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SAR EVALUATION REPORT

Applicant Name:
Apple, Inc.
One Apple Park Way
Cupertino, CA 95014 USA

Date of Testing:
06/06/2022 – 08/12/2022
Test Site/Location:
Element, Morgan Hill, CA, USA
Document Serial No.:
1C2205090040-22.BCG (Rev 1)

FCC ID: **BCG-A2774**

APPLICANT: **APPLE, INC.**

DUT Type: Watch
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: A2774

Equipment Class	Band & Mode	Tx Frequency	SAR	
			1g Head (W/kg)	10g Extremity (W/kg)
PCT	UMTS 850	826.40 - 846.60 MHz	< 0.1	0.18
PCT	UMTS 1750	1712.4 - 1752.6 MHz	0.35	< 0.1
PCT	UMTS 1900	1852.4 - 1907.6 MHz	0.76	< 0.1
PCT	LTE Band 12	699.7 - 715.3 MHz	< 0.1	0.24
PCT	LTE Band 17	706.5 - 713.5 MHz	N/A	N/A
PCT	LTE Band 13	779.5 - 784.5 MHz	< 0.1	0.32
PCT	LTE Band 14	790.5 - 795.5 MHz	< 0.1	0.28
PCT	LTE Band 26 (Cell)	814.7 - 848.3 MHz	< 0.1	0.19
PCT	LTE Band 5 (Cell)	824.7 - 848.3 MHz	< 0.1	0.20
PCT	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.52	< 0.1
PCT	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A
PCT	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.58	< 0.1
PCT	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A
PCT	LTE Band 7	2502.5 - 2567.5 MHz	0.57	< 0.1
PCT	LTE Band 41	2498.5 - 2687.5 MHz	0.33	< 0.1
DTS	2.4 GHz WLAN	2412 - 2472 MHz	0.34	< 0.1
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	< 0.1	< 0.1
NII	U-NII-2C	5500 - 5720 MHz	< 0.1	< 0.1
NII	U-NII-3	5745 - 5825 MHz	< 0.1	< 0.1
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.1	< 0.1
Simultaneous SAR per KDB 690783 D01v01r03:			1.10	0.34

Note: This revised Test Report supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

This watch has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.8 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.

RJ Ortanez
Executive Vice President

The SAR Tick is an initiative of the Mobile & Wireless Forum (MWF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MWF. Further details can be obtained by emailing: sartick@mwfai.info.

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 14	Voice/Data	790.5 - 795.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2472 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
UWB	Data	6489.6 - 7987.2 MHz

1.2 Power Reduction for SAR

This device uses an independent fixed level power reduction mechanism for LTE Band 7 during next to mouth scenarios. When the speaker is on, the output power of LTE Band 7 is reduced. Detailed descriptions of the power reduction mechanisms are included in the operational description. The power reduction mechanisms were confirmed during the SAR evaluation.

1.3 Nominal and Maximum Output Power Specifications

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.

1.3.1 Maximum Output Power – UMTS Mode

Mode/Band		Modulated Average Output Power (in dBm)		
		3GPP WCDMA Rel 99	3GPP HSDPA Rel 5	3GPP HSUPA Rel 6
UMTS Band 5 (850 MHz)	Max allowed power	25.00	25.00	24.00
	Nominal	24.00	24.00	23.00
UMTS Band 4 (1750 MHz)	Max allowed power	24.00	24.00	24.00
	Nominal	23.00	23.00	23.00
UMTS Band 2 (1900 MHz)	Max allowed power	24.00	24.00	24.00
	Nominal	23.00	23.00	23.00

1.3.2 Maximum Output Power – LTE Mode

Mode / Band		Modulated Average Output Power (in dBm)
LTE FDD Band 12	Max allowed power	25.50
	Nominal	24.50
LTE FDD Band 17	Max allowed power	25.50
	Nominal	24.50
LTE FDD Band 13	Max allowed power	25.50
	Nominal	24.50
LTE FDD Band 14	Max allowed power	25.50
	Nominal	24.50
LTE FDD Band 26 (Cell)	Max allowed power	25.50
	Nominal	24.50
LTE FDD Band 5 (Cell)	Max allowed power	25.50
	Nominal	24.50
LTE FDD Band 66 (AWS)	Max allowed power	24.50
	Nominal	23.50
LTE FDD Band 4 (AWS)	Max allowed power	24.50
	Nominal	23.50
LTE FDD Band 25 (PCS)	Max allowed power	24.50
	Nominal	23.50
LTE FDD Band 2 (PCS)	Max allowed power	24.50
	Nominal	23.50
LTE FDD Band 7 Reduced	Max allowed power	23.50
	Nominal	22.50
LTE FDD Band 7	Max allowed power	24.00
	Nominal	23.00
LTE TDD Band 41	Max allowed power	24.00
	Nominal	23.00

1.3.3 Maximum Output Power – WiFi Mode

Mode/ Band			IEEE 802.11b (2.4 GHz)		IEEE 802.11g (2.4 GHz)		IEEE 802.11n (2.4 GHz)	
		Channel	Maximum	Nominal	Maximum	Nominal	Maximum	Nominal
Modulated Average - Single Tx Chain (dBm)	20 MHz Bandwidth	1	19.00	18.00	17.00	16.00	17.00	16.00
		2	19.00	18.00	18.00	17.00	18.00	17.00
		3	19.00	18.00	18.50	17.50	18.50	17.50
		4	19.00	18.00	18.50	17.50	18.50	17.50
		5	19.00	18.00	18.50	17.50	18.50	17.50
		6	19.00	18.00	18.50	17.50	18.50	17.50
		7	19.00	18.00	18.50	17.50	18.50	17.50
		8	19.00	18.00	18.50	17.50	18.50	17.50
		9	19.00	18.00	18.50	17.50	18.50	17.50
		10	19.00	18.00	18.00	17.00	18.00	17.00
		11	19.00	18.00	14.00	13.00	14.00	13.00
		12	18.00	17.00	13.00	12.00	13.00	12.00
		13	15.00	14.00	2.50	1.50	2.50	1.50

Mode/ Band			IEEE 802.11a (5 GHz)		IEEE 802.11n (5 GHz)	
		Channel	Maximum	Nominal	Maximum	Nominal
Modulated Average - Single Tx Chain (dBm)	20 MHz Bandwidth	36	17.00	16.00	17.00	16.00
		40	17.00	16.00	17.00	16.00
		44	17.00	16.00	17.00	16.00
		48	17.00	16.00	17.00	16.00
		52	17.00	16.00	17.00	16.00
		56	17.00	16.00	17.00	16.00
		60	17.00	16.00	17.00	16.00
		64	17.00	16.00	17.00	16.00
		100	17.00	16.00	17.00	16.00
		104	17.00	16.00	17.00	16.00
		108	17.00	16.00	17.00	16.00
		112	17.00	16.00	17.00	16.00
		116	17.00	16.00	17.00	16.00
		120	17.00	16.00	17.00	16.00
		124	17.00	16.00	17.00	16.00
		128	17.00	16.00	17.00	16.00
		132	17.00	16.00	17.00	16.00
		136	16.00	15.00	16.00	15.00
		140	13.50	12.50	13.50	12.50
		144	17.00	16.00	17.00	16.00
		149	17.00	16.00	17.00	16.00
		153	17.00	16.00	17.00	16.00
		157	17.00	16.00	17.00	16.00
		161	17.00	16.00	17.00	16.00
		165	17.00	16.00	17.00	16.00

1.3.1 Maximum Output Power – Bluetooth Mode

Mode / Band		Modulated Average - Single Tx Chain (dBm)
Bluetooth BDR/LE	Maximum	**13.00**
	Nominal	**12.00**
Bluetooth EDR	Maximum	**13.00**
	Nominal	**12.00**
Bluetooth HDR	Maximum	**13.00**
	Nominal	**12.00**

1.4 DUT Antenna Locations

A diagram showing the location of the device antennas can be found in Appendix E.

1.5 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the device for this model. Therefore, all SAR tests were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the NFC antenna can be found in Appendix E.

1.6 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be operating 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 4.3.2 procedures.

Table 1-1
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Extremity
1	UMTS + 2.4 GHz WI-FI	Yes	Yes
2	UMTS + 5 GHz WI-FI	Yes	Yes
3	UMTS + 2.4 GHz Bluetooth	Yes	Yes
4	UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes	Yes
5	LTE + 2.4 GHz WI-FI	Yes	Yes
6	LTE + 5 GHz WI-FI	Yes	Yes
7	LTE + 2.4 GHz Bluetooth	Yes	Yes
8	LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes	Yes
9	2.4 GHz Bluetooth + 5 GHz WI-FI	Yes	Yes

1. 2.4 GHz WLAN, and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
2. 2.4 GHz WLAN, and 5 GHz WLAN share the same antenna path and cannot transmit simultaneously.
3. Licensed modes cannot transmit simultaneously.
4. 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 scenario.
5. This device supports VOLTE.
6. This device supports VOWIFI.

1.7 Miscellaneous SAR Test Considerations

(A) WIFI/BT

This device supports channel 1-13 for 2.4 GHz WLAN. However, because channel 12/13 targets are not higher than that of channels 1-11, channels 1, 6, and 11 were considered for SAR testing per FCC KDB 248227 D01V02r02.

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.

(B) Licensed Transmitter(s)

This device is only capable of QPSK HSUPA in the uplink. Therefore, no additional SAR tests are required beyond that described for devices with HSUPA in KDB 941225 D01v03r01.

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 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 larger 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.

This device is limited to 27 RB on the uplink for 16QAM modulation. Additional measurements were evaluated to support SAR test exclusion for 16 QAM as described in Section 7.5.4.

1.8 Guidance Applied

- FCC KDB Publication 941225 D01v03r01, D05v02r04 (3G/4G)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance, Wrist-worn Device Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- IEEE 1528-2013

1.9 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 10.

1.10 Device Housing Types and Wrist Band Types

This device has two housing types that were evaluated independently for SAR: Aluminum, and Stainless Steel. The device can also be used with different wristband accessories. The non-metallic wrist accessory, sport band, was evaluated for all exposure conditions. The available metallic wrist accessories, metal links band and metal loop band, were additionally evaluated.

2 LTE INFORMATION

LTE Information					
Form Factor	Watch				
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 13 (779.5 - 784.5 MHz)				
	LTE Band 14 (790.5 - 795.5 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 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 25 (PCS) (1850.7 - 1914.3 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 13: 5 MHz, 10 MHz				
	LTE Band 14: 5 MHz, 10 MHz				
	LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 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 Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 17: 5 MHz	706.5 (23755)		710 (23790)	713.5 (23825)	
LTE Band 17: 10 MHz	709 (23780)		710 (23790)	711 (23800)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	N/A	
LTE Band 14: 5 MHz	790.5 (23305)		793 (23330)	795.5 (23355)	
LTE Band 14: 10 MHz	N/A		793 (23330)	N/A	
LTE Band 26 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)	1914.3 (26683)	
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)	1913.5 (26675)	
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)	1912.5 (26665)	
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)	1910 (26640)	
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)	1907.5 (26615)	
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)	1905 (26590)	
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 7: 5 MHz	2502.5 (20775)		2535 (21100)	2567.5 (21425)	
LTE Band 7: 10 MHz	2505 (20800)		2535 (21100)	2565 (21400)	
LTE Band 7: 15 MHz	2507.5 (20825)		2535 (21100)	2562.5 (21375)	
LTE Band 7: 20 MHz	2510 (20850)		2535 (21100)	2560 (21350)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	1				
Modulations Supported in UL	QPSK, 16QAM				
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 Additional Information	This device does not support full CA features on 3GPP Release 12. All uplink communications are identical to the Release 8 Specifications. The following LTE Release 12 Features are not supported: Carrier Aggregation, Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

3 INTRODUCTION

The FCC and Innovation, Science, and Economic Development 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. [1]

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 [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (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 International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," Report No. Vol 74. 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.

3.1 SAR Definition

Specific Absorption Rate 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 Equation 3-1).

Equation 3-1
SAR Mathematical Equation

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

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 relation 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.[6]

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 IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.

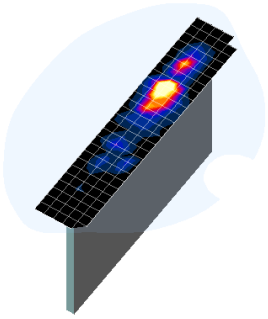

Figure 4-1
Sample SAR Area Scan

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.

Table 4-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*

Frequency	Maximum Area Scan Resolution (mm) (Δx_{area}, Δy_{area})	Maximum Zoom Scan Resolution (mm) (Δx_{zoom}, Δy_{zoom})	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x,y,z)
			Uniform Grid	Graded Grid		
			$\Delta z_{zoom}(n)$	$\Delta z_{zoom}(1)$*	$\Delta z_{zoom}(n>1)$*	
≤ 2 GHz	≤ 15	≤ 8	≤ 5	≤ 4	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 30
2-3 GHz	≤ 12	≤ 5	≤ 5	≤ 4	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤ 5	≤ 4	≤ 3	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤ 4	≤ 3	≤ 2.5	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤ 2	≤ 2	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 22

*Also compliant to IEEE 1528-2013 Table 6

5 TEST CONFIGURATION POSITIONS

5.1 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. Additionally, a manufacturer provided low-loss foam was used to position the device for head SAR evaluations.

5.2 Positioning for Head

Devices that are designed to be worn on the wrist may operate in speaker mode for voice communication, with the device worn on the wrist and positioned next to the mouth. When next-to-mouth SAR evaluation is required, the device is positioned at 10 mm from a flat phantom filled with head tissue-equivalent medium. The device is evaluated with wrist bands strapped together to represent normal use conditions.

5.3 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. When extremity SAR evaluation is required, the device is evaluated with the back of the device touching the flat phantom, which is filled with head tissue-equivalent medium. The device was evaluated with Sport wristband unstrapped and touching the phantom. For Metal Loop and Metal Links wristbands, the device was evaluated with wristbands strapped and the distance between wristbands and the phantom was minimized to represent the spacing created by actual use conditions.

6 RF EXPOSURE LIMITS

6.1 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.

6.2 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 applicable to situations in which persons are exposed as a consequence of their 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 6-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *General Population* (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT *Occupational* (W/kg) or (mW/g)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20

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.

7 FCC MEASUREMENT PROCEDURES

Power measurements for licensed transmitters are performed using a base station simulator under digital average power.

7.1 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.

7.2 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01v03r01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is ≤ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is ≤ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

7.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03r01 “3G SAR Measurement Procedures.”

The device is 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 are 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 is 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 deviates by more than 5%, the SAR test and drift measurements are repeated.

7.4 SAR Measurement Conditions for UMTS

7.4.1 Output Power Verification

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, 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.

7.4.2 Head SAR Measurements

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 in 12.2 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.

7.4.3 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all “1s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple $DPDCH_n$ configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or $DPDCH_n$, for the highest reported SAR configuration in 12.2 kbps RMC.

7.4.4 SAR Measurements with Rel 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

7.4.5 SAR Measurements with Rel 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

7.5 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r04 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements 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).

7.5.1 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.

7.5.2 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.

7.5.3 A-MPR

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

7.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

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 channels 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.
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 ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.
e. This device can only operate with 16QAM on the uplink with less than or equal to 27 RB. For 16QAM configurations with 10 MHz, 15 MHz and 20 MHz bandwidths, LTE powers for RB size of 15 (“50% RB”) and 27 (“100% RB”) with offsets to upper edge, middle, and lower edge of the channel are additionally measured for both QPSK and 16QAM modulations to support comparison and SAR test exclusion per Section 5.2.4 and 5.3.

7.5.5 TDD

LTE TDD testing is performed using the SAR test guidance provided in FCC KDB 941225 D05v02r04. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05v02r04. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211 Section 4.

7.6 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. 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 248227 D01v02r02 for more details.

7.6.1 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.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for 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.

7.6.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.6.3 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 Radar (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. Each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

7.6.4 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the 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 position 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. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.6.5 OFDM Transmission Mode and SAR Test Channel Selection

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 802.11n or 802.11g then 802.11n, is used for SAR measurement. When the maximum output power are 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.

7.6.6 Initial Test Configuration Procedure

For OFDM, 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 power 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, lowest data rate and lowest order IEEE 802.11 mode. 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. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 7.6.5). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

7.6.7 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 the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8 RF CONDUCTED POWERS

8.1 UMTS Conducted Powers

Table 8-1
Maximum Conducted Powers

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	23.83	24.03	23.88	23.09	23.11	23.01	23.06	23.03	23.07	-
99		12.2 kbps AMR	24.05	24.23	24.16	23.19	23.12	23.07	23.04	22.99	23.18	-
6	HSDPA	Subtest 1	24.21	23.87	23.83	23.20	23.35	23.21	23.05	22.97	23.12	0
6		Subtest 2	23.79	23.85	23.72	22.78	22.82	22.83	23.18	22.82	22.94	0
6		Subtest 3	23.11	23.20	23.10	22.43	22.49	22.33	21.95	21.87	21.89	0.5
6		Subtest 4	22.84	23.02	22.81	22.21	22.27	22.06	21.60	21.55	21.71	0.5
6	HSUPA	Subtest 1	22.70	22.53	22.88	22.65	22.69	22.47	22.67	22.54	22.73	0
6		Subtest 2	21.02	20.81	21.21	20.64	20.73	20.53	20.70	20.64	20.72	2
6		Subtest 3	21.73	21.57	21.96	21.41	21.47	21.28	21.46	21.38	21.45	1
6		Subtest 4	21.32	21.10	21.38	20.79	20.91	20.71	20.89	20.81	20.91	2
6		Subtest 5	23.26	23.06	23.43	22.86	22.90	22.78	22.79	22.77	22.87	0

This device does not support DC-HSDPA.

