802.11a Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11n HT20 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11n (HT-20)	5180	36	13.82	13.70	16.77	16.88
	5200	40	14.00	13.91	16.97	17.07
	5220	44	13.79	13.68	16.75	16.93
	5240	48	14.07	13.90	17.00	17.16
	5260	52	14.13	14.01	17.08	17.17
	5280	56	14.02	13.86	16.95	17.01
	5300	60	14.04	13.89	16.98	17.08
	5320	64	14.06	14.06	17.07	17.18
	5500	100	14.31	14.19	17.26	17.43
	5600	120	14.20	14.28	17.25	17.36
	5660	132	14.17	14.15	17.17	17.34
	5720	144	14.38	14.48	17.44	17.43
	5745	149	14.40	14.49	17.46	17.44
	5785	157	14.39	14.48	17.45	17.48
	5825	165	14.26	14.49	17.39	17.39

Table 9.4.5 IEEE 802.11n HT20 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ac VHT20 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ac (VHT-20)	5180	36	13.95	13.86	16.92	16.96
	5200	40	13.94	13.91	16.94	16.95
	5220	44	13.91	13.84	16.89	16.91
	5240	48	14.36	14.10	17.24	17.10
	5260	52	14.21	13.96	17.10	17.09
	5280	56	14.04	13.90	16.98	17.03
	5300	60	14.05	13.91	16.99	17.05
	5320	64	14.12	14.05	17.10	17.09
	5500	100	14.39	14.20	17.31	17.43
	5600	120	14.30	14.36	17.34	17.38
	5660	132	14.28	14.18	17.24	17.30
	5720	144	14.14	14.45	17.31	17.40
	5745	149	14.39	14.48	17.45	17.44
	5785	157	14.31	14.49	17.41	17.47
	5825	165	14.02	14.48	17.27	17.33

Table 9.4.6 IEEE 802.11ac VHT20 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11n HT40 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11n (HT-40)	5190	38	12.40	12.42	15.42	15.51
	5230	46	13.95	13.85	16.91	16.99
	5270	54	14.00	13.83	16.93	16.96
	5310	62	11.96	12.01	15.00	14.98
	5510	102	12.35	12.22	15.30	15.20
	5590	118	14.47	14.25	17.37	17.40
	5670	134	14.44	14.22	17.34	17.33
	5710	142	14.48	14.49	17.50	17.46
	5755	151	14.50	14.45	17.49	17.47
	5795	159	14.49	14.49	17.50	17.49

Table 9.4.7 IEEE 802.11n HT40 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ac VHT40 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ac (VHT-40)	5190	38	12.40	12.30	15.36	15.46
	5230	46	14.12	13.59	16.87	17.05
	5270	54	14.08	13.69	16.90	17.09
	5310	62	11.85	11.69	14.78	14.95
	5510	102	12.47	12.37	15.43	15.28
	5590	118	14.48	14.08	17.29	17.37
	5670	134	14.31	14.05	17.19	17.32
	5710	142	14.35	14.49	17.43	17.39
	5755	151	14.48	14.48	17.49	17.47
	5795	159	14.48	14.49	17.50	17.50

Table 9.4.8 IEEE 802.11ac VHT40 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ac VHT80 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ac (VHT-80)	5210	42	13.80	13.45	16.64	16.61
	5290	58	9.84	9.69	12.78	12.82
	5530	106	13.99	14.01	17.01	17.11
	5610	122	13.86	13.90	16.89	16.61
	5690	138	13.85	14.21	17.04	17.14
	5775	155	13.85	14.01	16.94	17.06

Table 9.4.9 IEEE 802.11ac VHT80 Average RF Power

Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, duo to an even number of channels, both channels were measured.
- Output Power and SAR is not required for 802.11 g/n HT20 channels when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjust SAR is ≤ 1.2 W/kg.
- The underlined data rate and channel above were tested for SAR.

The average output powers of this device were tested by below configuration.

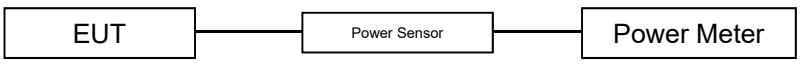

Figure 9.4 Power Measurement Setup

9.5 Bluetooth Conducted Powers

Burst Modulated Average[dBm]		
Bluetooth 1 Mbps	Maximum	12.0
	Nominal	11.0
Bluetooth 2 Mbps	Maximum	12.0
	Nominal	11.0
Bluetooth 3 Mbps	Maximum	12.0
	Nominal	11.0
Bluetooth LE	Maximum	5.0
	Nominal	4.0

Table 9.5.1 Nominal and Maximum Output Power Spec (Burst)

Frame Modulated Average[dBm]		
Bluetooth 1 Mbps	Maximum	10.85
	Nominal	9.85
Bluetooth 2 Mbps	Maximum	10.85
	Nominal	9.85
Bluetooth 3 Mbps	Maximum	10.85
	Nominal	9.85
Bluetooth LE	Maximum	2.59
	Nominal	1.59

Table 9.5.2 Nominal and Maximum Output Power Spec (Frame)

Channel	Frequency	Burst AVG Output Power (1Mbps)	Frame AVG Output Power (1Mbps)	Burst AVG Output Power (2Mbps)	Frame AVG Output Power (2Mbps)	Burst AVG Output Power (3Mbps)	Frame AVG Output Power (3Mbps)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
Low	2402	11.10	9.95	10.48	9.33	10.49	9.34
Mid	2441	11.46	10.31	10.85	9.70	10.87	9.72
High	2480	9.97	8.82	9.97	8.82	9.98	8.83

Table 9.5.3 Bluetooth Burst and Frame Average RF Power

Channel	Frequency	Burst AVG Output Power(LE / 1Mbps)	Frame AVG Output Power(LE / 2Mbps)
	(MHz)	(dBm)	(dBm)
Low	2402	3.39	0.98
Mid	2440	3.71	1.30
High	2480	2.45	0.04

Table 9.5.4 Bluetooth LE Burst and Frame Average RF Power

- **Bluetooth Conducted Powers procedures**

1. Bluetooth (BDR, EDR)
   1) Enter DUT mode in EUT and operate it.
      When it operating, The EUT is transmitting at maximum power level and duty cycle fixed.
   2) Instruments and EUT were connected like Figure 9.5.1(A).
   3) The maximum output powers of BDR(1 Mbps), EDR(2, 3 Mbps) and each frequency were set by a Bluetooth Tester.
   4) Power levels were measured by a Power Meter.

2. Bluetooth (LE)
   1) Enter LE mode in EUT and operate it.
      When it operating, The EUT is transmitting at maximum power level and duty cycle fixed.
   2) Instruments and EUT were connected like Figure 9.5.1(B).
   3) The average conducted output powers of LE and each frequency can measurement according to setting program in EUT.
   4) Power levels were measured by a Power Meter.

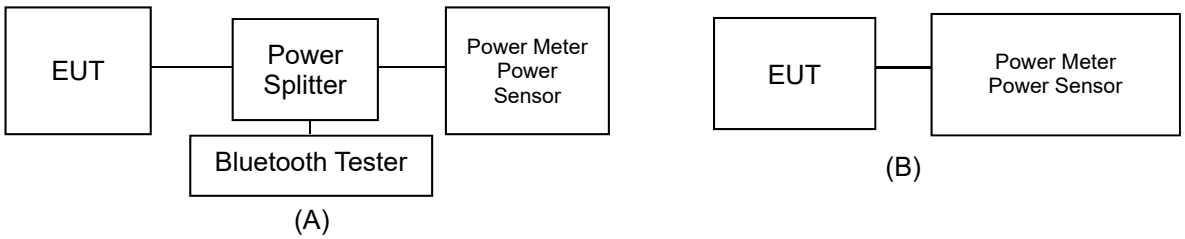

Figure 9.5.1 Average Power Measurement Setup

The average conducted output powers of Bluetooth were measured using above test setup and a wideband gated RF power meter when the EUT is transmitting at its maximum power level.

- **Bluetooth Transmission Plot**

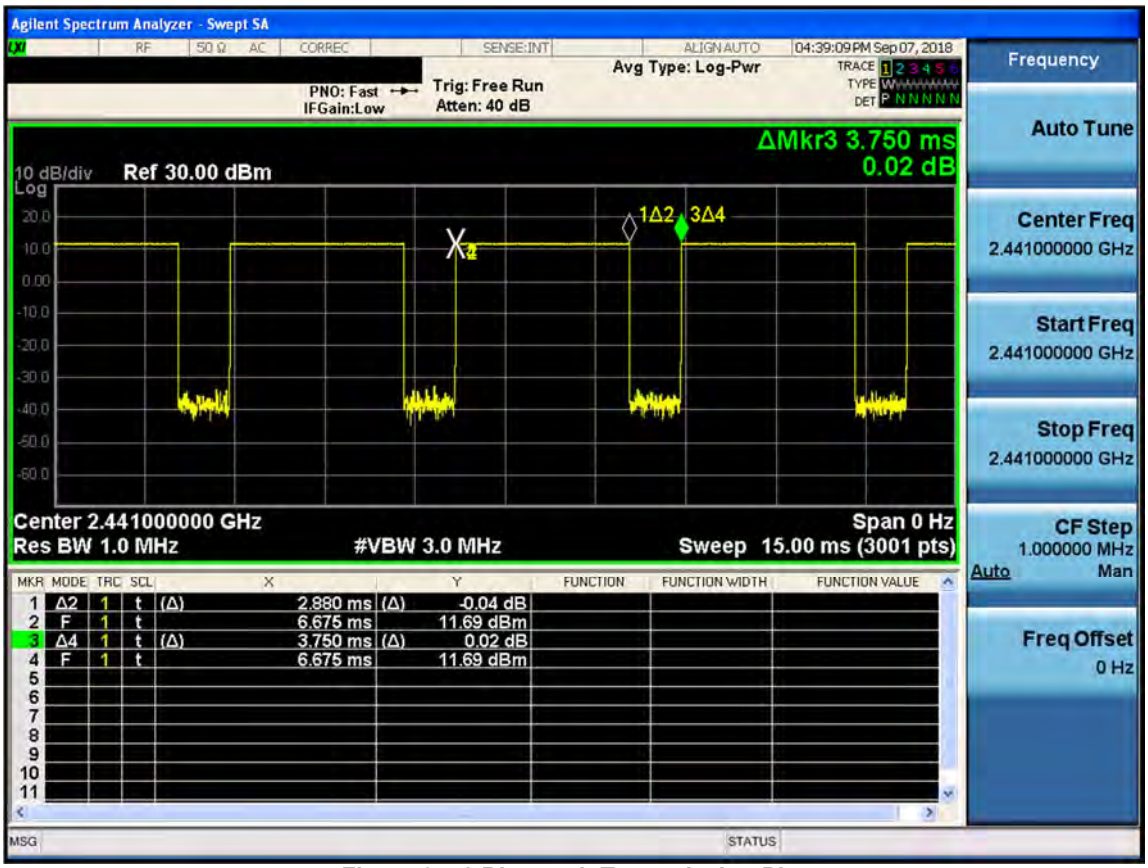

Figure 9.5.2 Bluetooth Transmission Plot

- **Bluetooth Duty Cycle Calculation**

Duty Cycle = Pulse/Period * 100% = (2.880/3.750) * 100 = 76.8%

10. SYSTEM VERIFICATION

10.1 Tissue Verification

MEASURED TISSUE PARAMETERS										
Date(s)	Tissue Type	Ambient Temp.[°C]	Liquid Temp.[°C]	Measured Frequency [MHz]	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	Er Deviation [%]	σ Deviation [%]
Sep. 11. 2018	750 Head	20.5	20.4	707.5	42.129	0.887	41.255	0.864	-2.07	-2.59
				750.0	41.900	0.890	40.770	0.904	-2.70	1.57
Sep. 11. 2018	750 Body	20.5	20.5	707.5	55.699	0.960	54.332	0.934	-2.45	-2.71
				750.0	55.531	0.963	53.896	0.972	-2.94	0.93
Sep. 03. 2018	835 Head	20.8	21.5	824.2	41.552	0.899	40.769	0.883	-1.88	-1.78
				835.0	41.500	0.900	40.644	0.893	-2.06	-0.78
				836.6	41.500	0.901	40.621	0.895	-2.12	-0.67
				848.8	41.500	0.914	40.482	0.905	-2.45	-0.98
Sep. 03. 2018	835 Body	20.8	21.3	824.2	55.243	0.969	55.196	0.951	-0.09	-1.86
				835.0	55.200	0.970	55.102	0.960	-0.18	-1.03
				836.6	55.197	0.971	55.087	0.961	-0.20	-1.03
				848.8	55.160	0.986	54.967	0.971	-0.35	-1.52
Sep. 06. 2018	1800 Head	21.1	21.6	1712.4	40.126	1.350	40.220	1.363	0.23	0.96
				1732.4	40.097	1.361	40.105	1.376	0.02	1.10
				1752.6	40.069	1.373	39.966	1.393	-0.26	1.46
				1800.0	40.000	1.400	39.746	1.446	-0.63	3.29
Sep. 06. 2018	1800 Body	21.1	21.7	1712.4	53.596	1.464	52.065	1.422	-2.86	-2.87
				1732.4	53.556	1.477	51.985	1.440	-2.93	-2.51
				1752.6	53.516	1.489	51.900	1.458	-3.02	-2.08
				1800.0	53.300	1.520	51.739	1.493	-2.93	-1.78
Sep. 10. 2018	1800 Head	20.7	20.6	1720.0	40.114	1.354	40.640	1.365	1.31	0.81
				1732.5	40.097	1.361	40.561	1.376	1.16	1.10
				1745.0	40.079	1.369	40.474	1.387	0.99	1.31
				1800.0	40.000	1.400	40.173	1.438	0.43	2.71
Sep. 10. 2018	1800 Body	20.7	20.8	1720.0	53.580	1.469	52.239	1.432	-2.50	-2.52
				1732.5	53.556	1.477	52.184	1.444	-2.56	-2.23
				1745.0	53.530	1.485	52.127	1.455	-2.62	-2.02
				1800.0	53.300	1.520	51.915	1.496	-2.60	-1.58

MEASURED TISSUE PARAMETERS										
Date(s)	Tissue Type	Ambient Temp.[°C]	Liquid Temp.[°C]	Measured Frequency [MHz]	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	Er Deviation [%]	σ Deviation [%]
Sep. 04. 2018	1900 Head	20.6	21.7	1850.2	40.000	1.400	38.931	1.379	-2.67	-1.50
				1880.0	40.000	1.400	38.845	1.407	-2.89	0.50
				1900.0	40.000	1.400	38.765	1.424	-3.09	1.71
				1909.8	40.000	1.400	38.726	1.432	-3.19	2.29
Sep. 04. 2018	1900 Body	20.6	21.6	1850.2	53.300	1.520	51.737	1.498	-2.93	-1.45
				1880.0	53.300	1.520	51.657	1.526	-3.08	0.39
				1900.0	53.300	1.520	51.580	1.541	-3.23	1.38
				1909.8	53.300	1.520	51.547	1.549	-3.29	1.91
Sep. 05. 2018	1900 Head	21.0	21.5	1852.4	40.000	1.400	39.226	1.389	-1.94	-0.79
				1880.0	40.000	1.400	39.093	1.412	-2.27	0.86
				1900.0	40.000	1.400	38.990	1.431	-2.53	2.21
				1907.6	40.000	1.400	38.955	1.438	-2.61	2.71
Sep. 05. 2018	1900 Body	21.0	21.3	1852.4	53.300	1.520	51.978	1.506	-2.48	-0.92
				1880.0	53.300	1.520	51.851	1.530	-2.72	0.66
				1900.0	53.300	1.520	51.753	1.548	-2.90	1.84
				1907.6	53.300	1.520	51.722	1.556	-2.96	2.37
Sep. 07. 2018	1900 Head	20.8	21.3	1860.0	40.000	1.400	39.368	1.398	-1.58	-0.14
				1880.0	40.000	1.400	39.270	1.415	-1.82	1.07
				1900.0	40.000	1.400	39.168	1.433	-2.08	2.36
Sep. 07. 2018	1900 Body	20.8	21.1	1860.0	53.300	1.520	52.003	1.513	-2.43	-0.46
				1880.0	53.300	1.520	51.899	1.530	-2.63	0.66
				1900.0	53.300	1.520	51.796	1.548	-2.82	1.84
Sep. 06. 2018	2450 Head	20.9	21.2	2402.0	39.282	1.757	40.482	1.699	3.05	-3.30
				2412.0	39.265	1.766	40.452	1.710	3.02	-3.17
				2437.0	39.222	1.788	40.380	1.739	2.95	-2.74
				2441.0	39.215	1.792	40.368	1.743	2.94	-2.73
				2450.0	39.200	1.800	40.339	1.754	2.91	-2.56
				2462.0	39.184	1.813	40.310	1.766	2.87	-2.59
				2472.0	39.171	1.823	40.281	1.776	2.83	-2.58
				2480.0	39.160	1.832	40.251	1.784	2.79	-2.62
Sep. 07. 2018	2450 Body	20.7	21.1	2402.0	52.764	1.904	52.493	1.920	-0.51	0.84
				2412.0	52.751	1.914	52.463	1.931	-0.55	0.89
				2437.0	52.717	1.938	52.396	1.961	-0.61	1.19
				2441.0	52.712	1.941	52.382	1.966	-0.63	1.29
				2450.0	52.700	1.950	52.357	1.977	-0.65	1.38
				2462.0	52.685	1.967	52.330	1.992	-0.67	1.27
				2472.0	52.672	1.981	52.300	2.004	-0.71	1.16
				2480.0	52.662	1.993	52.278	2.014	-0.73	1.05

MEASURED TISSUE PARAMETERS										
Date(s)	Tissue Type	Ambient Temp.[°C]	Liquid Temp.[°C]	Measured Frequency [MHz]	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	Er Deviation [%]	σ Deviation [%]
Sep. 14. 2018	5200 Head	20.9	20.8	5180.0	36.020	4.639	35.895	4.733	-0.35	2.03
				5190.0	36.010	4.650	35.870	4.739	-0.39	1.91
				5200.0	36.000	4.660	35.839	4.748	-0.45	1.89
				5210.0	35.990	4.670	35.810	4.759	-0.50	1.91
				5220.0	35.980	4.680	35.788	4.770	-0.53	1.92
				5230.0	35.970	4.690	35.766	4.780	-0.57	1.92
				5240.0	35.960	4.700	35.745	4.789	-0.60	1.89
Sep. 17. 2018	5200 Body	21.0	20.8	5180.0	49.041	5.276	48.603	5.282	-0.89	0.11
				5190.0	49.028	5.288	48.571	5.290	-0.93	0.04
				5200.0	49.014	5.299	48.532	5.302	-0.98	0.06
				5210.0	49.001	5.311	48.496	5.315	-1.03	0.08
				5220.0	48.987	5.323	48.461	5.328	-1.07	0.09
				5230.0	48.974	5.334	48.433	5.341	-1.10	0.13
				5240.0	48.960	5.346	48.400	5.353	-1.14	0.13
Sep. 21. 2018	5300 Body	21.5	21.3	5260.0	48.933	5.369	47.801	5.346	-2.31	-0.43
				5270.0	48.919	5.381	47.776	5.362	-2.34	-0.35
				5280.0	48.906	5.393	47.767	5.376	-2.33	-0.32
				5290.0	48.892	5.404	47.752	5.385	-2.33	-0.35
				5300.0	48.879	5.416	47.729	5.396	-2.35	-0.37
				5310.0	48.865	5.428	47.697	5.409	-2.39	-0.35
				5320.0	48.851	5.439	47.679	5.432	-2.40	-0.13

MEASURED TISSUE PARAMETERS										
Date(s)	Tissue Type	Ambient Temp.[°C]	Liquid Temp.[°C]	Measured Frequency [MHz]	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	Er Deviation [%]	σ Deviation [%]
Sep. 12. 2018	5600 Head	21.3	21.0	5500.0	35.650	4.965	35.156	5.089	-1.39	2.50
				5510.0	35.635	4.976	35.144	5.098	-1.38	2.45
				5530.0	35.605	4.997	35.092	5.123	-1.44	2.52
				5550.0	35.575	5.018	35.060	5.150	-1.45	2.63
				5580.0	35.530	5.049	34.991	5.182	-1.52	2.63
				5600.0	35.500	5.070	34.944	5.209	-1.57	2.74
				5660.0	35.440	5.130	34.833	5.275	-1.71	2.83
				5670.0	35.430	5.140	34.814	5.283	-1.74	2.78
				5690.0	35.410	5.160	34.765	5.305	-1.82	2.81
				5710.0	35.390	5.180	34.724	5.330	-1.88	2.90
				5720.0	35.380	5.190	34.716	5.341	-1.88	2.91
Sep. 13. 2018	5600 Body	21.0	21.3	5500.0	48.607	5.650	47.483	5.859	-2.31	3.70
				5510.0	48.594	5.661	47.472	5.872	-2.31	3.73
				5530.0	48.566	5.685	47.362	5.890	-2.48	3.61
				5550.0	48.539	5.708	47.251	5.915	-2.65	3.63
				5580.0	48.499	5.743	47.159	5.957	-2.76	3.73
				5600.0	48.471	5.766	47.106	5.986	-2.82	3.82
				5660.0	48.390	5.836	46.935	6.057	-3.01	3.79
				5670.0	48.376	5.848	46.905	6.071	-3.04	3.81
				5690.0	48.349	5.872	46.852	6.101	-3.10	3.90
				5710.0	48.322	5.895	46.817	6.134	-3.11	4.05
				5720.0	48.309	5.907	46.812	6.147	-3.10	4.06
Sep. 10. 2018	5800 Head	21.1	21.3	5745.0	35.355	5.215	34.407	5.346	-2.68	2.51
				5755.0	35.345	5.225	34.380	5.361	-2.73	2.60
				5775.0	35.325	5.245	34.351	5.381	-2.76	2.59
				5785.0	35.315	5.255	34.326	5.390	-2.80	2.57
				5795.0	35.305	5.265	34.304	5.401	-2.84	2.58
				5800.0	35.300	5.270	34.291	5.407	-2.86	2.60
				5825.0	35.275	5.296	34.247	5.439	-2.91	2.70
Sep. 11. 2018	5800 Body	20.8	21.4	5745.0	48.275	5.936	48.104	6.026	-0.35	1.52
				5755.0	48.261	5.947	48.075	6.040	-0.39	1.56
				5775.0	48.234	5.971	48.033	6.065	-0.42	1.57
				5785.0	48.220	5.982	48.006	6.078	-0.44	1.60
				5795.0	48.207	5.994	47.980	6.093	-0.47	1.65
				5800.0	48.200	6.000	47.969	6.101	-0.48	1.68
				5825.0	48.166	6.029	47.925	6.136	-0.50	1.77

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB 865664 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

Measurement Procedure for Tissue verification:

1) The network analyzer and probe system was configured and calibrated.
2) The probe was immersed in the sample which was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
3) The complex admittance with respect to the probe aperture was measured
4) The complex relative permittivity , for example from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\varepsilon_r\varepsilon_0}{[\ln(b/a)]^2}\int_a^b\int_a^b\int_0^\pi \cos\phi' \frac{\exp\left[-j\omega r(\mu_0\varepsilon_r'\varepsilon_0)^{1/2}\right]}{r} d\phi' d\rho' d\rho$$

where Y is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively, $r^2 = \rho^2 + \rho'^2 - 2\rho\rho'\cos\phi'$, ω is the angular frequency, and $j = \sqrt{-1}$.

10.2 Test System Verification

Prior to assessment, the system is verified to the ± 10 % of the specifications at using the SAR Dipole kit(s). (Graphic Plots Attached)

Table 10.2.1 System Verification Results (1g)

SYSTEM DIPOLE VERIFICATION TARGET & MEASURED												
SAR System #	Freq. [MHz]	SAR Dipole kits	Date(s)	Tissue Type	Ambient Temp. [°C]	Liquid Temp. [°C]	Probe S/N	Input Power (mW)	1 W Target SAR_{1g} (W/kg)	Measured SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	Deviation [%]
D	750	D750V3, SN:1049	Sep. 11. 2018	Head	20.5	20.4	3328	250	8.32	2.12	8.48	1.92
D	750	D750V3, SN:1049	Sep. 11. 2018	Body	20.5	20.5	3328	250	8.70	2.29	9.16	5.29
D	835	D835V2, SN:464	Sep. 03. 2018	Head	20.8	21.5	3328	250	9.38	2.37	9.48	1.07
D	835	D835V2, SN:464	Sep. 03. 2018	Body	20.8	21.3	3328	250	9.45	2.30	9.20	-2.65
D	1800	D1800V2, SN:2d202	Sep. 06. 2018	Head	21.1	21.6	3328	100	38.7	4.01	40.10	3.62
D	1800	D1800V2, SN:2d202	Sep. 06. 2018	Body	21.1	21.7	3328	100	38.8	4.08	40.80	5.15
D	1800	D1800V2, SN:2d202	Sep. 10. 2018	Head	20.7	20.6	3328	100	38.7	3.89	38.90	0.52
D	1800	D1800V2, SN:2d202	Sep. 10. 2018	Body	20.7	20.8	3328	100	38.8	3.98	39.80	2.58
D	1900	D1900V2, SN:5d029	Sep. 04. 2018	Head	20.6	21.7	3328	100	39.2	3.76	37.60	-4.08
D	1900	D1900V2, SN:5d029	Sep. 04. 2018	Body	20.6	21.6	3328	100	39.6	3.88	38.80	-2.02
D	1900	D1900V2, SN:5d029	Sep. 05. 2018	Head	21.0	21.5	3328	100	39.2	3.90	39.00	-0.51
D	1900	D1900V2, SN:5d029	Sep. 05. 2018	Body	21.0	21.3	3328	100	39.6	3.90	39.00	-1.52
D	1900	D1900V2, SN:5d029	Sep. 07. 2018	Head	20.8	21.3	3328	100	39.2	4.14	41.40	5.61
D	1900	D1900V2, SN:5d029	Sep. 07. 2018	Body	20.8	21.1	3328	100	39.6	4.10	41.00	3.54
C	2450	D2450V2, SN: 726	Sep. 06. 2018	Head	20.9	21.2	3866	100	51.9	4.93	49.30	-5.01
C	2450	D2450V2, SN: 726	Sep. 07. 2018	Body	20.7	21.1	3866	100	50.3	4.89	48.90	-2.78
C	5200	D5GHzV2, SN:1212	Sep. 14. 2018	Head	20.9	20.8	3866	100	79.6	7.98	79.80	0.25
C	5200	D5GHzV2, SN:1212	Sep. 17. 2018	Body	21.0	20.8	3866	100	72.7	7.13	71.30	-1.93
C	5600	D5GHzV2, SN:1212	Sep. 12. 2018	Head	21.3	21.0	3866	100	83.6	8.19	81.90	-2.03
C	5600	D5GHzV2, SN:1212	Sep. 13. 2018	Body	21.0	21.3	3866	100	78.9	7.76	77.60	-1.65
C	5800	D5GHzV2, SN:1212	Sep. 10. 2018	Head	21.1	21.3	3866	100	79.5	7.78	77.80	-2.14
C	5800	D5GHzV2, SN:1212	Sep. 11. 2018	Body	20.8	21.4	3866	100	75.7	7.53	75.30	-0.53

Table 10.2.2 System Verification Results (10g)

SYSTEM DIPOLE VERIFICATION TARGET & MEASURED												
SAR System #	Freq. [MHz]	SAR Dipole kits	Date(s)	Tissue Type	Ambient Temp. [°C]	Liquid Temp. [°C]	Probe S/N	Input Power (mW)	1 W Target SAR_{10g} (W/kg)	Measured SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	Deviation [%]
C	5300	D5GHzV2, SN:1212	Sep. 21. 2018	Body	21.5	21.3	3866	100	20.9	2.01	20.10	-3.83
C	5600	D5GHzV2, SN:1212	Sep. 13. 2018	Body	21.0	21.3	3866	100	21.8	2.13	21.30	-2.29
C	5800	D5GHzV2, SN:1212	Sep. 11. 2018	Body	20.8	21.4	3866	100	20.8	2.04	20.40	-1.92

Note1 : System Verification was measured with input 250 mW, 100 mW and normalized to 1W.
Note2 : Full system validation status and results can be found in Attachment 3.

