FCC SAR Test Report

APPLICANT	:	Xiaomi Communications Co., Ltd.
EQUIPMENT	:	Mobile Phone
BRAND NAME	:	Redmi
MODEL NAME	:	M2101K6R
FCC ID	:	2AFZZK6R
STANDARD	:	FCC 47 CFR Part 2 (2.1093)

The product was received on Nov. 28, 2020 and testing was started from Dec. 20, 2020 and completed on Jan. 10, 2021. We, Sporton International (Kunshan) 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

Rose Wang

Reviewed by: Rose Wang / Supervisor

Kat Yin

Approved by: Kat Yin / Manager

ACCREDITED Cert #5145.02

Sporton International (Kunshan) Inc.
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

Table of Contents

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA0N2803-01	Rev. 01	Initial issue of report.	Jan. 20, 2021

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Xiaomi Communications Co., Ltd., Mobile Phone, M2101K6R,** are as follows.

Highest 1g SAR Summary						
Equipment Class	Frequency Band		Head (Separation 0mm)	Hotspot (Separation 10mm)	Body-worn (Separation 15mm)	Highest Simultaneous Transmission 1g SAR (W/kg)
			1g SAR (W/kg)			
Licensed	GSM	GSM850	0.28	0.21	0.14	1.59
		GSM1900	0.36	0.34	0.48	
	WCDMA	Band V	0.65	0.28	0.21	
		Band IV	0.65	0.66	0.79	
		Band II	0.68	0.73	0.75	
	LTE	Band 26/5	1.04	0.32	0.24	
		Band 12/17	0.49	0.16	0.14	
		Band 4	0.76	0.60	0.80	
		Band 2	0.67	**0.80**	**1.01**	
		Band 7	0.96	0.51	0.73	
		Band 66	1.07	0.53	0.82	
		Band 38	1.06	0.69	0.47	
		Band 41	**1.09**	0.59	0.46	
DTS	WLAN	2.4GHz WLAN	0.90	0.19	0.13	1.59
NII		5GHz WLAN	**1.09**	0.76	0.85	1.59
DSS	Bluetooth	2.4GHz Bluetooth	<0.10	<0.10	<0.10	1.59

Highest 10g SAR Summary				
Equipment Class	Frequency Band		Product Specific 10g SAR (W/kg) (Separation 0mm)	Highest Simultaneous Transmission 10g SAR (W/kg)
Licensed	LTE	Band 2	**2.60**	2.60
NII	WLAN	5GHz WLAN	1.94	2.60
Date of Testing:			2020/12/20 ~ 2021/1/10	

Remark: This device supports LTE B5 / B17 and B26 / B12. Since the supported frequency span for LTE B5 / B17 falls completely within the supports frequency span for LTE B26 / B12, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B26 / B12.

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for Partial-Body 1g SAR, 4.0 W/kg for Product Specific 10g SAR) 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 1528-2013 and FCC KDB publications.

2. Administration Data

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Testing Laboratory		
Test Firm	Sporton International (Kunshan) Inc.	
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958	
Test Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CN1257	314309

Applicant	
Company Name	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer	
Company Name	Xiaomi Communications Co., Ltd.
Address	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

3. Guidance Applied

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 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r02
- FCC KDB 447498 D01 General RF Exposure Guidance v06
- FCC KDB 648474 D04 SAR Evaluation Considerations for Wireless Handsets v01r03
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r02
- FCC KDB 941225 D01 3G SAR Procedures v03r01
- FCC KDB 941225 D05 SAR for LTE Devices v02r05
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r02
- FCC KDB 941225 D06 Hotspot Mode SAR v02r01

4. Equipment Under Test (EUT) Information

4.1 General Information

Product Feature & Specification	
Equipment Name	Mobile Phone
Brand Name	Redmi
Model Name	M2101K6R
FCC ID	2AFZZK6R
IMEI Code	SIM1: 863452050005502 SIM2: 863452050005510
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 ~ 715.3 MHz LTE Band 17: 706.5 ~ 713.5 MHz LTE Band 26: 814.7 ~ 848.3 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2547.5 MHz ~ 2647.5 MHz LTE Band 66: 1710.7MHz ~ 1779.3 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 RMC/AMR 12.2Kbps HSDPA HSUPA DC-HSDPA HSPA+(16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM, 256QAM(Downlink only) WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE NFC:ASK
HW Version	P2
SW Version	MIUI 12
GSM / (E)GPRS Transfer mode	Class B – EUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
EUT Stage	Identical Prototype

Remark:

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), LTE supports VoLTE operation.
2. This device 2.4GHz WLAN support hotspot operation and Bluetooth support tethering applications.
3. This device 2.4GHz WLAN/5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WiFi Direct (GC/GO), and 5.3GHz / 5.5GHz supports WiFi Direct (GC only).
4. This device does not support DTM operation and supports GRPS/EGRPS mode up to multi-slot class 33.
5. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.

6. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E. power table. Full power table and reduced power table (DSI 1: receiver on reduced power for head; DSI 3: handheld on reduced power for extremity; DSI 5: hotspot on reduced power for hotspot).
7. There are two types of EUT, the sample 1 is 6+64GB capacity and the sample 2 is 6+128GB capacity. According to the difference, we only choose sample 1 to perform full SAR testing.

4.2 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r05	
FCC ID	2AFZZK6R
Equipment Name	Mobile Phone
Operating Frequency Range of each LTE transmission band	LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 ~ 715.3 MHz LTE Band 17: 706.5 ~ 713.5 MHz LTE Band 26: 814.7 ~ 848.3 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41: 2547.5 MHz ~ 2647.5 MHz LTE Band 66: 1710.7MHz ~ 1779.3 MHz
Channel Bandwidth	LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK / 16QAM / 64QAM /256QAM(Downlink only)
LTE Voice / Data requirements	Voice and Data
LTE Release Version	R11, Cat12
CA Support	Supported, Uplink and Downlink
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3** Modulation | Channel bandwidth / Transmission bandwidth (N_{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 64 QAM: ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 2 64 QAM: > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | ≤ 3 256 QAM: ≥ 1 | ≤ 5
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, head/body-worn/ hotspot/extremity will trigger reduced power for some LTE bands, the detail please referred to section 13.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations and the detail power verification please referred to section 13.
LTE Carrier Aggregation Additional Information	1. This device supports LTE Carrier Aggregation (CA) in the uplink for 2C/7C/38C with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per FCC Guidance. 2. This device supports maximum of 3 carriers in the downlink and 2 carriers in the uplink.

Transmission (H, M, L) channel numbers and frequencies in each LTE band

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 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 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 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

LTE Band 12

	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	23017	699.7	23025	700.5	23035	701.5	23060	704
M	23095	707.5	23095	707.5	23095	707.5	23095	707.5
H	23173	715.3	23165	714.5	23155	713.5	23130	711

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 26

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	26697	814.7	26705	815.5	26715	816.5	26740	819	26765	821.5
M	26865	831.5	26865	831.5	26865	831.5	26865	831.5	26865	831.5
H	27033	848.3	27025	847.5	27015	846.5	26990	844	26965	841.5

LTE Band 38

	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	37775	2572.5	37800	2575	37825	2577.5	37850	2580
M	38000	2595	38000	2595	38000	2595	38000	2595
H	38225	2617.5	38200	2615	38175	2612.5	38150	2610

LTE Band 41

	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	40165	2547.5	40190	2550	40215	2552.5	40240	2555
LM	40485	2579.5	40490	2580	40495	2580.5	40500	2581
M	40805	2611.5	40790	2610	40785	2609.5	40770	2608
HM	41165	2647.5	41140	2645	41115	2642.5	41090	2640

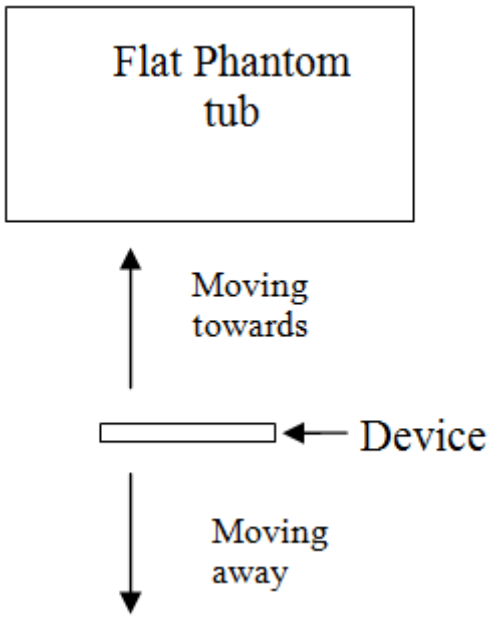
LTE Band 66

	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	131979	1710.7	131987	1711.5	131997	1712.5	132022	1715	132047	1717.5	132072	1720
M	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745	132322	1745
H	132665	1779.3	132657	1778.5	132647	1777.5	132622	1775	132597	1772.5	132572	1770

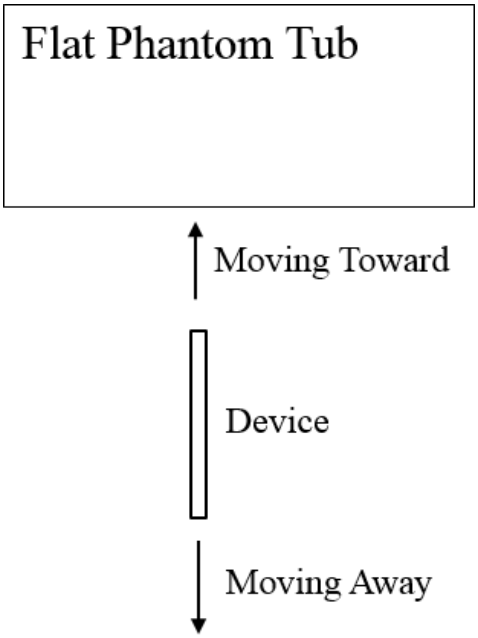
5. Proximity Sensor Triggering Test

5.1 Proximity sensor triggering distances(Per KDB616217§6.2)

1. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.
2. In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.
3. Capacitive proximity sensor placed coincident with antenna elements at the top/bottom end of the phone are utilized to determine when the device comes in proximity of the user's body at the front or back or top or bottom or left side surface of the device. There is no need to do sensor coverage testing for the proximity sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the proximity sensor entirely covers the antenna.
4. P-sensor can detect handheld state, GSM850/1900/WCDMA band II/IV, LTE band 2/4/7/66/41 for front/back/top/bottom/left sides of product specific 10g SAR condition reduced powers will be active for handheld SAR base on different antenna. The proximity sensors trigger distance can refer to the following table.
5. The detailed proximity sensor trigger diagram plot can refer to proximity sensor operation description.



handheld detection test set-up, front and back faces



handheld detection test set-up, bottom side and left side

<Handheld>

Antenna 1:

Position	Front		Back		Bottom Side	
	Moving towards	Moving away	Moving towards	Moving towards	Moving towards	Moving away
Minimum	16	16	16	16	16	16

Antenna 2:

Position	Front		Back		Left Side		Top Side	
	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away	Moving towards	Moving away
Minimum	6	6	6	6	6	6	6	6

6. RF Exposure Limits

6.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

6.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. 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

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.

7. Specific Absorption Rate (SAR)

7.1 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.

7.2 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:

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

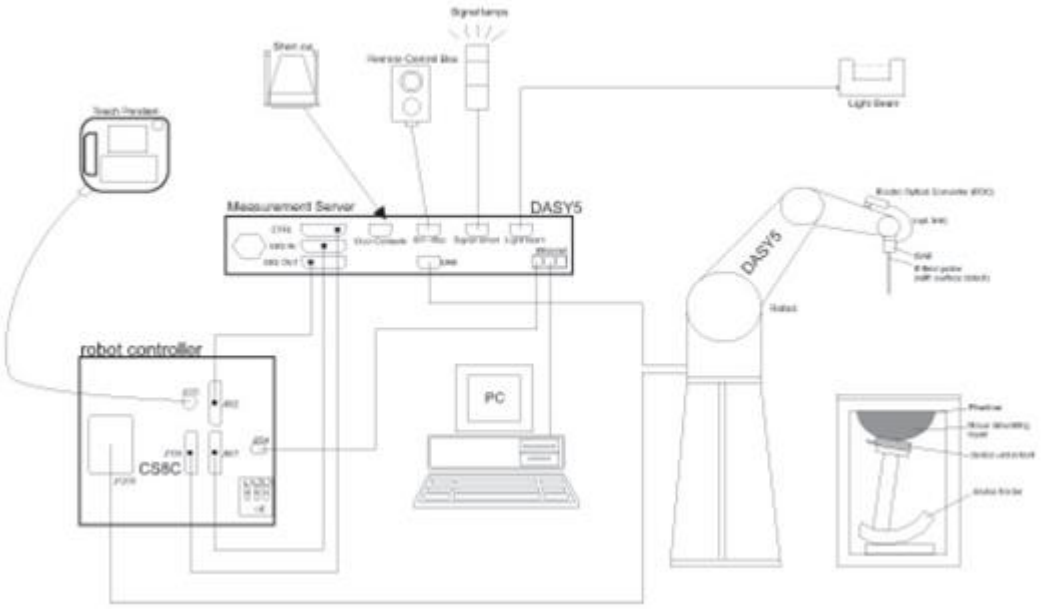
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

8. 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.

8.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

<EX3DV4 Probe>

Construction	Symmetric design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz – >6 GHz Linearity: ±0.2 dB (30 MHz – 6 GHz)
Directivity	±0.3 dB in TSL (rotation around probe axis) ±0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g – >100 mW/g Linearity: ±0.2 dB (noise: typically <1 µW/g)
Dimensions	Overall length: 337 mm (tip: 20 mm) Tip diameter: 2.5 mm (body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm

8.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

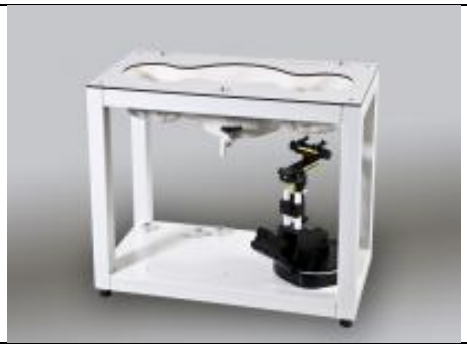
The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Photo of DAE

8.3 Phantom

<SAM Twin Phantom>

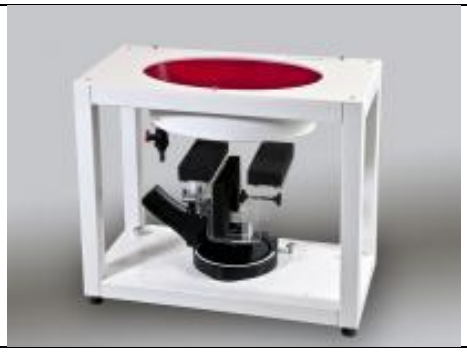
Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom



The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

<ELI Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)
Filling Volume	Approx. 30 liters
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm



The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.4 Device Holder

<Mounting Device for Hand-Held Transmitter>

In combination with the Twin SAM V5.0/V5.0c or ELI phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). And upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140 mm.

Mounting Device for Hand-Held Transmitters

Mounting Device Adaptor for Wide-Phones

<Mounting Device for Laptops and other Body-Worn Transmitters>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

Mounting Device for Laptops

9. 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

9.1 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

9.2 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.

9.3 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 D01v01r04 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.	

9.4 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 D01v01r04 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.

9.5 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.

9.6 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.

10. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1087	2019/3/27	2022/3/26
SPEAG	835MHz System Validation Kit	D835V2	4d151	2019/3/27	2022/3/26
SPEAG	1750MHz System Validation Kit	D1750V2	1090	2019/3/27	2022/3/26
SPEAG	1900MHz System Validation Kit	D1900V2	5d170	2019/3/26	2022/3/25
SPEAG	2450MHz System Validation Kit	D2450V2	908	2019/3/25	2022/3/24
SPEAG	2600MHz System Validation Kit	D2600V2	1061	2020/11/26	2021/11/25
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	2019/9/24	2021/9/23
SPEAG	Data Acquisition Electronics	DAE4	690	2020/3/26	2021/3/25
SPEAG	Dosimetric E-Field Probe	EX3DV4	7592	2020/5/22	2021/5/21
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1697	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8821C	6201432831	2020/4/16	2021/4/15
Agilent	Wireless Communication Test Set	E5515C	MY52102706	2020/4/16	2021/4/15
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	2020/4/16	2021/4/15
SPEAG	Dielectric Probe Kit	DAK-3.5	1144	2020/12/2	2021/12/1
Anritsu	Vector Signal Generator	MG3710A	6201682672	2020/1/8	2021/1/7
Rohde & Schwarz	Power Meter	NRVD	102081	2020/8/14	2021/8/13
Rohde & Schwarz	Power Sensor	NRV-Z5	100538	2020/8/13	2021/8/12
Rohde & Schwarz	Power Sensor	NRV-Z5	100539	2020/8/13	2021/8/12
R&S	CBT BLUETOOTH TESTER	CBT	101641	2020/1/8	2021/1/7
EXA	Spectrum Analyzer	FSV7	101631	2020/1/8	2021/1/7
Testo	Hygrometer	608-H1	1241332088	2020/1/8	2021/1/7
FLUKE	DIGITAC THERMOMETER	51II	97240029	2020/8/14	2021/8/13
ARRA	Power Divider	A3200-2	N/A	Note 1	
MCL	Attenuation1	BW-S10W5+	N/A	Note 1	
MCL	Attenuation2	BW-S10W5+	N/A	Note 1	
MCL	Attenuation3	BW-S10W5+	N/A	Note 1	
Agilent	Dual Directional Coupler	778D	20500	Note 1	
Agilent	Dual Directional Coupler	11691D	MY48151020	Note 1	
BONN	POWER AMPLIFIER	BLMA 0830-3	087193A	Note 1	
BONN	POWER AMPLIFIER	BLMA 2060-2	087193B	Note 1	

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
2. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

11. System Verification

11.1 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 11.2.

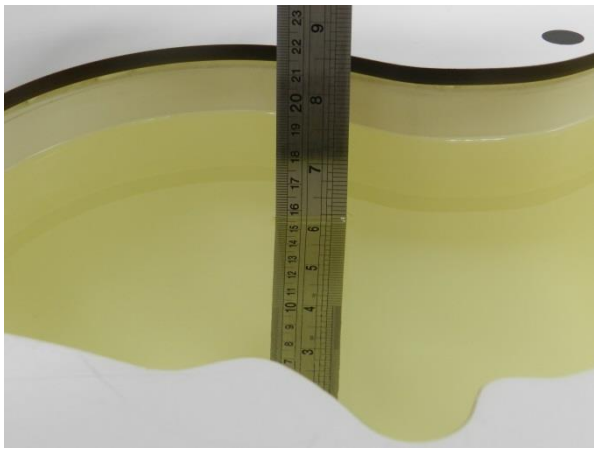


Fig 11.1 Photo of Liquid Height for Head SAR

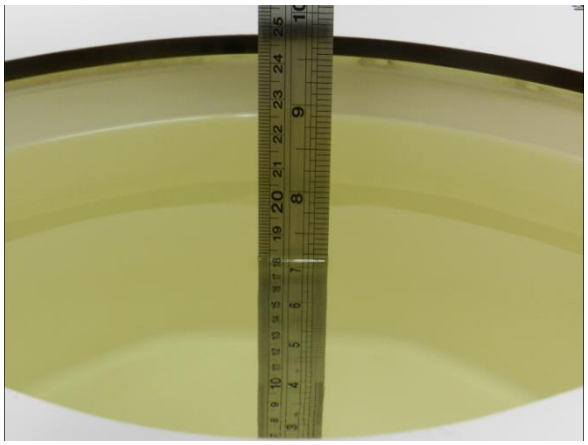


Fig 11.2 Photo of Liquid Height for Body SAR

11.2 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
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

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>

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	Head	22.6	0.924	42.063	0.89	41.90	3.82	0.39	±5	2020/12/20
835	Head	22.8	0.902	41.239	0.90	41.50	0.22	-0.63	±5	2020/12/22
1750	Head	22.7	1.359	41.039	1.37	40.10	-0.80	2.34	±5	2020/12/24
1900	Head	22.9	1.437	40.466	1.40	40.00	2.64	1.17	±5	2020/12/28
2450	Head	22.8	1.757	40.699	1.80	39.20	-2.39	3.82	±5	2020/12/31
2600	Head	22.6	1.957	40.058	1.96	39.00	-0.15	2.71	±5	2020/12/31
5250	Head	22.9	4.556	35.437	4.71	35.90	-3.27	-1.29	±5	2021/1/10
5600	Head	22.7	4.941	34.836	5.07	35.50	-2.54	-1.87	±5	2021/1/10
5750	Head	22.8	5.122	34.563	5.22	35.40	-1.88	-2.36	±5	2021/1/10

11.3 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.

<1g SAR>

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 (%)
2020/12/20	750	Head	250	1087	7592	690	2.09	8.36	8.36	0.00
2020/12/22	835	Head	250	4d151	7592	690	2.28	9.30	9.12	-1.94
2020/12/24	1750	Head	250	1090	7592	690	8.87	36.40	35.48	-2.53
2020/12/28	1900	Head	250	5d170	7592	690	9.74	39.00	38.96	-0.10
2020/12/31	2450	Head	250	908	7592	690	12.10	52.80	48.4	-8.33
2020/12/31	2600	Head	250	1061	7592	690	13.80	56.60	55.2	-2.47
2021/1/10	5250	Head	100	1113	7592	690	7.51	80.50	75.1	-6.71
2021/1/10	5600	Head	100	1113	7592	690	8.41	83.40	84.1	0.84
2021/1/10	5750	Head	100	1113	7592	690	7.65	80.00	76.5	-4.38

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2020/12/20	750	Head	250	1087	7592	690	1.37	5.65	5.48	-3.01
2020/12/22	835	Head	250	4d151	7592	690	1.49	6.16	5.96	-3.25
2020/12/24	1750	Head	250	1090	7592	690	4.73	19.20	18.92	-1.46
2020/12/28	1900	Head	250	5d170	7592	690	5.07	20.30	20.28	-0.10
2020/12/31	2450	Head	250	908	7592	690	5.69	24.20	22.76	-5.95
2020/12/31	2600	Head	250	1061	7592	690	6.24	25.10	24.96	-0.56
2021/1/10	5250	Head	100	1113	7592	690	2.19	23.10	21.9	-5.19
2021/1/10	5600	Head	100	1113	7592	690	2.43	23.80	24.3	2.10
2021/1/10	5750	Head	100	1113	7592	690	2.22	22.80	22.2	-2.63

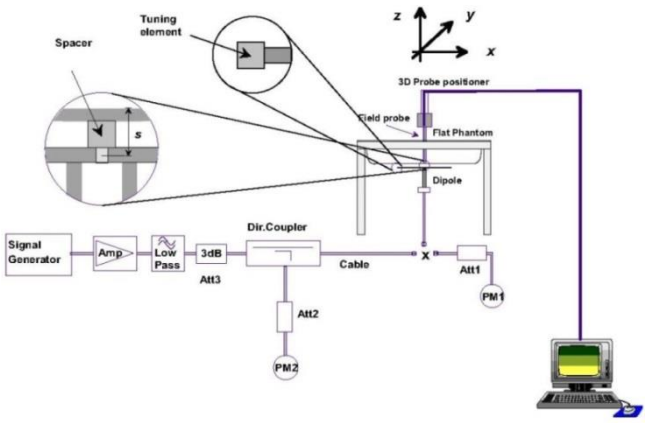


Fig 11.3.1 System Performance Check Setup

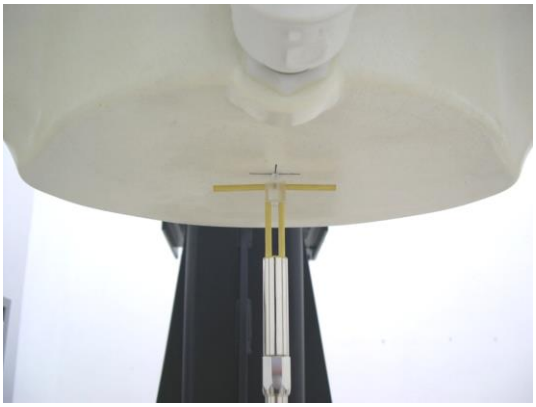


Fig 11.3.2 Setup Photo

12. RF Exposure Positions

12.1 Ear and handset reference point

Figure 12.1.1 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 12.1.2 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 12.1.3). 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 12.1.2. The ear truncation is introduced to preclude the ear lobe from interfering with handset tilt, which could lead to unstable positioning at the cheek.

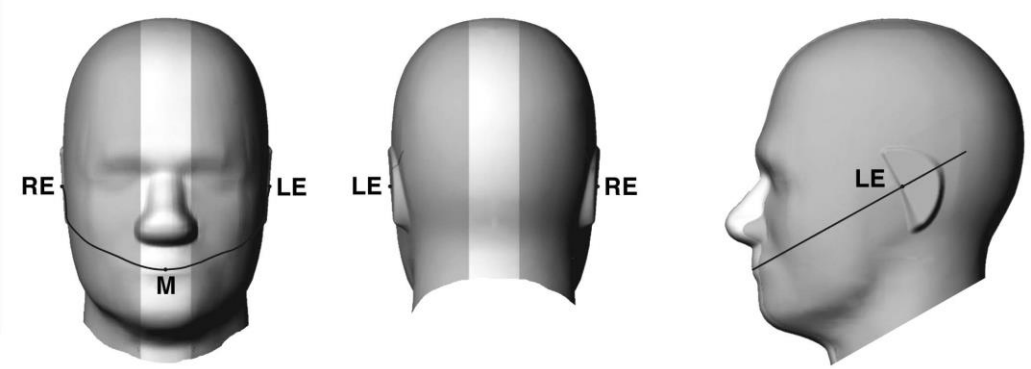


Fig 12.1.1 Front, back, and side views of SAM twin phantom

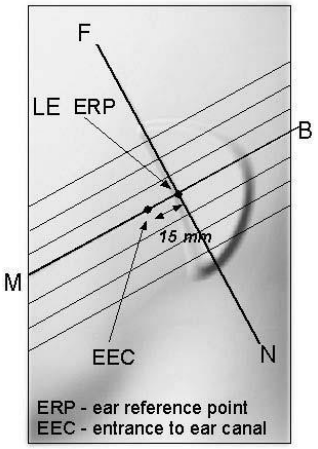


Fig 12.1.2 Close-up side view of phantom showing the ear region.

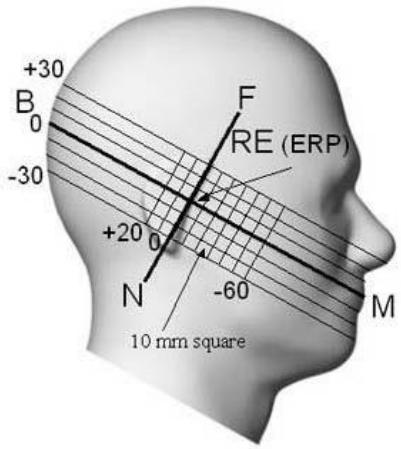


Fig 12.1.3 Side view of the phantom showing relevant markings and seven cross-sectional plane locations

12.2 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 12.2.1 and Figure 12.2.2), 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 12.2.1). 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 12.2.2), 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 12.2.3), 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 12.2.3. The actual rotation angles should be documented in the test report.

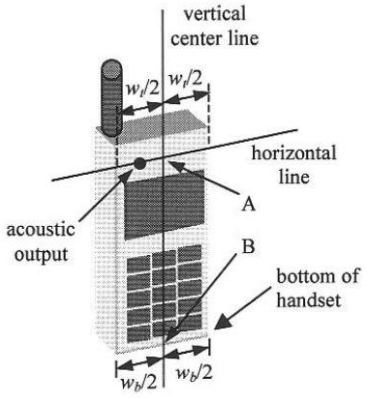


Fig 12.2.1 Handset vertical and horizontal reference lines—"fixed case

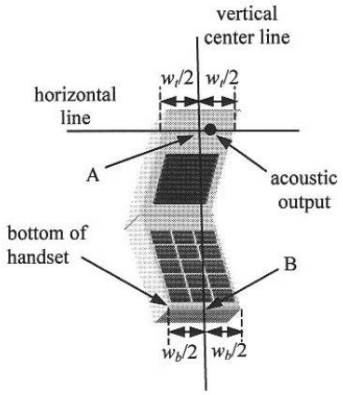


Fig 12.2.2 Handset vertical and horizontal reference lines—"clam-shell case"

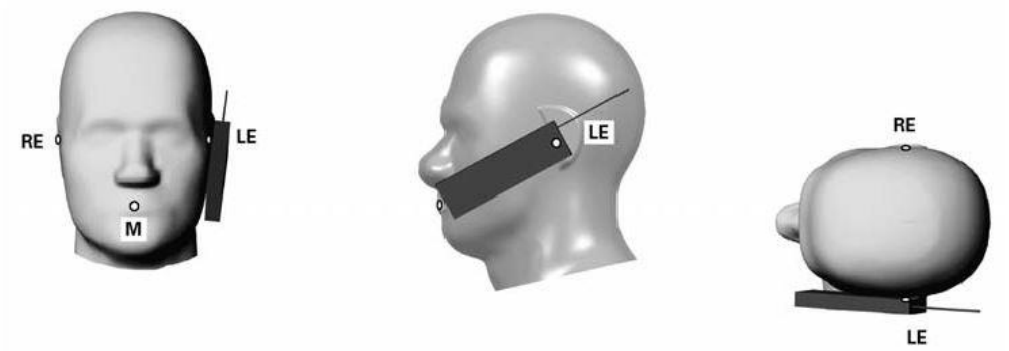


Fig 12.2.3 cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

12.3 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 12.3.1. 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

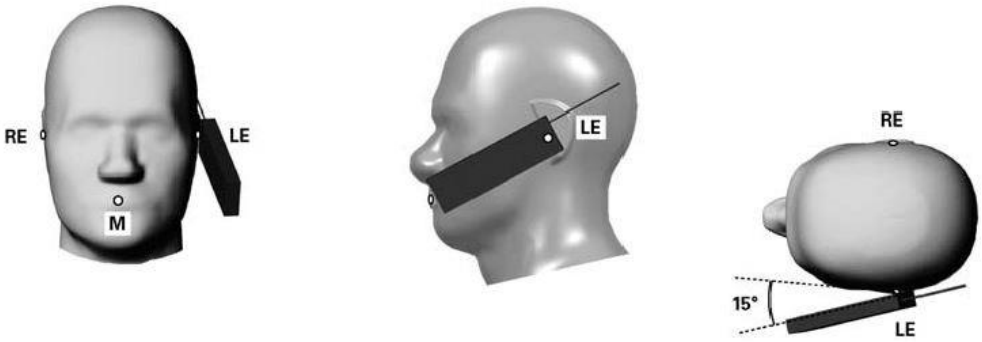


Fig 12.3.1 Tilt position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which define the Reference Plane for handset positioning, are indicated.

12.4 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 12.4). Per KDB648474 D04v01r03, body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for 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.

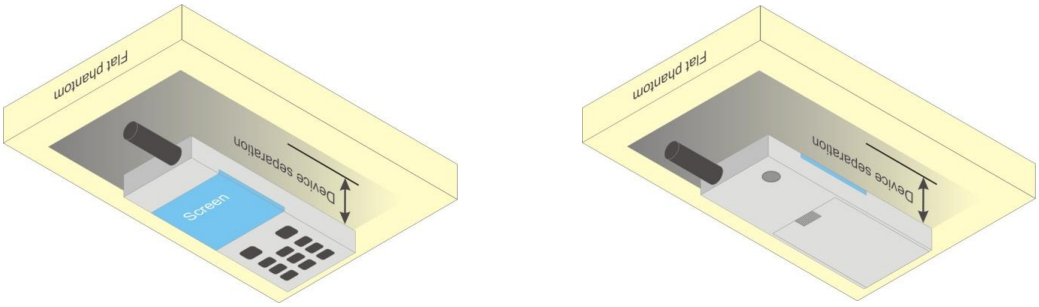


Fig 12.4 Body Worn Position

12.5 Product Specific 10g SAR Exposure

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, According to KDB648474 D04v01r03, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.

2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions.6 The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg.

12.6 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 KDB Publication 941225 D06 v02r01 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 D01v06 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.

13. Conducted RF Output Power (Unit: dBm)

The detailed conducted power table can refer to Appendix E.

<GSM Conducted Power>

1. Per KDB 447498 D01v06, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 2Tx slots for GSM850, GPRS 1Tx slots for GSM1900 are considered as the primary mode.
3. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, 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.

<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 D01v03r01 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 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	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	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 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	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * 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: 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 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

a. The EUT was connected to Base Station 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.		