Figure 8-1
Power Measurement Setup

8.2 LTE Conducted Powers

Per FCC KDB Publication 941225 D05v02r05, LTE SAR for the lower bandwidths was not required for testing 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. Lower bandwidth conducted powers for all LTE bands can be found in appendix F.

Some bands do not support non-overlapping channels. Per FCC Guidance, 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.

8.2.1 LTE Band 12

Table 8-2
LTE Band 12 Conducted Power - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.66	0	0
	1	25	**24.74**		0
	1	49	24.72		0
	25	0	23.87	0-1	1
	25	12	23.86		1
	25	25	**23.95**		1
	50	0	23.90		1
	15	0	23.79	0-1	1
	15	17	23.83		1
	15	35	23.84		1
	27	0	23.83	0-2	1
	27	12	23.84		1
	27	23	23.82		1
16QAM	1	0	24.23	0-2	1
	1	25	24.04		1
	1	49	24.28		1
	25	0	22.76	0-3	2
	25	12	22.69		2
	25	25	22.89		2
	15	0	22.84	0-5	2
	15	17	22.66		2
	15	35	22.98		2
	27	0	22.77		2
	27	12	22.65		2
	27	23	22.84		2

8.2.2 LTE Band 13

Table 8-3
LTE Band 13 Conducted Power - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.98**	0	0
	1	25	24.85		0
	1	49	24.97		0
	25	0	**23.92**	0-1	1
	25	12	23.84		1
	25	25	23.87		1
	50	0	23.91		1
	15	0	23.87	0-1	1
	15	17	23.82		1
	15	35	23.86		1
	27	0	23.87	0-2	1
	27	12	23.85		1
	27	23	23.89		1
16QAM	1	0	24.08	0-2	1
	1	25	23.99		1
	1	49	23.74		1
	25	0	22.69	0-3	2
	25	12	22.82		2
	25	25	22.82		2
	15	0	22.69	0-5	2
	15	17	22.83		2
	15	35	22.61		2
	27	0	22.77		2
	27	12	22.86		2
	27	23	22.74		2

8.2.3 LTE Band 14

Table 8-4
LTE Band 14 Conducted Power - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23330 (793.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.45	0	0
	1	25	**24.69**		0
	1	49	24.42		0
	25	0	23.78	0-1	1
	25	12	23.83		1
	25	25	**23.88**		1
	50	0	23.85		1
	15	0	23.77	0-1	1
	15	17	23.87		1
	15	35	23.81		1
	27	0	23.78	0-2	1
	27	12	23.87		1
	27	23	23.86		1
16QAM	1	0	23.31	0-2	1
	1	25	23.24		1
	1	49	23.18		1
	25	0	22.73	0-3	2
	25	12	22.65		2
	25	25	22.71		2
	15	0	22.70	0-5	2
	15	17	22.64		2
	15	35	22.65		2
	27	0	22.67		2
	27	12	22.66		2
	27	23	22.66		2

8.2.4 LTE Band 26

Table 8-5
LTE Band 26 Conducted Power - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.48	24.45	24.34	0	0
	1	25	24.27	**24.53**	24.52		0
	1	49	24.32	24.39	24.35		0
	25	0	23.45	**23.63**	23.49	0-1	1
	25	12	23.35	23.62	23.58		1
	25	25	23.36	23.61	23.56		1
	50	0	23.40	23.59	23.45		1
	15	0	23.49	23.61	23.46	0-1	1
	15	17	23.35	23.64	23.59		1
	15	35	23.38	23.54	23.53		1
	27	0	23.44	23.65	23.51	0-2	1
	27	12	23.41	23.64	23.60		1
	27	23	23.36	23.63	23.61		1
16QAM	1	0	23.45	23.83	23.85	0-2	1
	1	25	23.67	23.79	23.74		1
	1	49	23.58	23.77	23.83		1
	25	0	22.35	22.42	22.49	0-3	2
	25	12	22.38	22.36	22.42		2
	25	25	22.41	22.45	22.43		2
	15	0	22.32	22.39	22.46	0-5	2
	15	17	22.47	22.41	22.37		2
	15	35	22.44	22.51	22.43		2
	27	0	22.40	22.47	22.51		2
	27	12	22.46	22.45	22.39		2
	27	23	22.49	22.39	22.41		2

8.2.5 LTE Band 5

Table 8-6
LTE Band 5 Conducted Power - 10 MHz Bandwidth

LTE Band 5 (Cell) 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	24.31	0	0
	1	25	24.42		0
	1	49	**24.53**		0
	25	0	23.44	0-1	1
	25	12	**23.49**		1
	25	25	23.48		1
	50	0	23.43		1
	15	0	23.35	0-1	1
	15	17	23.45		1
	15	35	23.48		1
	27	0	23.47	0-2	1
	27	12	23.51		1
	27	23	23.56		1
16QAM	1	0	23.45	0-2	1
	1	25	23.40		1
	1	49	23.62		1
	25	0	22.18	0-3	2
	25	12	22.18		2
	25	25	22.22		2
	15	0	22.08	0-5	2
	15	17	22.11		2
	15	35	22.15		2
	27	0	22.13		2
	27	12	22.13		2
	27	23	22.16		2

8.2.6 LTE Band 66

Table 8-7
LTE Band 66 Conducted Power - 20 MHz Bandwidth

LTE Band 66 (AWS) 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	23.19	23.42	23.21	0	0
	1	50	23.30	23.34	22.94		0
	1	99	**23.55**	23.52	23.19		0
	50	0	22.55	22.60	22.50	0-1	1
	50	25	22.65	22.62	22.59		1
	50	50	**22.72**	22.59	22.52		1
	100	0	22.67	22.68	22.69		1
	15	0	23.12	23.30	23.17	0-1	0
	15	42	23.19	23.29	23.15		0
	15	85	23.36	23.34	23.19		0
	27	0	22.49	22.56	22.49	0-2	1
	27	37	22.61	22.55	22.47		1
	27	73	22.67	22.66	22.49		1
16QAM	1	0	22.55	22.60	22.45	0-2	1
	1	50	22.50	22.55	22.40		1
	1	99	22.70	22.65	22.30		1
	15	0	22.20	22.20	21.95	0-3	1
	15	42	22.19	22.15	21.90		1
	15	85	22.15	22.15	21.70		1
	27	0	21.72	21.50	21.26	0-5	2
	27	37	21.75	21.60	21.15		2
	27	73	21.70	21.45	21.10		2

8.2.7 LTE Band 25

Table 8-8
LTE Band 25 Conducted Power - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.40	23.52	23.41	0	0
	1	50	23.46	23.59	**23.71**		0
	1	99	23.36	23.58	23.54		0
	50	0	22.73	22.58	22.54	0-1	1
	50	25	22.74	22.61	22.75		1
	50	50	22.60	22.82	**22.84**		1
	100	0	22.82	22.75	22.80		1
	15	0	23.67	23.48	23.75	0-1	0
	15	42	23.72	23.69	23.52		0
	15	85	23.57	23.65	23.47		0
	27	0	22.60	22.48	22.32	0-2	1
	27	37	22.71	22.59	22.71		1
	27	73	22.55	22.59	22.56		1
16QAM	1	0	22.65	22.92	22.70	0-2	1
	1	50	22.75	22.80	22.80		1
	1	99	22.70	22.75	22.68		1
	15	0	22.45	22.40	22.50	0-3	1
	15	42	22.49	22.42	22.54		1
	15	85	22.55	22.36	22.42		1
	27	0	21.35	21.40	21.43	0-5	2
	27	37	21.33	21.43	21.52		2
	27	73	21.30	21.35	21.40		2

8.2.8 LTE Band 7

Table 8-9
LTE Band 7 Conducted Power - 20 MHz Bandwidth

LTE Band 7 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	22.86	22.90	23.02	0	0
	1	50	22.96	22.97	22.76		0
	1	99	23.21	**23.28**	23.10		0
	50	0	21.82	21.89	22.14	0-1	1
	50	25	21.96	22.01	21.98		1
	50	50	22.12	**22.27**	22.13		1
	100	0	22.25	22.26	22.24		1
	15	0	22.84	22.95	23.11	0-1	0
	15	42	22.89	23.03	23.06		0
	15	85	23.15	23.02	23.11		0
	27	0	21.79	21.93	22.13	0-2	1
	27	37	21.97	22.01	22.10		1
	27	73	22.10	22.02	22.05		1
16QAM	1	0	22.02	22.17	22.39	0-2	1
	1	50	21.90	22.03	22.13		1
	1	99	22.22	22.07	22.15		1
	15	0	21.69	21.86	21.98	0-3	1
	15	42	21.61	21.81	21.80		1
	15	85	21.83	21.85	21.79		1
	27	0	20.62	20.82	20.92	0-5	2
	27	37	20.56	20.82	20.78		2
	27	73	20.77	20.79	20.72		2

Table 8-10
LTE Band 7 Reduced Conducted Power - 20 MHz Bandwidth

LTE Band 7 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	22.46	22.40	22.64	0	0
	1	50	22.58	22.47	22.43		0
	1	99	22.68	**22.89**	22.82		0
	50	0	21.33	21.31	21.55	0-1	1
	50	25	21.49	21.45	21.49		1
	50	50	21.55	**21.80**	21.61		1
	100	0	21.72	21.70	21.71		1
	15	0	22.35	22.32	21.85	0-1	0
	15	42	22.51	22.40	22.38		0
	15	85	22.49	22.65	22.50		0
	27	0	21.30	21.26	21.51	0-2	1
	27	37	21.52	21.46	21.41		1
	27	73	21.52	21.60	21.59		1
16QAM	1	0	21.54	21.80	21.60	0-2	1
	1	50	21.80	21.70	21.60		1
	1	99	21.85	22.00	21.70		1
	15	0	21.40	21.40	21.63	0-3	1
	15	42	21.45	21.38	21.60		1
	15	85	21.50	21.45	21.50		1
	27	0	20.50	20.50	20.50	0-5	2
	27	37	20.65	20.55	20.36		2
	27	73	20.45	20.30	20.40		2

8.2.9 LTE Band 41

Table 8-11
LTE Band 41 Conducted Power - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.04	23.05	22.94	23.13	23.14	0	0
	1	50	22.89	23.11	22.97	**23.24**	23.04		0
	1	99	22.86	23.12	23.00	23.19	22.93		0
	50	0	21.91	22.05	21.98	22.15	21.90	0-1	1
	50	25	21.83	22.04	22.01	22.14	21.91		1
	50	50	21.80	22.08	21.93	**22.17**	21.89		1
	100	0	21.93	22.12	21.99	22.14	22.00		1
	15	0	22.97	23.08	22.96	23.13	22.93	0-1	0
	15	42	22.86	23.12	23.03	23.21	22.94		0
	15	85	22.81	23.13	22.98	23.22	22.90		0
	27	0	21.94	22.04	21.87	22.11	21.88	0-2	1
	27	37	21.84	22.06	21.92	22.17	21.90		1
	27	73	21.74	22.06	21.90	22.16	21.83		1
16QAM	1	0	21.99	22.26	22.06	22.12	21.92	0-2	1
	1	50	21.67	22.26	22.06	22.19	21.88		1
	1	99	21.89	22.19	22.04	22.05	21.75		1
	15	0	21.86	22.20	21.96	22.09	21.76	0-3	1
	15	42	21.58	22.11	21.93	22.16	21.76		1
	15	85	21.61	22.15	21.98	22.18	21.75		1
	27	0	20.77	21.13	20.95	21.14	20.80	0-5	2
	27	37	20.57	21.09	20.93	21.09	20.70		2
	27	73	20.60	21.05	20.91	21.11	20.67		2

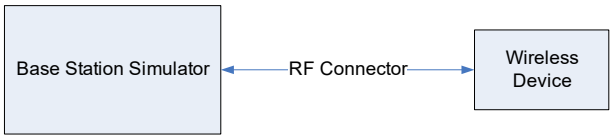

Figure 8-2
Power Measurement Setup

8.3 WLAN Conducted Powers

Table 8-12
2.4 GHz WLAN Maximum Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	17.95	16.06	16.08
2417	2		16.90	17.05
2422	3		17.22	17.42
2437	6	18.02	17.50	17.48
2452	9		17.70	17.60
2457	10		17.16	17.13
2462	11	17.98	13.15	13.16

Table 8-13
5 GHz WLAN Maximum Average RF Power

5GHz (20MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11a	802.11n
		Average	Average
5180	36	16.03	15.95
5200	40	16.05	16.01
5220	44	16.00	15.96
5240	48	16.01	16.08
5260	52	16.02	16.11
5280	56	16.04	16.08
5300	60	15.95	16.09
5320	64	16.01	15.96
5500	100	16.04	16.03
5600	120	16.09	16.04
5620	124	15.94	16.05
5720	144	15.92	15.96
5745	149	15.96	16.03
5785	157	15.93	16.01
5825	165	15.98	16.06

Justification for test configurations for WLAN 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, due to an even number of channels, both channels were measured.

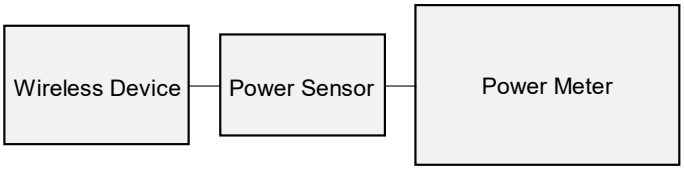

Figure 8-3
Power Measurement Setup

8.4 Bluetooth Conducted Powers

Table 8-14
Bluetooth Average RF Power

Frequency [MHz]	Modulation	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
				[dBm]	[mW]
2402	GFSK	1.0	0	11.96	15.704
2441	GFSK	1.0	39	11.84	15.276
2480	GFSK	1.0	78	12.06	16.069

Note 1: Bluetooth was evaluated with a test mode with 100% transmission duty factor.

