TEST REPORT

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1. Report No : DRRFCC2003-0012
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 / OA2006
   FCC ID : ZNFOA2006
5. Test Method Used : IEEE 1528-2013, FCC SAR KDB Publications (Details in test report)
   Test Specification : CFR 47 Part 2 subpart 2.1093
6. Date of Test : 2020.02.10 ~ 2020.02.26
7. Testing Environment : Refer to appended test report.
8. Test Result : Refer to attached test report.

Affirmation	Tested by Name : BumJun Park (Signature)	Reviewed by Name : HakMin Kim (Signature)

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Test Report Version

Test Report No.	Date	Description	Tested by	Reviewed by
DRRFCC2003-0012	Mar. 5, 2020	Initial issue	BumJun Park	HakMin Kim

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1. DESCRIPTION OF DEVICE

1.1 General Information

EUT type	Mobile Phone				
FCC ID	ZNFOA2006				
Equipment model name	OA2006				
Equipment add model name	N/A				
Equipment serial no.	Identical prototype				
Mode(s) of Operation	GSM 850, GSM 1900, WCDMA 850, LTE Band 12, 5, 2.4 G W-LAN (802.11b/g/n/ac), 5 G W-LAN (802.11a/n/ac), Bluetooth				
	Band	**Mode**	**Operating Modes**	**Bandwidth**	**Frequency**
TX Frequency Range	GSM 850	GSM/GPRS	Voice/Data	-	824.2 ~ 848.8 MHz
	GSM 1900	GSM/GPRS	Voice/Data	-	1850.2 ~ 1909.8 MHz
	WCDMA 850	WCDMA	Voice/Data	-	826.4 ~ 846.6 MHz
	LTE Band 12	LTE	Voice/Data	1.4/3/5/10MHz	699.7 ~ 715.3 MHz
	LTE Band 5	LTE	Voice/Data	1.4/3/5/10MHz	824.7 ~ 848.3 MHz
	2.4 GHz W-LAN	802.11b/g/n/ac	Voice/Data	20MHz	2412 ~ 2472 MHz
	5.2 GHz W-LAN	802.11a/n/ac	Voice/Data	20MHz	5180 ~ 5240 MHz
		802.11n/ac	Voice/Data	40MHz	5190 ~ 5230 MHz
		802.11ac	Voice/Data	80MHz	5210 MHz
	5.3 GHz W-LAN	802.11a/n/ac	Voice/Data	20MHz	5260 ~ 5320 MHz
		802.11n/ac	Voice/Data	40MHz	5270 ~ 5310 MHz
		802.11ac	Voice/Data	80MHz	5290 MHz
	5.6 GHz W-LAN	802.11a/n/ac	Voice/Data	20MHz	5500 ~ 5720 MHz
		802.11n/ac	Voice/Data	40MHz	5510 ~ 5710 MHz
		802.11ac	Voice/Data	80MHz	5530 ~ 5690 MHz
	5.8 GHz W-LAN	802.11a/n/ac	Voice/Data	20MHz	5745 ~ 5825 MHz
		802.11n/ac	Voice/Data	40MHz	5755 ~ 5795 MHz
		802.11ac	Voice/Data	80MHz	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 850	WCDMA	Voice/Data	-	871.4 ~ 891.6 MHz
	LTE Band 12	LTE	Voice/Data	1.4/3/5/10MHz	729.7 ~ 745.3 MHz
	LTE Band 5	LTE	Voice/Data	1.4/3/5/10MHz	869.7 ~ 893.3 MHz
	2.4 GHz W-LAN	802.11b/g/n/ac	Voice/Data	20MHz	2412 ~ 2472 MHz
	5.2 GHz W-LAN	802.11a/n/ac	Voice/Data	20MHz	5180 ~ 5240 MHz
		802.11n/ac	Voice/Data	40MHz	5190 ~ 5230 MHz
		802.11ac	Voice/Data	80MHz	5210 MHz
	5.3 GHz W-LAN	802.11a/n/ac	Voice/Data	20MHz	5260 ~ 5320 MHz
		802.11n/ac	Voice/Data	40MHz	5270 ~ 5310 MHz
		802.11ac	Voice/Data	80MHz	5290 MHz
	5.6 GHz W-LAN	802.11a/n/ac	Voice/Data	20MHz	5500 ~ 5720 MHz
		802.11n/ac	Voice/Data	40MHz	5510 ~ 5710 MHz
		802.11ac	Voice/Data	80MHz	5530 ~ 5690 MHz
	5.8 GHz W-LAN	802.11a/n/ac	Voice/Data	20MHz	5745 ~ 5825 MHz
		802.11n/ac	Voice/Data	40MHz	5755 ~ 5795 MHz
		802.11ac	Voice/Data	80MHz	5775 MHz
	Bluetooth	-	Data	-	2402 ~ 2480 MHz

Equipment Class	**Band**	**Reported SAR**			
		1g SAR (W/kg)			**10g SAR (W/kg)**
		Head	**Body-Worn**	**Hotspot**	**Phablet**
PCE	GSM 850	0.66	0.69	-	-
PCE	GPRS 850	0.67	0.70	0.70	-
PCE	GSM 1900	0.20	0.22	-	-
PCE	GPRS 1900	0.27	0.28	0.52	-
PCE	WCDMA 850	**0.92**	0.97	0.97	-
PCE	LTE Band 12	0.56	0.51	0.51	-
PCE	LTE Band 5	0.89	**1.07**	**1.07**	-
DTS(SISO)	2.4 GHz W-LAN	0.48	0.19	0.19	-
DTS(MIMO)	2.4 GHz W-LAN	0.53	0.21	0.21	-
U-NII-1(SISO)	5.2 GHz W-LAN	-	-	0.16	-
U-NII-1(MIMO)	5.2 GHz W-LAN	-	-	0.18	-
U-NII-2A(SISO)	5.3 GHz W-LAN	0.44	0.15	-	0.59
U-NII-2A(MIMO)	5.3 GHz W-LAN	0.48	0.18	-	**0.81**
U-NII-2C(SISO)	5.6 GHz W-LAN	0.36	0.14	-	0.47
U-NII-2C(MIMO)	5.6 GHz W-LAN	0.46	0.15	-	0.63
U-NII-3(SISO)	5.8 GHz W-LAN	0.37	< 0.1	< 0.1	0.34
U-NII-3(MIMO)	5.8 GHz W-LAN	0.44	0.14	0.14	0.42
DSS	Bluetooth	0.22	< 0.1	< 0.1	-
Simultaneous SAR per KDB 690783 D01v01r03		**1.60**	**1.32**	**1.32**	-

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	2020.02.10 ~ 2020.02.26
Antenna Type	Internal Antenna
Functions	● GSM/GPRS (GPRS Class: 12) supported. * DTM not supported. ● 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 Hotspot 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 ZNFOA2006_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	X
GSM/GPRS 1900	X	O	O	O	O	O
WCDMA 850	X	O	O	O	O	X
LTE Band 12	X	O	O	O	O	X
LTE Band 5	X	O	O	O	O	X
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: WLAN Hotspot UNII-1, 3 supported.
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 ZNFOA2006_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 U-NII-1 and U-NII-2A bands have the same maximum output power and the highest reported SAR for U-NII-2A is less than 1.2 W/kg, SAR is not required for U-NII-1 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, 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 was not required; [(10/10)*√2.480] = 1.5 (< 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; [(10/5)*√2.480] = 3.0 (< 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 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 since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05v02r04.

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 if wireless router 1g SAR > 1.2 W/kg.

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	**ZNFOA2006**				
Form Factor	Mobile Phone				
Frequency Range of each LTE transmission Band	LTE Band 12 (699.7 ~ 715.3 MHz) LTE Band 5 (Cell) (824.7 ~ 848.3 MHz)				
Channel Bandwidths	LTE Band 12 : 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 5 : 1.4 MHz, 3 MHz, 5 MHz, 10 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 5 (Cell): 1.4 MHz	824.7 (20407)	N/A	836.5 (20525)	N/A	848.3 (20643)
LTE Band 5 (Cell): 3 MHz	825.5 (20415)	N/A	836.5 (20525)	N/A	847.5 (20635)
LTE Band 5 (Cell): 5 MHz	826.5 (20425)	N/A	836.5 (20525)	N/A	846.5 (20625)
LTE Band 5 (Cell): 10 MHz	829.0 (20450)	N/A	**836.5 (20525)**[Note2]	N/A	844.0 (20600)
UE Category	LTE Rel.12 LTE UE Cat (DL UE Cat 11, UL UE Cat 5)				
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 full CA features on 3GPP Release 12. All uplink communications are identical to the Release 8 Specifications. The following LTE Release 12 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 B5(Cell) 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.

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.

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):

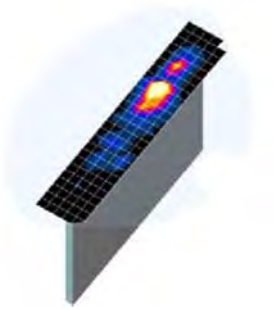


Figure 4.1
Sample SAR Area Scan

   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 15 mm 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.

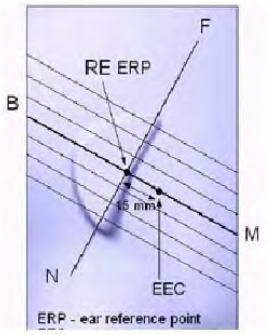


Figure 5.1
Close-up side view of ERP

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

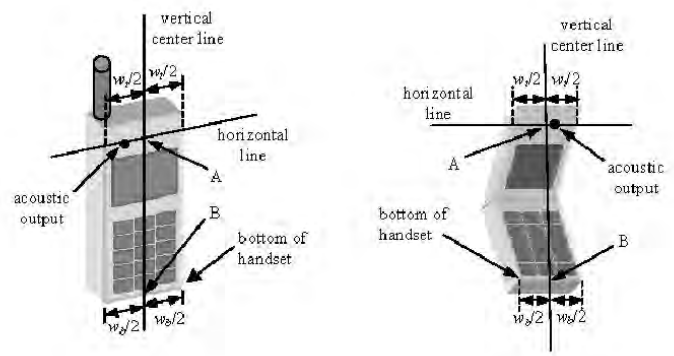


Figure 5.3 Handset Vertical Center & Horizontal Line Reference Points

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).

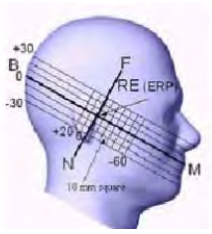


Figure 6.2 Side view w/relevant markings

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.

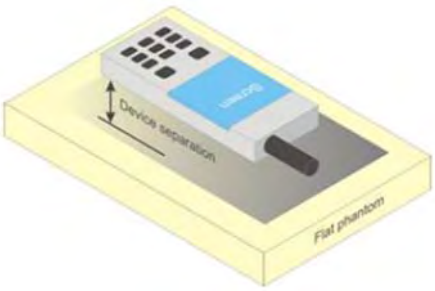


Figure 6.4 Sample Body-Worn Diagram

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 7.1.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 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.
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 8.1 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 8.2 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

(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, 802.11n and 802.11 ac or 802.11g, 802.11n and 802.11ac with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a then 802.11n and 802.11ac or 802.11g then 802.11n and 802.11ac 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	32.2	30.2	28.2
	Nominal	33.2	33.2	31.7	29.7	27.7
GSM/GPRS 1900	Maximum	30.2	30.2	28.7	26.7	24.7
	Nominal	29.7	29.7	28.2	26.2	24.2

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	33.40	33.40	31.90	29.90	26.90
	190	33.60	33.60	32.10	30.10	27.10
	251	33.60	33.60	32.20	30.20	27.20
PCS 1900	512	30.00	30.00	28.40	26.40	24.50
	661	30.10	30.10	28.60	26.60	24.60
	810	30.20	30.20	28.70	26.70	24.70
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	24.37	24.37	25.88	25.64	23.89
	190	24.57	24.57	26.08	25.84	24.09
	251	24.57	24.57	26.18	25.94	24.19
PCS 1900	512	20.97	20.97	22.38	22.14	21.49
	661	21.07	21.07	22.58	22.34	21.59
	810	21.17	21.17	22.68	22.44	21.69
GSM850	**Frame Avg. Targets:**	24.17	24.17	25.68	25.44	24.69
PCS 1900		20.67	20.67	22.18	21.94	21.19

Table 9.1.2 GSM Conducted Power

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)
DTM Multislot Class: N/A

Figure 9.1 Power Measurement Setup

9.2 WCDMA Nominal and Maximum Output Power Spec and Conducted Powers

3GPP Release Version	Mode			Cellular Band (dBm)	3GPP MPR (dB)
99	WCDMA	Voice	Maximum	25.2	-
			Nominal	24.7	
5	HSDPA	Subtest 1	Maximum	25.2	0
			Nominal	24.7	
5		Subtest 2	Maximum	25.2	0
			Nominal	24.7	
5		Subtest 3	Maximum	24.7	0.5
			Nominal	24.2	
5		Subtest 4	Maximum	24.7	0.5
			Nominal	24.2	
6	HSUPA	Subtest 1	Maximum	25.2	0
			Nominal	24.7	
6		Subtest 2	Maximum	23.2	2
			Nominal	22.7	
6		Subtest 3	Maximum	24.2	1
			Nominal	23.7	
6		Subtest 4	Maximum	23.2	2
			Nominal	22.7	
6		Subtest 5	Maximum	25.2	0
			Nominal	24.7	

Table 9.2.1 WCDMA Nominal and Maximum Output Power Spec

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band (dBm)			3GPP MPR (dB)
			4132	4183	4233	
99	WCDMA	12.2 kbps RMC	24.89	24.83	24.86	-
99		12.2 kbps AMR	24.89	24.82	24.85	-
5	HSDPA	Subtest 1	24.46	24.37	24.40	0
5		Subtest 2	24.92	24.86	24.88	0
5		Subtest 3	24.45	24.36	24.40	0.5
5		Subtest 4	24.44	24.35	24.40	0.5
6	HSUPA	Subtest 1	23.92	23.83	23.88	0
6		Subtest 2	22.95	22.86	22.87	2
6		Subtest 3	23.93	23.86	23.89	1
6		Subtest 4	22.92	22.86	22.86	2
6		Subtest 5	24.90	24.85	24.86	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 HSDPA and 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	Maximum	25.2
	Nominal	24.7

Table 9.3.1.1 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	24.98	≤ 1	0
	1	**25**	**25.06**		
	1	49	25.02		
	25	0	24.08		1
	25	**12**	**24.14**		
	25	25	24.12		
	50	0	24.16		1
16QAM	1	0	24.02	≤ 1	1
	1	25	24.10		
	1	49	24.04		
	25	0	22.98	≤ 2	2
	25	12	23.00		
	25	25	22.99		
	50	0	23.02		2
64QAM	1	0	22.97	≤ 2	2
	1	25	23.12		
	1	49	22.98		
	25	0	21.95	≤ 3	3
	25	12	22.06		
	25	25	21.98		
	50	0	22.01		3

Table 9.3.1.2 LTE Conducted Power

Note : 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)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	24.95	24.98	25.02	≤ 1	0
	1	12	25.01	25.06	25.09		
	1	24	25.00	25.00	25.06		
	12	0	24.05	24.03	24.08		1
	12	6	24.07	24.09	24.11		
	12	13	24.06	24.05	24.09		
	25	0	24.06	24.10	24.14		1
16QAM	1	0	24.05	24.00	23.98	≤ 1	1
	1	12	24.08	24.11	24.13		
	1	24	24.07	24.01	24.07		
	12	0	22.93	22.95	22.93	≤ 2	2
	12	6	23.01	22.99	22.98		
	12	13	22.99	22.96	22.97		
	25	0	22.94	22.95	22.98		2
64QAM	1	0	23.02	23.05	22.96	≤ 2	2
	1	12	23.05	23.11	23.13		
	1	24	23.04	23.06	23.03		
	12	0	22.01	21.96	22.01	≤ 3	3
	12	6	22.07	22.08	22.03		
	12	13	22.06	22.00	22.02		
	15	0	21.93	21.95	21.96		3

Table 9.3.1.3 LTE Conducted Power

LTE Band 12 Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	24.90	24.93	25.01	≤ 1	0
	1	7	24.95	24.98	25.06		
	1	14	24.91	24.94	25.03		
	8	0	23.96	24.06	24.04		1
	8	4	24.03	24.10	24.19		
	8	7	23.99	24.07	24.14		
	15	0	24.06	24.07	24.09		1
16QAM	1	0	23.96	24.02	23.98	≤ 1	1
	1	7	24.07	24.08	24.12		
	1	14	24.00	24.03	24.10		
	8	0	22.92	22.95	22.94	≤ 2	2
	8	4	22.97	22.98	23.10		
	8	7	22.96	22.96	23.07		
	15	0	22.95	22.98	23.00		2
64QAM	1	0	22.98	23.01	23.00	≤ 2	2
	1	7	23.00	23.05	23.16		
	1	14	22.99	23.02	23.12		
	8	0	21.97	22.03	21.99	≤ 3	3
	8	4	22.00	22.05	22.14		
	8	7	21.98	22.04	22.13		
	15	0	21.96	22.00	22.01		3

Table 9.3.1.4 LTE Conducted Power

LTE Band 12 Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23017 (699.7 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23173 (715.3 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	24.88	24.88	25.00	≤ 1	0
	1	2	24.96	24.99	25.06		
	1	5	24.89	24.93	25.03		
	3	0	24.92	24.97	25.07		0
	3	2	24.95	25.02	25.09		
	3	3	24.94	24.98	25.08		
	6	0	23.99	24.00	24.13		1
16QAM	1	0	23.95	23.96	24.01	≤ 1	1
	1	2	24.02	24.01	24.13		
	1	5	23.97	23.97	24.07		
	3	0	23.76	23.80	23.88		1
	3	2	23.79	23.83	23.92		
	3	3	23.77	23.82	23.91		
	6	0	22.93	22.98	23.06	≤ 2	2
64QAM	1	0	22.94	22.97	23.07	≤ 2	2
	1	2	23.02	23.02	23.09		
	1	5	22.96	22.98	23.08		
	3	0	22.96	22.96	23.05		2
	3	2	23.01	22.99	23.12		
	3	3	22.97	22.97	23.07		
	6	0	21.88	21.92	22.00	≤ 3	3

Table 9.3.1.5 LTE Conducted Power

Band & Mode		Modulated Average[dBm]
LTE Band 5	Maximum	25.2
	Nominal	24.7

Table 9.3.2.1 Nominal and Maximum Output Power Spec

2) LTE Band 5 (Cell)

LTE Band 5 (Cell) Conducted Power– 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power (dBm)	MPR Allowed Per 3GPP(dB)	MPR (dB)
QPSK	1	0	25.09	≤ 1	0
	1	25	25.08		
	1	49	25.01		
	25	0	24.06		1
	25	12	24.19		
	25	25	24.08		
	50	0	24.13		1
16QAM	1	0	24.15	≤ 1	1
	1	25	24.09		
	1	49	24.04		
	25	0	22.97	≤ 2	2
	25	12	23.04		
	25	25	22.94		
	50	0	22.99		2
64QAM	1	0	23.13	≤ 2	2
	1	25	23.07		
	1	49	23.06		
	25	0	22.00	≤ 3	3
	25	12	22.01		
	25	25	21.96		
	50	0	21.99		3

Table 9.3.2.2 LTE Conducted Power

Note : LTE B5(Cell) 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 5 (Cell) Conducted Power– 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20425 (826.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20625 (846.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	25.13	25.14	25.17	≤ 1	0
	1	12	25.11	25.08	25.16		
	1	24	25.06	25.06	24.75		
	12	0	24.06	24.11	24.13		1
	12	6	24.14	24.16	24.19		
	12	13	24.09	24.12	24.16		
	25	0	24.10	24.14	24.16		1
16QAM	1	0	24.16	24.18	24.19	≤ 1	1
	1	12	24.12	24.13	24.18		
	1	24	24.09	24.10	23.84		
	12	0	22.96	22.95	23.00	≤ 2	2
	12	6	23.01	23.00	23.06		
	12	13	22.97	22.96	23.01		
	25	0	22.94	22.96	23.00		2
64QAM	1	0	23.18	23.15	23.18	≤ 2	2
	1	12	23.11	23.14	23.17		
	1	24	23.08	23.03	22.88		
	12	0	22.04	22.04	22.13	≤ 3	3
	12	6	22.10	22.08	22.15		
	12	13	22.07	22.05	22.14		
	25	0	21.97	21.98	22.06		3

Table 9.3.2.3 LTE Conducted Power

LTE Band 5 (Cell) Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20415 (825.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20635 (847.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	25.08	25.09	25.15	≤ 1	0
	1	7	25.07	25.04	25.01		
	1	14	25.04	25.03	24.82		
	8	0	24.06	24.09	24.12		1
	8	4	24.12	24.13	24.14		
	8	7	24.08	24.12	24.13		
	15	0	24.08	24.15	24.17		1
16QAM	1	0	24.17	24.18	24.19	≤ 1	1
	1	7	24.12	24.11	24.09		
	1	14	24.11	24.06	23.90		
	8	0	23.00	22.98	23.03	≤ 2	2
	8	4	23.02	23.02	23.05		
	8	7	23.01	22.99	23.04		
	15	0	22.95	22.96	22.98		2
64QAM	1	0	23.12	23.13	23.16	≤ 2	2
	1	7	23.11	23.07	23.13		
	1	14	23.10	23.06	22.97		
	8	0	22.05	22.03	22.08	≤ 3	3
	8	4	22.09	22.07	22.10		
	8	7	22.06	22.05	22.09		
	15	0	22.00	22.02	22.04		3

Table 9.3.2.4 LTE Conducted Power

LTE Band 5 (Cell) Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20407 (824.7 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20643 (848.3 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	24.95	25.01	25.00	≤ 1	0
	1	2	25.04	25.06	25.07		
	1	5	24.96	25.00	24.82		
	3	0	24.98	25.01	24.91		0
	3	2	25.03	25.04	25.05		
	3	3	24.98	24.98	24.92		
	6	0	24.02	24.05	24.09		1
16QAM	1	0	24.04	24.04	24.04	≤ 1	1
	1	2	24.18	24.09	24.09		
	1	5	24.08	23.98	23.93		
	3	0	23.85	23.83	23.80		1
	3	2	23.90	23.90	23.92		
	3	3	23.83	23.79	23.81		
	6	0	22.93	22.96	22.98	≤ 2	2
64QAM	1	0	23.02	23.03	23.09	≤ 2	2
	1	2	23.10	23.07	23.11		
	1	5	23.01	23.01	22.94		
	3	0	23.03	22.97	22.96		2
	3	2	23.05	23.06	23.07		
	3	3	23.02	22.99	23.00		
	6	0	21.92	21.90	21.93	≤ 3	3

Table 9.3.2.5 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	1~2	16.00	15.00	16.00	15.00	-	-
		3~9	16.00	15.00	16.00	15.00	-	-
		10~11	16.00	15.00	16.00	15.00	-	-
		12	-3.50	-4.50	-3.50	-4.50	-	-
		13	-3.50	-4.50	-3.50	-4.50	-	-
	802.11g	1~2	14.50	13.50	14.50	13.50	17.50	16.50
		3~9	16.00	15.00	16.00	15.00	19.00	18.00
		10~11	14.00	13.00	14.00	13.00	17.00	16.00
		12	-4.00	-5.00	-4.00	-5.00	-1.00	-2.00
		13	-4.00	-5.00	-4.00	-5.00	-1.00	-2.00
	802.11n	1~2	13.50	12.50	13.50	12.50	16.50	15.50
		3~9	15.00	14.00	15.00	14.00	18.00	17.00
		10~11	13.00	12.00	13.00	12.00	16.00	15.00
		12	-4.00	-5.00	-4.00	-5.00	-1.00	-2.00
		13	-4.00	-5.00	-4.00	-5.00	-1.00	-2.00
	802.11ac	1~2	13.50	12.50	13.50	12.50	16.50	15.50
		3~9	15.00	14.00	15.00	14.00	18.00	17.00
		10~11	13.00	12.00	13.00	12.00	16.00	15.00
		12	-4.00	-5.00	-4.00	-5.00	-1.00	-2.00
		13	-4.00	-5.00	-4.00	-5.00	-1.00	-2.00

Table 9.4.1 Nominal and Maximum Output Power Spec

Mode	Freq. (MHz)	Channel	IEEE 802.11 (2.4 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11b	2412	1	15.05	14.86	-	-
	2437	**6**	15.15	14.89	-	-
	2462	**11**	14.92	14.94	-	-
	2467	12	-4.24	-3.52	-	-
	2472	13	-4.25	-4.34	-	-
802.11g	2412	1	13.81	13.44	16.64	-
	2437	**6**	15.18	14.92	18.06	-
	2462	11	13.24	12.98	16.12	-
	2467	12	-5.71	-4.51	-2.06	-
	2472	13	-5.87	-5.01	-2.41	-
802.11n (HT-20)	2412	1	12.60	12.36	15.49	15.28
	2437	6	14.05	13.59	16.84	16.95
	2462	11	12.08	11.84	14.97	14.85
	2467	12	-5.74	-4.64	-2.14	-2.81
	2472	13	-5.30	-5.00	-2.14	-2.51
802.11ac (VHT-20)	2412	1	12.63	12.11	15.39	15.43
	2437	6	14.23	13.74	17.00	17.03
	2462	11	12.11	11.67	14.90	14.99
	2467	12	-5.89	-5.54	-2.70	-2.54
	2472	13	-5.74	-5.94	-2.83	-2.28

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	36-165	16.0	15.0	16.0	15.0	19.0	18.0
	802.11n/ac (20MHz)	36-165	15.0	14.0	15.0	14.0	18.0	17.0
	802.11n/ac (40MHz)	38-159	14.0	13.0	14.0	13.0	17.0	16.0
	802.11ac (80MHz)	42-155	13.0	12.0	13.0	12.0	16.0	15.0

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**	15.74	15.97	18.87	-
	5200	**40**	15.79	15.95	18.88	-
	5220	44	15.52	15.61	18.57	-
	5240	48	15.75	15.85	18.81	-
	5260	**52**	15.76	15.82	18.80	-
	5280	56	15.52	15.77	18.66	-
	5300	60	15.38	15.66	18.53	-
	5320	**64**	15.79	15.76	18.78	-
	5500	**100**	15.81	15.81	18.82	-
	5600	120	15.45	15.61	18.54	-
	5660	132	15.39	15.78	18.60	-
	5720	144	15.74	15.74	18.75	-
	5745	**149**	15.89	15.67	18.79	-
	5785	**157**	15.76	15.96	18.87	-
	5825	**165**	15.70	15.87	18.80	-

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	14.52	14.90	17.72	17.73
	5200	40	14.52	14.55	17.54	17.61
	5220	44	14.29	14.28	17.30	17.50
	5240	48	14.72	14.81	17.78	17.75
	5260	52	14.44	14.90	17.68	17.70
	5280	56	14.15	14.72	17.45	17.49
	5300	60	14.32	14.58	17.46	17.44
	5320	64	14.32	14.82	17.59	17.67
	5500	100	14.52	14.78	17.66	17.68
	5600	120	14.03	14.26	17.16	17.36
	5660	132	14.21	14.44	17.34	17.57
	5720	144	14.41	14.75	17.59	17.68
	5745	149	14.83	14.57	17.71	17.69
	5785	157	14.52	14.63	17.58	17.86
	5825	165	14.38	14.92	17.67	17.72

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	14.45	14.63	17.55	17.63
	5200	40	14.64	14.52	17.59	17.69
	5220	44	14.19	14.67	17.45	17.50
	5240	48	14.49	14.93	17.73	17.75
	5260	52	14.67	14.44	17.56	17.69
	5280	56	14.18	14.39	17.30	17.50
	5300	60	14.37	14.31	17.35	17.44
	5320	64	14.65	14.70	17.69	17.63
	5500	100	14.65	14.71	17.69	17.68
	5600	120	14.12	14.60	17.37	17.32
	5660	132	14.24	14.79	17.54	17.58
	5720	144	14.63	14.37	17.51	17.60
	5745	149	14.52	14.64	17.59	17.70
	5785	157	14.52	14.93	17.74	17.75
	5825	165	14.76	14.63	17.71	17.73

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	13.62	13.76	16.70	16.74
	5230	46	13.66	13.65	16.67	16.71
	5270	54	13.64	13.59	16.63	16.68
	5310	62	13.62	13.88	16.76	16.82
	5510	102	13.43	13.79	16.63	16.66
	5590	118	13.47	13.60	16.55	16.60
	5670	134	13.49	13.71	16.61	16.65
	5710	142	13.65	13.89	16.78	16.86
	5755	151	13.75	13.53	16.65	16.71
	5795	159	13.90	13.96	16.94	16.87

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	13.48	13.84	16.68	16.69
	5230	46	13.58	13.73	16.67	16.62
	5270	54	13.70	13.56	16.64	16.76
	5310	62	13.60	13.86	16.74	16.84
	5510	102	13.40	13.75	16.59	16.59
	5590	118	13.51	13.58	16.55	16.71
	5670	134	13.48	13.66	16.58	16.76
	5710	142	13.65	13.81	16.74	16.73
	5755	151	13.78	13.56	16.68	16.67
	5795	159	13.85	13.89	16.88	16.87

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	12.69	12.63	15.67	15.74
	5290	58	12.36	12.64	15.51	15.55
	5530	106	12.04	12.43	15.25	15.37
	5610	122	11.97	12.53	15.27	15.45
	5690	138	12.57	12.82	15.71	15.78
	5775	155	12.66	12.56	15.62	15.67

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/ac VHT20 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.

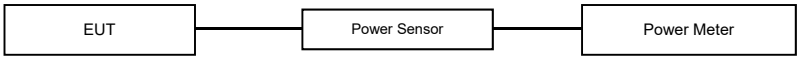


Figure 9.4 Power Measurement Setup

9.5 Bluetooth Conducted Powers

Burst Modulated Average[dBm]		
Bluetooth 1 Mbps	Maximum	11.0
	Nominal	10.0
Bluetooth 2 Mbps	Maximum	11.0
	Nominal	10.0
Bluetooth 3 Mbps	Maximum	11.0
	Nominal	10.0
Bluetooth LE	Maximum	6.5
	Nominal	5.5

Table 9.5.1 Nominal and Maximum Output Power Spec (Burst)

Frame Modulated Average[dBm]		
Bluetooth 1 Mbps	Maximum	9.85
	Nominal	8.85
Bluetooth 2 Mbps	Maximum	9.85
	Nominal	8.85
Bluetooth 3 Mbps	Maximum	9.85
	Nominal	8.85
Bluetooth (LE / 1Mbps)	Maximum	5.83
	Nominal	4.83
Bluetooth (LE / 2Mbps)	Maximum	4.09
	Nominal	3.09

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	10.54	9.39	9.97	8.82	9.98	8.83
Mid	2441	10.87	9.72	10.32	9.17	10.32	9.17
High	2480	9.82	8.67	9.27	8.12	9.27	8.12

Table 9.5.3 Bluetooth Burst and Frame Average RF Power

Channel	Frequency	Burst AVG Output Power(LE / 1Mbps)	Frame AVG Output Power(LE / 1Mbps)	Burst AVG Output Power(LE / 2Mbps)	Frame AVG Output Power(LE / 2Mbps)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)
Low	2402	5.18	4.51	5.15	2.74
Mid	2440	5.51	4.84	5.51	3.10
High	2480	4.60	3.93	4.62	2.21

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.