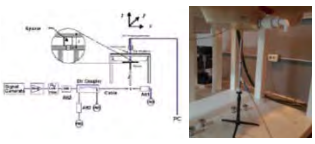

Figure 10.1 Dipole Verification Test Setup Diagram & Photo

11. SAR TEST RESULTS

11.1 Head SAR Results

Table 11.1.1 GSM/GPRS 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	# of Time Slots	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
836.6	190	GSM850	GSM	33.70	33.20	-0.000	Left Touch	FCC #1	1	1:8.3	0.084	1.122	0.094	
836.6	190	GSM850	GSM	33.70	33.20	0.150	Right Touch	FCC #1	1	1:8.3	0.136	1.122	**0.153**	A1
836.6	190	GSM850	GSM	33.70	33.20	-0.040	Left Tilt	FCC #1	1	1:8.3	0.038	1.122	0.043	
836.6	190	GSM850	GSM	33.70	33.20	0.150	Right Tilt	FCC #1	1	1:8.3	0.067	1.122	0.075	
836.6	190	GSM850	GPRS	30.70	30.30	0.150	Left Touch	FCC #1	3	1:2.77	0.147	1.096	0.161	
836.6	190	GSM850	GPRS	30.70	30.30	0.000	Right Touch	FCC #1	3	1:2.77	0.261	1.096	**0.286**	A2
836.6	190	GSM850	GPRS	30.70	30.30	0.170	Left Tilt	FCC #1	3	1:2.77	0.068	1.096	0.075	
836.6	190	GSM850	GPRS	30.70	30.30	-0.020	Right Tilt	FCC #1	3	1:2.77	0.126	1.096	0.138	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) averaged over 1 gram**						

Table 11.1.2 PCS/GPRS 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	# of Time Slots	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
1880.0	661	PCS1900	PCS	30.70	30.30	-0.040	Left Touch	FCC #1	1	1:8.3	0.108	1.096	**0.118**	A3
1880.0	661	PCS1900	PCS	30.70	30.30	0.130	Right Touch	FCC #1	1	1:8.3	0.076	1.096	0.083	
1880.0	661	PCS1900	PCS	30.70	30.30	0.050	Left Tilt	FCC #1	1	1:8.3	0.091	1.096	0.100	
1880.0	661	PCS1900	PCS	30.70	30.30	0.010	Right Tilt	FCC #1	1	1:8.3	0.090	1.096	0.099	
1880.0	661	PCS1900	GPRS	27.70	27.50	0.120	Left Touch	FCC #1	3	1:2.77	0.152	1.047	**0.159**	A4
1880.0	661	PCS1900	GPRS	27.70	27.50	0.130	Right Touch	FCC #1	3	1:2.77	0.107	1.047	0.112	
1880.0	661	PCS1900	GPRS	27.70	27.50	-0.090	Left Tilt	FCC #1	3	1:2.77	0.127	1.047	0.133	
1880.0	661	PCS1900	GPRS	27.70	27.50	-0.090	Right Tilt	FCC #1	3	1:2.77	0.123	1.047	0.129	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) averaged over 1 gram**						

Table 11.1.3 WCDMA 1700 Head SAR

MEASUREMENT RESULTS													
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch												
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	0.130	Left Touch	FCC #1	1:1	0.152	1.000	**0.152**	A5
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	0.090	Right Touch	FCC #1	1:1	0.108	1.000	0.108	
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	0.150	Left Tilt	FCC #1	1:1	0.091	1.000	0.091	
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	0.100	Right Tilt	FCC #1	1:1	0.076	1.000	0.076	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) **averaged over 1 gram					

Table 11.1.4 WCDMA 1900 Head SAR

MEASUREMENT RESULTS													
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch												
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	0.110	Left Touch	FCC #1	1:1	0.129	1.072	**0.138**	A6
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	-0.060	Right Touch	FCC #1	1:1	0.085	1.072	0.091	
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	-0.030	Left Tilt	FCC #1	1:1	0.108	1.072	0.116	
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	0.160	Right Tilt	FCC #1	1:1	0.107	1.072	0.115	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) **averaged over 1 gram					

Table 11.1.5 LTE Band 12 Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
707.5	23095	LTE B12	10	25.50	25.41	0.020	0	Left Touch	FCC #1	QPSK	1	49	1:1	0.110	1.021	0.112	
707.5	23095	LTE B12	10	24.50	24.22	-0.170	1	Left Touch	FCC #1	QPSK	25	25	1:1	0.085	1.067	0.091	
707.5	23095	LTE B12	10	25.50	25.41	0.140	0	Right Touch	FCC #1	QPSK	1	49	1:1	0.146	1.021	**0.149**	A7
707.5	23095	LTE B12	10	24.50	24.22	0.150	1	Right Touch	FCC #1	QPSK	25	25	1:1	0.109	1.067	0.116	
707.5	23095	LTE B12	10	25.50	25.41	-0.020	0	Left Tilt	FCC #1	QPSK	1	49	1:1	0.051	1.021	0.052	
707.5	23095	LTE B12	10	24.50	24.22	-0.030	1	Left Tilt	FCC #1	QPSK	25	25	1:1	0.036	1.067	0.038	
707.5	23095	LTE B12	10	25.50	25.41	0.150	0	Right Tilt	FCC #1	QPSK	1	49	1:1	0.035	1.021	0.036	
707.5	23095	LTE B12	10	24.50	24.22	0.100	1	Right Tilt	FCC #1	QPSK	25	25	1:1	0.024	1.067	0.026	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									**Head 1.6 W/kg (mW/g) averaged over 1 gram**								

Table 11.1.6 LTE Band 4 (AWS) Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1732.5	20175	LTE B4	20	23.70	23.43	0.030	0	Left Touch	FCC #1	QPSK	1	0	1:1	0.195	1.064	**0.207**	A8
1732.5	20175	LTE B4	20	22.70	22.35	0.090	1	Left Touch	FCC #1	QPSK	50	0	1:1	0.183	1.084	0.198	
1732.5	20175	LTE B4	20	23.70	23.43	-0.020	0	Right Touch	FCC #1	QPSK	1	0	1:1	0.135	1.064	0.144	
1732.5	20175	LTE B4	20	22.70	22.35	0.090	1	Right Touch	FCC #1	QPSK	50	0	1:1	0.119	1.084	0.129	
1732.5	20175	LTE B4	20	23.70	23.43	0.140	0	Left Tilt	FCC #1	QPSK	1	0	1:1	0.176	1.064	0.187	
1732.5	20175	LTE B4	20	22.70	22.35	-0.030	1	Left Tilt	FCC #1	QPSK	50	0	1:1	0.148	1.084	0.160	
1732.5	20175	LTE B4	20	23.70	23.43	0.030	0	Right Tilt	FCC #1	QPSK	1	0	1:1	0.138	1.064	0.147	
1732.5	20175	LTE B4	20	22.70	22.35	-0.060	1	Right Tilt	FCC #1	QPSK	50	0	1:1	0.130	1.084	0.141	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									**Head 1.6 W/kg (mW/g) averaged over 1 gram**								

Table 11.1.7 LTE Band 2 (PCS) Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1900.0	19100	LTE B2	20	23.40	23.38	0.010	0	Left Touch	FCC #1	QPSK	1	0	1:1	0.142	1.005	**0.143**	A9
1900.0	19100	LTE B2	20	22.40	22.24	0.080	1	Left Touch	FCC #1	QPSK	50	0	1:1	0.102	1.038	0.106	
1900.0	19100	LTE B2	20	23.40	23.38	0.120	0	Right Touch	FCC #1	QPSK	1	0	1:1	0.094	1.005	0.094	
1900.0	19100	LTE B2	20	22.40	22.24	-0.010	1	Right Touch	FCC #1	QPSK	50	0	1:1	0.076	1.038	0.079	
1900.0	19100	LTE B2	20	23.40	23.38	0.070	0	Left Tilt	FCC #1	QPSK	1	0	1:1	0.098	1.005	0.098	
1900.0	19100	LTE B2	20	22.40	22.24	-0.190	1	Left Tilt	FCC #1	QPSK	50	0	1:1	0.084	1.038	0.087	
1900.0	19100	LTE B2	20	23.40	23.38	0.060	0	Right Tilt	FCC #1	QPSK	1	0	1:1	0.108	1.005	0.109	
1900.0	19100	LTE B2	20	22.40	22.24	0.090	1	Right Tilt	FCC #1	QPSK	50	0	1:1	0.094	1.038	0.098	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									**Head 1.6 W/kg (mW/g) averaged over 1 gram**								

Table 11.1.8 DTS Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode (Antenna)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
2462.0	11	802.11b (Ant.1)	16.50	16.20	0.080	Left Touch	FCC #2	0.202	1	99.0	0.187	1.072	1.010	0.202	
2462.0	11	802.11b (Ant.1)	16.50	16.20	0.130	Right Touch	FCC #2	0.353	1	99.0	0.287	1.072	1.010	0.311	
2462.0	11	802.11b (Ant.1)	16.50	16.20	0.120	Left Tilt	FCC #2	0.260	1	99.0	0.254	1.072	1.010	0.275	
2462.0	11	802.11b (Ant.1)	16.50	16.20	0.100	Right Tilt	FCC #2	0.345	1	99.0	0.316	1.072	1.010	**0.342**	A10
2462.0	11	802.11b (Ant.2)	16.50	16.24	0.060	Left Touch	FCC #2	0.012	1	99.0	0.021	1.062	1.010	0.022	
2462.0	11	802.11b (Ant.2)	16.50	16.24	0.110	Right Touch	FCC #2	0.070	1	99.0	0.056	1.062	1.010	**0.060**	A11
2462.0	11	802.11b (Ant.2)	16.50	16.24	0.120	Left Tilt	FCC #2	0.001	1	99.0	0.006	1.062	1.010	0.007	
2462.0	11	802.11b (Ant.2)	16.50	16.24	0.160	Right Tilt	FCC #2	0.038	1	99.0	0.020	1.062	1.010	0.021	
2437.0	6	802.11g (MIMO)	19.00	18.52	-0.180	Left Touch	FCC #2	0.226	1	97.2	0.219	1.117	1.029	0.252	
2437.0	6	802.11g (MIMO)	19.00	18.52	0.120	Right Touch	FCC #2	0.269	1	97.2	0.234	1.117	1.029	0.269	
2437.0	6	802.11g (MIMO)	19.00	18.52	0.080	Left Tilt	FCC #2	0.279	1	97.2	0.268	1.117	1.029	**0.308**	A12
2437.0	6	802.11g (MIMO)	19.00	18.52	0.140	Right Tilt	FCC #2	0.202	1	97.2	0.197	1.117	1.029	0.226	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) averaged over 1 gram**							

Adjusted SAR results for OFDM SAR											
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Ratio of OFDM to DSSS	1g Adjusted SAR (W/kg)	Determine OFDM SAR
MHz	Ch											
2462.0	11	802.11b (Ant.1)	DSSS	16.5	0.342	2437	802.11g	OFDM	16.0	0.891	**0.305**	X
2462.0	11	802.11b (Ant.1)	DSSS	16.5	0.342	2437	802.11n	OFDM	14.5	0.631	**0.216**	X
2462.0	11	802.11b (Ant.1)	DSSS	16.5	0.342	2437	802.11ac	OFDM	14.5	0.631	**0.216**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.060	2437	802.11g	OFDM	16.0	0.891	**0.053**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.060	2437	802.11n	OFDM	14.5	0.631	**0.038**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.060	2437	802.11ac	OFDM	14.5	0.631	**0.038**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.308	2437	802.11n	OFDM	17.5	0.708	**0.218**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.308	2437	802.11ac	OFDM	17.5	0.708	**0.218**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Head 1.6 W/kg (mW/g) averaged over 1 gram**						

Note: SAR is not required for the following 2.4 GHz OFDM conditions. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Table 11.1.9 UNII Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode (Antenna)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5240.0	48	802.11a (Ant.1)	16.00	15.64	0.170	Left Touch	FCC #2	0.105	1	97.2	0.076	1.086	1.029	0.085	
5240.0	48	802.11a (Ant.1)	16.00	15.64	0.150	Right Touch	FCC #2	0.261	1	97.2	0.273	1.086	1.029	**0.305**	A13
5240.0	48	802.11a (Ant.1)	16.00	15.64	0.110	Left Tilt	FCC #2	0.101	1	97.2	0.069	1.086	1.029	0.077	
5240.0	48	802.11a (Ant.1)	16.00	15.64	-0.040	Right Tilt	FCC #2	0.215	1	97.2	0.231	1.086	1.029	0.258	
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.000	Left Touch	FCC #2	0.008	1	97.2	0.014	1.062	1.029	0.015	
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.000	Right Touch	FCC #2	0.061	1	97.2	0.049	1.062	1.029	**0.054**	A14
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.000	Left Tilt	FCC #2	0.028	1	97.2	0.010	1.062	1.029	0.011	
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.000	Right Tilt	FCC #2	0.027	1	97.2	0.018	1.062	1.029	0.020	
5240.0	48	802.11a (MIMO)	19.00	18.70	-0.070	Left Touch	FCC #2	0.114	1	97.2	0.091	1.086	1.029	0.102	
5240.0	48	802.11a (MIMO)	19.00	18.70	0.110	Right Touch	FCC #2	0.279	1	97.2	0.258	1.086	1.029	**0.288**	A15
5240.0	48	802.11a (MIMO)	19.00	18.70	0.100	Left Tilt	FCC #2	0.102	1	97.2	0.085	1.086	1.029	0.095	
5240.0	48	802.11a (MIMO)	19.00	18.70	0.150	Right Tilt	FCC #2	0.229	1	97.2	0.211	1.086	1.029	0.236	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) averaged over 1 gram**							

Adjusted SAR results for UNII-1 and UNII-2A SAR												
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Adjusted Factor	1g Adjusted SAR (W/kg)	SAR for the band with lower maximum output power
MHz	Ch											
5240.0	48	802.11a (Ant.1)	OFDM	16.0	0.305	5320	802.11a	OFDM	15.0	0.794	**0.242**	X
5240.0	48	802.11a (Ant.2)	OFDM	16.0	0.054	5320	802.11a	OFDM	15.0	0.794	**0.043**	X
5240.0	48	802.11a (MIMO)	OFDM	19.0	0.288	5320	802.11a	OFDM	18.0	0.794	**0.229**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Head 1.6 W/kg (mW/g) averaged over 1 gram**						

Note(s):

1. U-NII-1 and U-NII-2A Bands: When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration.

Table 11.1.10 UNII Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode (Antenna)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5600.0	120	802.11a (Ant.1)	16.00	15.93	0.130	Left Touch	FCC #2	0.223	1	97.2	0.135	1.016	1.029	0.141	
5600.0	120	802.11a (Ant.1)	16.00	15.93	0.100	Right Touch	FCC #2	0.425	1	97.2	0.437	1.016	1.029	**0.457**	A16
5600.0	120	802.11a (Ant.1)	16.00	15.93	-0.180	Left Tilt	FCC #2	0.218	1	97.2	0.175	1.016	1.029	0.183	
5600.0	120	802.11a (Ant.1)	16.00	15.93	0.030	Right Tilt	FCC #2	0.393	1	97.2	0.412	1.016	1.029	0.431	
5600.0	120	802.11a (Ant.2)	16.00	15.98	0.000	Left Touch	FCC #2	0.034	1	97.2	0.030	1.005	1.029	0.031	
5600.0	120	802.11a (Ant.2)	16.00	15.98	0.000	Right Touch	FCC #2	0.074	1	97.2	0.067	1.005	1.029	**0.069**	A17
5600.0	120	802.11a (Ant.2)	16.00	15.98	0.000	Left Tilt	FCC #2	0.026	1	97.2	0.019	1.005	1.029	0.020	
5600.0	120	802.11a (Ant.2)	16.00	15.98	0.000	Right Tilt	FCC #2	0.014	1	97.2	0.011	1.005	1.029	0.011	
5600.0	120	802.11a (MIMO)	19.00	18.97	-0.030	Left Touch	FCC #2	0.191	1	97.2	0.140	1.016	1.029	0.146	
5600.0	120	802.11a (MIMO)	19.00	18.97	0.170	Right Touch	FCC #2	0.404	1	97.2	0.341	1.016	1.029	0.356	
5600.0	120	802.11a (MIMO)	19.00	18.97	0.140	Left Tilt	FCC #2	0.204	1	97.2	0.178	1.016	1.029	0.186	
5600.0	120	802.11a (MIMO)	19.00	18.97	0.190	Right Tilt	FCC #2	0.418	1	97.2	0.401	1.016	1.029	**0.419**	A18
5785.0	157	802.11a (Ant.1)	16.00	15.98	0.010	Left Touch	FCC #2	0.165	1	97.2	0.102	1.005	1.029	0.105	
5785.0	157	802.11a (Ant.1)	16.00	15.98	-0.060	Right Touch	FCC #2	0.354	1	97.2	0.334	1.005	1.029	**0.345**	A19
5785.0	157	802.11a (Ant.1)	16.00	15.98	-0.070	Left Tilt	FCC #2	0.159	1	97.2	0.129	1.005	1.029	0.133	
5785.0	157	802.11a (Ant.1)	16.00	15.98	0.170	Right Tilt	FCC #2	0.259	1	97.2	0.264	1.005	1.029	0.273	
5785.0	157	802.11a (Ant.2)	16.00	15.99	0.000	Left Touch	FCC #2	0.051	1	97.2	0.049	1.002	1.029	0.051	
5785.0	157	802.11a (Ant.2)	16.00	15.99	0.000	Right Touch	FCC #2	0.125	1	97.2	0.099	1.002	1.029	**0.102**	A20
5785.0	157	802.11a (Ant.2)	16.00	15.99	0.000	Left Tilt	FCC #2	0.008	1	97.2	0.011	1.002	1.029	0.011	
5785.0	157	802.11a (Ant.2)	16.00	15.99	0.000	Right Tilt	FCC #2	0.012	1	97.2	0.011	1.002	1.029	0.011	
5785.0	157	802.11a (MIMO)	19.00	19.00	-0.190	Left Touch	FCC #2	0.197	1	97.2	0.148	1.005	1.029	0.153	
5785.0	157	802.11a (MIMO)	19.00	19.00	0.160	Right Touch	FCC #2	0.270	1	97.2	0.237	1.005	1.029	**0.245**	A21
5785.0	157	802.11a (MIMO)	19.00	19.00	0.140	Left Tilt	FCC #2	0.173	1	97.2	0.155	1.005	1.029	0.160	
5785.0	157	802.11a (MIMO)	19.00	19.00	0.100	Right Tilt	FCC #2	0.236	1	97.2	0.220	1.005	1.029	0.227	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) averaged over 1 gram**							

Table 11.1.11 Bluetooth Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Rate [Mbps]	Duty Cycle (%)	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
2441.0	39	Bluetooth	10.85	10.31	0.130	Left Touch	FCC #2	1	76.8	0.040	1.131	1.302	0.059	
2441.0	39	Bluetooth	10.85	10.31	-0.170	Right Touch	FCC #2	1	76.8	0.056	1.131	1.302	0.082	
2441.0	39	Bluetooth	10.85	10.31	0.150	Left Tilt	FCC #2	1	76.8	0.052	1.131	1.302	0.076	
2441.0	39	Bluetooth	10.85	10.31	0.120	Right Tilt	FCC #2	1	76.8	0.060	1.131	1.302	**0.088**	A22
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) averaged over 1 gram**						

11.2 Standalone Body-Worn SAR Worn SAR Results

Table 11.2.1 GSM/PCS/GPRS/WCDMA Body-Worn SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Spacing [Side]	Device Serial Number	# of Time Slots	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
836.6	190	GSM850	GSM	33.70	33.20	0.010	10 mm [Front]	FCC #1	1	1:8.3	0.275	1.122	0.309	
836.6	190	GSM850	GSM	33.70	33.20	0.050	10 mm [Rear]	FCC #1	1	1:8.3	0.345	1.122	**0.387**	A23
836.6	190	GSM850	GPRS	30.70	30.30	0.040	10 mm [Front]	FCC #1	3	1:2.77	0.498	1.096	0.546	
836.6	190	GSM850	GPRS	30.70	30.30	0.010	10 mm [Rear]	FCC #1	3	1:2.77	0.569	1.096	**0.624**	A24
1880.0	661	PCS1900	PCS	30.70	30.30	-0.050	10 mm [Front]	FCC #1	1	1:8.3	0.295	1.096	0.323	
1880.0	661	PCS1900	PCS	30.70	30.30	0.010	10 mm [Rear]	FCC #1	1	1:8.3	0.347	1.096	**0.380**	A25
1880.0	661	PCS1900	GPRS	27.70	27.50	0.010	10 mm [Front]	FCC #1	3	1:2.77	0.475	1.047	0.497	
1880.0	661	PCS1900	GPRS	27.70	27.50	-0.020	10 mm [Rear]	FCC #1	3	1:2.77	0.555	1.047	**0.581**	A26
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	-0.000	10 mm [Front]	FCC #1	N/A	1:1	0.409	1.000	0.409	
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	0.050	10 mm [Rear]	FCC #1	N/A	1:1	0.523	1.000	**0.523**	A27
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	0.070	10 mm [Front]	FCC #1	N/A	1:1	0.444	1.072	0.476	
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	0.020	10 mm [Rear]	FCC #1	N/A	1:1	0.496	1.072	**0.532**	A28
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

Table 11.2.2 LTE B12, B4 Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
707.5	23095	LTE B12	10	25.50	25.41	-0.070	0	10 mm [Front]	FCC #1	QPSK	1	49	1:1	0.320	1.021	0.327	
707.5	23095	LTE B12	10	24.50	24.22	-0.020	1	10 mm [Front]	FCC #1	QPSK	25	25	1:1	0.242	1.067	0.258	
707.5	23095	LTE B12	10	25.50	25.41	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	49	1:1	0.475	1.021	**0.485**	A29
707.5	23095	LTE B12	10	24.50	24.22	-0.050	1	10 mm [Rear]	FCC #1	QPSK	25	25	1:1	0.349	1.067	0.372	
1732.5	20175	LTE B4	20	23.70	23.43	0.060	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.455	1.064	0.484	
1732.5	20175	LTE B4	20	22.70	22.35	0.030	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.363	1.084	0.393	
1732.5	20175	LTE B4	20	23.70	23.43	0.070	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.499	1.064	**0.531**	A30
1732.5	20175	LTE B4	20	22.70	22.35	0.070	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.393	1.084	0.426	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									**Body 1.6 W/kg (mW/g) averaged over 1 gram**								

Table 11.2.3 LTE B2 Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1900.0	19100	LTE B2	20	23.40	23.38	0.030	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.481	1.005	0.483	
1900.0	19100	LTE B2	20	22.40	22.24	0.040	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.397	1.038	0.412	
1900.0	19100	LTE B2	20	23.40	23.38	0.060	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.577	1.005	**0.580**	A31
1900.0	19100	LTE B2	20	22.40	22.24	-0.000	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.474	1.038	0.492	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									**Body 1.6 W/kg (mW/g) averaged over 1 gram**								

Table 11.2.4 DTS Body-Worn SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	SAR (W/kg)	Plots #
MHz	Ch														
2462.0	11	802.11b (Ant.1)	16.50	16.20	0.180	10 mm [Front]	FCC #2	0.069	1	99.0	0.070	1.072	1.010	0.075	
2462.0	11	802.11b (Ant.1)	16.50	16.20	0.050	10 mm [Rear]	FCC #2	0.136	1	99.0	0.149	1.072	1.010	**0.161**	A32
2462.0	11	802.11b (Ant.2)	16.50	16.24	0.000	10 mm [Front]	FCC #2	0.007	1	99.0	0.005	1.062	1.010	0.005	
2462.0	11	802.11b (Ant.2)	16.50	16.24	-0.030	10 mm [Rear]	FCC #2	0.107	1	99.0	0.117	1.062	1.010	**0.126**	A33
2437.0	6	802.11g (MIMO)	19.00	18.52	-0.030	10 mm [Front]	FCC #2	0.048	1	97.2	0.048	1.117	1.029	0.055	
2437.0	6	802.11g (MIMO)	19.00	18.52	0.010	10 mm [Rear]	FCC #2	0.102	1	97.2	0.102	1.117	1.029	**0.117**	A34
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Adjusted SAR results for OFDM SAR												
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Ratio of OFDM to DSSS	1g Adjusted SAR (W/kg)	Determine OFDM SAR
MHz	Ch											
2462.0	11	802.11b (Ant.1)	DSSS	16.5	0.161	2437	802.11g	OFDM	16.0	0.891	**0.143**	X
2462.0	11	802.11b (Ant.1)	DSSS	16.5	0.161	2437	802.11n	OFDM	14.5	0.631	**0.102**	X
2462.0	11	802.11b (Ant.1)	DSSS	16.5	0.161	2437	802.11ac	OFDM	14.5	0.631	**0.102**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.126	2437	802.11g	OFDM	16.0	0.891	**0.112**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.126	2437	802.11n	OFDM	14.5	0.631	**0.080**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.126	2437	802.11ac	OFDM	14.5	0.631	**0.080**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.117	2437	802.11n	OFDM	17.5	0.708	**0.083**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.117	2437	802.11ac	OFDM	17.5	0.708	**0.083**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

Note: SAR is not required for the following 2.4 GHz OFDM conditions. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Table 11.2.5 UNII Body-Worn SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5240.0	48	802.11a (Ant.1)	16.00	15.64	0.030	10 mm [Front]	FCC #2	0.014	1	97.2	0.011	1.086	1.029	0.012	
5240.0	48	802.11a (Ant.1)	16.00	15.64	-0.190	10 mm [Rear]	FCC #2	0.121	1	97.2	0.100	1.086	1.029	**0.112**	A35
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.000	10 mm [Front]	FCC #2	0.002	1	97.2	0.002	1.062	1.029	0.002	
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.000	10 mm [Rear]	FCC #2	0.559	1	97.2	0.617	1.062	1.029	**0.674**	A36
5240.0	48	802.11a (MIMO)	19.00	18.70	0.040	10 mm [Front]	FCC #2	0.011	1	97.2	0.011	1.086	1.029	0.012	
5240.0	48	802.11a (MIMO)	19.00	18.70	-0.010	10 mm [Rear]	FCC #2	0.544	1	97.2	0.669	1.086	1.029	**0.747**	A37
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Adjusted SAR results for UNII-1 and UNII-2A SAR												
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Adjusted Factor	1g Adjusted SAR (W/kg)	SAR for the band with lower maximum output power
MHz	Ch											
5240.0	48	802.11a (Ant.1)	OFDM	16.0	0.112	5320	802.11a	OFDM	15.0	0.794	**0.089**	X
5240.0	48	802.11a (Ant.2)	OFDM	16.0	0.674	5320	802.11a	OFDM	15.0	0.794	**0.535**	X
5240.0	48	802.11a (MIMO)	OFDM	19.0	0.747	5320	802.11a	OFDM	18.0	0.794	**0.593**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

Note(s):

1. U-NII-1 and U-NII-2A Bands: When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration.

Table 11.2.6 UNII Body-Worn SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5600.0	120	802.11a (Ant.1)	16.00	15.93	0.160	10 mm [Front]	FCC #2	0.085	1	97.2	0.045	1.016	1.029	0.047	
5600.0	120	802.11a (Ant.1)	16.00	15.93	-0.050	10 mm [Rear]	FCC #2	0.084	1	97.2	0.069	1.016	1.029	**0.072**	A38
5600.0	120	802.11a (Ant.2)	16.00	15.98	-0.010	10 mm [Front]	FCC #2	0.001	1	97.2	0.001	1.005	1.029	0.001	
5600.0	120	802.11a (Ant.2)	16.00	15.98	-0.120	10 mm [Rear]	FCC #2	0.522	1	97.2	0.547	1.005	1.029	**0.566**	A39
5600.0	120	802.11a (MIMO)	19.00	18.97	-0.040	10 mm [Front]	FCC #2	0.061	1	97.2	0.036	1.016	1.029	0.037	
5600.0	120	802.11a (MIMO)	19.00	18.97	-0.040	10 mm [Rear]	FCC #2	0.531	1	97.2	0.583	1.016	1.029	**0.609**	A40
5785.0	157	802.11a (Ant.1)	16.00	15.98	-0.030	10 mm [Front]	FCC #2	0.029	1	97.2	0.023	1.005	1.029	0.024	
5785.0	157	802.11a (Ant.1)	16.00	15.98	0.080	10 mm [Rear]	FCC #2	0.046	1	97.2	0.035	1.005	1.029	**0.036**	A41
5785.0	157	802.11a (Ant.2)	16.00	15.99	-0.040	10 mm [Front]	FCC #2	0.016	1	97.2	0.023	1.002	1.029	0.024	
5785.0	157	802.11a (Ant.2)	16.00	15.99	-0.140	10 mm [Rear]	FCC #2	0.440	1	97.2	0.460	1.002	1.029	**0.474**	A42
5785.0	157	802.11a (MIMO)	19.00	19.00	0.040	10 mm [Front]	FCC #2	0.014	1	97.2	0.014	1.005	1.029	0.014	
5785.0	157	802.11a (MIMO)	19.00	19.00	-0.130	10 mm [Rear]	FCC #2	0.478	1	97.2	0.429	1.005	1.029	**0.444**	A43
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Table 11.2.7 Bluetooth Body-Worn SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Rate [Mbps]	Duty Cycle (%)	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
2441.0	39	Bluetooth	10.85	10.31	0.180	10 mm [Front]	FCC #2	1	76.8	0.014	1.131	1.302	0.020	
2441.0	39	Bluetooth	10.85	10.31	0.050	10 mm [Rear]	FCC #2	1	76.8	0.026	1.131	1.302	**0.039**	A44
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

11.3 Standalone Hotspot SAR Results

Table 11.3.1 GPRS/WCDMA Hotspot SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Spacing [Side]	Device Serial Number	# of Time Slots	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
836.6	190	GSM850	GPRS	30.70	30.30	-0.040	10 mm [Bottom]	FCC #1	3	1:2.77	0.317	1.096	0.347	
836.6	190	GSM850	GPRS	30.70	30.30	0.040	10 mm [Front]	FCC #1	3	1:2.77	0.498	1.096	0.546	
836.6	190	GSM850	GPRS	30.70	30.30	0.010	10 mm [Rear]	FCC #1	3	1:2.77	0.569	1.096	**0.624**	A24
836.6	190	GSM850	GPRS	30.70	30.30	-0.000	10 mm [Right]	FCC #1	3	1:2.77	0.529	1.096	0.580	
836.6	190	GSM850	GPRS	30.70	30.30	-0.050	10 mm [Left]	FCC #1	3	1:2.77	0.225	1.096	0.247	
1850.2	512	PCS1900	GPRS	27.70	27.50	0.010	10 mm [Bottom]	FCC #1	3	1:2.77	1.050	1.047	**1.099**	A45
1880.0	661	PCS1900	GPRS	27.70	27.50	0.040	10 mm [Bottom]	FCC #1	3	1:2.77	0.934	1.047	0.978	
1909.8	810	PCS1900	GPRS	27.70	27.50	-0.040	10 mm [Bottom]	FCC #1	3	1:2.77	0.864	1.047	0.905	
1880.0	661	PCS1900	GPRS	27.70	27.50	0.010	10 mm [Front]	FCC #1	3	1:2.77	0.475	1.047	0.497	
1880.0	661	PCS1900	GPRS	27.70	27.50	-0.020	10 mm [Rear]	FCC #1	3	1:2.77	0.555	1.047	0.581	
1880.0	661	PCS1900	GPRS	27.70	27.50	0.040	10 mm [Left]	FCC #1	3	1:2.77	0.282	1.047	0.295	
1850.2	512	PCS1900	GPRS	27.70	27.50	-0.080	10 mm [Bottom]	FCC #1	3	1:2.77	1.030	1.047	1.078	
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	-0.160	10 mm [Bottom]	FCC #1	N/A	1:1	0.729	1.000	**0.729**	A46
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	-0.000	10 mm [Front]	FCC #1	N/A	1:1	0.409	1.000	0.409	
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	0.050	10 mm [Rear]	FCC #1	N/A	1:1	0.523	1.000	0.523	
1732.4	1412	WCDMA 1700	RMC	23.70	23.70	-0.060	10 mm [Left]	FCC #1	N/A	1:1	0.339	1.000	0.339	
1852.4	9262	WCDMA 1900	RMC	23.40	23.20	0.020	10 mm [Bottom]	FCC #1	N/A	1:1	0.883	1.047	**0.925**	A47
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	-0.000	10 mm [Bottom]	FCC #1	N/A	1:1	0.785	1.072	0.842	
1907.6	9538	WCDMA 1900	RMC	23.40	23.10	0.000	10 mm [Bottom]	FCC #1	N/A	1:1	0.741	1.072	0.794	
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	0.070	10 mm [Front]	FCC #1	N/A	1:1	0.444	1.072	0.476	
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	0.020	10 mm [Rear]	FCC #1	N/A	1:1	0.496	1.072	0.532	
1880.0	9400	WCDMA 1900	RMC	23.40	23.10	-0.180	10 mm [Left]	FCC #1	N/A	1:1	0.285	1.072	0.306	
1852.4	9262	WCDMA 1900	RMC	23.40	23.20	-0.020	10 mm [Bottom]	FCC #1	N/A	1:1	0.882	1.047	0.923	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

Note(s): Blue entries represent variability measurements.

Table 11.3.2 LTE B12 Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
707.5	23095	LTE B12	10	25.50	25.41	-0.050	0	10 mm [Bottom]	FCC #1	QPSK	1	49	1:1	0.285	1.021	0.291	
707.5	23095	LTE B12	10	24.50	24.22	-0.100	1	10 mm [Bottom]	FCC #1	QPSK	25	25	1:1	0.219	1.067	0.234	
707.5	23095	LTE B12	10	25.50	25.41	-0.070	0	10 mm [Front]	FCC #1	QPSK	1	49	1:1	0.320	1.021	0.327	
707.5	23095	LTE B12	10	24.50	24.22	-0.020	1	10 mm [Front]	FCC #1	QPSK	25	25	1:1	0.242	1.067	0.258	
707.5	23095	LTE B12	10	25.50	25.41	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	49	1:1	0.475	1.021	**0.485**	A29
707.5	23095	LTE B12	10	24.50	24.22	-0.050	1	10 mm [Rear]	FCC #1	QPSK	25	25	1:1	0.349	1.067	0.372	
707.5	23095	LTE B12	10	25.50	25.41	-0.150	0	10 mm [Right]	FCC #1	QPSK	1	49	1:1	0.189	1.021	0.193	
707.5	23095	LTE B12	10	24.50	24.22	-0.040	1	10 mm [Right]	FCC #1	QPSK	25	25	1:1	0.156	1.067	0.166	
707.5	23095	LTE B12	10	25.50	25.41	0.110	0	10 mm [Left]	FCC #1	QPSK	1	49	1:1	0.103	1.021	0.105	
707.5	23095	LTE B12	10	24.50	24.22	-0.000	1	10 mm [Left]	FCC #1	QPSK	25	25	1:1	0.083	1.067	0.089	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure										**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Table 11.3.3 LTE B4 Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1732.5	20175	LTE B4	20	23.70	23.43	-0.000	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.685	1.064	**0.729**	A48
1732.5	20175	LTE B4	20	22.70	22.35	-0.010	1	10 mm [Bottom]	FCC #1	QPSK	50	0	1:1	0.552	1.084	0.598	
1732.5	20175	LTE B4	20	22.70	22.28	-0.010	1	10 mm [Bottom]	FCC #1	QPSK	100	0	1:1	0.550	1.102	0.606	
1732.5	20175	LTE B4	20	23.70	23.43	0.060	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.455	1.064	0.484	
1732.5	20175	LTE B4	20	22.70	22.35	0.030	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.363	1.084	0.393	
1732.5	20175	LTE B4	20	23.70	23.43	0.070	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.499	1.064	0.531	
1732.5	20175	LTE B4	20	22.70	22.35	0.070	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.393	1.084	0.426	
1732.5	20175	LTE B4	20	23.70	23.43	-0.120	0	10 mm [Left]	FCC #1	QPSK	1	0	1:1	0.388	1.064	0.413	
1732.5	20175	LTE B4	20	22.70	22.35	-0.110	1	10 mm [Left]	FCC #1	QPSK	50	0	1:1	0.299	1.084	0.324	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure										**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Table 11.3.4 LTE B2 Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1860.0	18700	LTE B2	20	23.40	23.35	-0.010	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.848	1.012	0.858	
1880.0	18900	LTE B2	20	23.40	23.30	-0.030	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.822	1.023	0.841	
1900.0	19100	LTE B2	20	23.40	23.38	-0.030	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.861	1.005	**0.865**	A49
1900.0	19100	LTE B2	20	22.40	22.24	-0.010	1	10 mm [Bottom]	FCC #1	QPSK	50	0	1:1	0.707	1.038	0.734	
1900.0	19100	LTE B2	20	22.40	22.18	-0.010	1	10 mm [Bottom]	FCC #1	QPSK	100	0	1:1	0.705	1.052	0.742	
1900.0	19100	LTE B2	20	23.40	23.38	0.030	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.481	1.005	0.483	
1900.0	19100	LTE B2	20	22.40	22.24	0.040	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.397	1.038	0.412	
1900.0	19100	LTE B2	20	23.40	23.38	0.060	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.577	1.005	0.580	
1900.0	19100	LTE B2	20	22.40	22.24	-0.000	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.474	1.038	0.492	
1900.0	19100	LTE B2	20	23.40	23.38	-0.110	0	10 mm [Left]	FCC #1	QPSK	1	0	1:1	0.265	1.005	0.266	
1900.0	19100	LTE B2	20	22.40	22.24	-0.130	1	10 mm [Left]	FCC #1	QPSK	50	0	1:1	0.216	1.038	0.224	
1900.0	19100	LTE B2	20	23.40	23.38	-0.010	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.840	1.005	0.844	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure										**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Note(s): Blue entries represent variability measurements.