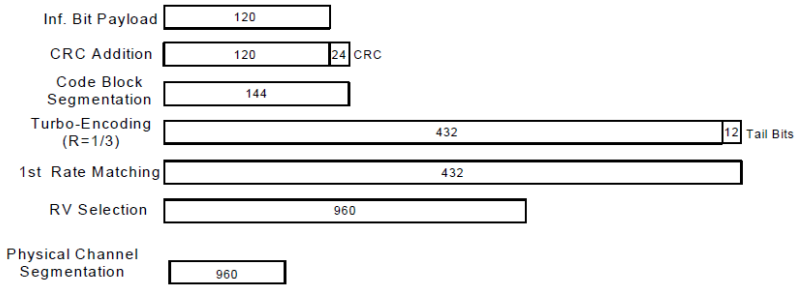


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

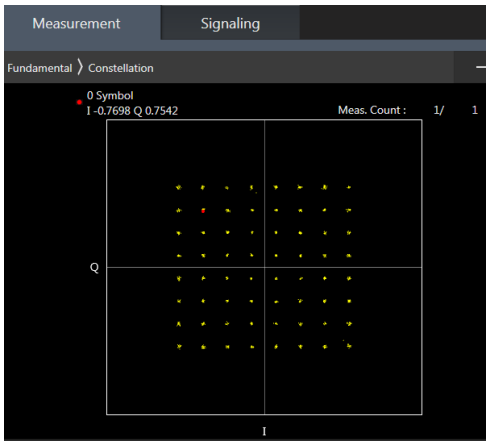
General Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA

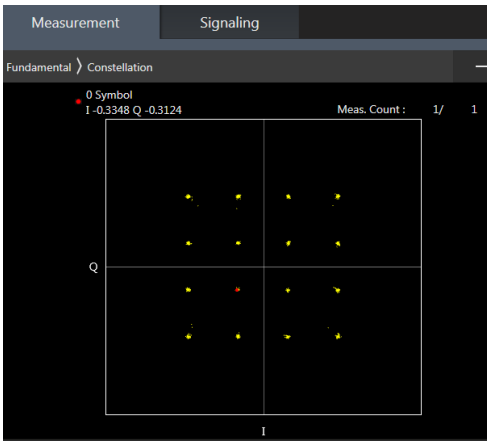
<LTE Conducted Power>

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 D05v02r05, 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 D05v02r05, 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 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, 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 D05v02r05, 16QAM/64QAM 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 D05v02r05, 16QAM/64QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, 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 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTE B4 / B5 / B12 / B17 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
9. According to 2017 TCB workshop, for 64 QAM and 16 QAM should be verified by checking the signal constellation with a call box to avoid incorrect maximum power levels due to MPR and other requirements associated with signal modulation, and the following figure is taken from the "Fundamental Measurement >> Modulation Analysis >> constellation" mode of the device connect to the MT8821C base station, therefore, the device 64QAM and 16QAM signal modulation are correct.



64QAM



16QAM

<TDD LTE SAR Measurement>

TDD LTE configuration setup for SAR measurement

SAR was tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

a. 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations

b. "special subframe S" contains both uplink and downlink transmissions, it has been taken into consideration to determine the transmission duty factor according to the worst case uplink and downlink cyclic prefix requirements for UpPTS

c. Establishing connections with base station simulators ensure a consistent means for testing SAR and recommended for evaluating SAR. The Anritsu MT8820C (firmware: #22.52#004) was used for LTE output power measurements and SAR testing.

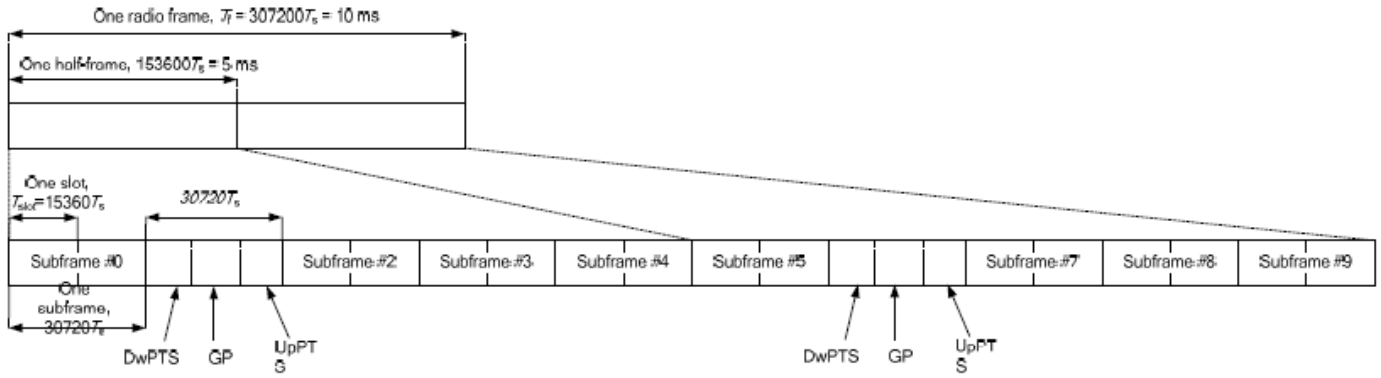


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity).

Table 4.2-2: Uplink-downlink configurations.

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

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

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$	$7680 \cdot T_s$	$2192 \cdot T_s$	$2560 \cdot T_s$
1	$19760 \cdot T_s$			$20480 \cdot T_s$		
2	$21952 \cdot T_s$			$23040 \cdot T_s$		
3	$24144 \cdot T_s$			$25600 \cdot T_s$		
4	$26336 \cdot T_s$			$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Special subframe (30720·T_s): Normal cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~4**	7.13%	8.33%
	5~9	14.3%	16.7%

Special subframe(30720·T_s): Extended cyclic prefix in downlink (UpPTS)			
	Special subframe configuration	**Normal cyclic prefix in uplink**	**Extended cyclic prefix in uplink**
Uplink duty factor in one special subframe	**0~3**	7.13%	8.33%
	4~7	14.3%	16.7%

The highest duty factor is resulted from:

For LTE Band 41 Power class 3

i. Uplink-downlink configuration: 0. In a half-frame consisted of 5 subfames, uplink operation is in 3 uplink subframes and 1 special subframe.

ii. special subframe configuration: 5-9 for normal cyclic prefix in downlink, 4-7 for extended cyclic prefix in downlink

iii. for special subframe with extended cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.167)/5 = 63.3%

iv. for special subframe with normal cyclic prefix in uplink, the total uplink duty factor in one half-frame is: (3+0.143)/5 = 62.9%

v. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The scaled TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.

<LTE Carrier Aggregation>

General Note:

1. This device supports Carrier Aggregation on downlink for inter and intra band. For the device supports bands and bandwidths and configurations are provided as follow table was according to 3GPP.
2. In applying the existing power measurement procedures of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of frequency bands and CCs in each row need combination, and for this device that all the configurations were choose to power measurement.
3. The gray color table is covered by other combinations and no need to verify power.

2CC Downlink Carrier Aggregation			3CC Downlink Carrier Aggregation		
Number	Combination	Covered by Measurement Superset	Number	Combination	Covered by Measurement Superset
2CC #1	CA_7A-7A		3CC #1	CA_4A-7C	
2CC #2	CA_41A-41A		3CC #2	CA_5A-7A-7A	
2CC #3	CA_2A-5A		3CC #3	CA_5A-7C	
2CC #4	CA_4A-5A				
2CC #5	CA_4A-7A				
2CC #6	CA_5A-7A				

LTE Carrier Aggregation Conducted Power (Downlink)

i. According to KDB941225 D05A v01r02, Uplink maximum output power measurement with downlink carrier aggregation active should be measured, using the highest output channel measured without downlink carrier aggregation, to confirm that uplink maximum output power with downlink carrier aggregation active remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output measured without downlink carrier aggregation active.

ii. Uplink maximum output power with downlink carrier aggregation active does not show more than ¼ dB higher than the maximum output power without downlink carrier aggregation active, therefore SAR evaluation with downlink carrier aggregation active can be excluded.

iii. The device supports downlink two carrier aggregation. For power measurement were control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.

iv. Selected highest measured power when downlink carrier aggregation is inactive for conducted power comparison with downlink carrier aggregation is active, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

v. For inter-band CA, the SCC selected highest bandwidth and near the middle of its transmission band. For SCC DL RB size and offset will base on the PCC corresponding RB allocation.

vi. For non-contiguous intra-band CA, the SCC selected to provide maximum separation from the PCC and must remain fully within the downlink transmission band.

vii. For Intra-band, contiguous CA, the downlink channels selected to perform the uplink power measurement must satisfy 3GPP channel spacing (5.4.1A of 3GPP TS 36.521 or equivalent) and channel bandwidth (5.4.2A) requirements.

$$\text{Nominal channel spacing} = \left\lfloor \frac{BW_{Channel(1)} + BW_{Channel(2)} - 0.1\left|BW_{Channel(1)} - BW_{Channel(2)}\right|}{0.6} \right\rfloor 0.3 \ \ [\text{MHz}]$$

LTE Carrier Aggregation Conducted Power (Uplink)

1. This device supports uplink carrier aggregation for LTE CA_2C, LTE CA_7C, LTE CA_38C with a maximum of two 20MHz component carriers. For intra band contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. For the non-contiguously allocated resource blocks which the MPR level is determined by various RB separation and RB sizes requirement, and the allowed MPR levels, settings and the conducted powers are permanently implemented in this device per the 3GPP 36.36.101 section 6.2.3A.1.3 requirements.
2. According to FCC guidance, the output power with uplink CA active was measured for the high / middle / low channel configuration with the highest reported SAR for each exposure condition, the power was measured with wideband signal integration over both component carriers.
3. In applying the power measurement procedures of KDB 941225 D05A for DL CA to qualify for UL SAR test exclusion, power measurement is required only for the subset in each row with the largest combination of frequency bands and CCs
4. Maximum output power measurement is required for each UL CA configuration for the required test channels described in KDB 941225 D05. The required test channel should be associated with the UL PCC. For channels at the ends of a frequency band, the SCC and subsequent CCs are added to the side within the transmission band. Otherwise, the CCs should be added alternatively to either side of the PCC.

<Power Measurement Setup>

<WLAN Conducted Power>

General Note:

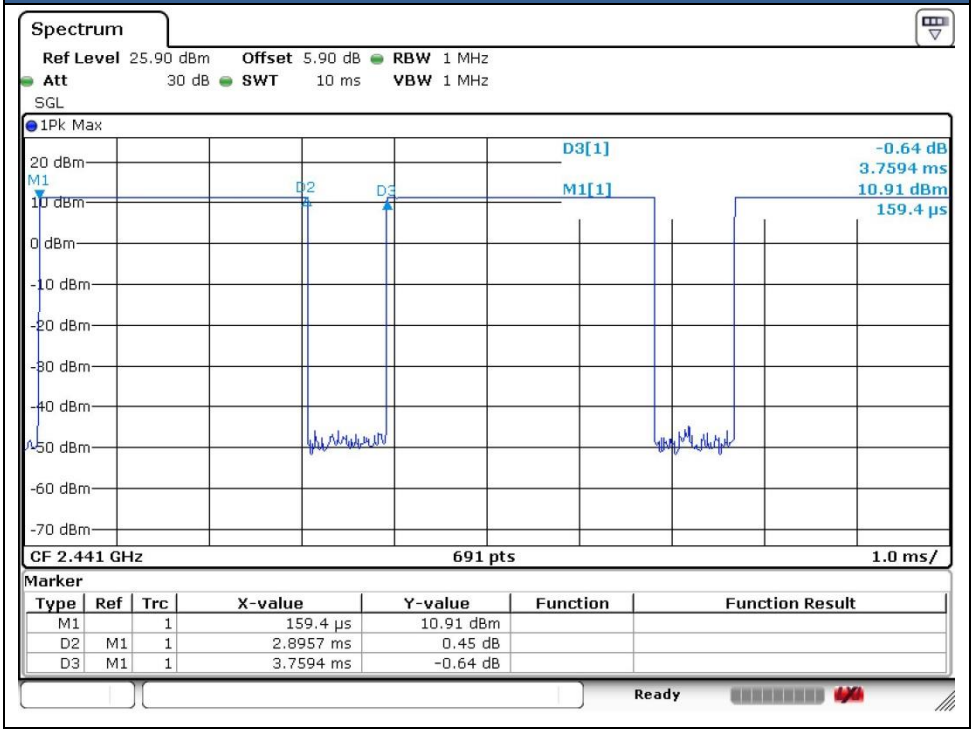
1. Per KDB 248227 D01v02r02, SAR test reduction is determined according to 802.11 transmission mode configurations and certain exposure conditions with multiple test positions. In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. For OFDM, in both 2.4 and 5 GHz bands, an initial test configuration must be determined for each standalone and aggregated frequency band, according to the transmission mode configuration with the highest maximum output power specified for production units to perform SAR measurements. If the same highest maximum output power applies to different combinations of channel bandwidths, modulations and data rates, additional procedures are applied to determine which test configurations require SAR measurement. When applicable, an initial test position may be applied to reduce the number of SAR measurements required for next to the ear, UMPC mini-tablet or hotspot mode configurations with multiple test positions.
2. For 2.4 GHz 802.11b DSSS, either the initial test position procedure for multiple exposure test positions or the DSSS procedure for fixed exposure position is applied; these are mutually exclusive. For 2.4 GHz and 5 GHz OFDM configurations, the initial test configuration is applied to measure SAR using either the initial test position procedure for multiple exposure test position configurations or the initial test configuration procedures for fixed exposure test conditions. Based on the reported SAR of the measured configurations and maximum output power of the transmission mode configurations that are not included in the initial test configuration, the subsequent test configuration and initial test position procedures are applied to determine if SAR measurements are required for the remaining OFDM transmission configurations. In general, the number of test channels that require SAR measurement is minimized based on maximum output power measured for the test sample(s).
3. For OFDM transmission configurations in the 2.4 GHz and 5 GHz bands, When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel for each frequency band.
4. DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures.18 The initial test position procedure is described in the following:
   a. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band.
   b. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
   c. For all positions/configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

<2.4GHz Bluetooth>

General Note:

1. For 2.4GHz Bluetooth SAR testing was selected 1Mbps, due to its highest average power.
2. The Bluetooth duty cycle is 77.03 % as following figure, according to 2016 Oct. TCB workshop for Bluetooth SAR scaling need further consideration and the maximum duty cycle is 100%, therefore the actual duty cycle will be scaled up to100% for Bluetooth reported SAR calculation

Bluetooth time-domain plot



14. Antenna Location

The detailed antenna location information can refer to SAR Test Setup Photos.

15. SAR Test Results

General Note:

1. Per KDB 447498 D01v06, 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 BT/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 BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, 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. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8W/kg. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. For dual SIM card mobile has two SIM slots and supports dual SIM dual standby. The WWAN radio transmission will be enabled by either one SIM at a time (single active). After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose SIM1 slot to perform all tests.
5. The device implements Proximity sensors/receiver detect mechanism/hotspot trigger reduced power for the power management for SAR compliance at different exposure conditions (head, body-worn, hotspot, extremity). The device will invoke corresponding work scenarios power level base on frequency bands/antennas, which can refer to appendix E. power table. Full power table and reduced power table (DSI 1: receiver on reduced power for head; DSI 3: handheld on reduced power for extremity; DSI 5: hotspot on reduced power for hotspot).
6. There are two types of EUT, the sample 1 is 6+64GB capacity and the sample 2 is 6+128GB capacity. capacity. According to the difference, we only choose sample 1 to perform full SAR testing.
7. Per KDB648474 D04v01r03, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg, however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.
   a. For this device SAR for WWAN transmitter scaled to maximum output power mode for product specific 10g SAR is higher than 1.2W/kg of LTE Band 2(ANT1) therefore product specific 10g SAR is necessary.
   b. WLAN 5.3/5.5GHz tested the product specific 10g SAR since it has no hotspot mode.
   c. When 10-g product specific 10g SAR is considered, SAR thresholds is specified in the procedures for SAR test reduction and exclusion should be multiplied by 2.5.

GSM Note:

1. Per KDB 941225 D01v03r01, for SAR test reduction for GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Therefore, the GPRS 2Tx slots for GSM850, GPRS 1Tx slots for GSM1900 are considered as the primary mode.
2. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, 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.

WCDMA Note:

1. Per KDB 941225 D01v03r01, for SAR testing is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
2. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. The maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is ≤ ¼ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA, and according to the following RF output power, the output power results of the secondary modes (HSDPA / HSUPA / DC-HSDPA) are less than ¼ dB higher than the primary modes; therefore, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA.

LTE Note:

1. Per KDB 941225 D05v02r05, 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.
2. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
3. Per KDB 941225 D05v02r05, 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.
4. Per KDB 941225 D05v02r05, 16QAM/64QAM 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 D05v02r05, 16QAM/64QAM SAR testing is not required.
5. Per KDB 941225 D05v02r05, 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 D05v02r05, smaller bandwidth SAR testing is not required.
6. For LTE B4 / B5 / B12 / B17 / B38 the maximum bandwidth does not support three non-overlapping channels, per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

WLAN Note:

1. Per KDB 248227 D01v02r02, for 2.4GHz 802.11g/n SAR testing is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
2. Per KDB 248227 D01v02r02, U-NII-1 SAR testing is not required when the U-NII-2A band highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band.
3. When the reported SAR of the test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position on the highest maximum output power channel, until the report SAR is ≤ 0.8 W/kg or all required test position are tested.
4. For all positions / configurations, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions / configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.
5. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

15.1 Head SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	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)
	GSM 850-Ant 1	GPRS 2 Tx slots	Right Cheek	Full	189	836.4	28.80	30.50	1.479	0.08	0.104	0.154
	GSM 850-Ant 1	GPRS 2 Tx slots	Right Tilted	Full	189	836.4	28.80	30.50	1.479	0.03	0.066	0.098
	GSM 850-Ant 1	GPRS 2 Tx slots	Left Cheek	Full	189	836.4	28.80	30.50	1.479	0.01	0.076	0.112
	GSM 850-Ant 1	GPRS 2 Tx slots	Left Tilted	Full	189	836.4	28.80	30.50	1.479	0.05	0.060	0.089
01	GSM 850-Ant 2	GPRS 2 Tx slots	Right Cheek	Reduced	189	836.4	25.15	27.00	1.531	-0.11	0.185	**0.283**
	GSM 850-Ant 2	GPRS 2 Tx slots	Right Tilted	Reduced	189	836.4	25.15	27.00	1.531	-0.03	0.128	0.196
	GSM 850-Ant 2	GPRS 2 Tx slots	Left Cheek	Reduced	189	836.4	25.15	27.00	1.531	0.01	0.124	0.190
	GSM 850-Ant 2	GPRS 2 Tx slots	Left Tilted	Reduced	189	836.4	25.15	27.00	1.531	0.05	0.101	0.155
	GSM1900-Ant 1	GPRS 1 Tx slots	Right Cheek	Full	661	1880	29.70	31.00	1.349	0.07	0.030	0.040
	GSM1900-Ant 1	GPRS 1 Tx slots	Right Tilted	Full	661	1880	29.70	31.00	1.349	0.08	0.026	0.035
	GSM1900-Ant 1	GPRS 1 Tx slots	Left Cheek	Full	661	1880	29.70	31.00	1.349	0.05	0.031	0.042
	GSM1900-Ant 1	GPRS 1 Tx slots	Left Tilted	Full	661	1880	29.70	31.00	1.349	0.03	0.025	0.034
	GSM1900-Ant 2	GPRS 1 Tx slots	Right Cheek	Reduced	661	1880	25.37	26.50	1.297	0.01	0.181	0.235
02	GSM1900-Ant 2	GPRS 1 Tx slots	Right Tilted	Reduced	661	1880	25.37	26.50	1.297	-0.07	0.274	**0.355**
	GSM1900-Ant 2	GPRS 1 Tx slots	Left Cheek	Reduced	661	1880	25.37	26.50	1.297	0.03	0.153	0.198
	GSM1900-Ant 2	GPRS 1 Tx slots	Left Tilted	Reduced	661	1880	25.37	26.50	1.297	0.04	0.273	0.354

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	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-Ant 1	RMC 12.2Kbps	Right Cheek	Full	4182	836.4	23.62	25.00	1.374	-0.05	0.152	0.209
	WCDMA V-Ant 1	RMC 12.2Kbps	Right Tilted	Full	4182	836.4	23.62	25.00	1.374	0.03	0.078	0.107
	WCDMA V-Ant 1	RMC 12.2Kbps	Left Cheek	Full	4182	836.4	23.62	25.00	1.374	-0.01	0.108	0.148
	WCDMA V-Ant 1	RMC 12.2Kbps	Left Tilted	Full	4182	836.4	23.62	25.00	1.374	0.05	0.068	0.093
03	WCDMA V-Ant 2	RMC 12.2Kbps	Right Cheek	Reduced	4182	836.4	20.94	22.50	1.432	-0.09	0.454	**0.650**
	WCDMA V-Ant 2	RMC 12.2Kbps	Right Tilted	Reduced	4182	836.4	20.94	22.50	1.432	0.03	0.362	0.518
	WCDMA V-Ant 2	RMC 12.2Kbps	Left Cheek	Reduced	4182	836.4	20.94	22.50	1.432	-0.06	0.435	0.623
	WCDMA V-Ant 2	RMC 12.2Kbps	Left Tilted	Reduced	4182	836.4	20.94	22.50	1.432	0.04	0.427	0.612
	WCDMA IV-Ant 1	RMC 12.2Kbps	Right Cheek	Full	1413	1732.6	23.51	25.00	1.409	0.01	0.035	0.049
	WCDMA IV-Ant 1	RMC 12.2Kbps	Right Tilted	Full	1413	1732.6	23.51	25.00	1.409	0.08	0.028	0.039
	WCDMA IV-Ant 1	RMC 12.2Kbps	Left Cheek	Full	1413	1732.6	23.51	25.00	1.409	-0.12	0.036	0.050
	WCDMA IV-Ant 1	RMC 12.2Kbps	Left Tilted	Full	1413	1732.6	23.51	25.00	1.409	0.03	0.028	0.039
	WCDMA IV-Ant 2	RMC 12.2Kbps	Right Cheek	Reduced	1413	1732.6	13.79	15.20	1.384	0.05	0.359	0.497
04	WCDMA IV-Ant 2	RMC 12.2Kbps	Right Tilted	Reduced	1413	1732.6	13.79	15.20	1.384	0.01	0.471	**0.652**
	WCDMA IV-Ant 2	RMC 12.2Kbps	Left Cheek	Reduced	1413	1732.6	13.79	15.20	1.384	0.06	0.283	0.392
	WCDMA IV-Ant 2	RMC 12.2Kbps	Left Tilted	Reduced	1413	1732.6	13.79	15.20	1.384	-0.01	0.368	0.509
	WCDMA II-Ant 1	RMC 12.2Kbps	Right Cheek	Full	9400	1880	23.56	25.00	1.393	0.03	0.054	0.075
	WCDMA II-Ant 1	RMC 12.2Kbps	Right Tilted	Full	9400	1880	23.56	25.00	1.393	0.08	0.060	0.084
	WCDMA II-Ant 1	RMC 12.2Kbps	Left Cheek	Full	9400	1880	23.56	25.00	1.393	0.01	0.069	0.096
	WCDMA II-Ant 1	RMC 12.2Kbps	Left Tilted	Full	9400	1880	23.56	25.00	1.393	0.04	0.067	0.093
	WCDMA II-Ant 2	RMC 12.2Kbps	Right Cheek	Reduced	9400	1880	15.74	17.20	1.400	0.06	0.341	0.477
05	WCDMA II-Ant 2	RMC 12.2Kbps	Right Tilted	Reduced	9400	1880	15.74	17.20	1.400	-0.04	0.484	**0.677**
	WCDMA II-Ant 2	RMC 12.2Kbps	Left Cheek	Reduced	9400	1880	15.74	17.20	1.400	0.01	0.281	0.393
	WCDMA II-Ant 2	RMC 12.2Kbps	Left Tilted	Reduced	9400	1880	15.74	17.20	1.400	0.03	0.391	0.547

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	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 26-Ant 1	15M	QPSK	1	0	Right Cheek	Full	26865	831.5	24.35	25.50	1.303	0.02	0.137	0.179
	LTE Band 26-Ant 1	15M	QPSK	36	0	Right Cheek	Full	26865	831.5	23.38	24.50	1.294	0.06	0.110	0.142
	LTE Band 26-Ant 1	15M	QPSK	1	0	Right Tilted	Full	26865	831.5	24.35	25.50	1.303	0.07	0.074	0.096
	LTE Band 26-Ant 1	15M	QPSK	36	0	Right Tilted	Full	26865	831.5	23.38	24.50	1.294	0.07	0.061	0.079
	LTE Band 26-Ant 1	15M	QPSK	1	0	Left Cheek	Full	26865	831.5	24.35	25.50	1.303	0.05	0.100	0.130
	LTE Band 26-Ant 1	15M	QPSK	36	0	Left Cheek	Full	26865	831.5	23.38	24.50	1.294	0.01	0.082	0.106
	LTE Band 26-Ant 1	15M	QPSK	1	0	Left Tilted	Full	26865	831.5	24.35	25.50	1.303	0.06	0.064	0.083
	LTE Band 26-Ant 1	15M	QPSK	36	0	Left Tilted	Full	26865	831.5	23.38	24.50	1.294	0.07	0.052	0.067
06	LTE Band 26-Ant 2	15M	QPSK	1	0	Right Cheek	Full	26865	831.5	24.58	25.70	1.294	-0.06	0.804	**1.041**
	LTE Band 26-Ant 2	15M	QPSK	36	0	Right Cheek	Full	26865	831.5	23.70	24.70	1.259	0.01	0.601	0.757
	LTE Band 26-Ant 2	15M	QPSK	75	0	Right Cheek	Full	26865	831.5	23.56	24.70	1.300	0.01	0.602	0.783
	LTE Band 26-Ant 2	15M	QPSK	1	0	Right Tilted	Full	26865	831.5	24.58	25.70	1.294	0.03	0.671	0.868
	LTE Band 26-Ant 2	15M	QPSK	36	0	Right Tilted	Full	26865	831.5	23.70	24.70	1.259	0.05	0.411	0.517
	LTE Band 26-Ant 2	15M	QPSK	75	0	Right Tilted	Full	26865	831.5	23.56	24.70	1.300	0.05	0.403	0.524
	LTE Band 26-Ant 2	15M	QPSK	1	0	Left Cheek	Full	26865	831.5	24.58	25.70	1.294	0.04	0.732	0.909
	LTE Band 26-Ant 2	15M	QPSK	36	0	Left Cheek	Full	26865	831.5	23.70	24.70	1.259	0.06	0.514	0.647
	LTE Band 26-Ant 2	15M	QPSK	75	0	Left Cheek	Full	26865	831.5	23.56	24.70	1.300	0.06	0.516	0.671
	LTE Band 26-Ant 2	15M	QPSK	1	0	Left Tilted	Full	26865	831.5	24.58	25.70	1.294	-0.01	0.658	0.852
	LTE Band 26-Ant 2	15M	QPSK	36	0	Left Tilted	Full	26865	831.5	23.70	24.70	1.259	0.03	0.486	0.612
	LTE Band 26-Ant 2	15M	QPSK	75	0	Left Tilted	Full	26865	831.5	23.56	24.70	1.300	0.03	0.511	0.664
	LTE Band 12-Ant 1	10M	QPSK	1	0	Right Cheek	Full	23095	707.5	23.88	25.00	1.294	-0.11	0.067	0.087
	LTE Band 12-Ant 1	10M	QPSK	25	0	Right Cheek	Full	23095	707.5	22.85	24.00	1.303	0.01	0.054	0.070
	LTE Band 12-Ant 1	10M	QPSK	1	0	Right Tilted	Full	23095	707.5	23.88	25.00	1.294	0.02	0.050	0.065
	LTE Band 12-Ant 1	10M	QPSK	25	0	Right Tilted	Full	23095	707.5	22.85	24.00	1.303	0.01	0.042	0.055
	LTE Band 12-Ant 1	10M	QPSK	1	0	Left Cheek	Full	23095	707.5	23.88	25.00	1.294	0.03	0.052	0.067
	LTE Band 12-Ant 1	10M	QPSK	25	0	Left Cheek	Full	23095	707.5	22.85	24.00	1.303	0.01	0.048	0.063
	LTE Band 12-Ant 1	10M	QPSK	1	0	Left Tilted	Full	23095	707.5	23.88	25.00	1.294	0.05	0.046	0.060
	LTE Band 12-Ant 1	10M	QPSK	25	0	Left Tilted	Full	23095	707.5	22.85	24.00	1.303	0.04	0.040	0.052
07	LTE Band 12-Ant 2	10M	QPSK	1	0	Right Cheek	Full	23095	707.5	24.15	25.50	1.365	-0.05	0.361	**0.493**
	LTE Band 12-Ant 2	10M	QPSK	25	0	Right Cheek	Full	23095	707.5	23.17	24.50	1.358	0.03	0.298	0.405
	LTE Band 12-Ant 2	10M	QPSK	1	0	Right Tilted	Full	23095	707.5	24.15	25.50	1.365	0.01	0.339	0.463
	LTE Band 12-Ant 2	10M	QPSK	25	0	Right Tilted	Full	23095	707.5	23.17	24.50	1.358	0.02	0.283	0.384
	LTE Band 12-Ant 2	10M	QPSK	1	0	Left Cheek	Full	23095	707.5	24.15	25.50	1.365	-0.01	0.317	0.433
	LTE Band 12-Ant 2	10M	QPSK	25	0	Left Cheek	Full	23095	707.5	23.17	24.50	1.358	0.02	0.259	0.352
	LTE Band 12-Ant 2	10M	QPSK	1	0	Left Tilted	Full	23095	707.5	24.15	25.50	1.365	0.05	0.345	0.471
	LTE Band 12-Ant 2	10M	QPSK	25	0	Left Tilted	Full	23095	707.5	23.17	24.50	1.358	0.08	0.283	0.384
	LTE Band 4-Ant 1	20M	QPSK	1	0	Right Cheek	Full	20175	1732.5	24.08	25.50	1.387	-0.01	0.155	0.215
	LTE Band 4-Ant 1	20M	QPSK	50	0	Right Cheek	Full	20175	1732.5	22.89	24.50	1.449	0.01	0.125	0.181
	LTE Band 4-Ant 1	20M	QPSK	1	0	Right Tilted	Full	20175	1732.5	24.08	25.50	1.387	0.05	0.129	0.179
	LTE Band 4-Ant 1	20M	QPSK	50	0	Right Tilted	Full	20175	1732.5	22.89	24.50	1.449	-0.03	0.104	0.151
	LTE Band 4-Ant 1	20M	QPSK	1	0	Left Cheek	Full	20175	1732.5	24.08	25.50	1.387	0.06	0.141	0.196
	LTE Band 4-Ant 1	20M	QPSK	50	0	Left Cheek	Full	20175	1732.5	22.89	24.50	1.449	0.01	0.112	0.162
	LTE Band 4-Ant 1	20M	QPSK	1	0	Left Tilted	Full	20175	1732.5	24.08	25.50	1.387	-0.08	0.110	0.153
	LTE Band 4-Ant 1	20M	QPSK	50	0	Left Tilted	Full	20175	1732.5	22.89	24.50	1.449	0.01	0.090	0.130
	LTE Band 4-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	20175	1732.5	14.40	15.70	1.349	0.08	0.398	0.537
	LTE Band 4-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	20175	1732.5	14.19	15.70	1.416	0.06	0.404	0.572
	LTE Band 4-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	20175	1732.5	14.40	15.70	1.349	-0.04	0.520	0.701
08	LTE Band 4-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	20175	1732.5	14.19	15.70	1.416	-0.02	0.533	**0.755**
	LTE Band 4-Ant 2	20M	QPSK	1	0	Left Cheek	Reduced	20175	1732.5	14.40	15.70	1.349	0.01	0.303	0.409
	LTE Band 4-Ant 2	20M	QPSK	50	0	Left Cheek	Reduced	20175	1732.5	14.19	15.70	1.416	0.05	0.307	0.435
	LTE Band 4-Ant 2	20M	QPSK	1	0	Left Tilted	Reduced	20175	1732.5	14.40	15.70	1.349	0.07	0.405	0.546
	LTE Band 4-Ant 2	20M	QPSK	50	0	Left Tilted	Reduced	20175	1732.5	14.19	15.70	1.416	0.06	0.410	0.580

