FCC SAR Test Report

APPLICANT	:	BlackBerry Limited
EQUIPMENT	:	Smartphone
BRAND NAME	:	BlackBerry
MODEL NAME	:	RHE151LW
MARKETING NAME	:	SQC100-2
FCC ID	:	L6ARHE150LW
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2003

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA471524	Rev. 01	Initial issue of report	Oct. 31, 2014

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **BlackBerry Limited, Smartphone, RHE151LW**, are as follows.

Equipment Class	Frequency Band	Highest SAR Summary			
		Head (Separation 0mm) 1g SAR (W/kg)	Body-worn (Separation 15mm) 1g SAR (W/kg)	Wireless Router (Separation 10mm) 1g SAR (W/kg)	Highest Simultaneous Transmission 1g SAR (W/kg)
PCE	GSM850	0.55	0.52	0.78	1.51
	GSM1900	0.71	0.42	0.83	
	WCDMA Band V	0.63	0.56	0.78	
	WCDMA Band II	1.10	0.67	1.27	
	LTE Band 17	0.34	0.37	0.47	
	LTE Band 5	0.47	0.45	0.65	
	LTE Band 4	0.90	0.77	1.15	
	LTE Band 2	1.05	0.75	1.24	
	LTE Band 7	**1.27**	0.68	0.97	
DTS	WLAN 2.4GHz Band	0.49	0.43	0.88	1.51
NII	WLAN 5.2GHz Band	0.36	**1.33**	**1.43**	1.49
	WLAN 5.3GHz Band	0.43	1.19		
	WLAN 5.5GHz Band	0.54	1.15		
	WLAN 5.8GHz Band	0.42	0.86	0.89	
DSS	Bluetooth	0.03	0.02	0.04	1.31
Date of Testing:		08/11/2014~10/08/2014			

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003.

2. Administration Data

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	BlackBerry Limited
Address	2300 University Street East, Waterloo, ON., CAN, N2K1A0

Manufacturer	
Company Name	FIH Mobile Limited
Address	No.4, Mingsheng St.,Tu-Cheng Dist., New Taipei City 23679, Taiwan

3. Guidance Standard

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
- FCC KDB 865664 D02 SAR Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r02
- FCC KDB 248227 D01 SAR meas for 802 11abg v01r02
- FCC KDB 941225 D01 SAR test for 3G devices v02
- FCC KDB 941225 D05 SAR for LTE Devices v02r03
- FCC KDB 941225 D06 Hotspot Mode SAR v01r01

4. Equipment Under Test (EUT)

4.1 General Information

Product Feature & Specification	
Equipment Name	Smartphone
Brand Name	BlackBerry
Model Name	RHE151LW
Marketing Name	SQC100-2
FCC ID	L6ARHE150LW
IMEI Code	Sample for WWAN SAR testing: 004401139984369 Sample for WLAN SAR testing: 004401139984310
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC: 13.56 MHz
Mode	• GSM/GPRS/EGPRS • AMR / RMC 12.2Kbps • HSDPA • HSUPA • DC-HSDPA • LTE: QPSK, 16QAM • 802.11a/b/g/n HT20/HT40 • Bluetooth v3.0 HS，Bluetooth v4.0-LE • NFC:ASK
HW Version	PVT 2
SW Version	BlackBerry 10.3.1.565/566
GSM / (E)GPRS Dual Transfer mode	Class A – EUT can support Packet Switched and Circuit Switched Network simultaneously.
EUT Stage	Identical Prototype

Remark:

1. 802.11n-HT40 is not supported in 2.4GHz WLAN.
2. This device supported VoIP in EGPRS, WCDMA, LTE (e.g. 3rd party VoIP) and 2.4GHz / 5.2GHz / 5.8GHz WLAN supports Hotspot operation and WiFi Direct (Group Client / Group Owner), and 5.3GHz / 5.5GHz WLAN supports WiFi Direct (Group Client).
3. While operating in body-adjacent exposure configurations during a mobile hotspot session, reduced power limits are enforced on the LTE B4 / B7 transmitter. More detailed information which can be referred to “operational description”.
4. While operation simultaneously with any other transmitters active, like WiFi Direct(GO) or Hotspot function, a reduced maximum power limit is enforced on the WiFi transmitter in 5.2GHz / 5.8GHz WLAN. More detailed information which can be referred to “operational description”.
5. The BlackBerry, RHE161LW, FCC ID: L6ARHG160LW and BlackBerry, RHE151LW, FCCID: L6ARHE150LW are similar products, the only difference is that BlackBerry, RHE151LW, FCCID: L6ARHE150LW used the software disable UMTS B4 and LTE B13 / B25, the RF exposure evaluation is select each band and each exposure positions worse case perform testing and replace it.

4.2 Maximum Tune-up Limit

Mode		Burst average power(dBm)	
		GSM 850	GSM 1900
Output Power Status		Full Power Mode	Full Power Mode
GSM (GMSK, 1 Tx slot)		33.50	30.50
GPRS/EDGE (GMSK, 1 Tx slot)		33.50	30.50
GPRS/EDGE (GMSK, 2 Tx slots)		31.00	29.50
GPRS/EDGE (GMSK, 3 Tx slots)		30.00	27.00
GPRS/EDGE (GMSK, 4 Tx slots)		28.00	26.50
EDGE (8PSK, 1 Tx slot)		27.50	27.00
EDGE (8PSK, 2 Tx slots)		27.50	26.00
EDGE (8PSK, 3 Tx slots)		26.00	25.00
EDGE (8PSK, 4 Tx slots)		25.00	24.00
DTM 5	GSM (GMSK, 1 Tx slot)	31.00	29.50
	GPRS (GMSK, 1 Tx slot)	31.00	29.50
DTM 9	GSM (GMSK, 1 Tx slot)	31.00	29.50
	GPRS (GMSK, 1 Tx slot)	31.00	29.50
DTM 11	GSM (GMSK, 1 Tx slot)	30.00	27.00
	GPRS (GMSK, 2 Tx slots)	30.00	27.00
DTM 5	GSM (GMSK, 1 Tx slot)	31.00	29.50
	EDGE (8PSK, 1 Tx slot)	27.50	26.00
DTM 9	GSM (GMSK, 1 Tx slot)	31.00	29.50
	EDGE (8PSK, 1 Tx slot)	27.50	26.00
DTM 11	GSM (GMSK, 1 Tx slot)	30.00	27.00
	EDGE (8PSK, 2 Tx slots)	26.00	25.00

Mode	Average Power (dBm)	
	WCDMA Band V	WCDMA Band II
Output Power Status	Full Power mode	Full Power mode
AMR 12.2K	24.50	24.50
RMC 12.2K	24.50	24.50
HSDPA Subtest-1	24.50	24.50
DC-HSDPA Subtest-1	24.50	24.50
HSUPA Subtest-5	24.50	24.50

LTE Band 17				
average power(dBm)				
Modulation	BW (MHz)	RB size	Full Power mode (MPR)	Full power mode
QPSK	10	≤ 12	0	24.00
QPSK	10	> 12	1	23.00
16QAM	10	≤ 12	1	23.00
16QAM	10	> 12	2	22.00
QPSK	5	≤ 8	0	24.00
QPSK	5	> 8	1	23.00
16QAM	5	≤ 8	1	23.00
16QAM	5	> 8	2	22.00

LTE Band 5				
average power(dBm)				
Modulation	BW (MHz)	RB size	Full Power mode (MPR)	Full power mode
QPSK	10	≤ 12	0	24.00
QPSK	10	> 12	1	23.00
16QAM	10	≤ 12	1	23.00
16QAM	10	> 12	2	22.00
QPSK	5	≤ 8	0	24.00
QPSK	5	> 8	1	23.00
16QAM	5	≤ 8	1	23.00
16QAM	5	> 8	2	22.00
QPSK	3	≤ 4	0	24.00
QPSK	3	> 4	1	23.00
16QAM	3	≤ 4	1	23.00
16QAM	3	> 4	2	22.00
QPSK	1.4	≤ 5	0	24.00
QPSK	1.4	> 5	1	23.00
16QAM	1.4	≤ 5	1	23.00
16QAM	1.4	> 5	2	22.00

LTE Band 4						
average power(dBm)						
Modulation	BW (MHz)	RB size	Full Power mode (MPR)	Full power mode	Reduced Power mode (MPR)	Reduced power mode
QPSK	20	≤ 18	0	24.00	0	23.00
QPSK	20	> 18	1	23.00	0	23.00
16QAM	20	≤ 18	1	23.00	0	23.00
16QAM	20	> 18	2	22.00	0	23.00
QPSK	15	≤ 16	0	24.00	0	23.00
QPSK	15	> 16	1	23.00	0	23.00
16QAM	15	≤ 16	1	23.00	0	23.00
16QAM	15	> 16	2	22.00	0	23.00
QPSK	10	≤ 12	0	24.00	0	23.00
QPSK	10	> 12	1	23.00	0	23.00
16QAM	10	≤ 12	1	23.00	0	23.00
16QAM	10	> 12	2	22.00	0	23.00
QPSK	5	≤ 8	0	24.00	0	23.00
QPSK	5	> 8	1	23.00	0	23.00
16QAM	5	≤ 8	1	23.00	0	23.00
16QAM	5	> 8	2	22.00	0	23.00
QPSK	3	≤ 4	0	24.00	0	23.00
QPSK	3	> 4	1	23.00	0	23.00
16QAM	3	≤ 4	1	23.00	0	23.00
16QAM	3	> 4	2	22.00	0	23.00
QPSK	1.4	≤ 5	0	24.00	0	23.00
QPSK	1.4	> 5	1	23.00	0	23.00
16QAM	1.4	≤ 5	1	23.00	0	23.00
16QAM	1.4	> 5	2	22.00	0	23.00

LTE Band 2				
average power(dBm)				
Modulation	BW (MHz)	RB size	Full Power mode (MPR)	Full power mode
QPSK	20	≤ 18	0	24.00
QPSK	20	> 18	1	23.00
16QAM	20	≤ 18	1	23.00
16QAM	20	> 18	2	22.00
QPSK	15	≤ 16	0	24.00
QPSK	15	> 16	1	23.00
16QAM	15	≤ 16	1	23.00
16QAM	15	> 16	2	22.00
QPSK	10	≤ 12	0	24.00
QPSK	10	> 12	1	23.00
16QAM	10	≤ 12	1	23.00
16QAM	10	> 12	2	22.00
QPSK	5	≤ 8	0	24.00
QPSK	5	> 8	1	23.00
16QAM	5	≤ 8	1	23.00
16QAM	5	> 8	2	22.00
QPSK	3	≤ 4	0	24.00
QPSK	3	> 4	1	23.00
16QAM	3	≤ 4	1	23.00
16QAM	3	> 4	2	22.00
QPSK	1.4	≤ 5	0	24.00
QPSK	1.4	> 5	1	23.00
16QAM	1.4	≤ 5	1	23.00
16QAM	1.4	> 5	2	22.00

LTE Band 7						
average power(dBm)						
Modulation	BW (MHz)	RB size	Full Power mode (MPR)	Full power mode	Reduced Power mode (MPR)	Reduced power mode
QPSK	20	≤ 18	0	24.00	0	22.00
QPSK	20	> 18	1	23.00	0	22.00
16QAM	20	≤ 18	1	23.00	0	22.00
16QAM	20	> 18	2	22.00	0	22.00
QPSK	15	≤ 16	0	24.00	0	22.00
QPSK	15	> 16	1	23.00	0	22.00
16QAM	15	≤ 16	1	23.00	0	22.00
16QAM	15	> 16	2	22.00	0	22.00
QPSK	10	≤ 12	0	24.00	0	22.00
QPSK	10	> 12	1	23.00	0	22.00
16QAM	10	≤ 12	1	23.00	0	22.00
16QAM	10	> 12	2	22.00	0	22.00
QPSK	5	≤ 8	0	24.00	0	22.00
QPSK	5	> 8	1	23.00	0	22.00
16QAM	5	≤ 8	1	23.00	0	22.00
16QAM	5	> 8	2	22.00	0	22.00

Band / Channel		Average Power (dBm)	
		v3.0+HS	v4.0-LE
2.4GHz Bluetooth	Low	9.50	9.00
	Middle	10.00	9.00
	High	8.50	9.00

Band / Frequency (MHz)		IEEE 802.11 Average Power (dBm)		
		11b	11g	HT20
2.4GHz Band	2412	21.50	20.50	19.50
	2437	21.50	20.50	19.50
	2462	21.50	20.50	19.50

Band / Frequency (MHz)		IEEE 802.11 Full Power mode Average Power (dBm)		
		11a	HT20	HT40
5.2GHz Band	5180	17.50	17.50	
	5190			13.50
	5200			
	5220			
	5230			16.50
	5240			
5.3GHz Band		17.50	17.50	16.50
5.5GHz Band	5500	17.50	17.50	
	5510			14.50
	5520	17.50	17.50	
	5540	17.50	17.50	
	5550			16.50
	5560	17.50	17.50	
	5580	17.50	17.50	
	5600	17.50	17.50	
	5620	17.50	17.50	
	5630			16.50
	5640	17.50	17.50	
	5660	17.00	17.00	
	5670			16.50
	5680	17.00	17.00	
	5700	17.00	17.00	
5.8GHz Band	5745	15.50	15.50	
	5755			13.50
	5765	17.50	17.50	
	5785	17.50	17.50	
	5795			16.50
	5805	17.50	17.50	
	5825	17.50	17.50	

Band / Frequency (MHz)		IEEE 802.11 Reduced Power mode Average Power (dBm)		
		11a	HT20	HT40
5.2GHz Band	5180	15.5	15.5	
	5190			11.5
	5200			
	5220			
	5230			14.5
	5240			
5.8GHz Band	5745	13.5	13.5	
	5755			11.5
	5765	15.5	15.5	
	5785	15.5	15.5	
	5795			14.5
	5805	15.5	15.5	
	5825	15.5	15.5	

4.3 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r03	
FCC ID	L6ARHE150LW
Equipment Name	Smartphone
Operating Frequency Range of each LTE transmission band	LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz
Channel Bandwidth	LTE Band 17: 5MHz, 10MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz
UE Capability	Rel9, Cat3
uplink modulations used	QPSK, and 16QAM
LTE Voice / Data requirements	Data only
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3** Modulation | Channel bandwidth / Transmission bandwidth (RB) | MPR (dB) 1.4 MHz | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz QPSK: > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 1 16 QAM: ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 16 QAM: > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 2
LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
Power reduction applied to satisfy SAR compliance	Yes, When operating in hotspot mode that LTE B4 / B7 power reduction applied to satisfy SAR compliance.

Transmission (H, M, L) channel numbers and frequencies in each LTE band												
LTE Band 17												
	Bandwidth 5 MHz				Bandwidth 10 MHz							
	Channel #		Freq.(MHz)		Channel #		Freq. (MHz)					
L	23755		706.5		23780		709					
M	23790		710		23790		710					
H	23825		713.5		23800		711					
LTE Band 5												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20407	824.7	20415	825.5	20425	826.5	20450	829				
M	20525	836.5	20525	836.5	20525	836.5	20525	836.5				
H	20643	848.3	20635	847.5	20625	846.5	20600	844				
LTE Band 4												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745
LTE Band 2												
	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900
LTE Band 7												
	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz					
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)				
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510				
M	21100	2535	21100	2535	21100	2535	21100	2535				
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560				

5. RF Exposure Limits

5.1 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.

5.2 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. The 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.

Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

1. Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

6. Specific Absorption Rate (SAR)

6.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

6.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

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

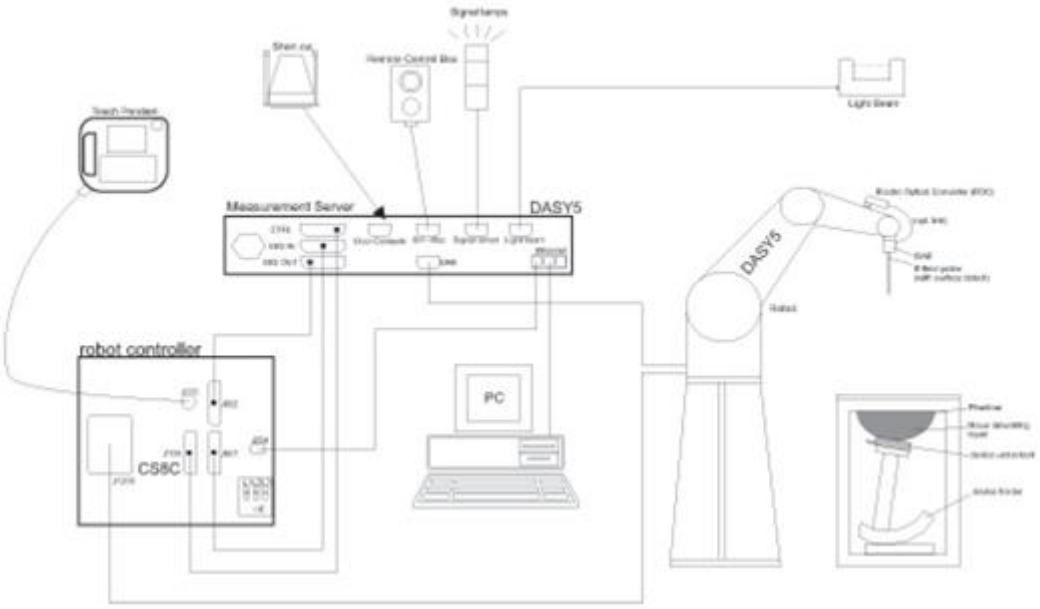
SAR is expressed in units of Watts per kilogram (W/kg)

$$\mathbf{SAR} = \frac{\boldsymbol{\sigma}|\mathbf{E}|^{\mathbf{2}}}{\boldsymbol{\rho}}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

7. System Description and Setup

The DASY system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
(b) Read the WWAN RF power level from the base station simulator.
(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix D demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

8.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

8.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

8.3 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB0 is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r03 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.4 Zoom Scan

Zoom scans are used assess the peak spatial SAR values within a cubic averaging volume containing 1 gram and 10 gram of simulated tissue. The zoom scan measures points (refer to table below) within a cube shoes base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the zoom scan evaluates the averaged SAR for 1 gram and 10 gram and displays these values next to the job's label.

Zoom scan parameters extracted from FCC KDB 865664 D01v01r03 SAR measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

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

8.5 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

8.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1012	May. 16, 2014	May. 15, 2015
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 24, 2014	Mar. 23, 2015
SPEAG	1750MHz System Validation Kit	D1750V2	1068	Nov. 27, 2013	Nov. 26, 2014
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Mar. 21, 2014	Mar. 20, 2015
SPEAG	2450MHz System Validation Kit	D2450V2	869	Jun. 13, 2014	Jun. 12, 2015
SPEAG	2450MHz System Validation Kit	D2450V2	736	Aug. 21, 2014	Aug. 20, 2015
SPEAG	2600MHz System Validation Kit	D2600V2	1008	Aug. 21, 2014	Aug. 20, 2015
SPEAG	2600MHz System Validation Kit	D2600V2	1058	Jun. 23, 2014	Jun. 22, 2015
SPEAG	5GHz System Validation Kit	D5GHzV2	1040	Jun. 20, 2014	Jun. 19, 2015
SPEAG	Data Acquisition Electronics	DAE4	1425	Mar. 03, 2014	Mar. 02, 2015
SPEAG	Data Acquisition Electronics	DAE4	1338	Nov. 05, 2013	Nov. 04, 2014
SPEAG	Data Acquisition Electronics	DAE3	577	May. 15, 2014	May. 14, 2015
SPEAG	Data Acquisition Electronics	DAE4	1279	Jul. 23, 2014	Jul. 22, 2015
SPEAG	Data Acquisition Electronics	DAE4	778	Aug. 21, 2014	Aug. 20, 2015
SPEAG	Data Acquisition Electronics	DAE3	360	Feb. 17, 2014	Feb. 16, 2015
SPEAG	Data Acquisition Electronics	DAE3	495	May. 19, 2014	May. 18, 2015
SPEAG	Data Acquisition Electronics	DAE4	1399	Nov. 07, 2013	Nov. 06, 2014
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 24, 2013	Sep. 23, 2014
SPEAG	Dosimetric E-Field Probe	ES3DV3	3296	Apr. 30, 2014	Apr. 29, 2015
SPEAG	Dosimetric E-Field Probe	EX3DV4	3935	Nov. 04, 2013	Nov. 03, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Sep. 10, 2013	Sep. 09, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3931	Sep. 25, 2014	Sep. 24, 2015
SPEAG	Dosimetric E-Field Probe	EX3DV4	3954	Nov. 04, 2013	Nov. 03, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	May. 22, 2014	May. 21, 2015
SPEAG	Dosimetric E-Field Probe	EX3DV4	3955	Nov. 12, 2013	Nov. 11, 2014
Wisewind	Thermometer	ETP-101	TM560	Oct. 22, 2013	Oct. 21, 2014
Wisewind	Thermometer	ETP-101	TM685	Oct. 22, 2013	Oct. 21, 2014
Wisewind	Thermometer	HTC-1	TM642	Oct. 22, 2013	Oct. 21, 2014
Wisewind	Thermometer	HTC-1	TM281	Oct. 22, 2013	Oct. 21, 2014
H.M.IRIS	Thermometer	TH-08	TM658	Oct. 22, 2013	Oct. 21, 2014
Wisewind	Thermometer	ETP-101	TM560	Oct. 22, 2013	Oct. 21, 2014
Anritsu	Radio Communication Analyzer	MT8820C	6201074414	Feb. 11, 2014	Feb. 10, 2015
Anritsu	Radio Communication Analyzer	MT8820C	6201341950	Dec. 25, 2013	Dec. 24, 2014
Anritsu	Radio Communication Analyzer	MT8820C	6201381760	May. 28, 2014	May. 27, 2015
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 27, 2014	May. 26, 2015
SPEAG	Device Holder	N/A	N/A	NCR	NCR
Agilent	Signal Generator	N5181A	MY50145381	Jan. 04, 2014	Jan. 03, 2015
SPEAG	Dielectric Probe Kit	DAKS-3.5	0004	Mar. 04, 2014	Mar. 03, 2015
Agilent	ENA Network Analyzer	E5071C	MY46316648	Feb. 07, 2014	Feb. 06, 2015
Anritsu	Power Meter	ML2495A	1349001	Dec. 04, 2013	Dec. 03, 2014
Anritsu	Power Sensor	MA2411B	1306099	Dec. 03, 2013	Dec. 02, 2014
R&S	Spectrum Analyzer	FSP 30	101329	Jun. 14, 2014	Jun. 13, 2015
Agilent	Dual Directional Coupler	778D	50422	Note1	
Woken	Attenuator 1	WK0602-XX	N/A	Note1	
PE	Attenuator 2	PE7005-10	N/A	Note1	
PE	Attenuator 3	PE7005- 3	N/A	Note1	
AR	Power Amplifier	5S1G4M2	0328767	Note1	
Mini-Circuits	Power Amplifier	ZVE-3W	162601250	Note1	
Mini-Circuits	Power Amplifier	ZHL-42W+	13440021344	Note1	

General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.

10. System Verification

10.1 Tissue Verification

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
900	40.3	57.9	0.2	1.4	0.2	0	0.97	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
900	50.8	48.2	0	0.9	0.1	0	1.05	55.0
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

<Tissue Dielectric Parameter Check Results-1>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
750	HSL	22.2	0.879	41.000	0.89	41.90	-1.24	-2.15	±5	2014/9/2
750	HSL	22.7	0.888	40.900	0.89	41.90	-0.22	-2.39	±5	2014/10/3
750	MSL	22.4	0.966	53.900	0.96	55.50	0.63	-2.88	±5	2014/9/1
750	MSL	22.7	0.963	54.200	0.96	55.50	0.31	-2.34	±5	2014/10/3
835	HSL	22.6	0.885	42.000	0.90	41.50	-1.67	1.20	±5	2014/8/29
835	HSL	22.5	0.885	42.000	0.90	41.50	-1.67	1.20	±5	2014/10/3
835	MSL	22.3	0.967	54.200	0.97	55.20	-0.31	-1.81	±5	2014/8/26
835	MSL	22.5	0.981	55.300	0.97	55.20	1.13	0.18	±5	2014/8/27
835	MSL	22.2	0.962	54.600	0.97	55.20	-0.82	-1.09	±5	2014/9/2
835	MSL	22.5	0.967	54.200	0.97	55.20	-0.31	-1.81	±5	2014/10/3
1750	HSL	22.4	1.410	39.700	1.37	40.10	2.92	-1.00	±5	2014/8/29
1750	HSL	22.6	1.390	38.300	1.37	40.10	1.46	-4.49	±5	2014/10/3
1750	MSL	22.3	1.530	52.000	1.49	53.40	2.68	-2.62	±5	2014/8/28
1750	MSL	22.6	1.510	52.100	1.49	53.40	1.34	-2.43	±5	2014/10/3
1900	HSL	22.2	1.430	39.100	1.40	40.00	2.14	-2.25	±5	2014/8/11
1900	HSL	22.5	1.434	39.000	1.40	40.00	2.43	-2.50	±5	2014/8/12
1900	HSL	22.5	1.430	39.200	1.40	40.00	2.14	-2.00	±5	2014/8/28
1900	HSL	22.2	1.450	39.800	1.40	40.00	3.57	-0.50	±5	2014/10/3
1900	MSL	22.3	1.530	52.500	1.52	53.30	0.66	-1.50	±5	2014/8/13

<Tissue Dielectric Parameter Check Results-2>

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
1900	MSL	22.5	1.550	52.100	1.52	53.30	1.97	-2.25	±5	2014/8/15
1900	MSL	22.4	1.550	52.200	1.52	53.30	1.97	-2.06	±5	2014/8/16
1900	MSL	22.4	1.540	52.500	1.52	53.30	1.32	-1.50	±5	2014/8/26
1900	MSL	22.3	1.530	52.900	1.52	53.30	0.66	-0.75	±5	2014/8/28
1900	MSL	22.6	1.570	52.800	1.52	53.30	3.29	-0.94	±5	2014/9/8
1900	MSL	22.6	1.550	51.900	1.52	53.30	1.97	-2.63	±5	2014/10/3
1900	MSL	22.4	1.540	52.300	1.52	53.30	1.32	-1.88	±5	2014/10/7
2450	HSL	22.5	1.840	38.700	1.80	39.20	2.22	-1.28	±5	2014/9/3
2450	HSL	22.5	1.840	38.600	1.80	39.20	2.22	-1.53	±5	2014/9/11
2450	HSL	22.3	1.860	39.200	1.80	39.20	3.33	0.00	±5	2014/10/6
2450	MSL	22.4	2.020	53.800	1.95	52.70	3.59	2.09	±5	2014/9/3
2450	MSL	22.5	1.920	53.100	1.95	52.70	-1.54	0.76	±5	2014/9/11
2450	MSL	22.2	2.010	53.900	1.95	52.70	3.08	2.28	±5	2014/10/2
2450	MSL	22.3	1.960	51.600	1.95	52.70	0.51	-2.09	±5	2014/10/6
2600	HSL	22.5	2.040	38.000	1.96	39.00	4.08	-2.56	±5	2014/10/3
2600	HSL	22.2	2.050	38.100	1.96	39.00	4.59	-2.31	±5	2014/10/4
2600	HSL	22.2	1.980	38.300	1.96	39.00	1.02	-1.79	±5	2014/10/7
2600	MSL	22.5	2.230	53.800	2.16	52.50	3.24	2.48	±5	2014/8/31
2600	MSL	22.6	2.210	51.100	2.16	52.50	2.31	-2.67	±5	2014/10/3
5200	HSL	22.5	4.795	35.457	4.66	36.00	2.90	-1.51	±5	2014/10/6
5200	HSL	22.2	4.780	35.300	4.66	36.00	2.58	-1.94	±5	2014/10/7
5200	MSL	22.6	5.336	47.488	5.30	49.00	0.68	-3.09	±5	2014/10/5
5200	MSL	22.4	5.330	47.500	5.30	49.00	0.57	-3.06	±5	2014/10/7
5200	MSL	22.5	5.280	47.500	5.30	49.00	-0.38	-3.06	±5	2014/10/8
5300	HSL	22.5	4.898	35.314	4.76	35.90	2.90	-1.63	±5	2014/10/6
5300	HSL	22.2	4.880	35.200	4.76	35.90	2.52	-1.95	±5	2014/10/7
5300	MSL	22.6	5.393	47.275	5.42	48.90	-0.50	-3.32	±5	2014/10/4
5300	MSL	22.4	5.470	47.300	5.42	48.90	0.92	-3.27	±5	2014/10/7
5300	MSL	22.5	5.420	47.200	5.42	48.90	0.00	-3.48	±5	2014/10/8
5600	HSL	22.5	5.206	34.730	5.07	35.50	2.68	-2.17	±5	2014/10/6
5600	HSL	22.2	5.180	34.600	5.07	35.50	2.17	-2.54	±5	2014/10/7
5600	MSL	22.6	5.790	46.784	5.77	45.50	0.35	2.82	±5	2014/10/4
5600	MSL	22.4	5.870	46.700	5.77	48.50	1.73	-3.71	±5	2014/10/7
5600	MSL	22.5	5.820	46.700	5.77	48.50	0.87	-3.71	±5	2014/10/8
5800	HSL	22.5	5.393	34.362	5.27	35.30	2.33	-2.66	±5	2014/10/6
5800	HSL	22.2	5.370	34.300	5.27	35.30	1.90	-2.83	±5	2014/10/7
5800	MSL	22.6	6.243	46.387	6.00	48.20	4.05	-3.76	±5	2014/10/5
5800	MSL	22.4	6.230	46.400	6.00	48.20	3.83	-3.73	±5	2014/10/7
5800	MSL	22.5	6.180	46.400	6.00	48.20	3.00	-3.73	±5	2014/10/8