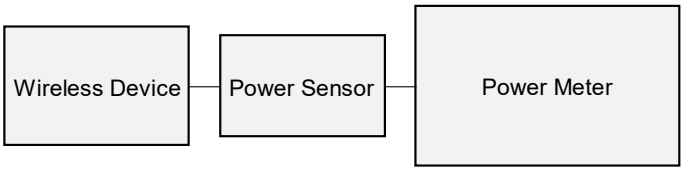

Figure 8-4
Power Measurement Setup

9 SYSTEM VERIFICATION

9.1 Tissue Verification

Table 9-1
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
06/12/2022	750 Head	20.0	680	0.852	43.593	0.888	42.305	-4.05%	3.04%
			695	0.867	43.407	0.889	42.227	-2.47%	2.79%
			700	0.872	43.344	0.889	42.201	-1.91%	2.71%
			710	0.881	43.209	0.890	42.149	-1.01%	2.51%
			725	0.895	42.990	0.891	42.071	0.45%	2.18%
			750	0.920	42.589	0.894	41.942	2.91%	1.54%
			770	0.939	42.303	0.895	41.838	4.92%	1.11%
06/14/2022	750 Head	24.9	700	0.845	43.122	0.889	42.201	-4.95%	2.18%
			710	0.854	42.998	0.890	42.149	-4.04%	2.01%
			725	0.867	42.803	0.891	42.071	-2.69%	1.74%
			750	0.890	42.462	0.894	41.942	-0.45%	1.24%
			770	0.909	42.216	0.895	41.838	1.56%	0.90%
			785	0.922	42.033	0.896	41.760	2.90%	0.65%
			800	0.936	41.845	0.897	41.682	4.35%	0.39%
06/16/2022	750 Head	24.9	700	0.846	42.961	0.889	42.201	-4.84%	1.80%
			710	0.855	42.845	0.890	42.149	-3.93%	1.65%
			725	0.868	42.640	0.891	42.071	-2.58%	1.35%
			750	0.892	42.261	0.894	41.942	-0.22%	0.76%
			770	0.911	42.000	0.895	41.838	1.79%	0.39%
			785	0.926	41.825	0.896	41.760	3.35%	0.16%
			800	0.939	41.641	0.897	41.682	4.68%	-0.10%
07/27/2022	750 Head	21.1	750	0.859	40.557	0.894	41.942	-3.91%	-3.30%
			770	0.877	40.280	0.895	41.838	-2.01%	-3.72%
			785	0.892	40.082	0.896	41.760	-0.45%	-4.02%
			800	0.907	39.885	0.897	41.682	1.11%	-4.31%
07/29/2022	750 Head	22.6	725	0.852	40.992	0.891	42.071	-4.38%	-2.56%
			750	0.876	40.649	0.894	41.942	-2.01%	-3.08%
			770	0.894	40.379	0.895	41.838	-0.11%	-3.49%
			785	0.907	40.202	0.896	41.760	1.23%	-3.73%
			800	0.920	40.042	0.897	41.682	2.56%	-3.93%
06/14/2022	835 Head	20.5	815	0.868	40.876	0.898	41.594	-3.34%	-1.73%
			820	0.873	40.812	0.899	41.578	-2.89%	-1.84%
			835	0.888	40.620	0.900	41.500	-1.33%	-2.12%
			850	0.903	40.435	0.916	41.500	-1.42%	-2.57%
06/17/2022	835 Head	20.3	815	0.862	39.963	0.898	41.594	-4.01%	-3.92%
			820	0.867	39.898	0.899	41.578	-3.56%	-4.04%
			835	0.881	39.705	0.900	41.500	-2.11%	-4.33%
			850	0.895	39.520	0.916	41.500	-2.29%	-4.77%
07/24/2022	835 Head	18.0	815	0.880	40.598	0.898	41.594	-2.00%	-2.39%
			820	0.885	40.534	0.899	41.578	-1.56%	-2.51%
			835	0.900	40.337	0.900	41.500	0.00%	-2.80%
			850	0.914	40.134	0.916	41.500	-0.22%	-3.29%
07/26/2022	835 Head	19.1	815	0.878	40.488	0.898	41.594	-2.23%	-2.66%
			820	0.883	40.425	0.899	41.578	-1.78%	-2.77%
			835	0.897	40.230	0.900	41.500	-0.33%	-3.06%
			850	0.911	40.021	0.916	41.500	-0.55%	-3.56%
06/15/2022	1750 Head	21.5	1710	1.300	38.933	1.348	40.142	-3.56%	-3.01%
			1720	1.309	38.896	1.354	40.126	-3.32%	-3.07%
			1745	1.332	38.795	1.368	40.087	-2.63%	-3.22%
			1750	1.337	38.775	1.371	40.079	-2.48%	-3.25%
			1770	1.355	38.700	1.383	40.047	-2.02%	-3.36%
			1790	1.375	38.621	1.394	40.016	-1.36%	-3.49%
06/24/2022	1750 Head	20.0	1710	1.345	38.732	1.348	40.142	-0.22%	-3.51%
			1720	1.351	38.712	1.354	40.126	-0.22%	-3.52%
			1745	1.367	38.659	1.368	40.087	-0.07%	-3.56%
			1750	1.371	38.649	1.371	40.079	0.00%	-3.57%
			1770	1.384	38.622	1.383	40.047	0.07%	-3.56%
			1790	1.395	38.579	1.394	40.016	0.07%	-3.59%
07/25/2022	1750 Head	21.4	1710	1.326	40.285	1.348	40.142	-1.63%	0.36%
			1720	1.332	40.267	1.354	40.126	-1.62%	0.35%
			1745	1.346	40.229	1.368	40.087	-1.61%	0.35%
			1750	1.349	40.223	1.371	40.079	-1.60%	0.36%
			1770	1.361	40.190	1.383	40.047	-1.59%	0.36%
			1790	1.372	40.155	1.394	40.016	-1.58%	0.35%
06/12/2022	1900 Head	21.3	1850	1.401	39.084	1.400	40.000	0.07%	-2.29%
			1860	1.406	39.068	1.400	40.000	0.43%	-2.33%
			1880	1.418	39.040	1.400	40.000	1.29%	-2.40%
			1900	1.429	39.018	1.400	40.000	2.07%	-2.46%
			1905	1.432	39.012	1.400	40.000	2.29%	-2.47%
			1910	1.435	39.005	1.400	40.000	2.50%	-2.49%

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
06/14/2022	1900 Head	19.2	1850	1.403	38.590	1.400	40.000	0.21%	-3.52%
			1860	1.408	38.571	1.400	40.000	0.57%	-3.57%
			1880	1.420	38.537	1.400	40.000	1.43%	-3.66%
			1900	1.432	38.510	1.400	40.000	2.29%	-3.73%
			1905	1.435	38.502	1.400	40.000	2.50%	-3.74%
			1910	1.438	38.494	1.400	40.000	2.71%	-3.77%
06/10/2022	2450 Head	19.2	2300	1.647	39.791	1.670	39.500	-1.38%	0.74%
			2310	1.655	39.776	1.679	39.480	-1.43%	0.75%
			2320	1.663	39.761	1.687	39.460	-1.42%	0.76%
			2400	1.724	39.644	1.756	39.289	-1.82%	0.90%
			2450	1.763	39.567	1.800	39.200	-2.06%	0.94%
			2480	1.786	39.519	1.833	39.162	-2.56%	0.91%
			2500	1.802	39.487	1.855	39.136	-2.86%	0.90%
			2510	1.809	39.477	1.866	39.123	-3.05%	0.90%
			2535	1.831	39.431	1.893	39.092	-3.28%	0.87%
			2550	1.844	39.408	1.909	39.073	-3.40%	0.86%
			2560	1.852	39.389	1.920	39.060	-3.54%	0.84%
			2600	1.887	39.313	1.964	39.009	-3.92%	0.78%
			2650	1.928	39.237	2.018	38.945	-4.46%	0.75%
			2680	1.954	39.186	2.051	38.907	-4.73%	0.72%
			2700	1.971	39.148	2.073	38.882	-4.92%	0.68%
06/12/2022	2450 Head	22.1	2300	1.697	39.941	1.670	39.500	1.62%	1.12%
			2310	1.702	39.925	1.679	39.480	1.37%	1.13%
			2320	1.708	39.905	1.687	39.460	1.24%	1.13%
			2400	1.759	39.820	1.756	39.289	0.17%	1.35%
			2450	1.794	39.746	1.800	39.200	-0.33%	1.39%
			2480	1.813	39.722	1.833	39.162	-1.09%	1.43%
			2500	1.825	39.696	1.855	39.136	-1.62%	1.43%
			2510	1.831	39.681	1.866	39.123	-1.88%	1.43%
			2535	1.849	39.647	1.893	39.092	-2.32%	1.42%
			2550	1.861	39.631	1.909	39.073	-2.51%	1.43%
			2560	1.869	39.620	1.920	39.060	-2.66%	1.43%
			2600	1.895	39.570	1.964	39.009	-3.51%	1.44%
			2650	1.934	39.494	2.018	38.945	-4.16%	1.41%
			2680	1.954	39.464	2.051	38.907	-4.73%	1.43%
06/12/2022	2450 Head	24.7	2300	1.686	39.208	1.670	39.500	0.96%	-0.74%
			2310	1.698	39.166	1.679	39.480	1.13%	-0.80%
			2320	1.710	39.120	1.687	39.460	1.36%	-0.86%
			2400	1.800	38.806	1.756	39.289	2.51%	-1.23%
			2450	1.857	38.604	1.800	39.200	3.17%	-1.52%
			2480	1.893	38.481	1.833	39.162	3.27%	-1.74%
			2500	1.915	38.400	1.855	39.136	3.23%	-1.88%
			2510	1.925	38.362	1.866	39.123	3.16%	-1.95%
			2535	1.954	38.255	1.893	39.092	3.22%	-2.14%
			2550	1.973	38.191	1.909	39.073	3.35%	-2.26%
			2560	1.986	38.149	1.920	39.060	3.44%	-2.33%
			2600	2.030	37.991	1.964	39.009	3.36%	-2.61%
			2650	2.088	37.794	2.018	38.945	3.47%	-2.96%
			2680	2.126	37.680	2.051	38.907	3.66%	-3.15%
			2700	2.148	37.598	2.073	38.882	3.62%	-3.30%
06/14/2022	2450 Head	21.6	2300	1.705	39.605	1.670	39.500	2.10%	0.27%
			2310	1.712	39.597	1.679	39.480	1.97%	0.30%
			2320	1.719	39.587	1.687	39.460	1.90%	0.32%
			2400	1.777	39.471	1.756	39.289	1.20%	0.46%
			2450	1.816	39.399	1.800	39.200	0.89%	0.51%
			2480	1.837	39.339	1.833	39.162	0.22%	0.45%
			2500	1.853	39.324	1.855	39.136	-0.11%	0.48%
			2510	1.861	39.318	1.866	39.123	-0.27%	0.50%
			2535	1.882	39.292	1.893	39.092	-0.58%	0.51%
			2550	1.893	39.264	1.909	39.073	-0.84%	0.49%
			2560	1.901	39.241	1.920	39.060	-0.99%	0.46%
			2600	1.935	39.158	1.964	39.009	-1.48%	0.38%
			2650	1.975	39.103	2.018	38.945	-2.13%	0.41%
			2680	1.999	39.033	2.051	38.907	-2.54%	0.32%
			2700	2.016	38.991	2.073	38.882	-2.75%	0.28%
06/14/2022	2450 Head	24.6	2300	1.683	38.721	1.670	39.500	0.78%	-1.97%
			2310	1.694	38.679	1.679	39.480	0.89%	-2.03%
			2320	1.707	38.637	1.687	39.460	1.19%	-2.09%
			2400	1.797	38.333	1.756	39.289	2.33%	-2.43%
			2450	1.856	38.151	1.800	39.200	3.11%	-2.68%
			2480	1.887	38.023	1.833	39.162	2.95%	-2.91%
			2500	1.911	37.941	1.855	39.136	3.02%	-3.05%
			2510	1.923	37.905	1.866	39.123	3.05%	-3.11%
			2535	1.952	37.823	1.893	39.092	3.12%	-3.25%
			2550	1.968	37.771	1.909	39.073	3.09%	-3.33%
			2560	1.979	37.732	1.920	39.060	3.07%	-3.40%
			2600	2.027	37.574	1.964	39.009	3.21%	-3.68%
			2650	2.084	37.392	2.018	38.945	3.27%	-3.99%
			2680	2.118	37.269	2.051	38.907	3.27%	-4.21%
			2700	2.143	37.190	2.073	38.882	3.38%	-4.35%

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
08/12/2022	2450 Head	21.6	2300	1.735	38.002	1.670	39.500	3.89%	-3.79%
			2310	1.743	37.987	1.679	39.480	3.81%	-3.78%
			2320	1.750	37.969	1.687	39.460	3.73%	-3.78%
			2400	1.808	37.831	1.756	39.289	2.96%	-3.71%
			2450	1.845	37.731	1.800	39.200	2.50%	-3.75%
			2480	1.869	37.685	1.833	39.162	1.96%	-3.77%
			2500	1.882	37.653	1.855	39.136	1.46%	-3.79%
			2510	1.890	37.638	1.866	39.123	1.29%	-3.80%
			2535	1.909	37.589	1.893	39.092	0.85%	-3.84%
			2550	1.921	37.556	1.909	39.073	0.63%	-3.88%
			2560	1.929	37.539	1.920	39.060	0.47%	-3.89%
			2600	1.961	37.481	1.964	39.009	-0.15%	-3.92%
			2650	2.000	37.377	2.018	38.945	-0.89%	-4.03%
			2680	2.024	37.323	2.051	38.907	-1.32%	-4.07%
			2700	2.039	37.295	2.073	38.882	-1.64%	-4.08%
06/06/2022	5200-5800 Head	20.5	5180	4.430	34.763	4.635	36.009	-4.42%	-3.46%
			5190	4.445	34.742	4.645	35.998	-4.31%	-3.49%
			5200	4.458	34.735	4.655	35.986	-4.23%	-3.48%
			5210	4.470	34.717	4.666	35.975	-4.20%	-3.50%
			5220	4.479	34.703	4.676	35.963	-4.21%	-3.50%
			5240	4.497	34.660	4.696	35.940	-4.24%	-3.56%
			5250	4.510	34.633	4.706	35.929	-4.16%	-3.61%
			5260	4.521	34.596	4.717	35.917	-4.16%	-3.68%
			5270	4.532	34.579	4.727	35.906	-4.13%	-3.70%
			5280	4.543	34.577	4.737	35.894	-4.10%	-3.67%
			5290	4.554	34.564	4.748	35.883	-4.09%	-3.68%
			5300	4.565	34.552	4.758	35.871	-4.06%	-3.68%
			5310	4.577	34.535	4.768	35.860	-4.01%	-3.69%
			5320	4.588	34.513	4.778	35.849	-3.98%	-3.73%
			5500	4.784	34.216	4.963	35.643	-3.61%	-4.00%
			5510	4.795	34.188	4.973	35.632	-3.58%	-4.05%
			5520	4.808	34.169	4.983	35.620	-3.51%	-4.07%
			5530	4.821	34.150	4.994	35.609	-3.46%	-4.10%
			5540	4.830	34.137	5.004	35.597	-3.48%	-4.10%
			5550	4.841	34.121	5.014	35.586	-3.45%	-4.12%
			5560	4.852	34.107	5.024	35.574	-3.42%	-4.12%
			5580	4.877	34.073	5.045	35.551	-3.33%	-4.16%
			5600	4.900	34.036	5.065	35.529	-3.26%	-4.20%
			5610	4.910	34.023	5.076	35.518	-3.27%	-4.21%
			5620	4.921	34.006	5.086	35.506	-3.24%	-4.22%
			5640	4.942	33.975	5.106	35.483	-3.21%	-4.25%
			5660	4.966	33.934	5.127	35.460	-3.14%	-4.30%
			5670	4.978	33.919	5.137	35.449	-3.10%	-4.32%
			5680	4.988	33.906	5.147	35.437	-3.09%	-4.32%
			5690	4.998	33.884	5.158	35.426	-3.10%	-4.35%
			5700	5.008	33.856	5.168	35.414	-3.10%	-4.40%
			5710	5.023	33.833	5.178	35.403	-2.99%	-4.43%
			5720	5.036	33.818	5.188	35.391	-2.93%	-4.44%
			5745	5.059	33.781	5.214	35.363	-2.97%	-4.47%
			5750	5.064	33.773	5.219	35.357	-2.97%	-4.48%
			5755	5.069	33.763	5.224	35.351	-2.97%	-4.49%
			5765	5.083	33.746	5.234	35.340	-2.88%	-4.51%
			5775	5.097	33.718	5.245	35.329	-2.82%	-4.56%
			5785	5.110	33.694	5.255	35.317	-2.76%	-4.60%
			5795	5.119	33.675	5.265	35.305	-2.77%	-4.62%
			5800	5.123	33.668	5.270	35.300	-2.79%	-4.62%
			5805	5.128	33.660	5.275	35.294	-2.79%	-4.63%
			5825	5.156	33.624	5.296	35.271	-2.64%	-4.67%
			5835	5.165	33.605	5.305	35.230	-2.64%	-4.61%
			5845	5.172	33.595	5.315	35.210	-2.69%	-4.59%
			5855	5.183	33.583	5.325	35.197	-2.67%	-4.59%
			5865	5.198	33.565	5.336	35.190	-2.59%	-4.62%
			5875	5.211	33.538	5.347	35.183	-2.54%	-4.68%
			5885	5.221	33.518	5.357	35.177	-2.54%	-4.72%
			5905	5.247	33.496	5.379	35.163	-2.45%	-4.74%

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 Publication 865664 D01v01r04). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

9.2 Test System Verification

Prior to SAR assessment, the system is verified to ±10% of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix D.

