TEST REPORT

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1. Report No : DRRFCC1809-0095(1)
2. Customer
   - Name : LG Electronics USA, Inc.
   - Address : 1000 Sylvan Ave. Englewood Cliffs, New Jersey, United States 07632
3. Use of Report : FCC Original Grant
4. Product Name / Model Name : Mobile Phone / LM-Q850FA
   FCC ID : ZNFQ850FA
5. Test Method Used : IEEE 1528-2013, FCC SAR KDB Publications (Details in test report)
   Test Specification : CFR §2.1093
6. Date of Test : 2018.08.01 ~ 2018.08.24
7. Testing Environment : Refer to appended test report.
8. Test Result : Refer to attached test report.

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

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Test Report Version

Test Report No.	Date	Description
DRRFCC1809-0095	Sep. 06, 2018	Initial issue
DRRFCC1809-0095(1)	Sep. 14, 2018	Revise of section 11, 12, E.2, F.3.

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1. DESCRIPTION OF DEVICE

1.1 General Information

EUT type	Mobile Phone				
FCC ID	ZNFQ850FA				
Equipment model name	LM-Q850FA				
Equipment add model name	LMQ850FA, Q850FA, LM-Q850FM, LMQ850FM, Q850FM, LM-Q850EA, LMQ850EA, Q850EA, LM-Q850EM, LMQ850EM, Q850EM, LM-Q850EAW, LMQ850EAW, Q850EAW, LM-Q850EMW, LMQ850EMW, Q850EMW ● 18 models are same mechanical, electrical and functional except follows. - LM-Q850FA, LMQ850FA, Q850FA, LM-Q850FM, LMQ850FM, Q850FM, LM-Q850EA, LMQ850EA, Q850EA, LM-Q850EM, LMQ850EM, Q850EM : No differences - LM-Q850EAW, LMQ850EAW, Q850EAW, LM-Q850EMW, LMQ850EMW, Q850EMW : Dual SIM support(1 RF Path)				
Equipment serial no.	Identical prototype				
Mode(s) of Operation	GSM 850, GSM 1900, WCDMA 850, WCDMA 1700, WCDMA 1900, LTE Band 12, 17, 5, 66, 4, 2, 7, 41, 2.4 G W-LAN (802.11b/g/n-HT20/ac-VHT20), 5 G W-LAN (802.11a/n-HT20/n-HT40/ac-VHT20/ac-VHT40/ac-VHT80), Bluetooth				
	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 1700	WCDMA	Voice/Data	-	1712.4 ~ 1752.6 MHz
	WCDMA 1900	WCDMA	Voice/Data	-	1852.4 ~ 1907.6 MHz
	LTE Band 12	LTE	Voice/Data	1.4/3/5/10MHz	699.7 ~ 715.3 MHz
	LTE Band 17	LTE	Voice/Data	5/10MHz	706.5 ~ 713.5 MHz
	LTE Band 5	LTE	Voice/Data	1.4/3/5/10MHz	824.7 ~ 848.3 MHz
	LTE Band 66	LTE	Voice/Data	1.4/3/5/10/15/20MHz	1710.7 ~ 1779.3 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
	LTE Band 7	LTE	Voice/Data	5/10/15/20MHz	2502.5 ~ 2567.5 MHz
	LTE Band 41	LTE	Voice/Data	5/10/15/20MHz	2498.5 ~ 2687.5 MHz
	2.4 GHz W-LAN	802.11b/g/n/ac	Voice/Data	HT20/VHT20	2412 ~ 2472 MHz
	5.2 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5180 ~ 5240 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5190 ~ 5230 MHz
		802.11ac	Voice/Data	VHT80	5210 MHz
	5.3 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5260 ~ 5320 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5270 ~ 5310 MHz
		802.11ac	Voice/Data	VHT80	5290 MHz
	5.6 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5500 ~ 5720 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5510 ~ 5710 MHz
		802.11ac	Voice/Data	VHT80	5530 ~ 5690 MHz
	5.8 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5745 ~ 5825 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5755 ~ 5795 MHz
		802.11ac	Voice/Data	VHT80	5775 MHz
	Bluetooth	-	Data	-	2402 ~ 2480 MHz
RX Frequency Range	GSM 850	GSM/GPRS/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 1700	WCDMA	Voice/Data	-	2112.4 ~ 2152.6 MHz
	WCDMA 1900	WCDMA	Voice/Data	-	1932.4 ~ 1987.6 MHz
	LTE Band 12	LTE	Voice/Data	1.4/3/5/10MHz	729.7 ~ 745.3 MHz
	LTE Band 17	LTE	Voice/Data	5/10MHz	736.5 ~ 743.5 MHz
	LTE Band 5	LTE	Voice/Data	1.4/3/5/10MHz	869.7 ~ 893.3 MHz
	LTE Band 66	LTE	Voice/Data	1.4/3/5/10/15/20MHz	2110.7 ~ 2179.3 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
	LTE Band 7	LTE	Voice/Data	5/10/15/20MHz	2622.5 ~ 2687.5 MHz
	LTE Band 41	LTE	Voice/Data	5/10/15/20MHz	2498.5 ~ 2687.5 MHz
	2.4 GHz W-LAN	802.11b/g/n/ac	Voice/Data	HT20/VHT20	2412 ~ 2472 MHz
	5.2 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5180 ~ 5240 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5190 ~ 5230 MHz
		802.11ac	Voice/Data	VHT80	5210 MHz
	5.3 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT200	5260 ~ 5320 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5270 ~ 5310 MHz
		802.11ac	Voice/Data	VHT80	5290 MHz
	5.6 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5500 ~ 5720 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5510 ~ 5710 MHz
		802.11ac	Voice/Data	VHT80	5530 ~ 5690 MHz
	5.8 GHz W-LAN	802.11a/n/ac	Voice/Data	HT20/VHT20	5745 ~ 5825 MHz
		802.11n/ac	Voice/Data	HT40/VHT40	5755 ~ 5795 MHz
		802.11ac	Voice/Data	VHT80	5775 MHz
	Bluetooth	-	Data	-	2402 ~ 2480 MHz

SAR Summary Table

Equipment Class	Band	Reported SAR			
		1g SAR (W/kg)			10g SAR (W/kg)
		Head	Body-Worn	Hotspot	Phablet
PCE	GSM 850	0.16	0.35	-	-
PCE	GPRS 850	0.22	0.38	0.38	-
PCE	GSM 1900	< 0.1	0.50	-	-
PCE	GPRS 1900	0.18	0.84	1.03	-
PCE	WCDMA 850	0.23	0.51	0.51	-
PCE	WCDMA 1700	0.18	0.56	0.79	-
PCE	WCDMA 1900	0.19	0.75	0.95	-
PCE	LTE Band 12	< 0.1	0.17	0.17	-
PCE	LTE Band 17	-	-	-	-
PCE	LTE Band 5	0.15	0.40	0.40	-
PCE	LTE Band 66	0.16	0.50	0.76	-
PCE	LTE Band 4	-	-	-	-
PCE	LTE Band 2	0.14	0.72	0.91	-
PCE	LTE Band 7	< 0.1	0.80	0.80	1.92
PCE	LTE Band 41	< 0.1	0.87	1.10	-
DTS(SISO)	2.4 GHz W-LAN	0.59	0.22	0.24	-
DTS(MIMO)	2.4 GHz W-LAN	0.59	0.26	0.26	-
U-NII-1(SISO)	5.2 GHz W-LAN	-	-	0.46	-
U-NII-1(MIMO)	5.2 GHz W-LAN	-	-	0.51	-
U-NII-2A(SISO)	5.3 GHz W-LAN	0.30	0.49	-	1.27
U-NII-2A(MIMO)	5.3 GHz W-LAN	0.36	0.55	-	1.31
U-NII-2C(SISO)	5.6 GHz W-LAN	0.41	0.57	-	1.25
U-NII-2C(MIMO)	5.6 GHz W-LAN	0.37	0.57	-	1.26
U-NII-3(SISO)	5.8 GHz W-LAN	0.32	0.43	0.43	1.02
U-NII-3(MIMO)	5.8 GHz W-LAN	0.32	0.39	0.40	1.02
DSS	Bluetooth	0.15	< 0.1	< 0.1	-
Simultaneous SAR per KDB 690783 D01v01r03		0.81	1.48	1.42	3.23

FCC Equipment Class	Licensed Portable Transmitter Held to Ear (PCE) Part 15 Spread Spectrum Transmitter(DSS) Digital Transmission System(DTS) Unlicensed National Information Infrastructure (UNII)
Date(s) of Tests	2018.08.01 ~ 2018.08.24
Antenna Type	Internal Antenna
Functions	● GSM/GPRS/EDGE (GPRS/EDGE Class: 33) supported. * DTM not supported. ● No simultaneous transmission between BT & 2.4GHz WLAN ● Simultaneous transmission between GSM, WCDMA voice & WLAN / GPRS, WCDMA & WLAN / LTE & WLAN. ● VoIP is supported. ● W-LAN 2.4GHz is supported Hotspot. ● W-LAN 5 GHz is supported Hotspot in UNII B1, B3.

1.2 Power Reduction for SAR

This device utilizes a power reduction mechanism for LTE Band 7 under some conditions when the device is being used in close proximity to the user's hand. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device when being used in phablet conditions. Detailed descriptions of the power reduction mechanism are included in the operational description.

However in case of this device, the LTE B7 hotspot SAR with maximum output power including tolerance is less than 1.2 W/Kg, so phablet SAR and proximity sensor evaluation for LTE B7 is not required.

Although LTE B7 phablet SAR evaluation is not required, the LTE B7 phablet SAR evaluation with the proximity sensor enabled is reported on the Appendix E by applicant's request. [See Appendix E]

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 ZNFQ850FA_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	O
GSM/GPRS/EDGE 1900	X	O	O	O	X	O
WCDMA 850	X	O	O	O	O	O
WCDMA 1700	X	O	O	O	X	O
WCDMA 1900	X	O	O	O	X	O
LTE Band 12	X	O	O	O	O	O
LTE Band 17	X	O	O	O	O	O
LTE Band 5	X	O	O	O	O	O
LTE Band 66	X	O	O	O	X	O
LTE Band 4	X	O	O	O	X	O
LTE Band 2	X	O	O	O	X	O
LTE Band 7	X	O	O	O	O	O
LTE Band 41	X	O	O	O	O	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 ZNFQ850FA_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 were not required; [(13/10)*√2.480] = 2.0 (< 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; [(13/5)*√2.480] = 4.0 (< 7.5)**. Per KDB Publication 447498 D01v06, the maximum power of the channel was rounded to the nearest mW before calculation.

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

(B) Licensed Transmitter(s)

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

LTE SAR for the higher modulations and lower bandwidths were not tested 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.

This device supports LTE Carrier Aggregation (CA) in the downlink only. All uplink communications are identical to Release 8 specifications. Per FCC KDB Publication 941225 D05A v01r02, SAR for LTE CA operations was not needed since the maximum average output power in LTE CA mode was not > 0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.

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 2018 TCB Workshop Notes (LTE Carrier Aggregation)

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	**ZNFQ850FA**				
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 66 (AWS) (1710.7 ~ 1779.3 MHz) LTE Band 4 (AWS) (1710.7 ~ 1754.3 MHz) LTE Band 2 (PCS) (1850.7 ~ 1909.3 MHz) LTE Band 7 (2502.5 ~ 2567.5 MHz) LTE Band 41 (2498.5 ~ 2687.5 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 66 : 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 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 LTE Band 7: 5 MHz, 10 MHz, 15 MHz, 20 MHz LTE Band 41: 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 66 (AWS): 1.4 MHz	1710.7 (131979)	N/A	1745.0 (132322)	N/A	1779.3 (132665)
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)	N/A	1745.0 (132322)	N/A	1778.5 (132657)
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)	N/A	1745.0 (132322)	N/A	1777.5 (132647)
LTE Band 66 (AWS): 10 MHz	1715.0 (132022)	N/A	1745.0 (132322)	N/A	1775.0 (132622)
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)	N/A	1745.0 (132322)	N/A	1772.5 (132597)
LTE Band 66 (AWS): 20 MHz	1720.0 (132072)	N/A	1745.0 (132322)	N/A	**1770.0 (132572)**
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)	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)**
LTE Band 7: 5 MHz	2502.5 (20775)	N/A	2535.0 (21100)	N/A	2567.5 (21425)
LTE Band 7: 10 MHz	2505.0 (20800)	N/A	2535.0 (21100)	N/A	2565.0 (21400)
LTE Band 7: 15 MHz	2507.5 (20825)	N/A	2535.0 (21100)	N/A	2562.5 (21375)
LTE Band 7: 20 MHz	**2510.0 (20850)**	N/A	**2535.0 (21100)**	N/A	**2560.0 (21350)**
LTE Band 41: 5 MHz	2498.5 (39675)	2545.8 (40148)	2593.0 (40620)	2640.3 (41093)	2687.5 (41565)
LTE Band 41: 10 MHz	2501.0 (39700)	2547.0 (40160)	2593.0 (40620)	2639.0 (41080)	2685.0 (41540)
LTE Band 41: 15 MHz	2503.5 (39725)	2548.3 (40173)	2593.0 (40620)	2637.8 (41068)	2682.5 (41515)
LTE Band 41: 20 MHz	**2506.0 (39750)**	**2549.5 (40185)**	**2593.0 (40620)**	**2636.5 (41055)**	**2680.0 (41490)**
UE Category	LTE Rel.11 DL UE Cat 11 (QPSK, 16QAM, 64QAM, 256QAM) UL UE Cat 5 (QPSK, 16QAM, 64QAM) with only downlink carrier aggregation (not support uplink MIMO and uplink carrier aggregation)				
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	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 11. It supports only downlink carrier aggregation. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 11 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, MDH, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

Note(s)
1. LTE Band 12 at 10 MHz bandwidth does not support three non-overlapping channels.
   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 Band 5 (Cell) at 10 MHz bandwidth does not support three non-overlapping channels.
   Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

3. INTROCUCTION

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

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

SAR Definition

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

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

Fig. 3.1 SAR Mathematical Equation

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

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

where:

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

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

4. DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

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

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

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

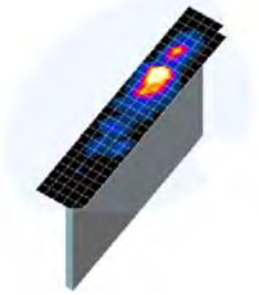

Figure 4.1
Sample SAR Area Scan

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

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

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

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

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

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

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

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

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

5. DEFINITION OF REFERENCE POINTS

5.1 Ear Reference Point

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

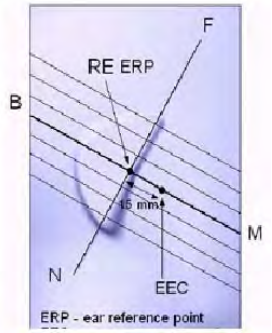

Figure 5.1 Close-up side view of ERP

5.2 Handset Reference Points

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

Figure 5.2 Front, back and side view SAM Twin Phantom

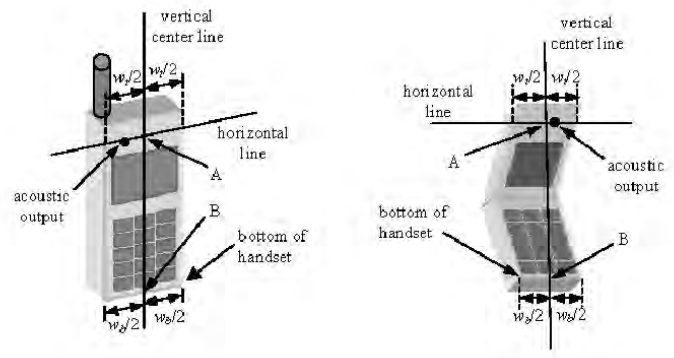

Figure 5.3 Handset Vertical Center & Horizontal Line Reference Points

6. TEST CONFIGURATION POSITIONS FOR HANDSETS

6.1 Device Holder

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

6.2 Positioning for Cheek/Touch

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

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

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

6.3 Positioning for Ear / 15 ° Tilt

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

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

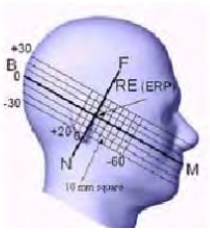

Figure 6.2 Side view w/relevant markings

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

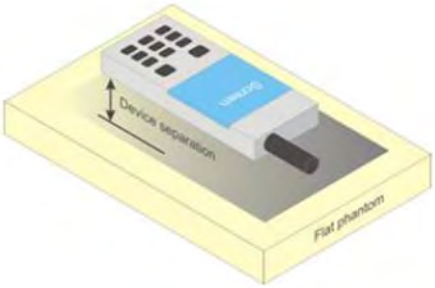

Figure 6.4 Sample Body-Worn Diagram

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

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

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

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

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

8. FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

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

8.2 Procedures Used to Establish RF Signal for SAR

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

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

8.3 SAR Measurement Conditions for WCDMA (UMTS)

8.3.1 Output Power Verification

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

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

8.3.2 Head SAR Measurements for Handsets

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

8.3.3 Body SAR Measurements

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

8.3.4 Release 5 HSDPA Data Devices

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

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

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

Figure 9.1 Table 1

8.3.5 Release 6 HSUPA Data Devices

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

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

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

Figure 9.2 Table 2

8.3.6 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 LTE TDD Consideration setup for SAR measurement

According to KDB 941225 D05 SAR for LTE Devices v02r05 for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33 %) using Uplink-downlink configuration 0 and Special subframe configuration 6.

LTE TDD Band 41 supports 3GPP TS 36.211 section 4.2 for Type 2 Frame and Table 4.2-2 for uplink-downlink configuration and Table 4.2-1 for Special subframe configurations.

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			-	-	-
8	$24144 \cdot T_s$			-	-	-

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Calculated Duty Cycle = Extended cyclic prefix in uplink * (Ts) * # of S + # of U

Ts = 1/(15000 * 2048) seconds

Example for calculated Duty Cycle for Uplink-Downlink Configuration 0:

Calculated Duty Cycle = 5120 * [1/(15000 * 2048)] * 2 + 6 ms = 63.33 %

8.4.6 Downlink Only Carrier Aggregation

Conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02, April 2018 TCB Workshop notes (LTE Carrier Aggregation) and May 2017 TCB Workshop (LTE 4x4 Downlink MIMO). The RCC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. For every supported combination of downlink only carrier aggregation, additional conducted output powers are measured with the downlink carrier aggregation active for configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band. Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for carrier aggregation configurations when the average output power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive.

8.5 SAR Testing with 802.11 Transmitters

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

8.5.1 General Device Setup

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

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

8.5.2 U-NII and U-NII-2A

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

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

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

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

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

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

8.5.4 Initial Test Position Procedure

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

8.5.5 2.4 GHz SAR Test Requirements

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

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

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

8.5.6 OFDM Transmission Mode and SAR Test Channel Selection

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

8.5.7 Initial Test Configuration Procedure

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

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

8.5.8 Subsequent Test Configuration Procedures

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

8.5.9 MIMO SAR Considerations

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

9. RF CONDUCTED POWERS

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

9.1 GSM Nominal and Maximum Output Power Spec and Conducted Powers

Band & Mode		Voice[dBm]	Burst Average GMSK [dBm]				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	34.2	34.2	32.2	30.7	29.2	27.2	26.7	25.7	24.7
	Nominal	33.7	33.7	31.7	30.2	28.7	26.7	26.2	25.2	24.2
GSM/GPRSEDGE 1900	Maximum	30.9	30.9	28.4	26.3	25.1	26.2	25.7	24.7	23.7
	Nominal	30.4	30.4	27.9	25.8	24.6	25.7	25.2	24.2	23.2

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	33.8	33.8	32.1	30.6	29.1	27.2	26.5	25.7	24.7
	190	33.8	33.8	31.8	30.3	29.0	27.2	26.6	25.7	24.7
	251	33.6	33.6	31.8	30.6	29.2	27.2	26.6	25.7	24.7
PCS 1900	512	30.5	30.5	28.4	26.0	24.9	25.8	25.3	24.3	23.4
	661	30.5	30.5	28.1	26.0	24.8	25.7	25.2	24.2	23.3
	810	30.5	30.5	28.4	26.0	25.0	25.9	25.3	24.3	23.4
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	24.77	24.77	26.08	26.34	26.09	18.17	20.48	21.44	21.69
	190	24.77	24.77	25.78	26.04	25.99	18.17	20.58	21.44	21.69
	251	24.57	24.57	25.78	26.34	26.19	18.17	20.58	21.44	21.69
PCS 1900	512	21.47	21.47	22.38	21.74	21.89	16.77	19.28	20.04	20.39
	661	21.47	21.47	22.08	21.74	21.79	16.67	19.18	19.94	20.29
	810	21.47	21.47	22.38	21.74	21.99	16.87	19.28	20.04	20.39
GSM850	Frame Avg. Targets:	24.67	24.67	25.68	25.94	25.69	17.67	20.18	20.94	21.19
PCS 1900		21.37	21.37	21.88	21.54	21.59	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: 33 (max 4 TX Uplink slots)
EDGE Multislot class: 33 (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)	AWS Band (dBm)	PCS Band (dBm)	3GPP MPR (dB)
99	WCDMA	Voice	Maximum	25.3	23.4	23.2	-
			Nominal	24.8	22.9	22.7	
5	HSDPA	Subtest 1	Maximum	25.3	23.4	23.2	0
			Nominal	24.8	22.9	22.7	
5		Subtest 2	Maximum	25.3	23.4	23.2	0
			Nominal	24.8	22.9	22.7	
5		Subtest 3	Maximum	24.8	22.9	22.7	0.5
			Nominal	24.3	22.4	22.2	
5		Subtest 4	Maximum	24.8	22.9	22.7	0.5
			Nominal	24.3	22.4	22.2	
6	HSUPA	Subtest 1	Maximum	25.3	23.4	23.2	0
			Nominal	24.8	22.9	22.7	
6		Subtest 2	Maximum	23.3	21.4	21.2	2
			Nominal	22.8	20.9	20.7	
6		Subtest 3	Maximum	24.3	22.4	22.2	1
			Nominal	23.8	21.9	21.7	
6		Subtest 4	Maximum	23.3	21.4	21.2	2
			Nominal	22.8	20.9	20.7	
6		Subtest 5	Maximum	25.3	23.4	23.2	0
			Nominal	24.8	22.9	22.7	
8	DC-HSDPA	Subtest 1	Maximum	25.3	23.4	23.2	0
			Nominal	24.8	22.9	22.7	
8		Subtest 2	Maximum	25.3	23.4	23.2	0
			Nominal	24.8	22.9	22.7	
8		Subtest 3	Maximum	24.8	22.9	22.7	0.5
			Nominal	24.3	22.4	22.2	
8		Subtest 4	Maximum	24.8	22.9	22.7	0.5
			Nominal	24.3	22.4	22.2	

Table 9.2.1 WCDMA Nominal and Maximum Output Power Spec

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band (dBm)			AWS Band (dBm)			PCS Band (dBm)			3GPP MPR (dB)
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	25.21	25.11	25.18	23.02	23.19	23.07	22.95	22.93	22.79	-
99		12.2 kbps AMR	25.19	25.09	25.16	23.01	23.17	23.05	22.93	22.91	22.77	-
5	HSDPA	Subtest 1	24.23	24.13	24.11	22.22	22.30	22.31	22.47	22.44	22.29	0
5		Subtest 2	24.20	24.13	24.09	22.14	22.40	22.41	22.46	22.44	22.28	0
5		Subtest 3	23.75	23.64	23.62	21.78	21.89	21.84	21.99	21.99	21.82	0.5
5		Subtest 4	23.74	23.63	23.64	21.77	21.85	21.85	21.99	21.98	21.81	0.5
6	HSUPA	Subtest 1	24.23	24.12	24.10	22.26	22.40	22.38	22.47	22.45	22.29	0
6		Subtest 2	22.12	22.14	22.13	20.26	20.38	20.36	20.50	20.50	20.32	2
6		Subtest 3	23.21	23.10	23.09	21.27	21.40	21.38	21.47	21.45	21.31	1
6		Subtest 4	22.25	22.12	22.12	20.31	20.37	20.35	20.49	20.48	20.33	2
6		Subtest 5	24.22	24.12	24.10	22.29	22.36	22.35	22.48	22.48	22.31	0
8	DC-HSDPA	Subtest 1	24.19	24.10	24.06	22.05	22.12	22.14	21.85	21.82	21.65	0
8		Subtest 2	24.18	24.08	24.05	22.03	22.09	22.11	21.84	21.81	21.64	0
8		Subtest 3	23.72	23.59	23.58	21.64	21.71	21.70	21.41	21.38	21.31	0.5
8		Subtest 4	23.71	23.57	23.56	21.61	21.70	21.69	21.39	21.37	21.30	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 Nominal and Maximum Output Power Spec

1) LTE Band 12

LTE Band 12 Conducted Power– 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power (dBm)	MPR Allowed Per 3GPP(dB)	MPR (dB)
QPSK	1	0	25.00	0	0
	1	25	24.93		
	1	**49**	**25.12**		
	25	0	24.00	0-1	1
	25	12	23.99		
	25	**25**	**24.06**		
	50	0	23.98	0-1	1
16QAM	1	0	24.19	0-1	1
	1	25	24.11		
	1	49	24.30		
	25	0	23.08	0-2	2
	25	12	23.11		
	25	25	23.25		
	50	0	23.00	0-2	2
64QAM	1	0	23.18	0-2	2
	1	25	23.10		
	1	49	23.30		
	25	0	22.10	0-3	3
	25	12	22.18		
	25	25	22.25		
	50	0	22.16	0-3	3

Table 9.3.2 LTE Conducted Power

Note 1: LTE Band 12 at 10 MHz bandwidth does not support three non-overlapping channels.
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	25.02	25.04	25.08	0	0
	1	12	24.97	25.09	25.12		
	1	24	25.02	25.05	25.07		
	12	0	23.99	24.04	24.07	0-1	1
	12	6	23.93	24.07	24.02		
	12	13	23.92	24.06	24.07		
	25	0	23.95	24.05	24.02	0-1	1
16QAM	1	0	24.19	24.22	24.22	0-1	1
	1	12	24.15	24.21	24.21		
	1	24	24.15	24.19	24.22		
	12	0	23.15	23.19	23.21	0-2	2
	12	6	23.10	23.20	23.16		
	12	13	23.08	23.19	23.19		
	25	0	23.08	23.16	23.15	0-2	2
64QAM	1	0	23.17	23.21	23.11	0-2	2
	1	12	23.13	23.22	23.12		
	1	24	23.18	23.23	23.13		
	12	0	22.13	22.17	22.15	0-3	3
	12	6	22.10	22.21	22.17		
	12	13	22.06	22.20	22.19		
	15	0	22.06	22.12	22.19	0-3	3

Table 9.3.3 LTE Conducted Power

LTE Band 12 Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	24.91	24.91	24.87	0	0
	1	7	24.92	24.89	24.94		
	1	14	24.91	24.89	24.94		
	8	0	23.88	23.96	23.87	0-1	1
	8	4	23.91	23.97	24.00		
	8	7	23.91	23.91	23.84		
	15	0	23.90	23.95	23.87	0-1	1
16QAM	1	0	24.00	24.10	24.00	0-1	1
	1	7	24.10	24.00	24.05		
	1	14	24.00	24.01	24.12		
	8	0	22.99	23.09	23.00	0-2	2
	8	4	23.09	23.15	23.11		
	8	7	22.98	23.09	23.01		
	15	0	23.00	23.14	23.02	0-2	2
64QAM	1	0	23.00	23.08	23.00	0-2	2
	1	7	23.10	23.01	23.10		
	1	14	23.05	23.08	23.02		
	8	0	21.94	22.14	22.06	0-3	3
	8	4	22.08	22.15	22.19		
	8	7	21.97	22.10	21.99		
	15	0	22.02	22.14	21.98	0-3	3

Table 9.3.4 LTE Conducted Power

LTE Band 12 Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23017 (699.7 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23173 (715.3 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	24.83	24.99	24.83	0	0
	1	2	24.93	24.98	24.88		
	1	5	24.93	24.86	24.84		
	3	0	24.92	24.97	24.79	0	0
	3	2	24.91	24.96	24.84		
	3	3	24.88	24.91	24.88		
	6	0	23.87	23.97	23.85	0-1	1
16QAM	1	0	24.00	24.11	24.01	0-1	1
	1	2	24.10	24.12	24.02		
	1	5	24.02	24.01	24.03		
	3	0	24.03	24.05	23.94	0-1	1
	3	2	24.01	24.08	24.01		
	3	3	23.95	23.99	23.91		
	6	0	23.02	23.15	22.88	0-2	2
64QAM	1	0	23.01	23.10	23.00	0-2	2
	1	2	23.02	23.05	22.99		
	1	5	23.03	23.04	23.02		
	3	0	23.10	23.01	22.98	0-2	2
	3	2	23.05	23.02	22.91		
	3	3	22.87	22.99	22.88		
	6	0	21.95	22.05	21.91	0-3	3

Table 9.3.5 LTE Conducted Power

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

Table 9.3.6 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**	0	0
	1	25	24.99		
	1	49	25.00		
	25	**0**	**24.15**	0-1	1
	25	12	23.89		
	25	25	23.95		
	50	0	23.88	0-1	1
16QAM	1	0	24.05	0-1	1
	1	25	23.89		
	1	49	24.10		
	25	0	23.18	0-2	2
	25	12	22.86		
	25	25	22.92		
	50	0	22.92	0-2	2
64QAM	1	0	23.05	0-2	2
	1	25	22.91		
	1	49	23.01		
	25	0	22.15	0-3	3
	25	12	21.99		
	25	25	22.05		
	50	0	22.03	0-3	3

Table 9.3.7 LTE Conducted Power

Note: LTE Band 5(Cell) at 10 MHz bandwidth does not support three non-overlapping channels.
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	24.98	24.88	24.91	0	0
	1	12	25.05	24.90	25.04		
	1	24	25.00	24.84	24.89		
	12	0	23.96	23.77	24.00	0-1	1
	12	6	24.03	23.84	24.05		
	12	13	24.01	23.85	23.99		
	25	0	23.99	23.83	24.01	0-1	1
16QAM	1	0	24.17	23.91	24.10	0-1	1
	1	12	24.17	23.95	24.22		
	1	24	24.15	24.00	23.89		
	12	0	22.99	22.84	23.01	0-2	2
	12	6	23.07	22.82	23.07		
	12	13	23.07	22.85	23.04		
	25	0	23.03	22.83	23.04	0-2	2
64QAM	1	0	23.15	22.91	23.00	0-2	2
	1	12	23.22	22.92	23.23		
	1	24	23.19	22.93	22.88		
	12	0	22.01	21.94	22.04	0-3	3
	12	6	22.09	21.95	22.10		
	12	13	22.10	21.97	22.05		
	25	0	22.02	21.89	22.00	0-3	3

Table 9.3.8 LTE Conducted Power

LTE Band 5 (Cell) Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			20415 (825.5 MHz)	20525 (836.5 MHz)	20635 (847.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	24.87	24.81	24.89	0	0
	1	7	24.83	24.82	24.88		
	1	14	24.89	24.84	24.86		
	8	0	23.82	23.82	23.96	0-1	1
	8	4	23.86	23.83	24.04		
	8	7	23.89	23.83	23.92		
	15	0	23.82	23.82	24.04	0-1	1
16QAM	1	0	24.01	23.91	24.03	0-1	1
	1	7	24.02	23.88	23.91		
	1	14	24.08	23.91	23.88		
	8	0	22.90	22.83	23.06	0-2	2
	8	4	22.97	22.85	23.13		
	8	7	22.96	22.83	23.10		
	15	0	22.93	22.82	23.15	0-2	2
64QAM	1	0	23.00	22.89	23.02	0-2	2
	1	7	23.01	22.89	22.91		
	1	14	23.02	22.84	22.89		
	8	0	21.93	21.87	22.00	0-3	3
	8	4	21.96	21.92	22.09		
	8	7	21.95	21.87	22.09		
	15	0	21.99	21.89	22.07	0-3	3

Table 9.3.9 LTE Conducted Power

LTE Band 5 (Cell) Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			20407 (824.7 MHz)	20525 (836.5 MHz)	20643 (848.3 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	24.85	24.81	24.87	0	0
	1	2	24.87	24.88	24.85		
	1	5	24.82	24.81	24.84		
	3	0	24.86	24.82	24.83	0	0
	3	2	24.90	24.83	24.84		
	3	3	24.85	24.82	24.83		
	6	0	23.82	23.84	23.91	0-1	1
16QAM	1	0	23.87	23.88	23.84	0-1	1
	1	2	24.01	23.90	23.88		
	1	5	23.87	23.82	23.85		
	3	0	23.96	23.87	23.84	0-1	1
	3	2	24.01	23.91	23.85		
	3	3	23.93	23.87	23.84		
	6	0	22.99	22.87	22.83	0-2	2
64QAM	1	0	22.88	22.85	22.84	0-2	2
	1	2	23.00	22.89	22.83		
	1	5	22.87	22.83	22.83		
	3	0	23.02	22.81	22.83	0-2	2
	3	2	23.05	22.81	22.84		
	3	3	22.96	22.82	22.83		
	6	0	21.86	21.83	22.00	0-3	3

Table 9.3.10 LTE Conducted Power

Band & Mode		Modulated Average[dBm]
LTE Band 66	Maximum	23.7
	Nominal	23.2

Table 9.3.11 Nominal and Maximum Output Power Spec

3) LTE Band 66

LTE Band 66 (AWS) Conducted Power– 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	**1**	**0**	23.50	23.48	23.62	0	0
	1	50	23.16	23.10	23.18		
	1	99	23.48	23.40	23.50		
	50	**0**	22.33	22.30	22.65	0-1	1
	50	25	22.24	22.23	22.30		
	50	50	22.25	22.24	22.28		
	100	0	22.12	22.10	22.14	0-1	1
16QAM	1	0	22.59	22.60	22.70	0-1	1
	1	50	22.13	22.11	22.20		
	1	99	22.50	22.53	22.56		
	50	0	21.30	21.29	21.50	0-2	2
	50	25	21.20	21.22	21.34		
	50	50	21.10	21.28	21.27		
	100	0	21.09	21.10	21.10	0-2	2
64QAM	1	0	21.66	21.64	21.69	0-2	2
	1	50	21.12	21.15	21.29		
	1	99	21.36	21.52	21.53		
	50	0	20.30	20.31	20.51	0-3	3
	50	25	20.20	20.28	20.31		
	50	50	20.21	20.27	20.31		
	100	0	20.10	20.16	20.11	0-3	3

Table 9.3.12 LTE Conducted Power

LTE Band 66 (AWS) Conducted Power– 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	23.14	23.13	23.24	0	0
	1	36	23.18	23.16	23.17		
	1	74	23.29	23.10	23.27		
	36	0	22.15	22.18	22.13	0-1	1
	36	18	22.13	22.12	22.13		
	36	37	22.10	22.12	22.16		
	75	0	22.09	22.08	22.13	0-1	1
16QAM	1	0	22.30	22.31	22.43	0-1	1
	1	36	22.14	22.14	22.14		
	1	74	22.24	22.29	22.30		
	36	0	21.19	21.14	21.12	0-2	2
	36	18	21.11	21.19	21.16		
	36	37	21.13	21.18	21.13		
	75	0	21.11	21.10	21.10	0-2	2
64QAM	1	0	21.24	21.30	21.41	0-2	2
	1	36	21.17	21.13	21.13		
	1	74	21.18	21.26	21.23		
	36	0	20.18	20.14	20.12	0-3	3
	36	18	20.12	20.18	20.17		
	36	37	20.13	20.16	20.15		
	75	0	20.11	20.12	20.12	0-3	3

Table 9.3.13 LTE Conducted Power

LTE Band 66 (AWS) Conducted Power– 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.29	23.27	23.37	0	0
	1	25	23.19	23.11	23.14		
	1	49	23.08	23.13	23.10		
	25	0	22.28	22.35	22.25	0-1	1
	25	12	22.25	22.22	22.17		
	25	25	22.24	22.22	22.15		
	50	0	22.26	22.30	22.22	0-1	1
16QAM	1	0	22.47	22.41	22.56	0-1	1
	1	25	22.35	22.28	22.33		
	1	49	22.27	22.27	22.28		
	25	0	21.23	21.31	21.27	0-2	2
	25	12	21.22	21.22	21.20		
	25	25	21.21	21.19	21.17		
	50	0	21.24	21.25	21.22	0-2	2
64QAM	1	0	21.46	21.43	21.50	0-2	2
	1	25	21.34	21.29	21.31		
	1	49	21.25	21.30	21.21		
	25	0	20.27	20.30	20.29	0-3	3
	25	12	20.22	20.19	20.19		
	25	25	20.21	20.19	20.19		
	50	0	20.23	20.25	20.22	0-3	3

Table 9.3.14 LTE Conducted Power

LTE Band 66 (AWS) Conducted Power– 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.30	23.32	23.27	0	0
	1	12	23.25	23.20	23.21		
	1	24	23.15	23.08	23.13		
	12	0	22.22	22.29	22.16	0-1	1
	12	6	22.19	22.21	22.13		
	12	13	22.17	22.15	22.09		
	25	0	22.18	22.15	22.11	0-1	1
16QAM	1	0	22.50	22.51	22.45	0-1	1
	1	12	22.44	22.38	22.40		
	1	24	22.31	22.24	22.33		
	12	0	21.23	21.26	21.18	0-2	2
	12	6	21.19	21.19	21.17		
	12	13	21.15	21.15	21.13		
	25	0	21.16	21.15	21.15	0-2	2
64QAM	1	0	21.45	21.50	21.38	0-2	2
	1	12	21.40	21.38	21.34		
	1	24	21.31	21.24	21.29		
	12	0	20.25	20.39	20.23	0-3	3
	12	6	20.23	20.29	20.22		
	12	13	20.20	20.24	20.18		
	25	0	20.15	20.11	20.16	0-3	3

Table 9.3.15 LTE Conducted Power

LTE Band 66 (AWS) Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.22	23.19	23.17	0	0
	1	7	23.20	23.22	23.11		
	1	14	23.14	23.07	23.11		
	8	0	22.15	22.21	22.10	0-1	1
	8	4	22.18	22.19	22.14		
	8	7	22.12	22.17	22.07		
	15	0	22.16	22.19	22.09	0-1	1
16QAM	1	0	22.40	22.38	22.33	0-1	1
	1	7	22.37	22.38	22.31		
	1	14	22.32	22.21	22.23		
	8	0	21.23	21.25	21.20	0-2	2
	8	4	21.25	21.25	21.22		
	8	7	21.20	21.23	21.18		
	15	0	21.17	21.20	21.19	0-2	2
64QAM	1	0	21.34	21.38	21.33	0-2	2
	1	7	21.31	21.33	21.27		
	1	14	21.28	21.24	21.30		
	8	0	20.22	20.22	20.19	0-3	3
	8	4	20.24	20.22	20.22		
	8	7	20.18	20.21	20.19		
	15	0	20.19	20.18	20.18	0-3	3

Table 9.3.16 LTE Conducted Power

LTE Band 66 (AWS) Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	23.15	23.16	23.11	0	0
	1	2	23.19	23.14	23.17		
	1	5	23.14	23.05	23.10		
	3	0	23.15	23.14	23.11	0	0
	3	2	23.18	23.14	23.17		
	3	3	23.11	23.05	23.07		
	6	0	22.10	22.12	22.03	0-1	1
16QAM	1	0	22.34	22.35	22.30	0-1	1
	1	2	22.38	22.31	22.36		
	1	5	22.31	22.21	22.28		
	3	0	22.16	22.17	22.11	0-1	1
	3	2	22.21	22.22	22.10		
	3	3	22.13	22.13	22.10		
	6	0	21.21	21.18	21.17	0-2	2
64QAM	1	0	21.28	21.31	21.29	0-2	2
	1	2	21.36	21.32	21.32		
	1	5	21.29	21.18	21.24		
	3	0	21.27	21.30	21.23	0-2	2
	3	2	21.30	21.31	21.32		
	3	3	21.21	21.24	21.26		
	6	0	20.08	20.24	20.10	0-3	3

Table 9.3.17 LTE Conducted Power

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

Table 9.3.18 Nominal and Maximum Output Power Spec

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**	**23.31**	**23.28**	**23.24**	0	0
	1	50	23.20	23.17	23.13		
	1	99	23.12	23.03	23.10		
	50	**0**	**22.37**	22.31	22.23	0-1	1
	50	25	22.27	22.26	22.22		
	50	50	22.19	22.15	22.17		
	100	**0**	**22.18**	22.13	22.16	0-1	1
16QAM	1	0	22.30	22.38	22.40	0-1	1
	1	50	22.31	22.37	22.31		
	1	99	22.27	22.21	22.26		
	50	0	21.29	21.30	21.20	0-2	2
	50	25	21.33	21.29	21.22		
	50	50	21.23	21.17	21.23		
	100	0	21.22	21.24	21.16	0-2	2
64QAM	1	0	21.38	21.40	21.35	0-2	2
	1	50	21.36	21.35	21.30		
	1	99	21.23	21.19	21.27		
	50	0	20.28	20.27	20.19	0-3	3
	50	25	20.32	20.25	20.20		
	50	50	20.23	20.16	20.16		
	100	0	20.21	20.26	20.15	0-3	3

Table 9.3.19 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 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	23.18	23.14	23.07	0	0
	1	36	23.29	23.16	23.10		
	1	74	23.10	23.04	23.07		
	36	0	22.23	22.27	22.17	0-1	1
	36	18	22.25	22.28	22.18		
	36	37	22.26	22.23	22.22		
	75	0	22.26	22.22	22.13	0-1	1
16QAM	1	0	22.37	22.29	22.25	0-1	1
	1	36	22.39	22.28	22.29		
	1	74	22.27	22.21	22.24		
	36	0	21.20	21.21	21.11	0-2	2
	36	18	21.25	21.28	21.16		
	36	37	21.24	21.23	21.19		
	75	0	21.29	21.21	21.15	0-2	2
64QAM	1	0	21.28	21.27	21.24	0-2	2
	1	36	21.38	21.35	21.25		
	1	74	21.28	21.21	21.21		
	36	0	20.28	20.30	20.19	0-3	3
	36	18	20.32	20.34	20.23		
	36	37	20.29	20.24	20.23		
	75	0	20.30	20.26	20.18	0-3	3

Table 9.3.20 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 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	23.26	23.29	23.17	0	0
	1	25	23.27	23.18	23.13		
	1	49	23.21	23.14	23.16		
	25	0	22.34	22.32	22.29	0-1	1
	25	12	22.36	22.27	22.24		
	25	25	22.33	22.32	22.18		
	50	0	22.30	22.28	22.20	0-1	1
16QAM	1	0	22.38	22.34	22.29	0-1	1
	1	25	22.29	22.31	22.24		
	1	49	22.34	22.29	22.30		
	25	0	21.32	21.32	21.27	0-2	2
	25	12	21.34	21.23	21.26		
	25	25	21.36	21.31	21.16		
	50	0	21.27	21.28	21.25	0-2	2
64QAM	1	0	21.37	21.37	21.27	0-2	2
	1	25	21.27	21.34	21.25		
	1	49	21.28	21.33	21.31		
	25	0	20.39	20.38	20.39	0-3	3
	25	12	20.38	20.31	20.31		
	25	25	20.31	20.39	20.24		
	50	0	20.40	20.37	20.30	0-3	3

Table 9.3.21 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 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	23.21	23.21	23.17	0	0
	1	12	23.28	23.21	23.18		
	1	24	23.21	23.16	23.09		
	12	0	22.28	22.31	22.18	0-1	1
	12	6	22.28	22.25	22.17		
	12	13	22.21	22.13	22.10		
	25	0	22.27	22.20	22.18	0-1	1
16QAM	1	0	22.39	22.31	22.31	0-1	1
	1	12	22.38	22.28	22.34		
	1	24	22.37	22.24	22.27		
	12	0	21.31	21.32	21.26	0-2	2
	12	6	21.30	21.26	21.22		
	12	13	21.26	21.20	21.19		
	25	0	21.27	21.21	21.22	0-2	2
64QAM	1	0	21.35	21.32	21.28	0-2	2
	1	12	21.34	21.28	21.34		
	1	24	21.33	21.25	21.25		
	12	0	20.38	20.38	20.34	0-3	3
	12	6	20.37	20.39	20.30		
	12	13	20.35	20.29	20.28		
	25	0	20.33	20.27	20.25	0-3	3

Table 9.3.22 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 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	23.17	23.14	23.15	0	0
	1	7	23.17	23.12	23.08		
	1	14	23.17	23.16	23.06		
	8	0	22.24	22.22	22.12	0-1	1
	8	4	22.22	22.23	22.17		
	8	7	22.21	22.21	22.13		
	15	0	22.22	22.17	22.13	0-1	1
16QAM	1	0	22.28	22.27	22.29	0-1	1
	1	7	22.34	22.24	22.27		
	1	14	22.36	22.25	22.22		
	8	0	21.31	21.31	21.28	0-2	2
	8	4	21.34	21.33	21.28		
	8	7	21.28	21.32	21.26		
	15	0	21.27	21.27	21.21	0-2	2
64QAM	1	0	21.29	21.31	21.24	0-2	2
	1	7	21.31	21.29	21.25		
	1	14	21.32	21.31	21.24		
	8	0	20.38	20.35	20.27	0-3	3
	8	4	20.39	20.34	20.28		
	8	7	20.33	20.34	20.27		
	15	0	20.32	20.30	20.24	0-3	3