10.2 System Performance Check Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Below table shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2014/9/2	750	HSL	250	D750V3-1012	EX3DV4 - SN3955	DAE4 Sn1399	2.06	8.12	8.24	1.48
2014/10/3	750	HSL	250	D750V3-1012	EX3DV4 - SN3955	DAE4 Sn1399	2.06	8.12	8.24	1.48
2014/9/1	750	MSL	250	D750V3-1012	EX3DV4 - SN3955	DAE4 Sn1399	2.09	8.65	8.36	-3.35
2014/10/3	750	MSL	250	D750V3-1012	EX3DV4 - SN3955	DAE4 Sn1399	2.01	8.65	8.04	-7.05
2014/8/29	835	HSL	250	D835V2-499	ES3DV3 - SN3270	DAE4 Sn1279	2.40	9.13	9.60	5.15
2014/10/3	835	HSL	250	D835V2-499	EX3DV4 - SN3954	DAE4 Sn1279	2.28	9.13	9.12	-0.11
2014/8/26	835	MSL	250	D835V2-499	ES3DV3 - SN3270	DAE4 Sn1279	2.43	9.46	9.72	2.75
2014/8/27	835	MSL	250	D835V2-499	EX3DV4 - SN3954	DAE4 Sn1425	2.45	9.46	9.80	3.59
2014/9/2	835	MSL	250	D835V2-499	EX3DV4 - SN3955	DAE4 Sn1399	2.44	9.46	9.76	3.17
2014/10/3	835	MSL	250	D835V2-499	EX3DV4 - SN3954	DAE4 Sn1279	2.29	9.46	9.16	-3.17
2014/8/29	1750	HSL	250	D1750V2-1068	ES3DV3 - SN3270	DAE4 Sn1279	9.06	37.30	36.24	-2.84
2014/10/3	1750	HSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	8.87	37.30	35.48	-4.88
2014/8/28	1750	MSL	250	D1750V2-1068	ES3DV3 - SN3270	DAE4 Sn1279	9.11	37.50	36.44	-2.83
2014/10/3	1750	MSL	250	D1750V2-1068	EX3DV4 - SN3925	DAE3 Sn495	9.24	37.50	36.96	-1.44
2014/8/11	1900	HSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn1279	10.40	41.00	41.60	1.46
2014/8/12	1900	HSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn1279	11.00	41.00	44.00	7.32
2014/8/28	1900	HSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn1279	9.84	41.00	39.36	-4.00
2014/10/3	1900	HSL	250	D1900V2-5d041	EX3DV4 - SN3954	DAE4 Sn1279	10.10	41.00	40.40	-1.46
2014/8/13	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE3 Sn577	10.30	41.00	41.20	0.49
2014/8/15	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3931	DAE3 Sn577	10.30	41.00	41.20	0.49
2014/8/16	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3955	DAE4 Sn1399	9.46	41.00	37.84	-7.71
2014/8/26	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn1279	10.30	41.00	41.20	0.49
2014/8/28	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3270	DAE4 Sn1279	9.93	41.00	39.72	-3.12
2014/9/8	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3955	DAE4 Sn1399	9.58	41.00	38.32	-6.54
2014/10/3	1900	MSL	250	D1900V2-5d041	EX3DV4 - SN3954	DAE4 Sn1279	9.89	41.00	39.56	-3.51
2014/10/7	1900	MSL	250	D1900V2-5d041	ES3DV3 - SN3296	DAE4 Sn778	10.80	41.00	43.20	5.37
2014/9/3	2450	HSL	250	D2450V2-869	EX3DV4 - SN3931	DAE3 Sn577	13.20	52.80	52.80	0.00
2014/9/11	2450	HSL	250	D2450V2-869	EX3DV4 - SN3955	DAE4 Sn1399	12.70	52.80	50.80	-3.79
2014/10/6	2450	HSL	250	D2450V2-736	EX3DV4 - SN3931	DAE3 Sn360	13.90	51.80	55.60	7.34
2014/9/3	2450	MSL	250	D2450V2-869	EX3DV4 - SN3931	DAE3 Sn577	12.40	50.30	49.60	-1.39
2014/9/11	2450	MSL	250	D2450V2-869	EX3DV4 - SN3955	DAE4 Sn1399	13.10	50.30	52.40	4.17
2014/10/2	2450	MSL	250	D2450V2-869	EX3DV4 - SN3954	DAE4 Sn1279	12.60	50.30	50.40	0.20
2014/10/6	2450	MSL	250	D2450V2-736	EX3DV4 - SN3931	DAE3 Sn360	12.70	50.60	50.80	0.40
2014/10/3	2600	HSL	250	D2600V2-1008	EX3DV4 - SN3935	DAE4 Sn1338	14.30	57.10	57.20	0.18
2014/10/4	2600	HSL	250	D2600V2-1058	EX3DV4 - SN3955	DAE4 Sn1399	13.90	57.90	55.60	-3.97
2014/10/7	2600	HSL	250	D2600V2-1008	ES3DV3 - SN3296	DAE4 Sn778	13.20	57.10	52.80	-7.53
2014/8/31	2600	MSL	250	D2600V2-1058	EX3DV4 - SN3955	DAE3 Sn577	14.50	56.80	58.00	2.11
2014/10/3	2600	MSL	250	D2600V2-1008	EX3DV4 - SN3955	DAE4 Sn1399	13.70	55.30	54.80	-0.90
2014/10/6	5200	HSL	100	D5GHzV2-1040	EX3DV4 - SN3955	DAE4 Sn1399	7.84	80.80	78.40	-2.97
2014/10/7	5200	HSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	8.16	80.80	81.60	0.99
2014/10/5	5200	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	8.12	77.80	81.20	4.37
2014/10/7	5200	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	7.92	77.80	79.20	1.80
2014/10/8	5200	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn778	7.86	77.80	78.60	1.03
2014/10/6	5300	HSL	100	D5GHzV2-1040	EX3DV4 - SN3955	DAE4 Sn1399	8.24	84.00	82.40	-1.90
2014/10/7	5300	HSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	8.22	84.00	82.20	-2.14
2014/10/4	5300	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	8.02	79.10	80.20	1.39

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2014/10/7	5300	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	7.52	79.10	75.20	-4.93
2014/10/8	5300	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn778	7.47	79.10	74.70	-5.56
2014/10/6	5600	HSL	100	D5GHzV2-1040	EX3DV4 - SN3955	DAE4 Sn1399	8.29	84.40	82.90	-1.78
2014/10/7	5600	HSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	8.70	84.40	87.00	3.08
2014/10/4	5600	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	8.50	82.70	85.00	2.78
2014/10/7	5600	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	7.84	82.70	78.40	-5.20
2014/10/8	5600	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn778	7.78	82.70	77.80	-5.93
2014/10/6	5800	HSL	100	D5GHzV2-1040	EX3DV4 - SN3955	DAE4 Sn1399	8.24	80.40	82.40	2.49
2014/10/7	5800	HSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	8.25	80.40	82.50	2.61
2014/10/5	5800	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	7.17	77.30	71.70	-7.24
2014/10/7	5800	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn1279	7.49	77.30	74.90	-3.10
2014/10/8	5800	MSL	100	D5GHzV2-1040	EX3DV4 - SN3954	DAE4 Sn778	7.44	77.30	74.40	-3.75

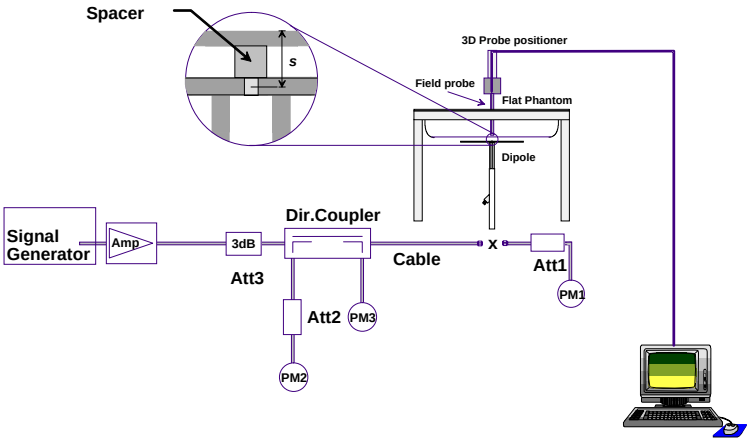


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Ear and handset reference point

Figure 9.1.1 shows the front, back, and side views of the SAM phantom. The center-of-mouth reference point is labeled "M," the left ear reference point (ERP) is marked "LE," and the right ERP is marked "RE." Each ERP is 15 mm along the B-M (back-mouth) line behind the entrance-to-ear-canal (EEC) point, as shown in Figure 9.1.2 The Reference Plane is defined as passing through the two ear reference points and point M. The line N-F (neck-front), also called the reference pivoting line, is normal to the Reference Plane and perpendicular to both a line passing through RE and LE and the B-M line (see Figure 9.1.3). Both N-F and B-M lines should be marked on the exterior of the phantom shell to facilitate handset positioning. Posterior to the N-F line the ear shape is a flat surface with 6 mm thickness at each ERP, and forward of the N-F line the ear is truncated, as illustrated in Figure 9.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

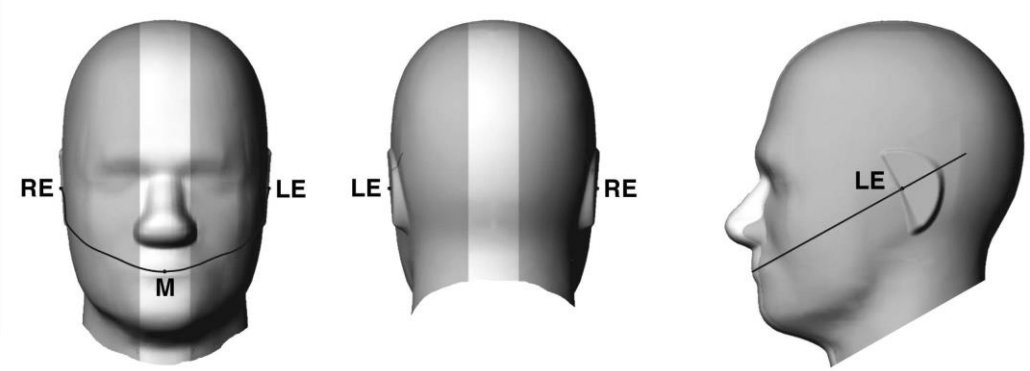


Fig 9.1.1 Front, back, and side views of SAM twin phantom

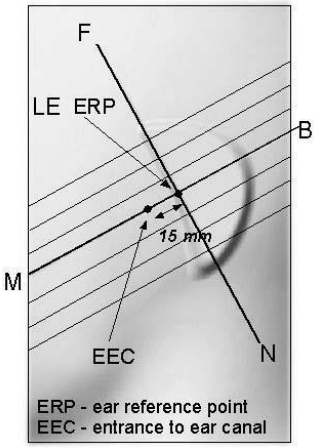


Fig 9.1.2 Close-up side view of phantom showing the ear region.

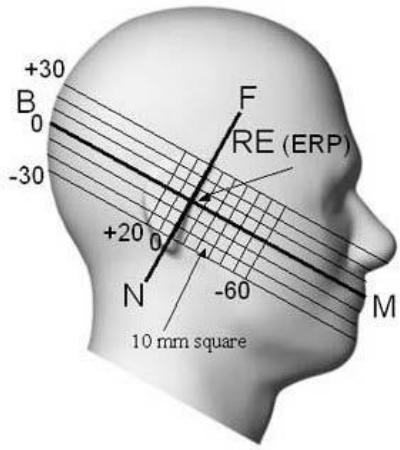


Fig 9.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

11.2 Definition of the cheek position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. Define two imaginary lines on the handset—the vertical centerline and the horizontal line. The vertical centerline passes through two points on the front side of the handset—the midpoint of the width wt of the handset at the level of the acoustic output (point A in Figure 9.2.1 and Figure 9.2.2), and the midpoint of the width wb of the bottom of the handset (point B). The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output (see Figure 9.2.1). The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset (see Figure 9.2.2), especially for clamshell handsets, handsets with flip covers, and other irregularly-shaped handsets.
3. Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 9.2.3), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
4. Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
5. While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
6. Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
7. While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 9.2.3. The actual rotation angles should be documented in the test report.

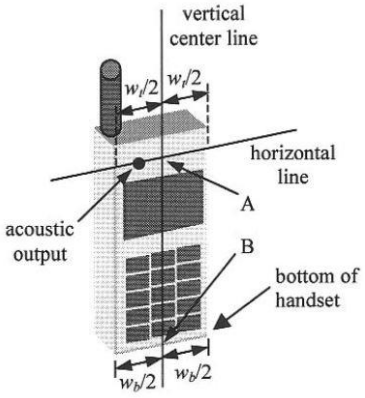


Fig 9.2.1 Handset vertical and horizontal reference lines—"fixed case

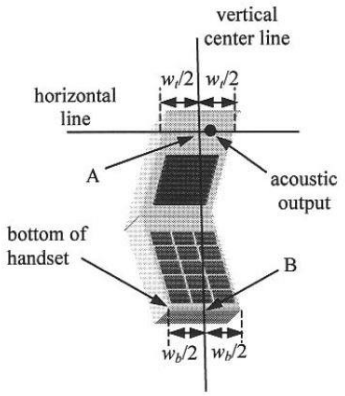


Fig 9.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

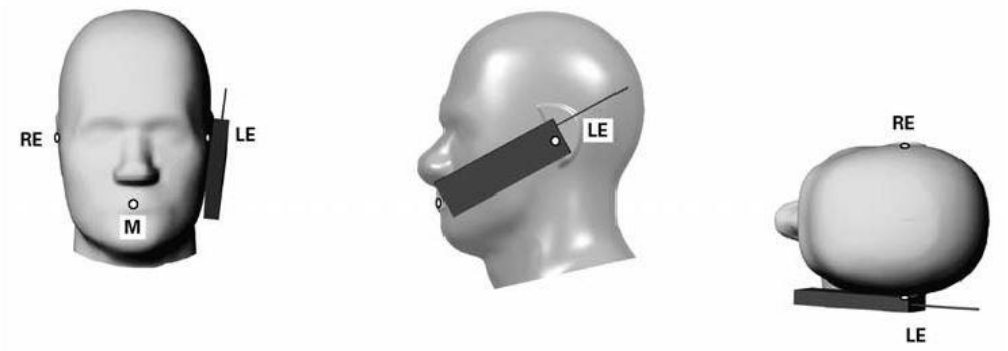


Fig 9.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

11.3 Definition of the tilt position

1. Ready the handset for talk operation, if necessary. For example, for handsets with a cover piece (flip cover), open the cover. If the handset can transmit with the cover closed, both configurations must be tested.
2. While maintaining the orientation of the handset, move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
3. Rotate the handset around the horizontal line by 15°.
4. While maintaining the orientation of the handset, move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear. The tilt position is obtained when the contact point is on the pinna. See Figure 9.3.1. If contact occurs at any location other than the pinna, e.g., the antenna at the back of the phantom head, the angle of the handset should be reduced. In this case, the tilt position is obtained if any point on the handset is in contact with the pinna and a second point

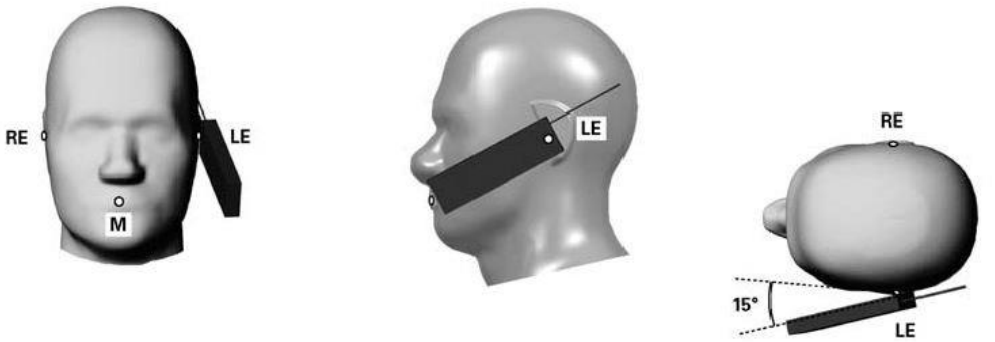


Fig 9.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

11.4 Body Worn Accessory

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 9.4). Per KDB 648474 D04v01r02, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v05r02 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for body-worn accessory, measured without a headset connected to the handset is < 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a handset attached to the handset.

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

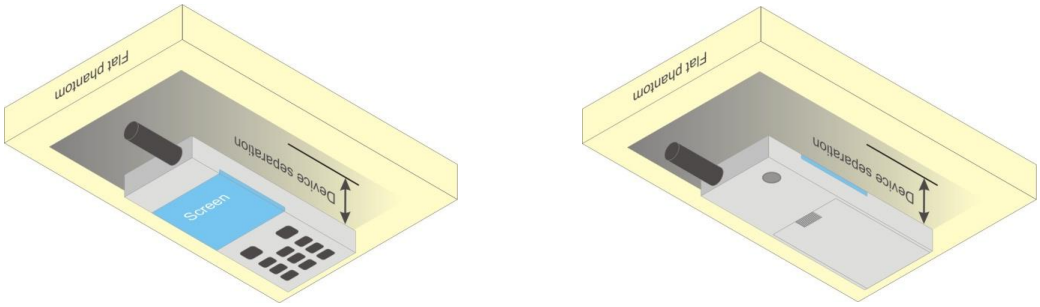


Fig 9.4 Body Worn Position

11.5 Wireless Router

Some battery-operated handsets have the capability to transmit and receive user through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC HDB Publication 941225 D06v01r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10mm from the front, back and edges of the device containing transmitting antennas within 2.5cm of their edges, determined form general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v05r02 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

12. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

General Note:

1. For DTM multi-slot class mode, the device was linked with base station simulator (Agilent E5515C) and transmit maximum power on maximum number of TX slots, i.e. one CS timeslot, and additional PS timeslots (1 for DTM class 5 and 9, 2 for DTM class 11) in one TDMA frame.
2. Agilent E5515C was used to setup the device operated under DTM mode for power measurement and SAR testing. For conducted power, the power of the burst for voice and the power of the bursts for data was reported separately in the table above, and the frame-average power is derived below to determine SAR testing.

   *DTM frame average power (dBm) = 10*log [∑(power of each slot, in mW)/8]*
3. Per KDB 447498 D01v05r02, the maximum output power channel is used for SAR testing and for further SAR test reduction.
4. According to October 2013TCB Workshop, For GSM / EGPRS, the number of time slots to test for SAR should correspond to the highest source-based time-averaged maximum output power configuration, Considering the possibility of e.g. 3rd party VoIP operation for head and body-worn SAR testing, the EUT was set in GPRS (3Tx slots) for GSM850 and GPRS (4Tx slots) for GSM1900 band due to its highest frame-average power.
5. For hotspot mode SAR testing, GPRS / EDGE should be evaluated, therefore the EUT was set in GPRS 3 Tx slots for GSM850 and GPRS 4 Tx slots for GSM1900 band due to its highest frame-average power.

Full power mode

Band GSM850		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		128	189	251		128	189	251	
Frequency (MHz)		824.2	836.4	848.8		824.2	836.4	848.8	
GSM (GMSK, 1 Tx slot)		33.27	33.30	33.38	33.50	24.27	24.30	24.38	24.50
GPRS (GMSK, 1 Tx slot)		33.36	33.34	33.48	33.50	24.36	24.34	24.48	24.50
GPRS (GMSK, 2 Tx slots)		30.39	30.43	30.36	31.00	24.39	24.43	24.36	25.00
GPRS (GMSK, 3 Tx slots)		28.98	28.86	28.89	30.00	24.72	24.60	24.63	25.74
GPRS (GMSK, 4 Tx slots)		27.35	27.22	27.15	28.00	24.35	24.22	24.15	25.00
EDGE (8PSK, 1 Tx slot)		26.96	26.85	26.81	27.50	17.96	17.85	17.81	18.50
EDGE (8PSK, 2 Tx slots)		26.74	26.72	26.56	27.50	20.74	20.72	20.56	21.50
EDGE (8PSK, 3 Tx slots)		24.91	24.93	24.89	26.00	20.65	20.67	20.63	21.74
EDGE (8PSK, 4 Tx slots)		23.77	23.79	23.74	25.00	20.77	20.79	20.74	22.00
DTM 5 (2Tx slots)	GSM (GMSK, 1 Tx slot)	30.21	30.44	30.40	31.00	24.14	24.32	24.37	24.98
	GPRS (GMSK, 1 Tx slot)	30.11	30.23	30.38	31.00				
DTM 9 (2Tx slots)	GSM (GMSK, 1 Tx slot)	30.21	30.39	30.43	31.00	24.16	24.30	24.38	24.98
	GPRS (GMSK, 1 Tx slot)	30.15	30.25	30.37	31.00				
DTM 11 (3Tx slots)	GSM (GMSK, 1 Tx slot)	28.80	28.88	28.92	30.00	24.49	24.53	24.61	25.74
	GPRS (GMSK, 2 Tx slots)	28.72	28.74	28.84	30.00				
DTM 5 (2Tx slots)	GSM (GMSK, 1 Tx slot)	30.17	30.35	30.41	31.00	22.70	22.85	22.89	23.57
	EDGE (8PSK, 1 Tx slot)	26.53	26.61	26.59	27.50				
DTM 9 (2Tx slots)	GSM (GMSK, 1 Tx slot)	30.21	30.39	30.43	31.00	22.69	22.90	22.89	23.57
	EDGE (8PSK, 1 Tx slot)	26.40	26.68	26.55	27.50				
DTM 11 (3Tx slots)	GSM (GMSK, 1 Tx slot)	28.87	28.90	28.96	30.00	22.31	22.36	22.39	23.51
	EDGE (8PSK, 2 Tx slots)	24.71	24.78	24.77	26.00				

Full power mode

Band GSM1900		Burst Average Power (dBm)			Tune-up Limit (dBm)	Frame-Average Power (dBm)			Tune-up Limit (dBm)
TX Channel		512	661	810		512	661	810	
Frequency (MHz)		1850.2	1880	1909.8		1850.2	1880	1909.8	
GSM (GMSK, 1 Tx slot)		30.16	30.04	30.02	30.50	21.16	21.04	21.02	21.50
GPRS (GMSK, 1 Tx slot)		30.18	30.09	30.07	30.50	21.18	21.09	21.07	21.50
GPRS (GMSK, 2 Tx slots)		29.42	29.35	29.25	29.50	23.42	23.35	23.25	23.50
GPRS (GMSK, 3 Tx slots)		26.77	26.61	26.38	27.00	22.51	22.35	22.12	22.74
GPRS (GMSK, 4 Tx slots)		25.89	25.87	25.57	26.50	22.89	22.87	22.57	23.50
EDGE (8PSK, 1 Tx slot)		26.94	26.65	26.37	27.00	17.94	17.65	17.37	18.00
EDGE (8PSK, 2 Tx slots)		25.98	25.79	25.53	26.00	19.98	19.79	19.53	20.00
EDGE (8PSK, 3 Tx slots)		24.98	24.87	24.69	25.00	20.72	20.61	20.43	20.74
EDGE (8PSK, 4 Tx slots)		23.96	23.73	23.43	24.00	20.96	20.73	20.43	21.00
DTM 5 (2Tx slots)	GSM (GMSK, 1 Tx slot)	29.46	29.44	29.22	29.50	23.39	23.39	23.15	23.48
	GPRS (GMSK, 1 Tx slot)	29.37	29.39	29.12	29.50				
DTM 9 (2Tx slots)	GSM (GMSK, 1 Tx slot)	29.42	29.45	29.15	29.50	23.37	23.40	23.10	23.48
	GPRS (GMSK, 1 Tx slot)	29.37	29.40	29.10	29.50				
DTM 11 (3Tx slots)	GSM (GMSK, 1 Tx slot)	26.65	26.63	26.43	27.00	22.38	22.36	22.13	22.74
	GPRS (GMSK, 2 Tx slots)	26.63	26.61	26.37	27.00				
DTM 5 (2Tx slots)	GSM (GMSK, 1 Tx slot)	29.46	29.43	29.17	29.50	22.04	21.98	21.76	22.07
	EDGE (8PSK, 1 Tx slot)	25.98	25.85	25.71	26.00				
DTM 9 (2Tx slots)	GSM (GMSK, 1 Tx slot)	29.46	29.39	29.20	29.50	22.04	21.94	21.77	22.07
	EDGE (8PSK, 1 Tx slot)	25.98	25.83	25.70	26.00				
DTM 11 (3Tx slots)	GSM (GMSK, 1 Tx slot)	26.80	26.73	26.46	27.00	21.42	21.29	21.02	21.51
	EDGE (8PSK, 2 Tx slots)	24.98	24.82	24.54	25.00				

<WCDMA Conducted Power>

1. The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
2. The procedures in KDB 941225 D01 are applied for 3GPP Rel. 6 HSPA to configure the device in the required sub-test mode(s) to determine SAR test exclusion.
3. For DC-HSDPA, the device was configured according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1, with the primary and the secondary serving HS-DSCH Cell enabled during the power measurement.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set Gain Factors (β_c and β_d) and parameters were set according to each
   ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
   iii. Set RMC 12.2Kbps + HSDPA mode.
   iv. Set Cell Power = -86 dBm
   v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
   vi. Select HSDPA Uplink Parameters
   vii. Set Delta ACK, Delta NACK and Delta CQI = 8
   viii. Set Ack-Nack Repetition Factor to 3
   ix. Set CQI Feedback Cycle (k) to 4 ms
   x. Set CQI Repetition Factor to 2
   xi. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d *(SF)*	β_c/β_d	β_{HS} *(Note1, Note 2)*	**CM** (dB) *(Note 3)*	**MPR** (dB) *(Note 3)*
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 *(Note 4)*	15/15 *(Note 4)*	64	12/15 *(Note 4)*	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with β_{hs} = 30/15 * β_c, and Δ_{CQI} = 24/15 with β_{hs} = 24/15 * β_c.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

Setup Configuration

HSUPA Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration.
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting * :
   i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
   ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
   iii. Set Cell Power = -86 dBm
   iv. Set Channel Type = 12.2k + HSPA
   v. Set UE Target Power
   vi. Power Ctrl Mode= Alternating bits
   vii. Set and observe the E-TFCI
   viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
d. The transmitted maximum output power was recorded.

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed}1: 47/15 β_{ed}2: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.
Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

a. The EUT was connected to Base Station Agilent E5515C referred to the Setup Configuration below
b. The RF path losses were compensated into the measurements.
c. A call was established between EUT and Base Station with following setting:
   i. Set RMC 12.2Kbps + HSDPA mode.
   ii. Set Cell Power = -25 dBm
   iii. Set HS-DSCH Configuration Type to FRC (H-set 12, QPSK)
   iv. Select HSDPA Uplink Parameters
   v. Set Gain Factors (β_c and β_d) and parameters were set according to each Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
      a). Subtest 1: β_c/β_d=2/15
      b). Subtest 2: β_c/β_d=12/15
      c). Subtest 3: β_c/β_d=15/8
      d). Subtest 4: β_c/β_d=15/4
   vi. Set Delta ACK, Delta NACK and Delta CQI = 8
   vii. Set Ack-Nack Repetition Factor to 3
   viii. Set CQI Feedback Cycle (k) to 4 ms
   ix. Set CQI Repetition Factor to 2
   x. Power Ctrl Mode = All Up bits
d. The transmitted maximum output power was recorded.