Table 9-2
System Verification Results – 1g

System Verification TARGET & MEASURED												
SAR System	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp. (C)	Liquid Temp. (C)	Input Power (W)	Source SN	Probe SN	Measured SAR1g (W/kg)	1W Target SAR1g (W/kg)	1W Normalized SAR 1g (W/kg)	Deviation1g (%)
AM12	750	HEAD	06/12/2022	22.0	21.0	0.20	1094	7499	1.770	8.47	8.850	4.49%
AM12	750	HEAD	06/16/2022	24.3	23.2	0.20	1094	7499	1.760	8.47	8.800	3.90%
AM3	750	HEAD	07/29/2022	24.5	23.3	0.20	1097	7427	1.620	8.21	8.100	-1.34%
AM14	835	HEAD	06/17/2022	20.2	20.5	0.20	4d040	7674	1.970	9.79	9.850	0.61%
AM5	835	HEAD	07/24/2022	20.3	18.9	0.20	4d040	7490	1.930	9.79	9.650	-1.43%
AM5	835	HEAD	07/26/2022	21.6	18.7	0.20	460	7490	1.840	9.72	9.200	-5.35%
AM1	1750	HEAD	06/15/2022	21.9	21.5	0.10	1104	7639	3.850	35.70	38.500	7.84%
AM1	1750	HEAD	06/15/2022	21.9	21.5	0.10	1104	7639	3.850	35.70	38.500	7.84%
AM6	1900	HEAD	06/12/2022	20.5	21.3	0.10	5d030	7532	4.260	39.80	42.600	7.04%
AM6	1900	HEAD	06/14/2022	23.1	18.1	0.10	5d030	7532	4.180	39.80	41.800	5.03%
AM4	2450	HEAD	06/10/2022	23.3	21.2	0.10	750	3837	5.350	52.60	53.500	1.71%
AM10	2450	HEAD	06/14/2022	23.4	21.8	0.10	750	7308	5.260	52.60	52.600	0.00%
AM3	2450	HEAD	06/14/2022	23.5	22.6	0.10	921	7427	5.230	54.20	52.300	-3.51%
AM2	2450	HEAD	08/12/2022	21.9	20.6	0.10	921	7421	5.750	54.20	57.500	6.09%
AM4	2600	HEAD	06/10/2022	23.3	21.2	0.10	1042	3837	5.860	55.80	58.600	5.02%
AM10	2600	HEAD	06/14/2022	23.4	21.8	0.10	1042	7308	5.700	55.80	57.000	2.15%
AM9	5250	HEAD	06/06/2022	21.6	20.5	0.05	1123	7638	3.790	80.50	75.800	-5.84%
AM9	5600	HEAD	06/06/2022	21.6	20.5	0.05	1123	7638	3.900	83.70	78.000	-6.81%
AM9	5750	HEAD	06/06/2022	21.6	20.5	0.05	1123	7638	3.810	80.50	76.200	-5.34%

Table 9-3
System Verification Results – 10g

System Verification TARGET & MEASURED												
SAR System	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp. (C)	Liquid Temp. (C)	Input Power (W)	Source SN	Probe SN	Measured SAR10g (W/kg)	1W Target SAR10g (W/kg)	1W Normalized SAR10g (W/kg)	Deviation10g (%)
AM12	750	HEAD	06/14/2022	21.7	23.8	0.20	1094	7499	1.200	5.57	6.000	7.72%
AM3	750	HEAD	07/27/2022	21.1	21.1	0.20	1097	7427	1.120	5.34	5.600	4.87%
AM14	835	HEAD	06/14/2022	21.0	20.5	0.20	4d040	7674	1.200	6.38	6.000	-5.96%
AM5	835	HEAD	07/24/2022	20.3	18.9	0.20	4d040	7490	1.260	6.38	6.300	-1.25%
AM5	835	HEAD	07/26/2022	21.6	18.7	0.20	460	7490	1.200	6.34	6.000	-5.36%
AM13	1750	HEAD	06/24/2022	20.8	18.6	0.10	1104	7360	1.810	18.80	18.100	-3.72%
AM13	1750	HEAD	07/25/2022	21.7	21.3	0.10	1083	7360	1.830	19.20	18.300	-4.69%
AM6	1900	HEAD	06/12/2022	20.5	21.3	0.10	5d030	7532	2.190	20.40	21.900	7.35%
AM6	1900	HEAD	06/14/2022	23.1	18.1	0.10	5d030	7532	2.160	20.40	21.600	5.88%
AM4	2450	HEAD	06/12/2022	23.5	21.7	0.10	750	3837	2.390	24.50	23.900	-2.45%
AM3	2450	HEAD	06/12/2022	23.5	24.6	0.10	921	7427	2.460	25.50	24.600	-3.53%
AM10	2450	HEAD	06/14/2022	23.4	21.8	0.10	750	7308	2.440	24.50	24.400	-0.41%
AM4	2600	HEAD	06/12/2022	23.5	21.7	0.10	1042	3837	2.560	24.90	25.600	2.81%
AM10	2600	HEAD	06/14/2022	23.4	21.8	0.10	1042	7308	2.550	24.90	25.500	2.41%
AM9	5250	HEAD	06/06/2022	21.6	20.5	0.05	1123	7638	1.080	22.90	21.600	-5.68%
AM9	5600	HEAD	06/06/2022	21.6	20.5	0.05	1123	7638	1.110	23.70	22.200	-6.33%
AM9	5750	HEAD	06/06/2022	21.6	20.5	0.05	1123	7638	1.090	22.70	21.800	-3.96%

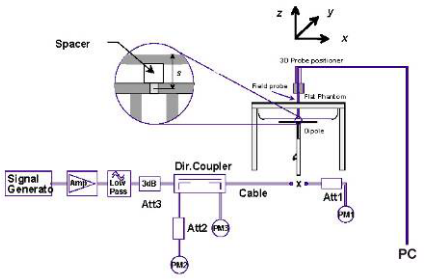

Figure 9-1
System Verification Setup Diagram

Figure 9-2
System Verification Setup Photo

10 SAR DATA SUMMARY

10.1 Standalone Head SAR Data

Table 10-1
UMTS 850 Head SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Housing Type	Wristband Type	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.00	24.03	-0.06	Front	10 mm	Aluminum	Sport	QGYVW9YXV7	1:1	0.000	1.250	0.000	
836.60	4183	UMTS 850	RMC	25.00	24.03	0.00	Front	10 mm	Aluminum	Metal Links	QGYVW9YXV7	1:1	0.000	1.250	0.000	
836.60	4183	UMTS 850	RMC	25.00	24.03	-0.16	Front	10 mm	Aluminum	Metal Loop	QGYVW9YXV7	1:1	0.000	1.250	0.000	
836.60	4183	UMTS 850	RMC	25.00	24.03	-0.02	Front	10 mm	Stainless Steel	Sport	X4QKKG6X7T	1:1	0.000	1.250	0.000	
836.60	4183	UMTS 850	RMC	25.00	24.03	-0.19	Front	10 mm	Stainless Steel	Metal Links	X4QKKG6X7T	1:1	0.000	1.250	0.000	
836.60	4183	UMTS 850	RMC	25.00	24.03	0.00	Front	10 mm	Stainless Steel	Metal Loop	X4QKKG6X7T	1:1	0.001	1.250	0.001	A1
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 10-2
UMTS 1750 Head SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Housing Type	Wristband Type	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	0.01	Front	10 mm	Aluminum	Sport	MG9RCVQ2V9	1:1	0.205	1.227	0.252	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	0.03	Front	10 mm	Aluminum	Metal Links	MG9RCVQ2V9	1:1	0.257	1.227	0.315	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	-0.01	Front	10 mm	Aluminum	Metal Loop	MG9RCVQ2V9	1:1	0.284	1.227	0.348	A2
1732.40	1412	UMTS 1750	RMC	24.00	23.11	0.00	Front	10 mm	Stainless Steel	Sport	GMF3306DQ3	1:1	0.118	1.227	0.145	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	-0.01	Front	10 mm	Stainless Steel	Metal Links	GMF3306DQ3	1:1	0.157	1.227	0.193	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	0.04	Front	10 mm	Stainless Steel	Metal Loop	GMF3306DQ3	1:1	0.225	1.227	0.276	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 10-3
UMTS 1900 Head SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Housing Type	Wristband Type	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	0.02	Front	10 mm	Aluminum	Sport	JYHCFGFXW6	1:1	0.366	1.239	0.453	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	-0.05	Front	10 mm	Aluminum	Metal Links	JYHCFGFXW6	1:1	0.396	1.239	0.491	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	-0.07	Front	10 mm	Aluminum	Metal Loop	JYHCFGFXW6	1:1	0.457	1.239	0.566	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	-0.03	Front	10 mm	Stainless Steel	Sport	R4YW5F4DW9	1:1	0.359	1.239	0.445	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	-0.05	Front	10 mm	Stainless Steel	Metal Links	R4YW5F4DW9	1:1	0.389	1.239	0.482	
1852.40	9262	UMTS 1900	RMC	24.00	23.06	0.06	Front	10 mm	Stainless Steel	Metal Loop	R4YW5F4DW9	1:1	0.519	1.242	0.645	
1880.00	9400	UMTS 1900	RMC	24.00	23.03	-0.01	Front	10 mm	Stainless Steel	Metal Loop	R4YW5F4DW9	1:1	0.607	1.250	**0.759**	A3
1907.60	9538	UMTS 1900	RMC	24.00	23.07	0.07	Front	10 mm	Stainless Steel	Metal Loop	R4YW5F4DW9	1:1	0.485	1.239	0.601	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 10-4
LTE Band 12 Head SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Housing Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	Sport	25.50	24.74	0.20	0	Front	10 mm	Aluminum	QPSK	1	25	JYHCFGFXW6	1:1	0.001	1.191	0.001	
707.50	23095	Mid	LTE Band 12	10	Sport	24.50	23.95	-0.05	1	Front	10 mm	Aluminum	QPSK	25	25	JYHCFGFXW6	1:1	0.000	1.135	0.000	
707.50	23095	Mid	LTE Band 12	10	Metal Links	25.50	24.74	0.09	0	Front	10 mm	Aluminum	QPSK	1	25	JYHCFGFXW6	1:1	0.002	1.191	0.002	
707.50	23095	Mid	LTE Band 12	10	Metal Links	24.50	23.95	0.03	1	Front	10 mm	Aluminum	QPSK	25	25	JYHCFGFXW6	1:1	0.002	1.135	0.002	
707.50	23095	Mid	LTE Band 12	10	Metal Loop	25.50	24.74	0.02	0	Front	10 mm	Aluminum	QPSK	1	25	JYHCFGFXW6	1:1	0.000	1.191	0.000	
707.50	23095	Mid	LTE Band 12	10	Metal Loop	24.50	23.95	0.04	1	Front	10 mm	Aluminum	QPSK	25	25	JYHCFGFXW6	1:1	0.000	1.135	0.000	
707.50	23095	Mid	LTE Band 12	10	Sport	25.50	24.74	0.01	0	Front	10 mm	Stainless Steel	QPSK	1	25	KMW0XWRMWQ	1:1	0.000	1.191	0.000	
707.50	23095	Mid	LTE Band 12	10	Sport	24.50	23.95	0.02	1	Front	10 mm	Stainless Steel	QPSK	25	25	KMW0XWRMWQ	1:1	0.000	1.135	0.000	
707.50	23095	Mid	LTE Band 12	10	Metal Links	25.50	24.74	0.02	0	Front	10 mm	Stainless Steel	QPSK	1	25	KMW0XWRMWQ	1:1	0.000	1.191	0.000	
707.50	23095	Mid	LTE Band 12	10	Metal Links	24.50	23.95	0.09	1	Front	10 mm	Stainless Steel	QPSK	25	25	KMW0XWRMWQ	1:1	0.005	1.135	0.006	A4
707.50	23095	Mid	LTE Band 12	10	Metal Loop	25.50	24.74	0.03	0	Front	10 mm	Stainless Steel	QPSK	1	25	KMW0XWRMWQ	1:1	0.000	1.191	0.000	
707.50	23095	Mid	LTE Band 12	10	Metal Loop	24.50	23.95	0.04	1	Front	10 mm	Stainless Steel	QPSK	25	25	KMW0XWRMWQ	1:1	0.002	1.135	0.002	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 10-5
LTE Band 13 Head SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Housing Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	Sport	25.50	24.98	0.10	0	Front	10 mm	Aluminum	QPSK	1	0	RWHV29PJ4W	1:1	0.002	1.127	0.002	
782.00	23230	Mid	LTE Band 13	10	Sport	24.50	23.92	0.05	1	Front	10 mm	Aluminum	QPSK	25	0	RWHV29PJ4W	1:1	0.002	1.143	0.002	
782.00	23230	Mid	LTE Band 13	10	Metal Links	25.50	24.98	0.20	0	Front	10 mm	Aluminum	QPSK	1	0	RWHV29PJ4W	1:1	0.000	1.127	0.000	
782.00	23230	Mid	LTE Band 13	10	Metal Links	24.50	23.92	0.06	1	Front	10 mm	Aluminum	QPSK	25	0	RWHV29PJ4W	1:1	0.000	1.143	0.000	
782.00	23230	Mid	LTE Band 13	10	Metal Loop	25.50	24.98	0.06	0	Front	10 mm	Aluminum	QPSK	1	0	RWHV29PJ4W	1:1	0.002	1.127	0.002	
782.00	23230	Mid	LTE Band 13	10	Metal Loop	24.50	23.92	0.20	1	Front	10 mm	Aluminum	QPSK	25	0	RWHV29PJ4W	1:1	0.002	1.143	0.002	
782.00	23230	Mid	LTE Band 13	10	Sport	25.50	24.98	0.02	0	Front	10 mm	Stainless Steel	QPSK	1	0	CPHTM44WJ3	1:1	0.000	1.127	0.000	
782.00	23230	Mid	LTE Band 13	10	Sport	24.50	23.92	0.10	1	Front	10 mm	Stainless Steel	QPSK	25	0	CPHTM44WJ3	1:1	0.003	1.143	0.003	
782.00	23230	Mid	LTE Band 13	10	Metal Links	25.50	24.98	0.09	0	Front	10 mm	Stainless Steel	QPSK	1	0	CPHTM44WJ3	1:1	0.002	1.127	0.002	
782.00	23230	Mid	LTE Band 13	10	Metal Links	24.50	23.92	-0.12	1	Front	10 mm	Stainless Steel	QPSK	25	0	CPHTM44WJ3	1:1	0.005	1.143	0.006	A5
782.00	23230	Mid	LTE Band 13	10	Metal Loop	25.50	24.98	0.07	0	Front	10 mm	Stainless Steel	QPSK	1	0	CPHTM44WJ3	1:1	0.001	1.127	0.001	
782.00	23230	Mid	LTE Band 13	10	Metal Loop	24.50	23.92	0.05	1	Front	10 mm	Stainless Steel	QPSK	25	0	CPHTM44WJ3	1:1	0.002	1.143	0.002	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 10-6
LTE Band 14 Head SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Housing Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
793.00	23330	Mid	LTE Band 14	10	Sport	25.50	24.69	0.04	0	Front	10 mm	Aluminum	QPSK	1	25	N7W74KJX0K	1:1	0.001	1.205	0.001	
793.00	23330	Mid	LTE Band 14	10	Sport	24.50	23.88	0.06	1	Front	10 mm	Aluminum	QPSK	25	25	N7W74KJX0K	1:1	0.000	1.153	0.000	
793.00	23330	Mid	LTE Band 14	10	Metal Links	25.50	24.69	0.05	0	Front	10 mm	Aluminum	QPSK	1	25	N7W74KJX0K	1:1	0.003	1.205	0.004	
793.00	23330	Mid	LTE Band 14	10	Metal Links	24.50	23.88	0.05	1	Front	10 mm	Aluminum	QPSK	25	25	N7W74KJX0K	1:1	0.001	1.153	0.001	
793.00	23330	Mid	LTE Band 14	10	Metal Loop	25.50	24.69	0.09	0	Front	10 mm	Aluminum	QPSK	1	25	N7W74KJX0K	1:1	0.001	1.205	0.001	
793.00	23330	Mid	LTE Band 14	10	Metal Loop	24.50	23.88	0.08	1	Front	10 mm	Aluminum	QPSK	25	25	N7W74KJX0K	1:1	0.001	1.153	0.001	
793.00	23330	Mid	LTE Band 14	10	Sport	25.50	24.69	0.00	0	Front	10 mm	Stainless Steel	QPSK	1	25	X4QKKG6X7T	1:1	0.003	1.205	0.004	
793.00	23330	Mid	LTE Band 14	10	Sport	24.50	23.88	0.09	1	Front	10 mm	Stainless Steel	QPSK	25	25	X4QKKG6X7T	1:1	0.002	1.153	0.002	
793.00	23330	Mid	LTE Band 14	10	Metal Links	25.50	24.69	-0.01	0	Front	10 mm	Stainless Steel	QPSK	1	25	X4QKKG6X7T	1:1	0.002	1.205	0.002	
793.00	23330	Mid	LTE Band 14	10	Metal Links	24.50	23.88	0.02	1	Front	10 mm	Stainless Steel	QPSK	25	25	X4QKKG6X7T	1:1	0.000	1.153	0.000	
793.00	23330	Mid	LTE Band 14	10	Metal Loop	25.50	24.69	0.13	0	Front	10 mm	Stainless Steel	QPSK	1	25	X4QKKG6X7T	1:1	0.003	1.205	0.004	A6
793.00	23330	Mid	LTE Band 14	10	Metal Loop	24.50	23.88	0.04	1	Front	10 mm	Stainless Steel	QPSK	25	25	X4QKKG6X7T	1:1	0.002	1.153	0.002	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 10-7
LTE Band 26 Head SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Housing Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Sport	25.50	24.53	0.02	0	Front	10 mm	Aluminum	QPSK	1	25	QGYVW9YXV7	1:1	0.000	1.250	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Sport	24.50	23.63	0.06	1	Front	10 mm	Aluminum	QPSK	25	0	QGYVW9YXV7	1:1	0.000	1.222	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Links	25.50	24.53	0.06	0	Front	10 mm	Aluminum	QPSK	1	25	QGYVW9YXV7	1:1	0.000	1.250	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Links	24.50	23.63	0.13	1	Front	10 mm	Aluminum	QPSK	25	0	QGYVW9YXV7	1:1	0.000	1.222	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Loop	25.50	24.53	0.01	0	Front	10 mm	Aluminum	QPSK	1	25	QGYVW9YXV7	1:1	0.000	1.250	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Loop	24.50	23.63	0.00	1	Front	10 mm	Aluminum	QPSK	25	0	QGYVW9YXV7	1:1	0.000	1.222	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Sport	25.50	24.53	0.08	0	Front	10 mm	Stainless Steel	QPSK	1	25	KMW0XWRMWQ	1:1	0.000	1.250	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Sport	24.50	23.63	0.04	1	Front	10 mm	Stainless Steel	QPSK	25	0	KMW0XWRMWQ	1:1	0.000	1.222	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Links	25.50	24.53	0.01	0	Front	10 mm	Stainless Steel	QPSK	1	25	KMW0XWRMWQ	1:1	0.000	1.250	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Links	24.50	23.63	0.08	1	Front	10 mm	Stainless Steel	QPSK	25	0	KMW0XWRMWQ	1:1	0.000	1.222	0.000	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Loop	25.50	24.53	0.01	0	Front	10 mm	Stainless Steel	QPSK	1	25	KMW0XWRMWQ	1:1	0.001	1.250	0.001	A7
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Loop	24.50	23.63	0.07	1	Front	10 mm	Stainless Steel	QPSK	25	0	KMW0XWRMWQ	1:1	0.000	1.222	0.000	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 10-8
LTE Band 5 Head SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Housing Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Sport	25.50	24.53	0.20	0	Front	10 mm	Aluminum	QPSK	1	49	G5PXJ3997T	1:1	0.000	1.250	0.000	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Sport	24.50	23.49	0.06	1	Front	10 mm	Aluminum	QPSK	25	12	G5PXJ3997T	1:1	0.000	1.262	0.000	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Links	25.50	24.53	0.20	0	Front	10 mm	Aluminum	QPSK	1	49	G5PXJ3997T	1:1	0.000	1.250	0.000	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Links	24.50	23.49	0.05	1	Front	10 mm	Aluminum	QPSK	25	12	G5PXJ3997T	1:1	0.002	1.262	0.003	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Loop	25.50	24.53	0.09	0	Front	10 mm	Aluminum	QPSK	1	49	G5PXJ3997T	1:1	0.002	1.250	0.003	A8
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Loop	24.50	23.49	0.05	1	Front	10 mm	Aluminum	QPSK	25	12	G5PXJ3997T	1:1	0.002	1.262	0.003	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Sport	25.50	24.53	0.06	0	Front	10 mm	Stainless Steel	QPSK	1	49	CPHTM44WJ3	1:1	0.001	1.250	0.001	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Sport	24.50	23.49	0.05	1	Front	10 mm	Stainless Steel	QPSK	25	12	CPHTM44WJ3	1:1	0.000	1.262	0.000	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Links	25.50	24.53	0.04	0	Front	10 mm	Stainless Steel	QPSK	1	49	CPHTM44WJ3	1:1	0.000	1.250	0.000	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Links	24.50	23.49	0.09	1	Front	10 mm	Stainless Steel	QPSK	25	12	CPHTM44WJ3	1:1	0.000	1.262	0.000	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Loop	25.50	24.53	0.05	0	Front	10 mm	Stainless Steel	QPSK	1	49	CPHTM44WJ3	1:1	0.000	1.250	0.000	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Loop	24.50	23.49	0.20	1	Front	10 mm	Stainless Steel	QPSK	25	12	CPHTM44WJ3	1:1	0.000	1.262	0.000	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 10-9
LTE Band 66 Head SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Housing Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Sport	24.50	23.55	0.07	0	Front	10 mm	Aluminum	QPSK	1	99	MG9RCVQ2V9	1:1	0.216	1.245	0.269	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Sport	23.50	22.72	-0.04	1	Front	10 mm	Aluminum	QPSK	50	50	MG9RCVQ2V9	1:1	0.204	1.197	0.244	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Links	24.50	23.55	-0.03	0	Front	10 mm	Aluminum	QPSK	1	99	MG9RCVQ2V9	1:1	0.267	1.245	0.332	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Links	23.50	22.72	-0.09	1	Front	10 mm	Aluminum	QPSK	50	50	MG9RCVQ2V9	1:1	0.253	1.197	0.303	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Loop	24.50	23.55	-0.03	0	Front	10 mm	Aluminum	QPSK	1	99	MG9RCVQ2V9	1:1	0.419	1.245	0.522	A9
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Loop	23.50	22.72	-0.07	1	Front	10 mm	Aluminum	QPSK	50	50	MG9RCVQ2V9	1:1	0.399	1.197	0.478	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Sport	24.50	23.55	0.13	0	Front	10 mm	Stainless Steel	QPSK	1	99	GMF3306DQ3	1:1	0.121	1.245	0.151	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Sport	23.50	22.72	-0.03	1	Front	10 mm	Stainless Steel	QPSK	50	50	GMF3306DQ3	1:1	0.109	1.197	0.130	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Links	24.50	23.55	-0.08	0	Front	10 mm	Stainless Steel	QPSK	1	99	GMF3306DQ3	1:1	0.222	1.245	0.276	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Links	23.50	22.72	0.09	1	Front	10 mm	Stainless Steel	QPSK	50	50	GMF3306DQ3	1:1	0.210	1.197	0.251	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Loop	24.50	23.55	-0.05	0	Front	10 mm	Stainless Steel	QPSK	1	99	GMF3306DQ3	1:1	0.312	1.245	0.388	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Loop	23.50	22.72	-0.04	1	Front	10 mm	Stainless Steel	QPSK	50	50	GMF3306DQ3	1:1	0.303	1.197	0.363	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 10-10
LTE Band 25 Head SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Housing Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
1905.00	26590	High	LTE Band 25 (PCS)	20	Sport	24.50	23.71	0.00	0	Front	10 mm	Aluminum	QPSK	1	50	RWHV29PJ4W	1:1	0.348	1.199	0.417	
1905.00	26590	High	LTE Band 25 (PCS)	20	Sport	23.50	22.84	-0.01	1	Front	10 mm	Aluminum	QPSK	50	50	RWHV29PJ4W	1:1	0.285	1.164	0.332	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Links	24.50	23.71	0.02	0	Front	10 mm	Aluminum	QPSK	1	50	RWHV29PJ4W	1:1	0.411	1.199	0.493	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Links	23.50	22.84	0.02	1	Front	10 mm	Aluminum	QPSK	50	50	RWHV29PJ4W	1:1	0.355	1.164	0.413	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Loop	24.50	23.71	-0.05	0	Front	10 mm	Aluminum	QPSK	1	50	RWHV29PJ4W	1:1	0.481	1.199	0.577	A10
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Loop	23.50	22.84	0.02	1	Front	10 mm	Aluminum	QPSK	50	50	RWHV29PJ4W	1:1	0.386	1.164	0.449	
1905.00	26590	High	LTE Band 25 (PCS)	20	Sport	24.50	23.71	0.02	0	Front	10 mm	Stainless Steel	QPSK	1	50	M6RW9PY74H	1:1	0.440	1.199	0.528	
1905.00	26590	High	LTE Band 25 (PCS)	20	Sport	23.50	22.84	-0.03	1	Front	10 mm	Stainless Steel	QPSK	50	50	M6RW9PY74H	1:1	0.294	1.164	0.342	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Links	24.50	23.71	0.07	0	Front	10 mm	Stainless Steel	QPSK	1	50	M6RW9PY74H	1:1	0.384	1.199	0.460	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Links	23.50	22.84	-0.05	1	Front	10 mm	Stainless Steel	QPSK	50	50	M6RW9PY74H	1:1	0.311	1.164	0.362	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Loop	24.50	23.71	-0.03	0	Front	10 mm	Stainless Steel	QPSK	1	50	M6RW9PY74H	1:1	0.455	1.199	0.546	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Loop	23.50	22.84	0.03	1	Front	10 mm	Stainless Steel	QPSK	50	50	M6RW9PY74H	1:1	0.359	1.164	0.418	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 10-11
LTE Band 7 Head SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Housing Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
2535.00	21100	Mid	LTE Band 7	20	Sport	23.50	22.89	-0.11	0	Front	10 mm	Aluminum	QPSK	1	99	MG9RCVQ2V9	1:1	0.493	1.151	0.567	A11
2535.00	21100	Mid	LTE Band 7	20	Sport	22.50	21.80	-0.02	1	Front	10 mm	Aluminum	QPSK	50	50	MG9RCVQ2V9	1:1	0.427	1.175	0.502	
2535.00	21100	Mid	LTE Band 7	20	Metal Links	23.50	22.89	-0.01	0	Front	10 mm	Aluminum	QPSK	1	99	MG9RCVQ2V9	1:1	0.411	1.151	0.473	
2535.00	21100	Mid	LTE Band 7	20	Metal Links	22.50	21.80	-0.06	1	Front	10 mm	Aluminum	QPSK	50	50	MG9RCVQ2V9	1:1	0.285	1.175	0.335	
2535.00	21100	Mid	LTE Band 7	20	Metal Loop	23.50	22.89	-0.13	0	Front	10 mm	Aluminum	QPSK	1	99	MG9RCVQ2V9	1:1	0.432	1.151	0.497	
2535.00	21100	Mid	LTE Band 7	20	Metal Loop	22.50	21.80	-0.07	1	Front	10 mm	Aluminum	QPSK	50	50	MG9RCVQ2V9	1:1	0.322	1.175	0.378	
2535.00	21100	Mid	LTE Band 7	20	Sport	23.50	22.89	-0.06	0	Front	10 mm	Stainless Steel	QPSK	1	99	R4YW5F4DW9	1:1	0.430	1.151	0.495	
2535.00	21100	Mid	LTE Band 7	20	Sport	22.50	21.80	-0.07	1	Front	10 mm	Stainless Steel	QPSK	50	50	R4YW5F4DW9	1:1	0.383	1.175	0.450	
2535.00	21100	Mid	LTE Band 7	20	Metal Links	23.50	22.89	-0.02	0	Front	10 mm	Stainless Steel	QPSK	1	99	R4YW5F4DW9	1:1	0.315	1.151	0.363	
2535.00	21100	Mid	LTE Band 7	20	Metal Links	22.50	21.80	-0.03	1	Front	10 mm	Stainless Steel	QPSK	50	50	R4YW5F4DW9	1:1	0.306	1.175	0.360	
2535.00	21100	Mid	LTE Band 7	20	Metal Loop	23.50	22.89	-0.05	0	Front	10 mm	Stainless Steel	QPSK	1	99	R4YW5F4DW9	1:1	0.331	1.151	0.381	
2535.00	21100	Mid	LTE Band 7	20	Metal Loop	22.50	21.80	-0.02	1	Front	10 mm	Stainless Steel	QPSK	50	50	R4YW5F4DW9	1:1	0.253	1.175	0.297	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 10-12
LTE Band 41 Head SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Housing Type	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
2636.50	41055	Mid-High	LTE Band 41	20	Sport	24.00	23.24	-0.06	0	Front	10 mm	Aluminum	QPSK	1	50	MG9RCVQ2V9	1:1.58	0.274	1.191	0.326	A12
2636.50	41055	Mid-High	LTE Band 41	20	Sport	23.00	22.17	-0.02	1	Front	10 mm	Aluminum	QPSK	50	50	MG9RCVQ2V9	1:1.58	0.209	1.211	0.253	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Links	24.00	23.24	-0.04	0	Front	10 mm	Aluminum	QPSK	1	50	MG9RCVQ2V9	1:1.58	0.202	1.191	0.241	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Links	23.00	22.17	0.03	1	Front	10 mm	Aluminum	QPSK	50	50	MG9RCVQ2V9	1:1.58	0.159	1.211	0.193	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Loop	24.00	23.24	0.04	0	Front	10 mm	Aluminum	QPSK	1	50	MG9RCVQ2V9	1:1.58	0.195	1.191	0.232	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Loop	23.00	22.17	-0.07	1	Front	10 mm	Aluminum	QPSK	50	50	MG9RCVQ2V9	1:1.58	0.155	1.211	0.188	
2636.50	41055	Mid-High	LTE Band 41	20	Sport	24.00	23.24	0.02	0	Front	10 mm	Stainless Steel	QPSK	1	50	X4QKKG6X7T	1:1.58	0.238	1.191	0.283	
2636.50	41055	Mid-High	LTE Band 41	20	Sport	23.00	22.17	-0.07	1	Front	10 mm	Stainless Steel	QPSK	50	50	X4QKKG6X7T	1:1.58	0.184	1.211	0.223	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Links	24.00	23.24	-0.04	0	Front	10 mm	Stainless Steel	QPSK	1	50	X4QKKG6X7T	1:1.58	0.149	1.191	0.177	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Links	23.00	22.17	-0.06	1	Front	10 mm	Stainless Steel	QPSK	50	50	X4QKKG6X7T	1:1.58	0.118	1.211	0.143	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Loop	24.00	23.24	0.01	0	Front	10 mm	Stainless Steel	QPSK	1	50	X4QKKG6X7T	1:1.58	0.217	1.191	0.258	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Loop	23.00	22.17	0.04	1	Front	10 mm	Stainless Steel	QPSK	50	50	X4QKKG6X7T	1:1.58	0.171	1.211	0.207	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 10-13
2.4GHz WLAN Head SAR Data