Table 9.3.23 LTE Conducted Power

LTE Band 2 (PCS) Conducted Power– 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 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	23.14	23.11	23.03	0	0
	1	2	23.20	23.14	23.15		
	1	5	23.13	23.14	23.01		
	3	0	23.21	23.16	23.15	0	0
	3	2	23.23	23.17	23.17		
	3	3	23.25	23.13	23.15		
	6	0	22.17	22.13	22.07	0-1	1
16QAM	1	0	22.31	22.21	22.21	0-1	1
	1	2	22.39	22.22	22.31		
	1	5	22.32	22.26	22.19		
	3	0	22.27	22.26	22.15	0-1	1
	3	2	22.29	22.25	22.26		
	3	3	22.25	22.23	22.16		
	6	0	21.23	21.27	21.21	0-2	2
64QAM	1	0	21.27	21.27	21.22	0-2	2
	1	2	21.29	21.18	21.25		
	1	5	21.26	21.28	21.19		
	3	0	21.23	21.35	21.34	0-2	2
	3	2	21.28	21.27	21.25		
	3	3	21.24	21.32	21.32		
	6	0	20.23	20.21	20.15	0-3	3

Table 9.3.24 LTE Conducted Power

Band & Mode		Modulated Average[dBm]
LTE Band 7	Maximum	24.7
	Nominal	24.2

Table 9.3.25 Nominal and Maximum Output Power Spec

5) LTE Band 7

LTE Band 7 Conducted Power– 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20850 (2510.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21350 (2560.0 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	24.61	24.59	24.60	0	0
	1	50	24.62	24.62	24.61		
	1	**99**	**24.63**	**24.65**	**24.67**		
	50	0	23.54	23.55	23.58	0-1	1
	50	25	23.57	23.57	23.58		
	50	**50**	23.61	23.61	**23.62**		
	100	**0**	23.63	23.63	**23.52**	0-1	1
16QAM	1	0	23.66	23.62	23.66	0-1	1
	1	50	23.69	23.63	23.64		
	1	99	23.68	23.62	23.69		
	50	0	22.52	22.62	22.54	0-2	2
	50	25	22.68	22.63	22.57		
	50	50	22.69	22.65	22.61		
	100	0	22.60	22.61	22.49	0-2	2
64QAM	1	0	22.57	22.60	22.62	0-2	2
	1	50	22.64	22.61	22.63		
	1	99	22.65	22.64	22.66		
	50	0	21.48	21.66	21.56	0-3	3
	50	25	21.64	21.62	21.55		
	50	50	21.65	21.64	21.57		
	100	0	21.58	21.61	21.51	0-3	3

Table 9.3.26 LTE Conducted Power

LTE Band 7 Conducted Power– 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20825 (2507.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21375 (2562.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)				
QPSK	1	0	24.61	24.61	24.53	0	0
	1	36	24.62	24.63	24.59		
	1	74	24.62	24.61	24.42		
	36	0	23.50	23.62	23.51	0-1	1
	36	18	23.69	23.63	23.55		
	36	37	23.70	23.63	23.54		
	75	0	23.65	23.58	23.53	0-1	1
16QAM	1	0	23.70	23.68	23.64	0-1	1
	1	36	23.64	23.65	23.64		
	1	74	23.64	23.67	23.61		
	36	0	22.52	22.62	22.48	0-2	2
	36	18	22.68	22.62	22.55		
	36	37	22.63	22.67	22.50		
	75	0	22.64	22.59	22.50	0-2	2
64QAM	1	0	22.58	22.67	22.68	0-2	2
	1	36	22.62	22.65	22.67		
	1	74	22.65	22.68	22.60		
	36	0	21.53	21.62	21.63	0-3	3
	36	18	21.66	21.66	21.67		
	36	37	21.63	21.68	21.65		
	75	0	21.61	21.59	21.57	0-3	3

Table 9.3.27 LTE Conducted Power

LTE Band 7 Conducted Power– 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			20800 (2505.0 MHz)	21100 (2535.0 MHz)	21400 (2565.0 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	24.61	24.63	24.57	0	0
	1	25	24.61	24.63	24.62		
	1	49	24.63	24.61	24.50		
	25	0	23.65	23.64	23.60	0-1	1
	25	12	23.58	23.66	23.62		
	25	25	23.69	23.64	23.62		
	50	0	23.58	23.57	23.57	0-1	1
16QAM	1	0	23.64	23.65	23.63	0-1	1
	1	25	23.66	23.63	23.64		
	1	49	23.63	23.67	23.64		
	25	0	22.62	22.64	22.62	0-2	2
	25	12	22.53	22.63	22.62		
	25	25	22.66	22.63	22.62		
	50	0	22.70	22.55	22.55	0-2	2
64QAM	1	0	22.63	22.64	22.64	0-2	2
	1	25	22.67	22.64	22.62		
	1	49	22.67	22.67	22.67		
	25	0	21.58	21.64	21.64	0-3	3
	25	12	21.56	21.63	21.62		
	25	25	21.64	21.63	21.63		
	50	0	21.63	21.58	21.59	0-3	3

Table 9.3.28 LTE Conducted Power

LTE Band 7 Conducted Power– 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed Per 3GPP(dB)	MPR (dB)
			20775 (2502.5 MHz)	21100 (2535.0 MHz)	21425 (2567.5 MHz)		
			Conducted Power (dBm)				
QPSK	1	0	24.61	24.61	24.63	0	0
	1	12	24.62	24.61	24.63		
	1	24	24.52	24.62	24.46		
	12	0	23.65	23.65	23.67	0-1	1
	12	6	23.69	23.63	23.65		
	12	13	23.58	23.63	23.61		
	25	0	23.60	23.57	23.61	0-1	1
16QAM	1	0	23.65	23.66	23.64	0-1	1
	1	12	23.66	23.66	23.67		
	1	24	23.67	23.68	23.65		
	12	0	22.64	22.66	22.64	0-2	2
	12	6	22.66	22.63	22.67		
	12	13	22.59	22.63	22.62		
	25	0	22.61	22.59	22.65	0-2	2
64QAM	1	0	22.65	22.65	22.63	0-2	2
	1	12	22.67	22.67	22.62		
	1	24	22.62	22.64	22.62		
	12	0	21.62	21.65	21.68	0-3	3
	12	6	21.65	21.63	21.70		
	12	13	21.58	21.63	21.66		
	25	0	21.55	21.55	21.61	0-3	3

Table 9.3.29 LTE Conducted Power

Band & Mode		Modulated Average[dBm]
LTE Band 41	Maximum	24.7
	Nominal	24.2

Table 9.3.30 Nominal and Maximum Output Power Spec

6) LTE Band 41

LTE Band 41 Conducted Power– 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)						
QPSK	**1**	**0**	23.74	23.71	23.77	23.74	23.63	0	0
	1	50	23.60	23.58	23.47	23.44	23.56		
	1	99	23.61	23.58	23.59	23.56	23.59		
	50	**0**	22.72	22.67	22.78	22.66	22.63	0-1	1
	50	25	22.69	22.66	22.69	22.62	22.57		
	50	50	22.66	22.61	22.70	22.61	22.58		
	100	**0**	22.60	22.58	22.64	22.60	22.56	0-1	1
16QAM	1	0	22.72	22.69	22.84	22.81	22.70	0-1	1
	1	50	22.69	22.66	22.65	22.63	22.67		
	1	99	22.69	22.66	22.72	22.69	22.64		
	50	0	21.57	21.56	21.62	21.59	21.56	0-2	2
	50	25	21.66	21.63	21.62	21.59	21.61		
	50	50	21.63	21.60	21.57	21.57	21.56		
	100	0	21.60	21.57	21.57	21.56	21.56	0-2	2
64QAM	1	0	21.68	21.65	21.79	21.76	21.72	0-2	2
	1	50	21.67	21.64	21.66	21.63	21.69		
	1	99	21.57	21.57	21.57	21.58	21.66		
	50	0	20.58	20.57	20.62	20.59	20.64	0-3	3
	50	25	20.67	20.64	20.62	20.59	20.61		
	50	50	20.60	20.57	20.56	20.60	20.60		
	100	0	20.62	20.59	20.59	20.56	20.56	0-3	3

Table 9.3.31 LTE Conducted Power

LTE Band 41 Conducted Power– 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39725 (2503.5 MHz)	Low-Mid Channel 40173 (2548.3 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41068 (2637.8 MHz)	High Channel 41515 (2682.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)						
QPSK	1	0	23.61	23.60	23.57	23.64	23.61	0	0
	1	36	23.63	23.60	23.61	23.58	23.62		
	1	74	23.61	23.61	23.60	23.60	23.60		
	36	0	22.56	22.61	22.60	22.57	22.59	0-1	1
	36	18	22.58	22.62	22.64	22.61	22.63		
	36	37	22.58	22.62	22.59	22.56	22.60		
	75	0	22.59	22.56	22.57	22.57	22.57	0-1	1
16QAM	1	0	22.57	22.64	22.72	22.69	22.60	0-1	1
	1	36	22.71	22.68	22.79	22.76	22.73		
	1	74	22.64	22.61	22.64	22.61	22.59		
	36	0	21.59	21.57	21.61	21.60	21.63	0-2	2
	36	18	21.57	21.62	21.61	21.58	21.59		
	36	37	21.60	21.60	21.56	21.60	21.60		
	75	0	21.60	21.57	21.58	21.57	21.57	0-2	2
64QAM	1	0	21.62	21.59	21.65	21.62	21.59	0-2	2
	1	36	21.60	21.60	21.62	21.59	21.57		
	1	74	21.60	21.62	21.60	21.63	21.60		
	36	0	20.59	20.61	20.57	20.60	20.60	0-3	3
	36	18	20.60	20.61	20.63	20.60	20.60		
	36	37	20.61	20.60	20.60	20.57	20.60		
	75	0	20.60	20.57	20.60	20.57	20.61	0-3	3

Table 9.3.32 LTE Conducted Power

LTE Band 41 Conducted Power– 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39700 (2501.0 MHz)	Low-Mid Channel 40160 (2547.0 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41080 (2639.0 MHz)	High Channel 41540 (2685.0 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)						
QPSK	1	0	23.72	23.69	23.63	23.60	23.63	0	0
	1	25	23.60	23.60	23.58	23.60	23.58		
	1	49	23.70	23.67	23.61	23.58	23.62		
	25	0	22.65	22.62	22.73	22.70	22.67	0-1	1
	25	12	22.64	22.61	22.67	22.64	22.63		
	25	25	22.69	22.66	22.62	22.59	22.63		
	50	0	22.64	22.61	22.67	22.64	22.59	0-1	1
16QAM	1	0	22.70	22.67	22.81	22.78	22.62	0-1	1
	1	25	22.74	22.71	22.77	22.74	22.65		
	1	49	22.79	22.76	22.77	22.74	22.65		
	25	0	21.66	21.63	21.72	21.69	21.65	0-2	2
	25	12	21.65	21.62	21.66	21.63	21.58		
	25	25	21.68	21.65	21.61	21.58	21.56		
	50	0	21.70	21.67	21.72	21.69	21.63	0-2	2
64QAM	1	0	21.60	21.57	21.71	21.68	21.63	0-2	2
	1	25	21.61	21.58	21.60	21.57	21.61		
	1	49	21.66	21.63	21.61	21.58	21.58		
	25	0	20.72	20.69	20.77	20.74	20.69	0-3	3
	25	12	20.67	20.64	20.69	20.66	20.61		
	25	25	20.76	20.73	20.68	20.65	20.62		
	50	0	20.65	20.62	20.68	20.65	20.58	0-3	3

Table 9.3.33 LTE Conducted Power

LTE Band 41 Conducted Power– 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39675 (2498.5 MHz)	Low-Mid Channel 40148 (2545.8 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41093 (2640.3 MHz)	High Channel 41565 (2687.5 MHz)	MPR Allowed Per 3GPP(dB)	MPR (dB)
			Conducted Power (dBm)						
QPSK	1	0	23.69	23.66	23.76	23.73	23.71	0	0
	1	12	23.70	23.67	23.69	23.66	23.71		
	1	24	23.63	23.60	23.58	23.59	23.58		
	12	0	22.56	22.57	22.65	22.62	22.57	0-1	1
	12	6	22.56	22.61	22.61	22.58	22.58		
	12	13	22.52	22.57	22.57	22.62	22.59		
	25	0	22.56	22.56	22.61	22.58	22.57	0-1	1
16QAM	1	0	22.73	22.70	22.79	22.76	22.76	0-1	1
	1	12	22.75	22.72	22.85	22.82	22.76		
	1	24	22.64	22.61	22.63	22.60	22.58		
	12	0	21.60	21.57	21.67	21.64	21.58	0-2	2
	12	6	21.64	21.61	21.65	21.62	21.59		
	12	13	21.57	21.59	21.58	21.57	21.58		
	25	0	21.60	21.57	21.62	21.59	21.58	0-2	2
64QAM	1	0	21.61	21.58	21.78	21.75	21.61	0-2	2
	1	12	21.63	21.60	21.67	21.64	21.59		
	1	24	21.56	21.60	21.57	21.57	21.60		
	12	0	20.60	20.57	20.67	20.64	20.57	0-3	3
	12	6	20.59	20.56	20.61	20.58	20.56		
	12	13	20.57	20.59	20.60	20.57	20.59		
	25	0	20.58	20.57	20.64	20.61	20.56	0-3	3

Table 9.3.34 LTE Conducted Power

9.4 WLAN Nominal and Maximum Output Power Spec and Conducted Powers

Band (GHz)	Mode	Ch	Modulated Average[dBm]					
			Ant.1		Ant.2		MIMO(CDD/SDM)	
			Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
2.4	802.11b	1~11	16.5	15.5	16.5	15.5	-	-
		12	1.0	0.0	1.0	0.0	-	-
		13	-1.5	-2.5	-1.5	-2.5	-	-
	802.11g	1~11	16.5	15.5	16.5	15.5	19.5	18.5
		12	1.0	0.0	1.0	0.0	4.0	3.0
		13	-1.5	-2.5	-1.5	-2.5	1.5	0.5
	802.11n	1~11	14.5	13.5	14.5	13.5	17.5	16.5
		12	1.0	0.0	1.0	0.0	4.0	3.0
		13	-1.5	-2.5	-1.5	-2.5	1.5	0.5
	802.11ac	1~11	14.5	13.5	14.5	13.5	17.5	16.5
		12	1.0	0.0	1.0	0.0	4.0	3.0
		13	-1.5	-2.5	-1.5	-2.5	1.5	0.5

Table 9.4.1 Nominal and Maximum Output Power Spec

Mode	Freq.	Channel	IEEE 802.11 (2.4 GHz) Conducted Power[dBm]			
	(MHz)		Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11b	**2412**	**1**	15.71	15.78	-	-
	2437	6	15.61	15.74	-	-
	2462	**11**	15.57	15.83	-	-
	2467	12	0.50	0.47	-	-
	2472	13	-1.86	-1.81	-	-
802.11g	2412	1	15.54	15.44	18.50	-
	2437	**6**	15.45	15.53	18.52	-
	2462	11	15.37	15.52	18.46	-
	2467	12	0.88	0.79	3.85	-
	2472	13	-1.65	-1.61	1.38	-
802.11n (HT-20)	2412	1	13.52	13.56	16.55	16.51
	2437	6	13.41	13.55	16.49	16.48
	2462	11	13.42	13.50	16.47	16.46
	2467	12	0.95	0.75	3.86	3.74
	2472	13	-2.09	-1.93	1.00	0.96
802.11ac (VHT-20)	2412	1	13.50	13.60	16.56	16.54
	2437	6	13.46	13.56	16.52	16.47
	2462	11	13.37	13.61	16.50	16.42
	2467	12	0.68	0.83	3.77	3.72
	2472	13	-1.97	-2.01	1.02	1.05

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	14.0	13.0	14.0	13.0	17.0	16.0
		40-48						
		52-60						
		64						
		100						
		104-140						
		144						
		149-161						
		165						
	802.11n/ac (20MHz)	36	14.0	13.0	14.0	13.0	17.0	16.0
		40-48						
		52-60						
		64						
		100						
		104-140						
		144						
		149-161						
		165						
	802.11n/ac (40MHz)	38	12.0	11.0	12.0	11.0	15.0	14.0
		46	13.5	12.5	13.5	12.5	16.5	15.5
		54						
		62	12.0	11.0	12.0	11.0	15.0	14.0
		102						
		110	13.5	12.5	13.5	12.5	16.5	15.5
		118						
		126						
		134						
		142						
		151						
		159						
	802.11ac (80MHz)	42	11.0	10.0	11.0	10.0	14.0	13.0
		58						
		106						
		122	12.5	11.5	12.5	11.5	15.5	14.5
		138						
		155						

Table 9.4.3 Nominal and Maximum Output Power Spec

Mode	Freq. (MHz)	Channel	IEEE 802.11a (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11a	5180	36	13.48	13.42	16.46	-
	5200	40	13.45	13.40	16.44	-
	5220	44	13.52	13.50	16.52	-
	5240	**48**	**13.59**	**13.58**	**16.60**	-
	5260	**52**	**13.62**	**13.56**	**16.60**	-
	5280	56	13.58	13.47	16.54	-
	5300	60	13.61	13.47	16.55	-
	5320	64	13.56	13.46	16.52	-
	5500	**100**	**13.65**	13.53	16.60	-
	5600	**120**	13.63	**13.67**	**16.66**	-
	5660	132	13.52	13.55	16.55	-
	5720	144	13.57	13.63	16.61	-
	5745	149	13.50	13.80	16.66	-
	5785	**157**	**13.72**	**13.85**	**16.80**	-
	5825	**165**	**13.77**	13.75	16.77	-

Table 9.4.4 IEEE 802.11a Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11n HT20 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11n (HT-20)	5180	36	13.38	13.33	16.37	16.23
	5200	40	13.31	13.26	16.30	16.18
	5220	44	13.37	13.32	16.36	16.16
	5240	48	13.39	13.43	16.42	16.28
	5260	52	13.42	13.39	16.42	16.33
	5280	56	13.43	13.39	16.42	16.26
	5300	60	13.49	13.35	16.43	16.29
	5320	64	13.45	13.25	16.36	16.21
	5500	100	13.55	13.23	16.40	16.32
	5600	120	13.53	13.42	16.49	16.36
	5660	132	13.39	13.25	16.33	16.32
	5720	144	13.45	13.51	16.49	16.43
	5745	149	13.41	13.50	16.47	16.36
	5785	157	13.50	13.60	16.56	16.49
	5825	165	13.58	13.52	16.56	16.48

Table 9.4.5 IEEE 802.11n HT20 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ac VHT20 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ac (VHT-20)	5180	36	13.27	13.26	16.28	16.20
	5200	40	13.27	13.27	16.28	16.24
	5220	44	13.21	13.30	16.27	16.28
	5240	48	13.30	13.54	16.43	16.27
	5260	52	13.46	13.39	16.44	16.33
	5280	56	13.38	13.42	16.41	16.26
	5300	60	13.46	13.31	16.40	16.33
	5320	64	13.43	13.20	16.33	16.20
	5500	100	13.46	13.25	16.37	16.29
	5600	120	13.50	13.40	16.46	16.38
	5660	132	13.39	13.23	16.32	16.36
	5720	144	13.43	13.51	16.48	16.46
	5745	149	13.31	13.52	16.43	16.38
	5785	157	13.49	13.63	16.57	16.49
	5825	165	13.62	13.55	16.60	16.50

Table 9.4.6 IEEE 802.11ac VHT20 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11n HT40 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11n (HT-40)	5190	38	11.35	11.44	14.41	14.30
	5230	46	12.71	12.81	15.77	15.72
	5270	54	13.00	12.90	15.96	15.85
	5310	62	11.53	11.79	14.67	14.43
	5510	102	11.62	11.60	14.62	14.51
	5590	118	13.02	12.74	15.89	15.78
	5710	142	12.96	12.99	15.99	15.93
	5755	151	12.92	13.01	15.98	15.91
	5795	159	12.96	13.23	16.11	15.95

Table 9.4.7 IEEE 802.11n HT40 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ac VHT40 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ac (VHT-40)	5190	38	11.36	11.55	14.47	14.29
	5230	46	12.76	12.86	15.82	15.69
	5270	54	12.91	12.99	15.96	15.86
	5310	62	11.58	11.68	14.64	14.39
	5510	102	11.70	11.66	14.69	14.45
	5590	118	13.05	12.85	15.96	15.77
	5710	142	13.11	13.02	16.08	15.91
	5755	151	12.97	13.05	16.02	15.89
	5795	159	12.99	13.23	16.12	15.94

Table 9.4.8 IEEE 802.11ac VHT40 Average RF Power

Mode	Freq. (MHz)	Channel	IEEE 802.11ac VHT80 (5 GHz) Conducted Power[dBm]			
			Ant.1	Ant.2	MIMO(CDD)	MIMO(SDM)
802.11ac (VHT-80)	5210	42	10.35	10.51	13.44	13.17
	5290	58	10.45	10.69	13.58	13.26
	5530	106	10.66	10.64	13.66	13.38
	5610	122	11.87	11.83	14.86	14.78
	5690	138	11.90	11.84	14.88	14.74
	5775	155	11.90	11.95	14.94	14.77

Table 9.4.9 IEEE 802.11ac VHT80 Average RF Power

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

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

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

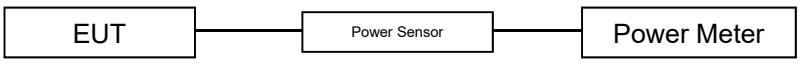

Figure 9.4 Power Measurement Setup

9.5 Bluetooth Conducted Powers

Modulated Average[dBm]		
Bluetooth 1 Mbps	Maximum	11.0
	Nominal	10.0
Bluetooth 2 Mbps	Maximum	10.0
	Nominal	9.0
Bluetooth 3 Mbps	Maximum	10.0
	Nominal	9.0
Bluetooth LE	Maximum	1.0
	Nominal	0.0

Table 9.5.1 Nominal and Maximum Output Power Spec

Channel	Frequency (MHz)	Burst AVG Output Power (1Mbps) (dBm)	Frame AVG Output Power (1Mbps) (dBm)	Burst AVG Output Power (2Mbps) (dBm)	Frame AVG Output Power (2Mbps) (dBm)	Burst AVG Output Power (3Mbps) (dBm)	Frame AVG Output Power (3Mbps) (dBm)
Low	2402	9.25	8.10	8.66	7.51	8.67	7.52
Mid	2441	10.40	9.25	9.87	8.72	9.87	8.72
High	2480	9.02	7.87	8.45	7.30	8.46	7.31

Table 9.5.2 Bluetooth Frame Average RF Power

Channel	Frequency (MHz)	Burst AVG Output Power(LE / 1Mbps) (dBm)	Frame AVG Output Power(LE / 1Mbps) (dBm)
Low	2402	0.35	-0.31
Mid	2440	0.95	0.29
High	2480	0.48	-0.18

Table 9.5.3 Bluetooth LE Frame Average RF Power

- **Bluetooth Conducted Powers procedures**

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

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

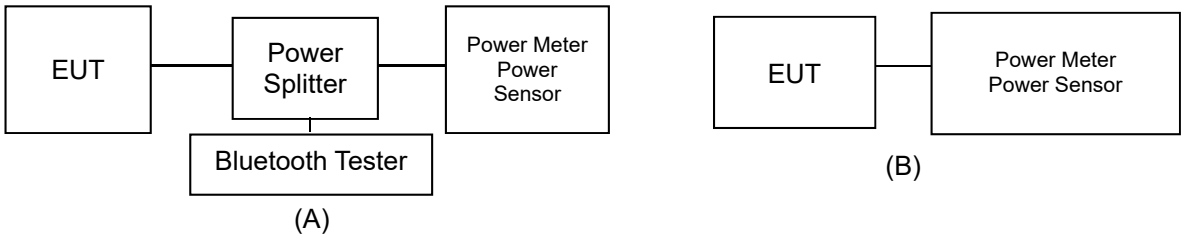

Figure 9.5.1 Average Power Measurement Setup

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

- **Bluetooth Transmission Plot**

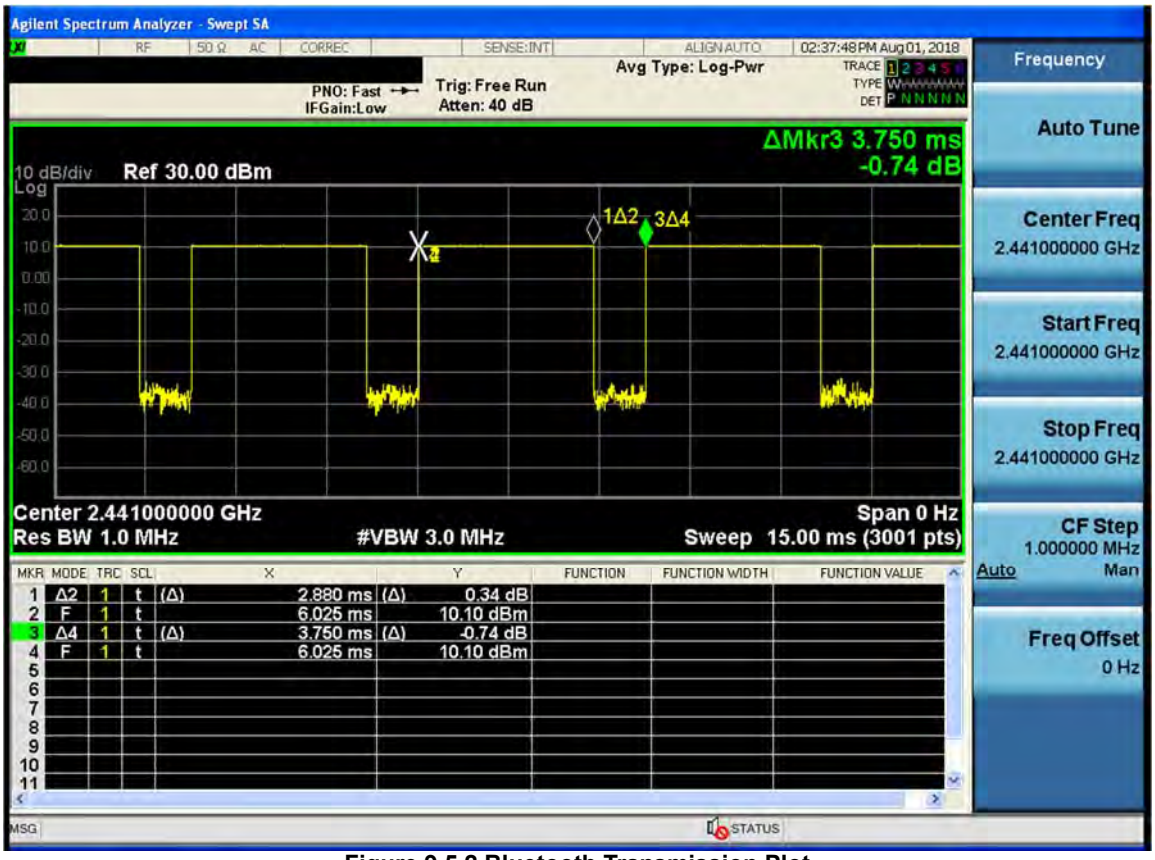

Figure 9.5.2 Bluetooth Transmission Plot

- **Bluetooth Duty Cycle Calculation**

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

10. SYSTEM VERIFICATION

10.1 Tissue Verification

MEASURED TISSUE PARAMETERS										
Date(s)	Tissue Type	Ambient Temp.[°C]	Liquid Temp.[°C]	Measured Frequency [MHz]	Target Dielectric Constant, εr	Target Conductivity, σ (S/m)	Measured Dielectric Constant, εr	Measured Conductivity, σ (S/m)	Er Deviation [%]	σ Deviation [%]
Aug. 21. 2018	750 Head	20.5	21.2	707.5	42.129	0.887	41.407	0.854	-1.71	-3.72
				750.0	41.900	0.890	40.857	0.889	-2.49	-0.11
Aug. 21. 2018	750 Body	20.5	21.0	707.5	55.699	0.960	54.355	0.924	-2.41	-3.75
				750.0	55.531	0.963	53.995	0.965	-2.77	0.21
Aug. 08. 2018	835 Head	20.5	21.1	824.2	41.552	0.899	42.562	0.920	2.43	2.34
				835.0	41.500	0.900	42.420	0.930	2.22	3.33
				836.6	41.500	0.901	42.394	0.931	2.15	3.33
				848.8	41.500	0.914	42.246	0.941	1.80	2.95
Aug. 08. 2018	835 Body	20.5	21.0	824.2	55.243	0.969	53.831	0.975	-2.56	0.62
				835.0	55.200	0.970	53.708	0.985	-2.70	1.55
				836.6	55.197	0.971	53.693	0.986	-2.72	1.54
				848.8	55.160	0.986	53.556	0.997	-2.91	1.12
Aug. 14. 2018	835 Head	21.0	21.7	826.4	41.542	0.899	42.524	0.922	2.36	2.56
				835.0	41.500	0.900	42.407	0.930	2.19	3.33
				836.6	41.500	0.901	42.377	0.931	2.11	3.33
				846.6	41.500	0.912	42.251	0.940	1.81	3.07
Aug. 14. 2018	835 Body	21.0	21.4	826.4	55.235	0.969	53.822	0.978	-2.56	0.93
				835.0	55.200	0.970	53.722	0.986	-2.68	1.65
				836.6	55.197	0.971	53.706	0.987	-2.70	1.65
				846.6	55.166	0.984	53.587	0.996	-2.86	1.22
Aug. 16. 2018	835 Head	21.1	21.8	829.0	41.528	0.899	42.392	0.924	2.08	2.78
				835.0	41.500	0.900	42.314	0.929	1.96	3.22
				836.5	41.500	0.901	42.294	0.930	1.91	3.22
				844.0	41.500	0.910	42.185	0.937	1.65	2.97
Aug. 16. 2018	835 Body	21.1	21.7	829.0	55.223	0.970	53.811	0.981	-2.56	1.13
				835.0	55.200	0.970	53.742	0.986	-2.64	1.65
				836.5	55.197	0.971	53.729	0.988	-2.66	1.75
				844.0	55.172	0.981	53.646	0.994	-2.77	1.33
Aug. 13. 2018	1800 Head	20.5	21.2	1712.4	40.126	1.350	40.836	1.312	1.77	-2.81
				1732.4	40.097	1.361	40.768	1.329	1.67	-2.35
				1752.6	40.069	1.373	40.687	1.348	1.54	-1.82
				1800.0	40.000	1.400	40.481	1.396	1.20	-0.29
Aug. 13. 2018	1800 Body	20.5	21.3	1712.4	53.596	1.464	52.939	1.500	-1.23	2.46
				1732.4	53.556	1.477	52.896	1.520	-1.23	2.91
				1752.6	53.516	1.489	52.827	1.538	-1.29	3.29
				1800.0	53.300	1.520	52.688	1.581	-1.15	4.01
Aug. 22. 2018	1800 Head	20.7	21.1	1720.0	40.114	1.354	41.113	1.323	2.49	-2.29
				1745.0	40.079	1.369	40.997	1.346	2.29	-1.68
				1770.0	40.043	1.383	40.875	1.369	2.08	-1.01
				1800.0	40.000	1.400	40.729	1.400	1.82	0.00
Aug. 22. 2018	1800 Body	20.7	21.0	1720.0	53.580	1.469	53.094	1.506	-0.91	2.52
				1745.0	53.530	1.485	53.007	1.531	-0.98	3.10
				1770.0	53.480	1.501	52.907	1.553	-1.07	3.46
				1800.0	53.300	1.520	52.812	1.578	-0.92	3.82

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 [%]
Aug. 09. 2018	1900 Head	20.7	21.3	1850.2	40.000	1.400	38.832	1.380	-2.92	-1.43
				1880.0	40.000	1.400	38.744	1.406	-3.14	0.43
				1900.0	40.000	1.400	38.642	1.424	-3.39	1.71
				1909.8	40.000	1.400	38.594	1.432	-3.52	2.29
Aug. 09. 2018	1900 Body	20.7	21.1	1850.2	53.300	1.520	51.438	1.512	-3.49	-0.53
				1880.0	53.300	1.520	51.373	1.535	-3.62	0.99
				1900.0	53.300	1.520	51.327	1.556	-3.70	2.37
				1909.8	53.300	1.520	51.311	1.567	-3.73	3.09
Aug. 10. 2018	1900 Head	20.4	20.8	1852.4	40.000	1.400	38.751	1.376	-3.12	-1.71
				1880.0	40.000	1.400	38.672	1.400	-3.32	0.00
				1900.0	40.000	1.400	38.579	1.419	-3.55	1.36
				1907.6	40.000	1.400	38.545	1.426	-3.64	1.86
Aug. 10. 2018	1900 Body	20.4	21.0	1852.4	53.300	1.520	51.742	1.509	-2.92	-0.72
				1880.0	53.300	1.520	51.662	1.532	-3.07	0.79
				1900.0	53.300	1.520	51.601	1.552	-3.19	2.11
				1907.6	53.300	1.520	51.582	1.560	-3.22	2.63
Aug. 15. 2018	1900 Head	20.9	21.4	1860.0	40.000	1.400	38.851	1.390	-2.87	-0.71
				1880.0	40.000	1.400	38.766	1.408	-3.09	0.57
				1900.0	40.000	1.400	38.664	1.425	-3.34	1.79
Aug. 15. 2018	1900 Body	20.9	21.2	1860.0	53.300	1.520	51.806	1.514	-2.80	-0.39
				1880.0	53.300	1.520	51.745	1.532	-2.92	0.79
				1900.0	53.300	1.520	51.684	1.552	-3.03	2.11
Aug. 23. 2018	2450 Head	21.3	21.5	2402.0	39.282	1.757	40.537	1.790	3.19	1.88
				2412.0	39.265	1.766	40.460	1.801	3.04	1.98
				2437.0	39.222	1.788	40.290	1.829	2.72	2.29
				2441.0	39.215	1.792	40.264	1.833	2.67	2.29
				2450.0	39.200	1.800	40.209	1.844	2.57	2.44
				2462.0	39.184	1.813	40.149	1.857	2.46	2.43
				2472.0	39.171	1.823	40.101	1.867	2.37	2.41
				2480.0	39.160	1.832	40.060	1.876	2.30	2.40
Aug. 22. 2018	2450 Body	21.2	21.0	2402.0	52.764	1.904	51.006	1.847	-3.33	-2.99
				2412.0	52.751	1.914	50.981	1.858	-3.36	-2.93
				2437.0	52.717	1.938	50.923	1.887	-3.40	-2.63
				2441.0	52.712	1.941	50.911	1.892	-3.42	-2.52
				2450.0	52.700	1.950	50.887	1.903	-3.44	-2.41
				2462.0	52.685	1.967	50.864	1.917	-3.46	-2.54
				2472.0	52.672	1.981	50.846	1.929	-3.47	-2.62
				2480.0	52.662	1.993	50.827	1.938	-3.48	-2.76

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 [%]
Aug. 17. 2018	2600 Head	20.7	21.5	2510.0	39.120	1.864	38.987	1.915	-0.34	2.74
				2535.0	39.087	1.891	38.906	1.944	-0.46	2.80
				2560.0	39.053	1.917	38.824	1.972	-0.59	2.87
				2600.0	39.000	1.960	38.688	2.017	-0.80	2.91
Aug. 20. 2018	2600 Body	20.2	20.9	2510.0	52.624	2.035	50.626	1.995	-3.80	-1.97
				2535.0	52.592	2.071	50.566	2.024	-3.85	-2.27
				2560.0	52.560	2.106	50.510	2.055	-3.90	-2.42
				2600.0	52.509	2.163	50.411	2.100	-4.00	-2.91
Aug. 23. 2018	2600 Head	20.6	21.3	2506.0	39.125	1.860	38.200	1.921	-2.36	3.28
				2549.5	39.068	1.906	37.952	1.958	-2.86	2.73
				2593.0	39.009	1.953	37.880	2.011	-2.89	2.97
				2600.0	39.000	1.960	37.858	2.017	-2.93	2.91
				2636.5	38.955	2.000	37.683	2.049	-3.27	2.45
				2680.0	38.900	2.048	37.548	2.103	-3.48	2.69
Aug. 24. 2018	2600 Body	20.4	21.2	2506.0	52.629	2.029	51.696	2.025	-1.77	-0.20
				2549.5	52.574	2.090	51.495	2.067	-2.05	-1.10
				2593.0	52.518	2.153	51.399	2.116	-2.13	-1.72
				2600.0	52.509	2.163	51.375	2.123	-2.16	-1.85
				2636.5	52.463	2.214	51.236	2.162	-2.34	-2.35
				2680.0	52.407	2.276	51.131	2.217	-2.43	-2.59
Aug. 21. 2018	5200 Body	21.0	21.5	5180.0	49.041	5.276	48.299	5.461	-1.51	3.51
				5190.0	49.028	5.288	48.272	5.472	-1.54	3.48
				5200.0	49.014	5.299	48.240	5.486	-1.58	3.53
				5210.0	49.001	5.311	48.214	5.502	-1.61	3.60
				5220.0	48.987	5.323	48.198	5.516	-1.61	3.63
				5230.0	48.974	5.334	48.172	5.528	-1.64	3.64
				5240.0	48.960	5.346	48.151	5.541	-1.65	3.65
Aug. 11. 2018	5300 Head	21.1	20.9	5260.0	35.940	4.720	35.077	4.868	-2.40	3.14
				5270.0	35.930	4.730	35.055	4.881	-2.44	3.19
				5280.0	35.920	4.740	35.042	4.892	-2.44	3.21
				5290.0	35.910	4.750	35.031	4.900	-2.45	3.16
				5300.0	35.900	4.760	35.004	4.908	-2.50	3.11
				5310.0	35.890	4.770	34.972	4.919	-2.56	3.12
				5320.0	35.880	4.780	34.945	4.933	-2.61	3.20
Aug. 20. 2018	5300 Body	20.7	21.4	5260.0	48.933	5.369	47.941	5.554	-2.03	3.45
				5270.0	48.919	5.381	47.916	5.570	-2.05	3.51
				5280.0	48.906	5.393	47.903	5.585	-2.05	3.56
				5290.0	48.892	5.404	47.886	5.597	-2.06	3.57
				5300.0	48.879	5.416	47.857	5.608	-2.09	3.55
				5310.0	48.865	5.428	47.827	5.623	-2.12	3.59
				5320.0	48.851	5.439	47.805	5.637	-2.14	3.64

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 [%]
Aug. 14. 2018	5600 Head	21.6	21.2	5500.0	35.650	4.965	35.917	5.077	0.75	2.26
				5510.0	35.635	4.976	35.908	5.085	0.77	2.19
				5530.0	35.605	4.997	35.867	5.108	0.74	2.22
				5550.0	35.575	5.018	35.846	5.134	0.76	2.31
				5580.0	35.530	5.049	35.791	5.164	0.73	2.28
				5600.0	35.500	5.070	35.752	5.190	0.71	2.37
				5660.0	35.440	5.130	35.652	5.254	0.60	2.42
				5670.0	35.430	5.140	35.634	5.262	0.58	2.37
				5690.0	35.410	5.160	35.590	5.284	0.51	2.40
				5710.0	35.390	5.180	35.554	5.311	0.46	2.53
				5720.0	35.380	5.190	35.551	5.322	0.48	2.54
Aug. 17. 2018	5600 Body	21.7	21.3	5500.0	48.607	5.650	47.240	5.801	-2.81	2.67
				5510.0	48.594	5.661	47.225	5.812	-2.82	2.67
				5530.0	48.566	5.685	47.178	5.842	-2.86	2.76
				5550.0	48.539	5.708	47.153	5.874	-2.86	2.91
				5580.0	48.499	5.743	47.094	5.915	-2.90	2.99
				5600.0	48.471	5.766	47.053	5.945	-2.93	3.10
				5660.0	48.390	5.836	46.933	6.026	-3.01	3.26
				5670.0	48.376	5.848	46.911	6.039	-3.03	3.27
				5690.0	48.349	5.872	46.869	6.068	-3.06	3.34
				5710.0	48.322	5.895	46.835	6.100	-3.08	3.48
				5720.0	48.309	5.907	46.829	6.112	-3.06	3.47
Aug. 13. 2018	5800 Head	21.3	21.5	5745.0	35.355	5.215	35.064	5.281	-0.82	1.27
				5755.0	35.345	5.225	35.045	5.293	-0.85	1.30
				5775.0	35.325	5.245	35.012	5.311	-0.89	1.26
				5785.0	35.315	5.255	34.986	5.320	-0.93	1.24
				5795.0	35.305	5.265	34.959	5.331	-0.98	1.25
				5800.0	35.300	5.270	34.945	5.337	-1.01	1.27
				5825.0	35.275	5.296	34.904	5.369	-1.05	1.38
Aug. 16. 2018	5800 Body	21.4	21.6	5745.0	48.275	5.936	46.700	6.133	-3.26	3.32
				5755.0	48.261	5.947	46.679	6.148	-3.28	3.38
				5775.0	48.234	5.971	46.634	6.172	-3.32	3.37
				5785.0	48.220	5.982	46.607	6.184	-3.35	3.38
				5795.0	48.207	5.994	46.581	6.199	-3.37	3.42
				5800.0	48.200	6.000	46.567	6.208	-3.39	3.47
				5825.0	48.166	6.029	46.530	6.248	-3.40	3.63

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	Aug. 21. 2018	Head	20.5	21.2	3328	250	8.32	2.08	8.32	0.00
D	750	D750V3, SN:1049	Aug. 21. 2018	Body	20.5	21.0	3328	250	8.70	2.28	9.12	4.83
D	835	D835V2, SN:464	Aug. 08. 2018	Head	20.5	21.1	3328	250	9.38	2.46	9.84	4.90
D	835	D835V2, SN:464	Aug. 08. 2018	Body	20.5	21.0	3328	250	9.45	2.46	9.84	4.13
D	835	D835V2, SN:464	Aug. 14. 2018	Head	21.0	21.7	3328	250	9.38	2.33	9.32	-0.64
D	835	D835V2, SN:464	Aug. 14. 2018	Body	21.0	21.4	3328	250	9.45	2.37	9.48	0.32
D	835	D835V2, SN:464	Aug. 16. 2018	Head	21.1	21.8	3328	250	9.38	2.39	9.56	1.92
D	835	D835V2, SN:464	Aug. 16. 2018	Body	21.1	21.7	3328	250	9.45	2.42	9.68	2.43
D	1800	D1800V2, SN:2d202	Aug. 13. 2018	Head	20.5	21.2	3328	100	39.9	4.14	41.40	3.76
D	1800	D1800V2, SN:2d202	Aug. 13. 2018	Body	20.5	21.3	3328	100	39.2	3.80	38.00	-3.06
D	1800	D1800V2, SN:2d202	Aug. 22. 2018	Head	20.7	21.1	3328	100	39.9	4.06	40.60	1.75
D	1800	D1800V2, SN:2d202	Aug. 22. 2018	Body	20.7	21.0	3328	100	39.2	4.08	40.80	4.08
D	1900	D1900V2, SN:5d029	Aug. 09. 2018	Head	20.7	21.3	3328	100	39.2	4.12	41.20	5.10
D	1900	D1900V2, SN:5d029	Aug. 09. 2018	Body	20.7	21.1	3328	100	39.6	3.84	38.40	-3.03
D	1900	D1900V2, SN:5d029	Aug. 10. 2018	Head	20.4	20.8	3328	100	39.2	4.01	40.10	2.30
D	1900	D1900V2, SN:5d029	Aug. 10. 2018	Body	20.4	21.0	3328	100	39.6	3.98	39.80	0.51
D	1900	D1900V2, SN:5d029	Aug. 15. 2018	Head	20.9	21.4	3328	100	39.2	4.08	40.80	4.08
D	1900	D1900V2, SN:5d029	Aug. 15. 2018	Body	20.9	21.2	3328	100	39.6	4.03	40.30	1.77
C	2450	D2450V2, SN: 726	Aug. 23. 2018	Head	21.3	21.5	3866	100	51.9	5.11	51.10	-1.54
C	2450	D2450V2, SN: 726	Aug. 22. 2018	Body	21.2	21.0	3866	100	50.3	4.93	49.30	-1.99
D	2600	D2600V2, SN: 1103	Aug. 17. 2018	Head	20.7	21.5	3328	100	56.4	5.46	54.60	-3.19
D	2600	D2600V2, SN: 1103	Aug. 20. 2018	Body	20.2	20.9	3328	100	55.7	5.58	55.80	0.18
D	2600	D2600V2, SN: 1103	Aug. 23. 2018	Head	20.6	21.3	3328	100	56.4	5.37	53.70	-4.79
D	2600	D2600V2, SN: 1103	Aug. 24. 2018	Body	20.4	21.2	3328	100	55.7	5.32	53.20	-4.49
C	5200	D5GHzV2, SN:1212	Aug. 21. 2018	Body	21.0	21.5	3866	100	72.7	7.02	70.20	-3.44
C	5300	D5GHzV2, SN:1212	Aug. 11. 2018	Head	21.1	20.9	3866	100	81.1	8.01	80.10	-1.23
C	5300	D5GHzV2, SN:1212	Aug. 20. 2018	Body	20.7	21.4	3866	100	75.2	7.29	72.90	-3.06
C	5500	D5GHzV2, SN:1212	Aug. 14. 2018	Head	21.6	21.2	3866	100	85.4	8.41	84.10	-1.52
C	5500	D5GHzV2, SN:1212	Aug. 17. 2018	Body	21.7	21.3	3866	100	79.9	8.07	80.70	1.00
C	5600	D5GHzV2, SN:1212	Aug. 14. 2018	Head	21.6	21.2	3866	100	83.6	8.14	81.40	-2.63
C	5600	D5GHzV2, SN:1212	Aug. 17. 2018	Body	21.7	21.3	3866	100	78.9	7.78	77.80	-1.39
C	5800	D5GHzV2, SN:1212	Aug. 13. 2018	Head	21.3	21.5	3866	100	79.5	7.71	77.10	-3.02
C	5800	D5GHzV2, SN:1212	Aug. 16. 2018	Body	21.4	21.6	3866	100	75.7	7.53	75.30	-0.53