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.
A summary of these settings are illustrated below:

C.8.1.12 Fixed Reference Channel Definition H-Set 12

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Proces ses	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

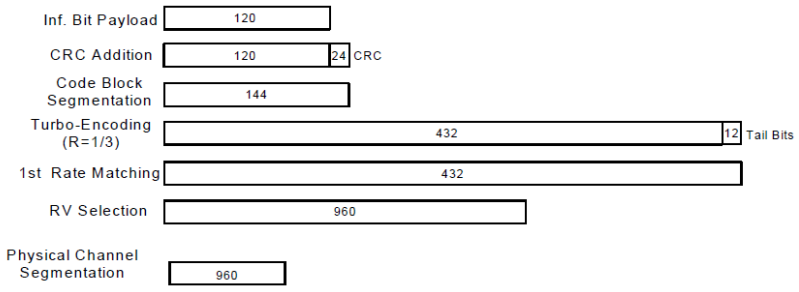


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03, SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode
2. Per KDB 941225 D01v03, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.

Full power mode

Band			WCDMA V			WCDMA II		
TX Channel			4132	4182	4233	9262	9400	9538
Frequency (MHz)			826.4	836.4	846.6	1852.4	1880	1907.6
MPR (dB)	3GPP Rel 99	AMR 12.2Kbps	23.16	23.20	23.12	23.08	22.91	23.29
		RMC 12.2Kbps	23.83	23.45	23.89	24.18	24.10	24.19
0	3GPP Rel 6	HSDPA Subtest-1	23.11	23.16	23.06	23.77	23.57	23.97
0	3GPP Rel 6	HSDPA Subtest-2	23.20	23.28	23.15	23.57	23.48	23.63
0.5	3GPP Rel 6	HSDPA Subtest-3	22.73	22.75	22.59	23.13	23.03	23.23
0.5	3GPP Rel 6	HSDPA Subtest-4	22.62	22.67	22.59	23.14	23.05	23.26
0	3GPP Rel 8	DC-HSDPA Subtest-1	23.08	23.12	23.02	23.73	23.56	23.96
0	3GPP Rel 8	DC-HSDPA Subtest-2	23.17	23.24	23.11	23.53	23.47	23.62
0.5	3GPP Rel 8	DC-HSDPA Subtest-3	22.70	22.78	22.59	23.09	23.02	23.22
0.5	3GPP Rel 8	DC-HSDPA Subtest-4	22.66	22.68	22.65	23.10	23.04	23.25
0	3GPP Rel 6	HSUPA Subtest-1	23.31	23.43	23.21	23.44	23.28	23.79
2	3GPP Rel 6	HSUPA Subtest-2	22.02	22.12	21.87	22.50	22.19	22.52
1	3GPP Rel 6	HSUPA Subtest-3	21.85	21.96	21.79	22.30	22.15	22.64
2	3GPP Rel 6	HSUPA Subtest-4	22.26	22.39	22.05	22.84	22.46	22.89
0	3GPP Rel 6	HSUPA Subtest-5	23.42	23.50	23.20	23.62	23.48	23.81

<LTE Conducted Power>

General Note:

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r03, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r03, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r03, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r03, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r03, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, smaller bandwidth SAR testing is not required.

Full Power Mode RF Power

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	23.32	23.40	23.36	24	0
10	QPSK	1	24	23.34	23.29	23.33		
10	QPSK	1	49	23.32	23.24	23.20		
10	QPSK	25	0	22.37	22.40	22.40	23	1
10	QPSK	25	12	22.37	22.33	22.25		
10	QPSK	25	24	22.39	22.28	22.31		
10	QPSK	50	0	22.27	22.29	22.28		
10	16QAM	1	0	22.38	22.35	22.40	23	1
10	16QAM	1	24	22.39	22.34	22.33		
10	16QAM	1	49	22.32	22.25	22.19		
10	16QAM	25	0	21.32	21.35	21.29	22	2
10	16QAM	25	12	21.25	21.28	21.18		
10	16QAM	25	24	21.29	21.24	21.30		
10	16QAM	50	0	21.21	21.17	21.26		
Channel				23755	23790	23825	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.33	23.39	23.30	24	0
5	QPSK	1	12	23.35	23.29	23.26		
5	QPSK	1	24	23.36	23.28	23.19		
5	QPSK	12	0	22.51	22.39	22.35	23	1
5	QPSK	12	6	22.48	22.37	22.33		
5	QPSK	12	11	22.51	22.30	22.31		
5	QPSK	25	0	22.40	22.27	22.28		
5	16QAM	1	0	22.44	22.37	22.32	23	1
5	16QAM	1	12	22.48	22.35	22.29		
5	16QAM	1	24	22.43	22.25	22.18		
5	16QAM	12	0	21.41	21.39	21.23	22	2
5	16QAM	12	6	21.45	21.34	21.26		
5	16QAM	12	11	21.47	21.27	21.23		
5	16QAM	25	0	21.40	21.23	21.28		

<LTE Band 5>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20450	20525	20600		
Frequency (MHz)				829	836.5	844		
10	QPSK	1	0	23.30	23.41	23.62	24	0
10	QPSK	1	24	23.29	23.38	23.50		
10	QPSK	1	49	23.23	23.36	23.45		
10	QPSK	25	0	22.39	22.46	22.43	23	1
10	QPSK	25	12	22.34	22.37	22.52		
10	QPSK	25	24	22.39	22.46	22.59		
10	QPSK	50	0	22.27	22.29	22.47		
10	16QAM	1	0	22.26	22.45	22.56	23	1
10	16QAM	1	24	22.35	22.48	22.48		
10	16QAM	1	49	22.43	22.47	22.55		
10	16QAM	25	0	21.30	21.95	21.90	22	2
10	16QAM	25	12	21.33	21.76	21.98		
10	16QAM	25	24	21.40	21.82	21.96		
10	16QAM	50	0	21.31	21.32	21.93		
Channel				20425	20525	20625	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				826.5	836.5	846.5		
5	QPSK	1	0	23.27	23.40	23.61	24	0
5	QPSK	1	12	23.42	23.45	23.54		
5	QPSK	1	24	23.40	23.44	23.55		
5	QPSK	12	0	22.39	22.42	22.53	23	1
5	QPSK	12	6	22.40	22.42	22.65		
5	QPSK	12	11	22.41	22.47	22.58		
5	QPSK	25	0	22.31	22.37	22.58		
5	16QAM	1	0	22.27	22.35	22.57	23	1
5	16QAM	1	12	22.40	22.46	22.62		
5	16QAM	1	24	22.33	22.42	22.54		
5	16QAM	12	0	21.42	21.79	21.98	22	2
5	16QAM	12	6	21.36	21.78	21.95		
5	16QAM	12	11	21.40	21.86	21.96		
5	16QAM	25	0	21.29	21.34	21.82		
Channel				20415	20525	20635	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				825.5	836.5	847.5		
3	QPSK	1	0	23.26	23.32	23.58	24	0
3	QPSK	1	7	23.30	23.42	23.51		
3	QPSK	1	14	23.40	23.43	23.50		
3	QPSK	8	0	22.26	22.42	22.64	23	1
3	QPSK	8	4	22.35	22.53	22.51		
3	QPSK	8	7	22.40	22.53	22.53		
3	QPSK	15	0	22.39	22.38	22.51		
3	16QAM	1	0	22.24	22.46	22.59	23	1
3	16QAM	1	7	22.37	22.35	22.51		
3	16QAM	1	14	22.38	22.38	22.51		
3	16QAM	8	0	21.24	21.81	21.89	22	2
3	16QAM	8	4	21.32	21.83	21.91		
3	16QAM	8	7	21.27	21.79	21.90		
3	16QAM	15	0	21.37	21.33	21.89		

Channel				20407	20525	20643	Tune up Limit (dBm)	Target MPR (dB)
Frequency (MHz)				824.7	836.5	848.3		
1.4	QPSK	1	0	23.30	23.45	23.55	24	0
1.4	QPSK	1	2	23.30	23.48	23.54		
1.4	QPSK	1	5	23.36	23.49	23.51		
1.4	QPSK	3	0	23.32	23.45	23.61		
1.4	QPSK	3	1	23.27	23.43	23.58		
1.4	QPSK	3	2	23.27	23.43	23.54		
1.4	QPSK	6	0	22.31	22.47	22.60	23	1
1.4	16QAM	1	0	22.28	22.42	22.64	23	1
1.4	16QAM	1	2	22.26	22.46	22.53		
1.4	16QAM	1	5	22.30	22.40	22.56		
1.4	16QAM	3	0	22.33	22.50	22.63		
1.4	16QAM	3	1	22.27	22.53	22.58		
1.4	16QAM	3	2	22.27	22.51	22.62		
1.4	16QAM	6	0	21.36	21.76	21.87	22	2

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	23.40	23.39	23.48	24	0
20	QPSK	1	49	23.33	23.37	23.34		
20	QPSK	1	99	23.31	23.37	23.28		
20	QPSK	50	0	22.41	22.41	22.42	23	1
20	QPSK	50	24	22.23	22.32	22.36		
20	QPSK	50	49	22.30	22.27	22.37		
20	QPSK	100	0	22.32	22.36	22.38		
20	16QAM	1	0	22.42	22.41	22.51	23	1
20	16QAM	1	49	22.35	22.38	22.38		
20	16QAM	1	99	22.27	22.35	22.28		
20	16QAM	50	0	21.42	21.36	21.38	22	2
20	16QAM	50	24	21.30	21.28	21.31		
20	16QAM	50	49	21.27	21.23	21.30		
20	16QAM	100	0	21.38	21.32	21.32		
Channel				20025	20175	20325	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	23.41	23.36	23.42	24	0
15	QPSK	1	37	23.35	23.35	23.41		
15	QPSK	1	74	23.34	23.39	23.31		
15	QPSK	36	0	22.43	22.45	22.41	23	1
15	QPSK	36	18	22.37	22.37	22.43		
15	QPSK	36	37	22.30	22.32	22.41		
15	QPSK	75	0	22.27	22.31	22.31		
15	16QAM	1	0	22.39	22.39	22.49	23	1
15	16QAM	1	37	22.35	22.37	22.42		
15	16QAM	1	74	22.27	22.38	22.33		
15	16QAM	36	0	21.42	21.41	21.37	22	2
15	16QAM	36	18	21.35	21.33	21.37		
15	16QAM	36	37	21.38	21.27	21.36		
15	16QAM	75	0	21.27	21.23	21.26		
Channel				20000	20175	20350	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	23.40	23.39	23.38	24	0
10	QPSK	1	24	23.43	23.33	23.39		
10	QPSK	1	49	23.29	23.37	23.32		
10	QPSK	25	0	22.45	22.45	22.43	23	1
10	QPSK	25	12	22.36	22.35	22.42		
10	QPSK	25	24	22.38	22.33	22.43		
10	QPSK	50	0	22.35	22.30	22.42		
10	16QAM	1	0	22.35	22.40	22.41	23	1
10	16QAM	1	24	22.40	22.32	22.40		
10	16QAM	1	49	22.27	22.36	22.35		
10	16QAM	25	0	21.44	21.38	21.43	22	2
10	16QAM	25	12	21.38	21.34	21.44		
10	16QAM	25	24	21.38	21.31	21.41		
10	16QAM	50	0	21.35	21.26	21.36		

Channel				19975	20175	20375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	23.39	23.34	23.39	24	0
5	QPSK	1	12	23.42	23.31	23.43		
5	QPSK	1	24	23.39	23.32	23.37		
5	QPSK	12	0	22.40	22.39	22.52	23	1
5	QPSK	12	6	22.45	22.41	22.46		
5	QPSK	12	11	22.42	22.36	22.53		
5	QPSK	25	0	22.39	22.35	22.52		
5	16QAM	1	0	22.35	22.38	22.45	23	1
5	16QAM	1	12	22.41	22.37	22.47		
5	16QAM	1	24	22.39	22.33	22.37		
5	16QAM	12	0	21.45	21.43	21.48	22	2
5	16QAM	12	6	21.49	21.45	21.47		
5	16QAM	12	11	21.46	21.38	21.51		
5	16QAM	25	0	21.34	21.35	21.45		
Channel				19965	20175	20385	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	23.41	23.36	23.46	24	0
3	QPSK	1	7	23.46	23.33	23.41		
3	QPSK	1	14	23.41	23.33	23.41		
3	QPSK	8	0	22.46	22.43	22.56	23	1
3	QPSK	8	4	22.36	22.40	22.52		
3	QPSK	8	7	22.44	22.37	22.48		
3	QPSK	15	0	22.35	22.39	22.53		
3	16QAM	1	0	22.36	22.37	22.47	23	1
3	16QAM	1	7	22.52	22.40	22.39		
3	16QAM	1	14	22.46	22.32	22.34		
3	16QAM	8	0	21.38	21.37	21.47	22	2
3	16QAM	8	4	21.37	21.37	21.48		
3	16QAM	8	7	21.43	21.34	21.38		
3	16QAM	15	0	21.40	21.36	21.46		
Channel				19957	20175	20393	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	23.36	23.31	23.38	24	0
1.4	QPSK	1	2	23.40	23.38	23.42		
1.4	QPSK	1	5	23.40	23.32	23.38		
1.4	QPSK	3	0	23.39	23.42	23.40		
1.4	QPSK	3	1	23.36	23.38	23.41		
1.4	QPSK	3	2	23.38	23.32	23.39		
1.4	QPSK	6	0	22.48	22.38	22.48	23	1
1.4	16QAM	1	0	22.33	22.33	22.38	23	1
1.4	16QAM	1	2	22.36	22.36	22.39		
1.4	16QAM	1	5	22.33	22.34	22.34		
1.4	16QAM	3	0	22.44	22.43	22.43		
1.4	16QAM	3	1	22.43	22.42	22.43		
1.4	16QAM	3	2	22.41	22.46	22.43		
1.4	16QAM	6	0	21.43	21.42	21.48	22	2

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	23.07	23.09	23.29	24	0
20	QPSK	1	49	23.06	23.03	23.25		
20	QPSK	1	99	23.06	23.01	23.07		
20	QPSK	50	0	22.06	22.18	22.31	23	1
20	QPSK	50	24	22.05	22.11	22.22		
20	QPSK	50	49	22.05	22.12	22.17		
20	QPSK	100	0	21.99	22.15	22.24		
20	16QAM	1	0	22.18	22.15	22.32	23	1
20	16QAM	1	49	22.17	22.26	22.29		
20	16QAM	1	99	22.12	22.22	22.14		
20	16QAM	50	0	21.12	21.22	21.29	22	2
20	16QAM	50	24	21.16	21.11	21.27		
20	16QAM	50	49	21.11	21.16	21.16		
20	16QAM	100	0	21.12	21.21	21.30		
Channel				18675	18900	19125	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	23.08	23.13	23.26	24	0
15	QPSK	1	37	23.13	23.16	23.22		
15	QPSK	1	74	23.03	23.27	23.07		
15	QPSK	36	0	22.11	22.22	22.29	23	1
15	QPSK	36	18	22.16	22.13	22.18		
15	QPSK	36	37	22.08	22.25	22.13		
15	QPSK	75	0	22.03	22.13	22.24		
15	16QAM	1	0	22.15	22.16	22.31	23	1
15	16QAM	1	37	22.12	22.22	22.22		
15	16QAM	1	74	22.04	22.28	22.06		
15	16QAM	36	0	21.15	21.29	21.30	22	2
15	16QAM	36	18	21.21	21.21	21.28		
15	16QAM	36	37	21.08	21.26	21.26		
15	16QAM	75	0	21.10	21.14	21.28		
Channel				18650	18900	19150	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	23.03	23.18	23.27	24	0
10	QPSK	1	24	23.04	23.15	23.18		
10	QPSK	1	49	23.13	23.23	23.10		
10	QPSK	25	0	22.22	22.22	22.24	23	1
10	QPSK	25	12	22.15	22.24	22.22		
10	QPSK	25	24	22.14	22.21	22.33		
10	QPSK	50	0	22.05	22.15	22.16		
10	16QAM	1	0	22.15	22.23	22.30	23	1
10	16QAM	1	24	22.13	22.23	22.21		
10	16QAM	1	49	22.02	22.31	22.11		
10	16QAM	25	0	21.24	21.20	21.33	22	2
10	16QAM	25	12	21.20	21.18	21.28		
10	16QAM	25	24	21.18	21.26	21.34		
10	16QAM	50	0	21.13	21.14	21.18		

Channel				18625	18900	19175	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	23.04	23.16	23.14	24	0
5	QPSK	1	12	23.12	23.14	23.20		
5	QPSK	1	24	23.04	23.25	23.12		
5	QPSK	12	0	22.18	22.24	22.34	23	1
5	QPSK	12	6	22.19	22.24	22.35		
5	QPSK	12	11	22.23	22.26	22.32		
5	QPSK	25	0	22.23	22.20	22.30		
5	16QAM	1	0	22.07	22.21	22.24	23	1
5	16QAM	1	12	22.17	22.19	22.28		
5	16QAM	1	24	22.02	22.27	22.11		
5	16QAM	12	0	21.27	21.29	21.47	22	2
5	16QAM	12	6	21.30	21.26	21.39		
5	16QAM	12	11	21.28	21.29	21.33		
5	16QAM	25	0	21.26	21.21	21.34		
Channel				18615	18900	19185	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	23.04	23.16	23.22	24	0
3	QPSK	1	7	23.08	23.15	23.16		
3	QPSK	1	14	23.10	23.21	23.12		
3	QPSK	8	0	22.16	22.26	22.30	23	1
3	QPSK	8	4	22.28	22.22	22.24		
3	QPSK	8	7	22.26	22.20	22.26		
3	QPSK	15	0	22.20	22.24	22.30		
3	16QAM	1	0	22.06	22.20	22.21	23	1
3	16QAM	1	7	22.12	22.20	22.21		
3	16QAM	1	14	22.08	22.19	22.11		
3	16QAM	8	0	21.22	21.20	21.30	22	2
3	16QAM	8	4	21.22	21.18	21.28		
3	16QAM	8	7	21.24	21.17	21.29		
3	16QAM	15	0	21.23	21.27	21.32		
Channel				18607	18900	19193	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	23.02	23.17	23.18	24	0
1.4	QPSK	1	2	23.09	23.18	23.17		
1.4	QPSK	1	5	23.08	23.16	23.12		
1.4	QPSK	3	0	23.11	23.15	23.19		
1.4	QPSK	3	1	23.09	23.17	23.13		
1.4	QPSK	3	2	23.09	23.14	23.17		
1.4	QPSK	6	0	22.21	22.25	22.28	23	1
1.4	16QAM	1	0	22.11	22.21	22.16	23	1
1.4	16QAM	1	2	22.09	22.18	22.18		
1.4	16QAM	1	5	22.14	22.20	22.10		
1.4	16QAM	3	0	22.14	22.29	22.24		
1.4	16QAM	3	1	22.16	22.28	22.25		
1.4	16QAM	3	2	22.18	22.27	22.22		
1.4	16QAM	6	0	21.28	21.33	21.33	22	2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	23.95	23.84	23.66	24	0
20	QPSK	1	49	23.81	23.82	23.61		
20	QPSK	1	99	23.70	23.81	23.58		
20	QPSK	50	0	21.35	21.33	21.21	23	1
20	QPSK	50	24	21.32	21.32	21.16		
20	QPSK	50	49	21.26	21.27	21.21		
20	QPSK	100	0	21.28	21.32	21.11		
20	16QAM	1	0	22.98	22.87	22.68	23	1
20	16QAM	1	49	22.79	22.87	22.74		
20	16QAM	1	99	22.72	22.87	22.83		
20	16QAM	50	0	20.18	20.26	20.16	22	2
20	16QAM	50	24	20.17	20.28	20.19		
20	16QAM	50	49	20.25	20.26	20.19		
20	16QAM	100	0	20.22	20.25	20.20		
Channel				20825	21100	21375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	23.70	23.89	23.75	24	0
15	QPSK	1	37	23.79	23.87	23.82		
15	QPSK	1	74	23.94	23.77	23.86		
15	QPSK	36	0	22.85	22.83	22.67	23	1
15	QPSK	36	18	22.82	22.82	22.76		
15	QPSK	36	37	22.77	22.80	22.68		
15	QPSK	75	0	22.77	22.74	22.66		
15	16QAM	1	0	22.74	22.86	22.68	23	1
15	16QAM	1	37	22.85	22.92	22.82		
15	16QAM	1	74	22.88	22.77	22.86		
15	16QAM	36	0	21.76	21.76	21.65	22	2
15	16QAM	36	18	21.74	21.80	21.79		
15	16QAM	36	37	21.77	21.82	21.74		
15	16QAM	75	0	21.69	21.72	21.69		
Channel				20800	21100	21400	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	23.73	23.79	23.67	24	0
10	QPSK	1	24	23.79	23.84	23.75		
10	QPSK	1	49	23.82	23.79	23.85		
10	QPSK	25	0	22.85	22.87	22.69	23	1
10	QPSK	25	12	22.88	22.84	22.81		
10	QPSK	25	24	22.82	22.88	22.78		
10	QPSK	50	0	22.78	22.75	22.65		
10	16QAM	1	0	22.73	22.77	22.73	23	1
10	16QAM	1	24	22.79	22.87	22.75		
10	16QAM	1	49	22.80	22.75	22.81		
10	16QAM	25	0	21.79	21.83	21.71	22	2
10	16QAM	25	12	21.73	21.81	21.76		
10	16QAM	25	24	21.73	21.82	21.77		
10	16QAM	50	0	21.72	21.74	21.70		

Channel				20775	21100	21425	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	23.79	23.84	23.74	24	0
5	QPSK	1	12	23.84	23.83	23.79		
5	QPSK	1	24	23.87	23.85	23.83		
5	QPSK	12	0	22.81	22.95	22.75	23	1
5	QPSK	12	6	22.91	22.93	22.85		
5	QPSK	12	11	22.85	22.87	22.86		
5	QPSK	25	0	22.83	22.89	22.81		
5	16QAM	1	0	22.75	22.83	22.74	23	1
5	16QAM	1	12	22.84	22.89	22.82		
5	16QAM	1	24	22.81	22.87	22.85		
5	16QAM	12	0	21.77	21.93	21.83	22	2
5	16QAM	12	6	21.85	21.91	21.87		
5	16QAM	12	11	21.84	21.92	21.85		
5	16QAM	25	0	21.82	21.87	21.83		

Reduced Power Mode RF Power

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	22.49	22.46	22.65	23	0
20	QPSK	1	49	22.40	22.44	22.49		
20	QPSK	1	99	22.44	22.42	22.41		
20	QPSK	50	0	22.47	22.46	22.48	23	0
20	QPSK	50	24	22.35	22.35	22.37		
20	QPSK	50	49	22.36	22.34	22.43		
20	QPSK	100	0	22.40	22.44	22.45		
20	16QAM	1	0	22.48	22.46	22.55	23	0
20	16QAM	1	49	22.37	22.39	22.40		
20	16QAM	1	99	22.40	22.45	22.37		
20	16QAM	50	0	21.96	21.91	21.95	23	0
20	16QAM	50	24	21.82	21.84	21.97		
20	16QAM	50	49	21.85	21.79	21.98		
20	16QAM	100	0	21.97	21.92	21.95		
Channel				20025	20175	20325	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	22.53	22.49	22.59	23	0
15	QPSK	1	37	22.44	22.47	22.50		
15	QPSK	1	74	22.44	22.52	22.44		
15	QPSK	36	0	22.49	22.45	22.43	23	0
15	QPSK	36	18	22.41	22.42	22.42		
15	QPSK	36	37	22.43	22.43	22.48		
15	QPSK	75	0	22.37	22.35	22.38		
15	16QAM	1	0	22.46	22.42	22.55	23	0
15	16QAM	1	37	22.41	22.46	22.45		
15	16QAM	1	74	22.38	22.47	22.40		
15	16QAM	36	0	22.01	21.94	21.91	23	0
15	16QAM	36	18	21.95	21.88	21.94		
15	16QAM	36	37	21.91	21.85	21.95		
15	16QAM	75	0	21.89	21.84	21.90		
Channel				20000	20175	20350	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	22.50	22.52	22.48	23	0
10	QPSK	1	24	22.51	22.47	22.53		
10	QPSK	1	49	22.42	22.48	22.45		
10	QPSK	25	0	22.56	22.48	22.53	23	0
10	QPSK	25	12	22.50	22.48	22.50		
10	QPSK	25	24	22.41	22.47	22.51		
10	QPSK	50	0	22.47	22.41	22.42		
10	16QAM	1	0	22.47	22.46	22.52	23	0
10	16QAM	1	24	22.51	22.41	22.51		
10	16QAM	1	49	22.42	22.47	22.42		
10	16QAM	25	0	22.02	21.94	21.97	23	0
10	16QAM	25	12	22.01	21.90	21.98		
10	16QAM	25	24	21.93	21.88	21.98		
10	16QAM	50	0	21.93	21.86	21.94		

Channel				19975	20175	20375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	22.50	22.46	22.52	23	0
5	QPSK	1	12	22.53	22.45	22.54		
5	QPSK	1	24	22.53	22.44	22.47		
5	QPSK	12	0	22.52	22.51	22.52	23	0
5	QPSK	12	6	22.56	22.52	22.61		
5	QPSK	12	11	22.54	22.51	22.59		
5	QPSK	25	0	22.42	22.49	22.57		
5	16QAM	1	0	22.47	22.48	22.51	23	0
5	16QAM	1	12	22.51	22.46	22.53		
5	16QAM	1	24	22.52	22.42	22.44		
5	16QAM	12	0	22.01	22.00	22.09	23	0
5	16QAM	12	6	22.13	21.95	22.04		
5	16QAM	12	11	22.11	21.96	22.09		
5	16QAM	25	0	21.95	21.90	22.01		
Channel				19965	20175	20385	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	22.32	22.30	22.60	23	0
3	QPSK	1	7	22.40	22.28	22.49		
3	QPSK	1	14	22.41	22.25	22.54		
3	QPSK	8	0	22.32	22.36	22.61	23	0
3	QPSK	8	4	22.28	22.33	22.61		
3	QPSK	8	7	22.40	22.34	22.51		
3	QPSK	15	0	22.29	22.26	22.63		
3	16QAM	1	0	22.30	22.26	22.56	23	0
3	16QAM	1	7	22.40	22.28	22.44		
3	16QAM	1	14	22.30	22.23	22.45		
3	16QAM	8	0	21.83	21.77	22.04	23	0
3	16QAM	8	4	21.80	21.70	22.07		
3	16QAM	8	7	21.85	21.70	21.97		
3	16QAM	15	0	21.80	21.79	22.06		
Channel				19957	20175	20393	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	22.53	22.48	22.50	23	0
1.4	QPSK	1	2	22.53	22.51	22.56		
1.4	QPSK	1	5	22.52	22.50	22.52		
1.4	QPSK	3	0	22.51	22.51	22.56		
1.4	QPSK	3	1	22.53	22.52	22.57		
1.4	QPSK	3	2	22.55	22.51	22.56		
1.4	QPSK	6	0	22.54	22.51	22.56	23	0
1.4	16QAM	1	0	22.43	22.44	22.46	23	0
1.4	16QAM	1	2	22.47	22.43	22.48		
1.4	16QAM	1	5	22.45	22.41	22.45		
1.4	16QAM	3	0	22.52	22.50	22.56		
1.4	16QAM	3	1	22.50	22.50	22.51		
1.4	16QAM	3	2	22.50	22.48	22.55		
1.4	16QAM	6	0	22.07	21.98	22.04	23	0

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	21.75	21.99	21.82	22	0
20	QPSK	1	49	21.74	21.92	21.80		
20	QPSK	1	99	21.66	21.81	21.74		
20	QPSK	50	0	21.26	21.38	21.25	22	0
20	QPSK	50	24	21.18	21.36	21.22		
20	QPSK	50	49	21.14	21.36	21.16		
20	QPSK	100	0	21.36	21.37	21.25		
20	16QAM	1	0	21.80	21.94	21.77	22	0
20	16QAM	1	49	21.86	21.95	21.79		
20	16QAM	1	99	21.90	21.92	21.95		
20	16QAM	50	0	21.26	21.34	21.25	22	0
20	16QAM	50	24	21.27	21.33	21.25		
20	16QAM	50	49	21.29	21.35	21.29		
20	16QAM	100	0	21.28	21.32	21.25		
Channel				20825	21100	21375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.84	21.90	21.82	22	0
15	QPSK	1	37	21.88	21.97	21.93		
15	QPSK	1	74	21.96	21.96	21.98		
15	QPSK	36	0	21.82	21.91	21.74	22	0
15	QPSK	36	18	21.82	21.88	21.82		
15	QPSK	36	37	21.79	21.87	21.82		
15	QPSK	75	0	21.79	21.83	21.78		
15	16QAM	1	0	21.76	21.93	21.77	22	0
15	16QAM	1	37	21.86	21.91	21.90		
15	16QAM	1	74	21.91	21.84	21.97		
15	16QAM	36	0	21.82	21.85	21.72	22	0
15	16QAM	36	18	21.83	21.86	21.83		
15	16QAM	36	37	21.79	21.91	21.83		
15	16QAM	75	0	21.73	21.83	21.82		
Channel				20800	21100	21400	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.82	21.90	21.79	22	0
10	QPSK	1	24	21.85	21.95	21.81		
10	QPSK	1	49	21.88	21.85	21.95		
10	QPSK	25	0	21.83	21.90	21.77	22	0
10	QPSK	25	12	21.82	21.87	21.80		
10	QPSK	25	24	21.80	21.88	21.87		
10	QPSK	50	0	21.79	21.88	21.77		
10	16QAM	1	0	21.79	21.87	21.78	22	0
10	16QAM	1	24	21.85	21.94	21.81		
10	16QAM	1	49	21.80	21.84	21.86		
10	16QAM	25	0	21.84	21.86	21.77	22	0
10	16QAM	25	12	21.85	21.89	21.80		
10	16QAM	25	24	21.80	21.88	21.84		
10	16QAM	50	0	21.73	21.84	21.78		

Channel				20775	21100	21425	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	21.85	21.88	21.83	22	0
5	QPSK	1	12	21.85	21.89	21.89		
5	QPSK	1	24	21.84	21.91	21.95		
5	QPSK	12	0	21.86	21.95	21.84	22	0
5	QPSK	12	6	21.88	21.96	21.86		
5	QPSK	12	11	21.93	21.94	21.91		
5	QPSK	25	0	21.93	21.87	21.88		
5	16QAM	1	0	21.78	21.82	21.81	22	0
5	16QAM	1	12	21.84	21.88	21.87		
5	16QAM	1	24	21.86	21.89	21.89		
5	16QAM	12	0	21.86	21.91	21.93	22	0
5	16QAM	12	6	21.92	21.93	21.98		
5	16QAM	12	11	21.90	21.97	21.95		
5	16QAM	25	0	21.84	21.88	21.89		

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The duty factor is selected theoretical 83.3% perform Bluetooth SAR testing.