Table 11.3.7 DTS Hotspot SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	SAR (W/kg)	Plots #
MHz	Ch														
2462.0	11	802.11b (Ant.1)	16.50	16.20	-0.010	10 mm [Top]	FCC #2	0.127	1	99.0	0.126	1.072	1.010	0.136	
2462.0	11	802.11b (Ant.1)	16.50	16.20	0.180	10 mm [Front]	FCC #2	0.069	1	99.0	0.070	1.072	1.010	0.075	
2462.0	11	802.11b (Ant.1)	16.50	16.20	0.050	10 mm [Rear]	FCC #2	0.136	1	99.0	0.149	1.072	1.010	**0.161**	A32
2462.0	11	802.11b (Ant.1)	16.50	16.20	0.060	10 mm [Left]	FCC #2	0.029	1	99.0	0.027	1.072	1.010	0.029	
2462.0	11	802.11b (Ant.2)	16.50	16.24	0.000	10 mm [Top]	FCC #2	0.003	1	99.0	0.003	1.062	1.010	0.003	
2462.0	11	802.11b (Ant.2)	16.50	16.24	0.000	10 mm [Front]	FCC #2	0.007	1	99.0	0.005	1.062	1.010	0.005	
2462.0	11	802.11b (Ant.2)	16.50	16.24	-0.030	10 mm [Rear]	FCC #2	0.107	1	99.0	0.117	1.062	1.010	**0.126**	A33
2462.0	11	802.11b (Ant.2)	16.50	16.24	0.010	10 mm [Left]	FCC #2	0.042	1	99.0	0.037	1.062	1.010	0.039	
2437.0	6	802.11g (MIMO)	19.00	18.52	-0.140	10 mm [Top]	FCC #2	0.078	1	97.2	0.081	1.117	1.029	0.093	
2437.0	6	802.11g (MIMO)	19.00	18.52	-0.030	10 mm [Front]	FCC #2	0.048	1	97.2	0.048	1.117	1.029	0.055	
2437.0	6	802.11g (MIMO)	19.00	18.52	0.010	10 mm [Rear]	FCC #2	0.093	1	97.2	0.102	1.117	1.029	**0.117**	A34
2437.0	6	802.11g (MIMO)	19.00	18.52	0.030	10 mm [Left]	FCC #2	0.038	1	97.2	0.034	1.117	1.029	0.038	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Adjusted SAR results for OFDM SAR												
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Ratio of OFDM to DSSS	1g Adjusted SAR (W/kg)	Determine OFDM SAR
MHz	Ch											
2462.0	11	802.11b (Ant.1)	DSSS	16.5	0.161	2437	802.11g	OFDM	16.0	0.891	**0.143**	X
2462.0	11	802.11b (Ant.1)	DSSS	16.5	0.161	2437	802.11n	OFDM	14.5	0.631	**0.102**	X
2462.0	11	802.11b (Ant.1)	DSSS	16.5	0.161	2437	802.11ac	OFDM	14.5	0.631	**0.102**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.126	2437	802.11g	OFDM	16.0	0.891	**0.112**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.126	2437	802.11n	OFDM	14.5	0.631	**0.080**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.126	2437	802.11ac	OFDM	14.5	0.631	**0.080**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.117	2437	802.11n	OFDM	17.5	0.708	**0.083**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.117	2437	802.11ac	OFDM	17.5	0.708	**0.083**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

Note: SAR is not required for the following 2.4 GHz OFDM conditions. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

Table 11.3.8 UNII Hotspot SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5240.0	48	802.11a (Ant.1)	16.00	15.64	0.000	10 mm [Top]	FCC #2	0.013	1	97.2	0.006	1.086	1.029	0.007	
5240.0	48	802.11a (Ant.1)	16.00	15.64	0.030	10 mm [Front]	FCC #2	0.014	1	97.2	0.011	1.086	1.029	0.012	
5240.0	48	802.11a (Ant.1)	16.00	15.64	-0.190	10 mm [Rear]	FCC #2	0.121	1	97.2	0.100	1.086	1.029	**0.112**	A35
5240.0	48	802.11a (Ant.1)	16.00	15.64	0.040	10 mm [Left]	FCC #2	0.031	1	97.2	0.017	1.086	1.029	0.019	
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.020	10 mm [Top]	FCC #2	0.015	1	97.2	0.012	1.062	1.029	0.013	
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.000	10 mm [Front]	FCC #2	0.002	1	97.2	0.002	1.062	1.029	0.002	
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.000	10 mm [Rear]	FCC #2	0.559	1	97.2	0.617	1.062	1.029	**0.674**	A36
5240.0	48	802.11a (Ant.2)	16.00	15.74	0.010	10 mm [Left]	FCC #2	0.183	1	97.2	0.172	1.062	1.029	0.188	
5240.0	48	802.11a (MIMO)	19.00	18.70	0.000	10 mm [Top]	FCC #2	0.021	1	97.2	0.015	1.086	1.029	0.017	
5240.0	48	802.11a (MIMO)	19.00	18.70	0.040	10 mm [Front]	FCC #2	0.011	1	97.2	0.011	1.086	1.029	0.012	
5240.0	48	802.11a (MIMO)	19.00	18.70	-0.010	10 mm [Rear]	FCC #2	0.544	1	97.2	0.669	1.086	1.029	**0.747**	A37
5240.0	48	802.11a (MIMO)	19.00	18.70	-0.070	10 mm [Left]	FCC #2	0.177	1	97.2	0.169	1.086	1.029	0.189	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Table 11.3.9 UNII Hotspot SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5785.0	157	802.11a (Ant.1)	16.00	15.98	0.020	10 mm [Top]	FCC #2	0.023	1	97.2	0.014	1.005	1.029	0.014	
5785.0	157	802.11a (Ant.1)	16.00	15.98	-0.030	10 mm [Front]	FCC #2	0.029	1	97.2	0.023	1.005	1.029	0.024	
5785.0	157	802.11a (Ant.1)	16.00	15.98	0.080	10 mm [Rear]	FCC #2	0.046	1	97.2	0.035	1.005	1.029	**0.036**	A41
5785.0	157	802.11a (Ant.1)	16.00	15.98	0.070	10 mm [Left]	FCC #2	0.001	1	97.2	0.007	1.005	1.029	0.008	
5785.0	157	802.11a (Ant.2)	16.00	15.99	0.010	10 mm [Top]	FCC #2	0.017	1	97.2	0.011	1.002	1.029	0.011	
5785.0	157	802.11a (Ant.2)	16.00	15.99	-0.040	10 mm [Front]	FCC #2	0.016	1	97.2	0.023	1.002	1.029	0.024	
5785.0	157	802.11a (Ant.2)	16.00	15.99	-0.140	10 mm [Rear]	FCC #2	0.440	1	97.2	0.460	1.002	1.029	**0.474**	A42
5785.0	157	802.11a (Ant.2)	16.00	15.99	0.030	10 mm [Left]	FCC #2	0.179	1	97.2	0.169	1.002	1.029	0.174	
5785.0	157	802.11a (MIMO)	19.00	19.00	0.170	10 mm [Top]	FCC #2	0.024	1	97.2	0.014	1.005	1.029	0.014	
5785.0	157	802.11a (MIMO)	19.00	19.00	0.040	10 mm [Front]	FCC #2	0.014	1	97.2	0.014	1.005	1.029	0.014	
5785.0	157	802.11a (MIMO)	19.00	19.00	-0.130	10 mm [Rear]	FCC #2	0.478	1	97.2	0.429	1.005	1.029	**0.444**	A43
5785.0	157	802.11a (MIMO)	19.00	19.00	-0.010	10 mm [Left]	FCC #2	0.124	1	97.2	0.104	1.005	1.029	0.108	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Note : UNII-3 Band CH 165(5825 MHz) is not support Hotspot mode as described on operational description, so other required CHs are tested.

Table 11.3.10 Bluetooth Hotspot SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Rate [Mbps]	Duty Cycle (%)	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
2441.0	39	Bluetooth	10.85	10.31	0.180	10 mm [Top]	FCC #2	1	76.8	0.023	1.131	1.302	0.034	
2441.0	39	Bluetooth	10.85	10.31	0.180	10 mm [Front]	FCC #2	1	76.8	0.014	1.131	1.302	0.020	
2441.0	39	Bluetooth	10.85	10.31	0.050	10 mm [Rear]	FCC #2	1	76.8	0.026	1.131	1.302	**0.039**	A44
2441.0	39	Bluetooth	10.85	10.31	-0.080	10 mm [Left]	FCC #2	1	76.8	0.004	1.131	1.302	0.006	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

11.4 Standalone Phablet SAR Results

Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required when Hotspot 1g SAR (scaled to maximum output power including tolerance) < 1.2 W/kg.

Table 11.4.1 UNII Phablet SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	10g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	10g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5320.0	64	802.11a (Ant.1)	15.00	14.74	-0.030	0 mm [Top]	FCC #2	0.020	1	97.2	0.010	1.062	1.029	0.010	
5320.0	64	802.11a (Ant.1)	15.00	14.74	0.000	0 mm [Front]	FCC #2	0.133	1	97.2	0.141	1.062	1.029	0.154	
5320.0	64	802.11a (Ant.1)	15.00	14.74	-0.030	0 mm [Rear]	FCC #2	0.164	1	97.2	0.159	1.062	1.029	**0.174**	A50
5320.0	64	802.11a (Ant.1)	15.00	14.74	0.000	0 mm [Left]	FCC #2	0.024	1	97.2	0.019	1.062	1.029	0.021	
5320.0	64	802.11a (Ant.2)	15.00	14.68	-0.110	0 mm [Top]	FCC #2	0.011	1	97.2	0.005	1.076	1.029	0.006	
5320.0	64	802.11a (Ant.2)	15.00	14.68	0.000	0 mm [Front]	FCC #2	0.011	1	97.2	0.007	1.076	1.029	0.008	
5320.0	64	802.11a (Ant.2)	15.00	14.68	-0.020	0 mm [Rear]	FCC #2	0.671	1	97.2	1.230	1.076	1.029	**1.362**	A51
5320.0	64	802.11a (Ant.2)	15.00	14.68	0.000	0 mm [Left]	FCC #2	0.224	1	97.2	0.237	1.076	1.029	0.262	
5320.0	64	802.11a (MIMO)	18.00	17.72	-0.010	0 mm [Top]	FCC #2	0.021	1	97.2	0.010	1.076	1.029	0.011	
5320.0	64	802.11a (MIMO)	18.00	17.72	0.080	0 mm [Front]	FCC #2	0.184	1	97.2	0.154	1.076	1.029	0.170	
5320.0	64	802.11a (MIMO)	18.00	17.72	0.000	0 mm [Rear]	FCC #2	0.833	1	97.2	1.310	1.076	1.029	**1.450**	A52
5320.0	64	802.11a (MIMO)	18.00	17.72	0.000	0 mm [Left]	FCC #2	0.236	1	97.2	0.278	1.076	1.029	0.308	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Phablet 4.0 W/kg (mW/g) averaged over 10 gram**							

Table 11.4.2 UNII Phablet SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	10g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	10g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5600.0	120	802.11a (Ant.1)	16.00	15.93	-0.040	0 mm [Top]	FCC #2	0.048	1	97.2	0.040	1.016	1.019	0.041	
5600.0	120	802.11a (Ant.1)	16.00	15.93	0.000	0 mm [Front]	FCC #2	0.330	1	97.2	0.342	1.016	1.019	**0.354**	A53
5600.0	120	802.11a (Ant.1)	16.00	15.93	0.050	0 mm [Rear]	FCC #2	0.153	1	97.2	0.252	1.016	1.019	0.261	
5600.0	120	802.11a (Ant.1)	16.00	15.93	-0.040	0 mm [Left]	FCC #2	0.052	1	97.2	0.042	1.016	1.019	0.043	
5600.0	120	802.11a (Ant.2)	16.00	15.98	-0.020	0 mm [Top]	FCC #2	0.017	1	97.2	0.011	1.005	1.019	0.011	
5600.0	120	802.11a (Ant.2)	16.00	15.98	-0.020	0 mm [Front]	FCC #2	0.039	1	97.2	0.043	1.005	1.019	0.044	
5600.0	120	802.11a (Ant.2)	16.00	15.98	-0.120	0 mm [Rear]	FCC #2	0.676	1	97.2	1.190	1.005	1.019	**1.219**	A54
5600.0	120	802.11a (Ant.2)	16.00	15.98	0.170	0 mm [Left]	FCC #2	0.376	1	97.2	0.411	1.005	1.019	0.421	
5600.0	120	802.11a (MIMO)	19.00	18.97	0.120	0 mm [Top]	FCC #2	0.051	1	97.2	0.050	1.016	1.019	0.052	
5600.0	120	802.11a (MIMO)	19.00	18.97	-0.020	0 mm [Front]	FCC #2	0.352	1	97.2	0.364	1.016	1.019	0.377	
5600.0	120	802.11a (MIMO)	19.00	18.97	-0.150	0 mm [Rear]	FCC #2	1.140	1	97.2	1.580	1.016	1.019	**1.636**	A55
5600.0	120	802.11a (MIMO)	19.00	18.97	0.070	0 mm [Left]	FCC #2	0.274	1	97.2	0.304	1.016	1.019	0.315	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Phablet 4.0 W/kg (mW/g) averaged over 10 gram**							

Table 11.4.3 UNII Phablet SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	10g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	10g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5825.0	165	802.11a (Ant.1)	16.00	15.79	0.100	0 mm [Top]	FCC #2	0.046	1	97.2	0.019	1.050	1.029	0.020	
5825.0	165	802.11a (Ant.1)	16.00	15.79	0.000	0 mm [Front]	FCC #2	0.248	1	97.2	0.284	1.050	1.029	**0.307**	A56
5825.0	165	802.11a (Ant.1)	16.00	15.79	-0.020	0 mm [Rear]	FCC #2	0.263	1	97.2	0.276	1.050	1.029	0.298	
5825.0	165	802.11a (Ant.1)	16.00	15.79	0.000	0 mm [Left]	FCC #2	0.043	1	97.2	0.029	1.050	1.029	0.032	
5825.0	165	802.11a (Ant.2)	16.00	15.91	-0.080	0 mm [Top]	FCC #2	0.012	1	97.2	0.007	1.021	1.029	0.007	
5825.0	165	802.11a (Ant.2)	16.00	15.91	-0.170	0 mm [Front]	FCC #2	0.085	1	97.2	0.059	1.021	1.029	0.062	
5825.0	165	802.11a (Ant.2)	16.00	15.91	0.000	0 mm [Rear]	FCC #2	1.000	1	97.2	1.110	1.021	1.029	**1.166**	A57
5825.0	165	802.11a (Ant.2)	16.00	15.91	-0.160	0 mm [Left]	FCC #2	0.298	1	97.2	0.305	1.021	1.029	0.320	
5825.0	165	802.11a (MIMO)	19.00	18.86	0.100	0 mm [Top]	FCC #2	0.055	1	97.2	0.034	1.050	1.029	0.037	
5825.0	165	802.11a (MIMO)	19.00	18.86	-0.120	0 mm [Front]	FCC #2	0.262	1	97.2	0.309	1.050	1.029	0.334	
5825.0	165	802.11a (MIMO)	19.00	18.86	-0.130	0 mm [Rear]	FCC #2	0.935	1	97.2	1.190	1.050	1.029	**1.285**	A58
5825.0	165	802.11a (MIMO)	19.00	18.86	0.050	0 mm [Left]	FCC #2	0.265	1	97.2	0.299	1.050	1.029	0.323	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Phablet 4.0 W/kg (mW/g) averaged over 10 gram**							

Note : UNII-3 Band CH 165 (5825 MHz) is not support Hotspot mode as described on operational description of this device, so phablet SAR is tested on this CH..

11.5 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported boy-worn SAR was not > 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were performed.
8. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated.
9. SAR measurements were performed using the DASY5 automated system. The procedure for spatial peak SAR evaluation has been implemented according to the IEEE 1528 standard. During a maximum search, global and local maxima searches are automatically performed in 2-D after each area scan measurement. The algorithm will find the global maximum and all local maxima within 2 dB of the global maxima for all SAR distributions. All local maxima within 2 dB of the global maximum were searched and passed for the Zoom Scan measurement.

GSM Notes:

1. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2. This device supports GSM VOIP in the head and body-worn configurations; therefore GPRS was additionally evaluated for head and body-worn compliance.
3. Justification for reduced test configurations per KDB Publication 941225 D01v03r01 and October 2013 TCB Workshop Notes: The source-based frame-averaged output power was evaluated for all GPRS slot configurations. The configuration with the highest target frame averaged output power was evaluated for hotspot SAR.
4. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). Since the maximum output power variation across the required test channels is not > ½ dB, the middle channel was used for testing.

WCDMA (UMTS) Notes:

1. WCDMA (UMTS) mode in was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. AMR and HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r05. The general test procedures used for testing can be found in Section 4.
2. According to FCC KDB 941225 D05v02r05, when the reported SAR is ≤ 0.8 W/kg, testing of the 100% RB allocation and required test channels is not required.
   Otherwise, SAR is required for the remaining required test channels using the 1 RB, 50% RB and 100% RB allocation with highest output power for that channel.
   Only one channel, and as reported SAR values for 1 RB allocation and 50% RB allocation were less than 1.45 W/kg only the highest power RB offset for each allocation was required.
3. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36. 101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
4. A-MPR was disabled for all SAR tests by setting NS=1 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
5. SAR test reduction is applied using the following criteria:
   Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is > 0.8 W/kg, testing for other channels is performed at the highest output power level for 1 RB, and 50% RB configuration for that channel. Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg, Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg. Testing for 16QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/kg and its output power is not more than 0.5 dB higher than that a QPSK. Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.

WLAN Notes:

1. The initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required duo to the maximum allowed powers and the highest reported DSSS SAR when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output and the adjust SAR is ≤ 1.2 W/kg.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg.
4. When the maximum reported 1g averaged SAR ≤ 0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg or all test channels were measured.
5. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor to determine compliance.
6. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by making a SAR measurement with both antennas transmitting simultaneously.

Bluetooth Notes:

1. Bluetooth SAR was measured with the device connected to a call with hopping disabled with DH5 operation.
   Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. Refer to section 9.5 for the time-domain plot and calculation for the duty factor of the device.

12. FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v06 are applicable to handsets with built-in unlicensed transmitters such as 802.11b/g/n and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

12.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2,simultaneous transmission SAR test exclusion may be applied when the sum of the sum 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is $\leq$ 1.6 W/kg. The different test positon in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1-g or 10-g SAR.

12.3 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06.

Table 12.3.1 Simultaneous Transmission Scenarios

No.	Capable TX Configuration	GSM 850/1900 (Voice)	GPRS 850/1900 (Data)	WCDMA B4/B2 (Voice)	WCDMA B4/B2 (Data)	LTE B12/B17/B4/B2	WIFI 2.4GHz 802.11b/g/n/ac	WIFI 5GHz 802.11a/n/ac	Bluetooth 2.4GHz
1	GSM 850/1900 (Voice)		No	No	No	No	Yes	Yes	Yes
2	GPRS 850/1900 (Data)	No		No	No	No	Yes	Yes	Yes
3	WCDMA B4/B2 (Voice)	No	No		No	No	Yes	Yes	Yes
4	WCDMA B4/B2 (Data)	No	No	No		No	Yes	Yes	Yes
5	LTE B12/B17/B4/B2	No	No	No	No		Yes	Yes	Yes
6	WIFI 2.4GHz 802.11b/g/n/ac	Yes	Yes	Yes	Yes	Yes		Yes	No
7	WIFI 5GHz 802.11a/n/ac	Yes	Yes	Yes	Yes	Yes	Yes		Yes
8	Bluetooth 2.4GHz	Yes	Yes	Yes	Yes	Yes	No	Yes	

Table 12.3.2 Simultaneous SAR Cases

No.	Capable Transmit Configuration	Head SAR	Body-Worn SAR	Hotspot SAR	Phablet SAR	Note
1	GSM Voice + Wi-Fi 2.4 GHz	Yes	Yes	N/A	Yes	
2	GSM Voice + Wi-Fi 5 GHz	Yes	Yes	N/A	Yes	
3	GSM Voice + Bluetooth 2.4 GHz	Yes	Yes	N/A	Yes	
4	GSM Voice + Wi-Fi 2.4 GHz MIMO	Yes	Yes	N/A	Yes	
5	GSM Voice + Wi-Fi 5 GHz MIMO	Yes	Yes	N/A	Yes	
6	GSM Voice + Wi-Fi 2.4 GHz Ant.1 + Wi-Fi 5GHz Ant.2	Yes	Yes	N/A	Yes	
7	GSM Voice + Bluetooth 2.4 GHz + Wi-Fi 5GHz	Yes	Yes	N/A	Yes	
8	WCDMA + Wi-Fi 2.4 GHz	Yes	Yes	Yes	Yes	
9	WCDMA + Wi-Fi 5 GHz	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
10	WCDMA + Bluetooth 2.4 GHz	Yes	Yes	Yes	Yes	
11	WCDMA + Wi-Fi 2.4 GHz MIMO	Yes	Yes	Yes	Yes	
12	WCDMA + Wi-Fi 5 GHz MIMO	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
13	WCMDA + Wi-Fi 2.4 GHz Ant.1 + Wi-Fi 5GHz Ant.2	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
14	WCMDA + Bluetooth 2.4 GHz + Wi-Fi 5GHz	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
15	LTE + Wi-Fi 2.4 GHz	Yes	Yes	Yes	Yes	
16	LTE + Wi-Fi 5 GHz	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
17	LTE + Bluetooth 2.4 GHz	Yes	Yes	Yes	Yes	
18	LTE + Wi-Fi 2.4 GHz MIMO	Yes	Yes	Yes	Yes	
19	LTE + Wi-Fi 5 GHz MIMO	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
20	LTE + Wi-Fi 2.4 GHz Ant.1 + Wi-Fi 5GHz Ant.2	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
21	LTE + Bluetooth 2.4 GHz + Wi-Fi 5GHz	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
22	GPRS + Wi-Fi 2.4 GHz	Yes	Yes	Yes	Yes	
23	GPRS + Wi-Fi 5 GHz	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
24	GPRS + Bluetooth 2.4 GHz	Yes	Yes	Yes	Yes	
25	GPRS + Wi-Fi 2.4 GHz MIMO	Yes	Yes	Yes	Yes	
26	GPRS + Wi-Fi 5 GHz MIMO	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
27	GPRS + Wi-Fi 2.4 GHz Ant.1 + Wi-Fi 5GHz Ant.2	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.
28	GPRS + Bluetooth 2.4 GHz + Wi-Fi 5GHz	Yes	Yes	Yes*	Yes	* WiFi-Direct (GC/GO) of UNII-1 & UNII-3 can be operated simultaneous transmission.

Notes:

1. WiFi 2.4GHz is supported Hotspot and WiFi-Direct(GO/GC).
2. WiFi 5Ghz is not supported Hotspot.
3. WiFi 5Ghz is supported WiFi-Direct(GO/GC) in UNII B1,B3.
4. LTE, WCDMA, GPRS is supported Hotspot.
5. VoIP is supported in LTE, WCDMA, GSM
6. Bluetooth and WiFi can not transmit simultaneously at 2.4G band.
7. GSM, WCDMA and LTE can not transmit simultaneously since they share the same antenna path.
8. When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.
9. Per the manufacturer, WIFI Direct is expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Simultaneous transmission scenarios involving WIFI direct are included in the above table.

12.4 Head SAR Simultaneous Transmission Analysis

Table 12.4.1 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1 + 5.2 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.202	0.015	0.296	0.109	0.311
		Right Touch	0.153	0.311	0.054	0.464	0.207	**0.518**
		Left Tilt	0.043	0.275	0.011	0.318	0.054	0.329
		Right Tilt	0.075	0.342	0.020	0.417	0.095	0.437
	GPRS 850	Left Touch	0.161	0.202	0.015	0.363	0.176	0.378
		Right Touch	0.286	0.311	0.054	0.597	0.340	**0.651**
		Left Tilt	0.075	0.275	0.011	0.350	0.086	0.361
		Right Tilt	0.138	0.342	0.020	0.480	0.158	0.500
	GSM 1900	Left Touch	0.118	0.202	0.015	0.320	0.133	0.335
		Right Touch	0.083	0.311	0.054	0.394	0.137	0.448
		Left Tilt	0.100	0.275	0.011	0.375	0.111	0.386
		Right Tilt	0.099	0.342	0.020	0.441	0.119	**0.461**
	GPRS 1900	Left Touch	0.159	0.202	0.015	0.361	0.174	0.376
		Right Touch	0.112	0.311	0.054	0.423	0.166	0.477
		Left Tilt	0.133	0.275	0.011	0.408	0.144	0.419
		Right Tilt	0.129	0.342	0.020	0.471	0.149	**0.491**
	WCDMA 1700	Left Touch	0.152	0.202	0.015	0.354	0.167	0.369
		Right Touch	0.108	0.311	0.054	0.419	0.162	**0.473**
		Left Tilt	0.091	0.275	0.011	0.366	0.102	0.377
		Right Tilt	0.076	0.342	0.020	0.418	0.096	0.438
	WCDMA 1900	Left Touch	0.138	0.202	0.015	0.340	0.153	0.355
		Right Touch	0.091	0.311	0.054	0.402	0.145	0.456
		Left Tilt	0.116	0.275	0.011	0.391	0.127	0.402
		Right Tilt	0.115	0.342	0.020	0.457	0.135	**0.477**
	LTE Band 12	Left Touch	0.112	0.202	0.015	0.314	0.127	0.329
		Right Touch	0.149	0.311	0.054	0.460	0.203	**0.514**
		Left Tilt	0.052	0.275	0.011	0.327	0.063	0.338
		Right Tilt	0.036	0.342	0.020	0.378	0.056	0.398
	LTE Band 4	Left Touch	0.207	0.202	0.015	0.409	0.222	0.424
		Right Touch	0.144	0.311	0.054	0.455	0.198	**0.509**
		Left Tilt	0.187	0.275	0.011	0.462	0.198	0.473
		Right Tilt	0.147	0.342	0.020	0.489	0.167	**0.509**
	LTE Band 2	Left Touch	0.143	0.202	0.015	0.345	0.158	0.360
		Right Touch	0.094	0.311	0.054	0.405	0.148	0.459
		Left Tilt	0.098	0.275	0.011	0.373	0.109	0.384
		Right Tilt	0.109	0.342	0.020	0.451	0.129	**0.471**

Table 12.4.2 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1+ 5.6 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.202	0.031	0.296	0.125	0.327
		Right Touch	0.153	0.311	0.069	0.464	0.222	**0.533**
		Left Tilt	0.043	0.275	0.020	0.318	0.063	0.338
		Right Tilt	0.075	0.342	0.011	0.417	0.086	0.428
	GPRS 850	Left Touch	0.161	0.202	0.031	0.363	0.192	0.394
		Right Touch	0.286	0.311	0.069	0.597	0.355	**0.666**
		Left Tilt	0.075	0.275	0.020	0.350	0.095	0.370
		Right Tilt	0.138	0.342	0.011	0.480	0.149	0.491
	GSM 1900	Left Touch	0.118	0.202	0.031	0.320	0.149	0.351
		Right Touch	0.083	0.311	0.069	0.394	0.152	**0.463**
		Left Tilt	0.100	0.275	0.020	0.375	0.120	0.395
		Right Tilt	0.099	0.342	0.011	0.441	0.110	0.452
	GPRS 1900	Left Touch	0.159	0.202	0.031	0.361	0.190	0.392
		Right Touch	0.112	0.311	0.069	0.423	0.181	**0.492**
		Left Tilt	0.133	0.275	0.020	0.408	0.153	0.428
		Right Tilt	0.129	0.342	0.011	0.471	0.140	0.482
	WCDMA 1700	Left Touch	0.152	0.202	0.031	0.354	0.183	0.385
		Right Touch	0.108	0.311	0.069	0.419	0.177	**0.488**
		Left Tilt	0.091	0.275	0.020	0.366	0.111	0.386
		Right Tilt	0.076	0.342	0.011	0.418	0.087	0.429
	WCDMA 1900	Left Touch	0.138	0.202	0.031	0.340	0.169	0.371
		Right Touch	0.091	0.311	0.069	0.402	0.160	**0.471**
		Left Tilt	0.116	0.275	0.020	0.391	0.136	0.411
		Right Tilt	0.115	0.342	0.011	0.457	0.126	0.468
	LTE Band 12	Left Touch	0.112	0.202	0.031	0.314	0.143	0.345
		Right Touch	0.149	0.311	0.069	0.460	0.218	**0.529**
		Left Tilt	0.052	0.275	0.020	0.327	0.072	0.347
		Right Tilt	0.036	0.342	0.011	0.378	0.047	0.389
	LTE Band 4	Left Touch	0.207	0.202	0.031	0.409	0.238	0.440
		Right Touch	0.144	0.311	0.069	0.455	0.213	**0.524**
		Left Tilt	0.187	0.275	0.020	0.462	0.207	0.482
		Right Tilt	0.147	0.342	0.011	0.489	0.158	0.500
	LTE Band 2	Left Touch	0.143	0.202	0.031	0.345	0.174	0.376
		Right Touch	0.094	0.311	0.069	0.405	0.163	**0.474**
		Left Tilt	0.098	0.275	0.020	0.373	0.118	0.393
		Right Tilt	0.109	0.342	0.011	0.451	0.120	0.462

Table 12.4.3 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1 + 5.8 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.202	0.051	0.296	0.145	0.347
		Right Touch	0.153	0.311	0.102	0.464	0.255	**0.566**
		Left Tilt	0.043	0.275	0.011	0.318	0.054	0.329
		Right Tilt	0.075	0.342	0.011	0.417	0.086	0.428
	GPRS 850	Left Touch	0.161	0.202	0.051	0.363	0.212	0.414
		Right Touch	0.286	0.311	0.102	0.597	0.388	**0.699**
		Left Tilt	0.075	0.275	0.011	0.350	0.086	0.361
		Right Tilt	0.138	0.342	0.011	0.480	0.149	0.491
	GSM 1900	Left Touch	0.118	0.202	0.051	0.320	0.169	0.371
		Right Touch	0.083	0.311	0.102	0.394	0.185	**0.496**
		Left Tilt	0.100	0.275	0.011	0.375	0.111	0.386
		Right Tilt	0.099	0.342	0.011	0.441	0.110	0.452
	GPRS 1900	Left Touch	0.159	0.202	0.051	0.361	0.210	0.412
		Right Touch	0.112	0.311	0.102	0.423	0.214	**0.525**
		Left Tilt	0.133	0.275	0.011	0.408	0.144	0.419
		Right Tilt	0.129	0.342	0.011	0.471	0.140	0.482
	WCDMA 1700	Left Touch	0.152	0.202	0.051	0.354	0.203	0.405
		Right Touch	0.108	0.311	0.102	0.419	0.210	**0.521**
		Left Tilt	0.091	0.275	0.011	0.366	0.102	0.377
		Right Tilt	0.076	0.342	0.011	0.418	0.087	0.429
	WCDMA 1900	Left Touch	0.138	0.202	0.051	0.340	0.189	0.391
		Right Touch	0.091	0.311	0.102	0.402	0.193	**0.504**
		Left Tilt	0.116	0.275	0.011	0.391	0.127	0.402
		Right Tilt	0.115	0.342	0.011	0.457	0.126	0.468
	LTE Band 12	Left Touch	0.112	0.202	0.051	0.314	0.163	0.365
		Right Touch	0.149	0.311	0.102	0.460	0.251	**0.562**
		Left Tilt	0.052	0.275	0.011	0.327	0.063	0.338
		Right Tilt	0.036	0.342	0.011	0.378	0.047	0.389
	LTE Band 4	Left Touch	0.207	0.202	0.051	0.409	0.258	0.460
		Right Touch	0.144	0.311	0.102	0.455	0.246	**0.557**
		Left Tilt	0.187	0.275	0.011	0.462	0.198	0.473
		Right Tilt	0.147	0.342	0.011	0.489	0.158	0.500
	LTE Band 2	Left Touch	0.143	0.202	0.051	0.345	0.194	0.396
		Right Touch	0.094	0.311	0.102	0.405	0.196	**0.507**
		Left Tilt	0.098	0.275	0.011	0.373	0.109	0.384
		Right Tilt	0.109	0.342	0.011	0.451	0.120	0.462