Table 10.2.2 System Verification Results (10g)

SYSTEM DIPOLE VERIFICATION TARGET & MEASURED												
SAR System #	Freq. [MHz]	SAR Dipole kits	Date(s)	Tissue Type	Ambient Temp. [°C]	Liquid Temp. [°C]	Probe S/N	Input Power (mW)	1 W Target SAR_{10g} (W/kg)	Measured SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	Deviation [%]
C	5300	D5GHzV2, SN:1212	Aug. 20. 2018	Body	20.7	21.4	3866	100	20.9	2.01	20.10	-3.83
C	5500	D5GHzV2, SN:1212	Aug. 17. 2018	Body	21.7	21.3	3866	100	22.0	2.21	22.10	0.45
C	5600	D5GHzV2, SN:1212	Aug. 17. 2018	Body	21.7	21.3	3866	100	21.8	2.13	21.30	-2.29
C	5800	D5GHzV2, SN:1212	Aug. 16. 2018	Body	21.4	21.6	3866	100	20.8	2.03	20.30	-2.40

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

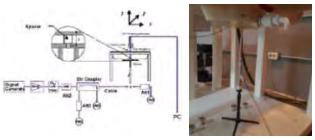

Figure 10.1 Dipole Verification Test Setup Diagram & Photo

11. SAR TEST RESULTS

11.1 Head SAR Results

Table 11.1.1 GSM/GPRS 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	# of Time Slots	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
836.6	190	GSM850	GSM	34.20	33.80	-0.100	Left Touch	FCC #1	1	1:8.3	0.108	1.096	0.118	
836.6	190	GSM850	GSM	34.20	33.80	0.020	Right Touch	FCC #1	1	1:8.3	0.147	1.096	**0.161**	A1
836.6	190	GSM850	GSM	34.20	33.80	-0.120	Left Tilt	FCC #1	1	1:8.3	0.054	1.096	0.059	
836.6	190	GSM850	GSM	34.20	33.80	-0.130	Right Tilt	FCC #1	1	1:8.3	0.063	1.096	0.069	
836.6	190	GSM850	GPRS	29.20	29.00	0.080	Left Touch	FCC #1	4	1:2.075	0.128	1.047	0.134	
836.6	190	GSM850	GPRS	29.20	29.00	0.120	Right Touch	FCC #1	4	1:2.075	0.209	1.047	**0.219**	A2
836.6	190	GSM850	GPRS	29.20	29.00	-0.150	Left Tilt	FCC #1	4	1:2.075	0.063	1.047	0.066	
836.6	190	GSM850	GPRS	29.20	29.00	-0.160	Right Tilt	FCC #1	4	1:2.075	0.075	1.047	0.079	
836.6	190	GSM850	GPRS	29.20	29.00	0.100	Right Touch	FCC #1	4	1:2.075	0.187	1.047	0.196	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

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	30.90	30.50	0.120	Left Touch	FCC #1	1	1:8.3	0.088	1.096	**0.096**	A3
1880.0	661	PCS1900	PCS	30.90	30.50	0.170	Right Touch	FCC #1	1	1:8.3	0.081	1.096	0.089	
1880.0	661	PCS1900	PCS	30.90	30.50	0.140	Left Tilt	FCC #1	1	1:8.3	0.078	1.096	0.085	
1880.0	661	PCS1900	PCS	30.90	30.50	0.040	Right Tilt	FCC #1	1	1:8.3	0.077	1.096	0.084	
1880.0	661	PCS1900	GPRS	28.40	28.10	0.130	Left Touch	FCC #1	2	1:4.15	0.168	1.072	**0.180**	A4
1880.0	661	PCS1900	GPRS	28.40	28.10	0.060	Right Touch	FCC #1	2	1:4.15	0.139	1.072	0.149	
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.110	Left Tilt	FCC #1	2	1:4.15	0.139	1.072	0.149	
1880.0	661	PCS1900	GPRS	28.40	28.10	0.140	Right Tilt	FCC #1	2	1:4.15	0.137	1.072	0.147	
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.070	Left Touch	FCC #1	2	1:4.15	0.150	1.072	0.161	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

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	25.30	25.11	0.010	Left Touch	FCC #1	1:1	0.165	1.045	0.172	
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.180	Right Touch	FCC #1	1:1	0.215	1.045	**0.225**	A5
836.6	4183	WCDMA 850	RMC	25.30	25.11	0.160	Left Tilt	FCC #1	1:1	0.099	1.045	0.103	
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.010	Right Tilt	FCC #1	1:1	0.081	1.045	0.085	
836.6	4183	WCDMA 850	RMC	25.30	25.11	0.120	Right Touch	FCC #1	1:1	0.208	1.045	0.217	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.1.4 WCDMA 1700 Head SAR

MEASUREMENT RESULTS													
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch												
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	-0.060	Left Touch	FCC #1	1:1	0.098	1.050	0.103	
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	0.160	Right Touch	FCC #1	1:1	0.133	1.050	0.140	
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	-0.120	Left Tilt	FCC #1	1:1	0.149	1.050	0.156	
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	0.010	Right Tilt	FCC #1	1:1	0.174	1.050	**0.183**	A6
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	-0.170	Right Tilt	FCC #1	1:1	0.158	1.050	0.166	
ANSI / IEEE C95.1-2005– 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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.1.5 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	23.20	22.93	0.020	Left Touch	FCC #1	1:1	0.181	1.064	**0.193**	A7
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	-0.130	Right Touch	FCC #1	1:1	0.134	1.064	0.143	
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	0.090	Left Tilt	FCC #1	1:1	0.155	1.064	0.165	
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	0.040	Right Tilt	FCC #1	1:1	0.144	1.064	0.153	
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	-0.150	Left Touch	FCC #1	1:1	0.178	1.064	0.189	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.1.6 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	25.12	-0.190	0	Left Touch	FCC #1	QPSK	1	49	1:1	0.051	1.091	0.056	
707.5	23095	LTE B12	10	24.50	24.06	-0.160	1	Left Touch	FCC #1	QPSK	25	25	1:1	0.048	1.107	0.053	
707.5	23095	LTE B12	10	25.50	25.12	0.140	0	Right Touch	FCC #1	QPSK	1	49	1:1	0.069	1.091	**0.075**	A8
707.5	23095	LTE B12	10	24.50	24.06	-0.110	1	Right Touch	FCC #1	QPSK	25	25	1:1	0.060	1.107	0.066	
707.5	23095	LTE B12	10	25.50	25.12	0.020	0	Left Tilt	FCC #1	QPSK	1	49	1:1	0.034	1.091	0.037	
707.5	23095	LTE B12	10	24.50	24.06	0.120	1	Left Tilt	FCC #1	QPSK	25	25	1:1	0.027	1.107	0.030	
707.5	23095	LTE B12	10	25.50	25.12	0.140	0	Right Tilt	FCC #1	QPSK	1	49	1:1	0.025	1.091	0.027	
707.5	23095	LTE B12	10	24.50	24.06	0.110	1	Right Tilt	FCC #1	QPSK	25	25	1:1	0.021	1.107	0.023	
707.5	23095	LTE B12	10	25.50	25.12	0.150	0	Right Touch	FCC #1	QPSK	1	49	1:1	0.066	1.091	0.072	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.1.7 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	25.15	-0.120	0	Left Touch	FCC #1	QPSK	1	0	1:1	0.113	1.084	0.122	
836.5	20525	LTE B5	10	24.50	24.15	-0.190	1	Left Touch	FCC #1	QPSK	25	0	1:1	0.082	1.084	0.089	
836.5	20525	LTE B5	10	25.50	25.15	0.090	0	Right Touch	FCC #1	QPSK	1	0	1:1	0.136	1.084	**0.147**	A9
836.5	20525	LTE B5	10	24.50	24.15	-0.100	1	Right Touch	FCC #1	QPSK	25	0	1:1	0.106	1.084	0.115	
836.5	20525	LTE B5	10	25.50	25.15	0.190	0	Left Tilt	FCC #1	QPSK	1	0	1:1	0.051	1.084	0.055	
836.5	20525	LTE B5	10	24.50	24.15	0.110	1	Left Tilt	FCC #1	QPSK	25	0	1:1	0.041	1.084	0.044	
836.5	20525	LTE B5	10	25.50	25.15	-0.010	0	Right Tilt	FCC #1	QPSK	1	0	1:1	0.052	1.084	0.056	
836.5	20525	LTE B5	10	24.50	24.15	0.190	1	Right Tilt	FCC #1	QPSK	25	0	1:1	0.043	1.084	0.047	
836.5	20525	LTE B5	10	25.50	25.15	0.060	0	Right Touch	FCC #1	QPSK	1	0	1:1	0.134	1.084	0.145	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.1.8 LTE Band 66 (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																	
1770.0	132572	LTE B66	20	23.70	23.62	0.090	0	Left Touch	FCC #1	QPSK	1	0	1:1	0.118	1.019	0.120	
1770.0	132572	LTE B66	20	22.70	22.65	0.130	1	Left Touch	FCC #1	QPSK	50	0	1:1	0.086	1.012	0.087	
1770.0	132572	LTE B66	20	23.70	23.62	0.050	0	Right Touch	FCC #1	QPSK	1	0	1:1	0.130	1.019	0.132	
1770.0	132572	LTE B66	20	22.70	22.65	0.130	1	Right Touch	FCC #1	QPSK	50	0	1:1	0.099	1.012	0.100	
1770.0	132572	LTE B66	20	23.70	23.62	0.070	0	Left Tilt	FCC #1	QPSK	1	0	1:1	0.138	1.019	0.141	
1770.0	132572	LTE B66	20	22.70	22.65	-0.140	1	Left Tilt	FCC #1	QPSK	50	0	1:1	0.103	1.012	0.104	
1770.0	132572	LTE B66	20	23.70	23.62	0.090	0	Right Tilt	FCC #1	QPSK	1	0	1:1	0.153	1.019	**0.156**	A10
1770.0	132572	LTE B66	20	22.70	22.65	0.180	1	Right Tilt	FCC #1	QPSK	50	0	1:1	0.109	1.012	0.110	
1770.0	132572	LTE B66	20	23.70	23.62	-0.000	0	Right Tilt	FCC #1	QPSK	1	0	1:1	0.153	1.019	0.156	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.1.9 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																	
1860.0	18700	LTE B2	20	23.40	23.31	0.160	0	Left Touch	FCC #1	QPSK	1	0	1:1	0.096	1.021	0.098	
1860.0	18700	LTE B2	20	22.40	22.37	0.060	1	Left Touch	FCC #1	QPSK	50	0	1:1	0.081	1.007	0.082	
1860.0	18700	LTE B2	20	23.40	23.31	-0.100	0	Right Touch	FCC #1	QPSK	1	0	1:1	0.130	1.021	0.133	
1860.0	18700	LTE B2	20	22.40	22.37	0.110	1	Right Touch	FCC #1	QPSK	50	0	1:1	0.098	1.007	0.099	
1860.0	18700	LTE B2	20	23.40	23.31	0.070	0	Left Tilt	FCC #1	QPSK	1	0	1:1	0.129	1.021	0.132	
1860.0	18700	LTE B2	20	22.40	22.37	-0.180	1	Left Tilt	FCC #1	QPSK	50	0	1:1	0.100	1.007	0.101	
1860.0	18700	LTE B2	20	23.40	23.31	0.040	0	Right Tilt	FCC #1	QPSK	1	0	1:1	0.141	1.021	**0.144**	A11
1860.0	18700	LTE B2	20	22.40	22.37	0.150	1	Right Tilt	FCC #1	QPSK	50	0	1:1	0.112	1.007	0.113	
1860.0	18700	LTE B2	20	23.40	23.31	0.140	0	Right Tilt	FCC #1	QPSK	1	0	1:1	0.135	1.021	0.138	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure									**Head 1.6 W/kg (mW/g)** averaged over 1 gram								

Note(s):
1. Blue entries represent SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.1.10 LTE Band 7 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																
2560.0	21350	LTE B7	20	24.70	24.67	0.000	0	Left Touch	FCC #1	QPSK	1	99	1:1	0.028	1.007	0.028	
2560.0	21350	LTE B7	20	23.70	23.62	0.000	1	Left Touch	FCC #1	QPSK	50	50	1:1	0.011	1.019	0.011	
2560.0	21350	LTE B7	20	24.70	24.67	-0.150	0	Right Touch	FCC #1	QPSK	1	99	1:1	0.040	1.007	**0.040**	A12
2560.0	21350	LTE B7	20	23.70	23.62	-0.160	1	Right Touch	FCC #1	QPSK	50	50	1:1	0.028	1.019	0.029	
2560.0	21350	LTE B7	20	24.70	24.67	0.000	0	Left Tilt	FCC #1	QPSK	1	99	1:1	0.023	1.007	0.023	
2560.0	21350	LTE B7	20	23.70	23.62	0.000	1	Left Tilt	FCC #1	QPSK	50	50	1:1	0.017	1.019	0.017	
2560.0	21350	LTE B7	20	24.70	24.67	0.110	0	Right Tilt	FCC #1	QPSK	1	99	1:1	0.023	1.007	0.023	
2560.0	21350	LTE B7	20	23.70	23.62	0.170	1	Right Tilt	FCC #1	QPSK	50	50	1:1	0.019	1.019	0.019	
2560.0	21350	LTE B7	20	24.70	24.67	-0.090	0	Right Touch	FCC #1	QPSK	1	99	1:1	0.036	1.007	0.036	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.1.11 LTE Band 41 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																
2593.0	40620	LTE B41	20	24.70	23.77	0.000	0	Left Touch	FCC #1	QPSK	1	0	1:1	0.019	1.239	0.024	
2593.0	40620	LTE B41	20	23.70	22.78	0.000	1	Left Touch	FCC #1	QPSK	50	0	1:1	0.015	1.236	0.019	
2593.0	40620	LTE B41	20	24.70	23.77	0.060	0	Right Touch	FCC #1	QPSK	1	0	1:1	0.031	1.239	**0.038**	A13
2593.0	40620	LTE B41	20	23.70	22.78	0.160	1	Right Touch	FCC #1	QPSK	50	0	1:1	0.021	1.236	0.026	
2593.0	40620	LTE B41	20	24.70	23.77	0.000	0	Left Tilt	FCC #1	QPSK	1	0	1:1	0.019	1.239	0.024	
2593.0	40620	LTE B41	20	23.70	22.78	0.000	1	Left Tilt	FCC #1	QPSK	50	0	1:1	0.019	1.236	0.023	
2593.0	40620	LTE B41	20	24.70	23.77	-0.130	0	Right Tilt	FCC #1	QPSK	1	0	1:1	0.017	1.239	0.021	
2593.0	40620	LTE B41	20	23.70	22.78	0.170	1	Right Tilt	FCC #1	QPSK	50	0	1:1	0.011	1.236	0.014	
2593.0	40620	LTE B41	20	24.70	23.77	-0.040	0	Right Touch	FCC #1	QPSK	1	0	1:1	0.030	1.239	0.037	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.1.12 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														
2412.0	1	802.11b (Ant.1)	16.50	15.71	0.030	Left Touch	FCC #2	0.341	1	99.2	0.334	1.199	1.008	0.404	
2412.0	1	802.11b (Ant.1)	16.50	15.71	-0.000	Right Touch	FCC #2	0.565	1	99.2	0.486	1.199	1.008	**0.587**	A14
2412.0	1	802.11b (Ant.1)	16.50	15.71	0.100	Left Tilt	FCC #2	0.436	1	99.2	0.435	1.199	1.008	0.526	
2412.0	1	802.11b (Ant.1)	16.50	15.71	0.080	Right Tilt	FCC #2	0.536	1	99.2	0.483	1.199	1.008	0.584	
2462.0	11	802.11b (Ant.2)	16.50	15.83	0.000	Left Touch	FCC #2	0.028	1	99.2	0.017	1.167	1.008	0.020	
2462.0	11	802.11b (Ant.2)	16.50	15.83	0.000	Right Touch	FCC #2	0.079	1	99.2	0.062	1.167	1.008	**0.073**	A15
2462.0	11	802.11b (Ant.2)	16.50	15.83	0.000	Left Tilt	FCC #2	0.002	1	99.2	0.006	1.167	1.008	0.007	
2462.0	11	802.11b (Ant.2)	16.50	15.83	0.000	Right Tilt	FCC #2	0.030	1	99.2	0.018	1.167	1.008	0.021	
2437.0	6	802.11g (MIMO)	19.50	18.52	0.010	Left Touch	FCC #2	0.345	1	94.4	0.333	1.253	1.059	0.442	
2437.0	6	802.11g (MIMO)	19.50	18.52	-0.050	Right Touch	FCC #2	0.484	1	94.4	0.441	1.253	1.059	**0.585**	A16
2437.0	6	802.11g (MIMO)	19.50	18.52	0.090	Left Tilt	FCC #2	0.442	1	94.4	0.437	1.253	1.059	0.580	
2437.0	6	802.11g (MIMO)	19.50	18.52	0.070	Right Tilt	FCC #2	0.453	1	94.4	0.416	1.253	1.059	0.552	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g)** averaged over 1 gram							

Adjusted SAR results for OFDM SAR												
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Ratio of OFDM to DSSS	1g Adjusted SAR (W/kg)	Determine OFDM SAR
MHz	Ch											
2412.0	1	802.11b (Ant.1)	DSSS	16.5	0.587	2437	802.11g	OFDM	16.5	1.000	**0.587**	X
2412.0	1	802.11b (Ant.1)	DSSS	16.5	0.587	2437	802.11n	OFDM	14.5	0.631	**0.370**	X
2412.0	1	802.11b (Ant.1)	DSSS	16.5	0.587	2437	802.11ac	OFDM	14.5	0.631	**0.370**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.073	2437	802.11g	OFDM	16.5	1.000	**0.073**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.073	2437	802.11n	OFDM	14.5	0.631	**0.046**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.073	2437	802.11ac	OFDM	14.5	0.631	**0.046**	X
2437.0	6	802.11g (MIMO)	OFDM	19.5	0.585	2437	802.11n	OFDM	17.5	0.631	**0.369**	X
2437.0	6	802.11g (MIMO)	OFDM	19.5	0.585	2437	802.11ac	OFDM	17.5	0.631	**0.369**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Head 1.6 W/kg (mW/g)** averaged over 1 gram						

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

Table 11.1.13 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														
5260.0	52	802.11a (Ant.1)	14.00	13.62	0.020	Left Touch	FCC #2	0.086	1	94.9	0.054	1.091	1.054	0.062	
5260.0	52	802.11a (Ant.1)	14.00	13.62	-0.030	Right Touch	FCC #2	0.253	1	94.9	0.264	1.091	1.054	**0.304**	A17
5260.0	52	802.11a (Ant.1)	14.00	13.62	-0.020	Left Tilt	FCC #2	0.110	1	94.9	0.063	1.091	1.054	0.072	
5260.0	52	802.11a (Ant.1)	14.00	13.62	-0.030	Right Tilt	FCC #2	0.188	1	94.9	0.212	1.091	1.054	0.244	
5260.0	52	802.11a (Ant.2)	14.00	13.56	0.040	Left Touch	FCC #2	0.059	1	94.9	0.079	1.107	1.054	0.092	
5260.0	52	802.11a (Ant.2)	14.00	13.56	0.000	Right Touch	FCC #2	0.007	1	94.9	0.010	1.107	1.054	0.012	
5260.0	52	802.11a (Ant.2)	14.00	13.56	-0.040	Left Tilt	FCC #2	0.059	1	94.9	0.082	1.107	1.054	**0.095**	A18
5260.0	52	802.11a (Ant.2)	14.00	13.56	0.000	Right Tilt	FCC #2	0.005	1	94.9	0.006	1.107	1.054	0.007	
5260.0	52	802.11a (MIMO)	17.00	16.60	-0.030	Left Touch	FCC #2	0.010	1	94.9	0.047	1.107	1.054	0.054	
5260.0	52	802.11a (MIMO)	17.00	16.60	-0.150	Right Touch	FCC #2	0.309	1	94.9	0.306	1.107	1.054	**0.357**	A19
5260.0	52	802.11a (MIMO)	17.00	16.60	-0.150	Left Tilt	FCC #2	0.019	1	94.9	0.057	1.107	1.054	0.066	
5260.0	52	802.11a (MIMO)	17.00	16.60	0.180	Right Tilt	FCC #2	0.195	1	94.9	0.206	1.107	1.054	0.240	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g)** averaged over 1 gram							

Adjusted SAR results for UNII-1 and UNII-2A SAR												
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Adjusted Factor	1g Adjusted SAR (W/kg)	SAR for the band with lower maximum output power
MHz	Ch											
5260.0	52	802.11a (Ant.1)	OFDM	14.0	0.304	5240	802.11a	OFDM	14.0	1.000	**0.304**	X
5260.0	52	802.11a (Ant.2)	OFDM	14.0	0.095	5240	802.11a	OFDM	14.0	1.000	**0.095**	X
5260.0	52	802.11a (MIMO)	OFDM	17.0	0.357	5240	802.11a	OFDM	17.0	1.000	**0.357**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Head 1.6 W/kg (mW/g)** averaged over 1 gram						

Note(s):

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

Table 11.1.14 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														
5500.0	100	802.11a (Ant.1)	14.00	13.65	0.100	Left Touch	FCC #2	0.081	1	94.9	0.085	1.084	1.054	0.097	
5500.0	100	802.11a (Ant.1)	14.00	13.65	0.020	Right Touch	FCC #2	0.332	1	94.9	0.355	1.084	1.054	**0.406**	A20
5500.0	100	802.11a (Ant.1)	14.00	13.65	0.010	Left Tilt	FCC #2	0.118	1	94.9	0.081	1.084	1.054	0.093	
5500.0	100	802.11a (Ant.1)	14.00	13.65	0.060	Right Tilt	FCC #2	0.276	1	94.9	0.304	1.084	1.054	0.347	
5600.0	120	802.11a (Ant.2)	14.00	13.67	-0.050	Left Touch	FCC #2	0.018	1	94.9	0.081	1.079	1.054	**0.092**	A21
5600.0	120	802.11a (Ant.2)	14.00	13.67	0.000	Right Touch	FCC #2	0.019	1	94.9	0.034	1.079	1.054	0.038	
5600.0	120	802.11a (Ant.2)	14.00	13.67	-0.010	Left Tilt	FCC #2	0.016	1	94.9	0.050	1.079	1.054	0.057	
5600.0	120	802.11a (Ant.2)	14.00	13.67	0.000	Right Tilt	FCC #2	0.009	1	94.9	0.009	1.079	1.054	0.011	
5600.0	120	802.11a (MIMO)	17.00	16.66	-0.120	Left Touch	FCC #2	0.143	1	94.9	0.088	1.084	1.054	0.100	
5600.0	120	802.11a (MIMO)	17.00	16.66	-0.090	Right Touch	FCC #2	0.296	1	94.9	0.323	1.084	1.054	**0.369**	A22
5600.0	120	802.11a (MIMO)	17.00	16.66	-0.040	Left Tilt	FCC #2	0.154	1	94.9	0.106	1.084	1.054	0.121	
5600.0	120	802.11a (MIMO)	17.00	16.66	0.100	Right Tilt	FCC #2	0.276	1	94.9	0.293	1.084	1.054	0.335	
5825.0	165	802.11a (Ant.1)	14.00	13.77	-0.030	Left Touch	FCC #2	0.110	1	94.9	0.083	1.054	1.054	0.093	
5825.0	165	802.11a (Ant.1)	14.00	13.77	0.160	Right Touch	FCC #2	0.247	1	94.9	0.232	1.054	1.054	0.258	
5825.0	165	802.11a (Ant.1)	14.00	13.77	0.060	Left Tilt	FCC #2	0.143	1	94.9	0.100	1.054	1.054	0.111	
5825.0	165	802.11a (Ant.1)	14.00	13.77	0.100	Right Tilt	FCC #2	0.261	1	94.9	0.291	1.054	1.054	**0.323**	A23
5785.0	157	802.11a (Ant.2)	14.00	13.85	-0.170	Left Touch	FCC #2	0.097	1	94.9	0.094	1.035	1.054	0.102	
5785.0	157	802.11a (Ant.2)	14.00	13.85	0.000	Right Touch	FCC #2	0.042	1	94.9	0.038	1.035	1.054	0.041	
5785.0	157	802.11a (Ant.2)	14.00	13.85	0.060	Left Tilt	FCC #2	0.139	1	94.9	0.102	1.035	1.054	**0.111**	A24
5785.0	157	802.11a (Ant.2)	14.00	13.85	0.000	Right Tilt	FCC #2	0.005	1	94.9	0.003	1.035	1.054	0.003	
5785.0	157	802.11a (MIMO)	17.00	16.80	0.080	Left Touch	FCC #2	0.087	1	94.9	0.095	1.054	1.054	0.105	
5785.0	157	802.11a (MIMO)	17.00	16.80	0.010	Right Touch	FCC #2	0.261	1	94.9	0.262	1.054	1.054	0.291	
5785.0	157	802.11a (MIMO)	17.00	16.80	-0.050	Left Tilt	FCC #2	0.114	1	94.9	0.100	1.054	1.054	0.111	
5785.0	157	802.11a (MIMO)	17.00	16.80	−0.000	Right Tilt	FCC #2	0.286	1	94.9	0.286	1.054	1.054	**0.318**	A25
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 11.1.15 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	11.00	9.25	-0.130	Left Touch	FCC #2	1	76.8	0.050	1.495	1.302	0.098	
2441.0	39	Bluetooth	11.00	9.25	0.120	Right Touch	FCC #2	1	76.8	0.071	1.495	1.302	0.139	
2441.0	39	Bluetooth	11.00	9.25	-0.160	Left Tilt	FCC #2	1	76.8	0.066	1.495	1.302	0.128	
2441.0	39	Bluetooth	11.00	9.25	0.180	Right Tilt	FCC #2	1	76.8	0.079	1.495	1.302	**0.154**	A26
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Head 1.6 W/kg (mW/g)** averaged over 1 gram							

11.2 Standalone Body-Worn SAR Worn SAR Results

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

MEASUREMENT RESULTS														
FREQUENCY		Mode/ Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Spacing [Side]	Device Serial Number	# of Time Slots	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
836.6	190	GSM850	GSM	34.20	33.80	-0.070	10 mm [Front]	FCC #1	1	1:8.3	0.268	1.096	0.294	
836.6	190	GSM850	GSM	34.20	33.80	-0.060	10 mm [Rear]	FCC #1	1	1:8.3	0.318	1.096	**0.349**	A27
836.6	190	GSM850	GPRS	29.20	29.00	-0.060	10 mm [Front]	FCC #1	4	1:2.075	0.291	1.047	0.305	
836.6	190	GSM850	GPRS	29.20	29.00	-0.020	10 mm [Rear]	FCC #1	4	1:2.075	0.363	1.047	**0.380**	A28
836.6	190	GSM850	GPRS	29.20	29.00	-0.050	10 mm [Rear]	FCC #1	4	1:2.075	0.327	1.047	0.342	
1880.0	661	PCS1900	PCS	30.90	30.50	0.040	10 mm [Front]	FCC #1	1	1:8.3	0.354	1.096	0.388	
1880.0	661	PCS1900	PCS	30.90	30.50	0.030	10 mm [Rear]	FCC #1	1	1:8.3	0.453	1.096	**0.496**	A29
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.040	10 mm [Front]	FCC #1	2	1:4.15	0.622	1.072	0.667	
1850.2	512	PCS1900	GPRS	28.40	28.40	-0.020	10 mm [Rear]	FCC #1	2	1:4.15	0.686	1.000	0.686	
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.060	10 mm [Rear]	FCC #1	2	1:4.15	0.781	1.072	**0.837**	A30
1909.8	810	PCS1900	GPRS	28.40	28.40	0.000	10 mm [Rear]	FCC #1	2	1:4.15	0.754	1.000	0.754	
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.030	10 mm [Front]	FCC #1	N/A	1:1	0.362	1.045	0.378	
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.090	10 mm [Rear]	FCC #1	N/A	1:1	0.484	1.045	**0.506**	A31
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.060	10 mm [Rear]	FCC #1	N/A	1:1	0.483	1.045	0.505	
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	-0.030	10 mm [Front]	FCC #1	N/A	1:1	0.406	1.050	0.426	
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	0.040	10 mm [Rear]	FCC #1	N/A	1:1	0.529	1.050	**0.555**	A32
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	0.000	10 mm [Front]	FCC #1	N/A	1:1	0.536	1.064	0.570	
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	0.000	10 mm [Rear]	FCC #1	N/A	1:1	0.707	1.064	**0.752**	A33
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.2.2 LTE B12, B5, B66 Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
707.5	23095	LTE B12	10	25.50	25.12	0.030	0	10 mm [Front]	FCC #1	QPSK	1	49	1:1	0.072	1.091	0.079	
707.5	23095	LTE B12	10	24.50	24.06	0.030	1	10 mm [Front]	FCC #1	QPSK	25	25	1:1	0.058	1.107	0.064	
707.5	23095	LTE B12	10	25.50	25.12	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	49	1:1	0.154	1.091	**0.168**	A34
707.5	23095	LTE B12	10	24.50	24.06	0.000	1	10 mm [Rear]	FCC #1	QPSK	25	25	1:1	0.130	1.107	0.144	
836.5	20525	LTE B5	10	25.50	25.15	-0.020	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.301	1.084	0.326	
836.5	20525	LTE B5	10	24.50	24.15	0.040	1	10 mm [Front]	FCC #1	QPSK	25	0	1:1	0.230	1.084	0.249	
836.5	20525	LTE B5	10	25.50	25.15	-0.100	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.367	1.084	**0.398**	A35
836.5	20525	LTE B5	10	24.50	24.15	-0.150	1	10 mm [Rear]	FCC #1	QPSK	25	0	1:1	0.299	1.084	0.324	
836.5	20525	LTE B5	10	25.50	25.15	-0.110	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.346	1.084	0.375	
1770.0	132572	LTE B66	20	23.70	23.62	-0.080	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.459	1.019	0.468	
1770.0	132572	LTE B66	20	22.70	22.65	-0.010	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.333	1.012	0.337	
1770.0	132572	LTE B66	20	23.70	23.62	-0.010	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.490	1.019	**0.499**	A36
1770.0	132572	LTE B66	20	22.70	22.65	0.010	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.365	1.012	0.369	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.2.3 LTE B2/B7/B41 Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1860.0	18700	LTE B2	20	23.40	23.31	0.040	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.577	1.021	0.589	
1860.0	18700	LTE B2	20	22.40	22.37	0.040	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.481	1.007	0.484	
1860.0	18700	LTE B2	20	23.40	23.31	-0.010	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.703	1.021	**0.718**	A37
1860.0	18700	LTE B2	20	22.40	22.37	-0.010	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.588	1.007	0.592	
2560.0	21350	LTE B7	20	24.70	24.67	-0.090	0	10 mm [Front]	FCC #1	QPSK	1	99	1:1	0.273	1.007	0.275	
2560.0	21350	LTE B7	20	23.70	23.62	-0.070	1	10 mm [Front]	FCC #1	QPSK	50	50	1:1	0.212	1.019	0.216	
2510.0	20850	LTE B7	20	24.70	24.63	-0.000	0	10 mm [Rear]	FCC #1	QPSK	1	99	1:1	0.692	1.016	0.703	
2535.0	21100	LTE B7	20	24.70	24.65	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	99	1:1	0.770	1.012	0.779	
2560.0	21350	LTE B7	20	24.70	24.67	0.020	0	10 mm [Rear]	FCC #1	QPSK	1	99	1:1	0.797	1.007	**0.803**	A38
2560.0	21350	LTE B7	20	23.70	23.62	0.040	1	10 mm [Rear]	FCC #1	QPSK	50	50	1:1	0.655	1.019	0.667	
2560.0	21350	LTE B7	20	23.70	23.52	0.000	1	10 mm [Rear]	FCC #1	QPSK	100	0	1:1	0.651	1.042	0.678	
2593.0	40620	LTE B41	20	24.70	23.77	-0.080	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.194	1.239	0.240	
2593.0	40620	LTE B41	20	23.70	22.78	-0.050	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.149	1.236	0.184	
2506.0	39750	LTE B41	20	24.70	23.74	0.070	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.581	1.247	0.725	
2506.0	39750	LTE B41	20	23.70	22.72	0.040	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.490	1.253	0.614	
2549.5	40185	LTE B41	20	24.70	23.71	0.050	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.679	1.256	0.853	
2549.5	40185	LTE B41	20	23.70	22.67	0.040	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.576	1.268	0.730	
2593.0	40620	LTE B41	20	24.70	23.77	0.030	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.705	1.239	**0.873**	A39
2593.0	40620	LTE B41	20	23.70	22.78	0.090	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.620	1.236	0.766	
2593.0	40620	LTE B41	20	23.70	22.64	-0.050	1	10 mm [Rear]	FCC #1	QPSK	100	0	1:1	0.592	1.276	0.755	
2636.5	41055	LTE B41	20	24.70	23.74	0.050	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.436	1.247	0.544	
2636.5	41055	LTE B41	20	23.70	22.66	0.080	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.282	1.271	0.358	
2680.0	41490	LTE B41	20	24.70	23.63	0.020	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.385	1.279	0.492	
2680.0	41490	LTE B41	20	23.70	22.63	0.010	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.291	1.279	0.372	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure										**Body 1.6 W/kg (mW/g)** averaged over 1 gram							

Table 11.2.4 DTS Body-Worn SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	SAR (W/kg)	Plots #
MHz	Ch														
2412.0	1	802.11b (Ant.1)	16.50	15.71	0.010	10 mm [Front]	FCC #2	0.108	1	99.2	0.108	1.199	1.008	0.131	
2412.0	1	802.11b (Ant.1)	16.50	15.71	-0.100	10 mm [Rear]	FCC #2	0.164	1	99.2	0.180	1.199	1.008	**0.218**	A40
2462.0	11	802.11b (Ant.2)	16.50	15.83	-0.100	10 mm [Front]	FCC #2	0.013	1	99.2	0.008	1.167	1.008	0.009	
2462.0	11	802.11b (Ant.2)	16.50	15.83	-0.020	10 mm [Rear]	FCC #2	0.089	1	99.2	0.089	1.167	1.008	**0.105**	A41
2437.0	6	802.11g (MIMO)	19.50	18.52	0.010	10 mm [Front]	FCC #2	0.104	1	94.4	0.106	1.253	1.059	0.141	
2437.0	6	802.11g (MIMO)	19.50	18.52	-0.020	10 mm [Rear]	FCC #2	0.189	1	94.4	0.199	1.253	1.059	**0.264**	A42
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g)** averaged over 1 gram							

Adjusted SAR results for OFDM SAR												
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Ratio of OFDM to DSSS	1g Adjusted SAR (W/kg)	Determine OFDM SAR
MHz	Ch											
2412.0	1	802.11b (Ant.1)	DSSS	16.5	0.218	2437	802.11g	OFDM	16.5	1.000	**0.218**	X
2412.0	1	802.11b (Ant.1)	DSSS	16.5	0.218	2437	802.11n	OFDM	14.5	0.631	**0.138**	X
2412.0	1	802.11b (Ant.1)	DSSS	16.5	0.218	2437	802.11ac	OFDM	14.5	0.631	**0.138**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.105	2437	802.11g	OFDM	16.5	1.000	**0.105**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.105	2437	802.11n	OFDM	14.5	0.631	**0.066**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.105	2437	802.11ac	OFDM	14.5	0.631	**0.066**	X
2437.0	6	802.11g (MIMO)	OFDM	19.5	0.264	2437	802.11n	OFDM	17.5	0.631	**0.167**	X
2437.0	6	802.11g (MIMO)	OFDM	19.5	0.264	2437	802.11ac	OFDM	17.5	0.631	**0.167**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Body 1.6 W/kg (mW/g)** averaged over 1 gram						

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

Table 11.2.5 UNII Body-Worn SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5260.0	52	802.11a (Ant.1)	14.00	13.62	0.100	10 mm [Front]	FCC #2	0.029	1	94.9	0.018	1.091	1.054	0.021	
5260.0	52	802.11a (Ant.1)	14.00	13.62	-0.140	10 mm [Rear]	FCC #2	0.107	1	94.9	0.076	1.091	1.054	**0.087**	A43
5260.0	52	802.11a (Ant.2)	14.00	13.56	-0.110	10 mm [Front]	FCC #2	0.003	1	94.9	0.007	1.107	1.054	0.008	
5260.0	52	802.11a (Ant.2)	14.00	13.56	-0.120	10 mm [Rear]	FCC #2	0.300	1	94.9	0.416	1.107	1.054	**0.485**	A44
5260.0	52	802.11a (MIMO)	17.00	16.60	-0.150	10 mm [Front]	FCC #2	0.066	1	94.9	0.056	1.107	1.054	0.065	
5260.0	52	802.11a (MIMO)	17.00	16.60	-0.020	10 mm [Rear]	FCC #2	0.346	1	94.9	0.471	1.107	1.054	**0.549**	A45
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											
5260.0	52	802.11a (Ant.1)	OFDM	14.0	0.087	5240	802.11a	OFDM	14.0	1.000	**0.087**	X
5260.0	52	802.11a (Ant.2)	OFDM	14.0	0.485	5240	802.11a	OFDM	14.0	1.000	**0.485**	X
5260.0	52	802.11a (MIMO)	OFDM	17.0	0.549	5240	802.11a	OFDM	17.0	1.000	**0.549**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Body 1.6 W/kg (mW/g)** averaged over 1 gram						

Note(s):

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

Table 11.2.6 UNII Body-Worn SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5500.0	100	802.11a (Ant.1)	14.00	13.65	0.040	10 mm [Front]	FCC #2	0.020	1	94.9	0.019	1.084	1.054	0.022	
5500.0	100	802.11a (Ant.1)	14.00	13.65	-0.060	10 mm [Rear]	FCC #2	0.045	1	94.9	0.039	1.084	1.054	**0.045**	A46
5600.0	120	802.11a (Ant.2)	14.00	13.67	0.090	10 mm [Front]	FCC #2	0.020	1	94.9	0.026	1.079	1.054	0.030	
5600.0	120	802.11a (Ant.2)	14.00	13.67	-0.020	10 mm [Rear]	FCC #2	0.400	1	94.9	0.505	1.079	1.054	**0.574**	A47
5600.0	120	802.11a (MIMO)	17.00	16.66	-0.020	10 mm [Front]	FCC #2	0.103	1	94.9	0.086	1.084	1.054	0.098	
5600.0	120	802.11a (MIMO)	17.00	16.66	-0.080	10 mm [Rear]	FCC #2	0.399	1	94.9	0.502	1.084	1.054	**0.573**	A48
5825.0	165	802.11a (Ant.1)	14.00	13.77	-0.040	10 mm [Front]	FCC #2	0.029	1	94.9	0.016	1.054	1.054	0.018	
5825.0	165	802.11a (Ant.1)	14.00	13.77	0.020	10 mm [Rear]	FCC #2	0.056	1	94.9	0.040	1.054	1.054	**0.044**	A49
5785.0	157	802.11a (Ant.2)	14.00	13.85	0.000	10 mm [Front]	FCC #2	0.004	1	94.9	0.010	1.035	1.054	0.011	
5785.0	157	802.11a (Ant.2)	14.00	13.85	-0.080	10 mm [Rear]	FCC #2	0.337	1	94.9	0.392	1.035	1.054	**0.428**	A50
5785.0	157	802.11a (MIMO)	17.00	16.80	0.000	10 mm [Front]	FCC #2	0.028	1	94.9	0.035	1.054	1.054	0.039	
5785.0	157	802.11a (MIMO)	17.00	16.80	-0.120	10 mm [Rear]	FCC #2	0.299	1	94.9	0.355	1.054	1.054	**0.394**	A51
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g)** averaged over 1 gram							

Table 11.2.7 Bluetooth Body-Worn SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Rate [Mbps]	Duty Cycle (%)	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #	
MHz	Ch														
2441.0	39	Bluetooth	11.00	9.25	-0.160	10 mm [Front]	FCC #2	1	76.8	0.006	1.495	1.302	0.012		
2441.0	39	Bluetooth	11.00	9.25	-0.100	10 mm [Rear]	FCC #2	1	76.8	0.019	1.495	1.302	**0.037**	A52	
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	29.20	29.00	-0.170	10 mm [Bottom]	FCC #1	4	1:2.075	0.309	1.047	0.324	
836.6	190	GSM850	GPRS	29.20	29.00	-0.060	10 mm [Front]	FCC #1	4	1:2.075	0.291	1.047	0.305	
836.6	190	GSM850	GPRS	29.20	29.00	-0.020	10 mm [Rear]	FCC #1	4	1:2.075	0.363	1.047	**0.380**	A28
836.6	190	GSM850	GPRS	29.20	29.00	-0.060	10 mm [Right]	FCC #1	4	1:2.075	0.326	1.047	0.341	
836.6	190	GSM850	GPRS	29.20	29.00	-0.100	10 mm [Left]	FCC #1	4	1:2.075	0.167	1.047	0.175	
836.6	190	GSM850	GPRS	29.20	29.00	-0.050	10 mm [Rear]	FCC #1	4	1:2.075	0.327	1.047	0.342	
1850.2	512	PCS1900	GPRS	28.40	28.40	-0.010	10 mm [Bottom]	FCC #1	2	1:4.15	0.824	1.000	0.824	
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.020	10 mm [Bottom]	FCC #1	2	1:4.15	0.962	1.072	**1.031**	A53
1909.8	810	PCS1900	GPRS	28.40	28.40	-0.010	10 mm [Bottom]	FCC #1	2	1:4.15	0.935	1.000	0.935	
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.040	10 mm [Front]	FCC #1	2	1:4.15	0.622	1.072	0.667	
1850.2	512	PCS1900	GPRS	28.40	28.40	-0.020	10 mm [Rear]	FCC #1	2	1:4.15	0.686	1.000	0.686	
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.060	10 mm [Rear]	FCC #1	2	1:4.15	0.781	1.072	0.837	
1909.8	810	PCS1900	GPRS	28.40	28.40	0.000	10 mm [Rear]	FCC #1	2	1:4.15	0.754	1.000	0.754	
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.140	10 mm [Left]	FCC #1	2	1:4.15	0.375	1.072	0.402	
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.020	10 mm [Bottom]	FCC #1	2	1:4.15	0.933	1.072	1.000	
1880.0	661	PCS1900	GPRS	28.40	28.10	-0.020	10 mm [Bottom]	FCC #1	2	1:4.15	0.924	1.072	0.991	
836.6	4183	WCDMA 850	RMC	25.30	25.11	0.120	10 mm [Bottom]	FCC #1	N/A	1:1	0.298	1.045	0.311	
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.030	10 mm [Front]	FCC #1	N/A	1:1	0.362	1.045	0.378	
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.090	10 mm [Rear]	FCC #1	N/A	1:1	0.484	1.045	**0.506**	A31
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.050	10 mm [Right]	FCC #1	N/A	1:1	0.471	1.045	0.492	
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.120	10 mm [Left]	FCC #1	N/A	1:1	0.160	1.045	0.167	
836.6	4183	WCDMA 850	RMC	25.30	25.11	-0.060	10 mm [Rear]	FCC #1	N/A	1:1	0.483	1.045	0.505	
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	-0.180	10 mm [Bottom]	FCC #1	N/A	1:1	0.756	1.050	**0.794**	A54
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	-0.030	10 mm [Front]	FCC #1	N/A	1:1	0.406	1.050	0.426	
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	0.040	10 mm [Rear]	FCC #1	N/A	1:1	0.529	1.050	0.555	
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	0.080	10 mm [Left]	FCC #1	N/A	1:1	0.232	1.050	0.244	
1732.4	1412	WCDMA 1700	RMC	23.40	23.19	-0.180	10 mm [Bottom]	FCC #1	N/A	1:1	0.733	1.050	0.770	
1852.4	9262	WCDMA 1900	RMC	23.20	22.95	0.120	10 mm [Bottom]	FCC #1	N/A	1:1	0.898	1.059	**0.951**	A55
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	0.140	10 mm [Bottom]	FCC #1	N/A	1:1	0.886	1.064	0.943	
1907.6	9538	WCDMA 1900	RMC	23.20	22.79	0.120	10 mm [Bottom]	FCC #1	N/A	1:1	0.858	1.099	0.943	
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	0.000	10 mm [Front]	FCC #1	N/A	1:1	0.536	1.064	0.570	
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	0.000	10 mm [Rear]	FCC #1	N/A	1:1	0.707	1.064	0.752	
1880.0	9400	WCDMA 1900	RMC	23.20	22.93	0.170	10 mm [Left]	FCC #1	N/A	1:1	0.330	1.064	0.351	
1852.4	9262	WCDMA 1900	RMC	23.20	22.93	0.110	10 mm [Bottom]	FCC #1	N/A	1:1	0.894	1.064	0.947	
1852.4	9262	WCDMA 1900	RMC	23.20	22.93	0.150	10 mm [Bottom]	FCC #1	N/A	1:1	0.888	1.064	0.940	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.
2. Yellow entries represent variability measurements.