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Housing Type	Wristband Type	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2437	6	802.11b	DSSS	22	19.00	18.02	-0.06	Front	10 mm	Aluminum	Sport	MG9RCVQ2V9	1	99.6	0.268	1.253	1.004	0.337	
2437	6	802.11b	DSSS	22	19.00	18.02	-0.02	Front	10 mm	Aluminum	Metal Links	MG9RCVQ2V9	1	99.6	0.260	1.253	1.004	0.327	
2437	6	802.11b	DSSS	22	19.00	18.02	0.03	Front	10 mm	Aluminum	Metal Loop	MG9RCVQ2V9	1	99.6	0.209	1.253	1.004	0.263	
2437	6	802.11b	DSSS	22	19.00	18.02	-0.01	Front	10 mm	Stainless Steel	Sport	M6RW9PY74H	1	99.6	0.272	1.253	1.004	**0.342**	A13
2437	6	802.11b	DSSS	22	19.00	18.02	-0.03	Front	10 mm	Stainless Steel	Metal Links	M6RW9PY74H	1	99.6	0.184	1.253	1.004	0.231	
2437	6	802.11b	DSSS	22	19.00	18.02	-0.01	Front	10 mm	Stainless Steel	Metal Loop	M6RW9PY74H	1	99.6	0.218	1.253	1.004	0.274	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Head** **1.6 W/kg (mW/g)** averaged over 1 gram											

Table 10-14
5GHz WLAN Head SAR Data

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Housing Type	Wristband Type	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
5280	56	802.11a	OFDM	20	17.00	16.04	0.02	Front	10 mm	Aluminum	Sport	JYHCFGFXW6	6	98.5	0.023	1.247	1.015	0.029	
5280	56	802.11a	OFDM	20	17.00	16.04	-0.20	Front	10 mm	Aluminum	Metal Links	JYHCFGFXW6	6	98.5	0.024	1.247	1.015	0.030	
5280	56	802.11a	OFDM	20	17.00	16.04	0.00	Front	10 mm	Aluminum	Metal Loop	JYHCFGFXW6	6	98.5	0.026	1.247	1.015	0.033	
5280	56	802.11a	OFDM	20	17.00	16.04	0.00	Front	10 mm	Stainless Steel	Sport	R4YW5F4DW9	6	98.5	0.025	1.247	1.015	0.032	
5280	56	802.11a	OFDM	20	17.00	16.04	0.00	Front	10 mm	Stainless Steel	Metal Links	R4YW5F4DW9	6	98.5	0.027	1.247	1.015	0.034	
5280	56	802.11a	OFDM	20	17.00	16.04	0.00	Front	10 mm	Stainless Steel	Metal Loop	R4YW5F4DW9	6	98.5	0.027	1.247	1.015	0.034	
5600	120	802.11a	OFDM	20	17.00	16.09	0.00	Front	10 mm	Aluminum	Sport	JYHCFGFXW6	6	98.5	0.041	1.233	1.015	0.051	
5600	120	802.11a	OFDM	20	17.00	16.09	-0.02	Front	10 mm	Aluminum	Metal Links	JYHCFGFXW6	6	98.5	0.043	1.233	1.015	0.054	
5600	120	802.11a	OFDM	20	17.00	16.09	0.01	Front	10 mm	Aluminum	Metal Loop	JYHCFGFXW6	6	98.5	0.038	1.233	1.015	0.048	
5600	120	802.11a	OFDM	20	17.00	16.09	0.01	Front	10 mm	Stainless Steel	Sport	R4YW5F4DW9	6	98.5	0.024	1.233	1.015	0.030	
5600	120	802.11a	OFDM	20	17.00	16.09	0.00	Front	10 mm	Stainless Steel	Metal Links	R4YW5F4DW9	6	98.5	0.028	1.233	1.015	0.035	
5600	120	802.11a	OFDM	20	17.00	16.09	0.00	Front	10 mm	Stainless Steel	Metal Loop	R4YW5F4DW9	6	98.5	0.020	1.233	1.015	0.025	
5825	165	802.11a	OFDM	20	17.00	15.98	-0.01	Front	10 mm	Aluminum	Sport	JYHCFGFXW6	6	98.5	0.054	1.265	1.015	0.069	
5825	165	802.11a	OFDM	20	17.00	15.98	-0.01	Front	10 mm	Aluminum	Metal Links	JYHCFGFXW6	6	98.5	0.055	1.265	1.015	**0.071**	A14
5825	165	802.11a	OFDM	20	17.00	15.98	0.16	Front	10 mm	Aluminum	Metal Loop	JYHCFGFXW6	6	98.5	0.053	1.265	1.015	0.068	
5825	165	802.11a	OFDM	20	17.00	15.98	0.01	Front	10 mm	Stainless Steel	Sport	R4YW5F4DW9	6	98.5	0.053	1.265	1.015	0.068	
5825	165	802.11a	OFDM	20	17.00	15.98	0.01	Front	10 mm	Stainless Steel	Metal Links	R4YW5F4DW9	6	98.5	0.037	1.265	1.015	0.048	
5825	165	802.11a	OFDM	20	17.00	15.98	0.00	Front	10 mm	Stainless Steel	Metal Loop	R4YW5F4DW9	6	98.5	0.049	1.265	1.015	0.063	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Head** **1.6 W/kg (mW/g)** averaged over 1 gram											