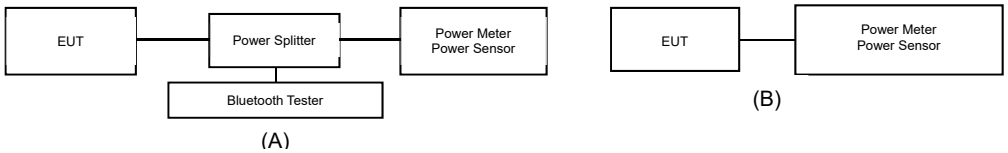


Figure 9.5.1 Average Power Measurement Setup

- **Bluetooth Transmission Plot**

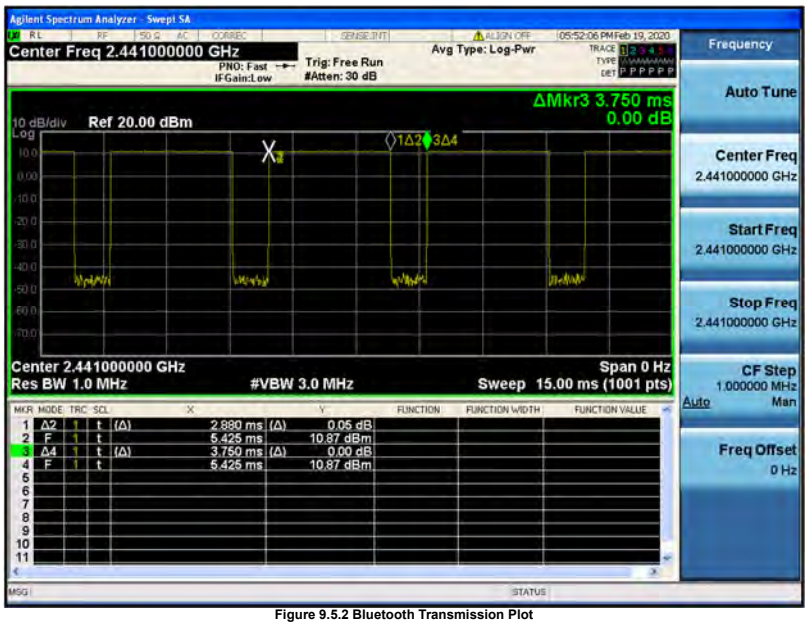


Figure 9.5.2 Bluetooth Transmission Plot

- **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 [%]
Feb. 13. 2020	750 Head	22.1	22.3	707.5	42.129	0.887	42.907	0.867	1.85	-2.25
				750.0	41.900	0.890	42.263	0.904	0.87	1.57
Feb. 13. 2020	750 Body	22.1	22.0	707.5	55.699	0.960	55.910	0.922	0.38	-3.96
				750.0	55.531	0.963	55.455	0.962	-0.14	-0.10
Feb. 10. 2020	835 Head	22.1	22.4	824.2	41.552	0.899	41.139	0.883	-0.99	-1.78
				826.4	41.542	0.899	41.118	0.884	-1.02	-1.67
				829.0	41.528	0.899	41.086	0.886	-1.06	-1.45
				835.0	41.500	0.900	41.013	0.891	-1.17	-1.00
				836.5	41.500	0.901	41.000	0.892	-1.20	-1.00
				836.6	41.500	0.901	41.000	0.892	-1.20	-1.00
				844.0	41.500	0.910	40.909	0.897	-1.42	-1.43
				846.6	41.500	0.912	40.873	0.899	-1.51	-1.43
				848.8	41.500	0.914	40.851	0.901	-1.56	-1.42
Feb. 11. 2020	835 Body	22.2	22.6	824.2	55.243	0.969	57.327	0.996	3.77	2.79
				826.4	55.235	0.969	57.305	0.997	3.75	2.89
				829.0	55.223	0.970	57.276	1.000	3.72	3.09
				835.0	55.200	0.970	57.222	1.004	3.66	3.51
				836.5	55.197	0.971	57.212	1.005	3.65	3.50
				836.6	55.197	0.971	57.213	1.006	3.65	3.60
				844.0	55.172	0.981	57.143	1.011	3.57	3.06
				846.6	55.166	0.984	57.134	1.012	3.57	2.85
				848.8	55.160	0.986	57.095	1.015	3.51	2.94
Feb. 12. 2020	1900 Head	21.5	21.7	1850.2	40.000	1.400	40.464	1.357	1.16	-3.07
				1880.0	40.000	1.400	40.361	1.384	0.90	-1.14
				1900.0	40.000	1.400	40.292	1.403	0.73	0.21
				1909.8	40.000	1.400	40.261	1.412	0.65	0.86
Feb. 12. 2020	1900 Body	21.5	21.3	1850.2	53.300	1.520	52.797	1.479	-0.94	-2.70
				1880.0	53.300	1.520	52.715	1.507	-1.10	-0.86
				1900.0	53.300	1.520	52.658	1.526	-1.20	0.39
				1909.8	53.300	1.520	52.635	1.534	-1.25	0.92
Feb. 12. 2020	2450 Head	21.2	21.1	2402.0	39.282	1.757	40.586	1.789	3.32	1.82
				2412.0	39.265	1.766	40.550	1.800	3.27	1.93
				2437.0	39.222	1.788	40.463	1.830	3.16	2.35
				2441.0	39.215	1.792	40.449	1.834	3.15	2.34
				2450.0	39.200	1.800	40.418	1.845	3.11	2.50
				2462.0	39.184	1.813	40.380	1.858	3.05	2.48
				2467.0	39.177	1.818	40.361	1.863	3.02	2.48
				2472.0	39.171	1.823	40.346	1.868	3.00	2.47
				2480.0	39.160	1.832	40.316	1.878	2.95	2.51
Feb. 14. 2020	2450 Body	22.2	22.0	2402.0	52.764	1.904	52.716	1.924	-0.09	1.05
				2412.0	52.751	1.914	52.665	1.939	-0.16	1.31
				2437.0	52.717	1.938	52.597	1.985	-0.23	2.43
				2441.0	52.712	1.941	52.587	1.992	-0.24	2.63
				2450.0	52.700	1.950	52.574	2.007	-0.24	2.92
				2462.0	52.685	1.967	52.550	2.025	-0.26	2.95
				2467.0	52.678	1.974	52.536	2.031	-0.27	2.89
				2472.0	52.672	1.981	52.522	2.037	-0.28	2.83
				2480.0	52.662	1.993	52.486	2.044	-0.33	2.56
Feb. 13. 2020	5200 Body	20.9	20.8	5180.0	49.041	5.276	47.446	5.105	-3.25	-3.24
				5190.0	49.028	5.288	47.385	5.118	-3.35	-3.21
				5200.0	49.014	5.299	47.343	5.138	-3.41	-3.04
				5210.0	49.001	5.311	47.322	5.163	-3.43	-2.79
				5220.0	48.987	5.323	47.316	5.189	-3.41	-2.52
				5230.0	48.974	5.334	47.308	5.213	-3.40	-2.27
				5240.0	48.960	5.346	47.288	5.232	-3.42	-2.13
Feb. 18. 2020	5300 Head	22.1	21.9	5260.0	35.940	4.720	36.370	4.704	1.20	-0.34
				5270.0	35.930	4.730	36.358	4.717	1.19	-0.27
				5280.0	35.920	4.740	36.350	4.727	1.20	-0.27
				5290.0	35.910	4.750	36.335	4.735	1.18	-0.32
				5300.0	35.900	4.760	36.309	4.746	1.14	-0.29
				5310.0	35.890	4.770	36.286	4.760	1.10	-0.21
				5320.0	35.880	4.780	36.272	4.772	1.09	-0.17
Feb. 24. 2020	5300 Body	21.9	22.1	5260.0	48.933	5.369	47.580	5.211	-2.77	-2.94
				5270.0	48.919	5.381	47.559	5.248	-2.78	-2.47
				5280.0	48.906	5.393	47.565	5.274	-2.74	-2.21
				5290.0	48.892	5.404	47.587	5.287	-2.67	-2.17
				5300.0	48.879	5.416	47.618	5.289	-2.58	-2.34
				5310.0	48.865	5.428	47.649	5.284	-2.49	-2.65
				5320.0	48.851	5.439	47.666	5.274	-2.43	-3.03
Feb. 20. 2020	5600 Head	21.8	21.5	5500.0	35.650	4.965	36.637	5.011	2.77	0.93
				5510.0	35.635	4.976	36.615	5.020	2.75	0.88
				5530.0	35.605	4.997	36.575	5.048	2.72	1.02
				5550.0	35.575	5.018	36.549	5.068	2.74	1.00
				5580.0	35.530	5.049	36.483	5.106	2.68	1.13
				5600.0	35.500	5.070	36.462	5.131	2.71	1.20
				5660.0	35.440	5.130	36.358	5.197	2.59	1.31
				5670.0	35.430	5.140	36.336	5.208	2.56	1.32
				5690.0	35.410	5.160	36.295	5.236	2.50	1.47
				5710.0	35.390	5.180	36.274	5.261	2.50	1.56
				5720.0	35.380	5.190	36.261	5.268	2.49	1.50
				5800.0	35.300	5.270	36.105	5.366	2.28	1.82
Feb. 25. 2020	5600 Body	20.6	20.9	5500.0	48.607	5.650	46.977	5.503	-3.35	-2.60
				5510.0	48.594	5.661	46.949	5.535	-3.39	-2.23
				5530.0	48.566	5.685	46.964	5.580	-3.30	-1.85
				5550.0	48.539	5.708	47.028	5.586	-3.11	-2.14
				5580.0	48.499	5.743	46.970	5.585	-3.15	-2.75
				5600.0	48.471	5.766	46.867	5.619	-3.31	-2.55
				5660.0	48.390	5.836	46.812	5.742	-3.26	-1.61
				5670.0	48.376	5.848	46.825	5.739	-3.21	-1.86
				5690.0	48.349	5.872	46.797	5.744	-3.21	-2.18
				5710.0	48.322	5.895	46.705	5.767	-3.35	-2.17
				5720.0	48.309	5.907	46.643	5.791	-3.45	-1.96
				5800.0	48.200	6.000	46.613	5.906	-3.29	-1.57
Feb. 21. 2020	5800 Head	20.3	20.5	5745.0	35.355	5.215	36.276	5.316	2.61	1.94
				5755.0	35.345	5.225	36.265	5.328	2.60	1.97
				5775.0	35.325	5.245	36.232	5.347	2.57	1.94
				5785.0	35.315	5.255	36.208	5.360	2.53	2.00
				5795.0	35.305	5.265	36.187	5.375	2.50	2.09
				5800.0	35.300	5.270	36.178	5.382	2.49	2.13
				5825.0	35.275	5.296	36.154	5.409	2.49	2.13
Feb. 26. 2020	5800 Body	20.1	20.7	5745.0	48.275	5.936	47.818	5.962	-0.95	0.44
				5755.0	48.261	5.947	47.798	5.979	-0.96	0.54
				5775.0	48.234	5.971	47.767	6.008	-0.97	0.62
				5785.0	48.220	5.982	47.748	6.023	-0.98	0.69
				5795.0	48.207	5.994	47.730	6.039	-0.99	0.75
				5800.0	48.200	6.000	47.722	6.047	-0.99	0.78
				5825.0	48.166	6.029	47.688	6.086	-0.99	0.95

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):

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

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	Feb. 13. 2020	Head	22.1	22.3	3933	250	8.47	2.06	8.24	-2.72
D	750	D750V3, SN:1049	Feb. 13. 2020	Body	22.1	22.0	3933	250	8.43	2.24	8.96	6.29
D	835	D835V2, SN:464	Feb. 10. 2020	Head	22.1	22.4	3933	250	9.59	2.49	9.96	3.86
D	835	D835V2, SN:464	Feb. 11. 2020	Body	22.2	22.6	3933	250	9.68	2.51	10.04	3.72
D	1900	D1900V2, SN:5d029	Feb. 12. 2020	Head	21.5	21.7	3933	100	40.4	4.11	41.10	1.73
D	1900	D1900V2, SN:5d029	Feb. 12. 2020	Body	21.5	21.3	3933	100	39.9	3.87	38.70	-3.01
C	2450	D2450V2, SN: 726	Feb. 12. 2020	Head	21.2	21.1	3930	100	51.2	5.14	51.40	0.39
D	2450	D2450V2, SN: 726	Feb. 14. 2020	Body	22.2	22.0	3933	100	52.0	5.03	50.30	-3.27
C	5200	D5GHzV2, SN:1103	Feb. 13. 2020	Body	20.9	20.8	3930	100	75.5	7.47	74.70	-1.06
F	5300	D5GHzV2, SN:1103	Feb. 18. 2020	Head	22.1	21.9	7368	100	82.4	7.84	78.40	-4.85
D	5300	D5GHzV2, SN:1103	Feb. 24. 2020	Body	21.9	22.1	3933	100	74.4	7.59	75.90	2.02
F	5500	D5GHzV2, SN:1103	Feb. 20. 2020	Head	21.8	21.5	7368	100	84.0	8.54	85.40	1.67
D	5500	D5GHzV2, SN:1103	Feb. 25. 2020	Body	20.6	20.9	3933	100	79.6	8.26	82.60	3.77
F	5800	D5GHzV2, SN:1103	Feb. 21. 2020	Head	20.3	20.5	7368	100	81.4	8.44	84.40	3.69
D	5800	D5GHzV2, SN:1103	Feb. 26. 2020	Body	20.1	20.7	3933	100	74.8	7.69	76.90	2.81

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 [%]
D	5300	D5GHzV2, SN:1103	Feb. 24. 2020	Body	21.9	22.1	3933	100	20.9	2.12	21.20	1.44
D	5500	D5GHzV2, SN:1103	Feb. 25. 2020	Body	20.6	20.9	3933	100	22.1	2.28	22.80	3.17
D	5800	D5GHzV2, SN:1103	Feb. 26. 2020	Body	20.1	20.7	3933	100	20.9	2.17	21.70	3.83

Note(s)
1. System Verification was measured with input 250 mW, 100 mW and normalized to 1W.
2. Full system validation status and results can be found in Appendix D.

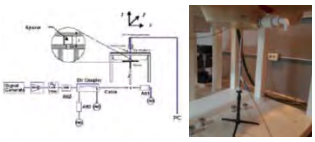


Figure 10.1 Dipole Verification Test Setup Diagram & Photo

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	Piezo 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	33.60	0.020	Left Touch	1	FCC #1	1	1:8.3	0.111	1.023	0.114	
836.6	190	GSM850	GSM	33.70	33.60	0.000	Right Touch	1	FCC #1	1	1:8.3	0.118	1.023	0.121	
836.6	190	GSM850	GSM	33.70	33.60	0.060	Right Touch	2	FCC #1	1	1:8.3	0.646	1.023	**0.661**	A1
836.6	190	GSM850	GSM	33.70	33.60	-0.160	Right Touch	3	FCC #1	1	1:8.3	0.462	1.023	0.473	
836.6	190	GSM850	GSM	33.70	33.60	0.170	Left Tilt	1	FCC #1	1	1:8.3	0.050	1.023	0.051	
836.6	190	GSM850	GSM	33.70	33.60	0.120	Right Tilt	1	FCC #1	1	1:8.3	0.058	1.023	0.059	
836.6	190	GSM850	GPRS	30.20	30.10	-0.020	Left Touch	1	FCC #1	3	1:2.77	0.156	1.023	0.160	
836.6	190	GSM850	GPRS	30.20	30.10	-0.100	Right Touch	1	FCC #1	3	1:2.77	0.159	1.023	0.163	
836.6	190	GSM850	GPRS	30.20	30.10	-0.130	Right Touch	2	FCC #1	3	1:2.77	0.651	1.023	**0.666**	A2
836.6	190	GSM850	GPRS	30.20	30.10	-0.160	Right Touch	3	FCC #1	3	1:2.77	0.505	1.023	0.517	
836.6	190	GSM850	GPRS	30.20	30.10	-0.140	Left Tilt	1	FCC #1	3	1:2.77	0.069	1.023	0.071	
836.6	190	GSM850	GPRS	30.20	30.10	0.070	Right Tilt	1	FCC #1	3	1:2.77	0.081	1.023	0.083	
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. Green entries represent additional Head SAR Test Position (Piezo Position #2) with the worst case position.
2. Orange entries represent additional Head SAR Test Position (Piezo Position #3) with the worst case position.

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	Piezo 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	30.20	30.10	0.000	Left Touch	1	FCC #1	1	1:8.3	0.039	1.023	0.040	
1880.0	661	PCS1900	PCS	30.20	30.10	0.000	Right Touch	1	FCC #1	1	1:8.3	0.066	1.023	0.068	
1880.0	661	PCS1900	PCS	30.20	30.10	0.000	Right Touch	2	FCC #1	1	1:8.3	0.193	1.023	**0.197**	A3
1880.0	661	PCS1900	PCS	30.20	30.10	0.000	Right Touch	3	FCC #1	1	1:8.3	0.192	1.023	0.196	
1880.0	661	PCS1900	PCS	30.20	30.10	0.000	Left Tilt	1	FCC #1	1	1:8.3	0.032	1.023	0.033	
1880.0	661	PCS1900	PCS	30.20	30.10	0.190	Right Tilt	1	FCC #1	1	1:8.3	0.015	1.023	0.015	
1880.0	661	PCS1900	GPRS	26.70	26.60	0.000	Left Touch	1	FCC #1	3	1:2.77	0.052	1.023	0.053	
1880.0	661	PCS1900	GPRS	26.70	26.60	0.000	Right Touch	1	FCC #1	3	1:2.77	0.101	1.023	0.103	
1880.0	661	PCS1900	GPRS	26.70	26.60	0.080	Right Touch	2	FCC #1	3	1:2.77	0.259	1.023	**0.265**	A4
1880.0	661	PCS1900	GPRS	26.70	26.60	0.000	Right Touch	3	FCC #1	3	1:2.77	0.258	1.023	0.264	
1880.0	661	PCS1900	GPRS	26.70	26.60	0.110	Left Tilt	1	FCC #1	3	1:2.77	0.046	1.023	0.047	
1880.0	661	PCS1900	GPRS	26.70	26.60	0.130	Right Tilt	1	FCC #1	3	1:2.77	0.022	1.023	0.023	
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. Green entries represent additional Head SAR Test Position (Piezo Position #2) with the worst case position.
2. Orange entries represent additional Head SAR Test Position (Piezo Position #3) with the worst case position.

Table 11.1.3 WCDMA 850 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Piezo Position	Device Serial Number	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #	
MHz	Ch														
836.6	4183	WCDMA 850	RMC	25.20	24.83	-0.160	Left Touch	1	FCC #1	1:1	0.156	1.089	0.170		
836.6	4183	WCDMA 850	RMC	25.20	24.83	-0.170	Right Touch	1	FCC #1	1:1	0.159	1.089	0.173		
836.6	4183	WCDMA 850	RMC	25.20	24.83	0.050	Right Touch	2	FCC #1	1:1	0.848	1.089	**0.923**	A5	
836.6	4183	WCDMA 850	RMC	25.20	24.83	0.150	Right Touch	3	FCC #1	1:1	0.749	1.089	0.816		
836.6	4183	WCDMA 850	RMC	25.20	24.83	-0.150	Left Tilt	1	FCC #1	1:1	0.074	1.089	0.081		
836.6	4183	WCDMA 850	RMC	25.20	24.83	-0.090	Right Tilt	1	FCC #1	1:1	0.075	1.089	0.082		
836.6	4183	WCDMA 850	RMC	25.20	24.83	0.020	Right Touch	2	FCC #1	1:1	0.844	1.089	0.919		
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. Green entries represent additional Head SAR Test Position (Piezo Position #2) with the worst case position.
2. Orange entries represent additional Head SAR Test Position (Piezo Position #3) with the worst case position.
3. Blue entries represent variability measurements.

Table 11.1.4 LTE Band 12 Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Piezo 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	25.20	25.06	-0.010	0	Left Touch	1	FCC #1	QPSK	1	25	1:1	0.106	1.033	0.109	
707.5	23095	LTE B12	10	24.20	24.14	0.070	1	Left Touch	1	FCC #1	QPSK	25	12	1:1	0.087	1.014	0.088	
707.5	23095	LTE B12	10	25.20	25.06	0.070	0	Right Touch	1	FCC #1	QPSK	1	25	1:1	0.165	1.033	0.170	
707.5	23095	LTE B12	10	25.20	25.06	0.170	0	Right Touch	2	FCC #1	QPSK	1	25	1:1	0.537	1.033	**0.555**	A6
707.5	23095	LTE B12	10	25.20	25.06	0.190	0	Right Touch	3	FCC #1	QPSK	1	25	1:1	0.484	1.033	0.500	
707.5	23095	LTE B12	10	24.20	24.14	0.040	1	Right Touch	1	FCC #1	QPSK	25	12	1:1	0.135	1.014	0.137	
707.5	23095	LTE B12	10	25.20	25.06	-0.160	0	Left Tilt	1	FCC #1	QPSK	1	25	1:1	0.080	1.033	0.083	
707.5	23095	LTE B12	10	24.20	24.14	0.060	1	Left Tilt	1	FCC #1	QPSK	25	12	1:1	0.064	1.014	0.065	
707.5	23095	LTE B12	10	25.20	25.06	0.070	0	Right Tilt	1	FCC #1	QPSK	1	25	1:1	0.081	1.033	0.084	
707.5	23095	LTE B12	10	24.20	24.14	0.100	1	Right Tilt	1	FCC #1	QPSK	25	12	1:1	0.072	1.014	0.073	
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. Green entries represent additional Head SAR Test Position (Piezo Position #2) with the worst case position.
2. Orange entries represent additional Head SAR Test Position (Piezo Position #3) with the worst case position.

Table 11.1.5 LTE Band 5 (Cell) Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Piezo 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																	
836.5	20525	LTE B5	10	25.20	25.09	0.060	0	Left Touch	1	FCC #1	QPSK	1	0	1:1	0.141	1.026	0.145	
836.5	20525	LTE B5	10	24.20	24.19	-0.080	1	Left Touch	1	FCC #1	QPSK	25	12	1:1	0.113	1.002	0.113	
836.5	20525	LTE B5	10	25.20	25.09	0.150	0	Right Touch	1	FCC #1	QPSK	1	0	1:1	0.254	1.026	0.261	
836.5	20525	LTE B5	10	25.20	25.09	-0.090	0	Right Touch	2	FCC #1	QPSK	1	0	1:1	0.870	1.026	**0.893**	A7
836.5	20525	LTE B5	10	25.20	25.09	0.130	0	Right Touch	3	FCC #1	QPSK	1	0	1:1	0.802	1.026	0.823	
836.5	20525	LTE B5	10	24.20	24.19	0.100	1	Right Touch	1	FCC #1	QPSK	25	12	1:1	0.191	1.002	0.191	
836.5	20525	LTE B5	10	25.20	25.09	-0.050	0	Left Tilt	1	FCC #1	QPSK	1	0	1:1	0.079	1.026	0.081	
836.5	20525	LTE B5	10	24.20	24.19	-0.140	1	Left Tilt	1	FCC #1	QPSK	25	12	1:1	0.059	1.002	0.059	
836.5	20525	LTE B5	10	25.20	25.09	0.050	0	Right Tilt	1	FCC #1	QPSK	1	0	1:1	0.098	1.026	0.101	
836.5	20525	LTE B5	10	24.20	24.19	0.110	1	Right Tilt	1	FCC #1	QPSK	25	12	1:1	0.061	1.002	0.061	
836.5	20525	LTE B5	10	25.20	25.09	-0.050	0	Right Touch	2	FCC #1	QPSK	1	0	1:1	0.865	1.026	0.887	
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. Green entries represent additional Head SAR Test Position (Piezo Position #2) with the worst case position.
2. Orange entries represent additional Head SAR Test Position (Piezo Position #3) with the worst case position.
3. Blue entries represent variability measurements.

Table 11.1.6 DTS Head SAR

MEASUREMENT RESULTS																
FREQUENCY MHz	Ch	Mode (Antenna)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Piezo 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 #
2437.0	6	802.11b (Ant.1)	16.00	15.15	0.170	Left Touch	1	FCC #2	0.061	1	99.0	0.057	1.216	1.010	0.070	
2437.0	6	802.11b (Ant.1)	16.00	15.15	0.180	Right Touch	1	FCC #2	0.400	1	99.0	0.388	1.216	1.010	**0.477**	A8
2437.0	6	802.11b (Ant.1)	16.00	15.15	0.040	Right Touch	2	FCC #2	0.238	1	99.0	0.246	1.216	1.010	0.302	
2437.0	6	802.11b (Ant.1)	16.00	15.15	0.070	Right Touch	3	FCC #2	0.236	1	99.0	0.268	1.216	1.010	0.329	
2437.0	6	802.11b (Ant.1)	16.00	15.15	0.150	Left Tilt	1	FCC #2	0.034	1	99.0	0.031	1.216	1.010	0.038	
2437.0	6	802.11b (Ant.1)	16.00	15.15	0.050	Right Tilt	1	FCC #2	0.185	1	99.0	0.179	1.216	1.010	0.220	
2462.0	11	802.11b (Ant.2)	16.00	14.94	0.040	Left Touch	1	FCC #2	0.092	1	98.9	0.077	1.276	1.011	0.099	
2462.0	11	802.11b (Ant.2)	16.00	14.94	-0.090	Right Touch	1	FCC #2	0.179	1	98.9	0.169	1.276	1.011	**0.218**	A9
2462.0	11	802.11b (Ant.2)	16.00	14.94	0.000	Right Touch	2	FCC #2	0.080	1	98.9	0.076	1.276	1.011	0.098	
2462.0	11	802.11b (Ant.2)	16.00	14.94	0.110	Right Touch	3	FCC #2	0.077	1	98.9	0.079	1.276	1.011	0.102	
2462.0	11	802.11b (Ant.2)	16.00	14.94	0.020	Left Tilt	1	FCC #2	0.124	1	98.9	0.108	1.276	1.011	0.139	
2462.0	11	802.11b (Ant.2)	16.00	14.94	0.040	Right Tilt	1	FCC #2	0.173	1	98.9	0.161	1.276	1.011	0.208	
2437.0	6	802.11g (MIMO)	19.00	18.06	0.190	Left Touch	1	FCC #2	0.080	1	97.9	0.069	1.276	1.021	0.090	
2437.0	6	802.11g (MIMO)	19.00	18.06	-0.030	Right Touch	1	FCC #2	0.427	1	97.9	0.403	1.276	1.021	**0.525**	A10
2437.0	6	802.11g (MIMO)	19.00	18.06	0.170	Right Touch	2	FCC #2	0.253	1	97.9	0.246	1.276	1.021	0.321	
2437.0	6	802.11g (MIMO)	19.00	18.06	-0.170	Right Touch	3	FCC #2	0.251	1	97.9	0.274	1.276	1.021	0.357	
2437.0	6	802.11g (MIMO)	19.00	18.06	0.080	Left Tilt	1	FCC #2	0.099	1	97.9	0.078	1.276	1.021	0.102	
2437.0	6	802.11g (MIMO)	19.00	18.06	0.140	Right Tilt	1	FCC #2	0.264	1	97.9	0.254	1.276	1.021	0.331	
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. Green entries represent additional Head SAR Test Position (Piezo Position #2) with the worst case position.
2. Orange entries represent additional Head SAR Test Position (Piezo Position #3) with the worst case position.

Adjusted SAR results for OFDM SAR												
FREQUENCY MHz	Ch	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
2437.0	6	802.11b (Ant.1)	DSSS	16.0	0.477	2437	802.11g	OFDM	16.0	1.000	**0.477**	X
2437.0	6	802.11b (Ant.1)	DSSS	16.0	0.477	2437	802.11n	OFDM	15.0	0.794	**0.379**	X
2437.0	6	802.11b (Ant.1)	DSSS	16.0	0.477	2437	802.11ac	OFDM	15.0	0.794	**0.379**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.0	0.218	2437	802.11g	OFDM	16.0	1.000	**0.218**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.0	0.218	2437	802.11n	OFDM	15.0	0.794	**0.173**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.0	0.218	2437	802.11ac	OFDM	15.0	0.794	**0.173**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.525	2437	802.11n	OFDM	18.0	0.794	**0.417**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.525	2437	802.11ac	OFDM	18.0	0.794	**0.417**	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 11.1.7 UNII Head SAR

MEASUREMENT RESULTS																
FREQUENCY MHz	Ch	Mode (Antenna)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Piezo 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 #
5320.0	64	802.11a (Ant.1)	16.00	15.79	-0.030	Left Touch	1	FCC #2	0.007	6	98.1	0.010	1.049	1.019	0.011	
5320.0	64	802.11a (Ant.1)	16.00	15.79	0.000	Right Touch	1	FCC #2	0.015	6	98.1	0.022	1.049	1.019	**0.024**	A11
5320.0	64	802.11a (Ant.1)	16.00	15.79	0.000	Right Touch	2	FCC #2	0.002	6	98.1	0.004	1.049	1.019	0.004	
5320.0	64	802.11a (Ant.1)	16.00	15.79	0.000	Right Touch	3	FCC #2	0.002	6	98.1	0.006	1.049	1.019	0.006	
5320.0	64	802.11a (Ant.1)	16.00	15.79	0.000	Left Tilt	1	FCC #2	0.003	6	98.1	0.007	1.049	1.019	0.007	
5320.0	64	802.11a (Ant.1)	16.00	15.79	0.000	Right Tilt	1	FCC #2	0.012	6	98.1	0.019	1.049	1.019	0.020	
5260.0	52	802.11a (Ant.2)	16.00	15.82	0.170	Left Touch	1	FCC #2	0.327	6	97.6	0.304	1.042	1.025	0.325	
5260.0	52	802.11a (Ant.2)	16.00	15.82	0.070	Right Touch	1	FCC #2	0.430	6	97.6	0.412	1.042	1.025	**0.440**	A12
5260.0	52	802.11a (Ant.2)	16.00	15.82	0.040	Right Touch	2	FCC #2	0.129	6	97.6	0.075	1.042	1.025	0.080	
5260.0	52	802.11a (Ant.2)	16.00	15.82	-0.160	Right Touch	3	FCC #2	0.155	6	97.6	0.115	1.042	1.025	0.123	
5260.0	52	802.11a (Ant.2)	16.00	15.82	0.160	Left Tilt	1	FCC #2	0.270	6	97.6	0.277	1.042	1.025	0.296	
5260.0	52	802.11a (Ant.2)	16.00	15.82	0.160	Right Tilt	1	FCC #2	0.367	6	97.6	0.388	1.042	1.025	0.414	
5260.0	52	802.11a (MIMO)	19.00	18.80	0.180	Left Touch	1	FCC #2	0.322	6	97.6	0.336	1.049	1.025	0.361	
5260.0	52	802.11a (MIMO)	19.00	18.80	0.020	Right Touch	1	FCC #2	0.464	6	97.6	0.449	1.049	1.025	**0.483**	A13
5260.0	52	802.11a (MIMO)	19.00	18.80	0.110	Right Touch	2	FCC #2	0.154	6	97.6	0.149	1.049	1.025	0.160	
5260.0	52	802.11a (MIMO)	19.00	18.80	-0.130	Right Touch	3	FCC #2	0.165	6	97.6	0.160	1.049	1.025	0.172	
5260.0	52	802.11a (MIMO)	19.00	18.80	0.180	Left Tilt	1	FCC #2	0.316	6	97.6	0.307	1.049	1.025	0.330	
5260.0	52	802.11a (MIMO)	19.00	18.80	0.150	Right Tilt	1	FCC #2	0.454	6	97.6	0.444	1.049	1.025	0.477	
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. Green entries represent additional Head SAR Test Position (Piezo Position #2) with the worst case position.
2. Orange entries represent additional Head SAR Test Position (Piezo Position #3) with the worst case position.