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	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-Ant 1	20M	QPSK	1	0	Right Cheek	Full	18900	1880	23.96	25.50	1.426	-0.01	0.056	0.080
	LTE Band 2-Ant 1	20M	QPSK	50	0	Right Cheek	Full	18900	1880	22.93	24.50	1.435	-0.01	0.048	0.069
	LTE Band 2-Ant 1	20M	QPSK	1	0	Right Tilted	Full	18900	1880	23.96	25.50	1.426	0.02	0.069	0.098
	LTE Band 2-Ant 1	20M	QPSK	50	0	Right Tilted	Full	18900	1880	22.93	24.50	1.435	0.08	0.059	0.085
	LTE Band 2-Ant 1	20M	QPSK	1	0	Left Cheek	Full	18900	1880	23.96	25.50	1.426	0.01	0.080	0.114
	LTE Band 2-Ant 1	20M	QPSK	50	0	Left Cheek	Full	18900	1880	22.93	24.50	1.435	-0.07	0.066	0.095
	LTE Band 2-Ant 1	20M	QPSK	1	0	Left Tilted	Full	18900	1880	23.96	25.50	1.426	-0.01	0.084	0.120
	LTE Band 2-Ant 1	20M	QPSK	50	0	Left Tilted	Full	18900	1880	22.93	24.50	1.435	0.08	0.072	0.103
	LTE Band 2-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	18900	1880	16.46	17.70	1.330	0.03	0.334	0.444
	LTE Band 2-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	18900	1880	16.29	17.70	1.384	0.04	0.335	0.463
	LTE Band 2-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	18900	1880	16.46	17.70	1.330	0.05	0.481	0.640
09	LTE Band 2-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	18900	1880	16.29	17.70	1.384	-0.04	0.484	**0.670**
	LTE Band 2-Ant 2	20M	QPSK	1	0	Left Cheek	Reduced	18900	1880	16.46	17.70	1.330	0.07	0.275	0.366
	LTE Band 2-Ant 2	20M	QPSK	50	0	Left Cheek	Reduced	18900	1880	16.29	17.70	1.384	0.07	0.280	0.387
	LTE Band 2-Ant 2	20M	QPSK	1	0	Left Tilted	Reduced	18900	1880	16.46	17.70	1.330	0.01	0.387	0.515
	LTE Band 2-Ant 2	20M	QPSK	50	0	Left Tilted	Reduced	18900	1880	16.29	17.70	1.384	0.06	0.392	0.542
	LTE Band 2C-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	18900+18702	1880+1860.2	16.26	17.70	1.393	-0.04	0.403	0.561
	LTE Band 7-Ant 1	20M	QPSK	1	0	Right Cheek	Full	21100	2535	23.87	25.50	1.455	0.08	0.108	0.157
	LTE Band 7-Ant 1	20M	QPSK	50	0	Right Cheek	Full	21100	2535	22.60	24.50	1.549	0.04	0.087	0.135
	LTE Band 7-Ant 1	20M	QPSK	1	0	Right Tilted	Full	21100	2535	23.87	25.50	1.455	0.09	0.127	0.185
	LTE Band 7-Ant 1	20M	QPSK	50	0	Right Tilted	Full	21100	2535	22.60	24.50	1.549	0.04	0.101	0.156
	LTE Band 7-Ant 1	20M	QPSK	1	0	Left Cheek	Full	21100	2535	23.87	25.50	1.455	-0.04	0.198	0.288
	LTE Band 7-Ant 1	20M	QPSK	50	0	Left Cheek	Full	21100	2535	22.60	24.50	1.549	0.01	0.162	0.251
	LTE Band 7-Ant 1	20M	QPSK	1	0	Left Tilted	Full	21100	2535	23.87	25.50	1.455	0.03	0.089	0.130
	LTE Band 7-Ant 1	20M	QPSK	50	0	Left Tilted	Full	21100	2535	22.60	24.50	1.549	0.05	0.072	0.112
	LTE Band 7-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	21100	2535	17.27	18.70	1.390	0.08	0.665	0.924
	LTE Band 7-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	20850	2510	17.05	18.70	1.462	0.04	0.642	0.939
	LTE Band 7-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	21350	2560	17.19	18.70	1.416	0.01	0.642	0.908
10	LTE Band 7-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	21100	2535	17.19	18.70	1.416	-0.07	0.677	**0.958**
	LTE Band 7-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	20850	2510	16.96	18.70	1.493	0.03	0.638	0.953
	LTE Band 7-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	21350	2560	17.06	18.70	1.459	0.08	0.642	0.937
	LTE Band 7-Ant 2	20M	QPSK	100	0	Right Cheek	Reduced	21100	2535	17.16	18.70	1.426	-0.03	0.645	0.919
	LTE Band 7-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	21100	2535	17.27	18.70	1.390	0.06	0.535	0.743
	LTE Band 7-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	20850	2510	17.05	18.70	1.462	0.08	0.491	0.718
	LTE Band 7-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	21350	2560	17.19	18.70	1.416	0.07	0.486	0.688
	LTE Band 7-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	21100	2535	17.19	18.70	1.416	0.01	0.548	0.775
	LTE Band 7-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	20850	2510	16.96	18.70	1.493	-0.09	0.500	0.746
	LTE Band 7-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	21350	2560	17.06	18.70	1.459	0.08	0.492	0.717
	LTE Band 7-Ant 2	20M	QPSK	100	0	Right Tilted	Reduced	21100	2535	17.16	18.70	1.426	0.04	0.507	0.723
	LTE Band 7-Ant 2	20M	QPSK	1	0	Left Cheek	Reduced	21100	2535	17.27	18.70	1.390	0.08	0.261	0.362
	LTE Band 7-Ant 2	20M	QPSK	50	0	Left Cheek	Reduced	21100	2535	17.19	18.70	1.416	0.09	0.267	0.378
	LTE Band 7-Ant 2	20M	QPSK	1	0	Left Tilted	Reduced	21100	2535	17.27	18.70	1.390	0.01	0.322	0.447
	LTE Band 7-Ant 2	20M	QPSK	50	0	Left Tilted	Reduced	21100	2535	17.19	18.70	1.416	0.03	0.330	0.467
	LTE Band 7C-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	21100+20092	2535+2515.2	16.87	18.70	1.524	-0.07	0.602	0.917

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	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 66-Ant 1	20M	QPSK	1	0	Right Cheek	Full	132322	1745	24.25	25.50	1.334	0.05	0.194	0.259
	LTE Band 66-Ant 1	20M	QPSK	50	0	Right Cheek	Full	132322	1745	23.35	24.50	1.303	-0.03	0.156	0.203
	LTE Band 66-Ant 1	20M	QPSK	1	0	Right Tilted	Full	132322	1745	24.25	25.50	1.334	0.01	0.155	0.207
	LTE Band 66-Ant 1	20M	QPSK	50	0	Right Tilted	Full	132322	1745	23.35	24.50	1.303	0.08	0.128	0.167
	LTE Band 66-Ant 1	20M	QPSK	1	0	Left Cheek	Full	132322	1745	24.25	25.50	1.334	0.09	0.173	0.231
	LTE Band 66-Ant 1	20M	QPSK	50	0	Left Cheek	Full	132322	1745	23.35	24.50	1.303	-0.03	0.141	0.184
	LTE Band 66-Ant 1	20M	QPSK	1	0	Left Tilted	Full	132322	1745	24.25	25.50	1.334	0.04	0.146	0.195
	LTE Band 66-Ant 1	20M	QPSK	50	0	Left Tilted	Full	132322	1745	23.35	24.50	1.303	0.08	0.119	0.155
	LTE Band 66-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	132322	1745	16.81	17.70	1.227	0.04	0.629	0.772
	LTE Band 66-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	132072	1720	16.73	17.70	1.250	-0.07	0.601	0.751
	LTE Band 66-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	132572	1770	16.78	17.70	1.236	0.03	0.612	0.756
	LTE Band 66-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	132322	1745	16.73	17.70	1.250	0.08	0.636	0.795
	LTE Band 66-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	132072	1720	16.69	17.70	1.262	-0.03	0.603	0.761
	LTE Band 66-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	132572	1770	16.64	17.70	1.276	0.01	0.612	0.781
	LTE Band 66-Ant 2	20M	QPSK	100	0	Right Cheek	Reduced	132322	1745	16.66	17.70	1.271	-0.09	0.615	0.781
	LTE Band 66-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	132322	1745	16.81	17.70	1.227	0.08	0.830	1.019
	LTE Band 66-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	132072	1720	16.73	17.70	1.250	0.09	0.830	1.038
	LTE Band 66-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	132572	1770	16.78	17.70	1.236	0.01	0.801	0.990
	LTE Band 66-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	132322	1745	16.73	17.70	1.250	0.03	0.838	1.048
11	LTE Band 66-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	132072	1720	16.69	17.70	1.262	-0.04	0.849	**1.071**
	LTE Band 66-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	132572	1770	16.64	17.70	1.276	0.08	0.810	1.034
	LTE Band 66-Ant 2	20M	QPSK	100	0	Right Tilted	Reduced	132322	1745	16.66	17.70	1.271	0.09	0.823	1.046
	LTE Band 66-Ant 2	20M	QPSK	1	0	Left Cheek	Reduced	132322	1745	16.81	17.70	1.227	-0.07	0.477	0.585
	LTE Band 66-Ant 2	20M	QPSK	50	0	Left Cheek	Reduced	132322	1745	16.73	17.70	1.250	0.08	0.482	0.603
	LTE Band 66-Ant 2	20M	QPSK	1	0	Left Tilted	Reduced	132322	1745	16.81	17.70	1.227	-0.09	0.642	0.788
	LTE Band 66-Ant 2	20M	QPSK	1	0	Left Tilted	Reduced	132072	1720	16.73	17.70	1.250	0.09	0.612	0.765
	LTE Band 66-Ant 2	20M	QPSK	1	0	Left Tilted	Reduced	132572	1770	16.78	17.70	1.236	0.08	0.631	0.780
	LTE Band 66-Ant 2	20M	QPSK	50	0	Left Tilted	Reduced	132322	1745	16.73	17.70	1.250	-0.03	0.647	0.809
	LTE Band 66-Ant 2	20M	QPSK	50	0	Left Tilted	Reduced	132072	1720	16.69	17.70	1.262	-0.03	0.621	0.784
	LTE Band 66-Ant 2	20M	QPSK	50	0	Left Tilted	Reduced	132572	1770	16.64	17.70	1.276	-0.07	0.611	0.780
	LTE Band 66-Ant 2	20M	QPSK	100	0	Left Tilted	Reduced	132322	1745	16.66	17.70	1.271	0.01	0.618	0.785

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	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)
	LTE Band 38-Ant 1	20M	QPSK	1	0	Right Cheek	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	0.01	0.068	0.097
	LTE Band 38-Ant 1	20M	QPSK	50	0	Right Cheek	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	0.09	0.055	0.081
	LTE Band 38-Ant 1	20M	QPSK	1	0	Right Tilted	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	-0.09	0.066	0.094
	LTE Band 38-Ant 1	20M	QPSK	50	0	Right Tilted	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	0.08	0.054	0.080
	LTE Band 38-Ant 1	20M	QPSK	1	0	Left Cheek	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	-0.03	0.125	0.179
	LTE Band 38-Ant 1	20M	QPSK	50	0	Left Cheek	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	0.03	0.100	0.147
	LTE Band 38-Ant 1	20M	QPSK	1	0	Left Tilted	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	0.06	0.061	0.087
	LTE Band 38-Ant 1	20M	QPSK	50	0	Left Tilted	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	0.05	0.049	0.072
	LTE Band 38-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	38000	2595	19.32	20.70	1.374	62.9	1.006	0.07	0.725	1.002
12	LTE Band 38-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	38000	2595	19.15	20.70	1.429	62.9	1.006	-0.08	0.740	**1.064**
	LTE Band 38-Ant 2	20M	QPSK	100	0	Right Cheek	Reduced	38000	2595	19.10	20.70	1.445	62.9	1.006	0.04	0.704	1.024
	LTE Band 38-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	38000	2595	19.32	20.70	1.374	62.9	1.006	0.03	0.615	0.850
	LTE Band 38-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	38000	2595	19.15	20.70	1.429	62.9	1.006	0.08	0.630	0.906
	LTE Band 38-Ant 2	20M	QPSK	100	0	Right Tilted	Reduced	38000	2595	19.10	20.70	1.445	62.9	1.006	-0.03	0.602	0.875
	LTE Band 38-Ant 2	20M	QPSK	1	0	Left Cheek	Reduced	38000	2595	19.32	20.70	1.374	62.9	1.006	0.06	0.280	0.387
	LTE Band 38-Ant 2	20M	QPSK	50	0	Left Cheek	Reduced	38000	2595	19.15	20.70	1.429	62.9	1.006	0.08	0.287	0.413
	LTE Band 38-Ant 2	20M	QPSK	1	0	Left Tilted	Reduced	38000	2595	19.32	20.70	1.374	62.9	1.006	0.07	0.333	0.460
	LTE Band 38-Ant 2	20M	QPSK	50	0	Left Tilted	Reduced	38000	2595	19.15	20.70	1.429	62.9	1.006	0.01	0.351	0.505
	LTE Band 38C-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	37901+ 38099	2585.1+ 2604.9	19.16	20.70	1.426	62.9	1.006	-0.08	0.700	1.004
	LTE Band 41-Ant 1	20M	QPSK	1	0	Right Cheek	Full	40770	2608	23.98	25.50	1.419	62.9	1.006	0.02	0.133	0.190
	LTE Band 41-Ant 1	20M	QPSK	50	0	Right Cheek	Full	40770	2608	22.87	24.50	1.455	62.9	1.006	0.03	0.104	0.152
	LTE Band 41-Ant 1	20M	QPSK	1	0	Right Tilted	Full	40770	2608	23.98	25.50	1.419	62.9	1.006	0.04	0.131	0.187
	LTE Band 41-Ant 1	20M	QPSK	50	0	Right Tilted	Full	40770	2608	22.87	24.50	1.455	62.9	1.006	0.04	0.106	0.155
	LTE Band 41-Ant 1	20M	QPSK	1	0	Left Cheek	Full	40770	2608	23.98	25.50	1.419	62.9	1.006	0.02	0.237	0.338
	LTE Band 41-Ant 1	20M	QPSK	50	0	Left Cheek	Full	40770	2608	22.87	24.50	1.455	62.9	1.006	0.05	0.190	0.278
	LTE Band 41-Ant 1	20M	QPSK	1	0	Left Tilted	Full	40770	2608	23.98	25.50	1.419	62.9	1.006	-0.05	0.117	0.167
	LTE Band 41-Ant 1	20M	QPSK	50	0	Left Tilted	Full	40770	2608	22.87	24.50	1.455	62.9	1.006	0.07	0.097	0.142
	LTE Band 41-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	40770	2608	19.15	20.70	1.429	62.9	1.006	0.08	0.728	1.046
	LTE Band 41-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	40240	2555	19.02	20.70	1.472	62.9	1.006	0.03	0.711	1.053
	LTE Band 41-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	40500	2581	18.95	20.70	1.496	62.9	1.006	0.01	0.702	1.057
	LTE Band 41-Ant 2	20M	QPSK	1	0	Right Cheek	Reduced	41090	2640	18.89	20.70	1.517	62.9	1.006	0.06	0.706	1.077
13	LTE Band 41-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	40770	2608	19.07	20.70	1.455	62.9	1.006	-0.01	0.747	**1.094**
	LTE Band 41-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	40240	2555	19.06	20.70	1.459	62.9	1.006	0.03	0.721	1.058
	LTE Band 41-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	40500	2581	18.98	20.70	1.486	62.9	1.006	0.01	0.716	1.070
	LTE Band 41-Ant 2	20M	QPSK	50	0	Right Cheek	Reduced	41090	2640	18.87	20.70	1.524	62.9	1.006	-0.03	0.705	1.081
	LTE Band 41-Ant 2	20M	QPSK	100	0	Right Cheek	Reduced	40770	2608	19.05	20.70	1.462	62.9	1.006	-0.01	0.718	1.056
	LTE Band 41-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	40770	2608	19.15	20.70	1.429	62.9	1.006	0.03	0.617	0.887
	LTE Band 41-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	40240	2555	19.02	20.70	1.472	62.9	1.006	0.04	0.603	0.893
	LTE Band 41-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	40500	2581	18.95	20.70	1.496	62.9	1.006	0.05	0.611	0.920
	LTE Band 41-Ant 2	20M	QPSK	1	0	Right Tilted	Reduced	41090	2640	18.89	20.70	1.517	62.9	1.006	0.09	0.612	0.934
	LTE Band 41-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	40770	2608	19.07	20.70	1.455	62.9	1.006	0.03	0.652	0.955
	LTE Band 41-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	40240	2555	19.06	20.70	1.459	62.9	1.006	0.01	0.621	0.911
	LTE Band 41-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	40500	2581	18.98	20.70	1.486	62.9	1.006	0.05	0.634	0.948
	LTE Band 41-Ant 2	20M	QPSK	50	0	Right Tilted	Reduced	41090	2640	18.87	20.70	1.524	62.9	1.006	-0.06	0.611	0.937
	LTE Band 41-Ant 2	20M	QPSK	100	0	Right Tilted	Reduced	40770	2608	19.05	20.70	1.462	62.9	1.006	0.1	0.628	0.924
	LTE Band 41-Ant 2	20M	QPSK	1	0	Left Cheek	Reduced	40770	2608	19.15	20.70	1.429	62.9	1.006	0.03	0.278	0.400
	LTE Band 41-Ant 2	20M	QPSK	50	0	Left Cheek	Reduced	40770	2608	19.07	20.70	1.455	62.9	1.006	0.05	0.290	0.425
	LTE Band 41-Ant 2	20M	QPSK	1	0	Left Tilted	Reduced	40770	2608	19.15	20.70	1.429	62.9	1.006	-0.09	0.339	0.487
	LTE Band 41-Ant 2	20M	QPSK	50	0	Left Tilted	Reduced	40770	2608	19.07	20.70	1.455	62.9	1.006	0.04	0.345	0.505

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	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	Right Cheek	Reduced	11	2462	16.57	18.00	1.390	100	1.000	0.03	0.227	0.316
	WLAN2.4GHz	802.11b 1Mbps	Right Tilted	Reduced	11	2462	16.57	18.00	1.390	100	1.000	0.04	0.186	0.259
14	WLAN2.4GHz-	802.11b 1Mbps	Left Cheek	Reduced	11	2462	16.57	18.00	1.390	100	1.000	0.04	0.645	**0.897**
	WLAN2.4GHz-	802.11b 1Mbps	Left Cheek	Reduced	6	2437	15.30	17.00	1.479	100	1.000	0.03	0.533	0.788
	WLAN2.4GHz-	802.11b 1Mbps	Left Tilted	Reduced	11	2462	16.57	18.00	1.390	100	1.000	0.01	0.498	0.692
	WLAN2.4GHz-	802.11b 1Mbps	Left Tilted	Reduced	6	2437	15.30	17.00	1.479	100	1.000	0.06	0.402	0.595
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	Reduced -Simultaneous	11	2462	15.67	17.00	1.358	100	1.000	0.01	0.501	0.681
	WLAN2.4GHz	802.11b 1Mbps	Left Tilted	Reduced -Simultaneous	11	2462	15.67	17.00	1.358	100	1.000	0.05	0.396	0.538

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	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)
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Right Cheek	Reduced	54	5270	12.22	13.50	1.343	96.32	1.038	0.04	0.372	0.518
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Right Tilted	Reduced	54	5270	12.22	13.50	1.343	96.32	1.038	0.03	0.479	0.668
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Left Cheek	Reduced	54	5270	12.22	13.50	1.343	96.32	1.038	0.08	0.569	0.793
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Left Cheek	Reduced	62	5310	12.03	13.50	1.403	96.32	1.038	-0.03	0.560	0.815
15	WLAN5.3GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced	54	5270	12.22	13.50	1.343	96.32	1.038	-0.09	0.709	**0.988**
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced	62	5310	12.03	13.50	1.403	96.32	1.038	0.05	0.654	0.952
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Right Cheek	Reduced -Simultaneous	54	5270	10.25	10.50	1.059	96.32	1.038	-0.09	0.277	0.305
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Right Tilted	Reduced -Simultaneous	54	5270	10.25	10.50	1.059	96.32	1.038	0.04	0.350	0.385
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Left Cheek	Reduced -Simultaneous	54	5270	10.25	10.50	1.059	96.32	1.038	0.03	0.486	0.534
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced -Simultaneous	54	5270	10.25	10.50	1.059	96.32	1.038	0.01	0.547	0.601
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced -Simultaneous	62	5310	10.08	10.50	1.102	96.32	1.038	0.01	0.502	0.574
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Right Cheek	Reduced	134	5670	12.29	13.50	1.321	96.32	1.038	0.06	0.378	0.518
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Right Tilted	Reduced	134	5670	12.29	13.50	1.321	96.32	1.038	0.01	0.480	0.658
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Right Tilted	Reduced	110	5550	11.82	13.50	1.472	96.32	1.038	0.05	0.447	0.683
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Left Cheek	Reduced	134	5670	12.29	13.50	1.321	96.32	1.038	0.03	0.520	0.713
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Left Cheek	Reduced	110	5550	11.82	13.50	1.472	96.32	1.038	0.04	0.542	0.828
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced	134	5670	12.29	13.50	1.321	96.32	1.038	0.02	0.623	0.854
16	WLAN5.5GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced	110	5550	11.82	13.50	1.472	96.32	1.038	0.04	0.602	**0.920**
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Right Cheek	Reduced -Simultaneous	134	5670	9.81	10.50	1.172	96.32	1.038	0.06	0.350	0.426
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Right Tilted	Reduced -Simultaneous	134	5670	9.81	10.50	1.172	96.32	1.038	0.01	0.342	0.416
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Left Cheek	Reduced -Simultaneous	134	5670	9.81	10.50	1.172	96.32	1.038	0.05	0.364	0.443
	WLAN5.5GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced -Simultaneous	134	5670	9.81	10.50	1.172	96.32	1.038	0.05	0.407	0.495
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Right Cheek	Reduced	151	5755	11.95	13.50	1.429	96.32	1.038	0.06	0.457	0.678
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Right Cheek	Reduced	159	5795	11.79	13.50	1.483	96.32	1.038	0.03	0.412	0.634
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Right Tilted	Reduced	151	5755	11.95	13.50	1.429	96.32	1.038	0.01	0.561	0.832
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Right Tilted	Reduced	159	5795	11.79	13.50	1.483	96.32	1.038	-0.03	0.511	0.786
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Left Cheek	Reduced	151	5755	11.95	13.50	1.429	96.32	1.038	0.05	0.609	0.903
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Left Cheek	Reduced	159	5795	11.79	13.50	1.483	96.32	1.038	0.05	0.532	0.819
17	WLAN5.8GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced	151	5755	11.95	13.50	1.429	96.32	1.038	0.03	0.734	**1.089**
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced	159	5795	11.79	13.50	1.483	96.32	1.038	0.02	0.658	1.013
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Right Cheek	Reduced -Simultaneous	151	5755	10.44	11.00	1.138	96.32	1.038	0.04	0.327	0.386
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Right Tilted	Reduced -Simultaneous	151	5755	10.44	11.00	1.138	96.32	1.038	-0.03	0.402	0.475
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Left Cheek	Reduced -Simultaneous	151	5755	10.44	11.00	1.138	96.32	1.038	0.06	0.447	0.528
	WLAN5.8GHz	802.11ac-VHT40 MCS0	Left Tilted	Reduced -Simultaneous	151	5755	10.44	11.00	1.138	96.32	1.038	0.09	0.526	0.621

<Bluetooth 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)
	Bluetooth	1Mbps	Right Cheek	0	2402	11.25	12.00	1.189	77.03	1.298	0.03	0.034	0.052
	Bluetooth	1Mbps	Right Tilted	0	2402	11.25	12.00	1.189	77.03	1.298	0.04	0.028	0.043
18	Bluetooth	1Mbps	Left Cheek	0	2402	11.25	12.00	1.189	77.03	1.298	0.09	0.046	**0.071**
	Bluetooth	1Mbps	Left Tilted	0	2402	11.25	12.00	1.189	77.03	1.298	0.02	0.040	0.062

15.2 Hotspot SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	GSM 850-Ant 1	GPRS 2 Tx slots	Front	10mm	Full	189	836.4	28.80	30.50	1.479	0.06	0.102	0.151
19	GSM 850-Ant 1	GPRS 2 Tx slots	Back	10mm	Full	189	836.4	28.80	30.50	1.479	0.01	0.143	**0.212**
	GSM 850-Ant 1	GPRS 2 Tx slots	Left Side	10mm	Full	189	836.4	28.80	30.50	1.479	0.05	0.040	0.059
	GSM 850-Ant 1	GPRS 2 Tx slots	Right Side	10mm	Full	189	836.4	28.80	30.50	1.479	0.03	0.072	0.106
	GSM 850-Ant 1	GPRS 2 Tx slots	Bottom Side	10mm	Full	189	836.4	28.80	30.50	1.479	0.04	0.113	0.167
	GSM 850-Ant 2	GPRS 2 Tx slots	Front	10mm	Reduced	189	836.4	25.15	27.00	1.531	0.06	0.060	0.092
	GSM 850-Ant 2	GPRS 2 Tx slots	Back	10mm	Reduced	189	836.4	25.15	27.00	1.531	0.01	0.068	0.104
	GSM 850-Ant 2	GPRS 2 Tx slots	Left Side	10mm	Reduced	189	836.4	25.15	27.00	1.531	0.01	0.020	0.031
	GSM 850-Ant 2	GPRS 2 Tx slots	Right Side	10mm	Reduced	189	836.4	25.15	27.00	1.531	0.05	0.032	0.049
	GSM 850-Ant 2	GPRS 2 Tx slots	Top Side	10mm	Reduced	189	836.4	25.15	27.00	1.531	0.03	0.054	0.083
	GSM1900-Ant 1	GPRS 1 Tx slots	Front	10mm	Reduced	661	1880	25.13	26.00	1.222	0.04	0.100	0.122
	GSM1900-Ant 1	GPRS 1 Tx slots	Back	10mm	Reduced	661	1880	25.13	26.00	1.222	-0.03	0.149	0.182
	GSM1900-Ant 1	GPRS 1 Tx slots	Left Side	10mm	Reduced	661	1880	25.13	26.00	1.222	0.06	0.060	0.073
	GSM1900-Ant 1	GPRS 1 Tx slots	Right Side	10mm	Reduced	661	1880	25.13	26.00	1.222	0.09	0.081	0.099
20	GSM1900-Ant 1	GPRS 1 Tx slots	Bottom Side	10mm	Reduced	661	1880	25.13	26.00	1.222	-0.09	0.277	**0.338**
	GSM1900-Ant 2	GPRS 1 Tx slots	Front	10mm	Reduced	661	1880	25.37	26.50	1.297	0.01	0.064	0.083
	GSM1900-Ant 2	GPRS 1 Tx slots	Back	10mm	Reduced	661	1880	25.37	26.50	1.297	0.01	0.054	0.070
	GSM1900-Ant 2	GPRS 1 Tx slots	Left Side	10mm	Reduced	661	1880	25.37	26.50	1.297	0.05	0.040	0.052
	GSM1900-Ant 2	GPRS 1 Tx slots	Right Side	10mm	Reduced	661	1880	25.37	26.50	1.297	0.03	0.056	0.073
	GSM1900-Ant 2	GPRS 1 Tx slots	Top Side	10mm	Reduced	661	1880	25.37	26.50	1.297	-0.02	0.200	0.259

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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-Ant 1	RMC 12.2Kbps	Front	10mm	Full	4182	836.4	23.62	25.00	1.374	0.03	0.140	0.192
21	WCDMA V-Ant 1	RMC 12.2Kbps	Back	10mm	Full	4182	836.4	23.62	25.00	1.374	-0.01	0.203	**0.279**
	WCDMA V-Ant 1	RMC 12.2Kbps	Left Side	10mm	Full	4182	836.4	23.62	25.00	1.374	-0.03	0.054	0.074
	WCDMA V-Ant 1	RMC 12.2Kbps	Right Side	10mm	Full	4182	836.4	23.62	25.00	1.374	0.06	0.103	0.142
	WCDMA V-Ant 1	RMC 12.2Kbps	Bottom Side	10mm	Full	4182	836.4	23.62	25.00	1.374	0.04	0.160	0.220
	WCDMA V-Ant 2	RMC 12.2Kbps	Front	10mm	Reduced	4182	836.4	20.94	22.50	1.432	0.03	0.158	0.226
	WCDMA V-Ant 2	RMC 12.2Kbps	Back	10mm	Reduced	4182	836.4	20.94	22.50	1.432	-0.01	0.161	0.231
	WCDMA V-Ant 2	RMC 12.2Kbps	Left Side	10mm	Reduced	4182	836.4	20.94	22.50	1.432	0.06	0.048	0.069
	WCDMA V-Ant 2	RMC 12.2Kbps	Right Side	10mm	Reduced	4182	836.4	20.94	22.50	1.432	0.09	0.098	0.140
	WCDMA V-Ant 2	RMC 12.2Kbps	Top Side	10mm	Reduced	4182	836.4	20.94	22.50	1.432	-0.09	0.135	0.193
	WCDMA IV-Ant 1	RMC 12.2Kbps	Front	10mm	Reduced	1413	1732.6	19.57	21.00	1.390	0.01	0.268	0.373
	WCDMA IV-Ant 1	RMC 12.2Kbps	Back	10mm	Reduced	1413	1732.6	19.57	21.00	1.390	0.05	0.388	0.539
	WCDMA IV-Ant 1	RMC 12.2Kbps	Left Side	10mm	Reduced	1413	1732.6	19.57	21.00	1.390	0.03	0.060	0.083
	WCDMA IV-Ant 1	RMC 12.2Kbps	Right Side	10mm	Reduced	1413	1732.6	19.57	21.00	1.390	0.06	0.085	0.118
22	WCDMA IV-Ant 1	RMC 12.2Kbps	Bottom Side	10mm	Reduced	1413	1732.6	19.57	21.00	1.390	0.11	0.471	**0.655**
	WCDMA IV-Ant 2	RMC 12.2Kbps	Front	10mm	Reduced	1413	1732.6	13.79	15.20	1.384	-0.01	0.121	0.167
	WCDMA IV-Ant 2	RMC 12.2Kbps	Back	10mm	Reduced	1413	1732.6	13.79	15.20	1.384	-0.03	0.115	0.159
	WCDMA IV-Ant 2	RMC 12.2Kbps	Left Side	10mm	Reduced	1413	1732.6	13.79	15.20	1.384	0.06	0.030	0.042
	WCDMA IV-Ant 2	RMC 12.2Kbps	Right Side	10mm	Reduced	1413	1732.6	13.79	15.20	1.384	0.04	0.044	0.061
	WCDMA IV-Ant 2	RMC 12.2Kbps	Top Side	10mm	Reduced	1413	1732.6	13.79	15.20	1.384	-0.07	0.273	0.378
	WCDMA II-Ant 1	RMC 12.2Kbps	Front	10mm	Reduced	9400	1880	17.37	19.00	1.455	0.03	0.261	0.380
	WCDMA II-Ant 1	RMC 12.2Kbps	Back	10mm	Reduced	9400	1880	17.37	19.00	1.455	-0.01	0.387	0.563
	WCDMA II-Ant 1	RMC 12.2Kbps	Left Side	10mm	Reduced	9400	1880	17.37	19.00	1.455	0.06	0.195	0.284
	WCDMA II-Ant 1	RMC 12.2Kbps	Right Side	10mm	Reduced	9400	1880	17.37	19.00	1.455	0.09	0.219	0.319
23	WCDMA II-Ant 1	RMC 12.2Kbps	Bottom Side	10mm	Reduced	9400	1880	17.37	19.00	1.455	0.04	0.504	**0.734**
	WCDMA II-Ant 2	RMC 12.2Kbps	Front	10mm	Reduced	9400	1880	15.74	17.20	1.400	0.06	0.096	0.134
	WCDMA II-Ant 2	RMC 12.2Kbps	Back	10mm	Reduced	9400	1880	15.74	17.20	1.400	0.04	0.086	0.120
	WCDMA II-Ant 2	RMC 12.2Kbps	Left Side	10mm	Reduced	9400	1880	15.74	17.20	1.400	-0.07	0.073	0.102
	WCDMA II-Ant 2	RMC 12.2Kbps	Right Side	10mm	Reduced	9400	1880	15.74	17.20	1.400	0.04	0.084	0.118
	WCDMA II-Ant 2	RMC 12.2Kbps	Top Side	10mm	Reduced	9400	1880	15.74	17.20	1.400	-0.01	0.279	0.390