Table 12.4.4 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.059	0.085	0.153	0.179	0.238
		Right Touch	0.153	0.082	0.305	0.235	0.458	**0.540**
		Left Tilt	0.043	0.076	0.077	0.119	0.120	0.196
		Right Tilt	0.075	0.088	0.258	0.163	0.333	0.421
	GPRS 850	Left Touch	0.161	0.059	0.085	0.220	0.246	0.305
		Right Touch	0.286	0.082	0.305	0.368	0.591	**0.673**
		Left Tilt	0.075	0.076	0.077	0.151	0.152	0.228
		Right Tilt	0.138	0.088	0.258	0.226	0.396	0.484
	GSM 1900	Left Touch	0.118	0.059	0.085	0.177	0.203	0.262
		Right Touch	0.083	0.082	0.305	0.165	0.388	**0.470**
		Left Tilt	0.100	0.076	0.077	0.176	0.177	0.253
		Right Tilt	0.099	0.088	0.258	0.187	0.357	0.445
	GPRS 1900	Left Touch	0.159	0.059	0.085	0.218	0.244	0.303
		Right Touch	0.112	0.082	0.305	0.194	0.417	**0.499**
		Left Tilt	0.133	0.076	0.077	0.209	0.210	0.286
		Right Tilt	0.129	0.088	0.258	0.217	0.387	0.475
	WCDMA 1700	Left Touch	0.152	0.059	0.085	0.211	0.237	0.296
		Right Touch	0.108	0.082	0.305	0.190	0.413	**0.495**
		Left Tilt	0.091	0.076	0.077	0.167	0.168	0.244
		Right Tilt	0.076	0.088	0.258	0.164	0.334	0.422
	WCDMA 1900	Left Touch	0.138	0.059	0.085	0.197	0.223	0.282
		Right Touch	0.091	0.082	0.305	0.173	0.396	**0.478**
		Left Tilt	0.116	0.076	0.077	0.192	0.193	0.269
		Right Tilt	0.115	0.088	0.258	0.203	0.373	0.461
	LTE Band 12	Left Touch	0.112	0.059	0.085	0.171	0.197	0.256
		Right Touch	0.149	0.082	0.305	0.231	0.454	**0.536**
		Left Tilt	0.052	0.076	0.077	0.128	0.129	0.205
		Right Tilt	0.036	0.088	0.258	0.124	0.294	0.382
	LTE Band 4	Left Touch	0.207	0.059	0.085	0.266	0.292	0.351
		Right Touch	0.144	0.082	0.305	0.226	0.449	**0.531**
		Left Tilt	0.187	0.076	0.077	0.263	0.264	0.340
		Right Tilt	0.147	0.088	0.258	0.235	0.405	0.493
	LTE Band 2	Left Touch	0.143	0.059	0.085	0.202	0.228	0.287
		Right Touch	0.094	0.082	0.305	0.176	0.399	**0.481**
		Left Tilt	0.098	0.076	0.077	0.174	0.175	0.251
		Right Tilt	0.109	0.088	0.258	0.197	0.367	0.455

Table 12.4.5 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.059	0.015	0.153	0.109	0.168
		Right Touch	0.153	0.082	0.054	0.235	0.207	**0.289**
		Left Tilt	0.043	0.076	0.011	0.119	0.054	0.130
		Right Tilt	0.075	0.088	0.020	0.163	0.095	0.183
	GPRS 850	Left Touch	0.161	0.059	0.015	0.220	0.176	0.235
		Right Touch	0.286	0.082	0.054	0.368	0.340	**0.422**
		Left Tilt	0.075	0.076	0.011	0.151	0.086	0.162
		Right Tilt	0.138	0.088	0.020	0.226	0.158	0.246
	GSM 1900	Left Touch	0.118	0.059	0.015	0.177	0.133	0.192
		Right Touch	0.083	0.082	0.054	0.165	0.137	**0.219**
		Left Tilt	0.100	0.076	0.011	0.176	0.111	0.187
		Right Tilt	0.099	0.088	0.020	0.187	0.119	0.207
	GPRS 1900	Left Touch	0.159	0.059	0.015	0.218	0.174	0.233
		Right Touch	0.112	0.082	0.054	0.194	0.166	**0.248**
		Left Tilt	0.133	0.076	0.011	0.209	0.144	0.220
		Right Tilt	0.129	0.088	0.020	0.217	0.149	0.237
	WCDMA 1700	Left Touch	0.152	0.059	0.015	0.211	0.167	0.226
		Right Touch	0.108	0.082	0.054	0.190	0.162	**0.244**
		Left Tilt	0.091	0.076	0.011	0.167	0.102	0.178
		Right Tilt	0.076	0.088	0.020	0.164	0.096	0.184
	WCDMA 1900	Left Touch	0.138	0.059	0.015	0.197	0.153	0.212
		Right Touch	0.091	0.082	0.054	0.173	0.145	**0.227**
		Left Tilt	0.116	0.076	0.011	0.192	0.127	0.203
		Right Tilt	0.115	0.088	0.020	0.203	0.135	0.223
	LTE Band 12	Left Touch	0.112	0.059	0.015	0.171	0.127	0.186
		Right Touch	0.149	0.082	0.054	0.231	0.203	**0.285**
		Left Tilt	0.052	0.076	0.011	0.128	0.063	0.139
		Right Tilt	0.036	0.088	0.020	0.124	0.056	0.144
	LTE Band 4	Left Touch	0.207	0.059	0.015	0.266	0.222	**0.281**
		Right Touch	0.144	0.082	0.054	0.226	0.198	0.280
		Left Tilt	0.187	0.076	0.011	0.263	0.198	0.274
		Right Tilt	0.147	0.088	0.020	0.235	0.167	0.255
	LTE Band 2	Left Touch	0.143	0.059	0.015	0.202	0.158	0.217
		Right Touch	0.094	0.082	0.054	0.176	0.148	**0.230**
		Left Tilt	0.098	0.076	0.011	0.174	0.109	0.185
		Right Tilt	0.109	0.088	0.020	0.197	0.129	0.217

Table 12.4.6 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.059	0.102	0.153	0.196	0.255
		Right Touch	0.153	0.082	0.288	0.235	0.441	**0.523**
		Left Tilt	0.043	0.076	0.095	0.119	0.138	0.214
		Right Tilt	0.075	0.088	0.236	0.163	0.311	0.399
	GPRS 850	Left Touch	0.161	0.059	0.102	0.220	0.263	0.322
		Right Touch	0.286	0.082	0.288	0.368	0.574	**0.656**
		Left Tilt	0.075	0.076	0.095	0.151	0.170	0.246
		Right Tilt	0.138	0.088	0.236	0.226	0.374	0.462
	GSM 1900	Left Touch	0.118	0.059	0.102	0.177	0.220	0.279
		Right Touch	0.083	0.082	0.288	0.165	0.371	**0.453**
		Left Tilt	0.100	0.076	0.095	0.176	0.195	0.271
		Right Tilt	0.099	0.088	0.236	0.187	0.335	0.423
	GPRS 1900	Left Touch	0.159	0.059	0.102	0.218	0.261	0.320
		Right Touch	0.112	0.082	0.288	0.194	0.400	**0.482**
		Left Tilt	0.133	0.076	0.095	0.209	0.228	0.304
		Right Tilt	0.129	0.088	0.236	0.217	0.365	0.453
	WCDMA 1700	Left Touch	0.152	0.059	0.102	0.211	0.254	0.313
		Right Touch	0.108	0.082	0.288	0.190	0.396	**0.478**
		Left Tilt	0.091	0.076	0.095	0.167	0.186	0.262
		Right Tilt	0.076	0.088	0.236	0.164	0.312	0.400
	WCDMA 1900	Left Touch	0.138	0.059	0.102	0.197	0.240	0.299
		Right Touch	0.091	0.082	0.288	0.173	0.379	**0.461**
		Left Tilt	0.116	0.076	0.095	0.192	0.211	0.287
		Right Tilt	0.115	0.088	0.236	0.203	0.351	0.439
	LTE Band 12	Left Touch	0.112	0.059	0.102	0.171	0.214	0.273
		Right Touch	0.149	0.082	0.288	0.231	0.437	**0.519**
		Left Tilt	0.052	0.076	0.095	0.128	0.147	0.223
		Right Tilt	0.036	0.088	0.236	0.124	0.272	0.360
	LTE Band 4	Left Touch	0.207	0.059	0.102	0.266	0.309	0.368
		Right Touch	0.144	0.082	0.288	0.226	0.432	**0.514**
		Left Tilt	0.187	0.076	0.095	0.263	0.282	0.358
		Right Tilt	0.147	0.088	0.236	0.235	0.383	0.471
	LTE Band 2	Left Touch	0.143	0.059	0.102	0.202	0.245	0.304
		Right Touch	0.094	0.082	0.288	0.176	0.382	**0.464**
		Left Tilt	0.098	0.076	0.095	0.174	0.193	0.269
		Right Tilt	0.109	0.088	0.236	0.197	0.345	0.433

Table 12.4.7 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.059	0.141	0.153	0.235	0.294
		Right Touch	0.153	0.082	0.457	0.235	0.610	**0.692**
		Left Tilt	0.043	0.076	0.183	0.119	0.226	0.302
		Right Tilt	0.075	0.088	0.431	0.163	0.506	0.594
	GPRS 850	Left Touch	0.161	0.059	0.141	0.220	0.302	0.361
		Right Touch	**0.286**	**0.082**	**0.457**	**0.368**	**0.743**	**0.825**
		Left Tilt	0.075	0.076	0.183	0.151	0.258	0.334
		Right Tilt	0.138	0.088	0.431	0.226	0.569	0.657
	GSM 1900	Left Touch	0.118	0.059	0.141	0.177	0.259	0.318
		Right Touch	0.083	0.082	0.457	0.165	0.540	**0.622**
		Left Tilt	0.100	0.076	0.183	0.176	0.283	0.359
		Right Tilt	0.099	0.088	0.431	0.187	0.530	0.618
	GPRS 1900	Left Touch	0.159	0.059	0.141	0.218	0.300	0.359
		Right Touch	0.112	0.082	0.457	0.194	0.569	**0.651**
		Left Tilt	0.133	0.076	0.183	0.209	0.316	0.392
		Right Tilt	0.129	0.088	0.431	0.217	0.560	0.648
	WCDMA 1700	Left Touch	0.152	0.059	0.141	0.211	0.293	0.352
		Right Touch	0.108	0.082	0.457	0.190	0.565	**0.647**
		Left Tilt	0.091	0.076	0.183	0.167	0.274	0.350
		Right Tilt	0.076	0.088	0.431	0.164	0.507	0.595
	WCDMA 1900	Left Touch	0.138	0.059	0.141	0.197	0.279	0.338
		Right Touch	0.091	0.082	0.457	0.173	0.548	0.630
		Left Tilt	0.116	0.076	0.183	0.192	0.299	0.375
		Right Tilt	0.115	0.088	0.431	0.203	0.546	**0.634**
	LTE Band 12	Left Touch	0.112	0.059	0.141	0.171	0.253	0.312
		Right Touch	0.149	0.082	0.457	0.231	0.606	**0.688**
		Left Tilt	0.052	0.076	0.183	0.128	0.235	0.311
		Right Tilt	0.036	0.088	0.431	0.124	0.467	0.555
	LTE Band 4	Left Touch	0.207	0.059	0.141	0.266	0.348	0.407
		Right Touch	0.144	0.082	0.457	0.226	0.601	**0.683**
		Left Tilt	0.187	0.076	0.183	0.263	0.370	0.446
		Right Tilt	0.147	0.088	0.431	0.235	0.578	0.666
	LTE Band 2	Left Touch	0.143	0.059	0.141	0.202	0.284	0.343
		Right Touch	0.094	0.082	0.457	0.176	0.551	**0.633**
		Left Tilt	0.098	0.076	0.183	0.174	0.281	0.357
		Right Tilt	0.109	0.088	0.431	0.197	0.540	0.628

Table 12.4.8 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.059	0.031	0.153	0.125	0.184
		Right Touch	0.153	0.082	0.069	0.235	0.222	**0.304**
		Left Tilt	0.043	0.076	0.020	0.119	0.063	0.139
		Right Tilt	0.075	0.088	0.011	0.163	0.086	0.174
	GPRS 850	Left Touch	0.161	0.059	0.031	0.220	0.192	0.251
		Right Touch	0.286	0.082	0.069	0.368	0.355	**0.437**
		Left Tilt	0.075	0.076	0.020	0.151	0.095	0.171
		Right Tilt	0.138	0.088	0.011	0.226	0.149	0.237
	GSM 1900	Left Touch	0.118	0.059	0.031	0.177	0.149	0.208
		Right Touch	0.083	0.082	0.069	0.165	0.152	**0.234**
		Left Tilt	0.100	0.076	0.020	0.176	0.120	0.196
		Right Tilt	0.099	0.088	0.011	0.187	0.110	0.198
	GPRS 1900	Left Touch	0.159	0.059	0.031	0.218	0.190	0.249
		Right Touch	0.112	0.082	0.069	0.194	0.181	**0.263**
		Left Tilt	0.133	0.076	0.020	0.209	0.153	0.229
		Right Tilt	0.129	0.088	0.011	0.217	0.140	0.228
	WCDMA 1700	Left Touch	0.152	0.059	0.031	0.211	0.183	0.242
		Right Touch	0.108	0.082	0.069	0.190	0.177	**0.259**
		Left Tilt	0.091	0.076	0.020	0.167	0.111	0.187
		Right Tilt	0.076	0.088	0.011	0.164	0.087	0.175
	WCDMA 1900	Left Touch	0.138	0.059	0.031	0.197	0.169	0.228
		Right Touch	0.091	0.082	0.069	0.173	0.160	**0.242**
		Left Tilt	0.116	0.076	0.020	0.192	0.136	0.212
		Right Tilt	0.115	0.088	0.011	0.203	0.126	0.214
	LTE Band 12	Left Touch	0.112	0.059	0.031	0.171	0.143	0.202
		Right Touch	0.149	0.082	0.069	0.231	0.218	**0.300**
		Left Tilt	0.052	0.076	0.020	0.128	0.072	0.148
		Right Tilt	0.036	0.088	0.011	0.124	0.047	0.135
	LTE Band 4	Left Touch	0.207	0.059	0.031	0.266	0.238	**0.297**
		Right Touch	0.144	0.082	0.069	0.226	0.213	0.295
		Left Tilt	0.187	0.076	0.020	0.263	0.207	0.283
		Right Tilt	0.147	0.088	0.011	0.235	0.158	0.246
	LTE Band 2	Left Touch	0.143	0.059	0.031	0.202	0.174	0.233
		Right Touch	0.094	0.082	0.069	0.176	0.163	**0.245**
		Left Tilt	0.098	0.076	0.020	0.174	0.118	0.194
		Right Tilt	0.109	0.088	0.011	0.197	0.120	0.208

Table 12.4.9 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.059	0.146	0.153	0.240	0.299
		Right Touch	0.153	0.082	0.356	0.235	0.509	**0.591**
		Left Tilt	0.043	0.076	0.186	0.119	0.229	0.305
		Right Tilt	0.075	0.088	0.419	0.163	0.494	0.582
	GPRS 850	Left Touch	0.161	0.059	0.146	0.220	0.307	0.366
		Right Touch	0.286	0.082	0.356	0.368	0.642	**0.724**
		Left Tilt	0.075	0.076	0.186	0.151	0.261	0.337
		Right Tilt	0.138	0.088	0.419	0.226	0.557	0.645
	GSM 1900	Left Touch	0.118	0.059	0.146	0.177	0.264	0.323
		Right Touch	0.083	0.082	0.356	0.165	0.439	0.521
		Left Tilt	0.100	0.076	0.186	0.176	0.286	0.362
		Right Tilt	0.099	0.088	0.419	0.187	0.518	**0.606**
	GPRS 1900	Left Touch	0.159	0.059	0.146	0.218	0.305	0.364
		Right Touch	0.112	0.082	0.356	0.194	0.468	0.550
		Left Tilt	0.133	0.076	0.186	0.209	0.319	0.395
		Right Tilt	0.129	0.088	0.419	0.217	0.548	**0.636**
	WCDMA 1700	Left Touch	0.152	0.059	0.146	0.211	0.298	0.357
		Right Touch	0.108	0.082	0.356	0.190	0.464	0.546
		Left Tilt	0.091	0.076	0.186	0.167	0.277	0.353
		Right Tilt	0.076	0.088	0.419	0.164	0.495	**0.583**
	WCDMA 1900	Left Touch	0.138	0.059	0.146	0.197	0.284	0.343
		Right Touch	0.091	0.082	0.356	0.173	0.447	0.529
		Left Tilt	0.116	0.076	0.186	0.192	0.302	0.378
		Right Tilt	0.115	0.088	0.419	0.203	0.534	**0.622**
	LTE Band 12	Left Touch	0.112	0.059	0.146	0.171	0.258	0.317
		Right Touch	0.149	0.082	0.356	0.231	0.505	**0.587**
		Left Tilt	0.052	0.076	0.186	0.128	0.238	0.314
		Right Tilt	0.036	0.088	0.419	0.124	0.455	0.543
	LTE Band 4	Left Touch	0.207	0.059	0.146	0.266	0.353	0.412
		Right Touch	0.144	0.082	0.356	0.226	0.500	0.582
		Left Tilt	0.187	0.076	0.186	0.263	0.373	0.449
		Right Tilt	0.147	0.088	0.419	0.235	0.566	**0.654**
	LTE Band 2	Left Touch	0.143	0.059	0.146	0.202	0.289	0.348
		Right Touch	0.094	0.082	0.356	0.176	0.450	0.532
		Left Tilt	0.098	0.076	0.186	0.174	0.284	0.360
		Right Tilt	0.109	0.088	0.419	0.197	0.528	**0.616**

Table 12.4.10 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.059	0.105	0.153	0.199	0.258
		Right Touch	0.153	0.082	0.345	0.235	0.498	**0.580**
		Left Tilt	0.043	0.076	0.133	0.119	0.176	0.252
		Right Tilt	0.075	0.088	0.273	0.163	0.348	0.436
	GPRS 850	Left Touch	0.161	0.059	0.105	0.220	0.266	0.325
		Right Touch	0.286	0.082	0.345	0.368	0.631	**0.713**
		Left Tilt	0.075	0.076	0.133	0.151	0.208	0.284
		Right Tilt	0.138	0.088	0.273	0.226	0.411	0.499
	GSM 1900	Left Touch	0.118	0.059	0.105	0.177	0.223	0.282
		Right Touch	0.083	0.082	0.345	0.165	0.428	**0.510**
		Left Tilt	0.100	0.076	0.133	0.176	0.233	0.309
		Right Tilt	0.099	0.088	0.273	0.187	0.372	0.460
	GPRS 1900	Left Touch	0.159	0.059	0.105	0.218	0.264	0.323
		Right Touch	0.112	0.082	0.345	0.194	0.457	**0.539**
		Left Tilt	0.133	0.076	0.133	0.209	0.266	0.342
		Right Tilt	0.129	0.088	0.273	0.217	0.402	0.490
	WCDMA 1700	Left Touch	0.152	0.059	0.105	0.211	0.257	0.316
		Right Touch	0.108	0.082	0.345	0.190	0.453	**0.535**
		Left Tilt	0.091	0.076	0.133	0.167	0.224	0.300
		Right Tilt	0.076	0.088	0.273	0.164	0.349	0.437
	WCDMA 1900	Left Touch	0.138	0.059	0.105	0.197	0.243	0.302
		Right Touch	0.091	0.082	0.345	0.173	0.436	**0.518**
		Left Tilt	0.116	0.076	0.133	0.192	0.249	0.325
		Right Tilt	0.115	0.088	0.273	0.203	0.388	0.476
	LTE Band 12	Left Touch	0.112	0.059	0.105	0.171	0.217	0.276
		Right Touch	0.149	0.082	0.345	0.231	0.494	**0.576**
		Left Tilt	0.052	0.076	0.133	0.128	0.185	0.261
		Right Tilt	0.036	0.088	0.273	0.124	0.309	0.397
	LTE Band 4	Left Touch	0.207	0.059	0.105	0.266	0.312	0.371
		Right Touch	0.144	0.082	0.345	0.226	0.489	**0.571**
		Left Tilt	0.187	0.076	0.133	0.263	0.320	0.396
		Right Tilt	0.147	0.088	0.273	0.235	0.420	0.508
	LTE Band 2	Left Touch	0.143	0.059	0.105	0.202	0.248	0.307
		Right Touch	0.094	0.082	0.345	0.176	0.439	**0.521**
		Left Tilt	0.098	0.076	0.133	0.174	0.231	0.307
		Right Tilt	0.109	0.088	0.273	0.197	0.382	0.470

Table 12.4.11 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.059	0.051	0.153	0.145	0.204
		Right Touch	0.153	0.082	0.102	0.235	0.255	**0.337**
		Left Tilt	0.043	0.076	0.011	0.119	0.054	0.130
		Right Tilt	0.075	0.088	0.011	0.163	0.086	0.174
	GPRS 850	Left Touch	0.161	0.059	0.051	0.220	0.212	0.271
		Right Touch	0.286	0.082	0.102	0.368	0.388	**0.470**
		Left Tilt	0.075	0.076	0.011	0.151	0.086	0.162
		Right Tilt	0.138	0.088	0.011	0.226	0.149	0.237
	GSM 1900	Left Touch	0.118	0.059	0.051	0.177	0.169	0.228
		Right Touch	0.083	0.082	0.102	0.165	0.185	**0.267**
		Left Tilt	0.100	0.076	0.011	0.176	0.111	0.187
		Right Tilt	0.099	0.088	0.011	0.187	0.110	0.198
	GPRS 1900	Left Touch	0.159	0.059	0.051	0.218	0.210	0.269
		Right Touch	0.112	0.082	0.102	0.194	0.214	**0.296**
		Left Tilt	0.133	0.076	0.011	0.209	0.144	0.220
		Right Tilt	0.129	0.088	0.011	0.217	0.140	0.228
	WCDMA 1700	Left Touch	0.152	0.059	0.051	0.211	0.203	0.262
		Right Touch	0.108	0.082	0.102	0.190	0.210	**0.292**
		Left Tilt	0.091	0.076	0.011	0.167	0.102	0.178
		Right Tilt	0.076	0.088	0.011	0.164	0.087	0.175
	WCDMA 1900	Left Touch	0.138	0.059	0.051	0.197	0.189	0.248
		Right Touch	0.091	0.082	0.102	0.173	0.193	**0.275**
		Left Tilt	0.116	0.076	0.011	0.192	0.127	0.203
		Right Tilt	0.115	0.088	0.011	0.203	0.126	0.214
	LTE Band 12	Left Touch	0.112	0.059	0.051	0.171	0.163	0.222
		Right Touch	0.149	0.082	0.102	0.231	0.251	**0.333**
		Left Tilt	0.052	0.076	0.011	0.128	0.063	0.139
		Right Tilt	0.036	0.088	0.011	0.124	0.047	0.135
	LTE Band 4	Left Touch	0.207	0.059	0.051	0.266	0.258	0.317
		Right Touch	0.144	0.082	0.102	0.226	0.246	**0.328**
		Left Tilt	0.187	0.076	0.011	0.263	0.198	0.274
		Right Tilt	0.147	0.088	0.011	0.235	0.158	0.246
	LTE Band 2	Left Touch	0.143	0.059	0.051	0.202	0.194	0.253
		Right Touch	0.094	0.082	0.102	0.176	0.196	**0.278**
		Left Tilt	0.098	0.076	0.011	0.174	0.109	0.185
		Right Tilt	0.109	0.088	0.011	0.197	0.120	0.208

Table 12.4.12 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.094	0.059	0.153	0.153	0.247	0.306
		Right Touch	0.153	0.082	0.245	0.235	0.398	**0.480**
		Left Tilt	0.043	0.076	0.160	0.119	0.203	0.279
		Right Tilt	0.075	0.088	0.227	0.163	0.302	0.390
	GPRS 850	Left Touch	0.161	0.059	0.153	0.220	0.314	0.373
		Right Touch	0.286	0.082	0.245	0.368	0.531	**0.613**
		Left Tilt	0.075	0.076	0.160	0.151	0.235	0.311
		Right Tilt	0.138	0.088	0.227	0.226	0.365	0.453
	GSM 1900	Left Touch	0.118	0.059	0.153	0.177	0.271	0.330
		Right Touch	0.083	0.082	0.245	0.165	0.328	0.410
		Left Tilt	0.100	0.076	0.160	0.176	0.260	0.336
		Right Tilt	0.099	0.088	0.227	0.187	0.326	**0.414**
	GPRS 1900	Left Touch	0.159	0.059	0.153	0.218	0.312	0.371
		Right Touch	0.112	0.082	0.245	0.194	0.357	0.439
		Left Tilt	0.133	0.076	0.160	0.209	0.293	0.369
		Right Tilt	0.129	0.088	0.227	0.217	0.356	**0.444**
	WCDMA 1700	Left Touch	0.152	0.059	0.153	0.211	0.305	0.364
		Right Touch	0.108	0.082	0.245	0.190	0.353	**0.435**
		Left Tilt	0.091	0.076	0.160	0.167	0.251	0.327
		Right Tilt	0.076	0.088	0.227	0.164	0.303	0.391
	WCDMA 1900	Left Touch	0.138	0.059	0.153	0.197	0.291	0.350
		Right Touch	0.091	0.082	0.245	0.173	0.336	0.418
		Left Tilt	0.116	0.076	0.160	0.192	0.276	0.352
		Right Tilt	0.115	0.088	0.227	0.203	0.342	**0.430**
	LTE Band 12	Left Touch	0.112	0.059	0.153	0.171	0.265	0.324
		Right Touch	0.149	0.082	0.245	0.231	0.394	**0.476**
		Left Tilt	0.052	0.076	0.160	0.128	0.212	0.288
		Right Tilt	0.036	0.088	0.227	0.124	0.263	0.351
	LTE Band 4	Left Touch	0.207	0.059	0.153	0.266	0.360	0.419
		Right Touch	0.144	0.082	0.245	0.226	0.389	**0.471**
		Left Tilt	0.187	0.076	0.160	0.263	0.347	0.423
		Right Tilt	0.147	0.088	0.227	0.235	0.374	0.462
	LTE Band 2	Left Touch	0.143	0.059	0.153	0.202	0.296	0.355
		Right Touch	0.094	0.082	0.245	0.176	0.339	0.421
		Left Tilt	0.098	0.076	0.160	0.174	0.258	0.334
		Right Tilt	0.109	0.088	0.227	0.197	0.336	**0.424**

Table 12.4.13 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.202	0.296
		Right Touch	0.153	0.311	**0.464**
		Left Tilt	0.043	0.275	0.318
		Right Tilt	0.075	0.342	0.417
	GPRS 850	Left Touch	0.161	0.202	0.363
		Right Touch	0.286	0.311	**0.597**
		Left Tilt	0.075	0.275	0.350
		Right Tilt	0.138	0.342	0.480
	GSM 1900	Left Touch	0.118	0.202	0.320
		Right Touch	0.083	0.311	0.394
		Left Tilt	0.100	0.275	0.375
		Right Tilt	0.099	0.342	**0.441**
	GPRS 1900	Left Touch	0.159	0.202	0.361
		Right Touch	0.112	0.311	0.423
		Left Tilt	0.133	0.275	0.408
		Right Tilt	0.129	0.342	**0.471**
	WCDMA 1700	Left Touch	0.152	0.202	0.354
		Right Touch	0.108	0.311	**0.419**
		Left Tilt	0.091	0.275	0.366
		Right Tilt	0.076	0.342	0.418
	WCDMA 1900	Left Touch	0.138	0.202	0.340
		Right Touch	0.091	0.311	0.402
		Left Tilt	0.116	0.275	0.391
		Right Tilt	0.115	0.342	**0.457**
	LTE Band 12	Left Touch	0.112	0.202	0.314
		Right Touch	0.149	0.311	**0.460**
		Left Tilt	0.052	0.275	0.327
		Right Tilt	0.036	0.342	0.378
	LTE Band 4	Left Touch	0.207	0.202	0.409
		Right Touch	0.144	0.311	0.455
		Left Tilt	0.187	0.275	0.462
		Right Tilt	0.147	0.342	**0.489**
	LTE Band 2	Left Touch	0.143	0.202	0.345
		Right Touch	0.094	0.311	0.405
		Left Tilt	0.098	0.275	0.373
		Right Tilt	0.109	0.342	**0.451**

Table 12.4.14 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.022	0.116
		Right Touch	0.153	0.060	**0.213**
		Left Tilt	0.043	0.007	0.050
		Right Tilt	0.075	0.021	0.096
	GPRS 850	Left Touch	0.161	0.022	0.183
		Right Touch	0.286	0.060	**0.346**
		Left Tilt	0.075	0.007	0.082
		Right Tilt	0.138	0.021	0.159
	GSM 1900	Left Touch	0.118	0.022	0.140
		Right Touch	0.083	0.060	**0.143**
		Left Tilt	0.100	0.007	0.107
		Right Tilt	0.099	0.021	0.120
	GPRS 1900	Left Touch	0.159	0.022	**0.181**
		Right Touch	0.112	0.060	0.172
		Left Tilt	0.133	0.007	0.140
		Right Tilt	0.129	0.021	0.150
	WCDMA 1700	Left Touch	0.152	0.022	**0.174**
		Right Touch	0.108	0.060	0.168
		Left Tilt	0.091	0.007	0.098
		Right Tilt	0.076	0.021	0.097
	WCDMA 1900	Left Touch	0.138	0.022	**0.160**
		Right Touch	0.091	0.060	0.151
		Left Tilt	0.116	0.007	0.123
		Right Tilt	0.115	0.021	0.136
	LTE Band 12	Left Touch	0.112	0.022	0.134
		Right Touch	0.149	0.060	**0.209**
		Left Tilt	0.052	0.007	0.059
		Right Tilt	0.036	0.021	0.057
	LTE Band 4	Left Touch	0.207	0.022	**0.229**
		Right Touch	0.144	0.060	0.204
		Left Tilt	0.187	0.007	0.194
		Right Tilt	0.147	0.021	0.168
	LTE Band 2	Left Touch	0.143	0.022	**0.165**
		Right Touch	0.094	0.060	0.154
		Left Tilt	0.098	0.007	0.105
		Right Tilt	0.109	0.021	0.130

Table 12.4.15 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.252	0.346
		Right Touch	0.153	0.269	**0.422**
		Left Tilt	0.043	0.308	0.351
		Right Tilt	0.075	0.226	0.301
	GPRS 850	Left Touch	0.161	0.252	0.413
		Right Touch	0.286	0.269	**0.555**
		Left Tilt	0.075	0.308	0.383
		Right Tilt	0.138	0.226	0.364
	GSM 1900	Left Touch	0.118	0.252	0.370
		Right Touch	0.083	0.269	0.352
		Left Tilt	0.100	0.308	**0.408**
		Right Tilt	0.099	0.226	0.325
	GPRS 1900	Left Touch	0.159	0.252	0.411
		Right Touch	0.112	0.269	0.381
		Left Tilt	0.133	0.308	**0.441**
		Right Tilt	0.129	0.226	0.355
	WCDMA 1700	Left Touch	0.152	0.252	**0.404**
		Right Touch	0.108	0.269	0.377
		Left Tilt	0.091	0.308	0.399
		Right Tilt	0.076	0.226	0.302
	WCDMA 1900	Left Touch	0.138	0.252	0.390
		Right Touch	0.091	0.269	0.360
		Left Tilt	0.116	0.308	**0.424**
		Right Tilt	0.115	0.226	0.341
	LTE Band 12	Left Touch	0.112	0.252	0.364
		Right Touch	0.149	0.269	**0.418**
		Left Tilt	0.052	0.308	0.360
		Right Tilt	0.036	0.226	0.262
	LTE Band 4	Left Touch	0.207	0.252	0.459
		Right Touch	0.144	0.269	0.413
		Left Tilt	0.187	0.308	**0.495**
		Right Tilt	0.147	0.226	0.373
	LTE Band 2	Left Touch	0.143	0.252	0.395
		Right Touch	0.094	0.269	0.363
		Left Tilt	0.098	0.308	**0.406**
		Right Tilt	0.109	0.226	0.335