Adjusted SAR results for UNII-1 and UNII-2A SAR												
FREQUENCY MHz	Ch	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
5320.0	64	802.11a (Ant.1)	OFDM	16.0	0.024	5240	802.11a	OFDM	16.0	1.000	**0.024**	X
5260.0	52	802.11a (Ant.2)	OFDM	16.0	0.440	5180	802.11a	OFDM	16.0	1.000	**0.440**	X
5260.0	52	802.11a (MIMO)	OFDM	19.0	0.483	5240	802.11a	OFDM	19.0	1.000	**0.483**	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: 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 11.1.8 UNII Head SAR

MEASUREMENT RESULTS																
FREQUENCY MHz	Ch	Mode (Antenna)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Piezo 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 #
5500.0	100	802.11a (Ant.1)	16.00	15.81	0.090	Left Touch	1	FCC #2	0.080	6	98.1	0.066	1.046	1.019	0.070	
5500.0	100	802.11a (Ant.1)	16.00	15.81	0.000	Right Touch	1	FCC #2	0.096	6	98.1	0.078	1.046	1.019	**0.083**	A14
5500.0	100	802.11a (Ant.1)	16.00	15.81	0.000	Right Touch	2	FCC #2	0.014	6	98.1	0.010	1.046	1.019	0.011	
5500.0	100	802.11a (Ant.1)	16.00	15.81	0.000	Right Touch	3	FCC #2	0.040	6	98.1	0.016	1.046	1.019	0.017	
5500.0	100	802.11a (Ant.1)	16.00	15.81	0.190	Left Tilt	1	FCC #2	0.047	6	98.1	0.027	1.046	1.019	0.029	
5500.0	100	802.11a (Ant.1)	16.00	15.81	0.000	Right Tilt	1	FCC #2	0.079	6	98.1	0.036	1.046	1.019	0.038	
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.050	Left Touch	1	FCC #2	0.414	6	97.6	0.268	1.045	1.025	0.287	
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.080	Right Touch	1	FCC #2	0.376	6	97.6	0.333	1.045	1.025	**0.357**	A15
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.050	Right Touch	2	FCC #2	0.138	6	97.6	0.094	1.045	1.025	0.101	
5500.0	100	802.11a (Ant.2)	16.00	15.81	-0.180	Right Touch	3	FCC #2	0.113	6	97.6	0.109	1.045	1.025	0.117	
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.160	Left Tilt	1	FCC #2	0.259	6	97.6	0.254	1.045	1.025	0.272	
5500.0	100	802.11a (Ant.2)	16.00	15.81	-0.080	Right Tilt	1	FCC #2	0.325	6	97.6	0.294	1.045	1.025	0.315	
5500.0	100	802.11a (MIMO)	19.00	18.82	0.000	Left Touch	1	FCC #2	0.388	6	97.6	0.344	1.046	1.025	0.369	
5500.0	100	802.11a (MIMO)	19.00	18.82	-0.120	Right Touch	1	FCC #2	0.484	6	97.6	0.426	1.046	1.025	**0.457**	A16
5500.0	100	802.11a (MIMO)	19.00	18.82	0.040	Right Touch	2	FCC #2	0.130	6	97.6	0.100	1.046	1.025	0.107	
5500.0	100	802.11a (MIMO)	19.00	18.82	0.030	Right Touch	3	FCC #2	0.128	6	97.6	0.102	1.046	1.025	0.109	
5500.0	100	802.11a (MIMO)	19.00	18.82	0.060	Left Tilt	1	FCC #2	0.289	6	97.6	0.263	1.046	1.025	0.282	
5500.0	100	802.11a (MIMO)	19.00	18.82	0.019	Right Tilt	1	FCC #2	0.387	6	97.6	0.332	1.046	1.025	0.356	
5745.0	149	802.11a (Ant.1)	16.00	15.89	-0.090	Left Touch	1	FCC #2	0.021	6	98.1	0.017	1.025	1.019	0.018	
5745.0	149	802.11a (Ant.1)	16.00	15.89	0.000	Right Touch	1	FCC #2	0.045	6	98.1	0.047	1.025	1.019	**0.049**	A17
5745.0	149	802.11a (Ant.1)	16.00	15.89	0.000	Right Touch	2	FCC #2	0.003	6	98.1	0.008	1.025	1.019	0.008	
5745.0	149	802.11a (Ant.1)	16.00	15.89	0.000	Right Touch	3	FCC #2	0.010	6	98.1	0.015	1.025	1.019	0.016	
5745.0	149	802.11a (Ant.1)	16.00	15.89	-0.060	Left Tilt	1	FCC #2	0.034	6	98.1	0.011	1.025	1.019	0.011	
5745.0	149	802.11a (Ant.1)	16.00	15.89	0.000	Right Tilt	1	FCC #2	0.053	6	98.1	0.037	1.025	1.019	0.039	
5785.0	157	802.11a (Ant.2)	16.00	15.96	-0.150	Left Touch	1	FCC #2	0.308	6	97.6	0.312	1.009	1.025	0.323	
5785.0	157	802.11a (Ant.2)	16.00	15.96	-0.190	Right Touch	1	FCC #2	0.353	6	97.6	0.358	1.009	1.025	**0.370**	A18
5785.0	157	802.11a (Ant.2)	16.00	15.96	0.050	Right Touch	2	FCC #2	0.106	6	97.6	0.088	1.009	1.025	0.091	
5785.0	157	802.11a (Ant.2)	16.00	15.96	-0.020	Right Touch	3	FCC #2	0.106	6	97.6	0.095	1.009	1.025	0.098	
5785.0	157	802.11a (Ant.2)	16.00	15.96	0.190	Left Tilt	1	FCC #2	0.299	6	97.6	0.269	1.009	1.025	0.278	
5785.0	157	802.11a (Ant.2)	16.00	15.96	0.090	Right Tilt	1	FCC #2	0.384	6	97.6	0.331	1.009	1.025	0.342	
5785.0	157	802.11a (MIMO)	19.00	18.87	0.120	Left Touch	1	FCC #2	0.357	6	97.6	0.324	1.030	1.025	0.342	
5785.0	157	802.11a (MIMO)	19.00	18.87	0.160	Right Touch	1	FCC #2	0.372	6	97.6	0.412	1.030	1.025	**0.435**	A19
5785.0	157	802.11a (MIMO)	19.00	18.87	0.110	Right Touch	2	FCC #2	0.114	6	97.6	0.055	1.030	1.025	0.058	
5785.0	157	802.11a (MIMO)	19.00	18.87	0.180	Right Touch	3	FCC #2	0.119	6	97.6	0.083	1.030	1.025	0.088	
5785.0	157	802.11a (MIMO)	19.00	18.87	0.030	Left Tilt	1	FCC #2	0.307	6	97.6	0.271	1.030	1.025	0.286	
5785.0	157	802.11a (MIMO)	19.00	18.87	0.040	Right Tilt	1	FCC #2	0.441	6	97.6	0.365	1.030	1.025	0.385	
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. Green entries represent additional Head SAR Test Position (Piezo Position #2) with the worst case position.
2. Orange entries represent additional Head SAR Test Position (Piezo Position #3) with the worst case position.

Table 11.1.9 Bluetooth Head SAR

MEASUREMENT RESULTS															
FREQUENCY MHz	Ch	Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Piezo Position	Device Serial Number	Rate [Mbps]	Duty Cycle (%)	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
2441.0	39	Bluetooth	9.85	9.72	0.000	Left Touch	1	FCC #2	1	76.8	0.022	1.030	1.302	0.030	
2441.0	39	Bluetooth	9.85	9.72	0.000	Right Touch	1	FCC #2	1	76.8	0.166	1.030	1.302	**0.223**	A20
2441.0	39	Bluetooth	9.85	9.72	0.000	Right Touch	2	FCC #2	1	76.8	0.109	1.030	1.302	0.146	
2441.0	39	Bluetooth	9.85	9.72	0.000	Right Touch	3	FCC #2	1	76.8	0.116	1.030	1.302	0.156	
2441.0	39	Bluetooth	9.85	9.72	0.000	Left Tilt	1	FCC #2	1	76.8	0.010	1.030	1.302	0.013	
2441.0	39	Bluetooth	9.85	9.72	0.020	Right Tilt	1	FCC #2	1	76.8	0.072	1.030	1.302	0.097	
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. Green entries represent additional Head SAR Test Position (Piezo Position #2) with the worst case position.
2. Orange entries represent additional Head SAR Test Position (Piezo Position #3) with the worst case position.

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	33.60	-0.040	10 mm [Front]	FCC #1	1	1:8.3	0.404	1.023	0.413	
836.6	190	GSM850	GSM	33.70	33.60	-0.000	10 mm [Rear]	FCC #1	1	1:8.3	0.676	1.023	**0.692**	A21
836.6	190	GSM850	GPRS	30.20	30.10	-0.040	10 mm [Front]	FCC #1	3	1:2.77	0.419	1.023	0.429	
836.6	190	GSM850	GPRS	30.20	30.10	-0.060	10 mm [Rear]	FCC #1	3	1:2.77	0.686	1.023	**0.702**	A22
1880.0	661	PCS1900	PCS	30.20	30.10	0.120	10 mm [Front]	FCC #1	1	1:8.3	0.147	1.023	0.150	
1880.0	661	PCS1900	PCS	30.20	30.10	0.060	10 mm [Rear]	FCC #1	1	1:8.3	0.217	1.023	**0.222**	A23
1880.0	661	PCS1900	GPRS	26.70	26.60	0.030	10 mm [Front]	FCC #1	3	1:2.77	0.185	1.023	0.189	
1880.0	661	PCS1900	GPRS	26.70	26.60	0.030	10 mm [Rear]	FCC #1	3	1:2.77	0.269	1.023	**0.275**	A24
836.6	4183	WCDMA 850	RMC	25.20	24.83	-0.010	10 mm [Front]	FCC #1	N/A	1:1	0.540	1.089	0.588	
826.4	4132	WCDMA 850	RMC	25.20	24.89	0.120	10 mm [Rear]	FCC #1	N/A	1:1	0.801	1.074	0.860	
836.6	4183	WCDMA 850	RMC	25.20	24.83	-0.010	10 mm [Rear]	FCC #1	N/A	1:1	0.889	1.089	**0.968**	A25
846.6	4233	WCDMA 850	RMC	25.20	24.86	0.140	10 mm [Rear]	FCC #1	N/A	1:1	0.873	1.081	0.944	
836.6	4183	WCDMA 850	RMC	25.20	24.83	0.140	10 mm [Rear]	FCC #1	N/A	1:1	0.866	1.089	0.943	
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: Blue entries represent variability measurements.

Table 11.2.2 LTE B12, B5 Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Maximum 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	25.20	25.06	-0.030	0	10 mm [Front]	FCC #1	QPSK	1	25	1:1	0.299	1.033	0.309	
707.5	23095	LTE B12	10	24.20	24.14	-0.030	1	10 mm [Front]	FCC #1	QPSK	25	12	1:1	0.251	1.014	0.255	
707.5	23095	LTE B12	10	25.20	25.06	-0.020	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.495	1.033	**0.511**	A26
707.5	23095	LTE B12	10	24.20	24.14	-0.050	1	10 mm [Rear]	FCC #1	QPSK	25	12	1:1	0.417	1.014	0.423	
836.5	20525	LTE B5	10	25.20	25.09	-0.080	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.610	1.026	0.626	
836.5	20525	LTE B5	10	24.20	24.19	-0.010	1	10 mm [Front]	FCC #1	QPSK	25	12	1:1	0.497	1.002	0.498	
836.5	20525	LTE B5	10	25.20	25.09	0.020	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	1.040	1.026	**1.067**	A27
836.5	20525	LTE B5	10	24.20	24.19	-0.060	1	10 mm [Rear]	FCC #1	QPSK	25	12	1:1	0.837	1.002	0.839	
836.5	20525	LTE B5	10	24.20	24.13	-0.080	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.835	1.016	0.848	
836.5	20525	LTE B5	10	25.20	25.09	-0.040	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.998	1.026	1.024	
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: Blue entries represent variability measurements.

Table 11.2.3 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)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
2437.0	6	802.11b (Ant.1)	16.00	15.15	-0.120	10 mm [Front]	FCC #2	0.066	1	99.0	0.066	1.216	1.010	0.081	
2437.0	6	802.11b (Ant.1)	16.00	15.15	0.050	10 mm [Rear]	FCC #2	0.151	1	99.0	0.157	1.216	1.010	**0.193**	A28
2462.0	11	802.11b (Ant.2)	16.00	14.94	0.150	10 mm [Front]	FCC #2	0.054	1	98.9	0.031	1.276	1.011	0.040	
2462.0	11	802.11b (Ant.2)	16.00	14.94	-0.000	10 mm [Rear]	FCC #2	0.048	1	98.9	0.044	1.276	1.011	**0.057**	A29
2437.0	6	802.11g (MIMO)	19.00	18.06	-0.160	10 mm [Front]	FCC #2	0.091	1	97.9	0.093	1.276	1.021	0.121	
2437.0	6	802.11g (MIMO)	19.00	18.06	-0.100	10 mm [Rear]	FCC #2	0.143	1	97.9	0.157	1.276	1.021	**0.205**	A30
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											
2437.0	6	802.11b (Ant.1)	DSSS	16.0	0.193	2437	802.11g	OFDM	16.0	1.000	**0.193**	X
2437.0	6	802.11b (Ant.1)	DSSS	16.0	0.193	2437	802.11n	OFDM	15.0	0.794	**0.153**	X
2437.0	6	802.11b (Ant.1)	DSSS	16.0	0.193	2437	802.11ac	OFDM	15.0	0.794	**0.153**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.0	0.057	2437	802.11g	OFDM	16.0	1.000	**0.057**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.0	0.057	2437	802.11n	OFDM	15.0	0.794	**0.045**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.0	0.057	2437	802.11ac	OFDM	15.0	0.794	**0.045**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.205	2437	802.11n	OFDM	18.0	0.794	**0.163**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.205	2437	802.11ac	OFDM	18.0	0.794	**0.163**	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 11.2.4 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														
5320.0	64	802.11a (Ant.1)	16.00	15.79	0.000	10 mm [Front]	FCC #2	0.004	6	98.1	0.003	1.049	1.019	0.003	
5320.0	64	802.11a (Ant.1)	16.00	15.79	-0.050	10 mm [Rear]	FCC #2	0.144	6	98.1	0.144	1.049	1.019	**0.154**	A31
5260.0	52	802.11a (Ant.2)	16.00	15.82	-0.020	10 mm [Front]	FCC #2	0.035	6	97.6	0.031	1.042	1.025	**0.033**	A32
5260.0	52	802.11a (Ant.2)	16.00	15.82	-0.180	10 mm [Rear]	FCC #2	0.030	6	97.6	0.022	1.042	1.025	0.023	
5260.0	52	802.11a (MIMO)	19.00	18.80	0.080	10 mm [Front]	FCC #2	0.035	6	97.6	0.032	1.049	1.025	0.034	
5260.0	52	802.11a (MIMO)	19.00	18.80	-0.010	10 mm [Rear]	FCC #2	0.134	6	97.6	0.170	1.049	1.025	**0.183**	A33
ANSI / IEEE C95.1-2005– 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											
5320.0	64	802.11a (Ant.1)	OFDM	16.0	0.154	5240	802.11a	OFDM	16.0	1.000	**0.154**	X
5260.0	52	802.11a (Ant.2)	OFDM	16.0	0.033	5180	802.11a	OFDM	16.0	1.000	**0.033**	X
5260.0	52	802.11a (MIMO)	OFDM	19.0	0.183	5240	802.11a	OFDM	19.0	1.000	**0.183**	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: 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 11.2.5 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														
5500.0	100	802.11a (Ant.1)	16.00	15.81	0.000	10 mm [Front]	FCC #2	0.001	6	98.1	0.002	1.046	1.019	0.002	
5500.0	100	802.11a (Ant.1)	16.00	15.81	-0.130	10 mm [Rear]	FCC #2	0.131	6	98.1	0.132	1.046	1.019	**0.141**	A34
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.000	10 mm [Front]	FCC #2	0.026	6	97.6	0.015	1.045	1.025	0.016	
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.000	10 mm [Rear]	FCC #2	0.036	6	97.6	0.020	1.045	1.025	**0.021**	A35
5500.0	100	802.11a (MIMO)	19.00	18.82	0.000	10 mm [Front]	FCC #2	0.024	6	97.6	0.016	1.046	1.025	0.017	
5500.0	100	802.11a (MIMO)	19.00	18.82	-0.060	10 mm [Rear]	FCC #2	0.136	6	97.6	0.141	1.046	1.025	**0.151**	A36
5745.0	149	802.11a (Ant.1)	16.00	15.89	-0.030	10 mm [Front]	FCC #2	0.032	6	98.1	0.016	1.025	1.019	0.017	
5745.0	149	802.11a (Ant.1)	16.00	15.89	-0.030	10 mm [Rear]	FCC #2	0.090	6	98.1	0.081	1.025	1.019	**0.085**	A37
5785.0	157	802.11a (Ant.2)	16.00	15.96	0.130	10 mm [Front]	FCC #2	0.024	6	97.6	0.014	1.009	1.025	0.014	
5785.0	157	802.11a (Ant.2)	16.00	15.96	-0.100	10 mm [Rear]	FCC #2	0.084	6	97.6	0.062	1.009	1.025	**0.064**	A38
5785.0	157	802.11a (MIMO)	19.00	18.87	0.000	10 mm [Front]	FCC #2	0.021	6	97.6	0.017	1.030	1.025	0.018	
5785.0	157	802.11a (MIMO)	19.00	18.87	-0.020	10 mm [Rear]	FCC #2	0.138	6	97.6	0.130	1.030	1.025	**0.137**	A39
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 11.2.6 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	9.85	9.72	0.020	10 mm [Front]	FCC #2	1	76.8	0.024	1.030	1.302	0.032	
2441.0	39	Bluetooth	9.85	9.72	0.110	10 mm [Rear]	FCC #2	1	76.8	0.049	1.030	1.302	**0.066**	A40
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 MHz	FREQUENCY Ch	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
836.6	190	GSM850	GPRS	30.20	30.10	-0.150	10 mm [Bottom]	FCC #1	3	1:2.77	0.195	1.023	0.199	
836.6	190	GSM850	GPRS	30.20	30.10	-0.040	10 mm [Front]	FCC #1	3	1:2.77	0.419	1.023	0.429	
836.6	190	GSM850	GPRS	30.20	30.10	-0.060	10 mm [Rear]	FCC #1	3	1:2.77	0.686	1.023	**0.702**	A22
836.6	190	GSM850	GPRS	30.20	30.10	0.150	10 mm [Right]	FCC #1	3	1:2.77	0.320	1.023	0.327	
1880.0	661	PCS1900	GPRS	26.70	26.60	-0.030	10 mm [Bottom]	FCC #1	3	1:2.77	0.510	1.023	**0.522**	A41
1880.0	661	PCS1900	GPRS	26.70	26.60	0.030	10 mm [Front]	FCC #1	3	1:2.77	0.185	1.023	0.189	
1880.0	661	PCS1900	GPRS	26.70	26.60	0.030	10 mm [Rear]	FCC #1	3	1:2.77	0.269	1.023	0.275	
1880.0	661	PCS1900	GPRS	26.70	26.60	-0.050	10 mm [Right]	FCC #1	3	1:2.77	0.042	1.023	0.043	
1880.0	661	PCS1900	GPRS	26.70	26.60	0.000	10 mm [Left]	FCC #1	3	1:2.77	0.069	1.023	0.071	
836.6	4183	WCDMA 850	RMC	25.20	24.83	-0.160	10 mm [Bottom]	FCC #1	N/A	1:1	0.268	1.089	0.292	
836.6	4183	WCDMA 850	RMC	25.20	24.83	-0.010	10 mm [Front]	FCC #1	N/A	1:1	0.540	1.089	0.588	
826.4	4132	WCDMA 850	RMC	25.20	24.89	0.120	10 mm [Rear]	FCC #1	N/A	1:1	0.801	1.074	0.860	
836.6	4183	WCDMA 850	RMC	25.20	24.83	-0.010	10 mm [Rear]	FCC #1	N/A	1:1	0.889	1.089	**0.968**	A25
846.6	4233	WCDMA 850	RMC	25.20	24.86	0.140	10 mm [Rear]	FCC #1	N/A	1:1	0.873	1.081	0.944	
836.6	4183	WCDMA 850	RMC	25.20	24.83	0.100	10 mm [Right]	FCC #1	N/A	1:1	0.372	1.089	0.405	
836.6	4183	WCDMA 850	RMC	25.20	24.83	0.140	10 mm [Rear]	FCC #1	N/A	1:1	0.866	1.089	0.943	

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: Blue entries represent variability measurements.

Table 11.3.2 LTE B12, B5 Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY MHz	FREQUENCY Ch	Mode/ Band	BW [MHz]	Maximum 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
707.5	23095	LTE B12	10	25.20	25.06	-0.130	0	10 mm [Bottom]	FCC #1	QPSK	1	25	1:1	0.178	1.033	0.184	
707.5	23095	LTE B12	10	24.20	24.14	-0.150	1	10 mm [Bottom]	FCC #1	QPSK	25	12	1:1	0.143	1.014	0.145	
707.5	23095	LTE B12	10	25.20	25.06	-0.030	0	10 mm [Front]	FCC #1	QPSK	1	25	1:1	0.299	1.033	0.309	
707.5	23095	LTE B12	10	24.20	24.14	-0.030	1	10 mm [Front]	FCC #1	QPSK	25	12	1:1	0.251	1.014	0.255	
707.5	23095	LTE B12	10	25.20	25.06	-0.020	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.495	1.033	**0.511**	A26
707.5	23095	LTE B12	10	24.20	24.14	-0.050	1	10 mm [Rear]	FCC #1	QPSK	25	12	1:1	0.417	1.014	0.423	
707.5	23095	LTE B12	10	25.20	25.06	-0.120	0	10 mm [Right]	FCC #1	QPSK	1	25	1:1	0.308	1.033	0.318	
707.5	23095	LTE B12	10	24.20	24.14	-0.110	1	10 mm [Right]	FCC #1	QPSK	25	12	1:1	0.277	1.014	0.281	
836.5	20525	LTE B5	10	25.20	25.09	-0.140	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.417	1.026	0.428	
836.5	20525	LTE B5	10	24.20	24.19	-0.150	1	10 mm [Bottom]	FCC #1	QPSK	25	12	1:1	0.322	1.002	0.323	
836.5	20525	LTE B5	10	25.20	25.09	-0.080	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.610	1.026	0.626	
836.5	20525	LTE B5	10	24.20	24.19	-0.010	1	10 mm [Front]	FCC #1	QPSK	25	12	1:1	0.497	1.002	0.498	
836.5	20525	LTE B5	10	25.20	25.09	0.020	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	1.040	1.026	**1.067**	A27
836.5	20525	LTE B5	10	24.20	24.19	-0.060	1	10 mm [Rear]	FCC #1	QPSK	25	12	1:1	0.837	1.002	0.839	
836.5	20525	LTE B5	10	24.20	24.13	-0.080	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.835	1.016	0.848	
836.5	20525	LTE B5	10	25.20	25.09	-0.030	0	10 mm [Right]	FCC #1	QPSK	1	0	1:1	0.431	1.026	0.442	
836.5	20525	LTE B5	10	24.20	24.19	0.020	1	10 mm [Right]	FCC #1	QPSK	25	12	1:1	0.346	1.002	0.347	
836.5	20525	LTE B5	10	25.20	25.09	-0.040	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.998	1.026	1.024	

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: Blue entries represent variability measurements.

Table 11.3.3 DTS Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY MHz	FREQUENCY Ch	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
2437.0	6	802.11b (Ant.1)	16.00	15.15	0.000	10 mm [Top]	FCC #2	0.011	1	99.0	0.006	1.216	1.010	0.007	
2437.0	6	802.11b (Ant.1)	16.00	15.15	-0.120	10 mm [Front]	FCC #2	0.066	1	99.0	0.066	1.216	1.010	0.081	
2437.0	6	802.11b (Ant.1)	16.00	15.15	0.050	10 mm [Rear]	FCC #2	0.151	1	99.0	0.157	1.216	1.010	**0.193**	A28
2437.0	6	802.11b (Ant.1)	16.00	15.15	-0.150	10 mm [Left]	FCC #2	0.121	1	99.0	0.124	1.216	1.010	0.152	
2462.0	11	802.11b (Ant.2)	16.00	14.94	-0.140	10 mm [Top]	FCC #2	0.025	1	98.9	0.018	1.276	1.011	0.023	
2462.0	11	802.11b (Ant.2)	16.00	14.94	0.150	10 mm [Front]	FCC #2	0.054	1	98.9	0.031	1.276	1.011	0.040	
2462.0	11	802.11b (Ant.2)	16.00	14.94	-0.000	10 mm [Rear]	FCC #2	0.048	1	98.9	0.044	1.276	1.011	**0.057**	A29
2462.0	11	802.11b (Ant.2)	16.00	14.94	-0.190	10 mm [Left]	FCC #2	0.009	1	98.9	0.007	1.276	1.011	0.009	
2437.0	6	802.11g (MIMO)	19.00	18.06	-0.120	10 mm [Top]	FCC #2	0.033	1	97.9	0.031	1.276	1.021	0.040	
2437.0	6	802.11g (MIMO)	19.00	18.06	-0.160	10 mm [Front]	FCC #2	0.091	1	97.9	0.093	1.276	1.021	0.121	
2437.0	6	802.11g (MIMO)	19.00	18.06	-0.100	10 mm [Rear]	FCC #2	0.143	1	97.9	0.157	1.276	1.021	**0.205**	A30
2437.0	6	802.11g (MIMO)	19.00	18.06	0.190	10 mm [Left]	FCC #2	0.133	1	97.9	0.136	1.276	1.021	0.177	

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 MHz	FREQUENCY Ch	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
2437.0	6	802.11b (Ant.1)	DSSS	16.0	0.193	2437	802.11g	OFDM	16.0	1.000	**0.193**	X
2437.0	6	802.11b (Ant.1)	DSSS	16.0	0.193	2437	802.11n	OFDM	15.0	0.794	**0.153**	X
2437.0	6	802.11b (Ant.1)	DSSS	16.0	0.193	2437	802.11ac	OFDM	15.0	0.794	**0.153**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.0	0.057	2437	802.11g	OFDM	16.0	1.000	**0.057**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.0	0.057	2437	802.11n	OFDM	15.0	0.794	**0.045**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.0	0.057	2437	802.11ac	OFDM	15.0	0.794	**0.045**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.205	2437	802.11n	OFDM	18.0	0.794	**0.163**	X
2437.0	6	802.11g (MIMO)	OFDM	19.0	0.205	2437	802.11ac	OFDM	18.0	0.794	**0.163**	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 11.3.4 UNII Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY MHz	FREQUENCY Ch	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
5200.0	40	802.11a (Ant.1)	16.00	15.79	0.140	10 mm [Top]	FCC #2	0.019	6	98.1	0.010	1.049	1.019	0.011	
5200.0	40	802.11a (Ant.1)	16.00	15.79	0.000	10 mm [Front]	FCC #2	0.003	6	98.1	0.005	1.049	1.019	0.005	
5200.0	40	802.11a (Ant.1)	16.00	15.79	-0.000	10 mm [Rear]	FCC #2	0.146	6	98.1	0.146	1.049	1.019	**0.156**	A42
5200.0	40	802.11a (Ant.1)	16.00	15.79	0.110	10 mm [Left]	FCC #2	0.058	6	98.1	0.041	1.049	1.019	0.044	
5180.0	36	802.11a (Ant.2)	16.00	15.97	0.150	10 mm [Top]	FCC #2	0.036	6	97.6	0.019	1.006	1.025	0.020	
5180.0	36	802.11a (Ant.2)	16.00	15.97	0.100	10 mm [Front]	FCC #2	0.046	6	97.6	0.034	1.006	1.025	**0.035**	A43
5180.0	36	802.11a (Ant.2)	16.00	15.97	0.000	10 mm [Rear]	FCC #2	0.023	6	97.6	0.015	1.006	1.025	0.015	
5180.0	36	802.11a (Ant.2)	16.00	15.97	-0.010	10 mm [Left]	FCC #2	0.011	6	97.6	0.008	1.006	1.025	0.008	
5200.0	40	802.11a (MIMO)	19.00	18.88	-0.080	10 mm [Top]	FCC #2	0.030	6	97.6	0.024	1.049	1.025	0.026	
5200.0	40	802.11a (MIMO)	19.00	18.88	0.160	10 mm [Front]	FCC #2	0.056	6	97.6	0.039	1.049	1.025	0.042	
5200.0	40	802.11a (MIMO)	19.00	18.88	0.000	10 mm [Rear]	FCC #2	0.158	6	97.6	0.164	1.049	1.025	**0.176**	A44
5200.0	40	802.11a (MIMO)	19.00	18.88	0.130	10 mm [Left]	FCC #2	0.059	6	97.6	0.041	1.049	1.025	0.044	

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 11.3.5 UNII Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY MHz	FREQUENCY Ch	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
5745.0	149	802.11a (Ant.1)	16.00	15.89	0.000	10 mm [Top]	FCC #2	0.016	6	98.1	0.011	1.025	1.019	0.011	
5745.0	149	802.11a (Ant.1)	16.00	15.89	-0.030	10 mm [Front]	FCC #2	0.032	6	98.1	0.016	1.025	1.019	0.017	
5745.0	149	802.11a (Ant.1)	16.00	15.89	-0.030	10 mm [Rear]	FCC #2	0.090	6	98.1	0.081	1.025	1.019	**0.085**	A37
5745.0	149	802.11a (Ant.1)	16.00	15.89	0.100	10 mm [Left]	FCC #2	0.034	6	98.1	0.030	1.025	1.019	0.031	
5785.0	157	802.11a (Ant.2)	16.00	15.96	-0.160	10 mm [Top]	FCC #2	0.023	6	97.6	0.014	1.009	1.025	0.014	
5785.0	157	802.11a (Ant.2)	16.00	15.96	0.130	10 mm [Front]	FCC #2	0.024	6	97.6	0.014	1.009	1.025	0.014	
5785.0	157	802.11a (Ant.2)	16.00	15.96	-0.100	10 mm [Rear]	FCC #2	0.084	6	97.6	0.062	1.009	1.025	**0.064**	A38
5785.0	157	802.11a (Ant.2)	16.00	15.96	0.000	10 mm [Left]	FCC #2	0.034	6	97.6	0.019	1.009	1.025	0.020	
5785.0	157	802.11a (MIMO)	19.00	18.87	-0.010	10 mm [Top]	FCC #2	0.021	6	97.6	0.015	1.030	1.025	0.016	
5785.0	157	802.11a (MIMO)	19.00	18.87	0.000	10 mm [Front]	FCC #2	0.021	6	97.6	0.017	1.030	1.025	0.018	
5785.0	157	802.11a (MIMO)	19.00	18.87	-0.020	10 mm [Rear]	FCC #2	0.138	6	97.6	0.130	1.030	1.025	**0.137**	A39
5785.0	157	802.11a (MIMO)	19.00	18.87	0.030	10 mm [Left]	FCC #2	0.062	6	97.6	0.049	1.030	1.025	0.052	