Table 10-15
Bluetooth WLAN Head SAR Data

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Housing Type	Wristband Type	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	SAR (1g) (W/kg)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																	
2480.00	78	Bluetooth	FHSS	13.00	12.06	-0.09	Front	10 mm	Aluminum	Sport	N7W74KJXXK	1	100	0.079	1.242	1.000	**0.098**	A15
2480.00	78	Bluetooth	FHSS	13.00	12.06	0.00	Front	10 mm	Aluminum	Metal Links	N7W74KJXXK	1	100	0.054	1.242	1.000	0.067	
2480.00	78	Bluetooth	FHSS	13.00	12.06	-0.02	Front	10 mm	Aluminum	Metal Loop	N7W74KJXXK	1	100	0.054	1.242	1.000	0.067	
2480.00	78	Bluetooth	FHSS	13.00	12.06	-0.02	Front	10 mm	Stainless Steel	Sport	M6RW9PY74H	1	100	0.065	1.242	1.000	0.081	
2480.00	78	Bluetooth	FHSS	13.00	12.06	-0.04	Front	10 mm	Stainless Steel	Metal Links	M6RW9PY74H	1	100	0.050	1.242	1.000	0.062	
2480.00	78	Bluetooth	FHSS	13.00	12.06	-0.01	Front	10 mm	Stainless Steel	Metal Loop	M6RW9PY74H	1	100	0.051	1.242	1.000	0.063	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Head** **1.6 W/kg (mW/g)** averaged over 1 gram										

10.2 Standalone Extremity SAR Data

Table 10-16
UMTS 850 Extremity SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Housing Type	Wristband Type	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.00	24.03	-0.05	0 mm	Aluminum	Sport	G5PXJ3997T	1:1	Back	0.083	1.250	0.104	
836.60	4183	UMTS 850	RMC	25.00	24.03	-0.02	0 mm	Aluminum	Metal Links	G5PXJ3997T	1:1	Back	0.117	1.250	0.146	
836.60	4183	UMTS 850	RMC	25.00	24.03	0.01	0 mm	Aluminum	Metal Loop	G5PXJ3997T	1:1	Back	0.095	1.250	0.119	
836.60	4183	UMTS 850	RMC	25.00	24.03	0.06	0 mm	Stainless Steel	Sport	XGVVQF73J9	1:1	Back	0.076	1.250	0.095	
836.60	4183	UMTS 850	RMC	25.00	24.03	-0.11	0 mm	Stainless Steel	Metal Links	XGVVQF73J9	1:1	Back	0.144	1.250	0.180	A17
836.60	4183	UMTS 850	RMC	25.00	24.03	-0.05	0 mm	Stainless Steel	Metal Loop	XGVVQF73J9	1:1	Back	0.090	1.250	0.113	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Extremity 4.0 W/kg (mW/g) averaged over 10 grams								

Table 10-17
UMTS 1750 Extremity SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Housing Type	Wristband Type	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	-0.06	0 mm	Aluminum	Sport	G5PXJ3997T	1:1	Back	0.026	1.227	0.032	A18
1732.40	1412	UMTS 1750	RMC	24.00	23.11	-0.05	0 mm	Aluminum	Metal Links	G5PXJ3997T	1:1	Back	0.023	1.227	0.028	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	-0.02	0 mm	Aluminum	Metal Loop	G5PXJ3997T	1:1	Back	0.011	1.227	0.013	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	-0.03	0 mm	Stainless Steel	Sport	RP6GPDHJ4Y	1:1	Back	0.022	1.227	0.027	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	0.02	0 mm	Stainless Steel	Metal Links	RP6GPDHJ4Y	1:1	Back	0.024	1.227	0.029	
1732.40	1412	UMTS 1750	RMC	24.00	23.11	-0.04	0 mm	Stainless Steel	Metal Loop	RP6GPDHJ4Y	1:1	Back	0.023	1.227	0.028	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Extremity 4.0 W/kg (mW/g) averaged over 10 grams								

Table 10-18
UMTS 1900 Extremity SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Housing Type	Wristband Type	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	-0.07	0 mm	Aluminum	Sport	LDW7F60M65	1:1	Back	0.031	1.239	0.038	A18
1907.60	9538	UMTS 1900	RMC	24.00	23.07	-0.06	0 mm	Aluminum	Metal Links	LDW7F60M65	1:1	Back	0.026	1.239	0.032	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	-0.14	0 mm	Aluminum	Metal Loop	LDW7F60M65	1:1	Back	0.015	1.239	0.019	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	-0.12	0 mm	Stainless Steel	Sport	R4YW5F4DW9	1:1	Back	0.029	1.239	0.036	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	0.08	0 mm	Stainless Steel	Metal Links	R4YW5F4DW9	1:1	Back	0.026	1.239	0.032	
1907.60	9538	UMTS 1900	RMC	24.00	23.07	-0.15	0 mm	Stainless Steel	Metal Loop	R4YW5F4DW9	1:1	Back	0.027	1.239	0.033	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Extremity 4.0 W/kg (mW/g) averaged over 10 grams								

Table 10-19
LTE Band 12 Extremity SAR Data

MEASUREMENT RESULTS																						
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Housing Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	Sport	25.5	24.74	0.20	0	Aluminum	QGYW9YXV7	QPSK	1	25	0 mm	Back	1:1	0.125	1.191	0.149	
707.50	23095	Mid	LTE Band 12	10	Sport	24.5	23.95	0.03	1	Aluminum	QGYW9YXV7	QPSK	25	25	0 mm	Back	1:1	0.092	1.135	0.104	
707.50	23095	Mid	LTE Band 12	10	Metal Links	25.5	24.74	-0.05	0	Aluminum	QGYW9YXV7	QPSK	1	25	0 mm	Back	1:1	0.204	1.191	0.243	A19
707.50	23095	Mid	LTE Band 12	10	Metal Links	24.5	23.95	0.03	1	Aluminum	QGYW9YXV7	QPSK	25	25	0 mm	Back	1:1	0.178	1.135	0.202	
707.50	23095	Mid	LTE Band 12	10	Metal Loop	25.5	24.74	0.06	0	Aluminum	QGYW9YXV7	QPSK	1	25	0 mm	Back	1:1	0.174	1.191	0.207	
707.50	23095	Mid	LTE Band 12	10	Metal Loop	24.5	23.95	-0.04	1	Aluminum	QGYW9YXV7	QPSK	25	25	0 mm	Back	1:1	0.109	1.135	0.124	
707.50	23095	Mid	LTE Band 12	10	Sport	25.5	24.74	0.20	0	Stainless Steel	X4QKKG6X7T	QPSK	1	25	0 mm	Back	1:1	0.096	1.191	0.114	
707.50	23095	Mid	LTE Band 12	10	Sport	24.5	23.95	0.20	1	Stainless Steel	X4QKKG6X7T	QPSK	25	25	0 mm	Back	1:1	0.073	1.135	0.083	
707.50	23095	Mid	LTE Band 12	10	Metal Links	25.5	24.74	0.20	0	Stainless Steel	X4QKKG6X7T	QPSK	1	25	0 mm	Back	1:1	0.202	1.191	0.241	
707.50	23095	Mid	LTE Band 12	10	Metal Links	24.5	23.95	-0.19	1	Stainless Steel	X4QKKG6X7T	QPSK	25	25	0 mm	Back	1:1	0.164	1.135	0.186	
707.50	23095	Mid	LTE Band 12	10	Metal Loop	25.5	24.74	0.20	0	Stainless Steel	X4QKKG6X7T	QPSK	1	25	0 mm	Back	1:1	0.124	1.191	0.148	
707.50	23095	Mid	LTE Band 12	10	Metal Loop	24.5	23.95	0.13	1	Stainless Steel	X4QKKG6X7T	QPSK	25	25	0 mm	Back	1:1	0.099	1.135	0.112	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Extremity 4.0 W/kg (mW/g) averaged over 10 grams										

Table 10-20
LTE Band 13 Extremity SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Housing Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	Sport	25.5	24.98	-0.15	0	Aluminum	CD2LGXQM2H	QPSK	1	0	0 mm	Back	1:1	0.115	1.127	0.130	
782.00	23230	Mid	LTE Band 13	10	Sport	24.5	23.92	-0.07	1	Aluminum	CD2LGXQM2H	QPSK	25	0	0 mm	Back	1:1	0.104	1.143	0.119	
782.00	23230	Mid	LTE Band 13	10	Metal Links	25.5	24.98	-0.06	0	Aluminum	CD2LGXQM2H	QPSK	1	0	0 mm	Back	1:1	0.236	1.127	0.266	
782.00	23230	Mid	LTE Band 13	10	Metal Links	24.5	23.92	0.07	1	Aluminum	CD2LGXQM2H	QPSK	25	0	0 mm	Back	1:1	0.169	1.143	0.193	
782.00	23230	Mid	LTE Band 13	10	Metal Loop	25.5	24.98	0.04	0	Aluminum	CD2LGXQM2H	QPSK	1	0	0 mm	Back	1:1	0.196	1.127	0.221	
782.00	23230	Mid	LTE Band 13	10	Metal Loop	24.5	23.92	0.13	1	Aluminum	CD2LGXQM2H	QPSK	25	0	0 mm	Back	1:1	0.148	1.143	0.169	
782.00	23230	Mid	LTE Band 13	10	Sport	25.5	24.98	0.04	0	Stainless Steel	CPHTM44WJ3	QPSK	1	0	0 mm	Back	1:1	0.207	1.127	0.233	
782.00	23230	Mid	LTE Band 13	10	Sport	24.5	23.92	-0.19	1	Stainless Steel	CPHTM44WJ3	QPSK	25	0	0 mm	Back	1:1	0.116	1.143	0.133	
782.00	23230	Mid	LTE Band 13	10	Metal Links	25.5	24.98	0.20	0	Stainless Steel	CPHTM44WJ3	QPSK	1	0	0 mm	Back	1:1	0.282	1.127	**0.318**	A20
782.00	23230	Mid	LTE Band 13	10	Metal Links	24.5	23.92	-0.11	1	Stainless Steel	CPHTM44WJ3	QPSK	25	0	0 mm	Back	1:1	0.187	1.143	0.214	
782.00	23230	Mid	LTE Band 13	10	Metal Loop	25.5	24.98	-0.07	0	Stainless Steel	CPHTM44WJ3	QPSK	1	0	0 mm	Back	1:1	0.190	1.127	0.214	
782.00	23230	Mid	LTE Band 13	10	Metal Loop	24.5	23.92	0.07	1	Stainless Steel	CPHTM44WJ3	QPSK	25	0	0 mm	Back	1:1	0.171	1.143	0.195	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Extremity 4.0 W/kg (mW/g) averaged over 10 grams										

Table 10-21
LTE Band 14 Extremity SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Housing Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g) (W/kg)	Scaling Factor	Reported SAR (10g) (W/kg)	Plot #
MHz	Ch.																				
793.00	23330	Mid	LTE Band 14	10	Sport	25.5	24.69	-0.06	0	Aluminum	JYHCFGFXW6	QPSK	1	25	0 mm	Back	1:1	0.138	1.205	0.166	
793.00	23330	Mid	LTE Band 14	10	Sport	24.5	23.88	0.01	1	Aluminum	JYHCFGFXW6	QPSK	25	25	0 mm	Back	1:1	0.105	1.153	0.121	
793.00	23330	Mid	LTE Band 14	10	Metal Links	25.5	24.69	-0.02	0	Aluminum	JYHCFGFXW6	QPSK	1	25	0 mm	Back	1:1	0.186	1.205	0.224	
793.00	23330	Mid	LTE Band 14	10	Metal Links	24.5	23.88	-0.20	1	Aluminum	JYHCFGFXW6	QPSK	25	25	0 mm	Back	1:1	0.159	1.153	0.183	
793.00	23330	Mid	LTE Band 14	10	Metal Loop	25.5	24.69	-0.01	0	Aluminum	JYHCFGFXW6	QPSK	1	25	0 mm	Back	1:1	0.168	1.205	0.202	
793.00	23330	Mid	LTE Band 14	10	Metal Loop	24.5	23.88	-0.09	1	Aluminum	JYHCFGFXW6	QPSK	25	25	0 mm	Back	1:1	0.114	1.153	0.131	
793.00	23330	Mid	LTE Band 14	10	Sport	25.5	24.69	-0.04	0	Stainless Steel	GMF3306DQ3	QPSK	1	25	0 mm	Back	1:1	0.158	1.205	0.190	
793.00	23330	Mid	LTE Band 14	10	Sport	24.5	23.88	-0.05	1	Stainless Steel	GMF3306DQ3	QPSK	25	25	0 mm	Back	1:1	0.114	1.153	0.131	
793.00	23330	Mid	LTE Band 14	10	Metal Links	25.5	24.69	0.05	0	Stainless Steel	GMF3306DQ3	QPSK	1	25	0 mm	Back	1:1	0.234	1.205	0.282	A21
793.00	23330	Mid	LTE Band 14	10	Metal Links	24.5	23.88	0.20	1	Stainless Steel	GMF3306DQ3	QPSK	25	25	0 mm	Back	1:1	0.162	1.153	0.187	
793.00	23330	Mid	LTE Band 14	10	Metal Loop	25.5	24.69	0.20	0	Stainless Steel	GMF3306DQ3	QPSK	1	25	0 mm	Back	1:1	0.172	1.205	0.207	
793.00	23330	Mid	LTE Band 14	10	Metal Loop	24.5	23.88	0.05	1	Stainless Steel	GMF3306DQ3	QPSK	25	25	0 mm	Back	1:1	0.134	1.153	0.155	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Extremity 4.0 W/kg (mW/g) averaged over 10 grams								

Table 10-22
LTE Band 26 Extremity SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Housing Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g) (W/kg)	Scaling Factor	Reported SAR (10g) (W/kg)	Plot #
MHz	Ch.																				
831.50	26865	Mid	LTE Band 26 (Cell)	10	Sport	25.5	24.53	-0.04	0	Aluminum	RWHV29PJ4W	QPSK	1	25	0 mm	Back	1:1	0.105	1.250	0.131	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Sport	24.5	23.63	0.00	1	Aluminum	RWHV29PJ4W	QPSK	25	0	0 mm	Back	1:1	0.076	1.222	0.093	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Links	25.5	24.53	-0.06	0	Aluminum	RWHV29PJ4W	QPSK	1	25	0 mm	Back	1:1	0.148	1.250	0.185	A22
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Links	24.5	23.63	-0.02	1	Aluminum	RWHV29PJ4W	QPSK	25	0	0 mm	Back	1:1	0.122	1.222	0.149	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Loop	25.5	24.53	-0.04	0	Aluminum	RWHV29PJ4W	QPSK	1	25	0 mm	Back	1:1	0.094	1.250	0.118	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Loop	24.5	23.63	0.04	1	Aluminum	RWHV29PJ4W	QPSK	25	0	0 mm	Back	1:1	0.085	1.222	0.104	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Sport	25.5	24.53	0.08	0	Stainless Steel	X4QKKG6X7T	QPSK	1	25	0 mm	Back	1:1	0.088	1.250	0.110	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Sport	24.5	23.63	-0.03	1	Stainless Steel	X4QKKG6X7T	QPSK	25	0	0 mm	Back	1:1	0.071	1.222	0.087	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Links	25.5	24.53	-0.04	0	Stainless Steel	X4QKKG6X7T	QPSK	1	25	0 mm	Back	1:1	0.130	1.250	0.163	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Links	24.5	23.63	-0.11	1	Stainless Steel	X4QKKG6X7T	QPSK	25	0	0 mm	Back	1:1	0.100	1.222	0.122	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Loop	25.5	24.53	-0.02	0	Stainless Steel	X4QKKG6X7T	QPSK	1	25	0 mm	Back	1:1	0.117	1.250	0.146	
831.50	26865	Mid	LTE Band 26 (Cell)	10	Metal Loop	24.5	23.63	0.00	1	Stainless Steel	X4QKKG6X7T	QPSK	25	0	0 mm	Back	1:1	0.087	1.222	0.106	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Extremity 4.0 W/kg (mW/g) averaged over 10 grams								