Table 12.4.16 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.085	0.179
		Right Touch	0.153	0.305	**0.458**
		Left Tilt	0.043	0.077	0.120
		Right Tilt	0.075	0.258	0.333
	GPRS 850	Left Touch	0.161	0.085	0.246
		Right Touch	0.286	0.305	**0.591**
		Left Tilt	0.075	0.077	0.152
		Right Tilt	0.138	0.258	0.396
	GSM 1900	Left Touch	0.118	0.085	0.203
		Right Touch	0.083	0.305	**0.388**
		Left Tilt	0.100	0.077	0.177
		Right Tilt	0.099	0.258	0.357
	GPRS 1900	Left Touch	0.159	0.085	0.244
		Right Touch	0.112	0.305	**0.417**
		Left Tilt	0.133	0.077	0.210
		Right Tilt	0.129	0.258	0.387
	WCDMA 1700	Left Touch	0.152	0.085	0.237
		Right Touch	0.108	0.305	**0.413**
		Left Tilt	0.091	0.077	0.168
		Right Tilt	0.076	0.258	0.334
	WCDMA 1900	Left Touch	0.138	0.085	0.223
		Right Touch	0.091	0.305	**0.396**
		Left Tilt	0.116	0.077	0.193
		Right Tilt	0.115	0.258	0.373
	LTE Band 12	Left Touch	0.112	0.085	0.197
		Right Touch	0.149	0.305	**0.454**
		Left Tilt	0.052	0.077	0.129
		Right Tilt	0.036	0.258	0.294
	LTE Band 4	Left Touch	0.207	0.085	0.292
		Right Touch	0.144	0.305	**0.449**
		Left Tilt	0.187	0.077	0.264
		Right Tilt	0.147	0.258	0.405
	LTE Band 2	Left Touch	0.143	0.085	0.228
		Right Touch	0.094	0.305	**0.399**
		Left Tilt	0.098	0.077	0.175
		Right Tilt	0.109	0.258	0.367

Table 12.4.17 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.015	0.109
		Right Touch	0.153	0.054	**0.207**
		Left Tilt	0.043	0.011	0.054
		Right Tilt	0.075	0.020	0.095
	GPRS 850	Left Touch	0.161	0.015	0.176
		Right Touch	0.286	0.054	**0.340**
		Left Tilt	0.075	0.011	0.086
		Right Tilt	0.138	0.020	0.158
	GSM 1900	Left Touch	0.118	0.015	0.133
		Right Touch	0.083	0.054	**0.137**
		Left Tilt	0.100	0.011	0.111
		Right Tilt	0.099	0.020	0.119
	GPRS 1900	Left Touch	0.159	0.015	**0.174**
		Right Touch	0.112	0.054	0.166
		Left Tilt	0.133	0.011	0.144
		Right Tilt	0.129	0.020	0.149
	WCDMA 1700	Left Touch	0.152	0.015	**0.167**
		Right Touch	0.108	0.054	0.162
		Left Tilt	0.091	0.011	0.102
		Right Tilt	0.076	0.020	0.096
	WCDMA 1900	Left Touch	0.138	0.015	**0.153**
		Right Touch	0.091	0.054	0.145
		Left Tilt	0.116	0.011	0.127
		Right Tilt	0.115	0.020	0.135
	LTE Band 12	Left Touch	0.112	0.015	0.127
		Right Touch	0.149	0.054	**0.203**
		Left Tilt	0.052	0.011	0.063
		Right Tilt	0.036	0.020	0.056
	LTE Band 4	Left Touch	0.207	0.015	**0.222**
		Right Touch	0.144	0.054	0.198
		Left Tilt	0.187	0.011	0.198
		Right Tilt	0.147	0.020	0.167
	LTE Band 2	Left Touch	0.143	0.015	**0.158**
		Right Touch	0.094	0.054	0.148
		Left Tilt	0.098	0.011	0.109
		Right Tilt	0.109	0.020	0.129

Table 12.4.18 Simultaneous Transmission Scenario: 2G/3G/4G + 5.2 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.102	0.196
		Right Touch	0.153	0.288	**0.441**
		Left Tilt	0.043	0.095	0.138
		Right Tilt	0.075	0.236	0.311
	GPRS 850	Left Touch	0.161	0.102	0.263
		Right Touch	0.286	0.288	**0.574**
		Left Tilt	0.075	0.095	0.170
		Right Tilt	0.138	0.236	0.374
	GSM 1900	Left Touch	0.118	0.102	0.220
		Right Touch	0.083	0.288	**0.371**
		Left Tilt	0.100	0.095	0.195
		Right Tilt	0.099	0.236	0.335
	GPRS 1900	Left Touch	0.159	0.102	0.261
		Right Touch	0.112	0.288	**0.400**
		Left Tilt	0.133	0.095	0.228
		Right Tilt	0.129	0.236	0.365
	WCDMA 1700	Left Touch	0.152	0.102	0.254
		Right Touch	0.108	0.288	**0.396**
		Left Tilt	0.091	0.095	0.186
		Right Tilt	0.076	0.236	0.312
	WCDMA 1900	Left Touch	0.138	0.102	0.240
		Right Touch	0.091	0.288	**0.379**
		Left Tilt	0.116	0.095	0.211
		Right Tilt	0.115	0.236	0.351
	LTE Band 12	Left Touch	0.112	0.102	0.214
		Right Touch	0.149	0.288	**0.437**
		Left Tilt	0.052	0.095	0.147
		Right Tilt	0.036	0.236	0.272
	LTE Band 4	Left Touch	0.207	0.102	0.309
		Right Touch	0.144	0.288	**0.432**
		Left Tilt	0.187	0.095	0.282
		Right Tilt	0.147	0.236	0.383
	LTE Band 2	Left Touch	0.143	0.102	0.245
		Right Touch	0.094	0.288	**0.382**
		Left Tilt	0.098	0.095	0.193
		Right Tilt	0.109	0.236	0.345

Table 12.4.19 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.141	0.235
		Right Touch	0.153	0.457	**0.610**
		Left Tilt	0.043	0.183	0.226
		Right Tilt	0.075	0.431	0.506
	GPRS 850	Left Touch	0.161	0.141	0.302
		Right Touch	0.286	0.457	**0.743**
		Left Tilt	0.075	0.183	0.258
		Right Tilt	0.138	0.431	0.569
	GSM 1900	Left Touch	0.118	0.141	0.259
		Right Touch	0.083	0.457	**0.540**
		Left Tilt	0.100	0.183	0.283
		Right Tilt	0.099	0.431	0.530
	GPRS 1900	Left Touch	0.159	0.141	0.300
		Right Touch	0.112	0.457	**0.569**
		Left Tilt	0.133	0.183	0.316
		Right Tilt	0.129	0.431	0.560
	WCDMA 1700	Left Touch	0.152	0.141	0.293
		Right Touch	0.108	0.457	**0.565**
		Left Tilt	0.091	0.183	0.274
		Right Tilt	0.076	0.431	0.507
	WCDMA 1900	Left Touch	0.138	0.141	0.279
		Right Touch	0.091	0.457	**0.548**
		Left Tilt	0.116	0.183	0.299
		Right Tilt	0.115	0.431	0.546
	LTE Band 12	Left Touch	0.112	0.141	0.253
		Right Touch	0.149	0.457	**0.606**
		Left Tilt	0.052	0.183	0.235
		Right Tilt	0.036	0.431	0.467
	LTE Band 4	Left Touch	0.207	0.141	0.348
		Right Touch	0.144	0.457	**0.601**
		Left Tilt	0.187	0.183	0.370
		Right Tilt	0.147	0.431	0.578
	LTE Band 2	Left Touch	0.143	0.141	0.284
		Right Touch	0.094	0.457	**0.551**
		Left Tilt	0.098	0.183	0.281
		Right Tilt	0.109	0.431	0.540

Table 12.4.20 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.031	0.125
		Right Touch	0.153	0.069	**0.222**
		Left Tilt	0.043	0.020	0.063
		Right Tilt	0.075	0.011	0.086
	GPRS 850	Left Touch	0.161	0.031	0.192
		Right Touch	0.286	0.069	**0.355**
		Left Tilt	0.075	0.020	0.095
		Right Tilt	0.138	0.011	0.149
	GSM 1900	Left Touch	0.118	0.031	0.149
		Right Touch	0.083	0.069	**0.152**
		Left Tilt	0.100	0.020	0.120
		Right Tilt	0.099	0.011	0.110
	GPRS 1900	Left Touch	0.159	0.031	**0.190**
		Right Touch	0.112	0.069	0.181
		Left Tilt	0.133	0.020	0.153
		Right Tilt	0.129	0.011	0.140
	WCDMA 1700	Left Touch	0.152	0.031	**0.183**
		Right Touch	0.108	0.069	0.177
		Left Tilt	0.091	0.020	0.111
		Right Tilt	0.076	0.011	0.087
	WCDMA 1900	Left Touch	0.138	0.031	**0.169**
		Right Touch	0.091	0.069	0.160
		Left Tilt	0.116	0.020	0.136
		Right Tilt	0.115	0.011	0.126
	LTE Band 12	Left Touch	0.112	0.031	0.143
		Right Touch	0.149	0.069	**0.218**
		Left Tilt	0.052	0.020	0.072
		Right Tilt	0.036	0.011	0.047
	LTE Band 4	Left Touch	0.207	0.031	**0.238**
		Right Touch	0.144	0.069	0.213
		Left Tilt	0.187	0.020	0.207
		Right Tilt	0.147	0.011	0.158
	LTE Band 2	Left Touch	0.143	0.031	**0.174**
		Right Touch	0.094	0.069	0.163
		Left Tilt	0.098	0.020	0.118
		Right Tilt	0.109	0.011	0.120

Table 12.4.21 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.146	0.240
		Right Touch	0.153	0.356	**0.509**
		Left Tilt	0.043	0.186	0.229
		Right Tilt	0.075	0.419	0.494
	GPRS 850	Left Touch	0.161	0.146	0.307
		Right Touch	0.286	0.356	**0.642**
		Left Tilt	0.075	0.186	0.261
		Right Tilt	0.138	0.419	0.557
	GSM 1900	Left Touch	0.118	0.146	0.264
		Right Touch	0.083	0.356	0.439
		Left Tilt	0.100	0.186	0.286
		Right Tilt	0.099	0.419	**0.518**
	GPRS 1900	Left Touch	0.159	0.146	0.305
		Right Touch	0.112	0.356	0.468
		Left Tilt	0.133	0.186	0.319
		Right Tilt	0.129	0.419	**0.548**
	WCDMA 1700	Left Touch	0.152	0.146	0.298
		Right Touch	0.108	0.356	0.464
		Left Tilt	0.091	0.186	0.277
		Right Tilt	0.076	0.419	**0.495**
	WCDMA 1900	Left Touch	0.138	0.146	0.284
		Right Touch	0.091	0.356	0.447
		Left Tilt	0.116	0.186	0.302
		Right Tilt	0.115	0.419	0.534
	LTE Band 12	Left Touch	0.112	0.146	0.258
		Right Touch	0.149	0.356	**0.505**
		Left Tilt	0.052	0.186	0.238
		Right Tilt	0.036	0.419	0.455
	LTE Band 4	Left Touch	0.207	0.146	0.353
		Right Touch	0.144	0.356	**0.500**
		Left Tilt	0.187	0.186	0.373
		Right Tilt	0.147	0.419	0.566
	LTE Band 2	Left Touch	0.143	0.146	0.289
		Right Touch	0.094	0.356	0.450
		Left Tilt	0.098	0.186	0.284
		Right Tilt	0.109	0.419	**0.528**

Table 12.4.22 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.105	0.199
		Right Touch	0.153	0.345	**0.498**
		Left Tilt	0.043	0.133	0.176
		Right Tilt	0.075	0.273	0.348
	GPRS 850	Left Touch	0.161	0.105	0.266
		Right Touch	0.286	0.345	**0.631**
		Left Tilt	0.075	0.133	0.208
		Right Tilt	0.138	0.273	0.411
	GSM 1900	Left Touch	0.118	0.105	0.223
		Right Touch	0.083	0.345	**0.428**
		Left Tilt	0.100	0.133	0.233
		Right Tilt	0.099	0.273	0.372
	GPRS 1900	Left Touch	0.159	0.105	0.264
		Right Touch	0.112	0.345	**0.457**
		Left Tilt	0.133	0.133	0.266
		Right Tilt	0.129	0.273	0.402
	WCDMA 1700	Left Touch	0.152	0.105	0.257
		Right Touch	0.108	0.345	**0.453**
		Left Tilt	0.091	0.133	0.224
		Right Tilt	0.076	0.273	0.349
	WCDMA 1900	Left Touch	0.138	0.105	0.243
		Right Touch	0.091	0.345	**0.436**
		Left Tilt	0.116	0.133	0.249
		Right Tilt	0.115	0.273	0.388
	LTE Band 12	Left Touch	0.112	0.105	0.217
		Right Touch	0.149	0.345	**0.494**
		Left Tilt	0.052	0.133	0.185
		Right Tilt	0.036	0.273	0.309
	LTE Band 4	Left Touch	0.207	0.105	0.312
		Right Touch	0.144	0.345	**0.489**
		Left Tilt	0.187	0.133	0.320
		Right Tilt	0.147	0.273	0.420
	LTE Band 2	Left Touch	0.143	0.105	0.248
		Right Touch	0.094	0.345	**0.439**
		Left Tilt	0.098	0.133	0.231
		Right Tilt	0.109	0.273	0.382

Table 12.4.23 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.051	0.145
		Right Touch	0.153	0.102	**0.255**
		Left Tilt	0.043	0.011	0.054
		Right Tilt	0.075	0.011	0.086
	GPRS 850	Left Touch	0.161	0.051	0.212
		Right Touch	0.286	0.102	**0.388**
		Left Tilt	0.075	0.011	0.086
		Right Tilt	0.138	0.011	0.149
	GSM 1900	Left Touch	0.118	0.051	0.169
		Right Touch	0.083	0.102	**0.185**
		Left Tilt	0.100	0.011	0.111
		Right Tilt	0.099	0.011	0.110
	GPRS 1900	Left Touch	0.159	0.051	0.210
		Right Touch	0.112	0.102	**0.214**
		Left Tilt	0.133	0.011	0.144
		Right Tilt	0.129	0.011	0.140
	WCDMA 1700	Left Touch	0.152	0.051	0.203
		Right Touch	0.108	0.102	**0.210**
		Left Tilt	0.091	0.011	0.102
		Right Tilt	0.076	0.011	0.087
	WCDMA 1900	Left Touch	0.138	0.051	0.189
		Right Touch	0.091	0.102	**0.193**
		Left Tilt	0.116	0.011	0.127
		Right Tilt	0.115	0.011	0.126
	LTE Band 12	Left Touch	0.112	0.051	0.163
		Right Touch	0.149	0.102	**0.251**
		Left Tilt	0.052	0.011	0.063
		Right Tilt	0.036	0.011	0.047
	LTE Band 4	Left Touch	0.207	0.051	**0.258**
		Right Touch	0.144	0.102	0.246
		Left Tilt	0.187	0.011	0.198
		Right Tilt	0.147	0.011	0.158
	LTE Band 2	Left Touch	0.143	0.051	0.194
		Right Touch	0.094	0.102	**0.196**
		Left Tilt	0.098	0.011	0.109
		Right Tilt	0.109	0.011	0.120

Table 12.4.24 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.153	0.247
		Right Touch	0.153	0.245	**0.398**
		Left Tilt	0.043	0.160	0.203
		Right Tilt	0.075	0.227	0.302
	GPRS 850	Left Touch	0.161	0.153	0.314
		Right Touch	0.286	0.245	**0.531**
		Left Tilt	0.075	0.160	0.235
		Right Tilt	0.138	0.227	0.365
	GSM 1900	Left Touch	0.118	0.153	0.271
		Right Touch	0.083	0.245	**0.328**
		Left Tilt	0.100	0.160	0.260
		Right Tilt	0.099	0.227	0.326
	GPRS 1900	Left Touch	0.159	0.153	0.312
		Right Touch	0.112	0.245	**0.357**
		Left Tilt	0.133	0.160	0.293
		Right Tilt	0.129	0.227	0.356
	WCDMA 1700	Left Touch	0.152	0.153	0.305
		Right Touch	0.108	0.245	**0.353**
		Left Tilt	0.091	0.160	0.251
		Right Tilt	0.076	0.227	0.303
	WCDMA 1900	Left Touch	0.138	0.153	0.291
		Right Touch	0.091	0.245	0.336
		Left Tilt	0.116	0.160	0.276
		Right Tilt	0.115	0.227	**0.342**
	LTE Band 12	Left Touch	0.112	0.153	0.265
		Right Touch	0.149	0.245	**0.394**
		Left Tilt	0.052	0.160	0.212
		Right Tilt	0.036	0.227	0.263
	LTE Band 4	Left Touch	0.207	0.153	0.360
		Right Touch	0.144	0.245	**0.389**
		Left Tilt	0.187	0.160	0.347
		Right Tilt	0.147	0.227	0.374
	LTE Band 2	Left Touch	0.143	0.153	0.296
		Right Touch	0.094	0.245	**0.339**
		Left Tilt	0.098	0.160	0.258
		Right Tilt	0.109	0.227	0.336

Table 12.4.25 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.094	0.059	0.153
		Right Touch	0.153	0.082	**0.235**
		Left Tilt	0.043	0.076	0.119
		Right Tilt	0.075	0.088	0.163
	GPRS 850	Left Touch	0.161	0.059	0.220
		Right Touch	0.286	0.082	**0.368**
		Left Tilt	0.075	0.076	0.151
		Right Tilt	0.138	0.088	0.226
	GSM 1900	Left Touch	0.118	0.059	0.177
		Right Touch	0.083	0.082	0.165
		Left Tilt	0.100	0.076	0.176
		Right Tilt	0.099	0.088	**0.187**
	GPRS 1900	Left Touch	0.159	0.059	**0.218**
		Right Touch	0.112	0.082	0.194
		Left Tilt	0.133	0.076	0.209
		Right Tilt	0.129	0.088	0.217
	WCDMA 1700	Left Touch	0.152	0.059	**0.211**
		Right Touch	0.108	0.082	0.190
		Left Tilt	0.091	0.076	0.167
		Right Tilt	0.076	0.088	0.164
	WCDMA 1900	Left Touch	0.138	0.059	0.197
		Right Touch	0.091	0.082	0.173
		Left Tilt	0.116	0.076	0.192
		Right Tilt	0.115	0.088	**0.203**
	LTE Band 12	Left Touch	0.112	0.059	0.171
		Right Touch	0.149	0.082	**0.231**
		Left Tilt	0.052	0.076	0.128
		Right Tilt	0.036	0.088	0.124
	LTE Band 4	Left Touch	0.207	0.059	**0.266**
		Right Touch	0.144	0.082	0.226
		Left Tilt	0.187	0.076	0.263
		Right Tilt	0.147	0.088	0.235
	LTE Band 2	Left Touch	0.143	0.059	**0.202**
		Right Touch	0.094	0.082	0.176
		Left Tilt	0.098	0.076	0.174
		Right Tilt	0.109	0.088	0.197

Table 12.4.26 Simultaneous Transmission Scenario : 2.4 GHz W-LAN Ant.1 + 5 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2.4G W-LAN Ant.1 SAR (W/kg)	5G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	5.2G W-LAN Ant.2	Left Touch	0.202	0.015	0.217
		Right Touch	0.311	0.054	**0.365**
		Left Tilt	0.275	0.011	0.286
		Right Tilt	0.342	0.020	0.362
	5.6G W-LAN Ant.2	Left Touch	0.202	0.031	0.233
		Right Touch	0.311	0.069	**0.380**
		Left Tilt	0.275	0.020	0.295
		Right Tilt	0.342	0.011	0.353
	5.8G W-LAN Ant.2	Left Touch	0.202	0.051	0.253
		Right Touch	0.311	0.102	**0.413**
		Left Tilt	0.275	0.011	0.286
		Right Tilt	0.342	0.011	0.353

Table 12.4.27 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	5.2G W-LAN Ant.1	Left Touch	0.059	0.085	0.144
		Right Touch	0.082	0.305	**0.387**
		Left Tilt	0.076	0.077	0.153
		Right Tilt	0.088	0.258	0.346
	5.6G W-LAN Ant.1	Left Touch	0.059	0.141	0.200
		Right Touch	0.082	0.457	**0.539**
		Left Tilt	0.076	0.183	0.259
		Right Tilt	0.088	0.431	0.519
	5.8G W-LAN Ant.1	Left Touch	0.059	0.105	0.164
		Right Touch	0.082	0.345	**0.427**
		Left Tilt	0.076	0.133	0.209
		Right Tilt	0.088	0.273	0.361

Table 12.4.28 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	5.2G W-LAN Ant.2	Left Touch	0.059	0.015	0.074
		Right Touch	0.082	0.054	**0.136**
		Left Tilt	0.076	0.011	0.087
		Right Tilt	0.088	0.020	0.108
	5.6G W-LAN Ant.2	Left Touch	0.059	0.031	0.090
		Right Touch	0.082	0.069	**0.151**
		Left Tilt	0.076	0.020	0.096
		Right Tilt	0.088	0.011	0.099
	5.8G W-LAN Ant.2	Left Touch	0.059	0.051	0.110
		Right Touch	0.082	0.102	**0.184**
		Left Tilt	0.076	0.011	0.087
		Right Tilt	0.088	0.011	0.099

Table 12.4.29 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	5.2G W-LAN MIMO	Left Touch	0.059	0.102	0.161
		Right Touch	0.082	0.288	**0.370**
		Left Tilt	0.076	0.095	0.171
		Right Tilt	0.088	0.236	0.324
	5.6G W-LAN MIMO	Left Touch	0.059	0.146	0.205
		Right Touch	0.082	0.356	0.438
		Left Tilt	0.076	0.186	0.262
		Right Tilt	0.088	0.419	**0.507**
	5.8G W-LAN MIMO	Left Touch	0.059	0.153	0.212
		Right Touch	0.082	0.245	**0.327**
		Left Tilt	0.076	0.160	0.236
		Right Tilt	0.088	0.227	0.315

12.5 Body-Worn Simultaneous Transmission Analysis

Table 12.5.1 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1 + 5.2 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.075	0.002	0.384	0.311	0.386
		Rear	0.387	0.161	0.674	0.548	1.061	**1.222**
	GPRS 850	Front	0.546	0.075	0.002	0.621	0.548	0.623
		Rear	**0.624**	**0.161**	**0.674**	**0.785**	**1.298**	1.459
	GSM 1900	Front	0.323	0.075	0.002	0.398	0.325	0.400
		Rear	0.380	0.161	0.674	0.541	1.054	**1.215**
	GPRS 1900	Front	0.497	0.075	0.002	0.572	0.499	0.574
		Rear	0.581	0.161	0.674	0.742	1.255	**1.416**
	WCDMA 1700	Front	0.409	0.075	0.002	0.484	0.411	0.486
		Rear	0.523	0.161	0.674	0.684	1.197	**1.358**
	WCDMA 1900	Front	0.476	0.075	0.002	0.551	0.478	0.553
		Rear	0.532	0.161	0.674	0.693	1.206	**1.367**
	LTE Band 12	Front	0.327	0.075	0.002	0.402	0.329	0.404
		Rear	0.485	0.161	0.674	0.646	1.159	**1.320**
	LTE Band 4	Front	0.484	0.075	0.002	0.559	0.486	0.561
		Rear	0.531	0.161	0.674	0.692	1.205	**1.366**
	LTE Band 2	Front	0.483	0.075	0.002	0.558	0.485	0.560
		Rear	0.580	0.161	0.674	0.741	1.254	**1.415**

Table 12.5.2 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1+ 5.6 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.075	0.001	0.384	0.310	0.385
		Rear	0.387	0.161	0.566	0.548	0.953	**1.114**
	GPRS 850	Front	0.546	0.075	0.001	0.621	0.547	0.622
		Rear	0.624	0.161	0.566	0.785	1.190	**1.351**
	GSM 1900	Front	0.323	0.075	0.001	0.398	0.324	0.399
		Rear	0.380	0.161	0.566	0.541	0.946	**1.107**
	GPRS 1900	Front	0.497	0.075	0.001	0.572	0.498	0.573
		Rear	0.581	0.161	0.566	0.742	1.147	**1.308**
	WCDMA 1700	Front	0.409	0.075	0.001	0.484	0.410	0.485
		Rear	0.523	0.161	0.566	0.684	1.089	**1.250**
	WCDMA 1900	Front	0.476	0.075	0.001	0.551	0.477	0.552
		Rear	0.532	0.161	0.566	0.693	1.098	**1.259**
	LTE Band 12	Front	0.327	0.075	0.001	0.402	0.328	0.403
		Rear	0.485	0.161	0.566	0.646	1.051	**1.212**
	LTE Band 4	Front	0.484	0.075	0.001	0.559	0.485	0.560
		Rear	0.531	0.161	0.566	0.692	1.097	**1.258**
	LTE Band 2	Front	0.483	0.075	0.001	0.558	0.484	0.559
		Rear	0.580	0.161	0.566	0.741	1.146	**1.307**

Table 12.5.3 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1+ 5.8 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.075	0.024	0.384	0.333	0.408
		Rear	0.387	0.161	0.474	0.548	0.861	**1.022**
	GPRS 850	Front	0.546	0.075	0.024	0.621	0.570	0.645
		Rear	0.624	0.161	0.474	0.785	1.098	**1.259**
	GSM 1900	Front	0.323	0.075	0.024	0.398	0.347	0.422
		Rear	0.380	0.161	0.474	0.541	0.854	**1.015**
	GPRS 1900	Front	0.497	0.075	0.024	0.572	0.521	0.596
		Rear	0.581	0.161	0.474	0.742	1.055	**1.216**
	WCDMA 1700	Front	0.409	0.075	0.024	0.484	0.433	0.508
		Rear	0.523	0.161	0.474	0.684	0.997	**1.158**
	WCDMA 1900	Front	0.476	0.075	0.024	0.551	0.500	0.575
		Rear	0.532	0.161	0.474	0.693	1.006	**1.167**
	LTE Band 12	Front	0.327	0.075	0.024	0.402	0.351	0.426
		Rear	0.485	0.161	0.474	0.646	0.959	**1.120**
	LTE Band 4	Front	0.484	0.075	0.024	0.559	0.508	0.583
		Rear	0.531	0.161	0.474	0.692	1.005	**1.166**
	LTE Band 2	Front	0.483	0.075	0.024	0.558	0.507	0.582
		Rear	0.580	0.161	0.474	0.741	1.054	**1.215**

Table 12.5.4 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.012	0.329	0.321	0.341
		Rear	0.387	0.039	0.112	0.426	0.499	**0.538**
	GPRS 850	Front	0.546	0.020	0.012	0.566	0.558	0.578
		Rear	0.624	0.039	0.112	0.663	0.736	**0.775**
	GSM 1900	Front	0.323	0.020	0.012	0.343	0.335	0.355
		Rear	0.380	0.039	0.112	0.419	0.492	**0.531**
	GPRS 1900	Front	0.497	0.020	0.012	0.517	0.509	0.529
		Rear	0.581	0.039	0.112	0.620	0.693	**0.732**
	WCDMA 1700	Front	0.409	0.020	0.012	0.429	0.421	0.441
		Rear	0.523	0.039	0.112	0.562	0.635	**0.674**
	WCDMA 1900	Front	0.476	0.020	0.012	0.496	0.488	0.508
		Rear	0.532	0.039	0.112	0.571	0.644	**0.683**
	LTE Band 12	Front	0.327	0.020	0.012	0.347	0.339	0.359
		Rear	0.485	0.039	0.112	0.524	0.597	**0.636**
	LTE Band 4	Front	0.484	0.020	0.012	0.504	0.496	0.516
		Rear	0.531	0.039	0.112	0.570	0.643	**0.682**
	LTE Band 2	Front	0.483	0.020	0.012	0.503	0.495	0.515
		Rear	0.580	0.039	0.112	0.619	0.692	**0.731**

Table 12.5.5 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.002	0.329	0.311	0.331
		Rear	0.387	0.039	0.674	0.426	1.061	**1.100**
	GPRS 850	Front	0.546	0.020	0.002	0.566	0.548	0.568
		Rear	0.624	0.039	0.674	0.663	1.298	**1.337**
	GSM 1900	Front	0.323	0.020	0.002	0.343	0.325	0.345
		Rear	0.380	0.039	0.674	0.419	1.054	**1.093**
	GPRS 1900	Front	0.497	0.020	0.002	0.517	0.499	0.519
		Rear	0.581	0.039	0.674	0.620	1.255	**1.294**
	WCDMA 1700	Front	0.409	0.020	0.002	0.429	0.411	0.431
		Rear	0.523	0.039	0.674	0.562	1.197	**1.236**
	WCDMA 1900	Front	0.476	0.020	0.002	0.496	0.478	0.498
		Rear	0.532	0.039	0.674	0.571	1.206	**1.245**
	LTE Band 12	Front	0.327	0.020	0.002	0.347	0.329	0.349
		Rear	0.485	0.039	0.674	0.524	1.159	**1.198**
	LTE Band 4	Front	0.484	0.020	0.002	0.504	0.486	0.506
		Rear	0.531	0.039	0.674	0.570	1.205	**1.244**
	LTE Band 2	Front	0.483	0.020	0.002	0.503	0.485	0.505
		Rear	0.580	0.039	0.674	0.619	1.254	**1.293**

Table 12.5.6 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.012	0.329	0.321	0.341
		Rear	0.387	0.039	0.747	0.426	1.134	**1.173**
	GPRS 850	Front	0.546	0.020	0.012	0.566	0.558	0.578
		Rear	0.624	0.039	0.747	0.663	1.371	**1.410**
	GSM 1900	Front	0.323	0.020	0.012	0.343	0.335	0.355
		Rear	0.380	0.039	0.747	0.419	1.127	**1.166**
	GPRS 1900	Front	0.497	0.020	0.012	0.517	0.509	0.529
		Rear	0.581	0.039	0.747	0.620	1.328	**1.367**
	WCDMA 1700	Front	0.409	0.020	0.012	0.429	0.421	0.441
		Rear	0.523	0.039	0.747	0.562	1.270	**1.309**
	WCDMA 1900	Front	0.476	0.020	0.012	0.496	0.488	0.508
		Rear	0.532	0.039	0.747	0.571	1.279	**1.318**
	LTE Band 12	Front	0.327	0.020	0.012	0.347	0.339	0.359
		Rear	0.485	0.039	0.747	0.524	1.232	**1.271**
	LTE Band 4	Front	0.484	0.020	0.012	0.504	0.496	0.516
		Rear	0.531	0.039	0.747	0.570	1.278	**1.317**
	LTE Band 2	Front	0.483	0.020	0.012	0.503	0.495	0.515
		Rear	0.580	0.039	0.747	0.619	1.327	**1.366**

Table 12.5.7 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.047	0.329	0.356	0.376
		Rear	0.387	0.039	0.072	0.426	0.459	**0.498**
	GPRS 850	Front	0.546	0.020	0.047	0.566	0.593	0.613
		Rear	0.624	0.039	0.072	0.663	0.696	**0.735**
	GSM 1900	Front	0.323	0.020	0.047	0.343	0.370	0.390
		Rear	0.380	0.039	0.072	0.419	0.452	**0.491**
	GPRS 1900	Front	0.497	0.020	0.047	0.517	0.544	0.564
		Rear	0.581	0.039	0.072	0.620	0.653	**0.692**
	WCDMA 1700	Front	0.409	0.020	0.047	0.429	0.456	0.476
		Rear	0.523	0.039	0.072	0.562	0.595	**0.634**
	WCDMA 1900	Front	0.476	0.020	0.047	0.496	0.523	0.543
		Rear	0.532	0.039	0.072	0.571	0.604	**0.643**
	LTE Band 12	Front	0.327	0.020	0.047	0.347	0.374	0.394
		Rear	0.485	0.039	0.072	0.524	0.557	**0.596**
	LTE Band 4	Front	0.484	0.020	0.047	0.504	0.531	0.551
		Rear	0.531	0.039	0.072	0.570	0.603	**0.642**
	LTE Band 2	Front	0.483	0.020	0.047	0.503	0.530	0.550
		Rear	0.580	0.039	0.072	0.619	0.652	**0.691**

Table 12.5.8 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.001	0.329	0.310	0.330
		Rear	0.387	0.039	0.566	0.426	0.953	**0.992**
	GPRS 850	Front	0.546	0.020	0.001	0.566	0.547	0.567
		Rear	0.624	0.039	0.566	0.663	1.190	**1.229**
	GSM 1900	Front	0.323	0.020	0.001	0.343	0.324	0.344
		Rear	0.380	0.039	0.566	0.419	0.946	**0.985**
	GPRS 1900	Front	0.497	0.020	0.001	0.517	0.498	0.518
		Rear	0.581	0.039	0.566	0.620	1.147	**1.186**
	WCDMA 1700	Front	0.409	0.020	0.001	0.429	0.410	0.430
		Rear	0.523	0.039	0.566	0.562	1.089	**1.128**
	WCDMA 1900	Front	0.476	0.020	0.001	0.496	0.477	0.497
		Rear	0.532	0.039	0.566	0.571	1.098	**1.137**
	LTE Band 12	Front	0.327	0.020	0.001	0.347	0.328	0.348
		Rear	0.485	0.039	0.566	0.524	1.051	**1.090**
	LTE Band 4	Front	0.484	0.020	0.001	0.504	0.485	0.505
		Rear	0.531	0.039	0.566	0.570	1.097	**1.136**
	LTE Band 2	Front	0.483	0.020	0.001	0.503	0.484	0.504
		Rear	0.580	0.039	0.566	0.619	1.146	**1.185**