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 11.3.6 Bluetooth Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY MHz	FREQUENCY Ch	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 #
2441.0	39	Bluetooth	9.85	9.72	0.000	10 mm [Top]	FCC #2	1	76.8	0.001	1.030	1.302	0.001	
2441.0	39	Bluetooth	9.85	9.72	0.020	10 mm [Front]	FCC #2	1	76.8	0.024	1.030	1.302	0.032	
2441.0	39	Bluetooth	9.85	9.72	0.110	10 mm [Rear]	FCC #2	1	76.8	0.049	1.030	1.302	0.066	
2441.0	39	Bluetooth	9.85	9.72	0.130	10 mm [Left]	FCC #2	1	76.8	0.055	1.030	1.302	**0.074**	A45

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)	16.00	15.79	-0.170	0 mm [Top]	FCC #2	0.016	6	98.1	0.011	1.049	1.019	0.012	
5320.0	64	802.11a (Ant.1)	16.00	15.79	0.020	0 mm [Front]	FCC #2	0.015	6	98.1	0.015	1.049	1.019	0.016	
5320.0	64	802.11a (Ant.1)	16.00	15.79	0.190	0 mm [Rear]	FCC #2	0.588	6	98.1	0.553	1.049	1.019	**0.591**	A46
5320.0	64	802.11a (Ant.1)	16.00	15.79	0.160	0 mm [Left]	FCC #2	0.140	6	98.1	0.134	1.049	1.019	0.143	
5260.0	52	802.11a (Ant.2)	16.00	15.82	0.130	0 mm [Top]	FCC #2	0.060	6	97.6	0.059	1.042	1.025	0.063	
5260.0	52	802.11a (Ant.2)	16.00	15.82	-0.070	0 mm [Front]	FCC #2	0.182	6	97.6	0.190	1.042	1.025	**0.203**	A47
5260.0	52	802.11a (Ant.2)	16.00	15.82	0.170	0 mm [Rear]	FCC #2	0.154	6	97.6	0.144	1.042	1.025	0.154	
5260.0	52	802.11a (Ant.2)	16.00	15.82	-0.140	0 mm [Left]	FCC #2	0.020	6	97.6	0.019	1.042	1.025	0.020	
5260.0	52	802.11a (MIMO)	19.00	18.80	-0.000	0 mm [Top]	FCC #2	0.071	6	97.6	0.069	1.049	1.025	0.074	
5260.0	52	802.11a (MIMO)	19.00	18.80	-0.140	0 mm [Front]	FCC #2	0.214	6	97.6	0.213	1.049	1.025	0.229	
5260.0	52	802.11a (MIMO)	19.00	18.80	-0.010	0 mm [Rear]	FCC #2	0.697	6	97.6	0.755	1.049	1.025	**0.811**	A48
5260.0	52	802.11a (MIMO)	19.00	18.80	0.180	0 mm [Left]	FCC #2	0.144	6	97.6	0.139	1.049	1.025	0.149	
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														
5500.0	100	802.11a (Ant.1)	16.00	15.81	-0.090	0 mm [Top]	FCC #2	0.021	6	98.1	0.018	1.046	1.019	0.019	
5500.0	100	802.11a (Ant.1)	16.00	15.81	0.190	0 mm [Front]	FCC #2	0.020	6	98.1	0.017	1.046	1.019	0.018	
5500.0	100	802.11a (Ant.1)	16.00	15.81	0.110	0 mm [Rear]	FCC #2	0.436	6	98.1	0.438	1.046	1.019	**0.467**	A49
5500.0	100	802.11a (Ant.1)	16.00	15.81	-0.040	0 mm [Left]	FCC #2	0.176	6	98.1	0.166	1.046	1.019	0.177	
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.020	0 mm [Top]	FCC #2	0.039	6	97.6	0.033	1.045	1.019	0.035	
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.040	0 mm [Front]	FCC #2	0.151	6	97.6	0.146	1.045	1.019	**0.155**	A50
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.050	0 mm [Rear]	FCC #2	0.141	6	97.6	0.128	1.045	1.019	0.136	
5500.0	100	802.11a (Ant.2)	16.00	15.81	0.090	0 mm [Left]	FCC #2	0.019	6	97.6	0.015	1.045	1.019	0.016	
5500.0	100	802.11a (MIMO)	19.00	18.82	-0.010	0 mm [Top]	FCC #2	0.059	6	97.6	0.056	1.046	1.019	0.060	
5500.0	100	802.11a (MIMO)	19.00	18.82	0.060	0 mm [Front]	FCC #2	0.173	6	97.6	0.176	1.046	1.019	0.188	
5500.0	100	802.11a (MIMO)	19.00	18.82	0.010	0 mm [Rear]	FCC #2	0.548	6	97.6	0.588	1.046	1.019	**0.627**	A51
5500.0	100	802.11a (MIMO)	19.00	18.82	-0.160	0 mm [Left]	FCC #2	0.220	6	97.6	0.198	1.046	1.019	0.211	
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	15.70	-0.120	0 mm [Top]	FCC #2	0.022	6	98.1	0.019	1.072	1.019	0.021	
5825.0	165	802.11a (Ant.1)	16.00	15.70	-0.140	0 mm [Front]	FCC #2	0.041	6	98.1	0.026	1.072	1.019	0.028	
5825.0	165	802.11a (Ant.1)	16.00	15.70	0.010	0 mm [Rear]	FCC #2	0.344	6	98.1	0.315	1.072	1.019	**0.344**	A52
5825.0	165	802.11a (Ant.1)	16.00	15.70	-0.160	0 mm [Left]	FCC #2	0.142	6	98.1	0.138	1.072	1.019	0.151	
5825.0	165	802.11a (Ant.2)	16.00	15.87	-0.150	0 mm [Top]	FCC #2	0.053	6	97.6	0.051	1.030	1.025	0.054	
5825.0	165	802.11a (Ant.2)	16.00	15.87	-0.060	0 mm [Front]	FCC #2	0.173	6	97.6	0.152	1.030	1.025	0.160	
5825.0	165	802.11a (Ant.2)	16.00	15.87	-0.040	0 mm [Rear]	FCC #2	0.240	6	97.6	0.225	1.030	1.025	**0.237**	A53
5825.0	165	802.11a (Ant.2)	16.00	15.87	0.180	0 mm [Left]	FCC #2	0.025	6	97.6	0.015	1.030	1.025	0.016	
5825.0	165	802.11a (MIMO)	19.00	18.80	0.040	0 mm [Top]	FCC #2	0.072	6	97.6	0.063	1.072	1.025	0.069	
5825.0	165	802.11a (MIMO)	19.00	18.80	-0.190	0 mm [Front]	FCC #2	0.192	6	97.6	0.160	1.072	1.025	0.176	
5825.0	165	802.11a (MIMO)	19.00	18.80	0.010	0 mm [Rear]	FCC #2	0.383	6	97.6	0.384	1.072	1.025	**0.422**	A54
5825.0	165	802.11a (MIMO)	19.00	18.80	0.170	0 mm [Left]	FCC #2	0.194	6	97.6	0.183	1.072	1.025	0.201	
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							

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 8.4.4.
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 and Tx test mode type. 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.
2. Head and hotspot Bluetooth SAR were evaluated for BT tethering applications.

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 ≤ 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 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	^Bluetooth Tethering is considered.
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 + BT 2.4 GHz Ant.1 + Wi-Fi 2.4 GHz Ant.2	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered.
8	GSM Voice + Bluetooth 2.4 GHz + Wi-Fi 5GHz	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered.
9	GSM Voice + Bluetooth 2.4 GHz + Wi-Fi 5GHz MIMO	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered.
10	WCDMA + Wi-Fi 2.4 GHz	Yes	Yes	Yes	Yes	
11	WCDMA + Wi-Fi 5 GHz	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
12	WCDMA + Bluetooth 2.4 GHz	Yes^	Yes	Yes	Yes	^Bluetooth Tethering is considered.
13	WCDMA + Wi-Fi 2.4 GHz MIMO	Yes	Yes	Yes	Yes	
14	WCDMA + Wi-Fi 5 GHz MIMO	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
15	WCMDA + Wi-Fi 2.4 GHz Ant.1 + Wi-Fi 5GHz Ant.2	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
16	WCMDA + BT 2.4 GHz Ant.1 + Wi-Fi 2.4 GHz Ant.2	Yes^	Yes	Yes	Yes	^Bluetooth Tethering is considered.
17	WCMDA + Bluetooth 2.4 GHz + Wi-Fi 5GHz	Yes^	Yes	Yes`	Yes	^Bluetooth Tethering is considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
18	WCMDA + Bluetooth 2.4 GHz + Wi-Fi 5GHz MIMO	Yes^	Yes	Yes`	Yes	^Bluetooth Tethering is considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
19	LTE + Wi-Fi 2.4 GHz	Yes	Yes	Yes	Yes	
20	LTE + Wi-Fi 5 GHz	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
21	LTE + Bluetooth 2.4 GHz	Yes^	Yes	Yes	Yes	^Bluetooth Tethering is considered.
22	LTE + Wi-Fi 2.4 GHz MIMO	Yes	Yes	Yes	Yes	
23	LTE + Wi-Fi 5 GHz MIMO	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
24	LTE + Wi-Fi 2.4 GHz Ant.1 + Wi-Fi 5GHz Ant.2	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
25	LTE + BT 2.4 GHz Ant.1 + Wi-Fi 2.4 GHz Ant.2	Yes^	Yes	Yes	Yes	^Bluetooth Tethering is considered.
26	LTE + Bluetooth 2.4 GHz + Wi-Fi 5GHz	Yes^	Yes	Yes`	Yes	^Bluetooth Tethering is considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
27	LTE + Bluetooth 2.4 GHz + Wi-Fi 5GHz MIMO	Yes^	Yes	Yes`	Yes	^Bluetooth Tethering is considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
28	GPRS + Wi-Fi 2.4 GHz	Yes*	Yes*	Yes	Yes	*Pre-installed VOIP applications are considered.
29	GPRS + Wi-Fi 5 GHz	Yes*	Yes*	Yes`	Yes	*Pre-installed VOIP applications are considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
30	GPRS + Bluetooth 2.4 GHz	Yes*^	Yes*	Yes	Yes	*Pre-installed VOIP applications are considered. ^Bluetooth Tethering is considered.
31	GPRS + Wi-Fi 2.4 GHz MIMO	Yes*	Yes*	Yes	Yes	*Pre-installed VOIP applications are considered.
32	GPRS + Wi-Fi 5 GHz MIMO	Yes*	Yes*	Yes`	Yes	*Pre-installed VOIP applications are considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
33	GPRS + Wi-Fi 2.4 GHz Ant.1 + Wi-Fi 5GHz Ant.2	Yes*	Yes*	Yes`	Yes	*Pre-installed VOIP applications are considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
34	GPRS + BT 2.4 GHz Ant.1 + Wi-Fi 2.4 GHz Ant.2	Yes*^	Yes*	Yes`	Yes	*Pre-installed VOIP applications are considered. ^Bluetooth Tethering is considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
35	GPRS + Bluetooth 2.4 GHz + Wi-Fi 5GHz	Yes*^	Yes*	Yes`	Yes	*Pre-installed VOIP applications are considered. ^Bluetooth Tethering is considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
36	GPRS + Bluetooth 2.4 GHz + Wi-Fi 5GHz MIMO	Yes*^	Yes*	Yes`	Yes	*Pre-installed VOIP applications are considered. ^Bluetooth Tethering is considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
37	Wi-Fi 2.4 GHz Ant.1 + Wi-Fi 5GHz Ant.2	Yes	Yes	N/A	Yes	
38	Bluetooth 2.4GHz Ant.1 + Wi-Fi 2.4GHz Ant.2	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered.
39	Bluetooth 2.4GHz + Wi-Fi 5GHz	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered.
40	Bluetooth 2.4GHz + Wi-Fi 5GHz MIMO	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered.

Notes:

1. WiFi 2.4GHz is supported Hotspot and WiFi-Direct(GO/GC).
2. WiFi 5GHz is supported Hotspot in UNII B1,B3 and WiFi-Direct(GO/GC) in UNII B1,B3.
3. LTE, WCDMA, GPRS is supported Hotspot.
4. VoIP is supported in LTE, WCDMA, GSM
5. GSM, WCDMA and LTE can not transmit simultaneously since they share the same chip.
6. 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.
7. 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 + 5.3 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)	5.3G 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	0.114	0.070	0.325	0.184	0.439	0.509
		Right Touch	0.661	0.477	0.440	1.138	1.101	**1.578**
		Left Tilt	0.051	0.038	0.296	0.089	0.347	0.385
		Right Tilt	0.059	0.220	0.414	0.279	0.473	0.693
	GPRS 850	Left Touch	0.160	0.070	0.325	0.230	0.485	0.555
		Right Touch	0.666	0.477	0.440	1.143	1.106	**1.583**
		Left Tilt	0.071	0.038	0.296	0.109	0.367	0.405
		Right Tilt	0.083	0.220	0.414	0.303	0.497	0.717
	GSM 1900	Left Touch	0.040	0.070	0.325	0.110	0.365	0.435
		Right Touch	0.197	0.477	0.440	0.674	0.637	**1.114**
		Left Tilt	0.033	0.038	0.296	0.071	0.329	0.367
		Right Tilt	0.015	0.220	0.414	0.235	0.429	0.649
	GPRS 1900	Left Touch	0.053	0.070	0.325	0.123	0.378	0.448
		Right Touch	0.265	0.477	0.440	0.742	0.705	**1.182**
		Left Tilt	0.047	0.038	0.296	0.085	0.343	0.381
		Right Tilt	0.023	0.220	0.414	0.243	0.437	0.657
	WCDMA 850	Left Touch	0.170	0.070	0.325	0.240	0.495	0.565
		Right Touch	0.923	0.477	0.440	1.400	1.363	See Note
		Left Tilt	0.081	0.038	0.296	0.119	0.377	0.415
		Right Tilt	0.082	0.220	0.414	0.302	0.496	**0.716**
	LTE Band 12	Left Touch	0.109	0.070	0.325	0.179	0.434	0.504
		Right Touch	0.555	0.477	0.440	1.032	0.995	**1.472**
		Left Tilt	0.083	0.038	0.296	0.121	0.379	0.417
		Right Tilt	0.084	0.220	0.414	0.304	0.498	0.718
	LTE Band 5	Left Touch	0.145	0.070	0.325	0.215	0.470	0.540
		Right Touch	0.893	0.477	0.440	1.370	1.333	See Note
		Left Tilt	0.081	0.038	0.296	0.119	0.377	0.415
		Right Tilt	0.101	0.220	0.414	0.321	0.515	**0.735**

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	0.114	0.070	0.287	0.184	0.401	0.471
		Right Touch	0.661	0.477	0.357	1.138	1.018	**1.495**
		Left Tilt	0.051	0.038	0.272	0.089	0.323	0.361
		Right Tilt	0.059	0.220	0.315	0.279	0.374	0.594
	GPRS 850	Left Touch	0.160	0.070	0.287	0.230	0.447	0.517
		Right Touch	0.666	0.477	0.357	1.143	1.023	**1.500**
		Left Tilt	0.071	0.038	0.272	0.109	0.343	0.381
		Right Tilt	0.083	0.220	0.315	0.303	0.398	0.618
	GSM 1900	Left Touch	0.040	0.070	0.287	0.110	0.327	0.397
		Right Touch	0.197	0.477	0.357	0.674	0.554	**1.031**
		Left Tilt	0.033	0.038	0.272	0.071	0.305	0.343
		Right Tilt	0.015	0.220	0.315	0.235	0.330	0.550
	GPRS 1900	Left Touch	0.053	0.070	0.287	0.123	0.340	0.410
		Right Touch	0.265	0.477	0.357	0.742	0.622	**1.099**
		Left Tilt	0.047	0.038	0.272	0.085	0.319	0.357
		Right Tilt	0.023	0.220	0.315	0.243	0.338	0.558
	WCDMA 850	Left Touch	0.170	0.070	0.287	0.240	0.457	0.527
		Right Touch	0.923	0.477	0.357	1.400	1.280	See Note
		Left Tilt	0.081	0.038	0.272	0.119	0.353	0.391
		Right Tilt	0.082	0.220	0.315	0.302	0.397	**0.617**
	LTE Band 12	Left Touch	0.109	0.070	0.287	0.179	0.396	0.466
		Right Touch	0.555	0.477	0.357	1.032	0.912	**1.389**
		Left Tilt	0.083	0.038	0.272	0.121	0.355	0.393
		Right Tilt	0.084	0.220	0.315	0.304	0.399	0.619
	LTE Band 5	Left Touch	0.145	0.070	0.287	0.215	0.432	0.502
		Right Touch	0.893	0.477	0.357	1.370	1.250	See Note
		Left Tilt	0.081	0.038	0.272	0.119	0.353	0.391
		Right Tilt	0.101	0.220	0.315	0.321	0.416	**0.636**

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	0.114	0.070	0.323	0.184	0.437	0.507
		Right Touch	0.661	0.477	0.370	1.138	1.031	**1.508**
		Left Tilt	0.051	0.038	0.278	0.089	0.329	0.367
		Right Tilt	0.059	0.220	0.342	0.279	0.401	0.621
	GPRS 850	Left Touch	0.160	0.070	0.323	0.230	0.483	0.553
		Right Touch	0.666	0.477	0.370	1.143	1.036	**1.513**
		Left Tilt	0.071	0.038	0.278	0.109	0.349	0.387
		Right Tilt	0.083	0.220	0.342	0.303	0.425	0.645
	GSM 1900	Left Touch	0.040	0.070	0.323	0.110	0.363	0.433
		Right Touch	0.197	0.477	0.370	0.674	0.567	**1.044**
		Left Tilt	0.033	0.038	0.278	0.071	0.311	0.349
		Right Tilt	0.015	0.220	0.342	0.235	0.357	0.577
	GPRS 1900	Left Touch	0.053	0.070	0.323	0.123	0.376	0.446
		Right Touch	0.265	0.477	0.370	0.742	0.635	**1.112**
		Left Tilt	0.047	0.038	0.278	0.085	0.325	0.363
		Right Tilt	0.023	0.220	0.342	0.243	0.365	0.585
	WCDMA 850	Left Touch	0.170	0.070	0.323	0.240	0.493	0.563
		Right Touch	0.923	0.477	0.370	1.400	1.293	See Note
		Left Tilt	0.081	0.038	0.278	0.119	0.359	0.397
		Right Tilt	0.082	0.220	0.342	0.302	0.424	**0.644**
	LTE Band 12	Left Touch	0.109	0.070	0.323	0.179	0.432	0.502
		Right Touch	0.555	0.477	0.370	1.032	0.925	**1.402**
		Left Tilt	0.083	0.038	0.278	0.121	0.361	0.399
		Right Tilt	0.084	0.220	0.342	0.304	0.426	0.646
	LTE Band 5	Left Touch	0.145	0.070	0.323	0.215	0.468	0.538
		Right Touch	0.893	0.477	0.370	1.370	1.263	See Note
		Left Tilt	0.081	0.038	0.278	0.119	0.359	0.397
		Right Tilt	0.101	0.220	0.342	0.321	0.443	**0.663**

Table 12.4.4 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.3 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.3G 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	0.114	0.030	0.011	0.144	0.125	0.155
		Right Touch	0.661	0.223	0.024	0.884	0.685	**0.908**
		Left Tilt	0.051	0.013	0.007	0.064	0.058	0.071
		Right Tilt	0.059	0.097	0.020	0.156	0.079	0.176
	GPRS 850	Left Touch	0.160	0.030	0.011	0.190	0.171	0.201
		Right Touch	0.666	0.223	0.024	0.889	0.690	**0.913**
		Left Tilt	0.071	0.013	0.007	0.084	0.078	0.091
		Right Tilt	0.083	0.097	0.020	0.180	0.103	0.200
	GSM 1900	Left Touch	0.040	0.030	0.011	0.070	0.051	0.081
		Right Touch	0.197	0.223	0.024	0.420	0.221	**0.444**
		Left Tilt	0.033	0.013	0.007	0.046	0.040	0.053
		Right Tilt	0.015	0.097	0.020	0.112	0.035	0.132
	GPRS 1900	Left Touch	0.053	0.030	0.011	0.083	0.064	0.094
		Right Touch	0.265	0.223	0.024	0.488	0.289	**0.512**
		Left Tilt	0.047	0.013	0.007	0.060	0.054	0.067
		Right Tilt	0.023	0.097	0.020	0.120	0.043	0.140
	WCDMA 850	Left Touch	0.170	0.030	0.011	0.200	0.181	0.211
		Right Touch	0.923	0.223	0.024	1.146	0.947	**1.170**
		Left Tilt	0.081	0.013	0.007	0.094	0.088	0.101
		Right Tilt	0.082	0.097	0.020	0.179	0.102	0.199
	LTE Band 12	Left Touch	0.109	0.030	0.011	0.139	0.120	0.150
		Right Touch	0.555	0.223	0.024	0.778	0.579	**0.802**
		Left Tilt	0.083	0.013	0.007	0.096	0.090	0.103
		Right Tilt	0.084	0.097	0.020	0.181	0.104	0.201
	LTE Band 5	Left Touch	0.145	0.030	0.011	0.175	0.156	0.186
		Right Touch	0.893	0.223	0.024	1.116	0.917	**1.140**
		Left Tilt	0.081	0.013	0.007	0.094	0.088	0.101
		Right Tilt	0.101	0.097	0.020	0.198	0.121	0.218

Table 12.4.5 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.3 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.3G 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	0.114	0.030	0.325	0.144	0.439	0.469
		Right Touch	0.661	0.223	0.440	0.884	1.101	**1.324**
		Left Tilt	0.051	0.013	0.296	0.064	0.347	0.360
		Right Tilt	0.059	0.097	0.414	0.156	0.473	0.570
	GPRS 850	Left Touch	0.160	0.030	0.325	0.190	0.485	0.515
		Right Touch	0.666	0.223	0.440	0.889	1.106	**1.329**
		Left Tilt	0.071	0.013	0.296	0.084	0.367	0.380
		Right Tilt	0.083	0.097	0.414	0.180	0.497	0.594
	GSM 1900	Left Touch	0.040	0.030	0.325	0.070	0.365	0.395
		Right Touch	0.197	0.223	0.440	0.420	0.637	**0.860**
		Left Tilt	0.033	0.013	0.296	0.046	0.329	0.342
		Right Tilt	0.015	0.097	0.414	0.112	0.429	0.526
	GPRS 1900	Left Touch	0.053	0.030	0.325	0.083	0.378	0.408
		Right Touch	0.265	0.223	0.440	0.488	0.705	**0.928**
		Left Tilt	0.047	0.013	0.296	0.060	0.343	0.356
		Right Tilt	0.023	0.097	0.414	0.120	0.437	0.534
	WCDMA 850	Left Touch	0.170	0.030	0.325	0.200	0.495	0.525
		Right Touch	0.923	0.223	0.440	1.146	1.363	**1.586**
		Left Tilt	0.081	0.013	0.296	0.094	0.377	0.390
		Right Tilt	0.082	0.097	0.414	0.179	0.496	0.593
	LTE Band 12	Left Touch	0.109	0.030	0.325	0.139	0.434	0.464
		Right Touch	0.555	0.223	0.440	0.778	0.995	**1.218**
		Left Tilt	0.083	0.013	0.296	0.096	0.379	0.392
		Right Tilt	0.084	0.097	0.414	0.181	0.498	0.595
	LTE Band 5	Left Touch	0.145	0.030	0.325	0.175	0.470	0.500
		Right Touch	0.893	0.223	0.440	1.116	1.333	**1.556**
		Left Tilt	0.081	0.013	0.296	0.094	0.377	0.390
		Right Tilt	0.101	0.097	0.414	0.198	0.515	0.612

Table 12.4.6 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.3 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.3G 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	0.114	0.030	0.361	0.144	0.475	0.505
		Right Touch	0.661	0.223	0.483	0.884	1.144	**1.367**
		Left Tilt	0.051	0.013	0.330	0.064	0.381	0.394
		Right Tilt	0.059	0.097	0.477	0.156	0.536	0.633
	GPRS 850	Left Touch	0.160	0.030	0.361	0.190	0.521	0.551
		Right Touch	0.666	0.223	0.483	0.889	1.149	**1.372**
		Left Tilt	0.071	0.013	0.330	0.084	0.401	0.414
		Right Tilt	0.083	0.097	0.477	0.180	0.560	0.657
	GSM 1900	Left Touch	0.040	0.030	0.361	0.070	0.401	0.431
		Right Touch	0.197	0.223	0.483	0.420	0.680	**0.903**
		Left Tilt	0.033	0.013	0.330	0.046	0.363	0.376
		Right Tilt	0.015	0.097	0.477	0.112	0.492	0.589
	GPRS 1900	Left Touch	0.053	0.030	0.361	0.083	0.414	0.444
		Right Touch	0.265	0.223	0.483	0.488	0.748	**0.971**
		Left Tilt	0.047	0.013	0.330	0.060	0.377	0.390
		Right Tilt	0.023	0.097	0.477	0.120	0.500	0.597
	WCDMA 850	Left Touch	0.170	0.030	0.361	0.200	0.531	0.561
		Right Touch	0.923	0.223	0.483	1.146	1.406	See Note
		Left Tilt	0.081	0.013	0.330	0.094	0.411	0.424
		Right Tilt	0.082	0.097	0.477	0.179	0.559	**0.656**
	LTE Band 12	Left Touch	0.109	0.030	0.361	0.139	0.470	0.500
		Right Touch	0.555	0.223	0.483	0.778	1.038	**1.261**
		Left Tilt	0.083	0.013	0.330	0.096	0.413	0.426
		Right Tilt	0.084	0.097	0.477	0.181	0.561	0.658
	LTE Band 5	Left Touch	0.145	0.030	0.361	0.175	0.506	0.536
		Right Touch	**0.893**	**0.223**	**0.483**	**1.116**	**1.376**	1.599
		Left Tilt	0.081	0.013	0.330	0.094	0.411	0.424
		Right Tilt	0.101	0.097	0.477	0.198	0.578	0.675

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	0.114	0.030	0.070	0.144	0.184	0.214
		Right Touch	0.661	0.223	0.083	0.884	0.744	**0.967**
		Left Tilt	0.051	0.013	0.029	0.064	0.080	0.093
		Right Tilt	0.059	0.097	0.038	0.156	0.097	0.194
	GPRS 850	Left Touch	0.160	0.030	0.070	0.190	0.230	0.260
		Right Touch	0.666	0.223	0.083	0.889	0.749	**0.972**
		Left Tilt	0.071	0.013	0.029	0.084	0.100	0.113
		Right Tilt	0.083	0.097	0.038	0.180	0.121	0.218
	GSM 1900	Left Touch	0.040	0.030	0.070	0.070	0.110	0.140
		Right Touch	0.197	0.223	0.083	0.420	0.280	**0.503**
		Left Tilt	0.033	0.013	0.029	0.046	0.062	0.075
		Right Tilt	0.015	0.097	0.038	0.112	0.053	0.150
	GPRS 1900	Left Touch	0.053	0.030	0.070	0.083	0.123	0.153
		Right Touch	0.265	0.223	0.083	0.488	0.348	**0.571**
		Left Tilt	0.047	0.013	0.029	0.060	0.076	0.089
		Right Tilt	0.023	0.097	0.038	0.120	0.061	0.158
	WCDMA 850	Left Touch	0.170	0.030	0.070	0.200	0.240	0.270
		Right Touch	0.923	0.223	0.083	1.146	1.006	**1.229**
		Left Tilt	0.081	0.013	0.029	0.094	0.110	0.123
		Right Tilt	0.082	0.097	0.038	0.179	0.120	0.217
	LTE Band 12	Left Touch	0.109	0.030	0.070	0.139	0.179	0.209
		Right Touch	0.555	0.223	0.083	0.778	0.638	**0.861**
		Left Tilt	0.083	0.013	0.029	0.096	0.112	0.125
		Right Tilt	0.084	0.097	0.038	0.181	0.122	0.219
	LTE Band 5	Left Touch	0.145	0.030	0.070	0.175	0.215	0.245
		Right Touch	0.893	0.223	0.083	1.116	0.976	**1.199**
		Left Tilt	0.081	0.013	0.029	0.094	0.110	0.123
		Right Tilt	0.101	0.097	0.038	0.198	0.139	0.236

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	0.114	0.030	0.287	0.144	0.401	0.431
		Right Touch	0.661	0.223	0.357	0.884	1.018	**1.241**
		Left Tilt	0.051	0.013	0.272	0.064	0.323	0.336
		Right Tilt	0.059	0.097	0.315	0.156	0.374	0.471
	GPRS 850	Left Touch	0.160	0.030	0.287	0.190	0.447	0.477
		Right Touch	0.666	0.223	0.357	0.889	1.023	**1.246**
		Left Tilt	0.071	0.013	0.272	0.084	0.343	0.356
		Right Tilt	0.083	0.097	0.315	0.180	0.398	0.495
	GSM 1900	Left Touch	0.040	0.030	0.287	0.070	0.327	0.357
		Right Touch	0.197	0.223	0.357	0.420	0.554	**0.777**
		Left Tilt	0.033	0.013	0.272	0.046	0.305	0.318
		Right Tilt	0.015	0.097	0.315	0.112	0.330	0.427
	GPRS 1900	Left Touch	0.053	0.030	0.287	0.083	0.340	0.370
		Right Touch	0.265	0.223	0.357	0.488	0.622	**0.845**
		Left Tilt	0.047	0.013	0.272	0.060	0.319	0.332
		Right Tilt	0.023	0.097	0.315	0.120	0.338	0.435
	WCDMA 850	Left Touch	0.170	0.030	0.287	0.200	0.457	0.487
		Right Touch	0.923	0.223	0.357	1.146	1.280	**1.503**
		Left Tilt	0.081	0.013	0.272	0.094	0.353	0.366
		Right Tilt	0.082	0.097	0.315	0.179	0.397	0.494
	LTE Band 12	Left Touch	0.109	0.030	0.287	0.139	0.396	0.426
		Right Touch	0.555	0.223	0.357	0.778	0.912	**1.135**
		Left Tilt	0.083	0.013	0.272	0.096	0.355	0.368
		Right Tilt	0.084	0.097	0.315	0.181	0.399	0.496
	LTE Band 5	Left Touch	0.145	0.030	0.287	0.175	0.432	0.462
		Right Touch	0.893	0.223	0.357	1.116	1.250	**1.473**
		Left Tilt	0.081	0.013	0.272	0.094	0.353	0.366
		Right Tilt	0.101	0.097	0.315	0.198	0.416	0.513