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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 26-Ant 1	15M	QPSK	1	0	Front	10mm	Full	26865	831.5	24.35	25.50	1.303	0.06	0.161	0.210
	LTE Band 26-Ant 1	15M	QPSK	36	0	Front	10mm	Full	26865	831.5	23.38	24.50	1.294	0.04	0.132	0.171
	LTE Band 26-Ant 1	15M	QPSK	1	0	Back	10mm	Full	26865	831.5	24.35	25.50	1.303	0.02	0.228	0.297
	LTE Band 26-Ant 1	15M	QPSK	36	0	Back	10mm	Full	26865	831.5	23.38	24.50	1.294	0.03	0.187	0.242
	LTE Band 26-Ant 1	15M	QPSK	1	0	Left Side	10mm	Full	26865	831.5	24.35	25.50	1.303	-0.01	0.062	0.081
	LTE Band 26-Ant 1	15M	QPSK	36	0	Left Side	10mm	Full	26865	831.5	23.38	24.50	1.294	0.06	0.052	0.067
	LTE Band 26-Ant 1	15M	QPSK	1	0	Right Side	10mm	Full	26865	831.5	24.35	25.50	1.303	0.09	0.141	0.184
	LTE Band 26-Ant 1	15M	QPSK	36	0	Right Side	10mm	Full	26865	831.5	23.38	24.50	1.294	-0.09	0.116	0.150
	LTE Band 26-Ant 1	15M	QPSK	1	0	Bottom Side	10mm	Full	26865	831.5	24.35	25.50	1.303	0.03	0.180	0.235
	LTE Band 26-Ant 1	15M	QPSK	36	0	Bottom Side	10mm	Full	26865	831.5	23.38	24.50	1.294	0.04	0.160	0.207
	LTE Band 26-Ant 2	15M	QPSK	1	0	Front	10mm	Full	26865	831.5	24.58	25.70	1.294	-0.07	0.235	0.304
	LTE Band 26-Ant 2	15M	QPSK	36	0	Front	10mm	Full	26865	831.5	23.70	24.70	1.259	0.04	0.141	0.178
24	LTE Band 26-Ant 2	15M	QPSK	1	0	Back	10mm	Full	26865	831.5	24.58	25.70	1.294	-0.01	0.249	**0.322**
	LTE Band 26-Ant 2	15M	QPSK	36	0	Back	10mm	Full	26865	831.5	23.70	24.70	1.259	0.09	0.149	0.188
	LTE Band 26-Ant 2	15M	QPSK	1	0	Left Side	10mm	Full	26865	831.5	24.58	25.70	1.294	0.03	0.087	0.113
	LTE Band 26-Ant 2	15M	QPSK	36	0	Left Side	10mm	Full	26865	831.5	23.70	24.70	1.259	-0.01	0.059	0.074
	LTE Band 26-Ant 2	15M	QPSK	1	0	Right Side	10mm	Full	26865	831.5	24.58	25.70	1.294	0.06	0.099	0.128
	LTE Band 26-Ant 2	15M	QPSK	36	0	Right Side	10mm	Full	26865	831.5	23.70	24.70	1.259	0.09	0.077	0.097
	LTE Band 26-Ant 2	15M	QPSK	1	0	Top Side	10mm	Full	26865	831.5	24.58	25.70	1.294	-0.09	0.162	0.210
	LTE Band 26-Ant 2	15M	QPSK	36	0	Top Side	10mm	Full	26865	831.5	23.70	24.70	1.259	0.01	0.107	0.135
	LTE Band 12-Ant 1	10M	QPSK	1	0	Front	10mm	Full	23095	707.5	23.88	25.00	1.294	0.06	0.090	0.116
	LTE Band 12-Ant 1	10M	QPSK	25	0	Front	10mm	Full	23095	707.5	22.85	24.00	1.303	0.04	0.076	0.099
25	LTE Band 12-Ant 1	10M	QPSK	1	0	Back	10mm	Full	23095	707.5	23.88	25.00	1.294	-0.08	0.126	**0.163**
	LTE Band 12-Ant 1	10M	QPSK	25	0	Back	10mm	Full	23095	707.5	22.85	24.00	1.303	0.09	0.109	0.142
	LTE Band 12-Ant 1	10M	QPSK	1	0	Left Side	10mm	Full	23095	707.5	23.88	25.00	1.294	0.03	0.072	0.093
	LTE Band 12-Ant 1	10M	QPSK	25	0	Left Side	10mm	Full	23095	707.5	22.85	24.00	1.303	-0.01	0.058	0.076
	LTE Band 12-Ant 1	10M	QPSK	1	0	Right Side	10mm	Full	23095	707.5	23.88	25.00	1.294	0.06	0.120	0.155
	LTE Band 12-Ant 1	10M	QPSK	25	0	Right Side	10mm	Full	23095	707.5	22.85	24.00	1.303	-0.01	0.100	0.130
	LTE Band 12-Ant 1	10M	QPSK	1	0	Bottom Side	10mm	Full	23095	707.5	23.88	25.00	1.294	0.06	0.097	0.126
	LTE Band 12-Ant 1	10M	QPSK	25	0	Bottom Side	10mm	Full	23095	707.5	22.85	24.00	1.303	0.09	0.089	0.116
	LTE Band 12-Ant 2	10M	QPSK	1	0	Front	10mm	Full	23095	707.5	24.15	25.50	1.365	0.01	0.075	0.102
	LTE Band 12-Ant 2	10M	QPSK	25	0	Front	10mm	Full	23095	707.5	23.17	24.50	1.358	0.05	0.064	0.087
	LTE Band 12-Ant 2	10M	QPSK	1	0	Back	10mm	Full	23095	707.5	24.15	25.50	1.365	-0.09	0.108	0.147
	LTE Band 12-Ant 2	10M	QPSK	25	0	Back	10mm	Full	23095	707.5	23.17	24.50	1.358	0.02	0.088	0.120
	LTE Band 12-Ant 2	10M	QPSK	1	0	Left Side	10mm	Full	23095	707.5	24.15	25.50	1.365	0.03	0.101	0.138
	LTE Band 12-Ant 2	10M	QPSK	25	0	Left Side	10mm	Full	23095	707.5	23.17	24.50	1.358	-0.01	0.079	0.107
	LTE Band 12-Ant 2	10M	QPSK	1	0	Right Side	10mm	Full	23095	707.5	24.15	25.50	1.365	0.06	0.093	0.127
	LTE Band 12-Ant 2	10M	QPSK	25	0	Right Side	10mm	Full	23095	707.5	23.17	24.50	1.358	0.09	0.074	0.101
	LTE Band 12-Ant 2	10M	QPSK	1	0	Top Side	10mm	Full	23095	707.5	24.15	25.50	1.365	0.09	0.052	0.071
	LTE Band 12-Ant 2	10M	QPSK	25	0	Top Side	10mm	Full	23095	707.5	23.17	24.50	1.358	0.03	0.044	0.060

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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 4-Ant 1	20M	QPSK	1	0	Front	10mm	Reduced	20175	1732.5	20.15	21.50	1.365	0.04	0.220	0.300
	LTE Band 4-Ant 1	20M	QPSK	50	0	Front	10mm	Reduced	20175	1732.5	19.90	21.50	1.445	-0.08	0.228	0.330
	LTE Band 4-Ant 1	20M	QPSK	1	0	Back	10mm	Reduced	20175	1732.5	20.15	21.50	1.365	0.09	0.304	0.415
	LTE Band 4-Ant 1	20M	QPSK	50	0	Back	10mm	Reduced	20175	1732.5	19.90	21.50	1.445	0.03	0.315	0.455
	LTE Band 4-Ant 1	20M	QPSK	1	0	Left Side	10mm	Reduced	20175	1732.5	20.15	21.50	1.365	-0.01	0.054	0.074
	LTE Band 4-Ant 1	20M	QPSK	50	0	Left Side	10mm	Reduced	20175	1732.5	19.90	21.50	1.445	0.06	0.054	0.078
	LTE Band 4-Ant 1	20M	QPSK	1	0	Right Side	10mm	Reduced	20175	1732.5	20.15	21.50	1.365	-0.01	0.069	0.094
	LTE Band 4-Ant 1	20M	QPSK	50	0	Right Side	10mm	Reduced	20175	1732.5	19.90	21.50	1.445	0.06	0.068	0.098
	LTE Band 4-Ant 1	20M	QPSK	1	0	Bottom Side	10mm	Reduced	20175	1732.5	20.15	21.50	1.365	0.03	0.390	0.532
26	LTE Band 4-Ant 1	20M	QPSK	50	0	Bottom Side	10mm	Reduced	20175	1732.5	19.90	21.50	1.445	0.04	0.412	**0.596**
	LTE Band 4-Ant 2	20M	QPSK	1	0	Front	10mm	Reduced	20175	1732.5	14.40	15.70	1.349	0.03	0.123	0.166
	LTE Band 4-Ant 2	20M	QPSK	50	0	Front	10mm	Reduced	20175	1732.5	14.19	15.70	1.416	-0.01	0.124	0.176
	LTE Band 4-Ant 2	20M	QPSK	1	0	Back	10mm	Reduced	20175	1732.5	14.40	15.70	1.349	0.06	0.118	0.159
	LTE Band 4-Ant 2	20M	QPSK	50	0	Back	10mm	Reduced	20175	1732.5	14.19	15.70	1.416	0.09	0.114	0.161
	LTE Band 4-Ant 2	20M	QPSK	1	0	Left Side	10mm	Reduced	20175	1732.5	14.40	15.70	1.349	-0.09	0.026	0.035
	LTE Band 4-Ant 2	20M	QPSK	50	0	Left Side	10mm	Reduced	20175	1732.5	14.19	15.70	1.416	0.01	0.023	0.033
	LTE Band 4-Ant 2	20M	QPSK	1	0	Right Side	10mm	Reduced	20175	1732.5	14.40	15.70	1.349	0.06	0.033	0.045
	LTE Band 4-Ant 2	20M	QPSK	50	0	Right Side	10mm	Reduced	20175	1732.5	14.19	15.70	1.416	-0.01	0.030	0.042
	LTE Band 4-Ant 2	20M	QPSK	1	0	Top Side	10mm	Reduced	20175	1732.5	14.40	15.70	1.349	0.06	0.252	0.340
	LTE Band 4-Ant 2	20M	QPSK	50	0	Top Side	10mm	Reduced	20175	1732.5	14.19	15.70	1.416	-0.04	0.260	0.368
	LTE Band 2-Ant 1	20M	QPSK	1	0	Front	10mm	Reduced	18900	1880	17.15	18.50	1.365	0.04	0.209	0.285
	LTE Band 2-Ant 1	20M	QPSK	50	0	Front	10mm	Reduced	18900	1880	17.12	18.50	1.374	-0.08	0.203	0.279
	LTE Band 2-Ant 1	20M	QPSK	1	0	Back	10mm	Reduced	18900	1880	17.15	18.50	1.365	0.09	0.301	0.411
	LTE Band 2-Ant 1	20M	QPSK	50	0	Back	10mm	Reduced	18900	1880	17.12	18.50	1.374	0.03	0.299	0.411
	LTE Band 2-Ant 1	20M	QPSK	1	0	Left Side	10mm	Reduced	18900	1880	17.15	18.50	1.365	-0.01	0.036	0.049
	LTE Band 2-Ant 1	20M	QPSK	50	0	Left Side	10mm	Reduced	18900	1880	17.12	18.50	1.374	0.06	0.032	0.044
	LTE Band 2-Ant 1	20M	QPSK	1	0	Right Side	10mm	Reduced	18900	1880	17.15	18.50	1.365	-0.01	0.046	0.063
	LTE Band 2-Ant 1	20M	QPSK	50	0	Right Side	10mm	Reduced	18900	1880	17.12	18.50	1.374	0.03	0.040	0.055
	LTE Band 2-Ant 1	20M	QPSK	1	0	Bottom Side	10mm	Reduced	18900	1880	17.15	18.50	1.365	0.04	0.546	0.745
27	LTE Band 2-Ant 1	20M	QPSK	50	0	Bottom Side	10mm	Reduced	18900	1880	17.12	18.50	1.374	-0.01	0.581	**0.798**
	LTE Band 2C-Ant 1	20M	QPSK	50	0	Bottom Side	10mm	Reduced	18900+18702	1880+1860.2	17.04	18.50	1.400	-0.03	0.523	0.732
	LTE Band 2-Ant 2	20M	QPSK	1	0	Front	10mm	Reduced	18900	1880	16.46	17.70	1.330	0.01	0.107	0.142
	LTE Band 2-Ant 2	20M	QPSK	50	0	Front	10mm	Reduced	18900	1880	16.29	17.70	1.384	0.06	0.101	0.140
	LTE Band 2-Ant 2	20M	QPSK	1	0	Back	10mm	Reduced	18900	1880	16.46	17.70	1.330	-0.01	0.090	0.120
	LTE Band 2-Ant 2	20M	QPSK	50	0	Back	10mm	Reduced	18900	1880	16.29	17.70	1.384	0.06	0.086	0.119
	LTE Band 2-Ant 2	20M	QPSK	1	0	Left Side	10mm	Reduced	18900	1880	16.46	17.70	1.330	-0.01	0.020	0.027
	LTE Band 2-Ant 2	20M	QPSK	50	0	Left Side	10mm	Reduced	18900	1880	16.29	17.70	1.384	0.06	0.018	0.025
	LTE Band 2-Ant 2	20M	QPSK	1	0	Right Side	10mm	Reduced	18900	1880	16.46	17.70	1.330	0.04	0.027	0.036
	LTE Band 2-Ant 2	20M	QPSK	50	0	Right Side	10mm	Reduced	18900	1880	16.29	17.70	1.384	-0.01	0.023	0.032
	LTE Band 2-Ant 2	20M	QPSK	1	0	Top Side	10mm	Reduced	18900	1880	16.46	17.70	1.330	-0.14	0.300	0.399
	LTE Band 2-Ant 2	20M	QPSK	50	0	Top Side	10mm	Reduced	18900	1880	16.29	17.70	1.384	0.03	0.293	0.405

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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 7-Ant 1	20M	QPSK	1	0	Front	10mm	Reduced	21100	2535	21.30	22.50	1.318	0.03	0.286	0.377
	LTE Band 7-Ant 1	20M	QPSK	50	0	Front	10mm	Reduced	21100	2535	21.28	22.50	1.324	-0.01	0.283	0.375
28	LTE Band 7-Ant 1	20M	QPSK	1	0	Back	10mm	Reduced	21100	2535	21.30	22.50	1.318	-0.07	0.385	**0.508**
	LTE Band 7-Ant 1	20M	QPSK	50	0	Back	10mm	Reduced	21100	2535	21.28	22.50	1.324	-0.09	0.376	0.498
	LTE Band 7-Ant 1	20M	QPSK	1	0	Left Side	10mm	Reduced	21100	2535	21.30	22.50	1.318	0.01	0.199	0.262
	LTE Band 7-Ant 1	20M	QPSK	50	0	Left Side	10mm	Reduced	21100	2535	21.28	22.50	1.324	0.06	0.193	0.256
	LTE Band 7-Ant 1	20M	QPSK	1	0	Right Side	10mm	Reduced	21100	2535	21.30	22.50	1.318	-0.01	0.035	0.046
	LTE Band 7-Ant 1	20M	QPSK	50	0	Right Side	10mm	Reduced	21100	2535	21.28	22.50	1.324	0.06	0.031	0.041
	LTE Band 7-Ant 1	20M	QPSK	1	0	Bottom Side	10mm	Reduced	21100	2535	21.30	22.50	1.318	-0.04	0.338	0.446
	LTE Band 7-Ant 1	20M	QPSK	50	0	Bottom Side	10mm	Reduced	21100	2535	21.28	22.50	1.324	0.01	0.355	0.470
	LTE Band 7C-Ant 1	20M	QPSK	1	0	Back	10mm	Reduced	21100+20092	2535+2515.2	21.11	22.50	1.377	-0.07	0.321	0.442
	LTE Band 7-Ant 2	20M	QPSK	1	0	Front	10mm	Reduced	21100	2535	19.28	20.70	1.387	-0.08	0.229	0.318
	LTE Band 7-Ant 2	20M	QPSK	50	0	Front	10mm	Reduced	21100	2535	19.16	20.70	1.426	0.09	0.237	0.338
	LTE Band 7-Ant 2	20M	QPSK	1	0	Back	10mm	Reduced	21100	2535	19.28	20.70	1.387	0.03	0.128	0.178
	LTE Band 7-Ant 2	20M	QPSK	50	0	Back	10mm	Reduced	21100	2535	19.16	20.70	1.426	-0.01	0.123	0.175
	LTE Band 7-Ant 2	20M	QPSK	1	0	Left Side	10mm	Reduced	21100	2535	19.28	20.70	1.387	0.06	0.168	0.233
	LTE Band 7-Ant 2	20M	QPSK	50	0	Left Side	10mm	Reduced	21100	2535	19.16	20.70	1.426	-0.01	0.175	0.249
	LTE Band 7-Ant 2	20M	QPSK	1	0	Right Side	10mm	Reduced	21100	2535	19.28	20.70	1.387	-0.01	0.186	0.258
	LTE Band 7-Ant 2	20M	QPSK	50	0	Right Side	10mm	Reduced	21100	2535	19.16	20.70	1.426	0.06	0.193	0.275
	LTE Band 7-Ant 2	20M	QPSK	1	0	Top Side	10mm	Reduced	21100	2535	19.28	20.70	1.387	0.04	0.255	0.354
	LTE Band 7-Ant 2	20M	QPSK	50	0	Top Side	10mm	Reduced	21100	2535	19.16	20.70	1.426	-0.07	0.261	0.372
	LTE Band 66-Ant 1	20M	QPSK	1	0	Front	10mm	Reduced	132322	1745	19.09	20.50	1.384	-0.01	0.107	0.148
	LTE Band 66-Ant 1	20M	QPSK	50	0	Front	10mm	Reduced	132322	1745	18.89	20.50	1.449	0.06	0.109	0.158
	LTE Band 66-Ant 1	20M	QPSK	1	0	Back	10mm	Reduced	132322	1745	19.09	20.50	1.384	-0.01	0.149	0.206
	LTE Band 66-Ant 1	20M	QPSK	50	0	Back	10mm	Reduced	132322	1745	18.89	20.50	1.449	0.03	0.152	0.220
	LTE Band 66-Ant 1	20M	QPSK	1	0	Left Side	10mm	Reduced	132322	1745	19.09	20.50	1.384	0.04	0.025	0.035
	LTE Band 66-Ant 1	20M	QPSK	50	0	Left Side	10mm	Reduced	132322	1745	18.89	20.50	1.449	-0.01	0.024	0.035
	LTE Band 66-Ant 1	20M	QPSK	1	0	Right Side	10mm	Reduced	132322	1745	19.09	20.50	1.384	-0.01	0.030	0.042
	LTE Band 66-Ant 1	20M	QPSK	50	0	Right Side	10mm	Reduced	132322	1745	18.89	20.50	1.449	0.06	0.028	0.041
	LTE Band 66-Ant 1	20M	QPSK	1	0	Bottom Side	10mm	Reduced	132322	1745	19.09	20.50	1.384	-0.04	0.180	0.249
	LTE Band 66-Ant 1	20M	QPSK	50	0	Bottom Side	10mm	Reduced	132322	1745	18.89	20.50	1.449	0.01	0.203	0.294
	LTE Band 66-Ant 2	20M	QPSK	1	0	Front	10mm	Reduced	132322	1745	16.81	17.70	1.227	0.09	0.189	0.232
	LTE Band 66-Ant 2	20M	QPSK	50	0	Front	10mm	Reduced	132322	1745	16.73	17.70	1.250	0.03	0.196	0.245
	LTE Band 66-Ant 2	20M	QPSK	1	0	Back	10mm	Reduced	132322	1745	16.81	17.70	1.227	-0.01	0.188	0.231
	LTE Band 66-Ant 2	20M	QPSK	50	0	Back	10mm	Reduced	132322	1745	16.73	17.70	1.250	0.06	0.182	0.228
	LTE Band 66-Ant 2	20M	QPSK	1	0	Left Side	10mm	Reduced	132322	1745	16.81	17.70	1.227	-0.01	0.046	0.056
	LTE Band 66-Ant 2	20M	QPSK	50	0	Left Side	10mm	Reduced	132322	1745	16.73	17.70	1.250	-0.01	0.044	0.055
	LTE Band 66-Ant 2	20M	QPSK	1	0	Right Side	10mm	Reduced	132322	1745	16.81	17.70	1.227	-0.01	0.055	0.068
	LTE Band 66-Ant 2	20M	QPSK	50	0	Right Side	10mm	Reduced	132322	1745	16.73	17.70	1.250	0.06	0.052	0.065
	LTE Band 66-Ant 2	20M	QPSK	1	0	Top Side	10mm	Reduced	132322	1745	16.81	17.70	1.227	0.02	0.376	0.462
29	LTE Band 66-Ant 2	20M	QPSK	50	0	Top Side	10mm	Reduced	132322	1745	16.73	17.70	1.250	-0.06	0.424	**0.530**

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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)
	LTE Band 38-Ant 1	20M	QPSK	1	0	Front	10mm	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	0.06	0.346	0.495
	LTE Band 38-Ant 1	20M	QPSK	50	0	Front	10mm	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	0.07	0.285	0.420
30	LTE Band 38-Ant 1	20M	QPSK	1	0	Back	10mm	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	0.03	0.483	**0.691**
	LTE Band 38-Ant 1	20M	QPSK	50	0	Back	10mm	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	0.06	0.391	0.576
	LTE Band 38-Ant 1	20M	QPSK	1	0	Left Side	10mm	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	-0.01	0.207	0.296
	LTE Band 38-Ant 1	20M	QPSK	50	0	Left Side	10mm	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	-0.01	0.164	0.242
	LTE Band 38-Ant 1	20M	QPSK	1	0	Right Side	10mm	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	-0.01	0.043	0.062
	LTE Band 38-Ant 1	20M	QPSK	50	0	Right Side	10mm	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	0.06	0.037	0.055
	LTE Band 38-Ant 1	20M	QPSK	1	0	Bottom Side	10mm	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	0.02	0.329	0.471
	LTE Band 38-Ant 1	20M	QPSK	50	0	Bottom Side	10mm	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	-0.06	0.266	0.392
	LTE Band 38C-Ant 1	20M	QPSK	1	0	Back	10mm	Full	37901+ 38099	2585.1+ 2604.9	23.92	25.50	1.439	62.9	1.006	0.03	0.433	0.627
	LTE Band 38-Ant 2	20M	QPSK	1	0	Front	10mm	Reduced	38000	2595	22.28	23.70	1.387	62.9	1.006	0.09	0.272	0.379
	LTE Band 38-Ant 2	20M	QPSK	50	0	Front	10mm	Reduced	38000	2595	22.24	23.70	1.400	62.9	1.006	0.03	0.284	0.400
	LTE Band 38-Ant 2	20M	QPSK	1	0	Back	10mm	Reduced	38000	2595	22.28	23.70	1.387	62.9	1.006	-0.01	0.139	0.194
	LTE Band 38-Ant 2	20M	QPSK	50	0	Back	10mm	Reduced	38000	2595	22.24	23.70	1.400	62.9	1.006	0.06	0.149	0.210
	LTE Band 38-Ant 2	20M	QPSK	1	0	Left Side	10mm	Reduced	38000	2595	22.28	23.70	1.387	62.9	1.006	-0.05	0.218	0.304
	LTE Band 38-Ant 2	20M	QPSK	50	0	Left Side	10mm	Reduced	38000	2595	22.24	23.70	1.400	62.9	1.006	-0.01	0.228	0.321
	LTE Band 38-Ant 2	20M	QPSK	1	0	Right Side	10mm	Reduced	38000	2595	22.28	23.70	1.387	62.9	1.006	0.03	0.032	0.045
	LTE Band 38-Ant 2	20M	QPSK	50	0	Right Side	10mm	Reduced	38000	2595	22.24	23.70	1.400	62.9	1.006	0.06	0.038	0.054
	LTE Band 38-Ant 2	20M	QPSK	1	0	Top Side	10mm	Reduced	38000	2595	22.28	23.70	1.387	62.9	1.006	0.01	0.341	0.476
	LTE Band 38-Ant 2	20M	QPSK	50	0	Top Side	10mm	Reduced	38000	2595	22.24	23.70	1.400	62.9	1.006	-0.06	0.344	0.484
	LTE Band 41-Ant 1	20M	QPSK	1	0	Front	10mm	Reduced	40770	2608	22.81	24.50	1.476	62.9	1.006	0.06	0.268	0.398
	LTE Band 41-Ant 1	20M	QPSK	50	0	Front	10mm	Reduced	40770	2608	22.75	24.50	1.496	62.9	1.006	0.07	0.283	0.426
	LTE Band 41-Ant 1	20M	QPSK	1	0	Back	10mm	Reduced	40770	2608	22.81	24.50	1.476	62.9	1.006	0.03	0.385	0.572
31	LTE Band 41-Ant 1	20M	QPSK	50	0	Back	10mm	Reduced	40770	2608	22.75	24.50	1.496	62.9	1.006	0.12	0.389	**0.586**
	LTE Band 41-Ant 1	20M	QPSK	1	0	Left Side	10mm	Reduced	40770	2608	22.81	24.50	1.476	62.9	1.006	-0.01	0.156	0.232
	LTE Band 41-Ant 1	20M	QPSK	50	0	Left Side	10mm	Reduced	40770	2608	22.75	24.50	1.496	62.9	1.006	-0.01	0.163	0.245
	LTE Band 41-Ant 1	20M	QPSK	1	0	Right Side	10mm	Reduced	40770	2608	22.81	24.50	1.476	62.9	1.006	0.06	0.040	0.059
	LTE Band 41-Ant 1	20M	QPSK	50	0	Right Side	10mm	Reduced	40770	2608	22.75	24.50	1.496	62.9	1.006	0.04	0.044	0.066
	LTE Band 41-Ant 1	20M	QPSK	1	0	Bottom Side	10mm	Reduced	40770	2608	22.81	24.50	1.476	62.9	1.006	-0.07	0.284	0.422
	LTE Band 41-Ant 1	20M	QPSK	50	0	Bottom Side	10mm	Reduced	40770	2608	22.75	24.50	1.496	62.9	1.006	-0.02	0.287	0.432
	LTE Band 41-Ant 2	20M	QPSK	1	0	Front	10mm	Reduced	40770	2608	21.31	22.70	1.377	62.9	1.006	0.06	0.225	0.312
	LTE Band 41-Ant 2	20M	QPSK	50	0	Front	10mm	Reduced	40770	2608	21.20	22.70	1.413	62.9	1.006	-0.01	0.231	0.328
	LTE Band 41-Ant 2	20M	QPSK	1	0	Back	10mm	Reduced	40770	2608	21.31	22.70	1.377	62.9	1.006	-0.01	0.142	0.197
	LTE Band 41-Ant 2	20M	QPSK	50	0	Back	10mm	Reduced	40770	2608	21.20	22.70	1.413	62.9	1.006	0.06	0.141	0.200
	LTE Band 41-Ant 2	20M	QPSK	1	0	Left Side	10mm	Reduced	40770	2608	21.31	22.70	1.377	62.9	1.006	0.05	0.177	0.245
	LTE Band 41-Ant 2	20M	QPSK	50	0	Left Side	10mm	Reduced	40770	2608	21.20	22.70	1.413	62.9	1.006	0.09	0.183	0.260
	LTE Band 41-Ant 2	20M	QPSK	1	0	Right Side	10mm	Reduced	40770	2608	21.31	22.70	1.377	62.9	1.006	0.04	0.030	0.042
	LTE Band 41-Ant 2	20M	QPSK	50	0	Right Side	10mm	Reduced	40770	2608	21.20	22.70	1.413	62.9	1.006	-0.07	0.035	0.050
	LTE Band 41-Ant 2	20M	QPSK	1	0	Top Side	10mm	Reduced	40770	2608	21.31	22.70	1.377	62.9	1.006	-0.02	0.269	0.373
	LTE Band 41-Ant 2	20M	QPSK	50	0	Top Side	10mm	Reduced	40770	2608	21.20	22.70	1.413	62.9	1.006	0.02	0.278	0.395

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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	10mm	Ant3	Full	11	2462	17.35	19.00	1.462	100	1.000	-0.01	0.110	0.161
	WLAN2.4GHz	802.11b 1Mbps	Back	10mm	Ant3	Full	11	2462	17.35	19.00	1.462	100	1.000	0.06	0.110	0.161
	WLAN2.4GHz	802.11b 1Mbps	Left Side	10mm	Ant3	Full	11	2462	17.35	19.00	1.462	100	1.000	0.04	0.032	0.047
32	WLAN2.4GHz	802.11b 1Mbps	Right Side	10mm	Ant3	Full	11	2462	17.35	19.00	1.462	100	1.000	-0.05	0.128	**0.187**
	WLAN2.4GHz	802.11b 1Mbps	Top Side	10mm	Ant3	Full	11	2462	17.35	19.00	1.462	100	1.000	0.04	0.121	0.177

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
	WLAN5.2GHz	802.11ac-VHT40 MCS0	Front	10mm	Ant3	Reduced	46	5230	12.49	14.00	1.416	96.32	1.038	0.03	0.150	0.220
	WLAN5.2GHz	802.11ac-VHT40 MCS0	Back	10mm	Ant3	Reduced	46	5230	12.49	14.00	1.416	96.32	1.038	-0.01	0.362	0.532
	WLAN5.2GHz	802.11ac-VHT40 MCS0	Left Side	10mm	Ant3	Reduced	46	5230	12.49	14.00	1.416	96.32	1.038	0.06	0.048	0.071
	WLAN5.2GHz	802.11ac-VHT40 MCS0	Right Side	10mm	Ant3	Reduced	46	5230	12.49	14.00	1.416	96.32	1.038	-0.05	0.165	0.242
33	WLAN5.2GHz	802.11ac-VHT40 MCS0	Top Side	10mm	Ant3	Reduced	46	5230	12.49	14.00	1.416	96.32	1.038	-0.01	0.517	**0.760**
	WLAN5.2GHz	802.11ac-VHT40 MCS0	Top Side	10mm	Ant3	Reduced	38	5190	12.31	14.00	1.476	96.32	1.038	-0.01	0.451	0.691
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	10mm	Ant3	Reduced	155	5775	11.38	13.00	1.452	92.77	1.078	-0.07	0.111	0.174
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	10mm	Ant3	Reduced	155	5775	11.38	13.00	1.452	92.77	1.078	-0.02	0.273	0.427
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Left Side	10mm	Ant3	Reduced	155	5775	11.38	13.00	1.452	92.77	1.078	0.05	0.092	0.144
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Right Side	10mm	Ant3	Reduced	155	5775	11.38	13.00	1.452	92.77	1.078	0.06	0.114	0.178
34	WLAN5.8GHz	802.11ac-VHT80 MCS0	Top Side	10mm	Ant3	Reduced	155	5775	11.38	13.00	1.452	92.77	1.078	0.11	0.343	**0.537**

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
35	Bluetooth	1Mbps	Front	10mm	Ant3	0	2402	11.25	12.00	1.189	77.03	1.298	-0.01	0.00812	**0.013**
	Bluetooth	1Mbps	Back	10mm	Ant3	0	2402	11.25	12.00	1.189	77.03	1.298	0.05	0.006	0.009
	Bluetooth	1Mbps	Left Side	10mm	Ant3	0	2402	11.25	12.00	1.189	77.03	1.298	0.09	0.003	0.005
	Bluetooth	1Mbps	Right Side	10mm	Ant3	0	2402	11.25	12.00	1.189	77.03	1.298	0.04	0.002	0.003
	Bluetooth	1Mbps	Top Side	10mm	Ant3	0	2402	11.25	12.00	1.189	77.03	1.298	-0.07	0.007	0.011

15.3 Body Worn Accessory SAR

<GSM SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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)
	GSM 850-Ant 1	GPRS 2 Tx slots	Front	15mm	Full	189	836.4	28.80	30.50	1.479	0.09	0.072	0.106
36	GSM 850-Ant 1	GPRS 2 Tx slots	Back	15mm	Full	189	836.4	28.80	30.50	1.479	0.02	0.093	**0.138**
	GSM 850-Ant 2	GPRS 2 Tx slots	Front	15mm	Full	189	836.4	29.54	31.00	1.400	0.01	0.056	0.078
	GSM 850-Ant 2	GPRS 2 Tx slots	Back	15mm	Full	189	836.4	29.54	31.00	1.400	0.05	0.07	0.098
	GSM1900-Ant 1	GPRS 1 Tx slots	Front	15mm	Full	661	1880	29.70	31.00	1.349	0.01	0.244	0.329
37	GSM1900-Ant 1	GPRS 1 Tx slots	Back	15mm	Full	661	1880	29.70	31.00	1.349	-0.01	0.352	**0.475**
	GSM1900-Ant 2	GPRS 1 Tx slots	Front	15mm	Full	661	1880	30.43	31.50	1.279	0.03	0.087	0.111
	GSM1900-Ant 2	GPRS 1 Tx slots	Back	15mm	Full	661	1880	30.43	31.50	1.279	0.08	0.092	0.118

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	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-Ant 1	RMC 12.2Kbps	Front	15mm	Full	4182	836.4	23.62	25.00	1.374	-0.03	0.123	0.169
38	WCDMA V-Ant 1	RMC 12.2Kbps	Back	15mm	Full	4182	836.4	23.62	25.00	1.374	0.05	0.156	**0.214**
	WCDMA V-Ant 2	RMC 12.2Kbps	Front	15mm	Full	4182	836.4	23.92	25.50	1.439	0.01	0.143	0.206
	WCDMA V-Ant 2	RMC 12.2Kbps	Back	15mm	Full	4182	836.4	23.92	25.50	1.439	0.08	0.136	0.196
	WCDMA IV-Ant 1	RMC 12.2Kbps	Front	15mm	Full	1413	1732.6	23.51	25.00	1.409	-0.04	0.369	0.520
39	WCDMA IV-Ant 1	RMC 12.2Kbps	Back	15mm	Full	1413	1732.6	23.51	25.00	1.409	-0.07	0.562	**0.792**
	WCDMA IV-Ant 2	RMC 12.2Kbps	Front	15mm	Full	1413	1732.6	23.81	25.20	1.377	0.05	0.387	0.533
	WCDMA IV-Ant 2	RMC 12.2Kbps	Back	15mm	Full	1413	1732.6	23.81	25.20	1.377	0.01	0.552	0.760
	WCDMA II-Ant 1	RMC 12.2Kbps	Front	15mm	Full	9400	1880	23.56	25.00	1.393	-0.03	0.315	0.439
	WCDMA II-Ant 1	RMC 12.2Kbps	Back	15mm	Full	9400	1880	23.56	25.00	1.393	0.04	0.518	0.721
40	WCDMA II-Ant 1	RMC 12.2Kbps	Back	15mm	Full	9262	1852.4	23.55	25.00	1.396	-0.03	0.537	**0.750**
	WCDMA II-Ant 1	RMC 12.2Kbps	Back	15mm	Full	9538	1907.6	23.26	25.00	1.493	0.07	0.463	0.690
	WCDMA II-Ant 2	RMC 12.2Kbps	Front	15mm	Full	9400	1880	24.06	25.20	1.300	-0.07	0.181	0.235
	WCDMA II-Ant 2	RMC 12.2Kbps	Back	15mm	Full	9400	1880	24.06	25.20	1.300	0.05	0.262	0.341