Table 11.3.2 LTE B12, B5 Hotspot SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
707.5	23095	LTE B12	10	25.50	25.12	-0.180	0	10 mm [Bottom]	FCC #1	QPSK	1	49	1:1	0.045	1.091	0.049	
707.5	23095	LTE B12	10	24.50	24.06	0.160	1	10 mm [Bottom]	FCC #1	QPSK	25	25	1:1	0.041	1.107	0.045	
707.5	23095	LTE B12	10	25.50	25.12	0.030	0	10 mm [Front]	FCC #1	QPSK	1	49	1:1	0.072	1.091	0.079	
707.5	23095	LTE B12	10	24.50	24.06	0.030	1	10 mm [Front]	FCC #1	QPSK	25	25	1:1	0.058	1.107	0.064	
707.5	23095	LTE B12	10	25.50	25.12	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	49	1:1	0.154	1.091	**0.168**	A34
707.5	23095	LTE B12	10	24.50	24.06	0.000	1	10 mm [Rear]	FCC #1	QPSK	25	25	1:1	0.130	1.107	0.144	
707.5	23095	LTE B12	10	25.50	25.12	-0.000	0	10 mm [Right]	FCC #1	QPSK	1	49	1:1	0.043	1.091	0.047	
707.5	23095	LTE B12	10	24.50	24.06	-0.040	1	10 mm [Right]	FCC #1	QPSK	25	25	1:1	0.033	1.107	0.037	
707.5	23095	LTE B12	10	25.50	25.12	0.070	0	10 mm [Left]	FCC #1	QPSK	1	49	1:1	0.017	1.091	0.019	
707.5	23095	LTE B12	10	24.50	24.06	0.050	1	10 mm [Left]	FCC #1	QPSK	25	25	1:1	0.016	1.107	0.018	
707.5	23095	LTE B12	10	25.50	25.12	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	49	1:1	0.153	1.091	0.167	
836.5	20525	LTE B5	10	25.50	25.15	-0.140	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.247	1.084	0.268	
836.5	20525	LTE B5	10	24.50	24.15	-0.160	1	10 mm [Bottom]	FCC #1	QPSK	25	0	1:1	0.186	1.084	0.202	
836.5	20525	LTE B5	10	25.50	25.15	-0.020	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.301	1.084	0.326	
836.5	20525	LTE B5	10	24.50	24.15	0.040	1	10 mm [Front]	FCC #1	QPSK	25	0	1:1	0.230	1.084	0.249	
836.5	20525	LTE B5	10	25.50	25.15	-0.100	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.367	1.084	**0.398**	A35
836.5	20525	LTE B5	10	24.50	24.15	-0.150	1	10 mm [Rear]	FCC #1	QPSK	25	0	1:1	0.299	1.084	0.324	
836.5	20525	LTE B5	10	25.50	25.15	-0.030	0	10 mm [Right]	FCC #1	QPSK	1	0	1:1	0.324	1.084	0.351	
836.5	20525	LTE B5	10	24.50	24.15	-0.010	1	10 mm [Right]	FCC #1	QPSK	25	0	1:1	0.255	1.084	0.276	
836.5	20525	LTE B5	10	25.50	25.15	-0.070	0	10 mm [Left]	FCC #1	QPSK	1	0	1:1	0.121	1.084	0.131	
836.5	20525	LTE B5	10	24.50	24.15	-0.030	1	10 mm [Left]	FCC #1	QPSK	25	0	1:1	0.090	1.084	0.098	
836.5	20525	LTE B5	10	25.50	25.15	-0.110	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.346	1.084	0.375	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.3.3 LTE B66 Hotspot SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1770.0	132572	LTE B66	20	23.70	23.62	-0.160	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.743	1.019	**0.757**	A56
1770.0	132572	LTE B66	20	22.70	22.65	-0.180	1	10 mm [Bottom]	FCC #1	QPSK	50	0	1:1	0.537	1.012	0.543	
1770.0	132572	LTE B66	20	23.70	23.62	-0.080	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.459	1.019	0.468	
1770.0	132572	LTE B66	20	22.70	22.65	-0.010	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.333	1.012	0.337	
1770.0	132572	LTE B66	20	23.70	23.62	-0.010	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.490	1.019	0.499	
1770.0	132572	LTE B66	20	22.70	22.65	0.010	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.365	1.012	0.369	
1770.0	132572	LTE B66	20	23.70	23.62	-0.110	0	10 mm [Left]	FCC #1	QPSK	1	0	1:1	0.252	1.019	0.257	
1770.0	132572	LTE B66	20	22.70	22.65	-0.100	1	10 mm [Left]	FCC #1	QPSK	50	0	1:1	0.183	1.012	0.185	
1770.0	132572	LTE B66	20	23.70	23.62	-0.170	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.738	1.019	0.752	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.3.4 LTE B2 Hotspot SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
1860.0	18700	LTE B2	20	23.40	23.31	-0.100	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.886	1.021	**0.905**	A57
1860.0	18700	LTE B2	20	22.40	22.37	-0.030	1	10 mm [Bottom]	FCC #1	QPSK	50	0	1:1	0.683	1.007	0.688	
1860.0	18700	LTE B2	20	22.40	22.18	-0.010	1	10 mm [Bottom]	FCC #1	QPSK	100	0	1:1	0.639	1.052	0.672	
1880.0	18900	LTE B2	20	23.40	23.28	-0.100	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.870	1.028	0.894	
1900.0	19100	LTE B2	20	23.40	23.24	-0.010	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.863	1.038	0.896	
1860.0	18700	LTE B2	20	23.40	23.31	0.040	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.577	1.021	0.589	
1860.0	18700	LTE B2	20	22.40	22.37	0.040	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.481	1.007	0.484	
1860.0	18700	LTE B2	20	23.40	23.31	-0.010	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.703	1.021	0.718	
1860.0	18700	LTE B2	20	22.40	22.37	-0.010	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.588	1.007	0.592	
1860.0	18700	LTE B2	20	23.40	23.31	-0.060	0	10 mm [Left]	FCC #1	QPSK	1	0	1:1	0.303	1.021	0.309	
1860.0	18700	LTE B2	20	22.40	22.37	-0.110	1	10 mm [Left]	FCC #1	QPSK	50	0	1:1	0.236	1.007	0.238	
1860.0	18700	LTE B2	20	23.40	23.31	-0.100	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.853	1.021	0.871	
1860.0	18700	LTE B2	20	23.40	23.31	-0.100	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.852	1.021	0.870	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.
2. Yellow entries represent variability measurements.

Table 11.3.5 LTE B7 Hotspot SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																
2560.0	21350	LTE B7	20	24.70	24.67	-0.140	0	10 mm [Bottom]	FCC #1	QPSK	1	99	1:1	0.614	1.007	0.618	
2560.0	21350	LTE B7	20	23.70	23.62	-0.180	1	10 mm [Bottom]	FCC #1	QPSK	50	50	1:1	0.482	1.019	0.491	
2560.0	21350	LTE B7	20	24.70	24.67	-0.090	0	10 mm [Front]	FCC #1	QPSK	1	99	1:1	0.273	1.007	0.275	
2560.0	21350	LTE B7	20	23.70	23.62	-0.070	1	10 mm [Front]	FCC #1	QPSK	50	50	1:1	0.212	1.019	0.216	
2510.0	20850	LTE B7	20	24.70	24.63	-0.000	0	10 mm [Rear]	FCC #1	QPSK	1	99	1:1	0.692	1.016	0.703	
2535.0	21100	LTE B7	20	24.70	24.65	-0.050	0	10 mm [Rear]	FCC #1	QPSK	1	99	1:1	0.770	1.012	0.779	
2560.0	21350	LTE B7	20	24.70	24.67	0.020	0	10 mm [Rear]	FCC #1	QPSK	1	99	1:1	0.797	1.007	**0.803**	A38
2560.0	21350	LTE B7	20	23.70	23.62	0.040	1	10 mm [Rear]	FCC #1	QPSK	50	50	1:1	0.655	1.019	0.667	
2560.0	21350	LTE B7	20	23.70	23.52	0.000	1	10 mm [Rear]	FCC #1	QPSK	100	0	1:1	0.651	1.042	0.678	
2560.0	21350	LTE B7	20	24.70	24.67	0.180	0	10 mm [Right]	FCC #1	QPSK	1	99	1:1	0.070	1.007	0.070	
2560.0	21350	LTE B7	20	23.70	23.62	0.130	1	10 mm [Right]	FCC #1	QPSK	50	50	1:1	0.061	1.019	0.062	
2560.0	21350	LTE B7	20	24.70	24.67	0.010	0	10 mm [Left]	FCC #1	QPSK	1	99	1:1	0.064	1.007	0.064	
2560.0	21350	LTE B7	20	23.70	23.62	0.110	1	10 mm [Left]	FCC #1	QPSK	50	50	1:1	0.048	1.019	0.049	
2560.0	21350	LTE B7	20	24.70	24.67	0.000	0	10 mm [Rear]	FCC #1	QPSK	1	99	1:1	0.790	1.007	0.796	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.

Table 11.3.6 LTE B41 Hotspot SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode/ Band	BW [MHz]	Max Allowed Power [dBm]	Cond. PWR [dBm]	Drift Power [dB]	MPR	Position	Device Serial Number	Mod.	RB Size	RB Offs.	Duty Cycle	1g SAR (W/kg)	Scaling Factor	1g Scaled SAR (W/kg)	Plots #
MHz	Ch																	
2506.0	39750	LTE B41	20	24.70	23.74	-0.160	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.737	1.247	0.919	
2506.0	39750	LTE B41	20	23.70	22.72	-0.180	1	10 mm [Bottom]	FCC #1	QPSK	50	0	1:1	0.525	1.253	0.658	
2549.5	40185	LTE B41	20	24.70	23.71	-0.130	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.786	1.256	0.987	
2549.5	40185	LTE B41	20	23.70	22.67	-0.160	1	10 mm [Bottom]	FCC #1	QPSK	50	0	1:1	0.605	1.268	0.767	
2593.0	40620	LTE B41	20	24.70	23.77	-0.100	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.888	1.239	**1.100**	A58
2593.0	40620	LTE B41	20	23.70	22.78	-0.110	1	10 mm [Bottom]	FCC #1	QPSK	50	0	1:1	0.663	1.236	0.819	
2593.0	40620	LTE B41	20	23.70	22.64	-0.140	1	10 mm [Bottom]	FCC #1	QPSK	100	0	1:1	0.543	1.276	0.693	
2636.5	41055	LTE B41	20	24.70	23.74	-0.110	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.465	1.247	0.580	
2636.5	41055	LTE B41	20	23.70	22.66	-0.110	1	10 mm [Bottom]	FCC #1	QPSK	50	0	1:1	0.269	1.271	0.342	
2680.0	41490	LTE B41	20	24.70	23.63	-0.160	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.431	1.279	0.551	
2680.0	41490	LTE B41	20	23.70	22.63	-0.160	1	10 mm [Bottom]	FCC #1	QPSK	50	0	1:1	0.278	1.279	0.356	
2593.0	40620	LTE B41	20	24.70	23.77	-0.080	0	10 mm [Front]	FCC #1	QPSK	1	0	1:1	0.194	1.239	0.240	
2593.0	40620	LTE B41	20	23.70	22.78	-0.050	1	10 mm [Front]	FCC #1	QPSK	50	0	1:1	0.149	1.236	0.184	
2506.0	39750	LTE B41	20	24.70	23.74	0.070	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.581	1.247	0.725	
2506.0	39750	LTE B41	20	23.70	22.72	0.040	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.490	1.253	0.614	
2549.5	40185	LTE B41	20	24.70	23.71	0.050	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.679	1.256	0.853	
2549.5	40185	LTE B41	20	23.70	22.67	0.040	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.576	1.268	0.730	
2593.0	40620	LTE B41	20	24.70	23.77	0.030	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.705	1.239	0.873	
2593.0	40620	LTE B41	20	23.70	22.78	0.090	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.620	1.236	0.766	
2593.0	40620	LTE B41	20	23.70	22.64	-0.050	1	10 mm [Rear]	FCC #1	QPSK	100	0	1:1	0.592	1.276	0.755	
2636.5	41055	LTE B41	20	24.70	23.74	0.050	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.436	1.247	0.544	
2636.5	41055	LTE B41	20	23.70	22.66	0.080	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.282	1.271	0.358	
2680.0	41490	LTE B41	20	24.70	23.63	0.020	0	10 mm [Rear]	FCC #1	QPSK	1	0	1:1	0.385	1.279	0.492	
2680.0	41490	LTE B41	20	23.70	22.63	0.010	1	10 mm [Rear]	FCC #1	QPSK	50	0	1:1	0.291	1.279	0.372	
2593.0	40620	LTE B41	20	24.70	23.77	-0.120	0	10 mm [Right]	FCC #1	QPSK	1	0	1:1	0.083	1.239	0.103	
2593.0	40620	LTE B41	20	23.70	22.78	0.100	1	10 mm [Right]	FCC #1	QPSK	50	0	1:1	0.064	1.236	0.079	
2593.0	40620	LTE B41	20	24.70	23.77	-0.070	0	10 mm [Left]	FCC #1	QPSK	1	0	1:1	0.060	1.239	0.074	
2593.0	40620	LTE B41	20	23.70	22.78	-0.070	1	10 mm [Left]	FCC #1	QPSK	50	0	1:1	0.046	1.236	0.057	
2593.0	40620	LTE B41	20	24.70	23.77	-0.040	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.836	1.239	1.036	
2593.0	40620	LTE B41	20	24.70	23.77	0.040	0	10 mm [Bottom]	FCC #1	QPSK	1	0	1:1	0.823	1.239	1.020	
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 SIM2(This is a SIM card that can be installed in place of a memory card.) measurements.
2. Yellow entries represent variability measurements.

Table 11.3.7 DTS Hotspot SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	SAR (W/kg)	Plots #
MHz	Ch														
2412.0	1	802.11b (Ant.1)	16.50	15.71	-0.100	10 mm [Top]	FCC #2	0.197	1	99.2	0.199	1.199	1.008	**0.241**	A59
2412.0	1	802.11b (Ant.1)	16.50	15.71	0.010	10 mm [Front]	FCC #2	0.108	1	99.2	0.108	1.199	1.008	0.131	
2412.0	1	802.11b (Ant.1)	16.50	15.71	-0.100	10 mm [Rear]	FCC #2	0.164	1	99.2	0.180	1.199	1.008	0.218	
2412.0	1	802.11b (Ant.1)	16.50	15.71	-0.170	10 mm [Left]	FCC #2	0.004	1	99.2	0.045	1.199	1.008	0.055	
2462.0	11	802.11b (Ant.2)	16.50	15.83	0.030	10 mm [Top]	FCC #2	0.002	1	99.2	0.003	1.167	1.008	0.004	
2462.0	11	802.11b (Ant.2)	16.50	15.83	-0.100	10 mm [Front]	FCC #2	0.013	1	99.2	0.008	1.167	1.008	0.009	
2462.0	11	802.11b (Ant.2)	16.50	15.83	-0.020	10 mm [Rear]	FCC #2	0.089	1	99.2	0.089	1.167	1.008	**0.105**	A41
2462.0	11	802.11b (Ant.2)	16.50	15.83	0.010	10 mm [Left]	FCC #2	0.022	1	99.2	0.017	1.167	1.008	0.020	
2437.0	6	802.11g (MIMO)	19.50	18.52	-0.010	10 mm [Top]	FCC #2	0.184	1	94.4	0.185	1.253	1.059	0.246	
2437.0	6	802.11g (MIMO)	19.50	18.52	0.010	10 mm [Front]	FCC #2	0.104	1	94.4	0.106	1.253	1.059	0.141	
2437.0	6	802.11g (MIMO)	19.50	18.52	-0.020	10 mm [Rear]	FCC #2	0.189	1	94.4	0.199	1.253	1.059	**0.264**	A42
2437.0	6	802.11g (MIMO)	19.50	18.52	-0.130	10 mm [Left]	FCC #2	0.078	1	94.4	0.080	1.253	1.059	0.107	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g)** averaged over 1 gram							

Adjusted SAR results for OFDM SAR												
FREQUENCY		Mode/ Antenna	Service	Maximum Allowed Power [dBm]	1g Scaled SAR (W/kg)	FREQUENCY [MHz]	Mode	Service	Maximum Allowed Power [dBm	Ratio of OFDM to DSSS	1g Adjusted SAR (W/kg)	Determine OFDM SAR
MHz	Ch											
2412.0	1	802.11b (Ant.1)	DSSS	16.5	0.241	2437	802.11g	OFDM	16.5	1.000	**0.241**	X
2412.0	1	802.11b (Ant.1)	DSSS	16.5	0.241	2437	802.11n	OFDM	14.5	0.631	**0.152**	X
2412.0	1	802.11b (Ant.1)	DSSS	16.5	0.241	2437	802.11ac	OFDM	14.5	0.631	**0.152**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.105	2437	802.11g	OFDM	16.5	1.000	**0.105**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.105	2437	802.11n	OFDM	14.5	0.631	**0.066**	X
2462.0	11	802.11b (Ant.2)	DSSS	16.5	0.105	2437	802.11ac	OFDM	14.5	0.631	**0.066**	X
2437.0	6	802.11g (MIMO)	OFDM	19.5	0.264	2437	802.11n	OFDM	17.5	0.631	**0.167**	X
2437.0	6	802.11g (MIMO)	OFDM	19.5	0.264	2437	802.11ac	OFDM	17.5	0.631	**0.167**	X
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure						**Body 1.6 W/kg (mW/g)** averaged over 1 gram						

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

Table 11.3.8 UNII Hotspot SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5240.0	48	802.11a (Ant.1)	14.00	13.59	-0.130	10 mm [Top]	FCC #2	0.008	1	94.9	0.007	1.099	1.054	0.008	
5240.0	48	802.11a (Ant.1)	14.00	13.59	-0.100	10 mm [Front]	FCC #2	0.012	1	94.9	0.013	1.099	1.054	0.015	
5240.0	48	802.11a (Ant.1)	14.00	13.59	0.010	10 mm [Rear]	FCC #2	0.085	1	94.9	0.078	1.099	1.054	**0.090**	A60
5240.0	48	802.11a (Ant.1)	14.00	13.59	0.190	10 mm [Left]	FCC #2	0.026	1	94.9	0.010	1.099	1.054	0.012	
5240.0	48	802.11a (Ant.2)	14.00	13.58	-0.060	10 mm [Top]	FCC #2	0.008	1	94.9	0.008	1.102	1.054	0.009	
5240.0	48	802.11a (Ant.2)	14.00	13.58	0.000	10 mm [Front]	FCC #2	0.002	1	94.9	0.006	1.102	1.054	0.007	
5240.0	48	802.11a (Ant.2)	14.00	13.58	0.000	10 mm [Rear]	FCC #2	0.262	1	94.9	0.396	1.102	1.054	**0.460**	A61
5240.0	48	802.11a (Ant.2)	14.00	13.58	0.120	10 mm [Left]	FCC #2	0.013	1	94.9	0.010	1.102	1.054	0.012	
5240.0	48	802.11a (MIMO)	17.00	16.60	0.050	10 mm [Top]	FCC #2	0.017	1	94.9	0.011	1.102	1.054	0.013	
5240.0	48	802.11a (MIMO)	17.00	16.60	-0.050	10 mm [Front]	FCC #2	0.023	1	94.9	0.032	1.102	1.054	0.037	
5240.0	48	802.11a (MIMO)	17.00	16.60	-0.140	10 mm [Rear]	FCC #2	0.292	1	94.9	0.436	1.102	1.054	**0.506**	A62
5240.0	48	802.11a (MIMO)	17.00	16.60	-0.120	10 mm [Left]	FCC #2	0.136	1	94.9	0.119	1.102	1.054	0.138	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g) averaged over 1 gram**							

Table 11.3.9 UNII Hotspot SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5785.0	157	802.11a (Ant.1)	14.00	13.72	0.180	10 mm [Top]	FCC #2	0.020	1	94.9	0.011	1.067	1.054	0.012	
5785.0	157	802.11a (Ant.1)	14.00	13.72	0.060	10 mm [Front]	FCC #2	0.064	1	94.9	0.057	1.067	1.054	**0.064**	A63
5785.0	157	802.11a (Ant.1)	14.00	13.72	0.100	10 mm [Rear]	FCC #2	0.046	1	94.9	0.033	1.067	1.054	0.037	
5785.0	157	802.11a (Ant.1)	14.00	13.72	-0.020	10 mm [Left]	FCC #2	0.009	1	94.9	0.009	1.067	1.054	0.010	
5785.0	157	802.11a (Ant.2)	14.00	13.85	0.120	10 mm [Top]	FCC #2	0.006	1	94.9	0.005	1.035	1.054	0.005	
5785.0	157	802.11a (Ant.2)	14.00	13.85	0.000	10 mm [Front]	FCC #2	0.004	1	94.9	0.010	1.035	1.054	0.011	
5785.0	157	802.11a (Ant.2)	14.00	13.85	-0.080	10 mm [Rear]	FCC #2	0.337	1	94.9	0.392	1.035	1.054	**0.428**	A50
5785.0	157	802.11a (Ant.2)	14.00	13.85	-0.120	10 mm [Left]	FCC #2	0.107	1	94.9	0.093	1.035	1.054	0.102	
5785.0	157	802.11a (MIMO)	17.00	16.80	-0.050	10 mm [Top]	FCC #2	0.019	1	94.9	0.016	1.067	1.054	0.018	
5785.0	157	802.11a (MIMO)	17.00	16.80	0.000	10 mm [Front]	FCC #2	0.028	1	94.9	0.035	1.067	1.054	0.039	
5785.0	157	802.11a (MIMO)	17.00	16.80	-0.120	10 mm [Rear]	FCC #2	0.299	1	94.9	0.355	1.067	1.054	**0.399**	A51
5785.0	157	802.11a (MIMO)	17.00	16.80	-0.010	10 mm [Left]	FCC #2	0.112	1	94.9	0.093	1.067	1.054	0.104	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Body 1.6 W/kg (mW/g)** averaged over 1 gram							

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

Table 11.3.10 Bluetooth Hotspot SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Rate [Mbps]	Duty Cycle (%)	1g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	1g Scaled SAR (W/kg)	Plots #
MHz	Ch													
2441.0	39	Bluetooth	11.00	9.25	0.030	10 mm [Top]	FCC #2	1	76.8	0.028	1.495	1.302	**0.055**	A64
2441.0	39	Bluetooth	11.00	9.25	-0.160	10 mm [Front]	FCC #2	1	76.8	0.006	1.495	1.302	0.012	
2441.0	39	Bluetooth	11.00	9.25	-0.100	10 mm [Rear]	FCC #2	1	76.8	0.019	1.495	1.302	0.037	
2441.0	39	Bluetooth	11.00	9.25	-0.180	10 mm [Left]	FCC #2	1	76.8	0.005	1.495	1.302	0.009	
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														
5260.0	52	802.11a (Ant.1)	14.00	13.62	0.190	0 mm [Top]	FCC #2	0.026	1	94.9	0.020	1.091	1.054	0.023	
5260.0	52	802.11a (Ant.1)	14.00	13.62	0.110	0 mm [Front]	FCC #2	0.137	1	94.9	0.176	1.091	1.054	0.202	
5260.0	52	802.11a (Ant.1)	14.00	13.62	0.080	0 mm [Rear]	FCC #2	0.250	1	94.9	0.228	1.091	1.054	**0.262**	A65
5260.0	52	802.11a (Ant.1)	14.00	13.62	0.130	0 mm [Left]	FCC #2	0.026	1	94.9	0.020	1.091	1.054	0.023	
5260.0	52	802.11a (Ant.2)	14.00	13.56	0.120	0 mm [Top]	FCC #2	0.008	1	94.9	0.004	1.107	1.054	0.005	
5260.0	52	802.11a (Ant.2)	14.00	13.56	0.000	0 mm [Front]	FCC #2	0.009	1	94.9	0.010	1.107	1.054	0.012	
5260.0	52	802.11a (Ant.2)	14.00	13.56	-0.070	0 mm [Rear]	FCC #2	0.586	1	94.9	1.090	1.107	1.054	**1.271**	A66
5260.0	52	802.11a (Ant.2)	14.00	13.56	0.100	0 mm [Left]	FCC #2	0.183	1	94.9	0.201	1.107	1.054	0.234	
5260.0	52	802.11a (MIMO)	17.00	16.60	-0.040	0 mm [Top]	FCC #2	0.029	1	94.9	0.020	1.107	1.054	0.023	
5260.0	52	802.11a (MIMO)	17.00	16.60	-0.090	0 mm [Front]	FCC #2	0.135	1	94.9	0.158	1.107	1.054	0.184	
5260.0	52	802.11a (MIMO)	17.00	16.60	-0.050	0 mm [Rear]	FCC #2	0.603	1	94.9	1.120	1.107	1.054	**1.306**	A67
5260.0	52	802.11a (MIMO)	17.00	16.60	0.150	0 mm [Left]	FCC #2	0.264	1	94.9	0.221	1.107	1.054	0.258	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Phablet 4.0 W/kg (mW/g)** averaged over 10 gram							

Table 11.4.2 UNII Phablet SAR

MEASUREMENT RESULTS																
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	10g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	10g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5500.0	100	802.11a (Ant.1)	14.00	13.65	0.060	0 mm [Top]	FCC #2	0.024	1	94.9	0.015	1.084	1.019	0.017	
5500.0	100	802.11a (Ant.1)	14.00	13.65	0.050	0 mm [Front]	FCC #2	0.155	1	94.9	0.228	1.084	1.019	0.252	
5500.0	100	802.11a (Ant.1)	14.00	13.65	0.040	0 mm [Rear]	FCC #2	0.171	1	94.9	0.238	1.084	1.019	**0.263**	A68
5500.0	100	802.11a (Ant.1)	14.00	13.65	-0.130	0 mm [Left]	FCC #2	0.019	1	94.9	0.018	1.084	1.019	0.020	
5600.0	120	802.11a (Ant.2)	14.00	13.67	0.150	0 mm [Top]	FCC #2	0.009	1	94.9	0.004	1.079	1.019	0.005	
5600.0	120	802.11a (Ant.2)	14.00	13.67	0.000	0 mm [Front]	FCC #2	0.072	1	94.9	0.042	1.079	1.019	0.046	
5600.0	120	802.11a (Ant.2)	14.00	13.67	-0.010	0 mm [Rear]	FCC #2	0.917	1	94.9	1.140	1.079	1.019	**1.253**	A69
5600.0	120	802.11a (Ant.2)	14.00	13.67	0.000	0 mm [Left]	FCC #2	0.243	1	94.9	0.257	1.079	1.019	0.283	
5600.0	120	802.11a (MIMO)	17.00	16.66	0.000	0 mm [Top]	FCC #2	0.032	1	94.9	0.023	1.084	1.019	0.026	
5600.0	120	802.11a (MIMO)	17.00	16.66	0.180	0 mm [Front]	FCC #2	0.157	1	94.9	0.212	1.084	1.019	0.234	
5600.0	120	802.11a (MIMO)	17.00	16.66	-0.160	0 mm [Rear]	FCC #2	0.923	1	94.9	1.140	1.084	1.019	**1.259**	A70
5600.0	120	802.11a (MIMO)	17.00	16.66	0.150	0 mm [Left]	FCC #2	0.300	1	94.9	0.263	1.084	1.019	0.291	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Phablet 4.0 W/kg (mW/g)** averaged over 10 gram							

Table 11.4.3 UNII Phablet SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Drift Power [dB]	Phantom Position	Device Serial Number	Peak SAR of Area Scan	Data Rate [Mbps]	Duty Cycle	10g SAR (W/kg)	Scaling Factor	Scaling Factor (Duty Cycle)	10g Scaled SAR (W/kg)	Plots #
MHz	Ch														
5825.0	165	802.11a (Ant.1)	14.00	13.77	-0.120	0 mm [Top]	FCC #2	0.038	1	94.9	0.025	1.054	1.054	0.028	
5825.0	165	802.11a (Ant.1)	14.00	13.77	-0.040	0 mm [Front]	FCC #2	0.164	1	94.9	0.218	1.054	1.054	0.242	
5825.0	165	802.11a (Ant.1)	14.00	13.77	-0.050	0 mm [Rear]	FCC #2	0.167	1	94.9	0.268	1.054	1.054	**0.298**	A71
5825.0	165	802.11a (Ant.1)	14.00	13.77	-0.070	0 mm [Left]	FCC #2	0.030	1	94.9	0.025	1.054	1.054	0.027	
5785.0	157	802.11a (Ant.2)	14.00	13.85	-0.010	0 mm [Top]	FCC #2	0.004	1	94.9	0.004	1.035	1.054	0.005	
5785.0	157	802.11a (Ant.2)	14.00	13.85	0.000	0 mm [Front]	FCC #2	0.056	1	94.9	0.045	1.035	1.054	0.049	
5785.0	157	802.11a (Ant.2)	14.00	13.85	0.160	0 mm [Rear]	FCC #2	0.838	1	94.9	0.937	1.035	1.054	**1.022**	A72
5785.0	157	802.11a (Ant.2)	14.00	13.85	0.000	0 mm [Left]	FCC #2	0.197	1	94.9	0.209	1.035	1.054	0.228	
5785.0	157	802.11a (MIMO)	17.00	16.80	-0.090	0 mm [Top]	FCC #2	0.036	1	94.9	0.030	1.054	1.054	0.033	
5785.0	157	802.11a (MIMO)	17.00	16.80	0.000	0 mm [Front]	FCC #2	0.185	1	94.9	0.195	1.054	1.054	0.217	
5785.0	157	802.11a (MIMO)	17.00	16.80	-0.080	0 mm [Rear]	FCC #2	0.664	1	94.9	0.915	1.054	1.054	**1.016**	A73
5785.0	157	802.11a (MIMO)	17.00	16.80	0.190	0 mm [Left]	FCC #2	0.230	1	94.9	0.210	1.054	1.054	0.233	
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure								**Phablet 4.0 W/kg (mW/g)** averaged over 10 gram							

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

11.5 SAR Test Notes

General Notes:

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

GSM Notes:

1. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2. This device supports GSM VOIP in the head and body-worn configurations; therefore GPRS was additionally evaluated for head and body-worn compliance.
3. Justification for reduced test configurations per KDB Publication 941225 D01v03r01 and October2013 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 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. Per KDB Publication 941225 D05Av01r02, SAR for LTE CA operations was not needed since the maximum average output power in LTE CA mode was not > 0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
6. Per FCC KDB Publication 447498 D01v06, when the reported (scaled) for LTE Band 41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations, testing at the other channels was required for such test configurations.
7. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r05. Testing was performed using UL-DL configuration 0 with 6 UL sub frames and 2S sub frames using extended cyclic prefix only and special sub frame configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Sec. 4, the duty factor using extended cyclic prefix is 0.633 (cf=1.58).
8. SAR test reduction is applied using the following criteria:
   Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is > 0.8 W/kg, testing for other channels is performed at the highest output power level for 1 RB, and 50% RB configuration for that channel. Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg, Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg. Testing for 16QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/kg and its output power is not more than 0.5 dB higher than that a QPSK. Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is < 1.45 W/kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.

WLAN Notes:

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

Bluetooth Notes:

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

12. FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

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

12.2 Simultaneous Transmission Procedures

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

12.3 Simultaneous Transmission Capabilities

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

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

Table 12.3.1 Simultaneous Transmission Scenarios

No.	Capable TX Configuration	GSM 850/1900 (Voice)	GPRS/EDGE 850/1900 (Data)	WCDMA B5/B4/B2 (Voice)	WCDMA B5/B4/B2 (Data)	LTE B12/B17/B5/B66/B4/ B2/B7/B41	WIFI 2.4GHz 802.11b/g/n/ac	WIFI 5GHz 802.11a/n/ac	Bluetooth 2.4GHz
1	GSM 850/1900 (Voice)		No	No	No	No	Yes	Yes	Yes
2	GPRS/EDGE 850/1900 (Data)	No		No	No	No	Yes	Yes	Yes
3	WCDMA B5/B4/B2 (Voice)	No	No		No	No	Yes	Yes	Yes
4	WCDMA B5/B4/B2 (Data)	No	No	No		No	Yes	Yes	Yes
5	LTE B12/B17/B5/B66/B4/ B2/B7/B41	No	No	No	No		Yes	Yes	Yes
6	WIFI 2.4GHz 802.11b/g/n/ac	Yes	Yes	Yes	Yes	Yes		No	No
7	WIFI 5GHz 802.11a/n/ac	Yes	Yes	Yes	Yes	Yes	No		Yes
8	Bluetooth 2.4GHz	Yes	Yes	Yes	Yes	Yes	No	Yes	

Table 12.3.2 Simultaneous SAR Cases

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

Notes:

1. WiFi 2.4GHz is supported Hotspot and WiFi-Direct(GO/GC).
2. WiFi 5GHz is supported Hotspot in UNII B1,B3 and WiFi-Direct(GO/GC) in UNII B1,B3.
3. LTE, WCDMA, GPRS/EDGE is supported Hotspot.
4. VoIP is supported in LTE, WCDMA, GSM
5. Bluetooth and WiFi can not transmit simultaneously at 2.4G band.
6. GSM, WCDMA and LTE can not transmit simultaneously since they share the same chip.
7. 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.
8. 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 + Bluetooth Ant.1 + 5.3 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.3G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.118	0.098	0.062	0.216	0.180	0.278
		Right Touch	0.161	0.139	0.304	0.300	0.465	**0.604**
		Left Tilt	0.059	0.128	0.072	0.187	0.131	0.259
		Right Tilt	0.069	0.154	0.244	0.223	0.313	0.467
	GPRS 850	Left Touch	0.134	0.098	0.062	0.232	0.196	0.294
		Right Touch	0.219	0.139	0.304	0.358	0.523	**0.662**
		Left Tilt	0.066	0.128	0.072	0.194	0.138	0.266
		Right Tilt	0.079	0.154	0.244	0.233	0.323	0.477
	GSM 1900	Left Touch	0.096	0.098	0.062	0.194	0.158	0.256
		Right Touch	0.089	0.139	0.304	0.228	0.393	**0.532**
		Left Tilt	0.085	0.128	0.072	0.213	0.157	0.285
		Right Tilt	0.084	0.154	0.244	0.238	0.328	0.482
	GPRS 1900	Left Touch	0.180	0.098	0.062	0.278	0.242	0.340
		Right Touch	0.149	0.139	0.304	0.288	0.453	**0.592**
		Left Tilt	0.149	0.128	0.072	0.277	0.221	0.349
		Right Tilt	0.147	0.154	0.244	0.301	0.391	0.545
	WCDMA 850	Left Touch	0.172	0.098	0.062	0.270	0.234	0.332
		Right Touch	0.225	0.139	0.304	0.364	0.529	**0.668**
		Left Tilt	0.103	0.128	0.072	0.231	0.175	0.303
		Right Tilt	0.085	0.154	0.244	0.239	0.329	0.483
	WCDMA 1700	Left Touch	0.103	0.098	0.062	0.201	0.165	0.263
		Right Touch	0.140	0.139	0.304	0.279	0.444	**0.583**
		Left Tilt	0.156	0.128	0.072	0.284	0.228	0.356
		Right Tilt	0.183	0.154	0.244	0.337	0.427	0.581
	WCDMA 1900	Left Touch	0.193	0.098	0.062	0.291	0.255	0.353
		Right Touch	0.143	0.139	0.304	0.282	0.447	**0.586**
		Left Tilt	0.165	0.128	0.072	0.293	0.237	0.365
		Right Tilt	0.153	0.154	0.244	0.307	0.397	0.551
	LTE Band 12	Left Touch	0.056	0.098	0.062	0.154	0.118	0.216
		Right Touch	0.075	0.139	0.304	0.214	0.379	**0.518**
		Left Tilt	0.037	0.128	0.072	0.165	0.109	0.237
		Right Tilt	0.027	0.154	0.244	0.181	0.271	0.425
	LTE Band 5	Left Touch	0.122	0.098	0.062	0.220	0.184	0.282
		Right Touch	0.147	0.139	0.304	0.286	0.451	**0.590**
		Left Tilt	0.055	0.128	0.072	0.183	0.127	0.255
		Right Tilt	0.056	0.154	0.244	0.210	0.300	0.454
	LTE Band 66	Left Touch	0.120	0.098	0.062	0.218	0.182	0.280
		Right Touch	0.132	0.139	0.304	0.271	0.436	**0.575**
		Left Tilt	0.141	0.128	0.072	0.269	0.213	0.341
		Right Tilt	0.156	0.154	0.244	0.310	0.400	0.554
	LTE Band 2	Left Touch	0.098	0.098	0.062	0.196	0.160	0.258
		Right Touch	0.133	0.139	0.304	0.272	0.437	**0.576**
		Left Tilt	0.132	0.128	0.072	0.260	0.204	0.332
		Right Tilt	0.144	0.154	0.244	0.298	0.388	0.542
	LTE Band 7	Left Touch	0.028	0.098	0.062	0.126	0.090	0.188
		Right Touch	0.040	0.139	0.304	0.179	0.344	**0.483**
		Left Tilt	0.023	0.128	0.072	0.151	0.095	0.223
		Right Tilt	0.023	0.154	0.244	0.177	0.267	0.421
	LTE Band 41	Left Touch	0.024	0.098	0.062	0.122	0.086	0.184
		Right Touch	0.038	0.139	0.304	0.177	0.342	**0.481**
		Left Tilt	0.024	0.128	0.072	0.152	0.096	0.224
		Right Tilt	0.021	0.154	0.244	0.175	0.265	0.419

Table 12.4.2 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.3 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.3G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.118	0.098	0.092	0.216	0.210	0.308
		Right Touch	0.161	0.139	0.012	0.300	0.173	**0.312**
		Left Tilt	0.059	0.128	0.095	0.187	0.154	0.282
		Right Tilt	0.069	0.154	0.007	0.223	0.076	0.230
	GPRS 850	Left Touch	0.134	0.098	0.092	0.232	0.226	0.324
		Right Touch	0.219	0.139	0.012	0.358	0.231	**0.370**
		Left Tilt	0.066	0.128	0.095	0.194	0.161	0.289
		Right Tilt	0.079	0.154	0.007	0.233	0.086	0.240
	GSM 1900	Left Touch	0.096	0.098	0.092	0.194	0.188	0.286
		Right Touch	0.089	0.139	0.012	0.228	0.101	0.240
		Left Tilt	0.085	0.128	0.095	0.213	0.180	**0.308**
		Right Tilt	0.084	0.154	0.007	0.238	0.091	0.245
	GPRS 1900	Left Touch	0.180	0.098	0.092	0.278	0.272	0.370
		Right Touch	0.149	0.139	0.012	0.288	0.161	0.300
		Left Tilt	0.149	0.128	0.095	0.277	0.244	**0.372**
		Right Tilt	0.147	0.154	0.007	0.301	0.154	0.308
	WCDMA 850	Left Touch	0.172	0.098	0.092	0.270	0.264	0.362
		Right Touch	0.225	0.139	0.012	0.364	0.237	**0.376**
		Left Tilt	0.103	0.128	0.095	0.231	0.198	0.326
		Right Tilt	0.085	0.154	0.007	0.239	0.092	0.246
	WCDMA 1700	Left Touch	0.103	0.098	0.092	0.201	0.195	0.293
		Right Touch	0.140	0.139	0.012	0.279	0.152	0.291
		Left Tilt	0.156	0.128	0.095	0.284	0.251	**0.379**
		Right Tilt	0.183	0.154	0.007	0.337	0.190	0.344
	WCDMA 1900	Left Touch	0.193	0.098	0.092	0.291	0.285	0.383
		Right Touch	0.143	0.139	0.012	0.282	0.155	0.294
		Left Tilt	0.165	0.128	0.095	0.293	0.260	**0.388**
		Right Tilt	0.153	0.154	0.007	0.307	0.160	0.314
	LTE Band 12	Left Touch	0.056	0.098	0.092	0.154	0.148	0.246
		Right Touch	0.075	0.139	0.012	0.214	0.087	0.226
		Left Tilt	0.037	0.128	0.095	0.165	0.132	**0.260**
		Right Tilt	0.027	0.154	0.007	0.181	0.034	0.188
	LTE Band 5	Left Touch	0.122	0.098	0.092	0.220	0.214	**0.312**
		Right Touch	0.147	0.139	0.012	0.286	0.159	0.298
		Left Tilt	0.055	0.128	0.095	0.183	0.150	0.278
		Right Tilt	0.056	0.154	0.007	0.210	0.063	0.217
	LTE Band 66	Left Touch	0.120	0.098	0.092	0.218	0.212	0.310
		Right Touch	0.132	0.139	0.012	0.271	0.144	0.283
		Left Tilt	0.141	0.128	0.095	0.269	0.236	**0.364**
		Right Tilt	0.156	0.154	0.007	0.310	0.163	0.317
	LTE Band 2	Left Touch	0.098	0.098	0.092	0.196	0.190	0.288
		Right Touch	0.133	0.139	0.012	0.272	0.145	0.284
		Left Tilt	0.132	0.128	0.095	0.260	0.227	**0.355**
		Right Tilt	0.144	0.154	0.007	0.298	0.151	0.305
	LTE Band 7	Left Touch	0.028	0.098	0.092	0.126	0.120	0.218
		Right Touch	0.040	0.139	0.012	0.179	0.052	0.191
		Left Tilt	0.023	0.128	0.095	0.151	0.118	**0.246**
		Right Tilt	0.023	0.154	0.007	0.177	0.030	0.184
	LTE Band 41	Left Touch	0.024	0.098	0.092	0.122	0.116	0.214
		Right Touch	0.038	0.139	0.012	0.177	0.050	0.189
		Left Tilt	0.024	0.128	0.095	0.152	0.119	**0.247**
		Right Tilt	0.021	0.154	0.007	0.175	0.028	0.182

