TEST REPORT

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1. Report No : DRRFCC2002-0008
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 / LM-V600EA
   FCC ID : ZNFV600EA
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 : 2019.12.27 ~ 2020.01.22
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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2020 . 02 . 14.

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Test Report Version

Test Report No.	Date	Description	Tested by	Reviewed by
DRRFCC2002-0008	Feb. 14, 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	ZNFV600EA				
Equipment model name	LM-V600EA				
Equipment add model name	LMV600EA, V600EA				
Equipment serial no.	Identical prototype				
Mode(s) of Operation	GSM 850, GSM 1900, WCDMA 850, WCDMA 1900, LTE Band 12, 17, 5, 4, 2, 2.4 G W-LAN (802.11b/g/n/ac/ax), 5 G W-LAN (802.11a/n/ac/ax), Bluetooth				
	Band	**Mode**	**Operating Modes**	**Bandwidth**	**Frequency**
TX Frequency Range	GSM 850	GSM/GPRS/EDGE	Voice/Data	-	824.2 ~ 848.8 MHz
	GSM 1900	GSM/GPRS/EDGE	Voice/Data	-	1850.2 ~ 1909.8 MHz
	WCDMA 850	WCDMA	Voice/Data	-	826.4 ~ 846.6 MHz
	WCDMA 1900	WCDMA	Voice/Data	-	1852.4 ~ 1907.6 MHz
	LTE Band 12	LTE	Voice/Data	1.4/3/5/10MHz	699.7 ~ 715.3 MHz
	LTE Band 17	LTE	Voice/Data	5/10MHz	706.5 ~ 713.5 MHz
	LTE Band 5	LTE	Voice/Data	1.4/3/5/10MHz	824.7 ~ 848.3 MHz
	LTE Band 4	LTE	Voice/Data	1.4/3/5/10/15/20MHz	1710.7 ~ 1754.3 MHz
	LTE Band 2	LTE	Voice/Data	1.4/3/5/10/15/20MHz	1850.7 ~ 1909.3 MHz
	2.4 GHz W-LAN	802.11b/g/n/ac/ax	Voice/Data	20MHz	2412 ~ 2472 MHz
	5.2 GHz W-LAN	802.11a/n/ac/ax	Voice/Data	20MHz	5180 ~ 5240 MHz
		802.11n/ac/ax	Voice/Data	40MHz	5190 ~ 5230 MHz
		802.11ac/ax	Voice/Data	80MHz	5210 MHz
	5.3 GHz W-LAN	802.11a/n/ac/ax	Voice/Data	20MHz	5260 ~ 5320 MHz
		802.11n/ac/ax	Voice/Data	40MHz	5270 ~ 5310 MHz
		802.11ac/ax	Voice/Data	80MHz	5290 MHz
	5.6 GHz W-LAN	802.11a/n/ac/ax	Voice/Data	20MHz	5500 ~ 5720 MHz
		802.11n/ac/ax	Voice/Data	40MHz	5510 ~ 5710 MHz
		802.11ac/ax	Voice/Data	80MHz	5530 ~ 5690 MHz
	5.8 GHz W-LAN	802.11a/n/ac/ax	Voice/Data	20MHz	5745 ~ 5825 MHz
		802.11n/ac/ax	Voice/Data	40MHz	5755 ~ 5795 MHz
		802.11ac/ax	Voice/Data	80MHz	5775 MHz
	Bluetooth	-	Data	-	2402 ~ 2480 MHz
RX Frequency Range	GSM 850	GSM/GPRS/EDGE	Voice/Data	-	869.2 ~ 893.8 MHz
	GSM 1900	GSM/GPRS/EDGE	Voice/Data	-	1930.2 ~ 1989.8 MHz
	WCDMA 850	WCDMA	Voice/Data	-	871.4 ~ 891.6 MHz
	WCDMA 1900	WCDMA	Voice/Data	-	1932.4 ~ 1987.6 MHz
	LTE Band 12	LTE	Voice/Data	1.4/3/5/10MHz	729.7 ~ 745.3 MHz
	LTE Band 17	LTE	Voice/Data	5/10MHz	736.5 ~ 743.5 MHz
	LTE Band 5	LTE	Voice/Data	1.4/3/5/10MHz	869.7 ~ 893.3 MHz
	LTE Band 4	LTE	Voice/Data	1.4/3/5/10/15/20MHz	2110.7 ~ 2154.3 MHz
	LTE Band 2	LTE	Voice/Data	1.4/3/5/10/15/20MHz	1930.7 ~ 1989.3 MHz
	2.4 GHz W-LAN	802.11b/g/n/ac/ax	Voice/Data	20MHz	2412 ~ 2472 MHz
	5.2 GHz W-LAN	802.11a/n/ac/ax	Voice/Data	20MHz	5180 ~ 5240 MHz
		802.11n/ac/ax	Voice/Data	40MHz	5190 ~ 5230 MHz
		802.11ac/ax	Voice/Data	80MHz	5210 MHz
	5.3 GHz W-LAN	802.11a/n/ac/ax	Voice/Data	20MHz	5260 ~ 5320 MHz
		802.11n/ac/ax	Voice/Data	40MHz	5270 ~ 5310 MHz
		802.11ac/ax	Voice/Data	80MHz	5290 MHz
	5.6 GHz W-LAN	802.11a/n/ac/ax	Voice/Data	20MHz	5500 ~ 5720 MHz
		802.11n/ac/ax	Voice/Data	40MHz	5510 ~ 5710 MHz
		802.11ac/ax	Voice/Data	80MHz	5530 ~ 5690 MHz
	5.8 GHz W-LAN	802.11a/n/ac/ax	Voice/Data	20MHz	5745 ~ 5825 MHz
		802.11n/ac/ax	Voice/Data	40MHz	5755 ~ 5795 MHz
		802.11ac/ax	Voice/Data	80MHz	5775 MHz
	Bluetooth	-	Data	-	2402 ~ 2480 MHz

SAR Summary Table

Equipment Class	Band	Reported SAR			
		1g SAR (W/kg)			10g SAR (W/kg)
		Head	Body-Worn	Hotspot	Phablet
PCE	GSM 850	0.18	0.50	-	-
PCE	GPRS 850	0.20	0.51	0.51	-
PCE	GSM 1900	< 0.1	0.24	-	-
PCE	GPRS 1900	< 0.1	0.34	0.48	-
PCE	WCDMA 850	**0.28**	0.61	0.61	-
PCE	WCDMA 1900	< 0.1	0.57	0.88	-
PCE	LTE Band 12	0.11	0.26	0.26	-
PCE	LTE Band 17	-	-	-	-
PCE	LTE Band 5	0.28	**0.90**	0.90	-
PCE	LTE Band 4	< 0.1	0.43	0.65	-
PCE	LTE Band 2	< 0.1	0.68	**0.99**	-
DTS(SISO)	2.4 GHz W-LAN	0.50	< 0.1	0.17	-
DTS(MIMO)	2.4 GHz W-LAN	0.54	0.14	0.19	-
U-NII-1(SISO)	5.2 GHz W-LAN	-	-	0.13	-
U-NII-1(MIMO)	5.2 GHz W-LAN	-	-	0.27	-
U-NII-2A(SISO)	5.3 GHz W-LAN	0.52	0.16	-	0.44
U-NII-2A(MIMO)	5.3 GHz W-LAN	**0.64**	0.27	-	0.62
U-NII-2C(SISO)	5.6 GHz W-LAN	0.45	0.36	-	0.71
U-NII-2C(MIMO)	5.6 GHz W-LAN	0.50	0.46	-	1.02
U-NII-3(SISO)	5.8 GHz W-LAN	0.39	0.48	0.33	1.04
U-NII-3(MIMO)	5.8 GHz W-LAN	0.38	0.40	0.41	**1.20**
DSS	Bluetooth	0.33	< 0.1	0.10	-
Simultaneous SAR per KDB 690783 D01v01r03		**1.46**	**1.45**	**1.40**	-

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	2019.12.27 ~ 2020.01.22
Antenna Type	Internal Antenna
Functions	● GSM/GPRS/EDGE (GPRS/EDGE 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 ZNFV600EA_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/EDGE 850	X	O	O	O	O	X
GSM/GPRS/EDGE 1900	X	O	O	O	X	O
WCDMA 850	X	O	O	O	O	X
WCDMA 1900	X	O	O	O	X	O
LTE Band 12	X	O	O	O	O	X
LTE Band 17	X	O	O	O	O	X
LTE Band 5	X	O	O	O	O	X
LTE Band 4	X	O	O	O	X	O
LTE Band 2	X	O	O	O	X	O
2.4G W-LAN Ant.1	O	X	O	O	X	O
2.4G W-LAN Ant.2	O	X	O	O	X	O
2.4G W-LAN MIMO	O	X	O	O	X	O
5G W-LAN Ant.1	O Note 2	X	O	O	X	O Note 2
5G W-LAN Ant.2	O Note 2	X	O	O	X	O Note 2
5G W-LAN MIMO	O Note 2	X	O	O	X	O Note 2
Bluetooth	O	X	O	O	X	O

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

Note 2: 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 ZNFV600EA_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; [(14/10)*√2.480] = 2.1 (< 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; [(14/5)*√2.480] = 4.3 (< 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.

Per April 2019 TCB Workshop Notes, 802.11ax was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 D01v02r02 for OFDM mode selection.

The 802.11ax specified maximum output power of this device is not greater than the other 802.11 modes.

Also the maximum conducted powers were measured for each RU size to demonstrate that the output powers would not be higher than the other OFDM 802.11 modes.

In conclusion, SAR tests were not required for 802.11ax based on the maximum allowed output powers of OFDM modes and the reported SAR values.

(B) Licensed Transmitter(s)

GSM/GPRS/EDGE 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.

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

1.7 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01 (3G SAR Procedures)
- FCC KDB Publication 941225 D05v02r05 (SAR for LTE Devices)
- FCC KDB Publication 941225 D05Av01r02 (LTE Rel.10 KDB Inquiry Sheet)
- FCC KDB Publication 941225 D06v02r01(Hotspot Mode)
- FCC KDB Publication 248227 D01v02r02 (802.11 Wi-Fi SAR)
- FCC KDB Publication 447498 D01v06 (General RF Exposure Guidance)
- FCC KDB Publication 648474 D04v01r03 (Handset SAR)
- FCC KDB Publication 690783 D01v01r03 (SAR Listings on Grants)
- FCC KDB Publication 865664 D01v01r04 (SAR Measurement 100 MHz to 6 GHz)
- FCC KDB Publication 865664 D02v01r02 (RF Exposure Reporting)
- October 2013 TCB Workshop Notes (GPRS testing criteria)
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)
- October 2016 TCB Workshop Notes (Bluetooth Duty Factor)
- April 2019 TCB Workshop Notes (802.11ax Transmitters)
- FCC KDB Inquiry (Tracking No. 372568)

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	**ZNFV600EA**				
Form Factor	Mobile Phone				
Frequency Range of each LTE transmission Band	LTE Band 12 (699.7 ~ 715.3 MHz) LTE Band 17 (706.5 ~ 713.5 MHz) LTE Band 5 (Cell) (824.7 ~ 848.3 MHz) LTE Band 4 (AWS) (1710.7 ~ 1754.3 MHz) LTE Band 2 (PCS) (1850.7 ~ 1909.3 MHz)				
Channel Bandwidths	LTE Band 12 : 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 17 : 5 MHz, 10 MHz LTE Band 5 : 1.4 MHz, 3 MHz, 5 MHz, 10 MHz LTE Band 4 : 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 2 : 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Number and Frequencies(MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)	N/A	707.5 (23095)	N/A	715.3 (23173)
LTE Band 12: 3 MHz	700.5 (23025)	N/A	707.5 (23095)	N/A	714.5 (23165)
LTE Band 12: 5 MHz	701.5 (23035)	N/A	707.5 (23095)	N/A	713.5 (23155)
LTE Band 12: 10 MHz	704.0 (23060)	N/A	**707.5 (23095)**[Note1]	N/A	711.0 (23130)
LTE Band 17: 5 MHz	706.5(23755)	N/A	710.0(23790)	N/A	713.5(23825)
LTE Band 17: 10 MHz	709.0(23780)	N/A	710.0(23790)	N/A	711.0(23800)
LTE Band 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)
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)	N/A	1732.5 (20175)	N/A	1754.3 (20393)
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)	N/A	1732.5 (20175)	N/A	1753.5 (20385)
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)	N/A	1732.5 (20175)	N/A	1752.5 (20375)
LTE Band 4 (AWS): 10 MHz	1715.0 (20000)	N/A	1732.5 (20175)	N/A	1750.0 (20350)
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)	N/A	1732.5 (20175)	N/A	1747.5 (20325)
LTE Band 4 (AWS): 20 MHz	1720.0 (20050)	N/A	**1732.5 (20175)** [Note3]	N/A	1745.0 (20300)
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)	N/A	1880.0 (18900)	N/A	1909.3 (19193)
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)	N/A	1880.0 (18900)	N/A	1908.5 (19185)
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)	N/A	1880.0 (18900)	N/A	1907.5 (19175)
LTE Band 2 (PCS): 10 MHz	1855.0 (18650)	N/A	1880.0 (18900)	N/A	1905.0 (19150)
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)	N/A	1880.0 (18900)	N/A	1902.5 (19125)
LTE Band 2 (PCS): 20 MHz	**1860.0 (18700)**	N/A	**1880.0 (18900)**	N/A	**1900.0 (19100)**
UE Category	LTE Rel.15 LTE UE Cat (DL UE Cat 20, UL UE Cat 16)				
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 15. All uplink communications are identical to the Release 8 Specifications. The following LTE Release 15 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. LTE B4 (AWS) can not contain three non-overlapping channels of 20 MHz bandwidth.
   Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

3. INTROCUCTION

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

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

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ) It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Fig. 3.1)

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

Fig. 3.1 SAR Mathematical Equation

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

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

where:

σ = conductivity of the tissue-simulating material (S/m)
ρ = mass density of the tissue-simulating material (kg/m^3)
E = Total RMS electric field strength (V/m)

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

4. DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

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

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4.1) and IEEE1528-2013.

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

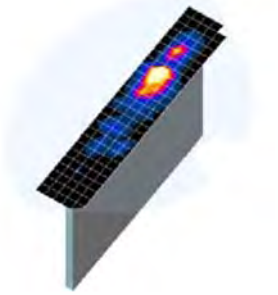

Figure 4.1
Sample SAR Area Scan

3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4.1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):

   a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4.1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).

   b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.

   c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

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

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

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

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

5. DEFINITION OF REFERENCE POINTS

5.1 Ear Reference Point

Figure 5.1 shows the front, back and side views of the SAM Twin Phantom. The point"M" is the reference point for the center of the mouth, "LE" is the left ear reference point(ERP), and "RE" is the right ERP. The ERPs are 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.

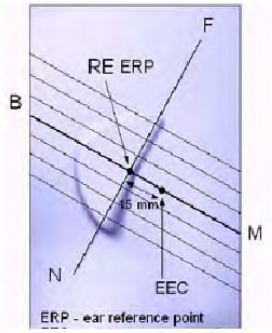

Figure 5.1 Close-up side view of ERP

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

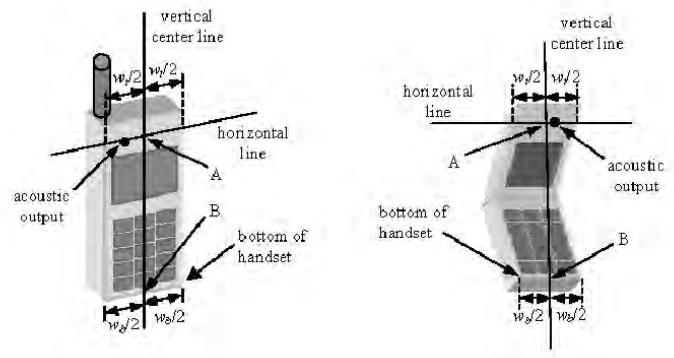

Figure 5.3 Handset Vertical Center & Horizontal Line Reference Points

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).

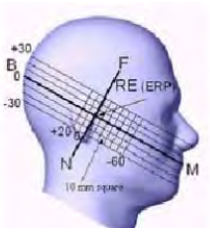

Figure 6.2 Side view w/relevant markings

Figure 6.3 Front, Side and Top View of Ear/15° 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.

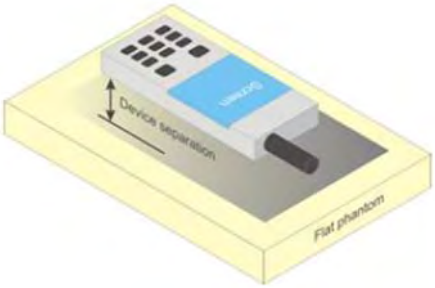

Figure 6.4 Sample Body-Worn Diagram

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

Figure 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

8.3.6 SAR Measurement Conditions for DC-HSDPA

In the following DB 941225 D01v03r01 procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

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. Per April 2019 TCB Workshop guidance, 802.11ax was considered the highest order 802.11 mode. 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]				Burst Average GMSK [dBm]			
		1 TX Slot	1 TX Slot	2 TX Slot	3 TX Slot	4 TX Slot	1 TX Slot	2 TX Slot	3 TX Slot	4 TX Slot
GSM/GPRS/EDGE 850	Maximum	33.20	33.20	31.20	27.20	25.70	27.20	26.70	25.70	24.70
	Nominal	32.70	32.70	30.70	26.70	25.20	26.70	26.20	25.20	24.20
GSM/GPRSEDGE 1900	Maximum	30.20	30.20	29.20	27.20	25.70	26.20	25.70	24.70	23.70
	Nominal	29.70	29.70	28.70	26.70	25.20	25.70	25.20	24.20	23.20

Table 9.1.1 GSM Nominal and Maximum Output Power Spec

Band	Channel	Maximum Burst-Averaged Output Power(dBm)								
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		GSM CS 1 Slot	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
GSM850	128	33.00	33.00	31.20	27.10	25.50	26.10	25.90	25.10	23.60
	190	33.10	33.10	31.20	27.00	25.50	26.20	25.90	25.00	23.60
	251	32.70	32.70	31.00	26.80	25.30	26.00	25.90	25.10	23.70
PCS 1900	512	30.00	30.00	29.10	27.10	25.50	25.70	25.50	24.60	23.40
	661	30.10	30.10	29.20	27.20	25.70	25.80	25.50	24.70	23.70
	810	30.00	30.00	29.10	27.10	25.20	25.90	25.70	24.60	23.20
Band	Channel	Calculated Maximum Frame-Averaged Output Power(dBm)								
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		GSM CS 1 Slot	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
GSM850	128	23.97	23.97	25.18	22.84	22.49	17.07	19.88	20.84	20.59
	190	24.07	24.07	25.18	22.74	22.49	17.17	19.88	20.74	20.59
	251	23.67	23.67	24.98	22.54	22.29	16.97	19.88	20.84	20.69
PCS 1900	512	20.97	20.97	23.08	22.84	22.49	16.67	19.48	20.34	20.39
	661	21.07	21.07	23.18	22.94	22.69	16.77	19.48	20.44	20.69
	810	20.97	20.97	23.08	22.84	22.19	16.87	19.68	20.34	20.19
GSM850	Frame Avg. Targets:	23.67	23.67	24.68	22.44	22.19	17.67	20.18	20.94	21.19
PCS 1900		20.67	20.67	22.68	22.44	22.19	16.67	19.18	19.94	20.19

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.
3. EDGE (8-PSK) output powers were measured with MCS7 on the base station simulator. MCS7 coding scheme was used to measure the output powers for EDGE since investigation has shown that choosing MCS7 coding scheme will ensure 8-PSK modulation. It has been shown that MCS levels that produce 8PSK modulation do not have an impact on output power.

GPRS Multislot class: 12 (max 4 TX Uplink slots)
EDGE 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)	PCS Band (dBm)	3GPP MPR (dB)
99	WCDMA	Voice	Maximum	25.2	23.7	-
			Nominal	24.7	23.2	
5	HSDPA	Subtest 1	Maximum	25.2	23.7	0
			Nominal	24.7	23.2	
5		Subtest 2	Maximum	25.2	23.7	0
			Nominal	24.7	23.2	
5		Subtest 3	Maximum	24.7	23.2	0.5
			Nominal	24.2	22.7	
5		Subtest 4	Maximum	24.7	23.2	0.5
			Nominal	24.2	22.7	
6	HSUPA	Subtest 1	Maximum	25.2	23.7	0
			Nominal	24.7	23.2	
6		Subtest 2	Maximum	23.2	21.7	2
			Nominal	22.7	21.2	
6		Subtest 3	Maximum	24.2	22.7	1
			Nominal	23.7	22.2	
6		Subtest 4	Maximum	23.2	21.7	2
			Nominal	22.7	21.2	
6		Subtest 5	Maximum	25.2	23.7	0
			Nominal	24.7	23.2	
8	DC-HSDPA	Subtest 1	Maximum	25.2	23.7	0
			Nominal	24.7	23.2	
8		Subtest 2	Maximum	25.2	23.7	0
			Nominal	24.7	23.2	
8		Subtest 3	Maximum	24.7	23.2	0.5
			Nominal	24.2	22.7	
8		Subtest 4	Maximum	24.7	23.2	0.5
			Nominal	24.2	22.7	

Table 9.2.1 WCDMA Nominal and Maximum Output Power Spec

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band (dBm)			PCS Band (dBm)			3GPP MPR (dB)
			4132	4183	4233	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	25.15	25.19	25.12	23.65	23.67	23.69	-
99		12.2 kbps AMR	25.16	25.19	25.13	23.66	23.67	23.68	-
5	HSDPA	Subtest 1	24.26	24.32	24.27	22.72	22.74	22.76	0
5		Subtest 2	24.26	24.32	24.26	22.71	22.76	22.75	0
5		Subtest 3	23.77	23.82	23.76	22.20	22.23	22.25	0.5
5		Subtest 4	23.77	23.82	23.77	22.20	22.21	22.25	0.5
6	HSUPA	Subtest 1	24.27	24.33	24.27	22.71	22.72	22.74	0
6		Subtest 2	22.28	22.32	22.27	20.72	20.75	20.74	2
6		Subtest 3	23.24	23.33	23.27	21.67	21.72	21.74	1
6		Subtest 4	22.28	22.31	22.28	20.70	20.75	20.76	2
6		Subtest 5	24.26	24.31	24.27	22.69	22.75	22.75	0
8	DC-HSDPA	Subtest 1	24.08	24.12	23.95	22.18	22.35	22.23	0
8		Subtest 2	24.07	24.12	23.94	22.17	22.36	22.23	0
8		Subtest 3	23.57	23.62	23.44	21.68	21.84	21.73	0.5
8		Subtest 4	23.56	23.61	23.44	21.67	21.84	21.72	0.5

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, HSUPA and DC-HSDPA transmitter's power will not exceed the R99 maximum transmit power in devices based on Qualcomm's HSPA chipset solutions.

DC-HSDPA considerations

- 3GPP Specification 34.121-1 Release 8 Ver 8.10.0 was used for DC-HSDPA guidance.
- H-Set 12 (QPSK) was confirmed to be used during DC-HSDPA measurements.
- The DUT supports UE category 24 for HSDPA.

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	25.5
	Nominal	25.0

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	24.99	≤ 1	0
	1	**25**	**25.11**		
	1	49	25.02		
	25	0	24.02		1
	25	**12**	**24.15**		
	25	25	24.08		
	50	0	24.06		1
16QAM	1	0	24.15	≤ 1	1
	1	25	24.23		
	1	49	24.16		
	25	0	22.90	≤ 2	2
	25	12	22.98		
	25	25	22.90		
	50	0	22.87		2
64QAM	1	0	23.02	≤ 2	2
	1	25	23.19		
	1	49	23.11		
	25	0	21.93	≤ 3	3
	25	12	22.02		
	25	25	22.00		
	50	0	21.90		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	24.83	24.91	24.89	≤ 1	0
	1	12	24.94	25.04	25.00		
	1	24	24.92	24.95	24.93		
	12	0	24.00	24.02	24.02		1
	12	6	24.02	24.05	24.04		
	12	13	24.01	24.03	24.03		
	25	0	24.01	24.05	24.03		1
16QAM	1	0	24.01	24.06	24.07	≤ 1	1
	1	12	24.12	24.20	24.15		
	1	24	24.09	24.13	24.12		
	12	0	22.86	22.88	22.86	≤ 2	2
	12	6	22.87	22.89	22.88		
	12	13	22.87	22.92	22.90		
	25	0	22.86	22.87	22.84		2
64QAM	1	0	23.02	23.03	23.04	≤ 2	2
	1	12	23.09	23.14	23.14		
	1	24	23.00	23.09	23.05		
	12	0	21.90	21.93	21.89	≤ 3	3
	12	6	21.94	21.99	21.99		
	12	13	21.90	22.01	21.95		
	15	0	21.89	21.93	21.90		3

Table 9.3.1.3 LTE Conducted Power

LTE Band 12 Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			23025 (700.5 MHz)	23095 (707.5 MHz)	23165 (714.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	24.93	24.93	25.00	≤ 1	0
	1	7	24.97	25.06	25.03		
	1	14	24.96	24.97	24.93		
	8	0	24.01	24.02	24.00		1
	8	4	24.03	24.05	24.04		
	8	7	24.01	24.04	24.02		
	15	0	24.00	24.03	24.02		1
16QAM	1	0	24.08	24.11	24.10	≤ 1	1
	1	7	24.12	24.20	24.15		
	1	14	24.10	24.14	24.11		
	8	0	22.89	22.90	22.91	≤ 2	2
	8	4	22.94	22.93	22.95		
	8	7	22.86	22.99	22.92		
	15	0	22.86	22.90	22.89		2
64QAM	1	0	23.08	23.08	23.04	≤ 2	2
	1	7	23.10	23.20	23.10		
	1	14	23.03	23.16	23.05		
	8	0	21.96	21.93	21.98	≤ 3	3
	8	4	21.95	21.96	21.99		
	8	7	21.92	22.01	21.90		
	15	0	21.91	21.97	21.95		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	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			23017 (699.7 MHz)	23095 (707.5 MHz)	23173 (715.3 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	24.89	24.87	24.87	≤ 1	0
	1	2	24.92	24.98	24.96		
	1	5	24.86	24.92	24.91		
	3	0	24.86	24.88	24.84		0
	3	2	24.91	24.98	24.87		
	3	3	24.88	24.92	24.85		
	6	0	23.95	23.98	23.91		1
16QAM	1	0	24.04	24.02	24.05	≤ 1	1
	1	2	24.09	24.15	24.12		
	1	5	24.00	24.12	24.05		
	3	0	23.81	23.83	23.82		1
	3	2	23.84	23.91	23.84		
	3	3	23.82	23.86	23.83		
	6	0	22.86	22.86	22.84	≤ 2	2
64QAM	1	0	22.97	23.01	22.96	≤ 2	2
	1	2	23.04	23.05	23.02		
	1	5	22.95	23.02	22.97		
	3	0	22.92	22.97	22.90		2
	3	2	22.98	23.07	22.98		
	3	3	22.94	22.99	22.94		
	6	0	21.81	21.83	21.82	≤ 3	3

Table 9.3.1.5 LTE Conducted Power

Band & Mode		Modulated Average[dBm]
LTE Band 5	Maximum	25.5
	Nominal	25.0

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	25.15	≤ 1	0
	1	**25**	**25.21**		
	1	49	25.16		
	25	0	24.16		1
	25	**12**	**24.26**		
	25	25	24.22		
	50	**0**	**24.21**		1
16QAM	1	0	24.32	≤ 1	1
	1	25	24.39		
	1	49	24.32		
	25	0	22.99	≤ 2	2
	25	12	23.07		
	25	25	23.04		
	50	0	23.12		2
64QAM	1	0	23.23	≤ 2	2
	1	25	23.26		
	1	49	23.24		
	25	0	22.01	≤ 3	3
	25	12	22.11		
	25	25	22.05		
	50	0	22.08		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	25.11	25.03	25.02	≤ 1	0
	1	12	25.16	25.18	25.14		
	1	24	25.13	25.08	24.98		
	12	0	24.19	24.19	24.14		1
	12	6	24.23	24.24	24.17		
	12	13	24.22	24.22	24.14		
	25	0	24.19	24.20	24.11		1
16QAM	1	0	24.24	24.22	24.15	≤ 1	1
	1	12	24.32	24.37	24.30		
	1	24	24.27	24.23	24.10		
	12	0	23.04	23.01	22.96	≤ 2	2
	12	6	23.06	23.06	23.00		
	12	13	23.03	23.04	22.98		
	25	0	23.03	23.12	22.94		2
64QAM	1	0	23.20	23.17	23.05	≤ 2	2
	1	12	23.27	23.29	23.18		
	1	24	23.24	23.19	22.80		
	12	0	22.10	22.00	22.03	≤ 3	3
	12	6	22.13	22.12	22.05		
	12	13	22.11	22.07	22.04		
	25	0	22.02	22.06	21.93		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	25.11	25.06	24.98	≤ 1	0
	1	7	25.18	25.20	25.13		
	1	14	25.13	25.14	25.01		
	8	0	24.19	24.15	24.03		1
	8	4	24.22	24.24	24.17		
	8	7	24.17	24.20	24.12		
	15	0	24.18	24.19	24.08		1
16QAM	1	0	24.23	24.18	24.13	≤ 1	1
	1	7	24.32	24.35	24.23		
	1	14	24.29	24.31	24.17		
	8	0	23.10	23.03	22.96	≤ 2	2
	8	4	23.12	23.09	23.02		
	8	7	23.09	23.05	22.99		
	15	0	23.04	23.06	22.93		2
64QAM	1	0	23.13	23.13	23.12	≤ 2	2
	1	7	23.30	23.29	23.14		
	1	14	23.18	23.21	22.84		
	8	0	22.08	22.05	21.99	≤ 3	3
	8	4	22.12	22.12	22.04		
	8	7	22.09	22.08	21.99		
	15	0	22.04	22.03	21.98		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	25.06	24.99	24.96	≤ 1	0
	1	2	25.13	25.15	25.03		
	1	5	25.06	25.04	24.98		
	3	0	25.07	25.04	24.94		0
	3	2	25.12	25.14	25.00		
	3	3	25.09	25.08	24.94		
	6	0	24.16	24.17	24.03		1
16QAM	1	0	24.22	24.14	24.08	≤ 1	1
	1	2	24.29	24.31	24.23		
	1	5	24.20	24.22	24.07		
	3	0	24.00	23.95	23.87		1
	3	2	24.04	24.04	23.92		
	3	3	24.02	23.98	23.87		
	6	0	23.03	23.02	22.92	≤ 2	2
64QAM	1	0	23.19	23.13	23.06	≤ 2	2
	1	2	23.21	23.21	23.07		
	1	5	23.14	23.14	23.01		
	3	0	23.13	23.09	22.96		2
	3	2	23.18	23.15	22.97		
	3	3	23.13	23.14	22.90		
	6	0	22.00	21.98	21.86	≤ 3	3

Table 9.3.2.5 LTE Conducted Power

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

Table 9.3.3.1 Nominal and Maximum Output Power Spec

3) LTE Band 4

LTE Band 4 (AWS) Conducted Power– 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20175 (1732.5 MHz) Conducted Power (dBm)	MPR Allowed Per 3GPP(dB)	MPR (dB)
QPSK	1	0	23.02	≤ 1	0
	1	**50**	**23.09**		
	1	99	23.00		
	50	0	22.18		1
	50	**25**	**22.19**		
	50	50	22.15		
	100	0	22.15		1
16QAM	1	0	22.20	≤ 1	1
	1	50	22.26		
	1	99	22.15		
	50	0	21.14	≤ 2	2
	50	25	21.15		
	50	50	21.13		
	100	0	21.07		2
64QAM	1	0	21.16	≤ 2	2
	1	50	21.24		
	1	99	21.04		
	50	0	20.08	≤ 3	3
	50	25	20.11		
	50	50	20.10		
	100	0	20.03		3

Table 9.3.3.2 LTE Conducted Power

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

LTE Band 4 (AWS) Conducted Power– 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20025 (1717.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20325 (1747.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.03	23.03	23.04	≤ 1	0
	1	**36**	23.15	23.14	23.13		
	1	74	23.01	23.00	23.01		
	36	0	22.17	22.17	22.20		1
	36	18	22.23	22.22	22.21		
	36	37	22.17	22.18	22.18		
	75	0	22.20	22.16	22.15		1
16QAM	1	0	22.23	22.17	22.18	≤ 1	1
	1	36	22.33	22.34	22.30		
	1	74	22.19	22.18	22.10		
	36	0	21.15	21.15	21.17	≤ 2	2
	36	18	21.22	21.16	21.25		
	36	37	21.16	21.15	21.17		
	75	0	21.19	21.16	21.14		2
64QAM	1	0	21.20	21.19	21.23	≤ 2	2
	1	36	21.31	21.31	21.31		
	1	74	21.19	21.18	21.20		
	36	0	20.13	20.12	20.13	≤ 3	3
	36	18	20.22	20.17	20.24		
	36	37	20.13	20.15	20.17		
	75	0	20.14	20.06	20.08		3

Table 9.3.3.3 LTE Conducted Power

LTE Band 4 (AWS) Conducted Power– 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20000 (1715.0 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20350 (1750.0 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.06	23.05	23.07	≤ 1	0
	1	25	23.11	23.09	23.08		
	1	49	23.00	23.01	23.02		
	25	0	22.03	22.02	22.01		1
	25	12	22.04	22.03	22.02		
	25	25	22.02	22.01	22.00		
	50	0	22.09	22.04	22.03		1
16QAM	1	0	22.12	22.17	22.17	≤ 1	1
	1	25	22.23	22.24	22.24		
	1	49	22.06	22.02	22.03		
	25	0	21.06	21.06	21.00	≤ 2	2
	25	12	21.09	21.11	21.03		
	25	25	21.04	21.04	21.00		
	50	0	21.07	21.03	21.06		2
64QAM	1	0	21.09	21.06	21.05	≤ 2	2
	1	25	21.18	21.22	21.22		
	1	49	21.03	21.07	21.03		
	25	0	20.08	20.02	20.00	≤ 3	3
	25	12	20.12	20.10	20.01		
	25	25	20.07	20.09	20.00		
	50	0	20.05	20.07	20.02		3