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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 26-Ant 1	15M	QPSK	1	0	Front	15mm	Full	26865	831.5	24.35	25.50	1.303	0.08	0.133	0.173
	LTE Band 26-Ant 1	15M	QPSK	36	0	Front	15mm	Full	26865	831.5	23.38	24.50	1.294	0.04	0.108	0.140
41	LTE Band 26-Ant 1	15M	QPSK	1	0	Back	15mm	Full	26865	831.5	24.35	25.50	1.303	0.01	0.181	**0.236**
	LTE Band 26-Ant 1	15M	QPSK	36	0	Back	15mm	Full	26865	831.5	23.38	24.50	1.294	-0.05	0.145	0.188
	LTE Band 26-Ant 2	15M	QPSK	1	0	Front	15mm	Full	26865	831.5	24.58	25.70	1.294	0.01	0.140	0.181
	LTE Band 26-Ant 2	15M	QPSK	36	0	Front	15mm	Full	26865	831.5	23.70	24.70	1.259	0.08	0.112	0.141
	LTE Band 26-Ant 2	15M	QPSK	1	0	Back	15mm	Full	26865	831.5	24.58	25.70	1.294	-0.04	0.163	0.211
	LTE Band 26-Ant 2	15M	QPSK	36	0	Back	15mm	Full	26865	831.5	23.70	24.70	1.259	-0.07	0.127	0.160
	LTE Band 12-Ant 1	10M	QPSK	1	0	Front	15mm	Full	23095	707.5	23.88	25.00	1.294	0.05	0.075	0.097
	LTE Band 12-Ant 1	10M	QPSK	25	0	Front	15mm	Full	23095	707.5	22.85	24.00	1.303	0.01	0.061	0.079
42	LTE Band 12-Ant 1	10M	QPSK	1	0	Back	15mm	Full	23095	707.5	23.88	25.00	1.294	-0.03	0.105	**0.136**
	LTE Band 12-Ant 1	10M	QPSK	25	0	Back	15mm	Full	23095	707.5	22.85	24.00	1.303	0.03	0.085	0.111
	LTE Band 12-Ant 2	10M	QPSK	1	0	Front	15mm	Full	23095	707.5	24.15	25.50	1.365	0.03	0.072	0.098
	LTE Band 12-Ant 2	10M	QPSK	25	0	Front	15mm	Full	23095	707.5	23.17	24.50	1.358	0.01	0.061	0.083
	LTE Band 12-Ant 2	10M	QPSK	1	0	Back	15mm	Full	23095	707.5	24.15	25.50	1.365	-0.05	0.095	0.130
	LTE Band 12-Ant 2	10M	QPSK	25	0	Back	15mm	Full	23095	707.5	23.17	24.50	1.358	-0.08	0.091	0.124
	LTE Band 4-Ant 1	20M	QPSK	1	0	Front	15mm	Full	20175	1732.5	24.08	25.50	1.387	0.05	0.382	0.530
	LTE Band 4-Ant 1	20M	QPSK	50	0	Front	15mm	Full	20175	1732.5	22.89	24.50	1.449	0.01	0.309	0.448
43	LTE Band 4-Ant 1	20M	QPSK	1	0	Back	15mm	Full	20175	1732.5	24.08	25.50	1.387	-0.02	0.580	**0.804**
	LTE Band 4-Ant 1	20M	QPSK	50	0	Back	15mm	Full	20175	1732.5	22.89	24.50	1.449	0.09	0.472	0.684
	LTE Band 4-Ant 1	20M	QPSK	100	0	Back	15mm	Full	20175	1732.5	22.84	24.50	1.466	-0.05	0.503	0.737
	LTE Band 4-Ant 2	20M	QPSK	1	0	Front	15mm	Full	20175	1732.5	24.18	25.70	1.419	-0.1	0.381	0.541
	LTE Band 4-Ant 2	20M	QPSK	50	0	Front	15mm	Full	20175	1732.5	23.09	24.70	1.449	0.05	0.294	0.426
	LTE Band 4-Ant 2	20M	QPSK	1	0	Back	15mm	Full	20175	1732.5	24.18	25.70	1.419	0.07	0.560	0.795
	LTE Band 4-Ant 2	20M	QPSK	50	0	Back	15mm	Full	20175	1732.5	23.09	24.70	1.449	-0.08	0.516	0.748
	LTE Band 2-Ant 1	20M	QPSK	1	0	Front	15mm	Full	18900	1880	23.96	25.50	1.426	0.06	0.437	0.623
	LTE Band 2-Ant 1	20M	QPSK	50	0	Front	15mm	Full	18900	1880	22.93	24.50	1.435	0.01	0.363	0.521
44	LTE Band 2-Ant 1	20M	QPSK	1	0	Back	15mm	Full	18900	1880	23.96	25.50	1.426	-0.05	0.708	**1.010**
	LTE Band 2-Ant 1	20M	QPSK	1	0	Back	15mm	Full	18700	1860	23.78	25.50	1.486	0.03	0.553	0.822
	LTE Band 2-Ant 1	20M	QPSK	1	0	Back	15mm	Full	19100	1900	23.68	25.50	1.521	-0.05	0.636	0.967
	LTE Band 2-Ant 1	20M	QPSK	50	0	Back	15mm	Full	18900	1880	22.93	24.50	1.435	0.01	0.589	0.846
	LTE Band 2-Ant 1	20M	QPSK	50	0	Back	15mm	Full	18700	1860	22.84	24.50	1.466	-0.02	0.571	0.837
	LTE Band 2-Ant 1	20M	QPSK	50	0	Back	15mm	Full	19100	1900	22.75	24.50	1.496	0.09	0.514	0.769
	LTE Band 2-Ant 1	20M	QPSK	100	0	Back	15mm	Full	18900	1880	22.90	24.50	1.445	0.02	0.553	0.799
	LTE Band 2C-Ant 1	20M	QPSK	1	0	Back	15mm	Full	18900+18702	1880+1860.2	23.78	25.50	1.486	-0.05	0.667	0.990
	LTE Band 2-Ant 2	20M	QPSK	1	0	Front	15mm	Full	18900	1880	24.30	25.70	1.380	0.03	0.200	0.276
	LTE Band 2-Ant 2	20M	QPSK	50	0	Front	15mm	Full	18900	1880	23.27	24.70	1.390	-0.05	0.163	0.227
	LTE Band 2-Ant 2	20M	QPSK	1	0	Back	15mm	Full	18900	1880	24.30	25.70	1.380	0.01	0.312	0.431
	LTE Band 2-Ant 2	20M	QPSK	50	0	Back	15mm	Full	18900	1880	23.27	24.70	1.390	0.09	0.255	0.354
	LTE Band 7-Ant 1	20M	QPSK	1	0	Front	15mm	Full	21100	2535	23.87	25.50	1.455	0.07	0.389	0.566
	LTE Band 7-Ant 1	20M	QPSK	50	0	Front	15mm	Full	21100	2535	22.60	24.50	1.549	0.08	0.318	0.493
45	LTE Band 7-Ant 1	20M	QPSK	1	0	Back	15mm	Full	21100	2535	23.87	25.50	1.455	0.01	0.502	**0.731**
	LTE Band 7-Ant 1	20M	QPSK	50	0	Back	15mm	Full	21100	2535	22.60	24.50	1.549	0.05	0.401	0.621
	LTE Band 7C-Ant 1	20M	QPSK	1	0	Back	15mm	Full	21100+20092	2535+2515.2	23.10	25.50	1.738	0.01	0.391	0.679
	LTE Band 7-Ant 2	20M	QPSK	1	0	Front	15mm	Full	21100	2535	24.25	25.70	1.396	-0.05	0.288	0.402
	LTE Band 7-Ant 2	20M	QPSK	50	0	Front	15mm	Full	21100	2535	23.16	24.70	1.426	0.03	0.225	0.321
	LTE Band 7-Ant 2	20M	QPSK	1	0	Back	15mm	Full	21100	2535	24.25	25.70	1.396	-0.05	0.369	0.515
	LTE Band 7-Ant 2	20M	QPSK	50	0	Back	15mm	Full	21100	2535	23.16	24.70	1.426	-0.06	0.289	0.412
	LTE Band 66-Ant 1	20M	QPSK	1	0	Front	15mm	Full	132322	1745	24.25	25.50	1.334	0.01	0.406	0.541
	LTE Band 66-Ant 1	20M	QPSK	50	0	Front	15mm	Full	132322	1745	23.35	24.50	1.303	0.08	0.324	0.422
46	LTE Band 66-Ant 1	20M	QPSK	1	0	Back	15mm	Full	132322	1745	24.25	25.50	1.334	-0.03	0.611	**0.815**
	LTE Band 66-Ant 1	20M	QPSK	1	0	Back	15mm	Full	132072	1720	24.21	25.50	1.346	0.01	0.586	0.789
	LTE Band 66-Ant 1	20M	QPSK	1	0	Back	15mm	Full	132572	1770	24.01	25.50	1.409	0.03	0.512	0.722
	LTE Band 66-Ant 1	20M	QPSK	50	0	Back	15mm	Full	132322	1745	23.35	24.50	1.303	0.07	0.496	0.646
	LTE Band 66-Ant 1	20M	QPSK	100	0	Back	15mm	Full	132322	1745	23.20	24.50	1.349	0.01	0.423	0.571
	LTE Band 66-Ant 2	20M	QPSK	1	0	Front	15mm	Full	132322	1745	24.45	25.70	1.334	-0.02	0.381	0.508
	LTE Band 66-Ant 2	20M	QPSK	50	0	Front	15mm	Full	132322	1745	23.57	24.70	1.297	-0.01	0.294	0.381
	LTE Band 66-Ant 2	20M	QPSK	1	0	Back	15mm	Full	132322	1745	24.45	25.70	1.334	0.09	0.568	0.757
	LTE Band 66-Ant 2	20M	QPSK	50	0	Back	15mm	Full	132322	1745	23.57	24.70	1.297	0.07	0.516	0.669

<TDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	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)
	LTE Band 38-Ant 1	20M	QPSK	1	0	Front	15mm	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	0.03	0.257	0.368
	LTE Band 38-Ant 1	20M	QPSK	50	0	Front	15mm	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	-0.06	0.200	0.295
47	LTE Band 38-Ant 1	20M	QPSK	1	0	Back	15mm	Full	38000	2595	23.97	25.50	1.422	62.9	1.006	0.05	0.331	**0.474**
	LTE Band 38-Ant 1	20M	QPSK	50	0	Back	15mm	Full	38000	2595	22.84	24.50	1.466	62.9	1.006	0.04	0.272	0.401
	LTE Band 38C-Ant 1	20M	QPSK	1	0	Back	15mm	Full	37901+38099	2585.1+2604.9	23.92	25.50	1.439	62.9	1.006	0.05	0.267	0.386
	LTE Band 38-Ant 2	20M	QPSK	1	0	Front	15mm	Full	38000	2595	24.25	25.70	1.396	62.9	1.006	-0.05	0.138	0.194
	LTE Band 38-Ant 2	20M	QPSK	50	0	Front	15mm	Full	38000	2595	23.24	24.70	1.400	62.9	1.006	-0.06	0.114	0.161
	LTE Band 38-Ant 2	20M	QPSK	1	0	Back	15mm	Full	38000	2595	24.25	25.70	1.396	62.9	1.006	0.02	0.183	0.257
	LTE Band 38-Ant 2	20M	QPSK	50	0	Back	15mm	Full	38000	2595	23.24	24.70	1.400	62.9	1.006	0.07	0.150	0.211
	LTE Band 41-Ant 1	20M	QPSK	1	0	Front	15mm	Full	40770	2608	23.98	25.50	1.419	62.9	1.006	0.09	0.249	0.355
	LTE Band 41-Ant 1	20M	QPSK	50	0	Front	15mm	Full	40770	2608	22.87	24.50	1.455	62.9	1.006	0.07	0.201	0.294
48	LTE Band 41-Ant 1	20M	QPSK	1	0	Back	15mm	Full	40770	2608	23.98	25.50	1.419	62.9	1.006	0.04	0.323	**0.461**
	LTE Band 41-Ant 1	20M	QPSK	50	0	Back	15mm	Full	40770	2608	22.87	24.50	1.455	62.9	1.006	0.06	0.255	0.373
	LTE Band 41-Ant 2	20M	QPSK	1	0	Front	15mm	Full	40770	2608	24.26	25.70	1.393	62.9	1.006	-0.01	0.138	0.193
	LTE Band 41-Ant 2	20M	QPSK	50	0	Front	15mm	Full	40770	2608	23.30	24.70	1.380	62.9	1.006	0.09	0.112	0.156
	LTE Band 41-Ant 2	20M	QPSK	1	0	Back	15mm	Full	40770	2608	24.26	25.70	1.393	62.9	1.006	0.03	0.184	0.258
	LTE Band 41-Ant 2	20M	QPSK	50	0	Back	15mm	Full	40770	2608	23.30	24.70	1.380	62.9	1.006	0.07	0.147	0.204

<WLAN2.4G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
49	WLAN2.4GHz	802.11b 1Mbps	Front	15mm	Ant3	Full	11	2462	17.35	19.00	1.462	100	1.000	-0.08	0.088	**0.129**
	WLAN2.4GHz	802.11b 1Mbps	Back	15mm	Ant3	Full	11	2462	17.35	19.00	1.462	100	1.000	-0.02	0.083	0.121

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Front	15mm	Ant3	Full	54	5270	16.12	17.50	1.374	96.32	1.038	0.02	0.229	0.327
50	WLAN5.3GHz	802.11ac-VHT40 MCS0	Back	15mm	Ant3	Full	54	5270	16.12	17.50	1.374	96.32	1.038	-0.06	0.594	**0.847**
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Back	15mm	Ant3	Full	62	5310	13.00	14.50	1.413	96.32	1.038	0.09	0.304	0.446
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Back	15mm	Ant3	Reduced-Simultaneous	54	5270	14.03	15.50	1.403	96.32	1.038	-0.02	0.371	0.540
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant3	Reduced	122	5610	13.31	15.00	1.476	92.77	1.078	0.03	0.174	0.277
51	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant3	Reduced	122	5610	13.31	15.00	1.476	92.77	1.078	0.07	0.394	**0.627**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant3	Reduced	106	5530	10.55	12.50	1.568	92.77	1.078	0.1	0.211	0.357
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant3	Reduced-Simultaneous	122	5610	12.01	13.50	1.409	92.77	1.078	0.01	0.276	0.419
	WLAN5.8GHz	802.11ac-VHT80 MCS0	Front	15mm	Ant3	Reduced	155	5775	11.38	13.00	1.452	92.77	1.078	-0.02	0.090	0.141
52	WLAN5.8GHz	802.11ac-VHT80 MCS0	Back	15mm	Ant3	Reduced	155	5775	11.38	13.00	1.452	92.77	1.078	-0.08	0.240	**0.376**

<Bluetooth SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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)
	Bluetooth	1Mbps	Front	15mm	Ant3	0	2402	11.25	12.00	1.189	77.03	1.298	0.07	0.004	0.006
53	Bluetooth	1Mbps	Back	15mm	Ant3	0	2402	11.25	12.00	1.189	77.03	1.298	0.01	0.005	**0.008**

15.4 Product specific 10g SAR

<FDD LTE SAR>

Plot No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Test Position	Gap (mm)	Power Reduction	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 2-Ant 1	20M	QPSK	1	0	Bottom Side	0mm	Reduced	18900	1880	19.53	21.00	1.403	0.01	1.780	2.497
	LTE Band 2-Ant 1	20M	QPSK	1	0	Bottom Side	0mm	Reduced	18700	1860	19.41	21.00	1.442	0.02	1.722	2.483
	LTE Band 2-Ant 1	20M	QPSK	1	0	Bottom Side	0mm	Reduced	19100	1900	19.37	21.00	1.455	0.03	1.646	2.396
54	LTE Band 2-Ant 1	20M	QPSK	50	0	Bottom Side	0mm	Reduced	18900	1880	19.50	21.00	1.413	-0.07	1.840	**2.599**
	LTE Band 2-Ant 1	20M	QPSK	50	0	Bottom Side	0mm	Reduced	18700	1860	19.41	21.00	1.442	0.05	1.782	2.570
	LTE Band 2-Ant 1	20M	QPSK	50	0	Bottom Side	0mm	Reduced	19100	1900	19.39	21.00	1.449	0.07	1.724	2.497
	LTE Band 2-Ant 1	20M	QPSK	100	0	Bottom Side	0mm	Reduced	18900	1880	19.49	21.00	1.416	0.06	1.799	2.546
	LTE Band 2C-Ant 1	20M	QPSK	50	0	Bottom Side	0mm	Reduced	18900+18702	1880+1860.2	19.36	21.00	1.459	0.02	1.765	2.575
	LTE Band 2-Ant 1	20M	QPSK	50	0	Bottom Side	15mm	Full	18900	1880	22.93	24.50	1.435	-0.05	0.298	0.428

<WLAN5G SAR>

Plot No.	Band	Mode	Test Position	Gap (mm)	Antenna	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 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Front	0mm	Ant3	Full	54	5270	16.12	17.50	1.374	96.32	1.038	0.04	0.599	0.854
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Back	0mm	Ant3	Full	54	5270	16.12	17.50	1.374	96.32	1.038	-0.07	1.050	1.498
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Left Side	0mm	Ant3	Full	54	5270	16.12	17.50	1.374	96.32	1.038	-0.02	0.089	0.127
	WLAN5.3GHz	802.11ac-VHT40 MCS0	Right Side	0mm	Ant3	Full	54	5270	16.12	17.50	1.374	96.32	1.038	0.05	0.580	0.827
55	WLAN5.3GHz	802.11ac-VHT40 MCS0	Top Side	0mm	Ant3	Full	54	5270	16.12	17.50	1.374	96.32	1.038	0.06	1.360	**1.940**
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Front	0mm	Ant3	Reduced	122	5610	13.31	15.00	1.476	92.77	1.078	0.04	0.375	0.597
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Back	0mm	Ant3	Reduced	122	5610	13.31	15.00	1.476	92.77	1.078	-0.07	0.618	0.983
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Left Side	0mm	Ant3	Reduced	122	5610	13.31	15.00	1.476	92.77	1.078	-0.04	0.062	0.099
	WLAN5.5GHz	802.11ac-VHT80 MCS0	Right Side	0mm	Ant3	Reduced	122	5610	13.31	15.00	1.476	92.77	1.078	0.08	0.411	0.654
56	WLAN5.5GHz	802.11ac-VHT80 MCS0	Top Side	0mm	Ant3	Reduced	122	5610	13.31	15.00	1.476	92.77	1.078	0.06	0.891	**1.417**

15.5 Repeated SAR Measurement

<1g>

No.	Band	BW (MHz)	Modulation	RB Size	RB offset	Mode	Test Position	Gap (mm)	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	LTE Band 26-Ant 2	15M	QPSK	1	0	-	Right Cheek	0mm	Full	26865	831.5	24.58	25.50	1.236	-	1.000	-0.06	0.804	1	0.994
2nd	LTE Band 26-Ant 2	15M	QPSK	1	0	-	Right Cheek	0mm	Full	26865	831.5	24.58	25.50	1.236	-	1.000	-0.03	0.795	1.011	0.983
1st	LTE Band 66-Ant 2	20M	QPSK	50	0	-	Right Tilted	0mm	Reduced	132072	1720	16.69	17.70	1.262	-	1.000	-0.04	0.849	1	1.071
2nd	LTE Band 66-Ant 2	20M	QPSK	50	0	-	Right Tilted	0mm	Reduced	132072	1720	16.69	17.70	1.262	-	1.000	-0.03	0.821	1.034	1.036

General Note:

1. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg.
2. Per KDB 865664 D01v01r04, if the ratio among the repeated measurement is ≤ 1.2 and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. Per KDB 865664 D01v01r04, if the extremity repeated SAR is necessary, the same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.
4. The ratio is the difference in percentage between original and repeated *measured SAR*.
5. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

16. Simultaneous Transmission Analysis

No.	Simultaneous Transmission Configurations	Portable Handset			
		Head	Body-worn	Hotspot	Product specific 10g SAR
1.	GSM Voice + WLAN2.4GHz	Yes	Yes		Yes
2.	GPRS/EDGE + WLAN2.4GHz	Yes	Yes	Yes	Yes
3.	WCDMA + WLAN2.4GHz	Yes	Yes	Yes	Yes
4.	LTE + WLAN2.4GHz	Yes	Yes	Yes	Yes
5.	GSM Voice + WLAN5.3/5.5GHz	Yes	Yes		Yes
6.	GPRS/EDGE + WLAN5.3/5.5GHz	Yes	Yes		Yes
7.	WCDMA + WLAN5.3/5.5GHz	Yes	Yes		Yes
8.	LTE + WLAN5.3/5.5GHz	Yes	Yes		Yes
9.	GSM Voice + WLAN5.2/5.8GHz	Yes	Yes		Yes
10.	GPRS/EDGE + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
11.	WCDMA + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
12.	LTE + WLAN5.2/5.8GHz	Yes	Yes	Yes	Yes
13.	GSM Voice + WLAN5.3/5.5GHz+Bluetooth	Yes	Yes		Yes
14.	GPRS/EDGE + WLAN5.3/5.5GHz+Bluetooth	Yes	Yes		Yes
15.	WCDMA + WLAN5.3/5.5GHz+Bluetooth	Yes	Yes		Yes
16.	LTE + WLAN5.3/5.5GHz+Bluetooth	Yes	Yes		Yes
17.	GSM Voice + WLAN5.2/5.8GHz+Bluetooth	Yes	Yes		Yes
18.	GPRS/EDGE + WLAN5.2/5.8GHz+Bluetooth	Yes	Yes	Yes	Yes
19.	WCDMA + WLAN5.2/5.8GHz+Bluetooth	Yes	Yes	Yes	Yes
20.	LTE + WLAN5.2/5.8GHz+Bluetooth	Yes	Yes	Yes	Yes
21.	WLAN5.2/5.8GHz+ Bluetooth	Yes	Yes	Yes	Yes
22.	WLAN5.3/5.5GHz + Bluetooth	Yes	Yes	Yes	Yes
23.	GSM Voice + Bluetooth	Yes	Yes		Yes
24.	GPRS/EDGE + Bluetooth	Yes	Yes	Yes	Yes
25.	WCDMA + Bluetooth	Yes	Yes	Yes	Yes
26.	LTE + Bluetooth	Yes	Yes	Yes	Yes

General Note:

1. This device supports VoIP in GPRS, EGPRS, WCDMA and LTE (e.g. for 3rd-party VoIP), and LTE supports VoLTE function.
2. EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
3. This device WLAN 2.4GHz supports hotspot operation and Bluetooth support tethering applications.
4. This device 2.4GHz WLAN/ 5.2GHz WLAN/5.8GHz WLAN support hotspot operation, and 5.2GHz WLAN/5.8GHz WLAN supports WLAN Direct (GC/GO), and 5.3GHz / 5.5GHz supports WLAN Direct (GC only).
5. 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 though they have independent antenna.
6. WLAN 2.4GHz and Bluetooth share the same antenna so can't transmit simultaneously.
7. According to the EUT character, WLAN 5GHz and Bluetooth can transmit simultaneously.
   WWAN+WLAN5GHz+Bluetooth can represent WWAN+WLAN5GHz or WWAN+ Bluetooth, So no need to do co-located analysis separately.
8. Chose the worst zoom scan SAR of WLAN correspondingly for co-located with WWAN analysis.
9. The reported SAR summation is calculated based on the same configuration and test position
10. Per KDB 447498 D01v06, simultaneous transmission SAR is compliant if,
    i) 1g Scalar SAR summation < 1.6W/kg and 10g Scalar SAR summation < 4.0W/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 for 1g SAR and SPLSR≤ 0.10 for 10g SAR , simultaneously transmission SAR measurement is not necessary.
    iv) Simultaneously transmission SAR measurement, and the reported multi-band 1g SAR < 1.6W/kg and 10g SAR < 4.0W/kg.

16.1 Head Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 3 1g SAR (W/kg)	3 5GHz WLAN Ant 3 1g SAR (W/kg)	4 Bluetooth Ant 3 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
GSM	GSM 850-Ant 2	Right Cheek	0.283	0.316	0.426	0.052	0.60	0.76
		Right Tilted	0.196	0.259	0.475	0.043	0.46	0.71
		Left Cheek	0.190	0.681	0.534	0.071	0.87	0.80
		Left Tilted	0.155	0.538	0.621	0.062	0.69	0.84
	GSM1900-Ant 2	Right Cheek	0.235	0.316	0.426	0.052	0.55	0.71
		Right Tilted	0.355	0.259	0.475	0.043	0.61	0.87
		Left Cheek	0.198	0.681	0.534	0.071	0.88	0.80
		Left Tilted	0.354	0.538	0.621	0.062	0.89	1.04
WCDMA	WCDMA II-Ant 2	Right Cheek	0.477	0.316	0.426	0.052	0.79	0.96
		Right Tilted	0.677	0.259	0.475	0.043	0.94	1.20
		Left Cheek	0.393	0.681	0.534	0.071	1.07	1.00
		Left Tilted	0.547	0.538	0.621	0.062	1.09	1.23
	WCDMA IV-Ant 2	Right Cheek	0.497	0.316	0.426	0.052	0.81	0.98
		Right Tilted	0.652	0.259	0.475	0.043	0.91	1.17
		Left Cheek	0.392	0.681	0.534	0.071	1.07	1.00
		Left Tilted	0.509	0.538	0.621	0.062	1.05	1.19
	WCDMA V-Ant 2	Right Cheek	0.650	0.316	0.426	0.052	0.97	1.13
		Right Tilted	0.518	0.259	0.475	0.043	0.78	1.04
		Left Cheek	0.623	0.681	0.534	0.071	1.30	1.23
		Left Tilted	0.612	0.538	0.621	0.062	1.15	1.30
LTE	LTE Band 2-Ant 2	Right Cheek	0.463	0.316	0.426	0.052	0.78	0.94
		Right Tilted	0.670	0.259	0.475	0.043	0.93	1.19
		Left Cheek	0.387	0.681	0.534	0.071	1.07	0.99
		Left Tilted	0.542	0.538	0.621	0.062	1.08	1.23
	LTE Band 4-Ant 2	Right Cheek	0.572	0.316	0.426	0.052	0.89	1.05
		Right Tilted	0.755	0.259	0.475	0.043	1.01	1.27
		Left Cheek	0.435	0.681	0.534	0.071	1.12	1.04
		Left Tilted	0.580	0.538	0.621	0.062	1.12	1.26
	LTE Band 7-Ant 2	Right Cheek	0.958	0.316	0.426	0.052	1.27	1.44
		Right Tilted	0.775	0.259	0.475	0.043	1.03	1.29
		Left Cheek	0.378	0.681	0.534	0.071	1.06	0.98
		Left Tilted	0.467	0.538	0.621	0.062	1.01	1.15
	LTE Band 12-Ant 2	Right Cheek	0.493	0.316	0.426	0.052	0.81	0.97
		Right Tilted	0.463	0.259	0.475	0.043	0.72	0.98
		Left Cheek	0.433	0.681	0.534	0.071	1.11	1.04
		Left Tilted	0.471	0.538	0.621	0.062	1.01	1.15
	LTE Band 26-Ant 2	Right Cheek	1.041	0.316	0.426	0.052	1.36	1.52
		Right Tilted	0.868	0.259	0.475	0.043	1.13	1.39
		Left Cheek	0.909	0.681	0.534	0.071	**1.59**	1.51
		Left Tilted	0.852	0.538	0.621	0.062	1.39	1.54
	LTE Band 66-Ant 2	Right Cheek	0.795	0.316	0.426	0.052	1.11	1.27
		Right Tilted	1.071	0.259	0.475	0.043	1.33	**1.59**
		Left Cheek	0.603	0.681	0.534	0.071	1.28	1.21
		Left Tilted	0.809	0.538	0.621	0.062	1.35	1.49
	LTE Band 38-Ant 2	Right Cheek	1.064	0.316	0.426	0.052	1.38	1.54
		Right Tilted	0.906	0.259	0.475	0.043	1.17	1.42
		Left Cheek	0.413	0.681	0.534	0.071	1.09	1.02
		Left Tilted	0.505	0.538	0.621	0.062	1.04	1.19
	LTE Band 41-Ant 2	Right Cheek	1.094	0.316	0.426	0.052	1.41	1.57
		Right Tilted	0.955	0.259	0.475	0.043	1.21	1.47
		Left Cheek	0.425	0.681	0.534	0.071	1.11	1.03
		Left Tilted	0.505	0.538	0.621	0.062	1.04	1.19

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 3 1g SAR (W/kg)	3 5GHz WLAN Ant 3 1g SAR (W/kg)	4 Bluetooth Ant 3 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
GSM	GSM 850-Ant 1	Right Cheek	0.154	0.316	0.426	0.052	0.47	0.63
		Right Tilted	0.098	0.259	0.475	0.043	0.36	0.62
		Left Cheek	0.112	0.681	0.534	0.071	0.79	0.72
		Left Tilted	0.089	0.538	0.621	0.062	0.63	0.77
	GSM1900-Ant 1	Right Cheek	0.040	0.316	0.426	0.052	0.36	0.52
		Right Tilted	0.035	0.259	0.475	0.043	0.29	0.55
		Left Cheek	0.042	0.681	0.534	0.071	0.72	0.65
		Left Tilted	0.034	0.538	0.621	0.062	0.57	0.72
WCDMA	WCDMA II-Ant 1	Right Cheek	0.075	0.316	0.426	0.052	0.39	0.55
		Right Tilted	0.084	0.259	0.475	0.043	0.34	0.60
		Left Cheek	0.096	0.681	0.534	0.071	0.78	0.70
		Left Tilted	0.093	0.538	0.621	0.062	0.63	0.78
	WCDMA IV-Ant 1	Right Cheek	0.049	0.316	0.426	0.052	0.37	0.53
		Right Tilted	0.039	0.259	0.475	0.043	0.30	0.56
		Left Cheek	0.050	0.681	0.534	0.071	0.73	0.66
		Left Tilted	0.039	0.538	0.621	0.062	0.58	0.72
	WCDMA V-Ant 1	Right Cheek	0.209	0.316	0.426	0.052	0.53	0.69
		Right Tilted	0.107	0.259	0.475	0.043	0.37	0.63
		Left Cheek	0.148	0.681	0.534	0.071	0.83	0.75
		Left Tilted	0.093	0.538	0.621	0.062	0.63	0.78
LTE	LTE Band 2-Ant 1	Right Cheek	0.080	0.316	0.426	0.052	0.40	0.56
		Right Tilted	0.098	0.259	0.475	0.043	0.36	0.62
		Left Cheek	0.114	0.681	0.534	0.071	0.80	0.72
		Left Tilted	0.120	0.538	0.621	0.062	0.66	0.80
	LTE Band 4-Ant 1	Right Cheek	0.215	0.316	0.426	0.052	0.53	0.69
		Right Tilted	0.179	0.259	0.475	0.043	0.44	0.70
		Left Cheek	0.196	0.681	0.534	0.071	0.88	0.80
		Left Tilted	0.153	0.538	0.621	0.062	0.69	0.84
	LTE Band 7-Ant 1	Right Cheek	0.157	0.316	0.426	0.052	0.47	0.64
		Right Tilted	0.185	0.259	0.475	0.043	0.44	0.70
		Left Cheek	0.288	0.681	0.534	0.071	0.97	0.89
		Left Tilted	0.130	0.538	0.621	0.062	0.67	0.81
	LTE Band 12-Ant 1	Right Cheek	0.087	0.316	0.426	0.052	0.40	0.57
		Right Tilted	0.065	0.259	0.475	0.043	0.32	0.58
		Left Cheek	0.067	0.681	0.534	0.071	0.75	0.67
		Left Tilted	0.060	0.538	0.621	0.062	0.60	0.74
	LTE Band 26-Ant 1	Right Cheek	0.179	0.316	0.426	0.052	0.50	0.66
		Right Tilted	0.096	0.259	0.475	0.043	0.36	0.61
		Left Cheek	0.130	0.681	0.534	0.071	0.81	0.74
		Left Tilted	0.083	0.538	0.621	0.062	0.62	0.77
	LTE Band 66-Ant 1	Right Cheek	0.259	0.316	0.426	0.052	0.58	0.74
		Right Tilted	0.207	0.259	0.475	0.043	0.47	0.73
		Left Cheek	0.231	0.681	0.534	0.071	0.91	0.84
		Left Tilted	0.195	0.538	0.621	0.062	0.73	0.88
	LTE Band 38-Ant 1	Right Cheek	0.097	0.316	0.426	0.052	0.41	0.58
		Right Tilted	0.094	0.259	0.475	0.043	0.35	0.61
		Left Cheek	0.179	0.681	0.534	0.071	0.86	0.78
		Left Tilted	0.087	0.538	0.621	0.062	0.63	0.77
	LTE Band 41-Ant 1	Right Cheek	0.190	0.316	0.426	0.052	0.51	0.67
		Right Tilted	0.187	0.259	0.475	0.043	0.45	0.71
		Left Cheek	0.338	0.681	0.534	0.071	1.02	0.94
		Left Tilted	0.167	0.538	0.621	0.062	0.71	0.85