Mode	Channel	Frequency (MHz)	Average power (dBm)		
			1Mbps	2Mbps	3Mbps
v3.0 with HS	CH 00	2402	7.89	5.22	5.23
	CH 39	2441	9.95	7.30	7.25
	CH 78	2480	6.83	3.42	3.45

Mode	Channel	Frequency (MHz)	Average power (dBm)
			GFSK
v4.0 with LE	CH 00	2402	6.22
	CH 19	2440	8.57
	CH 39	2480	4.97

<Full Power Mode WLAN Conducted Power>

General Note:

1. For IEEE802.11a/b/g SAR testing, highest average RF output power channel for the lowest data rate for 802.11a/b were selected for SAR evaluation. 802.11g/n were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of 802.11a/b mode.
2. For IEEE802.11n, SAR testing can be conducted on channel with the highest output power when taking into consideration tune-up tolerance for same test configuration that was identified during SAR evaluations for IEEE802.11a/b/g (as applicable) provided bandwidth and test position are the same.
3. For IEEE802.11n with multiple channel BW configurations, highest channel BW configuration with highest output power limit shall be tested.
4. Testing of lower BW configurations is not required when the maximum average output of the default test channels in each lower BW configuration is less than 1/4dB higher than the default test channel in the highest BW configuration.

<2.4GHz WLAN>

WLAN 2.4GHz 802.11b Average Power (dBm)					
Power vs. Channel			Power vs. Data Rate		
Channel	Frequency (MHz)	Data Rate	2Mbps	5.5Mbps	11Mbps
		1Mbps			
CH 1	2412	20.06	20.81	20.81	20.84
CH 6	2437	20.85			
CH 11	2462	19.98			

WLAN 2.4GHz 802.11g Average Power (dBm)									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 1	2412	19.01	19.69	18.96	19.08	18.13	18.17	18.26	18.20
CH 6	2437	19.72							
CH 11	2462	18.70							

WLAN 2.4GHz 802.11n-HT20 Average Power (dBm)									
Power vs. Channel			Power vs. MCS Index						
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		MCS0							
CH 1	2412	18.04	18.71	18.08	18.05	17.09	17.18	16.33	16.32
CH 6	2437	18.74							
CH 11	2462	17.73							

<5GHz WLAN>

WLAN 5GHz 802.11a Average Power (dBm)									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 36	5180	16.00	16.06	16.04	15.10	15.13	15.09	15.20	15.12
CH 40	5200	15.93							
CH 44	5220	15.94							
CH 48	5240	16.07							
CH 52	5260	16.00	15.97	15.96	14.99	15.10	15.07	15.29	15.15
CH 56	5280	15.98							
CH 60	5300	16.10							
CH 64	5320	16.12							
CH 100	5500	16.46	16.42	16.40	15.54	15.53	15.28	15.48	15.35
CH 104	5520	16.44							
CH 108	5540	16.33							
CH 112	5560	16.28							
CH 116	5580	15.78							
CH 120	5600	15.86							
CH 124	5620	15.83							
CH 128	5640	15.79							
CH 132	5660	15.13							
CH 136	5680	15.11							
CH 140	5700	15.16							
CH 149	5745	14.31	16.40	16.38	15.51	15.58	15.33	15.51	15.42
CH 153	5765	16.29							
CH 157	5785	16.43							
CH 161	5805	16.38							
CH 165	5825	16.07							

WLAN 5GHz 802.11n-HT20 Average Power (dBm)									
Power vs. Channel			Power vs. MCS Index						
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 36	5180	15.90	15.92	15.03	15.03	14.05	14.02	14.02	14.04
CH 40	5200	15.79							
CH 44	5220	15.86							
CH 48	5240	15.93							
CH 52	5260	15.90	16.01	15.10	15.04	14.10	14.10	14.07	14.09
CH 56	5280	15.83							
CH 60	5300	15.97							
CH 64	5320	16.03							
CH 100	5500	16.40	16.37	15.43	15.40	14.38	14.29	14.31	14.32
CH 104	5520	16.11							
CH 108	5540	16.17							
CH 112	5560	16.09							
CH 116	5580	16.28							
CH 120	5600	15.80							
CH 124	5620	16.04							
CH 128	5640	16.08							
CH 132	5660	15.97							
CH 136	5680	16.04							
CH 140	5700	15.06							
CH 149	5745	14.25	16.31	15.35	15.33	14.31	14.25	14.26	14.28
CH 153	5765	16.23							
CH 157	5785	16.33							
CH 161	5805	16.26							
CH 165	5825	15.95							

WLAN 5GHz 802.11n-HT40 Average Power (dBm)									
Power vs. Channel			Power vs. MCS Index						
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		MCS0							
CH 38	5190	12.98	15.35	14.56	14.67	14.74	14.85	14.79	14.77
CH 46	5230	15.38							
CH 54	5270	15.28	15.30	14.52	14.65	14.70	14.83	14.76	14.70
CH 62	5310	15.38							
CH 102	5510	14.29	15.16	14.76	14.78	14.78	14.84	14.75	14.68
CH 110	5550	16.08							
CH 126	5630	15.34							
CH 134	5670	14.61							
CH 151	5755	12.53	14.23	13.88	13.82	13.80	13.89	13.78	13.72
CH 159	5795	15.11							

<Reduced Power Mode WLAN Conducted Power>

General Note:

1. For IEEE802.11a/b/g SAR testing, highest average RF output power channel for the lowest data rate for 802.11a/b were selected for SAR evaluation. 802.11g/n were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of 802.11a/b mode.
2. For IEEE802.11n, SAR testing can be conducted on channel with the highest output power when taking into consideration tune-up tolerance for same test configuration that was identified during SAR evaluations for IEEE802.11a/b/g (as applicable) provided bandwidth and test position are the same.
3. For IEEE802.11n with multiple channel BW configurations, highest channel BW configuration with highest output power limit shall be tested.
4. Testing of lower BW configurations is not required when the maximum average output of the default test channels in each lower BW configuration is less than 1/4dB higher than the default test channel in the highest BW configuration.

<5GHz WLAN>

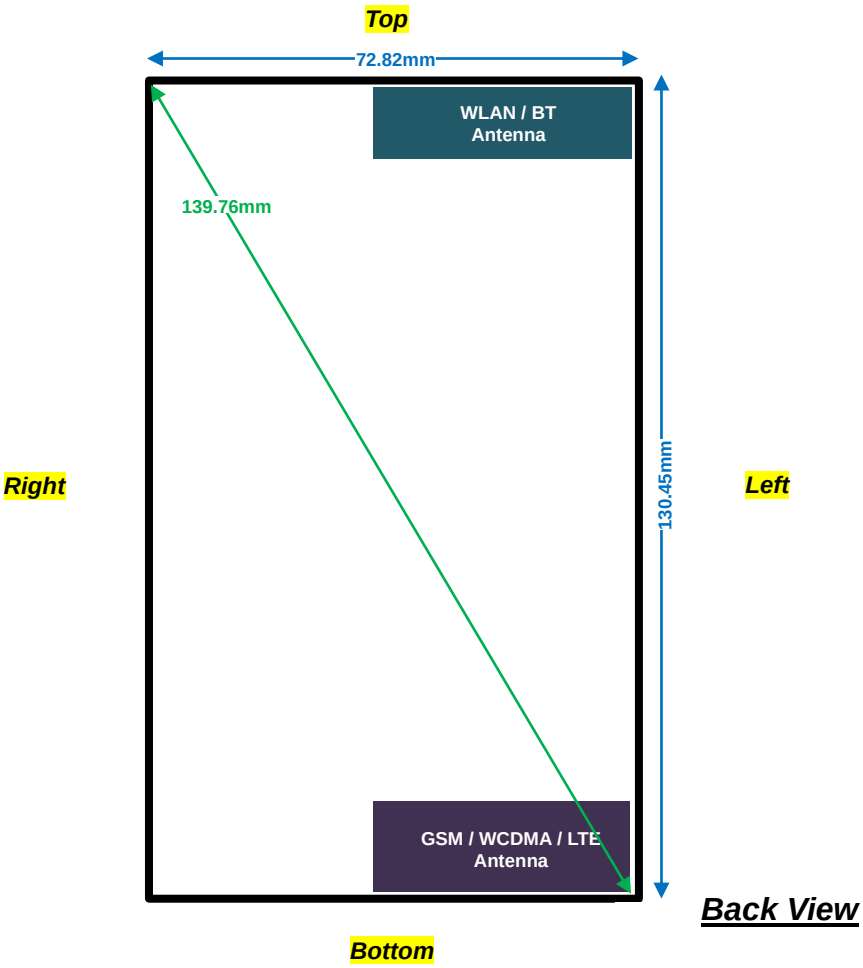
WLAN 5GHz 802.11a Average Power (dBm)									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 36	5180	14.42	14.35	14.37	13.44	13.42	13.40	13.55	13.49
CH 40	5200	14.31							
CH 44	5220	14.34							
CH 48	5240	14.46							
CH 149	5745	12.33	14.11	14.05	13.22	13.32	13.26	13.36	13.29
CH 153	5765	14.23							
CH 157	5785	14.14							
CH 161	5805	14.19							
CH 165	5825	13.66							

WLAN 5GHz 802.11n-HT20 Average Power (dBm)									
Power vs. Channel			Power vs. MCS Index						
Channel	Frequency (MHz)	Data Rate	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
		6Mbps							
CH 36	5180	14.27	14.27	13.32	13.33	12.45	12.46	12.44	12.46
CH 40	5200	13.81							
CH 44	5220	14.29							
CH 48	5240	14.32							
CH 149	5745	12.24	14.06	13.18	13.15	12.22	12.10	12.15	12.19
CH 153	5765	14.11							
CH 157	5785	14.01							
CH 161	5805	13.87							
CH 165	5825	13.50							

WLAN 5GHz 802.11n-HT40 Average Power (dBm)									
Power vs. Channel			Power vs. MCS Index						
Channel	Frequency (MHz)	MCS Index	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
		MCS0							
CH 38	5190	11.40	13.92	12.93	13.01	12.99	13.03	12.92	12.87
CH 46	5230	13.95							
CH 151	5755	10.78	12.12	11.86	11.81	11.74	11.88	11.79	11.71
CH 159	5795	13.21							

13. Antenna Location

<Mobile Phone>



Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	≤ 25mm	≤ 25mm	> 25mm	≤ 25mm	> 25mm	≤ 25mm
BT&WLAN	≤ 25mm	≤ 25mm	≤ 25mm	> 25mm	> 25mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	Yes	Yes	No	Yes	No	Yes
BT&WLAN	Yes	Yes	Yes	No	No	Yes

General Note:

1. Referring to KDB 941225 D06 v01r01, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v05r02, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v05r02, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. According to October 2013TCB Workshop, For GSM / EGPRS, the number of time slots to test for SAR should correspond to the highest source-based time-averaged maximum output power configuration, Considering the possibility of e.g. 3rd party VoIP operation for head and body-worn SAR testing, the EUT was set in GPRS (3Tx slots) for GSM850 and GPRS (4Tx slots) for GSM1900 band due to its highest frame-average power.
4. For hotspot mode SAR testing, GPRS / EDGE should be evaluated, therefore the EUT was set in GPRS (3 Tx slots) for GSM850 and GPRS (4 Tx slots) for GSM1900 band due to its highest frame-average power.
5. Per KDB 941225 D01v03, SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode
6. Per KDB 941225 D01v03, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode, SAR measurement is not required for the secondary mode.
7. Per KDB 941225 D05v02r03, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
8. Per KDB 941225 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
9. Per KDB 941225 D05v02r03, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
10. Per KDB 941225 D05v02r03, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, 16QAM SAR testing is not required.
11. Per KDB 941225 D05v02r03, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, smaller bandwidth SAR testing is not required.
12. Pre KDB648474 D04v01r02, when the reported SAR for a body-worn accessory, measured without a headset connected to the handset is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset, if reported SAR < 1.2 W/kg connected to the headset is not required.
13. PKDB 648474 D04v01r02, the device overall diagonal dimension is less than 160mm, therefore the extremity SAR is not necessary.
14. When in body-worn SAR testing, the holster is selected each band worse position performs.
15. This device 2.4GHz / 5.2GHz / 5.8GHz WLAN supports Hotspot operation and WiFi Direct (Group Client / Group Owner), and 5.3GHz / 5.5GHz WLAN supports WiFi Direct (Group Client).
16. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

14.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (3 Tx slots)	Right Cheek	128	824.2	28.98	30.00	1.265	-0.094	0.264	0.334
	GSM850	GPRS (3 Tx slots)	Right Tilted	128	824.2	28.98	30.00	1.265	0	0.192	0.243
	GSM850	GPRS (3 Tx slots)	Left Cheek	128	824.2	28.98	30.00	1.265	0.067	0.368	0.465
	GSM850	GPRS (3 Tx slots)	Left Cheek	189	836.4	28.86	30.00	1.300	0.049	0.387	0.503
01	GSM850	GPRS (3 Tx slots)	Left Cheek	251	848.8	28.89	30.00	1.291	-0.004	0.424	**0.547**
	GSM850	GPRS (3 Tx slots)	Left Tilted	128	824.2	28.98	30.00	1.265	0.039	0.234	0.296
	GSM1900	GPRS (4 Tx slots)	Right Cheek	512	1850.2	25.89	26.50	1.151	0.067	0.318	0.366
	GSM1900	GPRS (4 Tx slots)	Right Tilted	512	1850.2	25.89	26.50	1.151	0.044	0.161	0.185
	GSM1900	GPRS (4 Tx slots)	Left Cheek	512	1850.2	25.89	26.50	1.151	0.054	0.397	0.457
	GSM1900	GPRS (4 Tx slots)	Left Cheek	661	1880	25.87	26.50	1.156	0.033	0.391	0.452
02	GSM1900	GPRS (4 Tx slots)	Left Cheek	810	1909.8	25.57	26.50	1.239	0.042	0.571	**0.707**
	GSM1900	GPRS (4 Tx slots)	Left Tilted	512	1850.2	25.89	26.50	1.151	0.024	0.179	0.206

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Right Cheek	4233	846.6	23.89	24.50	1.151	-0.043	0.285	0.328
	WCDMA V	RMC 12.2Kbps	Right Tilted	4233	846.6	23.89	24.50	1.151	-0.047	0.220	0.253
	WCDMA V	RMC 12.2Kbps	Left Cheek	4233	846.6	23.89	24.50	1.151	0.08	0.421	0.484
	WCDMA V	RMC 12.2Kbps	Left Cheek	4132	826.4	23.83	24.50	1.167	0.007	0.463	0.540
03	WCDMA V	RMC 12.2Kbps	Left Cheek	4182	836.4	23.45	24.50	1.274	0.164	0.491	**0.625**
	WCDMA V	RMC 12.2Kbps	Left Tilted	4233	846.6	23.89	24.50	1.151	0.03	0.173	0.199
	WCDMA II	RMC 12.2Kbps	Right Cheek	9538	1907.6	24.19	24.50	1.074	0.113	0.383	0.411
	WCDMA II	RMC 12.2Kbps	Right Tilted	9538	1907.6	24.19	24.50	1.074	-0.051	0.448	0.481
04	WCDMA II	RMC 12.2Kbps	Left Cheek	9538	1907.6	24.19	24.50	1.074	0.009	1.020	**1.095**
	WCDMA II	RMC 12.2Kbps	Left Cheek	9262	1852.4	24.18	24.50	1.076	0.07	0.910	0.980
	WCDMA II	RMC 12.2Kbps	Left Cheek	9400	1880	24.10	24.50	1.096	0.176	0.843	0.924
	WCDMA II	RMC 12.2Kbps	Left Tilted	9538	1907.6	24.19	24.50	1.074	0.127	0.383	0.411

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 17	10M	QPSK	1RB	0Offset	Right Cheek	23790	710	23.40	24.00	1.148	-0.065	0.188	0.216
	LTE Band 17	10M	QPSK	25RB	0Offset	Right Cheek	23790	710	22.40	23.00	1.148	0.029	0.147	0.169
	LTE Band 17	10M	QPSK	1RB	0Offset	Right Tilted	23790	710	23.40	24.00	1.148	-0.119	0.159	0.183
	LTE Band 17	10M	QPSK	25RB	0Offset	Right Tilted	23790	710	22.40	23.00	1.148	0.096	0.135	0.155
05	LTE Band 17	10M	QPSK	1RB	0Offset	Left Cheek	23790	710	23.40	24.00	1.148	0.102	0.297	**0.341**
	LTE Band 17	10M	QPSK	25RB	0Offset	Left Cheek	23790	710	22.40	23.00	1.148	0.101	0.259	0.297
	LTE Band 17	10M	QPSK	1RB	0Offset	Left Tilted	23790	710	23.40	24.00	1.148	-0.025	0.191	0.219
	LTE Band 17	10M	QPSK	25RB	0Offset	Left Tilted	23790	710	22.40	23.00	1.148	-0.024	0.153	0.176
	LTE Band 5	10M	QPSK	1RB	0Offset	Right Cheek	20600	844	23.62	24.00	1.091	-0.067	0.280	0.306
	LTE Band 5	10M	QPSK	25RB	24Offset	Right Cheek	20600	844	22.59	23.00	1.099	-0.044	0.211	0.232
	LTE Band 5	10M	QPSK	1RB	0Offset	Right Tilted	20600	844	23.62	24.00	1.091	0.065	0.221	0.241
	LTE Band 5	10M	QPSK	25RB	24Offset	Right Tilted	20600	844	22.59	23.00	1.099	0.034	0.176	0.193
	LTE Band 5	10M	QPSK	1RB	0Offset	Left Cheek	20600	844	23.62	24.00	1.091	0.022	0.409	0.446
	LTE Band 5	10M	QPSK	1RB	0Offset	Left Cheek	20450	829	23.30	24.00	1.175	0.077	0.397	0.466
06	LTE Band 5	10M	QPSK	1RB	0Offset	Left Cheek	20525	836.5	23.41	24.00	1.146	0.054	0.407	**0.466**
	LTE Band 5	10M	QPSK	25RB	24Offset	Left Cheek	20600	844	22.59	23.00	1.099	-0.02	0.210	0.231
	LTE Band 5	10M	QPSK	1RB	0Offset	Left Tilted	20600	844	23.62	24.00	1.091	0.093	0.251	0.274
	LTE Band 5	10M	QPSK	25RB	24Offset	Left Tilted	20600	844	22.59	23.00	1.099	0.023	0.192	0.211
	LTE Band 4	20M	QPSK	1RB	0Offset	Right Cheek	20300	1745	23.48	24.00	1.127	0.191	0.483	0.544
	LTE Band 4	20M	QPSK	50RB	0Offset	Right Cheek	20300	1745	22.42	23.00	1.143	0.099	0.425	0.486
	LTE Band 4	20M	QPSK	1RB	0Offset	Right Tilted	20300	1745	23.48	24.00	1.127	-0.007	0.586	0.661
	LTE Band 4	20M	QPSK	50RB	0Offset	Right Tilted	20300	1745	22.42	23.00	1.143	-0.007	0.285	0.326
07	LTE Band 4	20M	QPSK	1RB	0Offset	Left Cheek	20300	1745	23.48	24.00	1.127	0.021	0.801	**0.903**
	LTE Band 4	20M	QPSK	1RB	0Offset	Left Cheek	20050	1720	23.40	24.00	1.148	0.152	0.673	0.773
	LTE Band 4	20M	QPSK	1RB	0Offset	Left Cheek	20175	1732.5	23.39	24.00	1.151	-0.083	0.757	0.871
	LTE Band 4	20M	QPSK	50RB	0Offset	Left Cheek	20300	1745	22.42	23.00	1.143	-0.005	0.663	0.758
	LTE Band 4	20M	QPSK	100RB	0Offset	Left Cheek	20300	1745	22.38	23.00	1.153	-0.024	0.653	0.753
	LTE Band 4	20M	QPSK	1RB	0Offset	Left Tilted	20300	1745	23.48	24.00	1.127	0.112	0.467	0.526
	LTE Band 4	20M	QPSK	50RB	0Offset	Left Tilted	20300	1745	22.42	23.00	1.143	0.072	0.296	0.338
	LTE Band 2	20M	QPSK	1RB	0Offset	Right Cheek	19100	1900	23.29	24.00	1.178	0.033	0.373	0.439
	LTE Band 2	20M	QPSK	50RB	0Offset	Right Cheek	19100	1900	22.31	23.00	1.172	0.06	0.300	0.352
	LTE Band 2	20M	QPSK	1RB	0Offset	Right Tilted	19100	1900	23.29	24.00	1.178	-0.019	0.336	0.396
	LTE Band 2	20M	QPSK	50RB	0Offset	Right Tilted	19100	1900	22.31	23.00	1.172	0.068	0.265	0.311
08	LTE Band 2	20M	QPSK	1RB	0Offset	Left Cheek	18700	1860	23.07	24.00	1.239	0.077	0.847	**1.049**
	LTE Band 2	20M	QPSK	1RB	0Offset	Left Cheek	18900	1880	23.09	24.00	1.233	0.025	0.761	0.938
	LTE Band 2	20M	QPSK	1RB	0Offset	Left Cheek	19100	1900	23.29	24.00	1.178	0.09	0.772	0.909
	LTE Band 2	20M	QPSK	50RB	0Offset	Left Cheek	19100	1900	22.31	23.00	1.172	0.056	0.577	0.676
	LTE Band 2	20M	QPSK	100RB	0Offset	Left Cheek	19100	1900	22.24	23.00	1.191	0.094	0.627	0.747
	LTE Band 2	20M	QPSK	1RB	0Offset	Left Tilted	19100	1900	23.29	24.00	1.178	0.052	0.253	0.298
	LTE Band 2	20M	QPSK	50RB	0Offset	Left Tilted	19100	1900	22.31	23.00	1.172	0.101	0.205	0.240
	LTE Band 7	20M	QPSK	1RB	0Offset	Right Cheek	20850	2510	23.95	24.00	1.012	0.044	0.479	0.485
	LTE Band 7	20M	QPSK	50RB	0Offset	Right Cheek	20850	2510	21.35	23.00	1.462	0.006	0.266	0.389
	LTE Band 7	20M	QPSK	1RB	0Offset	Right Tilted	20850	2510	23.95	24.00	1.012	0.082	0.339	0.343
	LTE Band 7	20M	QPSK	50RB	0Offset	Right Tilted	20850	2510	21.35	23.00	1.462	0.116	0.189	0.276
	LTE Band 7	20M	QPSK	1RB	0Offset	Left Cheek	20850	2510	23.95	24.00	1.012	-0.051	1.210	1.224
09	LTE Band 7	20M	QPSK	1RB	0Offset	Left Cheek	21100	2535	23.84	24.00	1.038	0.057	1.220	**1.266**
	LTE Band 7	20M	QPSK	1RB	0Offset	Left Cheek	21350	2560	23.66	24.00	1.081	0.04	1.080	1.168
	LTE Band 7	20M	QPSK	50RB	0Offset	Left Cheek	20850	2510	21.35	23.00	1.462	0.086	0.625	0.914
	LTE Band 7	20M	QPSK	50RB	0Offset	Left Cheek	21100	2535	21.33	23.00	1.469	0.088	0.585	0.859
	LTE Band 7	20M	QPSK	50RB	0Offset	Left Cheek	21350	2560	21.21	23.00	1.510	0.14	0.553	0.835
	LTE Band 7	20M	QPSK	100RB	0Offset	Left Cheek	21100	2535	21.32	23.00	1.472	0.06	0.466	0.686
	LTE Band 7	20M	QPSK	1RB	0Offset	Left Tilted	20850	2510	23.95	24.00	1.012	0.152	0.238	0.241
	LTE Band 7	20M	QPSK	50RB	0Offset	Left Tilted	20850	2510	21.35	23.00	1.462	0.098	0.130	0.190