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	0.114	0.030	0.369	0.144	0.483	0.513
		Right Touch	0.661	0.223	0.457	0.884	1.118	**1.341**
		Left Tilt	0.051	0.013	0.282	0.064	0.333	0.346
		Right Tilt	0.059	0.097	0.356	0.156	0.415	0.512
	GPRS 850	Left Touch	0.160	0.030	0.369	0.190	0.529	0.559
		Right Touch	0.666	0.223	0.457	0.889	1.123	**1.346**
		Left Tilt	0.071	0.013	0.282	0.084	0.353	0.366
		Right Tilt	0.083	0.097	0.356	0.180	0.439	0.536
	GSM 1900	Left Touch	0.040	0.030	0.369	0.070	0.409	0.439
		Right Touch	0.197	0.223	0.457	0.420	0.654	**0.877**
		Left Tilt	0.033	0.013	0.282	0.046	0.315	0.328
		Right Tilt	0.015	0.097	0.356	0.112	0.371	0.468
	GPRS 1900	Left Touch	0.053	0.030	0.369	0.083	0.422	0.452
		Right Touch	0.265	0.223	0.457	0.488	0.722	**0.945**
		Left Tilt	0.047	0.013	0.282	0.060	0.329	0.342
		Right Tilt	0.023	0.097	0.356	0.120	0.379	0.476
	WCDMA 850	Left Touch	0.170	0.030	0.369	0.200	0.539	**0.569**
		Right Touch	0.923	0.223	0.457	1.146	1.380	See Note
		Left Tilt	0.081	0.013	0.282	0.094	0.363	0.376
		Right Tilt	0.082	0.097	0.356	0.179	0.438	0.535
	LTE Band 12	Left Touch	0.109	0.030	0.369	0.139	0.478	0.508
		Right Touch	0.555	0.223	0.457	0.778	1.012	**1.235**
		Left Tilt	0.083	0.013	0.282	0.096	0.365	0.378
		Right Tilt	0.084	0.097	0.356	0.181	0.440	0.537
	LTE Band 5	Left Touch	0.145	0.030	0.369	0.175	0.514	0.544
		Right Touch	0.893	0.223	0.457	1.116	1.350	**1.573**
		Left Tilt	0.081	0.013	0.282	0.094	0.363	0.376
		Right Tilt	0.101	0.097	0.356	0.198	0.457	0.554

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	0.114	0.030	0.018	0.144	0.132	0.162
		Right Touch	0.661	0.223	0.049	0.884	0.710	**0.933**
		Left Tilt	0.051	0.013	0.011	0.064	0.062	0.075
		Right Tilt	0.059	0.097	0.039	0.156	0.098	0.195
	GPRS 850	Left Touch	0.160	0.030	0.018	0.190	0.178	0.208
		Right Touch	0.666	0.223	0.049	0.889	0.715	**0.938**
		Left Tilt	0.071	0.013	0.011	0.084	0.082	0.095
		Right Tilt	0.083	0.097	0.039	0.180	0.122	0.219
	GSM 1900	Left Touch	0.040	0.030	0.018	0.070	0.058	0.088
		Right Touch	0.197	0.223	0.049	0.420	0.246	**0.469**
		Left Tilt	0.033	0.013	0.011	0.046	0.044	0.057
		Right Tilt	0.015	0.097	0.039	0.112	0.054	0.151
	GPRS 1900	Left Touch	0.053	0.030	0.018	0.083	0.071	0.101
		Right Touch	0.265	0.223	0.049	0.488	0.314	**0.537**
		Left Tilt	0.047	0.013	0.011	0.060	0.058	0.071
		Right Tilt	0.023	0.097	0.039	0.120	0.062	0.159
	WCDMA 850	Left Touch	0.170	0.030	0.018	0.200	0.188	0.218
		Right Touch	0.923	0.223	0.049	1.146	0.972	**1.195**
		Left Tilt	0.081	0.013	0.011	0.094	0.092	0.105
		Right Tilt	0.082	0.097	0.039	0.179	0.121	0.218
	LTE Band 12	Left Touch	0.109	0.030	0.018	0.139	0.127	0.157
		Right Touch	0.555	0.223	0.049	0.778	0.604	**0.827**
		Left Tilt	0.083	0.013	0.011	0.096	0.094	0.107
		Right Tilt	0.084	0.097	0.039	0.181	0.123	0.220
	LTE Band 5	Left Touch	0.145	0.030	0.018	0.175	0.163	0.193
		Right Touch	0.893	0.223	0.049	1.116	0.942	**1.165**
		Left Tilt	0.081	0.013	0.011	0.094	0.092	0.105
		Right Tilt	0.101	0.097	0.039	0.198	0.140	0.237

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	0.114	0.030	0.323	0.144	0.437	0.467
		Right Touch	0.661	0.223	0.370	0.884	1.031	**1.254**
		Left Tilt	0.051	0.013	0.278	0.064	0.329	0.342
		Right Tilt	0.059	0.097	0.342	0.156	0.401	0.498
	GPRS 850	Left Touch	0.160	0.030	0.323	0.190	0.483	0.513
		Right Touch	0.666	0.223	0.370	0.889	1.036	**1.259**
		Left Tilt	0.071	0.013	0.278	0.084	0.349	0.362
		Right Tilt	0.083	0.097	0.342	0.180	0.425	0.522
	GSM 1900	Left Touch	0.040	0.030	0.323	0.070	0.363	0.393
		Right Touch	0.197	0.223	0.370	0.420	0.567	**0.790**
		Left Tilt	0.033	0.013	0.278	0.046	0.311	0.324
		Right Tilt	0.015	0.097	0.342	0.112	0.357	0.454
	GPRS 1900	Left Touch	0.053	0.030	0.323	0.083	0.376	0.406
		Right Touch	0.265	0.223	0.370	0.488	0.635	**0.858**
		Left Tilt	0.047	0.013	0.278	0.060	0.325	0.338
		Right Tilt	0.023	0.097	0.342	0.120	0.365	0.462
	WCDMA 850	Left Touch	0.170	0.030	0.323	0.200	0.493	0.523
		Right Touch	0.923	0.223	0.370	1.146	1.293	**1.516**
		Left Tilt	0.081	0.013	0.278	0.094	0.359	0.372
		Right Tilt	0.082	0.097	0.342	0.179	0.424	0.521
	LTE Band 12	Left Touch	0.109	0.030	0.323	0.139	0.432	0.462
		Right Touch	0.555	0.223	0.370	0.778	0.925	**1.148**
		Left Tilt	0.083	0.013	0.278	0.096	0.361	0.374
		Right Tilt	0.084	0.097	0.342	0.181	0.426	0.523
	LTE Band 5	Left Touch	0.145	0.030	0.323	0.175	0.468	0.498
		Right Touch	0.893	0.223	0.370	1.116	1.263	**1.486**
		Left Tilt	0.081	0.013	0.278	0.094	0.359	0.372
		Right Tilt	0.101	0.097	0.342	0.198	0.443	0.540

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	0.114	0.030	0.342	0.144	0.456	0.486
		Right Touch	0.661	0.223	0.435	0.884	1.096	**1.319**
		Left Tilt	0.051	0.013	0.286	0.064	0.337	0.350
		Right Tilt	0.059	0.097	0.385	0.156	0.444	0.541
	GPRS 850	Left Touch	0.160	0.030	0.342	0.190	0.502	0.532
		Right Touch	0.666	0.223	0.435	0.889	1.101	**1.324**
		Left Tilt	0.071	0.013	0.286	0.084	0.357	0.370
		Right Tilt	0.083	0.097	0.385	0.180	0.468	0.565
	GSM 1900	Left Touch	0.040	0.030	0.342	0.070	0.382	0.412
		Right Touch	0.197	0.223	0.435	0.420	0.632	**0.855**
		Left Tilt	0.033	0.013	0.286	0.046	0.319	0.332
		Right Tilt	0.015	0.097	0.385	0.112	0.400	0.497
	GPRS 1900	Left Touch	0.053	0.030	0.342	0.083	0.395	0.425
		Right Touch	0.265	0.223	0.435	0.488	0.700	**0.923**
		Left Tilt	0.047	0.013	0.286	0.060	0.333	0.346
		Right Tilt	0.023	0.097	0.385	0.120	0.408	0.505
	WCDMA 850	Left Touch	0.170	0.030	0.342	0.200	0.512	0.542
		Right Touch	0.923	0.223	0.435	1.146	1.358	**1.581**
		Left Tilt	0.081	0.013	0.286	0.094	0.367	0.380
		Right Tilt	0.082	0.097	0.385	0.179	0.467	0.564
	LTE Band 12	Left Touch	0.109	0.030	0.342	0.139	0.451	0.481
		Right Touch	0.555	0.223	0.435	0.778	0.990	**1.213**
		Left Tilt	0.083	0.013	0.286	0.096	0.369	0.382
		Right Tilt	0.084	0.097	0.385	0.181	0.469	0.566
	LTE Band 5	Left Touch	0.145	0.030	0.342	0.175	0.487	0.517
		Right Touch	0.893	0.223	0.435	1.116	1.328	**1.551**
		Left Tilt	0.081	0.013	0.286	0.094	0.367	0.380
		Right Tilt	0.101	0.097	0.385	0.198	0.486	0.583

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

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	2.4G 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	0.114	0.030	0.099	0.144	0.213	0.243
		Right Touch	0.661	0.223	0.218	0.884	0.879	**1.102**
		Left Tilt	0.051	0.013	0.139	0.064	0.190	0.203
		Right Tilt	0.059	0.097	0.208	0.156	0.267	0.364
	GPRS 850	Left Touch	0.160	0.030	0.099	0.190	0.259	0.289
		Right Touch	0.666	0.223	0.218	0.889	0.884	**1.107**
		Left Tilt	0.071	0.013	0.139	0.084	0.210	0.223
		Right Tilt	0.083	0.097	0.208	0.180	0.291	0.388
	GSM 1900	Left Touch	0.040	0.030	0.099	0.070	0.139	0.169
		Right Touch	0.197	0.223	0.218	0.420	0.415	**0.638**
		Left Tilt	0.033	0.013	0.139	0.046	0.172	0.185
		Right Tilt	0.015	0.097	0.208	0.112	0.223	0.320
	GPRS 1900	Left Touch	0.053	0.030	0.099	0.083	0.152	0.182
		Right Touch	0.265	0.223	0.218	0.488	0.483	**0.706**
		Left Tilt	0.047	0.013	0.139	0.060	0.186	0.199
		Right Tilt	0.023	0.097	0.208	0.120	0.231	0.328
	WCDMA 850	Left Touch	0.170	0.030	0.099	0.200	0.269	0.299
		Right Touch	0.923	0.223	0.218	1.146	1.141	**1.364**
		Left Tilt	0.081	0.013	0.139	0.094	0.220	0.233
		Right Tilt	0.082	0.097	0.208	0.179	0.290	0.387
	LTE Band 12	Left Touch	0.109	0.030	0.099	0.139	0.208	0.238
		Right Touch	0.555	0.223	0.218	0.778	0.773	**0.996**
		Left Tilt	0.083	0.013	0.139	0.096	0.222	0.235
		Right Tilt	0.084	0.097	0.208	0.181	0.292	0.389
	LTE Band 5	Left Touch	0.145	0.030	0.099	0.175	0.244	0.274
		Right Touch	0.893	0.223	0.218	1.116	1.111	**1.334**
		Left Tilt	0.081	0.013	0.139	0.094	0.220	0.233
		Right Tilt	0.101	0.097	0.208	0.198	0.309	0.406

Table 12.4.14 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	0.114	0.070	0.184
		Right Touch	0.661	0.477	**1.138**
		Left Tilt	0.051	0.038	0.089
		Right Tilt	0.059	0.220	0.279
	GPRS 850	Left Touch	0.160	0.070	0.230
		Right Touch	0.666	0.477	**1.143**
		Left Tilt	0.071	0.038	0.109
		Right Tilt	0.083	0.220	0.303
	GSM 1900	Left Touch	0.040	0.070	0.110
		Right Touch	0.197	0.477	**0.674**
		Left Tilt	0.033	0.038	0.071
		Right Tilt	0.015	0.220	0.235
	GPRS 1900	Left Touch	0.053	0.070	0.123
		Right Touch	0.265	0.477	**0.742**
		Left Tilt	0.047	0.038	0.085
		Right Tilt	0.023	0.220	0.243
	WCDMA 850	Left Touch	0.170	0.070	0.240
		Right Touch	0.923	0.477	**1.400**
		Left Tilt	0.081	0.038	0.119
		Right Tilt	0.082	0.220	0.302
	LTE Band 12	Left Touch	0.109	0.070	0.179
		Right Touch	0.555	0.477	**1.032**
		Left Tilt	0.083	0.038	0.121
		Right Tilt	0.084	0.220	0.304
	LTE Band 5	Left Touch	0.145	0.070	0.215
		Right Touch	0.893	0.477	**1.370**
		Left Tilt	0.081	0.038	0.119
		Right Tilt	0.101	0.220	0.321

Table 12.4.15 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	0.114	0.099	0.213
		Right Touch	0.661	0.218	**0.879**
		Left Tilt	0.051	0.139	0.190
		Right Tilt	0.059	0.208	0.267
	GPRS 850	Left Touch	0.160	0.099	0.259
		Right Touch	0.666	0.218	**0.884**
		Left Tilt	0.071	0.139	0.210
		Right Tilt	0.083	0.208	0.291
	GSM 1900	Left Touch	0.040	0.099	0.139
		Right Touch	0.197	0.218	**0.415**
		Left Tilt	0.033	0.139	0.172
		Right Tilt	0.015	0.208	0.223
	GPRS 1900	Left Touch	0.053	0.099	0.152
		Right Touch	0.265	0.218	**0.483**
		Left Tilt	0.047	0.139	0.186
		Right Tilt	0.023	0.208	0.231
	WCDMA 850	Left Touch	0.170	0.099	0.269
		Right Touch	0.923	0.218	**1.141**
		Left Tilt	0.081	0.139	0.220
		Right Tilt	0.082	0.208	0.290
	LTE Band 12	Left Touch	0.109	0.099	0.208
		Right Touch	0.555	0.218	**0.773**
		Left Tilt	0.083	0.139	0.222
		Right Tilt	0.084	0.208	0.292
	LTE Band 5	Left Touch	0.145	0.099	0.244
		Right Touch	0.893	0.218	**1.111**
		Left Tilt	0.081	0.139	0.220
		Right Tilt	0.101	0.208	0.309

Table 12.4.16 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	0.114	0.090	0.204
		Right Touch	0.661	0.525	**1.186**
		Left Tilt	0.051	0.102	0.153
		Right Tilt	0.059	0.331	0.390
	GPRS 850	Left Touch	0.160	0.090	0.250
		Right Touch	0.666	0.525	**1.191**
		Left Tilt	0.071	0.102	0.173
		Right Tilt	0.083	0.331	0.414
	GSM 1900	Left Touch	0.040	0.090	0.130
		Right Touch	0.197	0.525	**0.722**
		Left Tilt	0.033	0.102	0.135
		Right Tilt	0.015	0.331	0.346
	GPRS 1900	Left Touch	0.053	0.090	0.143
		Right Touch	0.265	0.525	**0.790**
		Left Tilt	0.047	0.102	0.149
		Right Tilt	0.023	0.331	0.354
	WCDMA 850	Left Touch	0.170	0.090	0.260
		Right Touch	0.923	0.525	**1.448**
		Left Tilt	0.081	0.102	0.183
		Right Tilt	0.082	0.331	0.413
	LTE Band 12	Left Touch	0.109	0.090	0.199
		Right Touch	0.555	0.525	**1.080**
		Left Tilt	0.083	0.102	0.185
		Right Tilt	0.084	0.331	0.415
	LTE Band 5	Left Touch	0.145	0.090	0.235
		Right Touch	0.893	0.525	**1.418**
		Left Tilt	0.081	0.102	0.183
		Right Tilt	0.101	0.331	0.432

Table 12.4.17 Simultaneous Transmission Scenario : 2G/3G/4G + 5.3 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.3G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	0.125
Head SAR	GSM 850	Left Touch	0.114	0.011	0.125
		Right Touch	0.661	0.024	**0.685**
		Left Tilt	0.051	0.007	0.058
		Right Tilt	0.059	0.020	0.079
	GPRS 850	Left Touch	0.160	0.011	0.171
		Right Touch	0.666	0.024	**0.690**
		Left Tilt	0.071	0.007	0.078
		Right Tilt	0.083	0.020	0.103
	GSM 1900	Left Touch	0.040	0.011	0.051
		Right Touch	0.197	0.024	**0.221**
		Left Tilt	0.033	0.007	0.040
		Right Tilt	0.015	0.020	0.035
	GPRS 1900	Left Touch	0.053	0.011	0.064
		Right Touch	0.265	0.024	**0.289**
		Left Tilt	0.047	0.007	0.054
		Right Tilt	0.023	0.020	0.043
	WCDMA 850	Left Touch	0.170	0.011	0.181
		Right Touch	0.923	0.024	**0.947**
		Left Tilt	0.081	0.007	0.088
		Right Tilt	0.082	0.020	0.102
	LTE Band 12	Left Touch	0.109	0.011	0.120
		Right Touch	0.555	0.024	**0.579**
		Left Tilt	0.083	0.007	0.090
		Right Tilt	0.084	0.020	0.104
	LTE Band 5	Left Touch	0.145	0.011	0.156
		Right Touch	0.893	0.024	**0.917**
		Left Tilt	0.081	0.007	0.088
		Right Tilt	0.101	0.020	0.121

Table 12.4.18 Simultaneous Transmission Scenario : 2G/3G/4G + 5.3 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.3G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.114	0.325	0.439
		Right Touch	0.661	0.440	**1.101**
		Left Tilt	0.051	0.296	0.347
		Right Tilt	0.059	0.414	0.473
	GPRS 850	Left Touch	0.160	0.325	0.485
		Right Touch	0.666	0.440	**1.106**
		Left Tilt	0.071	0.296	0.367
		Right Tilt	0.083	0.414	0.497
	GSM 1900	Left Touch	0.040	0.325	0.365
		Right Touch	0.197	0.440	**0.637**
		Left Tilt	0.033	0.296	0.329
		Right Tilt	0.015	0.414	0.429
	GPRS 1900	Left Touch	0.053	0.325	0.378
		Right Touch	0.265	0.440	**0.705**
		Left Tilt	0.047	0.296	0.343
		Right Tilt	0.023	0.414	0.437
	WCDMA 850	Left Touch	0.170	0.325	0.495
		Right Touch	0.923	0.440	**1.363**
		Left Tilt	0.081	0.296	0.377
		Right Tilt	0.082	0.414	0.496
	LTE Band 12	Left Touch	0.109	0.325	0.434
		Right Touch	0.555	0.440	**0.995**
		Left Tilt	0.083	0.296	0.379
		Right Tilt	0.084	0.414	0.498
	LTE Band 5	Left Touch	0.145	0.325	0.470
		Right Touch	0.893	0.440	**1.333**
		Left Tilt	0.081	0.296	0.377
		Right Tilt	0.101	0.414	0.515

Table 12.4.19 Simultaneous Transmission Scenario: 2G/3G/4G + 5.3 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.3G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.114	0.361	0.475
		Right Touch	0.661	0.483	**1.144**
		Left Tilt	0.051	0.330	0.381
		Right Tilt	0.059	0.477	0.536
	GPRS 850	Left Touch	0.160	0.361	0.521
		Right Touch	0.666	0.483	**1.149**
		Left Tilt	0.071	0.330	0.401
		Right Tilt	0.083	0.477	0.560
	GSM 1900	Left Touch	0.040	0.361	0.401
		Right Touch	0.197	0.483	**0.680**
		Left Tilt	0.033	0.330	0.363
		Right Tilt	0.015	0.477	0.492
	GPRS 1900	Left Touch	0.053	0.361	0.414
		Right Touch	0.265	0.483	**0.748**
		Left Tilt	0.047	0.330	0.377
		Right Tilt	0.023	0.477	0.500
	WCDMA 850	Left Touch	0.170	0.361	0.531
		Right Touch	0.923	0.483	**1.406**
		Left Tilt	0.081	0.330	0.411
		Right Tilt	0.082	0.477	0.559
	LTE Band 12	Left Touch	0.109	0.361	0.470
		Right Touch	0.555	0.483	**1.038**
		Left Tilt	0.083	0.330	0.413
		Right Tilt	0.084	0.477	0.561
	LTE Band 5	Left Touch	0.145	0.361	0.506
		Right Touch	0.893	0.483	**1.376**
		Left Tilt	0.081	0.330	0.411
		Right Tilt	0.101	0.477	0.578

Table 12.4.20 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	0.114	0.070	0.184
		Right Touch	0.661	0.083	**0.744**
		Left Tilt	0.051	0.029	0.080
		Right Tilt	0.059	0.038	0.097
	GPRS 850	Left Touch	0.160	0.070	0.230
		Right Touch	0.666	0.083	**0.749**
		Left Tilt	0.071	0.029	0.100
		Right Tilt	0.083	0.038	0.121
	GSM 1900	Left Touch	0.040	0.070	0.110
		Right Touch	0.197	0.083	**0.280**
		Left Tilt	0.033	0.029	0.062
		Right Tilt	0.015	0.038	0.053
	GPRS 1900	Left Touch	0.053	0.070	0.123
		Right Touch	0.265	0.083	**0.348**
		Left Tilt	0.047	0.029	0.076
		Right Tilt	0.023	0.038	0.061
	WCDMA 850	Left Touch	0.170	0.070	0.240
		Right Touch	0.923	0.083	**1.006**
		Left Tilt	0.081	0.029	0.110
		Right Tilt	0.082	0.038	0.120
	LTE Band 12	Left Touch	0.109	0.070	0.179
		Right Touch	0.555	0.083	**0.638**
		Left Tilt	0.083	0.029	0.112
		Right Tilt	0.084	0.038	0.122
	LTE Band 5	Left Touch	0.145	0.070	0.215
		Right Touch	0.893	0.083	**0.976**
		Left Tilt	0.081	0.029	0.110
		Right Tilt	0.101	0.038	0.139

Table 12.4.21 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) 1	5.6G W-LAN Ant.2 SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Head SAR	GSM 850	Left Touch	0.114	0.287	0.401
		Right Touch	0.661	0.357	**1.018**
		Left Tilt	0.051	0.272	0.323
		Right Tilt	0.059	0.315	0.374
	GPRS 850	Left Touch	0.160	0.287	0.447
		Right Touch	0.666	0.357	**1.023**
		Left Tilt	0.071	0.272	0.343
		Right Tilt	0.083	0.315	0.398
	GSM 1900	Left Touch	0.040	0.287	0.327
		Right Touch	0.197	0.357	**0.554**
		Left Tilt	0.033	0.272	0.305
		Right Tilt	0.015	0.315	0.330
	GPRS 1900	Left Touch	0.053	0.287	0.340
		Right Touch	0.265	0.357	**0.622**
		Left Tilt	0.047	0.272	0.319
		Right Tilt	0.023	0.315	0.338
	WCDMA 850	Left Touch	0.170	0.287	0.457
		Right Touch	0.923	0.357	**1.280**
		Left Tilt	0.081	0.272	0.353
		Right Tilt	0.082	0.315	0.397
	LTE Band 12	Left Touch	0.109	0.287	0.396
		Right Touch	0.555	0.357	**0.912**
		Left Tilt	0.083	0.272	0.355
		Right Tilt	0.084	0.315	0.399
	LTE Band 5	Left Touch	0.145	0.287	0.432
		Right Touch	0.893	0.357	**1.250**
		Left Tilt	0.081	0.272	0.353
		Right Tilt	0.101	0.315	0.416

Table 12.4.22 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) 1	5.6G W-LAN MIMO SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Head SAR	GSM 850	Left Touch	0.114	0.369	0.483
		Right Touch	0.661	0.457	**1.118**
		Left Tilt	0.051	0.282	0.333
		Right Tilt	0.059	0.356	0.415
	GPRS 850	Left Touch	0.160	0.369	0.529
		Right Touch	0.666	0.457	**1.123**
		Left Tilt	0.071	0.282	0.353
		Right Tilt	0.083	0.356	0.439
	GSM 1900	Left Touch	0.040	0.369	0.409
		Right Touch	0.197	0.457	**0.654**
		Left Tilt	0.033	0.282	0.315
		Right Tilt	0.015	0.356	0.371
	GPRS 1900	Left Touch	0.053	0.369	0.422
		Right Touch	0.265	0.457	**0.722**
		Left Tilt	0.047	0.282	0.329
		Right Tilt	0.023	0.356	0.379
	WCDMA 850	Left Touch	0.170	0.369	0.539
		Right Touch	0.923	0.457	**1.380**
		Left Tilt	0.081	0.282	0.363
		Right Tilt	0.082	0.356	0.438
	LTE Band 12	Left Touch	0.109	0.369	0.478
		Right Touch	0.555	0.457	**1.012**
		Left Tilt	0.083	0.282	0.365
		Right Tilt	0.084	0.356	0.440
	LTE Band 5	Left Touch	0.145	0.369	0.514
		Right Touch	0.893	0.457	**1.350**
		Left Tilt	0.081	0.282	0.363
		Right Tilt	0.101	0.356	0.457

Table 12.4.23 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) 1	5.8G W-LAN Ant.1 SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Head SAR	GSM 850	Left Touch	0.114	0.018	0.132
		Right Touch	0.661	0.049	**0.710**
		Left Tilt	0.051	0.011	0.062
		Right Tilt	0.059	0.039	0.098
	GPRS 850	Left Touch	0.160	0.018	0.178
		Right Touch	0.666	0.049	**0.715**
		Left Tilt	0.071	0.011	0.082
		Right Tilt	0.083	0.039	0.122
	GSM 1900	Left Touch	0.040	0.018	0.058
		Right Touch	0.197	0.049	**0.246**
		Left Tilt	0.033	0.011	0.044
		Right Tilt	0.015	0.039	0.054
	GPRS 1900	Left Touch	0.053	0.018	0.071
		Right Touch	0.265	0.049	**0.314**
		Left Tilt	0.047	0.011	0.058
		Right Tilt	0.023	0.039	0.062
	WCDMA 850	Left Touch	0.170	0.018	0.188
		Right Touch	0.923	0.049	**0.972**
		Left Tilt	0.081	0.011	0.092
		Right Tilt	0.082	0.039	0.121
	LTE Band 12	Left Touch	0.109	0.018	0.127
		Right Touch	0.555	0.049	**0.604**
		Left Tilt	0.083	0.011	0.094
		Right Tilt	0.084	0.039	0.123
	LTE Band 5	Left Touch	0.145	0.018	0.163
		Right Touch	0.893	0.049	**0.942**
		Left Tilt	0.081	0.011	0.092
		Right Tilt	0.101	0.039	0.140

Table 12.4.24 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) 1	5.8G W-LAN Ant.2 SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Head SAR	GSM 850	Left Touch	0.114	0.323	0.437
		Right Touch	0.661	0.370	**1.031**
		Left Tilt	0.051	0.278	0.329
		Right Tilt	0.059	0.342	0.401
	GPRS 850	Left Touch	0.160	0.323	0.483
		Right Touch	0.666	0.370	**1.036**
		Left Tilt	0.071	0.278	0.349
		Right Tilt	0.083	0.342	0.425
	GSM 1900	Left Touch	0.040	0.323	0.363
		Right Touch	0.197	0.370	**0.567**
		Left Tilt	0.033	0.278	0.311
		Right Tilt	0.015	0.342	0.357
	GPRS 1900	Left Touch	0.053	0.323	0.376
		Right Touch	0.265	0.370	**0.635**
		Left Tilt	0.047	0.278	0.325
		Right Tilt	0.023	0.342	0.365
	WCDMA 850	Left Touch	0.170	0.323	0.493
		Right Touch	0.923	0.370	**1.293**
		Left Tilt	0.081	0.278	0.359
		Right Tilt	0.082	0.342	0.424
	LTE Band 12	Left Touch	0.109	0.323	0.432
		Right Touch	0.555	0.370	**0.925**
		Left Tilt	0.083	0.278	0.361
		Right Tilt	0.084	0.342	0.426
	LTE Band 5	Left Touch	0.145	0.323	0.468
		Right Touch	0.893	0.370	**1.263**
		Left Tilt	0.081	0.278	0.359
		Right Tilt	0.101	0.342	0.443

Table 12.4.25 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) 1	5.8G W-LAN MIMO SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Head SAR	GSM 850	Left Touch	0.114	0.342	0.456
		Right Touch	0.661	0.435	**1.096**
		Left Tilt	0.051	0.286	0.337
		Right Tilt	0.059	0.385	0.444
	GPRS 850	Left Touch	0.160	0.342	0.502
		Right Touch	0.666	0.435	**1.101**
		Left Tilt	0.071	0.286	0.357
		Right Tilt	0.083	0.385	0.468
	GSM 1900	Left Touch	0.040	0.342	0.382
		Right Touch	0.197	0.435	**0.632**
		Left Tilt	0.033	0.286	0.319
		Right Tilt	0.015	0.385	0.400
	GPRS 1900	Left Touch	0.053	0.342	0.395
		Right Touch	0.265	0.435	**0.700**
		Left Tilt	0.047	0.286	0.333
		Right Tilt	0.023	0.385	0.408
	WCDMA 850	Left Touch	0.170	0.342	0.512
		Right Touch	0.923	0.435	**1.358**
		Left Tilt	0.081	0.286	0.367
		Right Tilt	0.082	0.385	0.467
	LTE Band 12	Left Touch	0.109	0.342	0.451
		Right Touch	0.555	0.435	**0.990**
		Left Tilt	0.083	0.286	0.369
		Right Tilt	0.084	0.385	0.469
	LTE Band 5	Left Touch	0.145	0.342	0.487
		Right Touch	0.893	0.435	**1.328**
		Left Tilt	0.081	0.286	0.367
		Right Tilt	0.101	0.385	0.486

Table 12.4.26 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg) 1	Bluetooth SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Head SAR	GSM 850	Left Touch	0.114	0.030	0.144
		Right Touch	0.661	0.223	**0.884**
		Left Tilt	0.051	0.013	0.064
		Right Tilt	0.059	0.097	0.156
	GPRS 850	Left Touch	0.160	0.030	0.190
		Right Touch	0.666	0.223	**0.889**
		Left Tilt	0.071	0.013	0.084
		Right Tilt	0.083	0.097	0.180
	GSM 1900	Left Touch	0.040	0.030	0.070
		Right Touch	0.197	0.223	**0.420**
		Left Tilt	0.033	0.013	0.046
		Right Tilt	0.015	0.097	0.112
	GPRS 1900	Left Touch	0.053	0.030	0.083
		Right Touch	0.265	0.223	**0.488**
		Left Tilt	0.047	0.013	0.060
		Right Tilt	0.023	0.097	0.120
	WCDMA 850	Left Touch	0.170	0.030	0.200
		Right Touch	0.923	0.223	**1.146**
		Left Tilt	0.081	0.013	0.094
		Right Tilt	0.082	0.097	0.179
	LTE Band 12	Left Touch	0.109	0.030	0.139
		Right Touch	0.555	0.223	**0.778**
		Left Tilt	0.083	0.013	0.096
		Right Tilt	0.084	0.097	0.181
	LTE Band 5	Left Touch	0.145	0.030	0.175
		Right Touch	0.893	0.223	**1.116**
		Left Tilt	0.081	0.013	0.094
		Right Tilt	0.101	0.097	0.198

Table 12.4.27 Simultaneous Transmission Scenario : 2.4 GHz W-LAN MIMO + 5 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2.4G W-LAN MIMO SAR (W/kg) 1	5G W-LAN MIMO SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Head SAR	5.2G W-LAN MIMO	Left Touch	0.090	0.361	0.451
		Right Touch	0.525	0.483	**1.008**
		Left Tilt	0.102	0.330	0.432
		Right Tilt	0.331	0.477	0.808
	5.6G W-LAN MIMO	Left Touch	0.090	0.369	0.459
		Right Touch	0.525	0.457	**0.982**
		Left Tilt	0.102	0.282	0.384
		Right Tilt	0.331	0.356	0.687
	5.8G W-LAN MIMO	Left Touch	0.090	0.342	0.432
		Right Touch	0.525	0.435	**0.960**
		Left Tilt	0.102	0.286	0.388
		Right Tilt	0.331	0.385	0.716

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

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg) 1	5G W-LAN MIMO SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Head SAR	5.2G W-LAN MIMO	Left Touch	0.030	0.361	0.391
		Right Touch	0.223	0.483	**0.706**
		Left Tilt	0.013	0.330	0.343
		Right Tilt	0.097	0.477	0.574
	5.6G W-LAN MIMO	Left Touch	0.030	0.369	0.399
		Right Touch	0.223	0.457	**0.680**
		Left Tilt	0.013	0.282	0.295
		Right Tilt	0.097	0.356	0.453
	5.8G W-LAN MIMO	Left Touch	0.030	0.342	0.372
		Right Touch	0.223	0.435	**0.658**
		Left Tilt	0.013	0.286	0.299
		Right Tilt	0.097	0.385	0.482

Table 12.4.29 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 2.4 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg) 1	2.4G W-LAN Ant.2 SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Head SAR	2.4G W-LAN Ant.2	Left Touch	0.030	0.099	0.129
		Right Touch	0.223	0.218	**0.441**
		Left Tilt	0.013	0.139	0.152
		Right Tilt	0.097	0.280	0.377

Note: No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06.
See Section 13.8 for detailed SPLS ratio analysis.