Table 12.4.3 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	0.118	0.098	0.054	0.216	0.172	0.270
		Right Touch	0.161	0.139	0.357	0.300	0.518	**0.657**
		Left Tilt	0.059	0.128	0.066	0.187	0.125	0.253
		Right Tilt	0.069	0.154	0.240	0.223	0.309	0.463
	GPRS 850	Left Touch	0.134	0.098	0.054	0.232	0.188	0.286
		Right Touch	0.219	0.139	0.357	0.358	0.576	**0.715**
		Left Tilt	0.066	0.128	0.066	0.194	0.132	0.260
		Right Tilt	0.079	0.154	0.240	0.233	0.319	0.473
	GSM 1900	Left Touch	0.096	0.098	0.054	0.194	0.150	0.248
		Right Touch	0.089	0.139	0.357	0.228	0.446	**0.585**
		Left Tilt	0.085	0.128	0.066	0.213	0.151	0.279
		Right Tilt	0.084	0.154	0.240	0.238	0.324	0.478
	GPRS 1900	Left Touch	0.180	0.098	0.054	0.278	0.234	0.332
		Right Touch	0.149	0.139	0.357	0.288	0.506	**0.645**
		Left Tilt	0.149	0.128	0.066	0.277	0.215	0.343
		Right Tilt	0.147	0.154	0.240	0.301	0.387	0.541
	WCDMA 850	Left Touch	0.172	0.098	0.054	0.270	0.226	0.324
		Right Touch	0.225	0.139	0.357	0.364	0.582	**0.721**
		Left Tilt	0.103	0.128	0.066	0.231	0.169	0.297
		Right Tilt	0.085	0.154	0.240	0.239	0.325	0.479
	WCDMA 1700	Left Touch	0.103	0.098	0.054	0.201	0.157	0.255
		Right Touch	0.140	0.139	0.357	0.279	0.497	**0.636**
		Left Tilt	0.156	0.128	0.066	0.284	0.222	0.350
		Right Tilt	0.183	0.154	0.240	0.337	0.423	0.577
	WCDMA 1900	Left Touch	0.193	0.098	0.054	0.291	0.247	0.345
		Right Touch	0.143	0.139	0.357	0.282	0.500	**0.639**
		Left Tilt	0.165	0.128	0.066	0.293	0.231	0.359
		Right Tilt	0.153	0.154	0.240	0.307	0.393	0.547
	LTE Band 12	Left Touch	0.056	0.098	0.054	0.154	0.110	0.208
		Right Touch	0.075	0.139	0.357	0.214	0.432	**0.571**
		Left Tilt	0.037	0.128	0.066	0.165	0.103	0.231
		Right Tilt	0.027	0.154	0.240	0.181	0.267	0.421
	LTE Band 5	Left Touch	0.122	0.098	0.054	0.220	0.176	0.274
		Right Touch	0.147	0.139	0.357	0.286	0.504	**0.643**
		Left Tilt	0.055	0.128	0.066	0.183	0.121	0.249
		Right Tilt	0.056	0.154	0.240	0.210	0.296	0.450
	LTE Band 66	Left Touch	0.120	0.098	0.054	0.218	0.174	0.272
		Right Touch	0.132	0.139	0.357	0.271	0.489	**0.628**
		Left Tilt	0.141	0.128	0.066	0.269	0.207	0.335
		Right Tilt	0.156	0.154	0.240	0.310	0.396	0.550
	LTE Band 2	Left Touch	0.098	0.098	0.054	0.196	0.152	0.250
		Right Touch	0.133	0.139	0.357	0.272	0.490	**0.629**
		Left Tilt	0.132	0.128	0.066	0.260	0.198	0.326
		Right Tilt	0.144	0.154	0.240	0.298	0.384	0.538
	LTE Band 7	Left Touch	0.028	0.098	0.054	0.126	0.082	0.180
		Right Touch	0.040	0.139	0.357	0.179	0.397	**0.536**
		Left Tilt	0.023	0.128	0.066	0.151	0.089	0.217
		Right Tilt	0.023	0.154	0.240	0.177	0.263	0.417
	LTE Band 41	Left Touch	0.024	0.098	0.054	0.122	0.078	0.176
		Right Touch	0.038	0.139	0.357	0.177	0.395	**0.534**
		Left Tilt	0.024	0.128	0.066	0.152	0.090	0.218
		Right Tilt	0.021	0.154	0.240	0.175	0.261	0.415

Table 12.4.4 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.118	0.098	0.097	0.216	0.215	0.313
		Right Touch	0.161	0.139	0.406	0.300	0.567	**0.706**
		Left Tilt	0.059	0.128	0.093	0.187	0.152	0.280
		Right Tilt	0.069	0.154	0.347	0.223	0.416	0.570
	GPRS 850	Left Touch	0.134	0.098	0.097	0.232	0.231	0.329
		Right Touch	0.219	0.139	0.406	0.358	0.625	**0.764**
		Left Tilt	0.066	0.128	0.093	0.194	0.159	0.287
		Right Tilt	0.079	0.154	0.347	0.233	0.426	0.580
	GSM 1900	Left Touch	0.096	0.098	0.097	0.194	0.193	0.291
		Right Touch	0.089	0.139	0.406	0.228	0.495	**0.634**
		Left Tilt	0.085	0.128	0.093	0.213	0.178	0.306
		Right Tilt	0.084	0.154	0.347	0.238	0.431	0.585
	GPRS 1900	Left Touch	0.180	0.098	0.097	0.278	0.277	0.375
		Right Touch	0.149	0.139	0.406	0.288	0.555	**0.694**
		Left Tilt	0.149	0.128	0.093	0.277	0.242	0.370
		Right Tilt	0.147	0.154	0.347	0.301	0.494	0.648
	WCDMA 850	Left Touch	0.172	0.098	0.097	0.270	0.269	0.367
		Right Touch	0.225	0.139	0.406	0.364	0.631	**0.770**
		Left Tilt	0.103	0.128	0.093	0.231	0.196	0.324
		Right Tilt	0.085	0.154	0.347	0.239	0.432	0.586
	WCDMA 1700	Left Touch	0.103	0.098	0.097	0.201	0.200	0.298
		Right Touch	0.140	0.139	0.406	0.279	0.546	**0.685**
		Left Tilt	0.156	0.128	0.093	0.284	0.249	0.377
		Right Tilt	0.183	0.154	0.347	0.337	0.530	0.684
	WCDMA 1900	Left Touch	0.193	0.098	0.097	0.291	0.290	0.388
		Right Touch	0.143	0.139	0.406	0.282	0.549	**0.688**
		Left Tilt	0.165	0.128	0.093	0.293	0.258	0.386
		Right Tilt	0.153	0.154	0.347	0.307	0.500	0.654
	LTE Band 12	Left Touch	0.056	0.098	0.097	0.154	0.153	0.251
		Right Touch	0.075	0.139	0.406	0.214	0.481	**0.620**
		Left Tilt	0.037	0.128	0.093	0.165	0.130	0.258
		Right Tilt	0.027	0.154	0.347	0.181	0.374	0.528
	LTE Band 5	Left Touch	0.122	0.098	0.097	0.220	0.219	0.317
		Right Touch	0.147	0.139	0.406	0.286	0.553	**0.692**
		Left Tilt	0.055	0.128	0.093	0.183	0.148	0.276
		Right Tilt	0.056	0.154	0.347	0.210	0.403	0.557
	LTE Band 66	Left Touch	0.120	0.098	0.097	0.218	0.217	0.315
		Right Touch	0.132	0.139	0.406	0.271	0.538	**0.677**
		Left Tilt	0.141	0.128	0.093	0.269	0.234	0.362
		Right Tilt	0.156	0.154	0.347	0.310	0.503	0.657
	LTE Band 2	Left Touch	0.098	0.098	0.097	0.196	0.195	0.293
		Right Touch	0.133	0.139	0.406	0.272	0.539	**0.678**
		Left Tilt	0.132	0.128	0.093	0.260	0.225	0.353
		Right Tilt	0.144	0.154	0.347	0.298	0.491	0.645
	LTE Band 7	Left Touch	0.028	0.098	0.097	0.126	0.125	0.223
		Right Touch	0.040	0.139	0.406	0.179	0.446	**0.585**
		Left Tilt	0.023	0.128	0.093	0.151	0.116	0.244
		Right Tilt	0.023	0.154	0.347	0.177	0.370	0.524
	LTE Band 41	Left Touch	0.024	0.098	0.097	0.122	0.121	0.219
		Right Touch	0.038	0.139	0.406	0.177	0.444	**0.583**
		Left Tilt	0.024	0.128	0.093	0.152	0.117	0.245
		Right Tilt	0.021	0.154	0.347	0.175	0.368	0.522

Table 12.4.5 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.118	0.098	0.092	0.216	0.210	0.308
		Right Touch	0.161	0.139	0.038	0.300	0.199	**0.338**
		Left Tilt	0.059	0.128	0.057	0.187	0.116	0.244
		Right Tilt	0.069	0.154	0.011	0.223	0.080	0.234
	GPRS 850	Left Touch	0.134	0.098	0.092	0.232	0.226	0.324
		Right Touch	0.219	0.139	0.038	0.358	0.257	**0.396**
		Left Tilt	0.066	0.128	0.057	0.194	0.123	0.251
		Right Tilt	0.079	0.154	0.011	0.233	0.090	0.244
	GSM 1900	Left Touch	0.096	0.098	0.092	0.194	0.188	0.286
		Right Touch	0.089	0.139	0.038	0.228	0.127	0.266
		Left Tilt	0.085	0.128	0.057	0.213	0.142	**0.270**
		Right Tilt	0.084	0.154	0.011	0.238	0.095	0.249
	GPRS 1900	Left Touch	0.180	0.098	0.092	0.278	0.272	**0.370**
		Right Touch	0.149	0.139	0.038	0.288	0.187	0.326
		Left Tilt	0.149	0.128	0.057	0.277	0.206	0.334
		Right Tilt	0.147	0.154	0.011	0.301	0.158	0.312
	WCDMA 850	Left Touch	0.172	0.098	0.092	0.270	0.264	0.362
		Right Touch	0.225	0.139	0.038	0.364	0.263	**0.402**
		Left Tilt	0.103	0.128	0.057	0.231	0.160	0.288
		Right Tilt	0.085	0.154	0.011	0.239	0.096	0.250
	WCDMA 1700	Left Touch	0.103	0.098	0.092	0.201	0.195	0.293
		Right Touch	0.140	0.139	0.038	0.279	0.178	0.317
		Left Tilt	0.156	0.128	0.057	0.284	0.213	0.341
		Right Tilt	0.183	0.154	0.011	0.337	0.194	**0.348**
	WCDMA 1900	Left Touch	0.193	0.098	0.092	0.291	0.285	**0.383**
		Right Touch	0.143	0.139	0.038	0.282	0.181	0.320
		Left Tilt	0.165	0.128	0.057	0.293	0.222	0.350
		Right Tilt	0.153	0.154	0.011	0.307	0.164	0.318
	LTE Band 12	Left Touch	0.056	0.098	0.092	0.154	0.148	0.246
		Right Touch	0.075	0.139	0.038	0.214	0.113	**0.252**
		Left Tilt	0.037	0.128	0.057	0.165	0.094	0.222
		Right Tilt	0.027	0.154	0.011	0.181	0.038	0.192
	LTE Band 5	Left Touch	0.122	0.098	0.092	0.220	0.214	0.312
		Right Touch	0.147	0.139	0.038	0.286	0.185	**0.324**
		Left Tilt	0.055	0.128	0.057	0.183	0.112	0.240
		Right Tilt	0.056	0.154	0.011	0.210	0.067	0.221
	LTE Band 66	Left Touch	0.120	0.098	0.092	0.218	0.212	0.310
		Right Touch	0.132	0.139	0.038	0.271	0.170	0.309
		Left Tilt	0.141	0.128	0.057	0.269	0.198	**0.326**
		Right Tilt	0.156	0.154	0.011	0.310	0.167	0.321
	LTE Band 2	Left Touch	0.098	0.098	0.092	0.196	0.190	0.288
		Right Touch	0.133	0.139	0.038	0.272	0.171	0.310
		Left Tilt	0.132	0.128	0.057	0.260	0.189	**0.317**
		Right Tilt	0.144	0.154	0.011	0.298	0.155	0.309
	LTE Band 7	Left Touch	0.028	0.098	0.092	0.126	0.120	**0.218**
		Right Touch	0.040	0.139	0.038	0.179	0.078	0.217
		Left Tilt	0.023	0.128	0.057	0.151	0.080	0.208
		Right Tilt	0.023	0.154	0.011	0.177	0.034	0.188
	LTE Band 41	Left Touch	0.024	0.098	0.092	0.122	0.116	0.214
		Right Touch	0.038	0.139	0.038	0.177	0.076	**0.215**
		Left Tilt	0.024	0.128	0.057	0.152	0.081	0.209
		Right Tilt	0.021	0.154	0.011	0.175	0.032	0.186

Table 12.4.6 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	0.118	0.098	0.100	0.216	0.218	0.316
		Right Touch	0.161	0.139	0.369	0.300	0.530	**0.669**
		Left Tilt	0.059	0.128	0.121	0.187	0.180	0.308
		Right Tilt	0.069	0.154	0.335	0.223	0.404	0.558
	GPRS 850	Left Touch	0.134	0.098	0.100	0.232	0.234	0.332
		Right Touch	0.219	0.139	0.369	0.358	0.588	**0.727**
		Left Tilt	0.066	0.128	0.121	0.194	0.187	0.315
		Right Tilt	0.079	0.154	0.335	0.233	0.414	0.568
	GSM 1900	Left Touch	0.096	0.098	0.100	0.194	0.196	0.294
		Right Touch	0.089	0.139	0.369	0.228	0.458	**0.597**
		Left Tilt	0.085	0.128	0.121	0.213	0.206	0.334
		Right Tilt	0.084	0.154	0.335	0.238	0.419	0.573
	GPRS 1900	Left Touch	0.180	0.098	0.100	0.278	0.280	0.378
		Right Touch	0.149	0.139	0.369	0.288	0.518	**0.657**
		Left Tilt	0.149	0.128	0.121	0.277	0.270	0.398
		Right Tilt	0.147	0.154	0.335	0.301	0.482	0.636
	WCDMA 850	Left Touch	0.172	0.098	0.100	0.270	0.272	0.370
		Right Touch	0.225	0.139	0.369	0.364	0.594	**0.733**
		Left Tilt	0.103	0.128	0.121	0.231	0.224	0.352
		Right Tilt	0.085	0.154	0.335	0.239	0.420	0.574
	WCDMA 1700	Left Touch	0.103	0.098	0.100	0.201	0.203	0.301
		Right Touch	0.140	0.139	0.369	0.279	0.509	0.648
		Left Tilt	0.156	0.128	0.121	0.284	0.277	0.405
		Right Tilt	0.183	0.154	0.335	0.337	0.518	**0.672**
	WCDMA 1900	Left Touch	0.193	0.098	0.100	0.291	0.293	0.391
		Right Touch	0.143	0.139	0.369	0.282	0.512	**0.651**
		Left Tilt	0.165	0.128	0.121	0.293	0.286	0.414
		Right Tilt	0.153	0.154	0.335	0.307	0.488	0.642
	LTE Band 12	Left Touch	0.056	0.098	0.100	0.154	0.156	0.254
		Right Touch	0.075	0.139	0.369	0.214	0.444	**0.583**
		Left Tilt	0.037	0.128	0.121	0.165	0.158	0.286
		Right Tilt	0.027	0.154	0.335	0.181	0.362	0.516
	LTE Band 5	Left Touch	0.122	0.098	0.100	0.220	0.222	0.320
		Right Touch	0.147	0.139	0.369	0.286	0.516	**0.655**
		Left Tilt	0.055	0.128	0.121	0.183	0.176	0.304
		Right Tilt	0.056	0.154	0.335	0.210	0.391	0.545
	LTE Band 66	Left Touch	0.120	0.098	0.100	0.218	0.220	0.318
		Right Touch	0.132	0.139	0.369	0.271	0.501	0.640
		Left Tilt	0.141	0.128	0.121	0.269	0.262	0.390
		Right Tilt	0.156	0.154	0.335	0.310	0.491	**0.645**
	LTE Band 2	Left Touch	0.098	0.098	0.100	0.196	0.198	0.296
		Right Touch	0.133	0.139	0.369	0.272	0.502	**0.641**
		Left Tilt	0.132	0.128	0.121	0.260	0.253	0.381
		Right Tilt	0.144	0.154	0.335	0.298	0.479	0.633
	LTE Band 7	Left Touch	0.028	0.098	0.100	0.126	0.128	0.226
		Right Touch	0.040	0.139	0.369	0.179	0.409	**0.548**
		Left Tilt	0.023	0.128	0.121	0.151	0.144	0.272
		Right Tilt	0.023	0.154	0.335	0.177	0.358	0.512
	LTE Band 41	Left Touch	0.024	0.098	0.100	0.122	0.124	0.222
		Right Touch	0.038	0.139	0.369	0.177	0.407	**0.546**
		Left Tilt	0.024	0.128	0.121	0.152	0.145	0.273
		Right Tilt	0.021	0.154	0.335	0.175	0.356	0.510

Table 12.4.7 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.118	0.098	0.093	0.216	0.211	0.309
		Right Touch	0.161	0.139	0.258	0.300	0.419	**0.558**
		Left Tilt	0.059	0.128	0.111	0.187	0.170	0.298
		Right Tilt	0.069	0.154	0.323	0.223	0.392	0.546
	GPRS 850	Left Touch	0.134	0.098	0.093	0.232	0.227	0.325
		Right Touch	0.219	0.139	0.258	0.358	0.477	**0.616**
		Left Tilt	0.066	0.128	0.111	0.194	0.177	0.305
		Right Tilt	0.079	0.154	0.323	0.233	0.402	0.556
	GSM 1900	Left Touch	0.096	0.098	0.093	0.194	0.189	0.287
		Right Touch	0.089	0.139	0.258	0.228	0.347	0.486
		Left Tilt	0.085	0.128	0.111	0.213	0.196	0.324
		Right Tilt	0.084	0.154	0.323	0.238	0.407	**0.561**
	GPRS 1900	Left Touch	0.180	0.098	0.093	0.278	0.273	0.371
		Right Touch	0.149	0.139	0.258	0.288	0.407	0.546
		Left Tilt	0.149	0.128	0.111	0.277	0.260	0.388
		Right Tilt	0.147	0.154	0.323	0.301	0.470	**0.624**
	WCDMA 850	Left Touch	0.172	0.098	0.093	0.270	0.265	0.363
		Right Touch	0.225	0.139	0.258	0.364	0.483	**0.622**
		Left Tilt	0.103	0.128	0.111	0.231	0.214	0.342
		Right Tilt	0.085	0.154	0.323	0.239	0.408	0.562
	WCDMA 1700	Left Touch	0.103	0.098	0.093	0.201	0.196	0.294
		Right Touch	0.140	0.139	0.258	0.279	0.398	0.537
		Left Tilt	0.156	0.128	0.111	0.284	0.267	0.395
		Right Tilt	0.183	0.154	0.323	0.337	0.506	**0.660**
	WCDMA 1900	Left Touch	0.193	0.098	0.093	0.291	0.286	0.384
		Right Touch	0.143	0.139	0.258	0.282	0.401	0.540
		Left Tilt	0.165	0.128	0.111	0.293	0.276	0.404
		Right Tilt	0.153	0.154	0.323	0.307	0.476	**0.630**
	LTE Band 12	Left Touch	0.056	0.098	0.093	0.154	0.149	0.247
		Right Touch	0.075	0.139	0.258	0.214	0.333	0.472
		Left Tilt	0.037	0.128	0.111	0.165	0.148	0.276
		Right Tilt	0.027	0.154	0.323	0.181	0.350	**0.504**
	LTE Band 5	Left Touch	0.122	0.098	0.093	0.220	0.215	0.313
		Right Touch	0.147	0.139	0.258	0.286	0.405	**0.544**
		Left Tilt	0.055	0.128	0.111	0.183	0.166	0.294
		Right Tilt	0.056	0.154	0.323	0.210	0.379	0.533
	LTE Band 66	Left Touch	0.120	0.098	0.093	0.218	0.213	0.311
		Right Touch	0.132	0.139	0.258	0.271	0.390	0.529
		Left Tilt	0.141	0.128	0.111	0.269	0.252	0.380
		Right Tilt	0.156	0.154	0.323	0.310	0.479	**0.633**
	LTE Band 2	Left Touch	0.098	0.098	0.093	0.196	0.191	0.289
		Right Touch	0.133	0.139	0.258	0.272	0.391	0.530
		Left Tilt	0.132	0.128	0.111	0.260	0.243	0.371
		Right Tilt	0.144	0.154	0.323	0.298	0.467	**0.621**
	LTE Band 7	Left Touch	0.028	0.098	0.093	0.126	0.121	0.219
		Right Touch	0.040	0.139	0.258	0.179	0.298	0.437
		Left Tilt	0.023	0.128	0.111	0.151	0.134	0.262
		Right Tilt	0.023	0.154	0.323	0.177	0.346	**0.500**
	LTE Band 41	Left Touch	0.024	0.098	0.093	0.122	0.117	0.215
		Right Touch	0.038	0.139	0.258	0.177	0.296	0.435
		Left Tilt	0.024	0.128	0.111	0.152	0.135	0.263
		Right Tilt	0.021	0.154	0.323	0.175	0.344	**0.498**

Table 12.4.8 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	Left Touch	0.118	0.098	0.102	0.216	0.220	0.318
		Right Touch	0.161	0.139	0.041	0.300	0.202	**0.341**
		Left Tilt	0.059	0.128	0.111	0.187	0.170	0.298
		Right Tilt	0.069	0.154	0.003	0.223	0.072	0.226
	GPRS 850	Left Touch	0.134	0.098	0.102	0.232	0.236	0.334
		Right Touch	0.219	0.139	0.041	0.358	0.260	**0.399**
		Left Tilt	0.066	0.128	0.111	0.194	0.177	0.305
		Right Tilt	0.079	0.154	0.003	0.233	0.082	0.236
	GSM 1900	Left Touch	0.096	0.098	0.102	0.194	0.198	0.296
		Right Touch	0.089	0.139	0.041	0.228	0.130	0.269
		Left Tilt	0.085	0.128	0.111	0.213	0.196	**0.324**
		Right Tilt	0.084	0.154	0.003	0.238	0.087	0.241
	GPRS 1900	Left Touch	0.180	0.098	0.102	0.278	0.282	0.380
		Right Touch	0.149	0.139	0.041	0.288	0.190	0.329
		Left Tilt	0.149	0.128	0.111	0.277	0.260	**0.388**
		Right Tilt	0.147	0.154	0.003	0.301	0.150	0.304
	WCDMA 850	Left Touch	0.172	0.098	0.102	0.270	0.274	0.372
		Right Touch	0.225	0.139	0.041	0.364	0.266	**0.405**
		Left Tilt	0.103	0.128	0.111	0.231	0.214	0.342
		Right Tilt	0.085	0.154	0.003	0.239	0.088	0.242
	WCDMA 1700	Left Touch	0.103	0.098	0.102	0.201	0.205	0.303
		Right Touch	0.140	0.139	0.041	0.279	0.181	0.320
		Left Tilt	0.156	0.128	0.111	0.284	0.267	**0.395**
		Right Tilt	0.183	0.154	0.003	0.337	0.186	0.340
	WCDMA 1900	Left Touch	0.193	0.098	0.102	0.291	0.295	0.393
		Right Touch	0.143	0.139	0.041	0.282	0.184	0.323
		Left Tilt	0.165	0.128	0.111	0.293	0.276	**0.404**
		Right Tilt	0.153	0.154	0.003	0.307	0.156	0.310
	LTE Band 12	Left Touch	0.056	0.098	0.102	0.154	0.158	0.256
		Right Touch	0.075	0.139	0.041	0.214	0.116	0.255
		Left Tilt	0.037	0.128	0.111	0.165	0.148	**0.276**
		Right Tilt	0.027	0.154	0.003	0.181	0.030	0.184
	LTE Band 5	Left Touch	0.122	0.098	0.102	0.220	0.224	0.322
		Right Touch	0.147	0.139	0.041	0.286	0.188	**0.327**
		Left Tilt	0.055	0.128	0.111	0.183	0.166	0.294
		Right Tilt	0.056	0.154	0.003	0.210	0.059	0.213
	LTE Band 66	Left Touch	0.120	0.098	0.102	0.218	0.222	0.320
		Right Touch	0.132	0.139	0.041	0.271	0.173	0.312
		Left Tilt	0.141	0.128	0.111	0.269	0.252	**0.380**
		Right Tilt	0.156	0.154	0.003	0.310	0.159	0.313
	LTE Band 2	Left Touch	0.098	0.098	0.102	0.196	0.200	0.298
		Right Touch	0.133	0.139	0.041	0.272	0.174	0.313
		Left Tilt	0.132	0.128	0.111	0.260	0.243	**0.371**
		Right Tilt	0.144	0.154	0.003	0.298	0.147	0.301
	LTE Band 7	Left Touch	0.028	0.098	0.102	0.126	0.130	0.228
		Right Touch	0.040	0.139	0.041	0.179	0.081	0.220
		Left Tilt	0.023	0.128	0.111	0.151	0.134	**0.262**
		Right Tilt	0.023	0.154	0.003	0.177	0.026	0.180
	LTE Band 41	Left Touch	0.024	0.098	0.102	0.122	0.126	0.224
		Right Touch	0.038	0.139	0.041	0.177	0.079	0.218
		Left Tilt	0.024	0.128	0.111	0.152	0.135	**0.263**
		Right Tilt	0.021	0.154	0.003	0.175	0.024	0.178

Table 12.4.9 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	0.118	0.098	0.105	0.216	0.223	0.321
		Right Touch	0.161	0.139	0.291	0.300	0.452	**0.591**
		Left Tilt	0.059	0.128	0.111	0.187	0.170	0.298
		Right Tilt	0.069	0.154	0.318	0.223	0.387	0.541
	GPRS 850	Left Touch	0.134	0.098	0.105	0.232	0.239	0.337
		Right Touch	0.219	0.139	0.291	0.358	0.510	**0.649**
		Left Tilt	0.066	0.128	0.111	0.194	0.177	0.305
		Right Tilt	0.079	0.154	0.318	0.233	0.397	0.551
	GSM 1900	Left Touch	0.096	0.098	0.105	0.194	0.201	0.299
		Right Touch	0.089	0.139	0.291	0.228	0.380	0.519
		Left Tilt	0.085	0.128	0.111	0.213	0.196	0.324
		Right Tilt	0.084	0.154	0.318	0.238	0.402	**0.556**
	GPRS 1900	Left Touch	0.180	0.098	0.105	0.278	0.285	0.383
		Right Touch	0.149	0.139	0.291	0.288	0.440	0.579
		Left Tilt	0.149	0.128	0.111	0.277	0.260	0.388
		Right Tilt	0.147	0.154	0.318	0.301	0.465	**0.619**
	WCDMA 850	Left Touch	0.172	0.098	0.105	0.270	0.277	0.375
		Right Touch	0.225	0.139	0.291	0.364	0.516	**0.655**
		Left Tilt	0.103	0.128	0.111	0.231	0.214	0.342
		Right Tilt	0.085	0.154	0.318	0.239	0.403	0.557
	WCDMA 1700	Left Touch	0.103	0.098	0.105	0.201	0.208	0.306
		Right Touch	0.140	0.139	0.291	0.279	0.431	0.570
		Left Tilt	0.156	0.128	0.111	0.284	0.267	0.395
		Right Tilt	0.183	0.154	0.318	0.337	0.501	**0.655**
	WCDMA 1900	Left Touch	0.193	0.098	0.105	0.291	0.298	0.396
		Right Touch	0.143	0.139	0.291	0.282	0.434	0.573
		Left Tilt	0.165	0.128	0.111	0.293	0.276	0.404
		Right Tilt	0.153	0.154	0.318	0.307	0.471	**0.625**
	LTE Band 12	Left Touch	0.056	0.098	0.105	0.154	0.161	0.259
		Right Touch	0.075	0.139	0.291	0.214	0.366	**0.505**
		Left Tilt	0.037	0.128	0.111	0.165	0.148	0.276
		Right Tilt	0.027	0.154	0.318	0.181	0.345	0.499
	LTE Band 5	Left Touch	0.122	0.098	0.105	0.220	0.227	0.325
		Right Touch	0.147	0.139	0.291	0.286	0.438	**0.577**
		Left Tilt	0.055	0.128	0.111	0.183	0.166	0.294
		Right Tilt	0.056	0.154	0.318	0.210	0.374	0.528
	LTE Band 66	Left Touch	0.120	0.098	0.105	0.218	0.225	0.323
		Right Touch	0.132	0.139	0.291	0.271	0.423	0.562
		Left Tilt	0.141	0.128	0.111	0.269	0.252	0.380
		Right Tilt	0.156	0.154	0.318	0.310	0.474	**0.628**
	LTE Band 2	Left Touch	0.098	0.098	0.105	0.196	0.203	0.301
		Right Touch	0.133	0.139	0.291	0.272	0.424	0.563
		Left Tilt	0.132	0.128	0.111	0.260	0.243	0.371
		Right Tilt	0.144	0.154	0.318	0.298	0.462	**0.616**
	LTE Band 7	Left Touch	0.028	0.098	0.105	0.126	0.133	0.231
		Right Touch	0.040	0.139	0.291	0.179	0.331	0.470
		Left Tilt	0.023	0.128	0.111	0.151	0.134	0.262
		Right Tilt	0.023	0.154	0.318	0.177	0.341	**0.495**
	LTE Band 41	Left Touch	0.024	0.098	0.105	0.122	0.129	0.227
		Right Touch	0.038	0.139	0.291	0.177	0.329	0.468
		Left Tilt	0.024	0.128	0.111	0.152	0.135	0.263
		Right Tilt	0.021	0.154	0.318	0.175	0.339	**0.493**

Table 12.4.10 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	0.118	0.404	0.522
		Right Touch	0.161	0.587	**0.748**
		Left Tilt	0.059	0.526	0.585
		Right Tilt	0.069	0.584	0.653
	GPRS 850	Left Touch	0.134	0.404	0.538
		Right Touch	0.219	0.587	**0.806**
		Left Tilt	0.066	0.526	0.592
		Right Tilt	0.079	0.584	0.663
	GSM 1900	Left Touch	0.096	0.404	0.500
		Right Touch	0.089	0.587	0.676
		Left Tilt	0.085	0.526	0.611
		Right Tilt	0.084	0.584	**0.668**
	GPRS 1900	Left Touch	0.180	0.404	0.584
		Right Touch	0.149	0.587	**0.736**
		Left Tilt	0.149	0.526	0.675
		Right Tilt	0.147	0.584	0.731
	WCDMA 850	Left Touch	0.172	0.404	0.576
		Right Touch	**0.225**	**0.587**	**0.812**
		Left Tilt	0.103	0.526	0.629
		Right Tilt	0.085	0.584	0.669
	WCDMA 1700	Left Touch	0.103	0.404	0.507
		Right Touch	0.140	0.587	0.727
		Left Tilt	0.156	0.526	0.682
		Right Tilt	0.183	0.584	**0.767**
	WCDMA 1900	Left Touch	0.193	0.404	0.597
		Right Touch	0.143	0.587	0.730
		Left Tilt	0.165	0.526	0.691
		Right Tilt	0.153	0.584	**0.737**
	LTE Band 12	Left Touch	0.056	0.404	0.460
		Right Touch	0.075	0.587	**0.662**
		Left Tilt	0.037	0.526	0.563
		Right Tilt	0.027	0.584	0.611
	LTE Band 5	Left Touch	0.122	0.404	0.526
		Right Touch	0.147	0.587	**0.734**
		Left Tilt	0.055	0.526	0.581
		Right Tilt	0.056	0.584	0.640
	LTE Band 66	Left Touch	0.120	0.404	0.524
		Right Touch	0.132	0.587	0.719
		Left Tilt	0.141	0.526	0.667
		Right Tilt	0.156	0.584	**0.740**
	LTE Band 2	Left Touch	0.098	0.404	0.502
		Right Touch	0.133	0.587	0.720
		Left Tilt	0.132	0.526	0.658
		Right Tilt	0.144	0.584	**0.728**
	LTE Band 7	Left Touch	0.028	0.404	0.432
		Right Touch	0.040	0.587	**0.627**
		Left Tilt	0.023	0.526	0.549
		Right Tilt	0.023	0.584	0.607
	LTE Band 41	Left Touch	0.024	0.404	0.428
		Right Touch	0.038	0.587	**0.625**
		Left Tilt	0.024	0.526	0.550
		Right Tilt	0.021	0.584	0.605

Table 12.4.11 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	0.118	0.020	0.138
		Right Touch	0.161	0.073	**0.234**
		Left Tilt	0.059	0.007	0.066
		Right Tilt	0.069	0.021	0.090
	GPRS 850	Left Touch	0.134	0.020	0.154
		Right Touch	0.219	0.073	**0.292**
		Left Tilt	0.066	0.007	0.073
		Right Tilt	0.079	0.021	0.100
	GSM 1900	Left Touch	0.096	0.020	0.116
		Right Touch	0.089	0.073	**0.162**
		Left Tilt	0.085	0.007	0.092
		Right Tilt	0.084	0.021	0.105
	GPRS 1900	Left Touch	0.180	0.020	0.200
		Right Touch	0.149	0.073	**0.222**
		Left Tilt	0.149	0.007	0.156
		Right Tilt	0.147	0.021	0.168
	WCDMA 850	Left Touch	0.172	0.020	0.192
		Right Touch	0.225	0.073	**0.298**
		Left Tilt	0.103	0.007	0.110
		Right Tilt	0.085	0.021	0.106
	WCDMA 1700	Left Touch	0.103	0.020	0.123
		Right Touch	0.140	0.073	**0.213**
		Left Tilt	0.156	0.007	0.163
		Right Tilt	0.183	0.021	0.204
	WCDMA 1900	Left Touch	0.193	0.020	0.213
		Right Touch	0.143	0.073	**0.216**
		Left Tilt	0.165	0.007	0.172
		Right Tilt	0.153	0.021	0.174
	LTE Band 12	Left Touch	0.056	0.020	0.076
		Right Touch	0.075	0.073	**0.148**
		Left Tilt	0.037	0.007	0.044
		Right Tilt	0.027	0.021	0.048
	LTE Band 5	Left Touch	0.122	0.020	0.142
		Right Touch	0.147	0.073	**0.220**
		Left Tilt	0.055	0.007	0.062
		Right Tilt	0.056	0.021	0.077
	LTE Band 66	Left Touch	0.120	0.020	0.140
		Right Touch	0.132	0.073	**0.205**
		Left Tilt	0.141	0.007	0.148
		Right Tilt	0.156	0.021	0.177
	LTE Band 2	Left Touch	0.098	0.020	0.118
		Right Touch	0.133	0.073	**0.206**
		Left Tilt	0.132	0.007	0.139
		Right Tilt	0.144	0.021	0.165
	LTE Band 7	Left Touch	0.028	0.020	0.048
		Right Touch	0.040	0.073	**0.113**
		Left Tilt	0.023	0.007	0.030
		Right Tilt	0.023	0.021	0.044
	LTE Band 41	Left Touch	0.024	0.020	0.044
		Right Touch	0.038	0.073	**0.111**
		Left Tilt	0.024	0.007	0.031
		Right Tilt	0.021	0.021	0.042

Table 12.4.12 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	0.118	0.442	0.560
		Right Touch	0.161	0.585	**0.746**
		Left Tilt	0.059	0.580	0.639
		Right Tilt	0.069	0.552	0.621
	GPRS 850	Left Touch	0.134	0.442	0.576
		Right Touch	0.219	0.585	**0.804**
		Left Tilt	0.066	0.580	0.646
		Right Tilt	0.079	0.552	0.631
	GSM 1900	Left Touch	0.096	0.442	0.538
		Right Touch	0.089	0.585	**0.674**
		Left Tilt	0.085	0.580	0.665
		Right Tilt	0.084	0.552	0.636
	GPRS 1900	Left Touch	0.180	0.442	0.622
		Right Touch	0.149	0.585	**0.734**
		Left Tilt	0.149	0.580	0.729
		Right Tilt	0.147	0.552	0.699
	WCDMA 850	Left Touch	0.172	0.442	0.614
		Right Touch	0.225	0.585	**0.810**
		Left Tilt	0.103	0.580	0.683
		Right Tilt	0.085	0.552	0.637
	WCDMA 1700	Left Touch	0.103	0.442	0.545
		Right Touch	0.140	0.585	0.725
		Left Tilt	0.156	0.580	**0.736**
		Right Tilt	0.183	0.552	0.735
	WCDMA 1900	Left Touch	0.193	0.442	0.635
		Right Touch	0.143	0.585	0.728
		Left Tilt	0.165	0.580	**0.745**
		Right Tilt	0.153	0.552	0.705
	LTE Band 12	Left Touch	0.056	0.442	0.498
		Right Touch	0.075	0.585	**0.660**
		Left Tilt	0.037	0.580	0.617
		Right Tilt	0.027	0.552	0.579
	LTE Band 5	Left Touch	0.122	0.442	0.564
		Right Touch	0.147	0.585	**0.732**
		Left Tilt	0.055	0.580	0.635
		Right Tilt	0.056	0.552	0.608
	LTE Band 66	Left Touch	0.120	0.442	0.562
		Right Touch	0.132	0.585	0.717
		Left Tilt	0.141	0.580	**0.721**
		Right Tilt	0.156	0.552	0.708
	LTE Band 2	Left Touch	0.098	0.442	0.540
		Right Touch	0.133	0.585	**0.718**
		Left Tilt	0.132	0.580	0.712
		Right Tilt	0.144	0.552	0.696
	LTE Band 7	Left Touch	0.028	0.442	0.470
		Right Touch	0.040	0.585	**0.625**
		Left Tilt	0.023	0.580	0.603
		Right Tilt	0.023	0.552	0.575
	LTE Band 41	Left Touch	0.024	0.442	0.466
		Right Touch	0.038	0.585	**0.623**
		Left Tilt	0.024	0.580	0.604
		Right Tilt	0.021	0.552	0.573

Table 12.4.13 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	0.118	0.062	0.180
		Right Touch	0.161	0.304	**0.465**
		Left Tilt	0.059	0.072	0.131
		Right Tilt	0.069	0.244	0.313
	GPRS 850	Left Touch	0.134	0.062	0.196
		Right Touch	0.219	0.304	**0.523**
		Left Tilt	0.066	0.072	0.138
		Right Tilt	0.079	0.244	0.323
	GSM 1900	Left Touch	0.096	0.062	0.158
		Right Touch	0.089	0.304	**0.393**
		Left Tilt	0.085	0.072	0.157
		Right Tilt	0.084	0.244	0.328
	GPRS 1900	Left Touch	0.180	0.062	0.242
		Right Touch	0.149	0.304	**0.453**
		Left Tilt	0.149	0.072	0.221
		Right Tilt	0.147	0.244	0.391
	WCDMA 850	Left Touch	0.172	0.062	0.234
		Right Touch	0.225	0.304	**0.529**
		Left Tilt	0.103	0.072	0.175
		Right Tilt	0.085	0.244	0.329
	WCDMA 1700	Left Touch	0.103	0.062	0.165
		Right Touch	0.140	0.304	**0.444**
		Left Tilt	0.156	0.072	0.228
		Right Tilt	0.183	0.244	0.427
	WCDMA 1900	Left Touch	0.193	0.062	0.255
		Right Touch	0.143	0.304	**0.447**
		Left Tilt	0.165	0.072	0.237
		Right Tilt	0.153	0.244	0.397
	LTE Band 12	Left Touch	0.056	0.062	0.118
		Right Touch	0.075	0.304	**0.379**
		Left Tilt	0.037	0.072	0.109
		Right Tilt	0.027	0.244	0.271
	LTE Band 5	Left Touch	0.122	0.062	0.184
		Right Touch	0.147	0.304	**0.451**
		Left Tilt	0.055	0.072	0.127
		Right Tilt	0.056	0.244	0.300
	LTE Band 66	Left Touch	0.120	0.062	0.182
		Right Touch	0.132	0.304	**0.436**
		Left Tilt	0.141	0.072	0.213
		Right Tilt	0.156	0.244	0.400
	LTE Band 2	Left Touch	0.098	0.062	0.160
		Right Touch	0.133	0.304	**0.437**
		Left Tilt	0.132	0.072	0.204
		Right Tilt	0.144	0.244	0.388
	LTE Band 7	Left Touch	0.028	0.062	0.090
		Right Touch	0.040	0.304	**0.344**
		Left Tilt	0.023	0.072	0.095
		Right Tilt	0.023	0.244	0.267
	LTE Band 41	Left Touch	0.024	0.062	0.086
		Right Touch	0.038	0.304	**0.342**
		Left Tilt	0.024	0.072	0.096
		Right Tilt	0.021	0.244	0.265

Table 12.4.14 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	0.118	0.092	**0.210**
		Right Touch	0.161	0.012	0.173
		Left Tilt	0.059	0.095	0.154
		Right Tilt	0.069	0.007	0.076
	GPRS 850	Left Touch	0.134	0.092	0.226
		Right Touch	0.219	0.012	**0.231**
		Left Tilt	0.066	0.095	0.161
		Right Tilt	0.079	0.007	0.086
	GSM 1900	Left Touch	0.096	0.092	**0.188**
		Right Touch	0.089	0.012	0.101
		Left Tilt	0.085	0.095	0.180
		Right Tilt	0.084	0.007	0.091
	GPRS 1900	Left Touch	0.180	0.092	**0.272**
		Right Touch	0.149	0.012	0.161
		Left Tilt	0.149	0.095	0.244
		Right Tilt	0.147	0.007	0.154
	WCDMA 850	Left Touch	0.172	0.092	**0.264**
		Right Touch	0.225	0.012	0.237
		Left Tilt	0.103	0.095	0.198
		Right Tilt	0.085	0.007	0.092
	WCDMA 1700	Left Touch	0.103	0.092	0.195
		Right Touch	0.140	0.012	0.152
		Left Tilt	0.156	0.095	**0.251**
		Right Tilt	0.183	0.007	0.190
	WCDMA 1900	Left Touch	0.193	0.092	**0.285**
		Right Touch	0.143	0.012	0.155
		Left Tilt	0.165	0.095	0.260
		Right Tilt	0.153	0.007	0.160
	LTE Band 12	Left Touch	0.056	0.092	**0.148**
		Right Touch	0.075	0.012	0.087
		Left Tilt	0.037	0.095	0.132
		Right Tilt	0.027	0.007	0.034
	LTE Band 5	Left Touch	0.122	0.092	**0.214**
		Right Touch	0.147	0.012	0.159
		Left Tilt	0.055	0.095	0.150
		Right Tilt	0.056	0.007	0.063
	LTE Band 66	Left Touch	0.120	0.092	0.212
		Right Touch	0.132	0.012	0.144
		Left Tilt	0.141	0.095	**0.236**
		Right Tilt	0.156	0.007	0.163
	LTE Band 2	Left Touch	0.098	0.092	0.190
		Right Touch	0.133	0.012	0.145
		Left Tilt	0.132	0.095	**0.227**
		Right Tilt	0.144	0.007	0.151
	LTE Band 7	Left Touch	0.028	0.092	**0.120**
		Right Touch	0.040	0.012	0.052
		Left Tilt	0.023	0.095	0.118
		Right Tilt	0.023	0.007	0.030
	LTE Band 41	Left Touch	0.024	0.092	0.116
		Right Touch	0.038	0.012	0.050
		Left Tilt	0.024	0.095	**0.119**
		Right Tilt	0.021	0.007	0.028

Table 12.4.15 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	0.118	0.054	0.172
		Right Touch	0.161	0.357	**0.518**
		Left Tilt	0.059	0.066	0.125
		Right Tilt	0.069	0.240	0.309
	GPRS 850	Left Touch	0.134	0.054	0.188
		Right Touch	0.219	0.357	**0.576**
		Left Tilt	0.066	0.066	0.132
		Right Tilt	0.079	0.240	0.319
	GSM 1900	Left Touch	0.096	0.054	0.150
		Right Touch	0.089	0.357	**0.446**
		Left Tilt	0.085	0.066	0.151
		Right Tilt	0.084	0.240	0.324
	GPRS 1900	Left Touch	0.180	0.054	0.234
		Right Touch	0.149	0.357	**0.506**
		Left Tilt	0.149	0.066	0.215
		Right Tilt	0.147	0.240	0.387
	WCDMA 850	Left Touch	0.172	0.054	0.226
		Right Touch	0.225	0.357	**0.582**
		Left Tilt	0.103	0.066	0.169
		Right Tilt	0.085	0.240	0.325
	WCDMA 1700	Left Touch	0.103	0.054	0.157
		Right Touch	0.140	0.357	**0.497**
		Left Tilt	0.156	0.066	0.222
		Right Tilt	0.183	0.240	0.423
	WCDMA 1900	Left Touch	0.193	0.054	0.247
		Right Touch	0.143	0.357	**0.500**
		Left Tilt	0.165	0.066	0.231
		Right Tilt	0.153	0.240	0.393
	LTE Band 12	Left Touch	0.056	0.054	0.110
		Right Touch	0.075	0.357	**0.432**
		Left Tilt	0.037	0.066	0.103
		Right Tilt	0.027	0.240	0.267
	LTE Band 5	Left Touch	0.122	0.054	0.176
		Right Touch	0.147	0.357	**0.504**
		Left Tilt	0.055	0.066	0.121
		Right Tilt	0.056	0.240	0.296
	LTE Band 66	Left Touch	0.120	0.054	0.174
		Right Touch	0.132	0.357	**0.489**
		Left Tilt	0.141	0.066	0.207
		Right Tilt	0.156	0.240	0.396
	LTE Band 2	Left Touch	0.098	0.054	0.152
		Right Touch	0.133	0.357	**0.490**
		Left Tilt	0.132	0.066	0.198
		Right Tilt	0.144	0.240	0.384
	LTE Band 7	Left Touch	0.028	0.054	0.082
		Right Touch	0.040	0.357	**0.397**
		Left Tilt	0.023	0.066	0.089
		Right Tilt	0.023	0.240	0.263
	LTE Band 41	Left Touch	0.024	0.054	0.078
		Right Touch	0.038	0.357	**0.395**
		Left Tilt	0.024	0.066	0.090
		Right Tilt	0.021	0.240	0.261