Table 12.5.9 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.037	0.329	0.346	0.366
		Rear	0.387	0.039	0.609	0.426	0.996	**1.035**
	GPRS 850	Front	0.546	0.020	0.037	0.566	0.583	0.603
		Rear	0.624	0.039	0.609	0.663	1.233	**1.272**
	GSM 1900	Front	0.323	0.020	0.037	0.343	0.360	0.380
		Rear	0.380	0.039	0.609	0.419	0.989	**1.028**
	GPRS 1900	Front	0.497	0.020	0.037	0.517	0.534	0.554
		Rear	0.581	0.039	0.609	0.620	1.190	**1.229**
	WCDMA 1700	Front	0.409	0.020	0.037	0.429	0.446	0.466
		Rear	0.523	0.039	0.609	0.562	1.132	**1.171**
	WCDMA 1900	Front	0.476	0.020	0.037	0.496	0.513	0.533
		Rear	0.532	0.039	0.609	0.571	1.141	**1.180**
	LTE Band 12	Front	0.327	0.020	0.037	0.347	0.364	0.384
		Rear	0.485	0.039	0.609	0.524	1.094	**1.133**
	LTE Band 4	Front	0.484	0.020	0.037	0.504	0.521	0.541
		Rear	0.531	0.039	0.609	0.570	1.140	**1.179**
	LTE Band 2	Front	0.483	0.020	0.037	0.503	0.520	0.540
		Rear	0.580	0.039	0.609	0.619	1.189	**1.228**

Table 12.5.10 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.024	0.329	0.333	0.353
		Rear	0.387	0.039	0.036	0.426	0.423	**0.462**
	GPRS 850	Front	0.546	0.020	0.024	0.566	0.570	0.590
		Rear	0.624	0.039	0.036	0.663	0.660	**0.699**
	GSM 1900	Front	0.323	0.020	0.024	0.343	0.347	0.367
		Rear	0.380	0.039	0.036	0.419	0.416	**0.455**
	GPRS 1900	Front	0.497	0.020	0.024	0.517	0.521	0.541
		Rear	0.581	0.039	0.036	0.620	0.617	**0.656**
	WCDMA 1700	Front	0.409	0.020	0.024	0.429	0.433	0.453
		Rear	0.523	0.039	0.036	0.562	0.559	**0.598**
	WCDMA 1900	Front	0.476	0.020	0.024	0.496	0.500	0.520
		Rear	0.532	0.039	0.036	0.571	0.568	**0.607**
	LTE Band 12	Front	0.327	0.020	0.024	0.347	0.351	0.371
		Rear	0.485	0.039	0.036	0.524	0.521	**0.560**
	LTE Band 4	Front	0.484	0.020	0.024	0.504	0.508	0.528
		Rear	0.531	0.039	0.036	0.570	0.567	**0.606**
	LTE Band 2	Front	0.483	0.020	0.024	0.503	0.507	0.527
		Rear	0.580	0.039	0.036	0.619	0.616	**0.655**

Table 12.5.11 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.024	0.329	0.333	0.353
		Rear	0.387	0.039	0.474	0.426	0.861	**0.900**
	GPRS 850	Front	0.546	0.020	0.024	0.566	0.570	0.590
		Rear	0.624	0.039	0.474	0.663	1.098	**1.137**
	GSM 1900	Front	0.323	0.020	0.024	0.343	0.347	0.367
		Rear	0.380	0.039	0.474	0.419	0.854	**0.893**
	GPRS 1900	Front	0.497	0.020	0.024	0.517	0.521	0.541
		Rear	0.581	0.039	0.474	0.620	1.055	**1.094**
	WCDMA 1700	Front	0.409	0.020	0.024	0.429	0.433	0.453
		Rear	0.523	0.039	0.474	0.562	0.997	**1.036**
	WCDMA 1900	Front	0.476	0.020	0.024	0.496	0.500	0.520
		Rear	0.532	0.039	0.474	0.571	1.006	**1.045**
	LTE Band 12	Front	0.327	0.020	0.024	0.347	0.351	0.371
		Rear	0.485	0.039	0.474	0.524	0.959	**0.998**
	LTE Band 4	Front	0.484	0.020	0.024	0.504	0.508	0.528
		Rear	0.531	0.039	0.474	0.570	1.005	**1.044**
	LTE Band 2	Front	0.483	0.020	0.024	0.503	0.507	0.527
		Rear	0.580	0.039	0.474	0.619	1.054	**1.093**

Table 12.5.12 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.014	0.329	0.323	0.343
		Rear	0.387	0.039	0.444	0.426	0.831	**0.870**
	GPRS 850	Front	0.546	0.020	0.014	0.566	0.560	0.580
		Rear	0.624	0.039	0.444	0.663	1.068	**1.107**
	GSM 1900	Front	0.323	0.020	0.014	0.343	0.337	0.357
		Rear	0.380	0.039	0.444	0.419	0.824	**0.863**
	GPRS 1900	Front	0.497	0.020	0.014	0.517	0.511	0.531
		Rear	0.581	0.039	0.444	0.620	1.025	**1.064**
	WCDMA 1700	Front	0.409	0.020	0.014	0.429	0.423	0.443
		Rear	0.523	0.039	0.444	0.562	0.967	**1.006**
	WCDMA 1900	Front	0.476	0.020	0.014	0.496	0.490	0.510
		Rear	0.532	0.039	0.444	0.571	0.976	**1.015**
	LTE Band 12	Front	0.327	0.020	0.014	0.347	0.341	0.361
		Rear	0.485	0.039	0.444	0.524	0.929	**0.968**
	LTE Band 4	Front	0.484	0.020	0.014	0.504	0.498	0.518
		Rear	0.531	0.039	0.444	0.570	0.975	**1.014**
	LTE Band 2	Front	0.483	0.020	0.014	0.503	0.497	0.517
		Rear	0.580	0.039	0.444	0.619	1.024	**1.063**

Table 12.5.13 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.075	0.384
		Rear	0.387	0.161	**0.548**
	GPRS 850	Front	0.546	0.075	0.621
		Rear	0.624	0.161	**0.785**
	GSM 1900	Front	0.323	0.075	0.398
		Rear	0.380	0.161	**0.541**
	GPRS 1900	Front	0.497	0.075	0.572
		Rear	0.581	0.161	**0.742**
	WCDMA 1700	Front	0.409	0.075	0.484
		Rear	0.523	0.161	**0.684**
	WCDMA 1900	Front	0.476	0.075	0.551
		Rear	0.532	0.161	**0.693**
	LTE Band 12	Front	0.327	0.075	0.402
		Rear	0.485	0.161	**0.646**
	LTE Band 4	Front	0.484	0.075	0.559
		Rear	0.531	0.161	**0.692**
	LTE Band 2	Front	0.483	0.075	0.558
		Rear	0.580	0.161	**0.741**

Table 12.5.14 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.005	0.314
		Rear	0.387	0.126	**0.513**
	GPRS 850	Front	0.546	0.005	0.551
		Rear	0.624	0.126	**0.750**
	GSM 1900	Front	0.323	0.005	0.328
		Rear	0.380	0.126	**0.506**
	GPRS 1900	Front	0.497	0.005	0.502
		Rear	0.581	0.126	**0.707**
	WCDMA 1700	Front	0.409	0.005	0.414
		Rear	0.523	0.126	**0.649**
	WCDMA 1900	Front	0.476	0.005	0.481
		Rear	0.532	0.126	**0.658**
	LTE Band 12	Front	0.327	0.005	0.332
		Rear	0.485	0.126	**0.611**
	LTE Band 4	Front	0.484	0.005	0.489
		Rear	0.531	0.126	**0.657**
	LTE Band 2	Front	0.483	0.005	0.488
		Rear	0.580	0.126	**0.706**

Table 12.5.15 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.055	0.364
		Rear	0.387	0.117	**0.504**
	GPRS 850	Front	0.546	0.055	0.601
		Rear	0.624	0.117	**0.741**
	GSM 1900	Front	0.323	0.055	0.378
		Rear	0.380	0.117	**0.497**
	GPRS 1900	Front	0.497	0.055	0.552
		Rear	0.581	0.117	**0.698**
	WCDMA 1700	Front	0.409	0.055	0.464
		Rear	0.523	0.117	**0.640**
	WCDMA 1900	Front	0.476	0.055	0.531
		Rear	0.532	0.117	**0.649**
	LTE Band 12	Front	0.327	0.055	0.382
		Rear	0.485	0.117	**0.602**
	LTE Band 4	Front	0.484	0.055	0.539
		Rear	0.531	0.117	**0.648**
	LTE Band 2	Front	0.483	0.055	0.538
		Rear	0.580	0.117	**0.697**

Table 12.5.16 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.012	0.321
		Rear	0.387	0.112	**0.499**
	GPRS 850	Front	0.546	0.012	0.558
		Rear	0.624	0.112	**0.736**
	GSM 1900	Front	0.323	0.012	0.335
		Rear	0.380	0.112	**0.492**
	GPRS 1900	Front	0.497	0.012	0.509
		Rear	0.581	0.112	**0.693**
	WCDMA 1700	Front	0.409	0.012	0.421
		Rear	0.523	0.112	**0.635**
	WCDMA 1900	Front	0.476	0.012	0.488
		Rear	0.532	0.112	**0.644**
	LTE Band 12	Front	0.327	0.012	0.339
		Rear	0.485	0.112	**0.597**
	LTE Band 4	Front	0.484	0.012	0.496
		Rear	0.531	0.112	**0.643**
	LTE Band 2	Front	0.483	0.012	0.495
		Rear	0.580	0.112	**0.692**

Table 12.5.17 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.002	0.311
		Rear	0.387	0.674	**1.061**
	GPRS 850	Front	0.546	0.002	0.548
		Rear	0.624	0.674	**1.298**
	GSM 1900	Front	0.323	0.002	0.325
		Rear	0.380	0.674	**1.054**
	GPRS 1900	Front	0.497	0.002	0.499
		Rear	0.581	0.674	**1.255**
	WCDMA 1700	Front	0.409	0.002	0.411
		Rear	0.523	0.674	**1.197**
	WCDMA 1900	Front	0.476	0.002	0.478
		Rear	0.532	0.674	**1.206**
	LTE Band 12	Front	0.327	0.002	0.329
		Rear	0.485	0.674	**1.159**
	LTE Band 4	Front	0.484	0.002	0.486
		Rear	0.531	0.674	**1.205**
	LTE Band 2	Front	0.483	0.002	0.485
		Rear	0.580	0.674	**1.254**

Table 12.5.18 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.012	0.321
		Rear	0.387	0.747	**1.134**
	GPRS 850	Front	0.546	0.012	0.558
		Rear	0.624	0.747	**1.371**
	GSM 1900	Front	0.323	0.012	0.335
		Rear	0.380	0.747	**1.127**
	GPRS 1900	Front	0.497	0.012	0.509
		Rear	0.581	0.747	**1.328**
	WCDMA 1700	Front	0.409	0.012	0.421
		Rear	0.523	0.747	**1.270**
	WCDMA 1900	Front	0.476	0.012	0.488
		Rear	0.532	0.747	**1.279**
	LTE Band 12	Front	0.327	0.012	0.339
		Rear	0.485	0.747	**1.232**
	LTE Band 4	Front	0.484	0.012	0.496
		Rear	0.531	0.747	**1.278**
	LTE Band 2	Front	0.483	0.012	0.495
		Rear	0.580	0.747	**1.327**

Table 12.5.19 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.047	0.356
		Rear	0.387	0.072	**0.459**
	GPRS 850	Front	0.546	0.047	0.593
		Rear	0.624	0.072	**0.696**
	GSM 1900	Front	0.323	0.047	0.370
		Rear	0.380	0.072	**0.452**
	GPRS 1900	Front	0.497	0.047	0.544
		Rear	0.581	0.072	**0.653**
	WCDMA 1700	Front	0.409	0.047	0.456
		Rear	0.523	0.072	**0.595**
	WCDMA 1900	Front	0.476	0.047	0.523
		Rear	0.532	0.072	**0.604**
	LTE Band 12	Front	0.327	0.047	0.374
		Rear	0.485	0.072	**0.557**
	LTE Band 4	Front	0.484	0.047	0.531
		Rear	0.531	0.072	**0.603**
	LTE Band 2	Front	0.483	0.047	0.530
		Rear	0.580	0.072	**0.652**

Table 12.5.20 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.001	0.310
		Rear	0.387	0.566	**0.953**
	GPRS 850	Front	0.546	0.001	0.547
		Rear	0.624	0.566	**1.190**
	GSM 1900	Front	0.323	0.001	0.324
		Rear	0.380	0.566	**0.946**
	GPRS 1900	Front	0.497	0.001	0.498
		Rear	0.581	0.566	**1.147**
	WCDMA 1700	Front	0.409	0.001	0.410
		Rear	0.523	0.566	**1.089**
	WCDMA 1900	Front	0.476	0.001	0.477
		Rear	0.532	0.566	**1.098**
	LTE Band 12	Front	0.327	0.001	0.328
		Rear	0.485	0.566	**1.051**
	LTE Band 4	Front	0.484	0.001	0.485
		Rear	0.531	0.566	**1.097**
	LTE Band 2	Front	0.483	0.001	0.484
		Rear	0.580	0.566	**1.146**

Table 12.5.21 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.037	0.346
		Rear	0.387	0.609	**0.996**
	GPRS 850	Front	0.546	0.037	0.583
		Rear	0.624	0.609	**1.233**
	GSM 1900	Front	0.323	0.037	0.361
		Rear	0.380	0.609	**0.990**
	GPRS 1900	Front	0.497	0.037	0.535
		Rear	0.581	0.609	**1.190**
	WCDMA 1700	Front	0.409	0.037	0.446
		Rear	0.523	0.609	**1.132**
	WCDMA 1900	Front	0.476	0.037	0.513
		Rear	0.532	0.609	**1.141**
	LTE Band 12	Front	0.327	0.037	0.364
		Rear	0.485	0.609	**1.094**
	LTE Band 4	Front	0.484	0.037	0.521
		Rear	0.531	0.609	**1.140**
	LTE Band 2	Front	0.483	0.037	0.521
		Rear	0.580	0.609	**1.189**

Table 12.5.22 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.024	0.333
		Rear	0.387	0.036	**0.423**
	GPRS 850	Front	0.546	0.024	0.570
		Rear	0.624	0.036	**0.660**
	GSM 1900	Front	0.323	0.024	0.347
		Rear	0.380	0.036	**0.416**
	GPRS 1900	Front	0.497	0.024	0.521
		Rear	0.581	0.036	**0.617**
	WCDMA 1700	Front	0.409	0.024	0.433
		Rear	0.523	0.036	**0.559**
	WCDMA 1900	Front	0.476	0.024	0.500
		Rear	0.532	0.036	**0.568**
	LTE Band 12	Front	0.327	0.024	0.351
		Rear	0.485	0.036	**0.521**
	LTE Band 4	Front	0.484	0.024	0.508
		Rear	0.531	0.036	**0.567**
	LTE Band 2	Front	0.483	0.024	0.507
		Rear	0.580	0.036	**0.616**

Table 12.5.23 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.024	0.333
		Rear	0.387	0.474	**0.861**
	GPRS 850	Front	0.546	0.024	0.570
		Rear	0.624	0.474	**1.098**
	GSM 1900	Front	0.323	0.024	0.347
		Rear	0.380	0.474	**0.854**
	GPRS 1900	Front	0.497	0.024	0.521
		Rear	0.581	0.474	**1.055**
	WCDMA 1700	Front	0.409	0.024	0.433
		Rear	0.523	0.474	**0.997**
	WCDMA 1900	Front	0.476	0.024	0.500
		Rear	0.532	0.474	**1.006**
	LTE Band 12	Front	0.327	0.024	0.351
		Rear	0.485	0.474	**0.959**
	LTE Band 4	Front	0.484	0.024	0.508
		Rear	0.531	0.474	**1.005**
	LTE Band 2	Front	0.483	0.024	0.507
		Rear	0.580	0.474	**1.054**

Table 12.5.24 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.014	0.323
		Rear	0.387	0.444	**0.831**
	GPRS 850	Front	0.546	0.014	0.560
		Rear	0.624	0.444	**1.068**
	GSM 1900	Front	0.323	0.014	0.337
		Rear	0.380	0.444	**0.824**
	GPRS 1900	Front	0.497	0.014	0.511
		Rear	0.581	0.444	**1.025**
	WCDMA 1700	Front	0.409	0.014	0.423
		Rear	0.523	0.444	**0.967**
	WCDMA 1900	Front	0.476	0.014	0.490
		Rear	0.532	0.444	**0.976**
	LTE Band 12	Front	0.327	0.014	0.341
		Rear	0.485	0.444	**0.929**
	LTE Band 4	Front	0.484	0.014	0.498
		Rear	0.531	0.444	**0.975**
	LTE Band 2	Front	0.483	0.014	0.497
		Rear	0.580	0.444	**1.024**

Table 12.5.25 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.309	0.020	0.329
		Rear	0.387	0.039	**0.426**
	GPRS 850	Front	0.546	0.020	0.566
		Rear	0.624	0.039	**0.663**
	GSM 1900	Front	0.323	0.020	0.343
		Rear	0.380	0.039	**0.419**
	GPRS 1900	Front	0.497	0.020	0.517
		Rear	0.581	0.039	**0.620**
	WCDMA 1700	Front	0.409	0.020	0.429
		Rear	0.523	0.039	**0.562**
	WCDMA 1900	Front	0.476	0.020	0.496
		Rear	0.532	0.039	**0.571**
	LTE Band 12	Front	0.327	0.020	0.347
		Rear	0.485	0.039	**0.524**
	LTE Band 4	Front	0.484	0.020	0.504
		Rear	0.531	0.039	**0.570**
	LTE Band 2	Front	0.483	0.020	0.503
		Rear	0.580	0.039	**0.619**

Table 12.5.26 Simultaneous Transmission Scenario : 2.4 GHz W-LAN Ant.1 + 5 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2.4G W-LAN Ant.1 SAR (W/kg)	5G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	5.2G W-LAN Ant.2	Front	0.075	0.002	0.077
		Rear	0.161	0.674	**0.835**
	5.6G W-LAN Ant.2	Front	0.075	0.001	0.076
		Rear	0.161	0.566	**0.727**
	5.8G W-LAN Ant.2	Front	0.075	0.024	0.099
		Rear	0.161	0.474	**0.635**

Table 12.5.27 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	5.2G W-LAN Ant.1	Front	0.020	0.012	0.032
		Rear	0.039	0.112	**0.151**
	5.6G W-LAN Ant.1	Front	0.020	0.047	0.067
		Rear	0.039	0.072	**0.111**
	5.8G W-LAN Ant.1	Front	0.020	0.024	0.044
		Rear	0.039	0.036	**0.075**

Table 12.5.28 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	5.2G W-LAN Ant.2	Front	0.020	0.002	0.022
		Rear	0.039	0.674	**0.713**
	5.6G W-LAN Ant.2	Front	0.020	0.001	0.021
		Rear	0.039	0.566	**0.605**
	5.8G W-LAN Ant.2	Front	0.020	0.024	0.044
		Rear	0.039	0.474	**0.513**

Table 12.5.29 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	5.2G W-LAN MIMO	Front	0.020	0.012	0.032
		Rear	0.039	0.747	**0.786**
	5.6G W-LAN MIMO	Front	0.020	0.037	0.057
		Rear	0.039	0.609	**0.648**
	5.8G W-LAN MIMO	Front	0.020	0.014	0.034
		Rear	0.039	0.444	**0.483**

12.6 Hotspot SAR Simultaneous Transmission Analysis

Per FCC KDB Publication 941225 D06v02r01, the device edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR ("-").

Table 12.6.1 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1+ 5.2 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.136	0.013	0.136	0.013	0.149
		Bottom	0.347	-	-	0.347	0.347	0.347
		Front	0.546	0.075	0.002	0.621	0.548	0.623
		Rear	**0.624**	**0.161**	**0.674**	**0.785**	**1.298**	1.459
		Right	0.580	-	-	0.580	0.580	0.580
		Left	0.247	0.029	0.188	0.276	0.435	0.464
	GPRS 1900	Top	-	0.136	0.013	0.136	0.013	0.149
		Bottom	1.099	-	-	1.099	1.099	1.099
		Front	0.497	0.075	0.002	0.572	0.499	0.574
		Rear	0.581	0.161	0.674	0.742	1.255	**1.416**
		Right	-	-	-	-	-	-
		Left	0.295	0.029	0.188	0.324	0.483	0.512
	WCDMA 1700	Top	-	0.136	0.013	0.136	0.013	0.149
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.409	0.075	0.002	0.484	0.411	0.486
		Rear	0.523	0.161	0.674	0.684	1.197	**1.358**
		Right	-	-	-	-	-	-
		Left	0.339	0.029	0.188	0.368	0.527	0.556
	WCDMA 1900	Top	-	0.136	0.013	0.136	0.013	0.149
		Bottom	0.925	-	-	0.925	0.925	0.925
		Front	0.476	0.075	0.002	0.551	0.478	0.553
		Rear	0.532	0.161	0.674	0.693	1.206	**1.367**
		Right	-	-	-	-	-	-
		Left	0.306	0.029	0.188	0.335	0.494	0.523
	LTE Band 12	Top	-	0.136	0.013	0.136	0.013	0.149
		Bottom	0.291	-	-	0.291	0.291	0.291
		Front	0.327	0.075	0.002	0.402	0.329	0.404
		Rear	0.485	0.161	0.674	0.646	1.159	**1.320**
		Right	0.193	-	-	0.193	0.193	0.193
		Left	0.105	0.029	0.188	0.134	0.293	0.322
	LTE Band 4	Top	-	0.136	0.013	0.136	0.013	0.149
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.484	0.075	0.002	0.559	0.486	0.561
		Rear	0.531	0.161	0.674	0.692	1.205	**1.366**
		Right	-	-	-	-	-	-
		Left	0.413	0.029	0.188	0.442	0.601	0.630
	LTE Band 2	Top	-	0.136	0.013	0.136	0.013	0.149
		Bottom	0.865	-	-	0.865	0.865	0.865
		Front	0.483	0.075	0.002	0.558	0.485	0.560
		Rear	0.580	0.161	0.674	0.741	1.254	**1.415**
		Right	-	-	-	-	-	-
		Left	0.266	0.029	0.188	0.295	0.454	0.483

Table 12.6.2 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1 + 5.8 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.136	0.011	0.136	0.011	0.147
		Bottom	0.347	-	-	0.347	0.347	0.347
		Front	0.546	0.075	0.024	0.621	0.570	0.645
		Rear	0.624	0.161	0.474	0.785	1.098	**1.259**
		Right	0.580	-	-	0.580	0.580	0.580
		Left	0.247	0.029	0.174	0.276	0.421	0.450
	GPRS 1900	Top	-	0.136	0.011	0.136	0.011	0.147
		Bottom	1.099	-	-	1.099	1.099	1.099
		Front	0.497	0.075	0.024	0.572	0.521	0.596
		Rear	0.581	0.161	0.474	0.742	1.055	**1.216**
		Right	-	-	-	-	-	-
		Left	0.295	0.029	0.174	0.324	0.469	0.498
	WCDMA 1700	Top	-	0.136	0.011	0.136	0.011	0.147
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.409	0.075	0.024	0.484	0.433	0.508
		Rear	0.523	0.161	0.474	0.684	0.997	**1.158**
		Right	-	-	-	-	-	-
		Left	0.339	0.029	0.174	0.368	0.513	0.542
	WCDMA 1900	Top	-	0.136	0.011	0.136	0.011	0.147
		Bottom	0.925	-	-	0.925	0.925	0.925
		Front	0.476	0.075	0.024	0.551	0.500	0.575
		Rear	0.532	0.161	0.474	0.693	1.006	**1.167**
		Right	-	-	-	-	-	-
		Left	0.306	0.029	0.174	0.335	0.480	0.509
	LTE Band 12	Top	-	0.136	0.011	0.136	0.011	0.147
		Bottom	0.291	-	-	0.291	0.291	0.291
		Front	0.327	0.075	0.024	0.402	0.351	0.426
		Rear	0.485	0.161	0.474	0.646	0.959	**1.120**
		Right	0.193	-	-	0.193	0.193	0.193
		Left	0.105	0.029	0.174	0.134	0.279	0.308
	LTE Band 4	Top	-	0.136	0.011	0.136	0.011	0.147
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.484	0.075	0.024	0.559	0.508	0.583
		Rear	0.531	0.161	0.474	0.692	1.005	**1.166**
		Right	-	-	-	-	-	-
		Left	0.413	0.029	0.174	0.442	0.587	0.616
	LTE Band 2	Top	-	0.136	0.011	0.136	0.011	0.147
		Bottom	0.865	-	-	0.865	0.865	0.865
		Front	0.483	0.075	0.024	0.558	0.507	0.582
		Rear	0.580	0.161	0.474	0.741	1.054	**1.215**
		Right	-	-	-	-	-	-
		Left	0.266	0.029	0.174	0.295	0.440	0.469

Table 12.6.3 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.034	0.007	0.034	0.007	0.041
		Bottom	0.347	-	-	0.347	0.347	0.347
		Front	0.546	0.020	0.012	0.566	0.558	0.578
		Rear	0.624	0.039	0.112	0.663	0.736	**0.775**
		Right	0.580	-	-	0.580	0.580	0.580
		Left	0.247	0.006	0.019	0.253	0.266	0.272
	GPRS 1900	Top	-	0.034	0.007	0.034	0.007	0.041
		Bottom	1.099	-	-	1.099	1.099	**1.099**
		Front	0.497	0.020	0.012	0.517	0.509	0.529
		Rear	0.581	0.039	0.112	0.620	0.693	0.732
		Right	-	-	-	-	-	-
		Left	0.295	0.006	0.019	0.301	0.314	0.320
	WCDMA 1700	Top	-	0.034	0.007	0.034	0.007	0.041
		Bottom	0.729	-	-	0.729	0.729	**0.729**
		Front	0.409	0.020	0.012	0.429	0.421	0.441
		Rear	0.523	0.039	0.112	0.562	0.635	0.674
		Right	-	-	-	-	-	-
		Left	0.339	0.006	0.019	0.345	0.358	0.364
	WCDMA 1900	Top	-	0.034	0.007	0.034	0.007	0.041
		Bottom	0.925	-	-	0.925	0.925	**0.925**
		Front	0.476	0.020	0.012	0.496	0.488	0.508
		Rear	0.532	0.039	0.112	0.571	0.644	0.683
		Right	-	-	-	-	-	-
		Left	0.306	0.006	0.019	0.312	0.325	0.331
	LTE Band 12	Top	-	0.034	0.007	0.034	0.007	0.041
		Bottom	0.291	-	-	0.291	0.291	0.291
		Front	0.327	0.020	0.012	0.347	0.339	0.359
		Rear	0.485	0.039	0.112	0.524	0.597	**0.636**
		Right	0.193	-	-	0.193	0.193	0.193
		Left	0.105	0.006	0.019	0.111	0.124	0.130
	LTE Band 4	Top	-	0.034	0.007	0.034	0.007	0.041
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.484	0.020	0.012	0.504	0.496	0.516
		Rear	0.531	0.039	0.112	0.570	0.643	**0.682**
		Right	-	-	-	-	-	-
		Left	0.413	0.006	0.019	0.419	0.432	0.438
	LTE Band 2	Top	-	0.034	0.007	0.034	0.007	0.041
		Bottom	0.865	-	-	0.865	0.865	**0.865**
		Front	0.483	0.020	0.012	0.503	0.495	0.515
		Rear	0.580	0.039	0.112	0.619	0.692	0.731
		Right	-	-	-	-	-	-
		Left	0.266	0.006	0.019	0.272	0.285	0.291

Table 12.6.4 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.034	0.013	0.034	0.013	0.047
		Bottom	0.347	-	-	0.347	0.347	0.347
		Front	0.546	0.020	0.002	0.566	0.548	0.568
		Rear	0.624	0.039	0.674	0.663	1.298	**1.337**
		Right	0.580	-	-	0.580	0.580	0.580
		Left	0.247	0.006	0.188	0.253	0.435	0.441
	GPRS 1900	Top	-	0.034	0.013	0.034	0.013	0.047
		Bottom	1.099	-	-	1.099	1.099	1.099
		Front	0.497	0.020	0.002	0.517	0.499	0.519
		Rear	0.581	0.039	0.674	0.620	1.255	**1.294**
		Right	-	-	-	-	-	-
		Left	0.295	0.006	0.188	0.301	0.483	0.489
	WCDMA 1700	Top	-	0.034	0.013	0.034	0.013	0.047
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.409	0.020	0.002	0.429	0.411	0.431
		Rear	0.523	0.039	0.674	0.562	1.197	**1.236**
		Right	-	-	-	-	-	-
		Left	0.339	0.006	0.188	0.345	0.527	0.533
	WCDMA 1900	Top	-	0.034	0.013	0.034	0.013	0.047
		Bottom	0.925	-	-	0.925	0.925	0.925
		Front	0.476	0.020	0.002	0.496	0.478	0.498
		Rear	0.532	0.039	0.674	0.571	1.206	**1.245**
		Right	-	-	-	-	-	-
		Left	0.306	0.006	0.188	0.312	0.494	0.500
	LTE Band 12	Top	-	0.034	0.013	0.034	0.013	0.047
		Bottom	0.291	-	-	0.291	0.291	0.291
		Front	0.327	0.020	0.002	0.347	0.329	0.349
		Rear	0.485	0.039	0.674	0.524	1.159	**1.198**
		Right	0.193	-	-	0.193	0.193	0.193
		Left	0.105	0.006	0.188	0.111	0.293	0.299
	LTE Band 4	Top	-	0.034	0.013	0.034	0.013	0.047
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.484	0.020	0.002	0.504	0.486	0.506
		Rear	0.531	0.039	0.674	0.570	1.205	**1.244**
		Right	-	-	-	-	-	-
		Left	0.413	0.006	0.188	0.419	0.601	0.607
	LTE Band 2	Top	-	0.034	0.013	0.034	0.013	0.047
		Bottom	0.865	-	-	0.865	0.865	0.865
		Front	0.483	0.020	0.002	0.503	0.485	0.505
		Rear	0.580	0.039	0.674	0.619	1.254	**1.293**
		Right	-	-	-	-	-	-
		Left	0.266	0.006	0.188	0.272	0.454	0.460

Table 12.6.5 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.034	0.017	0.034	0.017	0.051
		Bottom	0.347	-	-	0.347	0.347	0.347
		Front	0.546	0.020	0.012	0.566	0.558	0.578
		Rear	0.624	0.039	0.747	0.663	1.371	**1.410**
		Right	0.580	-	-	0.580	0.580	0.580
		Left	0.247	0.006	0.189	0.253	0.436	0.442
	GPRS 1900	Top	-	0.034	0.017	0.034	0.017	0.051
		Bottom	1.099	-	-	1.099	1.099	1.099
		Front	0.497	0.020	0.012	0.517	0.509	0.529
		Rear	0.581	0.039	0.747	0.620	1.328	**1.367**
		Right	-	-	-	-	-	-
		Left	0.295	0.006	0.189	0.301	0.484	0.490
	WCDMA 1700	Top	-	0.034	0.017	0.034	0.017	0.051
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.409	0.020	0.012	0.429	0.421	0.441
		Rear	0.523	0.039	0.747	0.562	1.270	**1.309**
		Right	-	-	-	-	-	-
		Left	0.339	0.006	0.189	0.345	0.528	0.534
	WCDMA 1900	Top	-	0.034	0.017	0.034	0.017	0.051
		Bottom	0.925	-	-	0.925	0.925	0.925
		Front	0.476	0.020	0.012	0.496	0.488	0.508
		Rear	0.532	0.039	0.747	0.571	1.279	**1.318**
		Right	-	-	-	-	-	-
		Left	0.306	0.006	0.189	0.312	0.495	0.501
	LTE Band 12	Top	-	0.034	0.017	0.034	0.017	0.051
		Bottom	0.291	-	-	0.291	0.291	0.291
		Front	0.327	0.020	0.012	0.347	0.339	0.359
		Rear	0.485	0.039	0.747	0.524	1.232	**1.271**
		Right	0.193	-	-	0.193	0.193	0.193
		Left	0.105	0.006	0.189	0.111	0.294	0.300
	LTE Band 4	Top	-	0.034	0.017	0.034	0.017	0.051
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.484	0.020	0.012	0.504	0.496	0.516
		Rear	0.531	0.039	0.747	0.570	1.278	**1.317**
		Right	-	-	-	-	-	-
		Left	0.413	0.006	0.189	0.419	0.602	0.608
	LTE Band 2	Top	-	0.034	0.017	0.034	0.017	0.051
		Bottom	0.865	-	-	0.865	0.865	0.865
		Front	0.483	0.020	0.012	0.503	0.495	0.515
		Rear	0.580	0.039	0.747	0.619	1.327	**1.366**
		Right	-	-	-	-	-	-
		Left	0.266	0.006	0.189	0.272	0.455	0.461