12.5 Body-Worn Simultaneous Transmission Analysis

Table 12.5.1 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1 + 5.3 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg) 1	2.4G W-LAN Ant.1 SAR (W/kg) 2	5.3G W-LAN Ant.2 SAR (W/kg) 3	ΣSAR (W/kg) 1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.413	0.081	0.033	0.494	0.446	0.527
		Rear	0.692	0.193	0.023	0.885	0.715	**0.908**
	GPRS 850	Front	0.429	0.081	0.033	0.510	0.462	0.543
		Rear	0.702	0.193	0.023	0.895	0.725	**0.918**
	GSM 1900	Front	0.150	0.081	0.033	0.231	0.183	0.264
		Rear	0.222	0.193	0.023	0.415	0.245	**0.438**
	GPRS 1900	Front	0.189	0.081	0.033	0.270	0.222	0.303
		Rear	0.275	0.193	0.023	0.468	0.298	**0.491**
	WCDMA 850	Front	0.588	0.081	0.033	0.669	0.621	0.702
		Rear	0.968	0.193	0.023	1.161	0.991	**1.184**
	LTE Band 12	Front	0.309	0.081	0.033	0.390	0.342	0.423
		Rear	0.511	0.193	0.023	0.704	0.534	**0.727**
	LTE Band 5	Front	0.626	0.081	0.033	0.707	0.659	0.740
		Rear	1.067	0.193	0.023	1.260	1.090	**1.283**

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) 1	2.4G W-LAN Ant.1 SAR (W/kg) 2	5.6G W-LAN ant.2 SAR (W/kg) 3	ΣSAR (W/kg) 1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.413	0.081	0.016	0.494	0.429	0.510
		Rear	0.692	0.193	0.021	0.885	0.713	**0.906**
	GPRS 850	Front	0.429	0.081	0.016	0.510	0.445	0.526
		Rear	0.702	0.193	0.021	0.895	0.723	**0.916**
	GSM 1900	Front	0.150	0.081	0.016	0.231	0.166	0.247
		Rear	0.222	0.193	0.021	0.415	0.243	**0.436**
	GPRS 1900	Front	0.189	0.081	0.016	0.270	0.205	0.286
		Rear	0.275	0.193	0.021	0.468	0.296	**0.489**
	WCDMA 850	Front	0.588	0.081	0.016	0.669	0.604	0.685
		Rear	0.968	0.193	0.021	1.161	0.989	**1.182**
	LTE Band 12	Front	0.309	0.081	0.016	0.390	0.325	0.406
		Rear	0.511	0.193	0.021	0.704	0.532	**0.725**
	LTE Band 5	Front	0.626	0.081	0.016	0.707	0.642	0.723
		Rear	1.067	0.193	0.021	1.260	1.088	**1.281**

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) 1	2.4G W-LAN Ant.1 SAR (W/kg) 2	5.8G W-LAN Ant.2 SAR (W/kg) 3	ΣSAR (W/kg) 1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.413	0.081	0.014	0.494	0.427	0.508
		Rear	0.692	0.193	0.064	0.885	0.756	**0.949**
	GPRS 850	Front	0.429	0.081	0.014	0.510	0.443	0.524
		Rear	0.702	0.193	0.064	0.895	0.766	**0.959**
	GSM 1900	Front	0.150	0.081	0.014	0.231	0.164	0.245
		Rear	0.222	0.193	0.064	0.415	0.286	**0.479**
	GPRS 1900	Front	0.189	0.081	0.014	0.270	0.203	0.284
		Rear	0.275	0.193	0.064	0.468	0.339	**0.532**
	WCDMA 850	Front	0.588	0.081	0.014	0.669	0.602	0.683
		Rear	0.968	0.193	0.064	1.161	1.032	**1.225**
	LTE Band 12	Front	0.309	0.081	0.014	0.390	0.323	0.404
		Rear	0.511	0.193	0.064	0.704	0.575	**0.768**
	LTE Band 5	Front	0.626	0.081	0.014	0.707	0.640	0.721
		Rear	**1.067**	**0.193**	**0.064**	**1.260**	**1.131**	1.324

Table 12.5.4 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.3 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg) 1	Bluetooth Ant.1 SAR (W/kg) 2	5.3G W-LAN Ant.1 SAR (W/kg) 3	ΣSAR (W/kg) 1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.413	0.032	0.003	0.445	0.416	0.448
		Rear	0.692	0.066	0.154	0.758	0.846	**0.912**
	GPRS 850	Front	0.429	0.032	0.003	0.461	0.432	0.464
		Rear	0.702	0.066	0.154	0.768	0.856	**0.922**
	GSM 1900	Front	0.150	0.032	0.003	0.182	0.153	0.185
		Rear	0.222	0.066	0.154	0.288	0.376	**0.442**
	GPRS 1900	Front	0.189	0.032	0.003	0.221	0.192	0.224
		Rear	0.275	0.066	0.154	0.341	0.429	**0.495**
	WCDMA 850	Front	0.588	0.032	0.003	0.620	0.591	0.623
		Rear	0.968	0.066	0.154	1.034	1.122	**1.188**
	LTE Band 12	Front	0.309	0.032	0.003	0.341	0.312	0.344
		Rear	0.511	0.066	0.154	0.577	0.665	**0.731**
	LTE Band 5	Front	0.626	0.032	0.003	0.658	0.629	0.661
		Rear	1.067	0.066	0.154	1.133	1.221	**1.287**

Table 12.5.5 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.3 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg) 1	Bluetooth Ant.1 SAR (W/kg) 2	5.3G W-LAN Ant.2 SAR (W/kg) 3	ΣSAR (W/kg) 1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.413	0.032	0.033	0.445	0.446	0.478
		Rear	0.692	0.066	0.023	0.758	0.715	**0.781**
	GPRS 850	Front	0.429	0.032	0.033	0.461	0.462	0.494
		Rear	0.702	0.066	0.023	0.768	0.725	**0.791**
	GSM 1900	Front	0.150	0.032	0.033	0.182	0.183	0.215
		Rear	0.222	0.066	0.023	0.288	0.245	**0.311**
	GPRS 1900	Front	0.189	0.032	0.033	0.221	0.222	0.254
		Rear	0.275	0.066	0.023	0.341	0.298	**0.364**
	WCDMA 850	Front	0.588	0.032	0.033	0.620	0.621	0.653
		Rear	0.968	0.066	0.023	1.034	0.991	**1.057**
	LTE Band 12	Front	0.309	0.032	0.033	0.341	0.342	0.374
		Rear	0.511	0.066	0.023	0.577	0.534	**0.600**
	LTE Band 5	Front	0.626	0.032	0.033	0.658	0.659	0.691
		Rear	1.067	0.066	0.023	1.133	1.090	**1.156**

Table 12.5.6 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.3 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg) 1	Bluetooth Ant.1 SAR (W/kg) 2	5.3G W-LAN MIMO SAR (W/kg) 3	ΣSAR (W/kg) 1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.413	0.032	0.034	0.445	0.447	0.479
		Rear	0.692	0.066	0.183	0.758	0.875	**0.941**
	GPRS 850	Front	0.429	0.032	0.034	0.461	0.463	0.495
		Rear	0.702	0.066	0.183	0.768	0.885	**0.951**
	GSM 1900	Front	0.150	0.032	0.034	0.182	0.184	0.216
		Rear	0.222	0.066	0.183	0.288	0.405	**0.471**
	GPRS 1900	Front	0.189	0.032	0.034	0.221	0.223	0.255
		Rear	0.275	0.066	0.183	0.341	0.458	**0.524**
	WCDMA 850	Front	0.588	0.032	0.034	0.620	0.622	0.654
		Rear	0.968	0.066	0.183	1.034	1.151	**1.217**
	LTE Band 12	Front	0.309	0.032	0.034	0.341	0.343	0.375
		Rear	0.511	0.066	0.183	0.577	0.694	**0.760**
	LTE Band 5	Front	0.626	0.032	0.034	0.658	0.660	0.692
		Rear	1.067	0.066	0.183	1.133	1.250	**1.316**

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) 1	Bluetooth Ant.1 SAR (W/kg) 2	5.6G W-LAN Ant.1 SAR (W/kg) 3	ΣSAR (W/kg) 1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.413	0.032	0.002	0.445	0.415	0.447
		Rear	0.692	0.066	0.141	0.758	0.833	**0.899**
	GPRS 850	Front	0.429	0.032	0.002	0.461	0.431	0.463
		Rear	0.702	0.066	0.141	0.768	0.843	**0.909**
	GSM 1900	Front	0.150	0.032	0.002	0.182	0.152	0.184
		Rear	0.222	0.066	0.141	0.288	0.363	**0.429**
	GPRS 1900	Front	0.189	0.032	0.002	0.221	0.191	0.223
		Rear	0.275	0.066	0.141	0.341	0.416	**0.482**
	WCDMA 850	Front	0.588	0.032	0.002	0.620	0.590	0.622
		Rear	0.968	0.066	0.141	1.034	1.109	**1.175**
	LTE Band 12	Front	0.309	0.032	0.002	0.341	0.311	0.343
		Rear	0.511	0.066	0.141	0.577	0.652	**0.718**
	LTE Band 5	Front	0.626	0.032	0.002	0.658	0.628	0.660
		Rear	1.067	0.066	0.141	1.133	1.208	**1.274**

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	0.413	0.032	0.016	0.445	0.429	0.461
		Rear	0.692	0.066	0.021	0.758	0.713	**0.779**
	GPRS 850	Front	0.429	0.032	0.016	0.461	0.445	0.477
		Rear	0.702	0.066	0.021	0.768	0.723	**0.789**
	GSM 1900	Front	0.150	0.032	0.016	0.182	0.166	0.198
		Rear	0.222	0.066	0.021	0.288	0.243	**0.309**
	GPRS 1900	Front	0.189	0.032	0.016	0.221	0.205	0.237
		Rear	0.275	0.066	0.021	0.341	0.296	**0.362**
	WCDMA 850	Front	0.588	0.032	0.016	0.620	0.604	0.636
		Rear	0.968	0.066	0.021	1.034	0.989	**1.055**
	LTE Band 12	Front	0.309	0.032	0.016	0.341	0.325	0.357
		Rear	0.511	0.066	0.021	0.577	0.532	**0.598**
	LTE Band 5	Front	0.626	0.032	0.016	0.658	0.642	0.674
		Rear	1.067	0.066	0.021	1.133	1.088	**1.154**

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	0.413	0.032	0.017	0.445	0.430	0.462
		Rear	0.692	0.066	0.151	0.758	0.843	**0.909**
	GPRS 850	Front	0.429	0.032	0.017	0.461	0.446	0.478
		Rear	0.702	0.066	0.151	0.768	0.853	**0.919**
	GSM 1900	Front	0.150	0.032	0.017	0.182	0.167	0.199
		Rear	0.222	0.066	0.151	0.288	0.373	**0.439**
	GPRS 1900	Front	0.189	0.032	0.017	0.221	0.206	0.238
		Rear	0.275	0.066	0.151	0.341	0.426	**0.492**
	WCDMA 850	Front	0.588	0.032	0.017	0.620	0.605	0.637
		Rear	0.968	0.066	0.151	1.034	1.119	**1.185**
	LTE Band 12	Front	0.309	0.032	0.017	0.341	0.326	0.358
		Rear	0.511	0.066	0.151	0.577	0.662	**0.728**
	LTE Band 5	Front	0.626	0.032	0.017	0.658	0.643	0.675
		Rear	1.067	0.066	0.151	1.133	1.218	**1.284**

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	0.413	0.032	0.017	0.445	0.430	0.462
		Rear	0.692	0.066	0.085	0.758	0.777	**0.843**
	GPRS 850	Front	0.429	0.032	0.017	0.461	0.446	0.478
		Rear	0.702	0.066	0.085	0.768	0.787	**0.853**
	GSM 1900	Front	0.150	0.032	0.017	0.182	0.167	0.199
		Rear	0.222	0.066	0.085	0.288	0.307	**0.373**
	GPRS 1900	Front	0.189	0.032	0.017	0.221	0.206	0.238
		Rear	0.275	0.066	0.085	0.341	0.360	**0.426**
	WCDMA 850	Front	0.588	0.032	0.017	0.620	0.605	0.637
		Rear	0.968	0.066	0.085	1.034	1.053	**1.119**
	LTE Band 12	Front	0.309	0.032	0.017	0.341	0.326	0.358
		Rear	0.511	0.066	0.085	0.577	0.596	**0.662**
	LTE Band 5	Front	0.626	0.032	0.017	0.658	0.643	0.675
		Rear	1.067	0.066	0.085	1.133	1.152	**1.218**

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	0.413	0.032	0.014	0.445	0.427	0.459
		Rear	0.692	0.066	0.064	0.758	0.756	**0.822**
	GPRS 850	Front	0.429	0.032	0.014	0.461	0.443	0.475
		Rear	0.702	0.066	0.064	0.768	0.766	**0.832**
	GSM 1900	Front	0.150	0.032	0.014	0.182	0.164	0.196
		Rear	0.222	0.066	0.064	0.288	0.286	**0.352**
	GPRS 1900	Front	0.189	0.032	0.014	0.221	0.203	0.235
		Rear	0.275	0.066	0.064	0.341	0.339	**0.405**
	WCDMA 850	Front	0.588	0.032	0.014	0.620	0.602	0.634
		Rear	0.968	0.066	0.064	1.034	1.032	**1.098**
	LTE Band 12	Front	0.309	0.032	0.014	0.341	0.323	0.355
		Rear	0.511	0.066	0.064	0.577	0.575	**0.641**
	LTE Band 5	Front	0.626	0.032	0.014	0.658	0.640	0.672
		Rear	1.067	0.066	0.064	1.133	1.131	**1.197**

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	0.413	0.032	0.018	0.445	0.431	0.463
		Rear	0.692	0.066	0.137	0.758	0.829	**0.895**
	GPRS 850	Front	0.429	0.032	0.018	0.461	0.447	0.479
		Rear	0.702	0.066	0.137	0.768	0.839	**0.905**
	GSM 1900	Front	0.150	0.032	0.018	0.182	0.168	0.200
		Rear	0.222	0.066	0.137	0.288	0.359	**0.425**
	GPRS 1900	Front	0.189	0.032	0.018	0.221	0.207	0.239
		Rear	0.275	0.066	0.137	0.341	0.412	**0.478**
	WCDMA 850	Front	0.588	0.032	0.018	0.620	0.606	0.638
		Rear	0.968	0.066	0.137	1.034	1.105	**1.171**
	LTE Band 12	Front	0.309	0.032	0.018	0.341	0.327	0.359
		Rear	0.511	0.066	0.137	0.577	0.648	**0.714**
	LTE Band 5	Front	0.626	0.032	0.018	0.658	0.644	0.676
		Rear	1.067	0.066	0.137	1.133	1.204	**1.270**

Table 12.5.13 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 2.4 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)	2.4G 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	0.413	0.032	0.040	0.445	0.453	0.485
		Rear	0.692	0.066	0.057	0.758	0.749	**0.815**
	GPRS 850	Front	0.429	0.032	0.040	0.461	0.469	0.501
		Rear	0.702	0.066	0.057	0.768	0.759	**0.825**
	GSM 1900	Front	0.150	0.032	0.040	0.182	0.190	0.222
		Rear	0.222	0.066	0.057	0.288	0.279	**0.345**
	GPRS 1900	Front	0.189	0.032	0.040	0.221	0.229	0.261
		Rear	0.275	0.066	0.057	0.341	0.332	**0.398**
	WCDMA 850	Front	0.588	0.032	0.040	0.620	0.628	0.660
		Rear	0.968	0.066	0.057	1.034	1.025	**1.091**
	LTE Band 12	Front	0.309	0.032	0.040	0.341	0.349	0.381
		Rear	0.511	0.066	0.057	0.577	0.568	**0.634**
	LTE Band 5	Front	0.626	0.032	0.040	0.658	0.666	0.698
		Rear	1.067	0.066	0.057	1.133	1.124	**1.190**

Table 12.5.14 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	0.413	0.081	0.494
		Rear	0.692	0.193	**0.885**
	GPRS 850	Front	0.429	0.081	0.510
		Rear	0.702	0.193	**0.895**
	GSM 1900	Front	0.150	0.081	0.231
		Rear	0.222	0.193	**0.415**
	GPRS 1900	Front	0.189	0.081	0.270
		Rear	0.275	0.193	**0.468**
	WCDMA 850	Front	0.588	0.081	0.669
		Rear	0.968	0.193	**1.161**
	LTE Band 12	Front	0.309	0.081	0.390
		Rear	0.511	0.193	**0.704**
	LTE Band 5	Front	0.626	0.081	0.707
		Rear	1.067	0.193	**1.260**

Table 12.5.15 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) 1	2.4G W-LAN Ant.2 SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Body-Worn SAR	GSM 850	Front	0.413	0.040	0.453
		Rear	0.692	0.057	**0.749**
	GPRS 850	Front	0.429	0.040	0.469
		Rear	0.702	0.057	**0.759**
	GSM 1900	Front	0.150	0.040	0.190
		Rear	0.222	0.057	**0.279**
	GPRS 1900	Front	0.189	0.040	0.229
		Rear	0.275	0.057	**0.332**
	WCDMA 850	Front	0.588	0.040	0.628
		Rear	0.968	0.057	**1.025**
	LTE Band 12	Front	0.309	0.040	0.349
		Rear	0.511	0.057	**0.568**
	LTE Band 5	Front	0.626	0.040	0.666
		Rear	1.067	0.057	**1.124**

Table 12.5.16 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) 1	2.4G W-LAN MIMO SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Body-Worn SAR	GSM 850	Front	0.413	0.121	0.534
		Rear	0.692	0.205	**0.897**
	GPRS 850	Front	0.429	0.121	0.550
		Rear	0.702	0.205	**0.907**
	GSM 1900	Front	0.150	0.121	0.271
		Rear	0.222	0.205	**0.427**
	GPRS 1900	Front	0.189	0.121	0.310
		Rear	0.275	0.205	**0.480**
	WCDMA 850	Front	0.588	0.121	0.709
		Rear	0.968	0.205	**1.173**
	LTE Band 12	Front	0.309	0.121	0.430
		Rear	0.511	0.205	**0.716**
	LTE Band 5	Front	0.626	0.121	0.747
		Rear	1.067	0.205	**1.272**

Table 12.5.17 Simultaneous Transmission Scenario : 2G/3G/4G + 5.3 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg) 1	5.3G W-LAN Ant.1 SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Body-Worn SAR	GSM 850	Front	0.413	0.003	0.416
		Rear	0.692	0.154	**0.846**
	GPRS 850	Front	0.429	0.003	0.432
		Rear	0.702	0.154	**0.856**
	GSM 1900	Front	0.150	0.003	0.153
		Rear	0.222	0.154	**0.376**
	GPRS 1900	Front	0.189	0.003	0.192
		Rear	0.275	0.154	**0.429**
	WCDMA 850	Front	0.588	0.003	0.591
		Rear	0.968	0.154	**1.122**
	LTE Band 12	Front	0.309	0.003	0.312
		Rear	0.511	0.154	**0.665**
	LTE Band 5	Front	0.626	0.003	0.629
		Rear	1.067	0.154	**1.221**

Table 12.5.18 Simultaneous Transmission Scenario : 2G/3G/4G + 5.3 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg) 1	5.3G W-LAN Ant.2 SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Body-Worn SAR	GSM 850	Front	0.413	0.033	0.446
		Rear	0.692	0.023	**0.715**
	GPRS 850	Front	0.429	0.033	0.462
		Rear	0.702	0.023	**0.725**
	GSM 1900	Front	0.150	0.033	0.183
		Rear	0.222	0.023	**0.245**
	GPRS 1900	Front	0.189	0.033	0.222
		Rear	0.275	0.023	**0.298**
	WCDMA 850	Front	0.588	0.033	0.621
		Rear	0.968	0.023	**0.991**
	LTE Band 12	Front	0.309	0.033	0.342
		Rear	0.511	0.023	**0.534**
	LTE Band 5	Front	0.626	0.033	0.659
		Rear	1.067	0.023	**1.090**

Table 12.5.19 Simultaneous Transmission Scenario : 2G/3G/4G + 5.3 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg) 1	5.3G W-LAN MIMO SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Body-Worn SAR	GSM 850	Front	0.413	0.034	0.447
		Rear	0.692	0.183	**0.875**
	GPRS 850	Front	0.429	0.034	0.463
		Rear	0.702	0.183	**0.885**
	GSM 1900	Front	0.150	0.034	0.184
		Rear	0.222	0.183	**0.405**
	GPRS 1900	Front	0.189	0.034	0.223
		Rear	0.275	0.183	**0.458**
	WCDMA 850	Front	0.588	0.034	0.622
		Rear	0.968	0.183	**1.151**
	LTE Band 12	Front	0.309	0.034	0.343
		Rear	0.511	0.183	**0.694**
	LTE Band 5	Front	0.626	0.034	0.660
		Rear	1.067	0.183	**1.250**

Table 12.5.20 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) 1	5.6G W-LAN Ant.1 SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Body-Worn SAR	GSM 850	Front	0.413	0.002	0.415
		Rear	0.692	0.141	**0.833**
	GPRS 850	Front	0.429	0.002	0.431
		Rear	0.702	0.141	**0.843**
	GSM 1900	Front	0.150	0.002	0.152
		Rear	0.222	0.141	**0.363**
	GPRS 1900	Front	0.189	0.002	0.191
		Rear	0.275	0.141	**0.416**
	WCDMA 850	Front	0.588	0.002	0.590
		Rear	0.968	0.141	**1.109**
	LTE Band 12	Front	0.309	0.002	0.311
		Rear	0.511	0.141	**0.652**
	LTE Band 5	Front	0.626	0.002	0.628
		Rear	1.067	0.141	**1.208**

Table 12.5.21 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) 1	5.6G W-LAN Ant.2 SAR (W/kg) 2	ΣSAR (W/kg) 1+2
Body-Worn SAR	GSM 850	Front	0.413	0.016	0.429
		Rear	0.692	0.021	**0.713**
	GPRS 850	Front	0.429	0.016	0.445
		Rear	0.702	0.021	**0.723**
	GSM 1900	Front	0.150	0.016	0.166
		Rear	0.222	0.021	**0.243**
	GPRS 1900	Front	0.189	0.016	0.205
		Rear	0.275	0.021	**0.296**
	WCDMA 850	Front	0.588	0.016	0.604
		Rear	0.968	0.021	**0.989**
	LTE Band 12	Front	0.309	0.016	0.325
		Rear	0.511	0.021	**0.532**
	LTE Band 5	Front	0.626	0.016	0.642
		Rear	1.067	0.021	**1.088**

Table 12.5.22 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	0.413	0.017	0.430
		Rear	0.692	0.151	**0.843**
	GPRS 850	Front	0.429	0.017	0.446
		Rear	0.702	0.151	**0.853**
	GSM 1900	Front	0.150	0.017	0.167
		Rear	0.222	0.151	**0.373**
	GPRS 1900	Front	0.189	0.017	0.206
		Rear	0.275	0.151	**0.426**
	WCDMA 850	Front	0.588	0.017	0.605
		Rear	0.968	0.151	**1.119**
	LTE Band 12	Front	0.309	0.017	0.326
		Rear	0.511	0.151	**0.662**
	LTE Band 5	Front	0.626	0.017	0.643
		Rear	1.067	0.151	**1.218**

Table 12.5.23 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	0.413	0.017	0.430
		Rear	0.692	0.085	**0.777**
	GPRS 850	Front	0.429	0.017	0.446
		Rear	0.702	0.085	**0.787**
	GSM 1900	Front	0.150	0.017	0.167
		Rear	0.222	0.085	**0.307**
	GPRS 1900	Front	0.189	0.017	0.206
		Rear	0.275	0.085	**0.360**
	WCDMA 850	Front	0.588	0.017	0.605
		Rear	0.968	0.085	**1.053**
	LTE Band 12	Front	0.309	0.017	0.326
		Rear	0.511	0.085	**0.596**
	LTE Band 5	Front	0.626	0.017	0.643
		Rear	1.067	0.085	**1.152**

Table 12.5.24 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	0.413	0.014	0.427
		Rear	0.692	0.064	**0.756**
	GPRS 850	Front	0.429	0.014	0.443
		Rear	0.702	0.064	**0.766**
	GSM 1900	Front	0.150	0.014	0.164
		Rear	0.222	0.064	**0.286**
	GPRS 1900	Front	0.189	0.014	0.203
		Rear	0.275	0.064	**0.339**
	WCDMA 850	Front	0.588	0.014	0.602
		Rear	0.968	0.064	**1.032**
	LTE Band 12	Front	0.309	0.014	0.323
		Rear	0.511	0.064	**0.575**
	LTE Band 5	Front	0.626	0.014	0.640
		Rear	1.067	0.064	**1.131**

Table 12.5.25 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	0.413	0.018	0.431
		Rear	0.692	0.137	**0.829**
	GPRS 850	Front	0.429	0.018	0.447
		Rear	0.702	0.137	**0.839**
	GSM 1900	Front	0.150	0.018	0.168
		Rear	0.222	0.137	**0.359**
	GPRS 1900	Front	0.189	0.018	0.207
		Rear	0.275	0.137	**0.412**
	WCDMA 850	Front	0.588	0.018	0.606
		Rear	0.968	0.137	**1.105**
	LTE Band 12	Front	0.309	0.018	0.327
		Rear	0.511	0.137	**0.648**
	LTE Band 5	Front	0.626	0.018	0.644
		Rear	1.067	0.137	**1.204**

Table 12.5.26 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	0.413	0.032	0.445
		Rear	0.692	0.066	**0.758**
	GPRS 850	Front	0.429	0.032	0.461
		Rear	0.702	0.066	**0.768**
	GSM 1900	Front	0.150	0.032	0.182
		Rear	0.222	0.066	**0.288**
	GPRS 1900	Front	0.189	0.032	0.221
		Rear	0.275	0.066	**0.341**
	WCDMA 850	Front	0.588	0.032	0.620
		Rear	0.968	0.066	**1.034**
	LTE Band 12	Front	0.309	0.032	0.341
		Rear	0.511	0.066	**0.577**
	LTE Band 5	Front	0.626	0.032	0.658
		Rear	1.067	0.066	**1.133**

Table 12.5.27 Simultaneous Transmission Scenario : 2.4 GHz W-LAN MIMO + 5 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2.4G W-LAN MIMO 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	0.121	0.034	0.155
		Rear	0.205	0.183	**0.388**
	5.6G W-LAN MIMO	Front	0.121	0.017	0.138
		Rear	0.205	0.151	**0.356**
	5.8G W-LAN MIMO	Front	0.121	0.018	0.139
		Rear	0.205	0.137	**0.342**

Table 12.5.28 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	5.3G W-LAN MIMO	Front	0.032	0.034	0.066
		Rear	0.066	0.183	**0.249**
	5.6G W-LAN MIMO	Front	0.032	0.017	0.049
		Rear	0.066	0.151	**0.217**
	5.8G W-LAN MIMO	Front	0.032	0.018	0.050
		Rear	0.066	0.137	**0.203**

Table 12.5.29 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 2.4 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	2.4G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	5.3G W-LAN MIMO	Front	0.032	0.040	0.072
		Rear	0.066	0.057	**0.123**

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)	[illegible] (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.007	0.020	0.007	0.020	0.027
		Bottom	0.199	-	-	0.199	0.199	0.199
		Front	0.429	0.081	0.035	0.510	0.464	0.545
		Rear	0.702	0.193	0.015	0.895	0.717	**0.910**
		Right	0.327	-	-	0.327	0.327	0.327
		Left	-	0.152	0.008	0.152	0.008	0.160
	GPRS 1900	Top	-	0.007	0.020	0.007	0.020	0.027
		Bottom	0.522	-	-	0.522	0.522	**0.522**
		Front	0.189	0.081	0.035	0.270	0.224	0.305
		Rear	0.275	0.193	0.015	0.468	0.290	0.483
		Right	0.043	-	-	0.043	0.043	0.043
		Left	0.071	0.152	0.008	0.223	0.079	0.231
	WCDMA 850	Top	-	0.007	0.020	0.007	0.020	0.027
		Bottom	0.292	-	-	0.292	0.292	0.292
		Front	0.588	0.081	0.035	0.669	0.623	0.704
		Rear	0.968	0.193	0.015	1.161	0.983	**1.176**
		Right	0.405	-	-	0.405	0.405	0.405
		Left	-	0.152	0.008	0.152	0.008	0.160
	LTE Band 12	Top	-	0.007	0.020	0.007	0.020	0.027
		Bottom	0.184	-	-	0.184	0.184	0.184
		Front	0.309	0.081	0.035	0.390	0.344	0.425
		Rear	0.511	0.193	0.015	0.704	0.526	**0.719**
		Right	0.318	-	-	0.318	0.318	0.318
		Left	-	0.152	0.008	0.152	0.008	0.160
	LTE Band 5	Top	-	0.007	0.020	0.007	0.020	0.027
		Bottom	0.428	-	-	0.428	0.428	0.428
		Front	0.626	0.081	0.035	0.707	0.661	0.742
		Rear	**1.067**	0.193	0.015	1.260	1.082	**1.275**
		Right	0.442	-	-	0.442	0.442	0.442
		Left	-	0.152	0.008	0.152	0.008	0.160