Table 12.4.16 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	0.118	0.097	0.215
		Right Touch	0.161	0.406	**0.567**
		Left Tilt	0.059	0.093	0.152
		Right Tilt	0.069	0.347	0.416
	GPRS 850	Left Touch	0.134	0.097	0.231
		Right Touch	0.219	0.406	**0.625**
		Left Tilt	0.066	0.093	0.159
		Right Tilt	0.079	0.347	0.426
	GSM 1900	Left Touch	0.096	0.097	0.193
		Right Touch	0.089	0.406	**0.495**
		Left Tilt	0.085	0.093	0.178
		Right Tilt	0.084	0.347	0.431
	GPRS 1900	Left Touch	0.180	0.097	0.277
		Right Touch	0.149	0.406	**0.555**
		Left Tilt	0.149	0.093	0.242
		Right Tilt	0.147	0.347	0.494
	WCDMA 850	Left Touch	0.172	0.097	0.269
		Right Touch	0.225	0.406	**0.631**
		Left Tilt	0.103	0.093	0.196
		Right Tilt	0.085	0.347	0.432
	WCDMA 1700	Left Touch	0.103	0.097	0.200
		Right Touch	0.140	0.406	**0.546**
		Left Tilt	0.156	0.093	0.249
		Right Tilt	0.183	0.347	0.530
	WCDMA 1900	Left Touch	0.193	0.097	0.290
		Right Touch	0.143	0.406	**0.549**
		Left Tilt	0.165	0.093	0.258
		Right Tilt	0.153	0.347	0.500
	LTE Band 12	Left Touch	0.056	0.097	0.153
		Right Touch	0.075	0.406	**0.481**
		Left Tilt	0.037	0.093	0.130
		Right Tilt	0.027	0.347	0.374
	LTE Band 5	Left Touch	0.122	0.097	0.219
		Right Touch	0.147	0.406	**0.553**
		Left Tilt	0.055	0.093	0.148
		Right Tilt	0.056	0.347	0.403
	LTE Band 66	Left Touch	0.120	0.097	0.217
		Right Touch	0.132	0.406	**0.538**
		Left Tilt	0.141	0.093	0.234
		Right Tilt	0.156	0.347	0.503
	LTE Band 2	Left Touch	0.098	0.097	0.195
		Right Touch	0.133	0.406	**0.539**
		Left Tilt	0.132	0.093	0.225
		Right Tilt	0.144	0.347	0.491
	LTE Band 7	Left Touch	0.028	0.097	0.125
		Right Touch	0.040	0.406	**0.446**
		Left Tilt	0.023	0.093	0.116
		Right Tilt	0.023	0.347	0.370
	LTE Band 41	Left Touch	0.024	0.097	0.121
		Right Touch	0.038	0.406	**0.444**
		Left Tilt	0.024	0.093	0.117
		Right Tilt	0.021	0.347	0.368

Table 12.4.17 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	0.118	0.092	**0.210**
		Right Touch	0.161	0.038	0.199
		Left Tilt	0.059	0.057	0.116
		Right Tilt	0.069	0.011	0.080
	GPRS 850	Left Touch	0.134	0.092	0.226
		Right Touch	0.219	0.038	**0.257**
		Left Tilt	0.066	0.057	0.123
		Right Tilt	0.079	0.011	0.090
	GSM 1900	Left Touch	0.096	0.092	**0.188**
		Right Touch	0.089	0.038	0.127
		Left Tilt	0.085	0.057	0.142
		Right Tilt	0.084	0.011	0.095
	GPRS 1900	Left Touch	0.180	0.092	**0.272**
		Right Touch	0.149	0.038	0.187
		Left Tilt	0.149	0.057	0.206
		Right Tilt	0.147	0.011	0.158
	WCDMA 850	Left Touch	0.172	0.092	**0.264**
		Right Touch	0.225	0.038	0.263
		Left Tilt	0.103	0.057	0.160
		Right Tilt	0.085	0.011	0.096
	WCDMA 1700	Left Touch	0.103	0.092	0.195
		Right Touch	0.140	0.038	0.178
		Left Tilt	0.156	0.057	**0.213**
		Right Tilt	0.183	0.011	0.194
	WCDMA 1900	Left Touch	0.193	0.092	**0.285**
		Right Touch	0.143	0.038	0.181
		Left Tilt	0.165	0.057	0.222
		Right Tilt	0.153	0.011	0.164
	LTE Band 12	Left Touch	0.056	0.092	**0.148**
		Right Touch	0.075	0.038	0.113
		Left Tilt	0.037	0.057	0.094
		Right Tilt	0.027	0.011	0.038
	LTE Band 5	Left Touch	0.122	0.092	**0.214**
		Right Touch	0.147	0.038	0.185
		Left Tilt	0.055	0.057	0.112
		Right Tilt	0.056	0.011	0.067
	LTE Band 66	Left Touch	0.120	0.092	**0.212**
		Right Touch	0.132	0.038	0.170
		Left Tilt	0.141	0.057	0.198
		Right Tilt	0.156	0.011	0.167
	LTE Band 2	Left Touch	0.098	0.092	**0.190**
		Right Touch	0.133	0.038	0.171
		Left Tilt	0.132	0.057	0.189
		Right Tilt	0.144	0.011	0.155
	LTE Band 7	Left Touch	0.028	0.092	**0.120**
		Right Touch	0.040	0.038	0.078
		Left Tilt	0.023	0.057	0.080
		Right Tilt	0.023	0.011	0.034
	LTE Band 41	Left Touch	0.024	0.092	**0.116**
		Right Touch	0.038	0.038	0.076
		Left Tilt	0.024	0.057	0.081
		Right Tilt	0.021	0.011	0.032

Table 12.4.18 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	0.118	0.100	0.218
		Right Touch	0.161	0.369	**0.530**
		Left Tilt	0.059	0.121	0.180
		Right Tilt	0.069	0.335	0.404
	GPRS 850	Left Touch	0.134	0.100	0.234
		Right Touch	0.219	0.369	**0.588**
		Left Tilt	0.066	0.121	0.187
		Right Tilt	0.079	0.335	0.414
	GSM 1900	Left Touch	0.096	0.100	0.196
		Right Touch	0.089	0.369	**0.458**
		Left Tilt	0.085	0.121	0.206
		Right Tilt	0.084	0.335	0.419
	GPRS 1900	Left Touch	0.180	0.100	0.280
		Right Touch	0.149	0.369	**0.518**
		Left Tilt	0.149	0.121	0.270
		Right Tilt	0.147	0.335	0.482
	WCDMA 850	Left Touch	0.172	0.100	0.272
		Right Touch	0.225	0.369	**0.594**
		Left Tilt	0.103	0.121	0.224
		Right Tilt	0.085	0.335	0.420
	WCDMA 1700	Left Touch	0.103	0.100	0.203
		Right Touch	0.140	0.369	0.509
		Left Tilt	0.156	0.121	0.277
		Right Tilt	0.183	0.335	**0.518**
	WCDMA 1900	Left Touch	0.193	0.100	0.293
		Right Touch	0.143	0.369	**0.512**
		Left Tilt	0.165	0.121	0.286
		Right Tilt	0.153	0.335	0.488
	LTE Band 12	Left Touch	0.056	0.100	0.156
		Right Touch	0.075	0.369	**0.444**
		Left Tilt	0.037	0.121	0.158
		Right Tilt	0.027	0.335	0.362
	LTE Band 5	Left Touch	0.122	0.100	0.222
		Right Touch	0.147	0.369	**0.516**
		Left Tilt	0.055	0.121	0.176
		Right Tilt	0.056	0.335	0.391
	LTE Band 66	Left Touch	0.120	0.100	0.220
		Right Touch	0.132	0.369	**0.501**
		Left Tilt	0.141	0.121	0.262
		Right Tilt	0.156	0.335	0.491
	LTE Band 2	Left Touch	0.098	0.100	0.198
		Right Touch	0.133	0.369	**0.502**
		Left Tilt	0.132	0.121	0.253
		Right Tilt	0.144	0.335	0.479
	LTE Band 7	Left Touch	0.028	0.100	0.128
		Right Touch	0.040	0.369	**0.409**
		Left Tilt	0.023	0.121	0.144
		Right Tilt	0.023	0.335	0.358
	LTE Band 41	Left Touch	0.024	0.100	0.124
		Right Touch	0.038	0.369	**0.407**
		Left Tilt	0.024	0.121	0.145
		Right Tilt	0.021	0.335	0.356

Table 12.4.19 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	0.118	0.093	0.211
		Right Touch	0.161	0.258	**0.419**
		Left Tilt	0.059	0.111	0.170
		Right Tilt	0.069	0.323	0.392
	GPRS 850	Left Touch	0.134	0.093	0.227
		Right Touch	0.219	0.258	**0.477**
		Left Tilt	0.066	0.111	0.177
		Right Tilt	0.079	0.323	0.402
	GSM 1900	Left Touch	0.096	0.093	0.189
		Right Touch	0.089	0.258	0.347
		Left Tilt	0.085	0.111	0.196
		Right Tilt	0.084	0.323	**0.407**
	GPRS 1900	Left Touch	0.180	0.093	0.273
		Right Touch	0.149	0.258	0.407
		Left Tilt	0.149	0.111	0.260
		Right Tilt	0.147	0.323	**0.470**
	WCDMA 850	Left Touch	0.172	0.093	0.265
		Right Touch	0.225	0.258	**0.483**
		Left Tilt	0.103	0.111	0.214
		Right Tilt	0.085	0.323	0.408
	WCDMA 1700	Left Touch	0.103	0.093	0.196
		Right Touch	0.140	0.258	0.398
		Left Tilt	0.156	0.111	0.267
		Right Tilt	0.183	0.323	**0.506**
	WCDMA 1900	Left Touch	0.193	0.093	0.286
		Right Touch	0.143	0.258	0.401
		Left Tilt	0.165	0.111	0.276
		Right Tilt	0.153	0.323	**0.476**
	LTE Band 12	Left Touch	0.056	0.093	0.149
		Right Touch	0.075	0.258	0.333
		Left Tilt	0.037	0.111	0.148
		Right Tilt	0.027	0.323	**0.350**
	LTE Band 5	Left Touch	0.122	0.093	0.215
		Right Touch	0.147	0.258	**0.405**
		Left Tilt	0.055	0.111	0.166
		Right Tilt	0.056	0.323	0.379
	LTE Band 66	Left Touch	0.120	0.093	0.213
		Right Touch	0.132	0.258	0.390
		Left Tilt	0.141	0.111	0.252
		Right Tilt	0.156	0.323	**0.479**
	LTE Band 2	Left Touch	0.098	0.093	0.191
		Right Touch	0.133	0.258	0.391
		Left Tilt	0.132	0.111	0.243
		Right Tilt	0.144	0.323	**0.467**
	LTE Band 7	Left Touch	0.028	0.093	0.121
		Right Touch	0.040	0.258	0.298
		Left Tilt	0.023	0.111	0.134
		Right Tilt	0.023	0.323	**0.346**
	LTE Band 41	Left Touch	0.024	0.093	0.117
		Right Touch	0.038	0.258	0.296
		Left Tilt	0.024	0.111	0.135
		Right Tilt	0.021	0.323	**0.344**

Table 12.4.20 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	0.118	0.102	**0.220**
		Right Touch	0.161	0.041	0.202
		Left Tilt	0.059	0.111	0.170
		Right Tilt	0.069	0.003	0.072
	GPRS 850	Left Touch	0.134	0.102	0.236
		Right Touch	0.219	0.041	**0.260**
		Left Tilt	0.066	0.111	0.177
		Right Tilt	0.079	0.003	0.082
	GSM 1900	Left Touch	0.096	0.102	**0.198**
		Right Touch	0.089	0.041	0.130
		Left Tilt	0.085	0.111	0.196
		Right Tilt	0.084	0.003	0.087
	GPRS 1900	Left Touch	0.180	0.102	**0.282**
		Right Touch	0.149	0.041	0.190
		Left Tilt	0.149	0.111	0.260
		Right Tilt	0.147	0.003	0.150
	WCDMA 850	Left Touch	0.172	0.102	**0.274**
		Right Touch	0.225	0.041	0.266
		Left Tilt	0.103	0.111	0.214
		Right Tilt	0.085	0.003	0.088
	WCDMA 1700	Left Touch	0.103	0.102	0.205
		Right Touch	0.140	0.041	0.181
		Left Tilt	0.156	0.111	**0.267**
		Right Tilt	0.183	0.003	0.186
	WCDMA 1900	Left Touch	0.193	0.102	**0.295**
		Right Touch	0.143	0.041	0.184
		Left Tilt	0.165	0.111	0.276
		Right Tilt	0.153	0.003	0.156
	LTE Band 12	Left Touch	0.056	0.102	**0.158**
		Right Touch	0.075	0.041	0.116
		Left Tilt	0.037	0.111	0.148
		Right Tilt	0.027	0.003	0.030
	LTE Band 5	Left Touch	0.122	0.102	**0.224**
		Right Touch	0.147	0.041	0.188
		Left Tilt	0.055	0.111	0.166
		Right Tilt	0.056	0.003	0.059
	LTE Band 66	Left Touch	0.120	0.102	0.222
		Right Touch	0.132	0.041	0.173
		Left Tilt	0.141	0.111	**0.252**
		Right Tilt	0.156	0.003	0.159
	LTE Band 2	Left Touch	0.098	0.102	0.200
		Right Touch	0.133	0.041	0.174
		Left Tilt	0.132	0.111	**0.243**
		Right Tilt	0.144	0.003	0.147
	LTE Band 7	Left Touch	0.028	0.102	0.130
		Right Touch	0.040	0.041	0.081
		Left Tilt	0.023	0.111	**0.134**
		Right Tilt	0.023	0.003	0.026
	LTE Band 41	Left Touch	0.024	0.102	0.126
		Right Touch	0.038	0.041	0.079
		Left Tilt	0.024	0.111	**0.135**
		Right Tilt	0.021	0.003	0.024

Table 12.4.21 Simultaneous Transmission Scenario : 2G/3G/4G + 5.8 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.8G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.118	0.105	0.223
		Right Touch	0.161	0.291	**0.452**
		Left Tilt	0.059	0.111	0.170
		Right Tilt	0.069	0.318	0.387
	GPRS 850	Left Touch	0.134	0.105	0.239
		Right Touch	0.219	0.291	**0.510**
		Left Tilt	0.066	0.111	0.177
		Right Tilt	0.079	0.318	0.397
	GSM 1900	Left Touch	0.096	0.105	0.201
		Right Touch	0.089	0.291	0.380
		Left Tilt	0.085	0.111	0.196
		Right Tilt	0.084	0.318	**0.402**
	GPRS 1900	Left Touch	0.180	0.105	0.285
		Right Touch	0.149	0.291	0.440
		Left Tilt	0.149	0.111	0.260
		Right Tilt	0.147	0.318	**0.465**
	WCDMA 850	Left Touch	0.172	0.105	0.277
		Right Touch	0.225	0.291	**0.516**
		Left Tilt	0.103	0.111	0.214
		Right Tilt	0.085	0.318	0.403
	WCDMA 1700	Left Touch	0.103	0.105	0.208
		Right Touch	0.140	0.291	0.431
		Left Tilt	0.156	0.111	0.267
		Right Tilt	0.183	0.318	**0.501**
	WCDMA 1900	Left Touch	0.193	0.105	0.298
		Right Touch	0.143	0.291	0.434
		Left Tilt	0.165	0.111	0.276
		Right Tilt	0.153	0.318	**0.471**
	LTE Band 12	Left Touch	0.056	0.105	0.161
		Right Touch	0.075	0.291	**0.366**
		Left Tilt	0.037	0.111	0.148
		Right Tilt	0.027	0.318	0.345
	LTE Band 5	Left Touch	0.122	0.105	0.227
		Right Touch	0.147	0.291	**0.438**
		Left Tilt	0.055	0.111	0.166
		Right Tilt	0.056	0.318	0.374
	LTE Band 66	Left Touch	0.120	0.105	0.225
		Right Touch	0.132	0.291	0.423
		Left Tilt	0.141	0.111	0.252
		Right Tilt	0.156	0.318	**0.474**
	LTE Band 2	Left Touch	0.098	0.105	0.203
		Right Touch	0.133	0.291	0.424
		Left Tilt	0.132	0.111	0.243
		Right Tilt	0.144	0.318	**0.462**
	LTE Band 7	Left Touch	0.028	0.105	0.133
		Right Touch	0.040	0.291	0.331
		Left Tilt	0.023	0.111	0.134
		Right Tilt	0.023	0.318	**0.341**
	LTE Band 41	Left Touch	0.024	0.105	0.129
		Right Touch	0.038	0.291	0.329
		Left Tilt	0.024	0.111	0.135
		Right Tilt	0.021	0.318	**0.339**

Table 12.4.22 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth (Held to Ear)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	GSM 850	Left Touch	0.118	0.098	0.216
		Right Touch	0.161	0.139	**0.300**
		Left Tilt	0.059	0.128	0.187
		Right Tilt	0.069	0.154	0.223
	GPRS 850	Left Touch	0.134	0.098	0.232
		Right Touch	0.219	0.139	**0.358**
		Left Tilt	0.066	0.128	0.194
		Right Tilt	0.079	0.154	0.233
	GSM 1900	Left Touch	0.096	0.098	0.194
		Right Touch	0.089	0.139	0.228
		Left Tilt	0.085	0.128	0.213
		Right Tilt	0.084	0.154	**0.238**
	GPRS 1900	Left Touch	0.180	0.098	0.278
		Right Touch	0.149	0.139	0.288
		Left Tilt	0.149	0.128	0.277
		Right Tilt	0.147	0.154	**0.301**
	WCDMA 850	Left Touch	0.172	0.098	0.270
		Right Touch	0.225	0.139	**0.364**
		Left Tilt	0.103	0.128	0.231
		Right Tilt	0.085	0.154	0.239
	WCDMA 1700	Left Touch	0.103	0.098	0.201
		Right Touch	0.140	0.139	0.279
		Left Tilt	0.156	0.128	0.284
		Right Tilt	0.183	0.154	**0.337**
	WCDMA 1900	Left Touch	0.193	0.098	0.291
		Right Touch	0.143	0.139	0.282
		Left Tilt	0.165	0.128	0.293
		Right Tilt	0.153	0.154	**0.307**
	LTE Band 12	Left Touch	0.056	0.098	0.154
		Right Touch	0.075	0.139	**0.214**
		Left Tilt	0.037	0.128	0.165
		Right Tilt	0.027	0.154	0.181
	LTE Band 5	Left Touch	0.122	0.098	0.220
		Right Touch	0.147	0.139	**0.286**
		Left Tilt	0.055	0.128	0.183
		Right Tilt	0.056	0.154	0.210
	LTE Band 66	Left Touch	0.120	0.098	0.218
		Right Touch	0.132	0.139	0.271
		Left Tilt	0.141	0.128	0.269
		Right Tilt	0.156	0.154	**0.310**
	LTE Band 2	Left Touch	0.098	0.098	0.196
		Right Touch	0.133	0.139	0.272
		Left Tilt	0.132	0.128	0.260
		Right Tilt	0.144	0.154	**0.298**
	LTE Band 7	Left Touch	0.028	0.098	0.126
		Right Touch	0.040	0.139	**0.179**
		Left Tilt	0.023	0.128	0.151
		Right Tilt	0.023	0.154	0.177
	LTE Band 41	Left Touch	0.024	0.098	0.122
		Right Touch	0.038	0.139	**0.177**
		Left Tilt	0.024	0.128	0.152
		Right Tilt	0.021	0.154	0.175

Table 12.4.23 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.1 (Held to Ear)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	5.3G W-LAN Ant.1	Left Touch	0.098	0.062	0.160
		Right Touch	0.139	0.304	**0.443**
		Left Tilt	0.128	0.072	0.200
		Right Tilt	0.154	0.244	0.398
	5.6G W-LAN Ant.1	Left Touch	0.098	0.097	0.195
		Right Touch	0.139	0.406	**0.545**
		Left Tilt	0.128	0.093	0.221
		Right Tilt	0.154	0.347	0.501
	5.8G W-LAN Ant.1	Left Touch	0.098	0.093	0.191
		Right Touch	0.139	0.258	0.397
		Left Tilt	0.128	0.111	0.239
		Right Tilt	0.154	0.323	**0.477**

Table 12.4.24 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.2 (Held to Ear)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	5.3G W-LAN Ant.2	Left Touch	0.098	0.092	0.190
		Right Touch	0.139	0.012	0.151
		Left Tilt	0.128	0.095	**0.223**
		Right Tilt	0.154	0.007	0.161
	5.6G W-LAN Ant.2	Left Touch	0.098	0.092	**0.190**
		Right Touch	0.139	0.038	0.177
		Left Tilt	0.128	0.057	0.185
		Right Tilt	0.154	0.011	0.165
	5.8G W-LAN Ant.2	Left Touch	0.098	0.102	0.200
		Right Touch	0.139	0.041	0.180
		Left Tilt	0.128	0.111	**0.239**
		Right Tilt	0.154	0.003	0.157

Table 12.4.25 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN MIMO (Held to Ear)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Head SAR	5.3G W-LAN MIMO	Left Touch	0.098	0.054	0.152
		Right Touch	0.139	0.357	**0.496**
		Left Tilt	0.128	0.066	0.194
		Right Tilt	0.154	0.240	0.394
	5.6G W-LAN MIMO	Left Touch	0.098	0.100	0.198
		Right Touch	0.139	0.369	**0.508**
		Left Tilt	0.128	0.121	0.249
		Right Tilt	0.154	0.335	0.489
	5.8G W-LAN MIMO	Left Touch	0.098	0.105	0.203
		Right Touch	0.139	0.291	0.430
		Left Tilt	0.128	0.111	0.239
		Right Tilt	0.154	0.318	**0.472**

12.5 Body-Worn Simultaneous Transmission Analysis

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

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.3G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.294	0.012	0.021	0.306	0.315	0.327
		Rear	0.349	0.037	0.087	0.386	0.436	**0.473**
	GPRS 850	Front	0.305	0.012	0.021	0.317	0.326	0.338
		Rear	0.380	0.037	0.087	0.417	0.467	**0.504**
	GSM 1900	Front	0.388	0.012	0.021	0.400	0.409	0.421
		Rear	0.496	0.037	0.087	0.533	0.583	**0.620**
	GPRS 1900	Front	0.667	0.012	0.021	0.679	0.688	0.700
		Rear	0.837	0.037	0.087	0.874	0.924	**0.961**
	WCDMA 850	Front	0.378	0.012	0.021	0.390	0.399	0.411
		Rear	0.506	0.037	0.087	0.543	0.593	**0.630**
	WCDMA 1700	Front	0.426	0.012	0.021	0.438	0.447	0.459
		Rear	0.555	0.037	0.087	0.592	0.642	**0.679**
	WCDMA 1900	Front	0.570	0.012	0.021	0.582	0.591	0.603
		Rear	0.752	0.037	0.087	0.789	0.839	**0.876**
	LTE Band 12	Front	0.079	0.012	0.021	0.091	0.100	0.112
		Rear	0.168	0.037	0.087	0.205	0.255	**0.292**
	LTE Band 5	Front	0.326	0.012	0.021	0.338	0.347	0.359
		Rear	0.398	0.037	0.087	0.435	0.485	**0.522**
	LTE Band 66	Front	0.468	0.012	0.021	0.480	0.489	0.501
		Rear	0.499	0.037	0.087	0.536	0.586	**0.623**
	LTE Band 2	Front	0.589	0.012	0.021	0.601	0.610	0.622
		Rear	0.718	0.037	0.087	0.755	0.805	**0.842**
	LTE Band 7	Front	0.275	0.012	0.021	0.287	0.296	0.308
		Rear	0.803	0.037	0.087	0.840	0.890	**0.927**
	LTE Band 41	Front	0.240	0.012	0.021	0.252	0.261	0.273
		Rear	0.873	0.037	0.087	0.910	0.960	**0.997**

Table 12.5.2 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.3 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.3G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.294	0.012	0.008	0.306	0.302	0.314
		Rear	0.349	0.037	0.485	0.386	0.834	**0.871**
	GPRS 850	Front	0.305	0.012	0.008	0.317	0.313	0.325
		Rear	0.380	0.037	0.485	0.417	0.865	**0.902**
	GSM 1900	Front	0.388	0.012	0.008	0.400	0.396	0.408
		Rear	0.496	0.037	0.485	0.533	0.981	**1.018**
	GPRS 1900	Front	0.667	0.012	0.008	0.679	0.675	0.687
		Rear	0.837	0.037	0.485	0.874	1.322	**1.359**
	WCDMA 850	Front	0.378	0.012	0.008	0.390	0.386	0.398
		Rear	0.506	0.037	0.485	0.543	0.991	**1.028**
	WCDMA 1700	Front	0.426	0.012	0.008	0.438	0.434	0.446
		Rear	0.555	0.037	0.485	0.592	1.040	**1.077**
	WCDMA 1900	Front	0.570	0.012	0.008	0.582	0.578	0.590
		Rear	0.752	0.037	0.485	0.789	1.237	**1.274**
	LTE Band 12	Front	0.079	0.012	0.008	0.091	0.087	0.099
		Rear	0.168	0.037	0.485	0.205	0.653	**0.690**
	LTE Band 5	Front	0.326	0.012	0.008	0.338	0.334	0.346
		Rear	0.398	0.037	0.485	0.435	0.883	**0.920**
	LTE Band 66	Front	0.468	0.012	0.008	0.480	0.476	0.488
		Rear	0.499	0.037	0.485	0.536	0.984	**1.021**
	LTE Band 2	Front	0.589	0.012	0.008	0.601	0.597	0.609
		Rear	0.718	0.037	0.485	0.755	1.203	**1.240**
	LTE Band 7	Front	0.275	0.012	0.008	0.287	0.283	0.295
		Rear	0.803	0.037	0.485	0.840	1.288	**1.325**
	LTE Band 41	Front	0.240	0.012	0.008	0.252	0.248	0.260
		Rear	0.873	0.037	0.485	0.910	1.358	**1.395**

Table 12.5.3 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	0.294	0.012	0.065	0.306	0.359	0.371
		Rear	0.349	0.037	0.549	0.386	0.898	**0.935**
	GPRS 850	Front	0.305	0.012	0.065	0.317	0.370	0.382
		Rear	0.380	0.037	0.549	0.417	0.929	**0.966**
	GSM 1900	Front	0.388	0.012	0.065	0.400	0.453	0.465
		Rear	0.496	0.037	0.549	0.533	1.045	**1.082**
	GPRS 1900	Front	0.667	0.012	0.065	0.679	0.732	0.744
		Rear	0.837	0.037	0.549	0.874	1.386	*1.423*
	WCDMA 850	Front	0.378	0.012	0.065	0.390	0.443	0.455
		Rear	0.506	0.037	0.549	0.543	1.055	**1.092**
	WCDMA 1700	Front	0.426	0.012	0.065	0.438	0.491	0.503
		Rear	0.555	0.037	0.549	0.592	1.104	**1.141**
	WCDMA 1900	Front	0.570	0.012	0.065	0.582	0.635	0.647
		Rear	0.752	0.037	0.549	0.789	1.301	**1.338**
	LTE Band 12	Front	0.079	0.012	0.065	0.091	0.144	0.156
		Rear	0.168	0.037	0.549	0.205	0.717	**0.754**
	LTE Band 5	Front	0.326	0.012	0.065	0.338	0.391	0.403
		Rear	0.398	0.037	0.549	0.435	0.947	**0.984**
	LTE Band 66	Front	0.468	0.012	0.065	0.480	0.533	0.545
		Rear	0.499	0.037	0.549	0.536	1.048	**1.085**
	LTE Band 2	Front	0.589	0.012	0.065	0.601	0.654	0.666
		Rear	0.718	0.037	0.549	0.755	1.267	**1.304**
	LTE Band 7	Front	0.275	0.012	0.065	0.287	0.340	0.352
		Rear	0.803	0.037	0.549	0.840	1.352	**1.389**
	LTE Band 41	Front	0.240	0.012	0.065	0.252	0.305	0.317
		Rear	0.873	0.037	0.549	0.910	1.422	**1.459**

Table 12.5.4 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.294	0.012	0.022	0.306	0.316	0.328
		Rear	0.349	0.037	0.045	0.386	0.394	**0.431**
	GPRS 850	Front	0.305	0.012	0.022	0.317	0.327	0.339
		Rear	0.380	0.037	0.045	0.417	0.425	**0.462**
	GSM 1900	Front	0.388	0.012	0.022	0.400	0.410	0.422
		Rear	0.496	0.037	0.045	0.533	0.541	**0.578**
	GPRS 1900	Front	0.667	0.012	0.022	0.679	0.689	0.701
		Rear	0.837	0.037	0.045	0.874	0.882	**0.919**
	WCDMA 850	Front	0.378	0.012	0.022	0.390	0.400	0.412
		Rear	0.506	0.037	0.045	0.543	0.551	**0.588**
	WCDMA 1700	Front	0.426	0.012	0.022	0.438	0.448	0.460
		Rear	0.555	0.037	0.045	0.592	0.600	**0.637**
	WCDMA 1900	Front	0.570	0.012	0.022	0.582	0.592	0.604
		Rear	0.752	0.037	0.045	0.789	0.797	**0.834**
	LTE Band 12	Front	0.079	0.012	0.022	0.091	0.101	0.113
		Rear	0.168	0.037	0.045	0.205	0.213	**0.250**
	LTE Band 5	Front	0.326	0.012	0.022	0.338	0.348	0.360
		Rear	0.398	0.037	0.045	0.435	0.443	**0.480**
	LTE Band 66	Front	0.468	0.012	0.022	0.480	0.490	0.502
		Rear	0.499	0.037	0.045	0.536	0.544	**0.581**
	LTE Band 2	Front	0.589	0.012	0.022	0.601	0.611	0.623
		Rear	0.718	0.037	0.045	0.755	0.763	**0.800**
	LTE Band 7	Front	0.275	0.012	0.022	0.287	0.297	0.309
		Rear	0.803	0.037	0.045	0.840	0.848	**0.885**
	LTE Band 41	Front	0.240	0.012	0.022	0.252	0.262	0.274
		Rear	0.873	0.037	0.045	0.910	0.918	**0.955**

Table 12.5.5 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.6 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.294	0.012	0.030	0.306	0.324	0.336
		Rear	0.349	0.037	0.574	0.386	0.923	**0.960**
	GPRS 850	Front	0.305	0.012	0.030	0.317	0.335	0.347
		Rear	0.380	0.037	0.574	0.417	0.954	**0.991**
	GSM 1900	Front	0.388	0.012	0.030	0.400	0.418	0.430
		Rear	0.496	0.037	0.574	0.533	1.070	**1.107**
	GPRS 1900	Front	0.667	0.012	0.030	0.679	0.697	0.709
		Rear	0.837	0.037	0.574	0.874	1.411	**1.448**
	WCDMA 850	Front	0.378	0.012	0.030	0.390	0.408	0.420
		Rear	0.506	0.037	0.574	0.543	1.080	**1.117**
	WCDMA 1700	Front	0.426	0.012	0.030	0.438	0.456	0.468
		Rear	0.555	0.037	0.574	0.592	1.129	**1.166**
	WCDMA 1900	Front	0.570	0.012	0.030	0.582	0.600	0.612
		Rear	0.752	0.037	0.574	0.789	1.326	**1.363**
	LTE Band 12	Front	0.079	0.012	0.030	0.091	0.109	0.121
		Rear	0.168	0.037	0.574	0.205	0.742	**0.779**
	LTE Band 5	Front	0.326	0.012	0.030	0.338	0.356	0.368
		Rear	0.398	0.037	0.574	0.435	0.972	**1.009**
	LTE Band 66	Front	0.468	0.012	0.030	0.480	0.498	0.510
		Rear	0.499	0.037	0.574	0.536	1.073	**1.110**
	LTE Band 2	Front	0.589	0.012	0.030	0.601	0.619	0.631
		Rear	0.718	0.037	0.574	0.755	1.292	**1.329**
	LTE Band 7	Front	0.275	0.012	0.030	0.287	0.305	0.317
		Rear	0.803	0.037	0.574	0.840	1.377	**1.414**
	LTE Band 41	Front	0.240	0.012	0.030	0.252	0.270	0.282
		Rear	**0.873**	**0.037**	**0.574**	**0.910**	**1.447**	1.484

Table 12.5.6 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	0.294	0.012	0.098	0.306	0.392	0.404
		Rear	0.349	0.037	0.573	0.386	0.922	**0.959**
	GPRS 850	Front	0.305	0.012	0.098	0.317	0.403	0.415
		Rear	0.380	0.037	0.573	0.417	0.953	**0.990**
	GSM 1900	Front	0.388	0.012	0.098	0.400	0.486	0.498
		Rear	0.496	0.037	0.573	0.533	1.069	**1.106**
	GPRS 1900	Front	0.667	0.012	0.098	0.679	0.765	0.777
		Rear	0.837	0.037	0.573	0.874	1.410	**1.447**
	WCDMA 850	Front	0.378	0.012	0.098	0.390	0.476	0.488
		Rear	0.506	0.037	0.573	0.543	1.079	**1.116**
	WCDMA 1700	Front	0.426	0.012	0.098	0.438	0.524	0.536
		Rear	0.555	0.037	0.573	0.592	1.128	**1.165**
	WCDMA 1900	Front	0.570	0.012	0.098	0.582	0.668	0.680
		Rear	0.752	0.037	0.573	0.789	1.325	**1.362**
	LTE Band 12	Front	0.079	0.012	0.098	0.091	0.177	0.189
		Rear	0.168	0.037	0.573	0.205	0.741	**0.778**
	LTE Band 5	Front	0.326	0.012	0.098	0.338	0.424	0.436
		Rear	0.398	0.037	0.573	0.435	0.971	**1.008**
	LTE Band 66	Front	0.468	0.012	0.098	0.480	0.566	0.578
		Rear	0.499	0.037	0.573	0.536	1.072	**1.109**
	LTE Band 2	Front	0.589	0.012	0.098	0.601	0.687	0.699
		Rear	0.718	0.037	0.573	0.755	1.291	**1.328**
	LTE Band 7	Front	0.275	0.012	0.098	0.287	0.373	0.385
		Rear	0.803	0.037	0.573	0.840	1.376	**1.413**
	LTE Band 41	Front	0.240	0.012	0.098	0.252	0.338	0.350
		Rear	0.873	0.037	0.573	0.910	1.446	**1.483**

Table 12.5.7 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.294	0.012	0.018	0.306	0.312	0.324
		Rear	0.349	0.037	0.044	0.386	0.393	**0.430**
	GPRS 850	Front	0.305	0.012	0.018	0.317	0.323	0.335
		Rear	0.380	0.037	0.044	0.417	0.424	**0.461**
	GSM 1900	Front	0.388	0.012	0.018	0.400	0.406	0.418
		Rear	0.496	0.037	0.044	0.533	0.540	**0.577**
	GPRS 1900	Front	0.667	0.012	0.018	0.679	0.685	0.697
		Rear	0.837	0.037	0.044	0.874	0.881	**0.918**
	WCDMA 850	Front	0.378	0.012	0.018	0.390	0.396	0.408
		Rear	0.506	0.037	0.044	0.543	0.550	**0.587**
	WCDMA 1700	Front	0.426	0.012	0.018	0.438	0.444	0.456
		Rear	0.555	0.037	0.044	0.592	0.599	**0.636**
	WCDMA 1900	Front	0.570	0.012	0.018	0.582	0.588	0.600
		Rear	0.752	0.037	0.044	0.789	0.796	**0.833**
	LTE Band 12	Front	0.079	0.012	0.018	0.091	0.097	0.109
		Rear	0.168	0.037	0.044	0.205	0.212	**0.249**
	LTE Band 5	Front	0.326	0.012	0.018	0.338	0.344	0.356
		Rear	0.398	0.037	0.044	0.435	0.442	**0.479**
	LTE Band 66	Front	0.468	0.012	0.018	0.480	0.486	0.498
		Rear	0.499	0.037	0.044	0.536	0.543	**0.580**
	LTE Band 2	Front	0.589	0.012	0.018	0.601	0.607	0.619
		Rear	0.718	0.037	0.044	0.755	0.762	**0.799**
	LTE Band 7	Front	0.275	0.012	0.018	0.287	0.293	0.305
		Rear	0.803	0.037	0.044	0.840	0.847	**0.884**
	LTE Band 41	Front	0.240	0.012	0.018	0.252	0.258	0.270
		Rear	0.873	0.037	0.044	0.910	0.917	**0.954**

Table 12.5.8 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Body-Worn SAR	GSM 850	Front	0.294	0.012	0.011	0.306	0.305	0.317
		Rear	0.349	0.037	0.428	0.386	0.777	**0.814**
	GPRS 850	Front	0.305	0.012	0.011	0.317	0.316	0.328
		Rear	0.380	0.037	0.428	0.417	0.808	**0.845**
	GSM 1900	Front	0.388	0.012	0.011	0.400	0.399	0.411
		Rear	0.496	0.037	0.428	0.533	0.924	**0.961**
	GPRS 1900	Front	0.667	0.012	0.011	0.679	0.678	0.690
		Rear	0.837	0.037	0.428	0.874	1.265	**1.302**
	WCDMA 850	Front	0.378	0.012	0.011	0.390	0.389	0.401
		Rear	0.506	0.037	0.428	0.543	0.934	**0.971**
	WCDMA 1700	Front	0.426	0.012	0.011	0.438	0.437	0.449
		Rear	0.555	0.037	0.428	0.592	0.983	**1.020**
	WCDMA 1900	Front	0.570	0.012	0.011	0.582	0.581	0.593
		Rear	0.752	0.037	0.428	0.789	1.180	**1.217**
	LTE Band 12	Front	0.079	0.012	0.011	0.091	0.090	0.102
		Rear	0.168	0.037	0.428	0.205	0.596	**0.633**
	LTE Band 5	Front	0.326	0.012	0.011	0.338	0.337	0.349
		Rear	0.398	0.037	0.428	0.435	0.826	**0.863**
	LTE Band 66	Front	0.468	0.012	0.011	0.480	0.479	0.491
		Rear	0.499	0.037	0.428	0.536	0.927	**0.964**
	LTE Band 2	Front	0.589	0.012	0.011	0.601	0.600	0.612
		Rear	0.718	0.037	0.428	0.755	1.146	**1.183**
	LTE Band 7	Front	0.275	0.012	0.011	0.287	0.286	0.298
		Rear	0.803	0.037	0.428	0.840	1.231	**1.268**
	LTE Band 41	Front	0.240	0.012	0.011	0.252	0.251	0.263
		Rear	0.873	0.037	0.428	0.910	1.301	**1.338**

Table 12.5.9 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	0.294	0.012	0.039	0.306	0.333	0.345
		Rear	0.349	0.037	0.394	0.386	0.743	**0.780**
	GPRS 850	Front	0.305	0.012	0.039	0.317	0.344	0.356
		Rear	0.380	0.037	0.394	0.417	0.774	**0.811**
	GSM 1900	Front	0.388	0.012	0.039	0.400	0.427	0.439
		Rear	0.496	0.037	0.394	0.533	0.890	**0.927**
	GPRS 1900	Front	0.667	0.012	0.039	0.679	0.706	0.718
		Rear	0.837	0.037	0.394	0.874	1.231	**1.268**
	WCDMA 850	Front	0.378	0.012	0.039	0.390	0.417	0.429
		Rear	0.506	0.037	0.394	0.543	0.900	**0.937**
	WCDMA 1700	Front	0.426	0.012	0.039	0.438	0.465	0.477
		Rear	0.555	0.037	0.394	0.592	0.949	**0.986**
	WCDMA 1900	Front	0.570	0.012	0.039	0.582	0.609	0.621
		Rear	0.752	0.037	0.394	0.789	1.146	**1.183**
	LTE Band 12	Front	0.079	0.012	0.039	0.091	0.118	0.130
		Rear	0.168	0.037	0.394	0.205	0.562	**0.599**
	LTE Band 5	Front	0.326	0.012	0.039	0.338	0.365	0.377
		Rear	0.398	0.037	0.394	0.435	0.792	**0.829**
	LTE Band 66	Front	0.468	0.012	0.039	0.480	0.507	0.519
		Rear	0.499	0.037	0.394	0.536	0.893	**0.930**
	LTE Band 2	Front	0.589	0.012	0.039	0.601	0.628	0.640
		Rear	0.718	0.037	0.394	0.755	1.112	**1.149**
	LTE Band 7	Front	0.275	0.012	0.039	0.287	0.314	0.326
		Rear	0.803	0.037	0.394	0.840	1.197	**1.234**
	LTE Band 41	Front	0.240	0.012	0.039	0.252	0.279	0.291
		Rear	0.873	0.037	0.394	0.910	1.267	**1.304**

Table 12.5.10 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	0.294	0.131	0.425
		Rear	0.349	0.218	**0.567**
	GPRS 850	Front	0.305	0.131	0.436
		Rear	0.380	0.218	**0.598**
	GSM 1900	Front	0.388	0.131	0.519
		Rear	0.496	0.218	**0.714**
	GPRS 1900	Front	0.667	0.131	0.798
		Rear	0.837	0.218	**1.055**
	WCDMA 850	Front	0.378	0.131	0.509
		Rear	0.506	0.218	**0.724**
	WCDMA 1700	Front	0.426	0.131	0.557
		Rear	0.555	0.218	**0.773**
	WCDMA 1900	Front	0.570	0.131	0.701
		Rear	0.752	0.218	**0.970**
	LTE Band 12	Front	0.079	0.131	0.210
		Rear	0.168	0.218	**0.386**
	LTE Band 5	Front	0.326	0.131	0.457
		Rear	0.398	0.218	**0.616**
	LTE Band 66	Front	0.468	0.131	0.599
		Rear	0.499	0.218	**0.717**
	LTE Band 2	Front	0.589	0.131	0.720
		Rear	0.718	0.218	**0.936**
	LTE Band 7	Front	0.275	0.131	0.406
		Rear	0.803	0.218	**1.021**
	LTE Band 41	Front	0.240	0.131	0.371
		Rear	0.873	0.218	**1.091**

Table 12.5.11 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	0.294	0.009	0.303
		Rear	0.349	0.105	**0.454**
	GPRS 850	Front	0.305	0.009	0.314
		Rear	0.380	0.105	**0.485**
	GSM 1900	Front	0.388	0.009	0.397
		Rear	0.496	0.105	**0.601**
	GPRS 1900	Front	0.667	0.009	0.676
		Rear	0.837	0.105	**0.942**
	WCDMA 850	Front	0.378	0.009	0.387
		Rear	0.506	0.105	**0.611**
	WCDMA 1700	Front	0.426	0.009	0.435
		Rear	0.555	0.105	**0.660**
	WCDMA 1900	Front	0.570	0.009	0.579
		Rear	0.752	0.105	**0.857**
	LTE Band 12	Front	0.079	0.009	0.088
		Rear	0.168	0.105	**0.273**
	LTE Band 5	Front	0.326	0.009	0.335
		Rear	0.398	0.105	**0.503**
	LTE Band 66	Front	0.468	0.009	0.477
		Rear	0.499	0.105	**0.604**
	LTE Band 2	Front	0.589	0.009	0.598
		Rear	0.718	0.105	**0.823**
	LTE Band 7	Front	0.275	0.009	0.284
		Rear	0.803	0.105	**0.908**
	LTE Band 41	Front	0.240	0.009	0.249
		Rear	0.873	0.105	**0.978**

Table 12.5.12 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	0.294	0.141	0.435
		Rear	0.349	0.264	**0.613**
	GPRS 850	Front	0.305	0.141	0.446
		Rear	0.380	0.264	**0.644**
	GSM 1900	Front	0.388	0.141	0.529
		Rear	0.496	0.264	**0.760**
	GPRS 1900	Front	0.667	0.141	0.808
		Rear	0.837	0.264	**1.101**
	WCDMA 850	Front	0.378	0.141	0.519
		Rear	0.506	0.264	**0.770**
	WCDMA 1700	Front	0.426	0.141	0.567
		Rear	0.555	0.264	**0.819**
	WCDMA 1900	Front	0.570	0.141	0.711
		Rear	0.752	0.264	**1.016**
	LTE Band 12	Front	0.079	0.141	0.220
		Rear	0.168	0.264	**0.432**
	LTE Band 5	Front	0.326	0.141	0.467
		Rear	0.398	0.264	**0.662**
	LTE Band 66	Front	0.468	0.141	0.609
		Rear	0.499	0.264	**0.763**
	LTE Band 2	Front	0.589	0.141	0.730
		Rear	0.718	0.264	**0.982**
	LTE Band 7	Front	0.275	0.141	0.416
		Rear	0.803	0.264	**1.067**
	LTE Band 41	Front	0.240	0.141	0.381
		Rear	0.873	0.264	**1.137**