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	6	2437	20.85	21.50	1.161	100	1.000	0.04	0.232	0.269
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	6	2437	20.85	21.50	1.161	100	1.000	0.034	0.259	0.301
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	6	2437	20.85	21.50	1.161	100	1.000	0.088	0.331	0.384
10	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	6	2437	20.85	21.50	1.161	100	1.000	0.018	0.424	**0.492**
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	1	2412	20.06	21.50	1.393	100	1.000	0.008	0.322	0.449
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	11	2462	19.98	21.50	1.419	100	1.000	0.058	0.303	0.430
	WLAN2.4GHz	802.11n-HT20 MCS0	Left Tilted	6	2437	18.74	19.50	1.191	97.3	1.028	-0.08	0.268	0.328
11	WLAN5GHz	802.11a 6Mbps	Right Cheek	48	5240	16.07	17.50	1.389	96.55	1.036	0.02	0.249	**0.358**
	WLAN5GHz	802.11a 6Mbps	Right Cheek	36	5180	16.00	17.50	1.412	96.55	1.036	0.04	0.179	0.262
	WLAN5GHz	802.11n-HT20 MCS0	Right Cheek	48	5240	15.93	17.50	1.436	98.18	1.019	-0.15	0.098	0.143
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	46	5230	15.38	16.50	1.294	95.5	1.047	-0.07	0.076	0.103
	WLAN5GHz	802.11a 6Mbps	Right Tilted	48	5240	16.07	17.50	1.389	96.55	1.036	0.06	0.200	0.288
	WLAN5GHz	802.11a 6Mbps	Left Cheek	48	5240	16.07	17.50	1.389	96.55	1.036	0.04	0.198	0.285
	WLAN5GHz	802.11a 6Mbps	Left Tilted	48	5240	16.07	17.50	1.389	96.55	1.036	0.16	0.236	0.340
	WLAN5GHz	802.11a 6Mbps	Right Cheek	64	5320	16.12	17.50	1.374	98.18	1.019	0.072	0.291	0.407
	WLAN5GHz	802.11a 6Mbps	Right Cheek	52	5260	16.00	17.50	1.412	96.55	1.036	-0.16	0.258	0.377
12	WLAN5GHz	802.11n-HT20 MCS0	Right Cheek	64	5320	16.03	17.50	1.403	98.18	1.019	-0.08	0.301	**0.430**
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	62	5310	15.38	16.50	1.294	95.5	1.047	-0.02	0.222	0.301
	WLAN5GHz	802.11a 6Mbps	Right Tilted	64	5320	16.12	17.50	1.373	96.55	1.036	-0.05	0.208	0.296
	WLAN5GHz	802.11a 6Mbps	Left Cheek	64	5320	16.12	17.50	1.373	96.55	1.036	0.09	0.275	0.391
	WLAN5GHz	802.11a 6Mbps	Left Tilted	64	5320	16.12	17.50	1.373	96.55	1.036	0.05	0.274	0.390
13	WLAN5GHz	802.11a 6Mbps	Right Cheek	100	5500	16.46	17.50	1.270	96.55	1.036	0.158	0.412	**0.542**
	WLAN5GHz	802.11a 6Mbps	Right Cheek	112	5560	16.28	17.50	1.324	96.55	1.036	0.114	0.375	0.515
	WLAN5GHz	802.11a 6Mbps	Right Cheek	120	5600	15.86	17.50	1.458	96.55	1.036	0.159	0.281	0.424
	WLAN5GHz	802.11a 6Mbps	Right Cheek	140	5700	15.16	17.00	1.528	96.55	1.036	0.178	0.239	0.378
	WLAN5GHz	802.11n-HT20 MCS0	Right Cheek	100	5500	16.40	17.50	1.288	98.18	1.019	-0.13	0.288	0.378
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	110	5550	16.08	16.50	1.102	95.5	1.047	-0.08	0.292	0.337
	WLAN5GHz	802.11a 6Mbps	Right Tilted	100	5500	16.46	17.50	1.270	96.55	1.036	-0.05	0.376	0.495
	WLAN5GHz	802.11a 6Mbps	Right Tilted	112	5560	16.28	17.50	1.324	96.55	1.036	0.08	0.264	0.362
	WLAN5GHz	802.11a 6Mbps	Right Tilted	120	5600	15.86	17.50	1.458	96.55	1.036	-0.07	0.180	0.272
	WLAN5GHz	802.11a 6Mbps	Right Tilted	140	5700	15.16	17.00	1.527	96.55	1.036	-0.03	0.150	0.237
	WLAN5GHz	802.11a 6Mbps	Left Cheek	100	5500	16.46	17.50	1.270	96.55	1.036	0.12	0.125	0.164
	WLAN5GHz	802.11a 6Mbps	Left Tilted	100	5500	16.46	17.50	1.270	96.55	1.036	-0.17	0.132	0.174
14	WLAN5GHz	802.11a 6Mbps	Right Cheek	157	5785	16.43	17.50	1.279	96.55	1.036	0.097	0.314	**0.416**
	WLAN5GHz	802.11a 6Mbps	Right Cheek	153	5765	16.29	17.50	1.321	96.55	1.036	0.14	0.217	0.297
	WLAN5GHz	802.11a 6Mbps	Right Cheek	161	5805	16.38	17.50	1.294	96.55	1.036	0.04	0.213	0.286
	WLAN5GHz	802.11n-HT20 MCS0	Right Cheek	157	5785	16.33	17.50	1.309	98.18	1.019	0.18	0.203	0.271
	WLAN5GHz	802.11n-HT40 MCS0	Right Cheek	159	5795	15.11	16.50	1.377	95.5	1.047	0.02	0.180	0.260
	WLAN5GHz	802.11a 6Mbps	Right Tilted	157	5785	16.43	17.50	1.279	96.55	1.036	0.12	0.214	0.283
	WLAN5GHz	802.11a 6Mbps	Left Cheek	157	5785	16.43	17.50	1.279	96.55	1.036	0.1	0.182	0.241
	WLAN5GHz	802.11a 6Mbps	Left Tilted	157	5785	16.43	17.50	1.279	96.55	1.036	0.07	0.150	0.199

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Right Cheek	39	2441	9.95	10.00	1.012	-0.018	0.018	0.018
	Bluetooth	1Mbps	Right Tilted	39	2441	9.95	10.00	1.012	0.093	0.020	0.020
	Bluetooth	1Mbps	Left Cheek	39	2441	9.95	10.00	1.012	0.073	0.022	0.022
15	Bluetooth	1Mbps	Left Tilted	39	2441	9.95	10.00	1.012	0.04	0.027	**0.027**
	Bluetooth	1Mbps	Left Tilted	0	2402	7.89	9.50	1.449	-0.075	0.009	0.013
	Bluetooth	1Mbps	Left Tilted	78	2480	6.83	8.50	1.469	0.005	0.018	0.026

14.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (3 Tx slots)	Front	1cm	Off	128	824.2	28.98	30.00	1.265	-0.017	0.484	0.612
	GSM850	GPRS (3 Tx slots)	Back	1cm	Off	128	824.2	28.98	30.00	1.265	-0.01	0.499	0.631
16	GSM850	GPRS (3 Tx slots)	Left Side	1cm	Off	128	824.2	28.98	30.00	1.265	-0.025	0.618	**0.782**
	GSM850	GPRS (3 Tx slots)	Left Side	1cm	Off	189	836.4	28.86	30.00	1.300	-0.034	0.566	0.736
	GSM850	GPRS (3 Tx slots)	Left Side	1cm	Off	251	848.8	28.89	30.00	1.291	-0.071	0.570	0.736
	GSM850	GPRS (3 Tx slots)	Bottom Side	1cm	Off	128	824.2	28.98	30.00	1.265	0.005	0.201	0.254
	GSM1900	GPRS (4 Tx slots)	Front	1cm	Off	512	1850.2	25.89	26.50	1.151	-0.055	0.521	0.600
17	GSM1900	GPRS (4 Tx slots)	Back	1cm	Off	512	1850.2	25.89	26.50	1.151	-0.09	0.722	**0.831**
	GSM1900	GPRS (4 Tx slots)	Back	1cm	Off	661	1880	25.87	26.50	1.156	0.029	0.549	0.635
	GSM1900	GPRS (4 Tx slots)	Back	1cm	Off	810	1909.8	25.57	26.50	1.239	0.002	0.589	0.730
	GSM1900	GPRS (4 Tx slots)	Left Side	1cm	Off	512	1850.2	25.89	26.50	1.151	0.01	0.361	0.415
	GSM1900	GPRS (4 Tx slots)	Bottom Side	1cm	Off	512	1850.2	25.89	26.50	1.151	-0.048	0.505	0.581

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Front	1cm	Off	4233	846.6	23.89	24.50	1.151	-0.172	0.512	0.589
	WCDMA V	RMC 12.2Kbps	Back	1cm	Off	4233	846.6	23.89	24.50	1.151	0.085	0.539	0.620
	WCDMA V	RMC 12.2kbps	Left Side	1cm	Off	4233	846.6	23.89	24.50	1.151	-0.026	0.612	0.704
	WCDMA V	RMC 12.2kbps	Left Side	1cm	Off	4132	826.4	23.83	24.50	1.167	-0.009	0.660	0.770
18	WCDMA V	RMC 12.2Kbps	Left Side	1cm	Off	4182	836.4	23.45	24.50	1.274	-0.03	0.615	**0.783**
	WCDMA V	RMC 12.2Kbps	Bottom Side	1cm	Off	4233	846.6	23.89	24.50	1.151	0.056	0.133	0.153
	WCDMA II	RMC 12.2Kbps	Front	1cm	Off	9538	1907.6	24.19	24.50	1.074	-0.077	1.010	1.085
	WCDMA II	RMC 12.2Kbps	Front	1cm	Off	9262	1852.4	24.18	24.50	1.076	-0.07	0.968	1.042
	WCDMA II	RMC 12.2Kbps	Front	1cm	Off	9400	1880	24.10	24.50	1.096	-0.068	0.921	1.010
19	WCDMA II	RMC 12.2Kbps	Back	1cm	Off	9262	1852.4	24.18	24.50	1.076	0.085	1.180	**1.270**
	WCDMA II	RMC 12.2Kbps	Back	1cm	Off	9400	1880	24.10	24.50	1.096	0.037	1.010	1.107
	WCDMA II	RMC 12.2Kbps	Back	1cm	Off	9538	1907.6	24.19	24.50	1.074	0.037	1.080	1.160
	WCDMA II	RMC 12.2Kbps	Left Side	1cm	Off	9538	1907.6	24.19	24.50	1.074	0.077	0.772	0.829
	WCDMA II	RMC 12.2Kbps	Left Side	1cm	Off	9262	1852.4	24.18	24.50	1.076	-0.014	0.704	0.758
	WCDMA II	RMC 12.2Kbps	Left Side	1cm	Off	9400	1880	24.10	24.50	1.096	0.006	0.678	0.743
	WCDMA II	RMC 12.2Kbps	Bottom Side	1cm	Off	9538	1907.6	24.19	24.50	1.074	-0.147	0.827	0.888
	WCDMA II	RMC 12.2Kbps	Bottom Side	1cm	Off	9262	1852.4	24.18	24.50	1.076	0.021	0.864	0.930
	WCDMA II	RMC 12.2Kbps	Bottom Side	1cm	Off	9400	1880	24.10	24.50	1.096	-0.102	0.764	0.838

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 17	10M	QPSK	1RB	0Offset	Front	1cm	Off	23790	710	23.40	24.00	1.148	-0.026	0.391	0.449
	LTE Band 17	10M	QPSK	25RB	0Offset	Front	1cm	Off	23790	710	22.40	23.00	1.148	0.008	0.316	0.363
	LTE Band 17	10M	QPSK	1RB	0Offset	Back	1cm	Off	23790	710	23.40	24.00	1.148	0.017	0.402	0.462
	LTE Band 17	10M	QPSK	25RB	0Offset	Back	1cm	Off	23790	710	22.40	23.00	1.148	0.028	0.398	0.457
20	LTE Band 17	10M	QPSK	1RB	0Offset	Left Side	1cm	Off	23790	710	23.40	24.00	1.148	-0.009	0.412	**0.473**
	LTE Band 17	10M	QPSK	25RB	0Offset	Left Side	1cm	Off	23790	710	22.40	23.00	1.148	-0.002	0.334	0.383
	LTE Band 17	10M	QPSK	1RB	0Offset	Bottom Side	1cm	Off	23790	710	23.40	24.00	1.148	-0.074	0.186	0.214
	LTE Band 17	10M	QPSK	25RB	0Offset	Bottom Side	1cm	Off	23790	710	22.40	23.00	1.148	-0.155	0.143	0.164
	LTE Band 5	10M	QPSK	1RB	0Offset	Front	1cm	Off	20600	844	23.62	24.00	1.091	-0.023	0.489	0.534
	LTE Band 5	10M	QPSK	25RB	24Offset	Front	1cm	Off	20600	844	22.59	23.00	1.099	-0.047	0.373	0.410
	LTE Band 5	10M	QPSK	1RB	0Offset	Back	1cm	Off	20600	844	23.62	24.00	1.091	0.063	0.464	0.506
	LTE Band 5	10M	QPSK	25RB	24Offset	Back	1cm	Off	20600	844	22.59	23.00	1.099	0.057	0.350	0.385
	LTE Band 5	10M	QPSK	1RB	0Offset	Left Side	1cm	Off	20600	844	23.62	24.00	1.091	-0.044	0.550	0.600
	LTE Band 5	10M	QPSK	1RB	0Offset	Left Side	1cm	Off	20450	829	23.30	24.00	1.175	-0.119	0.506	0.594
21	LTE Band 5	10M	QPSK	1RB	0Offset	Left Side	1cm	Off	20525	836.5	23.41	24.00	1.146	-0.064	0.568	**0.651**
	LTE Band 5	10M	QPSK	25RB	24Offset	Left Side	1cm	Off	20600	844	22.59	23.00	1.099	-0.081	0.426	0.468
	LTE Band 5	10M	QPSK	1RB	0Offset	Bottom Side	1cm	Off	20600	844	23.62	24.00	1.091	0.052	0.205	0.224
	LTE Band 5	10M	QPSK	25RB	24Offset	Bottom Side	1cm	Off	20600	844	22.59	23.00	1.099	0.04	0.160	0.176
	LTE Band 4	20M	QPSK	1RB	0Offset	Front	1cm	On	20300	1745	22.65	23.00	1.084	0.035	0.682	0.739
	LTE Band 4	20M	QPSK	50RB	0Offset	Front	1cm	On	20300	1745	22.48	23.00	1.127	-0.025	0.662	0.746
22	LTE Band 4	20M	QPSK	1RB	0Offset	Back	1cm	On	20175	1732.5	22.46	23.00	1.132	0.001	1.012	**1.146**
	LTE Band 4	20M	QPSK	1RB	0Offset	Back	1cm	On	20300	1745	22.65	23.00	1.084	0.006	0.957	1.037
	LTE Band 4	20M	QPSK	1RB	0Offset	Back	1cm	On	20050	1720	22.49	23.00	1.125	0.065	0.950	1.068
	LTE Band 4	20M	QPSK	50RB	0Offset	Back	1cm	On	20300	1745	22.48	23.00	1.127	-0.001	0.936	1.055
	LTE Band 4	20M	QPSK	50RB	0Offset	Back	1cm	On	20050	1720	22.47	23.00	1.130	0.087	0.960	1.085
	LTE Band 4	20M	QPSK	50RB	0Offset	Back	1cm	On	20175	1732.5	22.46	23.00	1.132	0.02	0.966	1.094
	LTE Band 4	20M	QPSK	100RB	0Offset	Back	1cm	On	20300	1745	22.45	23.00	1.135	-0.019	0.894	1.015
	LTE Band 4	20M	QPSK	1RB	0Offset	Left Side	1cm	On	20300	1745	22.65	23.00	1.084	0.121	0.501	0.543
	LTE Band 4	20M	QPSK	50RB	0Offset	Left Side	1cm	On	20300	1745	22.48	23.00	1.127	0.089	0.487	0.549
	LTE Band 4	20M	QPSK	1RB	0Offset	Bottom	1cm	On	20300	1745	22.65	23.00	1.084	-0.045	0.551	0.597
	LTE Band 4	20M	QPSK	50RB	0Offset	Bottom	1cm	On	20300	1745	22.48	23.00	1.127	-0.032	0.538	0.606

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 2	20M	QPSK	1RB	0Offset	Front	1cm	Off	19100	1900	23.29	24.00	1.178	-0.08	0.948	1.116
	LTE Band 2	20M	QPSK	1RB	0Offset	Front	1cm	Off	18700	1860	23.07	24.00	1.239	-0.013	0.945	1.171
	LTE Band 2	20M	QPSK	1RB	0Offset	Front	1cm	Off	18900	1880	23.09	24.00	1.233	0.06	0.923	1.138
	LTE Band 2	20M	QPSK	50RB	0Offset	Front	1cm	Off	19100	1900	22.31	23.00	1.172	-0.043	0.760	0.891
	LTE Band 2	20M	QPSK	50RB	0Offset	Front	1cm	Off	18700	1860	22.06	23.00	1.242	-0.052	0.772	0.959
	LTE Band 2	20M	QPSK	50RB	0Offset	Front	1cm	Off	18900	1880	22.18	23.00	1.208	0.005	0.783	0.946
	LTE Band 2	20M	QPSK	100RB	0Offset	Front	1cm	Off	19100	1900	22.24	23.00	1.191	0.009	0.791	0.942
23	LTE Band 2	20M	QPSK	1RB	0Offset	Back	1cm	Off	18700	1860	23.07	24.00	1.239	0.003	0.997	**1.235**
	LTE Band 2	20M	QPSK	1RB	0Offset	Back	1cm	Off	18900	1880	23.09	24.00	1.233	-0.037	0.854	1.053
	LTE Band 2	20M	QPSK	1RB	0Offset	Back	1cm	Off	19100	1900	23.29	24.00	1.178	0.018	0.874	1.029
	LTE Band 2	20M	QPSK	50RB	0Offset	Back	1cm	Off	19100	1900	22.31	23.00	1.172	-0.053	0.845	0.991
	LTE Band 2	20M	QPSK	50RB	0Offset	Back	1cm	Off	18700	1860	22.06	23.00	1.242	-0.078	0.868	1.078
	LTE Band 2	20M	QPSK	50RB	0Offset	Back	1cm	Off	18900	1880	22.18	23.00	1.208	-0.017	0.858	1.036
	LTE Band 2	20M	QPSK	100RB	0Offset	Back	1cm	Off	19100	1900	22.24	23.00	1.191	-0.072	0.832	0.991
	LTE Band 2	20M	QPSK	1RB	0Offset	Left Side	1cm	Off	19100	1900	23.29	24.00	1.178	-0.091	0.727	0.856
	LTE Band 2	20M	QPSK	1RB	0Offset	Left Side	1cm	Off	18700	1860	23.07	24.00	1.239	-0.082	0.684	0.847
	LTE Band 2	20M	QPSK	1RB	0Offset	Left Side	1cm	Off	18900	1880	23.09	24.00	1.233	-0.011	0.691	0.852
	LTE Band 2	20M	QPSK	50RB	0Offset	Left Side	1cm	Off	19100	1900	22.31	23.00	1.172	-0.056	0.580	0.680
	LTE Band 2	20M	QPSK	100RB	0Offset	Left Side	1cm	Off	19100	1900	22.24	23.00	1.191	0.022	0.562	0.669
	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Side	1cm	Off	19100	1900	23.29	24.00	1.178	0.031	0.743	0.875
	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Side	1cm	Off	18700	1860	23.07	24.00	1.239	0.052	0.766	0.949
	LTE Band 2	20M	QPSK	1RB	0Offset	Bottom Side	1cm	Off	18900	1880	23.09	24.00	1.233	-0.068	0.742	0.915
	LTE Band 2	20M	QPSK	50RB	0Offset	Bottom Side	1cm	Off	19100	1900	22.31	23.00	1.172	0.003	0.585	0.686
	LTE Band 2	20M	QPSK	100RB	0Offset	Bottom Side	1cm	Off	19100	1900	22.24	23.00	1.191	-0.046	0.526	0.627
24	LTE Band 7	20M	QPSK	1RB	0Offset	Front	1cm	On	21350	2560	21.82	22.00	1.042	0.068	0.926	**0.965**
	LTE Band 7	20M	QPSK	1RB	0Offset	Front	1cm	On	20850	2510	21.75	22.00	1.059	-0.084	0.783	0.829
	LTE Band 7	20M	QPSK	1RB	0Offset	Front	1cm	On	21100	2535	21.99	22.00	1.002	0.08	0.823	0.825
	LTE Band 7	20M	QPSK	50RB	0Offset	Front	1cm	On	21100	2535	21.38	22.00	1.153	-0.065	0.678	0.782
	LTE Band 7	20M	QPSK	100RB	0Offset	Front	1cm	On	21100	2535	21.37	22.00	1.156	-0.067	0.669	0.773
	LTE Band 7	20M	QPSK	1RB	0Offset	Back	1cm	On	21100	2535	21.99	22.00	1.002	-0.048	0.564	0.565
	LTE Band 7	20M	QPSK	50RB	0Offset	Back	1cm	On	21100	2535	21.38	22.00	1.153	-0.082	0.488	0.563
	LTE Band 7	20M	QPSK	1RB	0Offset	Left Side	1cm	On	21100	2535	21.99	22.00	1.002	-0.075	0.339	0.340
	LTE Band 7	20M	QPSK	50RB	0Offset	Left Side	1cm	On	21100	2535	21.38	22.00	1.153	0.006	0.283	0.326
	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	1cm	On	21100	2535	21.99	22.00	1.002	-0.042	0.839	0.841
	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	1cm	On	20850	2510	21.75	22.00	1.059	0.031	0.724	0.767
	LTE Band 7	20M	QPSK	1RB	0Offset	Bottom Side	1cm	On	21350	2560	21.82	22.00	1.042	0	0.773	0.806
	LTE Band 7	20M	QPSK	50RB	0Offset	Bottom Side	1cm	On	21100	2535	21.38	22.00	1.153	-0.036	0.731	0.843
	LTE Band 7	20M	QPSK	50RB	0Offset	Bottom Side	1cm	On	20850	2510	21.26	22.00	1.186	-0.075	0.630	0.747
	LTE Band 7	20M	QPSK	50RB	0Offset	Bottom Side	1cm	On	21350	2560	21.25	22.00	1.189	0.026	0.684	0.813
	LTE Band 7	20M	QPSK	100RB	0Offset	Bottom Side	1cm	On	21100	2535	21.37	22.00	1.156	-0.081	0.705	0.815

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	1cm	Off	6	2437	20.85	21.50	1.161	100	1.000	-0.033	0.106	0.123
	WLAN2.4GHz	802.11b 1Mbps	Back	1cm	Off	6	2437	20.85	21.50	1.161	100	1.000	0.06	0.669	0.777
	WLAN2.4GHz	802.11b 1Mbps	Back	1cm	Off	1	2412	20.06	21.50	1.393	100	1.000	-0.023	0.555	0.773
25	WLAN2.4GHz	802.11b 1Mbps	Back	1cm	Off	11	2462	19.98	21.50	1.419	100	1.000	-0.03	0.619	**0.878**
	WLAN2.4GHz	802.11n-HT20 MCS0	Back	1cm	Off	6	2437	18.74	19.50	1.191	97.3	1.028	0.05	0.450	0.551
	WLAN2.4GHz	802.11b 1Mbps	Left Side	1cm	Off	6	2437	20.85	21.50	1.161	100	1.000	-0.018	0.211	0.245
	WLAN2.4GHz	802.11b 1Mbps	Top Side	1cm	Off	6	2437	20.85	21.50	1.161	100	1.000	-0.087	0.258	0.300
	WLAN5GHz	802.11a 6Mbps	Front	1cm	On	48	5240	14.46	15.50	1.270	96.55	1.036	-0.06	0.010	0.013
	WLAN5GHz	802.11a 6Mbps	Back	1cm	On	48	5240	14.46	15.50	1.271	96.55	1.036	-0.064	0.967	1.273
26	WLAN5GHz	802.11a 6Mbps	Back	1cm	On	36	5180	14.42	15.50	1.282	96.55	1.036	-0.169	1.080	**1.434**
	WLAN5GHz	802.11n-HT20 MCS0	Back	1cm	On	48	5240	14.32	15.50	1.312	98.18	1.019	-0.02	0.664	0.888
	WLAN5GHz	802.11n-HT20 MCS0	Back	1cm	On	36	5180	14.27	15.50	1.327	98.18	1.019	-0.1	0.815	1.102
	WLAN5GHz	802.11n-HT40 MCS0	Back	1cm	On	46	5230	13.95	14.50	1.135	95.5	1.047	-0.15	0.545	0.648
	WLAN5GHz	802.11a 6Mbps	Left Side	1cm	On	48	5240	14.46	15.50	1.270	96.55	1.036	0.04	0.041	0.054
	WLAN5GHz	802.11a 6Mbps	Top Side	1cm	On	48	5240	14.46	15.50	1.270	96.55	1.036	-0.06	0.111	0.146
	WLAN5GHz	802.11a 6Mbps	Front	1cm	On	153	5765	14.23	15.50	1.340	96.55	1.036	-0.15	0.012	0.017
27	WLAN5GHz	802.11a 6Mbps	Back	1cm	On	153	5765	14.23	15.50	1.340	96.55	1.036	-0.13	0.640	**0.888**
	WLAN5GHz	802.11a 6Mbps	Back	1cm	On	157	5785	14.14	15.50	1.367	96.55	1.036	-0.15	0.610	0.864
	WLAN5GHz	802.11a 6Mbps	Back	1cm	On	161	5805	14.19	15.50	1.352	96.55	1.036	-0.1	0.561	0.786
	WLAN5GHz	802.11n-HT20 MCS0	Back	1cm	On	153	5765	14.11	15.50	1.377	98.18	1.019	-0.085	0.521	0.731
	WLAN5GHz	802.11n-HT20 MCS0	Back	1cm	On	157	5785	14.01	15.50	1.409	98.18	1.019	-0.031	0.474	0.681
	WLAN5GHz	802.11n-HT20 MCS0	Back	1cm	On	161	5805	13.87	15.50	1.455	98.18	1.019	-0.058	0.468	0.694
	WLAN5GHz	802.11n-HT40 MCS0	Back	1cm	On	159	5795	13.21	14.50	1.346	95.5	1.047	-0.13	0.489	0.689
	WLAN5GHz	802.11n-HT40 MCS0	Back	1cm	On	151	5755	10.78	11.50	1.180	95.5	1.047	-0.18	0.295	0.365
	WLAN5GHz	802.11a 6Mbps	Left Side	1cm	On	153	5765	14.23	15.50	1.340	96.55	1.036	0.12	0.072	0.100
	WLAN5GHz	802.11a 6Mbps	Top Side	1cm	On	153	5765	14.23	15.50	1.340	96.55	1.036	0.11	0.091	0.126

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Front	1cm	39	2441	9.95	10.00	1.012	0.05	0.004	0.004
28	Bluetooth	1Mbps	Back	1cm	39	2441	9.95	10.00	1.012	-0.04	0.039	**0.039**
	Bluetooth	1Mbps	Back	1cm	0	2402	7.89	9.50	1.449	-0.03	0.023	0.033
	Bluetooth	1Mbps	Back	1cm	78	2480	6.83	8.50	1.469	-0.12	0.024	0.035
	Bluetooth	1Mbps	Left Side	1cm	39	2441	9.95	10.00	1.012	-0.05	0.013	0.013
	Bluetooth	1Mbps	Top Side	1cm	39	2441	9.95	10.00	1.012	0.01	0.016	0.016

14.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Holster	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	GSM850	GPRS (3 Tx slots)	Front	1.5cm		128	824.2	28.98	30.00	1.265	-0.147	0.385	0.487
29	GSM850	GPRS (3 Tx slots)	Back	1.5cm		128	824.2	28.98	30.00	1.265	-0.055	0.411	**0.520**
	GSM850	GPRS (3 Tx slots)	Back	1.5cm		189	836.4	28.86	30.00	1.300	-0.027	0.355	0.462
	GSM850	GPRS (3 Tx slots)	Back	1.5cm		251	848.8	28.89	30.00	1.291	-0.149	0.342	0.442
	GSM850	GPRS (3 Tx slots)	Back	0cm	Holster	128	824.2	28.98	30.00	1.265	-0.1	0.382	0.483
	GSM1900	GPRS (4 Tx slots)	Front	1.5cm		512	1850.2	25.89	26.50	1.151	-0.006	0.239	0.275
	GSM1900	GPRS (4 Tx slots)	Back	1.5cm		512	1850.2	25.89	26.50	1.151	-0.008	0.329	0.379
	GSM1900	GPRS (4 Tx slots)	Back	1.5cm		661	1880	25.87	26.50	1.156	0.004	0.307	0.355
30	GSM1900	GPRS (4 Tx slots)	Back	1.5cm		810	1909.8	25.57	26.50	1.239	-0.017	0.342	**0.424**
	GSM1900	GPRS (4 Tx slots)	Back	0cm	Holster	512	1850.2	25.89	26.50	1.151	0.014	0.178	0.205