16.2 Hotspot Exposure Conditions

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 3 1g SAR (W/kg)	3 5GHz WLAN Ant 3 1g SAR (W/kg)	4 Bluetooth Ant 3 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
GSM	GSM 850-Ant 2	Front	0.092	0.161	0.220	0.013	0.25	0.33
		Back	0.104	0.161	0.532	0.009	0.27	0.65
		Left side	0.031	0.047	0.144	0.005	0.08	0.18
		Right side	0.049	0.187	0.242	0.003	0.24	0.29
		Top side	0.083	0.177	0.760	0.011	0.26	0.85
		Bottom side					0.00	0.00
	GSM1900-Ant 2	Front	0.083	0.161	0.220	0.013	0.24	0.32
		Back	0.070	0.161	0.532	0.009	0.23	0.61
		Left side	0.052	0.047	0.144	0.005	0.10	0.20
		Right side	0.073	0.187	0.242	0.003	0.26	0.32
		Top side	0.259	0.177	0.760	0.011	0.44	1.03
		Bottom side					0.00	0.00
WCDMA	WCDMA II-Ant 2	Front	0.134	0.161	0.220	0.013	0.30	0.37
		Back	0.120	0.161	0.532	0.009	0.28	0.66
		Left side	0.102	0.047	0.144	0.005	0.15	0.25
		Right side	0.118	0.187	0.242	0.003	0.31	0.36
		Top side	0.390	0.177	0.760	0.011	0.57	1.16
		Bottom side					0.00	0.00
	WCDMA IV-Ant 2	Front	0.167	0.161	0.220	0.013	0.33	0.40
		Back	0.159	0.161	0.532	0.009	0.32	0.70
		Left side	0.042	0.047	0.144	0.005	0.09	0.19
		Right side	0.061	0.187	0.242	0.003	0.25	0.31
		Top side	0.378	0.177	0.760	0.011	0.56	1.15
		Bottom side					0.00	0.00
	WCDMA V-Ant 2	Front	0.226	0.161	0.220	0.013	0.39	0.46
		Back	0.231	0.161	0.532	0.009	0.39	0.77
		Left side	0.069	0.047	0.144	0.005	0.12	0.22
		Right side	0.140	0.187	0.242	0.003	0.33	0.39
		Top side	0.193	0.177	0.760	0.011	0.37	0.96
		Bottom side					0.00	0.00
LTE	LTE Band 2-Ant 2	Front	0.142	0.161	0.220	0.013	0.30	0.38
		Back	0.120	0.161	0.532	0.009	0.28	0.66
		Left side	0.027	0.047	0.144	0.005	0.07	0.18
		Right side	0.036	0.187	0.242	0.003	0.22	0.28
		Top side	0.405	0.177	0.760	0.011	0.58	1.18
		Bottom side					0.00	0.00
	LTE Band 4-Ant 2	Front	0.176	0.161	0.220	0.013	0.34	0.41
		Back	0.161	0.161	0.532	0.009	0.32	0.70
		Left side	0.035	0.047	0.144	0.005	0.08	0.18
		Right side	0.045	0.187	0.242	0.003	0.23	0.29
		Top side	0.368	0.177	0.760	0.011	0.55	1.14
		Bottom side					0.00	0.00
	LTE Band 7-Ant 2	Front	0.338	0.161	0.220	0.013	0.50	0.57
		Back	0.178	0.161	0.532	0.009	0.34	0.72
		Left side	0.249	0.047	0.144	0.005	0.30	0.40
		Right side	0.275	0.187	0.242	0.003	0.46	0.52
		Top side	0.372	0.177	0.760	0.011	0.55	1.14
		Bottom side					0.00	0.00
	LTE Band 12-Ant 2	Front	0.102	0.161	0.220	0.013	0.26	0.34
		Back	0.147	0.161	0.532	0.009	0.31	0.69
		Left side	0.138	0.047	0.144	0.005	0.19	0.29
		Right side	0.127	0.187	0.242	0.003	0.31	0.37
		Top side	0.071	0.177	0.760	0.011	0.25	0.84
		Bottom side					0.00	0.00

	LTE Band 26-Ant 2	Front	0.304	0.161	0.220	0.013	0.47	0.54
		Back	0.322	0.161	0.532	0.009	0.48	0.86
		Left side	0.113	0.047	0.144	0.005	0.16	0.26
		Right side	0.128	0.187	0.242	0.003	0.32	0.37
		Top side	0.210	0.177	0.760	0.011	0.39	0.98
		Bottom side					0.00	0.00
	LTE Band 66-Ant 2	Front	0.245	0.161	0.220	0.013	0.41	0.48
		Back	0.231	0.161	0.532	0.009	0.39	0.77
		Left side	0.056	0.047	0.144	0.005	0.10	0.21
		Right side	0.068	0.187	0.242	0.003	0.26	0.31
		Top side	0.530	0.177	0.760	0.011	0.71	1.30
		Bottom side					0.00	0.00
	LTE Band 38-Ant 2	Front	0.400	0.161	0.220	0.013	0.56	0.63
		Back	0.210	0.161	0.532	0.009	0.37	0.75
		Left side	0.321	0.047	0.144	0.005	0.37	0.47
		Right side	0.054	0.187	0.242	0.003	0.24	0.30
		Top side	0.484	0.177	0.760	0.011	0.66	1.26
		Bottom side					0.00	0.00
	LTE Band 41-Ant 2	Front	0.328	0.161	0.220	0.013	0.49	0.56
		Back	0.200	0.161	0.532	0.009	0.36	0.74
		Left side	0.260	0.047	0.144	0.005	0.31	0.41
		Right side	0.050	0.187	0.242	0.003	0.24	0.30
		Top side	0.395	0.177	0.760	0.011	0.57	1.17
		Bottom side					0.00	0.00

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 3 1g SAR (W/kg)	3 5GHz WLAN Ant 3 1g SAR (W/kg)	4 Bluetooth Ant 3 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
GSM	GSM 850-Ant 1	Front	0.151	0.161	0.220	0.013	0.31	0.38
		Back	0.212	0.161	0.532	0.009	0.37	0.75
		Left side	0.059	0.047	0.144	0.005	0.11	0.21
		Right side	0.106	0.187	0.242	0.003	0.29	0.35
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.167				0.17	0.17
	GSM1900-Ant 1	Front	0.122	0.161	0.220	0.013	0.28	0.36
		Back	0.182	0.161	0.532	0.009	0.34	0.72
		Left side	0.073	0.047	0.144	0.005	0.12	0.22
		Right side	0.099	0.187	0.242	0.003	0.29	0.34
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.338				0.34	0.34
WCDMA	WCDMA II-Ant 1	Front	0.380	0.161	0.220	0.013	0.54	0.61
		Back	0.563	0.161	0.532	0.009	0.72	1.10
		Left side	0.284	0.047	0.144	0.005	0.33	0.43
		Right side	0.319	0.187	0.242	0.003	0.51	0.56
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.734				0.73	0.73
	WCDMA IV-Ant 1	Front	0.373	0.161	0.220	0.013	0.53	0.61
		Back	0.539	0.161	0.532	0.009	0.70	1.08
		Left side	0.083	0.047	0.144	0.005	0.13	0.23
		Right side	0.118	0.187	0.242	0.003	0.31	0.36
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.655				0.66	0.66
	WCDMA V-Ant 1	Front	0.192	0.161	0.220	0.013	0.35	0.43
		Back	0.279	0.161	0.532	0.009	0.44	0.82
		Left side	0.074	0.047	0.144	0.005	0.12	0.22
		Right side	0.142	0.187	0.242	0.003	0.33	0.39
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.220				0.22	0.22
LTE	LTE Band 2-Ant 1	Front	0.285	0.161	0.220	0.013	0.45	0.52
		Back	0.411	0.161	0.532	0.009	0.57	0.95
		Left side	0.049	0.047	0.144	0.005	0.10	0.20
		Right side	0.063	0.187	0.242	0.003	0.25	0.31
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.798				0.80	0.80
	LTE Band 4-Ant 1	Front	0.330	0.161	0.220	0.013	0.49	0.56
		Back	0.455	0.161	0.532	0.009	0.62	1.00
		Left side	0.078	0.047	0.144	0.005	0.13	0.23
		Right side	0.098	0.187	0.242	0.003	0.29	0.34
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.596				0.60	0.60
	LTE Band 7-Ant 1	Front	0.377	0.161	0.220	0.013	0.54	0.61
		Back	0.508	0.161	0.532	0.009	0.67	1.05
		Left side	0.262	0.047	0.144	0.005	0.31	0.41
		Right side	0.046	0.187	0.242	0.003	0.23	0.29
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.470				0.47	0.47
	LTE Band 12-Ant 1	Front	0.116	0.161	0.220	0.013	0.28	0.35
		Back	0.163	0.161	0.532	0.009	0.32	0.70
		Left side	0.093	0.047	0.144	0.005	0.14	0.24
		Right side	0.155	0.187	0.242	0.003	0.34	0.40
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.126				0.13	0.13
	LTE Band 26-Ant 1	Front	0.210	0.161	0.220	0.013	0.37	0.44

		Back	0.297	0.161	0.532	0.009	0.46	0.84
		Left side	0.081	0.047	0.144	0.005	0.13	0.23
		Right side	0.184	0.187	0.242	0.003	0.37	0.43
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.235				0.24	0.24
	LTE Band 66-Ant 1	Front	0.158	0.161	0.220	0.013	0.32	0.39
		Back	0.220	0.161	0.532	0.009	0.38	0.76
		Left side	0.035	0.047	0.144	0.005	0.08	0.18
		Right side	0.042	0.187	0.242	0.003	0.23	0.29
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.294				0.29	0.29
	LTE Band 38-Ant 1	Front	0.495	0.161	0.220	0.013	0.66	0.73
		Back	0.691	0.161	0.532	0.009	0.85	1.23
		Left side	0.296	0.047	0.144	0.005	0.34	0.45
		Right side	0.062	0.187	0.242	0.003	0.25	0.31
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.471				0.47	0.47
	LTE Band 41-Ant 1	Front	0.426	0.161	0.220	0.013	0.59	0.66
		Back	0.586	0.161	0.532	0.009	0.75	1.13
		Left side	0.245	0.047	0.144	0.005	0.29	0.39
		Right side	0.066	0.187	0.242	0.003	0.25	0.31
		Top side		0.177	0.760	0.011	0.18	0.77
		Bottom side	0.432				0.43	0.43

16.3 Body-Worn Accessory Exposure Conditions

WWAN Band		Exposure Position	1	2	3	4	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
			WWAN	2.4GHz WLAN Ant 3	5GHz WLAN Ant 3	Bluetooth Ant 3		
			1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)	1g SAR (W/kg)		
GSM	GSM 850-Ant 2	Front	0.078	0.129	0.327	0.006	0.21	0.41
		Back	0.098	0.121	0.540	0.008	0.22	0.65
	GSM1900-Ant 2	Front	0.111	0.129	0.327	0.006	0.24	0.44
		Back	0.118	0.121	0.540	0.008	0.24	0.67
WCDMA	WCDMA II-Ant 2	Front	0.235	0.129	0.327	0.006	0.36	0.57
		Back	0.341	0.121	0.540	0.008	0.46	0.89
	WCDMA IV-Ant 2	Front	0.533	0.129	0.327	0.006	0.66	0.87
		Back	0.760	0.121	0.540	0.008	0.88	1.31
	WCDMA V-Ant 2	Front	0.206	0.129	0.327	0.006	0.34	0.54
		Back	0.196	0.121	0.540	0.008	0.32	0.74
LTE	LTE Band 2-Ant 2	Front	0.276	0.129	0.327	0.006	0.41	0.61
		Back	0.431	0.121	0.540	0.008	0.55	0.98
	LTE Band 4-Ant 2	Front	0.541	0.129	0.327	0.006	0.67	0.87
		Back	0.795	0.121	0.540	0.008	0.92	1.34
	LTE Band 7-Ant 2	Front	0.402	0.129	0.327	0.006	0.53	0.74
		Back	0.515	0.121	0.540	0.008	0.64	1.06
	LTE Band 12-Ant 2	Front	0.098	0.129	0.327	0.006	0.23	0.43
		Back	0.130	0.121	0.540	0.008	0.25	0.68
	LTE Band 26-Ant 2	Front	0.181	0.129	0.327	0.006	0.31	0.51
		Back	0.211	0.121	0.540	0.008	0.33	0.76
	LTE Band 66-Ant 2	Front	0.508	0.129	0.327	0.006	0.64	0.84
		Back	0.757	0.121	0.540	0.008	0.88	1.31
	LTE Band 38-Ant 2	Front	0.194	0.129	0.327	0.006	0.32	0.53
		Back	0.257	0.121	0.540	0.008	0.38	0.81
	LTE Band 41-Ant 2	Front	0.193	0.129	0.327	0.006	0.32	0.53
		Back	0.258	0.121	0.540	0.008	0.38	0.81

WWAN Band		Exposure Position	1 WWAN 1g SAR (W/kg)	2 2.4GHz WLAN Ant 3 1g SAR (W/kg)	3 5GHz WLAN Ant 3 1g SAR (W/kg)	4 Bluetooth Ant 3 1g SAR (W/kg)	1+2 Summed 1g SAR (W/kg)	1+3+4 Summed 1g SAR (W/kg)
GSM	GSM 850-Ant 1	Front	0.106	0.129	0.327	0.006	0.24	0.44
		Back	0.138	0.121	0.540	0.008	0.26	0.69
	GSM1900-Ant 1	Front	0.329	0.129	0.327	0.006	0.46	0.66
		Back	0.475	0.121	0.540	0.008	0.60	1.02
WCDMA	WCDMA II-Ant 1	Front	0.439	0.129	0.327	0.006	0.57	0.77
		Back	0.750	0.121	0.540	0.008	0.87	1.30
	WCDMA IV-Ant 1	Front	0.520	0.129	0.327	0.006	0.65	0.85
		Back	0.792	0.121	0.540	0.008	0.91	1.34
	WCDMA V-Ant 1	Front	0.169	0.129	0.327	0.006	0.30	0.50
		Back	0.214	0.121	0.540	0.008	0.34	0.76
LTE	LTE Band 2-Ant 1	Front	0.623	0.129	0.327	0.006	0.75	0.96
		Back	1.009	0.121	0.540	0.008	1.13	1.56
	LTE Band 4-Ant 1	Front	0.530	0.129	0.327	0.006	0.66	0.86
		Back	0.804	0.121	0.540	0.008	0.93	1.35
	LTE Band 7-Ant 1	Front	0.566	0.129	0.327	0.006	0.70	0.90
		Back	0.731	0.121	0.540	0.008	0.85	1.28
	LTE Band 12-Ant 1	Front	0.097	0.129	0.327	0.006	0.23	0.43
		Back	0.136	0.121	0.540	0.008	0.26	0.68
	LTE Band 26-Ant 1	Front	0.173	0.129	0.327	0.006	0.30	0.51
		Back	0.236	0.121	0.540	0.008	0.36	0.78
	LTE Band 66-Ant 1	Front	0.541	0.129	0.327	0.006	0.67	0.87
		Back	0.815	0.121	0.540	0.008	0.94	1.36
	LTE Band 38-Ant 1	Front	0.368	0.129	0.327	0.006	0.50	0.70
		Back	0.474	0.121	0.540	0.008	0.60	1.02
	LTE Band 41-Ant 1	Front	0.355	0.129	0.327	0.006	0.48	0.69
		Back	0.461	0.121	0.540	0.008	0.58	1.01

16.4 Product specific 10g SAR Exposure Conditions

WWAN Band		Exposure Position	1	3	1+3 Summed 10g SAR (W/kg)
			WWAN	5GHz WLAN Ant 3	
			10g SAR (W/kg)	10g SAR (W/kg)	
LTE	LTE Band 2-Ant 1	Front		0.854	0.85
		Back		1.498	1.50
		Left side		0.127	0.13
		Right side		0.827	0.83
		Top side		1.940	1.94
		Bottom side	2.599		**2.60**

Remark:
1. For Bluetooth Product specific 10g stand-alone SAR is not required for a transmitter or antenna, due to 1g hotspot SAR is <1.2W/kg.
2. If summed SAR less than 4.0W/Kg for 10g SAR, simultaneously transmission SAR measurement is not necessary.

Test Engineer : Nick Hu, Hank Chang, Yuankai Kong

17. Uncertainty Assessment

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. For this device, the highest measured 1-g SAR is less 1.5W/kg and highest measured 10-g SAR is less 3.75W/kg. Therefore, the measurement uncertainty table is not required in this report.

18. 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. 1528-2013, “IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, Sep 2013

[4] SPEAG DASY System Handbook

[5] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.

[6] FCC KDB 865664 D02 v01r02, “RF Exposure Compliance Reporting and Documentation Considerations” Oct 2015.

[7] FCC KDB 447498 D01 v06, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, Oct 2015

[8] FCC KDB 648474 D04 v01r03, “SAR Evaluation Considerations for Wireless Handsets”, Oct 2015.

[9] FCC KDB 248227 D01 v02r02, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Oct 2015.

[10] FCC KDB 616217 D04 v01r02, “SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers”, Oct 2015

[11] FCC KDB 941225 D01 v03r01, “3G SAR MEAUREMENT PROCEDURES”, Oct 2015

[12] FCC KDB 941225 D05 v02r05, “SAR Evaluation Considerations for LTE Devices”, Dec 2015

[13] FCC KDB 941225 D05A v01r02, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Oct 2015

[14] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.

------THE END------

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.20

System Check_Head_750MHz

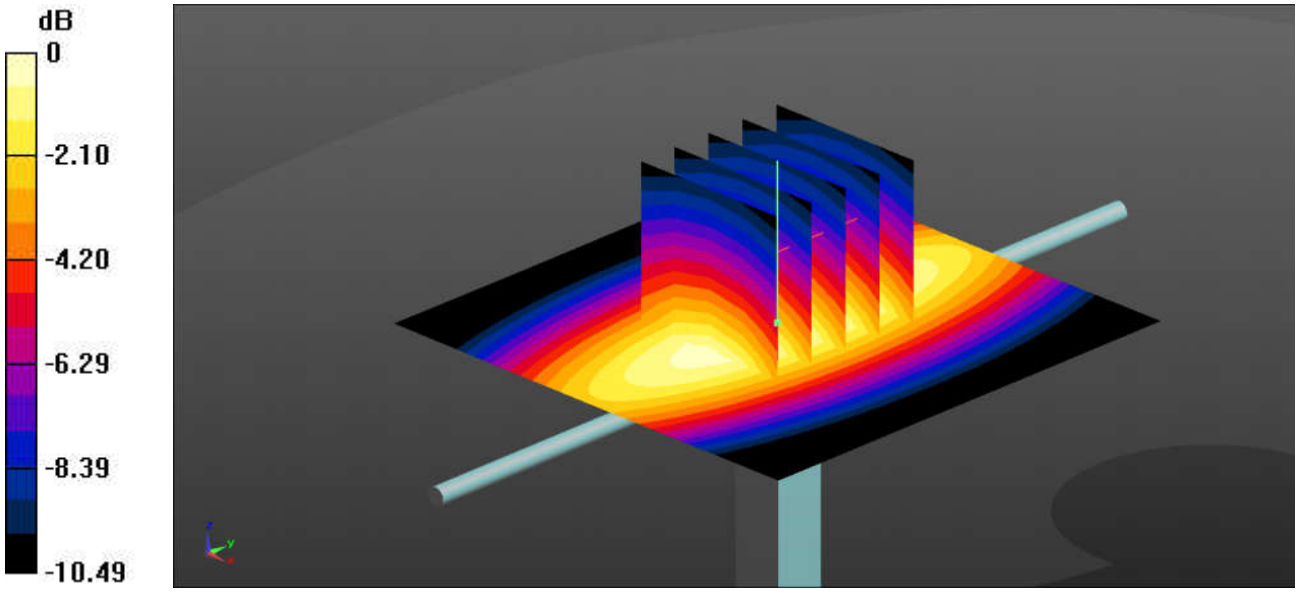
DUT: D750V3 - SN:1087

Communication System: UID 0, CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 750 MHz; σ = 0.924 S/m; ε_r = 42.063; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(10.31, 10.31, 10.31); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.82 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.76 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 3.14 W/kg
SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.37 W/kg
Maximum value of SAR (measured) = 2.79 W/kg



0 dB = 2.79 W/kg = 4.46 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.22

System Check_Head_835MHz

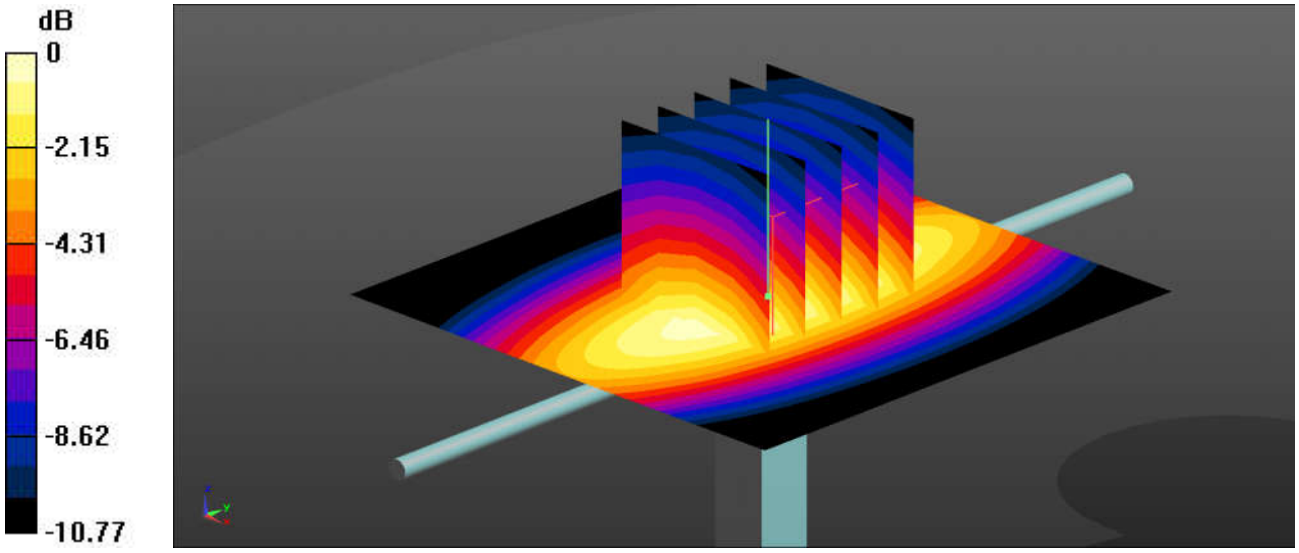
DUT: D835V2 - SN:4d151

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_835 Medium parameters used: f = 835 MHz; σ = 0.902 S/m; ε_r = 41.239; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(10.05, 10.05, 10.05); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.06 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 60.38 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 3.40 W/kg
SAR(1 g) = 2.28 W/kg; SAR(10 g) = 1.49 W/kg
Maximum value of SAR (measured) = 3.04 W/kg



0 dB = 3.04 W/kg = 4.83 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.24

System Check_Head_1750MHz

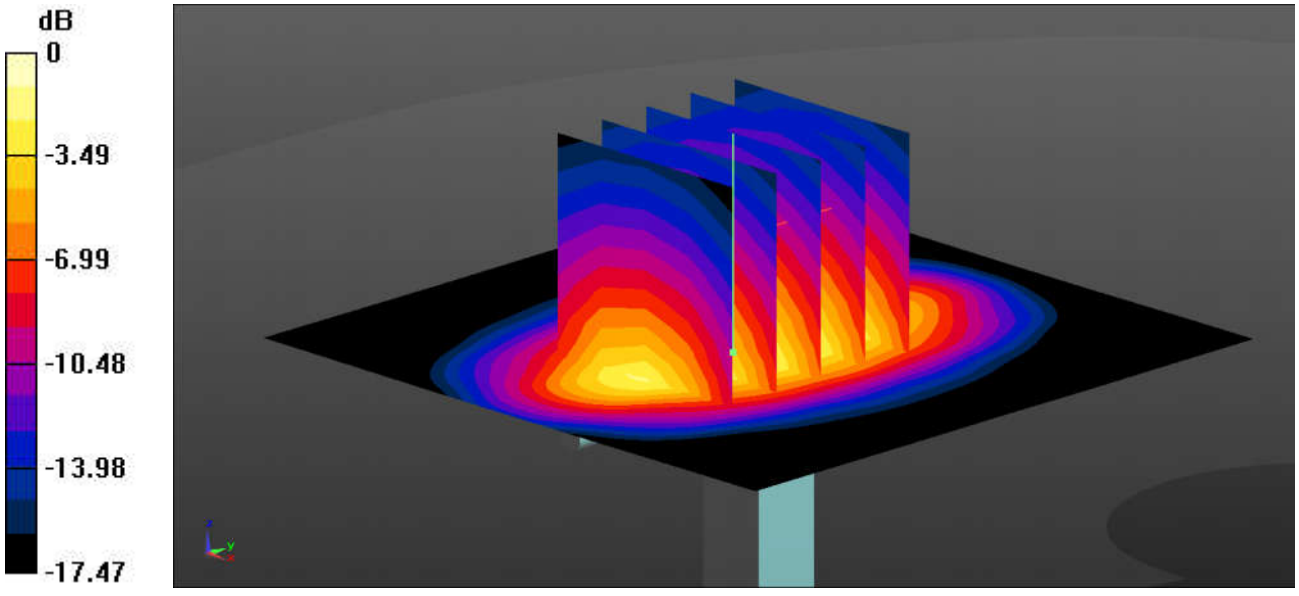
DUT: D1750V2 - SN:1090

Communication System: UID 0, CW (0); Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1750 MHz; σ = 1.359 S/m; ε_r = 41.039; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.41, 8.41, 8.41); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.0 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 101.8 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 16.4 W/kg
SAR(1 g) = 8.87 W/kg; SAR(10 g) = 4.73 W/kg
Maximum value of SAR (measured) = 13.6 W/kg



0 dB = 13.6 W/kg = 11.34 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.28

System Check_Head_1900MHz

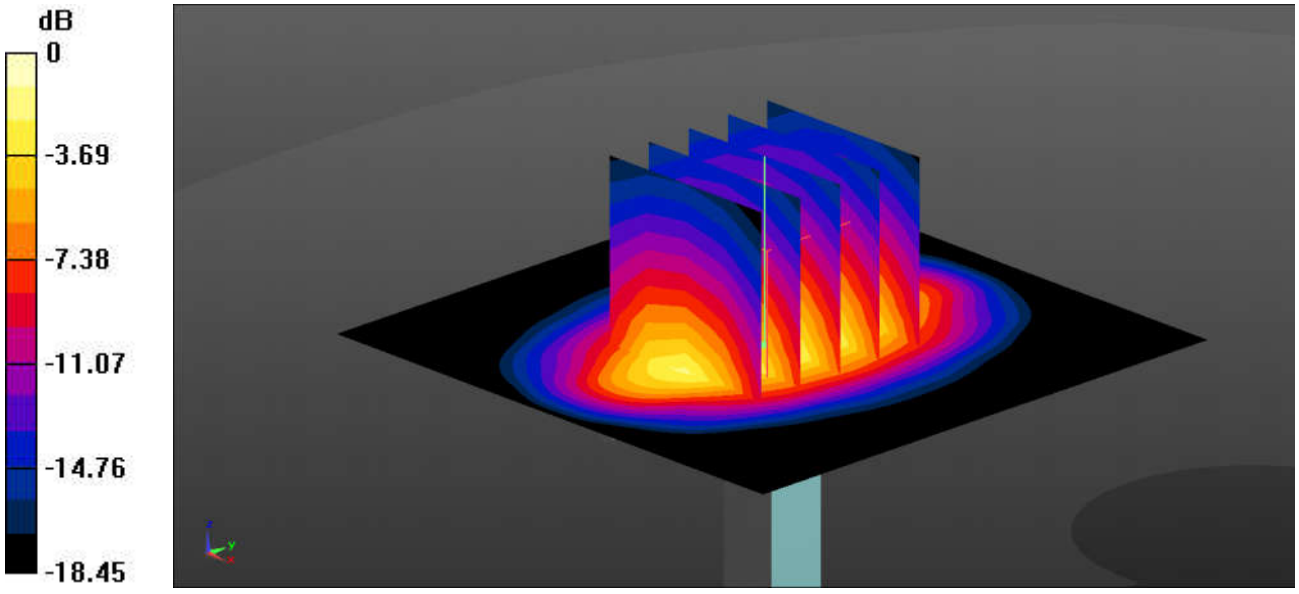
DUT: D1900V2 - SN:5d170

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1900 MHz; σ = 1.437 S/m; ε_r = 40.466; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.22, 8.22, 8.22); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.0 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 104.8 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 9.74 W/kg; SAR(10 g) = 5.07 W/kg
Maximum value of SAR (measured) = 15.2 W/kg



0 dB = 15.2 W/kg = 11.82 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.31

System Check_Head_2450MHz

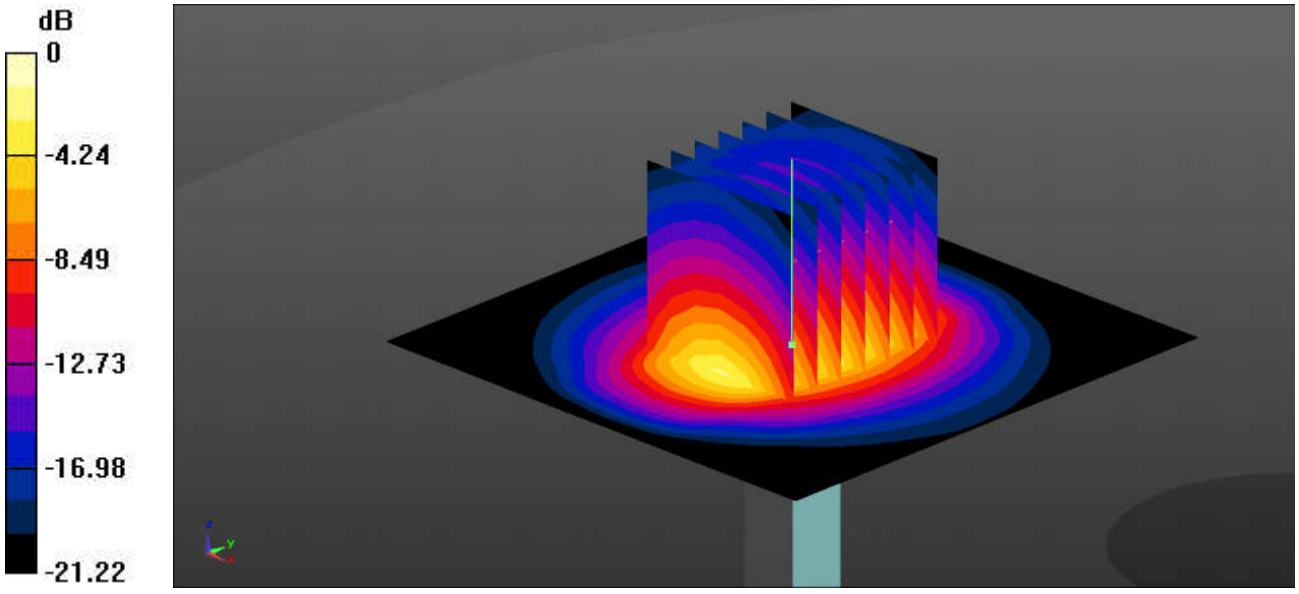
DUT: D2450V2 - SN:908

Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL_2450 Medium parameters used : f = 2450 MHz; σ = 1.757 S/m; ε_r = 40.699; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(7.57, 7.57, 7.57); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 20.2 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 109.5 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 24.7 W/kg
SAR(1 g) = 12.1 W/kg; SAR(10 g) = 5.69 W/kg
Maximum value of SAR (measured) = 20.2 W/kg



0 dB = 20.2 W/kg = 13.05 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.31