Table 10-23
LTE Band 5 Extremity SAR Data

MEASUREMENT RESULTS																						
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Housing Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g) (W/kg)	Scaling Factor	Reported SAR (10g) (W/kg)	Plot #
MHz	Ch.																				
836.50	20525	Mid	LTE Band 5 (Cell)	10	Sport	25.5	24.53	0.06	0	Aluminum	MG9RCVQ2V9	QPSK	1	49	0 mm	Back	1:1	0.126	1.250	0.158	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Sport	24.5	23.49	0.06	1	Aluminum	MG9RCVQ2V9	QPSK	25	12	0 mm	Back	1:1	0.108	1.262	0.136	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Links	25.5	24.53	-0.05	0	Aluminum	MG9RCVQ2V9	QPSK	1	49	0 mm	Back	1:1	0.111	1.250	0.139	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Links	24.5	23.49	-0.16	1	Aluminum	MG9RCVQ2V9	QPSK	25	12	0 mm	Back	1:1	0.073	1.262	0.092	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Loop	25.5	24.53	0.05	0	Aluminum	MG9RCVQ2V9	QPSK	1	49	0 mm	Back	1:1	0.156	1.250	0.195	A23
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Loop	24.5	23.49	0.01	1	Aluminum	MG9RCVQ2V9	QPSK	25	12	0 mm	Back	1:1	0.119	1.262	0.150	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Sport	25.5	24.53	0.09	0	Stainless Steel	R4YW5F4DW9	QPSK	1	49	0 mm	Back	1:1	0.092	1.250	0.115	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Sport	24.5	23.49	-0.18	1	Stainless Steel	R4YW5F4DW9	QPSK	25	12	0 mm	Back	1:1	0.077	1.262	0.097	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Links	25.5	24.53	0.09	0	Stainless Steel	R4YW5F4DW9	QPSK	1	49	0 mm	Back	1:1	0.129	1.250	0.161	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Links	24.5	23.49	0.07	1	Stainless Steel	R4YW5F4DW9	QPSK	25	12	0 mm	Back	1:1	0.115	1.262	0.145	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Loop	25.5	24.53	-0.02	0	Stainless Steel	R4YW5F4DW9	QPSK	1	49	0 mm	Back	1:1	0.144	1.250	0.180	
836.50	20525	Mid	LTE Band 5 (Cell)	10	Metal Loop	24.5	23.49	-0.03	1	Stainless Steel	R4YW5F4DW9	QPSK	25	12	0 mm	Back	1:1	0.107	1.262	0.135	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Extremity 4.0 W/kg (mW/g) averaged over 10 grams				

Table 10-24
LTE Band 66 Extremity SAR Data

MEASUREMENT RESULTS																						
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Housing Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g) (W/kg)	Scaling Factor	Reported SAR (10g) (W/kg)	Plot #
MHz	Ch.																				
1720.00	132072	Low	LTE Band 66 (AWS)	20	Sport	24.5	23.55	0.07	0	Aluminum	N7W74KJX0K	QPSK	1	99	0 mm	Back	1:1	0.020	1.245	0.025	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Sport	23.5	22.72	0.07	1	Aluminum	N7W74KJX0K	QPSK	50	50	0 mm	Back	1:1	0.016	1.197	0.019	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Links	24.5	23.55	0.02	0	Aluminum	N7W74KJX0K	QPSK	1	99	0 mm	Back	1:1	0.035	1.245	0.044	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Links	23.5	22.72	-0.20	1	Aluminum	N7W74KJX0K	QPSK	50	50	0 mm	Back	1:1	0.026	1.197	0.031	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Loop	24.5	23.55	0.07	0	Aluminum	N7W74KJX0K	QPSK	1	99	0 mm	Back	1:1	0.033	1.245	0.041	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Loop	23.5	22.72	0.03	1	Aluminum	N7W74KJX0K	QPSK	50	50	0 mm	Back	1:1	0.027	1.197	0.032	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Sport	24.5	23.55	0.03	0	Stainless Steel	X4QKKG6X7T	QPSK	1	99	0 mm	Back	1:1	0.038	1.245	0.047	A24
1720.00	132072	Low	LTE Band 66 (AWS)	20	Sport	23.5	22.72	-0.19	1	Stainless Steel	X4QKKG6X7T	QPSK	50	50	0 mm	Back	1:1	0.031	1.197	0.037	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Links	24.5	23.55	0.02	0	Stainless Steel	X4QKKG6X7T	QPSK	1	99	0 mm	Back	1:1	0.037	1.245	0.046	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Links	23.5	22.72	0.02	1	Stainless Steel	X4QKKG6X7T	QPSK	50	50	0 mm	Back	1:1	0.035	1.197	0.042	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Loop	24.5	23.55	-0.04	0	Stainless Steel	X4QKKG6X7T	QPSK	1	99	0 mm	Back	1:1	0.025	1.245	0.031	
1720.00	132072	Low	LTE Band 66 (AWS)	20	Metal Loop	23.5	22.72	0.06	1	Stainless Steel	X4QKKG6X7T	QPSK	50	50	0 mm	Back	1:1	0.020	1.197	0.024	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Extremity 4.0 W/kg (mW/g) averaged over 10 grams				

Table 10-25
LTE Band 25 Extremity SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Housing Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
1905.00	26590	High	LTE Band 25 (PCS)	20	Sport	24.5	23.71	-0.12	0	Aluminum	MG9RCVQ2V9	QPSK	1	50	0 mm	Back	1:1	0.038	1.199	0.046	A25
1905.00	26590	High	LTE Band 25 (PCS)	20	Sport	23.5	22.84	0.01	1	Aluminum	MG9RCVQ2V9	QPSK	50	50	0 mm	Back	1:1	0.031	1.164	0.036	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Links	24.5	23.71	0.08	0	Aluminum	MG9RCVQ2V9	QPSK	1	50	0 mm	Back	1:1	0.037	1.199	0.044	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Links	23.5	22.84	-0.07	1	Aluminum	MG9RCVQ2V9	QPSK	50	50	0 mm	Back	1:1	0.029	1.164	0.034	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Loop	24.5	23.71	-0.17	0	Aluminum	MG9RCVQ2V9	QPSK	1	50	0 mm	Back	1:1	0.035	1.199	0.042	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Loop	23.5	22.84	0.20	1	Aluminum	MG9RCVQ2V9	QPSK	50	50	0 mm	Back	1:1	0.028	1.164	0.033	
1905.00	26590	High	LTE Band 25 (PCS)	20	Sport	24.5	23.71	-0.05	0	Stainless Steel	KMW0XWRMWQ	QPSK	1	50	0 mm	Back	1:1	0.038	1.199	0.046	
1905.00	26590	High	LTE Band 25 (PCS)	20	Sport	23.5	22.84	0.07	1	Stainless Steel	KMW0XWRMWQ	QPSK	50	50	0 mm	Back	1:1	0.032	1.164	0.037	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Links	24.5	23.71	-0.12	0	Stainless Steel	KMW0XWRMWQ	QPSK	1	50	0 mm	Back	1:1	0.033	1.199	0.040	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Links	23.5	22.84	-0.08	1	Stainless Steel	KMW0XWRMWQ	QPSK	50	50	0 mm	Back	1:1	0.028	1.164	0.033	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Loop	24.5	23.71	0.14	0	Stainless Steel	KMW0XWRMWQ	QPSK	1	50	0 mm	Back	1:1	0.031	1.199	0.037	
1905.00	26590	High	LTE Band 25 (PCS)	20	Metal Loop	23.5	22.84	0.07	1	Stainless Steel	KMW0XWRMWQ	QPSK	50	50	0 mm	Back	1:1	0.020	1.164	0.023	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Extremity 4.0 W/kg (mW/g) averaged over 10 grams								

Table 10-26
LTE Band 7 Extremity SAR Data

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Housing Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																	(W/kg)		(W/kg)	
2535.00	21100	Mid	LTE Band 7	20	Sport	24.0	23.28	-0.14	0	Aluminum	MG9RCVQ2V9	QPSK	1	99	0 mm	Back	1:1	0.035	1.180	0.041	A26
2535.00	21100	Mid	LTE Band 7	20	Sport	23.0	22.27	-0.04	1	Aluminum	MG9RCVQ2V9	QPSK	50	50	0 mm	Back	1:1	0.029	1.183	0.034	
2535.00	21100	Mid	LTE Band 7	20	Metal Links	24.0	23.28	0.01	0	Aluminum	MG9RCVQ2V9	QPSK	1	99	0 mm	Back	1:1	0.035	1.180	0.041	
2535.00	21100	Mid	LTE Band 7	20	Metal Links	23.0	22.27	-0.02	1	Aluminum	MG9RCVQ2V9	QPSK	50	50	0 mm	Back	1:1	0.024	1.183	0.028	
2535.00	21100	Mid	LTE Band 7	20	Metal Loop	24.0	23.28	-0.05	0	Aluminum	MG9RCVQ2V9	QPSK	1	99	0 mm	Back	1:1	0.027	1.180	0.032	
2535.00	21100	Mid	LTE Band 7	20	Metal Loop	23.0	22.27	0.01	1	Aluminum	MG9RCVQ2V9	QPSK	50	50	0 mm	Back	1:1	0.013	1.183	0.015	
2535.00	21100	Mid	LTE Band 7	20	Sport	24.0	23.28	0.04	0	Stainless Steel	CPHTM44WJ3	QPSK	1	99	0 mm	Back	1:1	0.019	1.180	0.022	
2535.00	21100	Mid	LTE Band 7	20	Sport	23.0	22.27	0.07	1	Stainless Steel	CPHTM44WJ3	QPSK	50	50	0 mm	Back	1:1	0.013	1.183	0.015	
2535.00	21100	Mid	LTE Band 7	20	Metal Links	24.0	23.28	0.02	0	Stainless Steel	CPHTM44WJ3	QPSK	1	99	0 mm	Back	1:1	0.011	1.180	0.013	
2535.00	21100	Mid	LTE Band 7	20	Metal Links	23.0	22.27	0.02	1	Stainless Steel	CPHTM44WJ3	QPSK	50	50	0 mm	Back	1:1	0.008	1.183	0.009	
2535.00	21100	Mid	LTE Band 7	20	Metal Loop	24.0	23.28	-0.20	0	Stainless Steel	CPHTM44WJ3	QPSK	1	99	0 mm	Back	1:1	0.007	1.180	0.008	
2535.00	21100	Mid	LTE Band 7	20	Metal Loop	23.0	22.27	0.01	1	Stainless Steel	CPHTM44WJ3	QPSK	50	50	0 mm	Back	1:1	0.004	1.183	0.005	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Extremity 4.0 W/kg (mW/g) averaged over 10 grams								

Table 10-27
LTE Band 41 Extremity SAR Data

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Wristband Type	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Housing Type	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
2636.50	41055	Mid-High	LTE Band 41	20	Sport	24.0	23.24	-0.13	0	Aluminum	N7W74KJX0K	QPSK	1	50	0 mm	Back	1:1.58	0.004	1.191	0.005	
2636.50	41055	Mid-High	LTE Band 41	20	Sport	23.0	22.17	0.12	1	Aluminum	N7W74KJX0K	QPSK	50	50	0 mm	Back	1:1.58	0.002	1.211	0.002	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Links	24.0	23.24	0.13	0	Aluminum	N7W74KJX0K	QPSK	1	50	0 mm	Back	1:1.58	0.006	1.191	0.007	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Links	23.0	22.17	-0.06	1	Aluminum	N7W74KJX0K	QPSK	50	50	0 mm	Back	1:1.58	0.004	1.211	0.005	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Loop	24.0	23.24	0.06	0	Aluminum	N7W74KJX0K	QPSK	1	50	0 mm	Back	1:1.58	0.006	1.191	0.007	A27
2636.50	41055	Mid-High	LTE Band 41	20	Metal Loop	23.0	22.17	0.08	1	Aluminum	N7W74KJX0K	QPSK	50	50	0 mm	Back	1:1.58	0.004	1.211	0.005	
2636.50	41055	Mid-High	LTE Band 41	20	Sport	24.0	23.24	-0.11	0	Stainless Steel	R4YW5F4DW9	QPSK	1	50	0 mm	Back	1:1.58	0.004	1.191	0.005	
2636.50	41055	Mid-High	LTE Band 41	20	Sport	23.0	22.17	0.06	1	Stainless Steel	R4YW5F4DW9	QPSK	50	50	0 mm	Back	1:1.58	0.002	1.211	0.002	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Links	24.0	23.24	0.09	0	Stainless Steel	R4YW5F4DW9	QPSK	1	50	0 mm	Back	1:1.58	0.003	1.191	0.004	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Links	23.0	22.17	0.03	1	Stainless Steel	R4YW5F4DW9	QPSK	50	50	0 mm	Back	1:1.58	0.001	1.211	0.001	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Loop	24.0	23.24	-0.11	0	Stainless Steel	R4YW5F4DW9	QPSK	1	50	0 mm	Back	1:1.58	0.005	1.191	0.006	
2636.50	41055	Mid-High	LTE Band 41	20	Metal Loop	23.0	22.17	0.09	1	Stainless Steel	R4YW5F4DW9	QPSK	50	50	0 mm	Back	1:1.58	0.004	1.211	0.005	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Extremity 4.0 W/kg (mW/g) averaged over 10 grams				

Table 10-28
2.4GHz WLAN Extremity SAR Data

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Housing Type	Wristband Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.														(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	19.0	18.02	0.02	0 mm	Aluminum	Sport	RWHV29PJ4W	1	Back	99.6	0.012	1.253	1.004	0.015	
2437	6	802.11b	DSSS	22	19.0	18.02	-0.12	0 mm	Aluminum	Metal Links	RWHV29PJ4W	1	Back	99.6	0.007	1.253	1.004	0.009	
2437	6	802.11b	DSSS	22	19.0	18.02	0.05	0 mm	Aluminum	Metal Loop	RWHV29PJ4W	1	Back	99.6	0.015	1.253	1.004	**0.019**	A28
2437	6	802.11b	DSSS	22	19.0	18.02	0.00	0 mm	Stainless Steel	Sport	CPHTM44WJ3	1	Back	99.6	0.015	1.253	1.004	0.019	
2437	6	802.11b	DSSS	22	19.0	18.02	0.00	0 mm	Stainless Steel	Metal Links	CPHTM44WJ3	1	Back	99.6	0.013	1.253	1.004	0.016	
2437	6	802.11b	DSSS	22	19.0	18.02	0.00	0 mm	Stainless Steel	Metal Loop	CPHTM44WJ3	1	Back	99.6	0.008	1.253	1.004	0.010	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																		Extremity 4.0 W/kg (mW/g) averaged over 10 grams	

Table 10-29
5GHz WLAN Extremity SAR Data

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Housing Type	Wristband Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.														(W/kg)			(W/kg)	
5280	56	802.11a	OFDM	20	17.0	16.04	0.00	0 mm	Aluminum	Sport	JYHCFGFXW6	6	Back	98.5	0.000	1.247	1.015	0.000	
5280	56	802.11a	OFDM	20	17.0	16.04	0.00	0 mm	Aluminum	Metal Links	JYHCFGFXW6	6	Back	98.5	0.000	1.247	1.015	0.000	
5280	56	802.11a	OFDM	20	17.0	16.04	0.01	0 mm	Aluminum	Metal Loop	JYHCFGFXW6	6	Back	98.5	0.000	1.247	1.015	0.000	
5280	56	802.11a	OFDM	20	17.0	16.04	0.00	0 mm	Stainless Steel	Sport	CPHTM44WJ3	6	Back	98.5	0.000	1.247	1.015	0.000	
5280	56	802.11a	OFDM	20	17.0	16.04	0.00	0 mm	Stainless Steel	Metal Links	CPHTM44WJ3	6	Back	98.5	0.000	1.247	1.015	0.000	
5280	56	802.11a	OFDM	20	17.0	16.04	0.03	0 mm	Stainless Steel	Metal Loop	CPHTM44WJ3	6	Back	98.5	0.000	1.247	1.015	0.000	
5600	120	802.11a	OFDM	20	17.0	16.09	0.00	0 mm	Aluminum	Sport	JYHCFGFXW6	6	Back	98.5	0.000	1.233	1.015	0.000	
5600	120	802.11a	OFDM	20	17.0	16.09	0.01	0 mm	Aluminum	Metal Links	JYHCFGFXW6	6	Back	98.5	0.000	1.233	1.015	0.000	
5600	120	802.11a	OFDM	20	17.0	16.09	0.00	0 mm	Aluminum	Metal Loop	JYHCFGFXW6	6	Back	98.5	0.000	1.233	1.015	0.000	
5600	120	802.11a	OFDM	20	17.0	16.09	0.08	0 mm	Stainless Steel	Sport	CPHTM44WJ3	6	Back	98.5	0.000	1.233	1.015	0.000	
5600	120	802.11a	OFDM	20	17.0	16.09	0.00	0 mm	Stainless Steel	Metal Links	CPHTM44WJ3	6	Back	98.5	0.000	1.233	1.015	0.000	
5600	120	802.11a	OFDM	20	17.0	16.09	0.00	0 mm	Stainless Steel	Metal Loop	CPHTM44WJ3	6	Back	98.5	0.000	1.233	1.015	0.000	
5825	165	802.11a	OFDM	20	17.0	15.98	-0.01	0 mm	Aluminum	Sport	JYHCFGFXW6	6	Back	98.5	0.000	1.265	1.015	0.000	
5825	165	802.11a	OFDM	20	17.0	15.98	0.00	0 mm	Aluminum	Metal Links	JYHCFGFXW6	6	Back	98.5	0.000	1.265	1.015	0.000	
5825	165	802.11a	OFDM	20	17.0	15.98	0.00	0 mm	Aluminum	Metal Loop	JYHCFGFXW6	6	Back	98.5	0.000	1.265	1.015	0.000	
5825	165	802.11a	OFDM	20	17.0	15.98	0.02	0 mm	Stainless Steel	Sport	CPHTM44WJ3	6	Back	98.5	0.000	1.265	1.015	0.000	
5825	165	802.11a	OFDM	20	17.0	15.98	0.00	0 mm	Stainless Steel	Metal Links	CPHTM44WJ3	6	Back	98.5	0.001	1.265	1.015	0.001	A29
5825	165	802.11a	OFDM	20	17.0	15.98	0.00	0 mm	Stainless Steel	Metal Loop	CPHTM44WJ3	6	Back	98.5	0.000	1.265	1.015	0.000	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	Extremity
Spatial Peak	4.0 W/kg (mW/g)
Uncontrolled Exposure/General Population	averaged over 10 grams

Table 10-30
Bluetooth WLAN Extremity SAR Data

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Housing Type	Wristband Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (10g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													(W/kg)			(W/kg)	
2480	78	Bluetooth	FHSS	13.0	12.06	0.06	0 mm	Aluminum	Sport	JYHCFGFXW6	1	Back	100	0.005	1.242	1.000	**0.006**	A30
2480	78	Bluetooth	FHSS	13.0	12.06	-0.16	0 mm	Aluminum	Metal Links	JYHCFGFXW6	1	Back	100	0.005	1.242	1.000	0.006	
2480	78	Bluetooth	FHSS	13.0	12.06	0.20	0 mm	Aluminum	Metal Loop	JYHCFGFXW6	1	Back	100	0.003	1.242	1.000	0.004	
2480	78	Bluetooth	FHSS	13.0	12.06	0.09	0 mm	Stainless Steel	Sport	CPHTM44WJ3	1	Back	100	0.003	1.242	1.000	0.004	
2480	78	Bluetooth	FHSS	13.0	12.06	0.01	0 mm	Stainless Steel	Metal Links	CPHTM44WJ3	1	Back	100	0.000	1.242	1.000	0.000	
2480	78	Bluetooth	FHSS	13.0	12.06	0.08	0 mm	Stainless Steel	Metal Loop	CPHTM44WJ3	1	Back	100	0.000	1.242	1.000	0.000	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	Extremity
Spatial Peak	4.0 W/kg (mW/g)
Uncontrolled Exposure/General Population	averaged over 10 grams

10.3 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the 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. Per FCC KDB Publication 865664 D01v01r04, variability SAR tests were not required since measured SAR results for all frequency bands were less than 0.8 W/kg and 2.0 W/kg for 10g SAR.
7. This device has two housing types: Aluminum, and Stainless Steel. The non-metallic wrist accessory, sport band, was evaluated for all exposure conditions. The available metallic wrist accessories, metal links band and metal loop band, were additionally evaluated.
8. This device is a portable wrist-worn device and does not support any other use conditions. Therefore, the procedures in FCC KDB Publication 447498 D01v06 Section 6.2 have been applied for extremity and next to mouth (head) conditions.
9. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
10. The orange highlights throughout the report represent the highest scaled SAR per Equipment Class.