Table 9.3.3.4 LTE Conducted Power

LTE Band 4 (AWS) Conducted Power– 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 19975 (1712.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20375 (1752.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.02	23.03	23.02	≤ 1	0
	1	12	23.10	23.06	23.04		
	1	24	23.00	23.02	23.01		
	12	0	22.09	22.04	22.08		1
	12	6	22.12	22.11	22.10		
	12	13	22.00	22.02	22.03		
	25	0	22.09	22.08	22.07		1
16QAM	1	0	22.18	22.11	22.14	≤ 1	1
	1	12	22.21	22.17	22.16		
	1	24	22.12	22.10	22.13		
	12	0	21.11	21.06	21.11	≤ 2	2
	12	6	21.15	21.10	21.13		
	12	13	21.03	21.04	21.05		
	25	0	21.08	21.00	21.07		2
64QAM	1	0	21.17	21.14	21.12	≤ 2	2
	1	12	21.21	21.20	21.13		
	1	24	21.05	21.07	21.06		
	12	0	20.09	20.04	20.09	≤ 3	3
	12	6	20.10	20.10	20.10		
	12	13	20.03	20.02	20.08		
	25	0	20.02	20.07	20.01		3

Table 9.3.3.5 LTE Conducted Power

LTE Band 4 (AWS) Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 19965 (1711.5 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20385 (1753.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.03	23.01	23.01	≤ 1	0
	1	7	23.11	23.07	23.05		
	1	14	23.02	23.00	23.00		
	8	0	22.12	22.04	22.08		1
	8	4	22.13	22.11	22.09		
	8	7	22.08	22.04	22.03		
	15	0	22.09	22.08	22.02		1
16QAM	1	0	22.18	22.11	22.13	≤ 1	1
	1	7	22.31	22.18	22.15		
	1	14	22.17	22.08	22.05		
	8	0	21.14	21.10	21.14	≤ 2	2
	8	4	21.16	21.15	21.16		
	8	7	21.10	21.11	21.08		
	15	0	21.09	21.05	21.08		2
64QAM	1	0	21.15	21.16	21.17	≤ 2	2
	1	7	21.30	21.23	21.18		
	1	14	21.18	21.19	21.08		
	8	0	20.14	20.03	20.06	≤ 3	3
	8	4	20.15	20.09	20.10		
	8	7	20.11	20.04	20.03		
	15	0	20.06	20.02	20.06		3

Table 9.3.3.6 LTE Conducted Power

TE Band 4 (AWS) Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 19957 (1710.7 MHz)	Mid Channel 20175 (1732.5 MHz)	High Channel 20393 (1754.3 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.04	23.01	23.03	≤ 1	0
	1	2	23.10	23.09	23.04		
	1	5	23.00	23.02	23.02		
	3	0	23.04	23.03	23.02		0
	3	2	23.08	23.07	23.03		
	3	3	23.03	23.04	23.00		
	6	0	22.13	22.12	22.09		1
16QAM	1	0	22.23	22.12	22.10	≤ 1	1
	1	2	22.27	22.22	22.16		
	1	5	22.13	22.13	22.09		
	3	0	22.03	22.03	22.01		1
	3	2	22.04	22.04	22.05		
	3	3	22.00	22.02	22.00		
	6	0	21.07	21.08	21.03	≤ 2	2
64QAM	1	0	21.20	21.18	21.15	≤ 2	2
	1	2	21.21	21.23	21.17		
	1	5	21.14	21.11	21.09		
	3	0	21.13	21.12	21.07		2
	3	2	21.19	21.19	21.15		
	3	3	21.11	21.09	21.04		
	6	0	20.09	20.08	20.07	≤ 3	3

Table 9.3.3.7 LTE Conducted Power

Band & Mode		Modulated Average[dBm]
LTE Band 2(PCS)	Maximum	23.7
	Nominal	23.2

Table 9.3.4.1 Nominal and Maximum Output Power Spec

4) LTE Band 2 (PCS)

LTE Band 2 (PCS) Conducted Power– 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18700 (1860.0 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19100 (1900.0 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	**1**	**0**	23.12	23.30	23.12	≤ 1	0
	1	50	23.02	23.03	23.08		
	1	99	23.00	23.00	23.01		
	50	0	22.06	22.08	22.05		1
	50	**25**	22.20	22.23	22.20		
	50	50	22.14	22.13	22.19		
	100	**0**	22.15	22.17	22.09		1
16QAM	1	0	22.28	22.25	22.26	≤ 1	1
	1	50	22.18	22.21	22.20		
	1	99	22.13	22.20	22.21		
	50	0	21.10	21.08	21.09	≤ 2	2
	50	25	21.20	21.32	21.21		
	50	50	21.17	21.19	21.20		
	100	0	21.17	21.09	21.10		2
64QAM	1	0	21.19	21.24	21.16	≤ 2	2
	1	50	21.06	21.11	21.13		
	1	99	21.08	21.06	21.15		
	50	0	20.13	20.12	20.12	≤ 3	3
	50	25	20.25	20.26	20.25		
	50	50	20.20	20.22	20.23		
	100	0	20.19	20.15	20.12		3

Table 9.3.4.2 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18675 (1857.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19125 (1902.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.05	23.15	23.11	≤ 1	0
	1	36	23.01	23.00	23.05		
	1	74	23.00	23.00	23.03		
	36	0	22.08	22.11	22.09		1
	36	18	22.16	22.13	22.14		
	36	37	22.18	22.20	22.19		
	75	0	22.11	22.15	22.10		1
16QAM	1	0	22.19	22.26	22.25	≤ 1	1
	1	36	22.10	22.20	22.19		
	1	74	22.05	22.19	22.23		
	36	0	21.10	21.11	21.07	≤ 2	2
	36	18	21.16	21.14	21.15		
	36	37	21.18	21.20	21.19		
	75	0	21.18	21.13	21.12		2
64QAM	1	0	21.17	21.20	21.16	≤ 2	2
	1	36	21.10	21.14	21.14		
	1	74	21.12	21.10	21.15		
	36	0	20.10	20.16	20.16	≤ 3	3
	36	18	20.14	20.21	20.20		
	36	37	20.25	20.29	20.23		
	75	0	20.19	20.15	20.14		3

Table 9.3.4.3 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18650 (1855.0 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19150 (1905.0 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.01	23.05	23.07	≤ 1	0
	1	25	23.06	23.09	23.08		
	1	49	23.00	23.02	23.07		
	25	0	22.05	22.02	22.03		1
	25	12	22.06	22.10	22.05		
	25	25	22.05	22.09	22.01		
	50	0	22.04	22.09	22.07		1
16QAM	1	0	22.02	22.01	22.11	≤ 1	1
	1	25	22.09	22.11	22.18		
	1	49	22.05	22.06	22.05		
	25	0	21.07	21.03	21.06	≤ 2	2
	25	12	21.08	21.13	21.08		
	25	25	21.06	21.09	21.06		
	50	0	21.04	21.03	21.01		2
64QAM	1	0	21.02	21.05	21.04	≤ 2	2
	1	25	21.08	21.11	21.09		
	1	49	21.01	21.07	21.03		
	25	0	20.01	20.07	20.00	≤ 3.	3
	25	12	20.07	20.14	20.04		
	25	25	20.00	20.09	20.01		
	50	0	20.20	20.05	20.04		3

Table 9.3.4.4 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18625 (1852.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19175 (1907.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.06	23.02	23.05	≤ 1	0
	1	12	23.07	23.10	23.09		
	1	24	23.02	23.00	23.01		
	12	0	22.02	22.02	22.04		1
	12	6	22.03	22.09	22.05		
	12	13	22.01	22.00	22.00		
	25	0	22.02	22.07	22.00		1
16QAM	1	0	22.02	22.01	22.02	≤ 1	1
	1	12	22.11	22.14	22.10		
	1	24	22.01	22.02	22.01		
	12	0	21.07	21.04	21.03	≤ 2	2
	12	6	21.09	21.11	21.09		
	12	13	21.01	21.00	21.00		
	25	0	21.03	21.07	21.03		2
64QAM	1	0	21.06	21.02	21.05	≤ 2	2
	1	12	21.07	21.08	21.07		
	1	24	21.02	21.03	21.02		
	12	0	20.13	20.10	20.11	≤ 3	3
	12	6	20.14	20.15	20.12		
	12	13	20.04	20.06	20.05		
	25	0	20.02	20.03	20.05		3

Table 9.3.4.5 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18615 (1851.5 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19185 (1908.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.04	23.05	23.03	≤ 1	0
	1	7	23.05	23.09	23.06		
	1	14	23.00	23.03	23.01		
	8	0	22.01	22.03	22.01		1
	8	4	22.02	22.05	22.02		
	8	7	22.00	22.04	22.00		
	15	0	22.00	22.04	22.00		1
16QAM	1	0	22.07	22.06	22.12	≤ 1	1
	1	7	22.11	22.11	22.13		
	1	14	22.06	22.06	22.03		
	8	0	21.10	21.08	21.09	≤ 2	2
	8	4	21.11	21.11	21.12		
	8	7	21.02	21.08	21.03		
	15	0	21.05	21.01	21.04		2
64QAM	1	0	21.05	21.04	21.06	≤ 2	2
	1	7	21.06	21.09	21.07		
	1	14	21.04	21.02	21.04		
	8	0	20.10	20.12	20.11	≤ 3	3
	8	4	20.16	20.16	20.15		
	8	7	20.07	20.12	20.04		
	15	0	20.04	20.02	20.06		3

Table 9.3.4.6 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 18607 (1850.7 MHz)	Mid Channel 18900 (1880.0 MHz)	High Channel 19193 (1909.3 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.03	23.06	23.02	≤ 1	0
	1	2	23.06	23.07	23.05		
	1	5	23.04	23.05	23.03		
	3	0	23.02	23.05	23.01		0
	3	2	23.05	23.06	23.04		
	3	3	23.01	23.03	23.01		
	6	0	22.02	22.03	22.01		1
16QAM	1	0	22.08	22.03	22.01	≤ 1	1
	1	2	22.14	22.10	22.04		
	1	5	22.03	22.01	22.00		
	3	0	22.05	22.03	22.02		1
	3	2	22.10	22.04	22.03		
	3	3	22.01	22.00	22.01		
	6	0	21.03	21.06	21.01	≤ 2	2
64QAM	1	0	21.04	21.03	21.04	≤ 2	2
	1	2	21.12	21.14	21.10		
	1	5	21.02	21.03	21.08		
	3	0	21.05	21.06	21.06		2
	3	2	21.10	21.12	21.09		
	3	3	21.02	21.12	21.07		
	6	0	20.07	20.09	20.05	≤ 3	3

Table 9.3.4.7 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	15.5	14.5	15.5	14.5	-	-
		3~9	15.5	14.5	15.5	14.5	-	-
		10~11	15.5	14.5	15.5	14.5	-	-
		12	-4.0	-5.0	-4.0	-5.0	-	-
		13	-5.0	-6.0	-5.0	-6.0	-	-
	802.11g	1~2	15.5	14.5	15.5	14.5	18.5	17.5
		3~9	15.5	14.5	15.5	14.5	18.5	17.5
		10~11	15.5	14.5	15.5	14.5	18.5	17.5
		12	-4.0	-5.0	-4.0	-5.0	-1.0	-2.0
		13	-5.0	-6.0	-5.0	-6.0	-2.0	-3.0
	802.11n	1~2	15.5	14.5	15.5	14.5	18.5	17.5
		3~9	15.5	14.5	15.5	14.5	18.5	17.5
		10~11	13.5	12.5	13.5	12.5	16.5	15.5
		12	-4.0	-5.0	-4.0	-5.0	-1.0	-2.0
		13	-5.0	-6.0	-5.0	-6.0	-2.0	-3.0
	802.11ac	1~2	15.5	14.5	15.5	14.5	18.5	17.5
		3~9	15.5	14.5	15.5	14.5	18.5	17.5
		10~11	13.5	12.5	13.5	12.5	16.5	15.5
		12	-4.0	-5.0	-4.0	-5.0	-1.0	-2.0
		13	-5.0	-6.0	-5.0	-6.0	-2.0	-3.0
	802.11ax OFDM	1~2	14.5	13.5	14.5	13.5	17.5	16.5
		3~9	14.5	13.5	14.5	13.5	17.5	16.5
		10~11	13.5	12.5	13.5	12.5	16.5	15.5
		12	-4.0	-5.0	-4.0	-5.0	-1.0	-2.0
		13	-5.0	-6.0	-5.0	-6.0	-2.0	-3.0

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	15.03	15.17	-	-
	2437	6	15.10	15.07	-	-
	2462	**11**	15.26	15.38	-	-
	2467	12	-5.93	-5.14	-	-
	2472	13	-6.08	-5.03	-	-
802.11g	2412	1	15.17	14.43	17.82	-
	2437	**6**	15.44	14.27	17.90	-
	2462	11	15.26	14.40	17.86	-
	2467	12	-5.15	-5.02	-2.08	-
	2472	13	-6.98	-6.19	-3.56	-
802.11n (HT-20)	2412	1	14.91	14.70	17.82	17.58
	2437	6	15.14	14.73	17.95	17.62
	2462	11	13.00	12.72	15.87	15.67
	2467	12	-5.25	-4.62	-1.91	-1.84
	2472	13	-6.72	-5.78	-3.21	-3.22
802.11ac (VHT-20)	2412	1	14.88	14.71	17.81	17.56
	2437	6	15.14	14.70	17.94	17.64
	2462	11	12.97	12.71	15.85	15.65
	2467	12	-5.11	-4.83	-1.96	-1.91
	2472	13	-6.67	-5.80	-3.20	-3.10
802.11ax OFDM	2412	1	13.95	13.48	16.73	16.74
	2437	6	14.17	13.41	16.82	16.80
	2462	11	13.02	12.61	15.83	15.78
	2467	12	-5.02	-5.02	-2.01	-1.69
	2472	13	-6.57	-6.00	-3.26	-3.10

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/ax (20MHz)	36-165	15.0	14.0	15.0	14.0	18.0	17.0
	802.11n/ac/ax (40MHz)	38, 62, 102	11.5	10.5	11.5	10.5	14.5	13.5
		46-54, 110-159	15.0	14.0	15.0	14.0	18.0	17.0
	802.11ac/ax (80MHz)	42-58	11.5	10.5	11.5	10.5	14.5	13.5
		106-155	13.5	12.5	13.5	12.5	16.5	15.5

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	15.52	15.57	18.56	-
	5200	**40**	15.58	15.65	18.63	-
	5220	44	15.51	15.61	15.57	-
	5240	**48**	15.41	15.76	18.60	-
	5260	**52**	15.61	15.68	18.65	-
	5280	**56**	15.61	15.53	18.58	-
	5300	60	15.41	15.55	18.49	-
	5320	64	15.59	15.60	18.60	-
	5500	100	15.51	15.29	18.41	-
	5600	**120**	15.93	15.70	18.82	-
	5660	132	15.91	15.56	18.75	-
	5720	**144**	15.98	15.26	18.65	-
	5745	**149**	15.95	15.20	18.60	-
	5785	**157**	15.96	15.08	18.55	-
	5825	**165**	15.78	15.29	18.55	-

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	14.65	14.58	17.62	17.65
	5200	40	14.55	14.62	17.59	17.67
	5220	44	14.38	14.53	17.46	17.54
	5240	48	14.36	14.60	17.49	17.63
	5260	52	14.37	14.60	17.50	17.59
	5280	56	14.35	14.25	17.31	17.43
	5300	60	14.49	14.41	17.46	17.55
	5320	64	14.37	14.43	17.41	17.50
	5500	100	14.74	14.16	17.47	17.56
	5600	120	14.69	14.56	17.64	17.75
	5660	132	14.80	14.54	17.68	17.72
	5720	144	14.96	14.20	17.61	17.63
	5745	149	14.91	14.14	17.55	17.54
	5785	157	14.83	14.07	17.48	17.45
	5825	165	14.54	14.26	17.41	17.39

Table 9.4.5 IEEE 802.11n HT20 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ac VHT20 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ac (VHT-20)	5180	36	14.51	14.41	17.47	17.68
	5200	40	14.42	14.50	17.47	17.73
	5220	44	14.24	14.38	17.32	17.60
	5240	48	14.29	14.50	17.40	17.71
	5260	52	14.28	14.47	17.39	17.67
	5280	56	14.19	14.15	17.18	17.47
	5300	60	14.36	14.28	17.33	17.62
	5320	64	14.24	14.28	17.27	17.58
	5500	100	14.61	14.08	17.37	17.46
	5600	120	14.59	14.45	17.53	17.59
	5660	132	14.72	14.45	17.59	17.62
	5720	144	14.92	14.09	17.53	17.54
	5745	149	14.83	14.01	17.45	17.62
	5785	157	14.76	13.95	17.38	17.54
	5825	165	14.41	14.16	17.30	17.44

Table 9.4.6 IEEE 802.11ac VHT20 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ax (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ax (20MHz)	5180	36	14.58	14.60	17.60	17.70
	5200	40	14.45	14.67	17.57	17.67
	5220	44	14.30	14.58	17.45	17.59
	5240	48	14.23	14.66	17.46	17.64
	5260	52	14.25	14.67	17.48	17.64
	5280	56	14.17	14.37	17.28	17.48
	5300	60	14.34	14.42	17.39	17.62
	5320	64	14.20	14.48	17.35	17.54
	5500	100	14.51	14.20	17.37	17.57
	5600	120	14.46	14.54	17.51	17.69
	5660	132	14.58	14.48	17.54	17.75
	5720	144	14.71	14.17	17.46	17.64
	5745	149	14.64	14.17	17.42	17.59
	5785	157	14.54	13.98	17.28	17.50
	5825	165	14.17	14.22	17.20	17.44

Table 9.4.7 IEEE 802.11ax 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	10.75	11.03	13.90	14.04
	5230	46	14.10	14.48	17.30	17.52
	5270	54	14.09	14.45	17.28	17.56
	5310	62	10.60	10.87	13.75	13.98
	5510	102	10.98	10.65	13.83	14.03
	5590	118	14.62	14.51	17.57	17.74
	5670	134	14.60	14.61	17.61	17.69
	5710	142	14.84	14.43	17.65	17.70
	5755	151	14.86	14.40	17.65	17.68
	5795	159	14.74	14.28	17.53	17.60

Table 9.4.8 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	10.74	11.01	13.88	14.09
	5230	46	14.08	14.52	17.32	17.51
	5270	54	14.11	14.49	17.31	17.52
	5310	62	10.68	10.89	13.80	13.96
	5510	102	11.05	10.70	13.89	14.02
	5590	118	14.59	14.55	17.58	17.70
	5670	134	14.55	14.62	17.59	17.67
	5710	142	14.80	14.42	17.62	17.67
	5755	151	14.79	14.32	17.57	17.61
	5795	159	14.73	14.25	17.50	17.53

Table 9.4.9 IEEE 802.11ac VHT40 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ax (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ax (40MHz)	5190	38	10.50	10.39	13.45	13.37
	5230	46	13.89	13.79	16.85	16.85
	5270	54	13.83	13.79	16.82	16.85
	5310	62	10.33	10.21	13.28	13.33
	5510	102	10.64	9.90	13.29	13.39
	5590	118	14.28	13.75	17.03	17.04
	5670	134	14.16	13.81	17.00	17.03
	5710	142	14.39	13.60	17.03	17.04
	5755	151	14.40	13.53	17.00	17.04
	5795	159	14.29	13.48	16.92	16.91

Table 9.4.10 IEEE 802.11ax 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	10.92	10.24	13.60	13.59
	5290	58	10.50	10.23	13.38	13.46
	5530	106	13.04	12.11	15.61	15.66
	5610	122	13.18	12.19	15.72	15.76
	5690	138	13.01	12.21	15.64	15.64
	5775	155	13.02	11.78	15.45	15.47

Table 9.4.11 IEEE 802.11ac VHT80 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ax (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ax (80MHz)	5210	42	10.64	10.19	13.43	13.39
	5290	58	10.27	10.25	13.27	13.32
	5530	106	12.74	11.96	15.38	15.50
	5610	122	12.82	12.09	15.48	15.64
	5690	138	12.69	12.03	15.38	15.49
	5775	155	12.62	11.61	15.15	15.29

Table 9.4.12 IEEE 802.11ax 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.

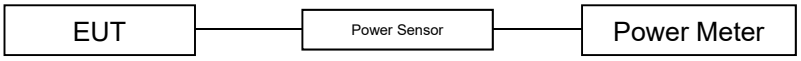

Figure 9.4 Power Measurement Setup

9.5 Bluetooth Conducted Powers

Burst Modulated Average[dBm]		
Bluetooth 1 Mbps	Maximum	12.5
	Nominal	11.5
Bluetooth 2 Mbps	Maximum	12.5
	Nominal	11.5
Bluetooth 3 Mbps	Maximum	12.5
	Nominal	11.5
Bluetooth LE	Maximum	7.0
	Nominal	6.0

Table 9.5.1 Nominal and Maximum Output Power Spec (Burst)

Frame Modulated Average[dBm]		
Bluetooth 1 Mbps	Maximum	11.35
	Nominal	10.35
Bluetooth 2 Mbps	Maximum	11.35
	Nominal	10.35
Bluetooth 3 Mbps	Maximum	11.35
	Nominal	10.35
Bluetooth (LE / 1Mbps)	Maximum	6.30
	Nominal	5.30
Bluetooth (LE / 2Mbps)	Maximum	4.59
	Nominal	3.59

Table 9.5.2 Nominal and Maximum Output Power Spec (Frame)

Channel	Frequency	Burst AVG Output Power (1Mbps)	Frame AVG Output Power (1Mbps)	Burst AVG Output Power (2Mbps)	Frame AVG Output Power (2Mbps)	Burst AVG Output Power (3Mbps)	Frame AVG Output Power (3Mbps)
	(MHz)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
Low	2402	10.97	9.82	11.14	9.99	11.14	9.99
Mid	2441	10.81	9.66	10.82	9.67	10.84	9.69
High	2480	8.64	7.49	8.88	7.73	8.89	7.74

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	4.88	4.18	4.87	2.47
Mid	2440	4.94	4.24	4.79	2.39
High	2480	3.61	2.91	3.61	1.21

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.

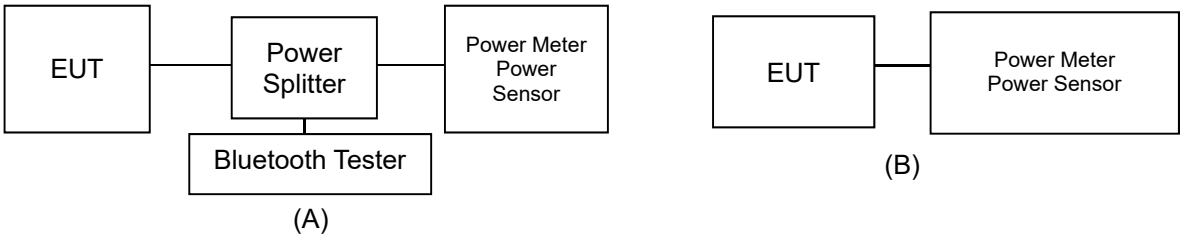

Figure 9.5.1 Average Power Measurement Setup

- **Bluetooth Transmission Plot**

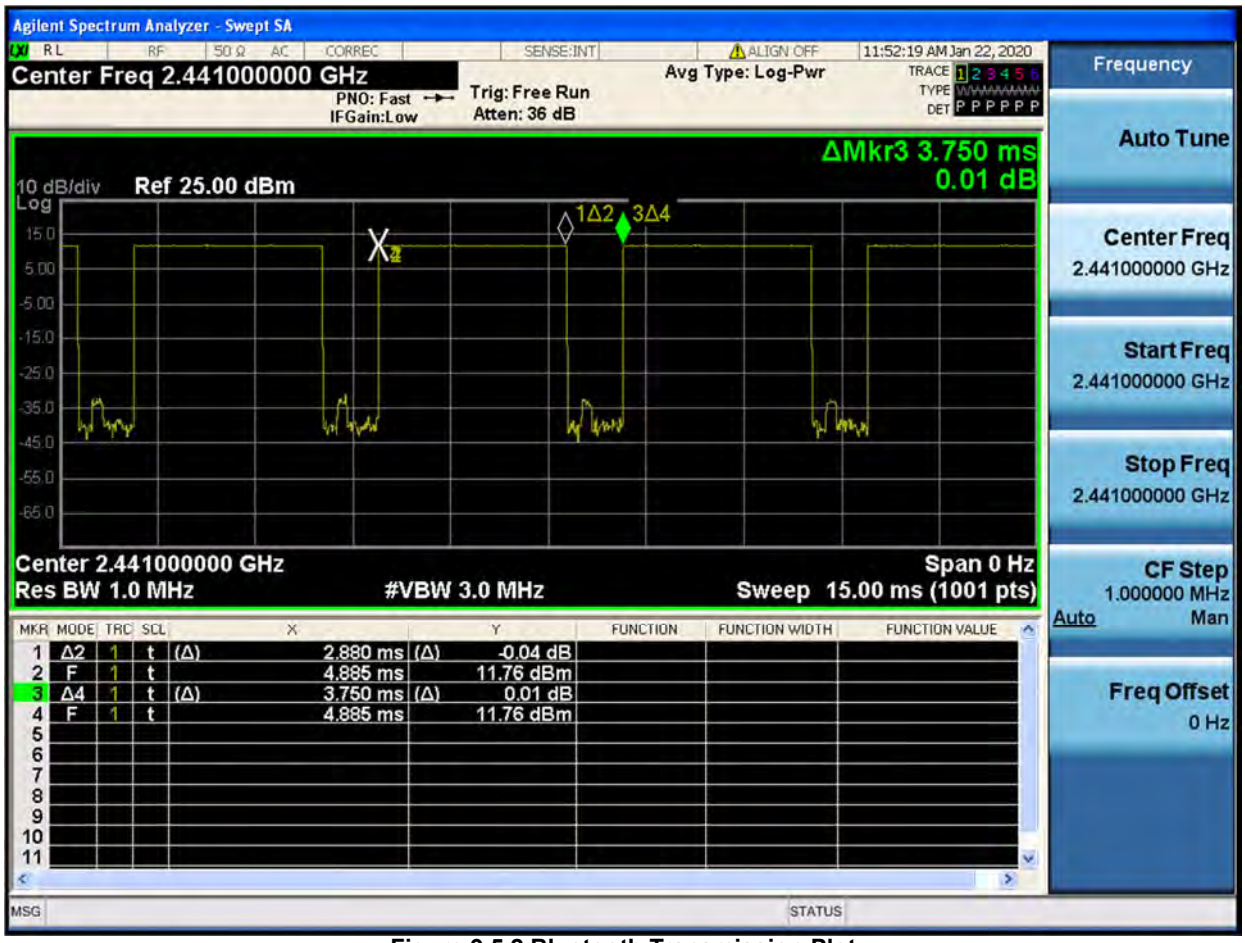

Figure 9.5.2 Bluetooth Transmission Plot

- **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 [%]
Dec.31. 2019	750 Head	21.2	21.8	707.5	42.129	0.887	41.168	0.857	-2.28	-3.38
				750.0	41.900	0.890	40.609	0.897	-3.08	0.79
Jan.02. 2020	750 Body	21.3	21.2	707.5	55.699	0.960	56.230	0.927	0.95	-3.44
				750.0	55.531	0.963	55.771	0.966	0.43	0.31
Dec. 27. 2019	835 Head	21.2	21.3	821.5	41.566	0.898	40.485	0.895	-2.60	-0.33
				824.2	41.552	0.899	40.467	0.898	-2.61	-0.11
				826.4	41.542	0.899	40.456	0.900	-2.61	0.11
				829.0	41.528	0.899	40.437	0.903	-2.63	0.44
				831.5	41.519	0.900	40.421	0.905	-2.64	0.56
				835.0	41.500	0.900	40.395	0.908	-2.66	0.89
				836.5	41.500	0.901	40.386	0.910	-2.68	1.00
				836.6	41.500	0.901	40.388	0.910	-2.68	1.00
				841.5	41.500	0.906	40.336	0.915	-2.80	0.99
				844.0	41.500	0.910	40.311	0.917	-2.87	0.77
				846.6	41.500	0.912	40.284	0.919	-2.93	0.77
				848.8	41.500	0.914	40.254	0.921	-3.00	0.77
Dec. 30. 2019	835 Body	22.1	22.0	821.5	55.255	0.969	56.483	0.935	2.22	-3.51
				824.2	55.243	0.969	56.456	0.937	2.20	-3.30
				826.4	55.235	0.969	56.451	0.939	2.20	-3.10
				829.0	55.223	0.970	56.434	0.942	2.19	-2.89
				831.5	55.216	0.970	56.422	0.944	2.18	-2.68
				835.0	55.200	0.970	56.405	0.947	2.18	-2.37
				836.5	55.197	0.971	56.392	0.948	2.16	-2.37
				836.6	55.197	0.971	56.391	0.949	2.16	-2.27
				841.5	55.182	0.977	56.352	0.953	2.12	-2.46
				844.0	55.172	0.981	56.326	0.956	2.09	-2.55
				846.6	55.166	0.984	56.304	0.958	2.06	-2.64
				848.8	55.160	0.986	56.291	0.960	2.05	-2.64
Dec. 31. 2019	1800 Head	21.0	20.8	1712.4	40.126	1.350	41.115	1.298	2.46	-3.85
				1720.0	40.114	1.354	41.062	1.303	2.36	-3.77
				1732.4	40.097	1.361	40.977	1.312	2.19	-3.60
				1732.5	40.097	1.361	40.976	1.312	2.19	-3.60
				1745.0	40.079	1.369	40.894	1.321	2.03	-3.51
				1752.6	40.069	1.373	40.849	1.328	1.95	-3.28
				1770.0	40.043	1.383	40.749	1.343	1.76	-2.89
				1800.0	40.000	1.400	40.597	1.370	1.49	-2.14
Jan. 02. 2020	1800 Body	21.0	21.1	1712.4	53.596	1.464	52.549	1.495	-1.95	2.12
				1720.0	53.580	1.469	52.519	1.501	-1.98	2.18
				1732.4	53.556	1.477	52.461	1.512	-2.04	2.37
				1732.5	53.556	1.477	52.459	1.512	-2.05	2.37
				1745.0	53.530	1.485	52.404	1.522	-2.10	2.49
				1752.6	53.516	1.489	52.370	1.528	-2.14	2.62
				1770.0	53.480	1.501	52.288	1.540	-2.23	2.60
				1800.0	53.300	1.520	52.162	1.564	-2.14	2.89
Dec. 27. 2019	1900 Head	21.1	21.0	1850.2	40.000	1.400	40.442	1.356	1.11	-3.14
				1852.4	40.000	1.400	40.436	1.358	1.09	-3.00
				1860.0	40.000	1.400	40.410	1.365	1.02	-2.50
				1880.0	40.000	1.400	40.339	1.383	0.85	-1.21
				1900.0	40.000	1.400	40.269	1.402	0.67	0.14
				1907.6	40.000	1.400	40.247	1.409	0.62	0.64
				1909.8	40.000	1.400	40.242	1.410	0.60	0.71
Dec. 30. 2019	1900 Body	21.2	21.2	1850.2	53.300	1.520	52.703	1.478	-1.12	-2.76
				1852.4	53.300	1.520	52.700	1.480	-1.13	-2.63
				1860.0	53.300	1.520	52.681	1.487	-1.16	-2.17
				1880.0	53.300	1.520	52.625	1.506	-1.27	-0.92
				1900.0	53.300	1.520	52.570	1.525	-1.37	0.33
				1907.6	53.300	1.520	52.551	1.531	-1.41	0.72
				1909.8	53.300	1.520	52.547	1.533	-1.41	0.86