System Check_Head_2600MHz

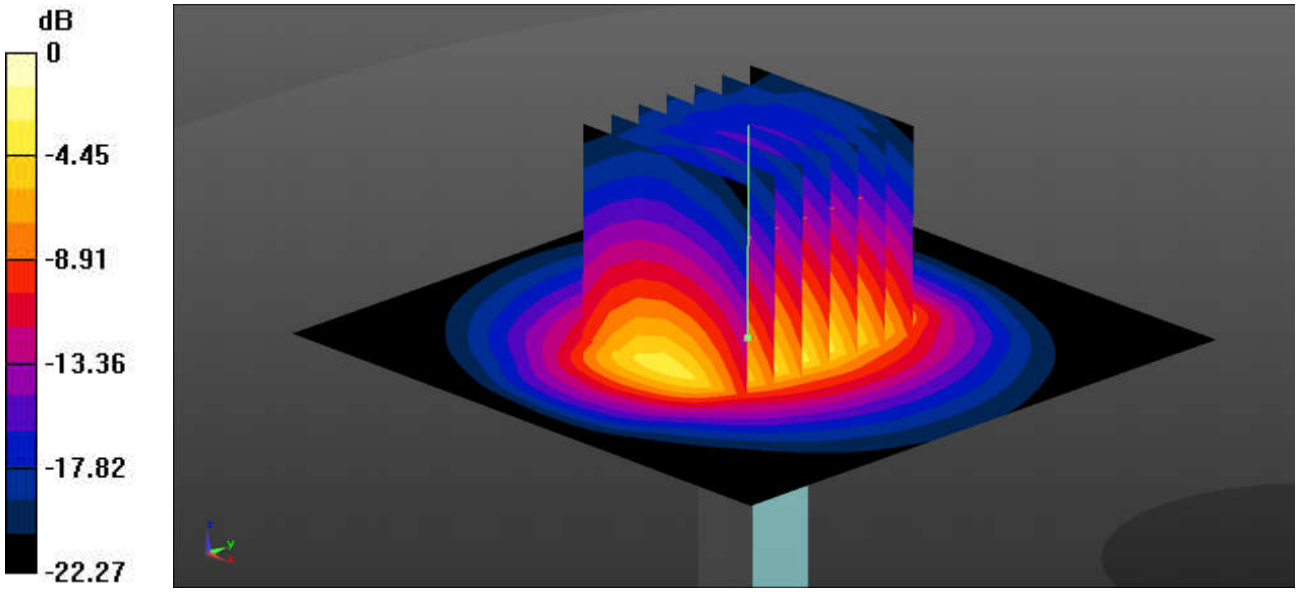
DUT: D2600V2 - SN:1061

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: f = 2600 MHz; σ = 1.957 S/m; ε_r = 40.058; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(7.31, 7.31, 7.31); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=250mW/Area Scan (71x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 23.5 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 111.2 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 29.0 W/kg
SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.24 W/kg
Maximum value of SAR (measured) = 23.4 W/kg



0 dB = 23.4 W/kg = 13.69 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.1.10

System Check_Head_5250MHz

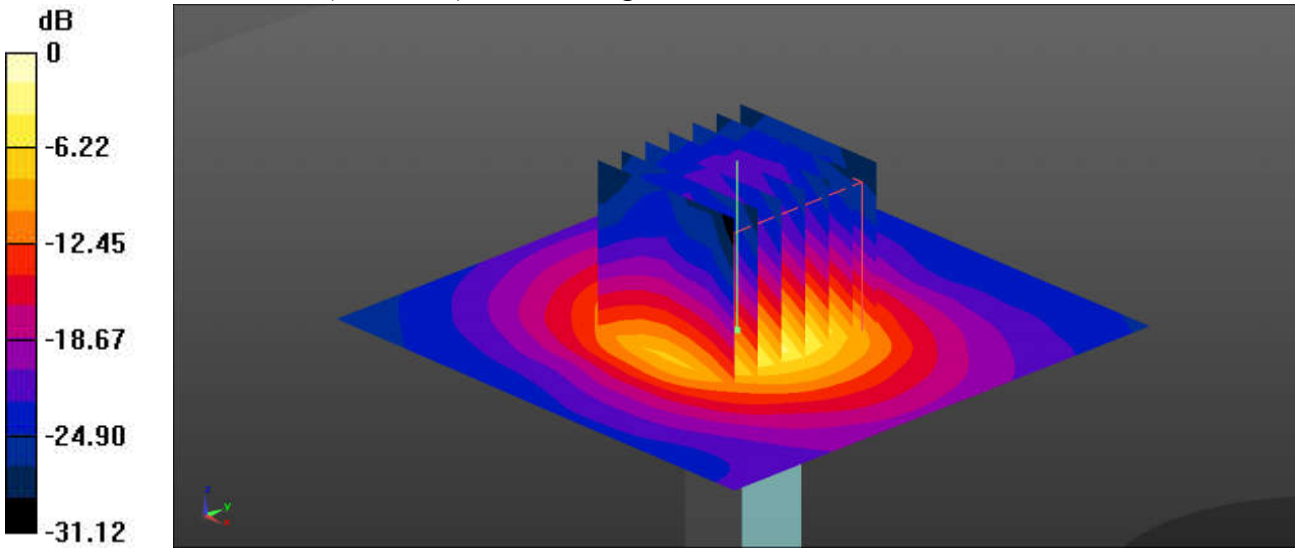
DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5250 MHz; σ = 4.556 S/m; ε_r = 35.437; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(5.24, 5.24, 5.24); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 17.2 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.81 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 28.3 W/kg
SAR(1 g) = 7.51 W/kg; SAR(10 g) = 2.19 W/kg
Maximum value of SAR (measured) = 18.5 W/kg



0 dB = 18.5 W/kg = 12.67 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.1.10

System Check_Head_5600MHz

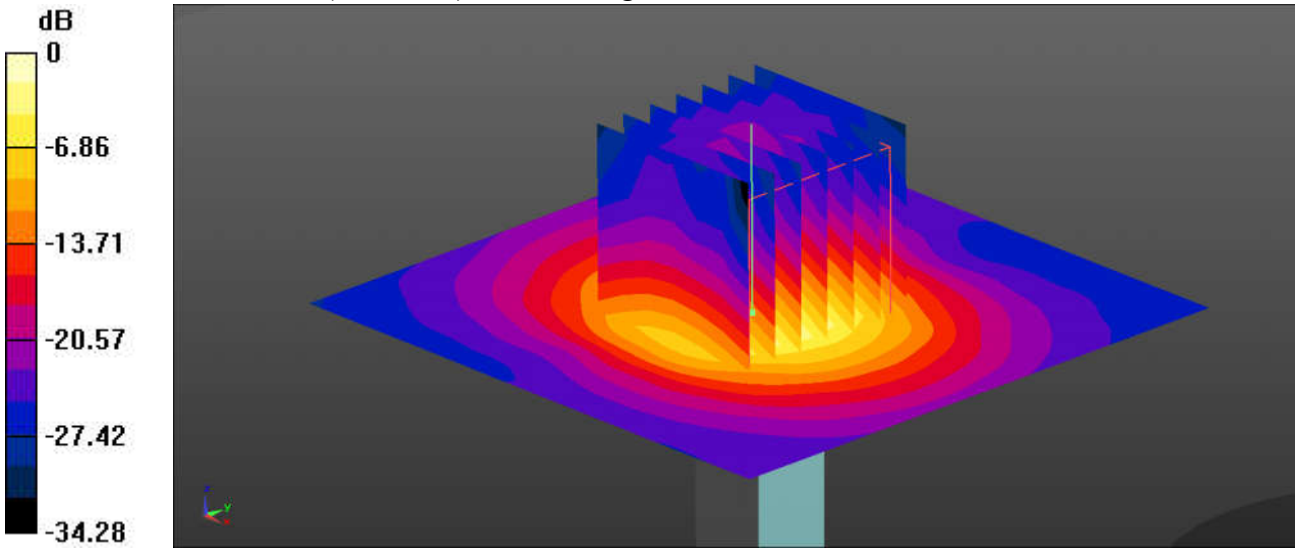
DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5600 MHz; σ = 4.941 S/m; ε_r = 34.836; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(4.65, 4.65, 4.65); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 20.6 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 70.33 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 34.6 W/kg
SAR(1 g) = 8.41 W/kg; SAR(10 g) = 2.43 W/kg
Maximum value of SAR (measured) = 21.5 W/kg



0 dB = 21.5 W/kg = 13.32 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.1.10

System Check_Head_5750MHz

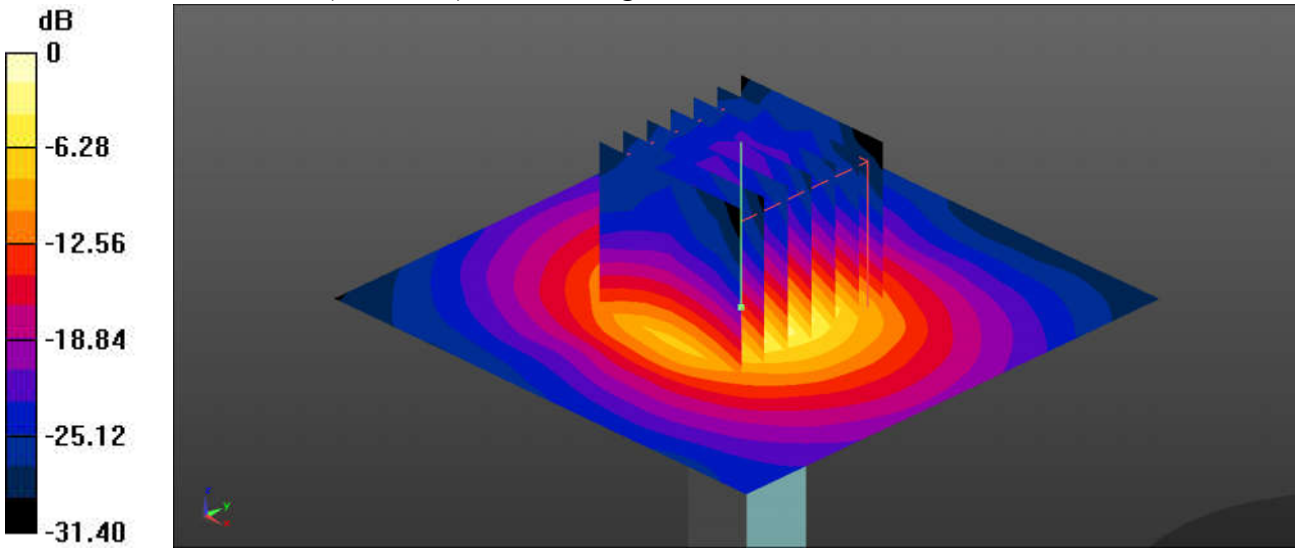
DUT: D5GHzV2 - SN:1113

Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium: HSL_5000 Medium parameters used: f = 5750 MHz; σ = 5.122 S/m; ε_r = 34.563; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(4.69, 4.69, 4.69); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=100mW/Area Scan (71x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 18.6 W/kg

Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.43 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 32.7 W/kg
SAR(1 g) = 7.65 W/kg; SAR(10 g) = 2.22 W/kg
Maximum value of SAR (measured) = 19.8 W/kg



0 dB = 19.8 W/kg = 12.97 dBW/kg

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.22

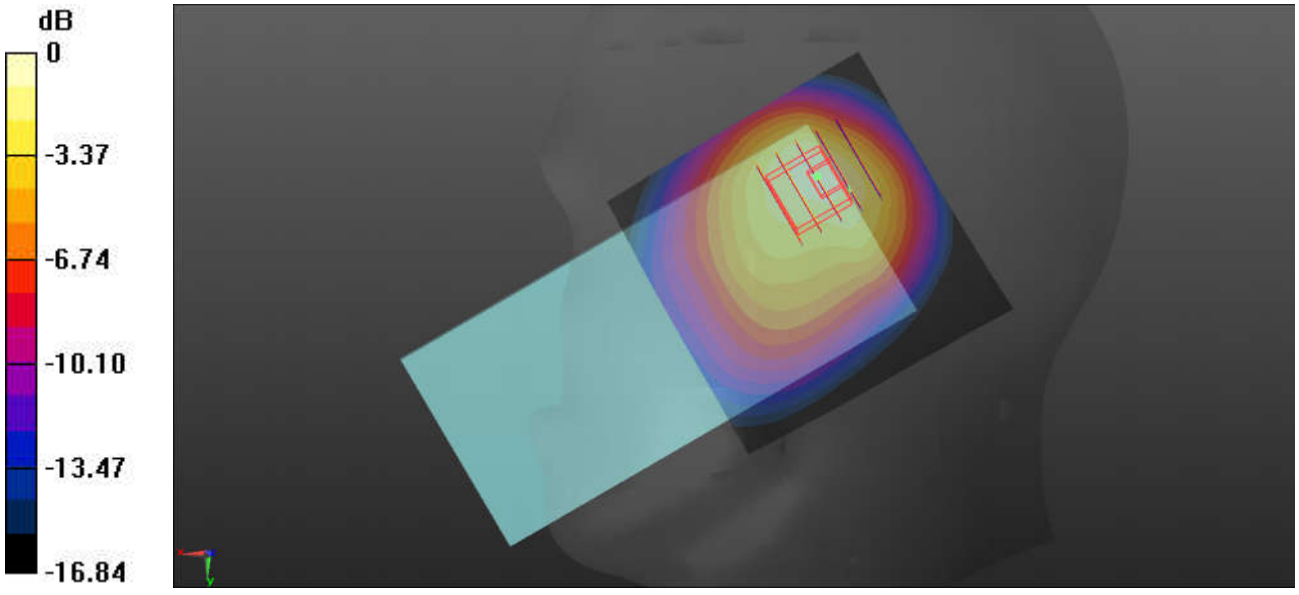
01_GSM 850_GPRS 2 Tx slots_Right Cheek_0mm_Ant 2_Ch189

Communication System: UID 0, GSM850 (0); Frequency: 836.4 MHz;Duty Cycle: 1:4.15
Medium: HSL_850 Medium parameters used: f = 836.4 MHz; σ = 0.903 S/m; ε_r = 41.219; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(10.05, 10.05, 10.05); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.294 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.65 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.395 W/kg
SAR(1 g) = 0.185 W/kg; SAR(10 g) = 0.117 W/kg
Maximum value of SAR (measured) = 0.304 W/kg



0 dB = 0.304 W/kg = -5.17 dBW/kg

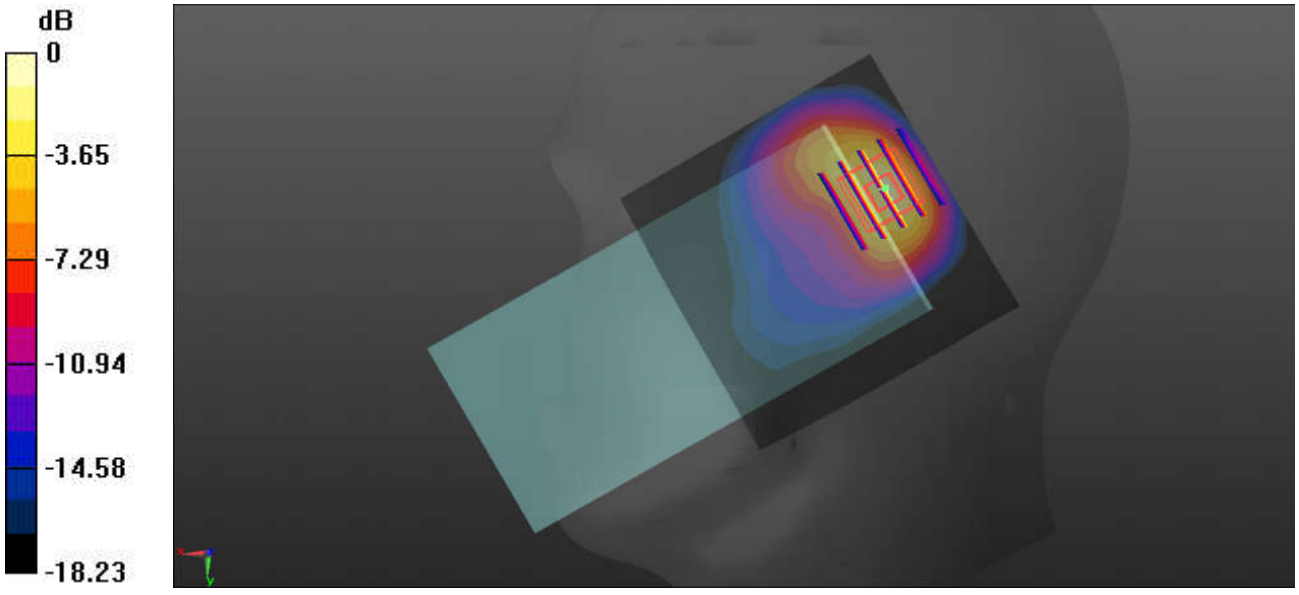
02_GSM 1900_GPRS 1 Tx slots_Right Tilted_0mm_Ant 2_Ch661

Communication System: UID 0, PCS (0); Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: HSL_1900 Medium parameters used: f = 1880 MHz; σ = 1.416 S/m; ε_r = 40.546; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.22, 8.22, 8.22); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.350 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.09 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.521 W/kg
SAR(1 g) = 0.274 W/kg; SAR(10 g) = 0.133 W/kg
Maximum value of SAR (measured) = 0.428 W/kg



0 dB = 0.428 W/kg = -3.69 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.22

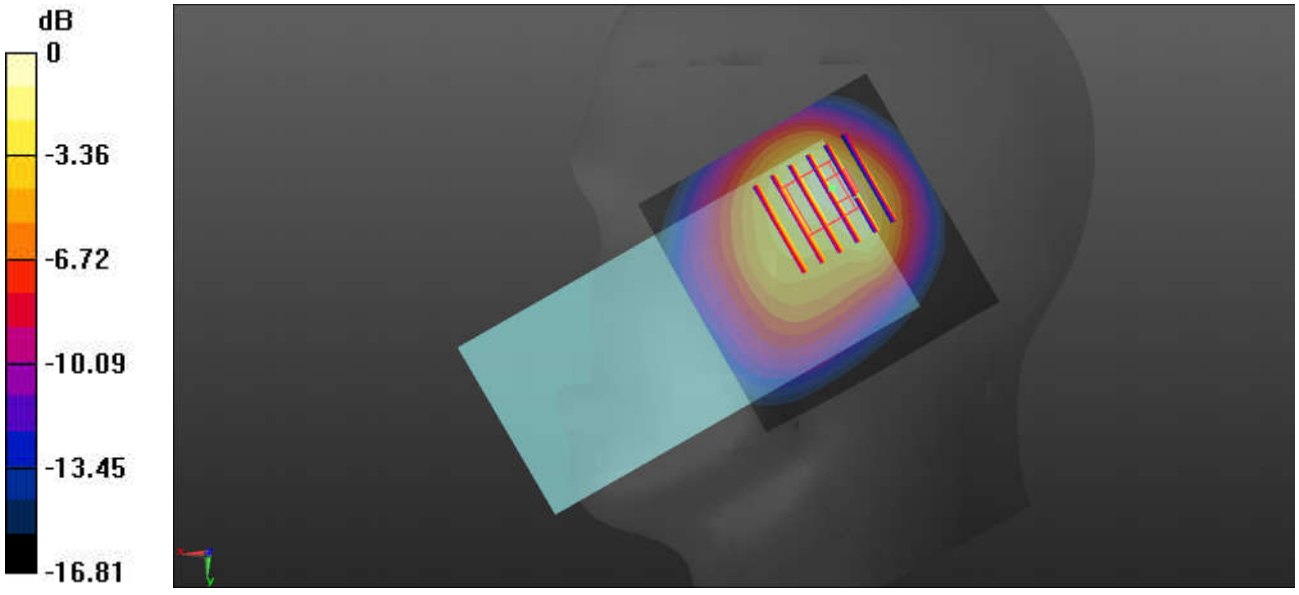
03_WCDMA V_RMC 12.2Kbps_Right Cheek_0mm_Ant 2_Ch4182

Communication System: UID 0, WCDMA (0); Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 836.4 MHz; σ = 0.903 S/m; ε_r = 41.219; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(10.05, 10.05, 10.05); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.744 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.46 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.454 W/kg; SAR(10 g) = 0.282 W/kg
Maximum value of SAR (measured) = 0.764 W/kg



0 dB = 0.764 W/kg = -1.17 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.24

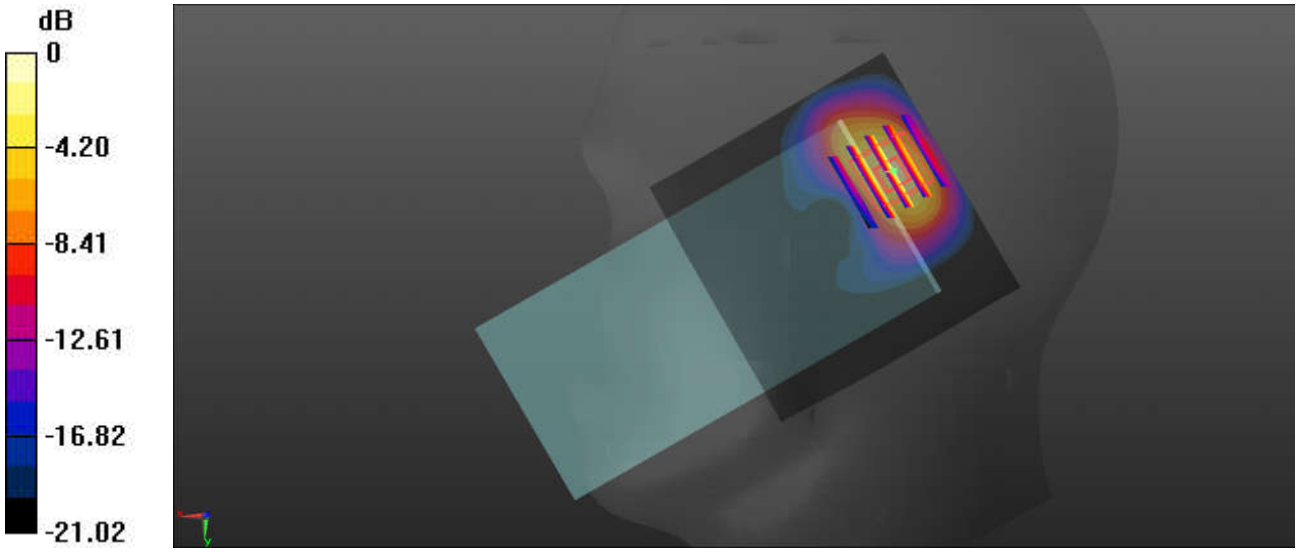
04_WCDMA IV_RMC 12.2Kbps_Right Tilted_0mm_Ant 2_Ch1413

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1733 MHz; σ = 1.341 S/m; ε_r = 41.126; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.41, 8.41, 8.41); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.586 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.29 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.979 W/kg
SAR(1 g) = 0.471 W/kg; SAR(10 g) = 0.215 W/kg
Maximum value of SAR (measured) = 0.744 W/kg



0 dB = 0.744 W/kg = -1.28 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.28

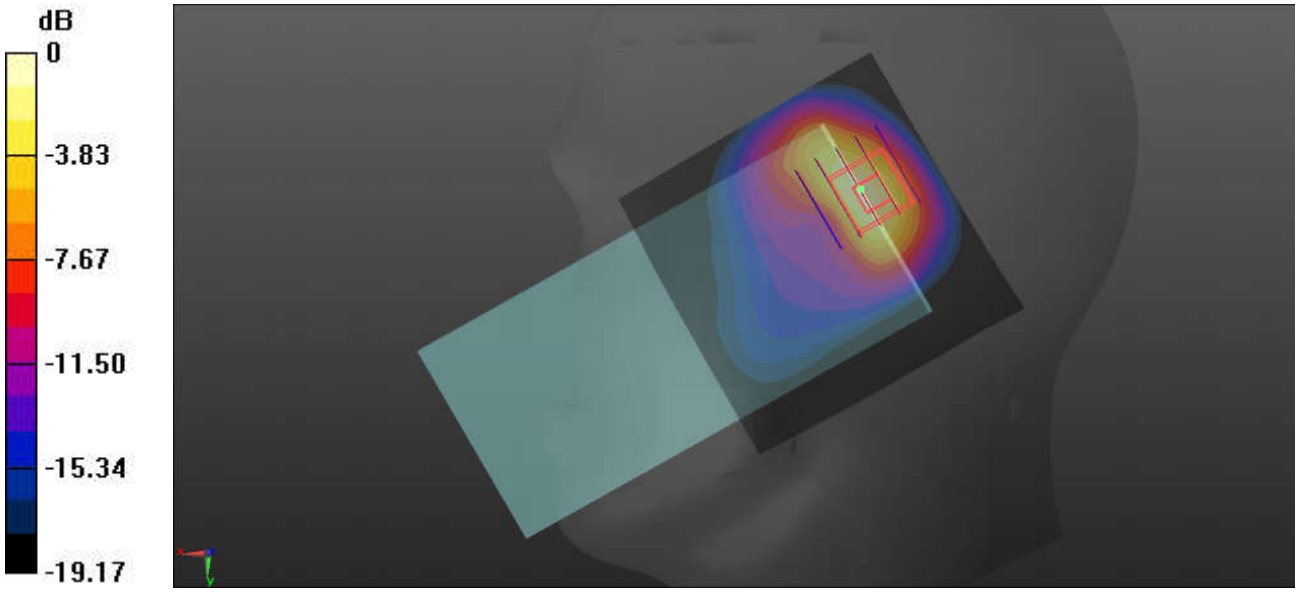
05_WCDMA II_RMC 12.2Kbps_Right Tilted_0mm_Ant 2_Ch9400

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1880 MHz; σ = 1.416 S/m; ε_r = 40.546; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.22, 8.22, 8.22); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.644 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.27 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.980 W/kg
SAR(1 g) = 0.484 W/kg; SAR(10 g) = 0.224 W/kg
Maximum value of SAR (measured) = 0.778 W/kg



0 dB = 0.778 W/kg = -1.09 dBW/kg

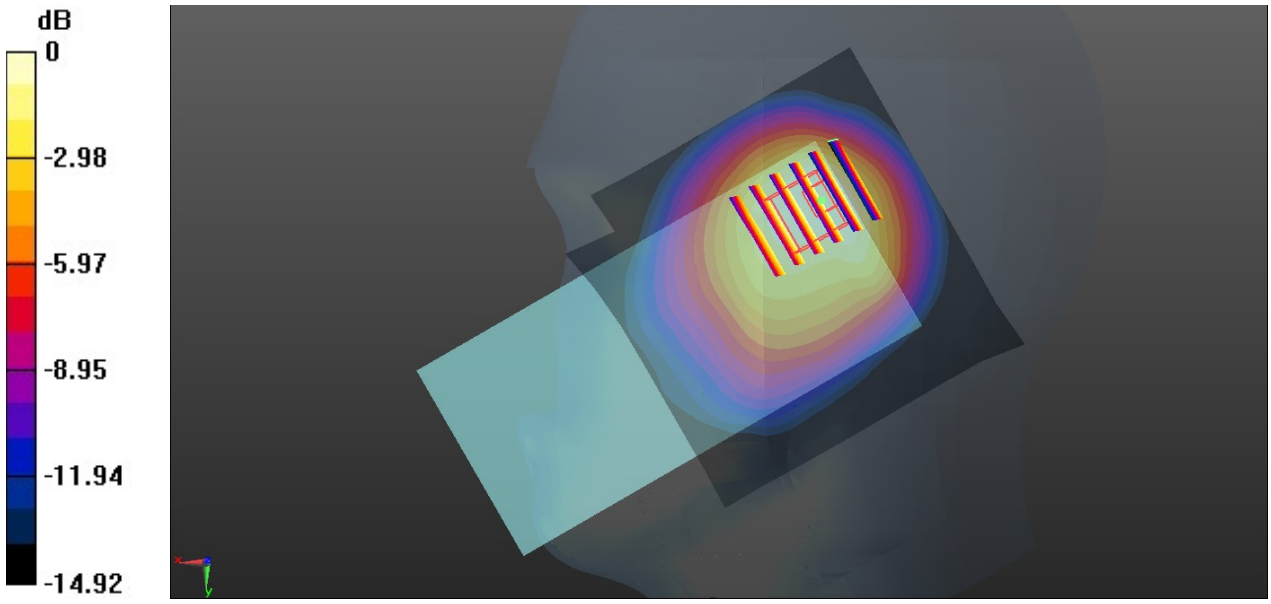
06_LTE Band 26_15M_QPSK_1RB_0Offset_Right Cheek_0mm_Ant 2_Ch26865

Communication System: UID 0, LTE-FDD (0); Frequency: 831.5 MHz;Duty Cycle: 1:1
Medium: HSL_850 Medium parameters used: f = 831.5 MHz; σ = 0.898 S/m; ε_r = 41.28; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(10.05, 10.05, 10.05); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.08 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.87 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.804 W/kg; SAR(10 g) = 0.516 W/kg
Maximum value of SAR (measured) = 0.931 W/kg



0 dB = 0.931 W/kg = -0.31 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.20

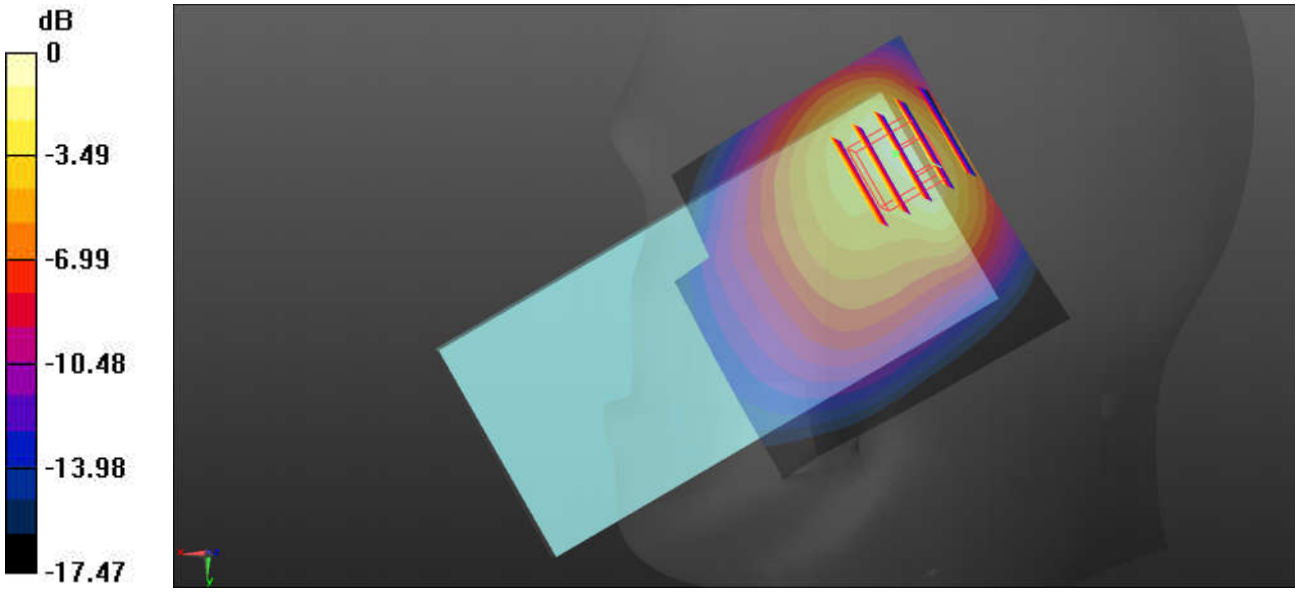
07_LTE Band 12_10M_QPSK_1RB_0Offset_Right Cheek_0mm_Ant 2_Ch23095

Communication System: UID 0, LTE-FDD (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: HSL_750 Medium parameters used: f = 707.5 MHz; σ = 0.909 S/m; ε_r = 42.178; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(10.31, 10.31, 10.31); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.564 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.72 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.886 W/kg
SAR(1 g) = 0.361 W/kg; SAR(10 g) = 0.215 W/kg
Maximum value of SAR (measured) = 0.657 W/kg



0 dB = 0.657 W/kg = -1.82 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.24