UMTS Notes:

1. UMTS mode was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the highest output power channel for each test configuration is $\leq$ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s).

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 7.5.4.
2. 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.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 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).
4. Per FCC KDB Publication 447498 D01v06, when the reported 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 and > 1.5 W/kg for 10g SAR, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. This device can only operate with 16 QAM on the uplink with less than or equal to 27 RB. QPSK and 16QAM LTE powers for RB size of 15 (“50% RB”) and 27 (“100% RB”) were additionally measured to support comparison and SAR test exclusion per KDB 941225 D05v02r04 Section 5.2.4 and 5.3.

WLAN Notes:

1. 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 due to the maximum allowed powers and the highest reported DSSS SAR. See Section 7.6.4 for more information.
2. 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 for 1g evaluations. See Section 7.6.5 for more information.
3. When the maximum reported 1g averaged SAR is ≤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 for 1g evaluations or all test channels were measured. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.
4. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance.

Bluetooth Notes

1. To determine compliance, Bluetooth SAR was measured with the maximum power condition. Bluetooth was evaluated with a test mode with 100% transmission duty factor.

11 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

11.1 Introduction

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

11.2 Simultaneous Transmission Procedures

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

11.3 Head SAR Simultaneous Transmission Analysis

For SAR summation, the highest reported SAR across all housing and wristband types was used as a conservative evaluation for the simultaneous transmission analysis.

Table 11-1
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Head at 1.0 cm)

Exposure Condition	Mode	3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	UMTS 850	0.001	0.342	0.343
	UMTS 1750	0.348	0.342	0.690
	UMTS 1900	0.759	0.342	**1.101**
	LTE Band 12	0.006	0.342	0.348
	LTE Band 13	0.006	0.342	0.348
	LTE Band 14	0.004	0.342	0.346
	LTE Band 26 (Cell)	0.001	0.342	0.343
	LTE Band 5 (Cell)	0.003	0.342	0.345
	LTE Band 66 (AWS)	0.522	0.342	0.864
	LTE Band 25 (PCS)	0.577	0.342	0.919
	LTE Band 7	0.567	0.342	0.909
	LTE Band 41	0.326	0.342	0.668

Table 11-2
Simultaneous Transmission Scenario with Bluetooth, and 5 GHz WLAN (Head at 1.0 cm)

Exposure Condition	Mode	3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2	1+3	1+2+3
Head SAR	UMTS 850	0.001	0.098	0.071	0.099	0.072	0.170
	UMTS 1750	0.348	0.098	0.071	0.446	0.419	0.517
	UMTS 1900	0.759	0.098	0.071	0.857	0.830	**0.928**
	LTE Band 12	0.006	0.098	0.071	0.104	0.077	0.175
	LTE Band 13	0.006	0.098	0.071	0.104	0.077	0.175
	LTE Band 14	0.004	0.098	0.071	0.102	0.075	0.173
	LTE Band 26 (Cell)	0.001	0.098	0.071	0.099	0.072	0.170
	LTE Band 5 (Cell)	0.003	0.098	0.071	0.101	0.074	0.172
	LTE Band 66 (AWS)	0.522	0.098	0.071	0.620	0.593	0.691
	LTE Band 25 (PCS)	0.577	0.098	0.071	0.675	0.648	0.746
	LTE Band 7	0.567	0.098	0.071	0.665	0.638	0.736
	LTE Band 41	0.326	0.098	0.071	0.424	0.397	0.495

Table 11-3
Simultaneous Transmission Scenario with Bluetooth and WLAN (Head at 1.0 cm)

Exposure Condition	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
	1	2	1+2
Head SAR	0.098	0.071	**0.169**

11.4 Extremity SAR Simultaneous Transmission Analysis

For SAR summation, the highest reported SAR across all housing and wristband types was used as a conservative evaluation for the simultaneous transmission analysis.

Table 11-4
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Extremity at 0.0 cm)

Exposure Condition	Mode	3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Extremity SAR	UMTS 850	0.180	0.019	0.199
	UMTS 1750	0.032	0.019	0.051
	UMTS 1900	0.038	0.019	0.057
	LTE Band 12	0.243	0.019	0.262
	LTE Band 13	0.318	0.019	**0.337**
	LTE Band 14	0.282	0.019	0.301
	LTE Band 26 (Cell)	0.185	0.019	0.204
	LTE Band 5 (Cell)	0.195	0.019	0.214
	LTE Band 66 (AWS)	0.047	0.019	0.066
	LTE Band 25 (PCS)	0.046	0.019	0.065
	LTE Band 7	0.041	0.019	0.060
	LTE Band 41	0.007	0.019	0.026

Table 11-5
Simultaneous Transmission Scenario with Bluetooth, and 5 GHz WLAN (Extremity at 0.0 cm)

Exposure Condition	Mode	3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2	1+3	1+2+3
Extremity SAR	UMTS 850	0.180	0.006	0.001	0.186	0.181	0.187
	UMTS 1750	0.032	0.006	0.001	0.038	0.033	0.039
	UMTS 1900	0.038	0.006	0.001	0.044	0.039	0.045
	LTE Band 12	0.243	0.006	0.001	0.249	0.244	0.250
	LTE Band 13	0.318	0.006	0.001	0.324	0.319	**0.325**
	LTE Band 14	0.282	0.006	0.001	0.288	0.283	0.289
	LTE Band 26 (Cell)	0.185	0.006	0.001	0.191	0.186	0.192
	LTE Band 5 (Cell)	0.195	0.006	0.001	0.201	0.196	0.202
	LTE Band 66 (AWS)	0.047	0.006	0.001	0.053	0.048	0.054
	LTE Band 25 (PCS)	0.046	0.006	0.001	0.052	0.047	0.053
	LTE Band 7	0.041	0.006	0.001	0.047	0.042	0.048
	LTE Band 41	0.007	0.006	0.001	0.013	0.008	0.014

Table 11-6
Simultaneous Transmission Scenario with Bluetooth and WLAN (Extremity at 0.0 cm)

Exposure Condition	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
	1	2	1+2
Head SAR	0.006	0.001	**0.007**

11.5 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.

12 SAR MEASUREMENT VARIABILITY

12.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01, SAR measurement variability was not assessed for each frequency band since all measured SAR values are < 0.8 W/kg for 1g SAR and < 2.0 W/kg for 10g SAR.

12.2 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 was not required.

13 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Vector Network Analyzer	2/11/2022	Annual	2/11/2023	MY40003841
Agilent	E4438C	ESG Vector Signal Generator	3/22/2022	Annual	3/22/2023	US41460739
Agilent	E5515C	Wireless Communications Test Set	5/4/2021	Biennial	5/4/2023	GB41450275
Agilent	N5182A	MXG Vector Signal Generator	11/17/2021	Annual	11/17/2022	US46240505
Agilent	N5182A	MXG Vector Signal Generator	1/12/2021	Annual	1/12/2023	MY47420837
Agilent	N9020A	MXA Signal Analyzer	5/6/2022	Annual	5/6/2023	MY51240479
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343972
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	343971
Anritsu	MA24106A	USB Power Sensor	9/21/2021	Annual	9/21/2022	2018527
Anritsu	MA24106A	USB Power Sensor	9/21/2021	Annual	9/21/2022	1827527
Anritsu	MA24106A	USB Power Sensor	9/21/2021	Annual	9/21/2022	1244515
Anritsu	MA24106A	USB Power Sensor	9/21/2021	Annual	9/21/2022	2018534
Anritsu	MA2411B	Pulse Power Sensor	3/2/2022	Annual	3/2/2023	1126066
Anritsu	MT8821C	Radio Communication Analyzer	5/2/2022	Annual	5/2/2023	6200901190
Anritsu	MT8821C	Radio Communication Analyzer	5/24/2022	Annual	5/24/2023	6201144418
Control Company	4040	Therm./Clock/Humidity Monitor	1/21/2022	Biennial	1/21/2023	160574418
Control Company	4040	Therm./Clock/Humidity Monitor	3/12/2021	Biennial	3/12/2023	210202100
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	C01065
Control Company	4353	Long Stem Thermometer	10/28/2020	Biennial	10/28/2022	C01064
Insize	1108-150	Digital Caliper	4/5/2022	Biennial	4/5/2023	409193536
MCL	BW-N10W5+	10dB Attenuator	CBT	N/A	CBT	1611
MCL	BW-N3W5+	3dB Attenuator	CBT	N/A	CBT	1812
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1311
Mini-Circuits	NLP-1000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	ZHDC-16-63-S+	50-6000MHz Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	NRX	Power Meter	11/22/2021	Annual	11/22/2022	102583
Rohde & Schwarz	CMW500	Radio Communication Tester	12/22/2021	Annual	12/22/2022	167284
Rohde & Schwarz	CMW500	Radio Communication Tester	1/11/2022	Annual	1/11/2023	167285
Rohde & Schwarz	CMW500	Radio Communication Tester	4/14/2022	Annual	4/14/2023	101699
Rohde & Schwarz	CMW500	Radio Communication Tester	4/14/2022	Annual	4/14/2023	106578
Rohde & Schwarz	CMW500	Radio Communication Tester	9/29/2021	Annual	9/29/2022	145663
Rohde& Schwarz	CMW500	Wideband Radio Communication Tester	9/29/2021	Annual	9/29/2022	151849
Seekonk	NC-100	Torque Wrench	7/30/2020	Biennial	7/30/2022	22217
SPEAG	DAKS-3.5	Portable DAK	10/7/2021	Annual	10/7/2022	1045
SPEAG	D750V3	750 MHz SAR Dipole	11/11/2019	Triennial	11/11/2022	1094
SPEAG	D750V3	750 MHz SAR Dipole	9/8/2020	Biennial	9/8/2022	1097
SPEAG	D835V2	835 MHz SAR Dipole	5/16/2022	Annual	5/16/2023	4d040
SPEAG	D850V2	835 MHz SAR Dipole	5/16/2022	Annual	5/16/2023	460
SPEAG	D1750V2	1750 MHz SAR Dipole	9/9/2020	Biennial	9/9/2022	1104
SPEAG	D1750V2	1750 MHz SAR Dipole	5/10/2022	Annual	5/10/2023	1083
SPEAG	D1900V2	1900 MHz SAR Dipole	5/16/2022	Annual	5/16/2023	5d030
SPEAG	D1900V2	2450 MHz SAR Dipole	5/11/2022	Annual	5/11/2023	750
SPEAG	D2450V2	2450 MHz SAR Dipole	11/9/2021	Annual	11/9/2022	921
SPEAG	D2600V2	2600 MHz SAR Dipole	5/11/2022	Annual	5/11/2023	1042
SPEAG	D5GHzV2	5 GHz SAR Dipole	3/22/2022	Annual	3/22/2023	1123
SPEAG	EX3DV4	SAR Probe	4/19/2022	Annual	4/19/2023	7499
SPEAG	EX3DV4	SAR Probe	2/22/2022	Annual	2/22/2023	7427
SPEAG	EX3DV4	SAR Probe	12/10/2021	Annual	12/10/2022	7490
SPEAG	EX3DV4	SAR Probe	9/6/2021	Annual	9/6/2022	7674
SPEAG	EX3DV4	SAR Probe	3/21/2022	Annual	3/21/2023	7360
SPEAG	EX3DV4	SAR Probe	4/22/2022	Annual	4/22/2023	7532
SPEAG	EX3DV4	SAR Probe	1/19/2022	Annual	1/19/2023	3837
SPEAG	EX3DV4	SAR Probe	2/21/2022	Annual	2/21/2023	7308
SPEAG	EX3DV4	SAR Probe	3/22/2022	Annual	3/22/2023	7638
SPEAG	EX3DV4	SAR Probe	11/16/2021	Annual	11/16/2022	7639
SPEAG	EX3DV4	SAR Probe	3/22/2022	Annual	3/22/2023	7421
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/13/2022	Annual	4/13/2023	1465
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/22/2022	Annual	2/22/2023	1403
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/20/2021	Annual	10/20/2022	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/13/2022	Annual	4/13/2023	1582
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/11/2021	Annual	11/11/2022	1646
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/13/2022	Annual	4/13/2023	501
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/13/2022	Annual	1/13/2023	793
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/24/2022	Annual	2/24/2023	467
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/21/2022	Annual	3/21/2023	1408
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/21/2022	Annual	3/21/2023	534
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/22/2022	Annual	3/22/2023	604
SPEAG	MAIA	Modulation and Audio Interference Analyzer	CBT	N/A	CBT	1237
SPEAG	MAIA	Modulation and Audio Interference Analyzer	CBT	N/A	CBT	1324
SPEAG	MAIA	Modulation and Audio Interference Analyzer	CBT	N/A	CBT	1260

Note: 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. a 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. Each equipment item was used solely within its respective calibration period.

14 MEASUREMENT UNCERTAINTIES

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c_i 1gm	c_i 10 gms	1gm u_i (± %)	10gms u_i (± %)	v_i
Measurement System									
Probe Calibration	E.2.1	7	N	1	1	1	7.0	7.0	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	E.2.3	2	R	1.732	1	1	1.2	1.2	∞
Linearity	E.2.4	0.3	N	1	1	1	0.3	0.3	∞
System Detection Limits	E.2.4	0.25	R	1.732	1	1	0.1	0.1	∞
Modulation Response	E.2.5	4.8	R	1.732	1	1	2.8	2.8	∞
Readout Electronics	E.2.6	0.3	N	1	1	1	0.3	0.3	∞
Response Time	E.2.7	0.8	R	1.732	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.732	1	1	1.5	1.5	∞
RF Ambient Conditions - Noise	E.6.1	3	R	1.732	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	3	R	1.732	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.732	1	1	0.5	0.5	∞
Probe Positioning w/ respect to Phantom	E.6.3	6.7	R	1.732	1	1	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	4	R	1.732	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E.4.2	3.12	N	1	1	1	3.1	3.1	35
Device Holder Uncertainty	E.4.1	1.67	N	1	1	1	1.7	1.7	5
Output Power Variation - SAR drift measurement	E.2.9	5	R	1.732	1	1	2.9	2.9	∞
SAR Scaling	E.6.5	0	R	1.732	1	1	0.0	0.0	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	E.3.3	4.3	N	1	0.78	0.71	3.3	3.0	76
Liquid Permittivity - measurement uncertainty	E.3.3	4.2	N	1	0.23	0.26	1.0	1.1	75
Liquid Conductivity - Temperature Uncertainty	E.3.4	3.4	R	1.732	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Unceritainty	E.3.4	0.6	R	1.732	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)			RSS				12.2	12.0	191
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				24.4	24.0	

The above measurement uncertainties are according to IEEE Std. 1528-2013

15 CONCLUSION

15.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very 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 in possible biological effects 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 various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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