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Holster	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA V	RMC 12.2Kbps	Front	1.5cm		Off	4233	846.6	23.89	24.50	1.151	-0.048	0.412	0.474
31	WCDMA V	RMC 12.2Kbps	Front	1.5cm		Off	4132	826.4	23.83	24.50	1.167	-0.003	0.479	**0.559**
	WCDMA V	RMC 12.2Kbps	Front	1.5cm		Off	4182	836.4	23.45	24.50	1.274	-0.046	0.428	0.545
	WCDMA V	RMC 12.2Kbps	Back	1.5cm		Off	4233	846.6	23.89	24.50	1.151	-0.074	0.399	0.459
	WCDMA V	RMC 12.2Kbps	Front	0cm	Holster	Off	4233	846.6	23.89	24.50	1.151	0.014	0.401	0.461
	WCDMA II	RMC 12.2Kbps	Front	1.5cm		Off	9538	1907.6	24.19	24.50	1.074	0.057	0.478	0.513
	WCDMA II	RMC 12.2Kbps	Back	1.5cm		Off	9538	1907.6	24.19	24.50	1.074	-0.018	0.573	0.615
32	WCDMA II	RMC 12.2Kbps	Back	1.5cm		Off	9262	1852.4	24.18	24.50	1.076	0.001	0.624	**0.672**
	WCDMA II	RMC 12.2Kbps	Back	1.5cm		Off	9400	1880	24.10	24.50	1.096	0.06	0.555	0.609
	WCDMA II	RMC 12.2Kbps	Back	0cm	Holster	Off	9538	1907.6	24.19	24.50	1.074	-0.099	0.329	0.353

<LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (cm)	Holster	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 17	10M	QPSK	1RB	0Offset	Front	1.5cm		23790	710	23.40	24.00	1.148	-0.022	0.300	0.344
	LTE Band 17	10M	QPSK	25RB	0Offset	Front	1.5cm		23790	710	22.40	23.00	1.148	-0.034	0.238	0.273
33	LTE Band 17	10M	QPSK	1RB	0Offset	Back	1.5cm		23790	710	23.40	24.00	1.148	0.031	0.318	**0.365**
	LTE Band 17	10M	QPSK	25RB	0Offset	Back	1.5cm		23790	710	22.40	23.00	1.148	-0.038	0.253	0.290
	LTE Band 17	10M	QPSK	1RB	0Offset	Back	0cm	Holster	23790	710	23.40	24.00	1.148	-0.022	0.285	0.327
	LTE Band 17	10M	QPSK	25RB	0Offset	Back	0cm	Holster	23790	710	22.40	23.00	1.148	0.02	0.228	0.262
	LTE Band 5	10M	QPSK	1RB	0Offset	Front	1.5cm		20600	844	23.62	24.00	1.091	-0.019	0.397	0.433
34	LTE Band 5	10M	QPSK	1RB	0Offset	Front	1.5cm		20450	829	23.30	24.00	1.175	0.009	0.384	**0.451**
	LTE Band 5	10M	QPSK	1RB	0Offset	Front	1.5cm		20525	836.5	23.41	24.00	1.146	-0.078	0.375	0.430
	LTE Band 5	10M	QPSK	25RB	24Offset	Front	1.5cm		20600	844	22.59	23.00	1.099	-0.096	0.331	0.364
	LTE Band 5	10M	QPSK	1RB	0Offset	Back	1.5cm		20600	844	23.62	24.00	1.091	0.082	0.394	0.430
	LTE Band 5	10M	QPSK	25RB	24Offset	Back	1.5cm		20600	844	22.59	23.00	1.099	-0.009	0.298	0.328
	LTE Band 5	10M	QPSK	1RB	0Offset	Front	0cm	Holster	20600	844	23.62	24.00	1.091	0.002	0.288	0.314
	LTE Band 5	10M	QPSK	25RB	24Offset	Front	0cm	Holster	20600	844	22.59	23.00	1.099	0.046	0.212	0.233
	LTE Band 4	20M	QPSK	1RB	0Offset	Front	1.5cm		20300	1745	23.48	24.00	1.127	0.054	0.484	0.546
	LTE Band 4	20M	QPSK	50RB	0Offset	Front	1.5cm		20300	1745	22.42	23.00	1.143	0.03	0.369	0.422
	LTE Band 4	20M	QPSK	1RB	0Offset	Back	1.5cm		20300	1745	23.48	24.00	1.127	-0.003	0.663	0.747
35	LTE Band 4	20M	QPSK	1RB	0Offset	Back	1.5cm		20050	1720	23.40	24.00	1.148	0.003	0.669	**0.768**
	LTE Band 4	20M	QPSK	1RB	0Offset	Back	1.5cm		20175	1732.5	23.39	24.00	1.151	0.009	0.644	0.741
	LTE Band 4	20M	QPSK	50RB	0Offset	Back	1.5cm		20300	1745	22.42	23.00	1.143	-0.084	0.505	0.577
	LTE Band 4	20M	QPSK	1RB	0Offset	Back	0cm	Holster	20300	1745	23.48	24.00	1.127	-0.022	0.412	0.464
	LTE Band 4	20M	QPSK	50RB	0Offset	Back	0cm	Holster	20300	1745	22.42	23.00	1.143	-0.003	0.314	0.359
	LTE Band 2	20M	QPSK	1RB	0Offset	Front	1.5cm		19100	1900	23.29	24.00	1.178	-0.04	0.471	0.555
	LTE Band 2	20M	QPSK	50RB	0Offset	Front	1.5cm		19100	1900	22.31	23.00	1.172	-0.053	0.374	0.438
	LTE Band 2	20M	QPSK	1RB	0Offset	Back	1.5cm		19100	1900	23.29	24.00	1.178	-0.057	0.542	0.638
	LTE Band 2	20M	QPSK	1RB	0Offset	Back	1.5cm		18700	1860	23.07	24.00	1.239	0.01	0.520	0.644
36	LTE Band 2	20M	QPSK	1RB	0Offset	Back	1.5cm		18900	1880	23.09	24.00	1.233	0.021	0.608	**0.750**
	LTE Band 2	20M	QPSK	50RB	0Offset	Back	1.5cm		19100	1900	22.31	23.00	1.172	-0.058	0.436	0.511
	LTE Band 2	20M	QPSK	1RB	0offset	Back	0cm	Holster	19100	1900	23.29	24.00	1.178	0	0.347	0.409
	LTE Band 2	20M	QPSK	50RB	0offset	Back	0cm	Holster	19100	1900	22.31	23.00	1.172	-0.027	0.260	0.305
	LTE Band 7	20M	QPSK	1RB	0Offset	Front	1.5cm		20850	2510	23.95	24.00	1.012	-0.022	0.599	0.606
37	LTE Band 7	20M	QPSK	1RB	0Offset	Front	1.5cm		21100	2535	23.84	24.00	1.038	0.034	0.652	**0.676**
	LTE Band 7	20M	QPSK	1RB	0Offset	Front	1.5cm		21350	2560	23.66	24.00	1.081	-0.043	0.619	0.669
	LTE Band 7	20M	QPSK	50RB	0Offset	Front	1.5cm		20850	2510	21.35	23.00	1.462	-0.017	0.337	0.493
	LTE Band 7	20M	QPSK	1RB	0Offset	Back	1.5cm		20850	2510	23.95	24.00	1.012	0.008	0.369	0.373
	LTE Band 7	20M	QPSK	50RB	0Offset	Back	1.5cm		20850	2510	21.35	23.00	1.462	0.001	0.222	0.325
	LTE Band 7	20M	QPSK	1RB	0Offset	Front	0cm	Holster	20850	2510	23.95	24.00	1.012	-0.089	0.422	0.427
	LTE Band 7	20M	QPSK	50RB	0Offset	Front	0cm	Holster	20850	2510	21.35	23.00	1.462	-0.135	0.239	0.349

<WLAN SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Holster	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN2.4GHz	802.11b 1Mbps	Front	1.5cm		6	2437	20.85	21.50	1.161	100	1.000	-0.021	0.077	0.089
38	WLAN2.4GHz	802.11b 1Mbps	Back	1.5cm		6	2437	20.85	21.50	1.161	100	1.000	-0.082	0.369	**0.429**
	WLAN2.4GHz	802.11b 1Mbps	Back	1.5cm		1	2412	20.06	21.50	1.393	100	1.000	-0.109	0.290	0.404
	WLAN2.4GHz	802.11b 1Mbps	Back	1.5cm		11	2462	19.98	21.50	1.419	100	1.000	-0.042	0.301	0.427
	WLAN2.4GHz	802.11n-HT20 MCS0	Back	1.5cm		6	2437	18.74	19.50	1.191	97.3	1.028	-0.062	0.230	0.282
	WLAN2.4GHz	802.11b 1Mbps	Front	0cm	Holster	6	2437	20.85	21.50	1.161	100	1.000	0.017	0.046	0.053
	WLAN2.4GHz	802.11b 1Mbps	Back	0cm	Holster	6	2437	20.85	21.50	1.161	100	1.000	-0.092	0.146	0.170
	WLAN5GHz	802.11a 6Mbps	Front	1.5cm		48	5240	16.07	17.50	1.389	96.55	1.036	0.03	0.017	0.024
	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		48	5240	16.07	17.50	1.390	96.55	1.036	-0.002	0.850	1.224
39	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		36	5180	16.00	17.50	1.412	96.55	1.036	-0.111	0.912	**1.334**
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		48	5240	15.93	17.50	1.436	98.18	1.019	-0.13	0.655	0.958
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		36	5180	15.90	17.50	1.446	98.18	1.019	-0.11	0.631	0.929
	WLAN5GHz	802.11n-HT40 MCS0	Back	1.5cm		46	5230	15.38	16.50	1.294	95.5	1.047	-0.18	0.553	0.749
	WLAN5GHz	802.11a 6Mbps	Back	1.5cm	Headset	36	5180	16.00	17.50	1.412	96.55	1.036	-0.005	0.899	1.315
	WLAN5GHz	802.11a 6Mbps	Back	1.5cm	Headset	48	5240	16.07	17.50	1.390	96.55	1.036	-0.104	0.835	1.202
	WLAN5GHz	802.11a 6Mbps	Front	0cm	Holster	36	5180	16.07	17.50	1.389	96.55	1.036	-0.1	0.012	0.017
	WLAN5GHz	802.11a 6Mbps	Back	0cm	Holster	48	5240	16.07	17.50	1.389	96.55	1.036	-0.13	0.447	0.643
	WLAN5GHz	802.11a 6Mbps	Front	1.5cm		64	5320	16.12	17.50	1.373	96.55	1.036	0.11	0.017	0.024
	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		64	5320	16.12	17.50	1.374	96.55	1.036	-0.064	0.767	1.092
40	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		52	5260	16.00	17.50	1.413	96.55	1.036	-0.075	0.815	**1.193**
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		64	5320	16.03	17.50	1.403	98.18	1.019	0.11	0.602	0.861
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		52	5260	15.90	17.50	1.446	98.18	1.019	-0.18	0.576	0.848
	WLAN5GHz	802.11n-HT40 MCS0	Back	1.5cm		62	5310	15.38	16.50	1.294	95.5	1.047	-0.13	0.498	0.675
	WLAN5GHz	802.11a 6Mbps	Front	0cm	Holster	64	5320	16.12	17.50	1.373	96.55	1.036	0.19	0.018	0.026
	WLAN5GHz	802.11a 6Mbps	Back	0cm	Holster	64	5320	16.12	17.50	1.373	96.55	1.036	-0.14	0.561	0.798
	WLAN5GHz	802.11a 6Mbps	Front	1.5cm		100	5500	16.46	17.50	1.270	96.55	1.036	-0.17	0.027	0.036
	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		100	5500	16.46	17.50	1.270	96.55	1.036	-0.024	0.722	0.950
	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		112	5560	16.28	17.50	1.324	96.55	1.036	-0.039	0.551	0.756
41	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		120	5600	15.86	17.50	1.458	96.55	1.036	-0.056	0.760	**1.148**
	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		140	5700	15.16	17.00	1.527	96.55	1.036	-0.046	0.599	0.947
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		100	5500	16.40	17.50	1.288	98.18	1.019	-0.02	0.612	0.803
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		116	5580	16.28	17.50	1.324	98.18	1.019	-0.11	0.679	0.916
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		128	5640	16.08	17.50	1.387	98.18	1.019	0.03	0.638	0.902
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		136	5680	16.04	17.00	1.247	98.18	1.019	0.05	0.629	0.800
	WLAN5GHz	802.11n-HT40 MCS0	Back	1.5cm		110	5550	16.08	16.50	1.102	95.5	1.047	-0.11	0.679	0.783
	WLAN5GHz	802.11n-HT40 MCS0	Back	1.5cm		102	5510	14.29	14.50	1.050	95.5	1.047	-0.05	0.332	0.365
	WLAN5GHz	802.11n-HT40 MCS0	Back	1.5cm		126	5630	15.34	16.50	1.306	95.5	1.047	-0.19	0.750	1.026
	WLAN5GHz	802.11n-HT40 MCS0	Back	1.5cm		134	5670	14.61	16.50	1.545	95.5	1.047	-0.14	0.656	1.061
	WLAN5GHz	802.11a 6Mbps	Front	0cm	Holster	100	5500	16.46	17.50	1.270	95.5	1.047	-0.1	0.030	0.040
	WLAN5GHz	802.11a 6Mbps	Back	0cm	Holster	100	5500	16.46	17.50	1.270	96.55	1.036	-0.06	0.539	0.709
	WLAN5GHz	802.11a 6Mbps	Back	0cm	Holster	112	5560	16.28	17.50	1.324	96.55	1.036	-0.12	0.655	0.899
	WLAN5GHz	802.11a 6Mbps	Back	0cm	Holster	120	5600	15.86	17.50	1.458	96.55	1.036	0.06	0.612	0.924
	WLAN5GHz	802.11a 6Mbps	Back	0cm	Holster	140	5700	15.16	17.00	1.527	96.55	1.036	-0.11	0.577	0.913

Plot No.	Band	Mode	Test Position	Gap (cm)	Holster	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN5GHz	802.11a 6Mbps	Front	1.5cm		157	5785	16.43	17.50	1.279	96.55	1.036	0.14	0.014	0.019
	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		157	5785	16.43	17.50	1.279	96.55	1.036	-0.11	0.580	0.768
42	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		153	5765	16.29	17.50	1.321	96.55	1.036	-0.17	0.631	**0.864**
	WLAN5GHz	802.11a 6Mbps	Back	1.5cm		161	5805	16.38	17.50	1.294	96.55	1.036	-0.15	0.555	0.744
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		157	5785	16.33	17.50	1.309	98.18	1.019	-0.002	0.584	0.779
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		153	5765	16.23	17.50	1.340	98.18	1.019	-0.11	0.593	0.810
	WLAN5GHz	802.11n-HT20 MCS0	Back	1.5cm		161	5805	16.26	17.50	1.330	98.18	1.019	0.061	0.568	0.770
	WLAN5GHz	802.11n-HT40 MCS0	Back	1.5cm		159	5795	15.11	16.50	1.377	95.5	1.047	-0.1	0.496	0.715
	WLAN5GHz	802.11n-HT40 MCS0	Back	1.5cm		151	5755	12.53	13.50	1.250	95.5	1.047	-0.1	0.251	0.329
	WLAN5GHz	802.11a 6Mbps	Front	0cm	Holster	157	5785	16.43	17.50	1.279	96.55	1.036	0.17	0.014	0.019
	WLAN5GHz	802.11a 6Mbps	Back	0cm	Holster	157	5785	16.43	17.50	1.279	96.55	1.036	-0.1	0.644	0.853
	WLAN5GHz	802.11a 6Mbps	Back	0cm	Holster	153	5765	16.29	17.50	1.321	96.55	1.036	-0.12	0.616	0.843
	WLAN5GHz	802.11a 6Mbps	Back	0cm	Holster	161	5805	16.38	17.50	1.294	96.55	1.036	-0.04	0.601	0.806

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Holster	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	Bluetooth	1Mbps	Front	1.5cm		39	2441	9.95	10.00	1.012	-0.094	0.003	0.003
43	Bluetooth	1Mbps	Back	1.5cm		39	2441	9.95	10.00	1.012	-0.07	0.019	**0.019**
	Bluetooth	1Mbps	Back	1.5cm		0	2402	7.89	9.50	1.449	-0.032	0.009	0.013
	Bluetooth	1Mbps	Back	1.5cm		78	2480	6.83	8.50	1.469	-0.069	0.009	0.013
	Bluetooth	1Mbps	Front	0cm	Holster	39	2441	9.95	10.00	1.012	0.06	0.002	0.002
	Bluetooth	1Mbps	Back	0cm	Holster	39	2441	9.95	10.00	1.012	-0.016	0.014	0.014

14.4 Repeated SAR Measurement

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (cm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	1cm	Off	9262	1852.4	24.18	24.50	1.076	-	1.000	0.085	1.180	-	1.270
2nd	WCDMA II	-	-	-	-	RMC 12.2Kbps	Back	1cm	Off	9262	1852.4	24.18	24.50	1.076	-	1.000	0.032	1.110	1.06	1.195
1st	LTE Band 4	20M	QPSK	1RB	0Offset	-	Back	1cm	On	20175	1732.5	22.46	23.00	1.132	-	1.000	0.001	1.012	-	1.146
2nd	LTE Band 4	20M	QPSK	1RB	0Offset	-	Back	1cm	On	20175	1732.5	22.46	23.00	1.132	-	1.000	0.011	0.991	1.02	1.122
1st	LTE Band 7	20M	QPSK	1RB	0Offset	-	Left Cheek	-	Off	21100	2535	23.84	24.00	1.038	-	1.000	0.057	1.220	-	1.266
2nd	LTE Band 7	20M	QPSK	1RB	0Offset	-	Left Cheek	-	Off	21100	2535	23.84	24.00	1.038	-	1.000	0.036	1.150	1.06	1.193
1st	WLAN5GHz	-	-	-	-	802.11a 6Mbps	Back	1cm	On	36	5180	14.42	15.50	1.282	96.55	1.036	-0.169	1.080	-	1.434
2nd	WLAN5GHz	-	-	-	-	802.11a 6Mbps	Back	1cm	On	36	5180	14.42	15.50	1.282	96.55	1.036	-0.119	1.010	1.07	1.341
1st	WLAN5GHz	-	-	-	-	802.11a 6Mbps	Back	1.5cm	Off	52	5260	16.00	17.50	1.413	96.55	1.036	-0.075	0.815	-	1.193
2nd	WLAN5GHz	-	-	-	-	802.11a 6Mbps	Back	1.5cm	Off	52	5260	16.00	17.50	1.413	96.55	1.036	-0.151	0.806	1.01	1.179

General Note:

1. Per KDB 865664 D01v01r03, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg
2. Per KDB 865664 D01v01r03, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The ratio is the difference in percentage between original and repeated measured SAR.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Portable Handset			Note
		Head	Body-worn	Hotspot	
1.	GSM(Voice) + WLAN2.4GHz(data)	Yes	Yes		
2.	WCDMA(Voice) + WLAN2.4GHz(data)	Yes	Yes		
3.	GSM(Voice) + Bluetooth(data)	Yes	Yes		
4.	WCDMA((Voice) + Bluetooth(data)	Yes	Yes		
5.	GSM(Voice) + WLAN5GHz(data)	Yes	Yes		
6.	WCDMA((Voice) + WLAN5GHz(data)	Yes	Yes		
7.	GPRS/EDGE(Data) + WLAN2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
8.	WCDMA(Data) + WLAN2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
9.	LTE(Data) + WLAN2.4GHz(data)	Yes	Yes	Yes	2.4GHz Hotspot
10.	GPRS/EDGE(Data) + Bluetooth(data)	Yes	Yes	Yes	Bluetooth Tethering
11.	WCDMA(Data) + Bluetooth(data)	Yes	Yes	Yes	Bluetooth Tethering
12.	LTE(Data) + Bluetooth(data)	Yes	Yes	Yes	Bluetooth Tethering
13.	GPRS/EDGE(data) + WLAN5GHz(data)	Yes	Yes	Yes	WiFi Direct
14.	WCDMA(data) + WLAN5GHz(data)	Yes	Yes	Yes	WiFi Direct
15.	LTE(data) + WLAN5GHz(data)	Yes	Yes	Yes	WiFi Direct

General Note:

1. This device supported VoIP in EGPRS, WCDMA, LTE (e.g. 3rd party VoIP).
2. This device 2.4GHz / 5.2GHz / 5.8GHz WLAN supports Hotspot operation and WiFi Direct (Group Client / Group Owner), and 5.3GHz / 5.5GHz WLAN supports WiFi Direct (Group Client).
3. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
4. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, 2.4GHz WLAN and 5GHz WLAN will not operate simultaneously at any moment.
5. The Scaled SAR summation is calculated based on the same configuration and test position.
6. The worst case 2.4GHz / 5GHz WLAN reported SAR for each configuration was used for SAR summation, Therefore, the following summations represent the absolute worst cases for simultaneous transmission with the WLAN.
7. Per KDB 447498 D01v05r02, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = (SAR1 + SAR2)^1.5 / (min. separation distance, mm), and the peak separation distance is determined from the square root of [(x1-x2)2 + (y1-y2)2 + (z1-z2)2], where (x1, y1, z1) and (x2, y2, z2) are the coordinates of the extrapolated peak SAR locations in the zoom scan.
   iii) If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary.
   iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg.
   v) The SPLSR calculated results please refer to section 15.4.

15.1 Head Exposure Conditions

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	2 2.4GHz WLAN SAR (W/kg)	3 2.4GHz Bluetooth SAR (W/kg)	1+2 Summed SAR (W/kg)	1+3 Summed SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Right Cheek	0.334	0.269	0.018	**0.60**	**0.35**		
		Right Tilted	0.243	0.301	0.020	**0.54**	**0.26**		
		Left Cheek	0.547	0.384	0.022	**0.93**	**0.57**		
		Left Tilted	0.296	0.492	0.027	**0.79**	**0.32**		
	GSM1900	Right Cheek	0.366	0.269	0.018	**0.64**	**0.38**		
		Right Tilted	0.185	0.301	0.020	**0.49**	**0.21**		
		Left Cheek	0.707	0.384	0.022	**1.09**	**0.73**		
		Left Tilted	0.206	0.492	0.027	**0.70**	**0.23**		
WCMDA	Band V	Right Cheek	0.328	0.269	0.018	**0.60**	**0.35**		
		Right Tilted	0.253	0.301	0.020	**0.55**	**0.27**		
		Left Cheek	0.625	0.384	0.022	**1.01**	**0.65**		
		Left Tilted	0.199	0.492	0.027	**0.69**	**0.23**		
	Band II	Right Cheek	0.411	0.269	0.018	**0.68**	**0.43**		
		Right Tilted	0.481	0.301	0.020	**0.78**	**0.50**		
		Left Cheek	1.095	0.384	0.022	**1.48**	**1.12**		
		Left Tilted	0.411	0.492	0.027	**0.90**	**0.44**		
LTE	Band 17	Right Cheek	0.216	0.269	0.018	**0.49**	**0.23**		
		Right Tilted	0.183	0.301	0.020	**0.48**	**0.20**		
		Left Cheek	0.341	0.384	0.022	**0.73**	**0.36**		
		Left Tilted	0.219	0.492	0.027	**0.71**	**0.25**		
	Band 5	Right Cheek	0.306	0.269	0.018	**0.58**	**0.32**		
		Right Tilted	0.241	0.301	0.020	**0.54**	**0.26**		
		Left Cheek	0.466	0.384	0.022	**0.85**	**0.49**		
		Left Tilted	0.274	0.492	0.027	**0.77**	**0.30**		
	Band 4	Right Cheek	0.544	0.269	0.018	**0.81**	**0.56**		
		Right Tilted	0.661	0.301	0.020	**0.96**	**0.68**		
		Left Cheek	0.903	0.384	0.022	**1.29**	**0.93**		
		Left Tilted	0.526	0.492	0.027	**1.02**	**0.55**		
	Band 2	Right Cheek	0.439	0.269	0.018	**0.71**	**0.46**		
		Right Tilted	0.396	0.301	0.020	**0.70**	**0.42**		
		Left Cheek	1.049	0.384	0.022	**1.43**	**1.07**		
		Left Tilted	0.298	0.492	0.027	**0.79**	**0.33**		
	Band 7	Right Cheek	0.485	0.269	0.018	**0.75**	**0.50**		
		Right Tilted	0.343	0.301	0.020	**0.64**	**0.36**		
		Left Cheek	1.266	0.384	0.022	**1.65**	**1.29**	0.02	Case 1
		Left Tilted	0.241	0.492	0.027	**0.73**	**0.27**		

WWAN Band		Exposure Position	1	2		1+2 Summed SAR (W/kg)	SPLSR	Case No
			WWAN	5.2GHz / 5.3GHz / 5.5GHz / 5.8GHz WLAN				
			SAR (W/kg)	Band	SAR (W/kg)			
GSM	GSM850	Right Cheek	0.334	5.5GHz WLAN	0.542	**0.88**		
		Right Tilted	0.243	5.5GHz WLAN	0.495	**0.74**		
		Left Cheek	0.547	5.3GHz WLAN	0.391	**0.94**		
		Left Tilted	0.296	5.3GHz WLAN	0.390	**0.69**		
	GSM1900	Right Cheek	0.366	5.5GHz WLAN	0.542	**0.91**		
		Right Tilted	0.185	5.5GHz WLAN	0.495	**0.68**		
		Left Cheek	0.707	5.3GHz WLAN	0.391	**1.10**		
		Left Tilted	0.206	5.3GHz WLAN	0.390	**0.60**		
WCMDA	Band V	Right Cheek	0.328	5.5GHz WLAN	0.542	**0.87**		
		Right Tilted	0.253	5.5GHz WLAN	0.495	**0.75**		
		Left Cheek	0.625	5.3GHz WLAN	0.391	**1.02**		
		Left Tilted	0.199	5.3GHz WLAN	0.390	**0.59**		
	Band II	Right Cheek	0.411	5.5GHz WLAN	0.542	**0.95**		
		Right Tilted	0.481	5.5GHz WLAN	0.495	**0.98**		
		Left Cheek	1.095	5.3GHz WLAN	0.391	**1.49**		
		Left Tilted	0.411	5.3GHz WLAN	0.390	**0.80**		
LTE	Band 17	Right Cheek	0.216	5.5GHz WLAN	0.542	**0.76**		
		Right Tilted	0.183	5.5GHz WLAN	0.495	**0.68**		
		Left Cheek	0.341	5.3GHz WLAN	0.391	**0.73**		
		Left Tilted	0.219	5.3GHz WLAN	0.390	**0.61**		
	Band 5	Right Cheek	0.306	5.5GHz WLAN	0.542	**0.85**		
		Right Tilted	0.241	5.5GHz WLAN	0.495	**0.74**		
		Left Cheek	0.466	5.3GHz WLAN	0.391	**0.86**		
		Left Tilted	0.274	5.3GHz WLAN	0.390	**0.66**		
	Band 4	Right Cheek	0.544	5.5GHz WLAN	0.542	**1.09**		
		Right Tilted	0.661	5.5GHz WLAN	0.495	**1.16**		
		Left Cheek	0.903	5.3GHz WLAN	0.391	**1.29**		
		Left Tilted	0.526	5.3GHz WLAN	0.390	**0.92**		
	Band 2	Right Cheek	0.439	5.5GHz WLAN	0.542	**0.98**		
		Right Tilted	0.396	5.5GHz WLAN	0.495	**0.89**		
		Left Cheek	1.049	5.3GHz WLAN	0.391	**1.44**		
		Left Tilted	0.298	5.3GHz WLAN	0.390	**0.69**		
	Band 7	Right Cheek	0.485	5.5GHz WLAN	0.542	**1.03**		
		Right Tilted	0.343	5.5GHz WLAN	0.495	**0.84**		
		Left Cheek	1.266	5.3GHz WLAN	0.391	**1.66**	0.02	Case 2
		Left Tilted	0.241	5.3GHz WLAN	0.390	**0.63**		