Table 12.5.13 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)	5.3G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.294	0.021	0.315
		Rear	0.349	0.087	**0.436**
	GPRS 850	Front	0.305	0.021	0.326
		Rear	0.380	0.087	**0.467**
	GSM 1900	Front	0.388	0.021	0.409
		Rear	0.496	0.087	**0.583**
	GPRS 1900	Front	0.667	0.021	0.688
		Rear	0.837	0.087	**0.924**
	WCDMA 850	Front	0.378	0.021	0.399
		Rear	0.506	0.087	**0.593**
	WCDMA 1700	Front	0.426	0.021	0.447
		Rear	0.555	0.087	**0.642**
	WCDMA 1900	Front	0.570	0.021	0.591
		Rear	0.752	0.087	**0.839**
	LTE Band 12	Front	0.079	0.021	0.100
		Rear	0.168	0.087	**0.255**
	LTE Band 5	Front	0.326	0.021	0.347
		Rear	0.398	0.087	**0.485**
	LTE Band 66	Front	0.468	0.021	0.489
		Rear	0.499	0.087	**0.586**
	LTE Band 2	Front	0.589	0.021	0.610
		Rear	0.718	0.087	**0.805**
	LTE Band 7	Front	0.275	0.021	0.296
		Rear	0.803	0.087	**0.890**
	LTE Band 41	Front	0.240	0.021	0.261
		Rear	0.873	0.087	**0.960**

Table 12.5.14 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)	5.3G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.294	0.008	0.302
		Rear	0.349	0.485	**0.834**
	GPRS 850	Front	0.305	0.008	0.313
		Rear	0.380	0.485	**0.865**
	GSM 1900	Front	0.388	0.008	0.396
		Rear	0.496	0.485	**0.981**
	GPRS 1900	Front	0.667	0.008	0.675
		Rear	0.837	0.485	**1.322**
	WCDMA 850	Front	0.378	0.008	0.386
		Rear	0.506	0.485	**0.991**
	WCDMA 1700	Front	0.426	0.008	0.434
		Rear	0.555	0.485	**1.040**
	WCDMA 1900	Front	0.570	0.008	0.578
		Rear	0.752	0.485	**1.237**
	LTE Band 12	Front	0.079	0.008	0.087
		Rear	0.168	0.485	**0.653**
	LTE Band 5	Front	0.326	0.008	0.334
		Rear	0.398	0.485	**0.883**
	LTE Band 66	Front	0.468	0.008	0.476
		Rear	0.499	0.485	**0.984**
	LTE Band 2	Front	0.589	0.008	0.597
		Rear	0.718	0.485	**1.203**
	LTE Band 7	Front	0.275	0.008	0.283
		Rear	0.803	0.485	**1.288**
	LTE Band 41	Front	0.240	0.008	0.248
		Rear	0.873	0.485	**1.358**

Table 12.5.15 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)	5.3G W-LAN MIMO SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.294	0.065	0.359
		Rear	0.349	0.549	**0.898**
	GPRS 850	Front	0.305	0.065	0.370
		Rear	0.380	0.549	**0.929**
	GSM 1900	Front	0.388	0.065	0.453
		Rear	0.496	0.549	**1.045**
	GPRS 1900	Front	0.667	0.065	0.732
		Rear	0.837	0.549	**1.386**
	WCDMA 850	Front	0.378	0.065	0.443
		Rear	0.506	0.549	**1.055**
	WCDMA 1700	Front	0.426	0.065	0.491
		Rear	0.555	0.549	**1.104**
	WCDMA 1900	Front	0.570	0.065	0.635
		Rear	0.752	0.549	**1.301**
	LTE Band 12	Front	0.079	0.065	0.144
		Rear	0.168	0.549	**0.717**
	LTE Band 5	Front	0.326	0.065	0.391
		Rear	0.398	0.549	**0.947**
	LTE Band 66	Front	0.468	0.065	0.533
		Rear	0.499	0.549	**1.048**
	LTE Band 2	Front	0.589	0.065	0.654
		Rear	0.718	0.549	**1.267**
	LTE Band 7	Front	0.275	0.065	0.340
		Rear	0.803	0.549	**1.352**
	LTE Band 41	Front	0.240	0.065	0.305
		Rear	0.873	0.549	**1.422**

Table 12.5.16 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.294	0.022	0.316
		Rear	0.349	0.045	**0.394**
	GPRS 850	Front	0.305	0.022	0.327
		Rear	0.380	0.045	**0.425**
	GSM 1900	Front	0.388	0.022	0.410
		Rear	0.496	0.045	**0.541**
	GPRS 1900	Front	0.667	0.022	0.689
		Rear	0.837	0.045	**0.882**
	WCDMA 850	Front	0.378	0.022	0.400
		Rear	0.506	0.045	**0.551**
	WCDMA 1700	Front	0.426	0.022	0.448
		Rear	0.555	0.045	**0.600**
	WCDMA 1900	Front	0.570	0.022	0.592
		Rear	0.752	0.045	**0.797**
	LTE Band 12	Front	0.079	0.022	0.101
		Rear	0.168	0.045	**0.213**
	LTE Band 5	Front	0.326	0.022	0.348
		Rear	0.398	0.045	**0.443**
	LTE Band 66	Front	0.468	0.022	0.490
		Rear	0.499	0.045	**0.544**
	LTE Band 2	Front	0.589	0.022	0.611
		Rear	0.718	0.045	**0.763**
	LTE Band 7	Front	0.275	0.022	0.297
		Rear	0.803	0.045	**0.848**
	LTE Band 41	Front	0.240	0.022	0.262
		Rear	0.873	0.045	**0.918**

Table 12.5.17 Simultaneous Transmission Scenario : 2G/3G/4G + 5.6 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	5.6G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	GSM 850	Front	0.294	0.030	0.324
		Rear	0.349	0.574	**0.923**
	GPRS 850	Front	0.305	0.030	0.335
		Rear	0.380	0.574	**0.954**
	GSM 1900	Front	0.388	0.030	0.418
		Rear	0.496	0.574	**1.070**
	GPRS 1900	Front	0.667	0.030	0.697
		Rear	0.837	0.574	**1.411**
	WCDMA 850	Front	0.378	0.030	0.408
		Rear	0.506	0.574	**1.080**
	WCDMA 1700	Front	0.426	0.030	0.456
		Rear	0.555	0.574	**1.129**
	WCDMA 1900	Front	0.570	0.030	0.600
		Rear	0.752	0.574	**1.326**
	LTE Band 12	Front	0.079	0.030	0.109
		Rear	0.168	0.574	**0.742**
	LTE Band 5	Front	0.326	0.030	0.356
		Rear	0.398	0.574	**0.972**
	LTE Band 66	Front	0.468	0.030	0.498
		Rear	0.499	0.574	**1.073**
	LTE Band 2	Front	0.589	0.030	0.619
		Rear	0.718	0.574	**1.292**
	LTE Band 7	Front	0.275	0.030	0.305
		Rear	0.803	0.574	**1.377**
	LTE Band 41	Front	0.240	0.030	0.270
		Rear	0.873	0.574	**1.447**

Table 12.5.18 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	0.294	0.098	0.392
		Rear	0.349	0.573	**0.922**
	GPRS 850	Front	0.305	0.098	0.403
		Rear	0.380	0.573	**0.953**
	GSM 1900	Front	0.388	0.098	0.486
		Rear	0.496	0.573	**1.069**
	GPRS 1900	Front	0.667	0.098	0.765
		Rear	0.837	0.573	**1.410**
	WCDMA 850	Front	0.378	0.098	0.476
		Rear	0.506	0.573	**1.079**
	WCDMA 1700	Front	0.426	0.098	0.524
		Rear	0.555	0.573	**1.128**
	WCDMA 1900	Front	0.570	0.098	0.668
		Rear	0.752	0.573	**1.325**
	LTE Band 12	Front	0.079	0.098	0.177
		Rear	0.168	0.573	**0.741**
	LTE Band 5	Front	0.326	0.098	0.424
		Rear	0.398	0.573	**0.971**
	LTE Band 66	Front	0.468	0.098	0.566
		Rear	0.499	0.573	**1.072**
	LTE Band 2	Front	0.589	0.098	0.687
		Rear	0.718	0.573	**1.291**
	LTE Band 7	Front	0.275	0.098	0.373
		Rear	0.803	0.573	**1.376**
	LTE Band 41	Front	0.240	0.098	0.338
		Rear	0.873	0.573	**1.446**

Table 12.5.19 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	0.294	0.018	0.312
		Rear	0.349	0.044	**0.393**
	GPRS 850	Front	0.305	0.018	0.323
		Rear	0.380	0.044	**0.424**
	GSM 1900	Front	0.388	0.018	0.406
		Rear	0.496	0.044	**0.540**
	GPRS 1900	Front	0.667	0.018	0.685
		Rear	0.837	0.044	**0.881**
	WCDMA 850	Front	0.378	0.018	0.396
		Rear	0.506	0.044	**0.550**
	WCDMA 1700	Front	0.426	0.018	0.444
		Rear	0.555	0.044	**0.599**
	WCDMA 1900	Front	0.570	0.018	0.588
		Rear	0.752	0.044	**0.796**
	LTE Band 12	Front	0.079	0.018	0.097
		Rear	0.168	0.044	**0.212**
	LTE Band 5	Front	0.326	0.018	0.344
		Rear	0.398	0.044	**0.442**
	LTE Band 66	Front	0.468	0.018	0.486
		Rear	0.499	0.044	**0.543**
	LTE Band 2	Front	0.589	0.018	0.607
		Rear	0.718	0.044	**0.762**
	LTE Band 7	Front	0.275	0.018	0.293
		Rear	0.803	0.044	**0.847**
	LTE Band 41	Front	0.240	0.018	0.258
		Rear	0.873	0.044	**0.917**

Table 12.5.20 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	0.294	0.011	0.305
		Rear	0.349	0.428	**0.777**
	GPRS 850	Front	0.305	0.011	0.316
		Rear	0.380	0.428	**0.808**
	GSM 1900	Front	0.388	0.011	0.399
		Rear	0.496	0.428	**0.924**
	GPRS 1900	Front	0.667	0.011	0.678
		Rear	0.837	0.428	**1.265**
	WCDMA 850	Front	0.378	0.011	0.389
		Rear	0.506	0.428	**0.934**
	WCDMA 1700	Front	0.426	0.011	0.437
		Rear	0.555	0.428	**0.983**
	WCDMA 1900	Front	0.570	0.011	0.581
		Rear	0.752	0.428	**1.180**
	LTE Band 12	Front	0.079	0.011	0.090
		Rear	0.168	0.428	**0.596**
	LTE Band 5	Front	0.326	0.011	0.337
		Rear	0.398	0.428	**0.826**
	LTE Band 66	Front	0.468	0.011	0.479
		Rear	0.499	0.428	**0.927**
	LTE Band 2	Front	0.589	0.011	0.600
		Rear	0.718	0.428	**1.146**
	LTE Band 7	Front	0.275	0.011	0.286
		Rear	0.803	0.428	**1.231**
	LTE Band 41	Front	0.240	0.011	0.251
		Rear	0.873	0.428	**1.301**

Table 12.5.21 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	0.294	0.039	0.333
		Rear	0.349	0.394	**0.743**
	GPRS 850	Front	0.305	0.039	0.344
		Rear	0.380	0.394	**0.774**
	GSM 1900	Front	0.388	0.039	0.427
		Rear	0.496	0.394	**0.890**
	GPRS 1900	Front	0.667	0.039	0.706
		Rear	0.837	0.394	**1.231**
	WCDMA 850	Front	0.378	0.039	0.417
		Rear	0.506	0.394	**0.900**
	WCDMA 1700	Front	0.426	0.039	0.465
		Rear	0.555	0.394	**0.949**
	WCDMA 1900	Front	0.570	0.039	0.609
		Rear	0.752	0.394	**1.146**
	LTE Band 12	Front	0.079	0.039	0.118
		Rear	0.168	0.394	**0.562**
	LTE Band 5	Front	0.326	0.039	0.365
		Rear	0.398	0.394	**0.792**
	LTE Band 66	Front	0.468	0.039	0.507
		Rear	0.499	0.394	**0.893**
	LTE Band 2	Front	0.589	0.039	0.628
		Rear	0.718	0.394	**1.112**
	LTE Band 7	Front	0.275	0.039	0.314
		Rear	0.803	0.394	**1.197**
	LTE Band 41	Front	0.240	0.039	0.279
		Rear	0.873	0.394	**1.267**

Table 12.5.22 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	0.294	0.012	0.306
		Rear	0.349	0.037	**0.386**
	GPRS 850	Front	0.305	0.012	0.317
		Rear	0.380	0.037	**0.417**
	GSM 1900	Front	0.388	0.012	0.400
		Rear	0.496	0.037	**0.533**
	GPRS 1900	Front	0.667	0.012	0.679
		Rear	0.837	0.037	**0.874**
	WCDMA 850	Front	0.378	0.012	0.390
		Rear	0.506	0.037	**0.543**
	WCDMA 1700	Front	0.426	0.012	0.438
		Rear	0.555	0.037	**0.592**
	WCDMA 1900	Front	0.570	0.012	0.582
		Rear	0.752	0.037	**0.789**
	LTE Band 12	Front	0.079	0.012	0.091
		Rear	0.168	0.037	**0.205**
	LTE Band 5	Front	0.326	0.012	0.338
		Rear	0.398	0.037	**0.435**
	LTE Band 66	Front	0.468	0.012	0.480
		Rear	0.499	0.037	**0.536**
	LTE Band 2	Front	0.589	0.012	0.601
		Rear	0.718	0.037	**0.755**
	LTE Band 7	Front	0.275	0.012	0.287
		Rear	0.803	0.037	**0.840**
	LTE Band 41	Front	0.240	0.012	0.252
		Rear	0.873	0.037	**0.910**

Table 12.5.23 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.1 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	5.3G W-LAN Ant.1	Front	0.012	0.021	0.033
		Rear	0.037	0.087	**0.124**
	5.6G W-LAN Ant.1	Front	0.012	0.022	0.034
		Rear	0.037	0.045	**0.082**
	5.8G W-LAN Ant.1	Front	0.012	0.018	0.030
		Rear	0.037	0.044	**0.081**

Table 12.5.24 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.2 (Body-Worn at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Body-Worn SAR	5.3G W-LAN Ant.2	Front	0.012	0.008	0.020
		Rear	0.037	0.485	**0.522**
	5.6G W-LAN Ant.2	Front	0.012	0.030	0.042
		Rear	0.037	0.574	**0.611**
	5.8G W-LAN Ant.2	Front	0.012	0.011	0.023
		Rear	0.037	0.428	**0.465**

Table 12.5.25 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	0.012	0.065	0.077
		Rear	0.037	0.549	**0.586**
	5.6G W-LAN MIMO	Front	0.012	0.098	0.110
		Rear	0.037	0.573	**0.610**
	5.8G W-LAN MIMO	Front	0.012	0.039	0.051
		Rear	0.037	0.394	**0.431**

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 + Bluetooth Ant.1 + 5.2 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	0.324	-	-	0.324	0.324	0.324
		Front	0.305	0.012	0.015	0.317	0.320	0.332
		Rear	0.380	0.037	0.090	0.417	0.470	**0.507**
		Right	0.341	-	-	0.341	0.341	0.341
		Left	0.175	0.009	0.012	0.184	0.187	0.196
	GPRS 1900	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	1.031	-	-	1.031	1.031	**1.031**
		Front	0.667	0.012	0.015	0.679	0.682	0.694
		Rear	0.837	0.037	0.090	0.874	0.927	0.964
		Right	-	-	-	-	-	-
		Left	0.402	0.009	0.012	0.411	0.414	0.423
	WCDMA 850	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	0.311	-	-	0.311	0.311	0.311
		Front	0.378	0.012	0.015	0.390	0.393	0.405
		Rear	0.506	0.037	0.090	0.543	0.596	**0.633**
		Right	0.492	-	-	0.492	0.492	0.492
		Left	0.167	0.009	0.012	0.176	0.179	0.188
	WCDMA 1700	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	0.794	-	-	0.794	0.794	**0.794**
		Front	0.426	0.012	0.015	0.438	0.441	0.453
		Rear	0.555	0.037	0.090	0.592	0.645	0.682
		Right	-	-	-	-	-	-
		Left	0.244	0.009	0.012	0.253	0.256	0.265
	WCDMA 1900	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	0.951	-	-	0.951	0.951	**0.951**
		Front	0.570	0.012	0.015	0.582	0.585	0.597
		Rear	0.752	0.037	0.090	0.789	0.842	0.879
		Right	-	-	-	-	-	-
		Left	0.351	0.009	0.012	0.360	0.363	0.372
	LTE Band 12	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	0.049	-	-	0.049	0.049	0.049
		Front	0.079	0.012	0.015	0.091	0.094	0.106
		Rear	0.168	0.037	0.090	0.205	0.258	**0.295**
		Right	0.047	-	-	0.047	0.047	0.047
		Left	0.019	0.009	0.012	0.028	0.031	0.040
	LTE Band 5	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	0.268	-	-	0.268	0.268	0.268
		Front	0.326	0.012	0.015	0.338	0.341	0.353
		Rear	0.398	0.037	0.090	0.435	0.488	**0.525**
		Right	0.351	-	-	0.351	0.351	0.351
		Left	0.131	0.009	0.012	0.140	0.143	0.152
	LTE Band 66	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	0.757	-	-	0.757	0.757	**0.757**
		Front	0.468	0.012	0.015	0.480	0.483	0.495
		Rear	0.499	0.037	0.090	0.536	0.589	0.626
		Right	-	-	-	-	-	-
		Left	0.257	0.009	0.012	0.266	0.269	0.278
	LTE Band 2	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	0.905	-	-	0.905	0.905	**0.905**
		Front	0.589	0.012	0.015	0.601	0.604	0.616
		Rear	0.718	0.037	0.090	0.755	0.808	0.845
		Right	-	-	-	-	-	-
		Left	0.309	0.009	0.012	0.318	0.321	0.330
	LTE Band 7	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	0.618	-	-	0.618	0.618	0.618
		Front	0.275	0.012	0.015	0.287	0.290	0.302
		Rear	0.803	0.037	0.090	0.840	0.893	**0.930**
		Right	0.070	-	-	0.070	0.070	0.070
		Left	0.064	0.009	0.012	0.073	0.076	0.085
	LTE Band 41	Top	-	0.055	0.008	0.055	0.008	0.063
		Bottom	1.100	-	-	1.100	1.100	**1.100**
		Front	0.240	0.012	0.015	0.252	0.255	0.267
		Rear	0.873	0.037	0.090	0.910	0.963	1.000
		Right	0.103	-	-	0.103	0.103	0.103
		Left	0.074	0.009	0.012	0.083	0.086	0.095

Table 12.6.2 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.2 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.2G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	0.324	-	-	0.324	0.324	0.324
		Front	0.305	0.012	0.007	0.317	0.312	0.324
		Rear	0.380	0.037	0.460	0.417	0.840	**0.877**
		Right	0.341	-	-	0.341	0.341	0.341
		Left	0.175	0.009	0.012	0.184	0.187	0.196
	GPRS 1900	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	1.031	-	-	1.031	1.031	1.031
		Front	0.667	0.012	0.007	0.679	0.674	0.686
		Rear	0.837	0.037	0.460	0.874	1.297	**1.334**
		Right	-	-	-	-	-	-
		Left	0.402	0.009	0.012	0.411	0.414	0.423
	WCDMA 850	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	0.311	-	-	0.311	0.311	0.311
		Front	0.378	0.012	0.007	0.390	0.385	0.397
		Rear	0.506	0.037	0.460	0.543	0.966	**1.003**
		Right	0.492	-	-	0.492	0.492	0.492
		Left	0.167	0.009	0.012	0.176	0.179	0.188
	WCDMA 1700	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	0.794	-	-	0.794	0.794	0.794
		Front	0.426	0.012	0.007	0.438	0.433	0.445
		Rear	0.555	0.037	0.460	0.592	1.015	**1.052**
		Right	-	-	-	-	-	-
		Left	0.244	0.009	0.012	0.253	0.256	0.265
	WCDMA 1900	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	0.951	-	-	0.951	0.951	0.951
		Front	0.570	0.012	0.007	0.582	0.577	0.589
		Rear	0.752	0.037	0.460	0.789	1.212	**1.249**
		Right	-	-	-	-	-	-
		Left	0.351	0.009	0.012	0.360	0.363	0.372
	LTE Band 12	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	0.049	-	-	0.049	0.049	0.049
		Front	0.079	0.012	0.007	0.091	0.086	0.098
		Rear	0.168	0.037	0.460	0.205	0.628	**0.665**
		Right	0.047	-	-	0.047	0.047	0.047
		Left	0.019	0.009	0.012	0.028	0.031	0.040
	LTE Band 5	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	0.268	-	-	0.268	0.268	0.268
		Front	0.326	0.012	0.007	0.338	0.333	0.345
		Rear	0.398	0.037	0.460	0.435	0.858	**0.895**
		Right	0.351	-	-	0.351	0.351	0.351
		Left	0.131	0.009	0.012	0.140	0.143	0.152
	LTE Band 66	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	0.757	-	-	0.757	0.757	0.757
		Front	0.468	0.012	0.007	0.480	0.475	0.487
		Rear	0.499	0.037	0.460	0.536	0.959	**0.996**
		Right	-	-	-	-	-	-
		Left	0.257	0.009	0.012	0.266	0.269	0.278
	LTE Band 2	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	0.905	-	-	0.905	0.905	0.905
		Front	0.589	0.012	0.007	0.601	0.596	0.608
		Rear	0.718	0.037	0.460	0.755	1.178	**1.215**
		Right	-	-	-	-	-	-
		Left	0.309	0.009	0.012	0.318	0.321	0.330
	LTE Band 7	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	0.618	-	-	0.618	0.618	0.618
		Front	0.275	0.012	0.007	0.287	0.282	0.294
		Rear	0.803	0.037	0.460	0.840	1.263	**1.300**
		Right	0.070	-	-	0.070	0.070	0.070
		Left	0.064	0.009	0.012	0.073	0.076	0.085
	LTE Band 41	Top	-	0.055	0.009	0.055	0.009	0.064
		Bottom	1.100	-	-	1.100	1.100	**1.100**
		Front	0.240	0.012	0.007	0.252	0.247	0.259
		Rear	0.873	0.037	0.460	0.910	1.333	1.370
		Right	0.103	-	-	0.103	0.103	0.103
		Left	0.074	0.009	0.012	0.083	0.086	0.095

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	-	0.055	0.013	0.055	0.013	0.068
		Bottom	0.324	-	-	0.324	0.324	0.324
		Front	0.305	0.012	0.037	0.317	0.342	0.354
		Rear	0.380	0.037	0.506	0.417	0.886	**0.923**
		Right	0.341	-	-	0.341	0.341	0.341
		Left	0.175	0.009	0.138	0.184	0.313	0.322
	GPRS 1900	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	1.031	-	-	1.031	1.031	1.031
		Front	0.667	0.012	0.037	0.679	0.704	0.716
		Rear	0.837	0.037	0.506	0.874	1.343	**1.380**
		Right	-	-	-	-	-	-
		Left	0.402	0.009	0.138	0.411	0.540	0.549
	WCDMA 850	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	0.311	-	-	0.311	0.311	0.311
		Front	0.378	0.012	0.037	0.390	0.415	0.427
		Rear	0.506	0.037	0.506	0.543	1.012	**1.049**
		Right	0.492	-	-	0.492	0.492	0.492
		Left	0.167	0.009	0.138	0.176	0.305	0.314
	WCDMA 1700	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	0.794	-	-	0.794	0.794	0.794
		Front	0.426	0.012	0.037	0.438	0.463	0.475
		Rear	0.555	0.037	0.506	0.592	1.061	**1.098**
		Right	-	-	-	-	-	-
		Left	0.244	0.009	0.138	0.253	0.382	0.391
	WCDMA 1900	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	0.951	-	-	0.951	0.951	0.951
		Front	0.570	0.012	0.037	0.582	0.607	0.619
		Rear	0.752	0.037	0.506	0.789	1.258	**1.295**
		Right	-	-	-	-	-	-
		Left	0.351	0.009	0.138	0.360	0.489	0.498
	LTE Band 12	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	0.049	-	-	0.049	0.049	0.049
		Front	0.079	0.012	0.037	0.091	0.116	0.128
		Rear	0.168	0.037	0.506	0.205	0.674	**0.711**
		Right	0.047	-	-	0.047	0.047	0.047
		Left	0.019	0.009	0.138	0.028	0.157	0.166
	LTE Band 5	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	0.268	-	-	0.268	0.268	0.268
		Front	0.326	0.012	0.037	0.338	0.363	0.375
		Rear	0.398	0.037	0.506	0.435	0.904	**0.941**
		Right	0.351	-	-	0.351	0.351	0.351
		Left	0.131	0.009	0.138	0.140	0.269	0.278
	LTE Band 66	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	0.757	-	-	0.757	0.757	0.757
		Front	0.468	0.012	0.037	0.480	0.505	0.517
		Rear	0.499	0.037	0.506	0.536	1.005	**1.042**
		Right	-	-	-	-	-	-
		Left	0.257	0.009	0.138	0.266	0.395	0.404
	LTE Band 2	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	0.905	-	-	0.905	0.905	0.905
		Front	0.589	0.012	0.037	0.601	0.626	0.638
		Rear	0.718	0.037	0.506	0.755	1.224	**1.261**
		Right	-	-	-	-	-	-
		Left	0.309	0.009	0.138	0.318	0.447	0.456
	LTE Band 7	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	0.618	-	-	0.618	0.618	0.618
		Front	0.275	0.012	0.037	0.287	0.312	0.324
		Rear	0.803	0.037	0.506	0.840	1.309	**1.346**
		Right	0.070	-	-	0.070	0.070	0.070
		Left	0.064	0.009	0.138	0.073	0.202	0.211
	LTE Band 41	Top	-	0.055	0.013	0.055	0.013	0.068
		Bottom	1.100	-	-	1.100	1.100	1.100
		Front	0.240	0.012	0.037	0.252	0.277	0.289
		Rear	**0.873**	**0.037**	**0.506**	**0.910**	**1.379**	**1.416**
		Right	0.103	-	-	0.103	0.103	0.103
		Left	0.103	0.009	0.138	0.112	0.241	0.250

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

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	0.324	-	-	0.324	0.324	0.324
		Front	0.305	0.012	0.064	0.317	0.369	0.381
		Rear	0.380	0.037	0.037	0.417	0.417	**0.454**
		Right	0.341	-	-	0.341	0.341	0.341
		Left	0.175	0.009	0.010	0.184	0.185	0.194
	GPRS 1900	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	1.031	-	-	1.031	1.031	**1.031**
		Front	0.667	0.012	0.064	0.679	0.731	0.743
		Rear	0.837	0.037	0.037	0.874	0.874	0.911
		Right	-	-	-	-	-	-
		Left	0.402	0.009	0.010	0.411	0.412	0.421
	WCDMA 850	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	0.311	-	-	0.311	0.311	0.311
		Front	0.378	0.012	0.064	0.390	0.442	0.454
		Rear	0.506	0.037	0.037	0.543	0.543	**0.580**
		Right	0.492	-	-	0.492	0.492	0.492
		Left	0.167	0.009	0.010	0.176	0.177	0.186
	WCDMA 1700	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	0.794	-	-	0.794	0.794	**0.794**
		Front	0.426	0.012	0.064	0.438	0.490	0.502
		Rear	0.555	0.037	0.037	0.592	0.592	0.629
		Right	-	-	-	-	-	-
		Left	0.244	0.009	0.010	0.253	0.254	0.263
	WCDMA 1900	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	0.951	-	-	0.951	0.951	**0.951**
		Front	0.570	0.012	0.064	0.582	0.634	0.646
		Rear	0.752	0.037	0.037	0.789	0.789	0.826
		Right	-	-	-	-	-	-
		Left	0.351	0.009	0.010	0.360	0.361	0.370
	LTE Band 12	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	0.049	-	-	0.049	0.049	0.049
		Front	0.079	0.012	0.064	0.091	0.143	0.155
		Rear	0.168	0.037	0.037	0.205	0.205	**0.242**
		Right	0.047	-	-	0.047	0.047	0.047
		Left	0.019	0.009	0.010	0.028	0.029	0.038
	LTE Band 5	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	0.268	-	-	0.268	0.268	0.268
		Front	0.326	0.012	0.064	0.338	0.390	0.402
		Rear	0.398	0.037	0.037	0.435	0.435	**0.472**
		Right	0.351	-	-	0.351	0.351	0.351
		Left	0.131	0.009	0.010	0.140	0.141	0.150
	LTE Band 66	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	0.757	-	-	0.757	0.757	**0.757**
		Front	0.468	0.012	0.064	0.480	0.532	0.544
		Rear	0.499	0.037	0.037	0.536	0.536	0.573
		Right	-	-	-	-	-	-
		Left	0.257	0.009	0.010	0.266	0.267	0.276
	LTE Band 2	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	0.905	-	-	0.905	0.905	**0.905**
		Front	0.589	0.012	0.064	0.601	0.653	0.665
		Rear	0.718	0.037	0.037	0.755	0.755	0.792
		Right	-	-	-	-	-	-
		Left	0.309	0.009	0.010	0.318	0.319	0.328
	LTE Band 7	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	0.618	-	-	0.618	0.618	0.618
		Front	0.275	0.012	0.064	0.287	0.339	0.351
		Rear	0.803	0.037	0.037	0.840	0.840	**0.877**
		Right	0.070	-	-	0.070	0.070	0.070
		Left	0.064	0.009	0.010	0.073	0.074	0.083
	LTE Band 41	Top	-	0.055	0.012	0.055	0.012	0.067
		Bottom	1.100	-	-	1.100	1.100	**1.100**
		Front	0.240	0.012	0.064	0.252	0.304	0.316
		Rear	0.873	0.037	0.037	0.910	0.910	0.947
		Right	0.103	-	-	0.103	0.103	0.103
		Left	0.074	0.009	0.010	0.083	0.084	0.093

Table 12.6.5 Simultaneous Transmission Scenario : 2G/3G/4G + Bluetooth Ant.1 + 5.8 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	2G/3G/4G SAR (W/kg)	Bluetooth Ant.1 SAR (W/kg)	5.8G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)		
			1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	0.324	-	-	0.324	0.324	0.324
		Front	0.305	0.012	0.011	0.317	0.316	0.328
		Rear	0.380	0.037	0.428	0.417	0.808	**0.845**
		Right	0.341	-	-	0.341	0.341	0.341
		Left	0.175	0.009	0.102	0.184	0.277	0.286
	GPRS 1900	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	1.031	-	-	1.031	1.031	1.031
		Front	0.667	0.012	0.011	0.679	0.678	0.690
		Rear	0.837	0.037	0.428	0.874	1.265	**1.302**
		Right	-	-	-	-	-	-
		Left	0.402	0.009	0.102	0.411	0.504	0.513
	WCDMA 850	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	0.311	-	-	0.311	0.311	0.311
		Front	0.378	0.012	0.011	0.390	0.389	0.401
		Rear	0.506	0.037	0.428	0.543	0.934	**0.971**
		Right	0.492	-	-	0.492	0.492	0.492
		Left	0.167	0.009	0.102	0.176	0.269	0.278
	WCDMA 1700	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	0.794	-	-	0.794	0.794	0.794
		Front	0.426	0.012	0.011	0.438	0.437	0.449
		Rear	0.555	0.037	0.428	0.592	0.983	**1.020**
		Right	-	-	-	-	-	-
		Left	0.244	0.009	0.102	0.253	0.346	0.355
	WCDMA 1900	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	0.951	-	-	0.951	0.951	0.951
		Front	0.570	0.012	0.011	0.582	0.581	0.593
		Rear	0.752	0.037	0.428	0.789	1.180	**1.217**
		Right	-	-	-	-	-	-
		Left	0.351	0.009	0.102	0.360	0.453	0.462
	LTE Band 12	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	0.049	-	-	0.049	0.049	0.049
		Front	0.079	0.012	0.011	0.091	0.090	0.102
		Rear	0.168	0.037	0.428	0.205	0.596	**0.633**
		Right	0.047	-	-	0.047	0.047	0.047
		Left	0.019	0.009	0.102	0.028	0.121	0.130
	LTE Band 5	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	0.268	-	-	0.268	0.268	0.268
		Front	0.326	0.012	0.011	0.338	0.337	0.349
		Rear	0.398	0.037	0.428	0.435	0.826	**0.863**
		Right	0.351	-	-	0.351	0.351	0.351
		Left	0.131	0.009	0.102	0.140	0.233	0.242
	LTE Band 66	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	0.757	-	-	0.757	0.757	0.757
		Front	0.468	0.012	0.011	0.480	0.479	0.491
		Rear	0.499	0.037	0.428	0.536	0.927	**0.964**
		Right	-	-	-	-	-	-
		Left	0.257	0.009	0.102	0.266	0.359	0.368
	LTE Band 2	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	0.905	-	-	0.905	0.905	0.905
		Front	0.589	0.012	0.011	0.601	0.600	0.612
		Rear	0.718	0.037	0.428	0.755	1.146	**1.183**
		Right	-	-	-	-	-	-
		Left	0.309	0.009	0.102	0.318	0.411	0.420
	LTE Band 7	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	0.618	-	-	0.618	0.618	0.618
		Front	0.275	0.012	0.011	0.287	0.286	0.298
		Rear	0.803	0.037	0.428	0.840	1.231	**1.268**
		Right	0.070	-	-	0.070	0.070	0.070
		Left	0.064	0.009	0.102	0.073	0.166	0.175
	LTE Band 41	Top	-	0.055	0.005	0.055	0.005	0.060
		Bottom	1.100	-	-	1.100	1.100	1.100
		Front	0.240	0.012	0.011	0.252	0.251	0.263
		Rear	0.873	0.037	0.428	0.910	1.301	**1.338**
		Right	0.103	-	-	0.103	0.103	0.103
		Left	0.074	0.009	0.102	0.083	0.176	0.185

Table 12.6.6 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	-	0.055	0.018	0.055	0.018	0.073
		Bottom	0.324	-	-	0.324	0.324	0.324
		Front	0.305	0.012	0.039	0.317	0.344	0.356
		Rear	0.380	0.037	0.399	0.417	0.779	**0.816**
		Right	0.341	-	-	0.341	0.341	0.341
		Left	0.175	0.009	0.104	0.184	0.279	0.288
	GPRS 1900	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	1.031	-	-	1.031	1.031	1.031
		Front	0.667	0.012	0.039	0.679	0.706	0.718
		Rear	0.837	0.037	0.399	0.874	1.236	**1.273**
		Right	-	-	-	-	-	-
		Left	0.402	0.009	0.104	0.411	0.506	0.515
	WCDMA 850	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	0.311	-	-	0.311	0.311	0.311
		Front	0.378	0.012	0.039	0.390	0.417	0.429
		Rear	0.506	0.037	0.399	0.543	0.905	**0.942**
		Right	0.492	-	-	0.492	0.492	0.492
		Left	0.167	0.009	0.104	0.176	0.271	0.280
	WCDMA 1700	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	0.794	-	-	0.794	0.794	0.794
		Front	0.426	0.012	0.039	0.438	0.465	0.477
		Rear	0.555	0.037	0.399	0.592	0.954	**0.991**
		Right	-	-	-	-	-	-
		Left	0.244	0.009	0.104	0.253	0.348	0.357
	WCDMA 1900	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	0.951	-	-	0.951	0.951	0.951
		Front	0.570	0.012	0.039	0.582	0.609	0.621
		Rear	0.752	0.037	0.399	0.789	1.151	**1.188**
		Right	-	-	-	-	-	-
		Left	0.351	0.009	0.104	0.360	0.455	0.464
	LTE Band 12	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	0.049	-	-	0.049	0.049	0.049
		Front	0.079	0.012	0.039	0.091	0.118	0.130
		Rear	0.168	0.037	0.399	0.205	0.567	**0.604**
		Right	0.047	-	-	0.047	0.047	0.047
		Left	0.019	0.009	0.104	0.028	0.123	0.132
	LTE Band 5	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	0.268	-	-	0.268	0.268	0.268
		Front	0.326	0.012	0.039	0.338	0.365	0.377
		Rear	0.398	0.037	0.399	0.435	0.797	**0.834**
		Right	0.351	-	-	0.351	0.351	0.351
		Left	0.131	0.009	0.104	0.140	0.235	0.244
	LTE Band 66	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	0.757	-	-	0.757	0.757	0.757
		Front	0.468	0.012	0.039	0.480	0.507	0.519
		Rear	0.499	0.037	0.399	0.536	0.898	**0.935**
		Right	-	-	-	-	-	-
		Left	0.257	0.009	0.104	0.266	0.361	0.370
	LTE Band 2	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	0.905	-	-	0.905	0.905	0.905
		Front	0.589	0.012	0.039	0.601	0.628	0.640
		Rear	0.718	0.037	0.399	0.755	1.117	**1.154**
		Right	-	-	-	-	-	-
		Left	0.309	0.009	0.104	0.318	0.413	0.422
	LTE Band 7	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	0.618	-	-	0.618	0.618	0.618
		Front	0.275	0.012	0.039	0.287	0.314	0.326
		Rear	0.803	0.037	0.399	0.840	1.202	**1.239**
		Right	0.070	-	-	0.070	0.070	0.070
		Left	0.064	0.009	0.104	0.073	0.168	0.177
	LTE Band 41	Top	-	0.055	0.018	0.055	0.018	0.073
		Bottom	1.100	-	-	1.100	1.100	1.100
		Front	0.240	0.012	0.039	0.252	0.279	0.291
		Rear	0.873	0.037	0.399	0.910	1.272	**1.309**
		Right	0.103	-	-	0.103	0.103	0.103
		Left	0.074	0.009	0.104	0.083	0.178	0.187

Table 12.6.7 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	-	0.241	0.241
		Bottom	0.324	-	0.324
		Front	0.305	0.131	0.436
		Rear	0.380	0.218	**0.598**
		Right	0.341	-	0.341
		Left	0.175	0.055	0.230
	GPRS 1900	Top	-	0.241	0.241
		Bottom	1.031	-	1.031
		Front	0.667	0.131	0.798
		Rear	0.837	0.218	**1.055**
		Right	-	-	-
		Left	0.402	0.055	0.457
	WCDMA 850	Top	-	0.241	0.241
		Bottom	0.311	-	0.311
		Front	0.378	0.131	0.509
		Rear	0.506	0.218	**0.724**
		Right	0.492	-	0.492
		Left	0.167	0.055	0.222
	WCDMA 1700	Top	-	0.241	0.241
		Bottom	0.794	-	**0.794**
		Front	0.426	0.131	0.557
		Rear	0.555	0.218	0.773
		Right	-	-	-
		Left	0.244	0.055	0.299
	WCDMA 1900	Top	-	0.241	0.241
		Bottom	0.951	-	0.951
		Front	0.570	0.131	0.701
		Rear	0.752	0.218	**0.970**
		Right	-	-	-
		Left	0.351	0.055	0.406
	LTE Band 12	Top	-	0.241	0.241
		Bottom	0.049	-	0.049
		Front	0.079	0.131	0.210
		Rear	0.168	0.218	**0.386**
		Right	0.047	-	0.047
		Left	0.019	0.055	0.074
	LTE Band 5	Top	-	0.241	0.241
		Bottom	0.268	-	0.268
		Front	0.326	0.131	0.457
		Rear	0.398	0.218	**0.616**
		Right	0.351	-	0.351
		Left	0.131	0.055	0.186
	LTE Band 66	Top	-	0.241	0.241
		Bottom	0.757	-	0.757
		Front	0.468	0.131	0.599
		Rear	0.499	0.218	**0.717**
		Right	-	-	-
		Left	0.257	0.055	0.312
	LTE Band 2	Top	-	0.241	0.241
		Bottom	0.905	-	0.905
		Front	0.589	0.131	0.720
		Rear	0.718	0.218	**0.936**
		Right	-	-	-
		Left	0.309	0.055	0.364
	LTE Band 7	Top	-	0.241	0.241
		Bottom	0.618	-	0.618
		Front	0.275	0.131	0.406
		Rear	0.803	0.218	**1.021**
		Right	0.070	-	0.070
		Left	0.064	0.055	0.119
	LTE Band 41	Top	-	0.241	0.241
		Bottom	1.100	-	**1.100**
		Front	0.240	0.131	0.371
		Rear	0.873	0.218	1.091
		Right	0.103	-	0.103
		Left	0.074	0.055	0.129

Table 12.6.8 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	-	0.004	0.004
		Bottom	0.324	-	0.324
		Front	0.305	0.009	0.314
		Rear	0.380	0.105	**0.485**
		Right	0.341	-	0.341
		Left	0.175	0.020	0.195
	GPRS 1900	Top	-	0.004	0.004
		Bottom	1.031	-	**1.031**
		Front	0.667	0.009	0.676
		Rear	0.837	0.105	0.942
		Right	-	-	-
		Left	0.402	0.020	0.422
	WCDMA 850	Top	-	0.004	0.004
		Bottom	0.311	-	0.311
		Front	0.378	0.009	0.387
		Rear	0.506	0.105	**0.611**
		Right	0.492	-	0.492
		Left	0.167	0.020	0.187
	WCDMA 1700	Top	-	0.004	0.004
		Bottom	0.794	-	**0.794**
		Front	0.426	0.009	0.435
		Rear	0.555	0.105	0.660
		Right	-	-	-
		Left	0.244	0.020	0.264
	WCDMA 1900	Top	-	0.004	0.004
		Bottom	0.951	-	**0.951**
		Front	0.570	0.009	0.579
		Rear	0.752	0.105	0.857
		Right	-	-	-
		Left	0.351	0.020	0.371
	LTE Band 12	Top	-	0.004	0.004
		Bottom	0.049	-	0.049
		Front	0.079	0.009	0.088
		Rear	0.168	0.105	**0.273**
		Right	0.047	-	0.047
		Left	0.019	0.020	0.039
	LTE Band 5	Top	-	0.004	0.004
		Bottom	0.268	-	0.268
		Front	0.326	0.009	0.335
		Rear	0.398	0.105	**0.503**
		Right	0.351	-	0.351
		Left	0.131	0.020	0.151
	LTE Band 66	Top	-	0.004	0.004
		Bottom	0.757	-	**0.757**
		Front	0.468	0.009	0.477
		Rear	0.499	0.105	0.604
		Right	-	-	-
		Left	0.257	0.020	0.277
	LTE Band 2	Top	-	0.004	0.004
		Bottom	0.905	-	**0.905**
		Front	0.589	0.009	0.598
		Rear	0.718	0.105	0.823
		Right	-	-	-
		Left	0.309	0.020	0.329
	LTE Band 7	Top	-	0.004	0.004
		Bottom	0.618	-	0.618
		Front	0.275	0.009	0.284
		Rear	0.803	0.105	**0.908**
		Right	0.070	-	0.070
		Left	0.064	0.020	0.084
	LTE Band 41	Top	-	0.004	0.004
		Bottom	1.100	-	**1.100**
		Front	0.240	0.009	0.249
		Rear	0.873	0.105	0.978
		Right	0.103	-	0.103
		Left	0.074	0.020	0.094

Table 12.6.9 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	-	0.246	0.246
		Bottom	0.324	-	0.324
		Front	0.305	0.141	0.446
		Rear	0.380	0.264	**0.644**
		Right	0.341	-	0.341
		Left	0.175	0.107	0.282
	GPRS 1900	Top	-	0.246	0.246
		Bottom	1.031	-	1.031
		Front	0.667	0.141	0.808
		Rear	0.837	0.264	**1.101**
		Right	-	-	-
		Left	0.402	0.107	0.509
	WCDMA 850	Top	-	0.246	0.246
		Bottom	0.311	-	0.311
		Front	0.378	0.141	0.519
		Rear	0.506	0.264	**0.770**
		Right	0.492	-	0.492
		Left	0.167	0.107	0.274
	WCDMA 1700	Top	-	0.246	0.246
		Bottom	0.794	-	0.794
		Front	0.426	0.141	0.567
		Rear	0.555	0.264	**0.819**
		Right	-	-	-
		Left	0.244	0.107	0.351
	WCDMA 1900	Top	-	0.246	0.246
		Bottom	0.951	-	0.951
		Front	0.570	0.141	0.711
		Rear	0.752	0.264	**1.016**
		Right	-	-	-
		Left	0.351	0.107	0.458
	LTE Band 12	Top	-	0.246	0.246
		Bottom	0.049	-	0.049
		Front	0.079	0.141	0.220
		Rear	0.168	0.264	**0.432**
		Right	0.047	-	0.047
		Left	0.019	0.107	0.126
	LTE Band 5	Top	-	0.246	0.246
		Bottom	0.268	-	0.268
		Front	0.326	0.141	0.467
		Rear	0.398	0.264	**0.662**
		Right	0.351	-	0.351
		Left	0.131	0.107	0.238
	LTE Band 66	Top	-	0.246	0.246
		Bottom	0.757	-	0.757
		Front	0.468	0.141	0.609
		Rear	0.499	0.264	**0.763**
		Right	-	-	-
		Left	0.257	0.107	0.364
	LTE Band 2	Top	-	0.246	0.246
		Bottom	0.905	-	0.905
		Front	0.589	0.141	0.730
		Rear	0.718	0.264	**0.982**
		Right	-	-	-
		Left	0.309	0.107	0.416
	LTE Band 7	Top	-	0.246	0.246
		Bottom	0.618	-	0.618
		Front	0.275	0.141	0.416
		Rear	0.803	0.264	**1.067**
		Right	0.070	-	0.070
		Left	0.064	0.107	0.171
	LTE Band 41	Top	-	0.246	0.246
		Bottom	1.100	-	1.100
		Front	0.240	0.141	0.381
		Rear	0.873	0.264	**1.137**
		Right	0.103	-	0.103
		Left	0.074	0.107	0.181