Table 12.6.6 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.347	-	-	0.347	0.347	0.347
		Front	0.546	0.020	0.024	0.566	0.570	0.590
		Rear	0.624	0.039	0.036	0.663	0.660	**0.699**
		Right	0.580	-	-	0.580	0.580	0.580
		Left	0.247	0.006	0.008	0.253	0.255	0.261
	GPRS 1900	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	1.099	-	-	1.099	1.099	**1.099**
		Front	0.497	0.020	0.024	0.517	0.521	0.541
		Rear	0.581	0.039	0.036	0.620	0.617	0.656
		Right	-	-	-	-	-	-
		Left	0.295	0.006	0.008	0.301	0.303	0.309
	WCDMA 1700	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.729	-	-	0.729	0.729	**0.729**
		Front	0.409	0.020	0.024	0.429	0.433	0.453
		Rear	0.523	0.039	0.036	0.562	0.559	0.598
		Right	-	-	-	-	-	-
		Left	0.339	0.006	0.008	0.345	0.347	0.353
	WCDMA 1900	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.925	-	-	0.925	0.925	**0.925**
		Front	0.476	0.020	0.024	0.496	0.500	0.520
		Rear	0.532	0.039	0.036	0.571	0.568	0.607
		Right	-	-	-	-	-	-
		Left	0.306	0.006	0.008	0.312	0.314	0.320
	LTE Band 12	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.291	-	-	0.291	0.291	0.291
		Front	0.327	0.020	0.024	0.347	0.351	0.371
		Rear	0.485	0.039	0.036	0.524	0.521	**0.560**
		Right	0.193	-	-	0.193	0.193	0.193
		Left	0.105	0.006	0.008	0.111	0.113	0.119
	LTE Band 4	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.484	0.020	0.024	0.504	0.508	0.528
		Rear	0.531	0.039	0.036	0.570	0.567	**0.606**
		Right	-	-	-	-	-	-
		Left	0.413	0.006	0.008	0.419	0.421	0.427
	LTE Band 2	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.865	-	-	0.865	0.865	**0.865**
		Front	0.483	0.020	0.024	0.503	0.507	0.527
		Rear	0.580	0.039	0.036	0.619	0.616	0.655
		Right	-	-	-	-	-	-
		Left	0.266	0.006	0.008	0.272	0.274	0.280

Table 12.6.7 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.034	0.011	0.034	0.011	0.045
		Bottom	0.347	-	-	0.347	0.347	0.347
		Front	0.546	0.020	0.024	0.566	0.570	0.590
		Rear	0.624	0.039	0.474	0.663	1.098	**1.137**
		Right	0.580	-	-	0.580	0.580	0.580
		Left	0.247	0.006	0.174	0.253	0.421	0.427
	GPRS 1900	Top	-	0.034	0.011	0.034	0.011	0.045
		Bottom	1.099	-	-	1.099	1.099	**1.099**
		Front	0.497	0.020	0.024	0.517	0.521	0.541
		Rear	0.581	0.039	0.474	0.620	1.055	1.094
		Right	-	-	-	-	-	-
		Left	0.295	0.006	0.174	0.301	0.469	0.475
	WCDMA 1700	Top	-	0.034	0.011	0.034	0.011	0.045
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.409	0.020	0.024	0.429	0.433	0.453
		Rear	0.523	0.039	0.474	0.562	0.997	**1.036**
		Right	-	-	-	-	-	-
		Left	0.339	0.006	0.174	0.345	0.513	0.519
	WCDMA 1900	Top	-	0.034	0.011	0.034	0.011	0.045
		Bottom	0.925	-	-	0.925	0.925	0.925
		Front	0.476	0.020	0.024	0.496	0.500	0.520
		Rear	0.532	0.039	0.474	0.571	1.006	**1.045**
		Right	-	-	-	-	-	-
		Left	0.306	0.006	0.174	0.312	0.480	0.486
	LTE Band 12	Top	-	0.034	0.011	0.034	0.011	0.045
		Bottom	0.291	-	-	0.291	0.291	0.291
		Front	0.327	0.020	0.024	0.347	0.351	0.371
		Rear	0.485	0.039	0.474	0.524	0.959	**0.998**
		Right	0.193	-	-	0.193	0.193	0.193
		Left	0.105	0.006	0.174	0.111	0.279	0.285
	LTE Band 4	Top	-	0.034	0.011	0.034	0.011	0.045
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.484	0.020	0.024	0.504	0.508	0.528
		Rear	0.531	0.039	0.474	0.570	1.005	**1.044**
		Right	-	-	-	-	-	-
		Left	0.413	0.006	0.174	0.419	0.587	0.593
	LTE Band 2	Top	-	0.034	0.011	0.034	0.011	0.045
		Bottom	0.865	-	-	0.865	0.865	0.865
		Front	0.483	0.020	0.024	0.503	0.507	0.527
		Rear	0.580	0.039	0.474	0.619	1.054	**1.093**
		Right	-	-	-	-	-	-
		Left	0.266	0.006	0.174	0.272	0.440	0.446

Table 12.6.8 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.347	-	-	0.347	0.347	0.347
		Front	0.546	0.020	0.014	0.566	0.560	0.580
		Rear	0.624	0.039	0.444	0.663	1.068	**1.107**
		Right	0.580	-	-	0.580	0.580	0.580
		Left	0.247	0.006	0.108	0.253	0.355	0.361
	GPRS 1900	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	1.099	-	-	1.099	1.099	**1.099**
		Front	0.497	0.020	0.014	0.517	0.511	0.531
		Rear	0.581	0.039	0.444	0.620	1.025	1.064
		Right	-	-	-	-	-	-
		Left	0.295	0.006	0.108	0.301	0.403	0.409
	WCDMA 1700	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.409	0.020	0.014	0.429	0.423	0.443
		Rear	0.523	0.039	0.444	0.562	0.967	**1.006**
		Right	-	-	-	-	-	-
		Left	0.339	0.006	0.108	0.345	0.447	0.453
	WCDMA 1900	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.925	-	-	0.925	0.925	0.925
		Front	0.476	0.020	0.014	0.496	0.490	0.510
		Rear	0.532	0.039	0.444	0.571	0.976	**1.015**
		Right	-	-	-	-	-	-
		Left	0.306	0.006	0.108	0.312	0.414	0.420
	LTE Band 12	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.291	-	-	0.291	0.291	0.291
		Front	0.327	0.020	0.014	0.347	0.341	0.361
		Rear	0.485	0.039	0.444	0.524	0.929	**0.968**
		Right	0.193	-	-	0.193	0.193	0.193
		Left	0.105	0.006	0.108	0.111	0.213	0.219
	LTE Band 4	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.729	-	-	0.729	0.729	0.729
		Front	0.484	0.020	0.014	0.504	0.498	0.518
		Rear	0.531	0.039	0.444	0.570	0.975	**1.014**
		Right	-	-	-	-	-	-
		Left	0.413	0.006	0.108	0.419	0.521	0.527
	LTE Band 2	Top	-	0.034	0.014	0.034	0.014	0.048
		Bottom	0.865	-	-	0.865	0.865	0.865
		Front	0.483	0.020	0.014	0.503	0.497	0.517
		Rear	0.580	0.039	0.444	0.619	1.024	**1.063**
		Right	-	-	-	-	-	-
		Left	0.266	0.006	0.108	0.272	0.374	0.380

Table 12.6.9 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.136	0.136
		Bottom	0.347	-	0.347
		Front	0.546	0.075	0.621
		Rear	0.624	0.161	**0.785**
		Right	0.580	-	0.580
		Left	0.247	0.029	0.276
	GPRS 1900	Top	-	0.136	0.136
		Bottom	1.099	-	**1.099**
		Front	0.497	0.075	0.572
		Rear	0.581	0.161	0.742
		Right	-	-	-
		Left	0.295	0.029	0.324
	WCDMA 1700	Top	-	0.136	0.136
		Bottom	0.729	-	**0.729**
		Front	0.409	0.075	0.484
		Rear	0.523	0.161	0.684
		Right	-	-	-
		Left	0.339	0.029	0.368
	WCDMA 1900	Top	-	0.136	0.136
		Bottom	0.925	-	**0.925**
		Front	0.476	0.075	0.551
		Rear	0.532	0.161	0.693
		Right	-	-	-
		Left	0.306	0.029	0.335
	LTE Band 12	Top	-	0.136	0.136
		Bottom	0.291	-	0.291
		Front	0.327	0.075	0.402
		Rear	0.485	0.161	**0.646**
		Right	0.193	-	0.193
		Left	0.105	0.029	0.134
	LTE Band 4	Top	-	0.136	0.136
		Bottom	0.729	-	**0.729**
		Front	0.484	0.075	0.559
		Rear	0.531	0.161	0.692
		Right	-	-	-
		Left	0.413	0.029	0.442
	LTE Band 2	Top	-	0.136	0.136
		Bottom	0.865	-	**0.865**
		Front	0.483	0.075	0.558
		Rear	0.580	0.161	0.741
		Right	-	-	-
		Left	0.266	0.029	0.295

Table 12.6.10 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.003	0.003
		Bottom	0.347	-	0.347
		Front	0.546	0.005	0.551
		Rear	0.624	0.126	**0.750**
		Right	0.580	-	0.580
		Left	0.247	0.039	0.286
	GPRS 1900	Top	-	0.003	0.003
		Bottom	1.099	-	**1.099**
		Front	0.497	0.005	0.502
		Rear	0.581	0.126	0.707
		Right	-	-	-
		Left	0.295	0.039	0.334
	WCDMA 1700	Top	-	0.003	0.003
		Bottom	0.729	-	**0.729**
		Front	0.409	0.005	0.414
		Rear	0.523	0.126	0.649
		Right	-	-	-
		Left	0.339	0.039	0.378
	WCDMA 1900	Top	-	0.003	0.003
		Bottom	0.925	-	**0.925**
		Front	0.476	0.005	0.481
		Rear	0.532	0.126	0.658
		Right	-	-	-
		Left	0.306	0.039	0.345
	LTE Band 12	Top	-	0.003	0.003
		Bottom	0.291	-	0.291
		Front	0.327	0.005	0.332
		Rear	0.485	0.126	**0.611**
		Right	0.193	-	0.193
		Left	0.105	0.039	0.144
	LTE Band 4	Top	-	0.003	0.003
		Bottom	0.729	-	**0.729**
		Front	0.484	0.005	0.489
		Rear	0.531	0.126	0.657
		Right	-	-	-
		Left	0.413	0.039	0.452
	LTE Band 2	Top	-	0.003	0.003
		Bottom	0.865	-	**0.865**
		Front	0.483	0.005	0.488
		Rear	0.580	0.126	0.706
		Right	-	-	-
		Left	0.266	0.039	0.305

Table 12.6.11 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.093	0.093
		Bottom	0.347	-	0.347
		Front	0.546	0.055	0.601
		Rear	0.624	0.117	**0.741**
		Right	0.580	-	0.580
		Left	0.247	0.038	0.285
	GPRS 1900	Top	-	0.093	0.093
		Bottom	1.099	-	**1.099**
		Front	0.497	0.055	0.552
		Rear	0.581	0.117	0.698
		Right	-	-	-
		Left	0.295	0.038	0.333
	WCDMA 1700	Top	-	0.093	0.093
		Bottom	0.729	-	**0.729**
		Front	0.409	0.055	0.464
		Rear	0.523	0.117	0.640
		Right	-	-	-
		Left	0.339	0.038	0.377
	WCDMA 1900	Top	-	0.093	0.093
		Bottom	0.925	-	**0.925**
		Front	0.476	0.055	0.531
		Rear	0.532	0.117	0.649
		Right	-	-	-
		Left	0.306	0.038	0.344
	LTE Band 12	Top	-	0.093	0.093
		Bottom	0.291	-	0.291
		Front	0.327	0.055	0.382
		Rear	0.485	0.117	**0.602**
		Right	0.193	-	0.193
		Left	0.105	0.038	0.143
	LTE Band 4	Top	-	0.093	0.093
		Bottom	0.729	-	**0.729**
		Front	0.484	0.055	0.539
		Rear	0.531	0.117	0.648
		Right	-	-	-
		Left	0.413	0.038	0.451
	LTE Band 2	Top	-	0.093	0.093
		Bottom	0.865	-	**0.865**
		Front	0.483	0.055	0.538
		Rear	0.580	0.117	0.697
		Right	-	-	-
		Left	0.266	0.038	0.304

Table 12.6.12 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.007	0.007
		Bottom	0.347	-	0.347
		Front	0.546	0.012	0.558
		Rear	0.624	0.112	**0.736**
		Right	0.580	-	0.580
		Left	0.247	0.019	0.266
	GPRS 1900	Top	-	0.007	0.007
		Bottom	1.099	-	**1.099**
		Front	0.497	0.012	0.509
		Rear	0.581	0.112	0.693
		Right	-	-	-
		Left	0.295	0.019	0.314
	WCDMA 1700	Top	-	0.007	0.007
		Bottom	0.729	-	**0.729**
		Front	0.409	0.012	0.421
		Rear	0.523	0.112	0.635
		Right	-	-	-
		Left	0.339	0.019	0.358
	WCDMA 1900	Top	-	0.007	0.007
		Bottom	0.925	-	**0.925**
		Front	0.476	0.012	0.488
		Rear	0.532	0.112	0.644
		Right	-	-	-
		Left	0.306	0.019	0.325
	LTE Band 12	Top	-	0.007	0.007
		Bottom	0.291	-	0.291
		Front	0.327	0.012	0.339
		Rear	0.485	0.112	**0.597**
		Right	0.193	-	0.193
		Left	0.105	0.019	0.124
	LTE Band 4	Top	-	0.007	0.007
		Bottom	0.729	-	**0.729**
		Front	0.484	0.012	0.496
		Rear	0.531	0.112	0.643
		Right	-	-	-
		Left	0.413	0.019	0.432
	LTE Band 2	Top	-	0.007	0.007
		Bottom	0.865	-	**0.865**
		Front	0.483	0.012	0.495
		Rear	0.580	0.112	0.692
		Right	-	-	-
		Left	0.266	0.019	0.285

Table 12.6.13 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.013	0.013
		Bottom	0.347	-	0.347
		Front	0.546	0.002	0.548
		Rear	0.624	0.674	**1.298**
		Right	0.580	-	0.580
		Left	0.247	0.188	0.435
	GPRS 1900	Top	-	0.013	0.013
		Bottom	1.099	-	1.099
		Front	0.497	0.002	0.499
		Rear	0.581	0.674	**1.255**
		Right	-	-	-
		Left	0.295	0.188	0.483
	WCDMA 1700	Top	-	0.013	0.013
		Bottom	0.729	-	0.729
		Front	0.409	0.002	0.411
		Rear	0.523	0.674	**1.197**
		Right	-	-	-
		Left	0.339	0.188	0.527
	WCDMA 1900	Top	-	0.013	0.013
		Bottom	0.925	-	0.925
		Front	0.476	0.002	0.478
		Rear	0.532	0.674	**1.206**
		Right	-	-	-
		Left	0.306	0.188	0.494
	LTE Band 12	Top	-	0.013	0.013
		Bottom	0.291	-	0.291
		Front	0.327	0.002	0.329
		Rear	0.485	0.674	**1.159**
		Right	0.193	-	0.193
		Left	0.105	0.188	0.293
	LTE Band 4	Top	-	0.013	0.013
		Bottom	0.729	-	0.729
		Front	0.484	0.002	0.486
		Rear	0.531	0.674	**1.205**
		Right	-	-	-
		Left	0.413	0.188	0.601
	LTE Band 2	Top	-	0.013	0.013
		Bottom	0.865	-	0.865
		Front	0.483	0.002	0.485
		Rear	0.580	0.674	**1.254**
		Right	-	-	-
		Left	0.266	0.188	0.454

Table 12.6.14 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.017	0.017
		Bottom	0.347	-	0.347
		Front	0.546	0.012	0.558
		Rear	0.624	0.747	**1.371**
		Right	0.580	-	0.580
		Left	0.247	0.189	0.436
	GPRS 1900	Top	-	0.017	0.017
		Bottom	1.099	-	1.099
		Front	0.497	0.012	0.509
		Rear	0.581	0.747	**1.328**
		Right	-	-	-
		Left	0.295	0.189	0.484
	WCDMA 1700	Top	-	0.017	0.017
		Bottom	0.729	-	0.729
		Front	0.409	0.012	0.421
		Rear	0.523	0.747	**1.270**
		Right	-	-	-
		Left	0.339	0.189	0.528
	WCDMA 1900	Top	-	0.017	0.017
		Bottom	0.925	-	0.925
		Front	0.476	0.012	0.488
		Rear	0.532	0.747	**1.279**
		Right	-	-	-
		Left	0.306	0.189	0.495
	LTE Band 12	Top	-	0.017	0.017
		Bottom	0.291	-	0.291
		Front	0.327	0.012	0.339
		Rear	0.485	0.747	**1.232**
		Right	0.193	-	0.193
		Left	0.105	0.189	0.294
	LTE Band 4	Top	-	0.017	0.017
		Bottom	0.729	-	0.729
		Front	0.484	0.012	0.496
		Rear	0.531	0.747	**1.278**
		Right	-	-	-
		Left	0.413	0.189	0.602
	LTE Band 2	Top	-	0.017	0.017
		Bottom	0.865	-	0.865
		Front	0.483	0.012	0.495
		Rear	0.580	0.747	**1.327**
		Right	-	-	-
		Left	0.266	0.189	0.455

Table 12.6.15 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.014	0.014
		Bottom	0.347	-	0.347
		Front	0.546	0.024	0.570
		Rear	0.624	0.036	**0.660**
		Right	0.580	-	0.580
		Left	0.247	0.008	0.255
	GPRS 1900	Top	-	0.014	0.014
		Bottom	1.099	-	**1.099**
		Front	0.497	0.024	0.521
		Rear	0.581	0.036	0.617
		Right	-	-	-
		Left	0.295	0.008	0.303
	WCDMA 1700	Top	-	0.014	0.014
		Bottom	0.729	-	**0.729**
		Front	0.409	0.024	0.433
		Rear	0.523	0.036	0.559
		Right	-	-	-
		Left	0.339	0.008	0.347
	WCDMA 1900	Top	-	0.014	0.014
		Bottom	0.925	-	**0.925**
		Front	0.476	0.024	0.500
		Rear	0.532	0.036	0.568
		Right	-	-	-
		Left	0.306	0.008	0.314
	LTE Band 12	Top	-	0.014	0.014
		Bottom	0.291	-	0.291
		Front	0.327	0.024	0.351
		Rear	0.485	0.036	**0.521**
		Right	0.193	-	0.193
		Left	0.105	0.008	0.113
	LTE Band 4	Top	-	0.014	0.014
		Bottom	0.729	-	**0.729**
		Front	0.484	0.024	0.508
		Rear	0.531	0.036	0.567
		Right	-	-	-
		Left	0.413	0.008	0.421
	LTE Band 2	Top	-	0.014	0.014
		Bottom	0.865	-	**0.865**
		Front	0.483	0.024	0.507
		Rear	0.580	0.036	0.616
		Right	-	-	-
		Left	0.266	0.008	0.274

Table 12.6.16 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.011	0.011
		Bottom	0.347	-	0.347
		Front	0.546	0.024	0.570
		Rear	0.624	0.474	**1.098**
		Right	0.580	-	0.580
		Left	0.247	0.174	0.421
	GPRS 1900	Top	-	0.011	0.011
		Bottom	1.099	-	**1.099**
		Front	0.497	0.024	0.521
		Rear	0.581	0.474	1.055
		Right	-	-	-
		Left	0.295	0.174	0.469
	WCDMA 1700	Top	-	0.011	0.011
		Bottom	0.729	-	0.729
		Front	0.409	0.024	0.433
		Rear	0.523	0.474	**0.997**
		Right	-	-	-
		Left	0.339	0.174	0.513
	WCDMA 1900	Top	-	0.011	0.011
		Bottom	0.925	-	0.925
		Front	0.476	0.024	0.500
		Rear	0.532	0.474	**1.006**
		Right	-	-	-
		Left	0.306	0.174	0.480
	LTE Band 12	Top	-	0.011	0.011
		Bottom	0.291	-	0.291
		Front	0.327	0.024	0.351
		Rear	0.485	0.474	**0.959**
		Right	0.193	-	0.193
		Left	0.105	0.174	0.279
	LTE Band 4	Top	-	0.011	0.011
		Bottom	0.729	-	0.729
		Front	0.484	0.024	0.508
		Rear	0.531	0.474	**1.005**
		Right	-	-	-
		Left	0.413	0.174	0.587
	LTE Band 2	Top	-	0.011	0.011
		Bottom	0.865	-	0.865
		Front	0.483	0.024	0.507
		Rear	0.580	0.474	**1.054**
		Right	-	-	-
		Left	0.266	0.174	0.440

Table 12.6.17 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.014	0.014
		Bottom	0.347	-	0.347
		Front	0.546	0.014	0.560
		Rear	0.624	0.444	**1.068**
		Right	0.580	-	0.580
		Left	0.247	0.108	0.355
	GPRS 1900	Top	-	0.014	0.014
		Bottom	1.099	-	**1.099**
		Front	0.497	0.014	0.511
		Rear	0.581	0.444	1.025
		Right	-	-	-
		Left	0.295	0.108	0.403
	WCDMA 1700	Top	-	0.014	0.014
		Bottom	0.729	-	0.729
		Front	0.409	0.014	0.423
		Rear	0.523	0.444	**0.967**
		Right	-	-	-
		Left	0.339	0.108	0.447
	WCDMA 1900	Top	-	0.014	0.014
		Bottom	0.925	-	0.925
		Front	0.476	0.014	0.490
		Rear	0.532	0.444	**0.976**
		Right	-	-	-
		Left	0.306	0.108	0.414
	LTE Band 12	Top	-	0.014	0.014
		Bottom	0.291	-	0.291
		Front	0.327	0.014	0.341
		Rear	0.485	0.444	**0.929**
		Right	0.193	-	0.193
		Left	0.105	0.108	0.213
	LTE Band 4	Top	-	0.014	0.014
		Bottom	0.729	-	0.729
		Front	0.484	0.014	0.498
		Rear	0.531	0.444	**0.975**
		Right	-	-	-
		Left	0.413	0.108	0.521
	LTE Band 2	Top	-	0.014	0.014
		Bottom	0.865	-	0.865
		Front	0.483	0.014	0.497
		Rear	0.580	0.444	**1.024**
		Right	-	-	-
		Left	0.266	0.108	0.374

Table 12.6.18 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.034	0.034
		Bottom	0.347	-	0.347
		Front	0.546	0.020	0.566
		Rear	0.624	0.039	**0.663**
		Right	0.580	-	0.580
		Left	0.247	0.006	0.253
	GPRS 1900	Top	-	0.034	0.034
		Bottom	1.099	-	**1.099**
		Front	0.497	0.020	0.517
		Rear	0.581	0.039	0.620
		Right	-	-	-
		Left	0.295	0.006	0.301
	WCDMA 1700	Top	-	0.034	0.034
		Bottom	0.729	-	**0.729**
		Front	0.409	0.020	0.429
		Rear	0.523	0.039	0.562
		Right	-	-	-
		Left	0.339	0.006	0.345
	WCDMA 1900	Top	-	0.034	0.034
		Bottom	0.925	-	**0.925**
		Front	0.476	0.020	0.496
		Rear	0.532	0.039	0.571
		Right	-	-	-
		Left	0.306	0.006	0.312
	LTE Band 12	Top	-	0.034	0.034
		Bottom	0.291	-	0.291
		Front	0.327	0.020	0.347
		Rear	0.485	0.039	**0.524**
		Right	0.193	-	0.193
		Left	0.105	0.006	0.111
	LTE Band 4	Top	-	0.034	0.034
		Bottom	0.729	-	**0.729**
		Front	0.484	0.020	0.504
		Rear	0.531	0.039	0.570
		Right	-	-	-
		Left	0.413	0.006	0.419
	LTE Band 2	Top	-	0.034	0.034
		Bottom	0.865	-	**0.865**
		Front	0.483	0.020	0.503
		Rear	0.580	0.039	0.619
		Right	-	-	-
		Left	0.266	0.006	0.272

Table 12.6.19 Simultaneous Transmission Scenario : 2.4 GHz W-LAN Ant.1+ 5 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2.4G W-LAN Ant.1 SAR (W/kg)	5G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	5.2G W-LAN Ant.2	Top	0.136	0.013	0.149
		Bottom	-	-	-
		Front	0.075	0.002	0.077
		Rear	0.161	0.674	**0.835**
		Right	-	-	-
		Left	0.029	0.188	0.217
	5.8G W-LAN Ant.2	Top	0.136	0.011	0.147
		Bottom	-	-	-
		Front	0.075	0.024	0.099
		Rear	0.161	0.474	**0.635**
		Right	-	-	-
		Left	0.029	0.174	0.203

Table 12.6.20 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	5.2G W-LAN Ant.1	Top	0.034	0.007	0.041
		Bottom	-	-	-
		Front	0.020	0.012	0.032
		Rear	0.039	0.112	**0.151**
		Right	-	-	-
		Left	0.006	0.019	0.025
	5.8G W-LAN Ant.1	Top	0.034	0.014	0.048
		Bottom	-	-	-
		Front	0.020	0.024	0.044
		Rear	0.039	0.036	**0.075**
		Right	-	-	-
		Left	0.006	0.008	0.014

Table 12.6.21 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	5.2G W-LAN Ant.2	Top	0.034	0.013	0.047
		Bottom	-	-	-
		Front	0.020	0.002	0.022
		Rear	0.039	0.674	**0.713**
		Right	-	-	-
		Left	0.006	0.188	0.194
	5.8G W-LAN Ant.2	Top	0.034	0.011	0.045
		Bottom	-	-	-
		Front	0.020	0.024	0.044
		Rear	0.039	0.474	**0.513**
		Right	-	-	-
		Left	0.006	0.174	0.180

Table 12.6.22 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	5.2G W-LAN MIMO	Top	0.034	0.017	0.051
		Bottom	-	-	-
		Front	0.020	0.012	0.032
		Rear	0.039	0.747	**0.786**
		Right	-	-	-
		Left	0.006	0.189	0.195
	5.8G W-LAN MIMO	Top	0.034	0.014	0.048
		Bottom	-	-	-
		Front	0.020	0.014	0.034
		Rear	0.039	0.444	**0.483**
		Right	-	-	-
		Left	0.006	0.108	0.114

12.7 Phablet SAR Simultaneous Transmission Analysis

Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required of Hotspot 1g SAR (scaled to maximum output power, including tolerance) < 1.2 W/kg. Therefore no further analysis was required to for Phablet Simultaneous Transmission Analysis.

12.8 Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528-2013 Section 6.3.4.1.2.

13. SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

1. When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
2. A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
3. A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.
4. Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
5. The same procedures should be adapted for measurements according to extremity exposure limits by applying a factor of 2.5 for extremity exposure to the corresponding SAR thresholds.

Table 13.1 Body SAR Measurement Variability Results

Frequency		Mode	Service	# of Time Slots	Spacing [Side]	Measured SAR (1g)	1st Repeated SAR(1g)	Ratio	2nd Repeated SAR(1g)	Ratio	3rd Repeated SAR(1g)	Ratio
MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1850.2	512	PCS1900	GPRS	3	10 mm [Bottom]	1.050	1.030	1.02	-	-	-	-
1852.4	9262	WCDMA 1900	RMC	-	10 mm [Bottom]	0.883	0.882	1.00	-	-	-	-
1900.0	19100	LTE B2	-	-	10 mm [Bottom]	0.861	0.840	1.03	-	-	-	-
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure							Body 1.6 W/kg (mW/g) averaged over 1 gram					

13.2 Measurement Uncertainty

The measured SAR was < 1.5 W/kg for 1g and < 3.75 W/kg for 10g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

14. EQUIPMENT LIST

Table 15.1.1 Test Equipment Calibration

	Type	Manufacturer	Model	Cal.Date	Next.Cal.Date	S/N
☒	SEMITEC Engineering	SEMITEC	N/A	N/A	N/A	Shield Room
☒	SEMITEC Engineering	SEMITEC	N/A	N/A	N/A	Shield Room
☒	Robot	SCHMID	TX90XL	N/A	N/A	F13/5P9GA1/A/01
☒	Robot	SCHMID	TX90XL	N/A	N/A	F13/5RR2A1/A/01
☒	Robot Controller	SCHMID	CS8C	N/A	N/A	F13/5P9GA1/C/01
☒	Robot Controller	SCHMID	CS8C	N/A	N/A	F13/5RR2A1/C/01
☒	Joystick	SCHMID	N/A	N/A	N/A	S-12450905
☒	Joystick	SCHMID	N/A	N/A	N/A	S-13200990
☒	IntelCorei7-3770 3.40 GHz Windows 7 Professional	N/A	N/A	N/A	N/A	N/A
☒	IntelCorei7-3770 3.40 GHz Windows 7 Professional	N/A	N/A	N/A	N/A	N/A
☒	Probe Alignment Unit LB	N/A	N/A	N/A	N/A	SE UKS 030 AA
☒	Probe Alignment Unit LB	N/A	N/A	N/A	N/A	SE UKS 030 AA
☒	Device Holder	SCHMID	Holder	N/A	N/A	SD000H01HA
☒	Device Holder	SCHMID	Holder	N/A	N/A	SD000H01HA
☒	Twin SAM Phantom	SCHMID	QD000P40CD	N/A	N/A	1783
☒	Twin SAM Phantom	SCHMID	QD000P40CD	N/A	N/A	1782
☒	Twin SAM Phantom	SCHMID	QD000P40CD	N/A	N/A	1786
☒	Data Acquisition Electronics	SCHMID	DAE3V1	2017-11-17	2018-11-17	520
☒	Data Acquisition Electronics	SCHMID	DAE4V1	2018-03-19	2019-03-19	1394
☒	Dosimetric E-Field Probe	SCHMID	ES3DV3	2018-03-21	2019-03-21	3328
☒	Dosimetric E-Field Probe	SCHMID	EX3DV4	2018-05-31	2019-05-31	3866
☒	750MHz SAR Dipole	SCHMID	D750V3	2018-01-18	2020-01-18	1049
☒	835MHz SAR Dipole	SCHMID	D835V2	2017-09-21	2019-09-21	464
☒	1800MHz SAR Dipole	SCHMID	D1800V2	2018-04-26	2020-04-26	2d202
☒	1900MHz SAR Dipole	SCHMID	D1900V2	2017-09-20	2019-09-20	5d029
☒	2450MHz SAR Dipole	SCHMID	D2450V2	2017-09-19	2019-09-19	726
☒	5GHz SAR Dipole	SCHMID	D5GHzV2	2018-02-15	2020-02-15	1212
☒	Network Analyzer	Agilent	E5071C	2018-02-02	2019-02-02	MY46111534
☒	Signal Generator	Agilent	E4438C	2018-07-04	2019-07-04	US41461520
☒	Amplifier	RFBAY.Inc	MPA-40-40	2017-12-28	2018-12-28	21151801
☒	Amplifier	EMPOWER	BBS3Q7ELU	2018-07-10	2019-07-10	1020
☒	High Power RF Amplifier	EMPOWER	BBS3Q8CCJ	2018-07-06	2019-07-06	1005
☒	Power Meter	HP	EPM-442A	2017-12-27	2018-12-27	GB37170267
☒	Power Meter	HP	EPM-442A	2017-12-27	2018-12-27	GB37170413
☒	Power Meter	Anritsu	ML2495A	2018-07-04	2019-07-04	1435003
☒	Power Sensor	Anritsu	MA2490A	2018-07-04	2019-07-04	1409034
☒	Power Sensor	HP	8481A	2017-12-27	2018-12-27	US37294267
☒	Power Sensor	HP	8481A	2017-12-27	2018-12-27	3318A96566
☒	Power Sensor	HP	8481A	2017-12-27	2018-12-27	2702A65976
☒	Dual Directional Coupler	Agilent	778D-012	2017-12-27	2018-12-27	50228
☒	Directional Coupler	HP	772D	2018-07-03	2019-07-03	2889A01064
☒	Low Pass Filter 1GHz	Wainwright Instruments	WLK6-1000-1400-9000-60SS	2018-07-05	2019-07-05	165
☒	Low Pass Filter 1.5GHz	Micro LAB	LA-15N	2017-12-27	2018-12-27	N/A
☒	Low Pass Filter 3.0GHz	Micro LAB	LA-30N	2018-07-05	2019-07-05	N/A
☒	Low Pass Filter 6.0GHz	Micro LAB	LA-60N	2017-12-27	2018-12-27	03942
☒	Attenuators(3 dB)	Agilent	8491B	2017-12-27	2018-12-27	MY39260700
☒	Attenuators(10 dB)	WEINSCHEL	23-10-34	2017-12-27	2018-12-27	BP4387
☒	Dielectric Probe kit	SCHMID	DAK-3.5	2017-11-21	2018-11-21	1092
☒	8960 Series 10 Wireless Comms. Test Set	Agilent	E5515C	2018-07-04	2019-07-04	GB41321164
☒	Wideband Radio Communication Tester	Rohde Schwarz	CMW500	2018-03-07	2019-03-07	162709
☒	Wideband Radio Communication Tester	Rohde Schwarz	CMW500	2018-02-05	2019-02-05	101414
☒	Radio Communication Analyzer	KEYSIGHT	E7515A	2018-07-06	2019-07-06	MY55210201
☒	Radio Communication Analyzer	KEYSIGHT	E7515A	2017-12-27	2018-12-27	MY57270113
☒	Power Splitter	Anritsu	K241B	2017-12-27	2018-12-27	1301183
☒	Bluetooth Tester	TESCOM	TC-3000B	2017-12-26	2018-12-26	3000B770243