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 [%]
Jan. 03. 2020	2450 Head	21.3	21.6	2402.0	39.282	1.757	40.503	1.797	3.11	2.28
				2412.0	39.265	1.766	40.469	1.809	3.07	2.43
				2437.0	39.222	1.788	40.392	1.837	2.98	2.74
				2441.0	39.215	1.792	40.379	1.842	2.97	2.79
				2450.0	39.200	1.800	40.353	1.852	2.94	2.89
				2462.0	39.184	1.813	40.321	1.865	2.90	2.87
				2467.0	39.177	1.818	40.304	1.870	2.88	2.86
				2472.0	39.171	1.823	40.288	1.875	2.85	2.85
				2480.0	39.160	1.832	40.260	1.884	2.81	2.84
Jan. 06. 2020	2450 Body	21.4	21.6	2402.0	52.764	1.904	51.116	1.866	-3.12	-2.00
				2412.0	52.751	1.914	51.089	1.879	-3.15	-1.83
				2437.0	52.717	1.938	51.026	1.909	-3.21	-1.50
				2441.0	52.712	1.941	51.016	1.913	-3.22	-1.44
				2450.0	52.700	1.950	50.995	1.924	-3.24	-1.33
				2462.0	52.685	1.967	50.968	1.937	-3.26	-1.53
				2467.0	52.678	1.974	50.954	1.942	-3.27	-1.62
				2472.0	52.672	1.981	50.940	1.948	-3.29	-1.67
				2480.0	52.662	1.993	50.914	1.958	-3.32	-1.76
Jan. 13. 2020	5200 Body	20.2	20.4	5180.0	49.041	5.276	50.803	5.146	3.59	-2.46
				5190.0	49.028	5.288	50.772	5.160	3.56	-2.42
				5200.0	49.014	5.299	50.749	5.176	3.54	-2.32
				5210.0	49.001	5.311	50.729	5.190	3.53	-2.28
				5220.0	48.987	5.323	50.707	5.202	3.51	-2.27
				5230.0	48.974	5.334	50.680	5.215	3.48	-2.23
				5240.0	48.960	5.346	50.650	5.229	3.45	-2.19
Jan. 08. 2020	5300 Head	20.4	20.6	5260.0	35.940	4.720	35.094	4.831	-2.35	2.35
				5270.0	35.930	4.730	35.083	4.842	-2.36	2.37
				5280.0	35.920	4.740	35.074	4.850	-2.36	2.32
				5290.0	35.910	4.750	35.055	4.857	-2.38	2.25
				5300.0	35.900	4.760	35.029	4.867	-2.43	2.25
				5310.0	35.890	4.770	35.005	4.880	-2.47	2.31
				5320.0	35.880	4.780	34.989	4.893	-2.48	2.36
Jan. 13. 2020	5300 Body	20.2	20.4	5260.0	48.933	5.369	50.590	5.258	3.39	-2.07
				5270.0	48.919	5.381	50.563	5.271	3.36	-2.04
				5280.0	48.906	5.393	50.538	5.282	3.34	-2.06
				5290.0	48.892	5.404	50.507	5.292	3.30	-2.07
				5300.0	48.879	5.416	50.476	5.306	3.27	-2.03
				5310.0	48.865	5.428	50.451	5.324	3.25	-1.92
				5320.0	48.851	5.439	50.433	5.340	3.24	-1.82

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 [%]
Jan. 09. 2020	5600 Head	20.8	21.0	5500.0	35.650	4.965	34.484	5.125	-3.27	3.22
				5510.0	35.635	4.976	34.482	5.133	-3.24	3.16
				5530.0	35.605	4.997	34.458	5.158	-3.22	3.22
				5550.0	35.575	5.018	34.444	5.179	-3.18	3.21
				5580.0	35.530	5.049	34.395	5.215	-3.19	3.29
				5600.0	35.500	5.070	34.383	5.238	-3.15	3.31
				5660.0	35.440	5.130	34.282	5.301	-3.27	3.33
				5670.0	35.430	5.140	34.257	5.311	-3.31	3.33
				5690.0	35.410	5.160	34.219	5.339	-3.36	3.47
				5710.0	35.390	5.180	34.201	5.361	-3.36	3.49
				5720.0	35.380	5.190	34.190	5.368	-3.36	3.43
				5800.0	35.300	5.270	34.025	5.465	-3.61	3.70
Jan. 14. 2020	5600 Body	21.0	20.8	5500.0	48.607	5.650	49.788	5.635	2.43	-0.27
				5510.0	48.594	5.661	49.755	5.647	2.39	-0.25
				5530.0	48.566	5.685	49.677	5.678	2.29	-0.12
				5550.0	48.539	5.708	49.609	5.708	2.20	0.00
				5580.0	48.499	5.743	49.514	5.762	2.09	0.33
				5600.0	48.471	5.766	49.477	5.792	2.08	0.45
				5660.0	48.390	5.836	49.265	5.871	1.81	0.60
				5670.0	48.376	5.848	49.229	5.889	1.76	0.70
				5690.0	48.349	5.872	49.173	5.928	1.70	0.95
				5710.0	48.322	5.895	49.143	5.958	1.70	1.07
				5720.0	48.309	5.907	49.119	5.966	1.68	1.00
				5800.0	48.200	6.000	48.830	6.091	1.31	1.52
Jan. 10. 2020	5800 Head	21.0	21.1	5745.0	35.355	5.215	34.252	5.399	-3.12	3.53
				5755.0	35.345	5.225	34.240	5.413	-3.13	3.60
				5775.0	35.325	5.245	34.206	5.432	-3.17	3.57
				5785.0	35.315	5.255	34.185	5.445	-3.20	3.62
				5795.0	35.305	5.265	34.465	5.459	-2.38	3.68
				5800.0	35.300	5.270	34.156	5.466	-3.24	3.72
				5825.0	35.275	5.296	34.137	5.492	-3.23	3.70
Jan. 08. 2020	5800 Body	20.6	20.3	5745.0	48.275	5.936	50.112	5.937	3.81	0.02
				5755.0	48.261	5.947	50.074	5.950	3.76	0.05
				5775.0	48.234	5.971	49.944	5.982	3.55	0.18
				5785.0	48.220	5.982	49.894	6.007	3.47	0.42
				5795.0	48.207	5.994	49.863	6.035	3.44	0.68
				5800.0	48.200	6.000	49.858	6.049	3.44	0.82
				5825.0	48.166	6.029	49.877	6.086	3.55	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):

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

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

10.2 Test System Verification

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

Table 10.2.1 System Verification Results (1g)

SYSTEM DIPOLE VERIFICATION TARGET & MEASURED												
SAR System #	Freq. [MHz]	SAR Dipole kits	Date(s)	Tissue Type	Ambient Temp. [°C]	Liquid Temp. [°C]	Probe S/N	Input Power (mW)	1 W Target SAR_{1g} (W/kg)	Measured SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	Deviation [%]
D	750	D750V3, SN:1049	Dec. 31. 2019	Head	21.2	21.8	3933	250	8.38	1.98	7.92	-5.49
D	750	D750V3, SN:1049	Jan. 02. 2020	Body	21.3	21.2	3933	250	8.70	2.19	8.76	0.69
D	835	D835V2, SN:464	Dec. 27. 2019	Head	21.2	21.3	3933	250	9.59	2.23	8.92	-6.99
D	835	D835V2, SN:464	Dec. 30. 2019	Body	22.1	22.0	3933	250	9.68	2.36	9.44	-2.48
C	1800	D1800V2, SN:2d047	Dec. 31. 2019	Head	21.0	20.8	7337	100	38.1	3.98	39.80	4.46
C	1800	D1800V2, SN:2d047	Jan. 02. 2020	Body	21.0	21.1	7337	100	38.0	3.79	37.90	-0.26
C	1900	D1900V2, SN:5d029	Dec. 27. 2019	Head	21.1	21.0	7337	100	40.4	4.13	41.30	2.23
C	1900	D1900V2, SN:5d029	Dec. 30. 2019	Body	21.2	21.2	7337	100	39.9	3.81	38.10	-4.51
D	2450	D2450V2, SN: 726	Jan. 03. 2020	Head	21.3	21.6	3933	100	51.2	5.06	50.60	-1.17
D	2450	D2450V2, SN: 726	Jan. 06. 2020	Body	21.4	21.6	3933	100	52.0	5.38	53.80	3.46
C	5200	D5GHzV2, SN:1103	Jan. 13. 2020	Body	20.2	20.4	7337	100	75.5	7.22	72.20	-4.37
C	5300	D5GHzV2, SN:1103	Jan. 08. 2020	Head	20.4	20.6	7337	100	82.4	8.31	83.10	0.85
C	5300	D5GHzV2, SN:1103	Jan. 13. 2020	Body	20.2	20.4	7337	100	74.4	7.37	73.70	-0.94
C	5500	D5GHzV2, SN:1103	Jan. 09. 2020	Head	20.8	21.0	7337	100	84.0	8.01	80.10	-4.64
C	5500	D5GHzV2, SN:1103	Jan. 14. 2020	Body	21.0	20.8	7337	100	79.6	7.82	78.20	-1.76
C	5800	D5GHzV2, SN:1103	Jan. 09. 2020	Head	20.8	21.0	7337	100	81.4	8.25	82.50	1.35
C	5800	D5GHzV2, SN:1103	Jan. 14. 2020	Body	21.0	20.8	7337	100	74.8	7.57	75.70	1.20
C	5800	D5GHzV2, SN:1103	Jan. 10. 2020	Head	21.0	21.1	7337	100	81.4	7.97	79.70	-2.09
D	5800	D5GHzV2, SN:1103	Jan. 08. 2020	Body	20.6	20.3	3933	100	74.8	7.39	73.90	-1.20

Table 10.2.2 System Verification Results (10g)

SYSTEM DIPOLE VERIFICATION TARGET & MEASURED												
SAR System #	Freq. [MHz]	SAR Dipole kits	Date(s)	Tissue Type	Ambient Temp. [°C]	Liquid Temp. [°C]	Probe S/N	Input Power (mW)	1 W Target SAR_{10g} (W/kg)	Measured SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	Deviation [%]
C	5300	D5GHzV2, SN:1103	Jan. 13. 2020	Body	20.2	20.4	7337	100	20.9	2.12	21.20	1.44
C	5500	D5GHzV2, SN:1103	Jan. 14. 2020	Body	21.0	20.8	7337	100	22.1	2.28	22.80	3.17
C	5800	D5GHzV2, SN:1103	Jan. 14. 2020	Body	21.0	20.8	7337	100	20.9	2.20	22.00	5.26
D	5800	D5GHzV2, SN:1103	Jan. 08. 2020	Body	20.6	20.3	3933	100	20.9	2.03	20.30	-2.87

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.

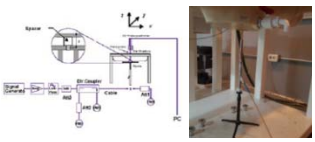

Figure 10.1 Dipole Verification Test Setup Diagram & Photo

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	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	33.20	33.10	0.150	Left Touch	FCC #1	1	1:8.3	0.175	1.023	**0.179**	A1
836.6	190	GSM850	GSM	33.20	33.10	-0.010	Right Touch	FCC #1	1	1:8.3	0.099	1.023	0.101	
836.6	190	GSM850	GSM	33.20	33.10	-0.040	Left Tilt	FCC #1	1	1:8.3	0.094	1.023	0.096	
836.6	190	GSM850	GSM	33.20	33.10	0.180	Right Tilt	FCC #1	1	1:8.3	0.077	1.023	0.079	
836.6	190	GSM850	GPRS	31.20	31.20	-0.100	Left Touch	FCC #1	2	1:4.15	0.204	1.000	**0.204**	A2
836.6	190	GSM850	GPRS	31.20	31.20	0.110	Right Touch	FCC #1	2	1:4.15	0.130	1.000	0.130	
836.6	190	GSM850	GPRS	31.20	31.20	-0.070	Left Tilt	FCC #1	2	1:4.15	0.107	1.000	0.107	
836.6	190	GSM850	GPRS	31.20	31.20	-0.110	Right Tilt	FCC #1	2	1:4.15	0.097	1.000	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						

Table 11.1.2 PCS/GPRS 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	# of Time Slots	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
1880.0	661	PCS1900	PCS	30.20	30.10	0.060	Left Touch	FCC #1	1	1:8.3	0.032	1.023	**0.033**	A3
1880.0	661	PCS1900	PCS	30.20	30.10	-0.140	Right Touch	FCC #1	1	1:8.3	0.021	1.023	0.021	
1880.0	661	PCS1900	PCS	30.20	30.10	0.110	Left Tilt	FCC #1	1	1:8.3	0.021	1.023	0.021	
1880.0	661	PCS1900	PCS	30.20	30.10	-0.170	Right Tilt	FCC #1	1	1:8.3	0.018	1.023	0.018	
1880.0	661	PCS1900	GPRS	27.20	27.20	0.120	Left Touch	FCC #1	3	1:2.77	0.042	1.000	**0.042**	A4
1880.0	661	PCS1900	GPRS	27.20	27.20	0.050	Right Touch	FCC #1	3	1:2.77	0.030	1.000	0.030	
1880.0	661	PCS1900	GPRS	27.20	27.20	0.120	Left Tilt	FCC #1	3	1:2.77	0.025	1.000	0.025	
1880.0	661	PCS1900	GPRS	27.20	27.20	0.100	Right Tilt	FCC #1	3	1:2.77	0.026	1.000	0.026	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g)** averaged over 1 gram						

Table 11.1.3 WCDMA 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #	
MHz	Ch													
836.6	4183	WCDMA 850	RMC	25.20	25.19	0.180	Left Touch	FCC #1	1:1	0.283	1.002	**0.284**	A5	
836.6	4183	WCDMA 850	RMC	25.20	25.19	0.100	Right Touch	FCC #1	1:1	0.230	1.002	0.230		
836.6	4183	WCDMA 850	RMC	25.20	25.19	-0.080	Left Tilt	FCC #1	1:1	0.159	1.002	0.159		
836.6	4183	WCDMA 850	RMC	25.20	25.19	-0.010	Right Tilt	FCC #1	1:1	0.149	1.002	0.149		
836.6	4183	WCDMA 850	RMC	25.20	25.19	0.080	Left Touch	FCC #1	1:1	0.158	1.002	0.158		
836.6	4183	WCDMA 850	RMC	25.20	25.19	0.180	Left Touch	FCC #1	1:1	0.176	1.002	0.176		
836.6	4183	WCDMA 850	RMC	25.20	25.19	-0.010	Left Touch	FCC #1	1:1	0.182	1.002	0.182		
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. Blue entries represent additional Head SAR Test Position (#1: DD angle: 0 degree) with the worst case position.
2. Green entries represent additional Head SAR Test Position (#2: DD angle: 180 degree) with the worst case position.
3. Orange entries represent additional Head SAR Test Position (#3: DD angle: 360 degree) with the worst case position.

Table 11.1.4 WCDMA 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #	
MHz	Ch													
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	0.080	Left Touch	FCC #1	1:1	0.079	1.007	**0.080**	A6	
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	-0.030	Right Touch	FCC #1	1:1	0.059	1.007	0.059		
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	0.170	Left Tilt	FCC #1	1:1	0.058	1.007	0.058		
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	0.130	Right Tilt	FCC #1	1:1	0.054	1.007	0.054		
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g)** averaged over 1 gram						

Table 11.1.5 LTE Band 12 Head SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
707.5	23095	LTE B12	10	25.50	25.11	0.010	0	Left Touch	FCC #1	QPSK	1	25	1:1	0.099	1.094	**0.108**	A7
707.5	23095	LTE B12	10	24.50	24.15	0.120	1	Left Touch	FCC #1	QPSK	25	12	1:1	0.058	1.084	0.063	
707.5	23095	LTE B12	10	25.50	25.11	0.190	0	Right Touch	FCC #1	QPSK	1	25	1:1	0.099	1.094	**0.108**	
707.5	23095	LTE B12	10	24.50	24.15	-0.010	1	Right Touch	FCC #1	QPSK	25	12	1:1	0.059	1.084	0.064	
707.5	23095	LTE B12	10	25.50	25.11	-0.080	0	Left Tilt	FCC #1	QPSK	1	25	1:1	0.022	1.094	0.024	
707.5	23095	LTE B12	10	24.50	24.15	-0.190	1	Left Tilt	FCC #1	QPSK	25	12	1:1	0.016	1.084	0.017	
707.5	23095	LTE B12	10	25.50	25.11	-0.050	0	Right Tilt	FCC #1	QPSK	1	25	1:1	0.050	1.094	0.055	
707.5	23095	LTE B12	10	24.50	24.15	0.000	1	Right Tilt	FCC #1	QPSK	25	12	1:1	0.031	1.084	0.034	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11.1.6 LTE Band 5 (Cell) Head SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
836.5	20525	LTE B5	10	25.50	25.21	0.190	0	Left Touch	FCC #1	QPSK	1	25	1:1	0.265	1.069	**0.283**	A8
836.5	20525	LTE B5	10	24.50	24.26	-0.190	1	Left Touch	FCC #1	QPSK	25	12	1:1	0.172	1.057	0.182	
836.5	20525	LTE B5	10	25.50	25.21	0.180	0	Right Touch	FCC #1	QPSK	1	25	1:1	0.264	1.069	0.282	
836.5	20525	LTE B5	10	24.50	24.26	-0.100	1	Right Touch	FCC #1	QPSK	25	12	1:1	0.144	1.057	0.152	
836.5	20525	LTE B5	10	25.50	25.21	-0.160	0	Left Tilt	FCC #1	QPSK	1	25	1:1	0.149	1.069	0.159	
836.5	20525	LTE B5	10	24.50	24.26	0.160	1	Left Tilt	FCC #1	QPSK	25	12	1:1	0.104	1.057	0.110	
836.5	20525	LTE B5	10	25.50	25.21	-0.140	0	Right Tilt	FCC #1	QPSK	1	25	1:1	0.169	1.069	0.181	
836.5	20525	LTE B5	10	24.50	24.26	-0.030	1	Right Tilt	FCC #1	QPSK	25	12	1:1	0.104	1.057	0.110	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11.1.7 LTE Band 4 (AWS) Head SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1732.5	20175	LTE B4	20	23.70	23.09	-0.000	0	Left Touch	FCC #1	QPSK	1	50	1:1	0.046	1.151	**0.053**	A9
1732.5	20175	LTE B4	20	22.70	22.19	0.050	1	Left Touch	FCC #1	QPSK	50	25	1:1	0.036	1.125	0.041	
1732.5	20175	LTE B4	20	23.70	23.09	0.030	0	Right Touch	FCC #1	QPSK	1	50	1:1	0.029	1.151	0.033	
1732.5	20175	LTE B4	20	22.70	22.19	0.000	1	Right Touch	FCC #1	QPSK	50	25	1:1	0.020	1.125	0.023	
1732.5	20175	LTE B4	20	23.70	23.09	0.050	0	Left Tilt	FCC #1	QPSK	1	50	1:1	0.018	1.151	0.021	
1732.5	20175	LTE B4	20	22.70	22.19	0.170	1	Left Tilt	FCC #1	QPSK	50	25	1:1	0.012	1.125	0.014	
1732.5	20175	LTE B4	20	23.70	23.09	-0.150	0	Right Tilt	FCC #1	QPSK	1	50	1:1	0.030	1.151	0.035	
1732.5	20175	LTE B4	20	22.70	22.19	0.000	1	Right Tilt	FCC #1	QPSK	50	25	1:1	0.019	1.125	0.021	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11.1.8 LTE Band 2 (PCS) Head SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1880.0	18900	LTE B2	20	23.70	23.30	0.100	0	Left Touch	FCC #1	QPSK	1	0	1:1	0.073	1.096	**0.080**	A10
1880.0	18900	LTE B2	20	22.70	22.23	0.120	1	Left Touch	FCC #1	QPSK	50	25	1:1	0.061	1.114	0.068	
1880.0	18900	LTE B2	20	23.70	23.30	0.170	0	Right Touch	FCC #1	QPSK	1	0	1:1	0.067	1.096	0.073	
1880.0	18900	LTE B2	20	22.70	22.23	-0.090	1	Right Touch	FCC #1	QPSK	50	25	1:1	0.043	1.114	0.048	
1880.0	18900	LTE B2	20	23.70	23.30	0.170	0	Left Tilt	FCC #1	QPSK	1	0	1:1	0.055	1.096	0.060	
1880.0	18900	LTE B2	20	22.70	22.23	0.140	1	Left Tilt	FCC #1	QPSK	50	25	1:1	0.044	1.114	0.049	
1880.0	18900	LTE B2	20	23.70	23.30	0.070	0	Right Tilt	FCC #1	QPSK	1	0	1:1	0.062	1.096	0.068	
1880.0	18900	LTE B2	20	22.70	22.23	-0.050	1	Right Tilt	FCC #1	QPSK	50	25	1:1	0.039	1.114	0.043	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11.1.9 DTS Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode (Antenna)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
2462.0	11	802.11b (Ant.1)	15.50	15.26	0.010	Left Touch	FCC #2	0.105	1	99.4	0.103	1.057	1.006	0.110	
2462.0	11	802.11b (Ant.1)	15.50	15.26	0.000	Right Touch	FCC #2	0.488	1	99.4	0.467	1.057	1.006	**0.497**	A11
2462.0	11	802.11b (Ant.1)	15.50	15.26	0.020	Left Tilt	FCC #2	0.057	1	99.4	0.052	1.057	1.006	0.055	
2462.0	11	802.11b (Ant.1)	15.50	15.26	-0.020	Right Tilt	FCC #2	0.166	1	99.4	0.159	1.057	1.006	0.169	
2462.0	11	802.11b (Ant.2)	15.50	15.38	-0.170	Left Touch	FCC #2	0.089	1	99.5	0.090	1.028	1.005	0.093	
2462.0	11	802.11b (Ant.2)	15.50	15.38	-0.040	Right Touch	FCC #2	0.227	1	99.5	0.206	1.028	1.005	0.213	
2462.0	11	802.11b (Ant.2)	15.50	15.38	0.100	Left Tilt	FCC #2	0.126	1	99.5	0.126	1.028	1.005	0.130	
2462.0	11	802.11b (Ant.2)	15.50	15.38	0.060	Right Tilt	FCC #2	0.244	1	99.5	0.239	1.028	1.005	**0.247**	A12
2437.0	6	802.11g (MIMO)	18.50	17.90	-0.130	Left Touch	FCC #2	0.126	1	98.8	0.103	1.148	1.012	0.120	
2437.0	6	802.11g (MIMO)	18.50	17.90	0.090	Right Touch	FCC #2	0.507	1	98.8	0.464	1.148	1.012	**0.539**	A13
2437.0	6	802.11g (MIMO)	18.50	17.90	0.120	Left Tilt	FCC #2	0.171	1	98.8	0.170	1.148	1.012	0.198	
2437.0	6	802.11g (MIMO)	18.50	17.90	-0.020	Right Tilt	FCC #2	0.295	1	98.8	0.278	1.148	1.012	0.323	

Adjusted SAR results for OFDM SAR												
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Ratio of OFDM to DSSS	1g Adjusted SAR (W/kg)	Determine OFDM SAR
MHz	Ch											
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.497	2437	802.11g	OFDM	15.5	1.000	**0.497**	X
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.497	2437	802.11n	OFDM	15.5	1.000	**0.497**	X
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.497	2437	802.11ac	OFDM	15.5	1.000	**0.497**	X
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.497	2437	802.11ax	OFDM	14.5	0.794	**0.395**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.247	2437	802.11g	OFDM	15.5	1.000	**0.247**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.247	2437	802.11n	OFDM	15.5	1.000	**0.247**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.247	2437	802.11ac	OFDM	15.5	1.000	**0.247**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.247	2437	802.11ax	OFDM	14.5	0.794	**0.196**	X
2437.0	6	802.11g (MIMO)	OFDM	18.5	0.539	2437	802.11n	OFDM	18.5	1.000	**0.539**	X
2437.0	6	802.11g (MIMO)	OFDM	18.5	0.539	2437	802.11ac	OFDM	18.5	1.000	**0.539**	X
2437.0	6	802.11g (MIMO)	OFDM	18.5	0.539	2437	802.11ax	OFDM	17.5	0.794	**0.428**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Head 1.6 W/kg (mW/g)** averaged over 1 gram						

Note(s):
1. 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.
2. Per April 2019 TCB Workshop Notes, 802.11ax was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 D01v02r02 for OFDM mode selection.
3. Therefore, SAR tests were not required for 802.11ax based on the maximum allowed output powers of OFDM modes and the reported SAR values.

Table 11.1.10 UNII Head SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode (Antenna)	Dual Display Accessory Configuration	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															
5280.0	56	802.11a (Ant.1)	-	16.00	15.61	0.120	Left Touch	FCC #2	0.079	6	98.7	0.088	1.094	1.013	0.098	
5280.0	56	802.11a (Ant.1)	-	16.00	15.61	0.190	Right Touch	FCC #2	0.344	6	98.7	0.335	1.094	1.013	**0.371**	A14
5280.0	56	802.11a (Ant.1)	-	16.00	15.61	-0.190	Left Tilt	FCC #2	0.075	6	98.7	0.080	1.094	1.013	0.089	
5280.0	56	802.11a (Ant.1)	-	16.00	15.61	-0.040	Right Tilt	FCC #2	0.234	6	98.7	0.249	1.094	1.013	0.276	
5260.0	52	802.11a (Ant.2)	-	16.00	15.68	0.080	Left Touch	FCC #2	0.219	6	98.8	0.277	1.076	1.012	0.302	
5260.0	52	802.11a (Ant.2)	-	16.00	15.68	0.090	Right Touch	FCC #2	0.424	6	98.8	0.477	1.076	1.012	**0.519**	A15
5260.0	52	802.11a (Ant.2)	-	16.00	15.68	0.080	Left Tilt	FCC #2	0.179	6	98.8	0.221	1.076	1.012	0.241	
5260.0	52	802.11a (Ant.2)	-	16.00	15.68	-0.050	Right Tilt	FCC #2	0.348	6	98.8	0.423	1.076	1.012	0.461	
5260.0	52	802.11a (MIMO)	-	19.00	18.65	0.110	Left Touch	FCC #2	0.291	6	99.1	0.359	1.094	1.009	0.396	
5260.0	52	802.11a (MIMO)	-	19.00	18.65	0.170	Right Touch	FCC #2	0.507	6	99.1	0.580	1.094	1.009	**0.640**	A16
5260.0	52	802.11a (MIMO)	-	19.00	18.65	0.030	Left Tilt	FCC #2	0.263	6	99.1	0.286	1.094	1.009	0.316	
5260.0	52	802.11a (MIMO)	-	19.00	18.65	-0.010	Right Tilt	FCC #2	0.397	6	99.1	0.456	1.094	1.009	0.503	
5260.0	52	802.11a (MIMO)	#1	19.00	18.65	-0.000	Right Touch	FCC #2	0.081	6	99.1	0.078	1.094	1.009	0.086	
5260.0	52	802.11a (MIMO)	#2	19.00	18.65	0.010	Right Touch	FCC #2	0.385	6	99.1	0.420	1.094	1.009	0.464	
5260.0	52	802.11a (MIMO)	#3	19.00	18.65	0.050	Right Touch	FCC #2	0.322	6	99.1	0.312	1.094	1.009	0.344	
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. Blue entries represent additional Head SAR Test Position (#1: DD angle: 0 degree) with the worst case position.
2. Green entries represent additional Head SAR Test Position (#2: DD angle: 180 degree) with the worst case position.
3. Orange entries represent additional Head SAR Test Position (#3: DD angle: 360 degree) with the worst case position.

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											
5280.0	56	802.11a (Ant.1)	OFDM	16.0	0.371	5240	802.11a	OFDM	16.0	1.000	**0.371**	X
5260.0	52	802.11a (Ant.2)	OFDM	16.0	0.519	5180	802.11a	OFDM	16.0	1.000	**0.519**	X
5260.0	52	802.11a (MIMO)	OFDM	19.0	0.640	5240	802.11a	OFDM	19.0	1.000	**0.640**	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 11.1.11 UNII Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode (Antenna)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5720.0	144	802.11a (Ant.1)	16.00	15.98	0.040	Left Touch	FCC #2	0.089	6	98.7	0.073	1.005	1.013	0.074	
5720.0	144	802.11a (Ant.1)	16.00	15.98	0.100	Right Touch	FCC #2	0.300	6	98.7	0.307	1.005	1.013	**0.313**	A17
5720.0	144	802.11a (Ant.1)	16.00	15.98	-0.140	Left Tilt	FCC #2	0.094	6	98.7	0.086	1.005	1.013	0.088	
5720.0	144	802.11a (Ant.1)	16.00	15.98	-0.150	Right Tilt	FCC #2	0.157	6	98.7	0.164	1.005	1.013	0.167	
5600.0	120	802.11a (Ant.2)	16.00	15.70	0.090	Left Touch	FCC #2	0.121	6	98.8	0.096	1.072	1.012	0.104	
5600.0	120	802.11a (Ant.2)	16.00	15.70	-0.080	Right Touch	FCC #2	0.362	6	98.8	0.414	1.072	1.012	**0.449**	A18
5600.0	120	802.11a (Ant.2)	16.00	15.70	0.060	Left Tilt	FCC #2	0.187	6	98.8	0.184	1.072	1.012	0.200	
5600.0	120	802.11a (Ant.2)	16.00	15.70	0.010	Right Tilt	FCC #2	0.263	6	98.8	0.298	1.072	1.012	0.323	
5600.0	120	802.11a (MIMO)	19.00	18.82	0.070	Left Touch	FCC #2	0.159	6	99.1	0.161	1.072	1.009	0.174	
5600.0	120	802.11a (MIMO)	19.00	18.82	0.100	Right Touch	FCC #2	0.449	6	99.1	0.464	1.072	1.009	**0.502**	A19
5600.0	120	802.11a (MIMO)	19.00	18.82	-0.040	Left Tilt	FCC #2	0.234	6	99.1	0.239	1.072	1.009	0.259	
5600.0	120	802.11a (MIMO)	19.00	18.82	-0.010	Right Tilt	FCC #2	0.259	6	99.1	0.299	1.072	1.009	0.323	
5785.0	157	802.11a (Ant.1)	16.00	15.96	0.030	Left Touch	FCC #2	0.080	6	98.7	0.054	1.009	1.013	0.055	
5785.0	157	802.11a (Ant.1)	16.00	15.96	0.000	Right Touch	FCC #2	0.311	6	98.7	0.324	1.009	1.013	**0.331**	A20
5785.0	157	802.11a (Ant.1)	16.00	15.96	-0.120	Left Tilt	FCC #2	0.079	6	98.7	0.058	1.009	1.013	0.059	
5785.0	157	802.11a (Ant.1)	16.00	15.96	0.000	Right Tilt	FCC #2	0.132	6	98.7	0.136	1.009	1.013	0.139	
5825.0	165	802.11a (Ant.2)	16.00	15.29	0.100	Left Touch	FCC #2	0.142	6	98.8	0.118	1.178	1.012	0.141	
5825.0	165	802.11a (Ant.2)	16.00	15.29	-0.020	Right Touch	FCC #2	0.298	6	98.8	0.327	1.178	1.012	**0.390**	A21
5825.0	165	802.11a (Ant.2)	16.00	15.29	-0.100	Left Tilt	FCC #2	0.140	6	98.8	0.133	1.178	1.012	0.159	
5825.0	165	802.11a (Ant.2)	16.00	15.29	0.070	Right Tilt	FCC #2	0.197	6	98.8	0.229	1.178	1.012	0.273	
5745.0	149	802.11a (MIMO)	19.00	18.60	-0.020	Left Touch	FCC #2	0.127	6	99.1	0.122	1.178	1.009	0.145	
5745.0	149	802.11a (MIMO)	19.00	18.60	0.170	Right Touch	FCC #2	0.315	6	99.1	0.322	1.178	1.009	**0.383**	A22
5745.0	149	802.11a (MIMO)	19.00	18.60	-0.150	Left Tilt	FCC #2	0.153	6	99.1	0.147	1.178	1.009	0.175	
5745.0	149	802.11a (MIMO)	19.00	18.60	-0.060	Right Tilt	FCC #2	0.276	6	99.1	0.303	1.178	1.009	0.360	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) averaged over 1 gram**							

Table 11.1.12 Bluetooth Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Rate [Mbps]	Duty Cycle (%)	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
2441.0	39	Bluetooth	11.35	9.66	0.000	Left Touch	FCC #2	1	76.8	0.047	1.476	1.302	0.090	
2441.0	39	Bluetooth	11.35	9.66	-0.150	Right Touch	FCC #2	1	76.8	0.170	1.476	1.302	**0.327**	A23
2441.0	39	Bluetooth	11.35	9.66	0.000	Left Tilt	FCC #2	1	76.8	0.025	1.476	1.302	0.048	
2441.0	39	Bluetooth	11.35	9.66	0.020	Right Tilt	FCC #2	1	76.8	0.091	1.476	1.302	0.175	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g) averaged over 1 gram**						

11.2 Standalone Body-Worn SAR Worn SAR Results

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

MEASUREMENT RESULTS														
FREQUENCY 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 #
836.6	190	GSM850	GSM	33.20	33.10	-0.080	10 mm [Front]	FCC #1	1	1:8.3	0.487	1.023	**0.498**	A24
836.6	190	GSM850	GSM	33.20	33.10	0.000	10 mm [Rear]	FCC #1	1	1:8.3	0.431	1.023	0.441	
836.6	190	GSM850	GPRS	31.20	31.20	-0.030	10 mm [Front]	FCC #1	2	1:4.15	0.508	1.000	**0.508**	A25
836.6	190	GSM850	GPRS	31.20	31.20	0.070	10 mm [Rear]	FCC #1	2	1:4.15	0.484	1.000	0.484	
1880.0	661	PCS1900	PCS	30.20	30.10	0.060	10 mm [Front]	FCC #1	1	1:8.3	0.234	1.023	**0.239**	A26
1880.0	661	PCS1900	PCS	30.20	30.10	-0.010	10 mm [Rear]	FCC #1	1	1:8.3	0.228	1.023	0.233	
1880.0	661	PCS1900	GPRS	27.20	27.20	-0.170	10 mm [Front]	FCC #1	3	1:2.77	0.344	1.000	**0.344**	A27
1880.0	661	PCS1900	GPRS	27.20	27.20	-0.080	10 mm [Rear]	FCC #1	3	1:2.77	0.326	1.000	0.326	
836.6	4183	WCDMA 850	RMC	25.20	25.19	-0.010	10 mm [Front]	FCC #1	N/A	1:1	0.544	1.002	0.545	
836.6	4183	WCDMA 850	RMC	25.20	25.19	-0.020	10 mm [Rear]	FCC #1	N/A	1:1	0.610	1.002	**0.611**	A28
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	-0.040	10 mm [Front]	FCC #1	N/A	1:1	0.560	1.007	0.564	
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	0.020	10 mm [Rear]	FCC #1	N/A	1:1	0.566	1.007	**0.570**	A29
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g)** averaged over 1 gram						

Table 11.2.2 LTE B12, B5, B4, B2 Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY MHz	FREQUENCY Ch	Mode/ Band	BW [MHz]	Dual Display Accessory Configuration	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
707.5	23095	LTE B12	10	-	25.50	25.11	0.010	0	10 mm [Front]	FCC #1	QPSK	1	25	1:1	0.193	1.094	0.211	
707.5	23095	LTE B12	10	-	24.50	24.15	0.020	1	10 mm [Front]	FCC #1	QPSK	25	12	1:1	0.120	1.084	0.130	
707.5	23095	LTE B12	10	-	25.50	25.11	0.000	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.240	1.094	**0.263**	A30
707.5	23095	LTE B12	10	-	24.50	24.15	0.040	1	10 mm [Rear]	FCC #1	QPSK	25	12	1:1	0.140	1.084	0.152	
836.5	20525	LTE B5	10	-	25.50	25.21	-0.040	0	10 mm [Front]	FCC #1	QPSK	1	25	1:1	0.735	1.069	0.786	
836.5	20525	LTE B5	10	-	24.50	24.26	-0.010	1	10 mm [Front]	FCC #1	QPSK	25	12	1:1	0.493	1.057	0.521	
836.5	20525	LTE B5	10	-	24.50	24.21	0.030	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.483	1.069	0.516	
836.5	20525	LTE B5	10	-	25.50	25.21	0.050	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.843	1.069	**0.901**	A31
836.5	20525	LTE B5	10	-	24.50	24.26	-0.070	1	10 mm [Rear]	FCC #1	QPSK	25	12	1:1	0.544	1.057	0.575	
836.5	20525	LTE B5	10	-	24.50	24.21	0.130	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.548	1.069	0.586	
836.5	20525	LTE B5	10	#1	25.50	25.21	0.040	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.720	1.069	0.770	
836.5	20525	LTE B5	10	#2	25.50	25.21	0.060	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.710	1.069	0.759	
836.5	20525	LTE B5	10	#3	25.50	25.21	-0.040	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.550	1.069	0.588	
836.5	20525	LTE B5	10	-	25.50	25.21	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.800	1.069	0.855	
1732.5	20175	LTE B4	20	-	23.70	23.09	0.000	0	10 mm [Front]	FCC #1	QPSK	1	50	1:1	0.338	1.151	0.389	
1732.5	20175	LTE B4	20	-	22.70	22.19	0.010	1	10 mm [Front]	FCC #1	QPSK	50	25	1:1	0.288	1.125	0.324	
1732.5	20175	LTE B4	20	-	23.70	23.09	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	50	1:1	0.370	1.151	**0.426**	A32
1732.5	20175	LTE B4	20	-	22.70	22.19	-0.030	1	10 mm [Rear]	FCC #1	QPSK	50	25	1:1	0.302	1.125	0.340	
1880.0	18900	LTE B2	20	-	23.70	23.30	-0.060	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.602	1.096	0.660	
1880.0	18900	LTE B2	20	-	22.70	22.23	-0.000	1	10 mm [Front]	FCC #1	QPSK	50	25	1:1	0.462	1.114	0.515	
1880.0	18900	LTE B2	20	-	23.70	23.30	-0.070	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.619	1.096	**0.678**	A33
1880.0	18900	LTE B2	20	-	22.70	22.23	-0.100	1	10 mm [Rear]	FCC #1	QPSK	50	25	1:1	0.492	1.114	0.548	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure										**Body 1.6 W/kg (mW/g)** averaged over 1 gram								

Note(s):
1. Blue entries represent additional Body-Worn SAR Test Position (#1: DD angle: 0 degree) with the worst case position.
2. Green entries represent additional Body-Worn SAR Test Position (#2: DD angle: 180 degree) with the worst case position.
3. Orange entries represent additional Body-Worn SAR Test Position (#3: DD angle: 360 degree) with the worst case position.
4. Yellow entries represent variability measurements.