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)	[illegible] (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.007	0.014	0.007	0.014	0.021
		Bottom	0.199	-	-	0.199	0.199	0.199
		Front	0.429	0.081	0.014	0.510	0.443	0.524
		Rear	0.702	0.193	0.064	0.895	0.766	**0.959**
		Right	0.327	-	-	0.327	0.327	0.327
		Left	-	0.152	0.020	0.152	0.020	0.172
	GPRS 1900	Top	-	0.007	0.014	0.007	0.014	0.021
		Bottom	0.522	-	-	0.522	0.522	0.522
		Front	0.189	0.081	0.014	0.270	0.203	0.284
		Rear	0.275	0.193	0.064	0.468	0.339	**0.532**
		Right	0.043	-	-	0.043	0.043	0.043
		Left	0.071	0.152	0.020	0.223	0.091	0.243
	WCDMA 850	Top	-	0.007	0.014	0.007	0.014	0.021
		Bottom	0.292	-	-	0.292	0.292	0.292
		Front	0.588	0.081	0.014	0.669	0.602	0.683
		Rear	0.968	0.193	0.064	1.161	1.032	**1.225**
		Right	0.405	-	-	0.405	0.405	0.405
		Left	-	0.152	0.020	0.152	0.020	0.172
	LTE Band 12	Top	-	0.007	0.014	0.007	0.014	0.021
		Bottom	0.184	-	-	0.184	0.184	0.184
		Front	0.309	0.081	0.014	0.390	0.323	0.404
		Rear	0.511	0.193	0.064	0.704	0.575	**0.768**
		Right	0.318	-	-	0.318	0.318	0.318
		Left	-	0.152	0.020	0.152	0.020	0.172
	LTE Band 5	Top	-	0.007	0.014	0.007	0.014	0.021
		Bottom	0.428	-	-	0.428	0.428	0.428
		Front	0.626	0.081	0.014	0.707	0.640	0.721
		Rear	**1.067**	**0.193**	**0.064**	**1.260**	**1.131**	**1.324**
		Right	0.442	-	-	0.442	0.442	0.442
		Left	-	0.152	0.020	0.152	0.020	0.172

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)	5.3G W-LAN Ant.1 SAR (W/kg)	[illegible] (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.001	0.011	0.001	0.011	0.012
		Bottom	0.199	-	-	0.199	0.199	0.199
		Front	0.429	0.032	0.005	0.461	0.434	0.466
		Rear	0.702	0.066	0.156	0.768	0.858	**0.924**
		Right	0.327	-	-	0.327	0.327	0.327
		Left	-	0.074	0.044	0.074	0.044	0.118
	GPRS 1900	Top	-	0.001	0.011	0.001	0.011	0.012
		Bottom	0.522	-	-	0.522	0.522	**0.522**
		Front	0.189	0.032	0.005	0.221	0.194	0.226
		Rear	0.275	0.066	0.156	0.341	0.431	0.497
		Right	0.043	-	-	0.043	0.043	0.043
		Left	0.071	0.074	0.044	0.145	0.115	0.189
	WCDMA 850	Top	-	0.001	0.011	0.001	0.011	0.012
		Bottom	0.292	-	-	0.292	0.292	0.292
		Front	0.588	0.032	0.005	0.620	0.593	0.625
		Rear	0.968	0.066	0.156	1.034	1.124	**1.190**
		Right	0.405	-	-	0.405	0.405	0.405
		Left	-	0.074	0.044	0.074	0.044	0.118
	LTE Band 12	Top	-	0.001	0.011	0.001	0.011	0.012
		Bottom	0.184	-	-	0.184	0.184	0.184
		Front	0.309	0.032	0.005	0.341	0.314	0.346
		Rear	0.511	0.066	0.156	0.577	0.667	**0.733**
		Right	0.318	-	-	0.318	0.318	0.318
		Left	-	0.074	0.044	0.074	0.044	0.118
	LTE Band 5	Top	-	0.001	0.011	0.001	0.011	0.012
		Bottom	0.428	-	-	0.428	0.428	0.428
		Front	0.626	0.032	0.005	0.658	0.631	0.663
		Rear	**1.067**	0.066	0.156	1.133	1.223	**1.289**
		Right	0.442	-	-	0.442	0.442	0.442
		Left	-	0.074	0.044	0.074	0.044	0.118

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)	5.3G W-LAN Ant.2 SAR (W/kg)	[illegible] (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.001	0.020	0.001	0.020	0.021
		Bottom	0.199	-	-	0.199	0.199	0.199
		Front	0.429	0.032	0.035	0.461	0.464	0.496
		Rear	0.702	0.066	0.015	0.768	0.717	**0.783**
		Right	0.327	-	-	0.327	0.327	0.327
		Left	-	0.074	0.008	0.074	0.008	0.082
	GPRS 1900	Top	-	0.001	0.020	0.001	0.020	0.021
		Bottom	0.522	-	-	0.522	0.522	**0.522**
		Front	0.189	0.032	0.035	0.221	0.224	0.256
		Rear	0.275	0.066	0.015	0.341	0.290	0.356
		Right	0.043	-	-	0.043	0.043	0.043
		Left	0.071	0.074	0.008	0.145	0.079	0.153
	WCDMA 850	Top	-	0.001	0.020	0.001	0.020	0.021
		Bottom	0.292	-	-	0.292	0.292	0.292
		Front	0.588	0.032	0.035	0.620	0.623	0.655
		Rear	0.968	0.066	0.015	1.034	0.983	**1.049**
		Right	0.405	-	-	0.405	0.405	0.405
		Left	-	0.074	0.008	0.074	0.008	0.082
	LTE Band 12	Top	-	0.001	0.020	0.001	0.020	0.021
		Bottom	0.184	-	-	0.184	0.184	0.184
		Front	0.309	0.032	0.035	0.341	0.344	0.376
		Rear	0.511	0.066	0.015	0.577	0.526	**0.592**
		Right	0.318	-	-	0.318	0.318	0.318
		Left	-	0.074	0.008	0.074	0.008	0.082
	LTE Band 5	Top	-	0.001	0.020	0.001	0.020	0.021
		Bottom	0.428	-	-	0.428	0.428	0.428
		Front	0.626	0.032	0.035	0.658	0.661	0.693
		Rear	**1.067**	0.066	0.015	1.133	1.082	**1.148**
		Right	0.442	-	-	0.442	0.442	0.442
		Left	-	0.074	0.008	0.074	0.008	0.082

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)	[illegible]		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.001	0.026	0.001	0.026	0.027
		Bottom	0.199	-	-	0.199	0.199	0.199
		Front	0.429	0.032	0.042	0.461	0.471	0.503
		Rear	0.702	0.066	0.176	0.768	0.878	**0.944**
		Right	0.327	-	-	0.327	0.327	0.327
		Left	-	0.074	0.044	0.074	0.044	0.118
	GPRS 1900	Top	-	0.001	0.026	0.001	0.026	0.027
		Bottom	0.522	-	-	0.522	0.522	**0.522**
		Front	0.189	0.032	0.042	0.221	0.231	0.263
		Rear	0.275	0.066	0.176	0.341	0.451	0.517
		Right	0.043	-	-	0.043	0.043	0.043
		Left	0.071	0.074	0.044	0.145	0.115	0.189
	WCDMA 850	Top	-	0.001	0.026	0.001	0.026	0.027
		Bottom	0.292	-	-	0.292	0.292	0.292
		Front	0.588	0.032	0.042	0.620	0.630	0.662
		Rear	0.968	0.066	0.176	1.034	1.144	**1.210**
		Right	0.405	-	-	0.405	0.405	0.405
		Left	-	0.074	0.044	0.074	0.044	0.118
	LTE Band 12	Top	-	0.001	0.026	0.001	0.026	0.027
		Bottom	0.184	-	-	0.184	0.184	0.184
		Front	0.309	0.032	0.042	0.341	0.351	0.383
		Rear	0.511	0.066	0.176	0.577	0.687	**0.753**
		Right	0.318	-	-	0.318	0.318	0.318
		Left	-	0.074	0.044	0.074	0.044	0.118
	LTE Band 5	Top	-	0.001	0.026	0.001	0.026	0.027
		Bottom	0.428	-	-	0.428	0.428	0.428
		Front	0.626	0.032	0.042	0.658	0.668	0.700
		Rear	**1.067**	0.066	0.176	1.133	1.243	**1.309**
		Right	0.442	-	-	0.442	0.442	0.442
		Left	-	0.074	0.044	0.074	0.044	0.118

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)	[illegible]		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.001	0.011	0.001	0.011	0.012
		Bottom	0.199	-	-	0.199	0.199	0.199
		Front	0.429	0.032	0.017	0.461	0.446	0.478
		Rear	0.702	0.066	0.085	0.768	0.787	**0.853**
		Right	0.327	-	-	0.327	0.327	0.327
		Left	-	0.074	0.031	0.074	0.031	0.105
	GPRS 1900	Top	-	0.001	0.011	0.001	0.011	0.012
		Bottom	0.522	-	-	0.522	0.522	**0.522**
		Front	0.189	0.032	0.017	0.221	0.206	0.238
		Rear	0.275	0.066	0.085	0.341	0.360	0.426
		Right	0.043	-	-	0.043	0.043	0.043
		Left	0.071	0.074	0.031	0.145	0.102	0.176
	WCDMA 850	Top		0.001	0.011	0.001	0.011	0.012
		Bottom	0.292	-	-	0.292	0.292	0.292
		Front	0.588	0.032	0.017	0.620	0.605	0.637
		Rear	0.968	0.066	0.085	1.034	1.053	**1.119**
		Right	0.405	-	-	0.405	0.405	0.405
		Left	-	0.074	0.031	0.074	0.031	0.105
	LTE Band 12	Top	-	0.001	0.011	0.001	0.011	0.012
		Bottom	0.184	-	-	0.184	0.184	0.184
		Front	0.309	0.032	0.017	0.341	0.326	0.358
		Rear	0.511	0.066	0.085	0.577	0.596	**0.662**
		Right	0.318	-	-	0.318	0.318	0.318
		Left	-	0.074	0.031	0.074	0.031	0.105
	LTE Band 5	Top	-	0.001	0.011	0.001	0.011	0.012
		Bottom	0.428	-	-	0.428	0.428	0.428
		Front	0.626	0.032	0.017	0.658	0.643	0.675
		Rear	**1.067**	0.066	0.085	1.133	1.152	**1.218**
		Right	0.442	-	-	0.442	0.442	0.442
		Left	-	0.074	0.031	0.074	0.031	0.105

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)	[illegible]		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.001	0.014	0.001	0.014	0.015
		Bottom	0.199	-	-	0.199	0.199	0.199
		Front	0.429	0.032	0.014	0.461	0.443	0.475
		Rear	0.702	0.066	0.064	0.768	0.766	**0.832**
		Right	0.327	-	-	0.327	0.327	0.327
		Left	-	0.074	0.020	0.074	0.020	0.094
	GPRS 1900	Top	-	0.001	0.014	0.001	0.014	0.015
		Bottom	0.522	-	-	0.522	0.522	**0.522**
		Front	0.189	0.032	0.014	0.221	0.203	0.235
		Rear	0.275	0.066	0.064	0.341	0.339	0.405
		Right	0.043	-	-	0.043	0.043	0.043
		Left	0.071	0.074	0.020	0.145	0.091	0.165
	WCDMA 850	Top		0.001	0.014	0.001	0.014	0.015
		Bottom	0.292	-	-	0.292	0.292	0.292
		Front	0.588	0.032	0.014	0.620	0.602	0.634
		Rear	0.968	0.066	0.064	1.034	1.032	**1.098**
		Right	0.405	-	-	0.405	0.405	0.405
		Left	-	0.074	0.020	0.074	0.020	0.094
	LTE Band 12	Top		0.001	0.014	0.001	0.014	0.015
		Bottom	0.184	-	-	0.184	0.184	0.184
		Front	0.309	0.032	0.014	0.341	0.323	0.355
		Rear	0.511	0.066	0.064	0.577	0.575	**0.641**
		Right	0.318	-	-	0.318	0.318	0.318
		Left	-	0.074	0.020	0.074	0.020	0.094
	LTE Band 5	Top	-	0.001	0.014	0.001	0.014	0.015
		Bottom	0.428	-	-	0.428	0.428	0.428
		Front	0.626	0.032	0.014	0.658	0.640	0.672
		Rear	**1.067**	0.066	0.064	1.133	1.131	**1.197**
		Right	0.442	-	-	0.442	0.442	0.442
		Left	-	0.074	0.020	0.074	0.020	0.094

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)	[illegible]		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.001	0.016	0.001	0.016	0.017
		Bottom	0.199	-	-	0.199	0.199	0.199
		Front	0.429	0.032	0.018	0.461	0.447	0.479
		Rear	0.702	0.066	0.137	0.768	0.839	**0.905**
		Right	0.327	-	-	0.327	0.327	0.327
		Left	-	0.074	0.052	0.074	0.052	0.126
	GPRS 1900	Top	-	0.001	0.016	0.001	0.016	0.017
		Bottom	0.522	-	-	0.522	0.522	**0.522**
		Front	0.189	0.032	0.018	0.221	0.207	0.239
		Rear	0.275	0.066	0.137	0.341	0.412	0.478
		Right	0.043	-	-	0.043	0.043	0.043
		Left	0.071	0.074	0.052	0.145	0.123	0.197
	WCDMA 850	Top		0.001	0.016	0.001	0.016	0.017
		Bottom	0.292	-	-	0.292	0.292	0.292
		Front	0.588	0.032	0.018	0.620	0.606	0.638
		Rear	0.968	0.066	0.137	1.034	1.105	**1.171**
		Right	0.405	-	-	0.405	0.405	0.405
		Left	-	0.074	0.052	0.074	0.052	0.126
	LTE Band 12	Top	-	0.001	0.016	0.001	0.016	0.017
		Bottom	0.184	-	-	0.184	0.184	0.184
		Front	0.309	0.032	0.018	0.341	0.327	0.359
		Rear	0.511	0.066	0.137	0.577	0.648	**0.714**
		Right	0.318	-	-	0.318	0.318	0.318
		Left	-	0.074	0.052	0.074	0.052	0.126
	LTE Band 5	Top		0.001	0.016	0.001	0.016	0.017
		Bottom	0.428	-	-	0.428	0.428	0.428
		Front	0.626	0.032	0.018	0.658	0.644	0.676
		Rear	**1.067**	0.066	0.137	1.133	1.204	**1.270**
		Right	0.442	-	-	0.442	0.442	0.442
		Left	-	0.074	0.052	0.074	0.052	0.126

Table 12.6.9 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 2.4 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)	2.4G W-LAN Ant.2 SAR (W/kg)	[illegible]		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.001	0.023	0.001	0.023	0.024
		Bottom	0.199	-	-	0.199	0.199	0.199
		Front	0.429	0.032	0.040	0.461	0.469	0.501
		Rear	0.702	0.066	0.057	0.768	0.759	**0.825**
		Right	0.327	-	-	0.327	0.327	0.327
		Left	-	0.074	0.009	0.074	0.009	0.083
	GPRS 1900	Top	-	0.001	0.023	0.001	0.023	0.024
		Bottom	0.522	-	-	0.522	0.522	**0.522**
		Front	0.189	0.032	0.040	0.221	0.229	0.261
		Rear	0.275	0.066	0.057	0.341	0.332	0.398
		Right	0.043	-	-	0.043	0.043	0.043
		Left	0.071	0.074	0.009	0.145	0.080	0.154
	WCDMA 850	Top		0.001	0.023	0.001	0.023	0.024
		Bottom	0.292	-	-	0.292	0.292	0.292
		Front	0.588	0.032	0.040	0.620	0.628	0.660
		Rear	0.968	0.066	0.057	1.034	1.025	**1.091**
		Right	0.405	-	-	0.405	0.405	0.405
		Left	-	0.074	0.009	0.074	0.009	0.083
	LTE Band 12	Top	-	0.001	0.023	0.001	0.023	0.024
		Bottom	0.184	-	-	0.184	0.184	0.184
		Front	0.309	0.032	0.040	0.341	0.349	0.381
		Rear	0.511	0.066	0.057	0.577	0.568	**0.634**
		Right	0.318	-	-	0.318	0.318	0.318
		Left	-	0.074	0.009	0.074	0.009	0.083
	LTE Band 5	Top	-	0.001	0.023	0.001	0.023	0.024
		Bottom	0.428	-	-	0.428	0.428	0.428
		Front	0.626	0.032	0.040	0.658	0.666	0.698
		Rear	**1.067**	0.066	0.057	1.133	1.124	**1.190**
		Right	0.442	-	-	0.442	0.442	0.442
		Left	-	0.074	0.009	0.074	0.009	0.083

Table 12.6.10 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.007	0.007
		Bottom	0.199	-	0.199
		Front	0.429	0.081	0.510
		Rear	0.702	0.193	**0.895**
		Right	0.327	-	0.327
		Left	-	0.152	0.152
	GPRS 1900	Top	-	0.007	0.007
		Bottom	0.522	-	**0.522**
		Front	0.189	0.081	0.270
		Rear	0.275	0.193	0.468
		Right	0.043	-	0.043
		Left	0.071	0.152	0.223
	WCDMA 850	Top	-	0.007	0.007
		Bottom	0.292	-	0.292
		Front	0.588	0.081	0.669
		Rear	0.968	0.193	**1.161**
		Right	0.405	-	0.405
		Left	-	0.152	0.152
	LTE Band 12	Top	-	0.007	0.007
		Bottom	0.184	-	0.184
		Front	0.309	0.081	0.390
		Rear	0.511	0.193	**0.704**
		Right	0.318	-	0.318
		Left	-	0.152	0.152
	LTE Band 5	Top	-	0.007	0.007
		Bottom	0.428	-	0.428
		Front	0.626	0.081	0.707
		Rear	**1.067**	0.193	**1.260**
		Right	0.442	-	0.442
		Left	-	0.152	0.152

Table 12.6.11 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.023	0.023
		Bottom	0.199	-	0.199
		Front	0.429	0.040	0.469
		Rear	0.702	0.057	**0.759**
		Right	0.327	-	0.327
		Left	-	0.009	0.009
	GPRS 1900	Top	-	0.023	0.023
		Bottom	0.522	-	**0.522**
		Front	0.189	0.040	0.229
		Rear	0.275	0.057	0.332
		Right	0.043	-	0.043
		Left	0.071	0.009	0.080
	WCDMA 850	Top	-	0.023	0.023
		Bottom	0.292	-	0.292
		Front	0.588	0.040	0.628
		Rear	0.968	0.057	**1.025**
		Right	0.405	-	0.405
		Left	-	0.009	0.009
	LTE Band 12	Top	-	0.023	0.023
		Bottom	0.184	-	0.184
		Front	0.309	0.040	0.349
		Rear	0.511	0.057	**0.568**
		Right	0.318	-	0.318
		Left	-	0.009	0.009
	LTE Band 5	Top	-	0.023	0.023
		Bottom	0.428	-	0.428
		Front	0.626	0.040	0.666
		Rear	**1.067**	0.057	**1.124**
		Right	0.442	-	0.442
		Left	-	0.009	0.009

Table 12.6.12 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.040	0.040
		Bottom	0.199	-	0.199
		Front	0.429	0.121	0.550
		Rear	0.702	0.205	**0.907**
		Right	0.327	-	0.327
		Left	-	0.177	0.177
	GPRS 1900	Top	-	0.040	0.040
		Bottom	0.522	-	**0.522**
		Front	0.189	0.121	0.310
		Rear	0.275	0.205	0.480
		Right	0.043	-	0.043
		Left	0.071	0.177	0.248
	WCDMA 850	Top	-	0.040	0.040
		Bottom	0.292	-	0.292
		Front	0.588	0.121	0.709
		Rear	0.968	0.205	**1.173**
		Right	0.405	-	0.405
		Left	-	0.177	0.177
	LTE Band 12	Top	-	0.040	0.040
		Bottom	0.184	-	0.184
		Front	0.309	0.121	0.430
		Rear	0.511	0.205	**0.716**
		Right	0.318	-	0.318
		Left	-	0.177	0.177
	LTE Band 5	Top	-	0.040	0.040
		Bottom	0.428	-	0.428
		Front	0.626	0.121	0.747
		Rear	**1.067**	0.205	**1.272**
		Right	0.442	-	0.442
		Left	-	0.177	0.177

Table 12.6.13 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.011	0.011
		Bottom	0.199	-	0.199
		Front	0.429	0.005	0.434
		Rear	0.702	0.156	**0.858**
		Right	0.327	-	0.327
		Left	-	0.044	0.044
	GPRS 1900	Top	-	0.011	0.011
		Bottom	0.522	-	**0.522**
		Front	0.189	0.005	0.194
		Rear	0.275	0.156	0.431
		Right	0.043	-	0.043
		Left	0.071	0.044	0.115
	WCDMA 850	Top	-	0.011	0.011
		Bottom	0.292	-	0.292
		Front	0.588	0.005	0.593
		Rear	0.968	0.156	**1.124**
		Right	0.405	-	0.405
		Left	-	0.044	0.044
	LTE Band 12	Top	-	0.011	0.011
		Bottom	0.184	-	0.184
		Front	0.309	0.005	0.314
		Rear	0.511	0.156	**0.667**
		Right	0.318	-	0.318
		Left	-	0.044	0.044
	LTE Band 5	Top	-	0.011	0.011
		Bottom	0.428	-	0.428
		Front	0.626	0.005	0.631
		Rear	**1.067**	0.156	**1.223**
		Right	0.442	-	0.442
		Left	-	0.044	0.044

Table 12.6.14 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.020	0.020
		Bottom	0.199	-	0.199
		Front	0.429	0.035	0.464
		Rear	0.702	0.015	**0.717**
		Right	0.327	-	0.327
		Left	-	0.008	0.008
	GPRS 1900	Top	-	0.020	0.020
		Bottom	0.522	-	**0.522**
		Front	0.189	0.035	0.224
		Rear	0.275	0.015	0.290
		Right	0.043	-	0.043
		Left	0.071	0.008	0.079
	WCDMA 850	Top	-	0.020	0.020
		Bottom	0.292	-	0.292
		Front	0.588	0.035	0.623
		Rear	0.968	0.015	**0.983**
		Right	0.405	-	0.405
		Left	-	0.008	0.008
	LTE Band 12	Top	-	0.020	0.020
		Bottom	0.184	-	0.184
		Front	0.309	0.035	0.344
		Rear	0.511	0.015	**0.526**
		Right	0.318	-	0.318
		Left	-	0.008	0.008
	LTE Band 5	Top	-	0.020	0.020
		Bottom	0.428	-	0.428
		Front	0.626	0.035	0.661
		Rear	**1.067**	0.015	**1.082**
		Right	0.442	-	0.442
		Left	-	0.008	0.008

Table 12.6.15 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.026	0.026
		Bottom	0.199	-	0.199
		Front	0.429	0.042	0.471
		Rear	0.702	0.176	**0.878**
		Right	0.327	-	0.327
		Left	-	0.044	0.044
	GPRS 1900	Top	-	0.026	0.026
		Bottom	0.522	-	**0.522**
		Front	0.189	0.042	0.231
		Rear	0.275	0.176	0.451
		Right	0.043	-	0.043
		Left	0.071	0.044	0.115
	WCDMA 850	Top	-	0.026	0.026
		Bottom	0.292	-	0.292
		Front	0.588	0.042	0.630
		Rear	0.968	0.176	**1.144**
		Right	0.405	-	0.405
		Left	-	0.044	0.044
	LTE Band 12	Top	-	0.026	0.026
		Bottom	0.184	-	0.184
		Front	0.309	0.042	0.351
		Rear	0.511	0.176	**0.687**
		Right	0.318	-	0.318
		Left	-	0.044	0.044
	LTE Band 5	Top	-	0.026	0.026
		Bottom	0.428	-	0.428
		Front	0.626	0.042	0.668
		Rear	**1.067**	0.176	**1.243**
		Right	0.442	-	0.442
		Left	-	0.044	0.044

Table 12.6.16 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.011	0.011
		Bottom	0.199	-	0.199
		Front	0.429	0.017	0.446
		Rear	0.702	0.085	**0.787**
		Right	0.327	-	0.327
		Left	-	0.031	0.031
	GPRS 1900	Top	-	0.011	0.011
		Bottom	0.522	-	**0.522**
		Front	0.189	0.017	0.206
		Rear	0.275	0.085	0.360
		Right	0.043	-	0.043
		Left	0.071	0.031	0.102
	WCDMA 850	Top	-	0.011	0.011
		Bottom	0.292	-	0.292
		Front	0.588	0.017	0.605
		Rear	0.968	0.085	**1.053**
		Right	0.405	-	0.405
		Left	-	0.031	0.031
	LTE Band 12	Top	-	0.011	0.011
		Bottom	0.184	-	0.184
		Front	0.309	0.017	0.326
		Rear	0.511	0.085	**0.596**
		Right	0.318	-	0.318
		Left	-	0.031	0.031
	LTE Band 5	Top	-	0.011	0.011
		Bottom	0.428	-	0.428
		Front	0.626	0.017	0.643
		Rear	**1.067**	0.085	**1.152**
		Right	0.442	-	0.442
		Left	-	0.031	0.031

Table 12.6.17 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.014	0.014
		Bottom	0.199	-	0.199
		Front	0.429	0.014	0.443
		Rear	0.702	0.064	**0.766**
		Right	0.327	-	0.327
		Left	-	0.020	0.020
	GPRS 1900	Top	-	0.014	0.014
		Bottom	0.522	-	**0.522**
		Front	0.189	0.014	0.203
		Rear	0.275	0.064	0.339
		Right	0.043	-	0.043
		Left	0.071	0.020	0.091
	WCDMA 850	Top	-	0.014	0.014
		Bottom	0.292	-	0.292
		Front	0.588	0.014	0.602
		Rear	0.968	0.064	**1.032**
		Right	0.405	-	0.405
		Left	-	0.020	0.020
	LTE Band 12	Top	-	0.014	0.014
		Bottom	0.184	-	0.184
		Front	0.309	0.014	0.323
		Rear	0.511	0.064	**0.575**
		Right	0.318	-	0.318
		Left	-	0.020	0.020
	LTE Band 5	Top	-	0.014	0.014
		Bottom	0.428	-	0.428
		Front	0.626	0.014	0.640
		Rear	**1.067**	0.064	**1.131**
		Right	0.442	-	0.442
		Left	-	0.020	0.020

Table 12.6.18 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.016	0.016
		Bottom	0.199	-	0.199
		Front	0.429	0.018	0.447
		Rear	0.702	0.137	**0.839**
		Right	0.327	-	0.327
		Left	-	0.052	0.052
	GPRS 1900	Top	-	0.016	0.016
		Bottom	0.522	-	**0.522**
		Front	0.189	0.018	0.207
		Rear	0.275	0.137	0.412
		Right	0.043	-	0.043
		Left	0.071	0.052	0.123
	WCDMA 850	Top	-	0.016	0.016
		Bottom	0.292	-	0.292
		Front	0.588	0.018	0.606
		Rear	0.968	0.137	**1.105**
		Right	0.405	-	0.405
		Left	-	0.052	0.052
	LTE Band 12	Top	-	0.016	0.016
		Bottom	0.184	-	0.184
		Front	0.309	0.018	0.327
		Rear	0.511	0.137	**0.648**
		Right	0.318	-	0.318
		Left	-	0.052	0.052
	LTE Band 5	Top	-	0.016	0.016
		Bottom	0.428	-	0.428
		Front	0.626	0.018	0.644
		Rear	**1.067**	0.137	**1.204**
		Right	0.442	-	0.442
		Left	-	0.052	0.052

Table 12.6.19 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)	Σ SAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.001	0.001
		Bottom	0.199	-	0.199
		Front	0.429	0.032	0.461
		Rear	0.702	0.066	**0.768**
		Right	0.327	-	0.327
		Left	-	0.074	0.074
	GPRS 1900	Top	-	0.001	0.001
		Bottom	0.522	-	**0.522**
		Front	0.189	0.032	0.221
		Rear	0.275	0.066	0.341
		Right	0.043	-	0.043
		Left	0.071	0.074	0.145
	WCDMA 850	Top	-	0.001	0.001
		Bottom	0.292	-	0.292
		Front	0.588	0.032	0.620
		Rear	0.968	0.066	**1.034**
		Right	0.405	-	0.405
		Left	-	0.074	0.074
	LTE Band 12	Top	-	0.001	0.001
		Bottom	0.184	-	0.184
		Front	0.309	0.032	0.341
		Rear	0.511	0.066	**0.577**
		Right	0.318	-	0.318
		Left	-	0.074	0.074
	LTE Band 5	Top	-	0.001	0.001
		Bottom	0.428	-	0.428
		Front	0.626	0.032	0.658
		Rear	**1.067**	0.066	**1.133**
		Right	0.442	-	0.442
		Left	-	0.074	0.074

Table 12.6.20 Simultaneous Transmission Scenario : 2.4 GHz W-LAN MIMO + 5 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2.4G W-LAN MIMO 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	0.040	0.026	0.066
		Bottom	-	-	-
		Front	0.121	0.042	0.163
		Rear	0.205	0.176	**0.381**
		Right	-	-	-
		Left	0.177	0.044	0.221
	5.8G W-LAN MIMO	Top	0.040	0.016	0.056
		Bottom	-	-	-
		Front	0.121	0.018	0.139
		Rear	0.205	0.137	**0.342**
		Right	-	-	-
		Left	0.177	0.052	0.229

Table 12.6.21 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	0.001	0.026	0.027
		Bottom	-	-	-
		Front	0.032	0.042	0.074
		Rear	0.066	0.176	**0.242**
		Right	-	-	-
		Left	0.074	0.044	0.118
	5.8G W-LAN MIMO	Top	0.001	0.016	0.017
		Bottom	-	-	-
		Front	0.032	0.018	0.050
		Rear	0.066	0.137	**0.203**
		Right	-	-	-
		Left	0.074	0.052	0.126

Table 12.6.22 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 2.4 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	2.4G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	2.4G W-LAN Ant.2	Top	0.001	0.023	0.024
		Bottom	-	-	-
		Front	0.032	0.040	0.072
		Rear	0.066	0.057	**0.123**
		Right	-	-	-
		Left	0.074	0.009	0.083

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.