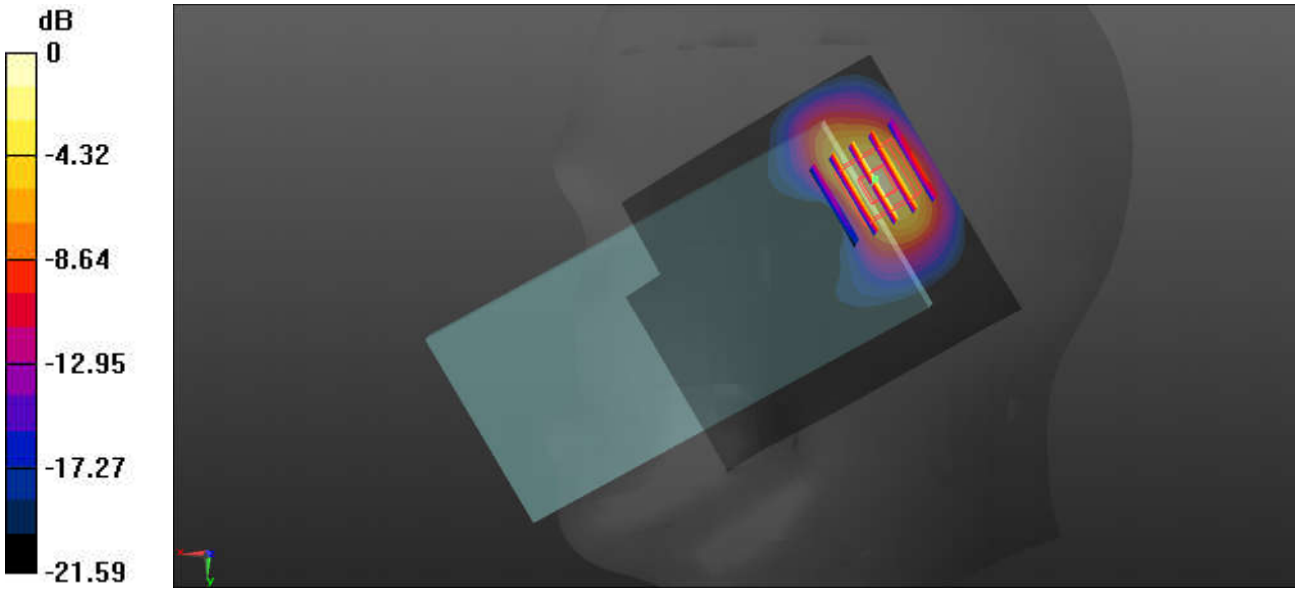
08_LTE Band 4_20M_QPSK_50RB_0Offset_Right Tilted_0mm_Ant 2_Ch20175

Communication System: UID 0, LTE-FDD (0); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1733 MHz; σ = 1.341 S/m; ε_r = 41.126; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.41, 8.41, 8.41); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.689 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.90 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.533 W/kg; SAR(10 g) = 0.243 W/kg
Maximum value of SAR (measured) = 0.881 W/kg



0 dB = 0.881 W/kg = -0.55 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.28

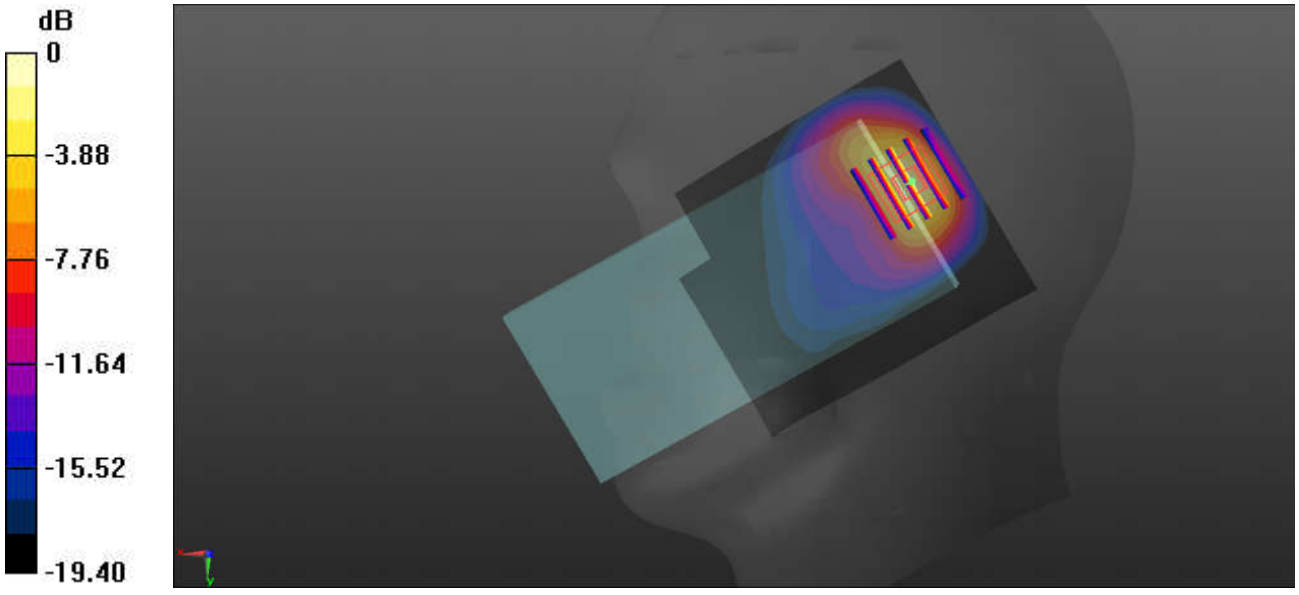
09_LTE Band 2_20M_QPSK_50RB_0Offset_Right Tilted_0mm_Ant 2_Ch18900

Communication System: UID 0, LTE-FDD (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: HSL_1900 Medium parameters used: f = 1880 MHz; σ = 1.416 S/m; ε_r = 40.546; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.22, 8.22, 8.22); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.595 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.85 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.937 W/kg
SAR(1 g) = 0.484 W/kg; SAR(10 g) = 0.231 W/kg
Maximum value of SAR (measured) = 0.783 W/kg



0 dB = 0.783 W/kg = -1.06 dBW/kg

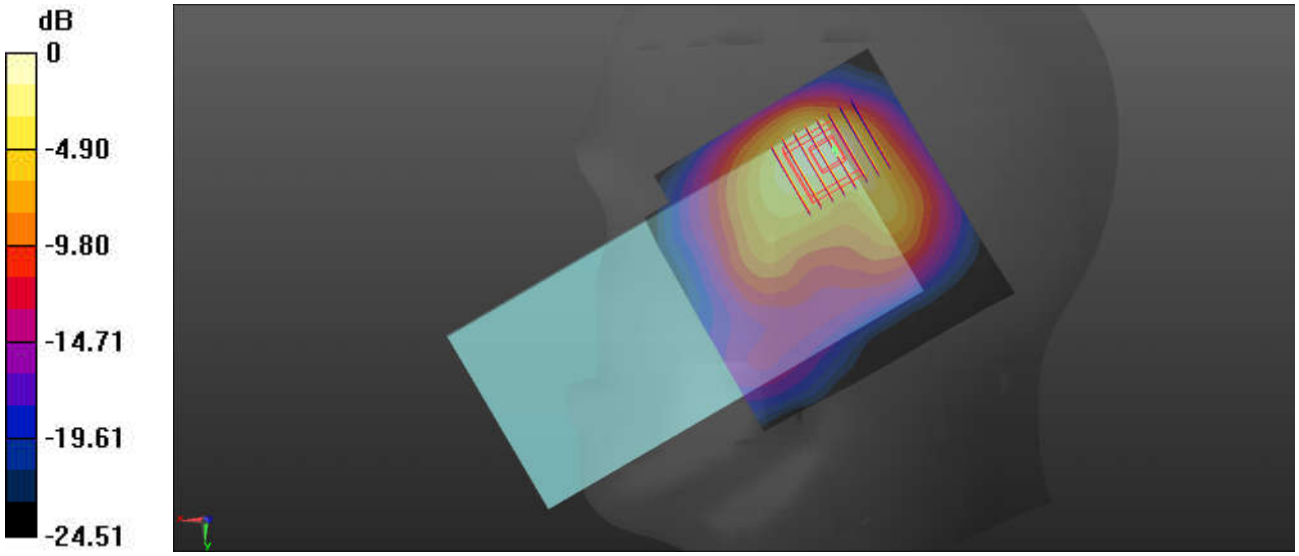
10_LTE Band 7_20M_QPSK_50RB_0Offset_Right Cheek_0mm_Ant 2_Ch21100

Communication System: UID 0, LTE-FDD (0); Frequency: 2535 MHz;Duty Cycle: 1:1
Medium: HSL_2600 Medium parameters used: f = 2535 MHz; σ = 1.879 S/m; ε_r = 40.304; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(7.31, 7.31, 7.31); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.23 W/kg

Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.66 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.677 W/kg; SAR(10 g) = 0.330 W/kg
Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 1.10 W/kg = 0.41 dBW/kg

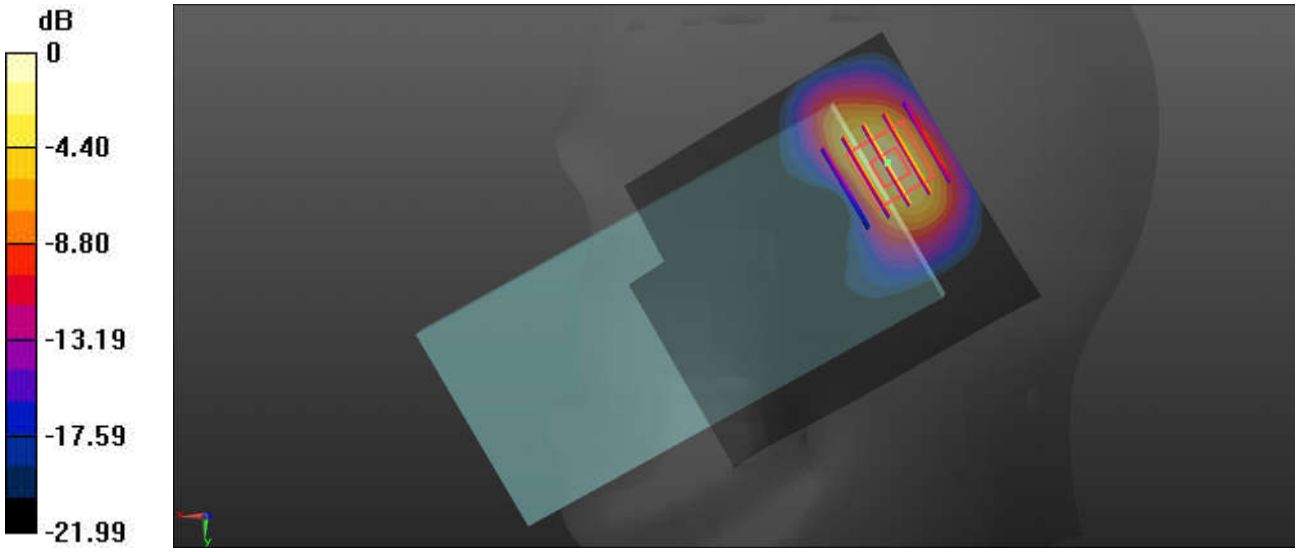
11_LTE Band 66_20M_QPSK_50RB_0Offset_Right Tilted_0mm_Ant 2_Ch132072

Communication System: UID 0, LTE-FDD (0); Frequency: 1720 MHz;Duty Cycle: 1:1
Medium: HSL_1750 Medium parameters used: f = 1720 MHz; σ = 1.327 S/m; ε_r = 41.196; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(8.41, 8.41, 8.41); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.10 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.82 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.78 W/kg
SAR(1 g) = 0.849 W/kg; SAR(10 g) = 0.387 W/kg
Maximum value of SAR (measured) = 1.41 W/kg



0 dB = 1.41 W/kg = 1.49 dBW/kg

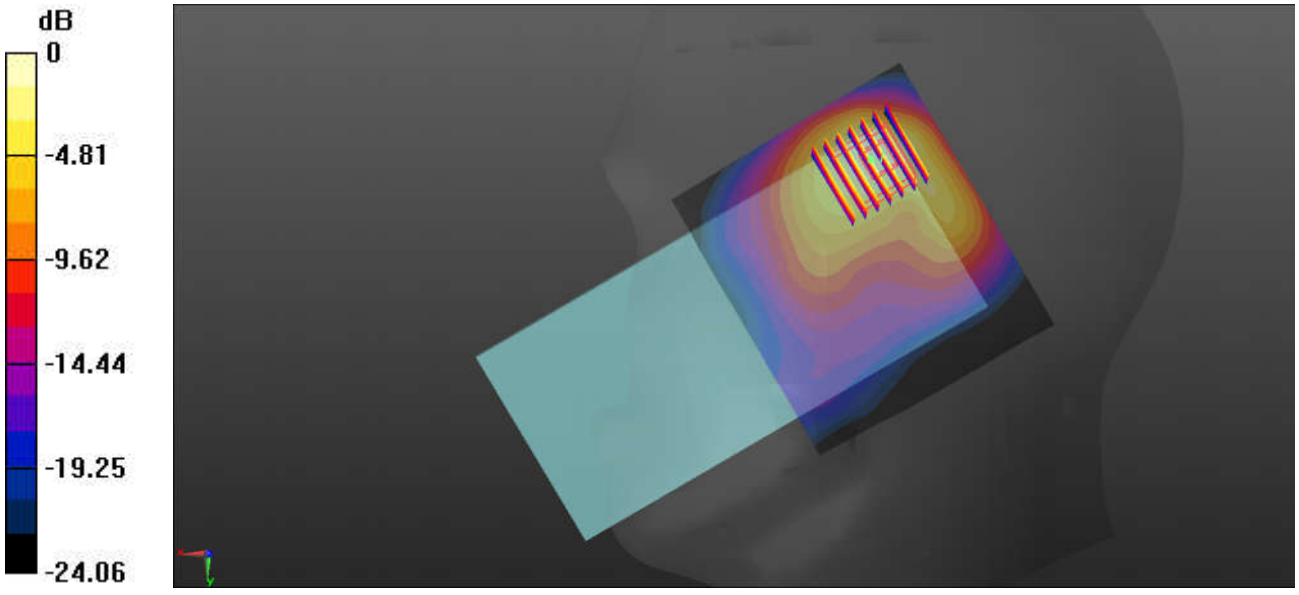
12_LTE Band 38_10M_QPSK_50RB_0Offset_Right Cheek_0mm_Ant 2_Ch38000

Communication System: UID 0, LTE-TDD (0); Frequency: 2595 MHz;Duty Cycle: 1:1.59
Medium: HSL_2600 Medium parameters used: f = 2595 MHz; σ = 1.951 S/m; ε_r = 40.077; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(7.31, 7.31, 7.31); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (91x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.25 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.22 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.740 W/kg; SAR(10 g) = 0.353 W/kg
Maximum value of SAR (measured) = 1.23 W/kg



0 dB = 1.23 W/kg = 0.90 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.31

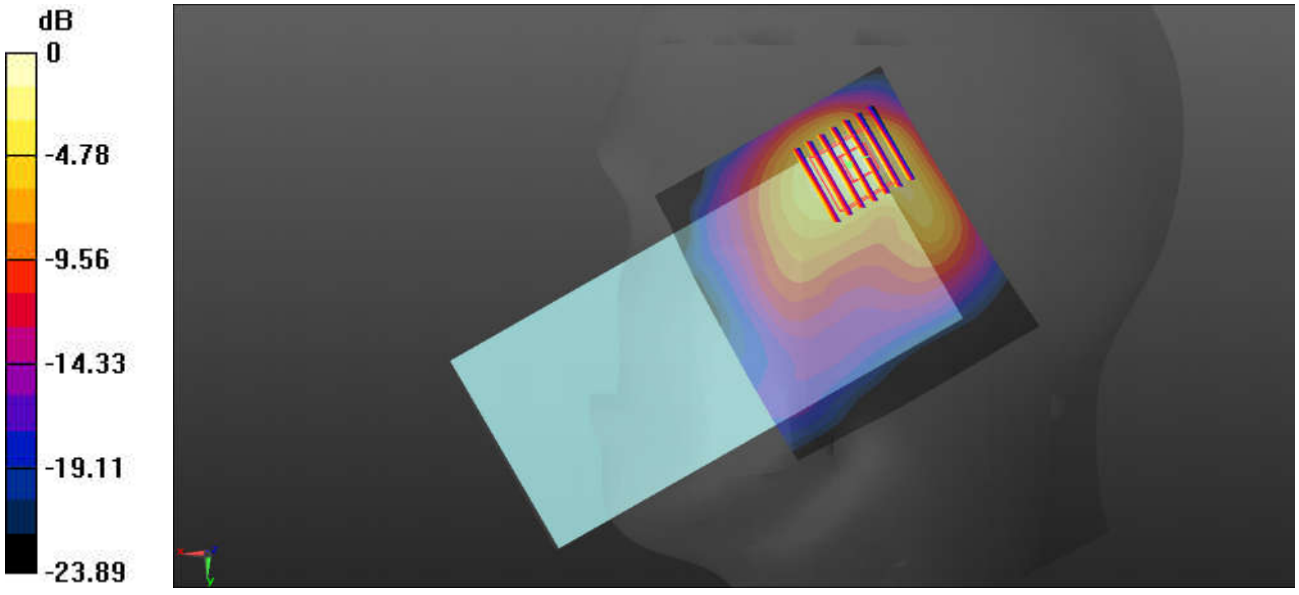
13_LTE Band 41_20M_QPSK_50RB_0Offset_Right Cheek_0mm_Ant 2_Ch40770

Communication System: UID 0, LTE-TDD (0); Frequency: 2608 MHz;Duty Cycle: 1:1.59
Medium: HSL_2600 Medium parameters used: f = 2608 MHz; σ = 1.967 S/m; ε_r = 40.027; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(7.31, 7.31, 7.31); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (91x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.26 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.15 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.59 W/kg
SAR(1 g) = 0.747 W/kg; SAR(10 g) = 0.357 W/kg
Maximum value of SAR (measured) = 1.25 W/kg



0 dB = 1.25 W/kg = 0.97 dBW/kg

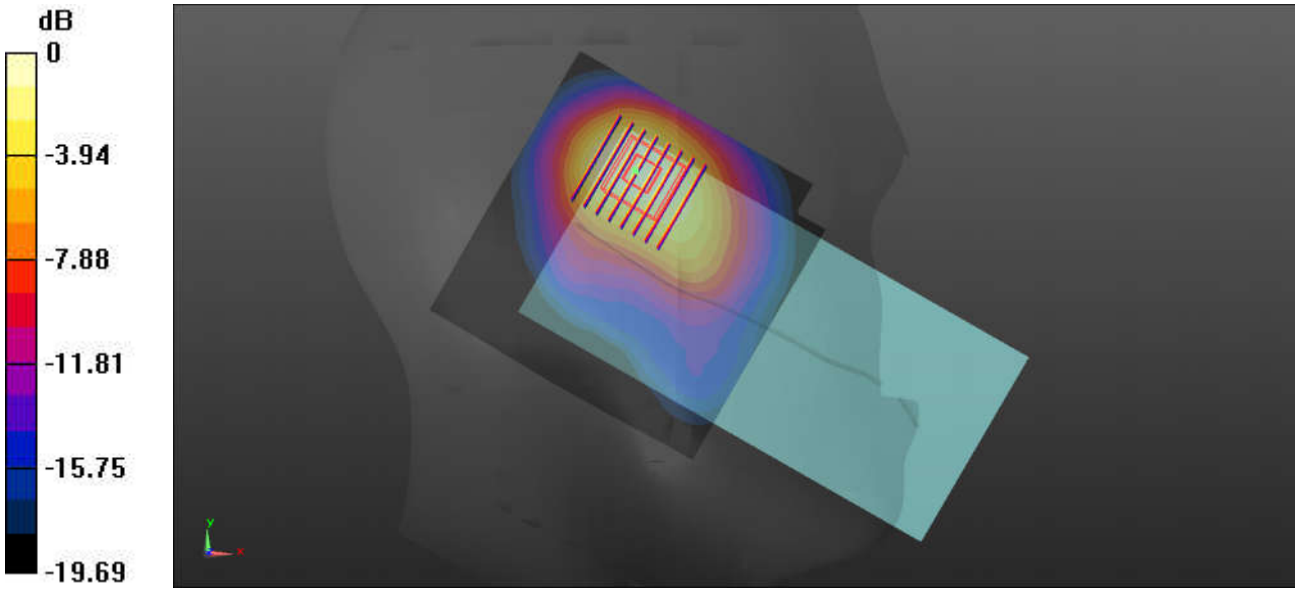
14_WLAN2.4GHz_802.11b 1Mbps_Left Cheek_0mm_Ant 3_Ch11

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: HSL_2450 Medium parameters used: f = 2462 MHz; σ = 1.771 S/m; ε_r = 40.673; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(7.57, 7.57, 7.57); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (91x91x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 1.03 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.549 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.645 W/kg; SAR(10 g) = 0.342 W/kg
Maximum value of SAR (measured) = 0.964 W/kg



0 dB = 0.964 W/kg = -0.16 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.1.10

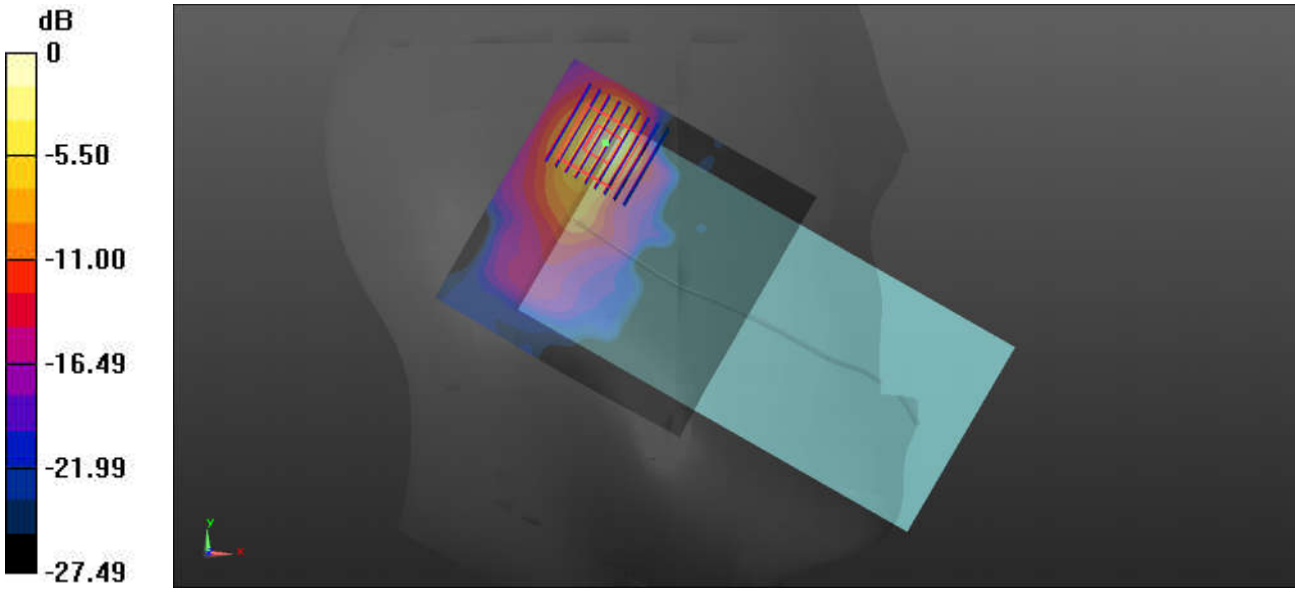
15_WLAN5GHz_802.11ac-VHT40 MCS0_Left Tilted_0mm_Ant 3_Ch54

Communication System: UID 0, 802.11ac (0); Frequency: 5270 MHz;Duty Cycle: 1:1.038
Medium: HSL_5000 Medium parameters used: f = 5270 MHz; σ = 4.583 S/m; ε_r = 35.42; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(5.24, 5.24, 5.24); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.61 W/kg

Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.711 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 2.72 W/kg
SAR(1 g) = 0.709 W/kg; SAR(10 g) = 0.207 W/kg
Maximum value of SAR (measured) = 1.77 W/kg



0 dB = 1.77 W/kg = 2.48 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.1.10

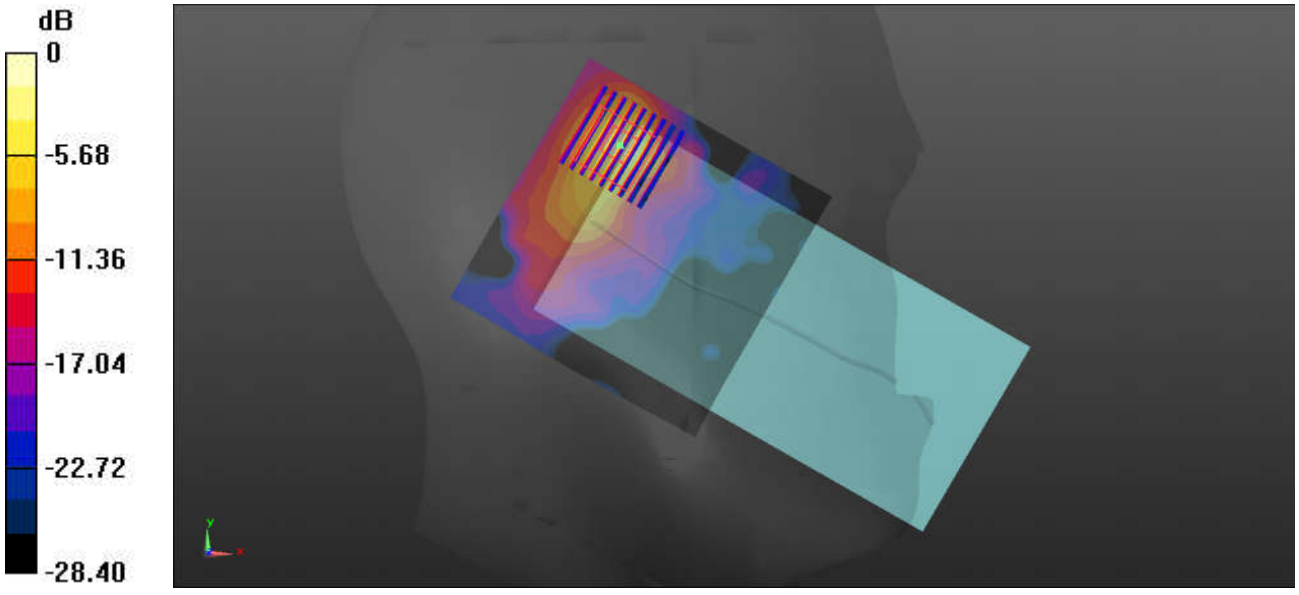
16_WLAN5GHz_802.11ac-VHT40 MCS0_Left Tilted_0mm_Ant 3_Ch110

Communication System: UID 0, 802.11ac (0); Frequency: 5550 MHz;Duty Cycle: 1:1.038
Medium: HSL_5000 Medium parameters used: f = 5670 MHz; σ = 5.044 S/m; ε_r = 34.759; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(4.65, 4.65, 4.65); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.40 W/kg

Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 7.922 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 2.67 W/kg
SAR(1 g) = 0.602 W/kg; SAR(10 g) = 0.180 W/kg
Maximum value of SAR (measured) = 1.63 W/kg



0 dB = 1.63 W/kg = 2.12 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2021.1.10

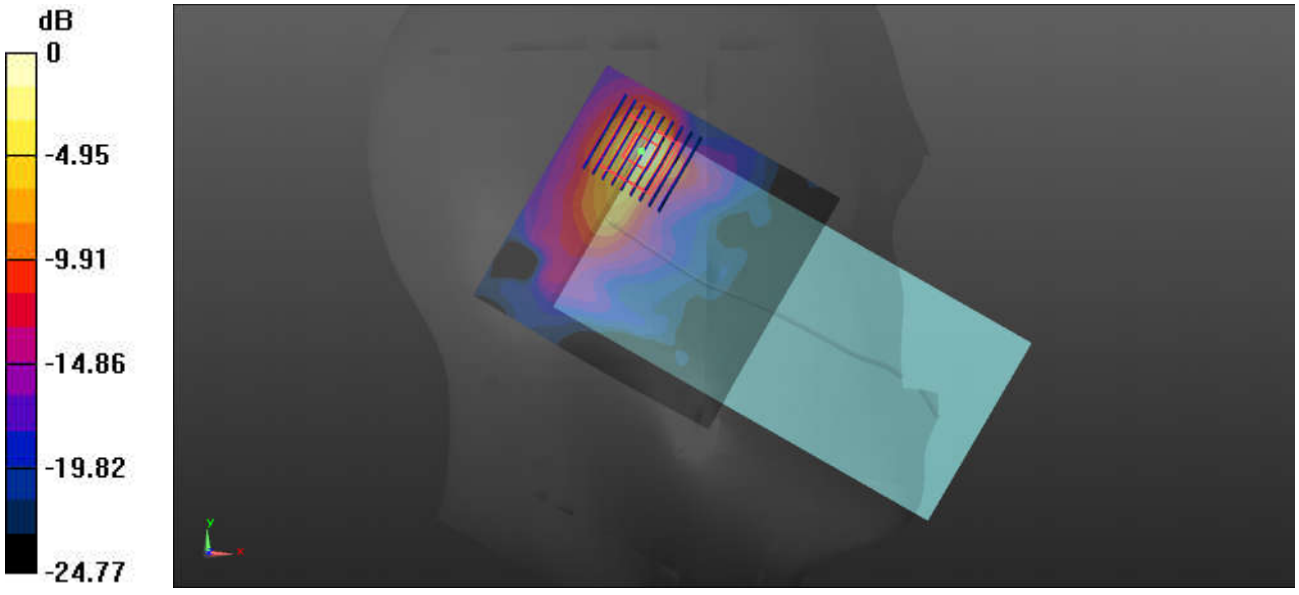
17_WLAN5GHz_802.11ac-VHT40 MCS0_Left Tilted_0mm_Ant 3_Ch151

Communication System: UID 0, 802.11ac (0); Frequency: 5755 MHz;Duty Cycle: 1:1.038
Medium: HSL_5000 Medium parameters used: f = 5755 MHz; σ = 5.13 S/m; ε_r = 34.562; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(4.69, 4.69, 4.69); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.83 W/kg

Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 8.957 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.20 W/kg
SAR(1 g) = 0.734 W/kg; SAR(10 g) = 0.210 W/kg
Maximum value of SAR (measured) = 1.95 W/kg



0 dB = 1.95 W/kg = 2.90 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2020.12.31

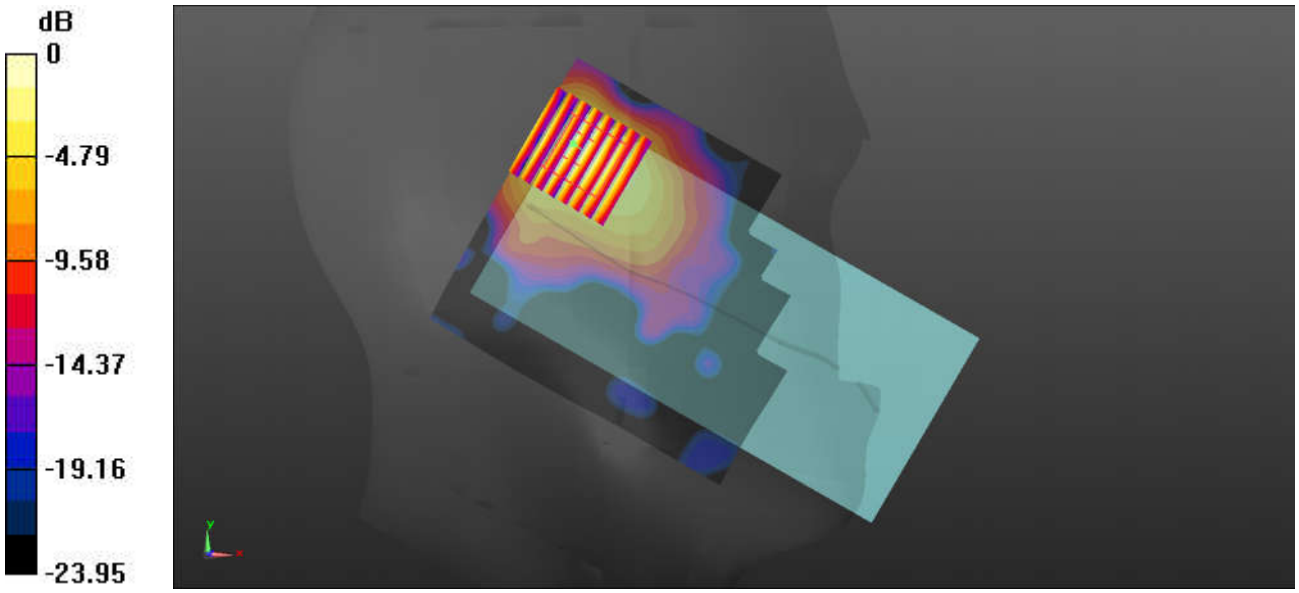
18_Bluetooth_1Mbps_Left Cheek_0mm_Ant 3_Ch0

Communication System: UID 0, Bluetooth (0); Frequency: 2402 MHz;Duty Cycle: 1:1.298
Medium: HSL_2450 Medium parameters used: f = 2402 MHz; σ = 1.699 S/m; ε_r = 40.873; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN7592; ConvF(7.57, 7.57, 7.57); Calibrated: 2020.5.22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn690; Calibrated: 2020.3.26
- Phantom: SAM1; Type: SAM; Serial: TP-1697
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Area Scan (91x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0798 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.080 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.0920 W/kg
SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.024 W/kg
Maximum value of SAR (measured) = 0.0711 W/kg



0 dB = 0.0711 W/kg = -11.48 dBW/kg