NOTE(S):
1. The E-field probe was calibrated by SPEAG, by temperature measurement procedure. Dipole Verification measurement is performed by DT&C before each test. The brain and muscle simulating material are calibrated by DT&C using the dielectric probe system and network analyzer to determine the conductivity and permittivity (dielectric constant) of the brain and muscle-equivalent material. Each equipment item was used solely within its respective calibration period.
2. CBT(Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

15. MEASUREMENT UNCERTAINTIES

750 MHz Head (SN: 3328)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.3	Normal	1	0.78	0.71	± 3.4 %	± 3.1 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.1	Normal	1	0.23	0.26	± 0.9 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.9	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3%	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.7 %**	**± 11.5 %**	330
Expanded Uncertainty (k=2)						**± 23.4 %**	**± 23.0 %**	

The above measurement uncertainties are according to IEEE Std 1528

750 MHz Body (SN: 3328)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.2	Normal	1	0.78	0.71	± 3.3 %	± 3.0 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.1	Normal	1	0.23	0.26	± 0.9 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.9	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3%	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.7 %**	**± 11.5 %**	330
Expanded Uncertainty (k=2)						**± 23.4 %**	**± 23.0 %**	

The above measurement uncertainties are according to IEEE Std 1528

835 MHz Head (SN: 3328)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.9	Normal	1	0.78	0.71	± 3.0 %	± 2.8 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.2	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.9	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3%	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.6 %**	**± 11.4 %**	330
Expanded Uncertainty (k=2)						**± 23.2 %**	**± 22.8 %**	

The above measurement uncertainties are according to IEEE Std 1528

835 MHz Body (SN: 3328)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.8	Normal	1	0.78	0.71	± 3.0 %	± 2.7 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.2	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.7	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.6 %**	**± 11.4 %**	330
Expanded Uncertainty (k=2)						**± 23.2 %**	**± 22.8 %**	

The above measurement uncertainties are according to IEEE Std 1528

1800 MHz Head (SN: 3328)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.7	Normal	1	0.78	0.71	± 2.9 %	± 2.6 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.0	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 1.9	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.6 %**	**± 11.4 %**	330
Expanded Uncertainty (k=2)						**± 23.2 %**	**± 22.8 %**	

The above measurement uncertainties are according to IEEE Std 1528

1800 MHz Body (SN: 3328)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.1	Normal	1	0.78	0.71	± 3.2 %	± 2.9 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 3.8	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.6 %**	**± 11.4 %**	330
Expanded Uncertainty (k=2)						**± 23.2 %**	**± 22.8 %**	

The above measurement uncertainties are according to IEEE Std 1528

1900 MHz Head (SN: 3328)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.8	Normal	1	0.78	0.71	± 3.0 %	± 2.7 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.1	Normal	1	0.23	0.26	± 0.9 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.7	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.6 %**	**± 11.4 %**	330
Expanded Uncertainty (k=2)						**± 23.2 %**	**± 22.8 %**	

The above measurement uncertainties are according to IEEE Std 1528

1900 MHz Body (SN: 3328)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.0	Normal	1	0.78	0.71	± 3.1 %	± 2.8 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 3.8	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.8	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.6 %**	**± 11.4 %**	330
Expanded Uncertainty (k=2)						**± 23.2 %**	**± 22.8 %**	

The above measurement uncertainties are according to IEEE Std 1528

2450 MHz Head (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.8	Normal	1	0.78	0.71	± 3.0 %	± 2.7 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.3	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 2.0	Rectangular	√3	0.23	0.26	± 0.3 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.6 %**	**± 11.4 %**	330
Expanded Uncertainty (k=2)						**± 23.2 %**	**± 22.8 %**	

The above measurement uncertainties are according to IEEE Std 1528

2450 MHz Body (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.1	Normal	1	0.78	0.71	± 3.2 %	± 2.9 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.2	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.9	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.6 %**	**± 11.4 %**	330
Expanded Uncertainty (k=2)						**± 23.2 %**	**± 22.8 %**	

The above measurement uncertainties are according to IEEE Std 1528

5200 MHz Head (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.0	Normal	1	0.78	0.71	± 3.1 %	± 2.8 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.2	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5200 MHz Body (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.9	Normal	1	0.78	0.71	± 3.0 %	± 2.8 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.3	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.8	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5300 MHz Head (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.8	Normal	1	0.78	0.71	± 3.0 %	± 2.7 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.1	Normal	1	0.23	0.26	± 0.9 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.9	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5300 MHz Body (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.9	Normal	1	0.78	0.71	± 3.0 %	± 2.8 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.0	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.8	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5500 MHz Head (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.2	Normal	1	0.78	0.71	± 3.3 %	± 3.0 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 3.8	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 1.7	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.8	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5500 MHz Body (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.8	Normal	1	0.78	0.71	± 3.0 %	± 2.7 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 3.9	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 1.7	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.8	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5600 MHz Head (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.1	Normal	1	0.78	0.71	± 3.2 %	± 2.9 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 3.8	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.8	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5600 MHz Body (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.7	Normal	1	0.78	0.71	± 2.9 %	± 2.6 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.2	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 2.0	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5800 MHz Head (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.8	Normal	1	0.78	0.71	± 3.0 %	± 2.7 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.1	Normal	1	0.23	0.26	± 0.9 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.7	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5800 MHz Body (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.0	Normal	1	0.78	0.71	± 3.1 %	± 2.8 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.2	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.8	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

16. CONCLUSION

Measurement Conclusion

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the FCC. These measurements are taken to simulate the RF effects exposure under the worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The tested device complies with the requirements in respect to all parameters subject to the test. The test results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are every complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role impossible biological effect are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease).

Because innumerable factors may interact to determine the specific biological outcome of an exposure to electromagnetic fields, any protection guide shall consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.

17. REFERENCES

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APPENDIX A. – Probe Calibration Data

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client DT&C (Dymstec) Certificate No: ES3-3328_Mar18

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3328

Calibration procedure(s) QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

Calibration date: March 21, 2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02525)	Apr-18
Reference 20 dB Attenuator	SN: S5277 (20x)	07-Apr-17 (No. 217-02528)	Apr-18
Reference Probe ES3DV2	SN: 3013	30-Dec-17 (No. ES3-3013_Dec17)	Dec-18
DAE4	SN: 660	21-Dec-17 (No. DAE4-660_Dec17)	Dec-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 24, 2018

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe ES3DV3

SN:3328

Manufactured: January 24, 2012
Calibrated: March 21, 2018

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3328

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.02	1.05	1.08	± 10.1 %
DCP (mV)[B]	108.8	103.7	103.9	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	195.9	±3.5 %
		Y	0.0	0.0	1.0		191.3	
		Z	0.0	0.0	1.0		190.8	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3328

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	6.61	6.61	6.61	0.41	1.53	± 12.0 %
835	41.5	0.90	6.35	6.35	6.35	0.32	1.78	± 12.0 %
900	41.5	0.97	6.23	6.23	6.23	0.45	1.48	± 12.0 %
1750	40.1	1.37	5.56	5.56	5.56	0.64	1.30	± 12.0 %
1900	40.0	1.40	5.26	5.26	5.26	0.72	1.29	± 12.0 %
2450	39.2	1.80	4.82	4.82	4.82	0.66	1.35	± 12.0 %
2600	39.0	1.96	4.60	4.60	4.60	0.71	1.33	± 12.0 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3328

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	6.29	6.29	6.29	0.80	1.14	± 12.0 %
835	55.2	0.97	6.23	6.23	6.23	0.80	1.14	± 12.0 %
900	55.0	1.05	6.18	6.18	6.18	0.80	1.18	± 12.0 %
1750	53.4	1.49	5.10	5.10	5.10	0.66	1.37	± 12.0 %
1900	53.3	1.52	4.88	4.88	4.88	0.48	1.66	± 12.0 %
2450	52.7	1.95	4.48	4.48	4.48	0.80	1.20	± 12.0 %
2600	52.5	2.16	4.32	4.32	4.32	0.80	1.09	± 12.0 %

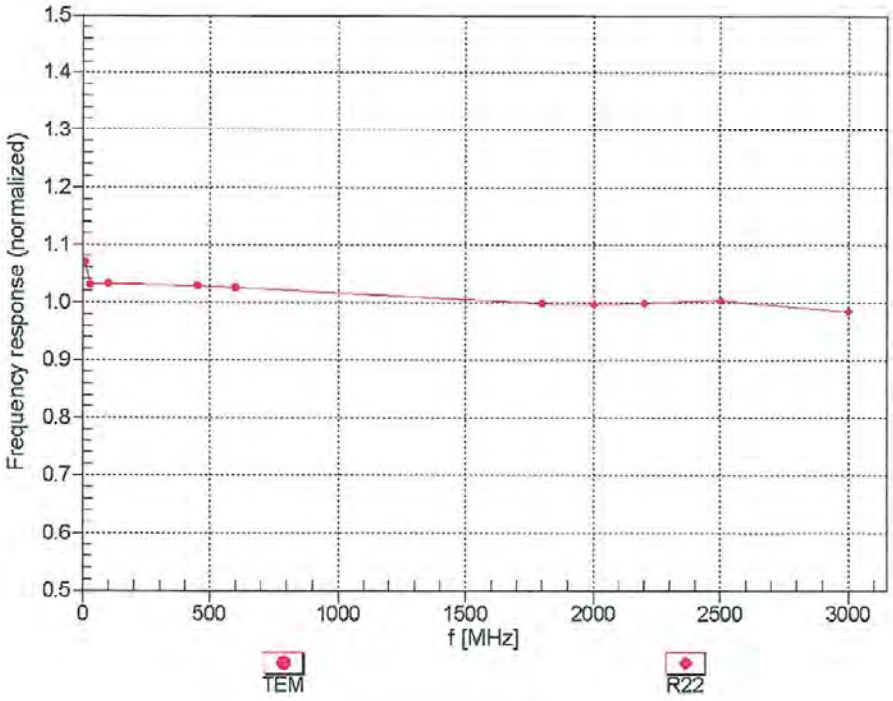
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

ES3DV3– SN:3328 March 21, 2018

Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)

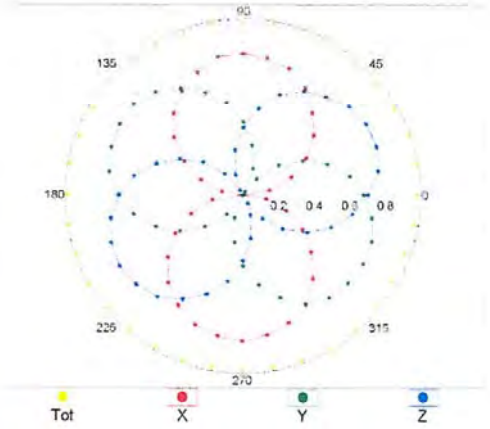


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

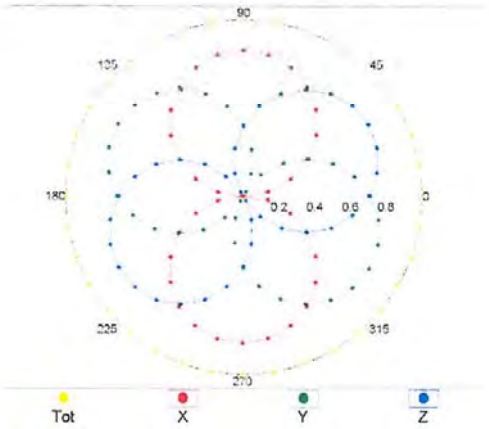
ES3DV3– SN:3328 March 21, 2018

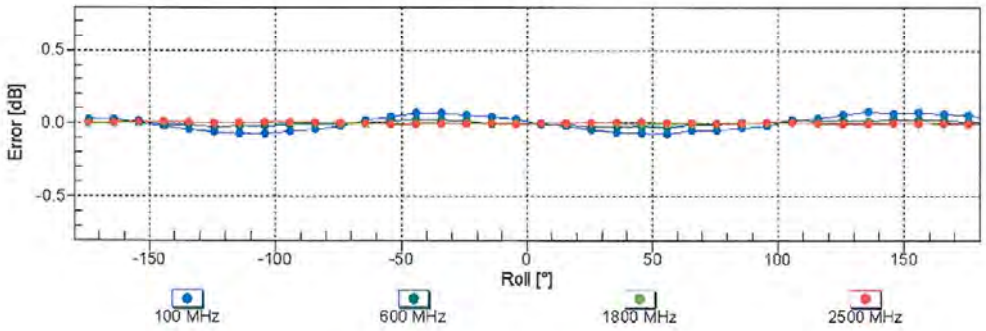
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

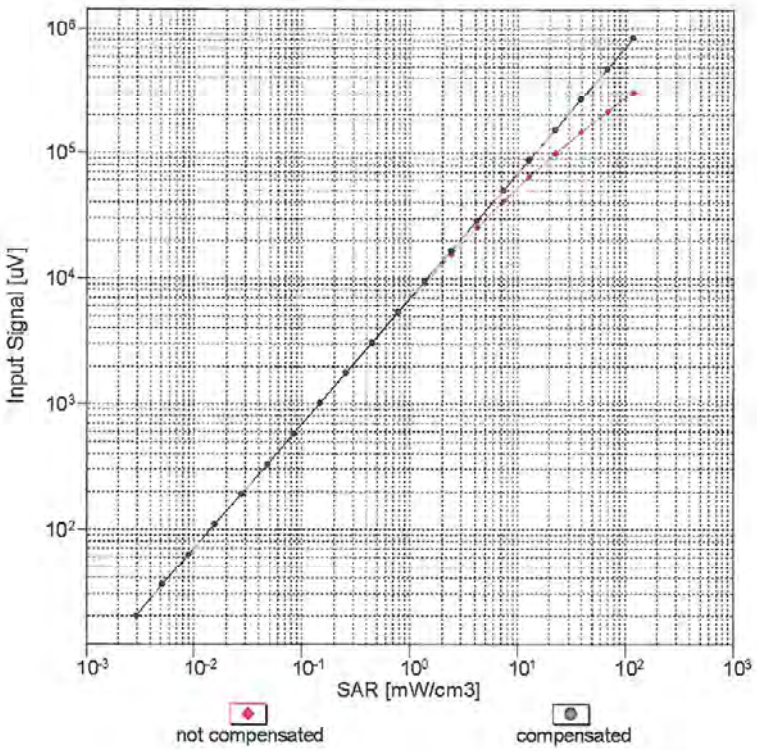


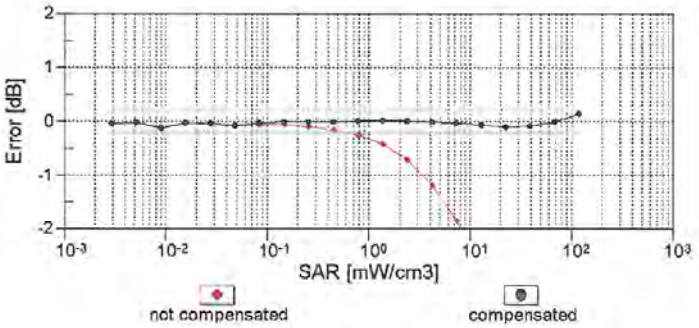


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ES3DV3– SN:3328 March 21, 2018

Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)



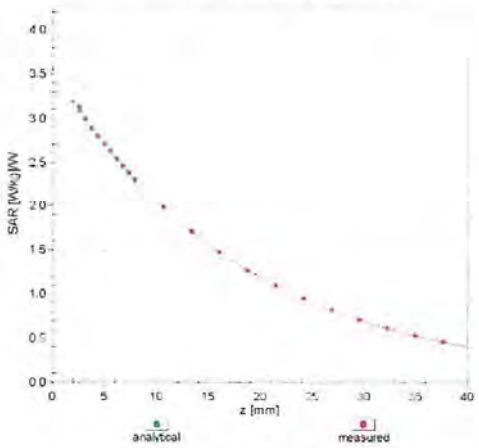


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

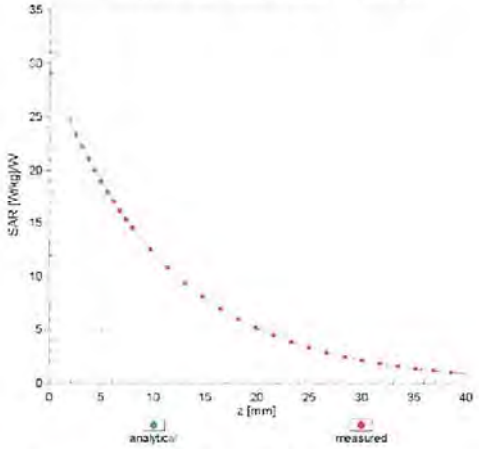
ES3DV3– SN:3328 March 21, 2018

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

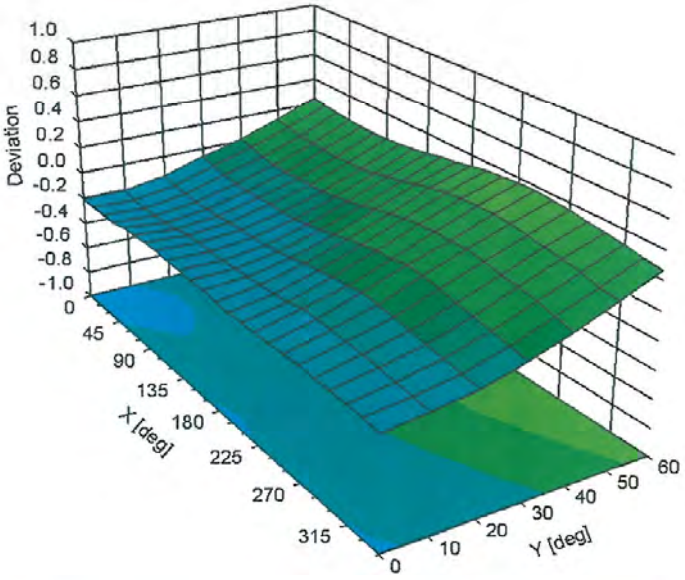


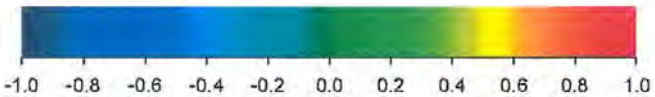
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3328

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-23.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **DT&C (Dymstec)** Certificate No: **EX3-3866_May18**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3866

Calibration procedure(s) QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6
Calibration procedure for dosimetric E-field probes

Calibration date: May 31, 2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-18 (No. 217-02682)	Apr-19
Reference Probe ES3DV2	SN: 3013	30-Dec-17 (No. ES3-3013_Dec17)	Dec-18
DAE4	SN: 660	21-Dec-17 (No. DAE4-660_Dec17)	Dec-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 31, 2018

Calibration Laboratory of
Schmid & Partner
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Glossary:

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CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

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- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Probe EX3DV4

SN:3866

Manufactured: February 2, 2012
Calibrated: May 31, 2018

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3866

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.43	0.32	0.35	± 10.1 %
DCP (mV)[B]	98.7	101.4	105.4	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	129.5	±3.3 %
		Y	0.0	0.0	1.0		142.9	
		Z	0.0	0.0	1.0		132.3	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	61.34	450.3	34.79	20.71	0.897	5.071	0.953	0.532	1.007
Y	35.97	270.0	35.93	7.616	0.990	4.996	0.120	0.508	1.005
Z	34.59	248.7	33.42	8.463	0.617	4.987	2.000	0.071	1.005

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3866

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	41.9	0.89	10.16	10.16	10.16	0.49	0.80	± 12.0 %
835	41.5	0.90	9.62	9.62	9.62	0.39	0.93	± 12.0 %
900	41.5	0.97	9.40	9.40	9.40	0.40	0.92	± 12.0 %
1750	40.1	1.37	8.38	8.38	8.38	0.34	0.84	± 12.0 %
1900	40.0	1.40	8.03	8.03	8.03	0.27	0.87	± 12.0 %
2300	39.5	1.67	7.86	7.86	7.86	0.30	0.85	± 12.0 %
2450	39.2	1.80	7.45	7.45	7.45	0.34	0.82	± 12.0 %
2600	39.0	1.96	7.22	7.22	7.22	0.38	0.85	± 12.0 %
3500	37.9	2.91	6.89	6.89	6.89	0.20	1.25	± 13.1 %
5200	36.0	4.66	5.14	5.14	5.14	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.95	4.95	4.95	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.61	4.61	4.61	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.52	4.52	4.52	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.69	4.69	4.69	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3866

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
750	55.5	0.96	9.69	9.69	9.69	0.33	0.97	± 12.0 %
835	55.2	0.97	9.43	9.43	9.43	0.42	0.80	± 12.0 %
900	55.0	1.05	9.57	9.57	9.57	0.48	0.80	± 12.0 %
1750	53.4	1.49	7.95	7.95	7.95	0.39	0.80	± 12.0 %
1900	53.3	1.52	7.68	7.68	7.68	0.30	0.85	± 12.0 %
2300	52.9	1.81	7.50	7.50	7.50	0.39	0.85	± 12.0 %
2450	52.7	1.95	7.40	7.40	7.40	0.43	0.90	± 12.0 %
2600	52.5	2.16	7.28	7.28	7.28	0.25	1.05	± 12.0 %
3500	51.3	3.31	6.43	6.43	6.43	0.28	1.20	± 13.1 %
5200	49.0	5.30	4.69	4.69	4.69	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.50	4.50	4.50	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.95	3.95	3.95	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.87	3.87	3.87	0.50	1.90	± 13.1 %
5800	48.2	6.00	4.16	4.16	4.16	0.50	1.90	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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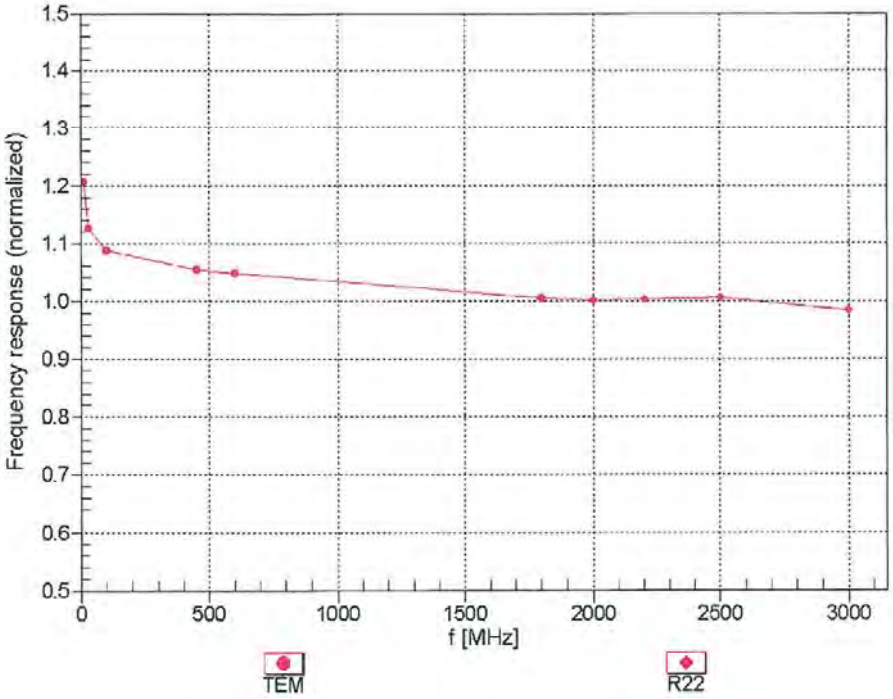
Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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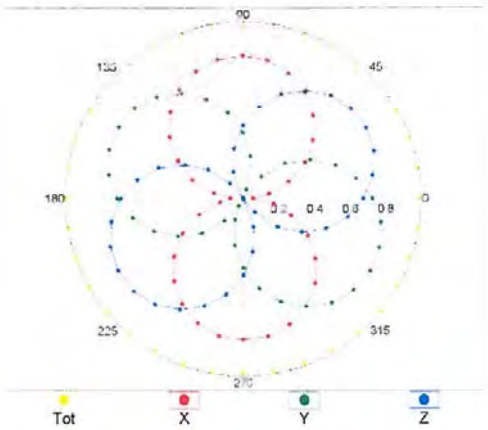
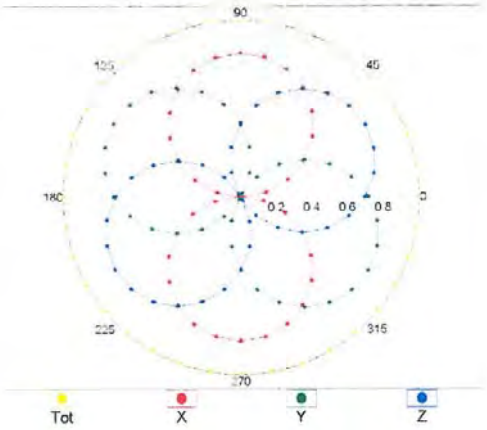
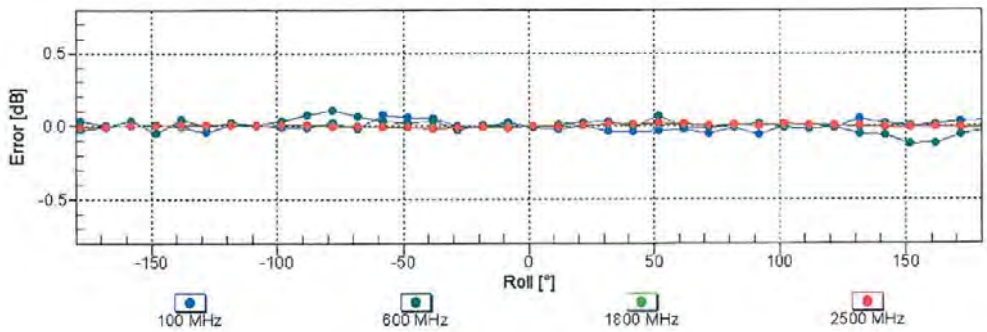
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22





Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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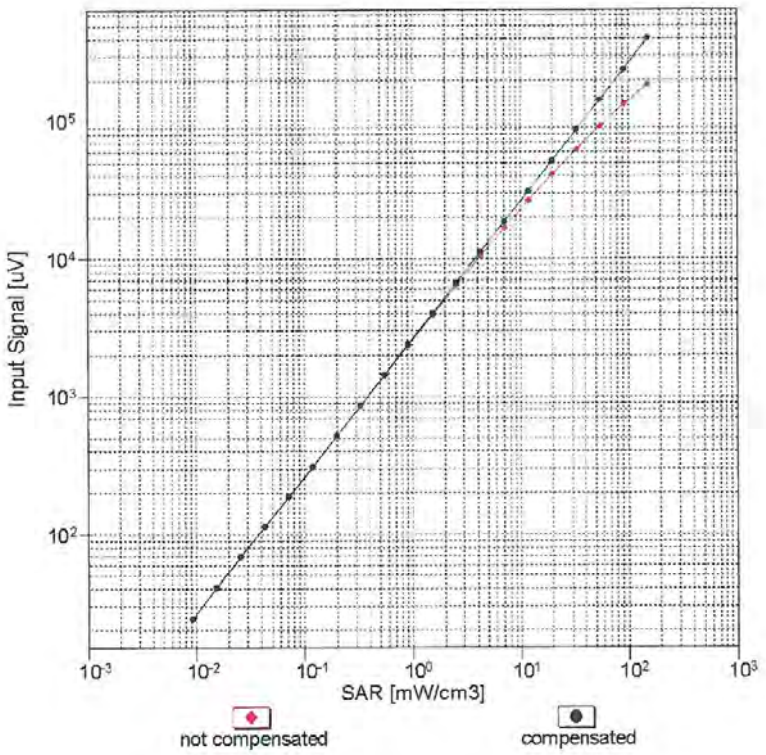
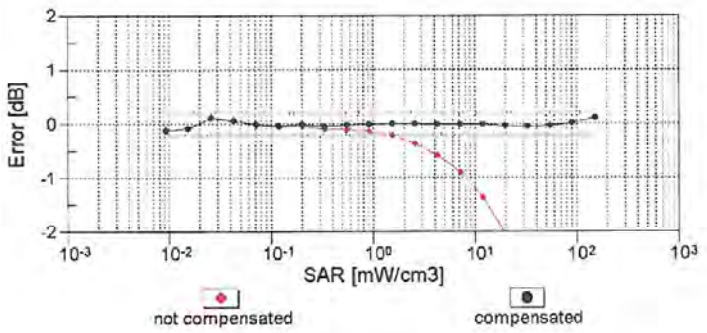
Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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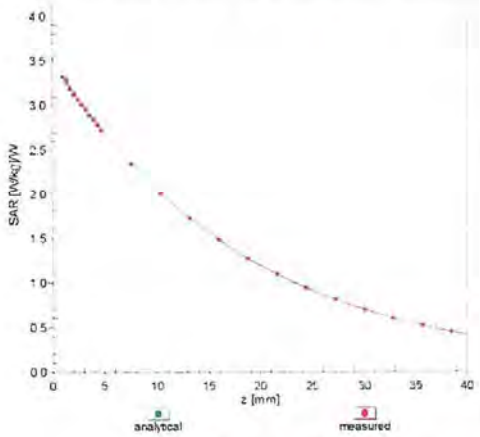
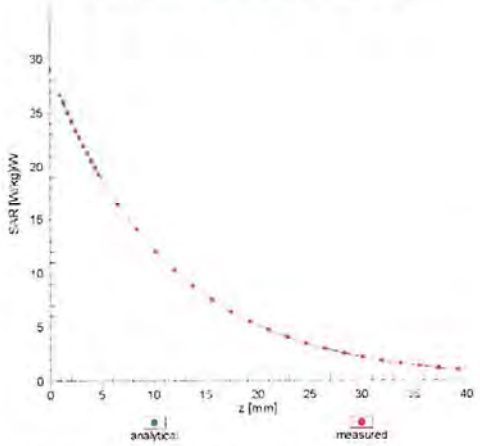
Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

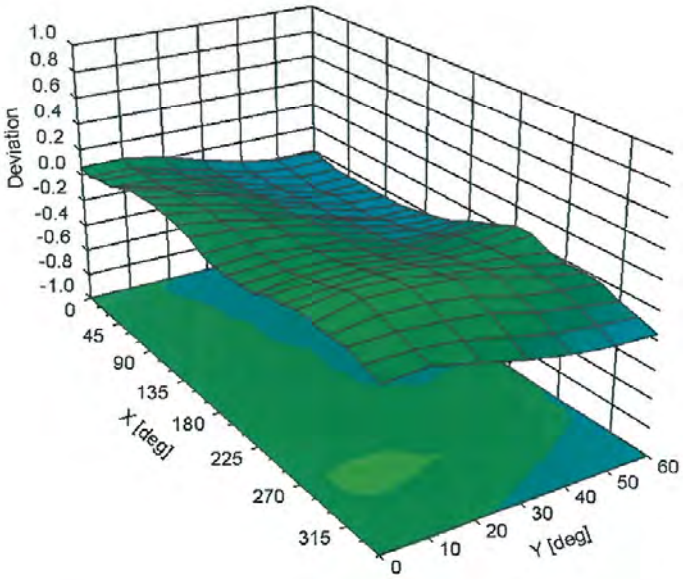


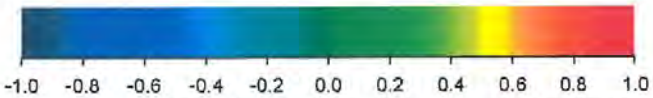
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)