15.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	2 2.4GHz WLAN SAR (W/kg)	3 2.4GHz Bluetooth SAR (W/kg)	1+2 Summed SAR (W/kg)	1+3 Summed SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Front	0.612	0.123	0.004	**0.74**	**0.62**		
		Back	0.631	0.878	0.039	**1.51**	**0.67**		
		Left side	0.782	0.245	0.013	**1.03**	**0.80**		
		Top side		0.300	0.016	**0.30**	**0.02**		
		Bottom side	0.254			**0.25**	**0.25**		
	GSM1900	Front	0.600	0.123	0.004	**0.72**	**0.60**		
		Back	0.831	0.878	0.039	**1.71**	**0.87**	0.02	Case 3
		Left side	0.415	0.245	0.013	**0.66**	**0.43**		
		Top side		0.300	0.016	**0.30**	**0.02**		
		Bottom side	0.581			**0.58**	**0.58**		
WCMDA	Band V	Front	0.589	0.123	0.004	**0.71**	**0.59**		
		Back	0.620	0.878	0.039	**1.50**	**0.66**		
		Left side	0.783	0.245	0.013	**1.03**	**0.80**		
		Top side		0.300	0.016	**0.30**	**0.02**		
		Bottom side	0.153			**0.15**	**0.15**		
	Band II	Front	1.085	0.123	0.004	**1.21**	**1.09**		
		Back	1.270	0.878	0.039	**2.15**	**1.31**	0.03	Case 4
		Left side	0.829	0.245	0.013	**1.07**	**0.84**		
		Top side		0.300	0.016	**0.30**	**0.02**		
		Bottom side	0.930			**0.93**	**0.93**		
LTE	Band 17	Front	0.449	0.123	0.004	**0.57**	**0.45**		
		Back	0.462	0.878	0.039	**1.34**	**0.50**		
		Left side	0.473	0.245	0.013	**0.72**	**0.49**		
		Top side		0.300	0.016	**0.30**	**0.02**		
		Bottom side	0.214			**0.21**	**0.21**		
	Band 5	Front	0.534	0.123	0.004	**0.66**	**0.54**		
		Back	0.506	0.878	0.039	**1.38**	**0.55**		
		Left side	0.651	0.245	0.013	**0.90**	**0.66**		
		Top side		0.300	0.016	**0.30**	**0.02**		
		Bottom side	0.224			**0.22**	**0.22**		
	Band 4	Front	0.746	0.123	0.004	**0.87**	**0.75**		
		Back	1.146	0.878	0.039	**2.02**	**1.19**	0.03	Case 5
		Left side	0.549	0.245	0.013	**0.79**	**0.56**		
		Top side		0.300	0.016	**0.30**	**0.02**		
		Bottom side	0.606			**0.61**	**0.61**		
	Band 2	Front	1.171	0.123	0.004	**1.29**	**1.18**		
		Back	1.235	0.878	0.039	**2.11**	**1.27**	0.03	Case 6
		Left side	0.856	0.245	0.013	**1.10**	**0.87**		
		Top side		0.300	0.016	**0.30**	**0.02**		
		Bottom side	0.949			**0.95**	**0.95**		
	Band 7	Front	0.965	0.123	0.004	**1.09**	**0.97**		
		Back	0.565	0.878	0.039	**1.44**	**0.60**		
		Left side	0.340	0.245	0.013	**0.59**	**0.35**		
		Top side		0.300	0.016	**0.30**	**0.02**		
		Bottom side	0.843			**0.84**	**0.84**		

WWAN Band		Exposure Position	1	2		1+2 Summed SAR (W/kg)	SPLSR	Case No
			WWAN	5.2GHz / 5.8GHz WLAN				
			SAR (W/kg)	Band	SAR (W/kg)			
GSM	GSM850	Front	0.612	5.8GHz WLAN	0.017	**0.63**		
		Back	0.631	5.2GHz WLAN	1.434	**2.07**	0.04	Case 7
		Left side	0.782	5.8GHz WLAN	0.100	**0.88**		
		Top side		5.2GHz WLAN	0.146	**0.15**		
		Bottom side	0.254			**0.25**		
	GSM1900	Front	0.600	5.8GHz WLAN	0.017	**0.62**		
		Back	0.831	5.2GHz WLAN	1.434	**2.27**	0.03	Case 8
		Left side	0.415	5.8GHz WLAN	0.100	**0.52**		
		Top side		5.2GHz WLAN	0.146	**0.15**		
		Bottom side	0.581			**0.58**		
WCMDA	Band V	Front	0.589	5.8GHz WLAN	0.017	**0.61**		
		Back	0.620	5.2GHz WLAN	1.434	**2.05**	0.04	Case 9
		Left side	0.783	5.8GHz WLAN	0.100	**0.88**		
		Top side		5.2GHz WLAN	0.146	**0.15**		
		Bottom side	0.153			**0.15**		
	Band II	Front	1.085	5.8GHz WLAN	0.017	**1.10**		
		Back	1.270	5.2GHz WLAN	1.434	**2.70**	0.04	Case 10
		Left side	0.829	5.8GHz WLAN	0.100	**0.93**		
		Top side		5.2GHz WLAN	0.146	**0.15**		
		Bottom side	0.930			**0.93**		
LTE	Band 17	Front	0.449	5.8GHz WLAN	0.017	**0.47**		
		Back	0.462	5.2GHz WLAN	1.434	**1.90**	0.03	Case 11
		Left side	0.473	5.8GHz WLAN	0.100	**0.57**		
		Top side		5.2GHz WLAN	0.146	**0.15**		
		Bottom side	0.214			**0.21**		
	Band 5	Front	0.534	5.8GHz WLAN	0.017	**0.55**		
		Back	0.506	5.2GHz WLAN	1.434	**1.94**	0.04	Case 12
		Left side	0.651	5.8GHz WLAN	0.100	**0.75**		
		Top side		5.2GHz WLAN	0.146	**0.15**		
		Bottom side	0.224			**0.22**		
	Band 4	Front	0.746	5.8GHz WLAN	0.017	**0.76**		
		Back	1.146	5.2GHz WLAN	1.434	**2.58**	0.04	Case 13
		Left side	0.549	5.8GHz WLAN	0.100	**0.65**		
		Top side		5.2GHz WLAN	0.146	**0.15**		
		Bottom side	0.606			**0.61**		
	Band 2	Front	1.171	5.8GHz WLAN	0.017	**1.19**		
		Back	1.235	5.2GHz WLAN	1.434	**2.67**	0.04	Case 14
		Left side	0.856	5.8GHz WLAN	0.100	**0.96**		
		Top side		5.2GHz WLAN	0.146	**0.15**		
		Bottom side	0.949			**0.95**		
	Band 7	Front	0.965	5.8GHz WLAN	0.017	**0.98**		
		Back	0.565	5.2GHz WLAN	1.434	**2.00**	0.03	Case 15
		Left side	0.340	5.8GHz WLAN	0.100	**0.44**		
		Top side		5.2GHz WLAN	0.146	**0.15**		
		Bottom side	0.843			**0.84**		

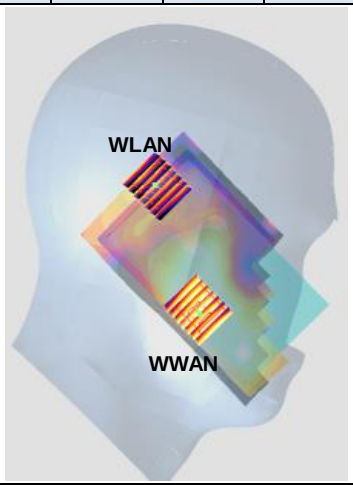
15.3 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1 WWAN SAR (W/kg)	2 2.4GHz WLAN SAR (W/kg)	3 2.4GHz Bluetooth SAR (W/kg)	1+2 Summed SAR (W/kg)	1+3 Summed SAR (W/kg)	SPLSR	Case No
GSM	GSM850	Front	0.487	0.089	0.003	**0.58**	**0.49**		
		Back	0.520	0.429	0.019	**0.95**	**0.54**		
		Back with Holster	0.483	0.170	0.014	**0.65**	**0.50**		
	GSM1900	Front	0.275	0.089	0.003	**0.36**	**0.28**		
		Back	0.424	0.429	0.019	**0.85**	**0.44**		
		Back with Holster	0.205	0.170	0.014	**0.38**	**0.22**		
WCMDA	Band V	Front	0.559	0.089	0.003	**0.65**	**0.56**		
		Back	0.459	0.429	0.019	**0.89**	**0.48**		
		Front with Holster	0.461	0.053	0.002	**0.51**	**0.46**		
	Band II	Front	0.513	0.089	0.003	**0.60**	**0.52**		
		Back	0.672	0.429	0.019	**1.10**	**0.69**		
		Back with Holster	0.353	0.170	0.014	**0.52**	**0.37**		
LTE	Band 17	Front	0.344	0.089	0.003	**0.43**	**0.35**		
		Back	0.365	0.429	0.019	**0.79**	**0.38**		
		Back with Holster	0.327	0.170	0.014	**0.50**	**0.34**		
	Band 5	Front	0.451	0.089	0.003	**0.54**	**0.45**		
		Back	0.430	0.429	0.019	**0.86**	**0.45**		
		Front with Holster	0.314	0.053	0.002	**0.37**	**0.32**		
	Band 4	Front	0.546	0.089	0.003	**0.64**	**0.55**		
		Back	0.768	0.429	0.019	**1.20**	**0.79**		
		Back with Holster	0.464	0.170	0.014	**0.63**	**0.48**		
	Band 2	Front	0.555	0.089	0.003	**0.64**	**0.56**		
		Back	0.750	0.429	0.019	**1.18**	**0.77**		
		Back with Holster	0.409	0.170	0.014	**0.58**	**0.42**		
	Band 7	Front	0.676	0.089	0.003	**0.77**	**0.68**		
		Back	0.373	0.429	0.019	**0.80**	**0.39**		
		Front with Holster	0.427	0.053	0.002	**0.48**	**0.43**		

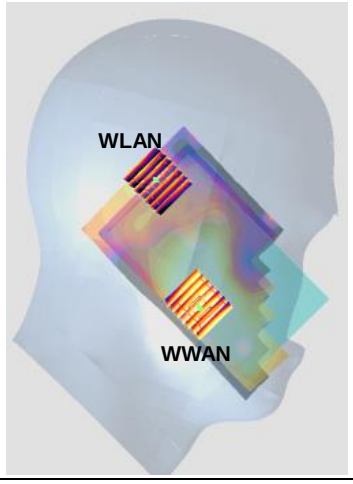
WWAN Band		Exposure Position	1	2		1+2 Summed SAR (W/kg)	SPLSR	Case No
			WWAN	5.2GHz / 5.3GHz / 5.5GHz / 5.8GHz WLAN				
			SAR (W/kg)	Band	SAR (W/kg)			
GSM	GSM850	Front	0.487	5.5GHz WLAN	0.036	**0.52**		
		Back	0.520	5.2GHz WLAN	1.334	**1.85**	0.03	Case 16
		Back with Headset	0.520	5.2GHz WLAN	1.315	**1.84**	0.03	Case 17
		Back with Holster	0.483	5.8GHz WLAN	0.853	**1.34**		
	GSM1900	Front	0.275	5.5GHz WLAN	0.036	**0.31**		
		Back	0.424	5.2GHz WLAN	1.334	**1.76**	0.02	Case 18
		Back with Headset	0.424	5.2GHz WLAN	1.315	**1.74**	0.02	Case 19
		Back with Holster	0.205	5.8GHz WLAN	0.853	**1.06**		
WCMDA	Band V	Front	0.559	5.5GHz WLAN	0.036	**0.60**		
		Back	0.459	5.2GHz WLAN	1.334	**1.79**	0.04	Case 20
		Back with Headset	0.459	5.2GHz WLAN	1.315	**1.77**	0.03	Case 21
		Front with Holster	0.461	5.5GHz WLAN	0.040	**0.50**		
	Band II	Front	0.513	5.5GHz WLAN	0.036	**0.55**		
		Back	0.672	5.2GHz WLAN	1.334	**2.01**	0.03	Case 22
		Back with Headset	0.672	5.2GHz WLAN	1.315	**1.99**	0.03	Case 23
		Back with Holster	0.353	5.8GHz WLAN	0.853	**1.21**		
LTE	Band 17	Front	0.344	5.5GHz WLAN	0.036	**0.38**		
		Back	0.365	5.2GHz WLAN	1.334	**1.70**	0.02	Case 24
		Back with Headset	0.365	5.2GHz WLAN	1.315	**1.68**	0.02	Case 25
		Back with Holster	0.327	5.8GHz WLAN	0.853	**1.18**		
	Band 5	Front	0.451	5.5GHz WLAN	0.036	**0.49**		
		Back	0.430	5.2GHz WLAN	1.334	**1.76**	0.04	Case 26
		Back with Headset	0.430	5.2GHz WLAN	1.315	**1.75**	0.03	Case 27
		Front with Holster	0.314	5.5GHz WLAN	0.040	**0.35**		
	Band 4	Front	0.546	5.5GHz WLAN	0.036	**0.58**		
		Back	0.768	5.2GHz WLAN	1.334	**2.10**	0.03	Case 28
		Back with Headset	0.768	5.2GHz WLAN	1.315	**2.08**	0.03	Case 29
		Back with Holster	0.464	5.8GHz WLAN	0.853	**1.32**		
	Band 2	Front	0.555	5.5GHz WLAN	0.036	**0.59**		
		Back	0.750	5.2GHz WLAN	1.334	**2.08**	0.03	Case 30
		Back with Headset	0.750	5.2GHz WLAN	1.315	**2.07**	0.03	Case 31
		Back with Holster	0.409	5.8GHz WLAN	0.853	**1.26**		
	Band 7	Front	0.676	5.5GHz WLAN	0.036	**0.71**		
		Back	0.373	5.2GHz WLAN	1.334	**1.71**	0.02	Case 32
		Back with Headset	0.373	5.2GHz WLAN	1.315	**1.69**	0.02	Case 33
		Front with Holster	0.427	5.5GHz WLAN	0.040	**0.47**		

15.4 SPLSR Evaluation and Analysis

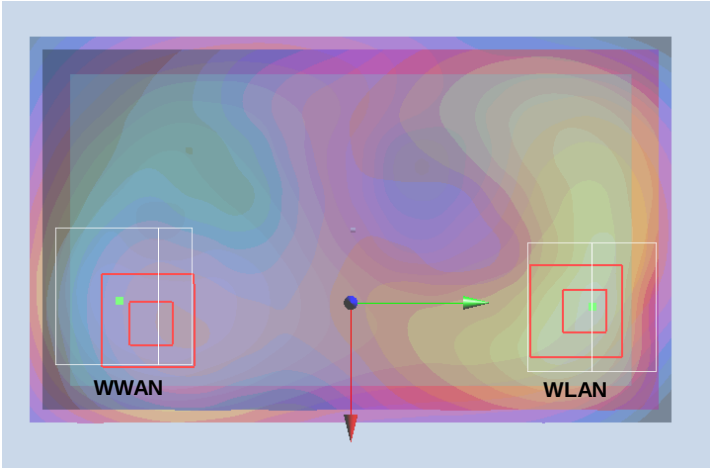
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 1	LTE Band 7	Left Cheek	1.266	0	0.0637	0.249	-0.17	87.9	1.65	0.02	Not required
	WLAN 2.4GHz		0.384	0	0.0134	0.321	-0.168				



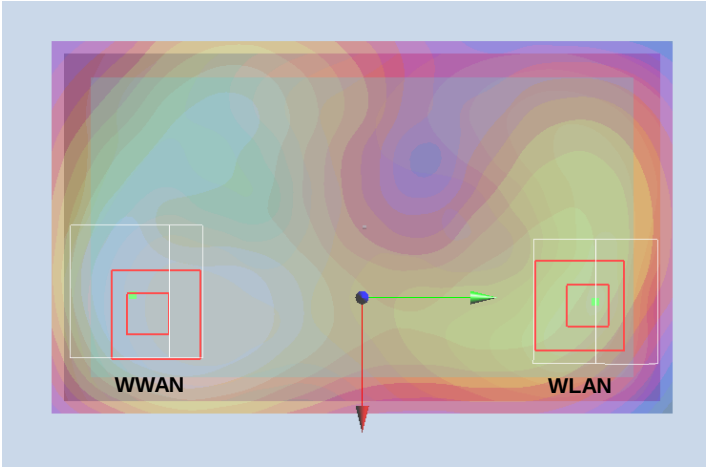
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 2	LTE Band 7	Left Cheek	1.266	0	0.0637	0.249	-0.17	85.4	1.66	0.02	Not required
	WLAN 5GHz		0.391	0	0.0149	0.319	-0.173				



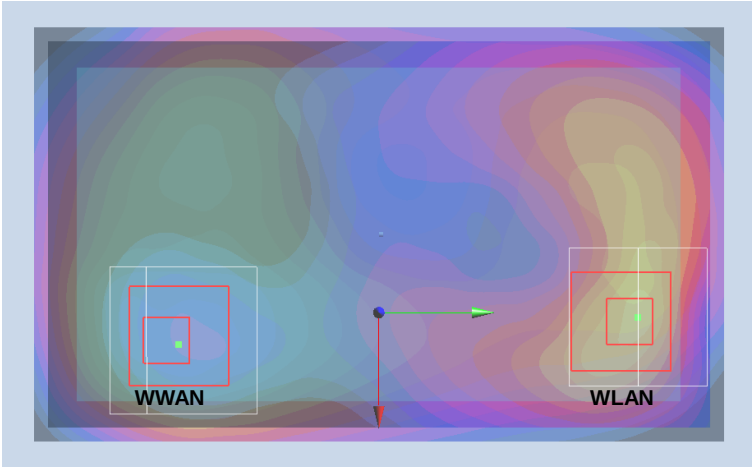
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 3	GSM 1900	Back	0.831	1	0.00647	-0.045	-0.203	101.6	1.71	0.02	Not required
	WLAN 2.4GHz		0.878	1	0.000993	0.0564	-0.204				



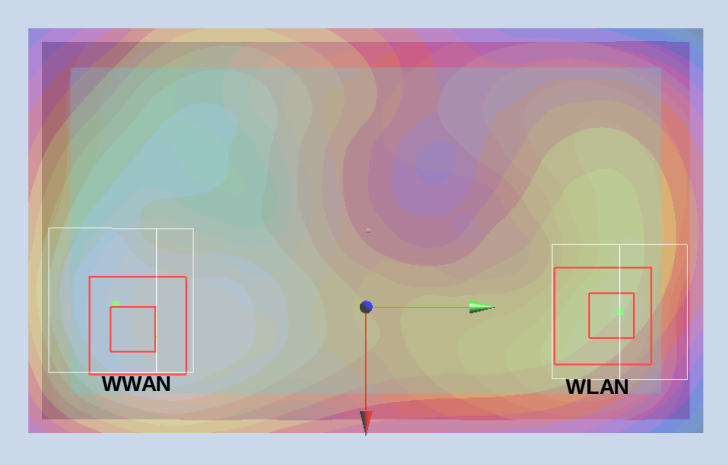
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 4	WCDMA II	Back	1.270	1	0.0065	-0.0465	-0.204	103.0	2.15	0.03	Not required
	WLAN 2.4GHz		0.878	1	0.000993	0.0564	-0.204				



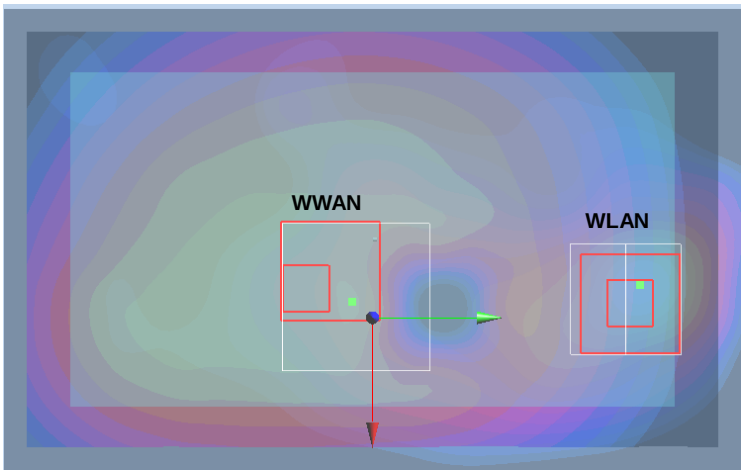
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 5	LTE B4	Back	1.146	1	0.00603	-0.0505	-0.203	107.0	2.02	0.03	Not required
	WLAN 2.4GHz		0.878	1	0.000993	0.0564	-0.204				



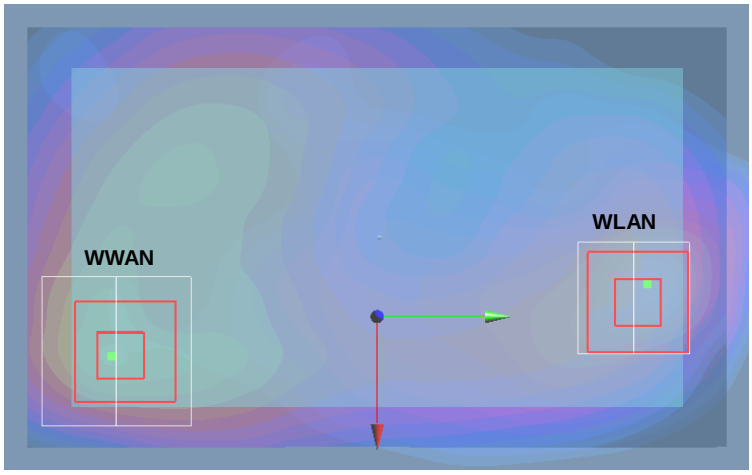
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 6	LTE B2	Back	1.235	1	0.00647	-0.0465	-0.204	103.0	2.11	0.03	Not required
	WLAN 2.4GHz		0.878	1	0.000993	0.0564	-0.204				



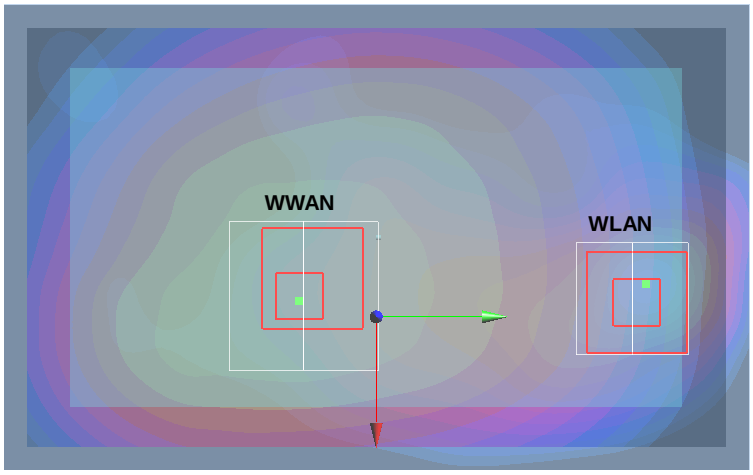
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 7	GSM850	Back	0.631	1cm	-0.00454	-0.0195	-0.202	78.8	2.07	0.04	Not required
	WLAN5GHz		1.434	1cm	0.00201	0.059	-0.204				



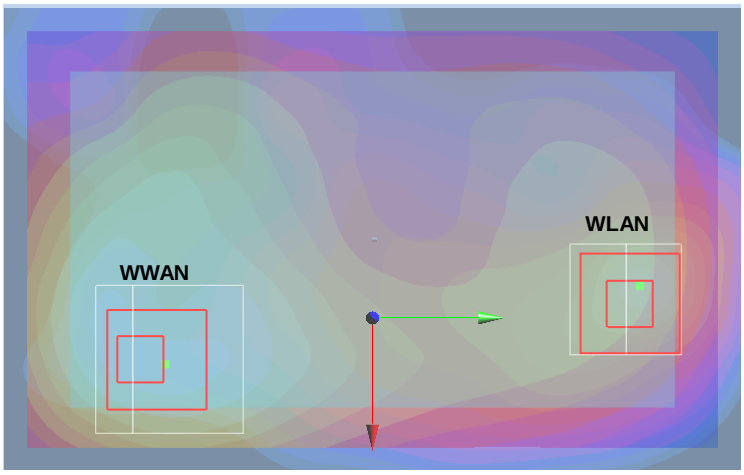
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 8	GS1900	Back	0.831	1cm	0.00647	-0.045	-0.203	104.1	2.27	0.03	Not required
	WLAN5GHz		1.434	1cm	0.00201	0.059	-0.204				



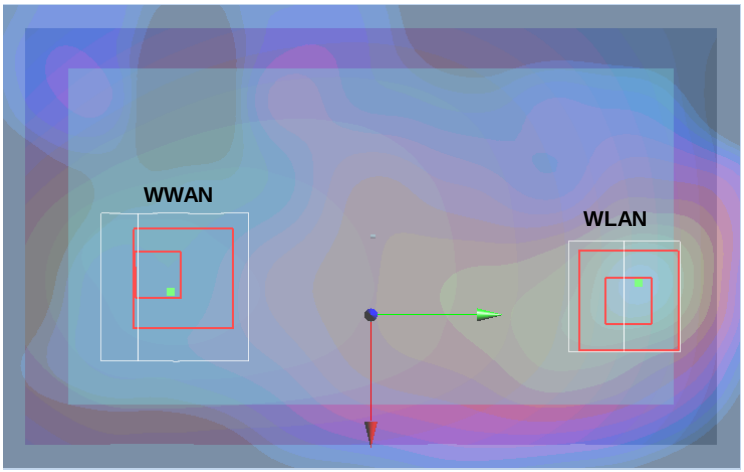
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 9	WCDMA V	Back	0.620	1cm	-0.00351	-0.0165	-0.201	75.8	2.05	0.04	Not required
	WLAN5GHz		1.434	1cm	0.00201	0.059	-0.204				



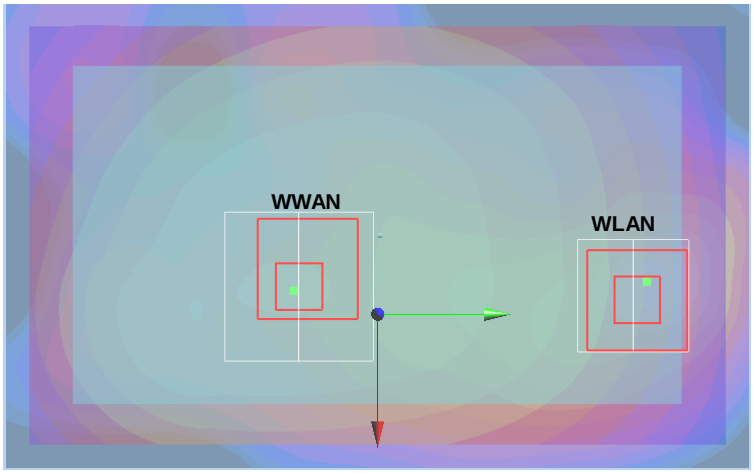
	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
Case 10	WCDMA II	Back	1.270	1cm	0.00897	-0.052	-0.2	111.3	2.70	0.04	Not required
	WLAN5GHz		1.434	1cm	0.00201	0.059	-0.204				



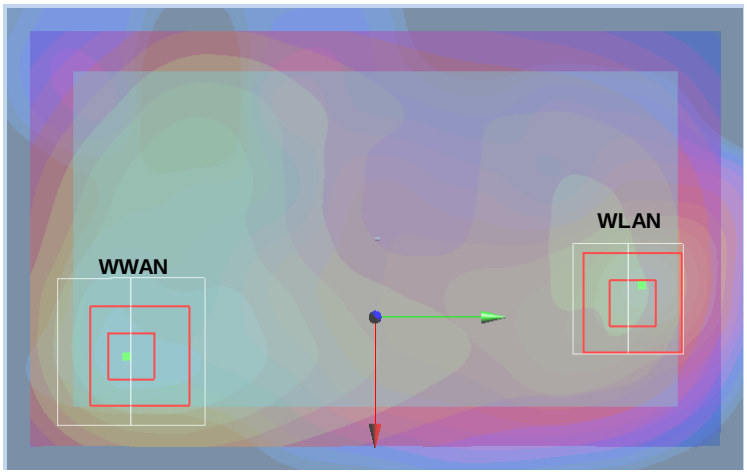
Case 11	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B17	Back	0.462	1cm	-0.00757	-0.041	-0.205	100.5	1.90	0.03	Not required
	WLAN5GHz		1.434	1cm	0.00201	0.059	-0.204				



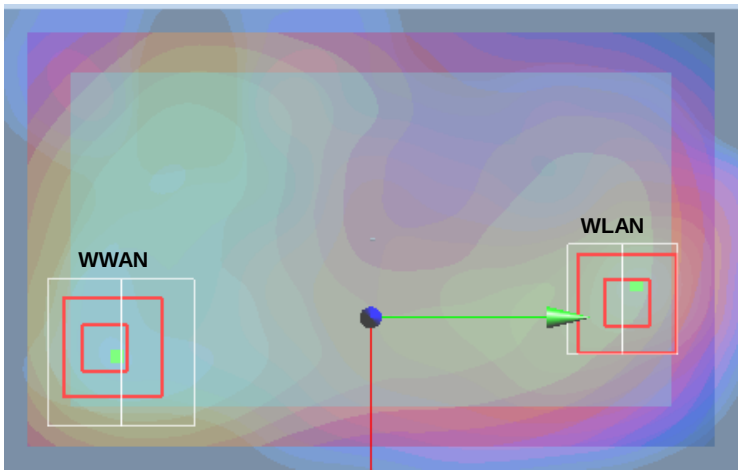
Case 12	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5	Back	0.506	1cm	-0.00603	-0.017	-0.203	76.4	1.94	0.04	Not required
	WLAN5GHz		1.434	1cm	0.00201	0.059	-0.204				