Table 12.6.10 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	-	0.008	0.008
		Bottom	0.324	-	0.324
		Front	0.305	0.015	0.320
		Rear	0.380	0.090	**0.470**
		Right	0.341	-	0.341
		Left	0.175	0.012	0.187
	GPRS 1900	Top	-	0.008	0.008
		Bottom	1.031	-	**1.031**
		Front	0.667	0.015	0.682
		Rear	0.837	0.090	0.927
		Right	-	-	-
		Left	0.402	0.012	0.414
	WCDMA 850	Top	-	0.008	0.008
		Bottom	0.311	-	0.311
		Front	0.378	0.015	0.393
		Rear	0.506	0.090	**0.596**
		Right	0.492	-	0.492
		Left	0.167	0.012	0.179
	WCDMA 1700	Top	-	0.008	0.008
		Bottom	0.794	-	**0.794**
		Front	0.426	0.015	0.441
		Rear	0.555	0.090	0.645
		Right	-	-	-
		Left	0.244	0.012	0.256
	WCDMA 1900	Top	-	0.008	0.008
		Bottom	0.951	-	**0.951**
		Front	0.570	0.015	0.585
		Rear	0.752	0.090	0.842
		Right	-	-	-
		Left	0.351	0.012	0.363
	LTE Band 12	Top	-	0.008	0.008
		Bottom	0.049	-	0.049
		Front	0.079	0.015	0.094
		Rear	0.168	0.090	**0.258**
		Right	0.047	-	0.047
		Left	0.019	0.012	0.031
	LTE Band 5	Top	-	0.008	0.008
		Bottom	0.268	-	0.268
		Front	0.326	0.015	0.341
		Rear	0.398	0.090	**0.488**
		Right	0.351	-	0.351
		Left	0.131	0.012	0.143
	LTE Band 66	Top	-	0.008	0.008
		Bottom	0.757	-	**0.757**
		Front	0.468	0.015	0.483
		Rear	0.499	0.090	0.589
		Right	-	-	-
		Left	0.257	0.012	0.269
	LTE Band 2	Top	-	0.008	0.008
		Bottom	0.905	-	**0.905**
		Front	0.589	0.015	0.604
		Rear	0.718	0.090	0.808
		Right	-	-	-
		Left	0.309	0.012	0.321
	LTE Band 7	Top	-	0.008	0.008
		Bottom	0.618	-	0.618
		Front	0.275	0.015	0.290
		Rear	0.803	0.090	**0.893**
		Right	0.070	-	0.070
		Left	0.064	0.012	0.076
	LTE Band 41	Top	-	0.008	0.008
		Bottom	1.100	-	**1.100**
		Front	0.240	0.015	0.255
		Rear	0.873	0.090	0.963
		Right	0.103	-	0.103
		Left	0.074	0.012	0.086

Table 12.6.11 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	-	0.009	0.009
		Bottom	0.324	-	0.324
		Front	0.305	0.007	0.312
		Rear	0.380	0.460	**0.840**
		Right	0.341	-	0.341
		Left	0.175	0.012	0.187
	GPRS 1900	Top	-	0.009	0.009
		Bottom	1.031	-	1.031
		Front	0.667	0.007	0.674
		Rear	0.837	0.460	1.297
		Right	-	-	-
		Left	0.402	0.012	0.414
	WCDMA 850	Top	-	0.009	0.009
		Bottom	0.311	-	0.311
		Front	0.378	0.007	0.385
		Rear	0.506	0.460	0.966
		Right	0.492	-	0.492
		Left	0.167	0.012	0.179
	WCDMA 1700	Top	-	0.009	0.009
		Bottom	0.794	-	0.794
		Front	0.426	0.007	0.433
		Rear	0.555	0.460	**1.015**
		Right	-	-	-
		Left	0.244	0.012	0.256
	WCDMA 1900	Top	-	0.009	0.009
		Bottom	0.951	-	0.951
		Front	0.570	0.007	0.577
		Rear	0.752	0.460	**1.212**
		Right	-	-	-
		Left	0.351	0.012	0.363
	LTE Band 12	Top	-	0.009	0.009
		Bottom	0.049	-	0.049
		Front	0.079	0.007	0.086
		Rear	0.168	0.460	0.628
		Right	0.047	-	0.047
		Left	0.019	0.012	0.031
	LTE Band 5	Top	-	0.009	0.009
		Bottom	0.268	-	0.268
		Front	0.326	0.007	0.333
		Rear	0.398	0.460	0.858
		Right	0.351	-	0.351
		Left	0.131	0.012	0.143
	LTE Band 66	Top	-	0.009	0.009
		Bottom	0.757	-	0.757
		Front	0.468	0.007	0.475
		Rear	0.499	0.460	0.959
		Right	-	-	-
		Left	0.257	0.012	0.269
	LTE Band 2	Top	-	0.009	0.009
		Bottom	0.905	-	0.905
		Front	0.589	0.007	0.596
		Rear	0.718	0.460	1.178
		Right	-	-	-
		Left	0.309	0.012	0.321
	LTE Band 7	Top	-	0.009	0.009
		Bottom	0.618	-	0.618
		Front	0.275	0.007	0.282
		Rear	0.803	0.460	1.263
		Right	0.070	-	0.070
		Left	0.064	0.012	0.076
	LTE Band 41	Top	-	0.009	0.009
		Bottom	1.100	-	1.100
		Front	0.240	0.007	0.247
		Rear	0.873	0.460	1.333
		Right	0.103	-	0.103
		Left	0.074	0.012	0.086

Table 12.6.12 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	-	0.013	0.013
		Bottom	0.324	-	0.324
		Front	0.305	0.037	0.342
		Rear	0.380	0.506	**0.886**
		Right	0.341	-	0.341
		Left	0.175	0.138	0.313
	GPRS 1900	Top	-	0.013	0.013
		Bottom	1.031	-	1.031
		Front	0.667	0.037	0.704
		Rear	0.837	0.506	**1.343**
		Right	-	-	-
		Left	0.402	0.138	0.540
	WCDMA 850	Top	-	0.013	0.013
		Bottom	0.311	-	0.311
		Front	0.378	0.037	0.415
		Rear	0.506	0.506	**1.012**
		Right	0.492	-	0.492
		Left	0.167	0.138	0.305
	WCDMA 1700	Top	-	0.013	0.013
		Bottom	0.794	-	0.794
		Front	0.426	0.037	0.463
		Rear	0.555	0.506	**1.061**
		Right	-	-	-
		Left	0.244	0.138	0.382
	WCDMA 1900	Top	-	0.013	0.013
		Bottom	0.951	-	0.951
		Front	0.570	0.037	0.607
		Rear	0.752	0.506	**1.258**
		Right	-	-	-
		Left	0.351	0.138	0.473
	LTE Band 12	Top	-	0.013	0.013
		Bottom	0.049	-	0.049
		Front	0.079	0.037	0.116
		Rear	0.168	0.506	**0.674**
		Right	0.047	-	0.047
		Left	0.019	0.138	0.157
	LTE Band 5	Top	-	0.013	0.013
		Bottom	0.268	-	0.268
		Front	0.326	0.037	0.363
		Rear	0.398	0.506	**0.904**
		Right	0.351	-	0.351
		Left	0.131	0.138	0.269
	LTE Band 66	Top	-	0.013	0.013
		Bottom	0.757	-	0.757
		Front	0.468	0.037	0.505
		Rear	0.499	0.506	**1.005**
		Right	-	-	-
		Left	0.257	0.138	0.395
	LTE Band 2	Top	-	0.013	0.013
		Bottom	0.905	-	0.905
		Front	0.589	0.037	0.626
		Rear	0.718	0.506	**1.224**
		Right	-	-	-
		Left	0.309	0.138	0.447
	LTE Band 7	Top	-	0.013	0.013
		Bottom	0.618	-	0.618
		Front	0.275	0.037	0.312
		Rear	0.803	0.506	**1.309**
		Right	0.070	-	0.070
		Left	0.064	0.138	0.202
	LTE Band 41	Top	-	0.013	0.013
		Bottom	1.100	-	1.100
		Front	0.240	0.037	0.277
		Rear	0.873	0.506	**1.379**
		Right	0.103	-	0.103
		Left	0.074	0.138	0.212

Table 12.6.13 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	-	0.012	0.012
		Bottom	0.324	-	0.324
		Front	0.305	0.064	0.369
		Rear	0.380	0.037	**0.417**
		Right	0.341	-	0.341
		Left	0.175	0.010	0.185
	GPRS 1900	Top	-	0.012	0.012
		Bottom	1.031	-	**1.031**
		Front	0.667	0.064	0.731
		Rear	0.837	0.037	0.874
		Right	-	-	-
		Left	0.402	0.010	0.412
	WCDMA 850	Top	-	0.012	0.012
		Bottom	0.311	-	0.311
		Front	0.378	0.064	0.442
		Rear	0.506	0.037	**0.543**
		Right	0.492	-	0.492
		Left	0.167	0.010	0.177
	WCDMA 1700	Top	-	0.012	0.012
		Bottom	0.794	-	**0.794**
		Front	0.426	0.064	0.490
		Rear	0.555	0.037	0.592
		Right	-	-	-
		Left	0.244	0.010	0.254
	WCDMA 1900	Top	-	0.012	0.012
		Bottom	0.951	-	**0.951**
		Front	0.570	0.064	0.634
		Rear	0.752	0.037	0.789
		Right	-	-	-
		Left	0.351	0.010	0.361
	LTE Band 12	Top	-	0.012	0.012
		Bottom	0.049	-	0.049
		Front	0.079	0.064	0.143
		Rear	0.168	0.037	**0.205**
		Right	0.047	-	0.047
		Left	0.019	0.010	0.029
	LTE Band 5	Top	-	0.012	0.012
		Bottom	0.268	-	0.268
		Front	0.326	0.064	0.390
		Rear	0.398	0.037	**0.435**
		Right	0.351	-	0.351
		Left	0.131	0.010	0.141
	LTE Band 66	Top	-	0.012	0.012
		Bottom	0.757	-	**0.757**
		Front	0.468	0.064	0.532
		Rear	0.499	0.037	0.536
		Right	-	-	-
		Left	0.257	0.010	0.267
	LTE Band 2	Top	-	0.012	0.012
		Bottom	0.905	-	**0.905**
		Front	0.589	0.064	0.653
		Rear	0.718	0.037	0.755
		Right	-	-	-
		Left	0.309	0.010	0.319
	LTE Band 7	Top	-	0.012	0.012
		Bottom	0.618	-	0.618
		Front	0.275	0.064	0.339
		Rear	0.803	0.037	**0.840**
		Right	0.070	-	0.070
		Left	0.064	0.010	0.074
	LTE Band 41	Top	-	0.012	0.012
		Bottom	1.100	-	**1.100**
		Front	0.240	0.064	0.304
		Rear	0.873	0.037	0.910
		Right	0.103	-	0.103
		Left	0.074	0.010	0.084

Table 12.6.14 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	-	0.005	0.005
		Bottom	0.324	-	0.324
		Front	0.305	0.011	0.316
		Rear	0.380	0.428	**0.808**
		Right	0.341	-	0.341
		Left	0.175	0.102	0.277
	GPRS 1900	Top	-	0.005	0.005
		Bottom	1.031	-	1.031
		Front	0.667	0.011	0.678
		Rear	0.837	0.428	**1.265**
		Right	-	-	-
		Left	0.402	0.102	0.504
	WCDMA 850	Top	-	0.005	0.005
		Bottom	0.311	-	0.311
		Front	0.378	0.011	0.389
		Rear	0.506	0.428	**0.934**
		Right	0.492	-	0.492
		Left	0.167	0.102	0.269
	WCDMA 1700	Top	-	0.005	0.005
		Bottom	0.794	-	0.794
		Front	0.426	0.011	0.437
		Rear	0.555	0.428	**0.983**
		Right	-	-	-
		Left	0.244	0.102	0.346
	WCDMA 1900	Top	-	0.005	0.005
		Bottom	0.951	-	0.951
		Front	0.570	0.011	0.581
		Rear	0.752	0.428	**1.180**
		Right	-	-	-
		Left	0.351	0.102	0.453
	LTE Band 12	Top	-	0.005	0.005
		Bottom	0.049	-	0.049
		Front	0.079	0.011	0.090
		Rear	0.168	0.428	**0.596**
		Right	0.047	-	0.047
		Left	0.019	0.102	0.121
	LTE Band 5	Top	-	0.005	0.005
		Bottom	0.268	-	0.268
		Front	0.326	0.011	0.337
		Rear	0.398	0.428	**0.826**
		Right	0.351	-	0.351
		Left	0.131	0.102	0.233
	LTE Band 66	Top	-	0.005	0.005
		Bottom	0.757	-	0.757
		Front	0.468	0.011	0.479
		Rear	0.499	0.428	**0.927**
		Right	-	-	-
		Left	0.257	0.102	0.359
	LTE Band 2	Top	-	0.005	0.005
		Bottom	0.905	-	0.905
		Front	0.589	0.011	0.600
		Rear	0.718	0.428	**1.146**
		Right	-	-	-
		Left	0.309	0.102	0.411
	LTE Band 7	Top	-	0.005	0.005
		Bottom	0.618	-	0.618
		Front	0.275	0.011	0.286
		Rear	0.803	0.428	**1.231**
		Right	0.070	-	0.070
		Left	0.064	0.102	0.166
	LTE Band 41	Top	-	0.005	0.005
		Bottom	1.100	-	**1.100**
		Front	0.240	0.011	0.251
		Rear	0.873	0.428	1.301
		Right	0.103	-	0.103
		Left	0.074	0.102	0.176

Table 12.6.15 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	-	0.018	0.018
		Bottom	0.324	-	0.324
		Front	0.305	0.039	0.344
		Rear	0.380	0.399	**0.779**
		Right	0.341	-	0.341
		Left	0.175	0.104	0.279
	GPRS 1900	Top	-	0.018	0.018
		Bottom	1.031	-	1.031
		Front	0.667	0.039	0.706
		Rear	0.837	0.399	**1.236**
		Right	-	-	-
		Left	0.402	0.104	0.506
	WCDMA 850	Top	-	0.018	0.018
		Bottom	0.311	-	0.311
		Front	0.378	0.039	0.417
		Rear	0.506	0.399	**0.905**
		Right	0.492	-	0.492
		Left	0.167	0.104	0.271
	WCDMA 1700	Top	-	0.018	0.018
		Bottom	0.794	-	0.794
		Front	0.426	0.039	0.465
		Rear	0.555	0.399	**0.954**
		Right	-	-	-
		Left	0.244	0.104	0.348
	WCDMA 1900	Top	-	0.018	0.018
		Bottom	0.951	-	0.951
		Front	0.570	0.039	0.609
		Rear	0.752	0.399	**1.151**
		Right	-	-	-
		Left	0.351	0.104	0.455
	LTE Band 12	Top	-	0.018	0.018
		Bottom	0.049	-	0.049
		Front	0.079	0.039	0.118
		Rear	0.168	0.399	**0.567**
		Right	0.047	-	0.047
		Left	0.019	0.104	0.123
	LTE Band 5	Top	-	0.018	0.018
		Bottom	0.268	-	0.268
		Front	0.326	0.039	0.365
		Rear	0.398	0.399	**0.797**
		Right	0.351	-	0.351
		Left	0.131	0.104	0.235
	LTE Band 66	Top	-	0.018	0.018
		Bottom	0.757	-	0.757
		Front	0.468	0.039	0.507
		Rear	0.499	0.399	**0.898**
		Right	-	-	-
		Left	0.257	0.104	0.361
	LTE Band 2	Top	-	0.018	0.018
		Bottom	0.905	-	0.905
		Front	0.589	0.039	0.628
		Rear	0.718	0.399	**1.117**
		Right	-	-	-
		Left	0.309	0.104	0.413
	LTE Band 7	Top	-	0.018	0.018
		Bottom	0.618	-	0.618
		Front	0.275	0.039	0.314
		Rear	0.803	0.399	**1.202**
		Right	0.070	-	0.070
		Left	0.064	0.104	0.168
	LTE Band 41	Top	-	0.018	0.018
		Bottom	1.100	-	**1.100**
		Front	0.240	0.039	0.279
		Rear	0.873	0.399	1.272
		Right	0.103	-	0.103
		Left	0.074	0.104	0.178

Table 12.6.16 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	-	0.055	0.055
		Bottom	0.324	-	0.324
		Front	0.305	0.012	0.317
		Rear	0.380	0.037	**0.417**
		Right	0.341	-	0.341
		Left	0.175	0.009	0.184
	GPRS 1900	Top	-	0.055	0.055
		Bottom	1.031	-	**1.031**
		Front	0.667	0.012	0.679
		Rear	0.837	0.037	0.874
		Right	-	-	-
		Left	0.402	0.009	0.411
	WCDMA 850	Top	-	0.055	0.055
		Bottom	0.311	-	0.311
		Front	0.378	0.012	0.390
		Rear	0.506	0.037	**0.543**
		Right	0.492	-	0.492
		Left	0.167	0.009	0.176
	WCDMA 1700	Top	-	0.055	0.055
		Bottom	0.794	-	**0.794**
		Front	0.426	0.012	0.438
		Rear	0.555	0.037	0.592
		Right	-	-	-
		Left	0.244	0.009	0.253
	WCDMA 1900	Top	-	0.055	0.055
		Bottom	0.951	-	**0.951**
		Front	0.570	0.012	0.582
		Rear	0.752	0.037	0.789
		Right	-	-	-
		Left	0.351	0.009	0.360
	LTE Band 12	Top	-	0.055	0.055
		Bottom	0.049	-	0.049
		Front	0.079	0.012	0.091
		Rear	0.168	0.037	**0.205**
		Right	0.047	-	0.047
		Left	0.019	0.009	0.028
	LTE Band 5	Top	-	0.055	0.055
		Bottom	0.268	-	0.268
		Front	0.326	0.012	0.338
		Rear	0.398	0.037	**0.435**
		Right	0.351	-	0.351
		Left	0.131	0.009	0.140
	LTE Band 66	Top	-	0.055	0.055
		Bottom	0.757	-	**0.757**
		Front	0.468	0.012	0.480
		Rear	0.499	0.037	0.536
		Right	-	-	-
		Left	0.257	0.009	0.266
	LTE Band 2	Top	-	0.055	0.055
		Bottom	0.905	-	**0.905**
		Front	0.589	0.012	0.601
		Rear	0.718	0.037	0.755
		Right	-	-	-
		Left	0.309	0.009	0.318
	LTE Band 7	Top	-	0.055	0.055
		Bottom	0.618	-	0.618
		Front	0.275	0.012	0.287
		Rear	0.803	0.037	**0.840**
		Right	0.070	-	0.070
		Left	0.064	0.009	0.073
	LTE Band 41	Top	-	0.055	0.055
		Bottom	1.100	-	**1.100**
		Front	0.240	0.012	0.252
		Rear	0.873	0.037	0.910
		Right	0.103	-	0.103
		Left	0.074	0.009	0.083

Table 12.6.17 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.1 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.1 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	5.2G W-LAN Ant.1	Top	0.055	0.008	0.063
		Bottom	-	-	-
		Front	0.012	0.015	0.027
		Rear	0.037	0.090	0.127
		Right	-	-	-
		Left	0.009	0.012	0.021
	5.8G W-LAN Ant.1	Top	0.055	0.012	0.067
		Bottom	-	-	-
		Front	0.012	0.064	0.076
		Rear	0.037	0.037	0.074
		Right	-	-	-
		Left	0.009	0.010	0.019

Table 12.6.18 Simultaneous Transmission Scenario : Bluetooth Ant.1 + 5 GHz W-LAN Ant.2 (Hotspot at 10 mm)

Exposure Condition	Mode	Configuration	Bluetooth Ant.1 SAR (W/kg)	5G W-LAN Ant.2 SAR (W/kg)	ΣSAR (W/kg)
			1	2	1+2
Hotspot SAR	5.2G W-LAN Ant.2	Top	0.055	0.009	0.064
		Bottom	-	-	-
		Front	0.012	0.007	0.019
		Rear	0.037	0.460	0.497
		Right	-	-	-
		Left	0.009	0.012	0.021
	5.8G W-LAN Ant.2	Top	0.055	0.005	0.060
		Bottom	-	-	-
		Front	0.012	0.011	0.023
		Rear	0.037	0.428	0.465
		Right	-	-	-
		Left	0.009	0.102	0.111

Table 12.6.19 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	0.055	0.013	0.068
		Bottom	-	-	-
		Front	0.012	0.037	0.049
		Rear	0.037	0.506	0.543
		Right	-	-	-
		Left	0.009	0.138	0.147
	5.8G W-LAN MIMO	Top	0.055	0.018	0.073
		Bottom	-	-	-
		Front	0.012	0.039	0.051
		Rear	0.037	0.399	0.436
		Right	-	-	-
		Left	0.009	0.104	0.113

12.7 Phablet SAR Simultaneous Transmission Analysis

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

12.8 Simultaneous Transmission Conclusion

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

13. SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

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

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

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

Table 13.1 Body SAR Measurement Variability Results

Frequency		Mode	Service	# of Time Slots	Spacing [Side]	Measured SAR (1g)	1st Repeated SAR(1g)	Ratio	2nd Repeated SAR(1g)	Ratio	3rd Repeated SAR(1g)	Ratio
MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1880.0	661	PCS1900	GPRS	2	10 mm [Bottom]	0.962	0.924	1.04	-	-	-	-
1852.4	9262	WCDMA 1900	RMC	-	10 mm [Bottom]	0.898	0.888	1.01	-	-	-	-
1860.0	18700	LTE B2	-	-	10 mm [Bottom]	0.886	0.852	1.04	-	-	-	-
2593.0	40620	LTE B41	-	-	10 mm [Bottom]	0.888	0.823	1.08				
ANSI / IEEE C95.1-1992– SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population Exposure							Body 1.6 W/kg (mW/g) averaged over 1 gram					

13.2 Measurement Uncertainty

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

14. EQUIPMENT LIST

Table 15.1.1 Test Equipment Calibration

	Type	Manufacturer	Model	Cal.Date	Next.Cal.Date	S/N
☒	SEMITEC Engineering	SEMITEC	N/A	N/A	N/A	Shield Room
☒	SEMITEC Engineering	SEMITEC	N/A	N/A	N/A	Shield Room
☒	Robot	SCHMID	TX90XL	N/A	N/A	F13/5P9GA1/A/01
☒	Robot	SCHMID	TX90XL	N/A	N/A	F13/5RR2A1/A/01
☒	Robot Controller	SCHMID	CS8C	N/A	N/A	F13/5P9GA1/C/01
☒	Robot Controller	SCHMID	CS8C	N/A	N/A	F13/5RR2A1/C/01
☒	Joystick	SCHMID	N/A	N/A	N/A	S-12450905
☒	Joystick	SCHMID	N/A	N/A	N/A	S-13200990
☒	IntelCorei7-3770 3.40 GHz Windows 7 Professional	N/A	N/A	N/A	N/A	N/A
☒	IntelCorei7-3770 3.40 GHz Windows 7 Professional	N/A	N/A	N/A	N/A	N/A
☒	Probe Alignment Unit LB	N/A	N/A	N/A	N/A	SE UKS 030 AA
☒	Probe Alignment Unit LB	N/A	N/A	N/A	N/A	SE UKS 030 AA
☒	Device Holder	SCHMID	Holder	N/A	N/A	SD000H01HA
☒	Device Holder	SCHMID	Holder	N/A	N/A	SD000H01HA
☒	Twin SAM Phantom	SCHMID	QD000P40CD	N/A	N/A	1783
☒	Twin SAM Phantom	SCHMID	QD000P40CD	N/A	N/A	1782
☒	Twin SAM Phantom	SCHMID	QD000P40CD	N/A	N/A	1786
☒	Data Acquisition Electronics	SCHMID	DAE3V1	2017-11-17	2018-11-17	520
☒	Data Acquisition Electronics	SCHMID	DAE4V1	2018-03-19	2019-03-19	1394
☒	Dosimetric E-Field Probe	SCHMID	ES3DV3	2018-03-21	2019-03-21	3328
☒	Dosimetric E-Field Probe	SCHMID	EX3DV4	2018-05-31	2019-05-31	3866
☒	750MHz SAR Dipole	SCHMID	D750V3	2018-01-18	2020-01-18	1049
☒	835MHz SAR Dipole	SCHMID	D835V2	2017-09-21	2019-09-21	464
☒	1800MHz SAR Dipole	SCHMID	D1800V2	2018-04-26	2020-04-26	2d202
☒	1900MHz SAR Dipole	SCHMID	D1900V2	2017-09-20	2019-09-20	5d029
☒	2450MHz SAR Dipole	SCHMID	D2450V2	2017-09-19	2019-09-19	726
☒	2600MHz SAR Dipole	SCHMID	D2600V2	2018-02-16	2020-02-16	1103
☒	5GHz SAR Dipole	SCHMID	D5GHzV2	2018-02-15	2020-02-15	1212
☒	Network Analyzer	Agilent	E5071C	2018-02-02	2019-02-02	MY46111534
☒	Signal Generator	Agilent	E4438C	2018-07-04	2019-07-04	US41461520
☒	Amplifier	RFBAY.Inc	MPA-40-40	2017-12-28	2018-12-28	21151801
☒	Amplifier	EMPOWER	BBS3Q7ELU	2018-07-10	2019-07-10	1020
☒	High Power RF Amplifier	EMPOWER	BBS3Q8CCJ	2018-07-06	2019-07-06	1005
☒	Power Meter	HP	EPM-442A	2017-12-27	2018-12-27	GB37170267
☒	Power Meter	HP	EPM-442A	2017-12-27	2018-12-27	GB37170413
☒	Power Meter	Anritsu	ML2495A	2018-07-04	2019-07-04	1435003
☒	Power Sensor	Anritsu	MA2490A	2018-07-04	2019-07-04	1409034
☒	Power Sensor	HP	8481A	2017-12-27	2018-12-27	US37294267
☒	Power Sensor	HP	8481A	2017-12-27	2018-12-27	3318A96566
☒	Power Sensor	HP	8481A	2017-12-27	2018-12-27	2702A65976
☒	Dual Directional Coupler	Agilent	778D-012	2017-12-27	2018-12-27	50228
☒	Directional Coupler	HP	772D	2018-07-03	2019-07-03	2889A01064
☒	Low Pass Filter 1GHz	Wainwright Instruments	WLK6-1000-1400-9000-60SS	2018-07-05	2019-07-05	165
☒	Low Pass Filter 1.5GHz	Micro LAB	LA-15N	2017-12-27	2018-12-27	N/A
☒	Low Pass Filter 3.0GHz	Micro LAB	LA-30N	2018-07-05	2019-07-05	N/A
☒	Low Pass Filter 6.0GHz	Micro LAB	LA-60N	2017-12-27	2018-12-27	03942
☒	Attenuators(3 dB)	Agilent	8491B	2017-12-27	2018-12-27	MY39260700
☒	Attenuators(10 dB)	WEINSCHEL	23-10-34	2017-12-27	2018-12-27	BP4387
☒	Dielectric Probe kit	SCHMID	DAK-3.5	2017-11-21	2018-11-21	1092
☒	8960 Series 10 Wireless Comms. Test Set	Agilent	E5515C	2018-07-04	2019-07-04	GB41321164
☒	Wideband Radio Communication Tester	Rohde Schwarz	CMW500	2018-03-07	2019-03-07	162709
☒	Wideband Radio Communication Tester	Rohde Schwarz	CMW500	2018-02-05	2019-02-05	101414
☒	Radio Communication Analyzer	KEYSIGHT	E7515A	2018-07-06	2019-07-06	MY55210201
☒	Radio Communication Analyzer	KEYSIGHT	E7515A	2017-12-27	2018-12-27	MY57270113
☒	Power Splitter	Anritsu	K241B	2017-12-27	2018-12-27	1301183
☒	Bluetooth Tester	TESCOM	TC-3000B	2017-12-26	2018-12-26	3000B770243

NOTE(S):

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

15. MEASUREMENT UNCERTAINTIES

750 MHz Head (SN: 3328)

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

The above measurement uncertainties are according to IEEE Std 1528

750 MHz Body (SN: 3328)

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

The above measurement uncertainties are according to IEEE Std 1528

835 MHz Head (SN: 3328)

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

The above measurement uncertainties are according to IEEE Std 1528

835 MHz Body (SN: 3328)

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

The above measurement uncertainties are according to IEEE Std 1528

1800 MHz Head (SN: 3328)

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

The above measurement uncertainties are according to IEEE Std 1528

1800 MHz Body (SN: 3328)

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

The above measurement uncertainties are according to IEEE Std 1528

1900 MHz Head (SN: 3328)

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

The above measurement uncertainties are according to IEEE Std 1528

1900 MHz Body (SN: 3328)

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

The above measurement uncertainties are according to IEEE Std 1528

2450 MHz Head (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

2450 MHz Body (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

2600 MHz Head (SN: 3328)

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

The above measurement uncertainties are according to IEEE Std 1528

2600 MHz Body (SN: 3328)

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

5200 MHz Head (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

5200 MHz Body (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

5300 MHz Head (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

5300 MHz Body (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

5500 MHz Head (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

5500 MHz Body (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

5600 MHz Head (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

5600 MHz Body (SN: 3866)

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

The above measurement uncertainties are according to IEEE Std 1528

5800 MHz Head (SN: 3866)

Error Description	Uncertainty value ±%	Probability Distribution	Divisor	(Ci) 1g	(Ci) 10g	Standard (1g)	Standard (10g)	vi 2 or Veff
Measurement System								
Probe calibration	± 6.55	Normal	1	1	1	± 6.6 %	± 6.6 %	∞
Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
Boundary Effects	± 2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %	∞
Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
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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 %	∞
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Probe Positioner	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
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Temp. unc. - Permittivity	± 1.7	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
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Isotropy	± 1.3	Normal	1	1	1	± 1.3 %	± 1.3 %	∞
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Probe Linearity	± 0.3	Normal	1	1	1	± 0.3 %	± 0.3 %	∞
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Response time	± 0.8	Rectangular	√3	1	1	± 0.46 %	± 0.46 %	∞
Integration time	± 2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %	∞
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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 %	∞
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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 %	∞
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Phantom Shell	± 7.6	Rectangular	√3	1	1	± 4.4 %	± 4.4 %	∞
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Liquid conductivity (Meas.)	± 4.0	Normal	1	0.78	0.71	± 3.1 %	± 2.8 %	10
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.60	0.49	± 1.7 %	± 1.4 %	∞
Liquid permittivity (Meas.)	± 4.2	Normal	1	0.23	0.26	± 1.0 %	± 1.1 %	10
Temp. unc. - Conductivity	± 1.8	Rectangular	√3	0.78	0.71	± 0.8 %	± 0.7 %	∞
Temp. unc. - Permittivity	± 1.8	Rectangular	√3	0.23	0.26	± 0.2 %	± 0.3 %	∞
Combined Standard Uncertainty						**± 11.9 %**	**± 11.7 %**	330
Expanded Uncertainty (k=2)						**± 23.8 %**	**± 23.4 %**	

The above measurement uncertainties are according to IEEE Std 1528

16. CONCLUSION

Measurement Conclusion

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

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

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

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APPENDIX A. – Probe Calibration Data

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

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

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

Accreditation No.: **SCS 0108**

Client **DT&C (Dymstec)**

Certificate No: **ES3-3328_Mar18**

CALIBRATION CERTIFICATE

Object	ES3DV3 - SN:3328
Calibration procedure(s)	QA CAL-01.v9, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	March 21, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

Issued: March 24, 2018

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

Calibration Laboratory of
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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
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d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

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

Probe ES3DV3

SN:3328

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

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

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

Basic Calibration Parameters

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

Modulation Calibration Parameters

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

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

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

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

Calibration Parameter Determined in Head Tissue Simulating Media

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

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

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

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

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

Calibration Parameter Determined in Body Tissue Simulating Media

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

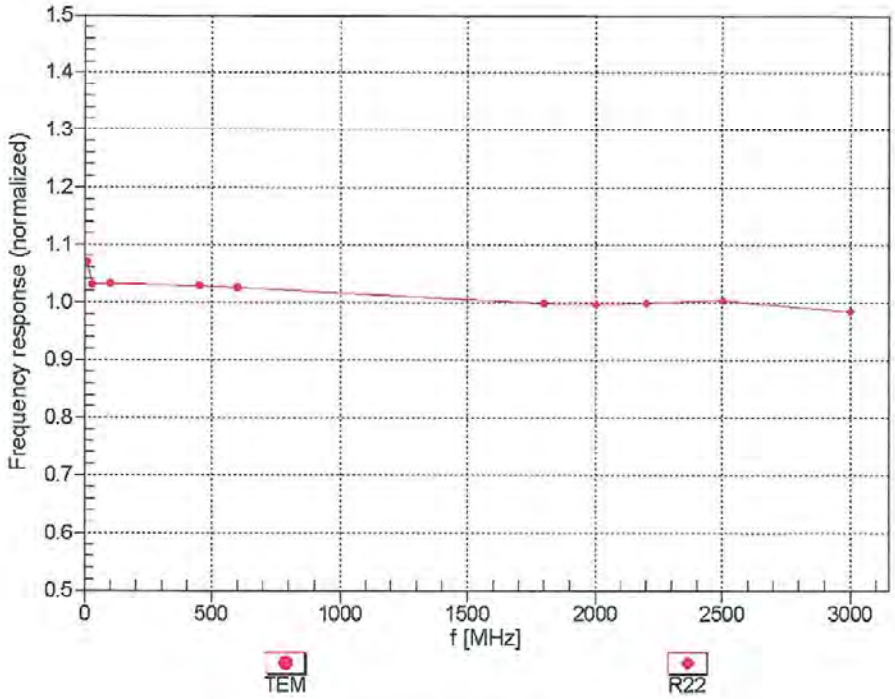
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz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

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

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

ES3DV3– SN:3328 March 21, 2018

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

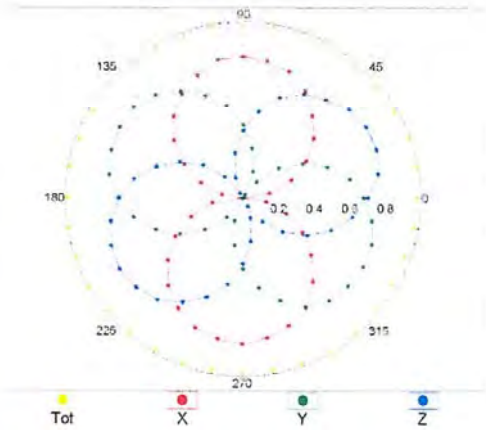


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

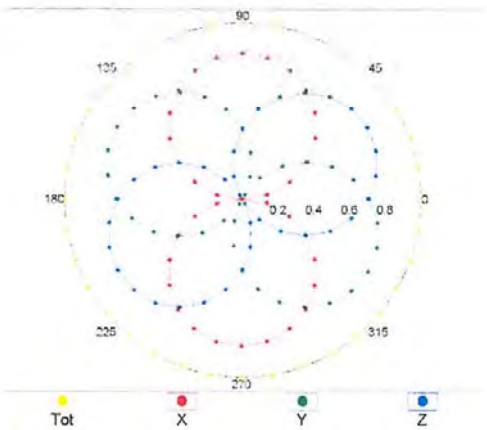
ES3DV3– SN:3328 March 21, 2018

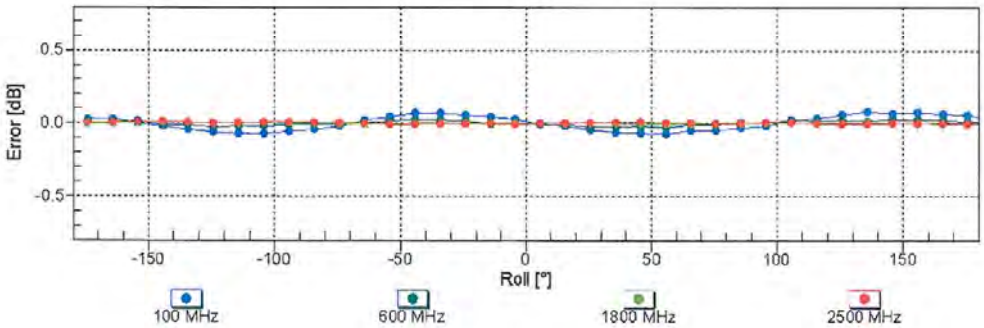
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

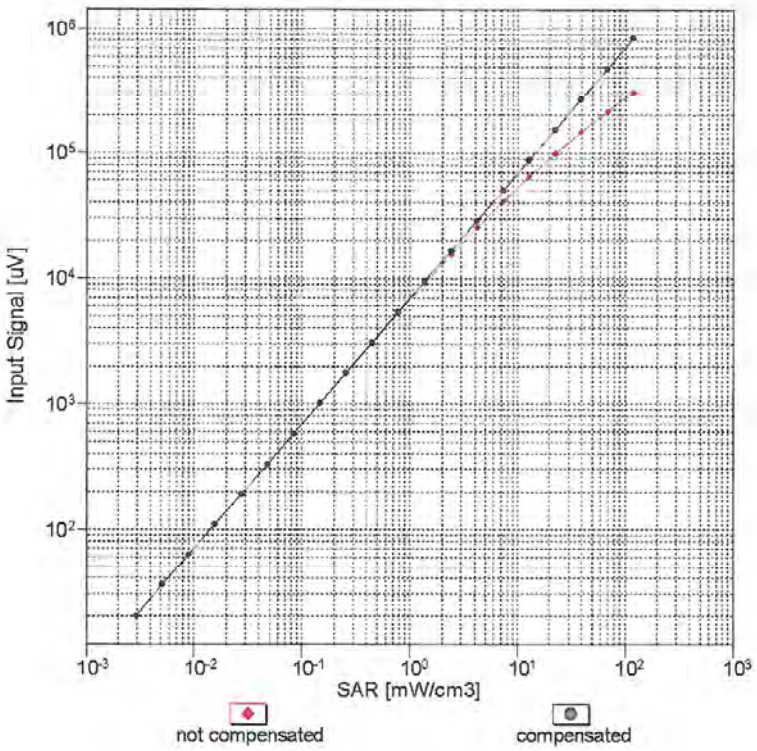


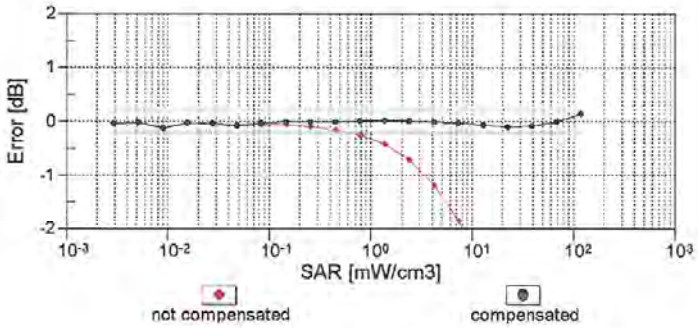


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ES3DV3– SN:3328 March 21, 2018

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



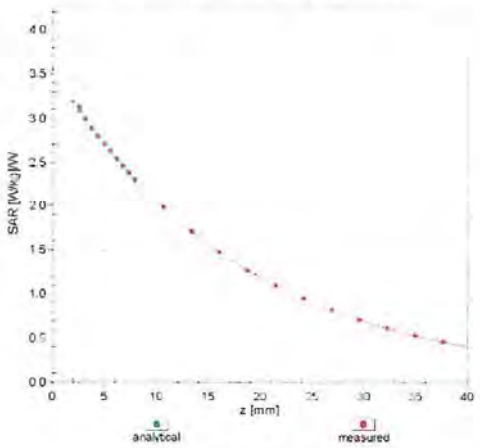


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

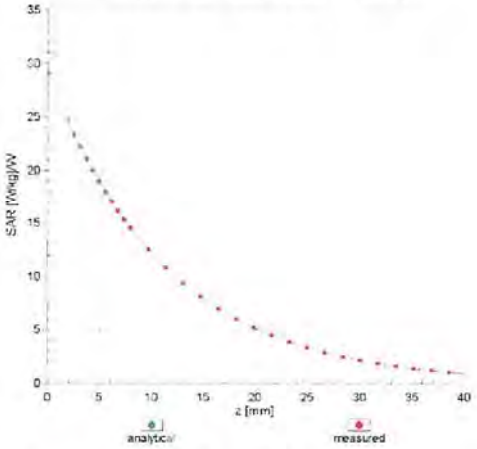
ES3DV3– SN:3328 March 21, 2018

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

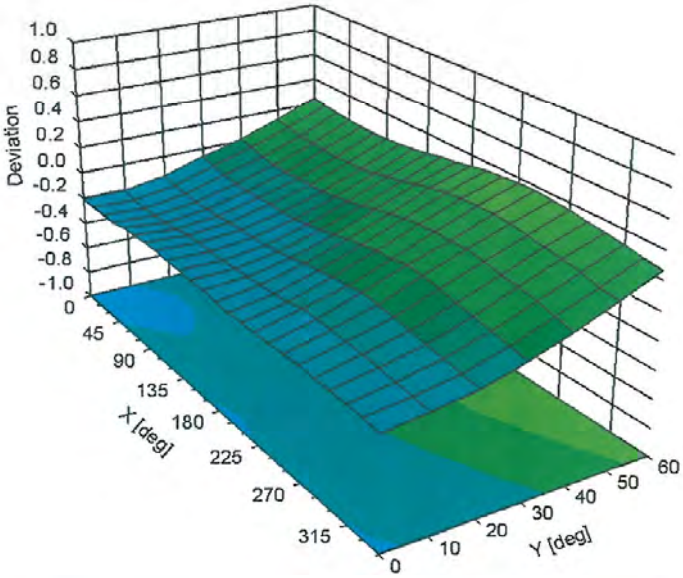


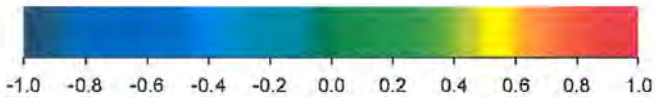
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

Certificate No: ES3-3328_Mar18 Page 10 of 11

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

Other Probe Parameters

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

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Accreditation No.: **SCS 0108**

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

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3866
Calibration procedure(s)	QA CAL-01.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	May 31, 2018

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

Issued: May 31, 2018

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

Probe EX3DV4

SN:3866

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

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

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

Basic Calibration Parameters

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

Modulation Calibration Parameters

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

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

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

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

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

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

Calibration Parameter Determined in Head Tissue Simulating Media

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

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

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

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

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

Calibration Parameter Determined in Body Tissue Simulating Media

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

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

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

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

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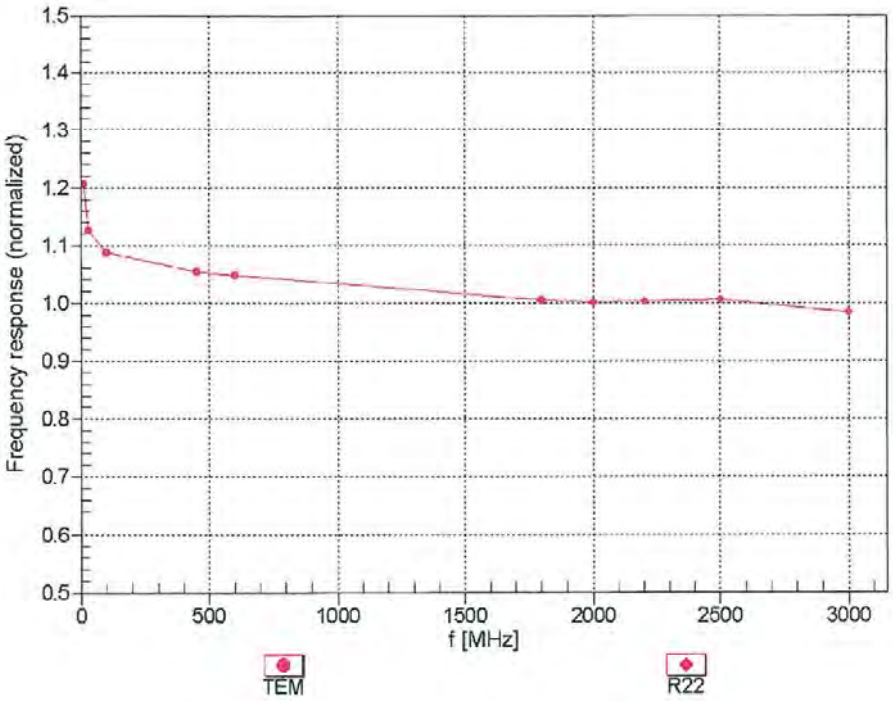
Frequency Response of E-Field

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



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