Table 11.2.3 DTS Body-Worn 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)	SAR (W/kg)	Plots #
2462.0	11	802.11b (Ant.1)	15.50	15.26	0.010	10 mm [Front]	FCC #2	0.085	1	99.4	0.087	1.057	1.006	**0.093**	A34
2462.0	11	802.11b (Ant.1)	15.50	15.26	0.100	10 mm [Rear]	FCC #2	0.075	1	99.4	0.071	1.057	1.006	0.076	
2462.0	11	802.11b (Ant.2)	15.50	15.38	-0.130	10 mm [Front]	FCC #2	0.044	1	99.5	0.047	1.028	1.005	**0.049**	A35
2462.0	11	802.11b (Ant.2)	15.50	15.38	0.180	10 mm [Rear]	FCC #2	0.045	1	99.5	0.047	1.028	1.005	**0.049**	
2437.0	6	802.11g (MIMO)	18.50	17.90	0.020	10 mm [Front]	FCC #2	0.110	1	98.8	0.116	1.148	1.012	**0.135**	A36
2437.0	6	802.11g (MIMO)	18.50	17.90	0.110	10 mm [Rear]	FCC #2	0.079	1	98.8	0.078	1.148	1.012	0.091	
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
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.093	2437	802.11g	OFDM	15.5	1.000	**0.093**	X
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.093	2437	802.11n	OFDM	15.5	1.000	**0.093**	X
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.093	2437	802.11ac	OFDM	15.5	1.000	**0.093**	X
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.093	2437	802.11ax	OFDM	14.5	0.794	**0.074**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.049	2437	802.11g	OFDM	15.5	1.000	**0.049**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.049	2437	802.11n	OFDM	15.5	1.000	**0.049**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.049	2437	802.11ac	OFDM	15.5	1.000	**0.049**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.049	2437	802.11ax	OFDM	14.5	0.794	**0.039**	X
2437.0	6	802.11g (MIMO)	OFDM	18.5	0.135	2437	802.11n	OFDM	18.5	1.000	**0.135**	X
2437.0	6	802.11g (MIMO)	OFDM	18.5	0.135	2437	802.11ac	OFDM	18.5	1.000	**0.135**	X
2437.0	6	802.11g (MIMO)	OFDM	18.5	0.135	2437	802.11ax	OFDM	17.5	0.794	**0.107**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Head 1.6 W/kg (mW/g)** averaged over 1 gram						

Note(s):
1. 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.
2. Per April 2019 TCB Workshop Notes, 802.11ax was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 D01v02r02 for OFDM mode selection.
3. Therefore, SAR tests were not required for 802.11ax based on the maximum allowed output powers of OFDM modes and the reported SAR values.

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														
5280.0	56	802.11a (Ant.1)	16.00	15.61	-0.120	10 mm [Front]	FCC #2	0.062	6	98.7	0.047	1.094	1.013	0.052	
5280.0	56	802.11a (Ant.1)	16.00	15.61	0.100	10 mm [Rear]	FCC #2	0.128	6	98.7	0.112	1.094	1.013	**0.124**	A37
5260.0	52	802.11a (Ant.2)	16.00	15.68	0.120	10 mm [Front]	FCC #2	0.053	6	98.8	0.045	1.076	1.012	0.049	
5260.0	52	802.11a (Ant.2)	16.00	15.68	-0.070	10 mm [Rear]	FCC #2	0.149	6	98.8	0.150	1.076	1.012	**0.163**	A38
5260.0	52	802.11a (MIMO)	19.00	18.65	-0.040	10 mm [Front]	FCC #2	0.102	6	99.1	0.103	1.094	1.009	0.114	
5260.0	52	802.11a (MIMO)	19.00	18.65	-0.030	10 mm [Rear]	FCC #2	0.250	6	99.1	0.240	1.094	1.009	**0.265**	A39
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											
5280.0	56	802.11a (Ant.1)	OFDM	16.0	0.124	5240	802.11a	OFDM	16.0	1.000	**0.124**	X
5260.0	52	802.11a (Ant.2)	OFDM	16.0	0.163	5180	802.11a	OFDM	16.0	1.000	**0.163**	X
5260.0	52	802.11a (MIMO)	OFDM	19.0	0.265	5240	802.11a	OFDM	19.0	1.000	**0.265**	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														
5720.0	144	802.11a (Ant.1)	16.00	15.98	-0.120	10 mm [Front]	FCC #2	0.050	6	98.7	0.025	1.005	1.013	0.025	
5720.0	144	802.11a (Ant.1)	16.00	15.98	-0.170	10 mm [Rear]	FCC #2	0.155	6	98.7	0.153	1.005	1.013	**0.156**	A40
5600.0	120	802.11a (Ant.2)	16.00	15.70	-0.130	10 mm [Front]	FCC #2	0.054	6	98.8	0.033	1.072	1.012	0.036	
5600.0	120	802.11a (Ant.2)	16.00	15.70	0.100	10 mm [Rear]	FCC #2	0.327	6	98.8	0.335	1.072	1.012	**0.363**	A41
5600.0	120	802.11a (MIMO)	19.00	18.82	-0.070	10 mm [Front]	FCC #2	0.082	6	99.1	0.058	1.072	1.009	0.063	
5600.0	120	802.11a (MIMO)	19.00	18.82	0.110	10 mm [Rear]	FCC #2	0.417	6	99.1	0.426	1.072	1.009	**0.461**	A42
5785.0	157	802.11a (Ant.1)	16.00	15.96	-0.160	10 mm [Front]	FCC #2	0.036	6	98.7	0.026	1.009	1.013	0.027	
5785.0	157	802.11a (Ant.1)	16.00	15.96	0.030	10 mm [Rear]	FCC #2	0.143	6	98.7	0.130	1.009	1.013	**0.133**	A43
5825.0	165	802.11a (Ant.2)	16.00	15.29	-0.050	10 mm [Front]	FCC #2	0.096	6	98.8	0.073	1.178	1.012	0.087	
5825.0	165	802.11a (Ant.2)	16.00	15.29	-0.000	10 mm [Rear]	FCC #2	0.371	6	98.8	0.403	1.178	1.012	**0.481**	A44
5745.0	149	802.11a (MIMO)	19.00	18.60	-0.000	10 mm [Front]	FCC #2	0.075	6	99.1	0.054	1.178	1.009	0.064	
5745.0	149	802.11a (MIMO)	19.00	18.60	-0.130	10 mm [Rear]	FCC #2	0.346	6	99.1	0.335	1.178	1.009	**0.398**	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							

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	11.35	9.66	-0.110	10 mm [Front]	FCC #2	1	76.8	0.032	1.476	1.302	**0.062**	A46
2441.0	39	Bluetooth	11.35	9.66	0.070	10 mm [Rear]	FCC #2	1	76.8	0.024	1.476	1.302	0.046	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g)** averaged over 1 gram						

11.3 Standalone Hotspot SAR Results

Table 11.3.1 GPRS/WCDMA Hotspot SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Spacing [Side]	Device Serial Number	# of Time Slots	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
836.6	190	GSM850	GPRS	31.20	31.20	0.000	10 mm [Bottom]	FCC #1	2	1:4.15	0.224	1.000	0.224	
836.6	190	GSM850	GPRS	31.20	31.20	-0.030	10 mm [Front]	FCC #1	2	1:4.15	0.508	1.000	**0.508**	A25
836.6	190	GSM850	GPRS	31.20	31.20	0.070	10 mm [Rear]	FCC #1	2	1:4.15	0.484	1.000	0.484	
836.6	190	GSM850	GPRS	31.20	31.20	-0.050	10 mm [Right]	FCC #1	2	1:4.15	0.141	1.000	0.141	
1880.0	661	PCS1900	GPRS	27.20	27.20	0.010	10 mm [Bottom]	FCC #1	3	1:2.77	0.478	1.000	**0.478**	A47
1880.0	661	PCS1900	GPRS	27.20	27.20	-0.170	10 mm [Front]	FCC #1	3	1:2.77	0.344	1.000	0.344	
1880.0	661	PCS1900	GPRS	27.20	27.20	-0.080	10 mm [Rear]	FCC #1	3	1:2.77	0.326	1.000	0.326	
1880.0	661	PCS1900	GPRS	27.20	27.20	0.120	10 mm [Left]	FCC #1	3	1:2.77	0.090	1.000	0.090	
836.6	4183	WCDMA 850	RMC	25.20	25.19	0.070	10 mm [Bottom]	FCC #1	N/A	1:1	0.276	1.002	0.277	
836.6	4183	WCDMA 850	RMC	25.20	25.19	-0.010	10 mm [Front]	FCC #1	N/A	1:1	0.544	1.002	0.545	
836.6	4183	WCDMA 850	RMC	25.20	25.19	-0.020	10 mm [Rear]	FCC #1	N/A	1:1	0.610	1.002	**0.611**	A28
836.6	4183	WCDMA 850	RMC	25.20	25.19	0.000	10 mm [Right]	FCC #1	N/A	1:1	0.197	1.002	0.197	
1852.4	9262	WCDMA 1900	RMC	23.70	23.65	0.020	10 mm [Bottom]	FCC #1	N/A	1:1	0.872	1.012	**0.882**	A48
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	0.020	10 mm [Bottom]	FCC #1	N/A	1:1	0.838	1.007	0.844	
1907.6	9538	WCDMA 1900	RMC	23.70	23.69	0.020	10 mm [Bottom]	FCC #1	N/A	1:1	0.798	1.002	0.800	
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	-0.040	10 mm [Front]	FCC #1	N/A	1:1	0.560	1.007	0.564	
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	0.020	10 mm [Rear]	FCC #1	N/A	1:1	0.566	1.007	0.570	
1880.0	9400	WCDMA 1900	RMC	23.70	23.67	0.090	10 mm [Left]	FCC #1	N/A	1:1	0.168	1.007	0.169	
1852.4	9262	WCDMA 1900	RMC	23.70	23.65	-0.020	10 mm [Bottom]	FCC #1	N/A	1:1	0.866	1.012	0.876	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**						

Note(s):
1. Yellow entries represent variability measurements.

Table 11.3.2 LTE B12, B5, B4, B2 Hotspot SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode/ Band	BW [MHz]	Dual Display Accessory Configuration	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																	
707.5	23095	LTE B12	10	-	25.50	25.11	-0.020	0	10 mm [Bottom]	FCC #1	QPSK	1	25	1:1	0.059	1.094	0.065	
707.5	23095	LTE B12	10	-	24.50	24.15	-0.160	1	10 mm [Bottom]	FCC #1	QPSK	25	12	1:1	0.040	1.084	0.043	
707.5	23095	LTE B12	10	-	25.50	25.11	0.010	0	10 mm [Front]	FCC #1	QPSK	1	25	1:1	0.193	1.094	0.211	
707.5	23095	LTE B12	10	-	24.50	24.15	0.020	1	10 mm [Front]	FCC #1	QPSK	25	12	1:1	0.120	1.084	0.130	
707.5	23095	LTE B12	10	-	25.50	25.11	0.000	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.240	1.094	**0.263**	A30
707.5	23095	LTE B12	10	-	24.50	24.15	0.040	1	10 mm [Rear]	FCC #1	QPSK	25	12	1:1	0.140	1.084	0.152	
707.5	23095	LTE B12	10	-	25.50	25.11	-0.060	0	10 mm [Right]	FCC #1	QPSK	1	25	1:1	0.216	1.094	0.236	
707.5	23095	LTE B12	10	-	24.50	24.15	-0.050	1	10 mm [Right]	FCC #1	QPSK	25	12	1:1	0.149	1.084	0.162	
836.5	20525	LTE B5	10	-	25.50	25.21	0.080	0	10 mm [Bottom]	FCC #1	QPSK	1	25	1:1	0.364	1.069	0.389	
836.5	20525	LTE B5	10	-	24.50	24.26	0.100	1	10 mm [Bottom]	FCC #1	QPSK	25	12	1:1	0.234	1.057	0.247	
836.5	20525	LTE B5	10	-	25.50	25.21	-0.040	0	10 mm [Front]	FCC #1	QPSK	1	25	1:1	0.735	1.069	0.786	
836.5	20525	LTE B5	10	-	24.50	24.26	-0.010	1	10 mm [Front]	FCC #1	QPSK	25	12	1:1	0.493	1.057	0.521	
836.5	20525	LTE B5	10	-	24.50	24.21	0.030	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.483	1.069	0.516	
836.5	20525	LTE B5	10	-	25.50	25.21	0.050	0	10 mm [Rear]	FCC #1	QPSK	1	25	1:1	0.843	1.069	**0.901**	A31
836.5	20525	LTE B5	10	-	24.50	24.26	-0.070	1	10 mm [Rear]	FCC #1	QPSK	25	12	1:1	0.544	1.057	0.575	
836.5	20525	LTE B5	10	-	24.50	24.21	0.130	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.548	1.069	0.586	
836.5	20525	LTE B5	10	-	25.50	25.21	-0.080	0	10 mm [Right]	FCC #1	QPSK	1	25	1:1	0.255	1.069	0.273	
836.5	20525	LTE B5	10	-	24.50	24.26	-0.080	1	10 mm [Right]	FCC #1	QPSK	25	12	1:1	0.165	1.057	0.174	
1732.5	20175	LTE B4	20	-	23.70	23.09	-0.070	0	10 mm [Bottom]	FCC #1	QPSK	1	50	1:1	0.563	1.151	**0.648**	A49
1732.5	20175	LTE B4	20	-	22.70	22.19	-0.040	1	10 mm [Bottom]	FCC #1	QPSK	50	25	1:1	0.475	1.125	0.534	
1732.5	20175	LTE B4	20	-	23.70	23.09	0.000	0	10 mm [Front]	FCC #1	QPSK	1	50	1:1	0.338	1.151	0.389	
1732.5	20175	LTE B4	20	-	22.70	22.19	0.010	1	10 mm [Front]	FCC #1	QPSK	50	25	1:1	0.288	1.125	0.324	
1732.5	20175	LTE B4	20	-	23.70	23.09	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	50	1:1	0.370	1.151	0.426	
1732.5	20175	LTE B4	20	-	22.70	22.19	-0.030	1	10 mm [Rear]	FCC #1	QPSK	50	25	1:1	0.302	1.125	0.340	
1732.5	20175	LTE B4	20	-	23.70	23.09	0.090	0	10 mm [Left]	FCC #1	QPSK	1	50	1:1	0.131	1.151	0.151	
1732.5	20175	LTE B4	20	-	22.70	22.19	0.140	1	10 mm [Left]	FCC #1	QPSK	50	25	1:1	0.100	1.125	0.113	
1860.0	18700	LTE B2	20	-	23.70	23.12	0.010	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.870	1.143	**0.994**	A50
1880.0	18900	LTE B2	20	-	23.70	23.30	0.020	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.830	1.096	0.910	
1880.0	18900	LTE B2	20	-	22.70	22.23	0.020	1	10 mm [Bottom]	FCC #1	QPSK	50	25	1:1	0.662	1.114	0.737	
1880.0	18900	LTE B2	20	-	22.70	22.17	-0.190	1	10 mm [Bottom]	FCC #1	QPSK	100	0	1:1	0.550	1.130	0.622	
1900.0	19100	LTE B2	20	-	23.70	23.12	0.010	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.777	1.143	0.888	
1880.0	18900	LTE B2	20	-	23.70	23.30	-0.060	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.602	1.096	0.660	
1880.0	18900	LTE B2	20	-	22.70	22.23	-0.000	1	10 mm [Front]	FCC #1	QPSK	50	25	1:1	0.462	1.114	0.515	
1880.0	18900	LTE B2	20	-	23.70	23.30	-0.070	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.619	1.096	0.678	
1880.0	18900	LTE B2	20	-	22.70	22.23	-0.100	1	10 mm [Rear]	FCC #1	QPSK	50	25	1:1	0.492	1.114	0.548	
1880.0	18900	LTE B2	20	-	23.70	23.30	0.130	0	10 mm [Left]	FCC #1	QPSK	1	0	1:1	0.179	1.096	0.196	
1880.0	18900	LTE B2	20	-	22.70	22.23	0.100	1	10 mm [Left]	FCC #1	QPSK	50	25	1:1	0.137	1.114	0.153	
1860.0	18700	LTE B2	20	#1	23.70	23.12	0.050	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.494	1.143	0.565	
1860.0	18700	LTE B2	20	#2	23.70	23.12	-0.120	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.411	1.143	0.470	
1860.0	18700	LTE B2	20	#3	23.70	23.12	0.110	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.424	1.143	0.485	
1860.0	18700	LTE B2	20	-	23.70	23.12	0.010	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.864	1.143	0.988	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure										**Body 1.6 W/kg (mW/g) averaged over 1 gram**								

Note(s):
1. Blue entries represent additional Hotspot SAR Test Position (#1: DD angle: 0 degree) with the worst case position.
2. Green entries represent additional Hotspot SAR Test Position (#2: DD angle: 180 degree) with the worst case position.
3. Orange entries represent additional Hotspot SAR Test Position (#3: DD angle: 360 degree) with the worst case position.
4. Yellow 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)	SAR (W/kg)	Plots #
2462.0	11	802.11b (Ant.1)	15.50	15.26	-0.000	10 mm [Top]	FCC #2	0.052	1	99.4	0.051	1.057	1.006	0.054	
2462.0	11	802.11b (Ant.1)	15.50	15.26	0.010	10 mm [Front]	FCC #2	0.085	1	99.4	0.087	1.057	1.006	0.093	
2462.0	11	802.11b (Ant.1)	15.50	15.26	0.100	10 mm [Rear]	FCC #2	0.075	1	99.4	0.071	1.057	1.006	0.076	
2462.0	11	802.11b (Ant.1)	15.50	15.26	0.170	10 mm [Left]	FCC #2	0.154	1	99.4	0.156	1.057	1.006	**0.166**	A51
2462.0	11	802.11b (Ant.2)	15.50	15.38	-0.030	10 mm [Top]	FCC #2	0.070	1	99.5	0.069	1.028	1.005	**0.071**	A52
2462.0	11	802.11b (Ant.2)	15.50	15.38	-0.130	10 mm [Front]	FCC #2	0.044	1	99.5	0.047	1.028	1.005	0.049	
2462.0	11	802.11b (Ant.2)	15.50	15.38	0.180	10 mm [Rear]	FCC #2	0.045	1	99.5	0.047	1.028	1.005	0.049	
2462.0	11	802.11b (Ant.2)	15.50	15.38	0.000	10 mm [Left]	FCC #2	0.005	1	99.5	0.002	1.028	1.005	0.002	
2437.0	6	802.11g (MIMO)	18.50	17.90	0.050	10 mm [Top]	FCC #2	0.129	1	98.8	0.129	1.148	1.012	0.150	
2437.0	6	802.11g (MIMO)	18.50	17.90	0.020	10 mm [Front]	FCC #2	0.110	1	98.8	0.116	1.148	1.012	0.135	
2437.0	6	802.11g (MIMO)	18.50	17.90	0.110	10 mm [Rear]	FCC #2	0.079	1	98.8	0.078	1.148	1.012	0.091	
2437.0	6	802.11g (MIMO)	18.50	17.90	0.100	10 mm [Left]	FCC #2	0.156	1	98.8	0.161	1.148	1.012	**0.187**	A53
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
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.166	2437	802.11g	OFDM	15.5	1.000	**0.166**	X
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.166	2437	802.11n	OFDM	15.5	1.000	**0.166**	X
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.166	2437	802.11ac	OFDM	15.5	1.000	**0.166**	X
2462.0	11	802.11b (Ant.1)	DSSS	15.5	0.166	2437	802.11ax	OFDM	14.5	0.794	**0.132**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.071	2437	802.11g	OFDM	15.5	1.000	**0.071**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.071	2437	802.11n	OFDM	15.5	1.000	**0.071**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.071	2437	802.11ac	OFDM	15.5	1.000	**0.071**	X
2462.0	11	802.11b (Ant.2)	DSSS	15.5	0.071	2437	802.11ax	OFDM	14.5	0.794	**0.056**	X
2437.0	6	802.11g (MIMO)	OFDM	18.5	0.187	2437	802.11n	OFDM	18.5	1.000	**0.187**	X
2437.0	6	802.11g (MIMO)	OFDM	18.5	0.187	2437	802.11ac	OFDM	18.5	1.000	**0.187**	X
2437.0	6	802.11g (MIMO)	OFDM	18.5	0.187	2437	802.11ax	OFDM	17.5	0.794	**0.148**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						Head 1.6 W/kg (mW/g) averaged over 1 gram						

Note(s):
1. 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.
2. Per April 2019 TCB Workshop Notes, 802.11ax was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 D01v02r02 for OFDM mode selection.
3. Therefore, SAR tests were not required for 802.11ax based on the maximum allowed output powers of OFDM modes and the reported SAR values.

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 #
5200.0	40	802.11a (Ant.1)	16.00	15.58	-0.030	10 mm [Top]	FCC #2	0.034	6	98.7	0.024	1.102	1.013	0.027	
5200.0	40	802.11a (Ant.1)	16.00	15.58	0.040	10 mm [Front]	FCC #2	0.069	6	98.7	0.053	1.102	1.013	0.059	
5200.0	40	802.11a (Ant.1)	16.00	15.58	-0.090	10 mm [Rear]	FCC #2	0.140	6	98.7	0.120	1.102	1.013	**0.134**	A54
5200.0	40	802.11a (Ant.1)	16.00	15.58	0.100	10 mm [Left]	FCC #2	0.027	6	98.7	0.022	1.102	1.013	0.025	
5240.0	48	802.11a (Ant.2)	16.00	15.76	-0.130	10 mm [Top]	FCC #2	0.097	6	98.8	0.091	1.057	1.012	0.097	
5240.0	48	802.11a (Ant.2)	16.00	15.76	-0.170	10 mm [Front]	FCC #2	0.060	6	98.8	0.057	1.057	1.012	0.061	
5240.0	48	802.11a (Ant.2)	16.00	15.76	-0.040	10 mm [Rear]	FCC #2	0.156	6	98.8	0.125	1.057	1.012	**0.134**	A55
5240.0	48	802.11a (Ant.2)	16.00	15.76	0.150	10 mm [Left]	FCC #2	0.028	6	98.8	0.010	1.057	1.012	0.011	
5200.0	40	802.11a (MIMO)	19.00	18.63	-0.160	10 mm [Top]	FCC #2	0.111	6	99.1	0.107	1.102	1.009	0.119	
5200.0	40	802.11a (MIMO)	19.00	18.63	-0.060	10 mm [Front]	FCC #2	0.099	6	99.1	0.098	1.102	1.009	0.109	
5200.0	40	802.11a (MIMO)	19.00	18.63	0.040	10 mm [Rear]	FCC #2	0.251	6	99.1	0.246	1.102	1.009	**0.274**	A56
5200.0	40	802.11a (MIMO)	19.00	18.63	-0.180	10 mm [Left]	FCC #2	0.029	6	99.1	0.020	1.102	1.009	0.022	
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 #
5785.0	157	802.11a (Ant.1)	16.00	15.96	0.110	10 mm [Top]	FCC #2	0.035	6	98.7	0.023	1.009	1.013	0.024	
5785.0	157	802.11a (Ant.1)	16.00	15.96	-0.160	10 mm [Front]	FCC #2	0.036	6	98.7	0.026	1.009	1.013	0.027	
5785.0	157	802.11a (Ant.1)	16.00	15.96	0.030	10 mm [Rear]	FCC #2	0.143	6	98.7	0.130	1.009	1.013	**0.133**	A43
5785.0	157	802.11a (Ant.1)	16.00	15.96	-0.090	10 mm [Left]	FCC #2	0.038	6	98.7	0.031	1.009	1.013	0.032	
5745.0	149	802.11a (Ant.2)	16.00	15.20	0.010	10 mm [Top]	FCC #2	0.159	6	98.8	0.166	1.202	1.012	0.202	
5745.0	149	802.11a (Ant.2)	16.00	15.20	-0.160	10 mm [Front]	FCC #2	0.030	6	98.8	0.020	1.202	1.012	0.024	
5745.0	149	802.11a (Ant.2)	16.00	15.20	-0.040	10 mm [Rear]	FCC #2	0.289	6	98.8	0.270	1.202	1.012	**0.328**	A57
5745.0	149	802.11a (Ant.2)	16.00	15.20	-0.130	10 mm [Left]	FCC #2	0.061	6	98.8	0.046	1.202	1.012	0.056	
5745.0	149	802.11a (MIMO)	19.00	18.60	0.000	10 mm [Top]	FCC #2	0.164	6	99.1	0.180	1.202	1.009	0.218	
5745.0	149	802.11a (MIMO)	19.00	18.60	-0.000	10 mm [Front]	FCC #2	0.075	6	99.1	0.054	1.202	1.009	0.065	
5745.0	149	802.11a (MIMO)	19.00	18.60	-0.130	10 mm [Rear]	FCC #2	0.346	6	99.1	0.335	1.202	1.009	**0.406**	A45
5745.0	149	802.11a (MIMO)	19.00	18.60	-0.140	10 mm [Left]	FCC #2	0.077	6	99.1	0.059	1.202	1.009	0.072	
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	11.35	9.66	0.190	10 mm [Top]	FCC #2	1	76.8	0.015	1.476	1.302	0.029	
2441.0	39	Bluetooth	11.35	9.66	-0.110	10 mm [Front]	FCC #2	1	76.8	0.032	1.476	1.302	0.062	
2441.0	39	Bluetooth	11.35	9.66	0.070	10 mm [Rear]	FCC #2	1	76.8	0.024	1.476	1.302	0.046	
2441.0	39	Bluetooth	11.35	9.66	0.040	10 mm [Left]	FCC #2	1	76.8	0.053	1.476	1.302	**0.102**	A58
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														
5280.0	56	802.11a (Ant.1)	16.00	15.61	-0.090	0 mm [Top]	FCC #2	0.049	6	98.7	0.042	1.094	1.013	0.047	
5280.0	56	802.11a (Ant.1)	16.00	15.61	-0.080	0 mm [Front]	FCC #2	0.179	6	98.7	0.185	1.094	1.013	0.205	
5280.0	56	802.11a (Ant.1)	16.00	15.61	-0.130	0 mm [Rear]	FCC #2	0.367	6	98.7	0.358	1.094	1.013	**0.397**	A59
5280.0	56	802.11a (Ant.1)	16.00	15.61	-0.020	0 mm [Left]	FCC #2	0.061	6	98.7	0.047	1.094	1.013	0.052	
5260.0	52	802.11a (Ant.2)	16.00	15.68	-0.190	0 mm [Top]	FCC #2	0.324	6	98.8	0.308	1.076	1.012	0.335	
5260.0	52	802.11a (Ant.2)	16.00	15.68	-0.020	0 mm [Front]	FCC #2	0.190	6	98.8	0.194	1.076	1.012	0.211	
5260.0	52	802.11a (Ant.2)	16.00	15.68	-0.140	0 mm [Rear]	FCC #2	0.382	6	98.8	0.401	1.076	1.012	**0.437**	A60
5260.0	52	802.11a (Ant.2)	16.00	15.68	-0.150	0 mm [Left]	FCC #2	0.066	6	98.8	0.056	1.076	1.012	0.061	
5260.0	52	802.11a (MIMO)	19.00	18.65	-0.130	0 mm [Top]	FCC #2	0.330	6	99.1	0.313	1.094	1.009	0.346	
5260.0	52	802.11a (MIMO)	19.00	18.65	-0.010	0 mm [Front]	FCC #2	0.570	6	99.1	0.559	1.094	1.009	**0.617**	A61
5260.0	52	802.11a (MIMO)	19.00	18.65	-0.010	0 mm [Rear]	FCC #2	0.527	6	99.1	0.554	1.094	1.009	0.612	
5260.0	52	802.11a (MIMO)	19.00	18.65	0.020	0 mm [Left]	FCC #2	0.103	6	99.1	0.097	1.094	1.009	0.107	
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														
5720.0	144	802.11a (Ant.1)	16.00	15.98	0.080	0 mm [Top]	FCC #2	0.070	6	98.7	0.052	1.005	1.019	0.053	
5720.0	144	802.11a (Ant.1)	16.00	15.98	0.150	0 mm [Front]	FCC #2	0.150	6	98.7	0.147	1.005	1.019	0.151	
5720.0	144	802.11a (Ant.1)	16.00	15.98	0.060	0 mm [Rear]	FCC #2	0.372	6	98.7	0.455	1.005	1.019	**0.466**	A62
5720.0	144	802.11a (Ant.1)	16.00	15.98	-0.070	0 mm [Left]	FCC #2	0.076	6	98.7	0.070	1.005	1.019	0.072	
5600.0	120	802.11a (Ant.2)	16.00	15.70	0.070	0 mm [Top]	FCC #2	0.283	6	98.8	0.297	1.072	1.019	0.324	
5600.0	120	802.11a (Ant.2)	16.00	15.70	-0.120	0 mm [Front]	FCC #2	0.123	6	98.8	0.128	1.072	1.019	0.140	
5600.0	120	802.11a (Ant.2)	16.00	15.70	0.110	0 mm [Rear]	FCC #2	0.603	6	98.8	0.652	1.072	1.019	**0.712**	A63
5600.0	120	802.11a (Ant.2)	16.00	15.70	-0.170	0 mm [Left]	FCC #2	0.094	6	98.8	0.087	1.072	1.019	0.095	
5600.0	120	802.11a (MIMO)	19.00	18.82	-0.130	0 mm [Top]	FCC #2	0.538	6	99.1	0.567	1.072	1.019	0.619	
5600.0	120	802.11a (MIMO)	19.00	18.82	-0.100	0 mm [Front]	FCC #2	0.127	6	99.1	0.124	1.072	1.019	0.135	
5600.0	120	802.11a (MIMO)	19.00	18.82	-0.050	0 mm [Rear]	FCC #2	0.900	6	99.1	0.937	1.072	1.019	**1.024**	A64
5600.0	120	802.11a (MIMO)	19.00	18.82	0.010	0 mm [Left]	FCC #2	0.112	6	99.1	0.091	1.072	1.019	0.099	
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	Dual Display Accessory Configuration	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	15.78	-0.190	0 mm [Top]	FCC #2	0.040	6	98.7	0.026	1.052	1.013	0.028	
5825.0	165	802.11a (Ant.1)	-	16.00	15.78	-0.000	0 mm [Front]	FCC #2	0.188	6	98.7	0.183	1.052	1.013	0.195	
5825.0	165	802.11a (Ant.1)	-	16.00	15.78	0.180	0 mm [Rear]	FCC #2	0.531	6	98.7	0.426	1.052	1.013	**0.454**	A65
5825.0	165	802.11a (Ant.1)	-	16.00	15.78	-0.030	0 mm [Left]	FCC #2	0.100	6	98.7	0.104	1.052	1.013	0.111	
5825.0	165	802.11a (Ant.2)	-	16.00	15.29	-0.030	0 mm [Top]	FCC #2	0.236	6	98.8	0.258	1.178	1.012	0.308	
5825.0	165	802.11a (Ant.2)	-	16.00	15.29	0.020	0 mm [Front]	FCC #2	0.357	6	98.8	0.302	1.178	1.012	0.360	
5825.0	165	802.11a (Ant.2)	-	16.00	15.29	-0.170	0 mm [Rear]	FCC #2	0.849	6	98.8	0.876	1.178	1.012	**1.044**	A66
5825.0	165	802.11a (Ant.2)	-	16.00	15.29	-0.030	0 mm [Left]	FCC #2	0.092	6	98.8	0.078	1.178	1.012	0.093	
5825.0	165	802.11a (MIMO)	-	19.00	18.55	0.020	0 mm [Top]	FCC #2	0.272	6	99.1	0.266	1.178	1.009	0.316	
5825.0	165	802.11a (MIMO)	-	19.00	18.55	-0.050	0 mm [Front]	FCC #2	0.431	6	99.1	0.416	1.178	1.009	0.494	
5825.0	165	802.11a (MIMO)	-	19.00	18.55	-0.000	0 mm [Rear]	FCC #2	1.010	6	99.1	1.010	1.178	1.009	**1.201**	A67
5825.0	165	802.11a (MIMO)	-	19.00	18.55	0.080	0 mm [Left]	FCC #2	0.124	6	99.1	0.107	1.178	1.009	0.127	
5825.0	165	802.11a (MIMO)	#1	19.00	18.55	-0.120	0 mm [Rear]	FCC #2	0.862	6	99.1	0.843	1.178	1.009	1.002	
5825.0	165	802.11a (MIMO)	#2	19.00	18.55	0.170	0 mm [Rear]	FCC #2	0.857	6	99.1	0.832	1.178	1.009	0.989	
5825.0	165	802.11a (MIMO)	#3	19.00	18.55	-0.110	0 mm [Rear]	FCC #2	0.584	6	99.1	0.555	1.178	1.009	0.660	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									Phablet 4.0 W/kg (mW/g) averaged over 10 gram							

Note(s):
1. Blue entries represent additional Phablet SAR Test Position (#1: DD angle: 0 degree) with the worst case position.
2. Green entries represent additional Phablet SAR Test Position (#2: DD angle: 180 degree) with the worst case position.
3. Orange entries represent additional Phablet SAR Test Position (#3: DD angle: 360 degree) with the worst case position.
4. UNII-3 Band CH 165 (5825 MHz) is not support Hotspot mode as described on operational description of this device, so phablet SAR is tested on this CH.

11.5 SAR Test Notes

General Notes:

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

GSM Notes:

1. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2. This device supports GSM VOIP in the head and body-worn configurations; therefore GPRS was additionally evaluated for head and body-worn compliance.
3. Justification for reduced test configurations per KDB Publication 941225 D01v03r01 and October 2013 TCB Workshop Notes: The source-based frame-averaged output power was evaluated for all GPRS/EDGE 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 $\leq$ 1.6 W/kg. The different test positon in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1-g or 10-g SAR.

12.3 Simultaneous Transmission Capabilities

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

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

Table 12.3.1 Simultaneous 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 MIMO + Wi-Fi 5GHz MIMO	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 MIMO	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered.
9	WCDMA + Wi-Fi 2.4 GHz	Yes	Yes	Yes	Yes	
10	WCDMA + Wi-Fi 5 GHz	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
11	WCDMA + Bluetooth 2.4 GHz	Yes^	Yes	Yes	Yes	^Bluetooth Tethering is considered.
12	WCDMA + Wi-Fi 2.4 GHz MIMO	Yes	Yes	Yes	Yes	
13	WCDMA + Wi-Fi 5 GHz MIMO	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
14	WCMDA + Wi-Fi 2.4 GHz MIMO + Wi-Fi 5GHz MIMO	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
15	WCMDA + BT 2.4 GHz Ant.1 + Wi-Fi 2.4 GHz Ant.2	Yes^	Yes	Yes	Yes	^Bluetooth Tethering is considered.
16	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.
17	LTE + Wi-Fi 2.4 GHz	Yes	Yes	Yes	Yes	
18	LTE + Wi-Fi 5 GHz	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
19	LTE + Bluetooth 2.4 GHz	Yes^	Yes	Yes	Yes	^Bluetooth Tethering is considered.
20	LTE + Wi-Fi 2.4 GHz MIMO	Yes	Yes	Yes	Yes	
21	LTE + Wi-Fi 5 GHz MIMO	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
22	LTE + Wi-Fi 2.4 GHz MIMO + Wi-Fi 5GHz MIMO	Yes	Yes	Yes`	Yes	` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
23	LTE + BT 2.4 GHz Ant.1 + Wi-Fi 2.4 GHz Ant.2	Yes^	Yes	Yes	Yes	^Bluetooth Tethering is considered.
24	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.
25	GPRS + Wi-Fi 2.4 GHz	Yes*	Yes*	Yes	Yes	*Pre-installed VOIP applications are considered.
26	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.
27	GPRS + Bluetooth 2.4 GHz	Yes*^	Yes*	Yes	Yes	*Pre-installed VOIP applications are considered. ^Bluetooth Tethering is considered.
28	GPRS + Wi-Fi 2.4 GHz MIMO	Yes*	Yes*	Yes	Yes	*Pre-installed VOIP applications are considered.
29	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.
30	GPRS + Wi-Fi 2.4 GHz MIMO + Wi-Fi 5GHz MIMO	Yes*	Yes*	Yes`	Yes	*Pre-installed VOIP applications are considered. ` Hotspot of UNII-1 & UNII-3 can be operated simultaneous transmission.
31	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.
32	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.
33	Wi-Fi 2.4GHz MIMO + Wi-Fi 5GHz MIMO	Yes	Yes	N/A	Yes	
34	Bluetooth 2.4GHz Ant.1 + Wi-Fi 2.4GHz Ant.2	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered.
35	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 MIMO + 5.3 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)	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	0.179	0.120	0.396	0.299	0.575	0.695
		Right Touch	0.101	0.539	0.640	0.640	0.741	**1.280**
		Left Tilt	0.096	0.198	0.316	0.294	0.412	0.610
		Right Tilt	0.079	0.323	0.503	0.402	0.582	0.905
	GPRS 850	Left Touch	0.204	0.120	0.396	0.324	0.600	0.720
		Right Touch	0.130	0.539	0.640	0.669	0.770	**1.309**
		Left Tilt	0.107	0.198	0.316	0.305	0.423	0.621
		Right Tilt	0.097	0.323	0.503	0.420	0.600	0.923
	GSM 1900	Left Touch	0.033	0.120	0.396	0.153	0.429	0.549
		Right Touch	0.021	0.539	0.640	0.560	0.661	**1.200**
		Left Tilt	0.021	0.198	0.316	0.219	0.337	0.535
		Right Tilt	0.018	0.323	0.503	0.341	0.521	0.844
	GPRS 1900	Left Touch	0.042	0.120	0.396	0.162	0.438	0.558
		Right Touch	0.030	0.539	0.640	0.569	0.670	**1.209**
		Left Tilt	0.025	0.198	0.316	0.223	0.341	0.539
		Right Tilt	0.026	0.323	0.503	0.349	0.529	0.852
	WCDMA 850	Left Touch	0.284	0.120	0.396	0.404	0.680	0.800
		Right Touch	0.230	0.539	0.640	0.769	0.870	**1.409**
		Left Tilt	0.159	0.198	0.316	0.357	0.475	0.673
		Right Tilt	0.149	0.323	0.503	0.472	0.652	0.975
	WCDMA 1900	Left Touch	0.080	0.120	0.396	0.200	0.476	0.596
		Right Touch	0.059	0.539	0.640	0.598	0.699	**1.238**
		Left Tilt	0.058	0.198	0.316	0.256	0.374	0.572
		Right Tilt	0.054	0.323	0.503	0.377	0.557	0.880
	LTE Band 12	Left Touch	0.108	0.120	0.396	0.228	0.504	0.624
		Right Touch	0.108	0.539	0.640	0.647	0.748	**1.287**
		Left Tilt	0.024	0.198	0.316	0.222	0.340	0.538
		Right Tilt	0.055	0.323	0.503	0.378	0.558	0.881
	LTE Band 5	Left Touch	0.283	0.120	0.396	0.403	0.679	0.799
		Right Touch	**0.282**	**0.539**	**0.640**	**0.821**	**0.922**	**1.461**
		Left Tilt	0.159	0.198	0.316	0.357	0.475	0.673
		Right Tilt	0.181	0.323	0.503	0.504	0.684	1.007
	LTE Band 4	Left Touch	0.053	0.120	0.396	0.173	0.449	0.569
		Right Touch	0.033	0.539	0.640	0.572	0.673	**1.212**
		Left Tilt	0.021	0.198	0.316	0.219	0.337	0.535
		Right Tilt	0.035	0.323	0.503	0.358	0.538	0.861
	LTE Band 2	Left Touch	0.080	0.120	0.396	0.200	0.476	0.596
		Right Touch	0.073	0.539	0.640	0.612	0.713	**1.252**
		Left Tilt	0.060	0.198	0.316	0.258	0.376	0.574
		Right Tilt	0.068	0.323	0.503	0.391	0.571	0.894

Table 12.4.2 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN MIMO + 5.6 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)	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	0.179	0.120	0.174	0.299	0.353	0.473
		Right Touch	0.101	0.539	0.502	0.640	0.603	**1.142**
		Left Tilt	0.096	0.198	0.259	0.294	0.355	0.553
		Right Tilt	0.079	0.323	0.323	0.402	0.402	0.725
	GPRS 850	Left Touch	0.204	0.120	0.174	0.324	0.378	0.498
		Right Touch	0.130	0.539	0.502	0.669	0.632	**1.171**
		Left Tilt	0.107	0.198	0.259	0.305	0.366	0.564
		Right Tilt	0.097	0.323	0.323	0.420	0.420	0.743
	GSM 1900	Left Touch	0.033	0.120	0.174	0.153	0.207	0.327
		Right Touch	0.021	0.539	0.502	0.560	0.523	**1.062**
		Left Tilt	0.021	0.198	0.259	0.219	0.280	0.478
		Right Tilt	0.018	0.323	0.323	0.341	0.341	0.664
	GPRS 1900	Left Touch	0.042	0.120	0.174	0.162	0.216	0.336
		Right Touch	0.030	0.539	0.502	0.569	0.532	**1.071**
		Left Tilt	0.025	0.198	0.259	0.223	0.284	0.482
		Right Tilt	0.026	0.323	0.323	0.349	0.349	0.672
	WCDMA 850	Left Touch	0.284	0.120	0.174	0.404	0.458	0.578
		Right Touch	0.230	0.539	0.502	0.769	0.732	**1.271**
		Left Tilt	0.159	0.198	0.259	0.357	0.418	0.616
		Right Tilt	0.149	0.323	0.323	0.472	0.472	0.795
	WCDMA 1900	Left Touch	0.080	0.120	0.174	0.200	0.254	0.374
		Right Touch	0.059	0.539	0.502	0.598	0.561	**1.100**
		Left Tilt	0.058	0.198	0.259	0.256	0.317	0.515
		Right Tilt	0.054	0.323	0.323	0.377	0.377	0.700
	LTE Band 12	Left Touch	0.108	0.120	0.174	0.228	0.282	0.402
		Right Touch	0.108	0.539	0.502	0.647	0.610	**1.149**
		Left Tilt	0.024	0.198	0.259	0.222	0.283	0.481
		Right Tilt	0.055	0.323	0.323	0.378	0.378	0.701
	LTE Band 5	Left Touch	0.283	0.120	0.174	0.403	0.457	0.577
		Right Touch	0.282	0.539	0.502	0.821	0.784	**1.323**
		Left Tilt	0.159	0.198	0.259	0.357	0.418	0.616
		Right Tilt	0.181	0.323	0.323	0.504	0.504	0.827
	LTE Band 4	Left Touch	0.053	0.120	0.174	0.173	0.227	0.347
		Right Touch	0.033	0.539	0.502	0.572	0.535	**1.074**
		Left Tilt	0.021	0.198	0.259	0.219	0.280	0.478
		Right Tilt	0.035	0.323	0.323	0.358	0.358	0.681
	LTE Band 2	Left Touch	0.080	0.120	0.174	0.200	0.254	0.374
		Right Touch	0.073	0.539	0.502	0.612	0.575	**1.114**
		Left Tilt	0.060	0.198	0.259	0.258	0.319	0.517
		Right Tilt	0.068	0.323	0.323	0.391	0.391	0.714

Table 12.4.3 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN MIMO + 5.8 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)	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	0.179	0.120	0.145	0.299	0.324	0.444
		Right Touch	0.101	0.539	0.383	0.640	0.484	**1.023**
		Left Tilt	0.096	0.198	0.175	0.294	0.271	0.469
		Right Tilt	0.079	0.323	0.360	0.402	0.439	0.762
	GPRS 850	Left Touch	0.204	0.120	0.145	0.324	0.349	0.469
		Right Touch	0.130	0.539	0.383	0.669	0.513	**1.052**
		Left Tilt	0.107	0.198	0.175	0.305	0.282	0.480
		Right Tilt	0.097	0.323	0.360	0.420	0.457	0.780
	GSM 1900	Left Touch	0.033	0.120	0.145	0.153	0.178	0.298
		Right Touch	0.021	0.539	0.383	0.560	0.404	**0.943**
		Left Tilt	0.021	0.198	0.175	0.219	0.196	0.394
		Right Tilt	0.018	0.323	0.360	0.341	0.378	0.701
	GPRS 1900	Left Touch	0.042	0.120	0.145	0.162	0.187	0.307
		Right Touch	0.030	0.539	0.383	0.569	0.413	**0.952**
		Left Tilt	0.025	0.198	0.175	0.223	0.200	0.398
		Right Tilt	0.026	0.323	0.360	0.349	0.386	0.709
	WCDMA 850	Left Touch	0.284	0.120	0.145	0.404	0.429	0.549
		Right Touch	0.230	0.539	0.383	0.769	0.613	**1.152**
		Left Tilt	0.159	0.198	0.175	0.357	0.334	0.532
		Right Tilt	0.149	0.323	0.360	0.472	0.509	0.832
	WCDMA 1900	Left Touch	0.080	0.120	0.145	0.200	0.225	0.345
		Right Touch	0.059	0.539	0.383	0.598	0.442	**0.981**
		Left Tilt	0.058	0.198	0.175	0.256	0.233	0.431
		Right Tilt	0.054	0.323	0.360	0.377	0.414	0.737
	LTE Band 12	Left Touch	0.108	0.120	0.145	0.228	0.253	0.373
		Right Touch	0.108	0.539	0.383	0.647	0.491	**1.030**
		Left Tilt	0.024	0.198	0.175	0.222	0.199	0.397
		Right Tilt	0.055	0.323	0.360	0.378	0.415	0.738
	LTE Band 5	Left Touch	0.283	0.120	0.145	0.403	0.428	0.548
		Right Touch	0.282	0.539	0.383	0.821	0.665	**1.204**
		Left Tilt	0.159	0.198	0.175	0.357	0.334	0.532
		Right Tilt	0.181	0.323	0.360	0.504	0.541	0.864
	LTE Band 4	Left Touch	0.053	0.120	0.145	0.173	0.198	0.318
		Right Touch	0.033	0.539	0.383	0.572	0.416	**0.955**
		Left Tilt	0.021	0.198	0.175	0.219	0.196	0.394
		Right Tilt	0.035	0.323	0.360	0.358	0.395	0.718
	LTE Band 2	Left Touch	0.080	0.120	0.145	0.200	0.225	0.345
		Right Touch	0.073	0.539	0.383	0.612	0.456	**0.995**
		Left Tilt	0.060	0.198	0.175	0.258	0.235	0.433
		Right Tilt	0.068	0.323	0.360	0.391	0.428	0.751

Table 12.4.4 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	0.179	0.090	0.396	0.269	0.575	0.665
		Right Touch	0.101	0.327	0.640	0.428	0.741	**1.068**
		Left Tilt	0.096	0.048	0.316	0.144	0.412	0.460
		Right Tilt	0.079	0.175	0.503	0.254	0.582	0.757
	GPRS 850	Left Touch	0.204	0.090	0.396	0.294	0.600	0.690
		Right Touch	0.130	0.327	0.640	0.457	0.770	**1.097**
		Left Tilt	0.107	0.048	0.316	0.155	0.423	0.471
		Right Tilt	0.097	0.175	0.503	0.272	0.600	0.775
	GSM 1900	Left Touch	0.033	0.090	0.396	0.123	0.429	0.519
		Right Touch	0.021	0.327	0.640	0.348	0.661	**0.988**
		Left Tilt	0.021	0.048	0.316	0.069	0.337	0.385
		Right Tilt	0.018	0.175	0.503	0.193	0.521	0.696
	GPRS 1900	Left Touch	0.042	0.090	0.396	0.132	0.438	0.528
		Right Touch	0.030	0.327	0.640	0.357	0.670	**0.997**
		Left Tilt	0.025	0.048	0.316	0.073	0.341	0.389
		Right Tilt	0.026	0.175	0.503	0.201	0.529	0.704
	WCDMA 850	Left Touch	0.284	0.090	0.396	0.374	0.680	0.770
		Right Touch	0.230	0.327	0.640	0.557	0.870	**1.197**
		Left Tilt	0.159	0.048	0.316	0.207	0.475	0.523
		Right Tilt	0.149	0.175	0.503	0.324	0.652	0.827
	WCDMA 1900	Left Touch	0.080	0.090	0.396	0.170	0.476	0.566
		Right Touch	0.059	0.327	0.640	0.386	0.699	**1.026**
		Left Tilt	0.058	0.048	0.316	0.106	0.374	0.422
		Right Tilt	0.054	0.175	0.503	0.229	0.557	0.732
	LTE Band 12	Left Touch	0.108	0.090	0.396	0.198	0.504	0.594
		Right Touch	0.108	0.327	0.640	0.435	0.748	**1.075**
		Left Tilt	0.024	0.048	0.316	0.072	0.340	0.388
		Right Tilt	0.055	0.175	0.503	0.230	0.558	0.733
	LTE Band 5	Left Touch	0.283	0.090	0.396	0.373	0.679	0.769
		Right Touch	0.282	0.327	0.640	0.609	0.922	**1.249**
		Left Tilt	0.159	0.048	0.316	0.207	0.475	0.523
		Right Tilt	0.181	0.175	0.503	0.356	0.684	0.859
	LTE Band 4	Left Touch	0.053	0.090	0.396	0.143	0.449	0.539
		Right Touch	0.033	0.327	0.640	0.360	0.673	**1.000**
		Left Tilt	0.021	0.048	0.316	0.069	0.337	0.385
		Right Tilt	0.035	0.175	0.503	0.210	0.538	0.713
	LTE Band 2	Left Touch	0.080	0.090	0.396	0.170	0.476	0.566
		Right Touch	0.073	0.327	0.640	0.400	0.713	**1.040**
		Left Tilt	0.060	0.048	0.316	0.108	0.376	0.424
		Right Tilt	0.068	0.175	0.503	0.243	0.571	0.746

Table 12.4.5 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	0.179	0.090	0.174	0.269	0.353	0.443
		Right Touch	0.101	0.327	0.502	0.428	0.603	**0.930**
		Left Tilt	0.096	0.048	0.259	0.144	0.355	0.403
		Right Tilt	0.079	0.175	0.323	0.254	0.402	0.577
	GPRS 850	Left Touch	0.204	0.090	0.174	0.294	0.378	0.468
		Right Touch	0.130	0.327	0.502	0.457	0.632	**0.959**
		Left Tilt	0.107	0.048	0.259	0.155	0.366	0.414
		Right Tilt	0.097	0.175	0.323	0.272	0.420	0.595
	GSM 1900	Left Touch	0.033	0.090	0.174	0.123	0.207	0.297
		Right Touch	0.021	0.327	0.502	0.348	0.523	**0.850**
		Left Tilt	0.021	0.048	0.259	0.069	0.280	0.328
		Right Tilt	0.018	0.175	0.323	0.193	0.341	0.516
	GPRS 1900	Left Touch	0.042	0.090	0.174	0.132	0.216	0.306
		Right Touch	0.030	0.327	0.502	0.357	0.532	**0.859**
		Left Tilt	0.025	0.048	0.259	0.073	0.284	0.332
		Right Tilt	0.026	0.175	0.323	0.201	0.349	0.524
	WCDMA 850	Left Touch	0.284	0.090	0.174	0.374	0.458	0.548
		Right Touch	0.230	0.327	0.502	0.557	0.732	**1.059**
		Left Tilt	0.159	0.048	0.259	0.207	0.418	0.466
		Right Tilt	0.149	0.175	0.323	0.324	0.472	0.647
	WCDMA 1900	Left Touch	0.080	0.090	0.174	0.170	0.254	0.344
		Right Touch	0.059	0.327	0.502	0.386	0.561	**0.888**
		Left Tilt	0.058	0.048	0.259	0.106	0.317	0.365
		Right Tilt	0.054	0.175	0.323	0.229	0.377	0.552
	LTE Band 12	Left Touch	0.108	0.090	0.174	0.198	0.282	0.372
		Right Touch	0.108	0.327	0.502	0.435	0.610	**0.937**
		Left Tilt	0.024	0.048	0.259	0.072	0.283	0.331
		Right Tilt	0.055	0.175	0.323	0.230	0.378	0.553
	LTE Band 5	Left Touch	0.283	0.090	0.174	0.373	0.457	0.547
		Right Touch	0.282	0.327	0.502	0.609	0.784	**1.111**
		Left Tilt	0.159	0.048	0.259	0.207	0.418	0.466
		Right Tilt	0.181	0.175	0.323	0.356	0.504	0.679
	LTE Band 4	Left Touch	0.053	0.090	0.174	0.143	0.227	0.317
		Right Touch	0.033	0.327	0.502	0.360	0.535	**0.862**
		Left Tilt	0.021	0.048	0.259	0.069	0.280	0.328
		Right Tilt	0.035	0.175	0.323	0.210	0.358	0.533
	LTE Band 2	Left Touch	0.080	0.090	0.174	0.170	0.254	0.344
		Right Touch	0.073	0.327	0.502	0.400	0.575	**0.902**
		Left Tilt	0.060	0.048	0.259	0.108	0.319	0.367
		Right Tilt	0.068	0.175	0.323	0.243	0.391	0.566

Table 12.4.6 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	0.179	0.090	0.145	0.269	0.324	0.414
		Right Touch	0.101	0.327	0.383	0.428	0.484	**0.811**
		Left Tilt	0.096	0.048	0.175	0.144	0.271	0.319
		Right Tilt	0.079	0.175	0.360	0.254	0.439	0.614
	GPRS 850	Left Touch	0.204	0.090	0.145	0.294	0.349	0.439
		Right Touch	0.130	0.327	0.383	0.457	0.513	**0.840**
		Left Tilt	0.107	0.048	0.175	0.155	0.282	0.330
		Right Tilt	0.097	0.175	0.360	0.272	0.457	0.632
	GSM 1900	Left Touch	0.033	0.090	0.145	0.123	0.178	0.268
		Right Touch	0.021	0.327	0.383	0.348	0.404	**0.731**
		Left Tilt	0.021	0.048	0.175	0.069	0.196	0.244
		Right Tilt	0.018	0.175	0.360	0.193	0.378	0.553
	GPRS 1900	Left Touch	0.042	0.090	0.145	0.132	0.187	0.277
		Right Touch	0.030	0.327	0.383	0.357	0.413	**0.740**
		Left Tilt	0.025	0.048	0.175	0.073	0.200	0.248
		Right Tilt	0.026	0.175	0.360	0.201	0.386	0.561
	WCDMA 850	Left Touch	0.284	0.090	0.145	0.374	0.429	0.519
		Right Touch	0.230	0.327	0.383	0.557	0.613	**0.940**
		Left Tilt	0.159	0.048	0.175	0.207	0.334	0.382
		Right Tilt	0.149	0.175	0.360	0.324	0.509	0.684
	WCDMA 1900	Left Touch	0.080	0.090	0.145	0.170	0.225	0.315
		Right Touch	0.059	0.327	0.383	0.386	0.442	**0.769**
		Left Tilt	0.058	0.048	0.175	0.106	0.233	0.281
		Right Tilt	0.054	0.175	0.360	0.229	0.414	0.589
	LTE Band 12	Left Touch	0.108	0.090	0.145	0.198	0.253	0.343
		Right Touch	0.108	0.327	0.383	0.435	0.491	**0.818**
		Left Tilt	0.024	0.048	0.175	0.072	0.199	0.247
		Right Tilt	0.055	0.175	0.360	0.230	0.415	0.590
	LTE Band 5	Left Touch	0.283	0.090	0.145	0.373	0.428	0.518
		Right Touch	0.282	0.327	0.383	0.609	0.665	**0.992**
		Left Tilt	0.159	0.048	0.175	0.207	0.334	0.382
		Right Tilt	0.181	0.175	0.360	0.356	0.541	0.716
	LTE Band 4	Left Touch	0.053	0.090	0.145	0.143	0.198	0.288
		Right Touch	0.033	0.327	0.383	0.360	0.416	**0.743**
		Left Tilt	0.021	0.048	0.175	0.069	0.196	0.244
		Right Tilt	0.035	0.175	0.360	0.210	0.395	0.570
	LTE Band 2	Left Touch	0.080	0.090	0.145	0.170	0.225	0.315
		Right Touch	0.073	0.327	0.383	0.400	0.456	**0.783**
		Left Tilt	0.060	0.048	0.175	0.108	0.235	0.283
		Right Tilt	0.068	0.175	0.360	0.243	0.428	0.603

Table 12.4.7 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	0.179	0.090	0.093	0.269	0.272	0.362
		Right Touch	0.101	0.327	0.213	0.428	0.314	**0.641**
		Left Tilt	0.096	0.048	0.130	0.144	0.226	0.274
		Right Tilt	0.079	0.175	0.247	0.254	0.326	0.501
	GPRS 850	Left Touch	0.204	0.090	0.093	0.294	0.297	0.387
		Right Touch	0.130	0.327	0.213	0.457	0.343	**0.670**
		Left Tilt	0.107	0.048	0.130	0.155	0.237	0.285
		Right Tilt	0.097	0.175	0.247	0.272	0.344	0.519
	GSM 1900	Left Touch	0.033	0.090	0.093	0.123	0.126	0.216
		Right Touch	0.021	0.327	0.213	0.348	0.234	**0.561**
		Left Tilt	0.021	0.048	0.130	0.069	0.151	0.199
		Right Tilt	0.018	0.175	0.247	0.193	0.265	0.440
	GPRS 1900	Left Touch	0.042	0.090	0.093	0.132	0.135	0.225
		Right Touch	0.030	0.327	0.213	0.357	0.243	**0.570**
		Left Tilt	0.025	0.048	0.130	0.073	0.155	0.203
		Right Tilt	0.026	0.175	0.247	0.201	0.273	0.448
	WCDMA 850	Left Touch	0.284	0.090	0.093	0.374	0.377	0.467
		Right Touch	0.230	0.327	0.213	0.557	0.443	**0.770**
		Left Tilt	0.159	0.048	0.130	0.207	0.289	0.337
		Right Tilt	0.149	0.175	0.247	0.324	0.396	0.571
	WCDMA 1900	Left Touch	0.080	0.090	0.093	0.170	0.173	0.263
		Right Touch	0.059	0.327	0.213	0.386	0.272	**0.599**
		Left Tilt	0.058	0.048	0.130	0.106	0.188	0.236
		Right Tilt	0.054	0.175	0.247	0.229	0.301	0.476
	LTE Band 12	Left Touch	0.108	0.090	0.093	0.198	0.201	0.291
		Right Touch	0.108	0.327	0.213	0.435	0.321	**0.648**
		Left Tilt	0.024	0.048	0.130	0.072	0.154	0.202
		Right Tilt	0.055	0.175	0.247	0.230	0.302	0.477
	LTE Band 5	Left Touch	0.283	0.090	0.093	0.373	0.376	0.466
		Right Touch	0.282	0.327	0.213	0.609	0.495	**0.822**
		Left Tilt	0.159	0.048	0.130	0.207	0.289	0.337
		Right Tilt	0.181	0.175	0.247	0.356	0.428	0.603
	LTE Band 4	Left Touch	0.053	0.090	0.093	0.143	0.146	0.236
		Right Touch	0.033	0.327	0.213	0.360	0.246	**0.573**
		Left Tilt	0.021	0.048	0.130	0.069	0.151	0.199
		Right Tilt	0.035	0.175	0.247	0.210	0.282	0.457
	LTE Band 2	Left Touch	0.080	0.090	0.093	0.170	0.173	0.263
		Right Touch	0.073	0.327	0.213	0.400	0.286	**0.613**
		Left Tilt	0.060	0.048	0.130	0.108	0.190	0.238
		Right Tilt	0.068	0.175	0.247	0.243	0.315	0.490

Table 12.4.8 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	0.179	0.110	0.289
		Right Touch	0.101	0.497	**0.598**
		Left Tilt	0.096	0.055	0.151
		Right Tilt	0.079	0.169	0.248
	GPRS 850	Left Touch	0.204	0.110	0.314
		Right Touch	0.130	0.497	**0.627**
		Left Tilt	0.107	0.055	0.162
		Right Tilt	0.097	0.169	0.266
	GSM 1900	Left Touch	0.033	0.110	0.143
		Right Touch	0.021	0.497	**0.518**
		Left Tilt	0.021	0.055	0.076
		Right Tilt	0.018	0.169	0.187
	GPRS 1900	Left Touch	0.042	0.110	0.152
		Right Touch	0.030	0.497	**0.527**
		Left Tilt	0.025	0.055	0.080
		Right Tilt	0.026	0.169	0.195
	WCDMA 850	Left Touch	0.284	0.110	0.394
		Right Touch	0.230	0.497	**0.727**
		Left Tilt	0.159	0.055	0.214
		Right Tilt	0.149	0.169	0.318
	WCDMA 1900	Left Touch	0.080	0.110	0.190
		Right Touch	0.059	0.497	**0.556**
		Left Tilt	0.058	0.055	0.113
		Right Tilt	0.054	0.169	0.223
	LTE Band 12	Left Touch	0.108	0.110	0.218
		Right Touch	0.108	0.497	**0.605**
		Left Tilt	0.024	0.055	0.079
		Right Tilt	0.055	0.169	0.224
	LTE Band 5	Left Touch	0.283	0.110	0.393
		Right Touch	0.282	0.497	**0.779**
		Left Tilt	0.159	0.055	0.214
		Right Tilt	0.181	0.169	0.350
	LTE Band 4	Left Touch	0.053	0.110	0.163
		Right Touch	0.033	0.497	**0.530**
		Left Tilt	0.021	0.055	0.076
		Right Tilt	0.035	0.169	0.204
	LTE Band 2	Left Touch	0.080	0.110	0.190
		Right Touch	0.073	0.497	**0.570**
		Left Tilt	0.060	0.055	0.115
		Right Tilt	0.068	0.169	0.237

Table 12.4.9 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	0.179	0.093	0.272
		Right Touch	0.101	0.213	0.314
		Left Tilt	0.096	0.130	0.226
		Right Tilt	0.079	0.247	**0.326**
	GPRS 850	Left Touch	0.204	0.093	0.297
		Right Touch	0.130	0.213	0.343
		Left Tilt	0.107	0.130	0.237
		Right Tilt	0.097	0.247	**0.344**
	GSM 1900	Left Touch	0.033	0.093	0.126
		Right Touch	0.021	0.213	0.234
		Left Tilt	0.021	0.130	0.151
		Right Tilt	0.018	0.247	**0.265**
	GPRS 1900	Left Touch	0.042	0.093	0.135
		Right Touch	0.030	0.213	0.243
		Left Tilt	0.025	0.130	0.155
		Right Tilt	0.026	0.247	**0.273**
	WCDMA 850	Left Touch	0.284	0.093	0.377
		Right Touch	0.230	0.213	**0.443**
		Left Tilt	0.159	0.130	0.289
		Right Tilt	0.149	0.247	0.396
	WCDMA 1900	Left Touch	0.080	0.093	0.173
		Right Touch	0.059	0.213	0.272
		Left Tilt	0.058	0.130	0.188
		Right Tilt	0.054	0.247	**0.301**
	LTE Band 12	Left Touch	0.108	0.093	0.201
		Right Touch	0.108	0.213	**0.321**
		Left Tilt	0.024	0.130	0.154
		Right Tilt	0.055	0.247	0.302
	LTE Band 5	Left Touch	0.283	0.093	0.376
		Right Touch	0.282	0.213	**0.495**
		Left Tilt	0.159	0.130	0.289
		Right Tilt	0.181	0.247	0.428
	LTE Band 4	Left Touch	0.053	0.093	0.146
		Right Touch	0.033	0.213	0.246
		Left Tilt	0.021	0.130	0.151
		Right Tilt	0.035	0.247	**0.282**
	LTE Band 2	Left Touch	0.080	0.093	0.173
		Right Touch	0.073	0.213	0.286
		Left Tilt	0.060	0.130	0.190
		Right Tilt	0.068	0.247	**0.315**

Table 12.4.10 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	0.179	0.120	0.299
		Right Touch	0.101	0.539	**0.640**
		Left Tilt	0.096	0.198	0.294
		Right Tilt	0.079	0.323	0.402
	GPRS 850	Left Touch	0.204	0.120	0.324
		Right Touch	0.130	0.539	**0.669**
		Left Tilt	0.107	0.198	0.305
		Right Tilt	0.097	0.323	0.420
	GSM 1900	Left Touch	0.033	0.120	0.153
		Right Touch	0.021	0.539	**0.560**
		Left Tilt	0.021	0.198	0.219
		Right Tilt	0.018	0.323	0.341
	GPRS 1900	Left Touch	0.042	0.120	0.162
		Right Touch	0.030	0.539	**0.569**
		Left Tilt	0.025	0.198	0.223
		Right Tilt	0.026	0.323	0.349
	WCDMA 850	Left Touch	0.284	0.120	0.404
		Right Touch	0.230	0.539	**0.769**
		Left Tilt	0.159	0.198	0.357
		Right Tilt	0.149	0.323	0.472
	WCDMA 1900	Left Touch	0.080	0.120	0.200
		Right Touch	0.059	0.539	**0.598**
		Left Tilt	0.058	0.198	0.256
		Right Tilt	0.054	0.323	0.377
	LTE Band 12	Left Touch	0.108	0.120	0.228
		Right Touch	0.108	0.539	**0.647**
		Left Tilt	0.024	0.198	0.222
		Right Tilt	0.055	0.323	0.378
	LTE Band 5	Left Touch	0.283	0.120	0.403
		Right Touch	0.282	0.539	**0.821**
		Left Tilt	0.159	0.198	0.357
		Right Tilt	0.181	0.323	0.504
	LTE Band 4	Left Touch	0.053	0.120	0.173
		Right Touch	0.033	0.539	**0.572**
		Left Tilt	0.021	0.198	0.219
		Right Tilt	0.035	0.323	0.358
	LTE Band 2	Left Touch	0.080	0.120	0.200
		Right Touch	0.073	0.539	**0.612**
		Left Tilt	0.060	0.198	0.258
		Right Tilt	0.068	0.323	0.391

Table 12.4.11 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	1+2
Head SAR	GSM 850	Left Touch	0.179	0.098	0.277
		Right Touch	0.101	0.371	**0.472**
		Left Tilt	0.096	0.089	0.185
		Right Tilt	0.079	0.276	0.355
	GPRS 850	Left Touch	0.204	0.098	0.302
		Right Touch	0.130	0.371	**0.501**
		Left Tilt	0.107	0.089	0.196
		Right Tilt	0.097	0.276	0.373
	GSM 1900	Left Touch	0.033	0.098	0.131
		Right Touch	0.021	0.371	**0.392**
		Left Tilt	0.021	0.089	0.110
		Right Tilt	0.018	0.276	0.294
	GPRS 1900	Left Touch	0.042	0.098	0.140
		Right Touch	0.030	0.371	**0.401**
		Left Tilt	0.025	0.089	0.114
		Right Tilt	0.026	0.276	0.302
	WCDMA 850	Left Touch	0.284	0.098	0.382
		Right Touch	0.230	0.371	**0.601**
		Left Tilt	0.159	0.089	0.248
		Right Tilt	0.149	0.276	0.425
	WCDMA 1900	Left Touch	0.080	0.098	0.178
		Right Touch	0.059	0.371	**0.430**
		Left Tilt	0.058	0.089	0.147
		Right Tilt	0.054	0.276	0.330
	LTE Band 12	Left Touch	0.108	0.098	0.206
		Right Touch	0.108	0.371	**0.479**
		Left Tilt	0.024	0.089	0.113
		Right Tilt	0.055	0.276	0.331
	LTE Band 5	Left Touch	0.283	0.098	0.381
		Right Touch	0.282	0.371	**0.653**
		Left Tilt	0.159	0.089	0.248
		Right Tilt	0.181	0.276	0.457
	LTE Band 4	Left Touch	0.053	0.098	0.151
		Right Touch	0.033	0.371	**0.404**
		Left Tilt	0.021	0.089	0.110
		Right Tilt	0.035	0.276	0.311
	LTE Band 2	Left Touch	0.080	0.098	0.178
		Right Touch	0.073	0.371	**0.444**
		Left Tilt	0.060	0.089	0.149
		Right Tilt	0.068	0.276	0.344

Table 12.4.12 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	0.179	0.302	0.481
		Right Touch	0.101	0.519	**0.620**
		Left Tilt	0.096	0.241	0.337
		Right Tilt	0.079	0.461	0.540
	GPRS 850	Left Touch	0.204	0.302	0.506
		Right Touch	0.130	0.519	**0.649**
		Left Tilt	0.107	0.241	0.348
		Right Tilt	0.097	0.461	0.558
	GSM 1900	Left Touch	0.033	0.302	0.335
		Right Touch	0.021	0.519	**0.540**
		Left Tilt	0.021	0.241	0.262
		Right Tilt	0.018	0.461	0.479
	GPRS 1900	Left Touch	0.042	0.302	0.344
		Right Touch	0.030	0.519	**0.549**
		Left Tilt	0.025	0.241	0.266
		Right Tilt	0.026	0.461	0.487
	WCDMA 850	Left Touch	0.284	0.302	0.586
		Right Touch	0.230	0.519	**0.749**
		Left Tilt	0.159	0.241	0.400
		Right Tilt	0.149	0.461	0.610
	WCDMA 1900	Left Touch	0.080	0.302	0.382
		Right Touch	0.059	0.519	**0.578**
		Left Tilt	0.058	0.241	0.299
		Right Tilt	0.054	0.461	0.515
	LTE Band 12	Left Touch	0.108	0.302	0.410
		Right Touch	0.108	0.519	**0.627**
		Left Tilt	0.024	0.241	0.265
		Right Tilt	0.055	0.461	0.516
	LTE Band 5	Left Touch	0.283	0.302	0.585
		Right Touch	0.282	0.519	**0.801**
		Left Tilt	0.159	0.241	0.400
		Right Tilt	0.181	0.461	0.642
	LTE Band 4	Left Touch	0.053	0.302	0.355
		Right Touch	0.033	0.519	**0.552**
		Left Tilt	0.021	0.241	0.262
		Right Tilt	0.035	0.461	0.496
	LTE Band 2	Left Touch	0.080	0.302	0.382
		Right Touch	0.073	0.519	**0.592**
		Left Tilt	0.060	0.241	0.301
		Right Tilt	0.068	0.461	0.529

Table 12.4.13 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	0.179	0.396	0.575
		Right Touch	0.101	0.640	**0.741**
		Left Tilt	0.096	0.316	0.412
		Right Tilt	0.079	0.503	0.582
	GPRS 850	Left Touch	0.204	0.396	0.600
		Right Touch	0.130	0.640	**0.770**
		Left Tilt	0.107	0.316	0.423
		Right Tilt	0.097	0.503	0.600
	GSM 1900	Left Touch	0.033	0.396	0.429
		Right Touch	0.021	0.640	**0.661**
		Left Tilt	0.021	0.316	0.337
		Right Tilt	0.018	0.503	0.521
	GPRS 1900	Left Touch	0.042	0.396	0.438
		Right Touch	0.030	0.640	**0.670**
		Left Tilt	0.025	0.316	0.341
		Right Tilt	0.026	0.503	0.529
	WCDMA 850	Left Touch	0.284	0.396	0.680
		Right Touch	0.230	0.640	**0.870**
		Left Tilt	0.159	0.316	0.475
		Right Tilt	0.149	0.503	0.652
	WCDMA 1900	Left Touch	0.080	0.396	0.476
		Right Touch	0.059	0.640	**0.699**
		Left Tilt	0.058	0.316	0.374
		Right Tilt	0.054	0.503	0.557
	LTE Band 12	Left Touch	0.108	0.396	0.504
		Right Touch	0.108	0.640	**0.748**
		Left Tilt	0.024	0.316	0.340
		Right Tilt	0.055	0.503	0.558
	LTE Band 5	Left Touch	0.283	0.396	0.679
		Right Touch	0.282	0.640	**0.922**
		Left Tilt	0.159	0.316	0.475
		Right Tilt	0.181	0.503	0.684
	LTE Band 4	Left Touch	0.053	0.396	0.449
		Right Touch	0.033	0.640	**0.673**
		Left Tilt	0.021	0.316	0.337
		Right Tilt	0.035	0.503	0.538
	LTE Band 2	Left Touch	0.080	0.396	0.476
		Right Touch	0.073	0.640	**0.713**
		Left Tilt	0.060	0.316	0.376
		Right Tilt	0.068	0.503	0.571

Table 12.4.14 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	0.179	0.074	0.253
		Right Touch	0.101	0.313	**0.414**
		Left Tilt	0.096	0.088	0.184
		Right Tilt	0.079	0.167	0.246
	GPRS 850	Left Touch	0.204	0.074	0.278
		Right Touch	0.130	0.313	**0.443**
		Left Tilt	0.107	0.088	0.195
		Right Tilt	0.097	0.167	0.264
	GSM 1900	Left Touch	0.033	0.074	0.107
		Right Touch	0.021	0.313	**0.334**
		Left Tilt	0.021	0.088	0.109
		Right Tilt	0.018	0.167	0.185
	GPRS 1900	Left Touch	0.042	0.074	0.116
		Right Touch	0.030	0.313	**0.343**
		Left Tilt	0.025	0.088	0.113
		Right Tilt	0.026	0.167	0.193
	WCDMA 850	Left Touch	0.284	0.074	0.358
		Right Touch	0.230	0.313	**0.543**
		Left Tilt	0.159	0.088	0.247
		Right Tilt	0.149	0.167	0.316
	WCDMA 1900	Left Touch	0.080	0.074	0.154
		Right Touch	0.059	0.313	**0.372**
		Left Tilt	0.058	0.088	0.146
		Right Tilt	0.054	0.167	0.221
	LTE Band 12	Left Touch	0.108	0.074	0.182
		Right Touch	0.108	0.313	**0.421**
		Left Tilt	0.024	0.088	0.112
		Right Tilt	0.055	0.167	0.222
	LTE Band 5	Left Touch	0.283	0.074	0.357
		Right Touch	0.282	0.313	**0.595**
		Left Tilt	0.159	0.088	0.247
		Right Tilt	0.181	0.167	0.348
	LTE Band 4	Left Touch	0.053	0.074	0.127
		Right Touch	0.033	0.313	**0.346**
		Left Tilt	0.021	0.088	0.109
		Right Tilt	0.035	0.167	0.202
	LTE Band 2	Left Touch	0.080	0.074	0.154
		Right Touch	0.073	0.313	**0.386**
		Left Tilt	0.060	0.088	0.148
		Right Tilt	0.068	0.167	0.235

Table 12.4.15 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.179	0.104	0.283
		Right Touch	0.101	0.449	**0.550**
		Left Tilt	0.096	0.200	0.296
		Right Tilt	0.079	0.323	0.402
	GPRS 850	Left Touch	0.204	0.104	0.308
		Right Touch	0.130	0.449	**0.579**
		Left Tilt	0.107	0.200	0.307
		Right Tilt	0.097	0.323	0.420
	GSM 1900	Left Touch	0.033	0.104	0.137
		Right Touch	0.021	0.449	**0.470**
		Left Tilt	0.021	0.200	0.221
		Right Tilt	0.018	0.323	0.341
	GPRS 1900	Left Touch	0.042	0.104	0.146
		Right Touch	0.030	0.449	**0.479**
		Left Tilt	0.025	0.200	0.225
		Right Tilt	0.026	0.323	0.349
	WCDMA 850	Left Touch	0.284	0.104	0.388
		Right Touch	0.230	0.449	**0.679**
		Left Tilt	0.159	0.200	0.359
		Right Tilt	0.149	0.323	0.472
	WCDMA 1900	Left Touch	0.080	0.104	0.184
		Right Touch	0.059	0.449	**0.508**
		Left Tilt	0.058	0.200	0.258
		Right Tilt	0.054	0.323	0.377
	LTE Band 12	Left Touch	0.108	0.104	0.212
		Right Touch	0.108	0.449	**0.557**
		Left Tilt	0.024	0.200	0.224
		Right Tilt	0.055	0.323	0.378
	LTE Band 5	Left Touch	0.283	0.104	0.387
		Right Touch	0.282	0.449	**0.731**
		Left Tilt	0.159	0.200	0.359
		Right Tilt	0.181	0.323	0.504
	LTE Band 4	Left Touch	0.053	0.104	0.157
		Right Touch	0.033	0.449	**0.482**
		Left Tilt	0.021	0.200	0.221
		Right Tilt	0.035	0.323	0.358
	LTE Band 2	Left Touch	0.080	0.104	0.184
		Right Touch	0.073	0.449	**0.522**
		Left Tilt	0.060	0.200	0.260
		Right Tilt	0.068	0.323	0.391

Table 12.4.16 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.179	0.174	0.353
		Right Touch	0.101	0.502	**0.603**
		Left Tilt	0.096	0.259	0.355
		Right Tilt	0.079	0.323	0.402
	GPRS 850	Left Touch	0.204	0.174	0.378
		Right Touch	0.130	0.502	**0.632**
		Left Tilt	0.107	0.259	0.366
		Right Tilt	0.097	0.323	0.420
	GSM 1900	Left Touch	0.033	0.174	0.207
		Right Touch	0.021	0.502	**0.523**
		Left Tilt	0.021	0.259	0.280
		Right Tilt	0.018	0.323	0.341
	GPRS 1900	Left Touch	0.042	0.174	0.216
		Right Touch	0.030	0.502	**0.532**
		Left Tilt	0.025	0.259	0.284
		Right Tilt	0.026	0.323	0.349
	WCDMA 850	Left Touch	0.284	0.174	0.458
		Right Touch	0.230	0.502	**0.732**
		Left Tilt	0.159	0.259	0.418
		Right Tilt	0.149	0.323	0.472
	WCDMA 1900	Left Touch	0.080	0.174	0.254
		Right Touch	0.059	0.502	**0.561**
		Left Tilt	0.058	0.259	0.317
		Right Tilt	0.054	0.323	0.377
	LTE Band 12	Left Touch	0.108	0.174	0.282
		Right Touch	0.108	0.502	**0.610**
		Left Tilt	0.024	0.259	0.283
		Right Tilt	0.055	0.323	0.378
	LTE Band 5	Left Touch	0.283	0.174	0.457
		Right Touch	0.282	0.502	**0.784**
		Left Tilt	0.159	0.259	0.418
		Right Tilt	0.181	0.323	0.504
	LTE Band 4	Left Touch	0.053	0.174	0.227
		Right Touch	0.033	0.502	**0.535**
		Left Tilt	0.021	0.259	0.280
		Right Tilt	0.035	0.323	0.358
	LTE Band 2	Left Touch	0.080	0.174	0.254
		Right Touch	0.073	0.502	**0.575**
		Left Tilt	0.060	0.259	0.319
		Right Tilt	0.068	0.323	0.391

Table 12.4.17 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.179	0.055	0.234
		Right Touch	0.101	0.331	**0.432**
		Left Tilt	0.096	0.059	0.155
		Right Tilt	0.079	0.139	0.218
	GPRS 850	Left Touch	0.204	0.055	0.259
		Right Touch	0.130	0.331	**0.461**
		Left Tilt	0.107	0.059	0.166
		Right Tilt	0.097	0.139	0.236
	GSM 1900	Left Touch	0.033	0.055	0.088
		Right Touch	0.021	0.331	**0.352**
		Left Tilt	0.021	0.059	0.080
		Right Tilt	0.018	0.139	0.157
	GPRS 1900	Left Touch	0.042	0.055	0.097
		Right Touch	0.030	0.331	**0.361**
		Left Tilt	0.025	0.059	0.084
		Right Tilt	0.026	0.139	0.165
	WCDMA 850	Left Touch	0.284	0.055	0.339
		Right Touch	0.230	0.331	**0.561**
		Left Tilt	0.159	0.059	0.218
		Right Tilt	0.149	0.139	0.288
	WCDMA 1900	Left Touch	0.080	0.055	0.135
		Right Touch	0.059	0.331	**0.390**
		Left Tilt	0.058	0.059	0.117
		Right Tilt	0.054	0.139	0.193
	LTE Band 12	Left Touch	0.108	0.055	0.163
		Right Touch	0.108	0.331	**0.439**
		Left Tilt	0.024	0.059	0.083
		Right Tilt	0.055	0.139	0.194
	LTE Band 5	Left Touch	0.283	0.055	0.338
		Right Touch	0.282	0.331	**0.613**
		Left Tilt	0.159	0.059	0.218
		Right Tilt	0.181	0.139	0.320
	LTE Band 4	Left Touch	0.053	0.055	0.108
		Right Touch	0.033	0.331	**0.364**
		Left Tilt	0.021	0.059	0.080
		Right Tilt	0.035	0.139	0.174
	LTE Band 2	Left Touch	0.080	0.055	0.135
		Right Touch	0.073	0.331	**0.404**
		Left Tilt	0.060	0.059	0.119
		Right Tilt	0.068	0.139	0.207

Table 12.4.18 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.179	0.141	0.320
		Right Touch	0.101	0.390	**0.491**
		Left Tilt	0.096	0.159	0.255
		Right Tilt	0.079	0.273	0.352
	GPRS 850	Left Touch	0.204	0.141	0.345
		Right Touch	0.130	0.390	**0.520**
		Left Tilt	0.107	0.159	0.266
		Right Tilt	0.097	0.273	0.370
	GSM 1900	Left Touch	0.033	0.141	0.174
		Right Touch	0.021	0.390	**0.411**
		Left Tilt	0.021	0.159	0.180
		Right Tilt	0.018	0.273	0.291
	GPRS 1900	Left Touch	0.042	0.141	0.183
		Right Touch	0.030	0.390	**0.420**
		Left Tilt	0.025	0.159	0.184
		Right Tilt	0.026	0.273	0.299
	WCDMA 850	Left Touch	0.284	0.141	0.425
		Right Touch	0.230	0.390	**0.620**
		Left Tilt	0.159	0.159	0.318
		Right Tilt	0.149	0.273	0.422
	WCDMA 1900	Left Touch	0.080	0.141	0.221
		Right Touch	0.059	0.390	**0.449**
		Left Tilt	0.058	0.159	0.217
		Right Tilt	0.054	0.273	0.327
	LTE Band 12	Left Touch	0.108	0.141	0.249
		Right Touch	0.108	0.390	**0.498**
		Left Tilt	0.024	0.159	0.183
		Right Tilt	0.055	0.273	0.328
	LTE Band 5	Left Touch	0.283	0.141	0.424
		Right Touch	0.282	0.390	**0.672**
		Left Tilt	0.159	0.159	0.318
		Right Tilt	0.181	0.273	0.454
	LTE Band 4	Left Touch	0.053	0.141	0.194
		Right Touch	0.033	0.390	**0.423**
		Left Tilt	0.021	0.159	0.180
		Right Tilt	0.035	0.273	0.308
	LTE Band 2	Left Touch	0.080	0.141	0.221
		Right Touch	0.073	0.390	**0.463**
		Left Tilt	0.060	0.159	0.219
		Right Tilt	0.068	0.273	0.341

Table 12.4.19 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	0.179	0.145	0.324
		Right Touch	0.101	0.383	**0.484**
		Left Tilt	0.096	0.175	0.271
		Right Tilt	0.079	0.360	0.439
	GPRS 850	Left Touch	0.204	0.145	0.349
		Right Touch	0.130	0.383	**0.513**
		Left Tilt	0.107	0.175	0.282
		Right Tilt	0.097	0.360	0.457
	GSM 1900	Left Touch	0.033	0.145	0.178
		Right Touch	0.021	0.383	**0.404**
		Left Tilt	0.021	0.175	0.196
		Right Tilt	0.018	0.360	0.378
	GPRS 1900	Left Touch	0.042	0.145	0.187
		Right Touch	0.030	0.383	**0.413**
		Left Tilt	0.025	0.175	0.200
		Right Tilt	0.026	0.360	0.386
	WCDMA 850	Left Touch	0.284	0.145	0.429
		Right Touch	0.230	0.383	**0.613**
		Left Tilt	0.159	0.175	0.334
		Right Tilt	0.149	0.360	0.509
	WCDMA 1900	Left Touch	0.080	0.145	0.225
		Right Touch	0.059	0.383	**0.442**
		Left Tilt	0.058	0.175	0.233
		Right Tilt	0.054	0.360	0.414
	LTE Band 12	Left Touch	0.108	0.145	0.253
		Right Touch	0.108	0.383	**0.491**
		Left Tilt	0.024	0.175	0.199
		Right Tilt	0.055	0.360	0.415
	LTE Band 5	Left Touch	0.283	0.145	0.428
		Right Touch	0.282	0.383	**0.665**
		Left Tilt	0.159	0.175	0.334
		Right Tilt	0.181	0.360	0.541
	LTE Band 4	Left Touch	0.053	0.145	0.198
		Right Touch	0.033	0.383	**0.416**
		Left Tilt	0.021	0.175	0.196
		Right Tilt	0.035	0.360	0.395
	LTE Band 2	Left Touch	0.080	0.145	0.225
		Right Touch	0.073	0.383	**0.456**
		Left Tilt	0.060	0.175	0.235
		Right Tilt	0.068	0.360	0.428

Table 12.4.20 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	0.179	0.090	0.269
		Right Touch	0.101	0.327	**0.428**
		Left Tilt	0.096	0.048	0.144
		Right Tilt	0.079	0.175	0.254
	GPRS 850	Left Touch	0.204	0.090	0.294
		Right Touch	0.130	0.327	**0.457**
		Left Tilt	0.107	0.048	0.155
		Right Tilt	0.097	0.175	0.272
	GSM 1900	Left Touch	0.033	0.090	0.123
		Right Touch	0.021	0.327	**0.348**
		Left Tilt	0.021	0.048	0.069
		Right Tilt	0.018	0.175	0.193
	GPRS 1900	Left Touch	0.042	0.090	0.132
		Right Touch	0.030	0.327	**0.357**
		Left Tilt	0.025	0.048	0.073
		Right Tilt	0.026	0.175	0.201
	WCDMA 850	Left Touch	0.284	0.090	0.374
		Right Touch	0.230	0.327	**0.557**
		Left Tilt	0.159	0.048	0.207
		Right Tilt	0.149	0.175	0.324
	WCDMA 1900	Left Touch	0.080	0.090	0.170
		Right Touch	0.059	0.327	**0.386**
		Left Tilt	0.058	0.048	0.106
		Right Tilt	0.054	0.175	0.229
	LTE Band 12	Left Touch	0.108	0.090	0.198
		Right Touch	0.108	0.327	**0.435**
		Left Tilt	0.024	0.048	0.072
		Right Tilt	0.055	0.175	0.230
	LTE Band 5	Left Touch	0.283	0.090	0.373
		Right Touch	0.282	0.327	**0.609**
		Left Tilt	0.159	0.048	0.207
		Right Tilt	0.181	0.175	0.356
	LTE Band 4	Left Touch	0.053	0.090	0.143
		Right Touch	0.033	0.327	**0.360**
		Left Tilt	0.021	0.048	0.069
		Right Tilt	0.035	0.175	0.210
	LTE Band 2	Left Touch	0.080	0.090	0.170
		Right Touch	0.073	0.327	**0.400**
		Left Tilt	0.060	0.048	0.108
		Right Tilt	0.068	0.175	0.243

Table 12.4.21 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	0.120	0.396	0.516
		Right Touch	0.539	0.640	**1.179**
		Left Tilt	0.198	0.316	0.514
		Right Tilt	0.323	0.503	0.826
	5.6G W-LAN MIMO	Left Touch	0.120	0.174	0.294
		Right Touch	0.539	0.502	**1.041**
		Left Tilt	0.198	0.259	0.457
		Right Tilt	0.323	0.323	0.646
	5.8G W-LAN MIMO	Left Touch	0.120	0.145	0.265
		Right Touch	0.539	0.383	**0.922**
		Left Tilt	0.198	0.175	0.373
		Right Tilt	0.323	0.360	0.683

Table 12.4.22 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	0.090	0.396	0.486
		Right Touch	0.327	0.640	**0.967**
		Left Tilt	0.048	0.316	0.364
		Right Tilt	0.175	0.503	0.678
	5.6G W-LAN MIMO	Left Touch	0.090	0.174	0.264
		Right Touch	0.327	0.502	**0.829**
		Left Tilt	0.048	0.259	0.307
		Right Tilt	0.175	0.323	0.498
	5.8G W-LAN MIMO	Left Touch	0.090	0.145	0.235
		Right Touch	0.327	0.383	**0.710**
		Left Tilt	0.048	0.175	0.223
		Right Tilt	0.175	0.360	0.535

Table 12.4.23 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	0.090	0.090	0.180
		Right Touch	0.327	0.327	**0.654**
		Left Tilt	0.048	0.048	0.096
		Right Tilt	0.175	0.175	0.350

12.5 Body-Worn Simultaneous Transmission Analysis

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

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN MIMO SAR (W/kg)	5.3G 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	0.498	0.135	0.114	0.633	0.612	0.747
		Rear	0.441	0.091	0.265	0.532	0.706	**0.797**
	GPRS 850	Front	0.508	0.135	0.114	0.643	0.622	0.757
		Rear	0.484	0.091	0.265	0.575	0.749	**0.840**
	GSM 1900	Front	0.239	0.135	0.114	0.374	0.353	0.488
		Rear	0.233	0.091	0.265	0.324	0.498	**0.589**
	GPRS 1900	Front	0.344	0.135	0.114	0.479	0.458	0.593
		Rear	0.326	0.091	0.265	0.417	0.591	**0.682**
	WCDMA 850	Front	0.545	0.135	0.114	0.680	0.659	0.794
		Rear	0.611	0.091	0.265	0.702	0.876	**0.967**
	WCDMA 1900	Front	0.564	0.135	0.114	0.699	0.678	0.813
		Rear	0.570	0.091	0.265	0.661	0.835	**0.926**
	LTE Band 12	Front	0.211	0.135	0.114	0.346	0.325	0.460
		Rear	0.263	0.091	0.265	0.354	0.528	**0.619**
	LTE Band 5	Front	0.786	0.135	0.114	0.921	0.900	1.035
		Rear	0.901	0.091	0.265	0.992	1.166	**1.257**
	LTE Band 4	Front	0.389	0.135	0.114	0.524	0.503	0.638
		Rear	0.426	0.091	0.265	0.517	0.691	**0.782**
	LTE Band 2	Front	0.660	0.135	0.114	0.795	0.774	0.909
		Rear	0.678	0.091	0.265	0.769	0.943	**1.034**

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

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN MIMO SAR (W/kg)	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	0.498	0.135	0.063	0.633	0.561	0.696
		Rear	0.441	0.091	0.461	0.532	0.902	**0.993**
	GPRS 850	Front	0.508	0.135	0.063	0.643	0.571	0.706
		Rear	0.484	0.091	0.461	0.575	0.945	**1.036**
	GSM 1900	Front	0.239	0.135	0.063	0.374	0.302	0.437
		Rear	0.233	0.091	0.461	0.324	0.694	**0.785**
	GPRS 1900	Front	0.344	0.135	0.063	0.479	0.407	0.542
		Rear	0.326	0.091	0.461	0.417	0.787	**0.878**
	WCDMA 850	Front	0.545	0.135	0.063	0.680	0.608	0.743
		Rear	0.611	0.091	0.461	0.702	1.072	**1.163**
	WCDMA 1900	Front	0.564	0.135	0.063	0.699	0.627	0.762
		Rear	0.570	0.091	0.461	0.661	1.031	**1.122**
	LTE Band 12	Front	0.211	0.135	0.063	0.346	0.274	0.409
		Rear	0.263	0.091	0.461	0.354	0.724	**0.815**
	LTE Band 5	Front	0.786	0.135	0.063	0.921	0.849	0.984
		Rear	**0.901**	**0.091**	**0.461**	**0.992**	**1.362**	1.453
	LTE Band 4	Front	0.389	0.135	0.063	0.524	0.452	0.587
		Rear	0.426	0.091	0.461	0.517	0.887	**0.978**
	LTE Band 2	Front	0.660	0.135	0.063	0.795	0.723	0.858
		Rear	0.678	0.091	0.461	0.769	1.139	**1.230**

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

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN MIMO SAR (W/kg)	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	0.498	0.135	0.064	0.633	0.562	0.697
		Rear	0.441	0.091	0.398	0.532	0.839	**0.930**
	GPRS 850	Front	0.508	0.135	0.064	0.643	0.572	0.707
		Rear	0.484	0.091	0.398	0.575	0.882	**0.973**
	GSM 1900	Front	0.239	0.135	0.064	0.374	0.303	0.438
		Rear	0.233	0.091	0.398	0.324	0.631	**0.722**
	GPRS 1900	Front	0.344	0.135	0.064	0.479	0.408	0.543
		Rear	0.326	0.091	0.398	0.417	0.724	**0.815**
	WCDMA 850	Front	0.545	0.135	0.064	0.680	0.609	0.744
		Rear	0.611	0.091	0.398	0.702	1.009	**1.100**
	WCDMA 1900	Front	0.564	0.135	0.064	0.699	0.628	0.763
		Rear	0.570	0.091	0.398	0.661	0.968	**1.059**
	LTE Band 12	Front	0.211	0.135	0.064	0.346	0.275	0.410
		Rear	0.263	0.091	0.398	0.354	0.661	**0.752**
	LTE Band 5	Front	0.786	0.135	0.064	0.921	0.850	0.985
		Rear	0.901	0.091	0.398	0.992	1.299	**1.390**
	LTE Band 4	Front	0.389	0.135	0.064	0.524	0.453	0.588
		Rear	0.426	0.091	0.398	0.517	0.824	**0.915**
	LTE Band 2	Front	0.660	0.135	0.064	0.795	0.724	0.859
		Rear	0.678	0.091	0.398	0.769	1.076	**1.167**

Table 12.5.4 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)	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
Body-Worn SAR	GSM 850	Front	0.498	0.062	0.114	0.560	0.612	0.674
		Rear	0.441	0.046	0.265	0.487	0.706	**0.752**
	GPRS 850	Front	0.508	0.062	0.114	0.570	0.622	0.684
		Rear	0.484	0.046	0.265	0.530	0.749	**0.795**
	GSM 1900	Front	0.239	0.062	0.114	0.301	0.353	0.415
		Rear	0.233	0.046	0.265	0.279	0.498	**0.544**
	GPRS 1900	Front	0.344	0.062	0.114	0.406	0.458	0.520
		Rear	0.326	0.046	0.265	0.372	0.591	**0.637**
	WCDMA 850	Front	0.545	0.062	0.114	0.607	0.659	0.721
		Rear	0.611	0.046	0.265	0.657	0.876	**0.922**
	WCDMA 1900	Front	0.564	0.062	0.114	0.626	0.678	0.740
		Rear	0.570	0.046	0.265	0.616	0.835	**0.881**
	LTE Band 12	Front	0.211	0.062	0.114	0.273	0.325	0.387
		Rear	0.263	0.046	0.265	0.309	0.528	**0.574**
	LTE Band 5	Front	0.786	0.062	0.114	0.848	0.900	0.962
		Rear	0.901	0.046	0.265	0.947	1.166	**1.212**
	LTE Band 4	Front	0.389	0.062	0.114	0.451	0.503	0.565
		Rear	0.426	0.046	0.265	0.472	0.691	**0.737**
	LTE Band 2	Front	0.660	0.062	0.114	0.722	0.774	0.836
		Rear	0.678	0.046	0.265	0.724	0.943	**0.989**

Table 12.5.5 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	0.498	0.062	0.063	0.560	0.561	0.623
		Rear	0.441	0.046	0.461	0.487	0.902	**0.948**
	GPRS 850	Front	0.508	0.062	0.063	0.570	0.571	0.633
		Rear	0.484	0.046	0.461	0.530	0.945	**0.991**
	GSM 1900	Front	0.239	0.062	0.063	0.301	0.302	0.364
		Rear	0.233	0.046	0.461	0.279	0.694	**0.740**
	GPRS 1900	Front	0.344	0.062	0.063	0.406	0.407	0.469
		Rear	0.326	0.046	0.461	0.372	0.787	**0.833**
	WCDMA 850	Front	0.545	0.062	0.063	0.607	0.608	0.670
		Rear	0.611	0.046	0.461	0.657	1.072	**1.118**
	WCDMA 1900	Front	0.564	0.062	0.063	0.626	0.627	0.689
		Rear	0.570	0.046	0.461	0.616	1.031	**1.077**
	LTE Band 12	Front	0.211	0.062	0.063	0.273	0.274	0.336
		Rear	0.263	0.046	0.461	0.309	0.724	**0.770**
	LTE Band 5	Front	0.786	0.062	0.063	0.848	0.849	0.911
		Rear	0.901	0.046	0.461	0.947	1.362	**1.408**
	LTE Band 4	Front	0.389	0.062	0.063	0.451	0.452	0.514
		Rear	0.426	0.046	0.461	0.472	0.887	**0.933**
	LTE Band 2	Front	0.660	0.062	0.063	0.722	0.723	0.785
		Rear	0.678	0.046	0.461	0.724	1.139	**1.185**

Table 12.5.6 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	0.498	0.062	0.064	0.560	0.562	0.624
		Rear	0.441	0.046	0.398	0.487	0.839	**0.885**
	GPRS 850	Front	0.508	0.062	0.064	0.570	0.572	0.634
		Rear	0.484	0.046	0.398	0.530	0.882	**0.928**
	GSM 1900	Front	0.239	0.062	0.064	0.301	0.303	0.365
		Rear	0.233	0.046	0.398	0.279	0.631	**0.677**
	GPRS 1900	Front	0.344	0.062	0.064	0.406	0.408	0.470
		Rear	0.326	0.046	0.398	0.372	0.724	**0.770**
	WCDMA 850	Front	0.545	0.062	0.064	0.607	0.609	0.671
		Rear	0.611	0.046	0.398	0.657	1.009	**1.055**
	WCDMA 1900	Front	0.564	0.062	0.064	0.626	0.628	0.690
		Rear	0.570	0.046	0.398	0.616	0.968	**1.014**
	LTE Band 12	Front	0.211	0.062	0.064	0.273	0.275	0.337
		Rear	0.263	0.046	0.398	0.309	0.661	**0.707**
	LTE Band 5	Front	0.786	0.062	0.064	0.848	0.850	0.912
		Rear	0.901	0.046	0.398	0.947	1.299	**1.345**
	LTE Band 4	Front	0.389	0.062	0.064	0.451	0.453	0.515
		Rear	0.426	0.046	0.398	0.472	0.824	**0.870**
	LTE Band 2	Front	0.660	0.062	0.064	0.722	0.724	0.786
		Rear	0.678	0.046	0.398	0.724	1.076	**1.122**

Table 12.5.7 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	0.498	0.062	0.049	0.560	0.547	**0.609**
		Rear	0.441	0.046	0.049	0.487	0.490	0.536
	GPRS 850	Front	0.508	0.062	0.049	0.570	0.557	**0.619**
		Rear	0.484	0.046	0.049	0.530	0.533	0.579
	GSM 1900	Front	0.239	0.062	0.049	0.301	0.288	**0.350**
		Rear	0.233	0.046	0.049	0.279	0.282	0.328
	GPRS 1900	Front	0.344	0.062	0.049	0.406	0.393	**0.455**
		Rear	0.326	0.046	0.049	0.372	0.375	0.421
	WCDMA 850	Front	0.545	0.062	0.049	0.607	0.594	0.656
		Rear	0.611	0.046	0.049	0.657	0.660	**0.706**
	WCDMA 1900	Front	0.564	0.062	0.049	0.626	0.613	**0.675**
		Rear	0.570	0.046	0.049	0.616	0.619	0.665
	LTE Band 12	Front	0.211	0.062	0.049	0.273	0.260	0.322
		Rear	0.263	0.046	0.049	0.309	0.312	**0.358**
	LTE Band 5	Front	0.786	0.062	0.049	0.848	0.835	0.897
		Rear	0.901	0.046	0.049	0.947	0.950	**0.996**
	LTE Band 4	Front	0.389	0.062	0.049	0.451	0.438	0.500
		Rear	0.426	0.046	0.049	0.472	0.475	**0.521**
	LTE Band 2	Front	0.660	0.062	0.049	0.722	0.709	0.771
		Rear	0.678	0.046	0.049	0.724	0.727	**0.773**

Table 12.5.8 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	0.498	0.093	**0.591**
		Rear	0.441	0.076	0.517
	GPRS 850	Front	0.508	0.093	**0.601**
		Rear	0.484	0.076	0.560
	GSM 1900	Front	0.239	0.093	**0.332**
		Rear	0.233	0.076	0.309
	GPRS 1900	Front	0.344	0.093	**0.437**
		Rear	0.326	0.076	0.402
	WCDMA 850	Front	0.545	0.093	0.638
		Rear	0.611	0.076	**0.687**
	WCDMA 1900	Front	0.564	0.093	**0.657**
		Rear	0.570	0.076	0.646
	LTE Band 12	Front	0.211	0.093	0.304
		Rear	0.263	0.076	**0.339**
	LTE Band 5	Front	0.786	0.093	0.879
		Rear	0.901	0.076	**0.977**
	LTE Band 4	Front	0.389	0.093	0.482
		Rear	0.426	0.076	**0.502**
	LTE Band 2	Front	0.660	0.093	0.753
		Rear	0.678	0.076	**0.754**

Table 12.5.9 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.498	0.049	**0.547**
		Rear	0.441	0.049	0.490
	GPRS 850	Front	0.508	0.049	**0.557**
		Rear	0.484	0.049	0.533
	GSM 1900	Front	0.239	0.049	**0.288**
		Rear	0.233	0.049	0.282
	GPRS 1900	Front	0.344	0.049	**0.393**
		Rear	0.326	0.049	0.375
	WCDMA 850	Front	0.545	0.049	0.594
		Rear	0.611	0.049	**0.660**
	WCDMA 1900	Front	0.564	0.049	0.613
		Rear	0.570	0.049	**0.619**
	LTE Band 12	Front	0.211	0.049	0.260
		Rear	0.263	0.049	**0.312**
	LTE Band 5	Front	0.786	0.049	0.835
		Rear	0.901	0.049	**0.950**
	LTE Band 4	Front	0.389	0.049	0.438
		Rear	0.426	0.049	**0.475**
	LTE Band 2	Front	0.660	0.049	0.709
		Rear	0.678	0.049	**0.727**

Table 12.5.10 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN MIMO (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.498	0.135	**0.633**
		Rear	0.441	0.091	0.532
	GPRS 850	Front	0.508	0.135	**0.643**
		Rear	0.484	0.091	0.575
	GSM 1900	Front	0.239	0.135	**0.374**
		Rear	0.233	0.091	0.324
	GPRS 1900	Front	0.344	0.135	**0.479**
		Rear	0.326	0.091	0.417
	WCDMA 850	Front	0.545	0.135	0.680
		Rear	0.611	0.091	**0.702**
	WCDMA 1900	Front	0.564	0.135	**0.699**
		Rear	0.570	0.091	0.661
	LTE Band 12	Front	0.211	0.135	0.346
		Rear	0.263	0.091	**0.354**
	LTE Band 5	Front	0.786	0.135	0.921
		Rear	0.901	0.091	**0.992**
	LTE Band 4	Front	0.389	0.135	**0.524**
		Rear	0.426	0.091	0.517
	LTE Band 2	Front	0.660	0.135	**0.795**
		Rear	0.678	0.091	0.769

Table 12.5.11 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	0.498	0.052	0.550
		Rear	0.441	0.124	**0.565**
	GPRS 850	Front	0.508	0.052	0.560
		Rear	0.484	0.124	**0.608**
	GSM 1900	Front	0.239	0.052	0.291
		Rear	0.233	0.124	**0.357**
	GPRS 1900	Front	0.344	0.052	0.396
		Rear	0.326	0.124	**0.450**
	WCDMA 850	Front	0.545	0.052	0.597
		Rear	0.611	0.124	**0.735**
	WCDMA 1900	Front	0.564	0.052	0.616
		Rear	0.570	0.124	**0.694**
	LTE Band 12	Front	0.211	0.052	0.263
		Rear	0.263	0.124	**0.387**
	LTE Band 5	Front	0.786	0.052	0.838
		Rear	0.901	0.124	**1.025**
	LTE Band 4	Front	0.389	0.052	0.441
		Rear	0.426	0.124	**0.550**
	LTE Band 2	Front	0.660	0.052	0.712
		Rear	0.678	0.124	**0.802**

Table 12.5.12 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	0.498	0.049	0.547
		Rear	0.441	0.163	**0.604**
	GPRS 850	Front	0.508	0.049	0.557
		Rear	0.484	0.163	**0.647**
	GSM 1900	Front	0.239	0.049	0.288
		Rear	0.233	0.163	**0.396**
	GPRS 1900	Front	0.344	0.049	0.393
		Rear	0.326	0.163	**0.489**
	WCDMA 850	Front	0.545	0.049	0.594
		Rear	0.611	0.163	**0.774**
	WCDMA 1900	Front	0.564	0.049	0.613
		Rear	0.570	0.163	**0.733**
	LTE Band 12	Front	0.211	0.049	0.260
		Rear	0.263	0.163	**0.426**
	LTE Band 5	Front	0.786	0.049	0.835
		Rear	0.901	0.163	**1.064**
	LTE Band 4	Front	0.389	0.049	0.438
		Rear	0.426	0.163	**0.589**
	LTE Band 2	Front	0.660	0.049	0.709
		Rear	0.678	0.163	**0.841**

Table 12.5.13 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	0.498	0.114	0.612
		Rear	0.441	0.265	**0.706**
	GPRS 850	Front	0.508	0.114	0.622
		Rear	0.484	0.265	**0.749**
	GSM 1900	Front	0.239	0.114	0.353
		Rear	0.233	0.265	**0.498**
	GPRS 1900	Front	0.344	0.114	0.458
		Rear	0.326	0.265	**0.591**
	WCDMA 850	Front	0.545	0.114	0.659
		Rear	0.611	0.265	**0.876**
	WCDMA 1900	Front	0.564	0.114	0.678
		Rear	0.570	0.265	**0.835**
	LTE Band 12	Front	0.211	0.114	0.325
		Rear	0.263	0.265	**0.528**
	LTE Band 5	Front	0.786	0.114	0.900
		Rear	0.901	0.265	**1.166**
	LTE Band 4	Front	0.389	0.114	0.503
		Rear	0.426	0.265	**0.691**
	LTE Band 2	Front	0.660	0.114	0.774
		Rear	0.678	0.265	**0.943**

Table 12.5.14 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	0.498	0.025	0.523
		Rear	0.441	0.156	**0.597**
	GPRS 850	Front	0.508	0.025	0.533
		Rear	0.484	0.156	**0.640**
	GSM 1900	Front	0.239	0.025	0.264
		Rear	0.233	0.156	**0.389**
	GPRS 1900	Front	0.344	0.025	0.369
		Rear	0.326	0.156	**0.482**
	WCDMA 850	Front	0.545	0.025	0.570
		Rear	0.611	0.156	**0.767**
	WCDMA 1900	Front	0.564	0.025	0.589
		Rear	0.570	0.156	**0.726**
	LTE Band 12	Front	0.211	0.025	0.236
		Rear	0.263	0.156	**0.419**
	LTE Band 5	Front	0.786	0.025	0.811
		Rear	0.901	0.156	**1.057**
	LTE Band 4	Front	0.389	0.025	0.414
		Rear	0.426	0.156	**0.582**
	LTE Band 2	Front	0.660	0.025	0.685
		Rear	0.678	0.156	**0.834**

Table 12.5.15 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	0.498	0.036	0.534
		Rear	0.441	0.363	**0.804**
	GPRS 850	Front	0.508	0.036	0.544
		Rear	0.484	0.363	**0.847**
	GSM 1900	Front	0.239	0.036	0.275
		Rear	0.233	0.363	**0.596**
	GPRS 1900	Front	0.344	0.036	0.380
		Rear	0.326	0.363	**0.689**
	WCDMA 850	Front	0.545	0.036	0.581
		Rear	0.611	0.363	**0.974**
	WCDMA 1900	Front	0.564	0.036	0.600
		Rear	0.570	0.363	**0.933**
	LTE Band 12	Front	0.211	0.036	0.247
		Rear	0.263	0.363	**0.626**
	LTE Band 5	Front	0.786	0.036	0.822
		Rear	0.901	0.363	**1.264**
	LTE Band 4	Front	0.389	0.036	0.425
		Rear	0.426	0.363	**0.789**
	LTE Band 2	Front	0.660	0.036	0.696
		Rear	0.678	0.363	**1.041**

Table 12.5.16 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	0.498	0.063	0.561
		Rear	0.441	0.461	**0.902**
	GPRS 850	Front	0.508	0.063	0.571
		Rear	0.484	0.461	**0.945**
	GSM 1900	Front	0.239	0.063	0.302
		Rear	0.233	0.461	**0.694**
	GPRS 1900	Front	0.344	0.063	0.407
		Rear	0.326	0.461	**0.787**
	WCDMA 850	Front	0.545	0.063	0.608
		Rear	0.611	0.461	**1.072**
	WCDMA 1900	Front	0.564	0.063	0.627
		Rear	0.570	0.461	**1.031**
	LTE Band 12	Front	0.211	0.063	0.274
		Rear	0.263	0.461	**0.724**
	LTE Band 5	Front	0.786	0.063	0.849
		Rear	0.901	0.461	**1.362**
	LTE Band 4	Front	0.389	0.063	0.452
		Rear	0.426	0.461	**0.887**
	LTE Band 2	Front	0.660	0.063	0.723
		Rear	0.678	0.461	**1.139**

Table 12.5.17 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	0.498	0.027	0.525
		Rear	0.441	0.133	**0.574**
	GPRS 850	Front	0.508	0.027	0.535
		Rear	0.484	0.133	**0.617**
	GSM 1900	Front	0.239	0.027	0.266
		Rear	0.233	0.133	**0.366**
	GPRS 1900	Front	0.344	0.027	0.371
		Rear	0.326	0.133	**0.459**
	WCDMA 850	Front	0.545	0.027	0.572
		Rear	0.611	0.133	**0.744**
	WCDMA 1900	Front	0.564	0.027	0.591
		Rear	0.570	0.133	**0.703**
	LTE Band 12	Front	0.211	0.027	0.238
		Rear	0.263	0.133	**0.396**
	LTE Band 5	Front	0.786	0.027	0.813
		Rear	0.901	0.133	**1.034**
	LTE Band 4	Front	0.389	0.027	0.416
		Rear	0.426	0.133	**0.559**
	LTE Band 2	Front	0.660	0.027	0.687
		Rear	0.678	0.133	**0.811**

Table 12.5.18 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	0.498	0.087	0.585
		Rear	0.441	0.481	**0.922**
	GPRS 850	Front	0.508	0.087	0.595
		Rear	0.484	0.481	**0.965**
	GSM 1900	Front	0.239	0.087	0.326
		Rear	0.233	0.481	**0.714**
	GPRS 1900	Front	0.344	0.087	0.431
		Rear	0.326	0.481	**0.807**
	WCDMA 850	Front	0.545	0.087	0.632
		Rear	0.611	0.481	**1.092**
	WCDMA 1900	Front	0.564	0.087	0.651
		Rear	0.570	0.481	**1.051**
	LTE Band 12	Front	0.211	0.087	0.298
		Rear	0.263	0.481	**0.744**
	LTE Band 5	Front	0.786	0.087	0.873
		Rear	0.901	0.481	**1.382**
	LTE Band 4	Front	0.389	0.087	0.476
		Rear	0.426	0.481	**0.907**
	LTE Band 2	Front	0.660	0.087	0.747
		Rear	0.678	0.481	**1.159**

Table 12.5.19 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	0.498	0.064	0.562
		Rear	0.441	0.398	**0.839**
	GPRS 850	Front	0.508	0.064	0.572
		Rear	0.484	0.398	**0.882**
	GSM 1900	Front	0.239	0.064	0.303
		Rear	0.233	0.398	**0.631**
	GPRS 1900	Front	0.344	0.064	0.408
		Rear	0.326	0.398	**0.724**
	WCDMA 850	Front	0.545	0.064	0.609
		Rear	0.611	0.398	**1.009**
	WCDMA 1900	Front	0.564	0.064	0.628
		Rear	0.570	0.398	**0.968**
	LTE Band 12	Front	0.211	0.064	0.275
		Rear	0.263	0.398	**0.661**
	LTE Band 5	Front	0.786	0.064	0.850
		Rear	0.901	0.398	**1.299**
	LTE Band 4	Front	0.389	0.064	0.453
		Rear	0.426	0.398	**0.824**
	LTE Band 2	Front	0.660	0.064	0.724
		Rear	0.678	0.398	**1.076**

Table 12.5.20 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	0.498	0.062	**0.560**
		Rear	0.441	0.046	0.487
	GPRS 850	Front	0.508	0.062	**0.570**
		Rear	0.484	0.046	0.530
	GSM 1900	Front	0.239	0.062	**0.301**
		Rear	0.233	0.046	0.279
	GPRS 1900	Front	0.344	0.062	**0.406**
		Rear	0.326	0.046	0.372
	WCDMA 850	Front	0.545	0.062	0.607
		Rear	0.611	0.046	**0.657**
	WCDMA 1900	Front	0.564	0.062	**0.626**
		Rear	0.570	0.046	0.616
	LTE Band 12	Front	0.211	0.062	0.273
		Rear	0.263	0.046	**0.309**
	LTE Band 5	Front	0.786	0.062	0.848
		Rear	0.901	0.046	**0.947**
	LTE Band 4	Front	0.389	0.062	0.451
		Rear	0.426	0.046	**0.472**
	LTE Band 2	Front	0.660	0.062	0.722
		Rear	0.678	0.046	**0.724**

Table 12.5.21 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	0.135	0.114	0.249
		Rear	0.091	0.265	**0.356**
	5.6G W-LAN MIMO	Front	0.135	0.063	0.198
		Rear	0.091	0.461	**0.552**
	5.8G W-LAN MIMO	Front	0.135	0.064	0.199
		Rear	0.091	0.398	**0.489**

Table 12.5.22 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	0.062	0.114	0.176
		Rear	0.046	0.265	**0.311**
	5.6G W-LAN MIMO	Front	0.062	0.063	0.125
		Rear	0.046	0.461	**0.507**
	5.8G W-LAN MIMO	Front	0.062	0.064	0.126
		Rear	0.046	0.398	**0.444**

Table 12.5.23 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	0.062	0.049	**0.111**
		Rear	0.046	0.049	0.095

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 MIMO + 5.2 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)	5.2G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.150	0.119	0.150	0.119	0.269
		Bottom	0.224	-	-	0.224	0.224	0.224
		Front	0.508	0.135	0.109	0.643	0.617	0.752
		Rear	0.484	0.091	0.274	0.575	0.758	**0.849**
		Right	0.141	-	-	0.141	0.141	0.141
		Left	-	0.187	0.022	0.187	0.022	0.209
	GPRS 1900	Top	-	0.150	0.119	0.150	0.119	0.269
		Bottom	0.478	-	-	0.478	0.478	0.478
		Front	0.344	0.135	0.109	0.479	0.453	0.588
		Rear	0.326	0.091	0.274	0.417	0.600	**0.691**
		Right	-	-	-	-	-	-
		Left	0.090	0.187	0.022	0.277	0.112	0.299
	WCDMA 850	Top	-	0.150	0.119	0.150	0.119	0.269
		Bottom	0.277	-	-	0.277	0.277	0.277
		Front	0.545	0.135	0.109	0.680	0.654	0.789
		Rear	0.611	0.091	0.274	0.702	0.885	**0.976**
		Right	0.197	-	-	0.197	0.197	0.197
		Left	-	0.187	0.022	0.187	0.022	0.209
	WCDMA 1900	Top	-	0.150	0.119	0.150	0.119	0.269
		Bottom	0.882	-	-	0.882	0.882	0.882
		Front	0.564	0.135	0.109	0.699	0.673	0.808
		Rear	0.570	0.091	0.274	0.661	0.844	**0.935**
		Right	-	-	-	-	-	-
		Left	0.169	0.187	0.022	0.356	0.191	0.378
	LTE Band 12	Top	-	0.150	0.119	0.150	0.119	0.269
		Bottom	0.065	-	-	0.065	0.065	0.065
		Front	0.211	0.135	0.109	0.346	0.320	0.455
		Rear	0.263	0.091	0.274	0.354	0.537	**0.628**
		Right	0.236	-	-	0.236	0.236	0.236
		Left	-	0.187	0.022	0.187	0.022	0.209
	LTE Band 5	Top	-	0.150	0.119	0.150	0.119	0.269
		Bottom	0.389	-	-	0.389	0.389	0.389
		Front	0.786	0.135	0.109	0.921	0.895	1.030
		Rear	0.901	0.091	0.274	0.992	1.175	**1.266**
		Right	0.273	-	-	0.273	0.273	0.273
		Left	-	0.187	0.022	0.187	0.022	0.209
	LTE Band 4	Top	-	0.150	0.119	0.150	0.119	0.269
		Bottom	0.648	-	-	0.648	0.648	0.648
		Front	0.389	0.135	0.109	0.524	0.498	0.633
		Rear	0.426	0.091	0.274	0.517	0.700	**0.791**
		Right	-	-	-	-	-	-
		Left	0.151	0.187	0.022	0.338	0.173	0.360
	LTE Band 2	Top	-	0.150	0.119	0.150	0.119	0.269
		Bottom	0.994	-	-	0.994	0.994	0.994
		Front	0.660	0.135	0.109	0.795	0.769	0.904
		Rear	0.678	0.091	0.274	0.769	0.952	**1.043**
		Right	-	-	-	-	-	-
		Left	0.196	0.187	0.022	0.383	0.218	0.405

Table 12.6.2 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN MIMO + 5.8 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)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.150	0.218	0.150	0.218	0.368
		Bottom	0.224	-	-	0.224	0.224	0.224
		Front	0.508	0.135	0.065	0.643	0.573	0.708
		Rear	0.484	0.091	0.406	0.575	0.890	**0.981**
		Right	0.141	-	-	0.141	0.141	0.141
		Left	-	0.187	0.072	0.187	0.072	0.259
	GPRS 1900	Top	-	0.150	0.218	0.150	0.218	0.368
		Bottom	0.478	-	-	0.478	0.478	0.478
		Front	0.344	0.135	0.065	0.479	0.409	0.544
		Rear	0.326	0.091	0.406	0.417	0.732	**0.823**
		Right	-	-	-	-	-	-
		Left	0.090	0.187	0.072	0.277	0.162	0.349
	WCDMA 850	Top	-	0.150	0.218	0.150	0.218	0.368
		Bottom	0.277	-	-	0.277	0.277	0.277
		Front	0.545	0.135	0.065	0.680	0.610	0.745
		Rear	0.611	0.091	0.406	0.702	1.017	**1.108**
		Right	0.197	-	-	0.197	0.197	0.197
		Left	-	0.187	0.072	0.187	0.072	0.259
	WCDMA 1900	Top	-	0.150	0.218	0.150	0.218	0.368
		Bottom	0.882	-	-	0.882	0.882	0.882
		Front	0.564	0.135	0.065	0.699	0.629	0.764
		Rear	0.570	0.091	0.406	0.661	0.976	**1.067**
		Right	-	-	-	-	-	-
		Left	0.169	0.187	0.072	0.356	0.241	0.428
	LTE Band 12	Top	-	0.150	0.218	0.150	0.218	0.368
		Bottom	0.065	-	-	0.065	0.065	0.065
		Front	0.211	0.135	0.065	0.346	0.276	0.411
		Rear	0.263	0.091	0.406	0.354	0.669	**0.760**
		Right	0.236	-	-	0.236	0.236	0.236
		Left	-	0.187	0.072	0.187	0.072	0.259
	LTE Band 5	Top	-	0.150	0.218	0.150	0.218	0.368
		Bottom	0.389	-	-	0.389	0.389	0.389
		Front	0.786	0.135	0.065	0.921	0.851	0.986
		Rear	0.901	0.091	0.406	**0.992**	**1.307**	1.398
		Right	0.273	-	-	0.273	0.273	0.273
		Left	-	0.187	0.072	0.187	0.072	0.259
	LTE Band 4	Top	-	0.150	0.218	0.150	0.218	0.368
		Bottom	0.648	-	-	0.648	0.648	0.648
		Front	0.389	0.135	0.065	0.524	0.454	0.589
		Rear	0.426	0.091	0.406	0.517	0.832	**0.923**
		Right	-	-	-	-	-	-
		Left	0.151	0.187	0.072	0.338	0.223	0.410
	LTE Band 2	Top	-	0.150	0.218	0.150	0.218	0.368
		Bottom	0.994	-	-	0.994	0.994	0.994
		Front	0.660	0.135	0.065	0.795	0.725	0.860
		Rear	0.678	0.091	0.406	0.769	1.084	**1.175**
		Right	-	-	-	-	-	-
		Left	0.196	0.187	0.072	0.383	0.268	0.455

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

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.029	0.119	0.029	0.119	0.148
		Bottom	0.224	-	-	0.224	0.224	0.224
		Front	0.508	0.062	0.109	0.570	0.617	0.679
		Rear	0.484	0.046	0.274	0.530	0.758	**0.804**
		Right	0.141	-	-	0.141	0.141	0.141
		Left	-	0.102	0.022	0.102	0.022	0.124
	GPRS 1900	Top	-	0.029	0.119	0.029	0.119	0.148
		Bottom	0.478	-	-	0.478	0.478	0.478
		Front	0.344	0.062	0.109	0.406	0.453	0.515
		Rear	0.326	0.046	0.274	0.372	0.600	**0.646**
		Right	-	-	-	-	-	-
		Left	0.090	0.102	0.022	0.192	0.112	0.214
	WCDMA 850	Top	-	0.029	0.119	0.029	0.119	0.148
		Bottom	0.277	-	-	0.277	0.277	0.277
		Front	0.545	0.062	0.109	0.607	0.654	0.716
		Rear	0.611	0.046	0.274	0.657	0.885	**0.931**
		Right	0.197	-	-	0.197	0.197	0.197
		Left	-	0.102	0.022	0.102	0.022	0.124
	WCDMA 1900	Top	-	0.029	0.119	0.029	0.119	0.148
		Bottom	0.882	-	-	0.882	0.882	0.882
		Front	0.564	0.062	0.109	0.626	0.673	0.735
		Rear	0.570	0.046	0.274	0.616	0.844	**0.890**
		Right	-	-	-	-	-	-
		Left	0.169	0.102	0.022	0.271	0.191	0.293
	LTE Band 12	Top	-	0.029	0.119	0.029	0.119	0.148
		Bottom	0.065	-	-	0.065	0.065	0.065
		Front	0.211	0.062	0.109	0.273	0.320	0.382
		Rear	0.263	0.046	0.274	0.309	0.537	**0.583**
		Right	0.236	-	-	0.236	0.236	0.236
		Left	-	0.102	0.022	0.102	0.022	0.124
	LTE Band 5	Top	-	0.029	0.119	0.029	0.119	0.148
		Bottom	0.389	-	-	0.389	0.389	0.389
		Front	0.786	0.062	0.109	0.848	0.895	0.957
		Rear	0.901	0.046	0.274	0.947	1.175	**1.221**
		Right	0.273	-	-	0.273	0.273	0.273
		Left	-	0.102	0.022	0.102	0.022	0.124
	LTE Band 4	Top	-	0.029	0.119	0.029	0.119	0.148
		Bottom	0.648	-	-	0.648	0.648	0.648
		Front	0.389	0.062	0.109	0.451	0.498	0.560
		Rear	0.426	0.046	0.274	0.472	0.700	**0.746**
		Right	-	-	-	-	-	-
		Left	0.151	0.102	0.022	0.253	0.173	0.275
	LTE Band 2	Top	-	0.029	0.119	0.029	0.119	0.148
		Bottom	0.994	-	-	0.994	0.994	0.994
		Front	0.660	0.062	0.109	0.722	0.769	0.831
		Rear	0.678	0.046	0.274	0.724	0.952	**0.998**
		Right	-	-	-	-	-	-
		Left	0.196	0.102	0.022	0.298	0.218	0.320

Table 12.6.4 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.029	0.218	0.029	0.218	0.247
		Bottom	0.224	-	-	0.224	0.224	0.224
		Front	0.508	0.062	0.065	0.570	0.573	0.635
		Rear	0.484	0.046	0.406	0.530	0.890	**0.936**
		Right	0.141	-	-	0.141	0.141	0.141
		Left	-	0.102	0.072	0.102	0.072	0.174
	GPRS 1900	Top	-	0.029	0.218	0.029	0.218	0.247
		Bottom	0.478	-	-	0.478	0.478	0.478
		Front	0.344	0.062	0.065	0.406	0.409	0.471
		Rear	0.326	0.046	0.406	0.372	0.732	**0.778**
		Right	-	-	-	-	-	-
		Left	0.090	0.102	0.072	0.192	0.162	0.264
	WCDMA 850	Top	-	0.029	0.218	0.029	0.218	0.247
		Bottom	0.277	-	-	0.277	0.277	0.277
		Front	0.545	0.062	0.065	0.607	0.610	0.672
		Rear	0.611	0.046	0.406	0.657	1.017	**1.063**
		Right	0.197	-	-	0.197	0.197	0.197
		Left	-	0.102	0.072	0.102	0.072	0.174
	WCDMA 1900	Top	-	0.029	0.218	0.029	0.218	0.247
		Bottom	0.882	-	-	0.882	0.882	0.882
		Front	0.564	0.062	0.065	0.626	0.629	0.691
		Rear	0.570	0.046	0.406	0.616	0.976	**1.022**
		Right	-	-	-	-	-	-
		Left	0.169	0.102	0.072	0.271	0.241	0.343
	LTE Band 12	Top	-	0.029	0.218	0.029	0.218	0.247
		Bottom	0.065	-	-	0.065	0.065	0.065
		Front	0.211	0.062	0.065	0.273	0.276	0.338
		Rear	0.263	0.046	0.406	0.309	0.669	**0.715**
		Right	0.236	-	-	0.236	0.236	0.236
		Left	-	0.102	0.072	0.102	0.072	0.174
	LTE Band 5	Top	-	0.029	0.218	0.029	0.218	0.247
		Bottom	0.389	-	-	0.389	0.389	0.389
		Front	0.786	0.062	0.065	0.848	0.851	0.913
		Rear	0.901	0.046	0.406	0.947	1.307	**1.353**
		Right	0.273	-	-	0.273	0.273	0.273
		Left	-	0.102	0.072	0.102	0.072	0.174
	LTE Band 4	Top	-	0.029	0.218	0.029	0.218	0.247
		Bottom	0.648	-	-	0.648	0.648	**0.648**
		Front	0.389	0.062	0.065	0.451	0.454	0.516
		Rear	0.426	0.046	0.406	0.472	0.832	0.878
		Right	-	-	-	-	-	-
		Left	0.151	0.102	0.072	0.253	0.223	0.325
	LTE Band 2	Top	-	0.029	0.218	0.029	0.218	0.247
		Bottom	0.994	-	-	0.994	0.994	0.994
		Front	0.660	0.062	0.065	0.722	0.725	0.787
		Rear	0.678	0.046	0.406	0.724	1.084	**1.130**
		Right	-	-	-	-	-	-
		Left	0.196	0.102	-	0.298	0.268	0.370

Table 12.6.5 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)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.029	0.071	0.029	0.071	0.100
		Bottom	0.224	-	-	0.224	0.224	0.224
		Front	0.508	0.062	0.049	0.570	0.557	**0.619**
		Rear	0.484	0.046	0.049	0.530	0.533	0.579
		Right	0.141	-	-	0.141	0.141	0.141
		Left	-	0.102	0.002	0.102	0.002	0.104
	GPRS 1900	Top	-	0.029	0.071	0.029	0.071	0.100
		Bottom	0.478	-	-	0.478	0.478	**0.478**
		Front	0.344	0.062	0.049	0.406	0.393	0.455
		Rear	0.326	0.046	0.049	0.372	0.375	0.421
		Right	-	-	-	-	-	-
		Left	0.090	0.102	0.002	0.192	0.092	0.194
	WCDMA 850	Top	-	0.029	0.071	0.029	0.071	0.100
		Bottom	0.277	-	-	0.277	0.277	0.277
		Front	0.545	0.062	0.049	0.607	0.594	0.656
		Rear	0.611	0.046	0.049	0.657	0.660	**0.706**
		Right	0.197	-	-	0.197	0.197	0.197
		Left	-	0.102	0.002	0.102	0.002	0.104
	WCDMA 1900	Top	-	0.029	0.071	0.029	0.071	0.100
		Bottom	0.882	-	-	0.882	0.882	**0.882**
		Front	0.564	0.062	0.049	0.626	0.613	0.675
		Rear	0.570	0.046	0.049	0.616	0.619	0.665
		Right	-	-	-	-	-	-
		Left	0.169	0.102	0.002	0.271	0.171	0.273
	LTE Band 12	Top	-	0.029	0.071	0.029	0.071	0.100
		Bottom	0.065	-	-	0.065	0.065	0.065
		Front	0.211	0.062	0.049	0.273	0.260	0.322
		Rear	0.263	0.046	0.049	0.309	0.312	**0.358**
		Right	0.236	-	-	0.236	0.236	0.236
		Left	-	0.102	0.002	0.102	0.002	0.104
	LTE Band 5	Top	-	0.029	0.071	0.029	0.071	0.100
		Bottom	0.389	-	-	0.389	0.389	0.389
		Front	0.786	0.062	0.049	0.848	0.835	0.897
		Rear	0.901	0.046	0.049	0.947	0.950	**0.996**
		Right	0.273	-	-	0.273	0.273	0.273
		Left	-	0.102	0.002	0.102	0.002	0.104
	LTE Band 4	Top	-	0.029	0.071	0.029	0.071	0.100
		Bottom	0.648	-	-	0.648	0.648	**0.648**
		Front	0.389	0.062	0.049	0.451	0.438	0.500
		Rear	0.426	0.046	0.049	0.472	0.475	0.521
		Right	-	-	-	-	-	-
		Left	0.151	0.102	0.002	0.253	0.153	0.255
	LTE Band 2	Top	-	0.029	0.071	0.029	0.071	0.100
		Bottom	0.994	-	-	0.994	0.994	**0.994**
		Front	0.660	0.062	0.049	0.722	0.709	0.771
		Rear	0.678	0.046	0.049	0.724	0.727	0.773
		Right	-	-	-	-	-	-
		Left	0.196	0.102	0.002	0.298	0.198	0.300

Table 12.6.6 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.054	0.054
		Bottom	0.224	-	0.224
		Front	0.508	0.093	**0.601**
		Rear	0.484	0.076	0.560
		Right	0.141	-	0.141
		Left	-	0.166	0.166
	GPRS 1900	Top	-	0.054	0.054
		Bottom	0.478	-	**0.478**
		Front	0.344	0.093	0.437
		Rear	0.326	0.076	0.402
		Right	-	-	-
		Left	0.090	0.166	0.256
	WCDMA 850	Top	-	0.054	0.054
		Bottom	0.277	-	0.277
		Front	0.545	0.093	0.638
		Rear	0.611	0.076	**0.687**
		Right	0.197	-	0.197
		Left	-	0.166	0.166
	WCDMA 1900	Top	-	0.054	0.054
		Bottom	0.882	-	**0.882**
		Front	0.564	0.093	0.657
		Rear	0.570	0.076	0.646
		Right	-	-	-
		Left	0.169	0.166	0.335
	LTE Band 12	Top	-	0.054	0.054
		Bottom	0.065	-	0.065
		Front	0.211	0.093	0.304
		Rear	0.263	0.076	**0.339**
		Right	0.236	-	0.236
		Left	-	0.166	0.166
	LTE Band 5	Top	-	0.054	0.054
		Bottom	0.389	-	0.389
		Front	0.786	0.093	0.879
		Rear	0.901	0.076	**0.977**
		Right	0.273	-	0.273
		Left	-	0.166	0.166
	LTE Band 4	Top	-	0.054	0.054
		Bottom	0.648	-	**0.648**
		Front	0.389	0.093	0.482
		Rear	0.426	0.076	0.502
		Right	-	-	-
		Left	0.151	0.166	0.317
	LTE Band 2	Top	-	0.054	0.054
		Bottom	0.994	-	**0.994**
		Front	0.660	0.093	0.753
		Rear	0.678	0.076	0.754
		Right	-	-	-
		Left	0.196	0.166	0.362

Table 12.6.7 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.071	0.071
		Bottom	0.224	-	0.224
		Front	0.508	0.049	**0.557**
		Rear	0.484	0.049	0.533
		Right	0.141	-	0.141
		Left	-	0.002	0.002
	GPRS 1900	Top	-	0.071	0.071
		Bottom	0.478	-	**0.478**
		Front	0.344	0.049	0.393
		Rear	0.326	0.049	0.375
		Right	-	-	-
		Left	0.090	0.002	0.092
	WCDMA 850	Top	-	0.071	0.071
		Bottom	0.277	-	0.277
		Front	0.545	0.049	0.594
		Rear	0.611	0.049	**0.660**
		Right	0.197	-	0.197
		Left	-	0.002	0.002
	WCDMA 1900	Top	-	0.071	0.071
		Bottom	0.882	-	**0.882**
		Front	0.564	0.049	0.613
		Rear	0.570	0.049	0.619
		Right	-	-	-
		Left	0.169	0.002	0.171
	LTE Band 12	Top	-	0.071	0.071
		Bottom	0.065	-	0.065
		Front	0.211	0.049	0.260
		Rear	0.263	0.049	**0.312**
		Right	0.236	-	0.236
		Left	-	0.002	0.002
	LTE Band 5	Top	-	0.071	0.071
		Bottom	0.389	-	0.389
		Front	0.786	0.049	0.835
		Rear	0.901	0.049	**0.950**
		Right	0.273	-	0.273
		Left	-	0.002	0.002
	LTE Band 4	Top	-	0.071	0.071
		Bottom	0.648	-	**0.648**
		Front	0.389	0.049	0.438
		Rear	0.426	0.049	0.475
		Right	-	-	-
		Left	0.151	0.002	0.153
	LTE Band 2	Top	-	0.071	0.071
		Bottom	0.994	-	**0.994**
		Front	0.660	0.049	0.709
		Rear	0.678	0.049	0.727
		Right	-	-	-
		Left	0.196	0.002	0.198

Table 12.6.8 Simultaneous Transmission Scenario : 2G/3G/4G + 2.4 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	2.4G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.150	0.150
		Bottom	0.224	-	0.224
		Front	0.508	0.135	**0.643**
		Rear	0.484	0.091	0.575
		Right	0.141	-	0.141
		Left	-	0.187	0.187
	GPRS 1900	Top	-	0.150	0.150
		Bottom	0.478	-	0.478
		Front	0.344	0.135	**0.479**
		Rear	0.326	0.091	0.417
		Right	-	-	-
		Left	0.090	0.187	0.277
	WCDMA 850	Top	-	0.150	0.150
		Bottom	0.277	-	0.277
		Front	0.545	0.135	0.680
		Rear	0.611	0.091	**0.702**
		Right	0.197	-	0.197
		Left	-	0.187	0.187
	WCDMA 1900	Top	-	0.150	0.150
		Bottom	0.882	-	**0.882**
		Front	0.564	0.135	0.699
		Rear	0.570	0.091	0.661
		Right	-	-	-
		Left	0.169	0.187	0.356
	LTE Band 12	Top	-	0.150	0.150
		Bottom	0.065	-	0.065
		Front	0.211	0.135	0.346
		Rear	0.263	0.091	**0.354**
		Right	0.236	-	0.236
		Left	-	0.187	0.187
	LTE Band 5	Top	-	0.150	0.150
		Bottom	0.389	-	0.389
		Front	0.786	0.135	0.921
		Rear	0.901	0.091	**0.992**
		Right	0.273	-	0.273
		Left	-	0.187	0.187
	LTE Band 4	Top	-	0.150	0.150
		Bottom	0.648	-	**0.648**
		Front	0.389	0.135	0.524
		Rear	0.426	0.091	0.517
		Right	-	-	-
		Left	0.151	0.187	0.338
	LTE Band 2	Top	-	0.150	0.150
		Bottom	0.994	-	**0.994**
		Front	0.660	0.135	0.795
		Rear	0.678	0.091	0.769
		Right	-	-	-
		Left	0.196	0.187	0.383

Table 12.6.9 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.027	0.027
		Bottom	0.224	-	0.224
		Front	0.508	0.059	0.567
		Rear	0.484	0.134	**0.618**
		Right	0.141	-	0.141
		Left	-	0.025	0.025
	GPRS 1900	Top	-	0.027	0.027
		Bottom	0.478	-	**0.478**
		Front	0.344	0.059	0.403
		Rear	0.326	0.134	0.460
		Right	-	-	-
		Left	0.090	0.025	0.115
	WCDMA 850	Top	-	0.027	0.027
		Bottom	0.277	-	0.277
		Front	0.545	0.059	0.604
		Rear	0.611	0.134	**0.745**
		Right	0.197	-	0.197
		Left	-	0.025	0.025
	WCDMA 1900	Top	-	0.027	0.027
		Bottom	0.882	-	**0.882**
		Front	0.564	0.059	0.623
		Rear	0.570	0.134	0.704
		Right	-	-	-
		Left	0.169	0.025	0.194
	LTE Band 12	Top	-	0.027	0.027
		Bottom	0.065	-	0.065
		Front	0.211	0.059	0.270
		Rear	0.263	0.134	**0.397**
		Right	0.236	-	0.236
		Left	-	0.025	0.025
	LTE Band 5	Top	-	0.027	0.027
		Bottom	0.389	-	0.389
		Front	0.786	0.059	0.845
		Rear	0.901	0.134	**1.035**
		Right	0.273	-	0.273
		Left	-	0.025	0.025
	LTE Band 4	Top	-	0.027	0.027
		Bottom	0.648	-	**0.648**
		Front	0.389	0.059	0.448
		Rear	0.426	0.134	0.560
		Right	-	-	-
		Left	0.151	0.025	0.176
	LTE Band 2	Top	-	0.027	0.027
		Bottom	0.994	-	**0.994**
		Front	0.660	0.059	0.719
		Rear	0.678	0.134	0.812
		Right	-	-	-
		Left	0.196	0.025	0.221

Table 12.6.10 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.097	0.097
		Bottom	0.224	-	0.224
		Front	0.508	0.061	0.569
		Rear	0.484	0.134	**0.618**
		Right	0.141	-	0.141
		Left	-	0.011	0.011
	GPRS 1900	Top	-	0.097	0.097
		Bottom	0.478	-	**0.478**
		Front	0.344	0.061	0.405
		Rear	0.326	0.134	0.460
		Right	-	-	-
		Left	0.090	0.011	0.101
	WCDMA 850	Top	-	0.097	0.097
		Bottom	0.277	-	0.277
		Front	0.545	0.061	0.606
		Rear	0.611	0.134	**0.745**
		Right	0.197	-	0.197
		Left	-	0.011	0.011
	WCDMA 1900	Top	-	0.097	0.097
		Bottom	0.882	-	**0.882**
		Front	0.564	0.061	0.625
		Rear	0.570	0.134	0.704
		Right	-	-	-
		Left	0.169	0.011	0.180
	LTE Band 12	Top	-	0.097	0.097
		Bottom	0.065	-	0.065
		Front	0.211	0.061	0.272
		Rear	0.263	0.134	**0.397**
		Right	0.236	-	0.236
		Left	-	0.011	0.011
	LTE Band 5	Top	-	0.097	0.097
		Bottom	0.389	-	0.389
		Front	0.786	0.061	0.847
		Rear	0.901	0.134	**1.035**
		Right	0.273	-	0.273
		Left	-	0.011	0.011
	LTE Band 4	Top	-	0.097	0.097
		Bottom	0.648	-	**0.648**
		Front	0.389	0.061	0.450
		Rear	0.426	0.134	0.560
		Right	-	-	-
		Left	0.151	0.011	0.162
	LTE Band 2	Top	-	0.097	0.097
		Bottom	0.994	-	**0.994**
		Front	0.660	0.061	0.721
		Rear	0.678	0.134	0.812
		Right	-	-	-
		Left	0.196	0.011	0.207

Table 12.6.11 Simultaneous Transmission Scenario : 2G/3G/4G + 5.2 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.2G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.119	0.119
		Bottom	0.224	-	0.224
		Front	0.508	0.109	0.617
		Rear	0.484	0.274	**0.758**
		Right	0.141	-	0.141
		Left	-	0.022	0.022
	GPRS 1900	Top	-	0.119	0.119
		Bottom	0.478	-	0.478
		Front	0.344	0.109	0.453
		Rear	0.326	0.274	**0.600**
		Right	-	-	-
		Left	0.090	0.022	0.112
	WCDMA 850	Top	-	0.119	0.119
		Bottom	0.277	-	0.277
		Front	0.545	0.109	0.654
		Rear	0.611	0.274	**0.885**
		Right	0.197	-	0.197
		Left	-	0.022	0.022
	WCDMA 1900	Top	-	0.119	0.119
		Bottom	0.882	-	**0.882**
		Front	0.564	0.109	0.673
		Rear	0.570	0.274	0.844
		Right	-	-	-
		Left	0.169	0.022	0.191
	LTE Band 12	Top	-	0.119	0.119
		Bottom	0.065	-	0.065
		Front	0.211	0.109	0.320
		Rear	0.263	0.274	**0.537**
		Right	0.236	-	0.236
		Left	-	0.022	0.022
	LTE Band 5	Top	-	0.119	0.119
		Bottom	0.389	-	0.389
		Front	0.786	0.109	0.895
		Rear	0.901	0.274	**1.175**
		Right	0.273	-	0.273
		Left	-	0.022	0.022
	LTE Band 4	Top	-	0.119	0.119
		Bottom	0.648	-	**0.648**
		Front	0.389	0.109	0.498
		Rear	0.426	0.274	0.700
		Right	-	-	-
		Left	0.151	0.022	0.173
	LTE Band 2	Top	-	0.119	0.119
		Bottom	0.994	-	**0.994**
		Front	0.660	0.109	0.769
		Rear	0.678	0.274	0.952
		Right	-	-	-
		Left	0.196	0.022	0.218

Table 12.6.12 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.024	0.024
		Bottom	0.224	-	0.224
		Front	0.508	0.027	0.535
		Rear	0.484	0.133	**0.617**
		Right	0.141	-	0.141
		Left	-	0.032	0.032
	GPRS 1900	Top	-	0.024	0.024
		Bottom	0.478	-	**0.478**
		Front	0.344	0.027	0.371
		Rear	0.326	0.133	0.459
		Right	-	-	-
		Left	0.090	0.032	0.122
	WCDMA 850	Top	-	0.024	0.024
		Bottom	0.277	-	0.277
		Front	0.545	0.027	0.572
		Rear	0.611	0.133	**0.744**
		Right	0.197	-	0.197
		Left	-	0.032	0.032
	WCDMA 1900	Top	-	0.024	0.024
		Bottom	0.882	-	**0.882**
		Front	0.564	0.027	0.591
		Rear	0.570	0.133	0.703
		Right	-	-	-
		Left	0.169	0.032	0.201
	LTE Band 12	Top	-	0.024	0.024
		Bottom	0.065	-	0.065
		Front	0.211	0.027	0.238
		Rear	0.263	0.133	**0.396**
		Right	0.236	-	0.236
		Left	-	0.032	0.032
	LTE Band 5	Top	-	0.024	0.024
		Bottom	0.389	-	0.389
		Front	0.786	0.027	0.813
		Rear	0.901	0.133	**1.034**
		Right	0.273	-	0.273
		Left	-	0.032	0.032
	LTE Band 4	Top	-	0.024	0.024
		Bottom	0.648	-	**0.648**
		Front	0.389	0.027	0.416
		Rear	0.426	0.133	0.559
		Right	-	-	-
		Left	0.151	0.032	0.183
	LTE Band 2	Top	-	0.024	0.024
		Bottom	0.994	-	**0.994**
		Front	0.660	0.027	0.687
		Rear	0.678	0.133	0.811
		Right	-	-	-
		Left	0.196	0.032	0.228

Table 12.6.13 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.202	0.202
		Bottom	0.224	-	0.224
		Front	0.508	0.024	0.532
		Rear	0.484	0.328	**0.812**
		Right	0.141	-	0.141
		Left	-	0.056	0.056
	GPRS 1900	Top	-	0.202	0.202
		Bottom	0.478	-	0.478
		Front	0.344	0.024	0.368
		Rear	0.326	0.328	**0.654**
		Right	-	-	-
		Left	0.090	0.056	0.146
	WCDMA 850	Top	-	0.202	0.202
		Bottom	0.277	-	0.277
		Front	0.545	0.024	0.569
		Rear	0.611	0.328	**0.939**
		Right	0.197	-	0.197
		Left	-	0.056	0.056
	WCDMA 1900	Top	-	0.202	0.202
		Bottom	0.882	-	**0.882**
		Front	0.564	0.024	0.588
		Rear	0.570	0.328	0.898
		Right	-	-	-
		Left	0.169	0.056	0.225
	LTE Band 12	Top	-	0.202	0.202
		Bottom	0.065	-	0.065
		Front	0.211	0.024	0.235
		Rear	0.263	0.328	**0.591**
		Right	0.236	-	0.236
		Left	-	0.056	0.056
	LTE Band 5	Top	-	0.202	0.202
		Bottom	0.389	-	0.389
		Front	0.786	0.024	0.810
		Rear	0.901	0.328	**1.229**
		Right	0.273	-	0.273
		Left	-	0.056	0.056
	LTE Band 4	Top	-	0.202	0.202
		Bottom	0.648	-	0.648
		Front	0.389	0.024	0.413
		Rear	0.426	0.328	**0.754**
		Right	-	-	-
		Left	0.151	0.056	0.207
	LTE Band 2	Top	-	0.202	0.202
		Bottom	0.994	-	0.994
		Front	0.660	0.024	0.684
		Rear	0.678	0.328	**1.006**
		Right	-	-	-
		Left	0.196	0.056	0.252

Table 12.6.14 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN MIMO (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.218	0.218
		Bottom	0.224	-	0.224
		Front	0.508	0.065	0.573
		Rear	0.484	0.406	**0.890**
		Right	0.141	-	0.141
		Left	-	0.072	0.072
	GPRS 1900	Top	-	0.218	0.218
		Bottom	0.478	-	0.478
		Front	0.344	0.065	0.409
		Rear	0.326	0.406	**0.732**
		Right	-	-	-
		Left	0.090	0.072	0.162
	WCDMA 850	Top	-	0.218	0.218
		Bottom	0.277	-	0.277
		Front	0.545	0.065	0.610
		Rear	0.611	0.406	**1.017**
		Right	0.197	-	0.197
		Left	-	0.072	0.072
	WCDMA 1900	Top	-	0.218	0.218
		Bottom	0.882	-	**0.882**
		Front	0.564	0.065	0.629
		Rear	0.570	0.406	0.976
		Right	-	-	-
		Left	0.169	0.072	0.241
	LTE Band 12	Top	-	0.218	0.218
		Bottom	0.065	-	0.065
		Front	0.211	0.065	0.276
		Rear	0.263	0.406	**0.669**
		Right	0.236	-	0.236
		Left	-	0.072	0.072
	LTE Band 5	Top	-	0.218	0.218
		Bottom	0.389	-	0.389
		Front	0.786	0.065	0.851
		Rear	0.901	0.406	**1.307**
		Right	0.273	-	0.273
		Left	-	0.072	0.072
	LTE Band 4	Top	-	0.218	0.218
		Bottom	0.648	-	0.648
		Front	0.389	0.065	0.454
		Rear	0.426	0.406	**0.832**
		Right	-	-	-
		Left	0.151	0.072	0.223
	LTE Band 2	Top	-	0.218	0.218
		Bottom	0.994	-	0.994
		Front	0.660	0.065	0.725
		Rear	0.678	0.406	**1.084**
		Right	-	-	-
		Left	0.196	0.072	0.268

Table 12.6.15 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	GPRS 850	Top	-	0.029	0.029
		Bottom	0.224	-	0.224
		Front	0.508	0.062	**0.570**
		Rear	0.484	0.046	0.530
		Right	0.141	-	0.141
		Left	-	0.102	0.102
	GPRS 1900	Top	-	0.029	0.029
		Bottom	0.478	-	**0.478**
		Front	0.344	0.062	0.406
		Rear	0.326	0.046	0.372
		Right	-	-	-
		Left	0.090	0.102	0.192
	WCDMA 850	Top	-	0.029	0.029
		Bottom	0.277	-	0.277
		Front	0.545	0.062	**0.607**
		Rear	0.611	0.046	0.657
		Right	0.197	-	0.197
		Left	-	0.102	0.102
	WCDMA 1900	Top	-	0.029	0.029
		Bottom	0.882	-	**0.882**
		Front	0.564	0.062	0.626
		Rear	0.570	0.046	0.616
		Right	-	-	-
		Left	0.169	0.102	0.271
	LTE Band 12	Top	-	0.029	0.029
		Bottom	0.065	-	0.065
		Front	0.211	0.062	0.273
		Rear	0.263	0.046	**0.309**
		Right	0.236	-	0.236
		Left	-	0.102	0.102
	LTE Band 5	Top	-	0.029	0.029
		Bottom	0.389	-	0.389
		Front	0.786	0.062	0.848
		Rear	0.901	0.046	**0.947**
		Right	0.273	-	0.273
		Left	-	0.102	0.102
	LTE Band 4	Top	-	0.029	0.029
		Bottom	0.648	-	**0.648**
		Front	0.389	0.062	0.451
		Rear	0.426	0.046	0.472
		Right	-	-	-
		Left	0.151	0.102	0.253
	LTE Band 2	Top	-	0.029	0.029
		Bottom	0.994	-	**0.994**
		Front	0.660	0.062	0.722
		Rear	0.678	0.046	0.724
		Right	-	-	-
		Left	0.196	0.102	0.298

Table 12.6.16 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	0.150	0.119	0.269
		Bottom	-	-	-
		Front	0.135	0.109	0.244
		Rear	0.091	0.274	**0.365**
		Right	-	-	-
		Left	0.187	0.022	0.209
	5.8G W-LAN MIMO	Top	0.150	0.218	0.368
		Bottom	-	-	-
		Front	0.135	0.065	0.200
		Rear	0.091	0.406	**0.497**
		Right	-	-	-
		Left	0.187	0.072	0.259

Table 12.6.17 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	0.029	0.119	0.148
		Bottom	-	-	-
		Front	0.062	0.109	0.171
		Rear	0.046	0.274	**0.320**
		Right	-	-	-
		Left	0.102	0.022	0.124
	5.8G W-LAN MIMO	Top	0.029	0.218	0.247
		Bottom	-	-	-
		Front	0.062	0.065	0.127
		Rear	0.046	0.406	**0.452**
		Right	-	-	-
		Left	0.102	0.072	0.174

Table 12.6.18 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	0.029	0.071	0.100
		Bottom	-	-	-
		Front	0.062	0.049	**0.111**
		Rear	0.046	0.049	0.095
		Right	-	-	-
		Left	0.102	0.002	0.104

12.7 Phablet SAR Simultaneous Transmission Analysis

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

12.8 Simultaneous Transmission Conclusion

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

13. SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

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

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

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

Table 13.1 Body-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)	
836.5	20525	LTE B5	-	-	10 mm [Rear]	0.843	0.800	1.05	-	-	-	-
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 13.2 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)	
1852.4	9262	WCDMA 1900	RMC	-	10 mm [Bottom]	0.872	0.866	1.01	-	-	-	-
1860.0	18700	LTE B2	-	-	10 mm [Bottom]	0.870	0.864	1.01	-	-	-	-
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
☒	Robot	SPEAG	TX90XL	N/A	N/A	F13/5RR2A1/A/01
☒	Robot	SPEAG	TX90XL	N/A	N/A	F13/5P9GA1/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
☒	Joystick	SPEAG	N/A	N/A	N/A	S-13200990
☒	Joystick	SPEAG	N/A	N/A	N/A	S-12450905
☒	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
☒	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
☒	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
☒	Data Acquisition Electronics	SPEAG	DAE4V1	2019-04-18	2020-04-18	1391
☒	Data Acquisition Electronics	SPEAG	DAE4V1	2019-03-20	2020-03-20	1394
☒	Dosimetric E-Field Probe	SPEAG	EX3DV4	2019-09-27	2020-09-27	3933
☒	Dosimetric E-Field Probe	SPEAG	EX3DV4	2019-11-27	2020-11-27	7337
☒	750MHz SAR Dipole	SPEAG	D750V3	2019-01-25	2021-01-25	1049
☒	835MHz SAR Dipole	SPEAG	D835V2	2019-07-18	2020-07-18	464
☒	1800MHz SAR Dipole	SPEAG	D1800V2	2019-04-24	2021-04-24	2d047
☒	1900MHz SAR Dipole	SPEAG	D1900V2	2019-07-17	2020-07-17	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	2019-12-18	2020-12-18	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	2019-12-18	2020-12-18	3318A96566
☒	Power Sensor	HP	8481A	2019-12-18	2020-12-18	2702A65976
☒	Dual Directional Coupler	Agilent	778D-012	2019-12-17	2020-12-17	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	2019-12-17	2020-12-17	03942
☒	Attenuators(10 dB)	WEINSCHEL	23-10-34	2019-12-17	2020-12-17	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
☒	Wideband Radio Communication Tester	Rohde Schwarz	CMW500	2019-03-06	2020-03-06	127323
☒	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

1800 MHz Head (SN: 7337)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.8	Normal	1	0.78	0.71	± 3.0 %	± 2.7 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.0	Normal	1	0.23	0.26	± 0.9 %	± 1.0 %	10
Temp. unc. - Conductivity	± 1.9	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 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

1800 MHz Body (SN: 7337)

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.)	± 4.2	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	± 1.8	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

1900 MHz Head (SN: 7337)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.0	Normal	1	1	1	± 6.0 %	± 6.0 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.8	Normal	1	0.78	0.71	± 3.0 %	± 2.7 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.0	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: 7337)

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	± 1.9	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

2450 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.)	± 4.2	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.)	± 4.3	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	± 1.7	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

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: 7337)

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.)	± 3.9	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	± 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 Head (SN: 7337)

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

5300 MHz Body (SN: 7337)

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	± 1.7	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.8	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5500 MHz Head (SN: 7337)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 4.1	Normal	1	0.78	0.71	± 3.2 %	± 2.9 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.2	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 2.0	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 1.9	Rectangular	√3	0.23	0.26	± 0.3 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

5500 MHz Body (SN: 7337)

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.)	± 4.1	Normal	1	0.23	0.26	± 0.9 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 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: 7337)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Probe modulation response	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Detection limits	± 0.25	Rectangular	√3	1	1	± 0.14 %	± 0.14 %	∞
Readout Electronics	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Conditions – Noise	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Conditions – Reflections	± 3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Probe Positioning	± 6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %	∞
Algorithms for Max. SAR Eval.	± 4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %	∞
Test Sample Related								
Device Positioning	± 2.9	Normal	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %	∞
SAR Scaling	± 0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %	∞
Physical Parameters								
Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
SAR correction	± 0.0	Normal	1	1	0.84	± 0.0 %	± 0.0 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %	∞
Liquid conductivity (Meas.)	± 3.8	Normal	1	0.78	0.71	± 3.0 %	± 2.7 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.1	Normal	1	0.23	0.26	± 0.9 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.9	Rectangular	√3	0.78	0.71	± 0.9 %	± 0.8 %	∞
Temp. unc. - Permittivity	± 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 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
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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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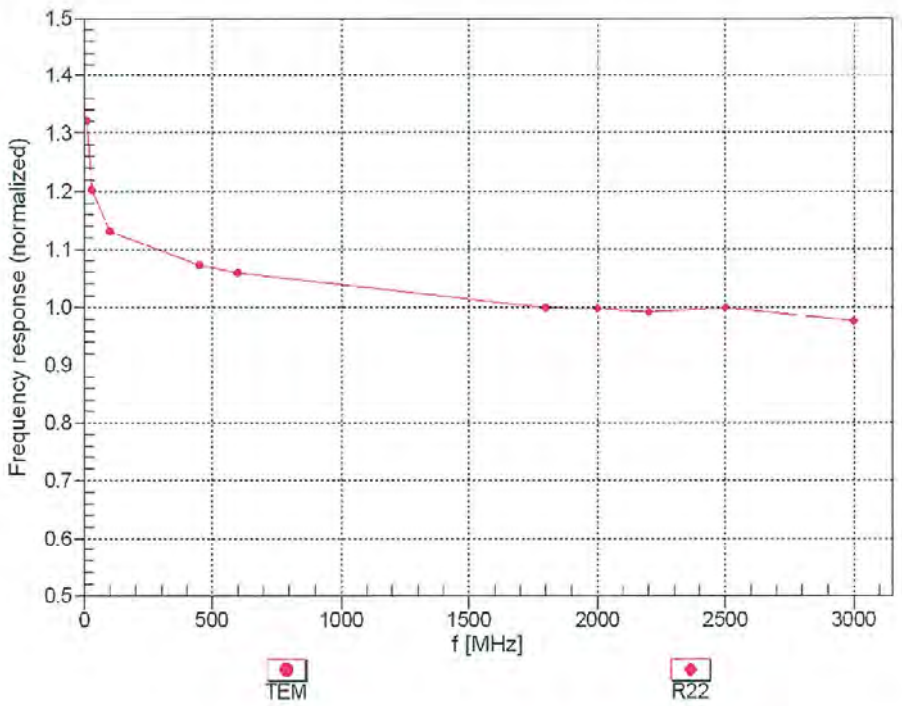
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



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

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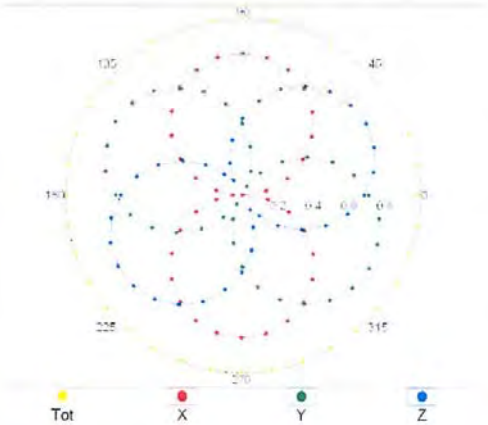
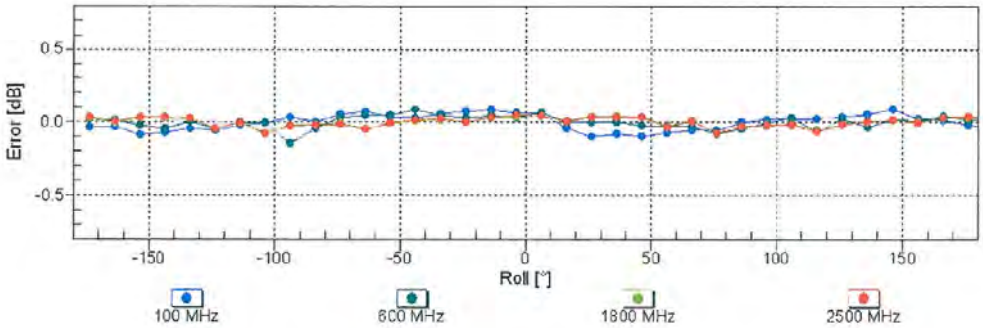
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

f=1800 MHz,R22





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

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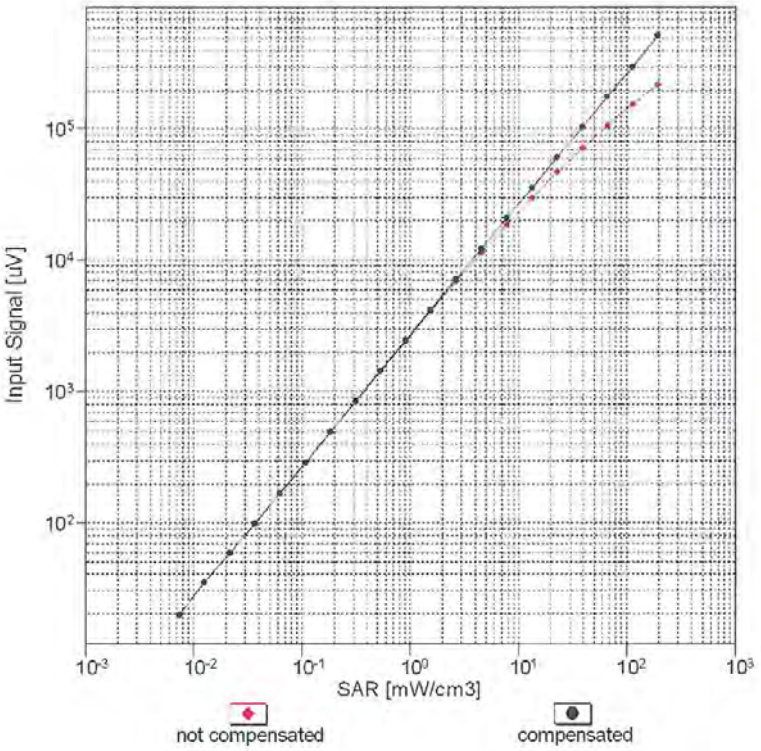
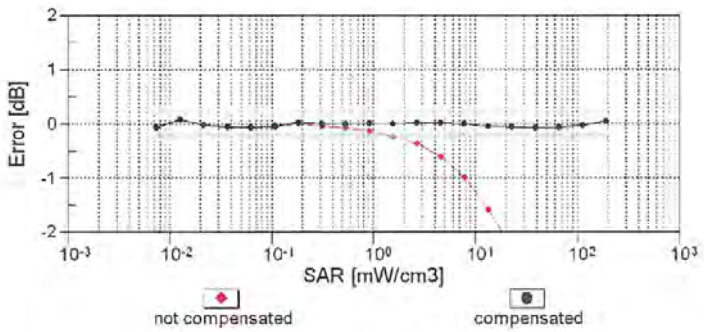
Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)





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

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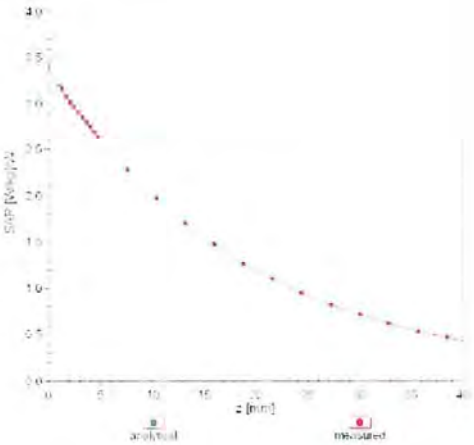
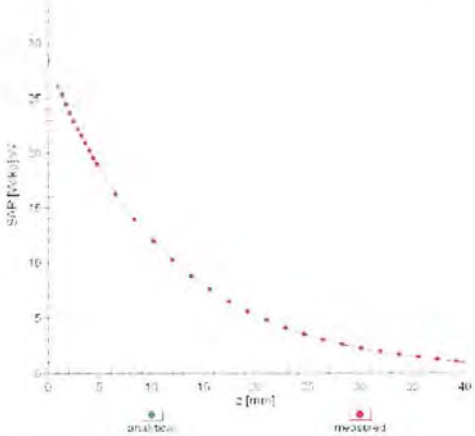
Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

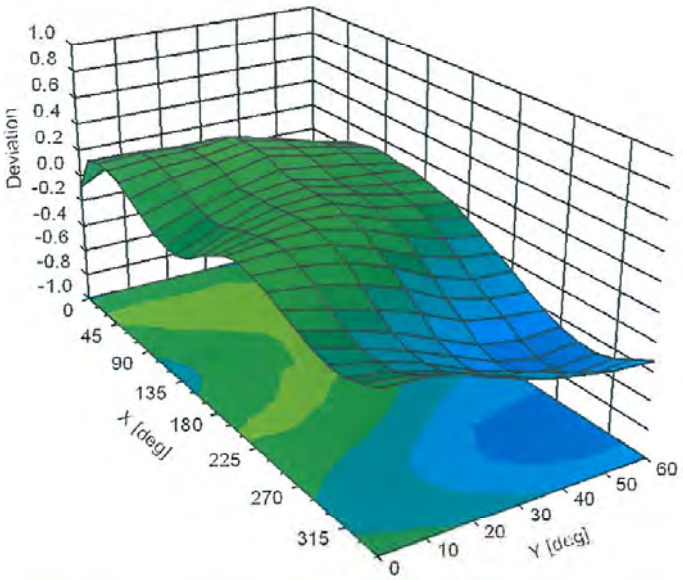


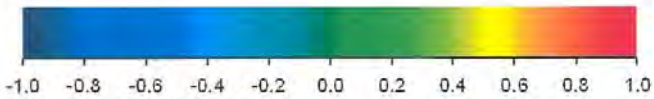
f = 1900 MHz,WGLS R22 (H_convF)



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 %

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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 %

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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 %