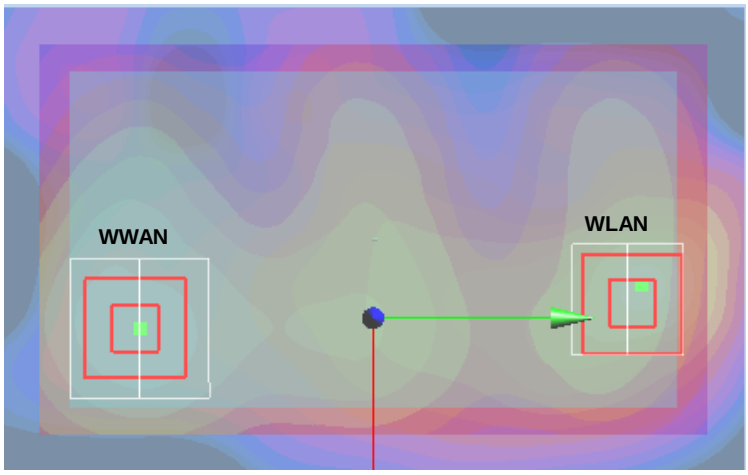
Case 13	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 4	Back	1.146	1cm	0.00603	-0.0505	-0.203	109.6	2.58	0.04	Not required
	WLAN5GHz		1.434	1cm	0.00201	0.059	-0.204				



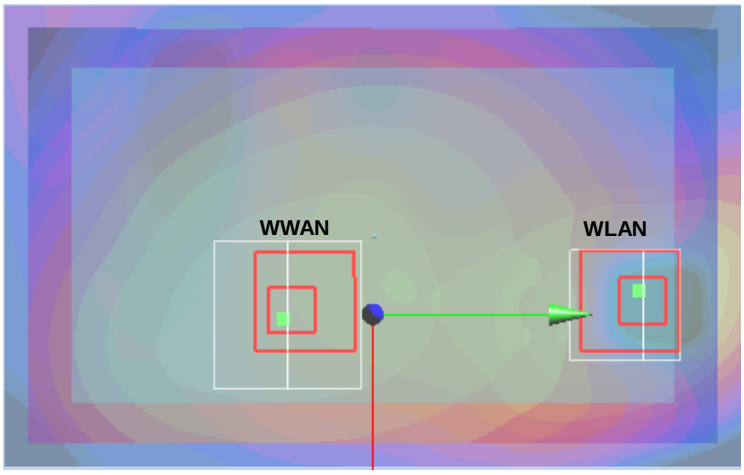
Case 14	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE B2	Back	1.235	1	0.00647	-0.0465	-0.204	105.6	2.67	0.04	Not required
	WLAN5GHz		1.434	1cm	0.00201	0.059	-0.204				



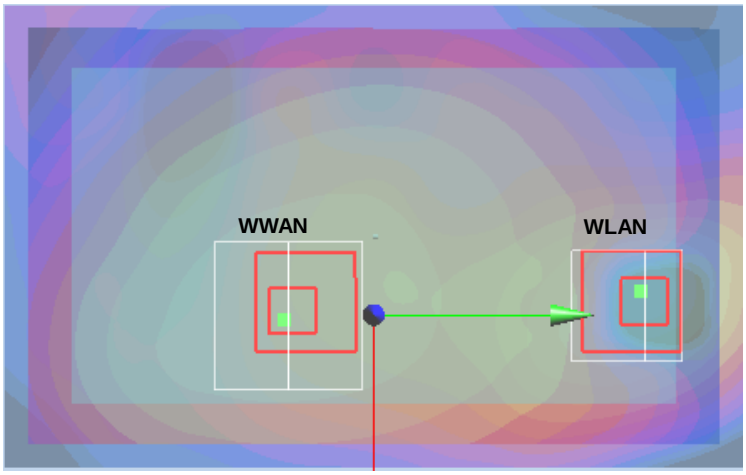
Case 15	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Back	0.565	1cm	0.0022	-0.0504	-0.203	109.4	2.00	0.03	Not required
	WLAN5GHz		1.434	1cm	0.00201	0.059	-0.204				



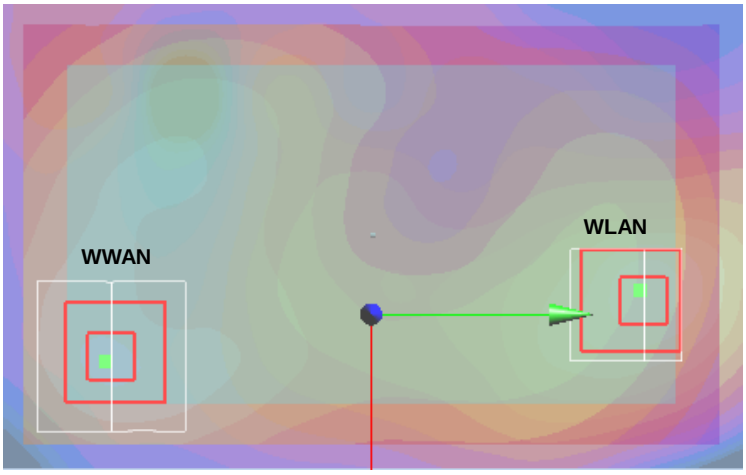
Case 16	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Back	0.520	1.5cm	-0.00602	-0.0235	-0.205	76.9	1.85	0.03	Not required
	WLAN5GHz		1.334	1.5cm	0.00198	0.053	-0.204				



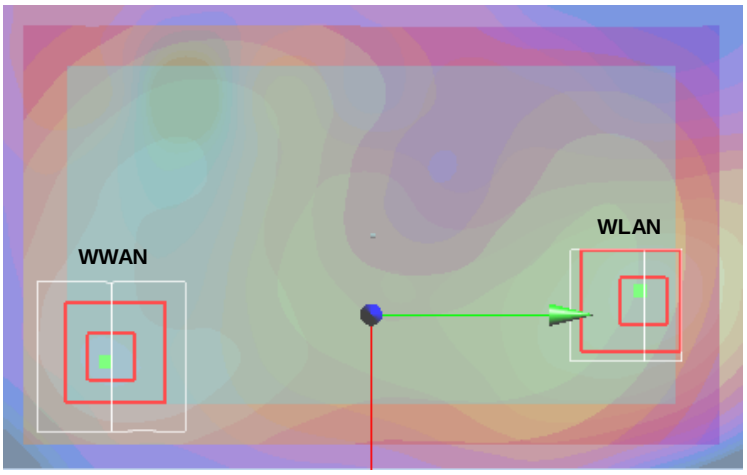
Case 17	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM850	Back with Headset	0.520	1.5cm	-0.00602	-0.0235	-0.205	80.7	1.84	0.03	Not required
	WLAN5GHz		1.315	1.5cm	0.000001	0.057	-0.203				



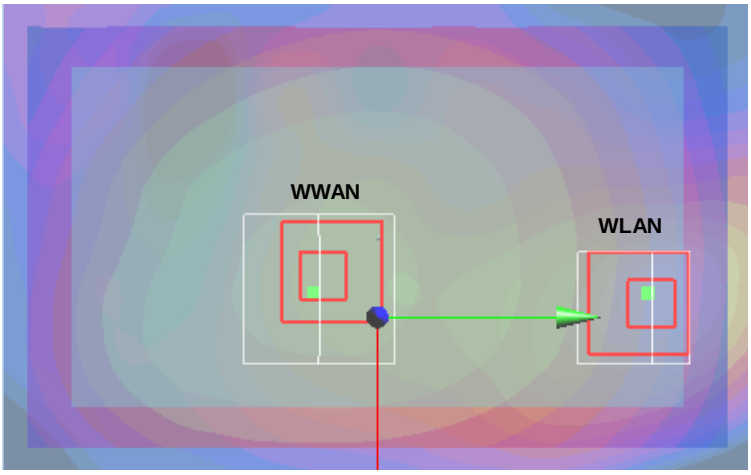
Case 18	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Back	0.424	1.5cm	0.00748	-0.0425	-0.203	95.7	1.76	0.02	Not required
	WLAN5GHz		1.334	1.5cm	0.00198	0.053	-0.204				



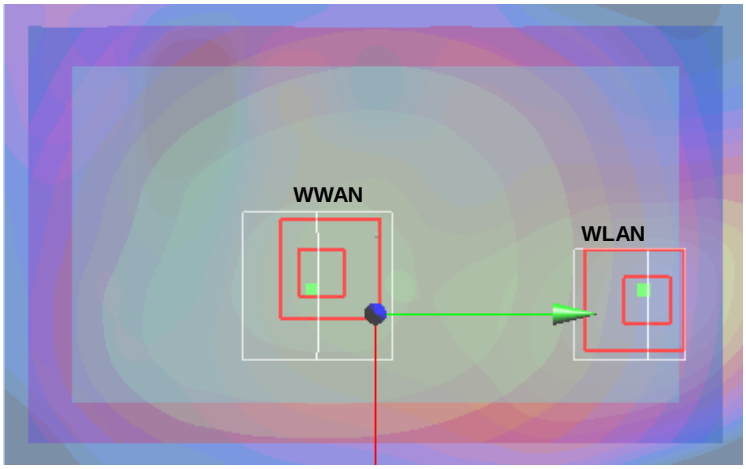
Case 19	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	GSM1900	Back with Headset	0.424	1.5cm	0.00748	-0.0425	-0.203	99.8	1.74	0.02	Not required
	WLAN5GHz		1.315	1.5cm	0.000001	0.057	-0.203				



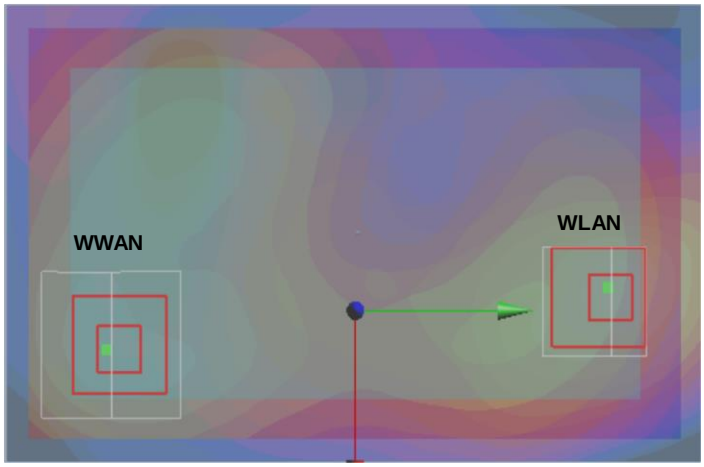
Case 20	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Back	0.459	1.5cm	-0.00601	-0.0125	-0.201	66.1	1.79	0.04	Not required
	WLAN5GHz		1.334	1.5cm	0.00198	0.053	-0.204				



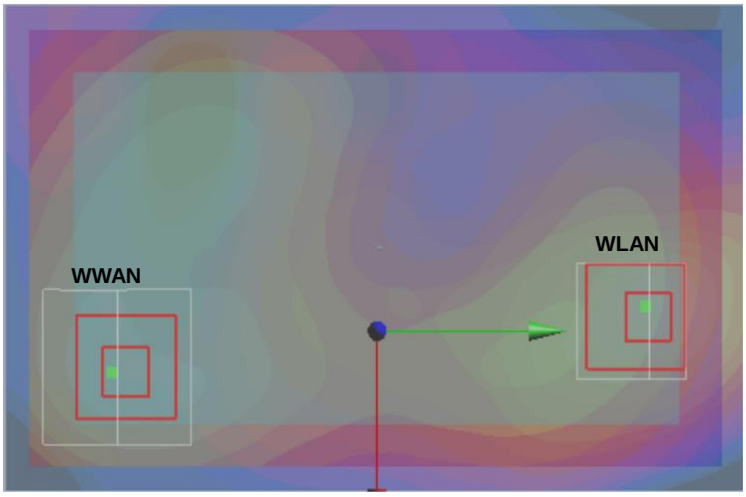
Case 21	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA V	Back with Headset	0.459	1.5cm	-0.00601	-0.0125	-0.201	69.8	1.77	0.03	Not required
	WLAN5GHz		1.315	1.5cm	0.000001	0.057	-0.203				



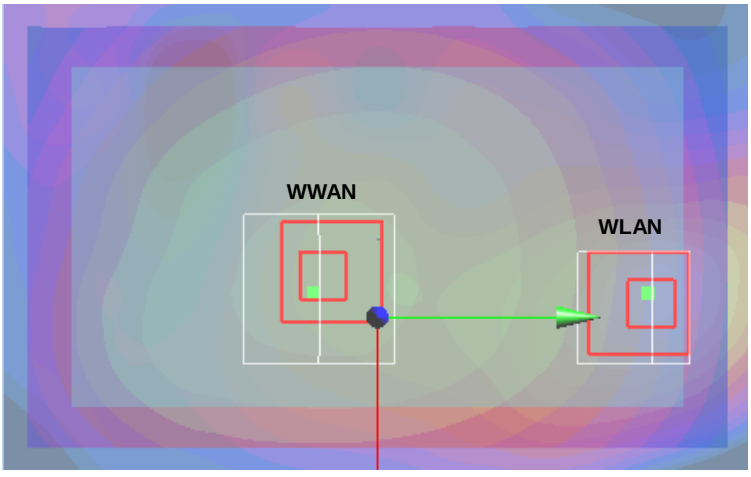
Case 22	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Back	0.672	1.5cm	0.00748	-0.0425	-0.204	95.7	2.01	0.03	Not required
	WLAN5GHz		1.334	1.5cm	0.00198	0.053	-0.204				



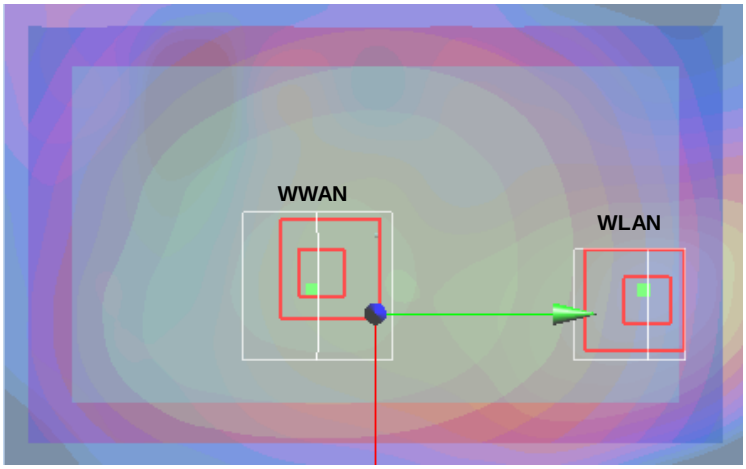
Case 23	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	WCDMA II	Back with Headset	0.672	1.5cm	0.00748	-0.0425	-0.204	99.8	1.99	0.03	Not required
	WLAN5GHz		1.315	1.5cm	0.000001	0.057	-0.203				



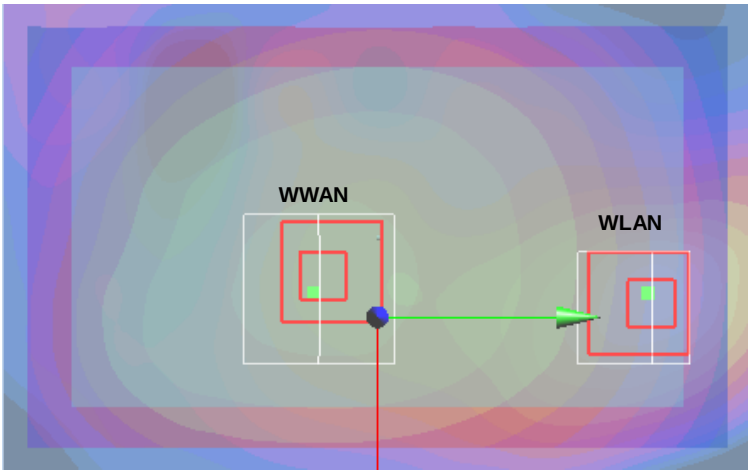
Case 24	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B17	Back	0.365	1.5cm	-0.00752	-0.038	-0.205	91.5	1.70	0.02	Not required
	WLAN5GHz		1.334	1.5cm	0.00198	0.053	-0.204				



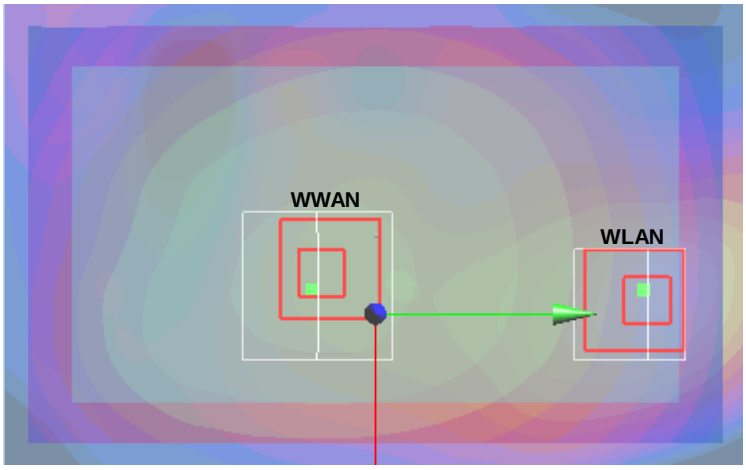
Case 25	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE B17	Back with Headset	0.365	1.5cm	-0.00752	-0.038	-0.205	95.3	1.68	0.02	Not required
	WLAN5GHz		1.315	1.5cm	0.000001	0.057	-0.203				



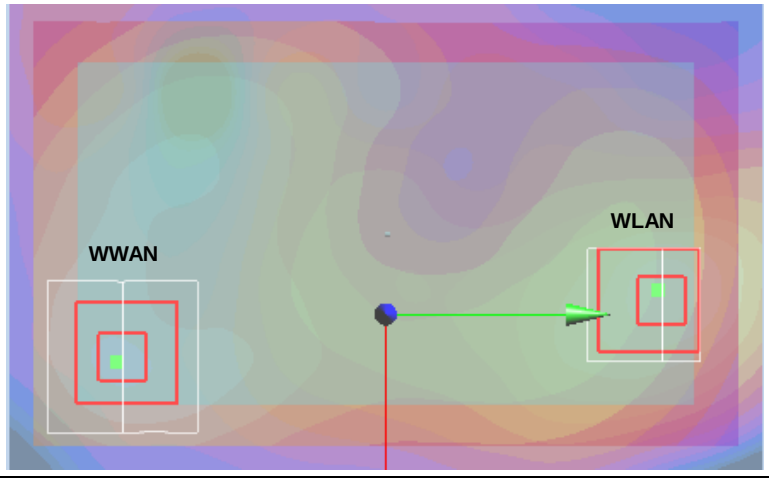
Case 26	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5	Back	0.430	1.5cm	-0.00752	-0.0125	-0.203	66.2	1.76	0.04	Not required
	WLAN5GHz		1.334	1.5cm	0.00198	0.053	-0.204				



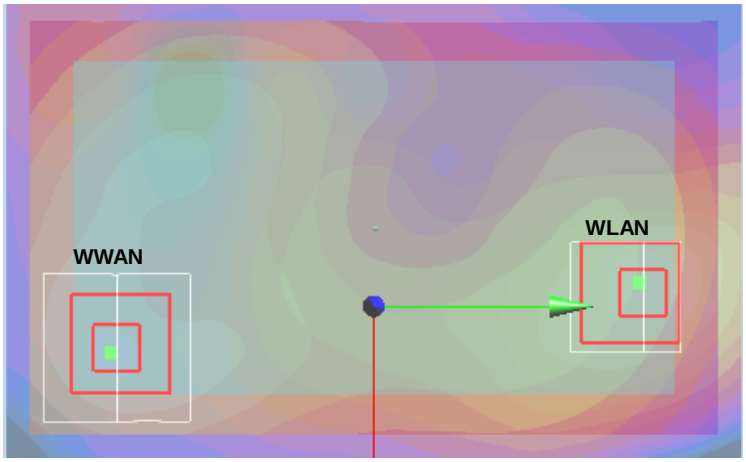
Case 27	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 5	Back with Headset	0.430	1.5cm	-0.00752	-0.0125	-0.203	69.9	1.75	0.03	Not required
	WLAN5GHz		1.315	1.5cm	0.000001	0.057	-0.203				



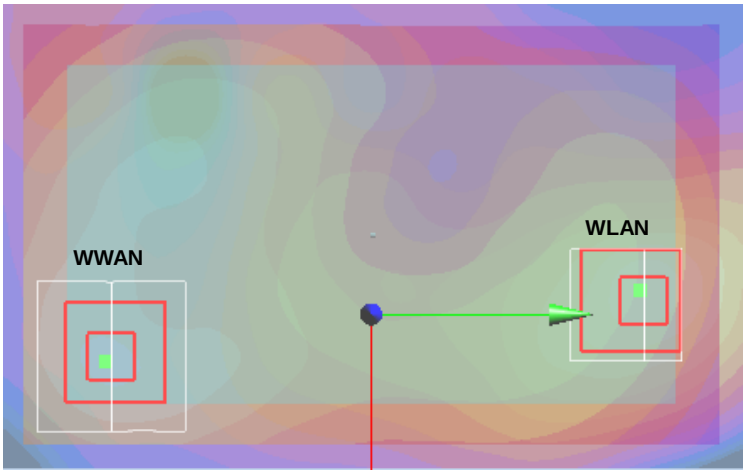
Case 28	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 4	Back	0.768	1.5cm	0.00744	-0.0505	-0.203	103.6	2.10	0.03	Not required
	WLAN5GHz		1.334	1.5cm	0.00198	0.053	-0.204				



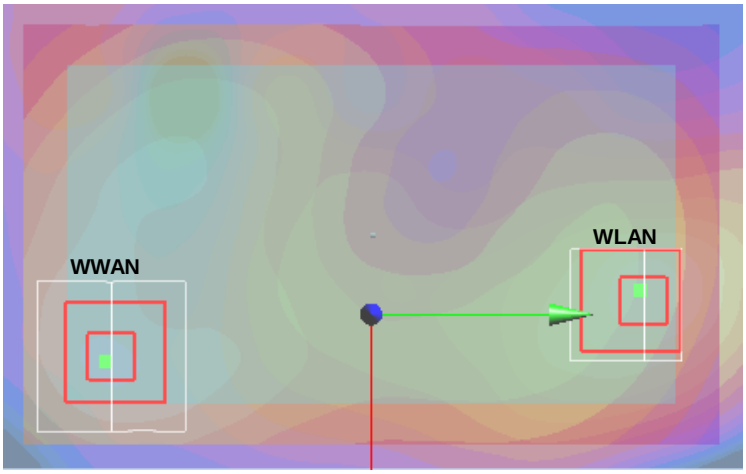
Case 29	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 4	Back with Headset	0.768	1.5cm	0.00744	-0.0505	-0.203	107.8	2.08	0.03	Not required
	WLAN5GHz		1.315	1.5cm	0.000001	0.057	-0.203				



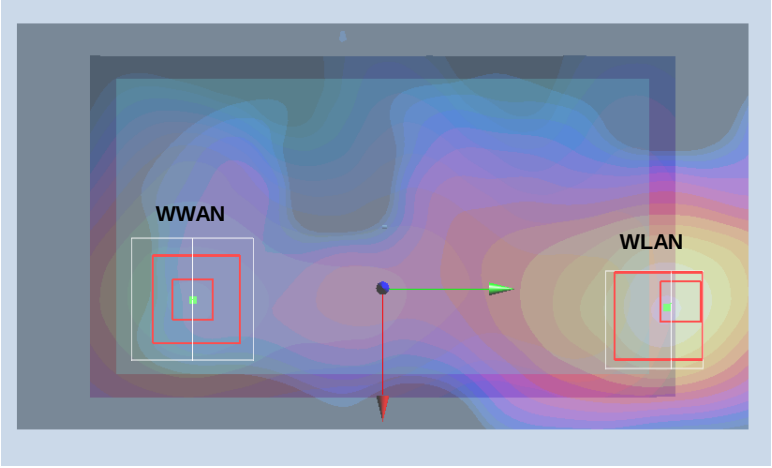
Case 30	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2	Back	0.750	1.5cm	0.00899	-0.056	-0.201	109.3	2.08	0.03	Not required
	WLAN5GHz		1.334	1.5cm	0.00198	0.053	-0.204				



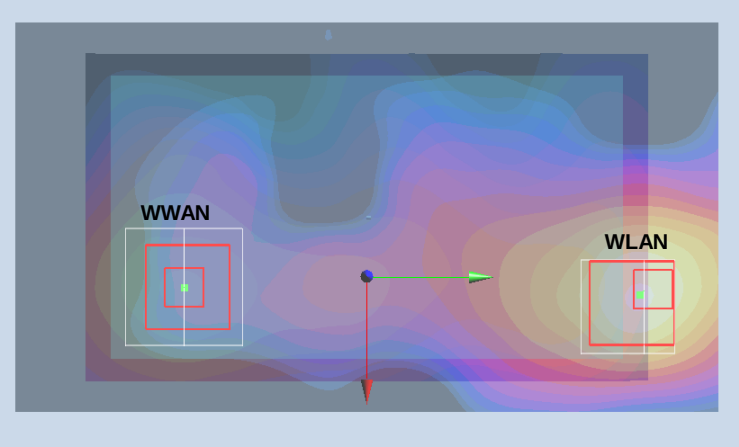
Case 31	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 2	Back with Headset	0.750	1.5cm	0.00899	-0.056	-0.201	113.4	2.07	0.03	Not required
	WLAN5GHz		1.315	1.5cm	0.000001	0.057	-0.203				



Case 32	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m) X	Y	Z	3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
	LTE Band 7	Back Back	0.373	1cm	0.000963	-0.0468	-0.203	99.8	1.71	0.02	Not required
	WLAN5GHz		1.334	1.5cm	0.00198	0.053	-0.204				



Case 33	Band	Position	SAR (W/kg)	Gap (cm)	SAR peak location (m)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
					X	Y	Z				
	LTE Band 7	Back with Headset	0.373	1cm	0.000963	-0.0468	-0.203	103.8	1.69	0.02	Not required
	WLAN5GHz		1.315	1.5cm	0.000001	0.057	-0.203				



Test Engineer： Frank Wu, San Lin, Kurt Liu, Lawrence Chen, Iran Wang, Galen Zhang, Poa Pan, and Tom Jiang

16. Uncertainty Assessment

The component of uncertainly may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainly by the statistical analysis of a series of observations is termed a Type An evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor[a]	1/k[b]	1/√3	1/√6	1/√2

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

Table 16.1. Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.0	Normal	1	1	1	± 6.0 %	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	1	± 0.2 %	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 11.0 %	± 10.8 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 22.0 %**	**± 21.5 %**

Table 16.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.55	Normal	1	1	1	± 6.55 %	± 6.55 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Probe Positioning	9.9	Rectangular	√3	1	1	± 5.7 %	± 5.7 %
Max. SAR Eval.	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 12.8 %	± 12.6 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 25.6 %**	**± 25.2 %**

Table 16.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz

17. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2003, “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, December 2003

[4] SPEAG DASY System Handbook

[5] FCC KDB 248227 D01 v01r02, “SAR Measurement Procedures for 802.11 a/b/g Transmitters”, May 2007

[6] FCC KDB 447498 D01 v05r02, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Feb 2014

[7] FCC KDB 648474 D04 v01r02, “SAR Evaluation Considerations for Wireless Handsets”, Dec 2013.

[8] FCC KDB 941225 D01 v03, “3G SAR Measurement Procedures”, Oct 2014

[9] FCC KDB 941225 D05 v02r03, “SAR Evaluation Considerations for LTE Devices”, Dec 2013

[10] FCC KDB 865664 D01 v01r03, "SAR Measurement Requirements for 100 MHz to 6 GHz", Feb 2014.

[11] FCC KDB 865664 D02 v01r01, “RF Exposure Compliance Reporting and Documentation Considerations” May 2013.