13.8 SPLSR Evaluation and Analysis

Per FCC KDB Publication 447498 D01v06, when the sum of the standalone transmitters is more than 1.6 W/kg for 1g, the SAR sum to peak locations can be analyzed to determine SAR distribution overlaps. When the SAR peak to location ratio (shown below) for each pair antennas is ≤ 0.04 for 1g, simultaneous SAR evaluation is not required. The distance between the transmitters was calculated using the following formula.

$$\text{Distance}_{Tx1-Tx2} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2} \text{ (Head)}$$

$$\text{SPLS Ratio} = \frac{(SAR_1 + SAR_2)^{1.5}}{R_i}$$

13.8.1 Head (Right Touch) SPLSR Evaluation and Analysis

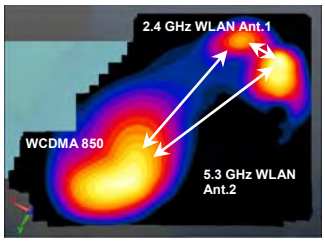
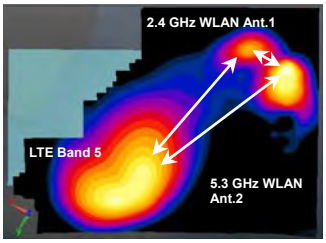
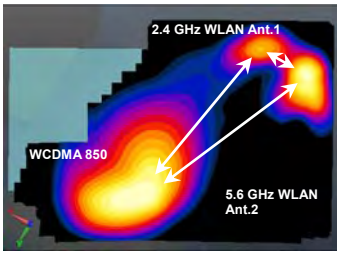
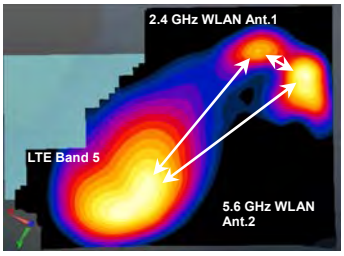
Table 13.8.1 Peak SAR Locations for Right Touch

Mode/Band	X (cm)	Y (cm)	Z (cm)	Reported SAR(W/kg)
WCDMA 850	4.31	6.78	-0.12	0.923
LTE Band 5	4.40	6.86	-0.09	0.893
Bluetooth	2.73	-3.17	-0.14	0.223
2.4 GHz WLAN Ant.1	2.58	-2.95	-0.16	0.477
5.3 GHz WLAN Ant.2	0.23	-2.64	-0.02	0.440
5.6 GHz WLAN Ant.2	-0.13	-2.82	0.03	0.357
5.8 GHz WLAN Ant.2	-0.08	-1.78	-0.01	0.370
5.3 GHz WLAN MIMO	-0.41	-1.57	0.03	0.483
5.6 GHz WLAN MIMO	-0.03	-2.88	0.01	0.457

Table 13.8.2 Right Touch SAR to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone 1g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	$D_{a,b}$	$(a+b)^{1.5}/D_{a,b}$	
WCDMA 850	2.4 GHz WLAN Ant.1	0.923	0.477	1.400	98.89	0.017	1
WCDMA 850	5.3 GHz WLAN Ant.2	0.923	0.440	1.363	102.68	0.015	
2.4 GHz WLAN Ant.1	5.3 GHz WLAN Ant.2	0.477	0.440	0.917	23.76	**0.037 ≤ 0.04**	
LTE Band 5	2.4 GHz WLAN Ant.1	0.893	0.477	1.370	99.84	0.016	2
LTE Band 5	5.3 GHz WLAN Ant.2	0.893	0.440	1.333	103.77	0.015	
2.4 GHz WLAN Ant.1	5.3 GHz WLAN Ant.2	0.477	0.440	0.917	23.76	**0.037 ≤ 0.04**	
WCDMA 850	2.4 GHz WLAN Ant.1	0.923	0.477	1.400	98.89	0.017	3
WCDMA 850	5.6 GHz WLAN Ant.2	0.923	0.357	1.280	105.80	0.014	
2.4 GHz WLAN Ant.1	5.6 GHz WLAN Ant.2	0.477	0.357	0.834	27.17	0.028	
LTE Band 5	2.4 GHz WLAN Ant.1	0.893	0.477	1.370	99.84	0.016	4
LTE Band 5	5.6 GHz WLAN Ant.2	0.893	0.357	1.250	106.91	0.013	
2.4 GHz WLAN Ant.1	5.6 GHz WLAN Ant.2	0.477	0.357	0.834	27.17	0.028	
WCDMA 850	2.4 GHz WLAN Ant.1	0.923	0.477	1.400	98.89	0.017	5
WCDMA 850	5.8 GHz WLAN Ant.2	0.923	0.370	1.293	96.22	0.015	
2.4 GHz WLAN Ant.1	5.8 GHz WLAN Ant.2	0.477	0.370	0.847	29.13	0.027	
LTE Band 5	2.4 GHz WLAN Ant.1	0.893	0.477	1.370	99.84	0.016	6
LTE Band 5	5.8 GHz WLAN Ant.2	0.893	0.370	1.263	97.34	0.015	
2.4 GHz WLAN Ant.1	5.8 GHz WLAN Ant.2	0.477	0.370	0.847	29.13	0.027	
WCDMA 850	Bluetooth Ant.1	0.923	0.223	1.146	100.80	0.012	7
WCDMA 850	5.3 GHz WLAN MIMO	0.923	0.483	1.406	96.00	0.017	
Bluetooth Ant.1	5.3 GHz WLAN MIMO	0.223	0.483	0.706	35.30	0.017	
WCDMA 850	Bluetooth Ant.1	0.923	0.223	1.146	100.80	0.012	8
WCDMA 850	5.6 GHz WLAN MIMO	0.923	0.457	1.380	105.90	0.015	
Bluetooth Ant.1	5.6 GHz WLAN MIMO	0.223	0.457	0.680	27.80	0.020	

Table 13.8.3 Right Touch SAR to Peak Location Separation Ratio Plot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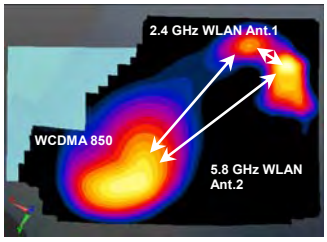	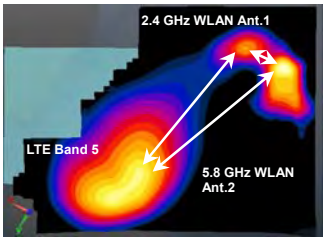	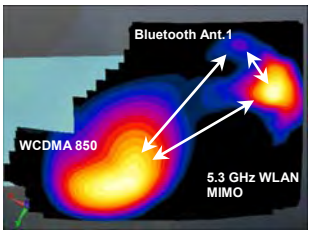	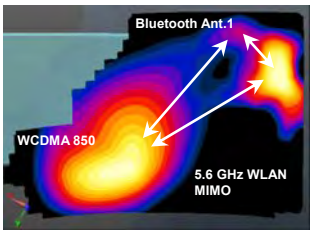
5	6	7	8

12.9 Simultaneous Transmission Conclusion

The above numerical summed SAR results and SPLAR 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 Head 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)	
836.6	4183	WCDMA 850	RMC	-	Right Touch	0.848	0.844	1.00	-	-	-	-
836.5	20525	LTE B5	-	-	Right Touch]	0.870	0.865	1.01	-	-	-	-
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 13.2 Body-Worn 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)	
836.6	4183	WCDMA 850	RMC	-	10 mm [Rear]	0.889	0.866	1.03	-	-	-	-
836.5	20525	LTE B5	-	-	10 mm [Rear]	1.040	0.998	1.04	-	-	-	-
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 13.3 Hotspot 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)	
836.6	4183	WCDMA 850	RMC	-	10 mm [Rear]	0.889	0.866	1.03	-	-	-	-
836.5	20525	LTE B5	-	-	10 mm [Rear]	1.040	0.998	1.04	-	-	-	-
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 14.1.1 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
☒	SEMITEC Engineering	SEMITEC	N/A	N/A	N/A	Shield Room
☒	Robot	SPEAG	TX90XL	N/A	N/A	F13/5RR2A1/A/01
☒	Robot	SPEAG	TX90XL	N/A	N/A	F13/5P9GA1/A/01
☒	Robot	SPEAG	TX60L	N/A	N/A	F14/5WV5D1/A/01
☒	Robot Controller	SPEAG	CS8C	N/A	N/A	F13/5RR2A1/C/01
☒	Robot Controller	SPEAG	CS8C	N/A	N/A	F13/5P9GA1/C/01
☒	Robot Controller	SPEAG	CS8C	N/A	N/A	F14/5WV5D1/C/01
☒	Joystick	SPEAG	N/A	N/A	N/A	S-13200990
☒	Joystick	SPEAG	N/A	N/A	N/A	S-12450905
☒	Joystick	SPEAG	N/A	N/A	N/A	D21142605A
☒	Intel Core i7-3770 3.40 GHz Windows 7 Professional	N/A	N/A	N/A	N/A	N/A
☒	Intel Core i7-3770 3.40 GHz Windows 7 Professional	N/A	N/A	N/A	N/A	N/A
☒	Intel Core i7-4770 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
☒	Probe Alignment Unit LB	N/A	N/A	N/A	N/A	SE UKS 030 AA
☒	Device Holder	SPEAG	SD000H01HA	N/A	N/A	N/A
☒	Device Holder	SPEAG	SD000H01HA	N/A	N/A	N/A
☒	Device Holder	SPEAG	SD000H01KA	N/A	N/A	N/A
☒	Twin SAM Phantom	SPEAG	QD000P40CD	N/A	N/A	1782
☒	Twin SAM Phantom	SPEAG	QD000P40CD	N/A	N/A	1783
☒	Twin SAM Phantom	SPEAG	QD000P40CD	N/A	N/A	1785
☒	Twin SAM Phantom	SPEAG	QD000P40CD	N/A	N/A	1786
☒	Twin SAM Phantom	SPEAG	QD000P40CD	N/A	N/A	1837
☒	Data Acquisition Electronics	SPEAG	DAE4V1	2019-04-18	2020-04-18	1391
☒	Data Acquisition Electronics	SPEAG	DAE4V1	2019-05-23	2020-05-23	1392
☒	Data Acquisition Electronics	SPEAG	DAE4V1	2019-09-20	2020-09-20	1453
☒	Dosimetric E-Field Probe	SPEAG	EX3DV4	2019-09-27	2020-09-27	3933
☒	Dosimetric E-Field Probe	SPEAG	EX3DV4	2019-11-18	2020-11-18	3930
☒	Dosimetric E-Field Probe	SPEAG	EX3DV4	2020-01-30	2021-01-30	7368
☒	750MHz SAR Dipole	SPEAG	D750V3	2020-01-22	2022-01-22	1049
☒	835MHz SAR Dipole	SPEAG	D835V2	2019-07-18	2021-07-18	464
☒	1900MHz SAR Dipole	SPEAG	D1900V2	2019-07-17	2021-07-17	5d029
☒	2450MHz SAR Dipole	SPEAG	D2450V2	2019-09-19	2021-09-19	726
☒	5GHz SAR Dipole	SPEAG	D5GHzV2	2019-02-28	2021-02-28	1103
☒	Network Analyzer	Agilent	E5071C	2019-06-24	2020-06-24	MY46106970
☒	Signal Generator	Agilent	E4438C	2019-06-24	2020-06-24	US41461520
☒	Amplifier	RFBAY.Inc	MPA-40-40	2019-12-16	2020-12-16	21151801
☒	Amplifier	EMPOWER	BBS3Q7ELU	2019-06-24	2020-06-24	1020
☒	High Power RF Amplifier	EMPOWER	BBS3Q8CCJ	2019-06-24	2020-06-24	1005
☒	Power Meter	HP	EPM-442A	2019-12-16	2020-12-16	GB37170267
☒	Power Meter	HP	EPM-442A	2019-12-16	2020-12-16	GB37170413
☒	Power Sensor	HP	8481A	2019-12-16	2020-12-16	US37294267
☒	Power Sensor	HP	8481A	2019-12-16	2020-12-16	3318A96566
☒	Power Sensor	HP	8481A	2019-12-16	2020-12-16	2702A65976
☒	Dual Directional Coupler	Agilent	778D-012	2019-12-16	2020-12-16	50228
☒	Directional Coupler	HP	772D	2019-06-24	2020-06-24	2889A01064
☒	Low Pass Filter 1GHz	Wainwright Instruments	WLK6-1000-1400-9000-60SS	2019-06-24	2020-06-24	165
☒	Low Pass Filter 1.5GHz	Micro LAB	LA-15N	2019-06-24	2020-06-24	2
☒	Low Pass Filter 3.0GHz	Micro LAB	LA-30N	2019-06-24	2020-06-24	2
☒	Low Pass Filter 6.0GHz	Micro LAB	LA-60N	2019-12-16	2020-12-16	03942
☒	Attenuators(10 dB)	WEINSCHEL	23-10-34	2019-12-16	2020-12-16	BP4387
☒	Attenuators	Cernexwave	CFADC2603U5	2019-06-27	2020-06-27	C11740
☒	Dielectric Probe kit	SPEAG	DAK-3.5	2019-11-19	2020-11-19	1092
☒	8960 Series 10 Wireless Comms. Test Set	Agilent	E5515C	2019-06-28	2020-06-28	GB41321164
☒	Wideband Radio Communication Tester	Rohde Schwarz	CMW500	2019-12-16	2020-12-16	101414
☒	Radio Communication Analyzer	Agilent	E5515E	2019-06-28	2020-06-28	MY52113012
☒	Power Splitter	Anritsu	K241B	2019-12-16	2020-12-16	1301183
☒	Bluetooth Tester	TESCOM	TC-3000C	2019-06-24	2020-06-24	3000C000563

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: 3933)

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	± 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

750 MHz Body (SN: 3933)

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.)	± 4.1	Normal	1	0.23	0.26	± 0.9 %	± 1.1 %	10
Temp. unc. - Conductivity	± 2.0	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
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

835 MHz Head (SN: 3933)

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.)	± 3.7	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	± 1.8	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

835 MHz Body (SN: 3933)

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	± 1.7	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						**± 11.7 %**	**± 11.5 %**	330
Expanded Uncertainty (k=2)						**± 23.4 %**	**± 23.0 %**	

The above measurement uncertainties are according to IEEE Std 1528

1900 MHz Head (SN: 3933)

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.)	± 3.8	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 2.0	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
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

1900 MHz Body (SN: 3933)

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

2450 MHz Head (SN: 3930)

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

2450 MHz Body (SN: 3933)

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.)	± 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	± 1.9	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 Body (SN: 3930)

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.)	± 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 %**	**± 11.8 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.6 %**	

The above measurement uncertainties are according to IEEE Std 1528

5300 MHz Head (SN: 7368)

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.)	± 4.2	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	± .2.0	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: 3933)

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.)	± 4.2	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.7	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

5500 MHz Head (SN: 7368)

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.)	± 3.9	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						**± 11.8 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.6 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5500 MHz Body (SN: 3933)

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.)	± 3.8	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 2.0	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 2.0	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: 7368)

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.)	± 4.0	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	± 1.9	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 Body (SN: 3933)

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.)	± 4.1	Normal	1	0.23	0.26	± 0.9 %	± 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

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.

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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
Servizio svizzero di taratura
S 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: **EX3-3933_Sep19**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3933
Calibration procedure(s)	QA CAL-01.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7 Calibration procedure for dosimetric E-field probes
Calibration date:	September 27, 2019

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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 660	19-Dec-18 (No. DAE4-660_Dec18)	Dec-19
Reference Probe ES3DV2	SN: 3013	31-Dec-18 (No. ES3-3013_Dec18)	Dec-19
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 30, 2019

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

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

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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).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3933

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.49	0.52	0.19	± 10.1 %
DCP (mV)[B]	105.1	100.3	95.6	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Max Unc[E] (k=2)
0	CW	X	0.00	0.00	1.00	0.00	163.3	± 2.2 %	± 4.7 %
		Y	0.00	0.00	1.00		166.6		
		Z	0.00	0.00	1.00		158.8		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	15.00	90.30	22.21	10.00	60.0	± 3.2 %	± 9.6 %
		Y	15.00	89.45	22.16		60.0		
		Z	15.00	90.07	22.52		60.0		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	15.00	93.23	22.50	6.99	80.0	± 2.1 %	± 9.6 %
		Y	15.00	90.02	21.08		80.0		
		Z	15.00	92.33	21.94		80.0		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	15.00	102.11	25.43	3.98	95.0	± 2.4 %	± 9.6 %
		Y	15.00	91.85	20.31		95.0		
		Z	15.00	161.21	54.32		95.0		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	15.00	127.83	36.23	2.22	120.0	± 3.0 %	± 9.6 %
		Y	15.00	100.88	23.08		120.0		
		Z	0.11	60.00	30.00		120.0		
10387-AAA	QPSK Waveform, 1 MHz	X	15.00	94.61	19.88	0.00	150.0	± 4.9 %	± 9.6 %
		Y	0.98	66.33	11.74		150.0		
		Z	0.03	60.00	30.00		150.0		
10388-AAA	QPSK Waveform, 10 MHz	X	4.47	82.57	22.97	0.00	150.0	± 4.7 %	± 9.6 %
		Y	2.77	72.49	18.16		150.0		
		Z	15.00	116.88	37.35		150.0		
10396-AAA	64-QAM Waveform, 100 kHz	X	3.14	73.89	21.30	3.01	150.0	± 3.7 %	± 9.6 %
		Y	3.97	75.80	21.70		150.0		
		Z	15.00	121.14	42.19		150.0		
10399-AAA	64-QAM Waveform, 40 MHz	X	4.01	70.75	18.20	0.00	150.0	± 3.5 %	± 9.6 %
		Y	3.70	68.48	16.76		150.0		
		Z	6.59	83.14	25.05		150.0		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.96	67.04	16.71	0.00	150.0	± 4.5 %	± 9.6 %
		Y	4.95	66.11	16.05		150.0		
		Z	5.53	71.03	19.84		150.0		

Note: For details on UID parameters see Appendix

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:3933

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	37.1	274.02	35.44	16.09	0.81	5.10	0.05	0.40	1.01
Y	48.6	371.39	37.26	21.32	1.16	5.10	0.67	0.53	1.01
Z	27.0	217.61	42.23	8.67	1.66	5.07	0.00	0.24	1.01

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	76.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3933

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	10.68	10.68	10.68	0.45	0.86	± 12.0 %
835	41.5	0.90	10.32	10.32	10.32	0.41	0.90	± 12.0 %
900	41.5	0.97	10.01	10.01	10.01	0.52	0.80	± 12.0 %
1750	40.1	1.37	8.87	8.87	8.87	0.34	0.87	± 12.0 %
1900	40.0	1.40	8.57	8.57	8.57	0.30	0.87	± 12.0 %
2300	39.5	1.67	8.19	8.19	8.19	0.29	0.90	± 12.0 %
2450	39.2	1.80	7.84	7.84	7.84	0.33	0.90	± 12.0 %
2600	39.0	1.96	7.62	7.62	7.62	0.25	0.90	± 12.0 %
3500	37.9	2.91	7.27	7.27	7.27	0.30	1.35	± 13.1 %
3700	37.7	3.12	6.99	6.99	6.99	0.30	1.35	± 13.1 %
5200	36.0	4.66	5.29	5.29	5.29	0.40	1.80	± 13.1 %
5300	35.9	4.76	5.10	5.10	5.10	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.95	4.95	4.95	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.80	4.80	4.80	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.75	4.75	4.75	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. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. 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:3933

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	10.44	10.44	10.44	0.45	0.80	± 12.0 %
835	55.2	0.97	10.24	10.24	10.24	0.40	0.80	± 12.0 %
900	55.0	1.05	10.14	10.14	10.14	0.47	0.80	± 12.0 %
1750	53.4	1.49	8.64	8.64	8.64	0.40	0.87	± 12.0 %
1900	53.3	1.52	8.15	8.15	8.15	0.40	0.87	± 12.0 %
2300	52.9	1.81	7.94	7.94	7.94	0.39	0.90	± 12.0 %
2450	52.7	1.95	7.75	7.75	7.75	0.38	0.90	± 12.0 %
2600	52.5	2.16	7.57	7.57	7.57	0.31	0.90	± 12.0 %
3500	51.3	3.31	6.88	6.88	6.88	0.40	1.35	± 13.1 %
3700	51.0	3.55	6.82	6.82	6.82	0.40	1.35	± 13.1 %
5200	49.0	5.30	4.66	4.66	4.66	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.56	4.56	4.56	0.50	1.90	± 13.1 %
5500	48.6	5.65	4.20	4.20	4.20	0.50	1.90	± 13.1 %
5600	48.5	5.77	4.05	4.05	4.05	0.50	1.90	± 13.1 %
5800	48.2	6.00	4.13	4.13	4.13	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. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. 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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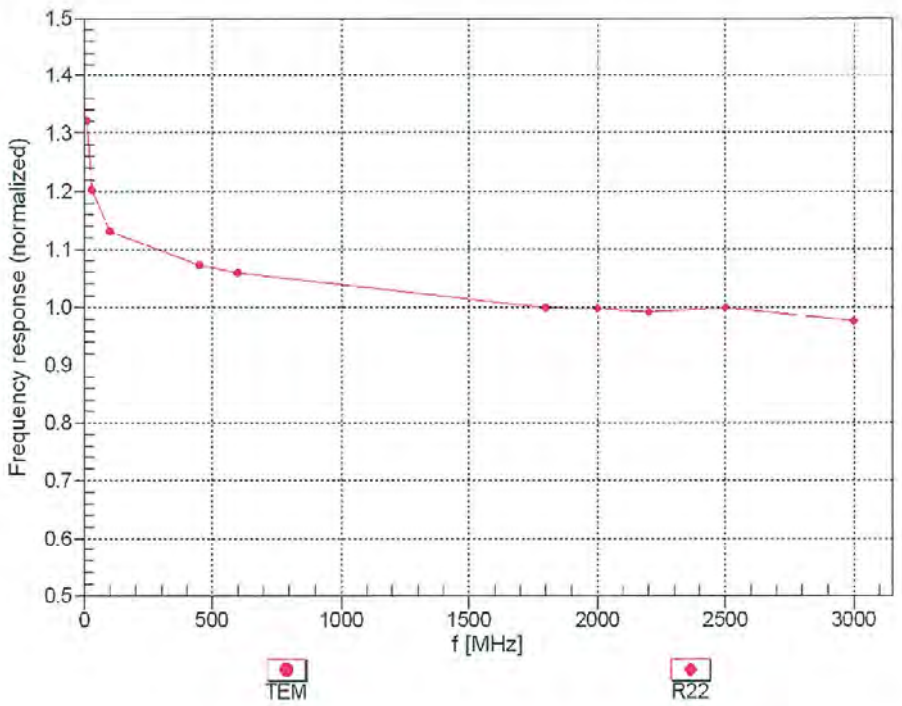
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



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

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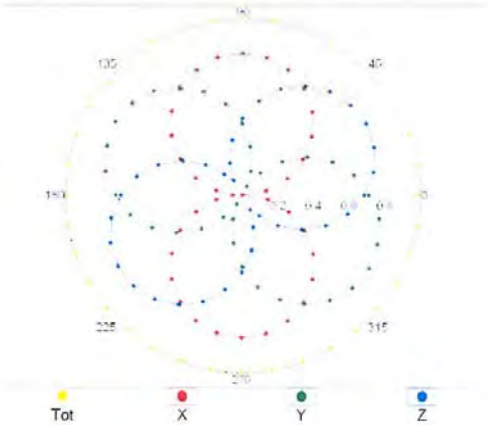
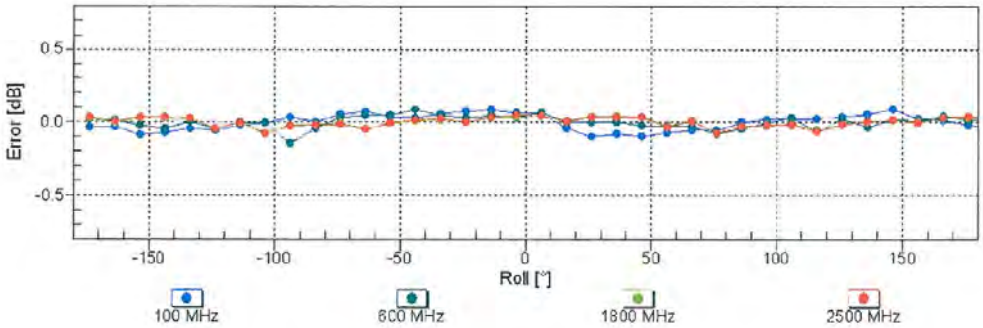
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

f=1800 MHz,R22





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

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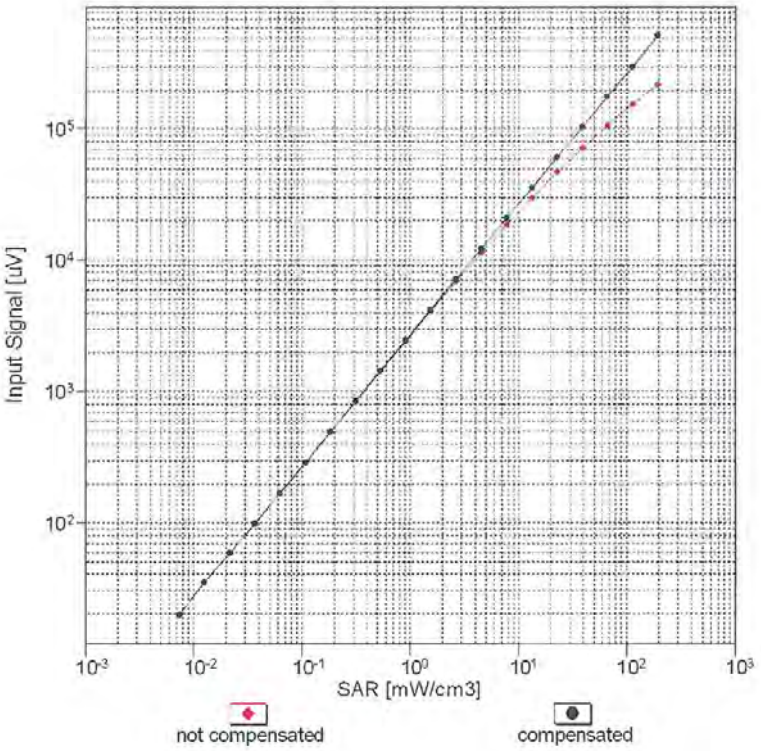
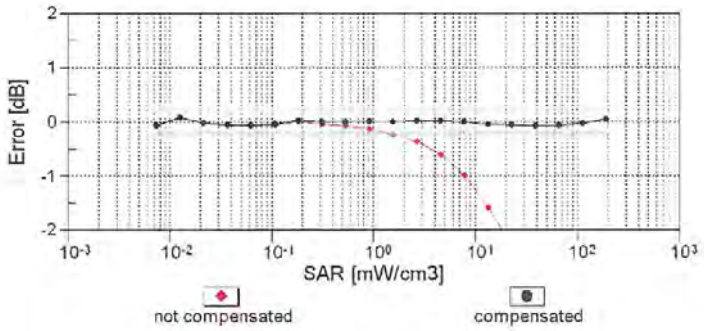
Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)





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

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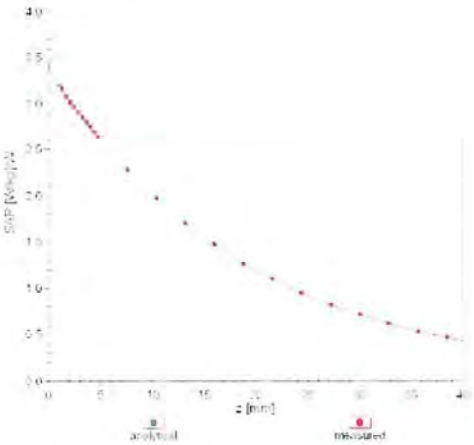
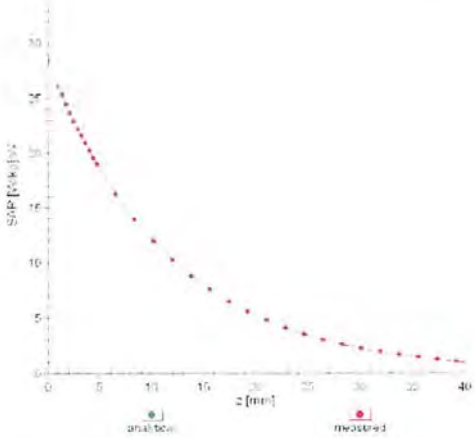
Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

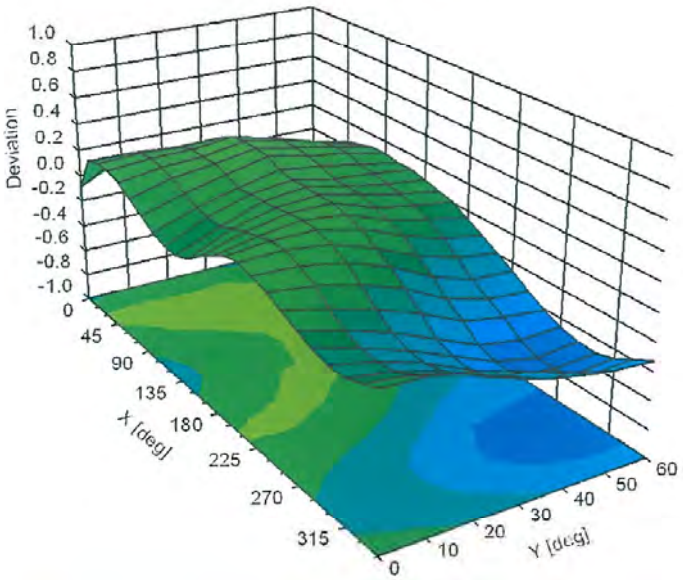


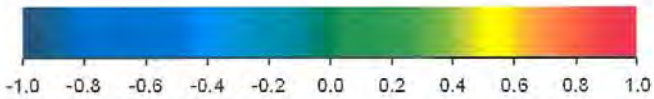
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc[E] (k=2)
0		CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 %
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	± 9.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	± 9.6 %
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6 %
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	± 9.6 %
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	± 9.6 %
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	± 9.6 %
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	± 9.6 %
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	± 9.6 %
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	± 9.6 %
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	± 9.6 %
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	± 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	± 9.6 %
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6 %
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6 %
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	± 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	± 9.6 %
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	± 9.6 %
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	± 9.6 %
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	± 9.6 %
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	± 9.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	± 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	± 9.6 %
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	± 9.6 %
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	± 9.6 %
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	± 9.6 %
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	± 9.6 %
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	± 9.6 %
10062	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	± 9.6 %
10063	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	± 9.6 %
10064	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	± 9.6 %
10065	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	± 9.6 %
10066	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	± 9.6 %
10067	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	± 9.6 %
10068	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10069	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	± 9.6 %
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	± 9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	± 9.6 %
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	± 9.6 %
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	± 9.6 %
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	± 9.6 %
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	± 9.6 %
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	± 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	± 9.6 %
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	± 9.6 %
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	± 9.6 %
10097	CAB	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	CAB	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %

10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 %
10167	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 %
10168	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10181	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10187	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %

10220	CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAB	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAB	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAB	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 %
10256	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAB	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %
10260	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %
10261	CAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10266	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10269	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAA	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	AAB	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	AAB	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %