FCC SAR Test Report

APPLICANT	:	ZTE CORPORATION
EQUIPMENT	:	LTE Ufi
BRAND NAME	:	ZTE
MODEL NAME	:	MF970
FCC ID	:	SRQ-MF970
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2013

We, SPORTON INTERNATIONAL (XI'AN) 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 (XI'AN) INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory 2804

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA562904	Rev. 01	Initial issue of report	Aug. 14, 2015

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **ZTE CORPORATION, LTE Ufi, MF970** are as follows.

Equipment Class	Frequency Band	Highest SAR Summary	
		Body 1g SAR (W/kg) Gap(1cm)	Simultaneous Transmission SAR (W/kg)
PCB	WCDMA Band V	0.78	1.59
	WCDMA Band II	1.23	
	LTE Band 17	0.89	
	LTE Band 12	0.87	
	LTE Band 4	1.40	
	LTE Band 2	1.09	
	LTE Band 7	**1.44**	
DTS	WLAN 2.4GHz Band	0.19	1.59
NII	WLAN 5.2GHz Band	0.06	1.46
	WLAN 5.8GHz Band	0.10	
Date of Testing:		Jul. 09, 2015 ~ Jul. 28, 2015	

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013 and FCC KDB publications.

2. Administration Data

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL (XI'AN) INC.
Test Site Location	1F, Building A3, No. 39 Chuangye Rd., Xi'an Hi-tech Zone, Shanxi Province, P. R. China TEL: +86-029-8860-8767 FAX: +86-029-8860-8791

Applicant	
Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P. R. China

Manufacturer	
Company Name	ZTE CORPORATION
Address	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P. R. China

3. Guidance Standard

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2013
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
- FCC KDB 865664 D02 SAR Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02
- FCC KDB 248227 D01 802.11 Wi-Fi SAR v02r01
- FCC KDB 941225 D01 3G SAR Procedures v03
- FCC KDB 941225 D05 SAR for LTE Devices v02r03
- FCC KDB 941225 D05A Rel.10 LTE SAR Test Guidance v01r01
- FCC KDB 941225 D06 Hotspot Mode SAR v02

4. Equipment Under Test (EUT)

4.1 General Information

Product Feature & Specification	
Equipment Name	LTE Ufi
Brand Name	ZTE
Model Name	MF970
FCC ID	SRQ-MF970
IMEI Code	867610021500424
Wireless Technology and Frequency Range	WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz
Mode	· RMC 12.2Kbps · HSDPA · HSUPA · DC-HSDPA · HSPA+ (Downlink Only) · LTE: QPSK, 16QAM · 802.11a/b/g/n HT20/HT40 · 802.11ac VHT20/VHT40/VHT80
HW Version	xz2A
SW Version	MF970V1.0.2
EUT Stage	Identical Prototype

Remark:
1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This device 2.4GHz WLAN supports Hotspot operation, and 5.2GHz/5.8GHz WLAN supports WiFi Direct (GC/GO),
3. This device has no voice function.

4.2 Maximum Tune-up Limit

Mode	Average power(dBm)	
	WCDMA Band V	WCDMA Band II
RMC 12.2Kbps	23.00	23.00
HSDPA Subtest-1	21.50	21.50
HSDPA Subtest-2	21.50	21.50
HSDPA Subtest-3	21.00	21.00
HSDPA Subtest-4	21.00	21.00
DC-HSDPA Subtest-1	21.50	22.00
DC-HSDPA Subtest-2	21.50	22.00
DC-HSDPA Subtest-3	21.00	21.50
DC-HSDPA Subtest-4	21.00	21.50
HSUPA Subtest-1	20.50	21.00
HSUPA Subtest-2	20.50	21.00
HSUPA Subtest-3	20.50	21.00
HSUPA Subtest-4	20.50	21.00
HSUPA Subtest-5	20.50	21.00

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

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

LTE Band 4				
Average Power (dBm)				
Modulation	BW (MHz)	RB size	MPR	Target Power
QPSK	20	≤ 18	0	22.50
QPSK	20	> 18	1	21.50
16QAM	20	≤ 18	1	21.50
16QAM	20	> 18	2	20.50
QPSK	15	≤ 16	0	22.50
QPSK	15	> 16	1	21.50
16QAM	15	≤ 16	1	21.50
16QAM	15	> 16	2	20.50
QPSK	10	≤ 12	0	22.50
QPSK	10	> 12	1	21.50
16QAM	10	≤ 12	1	21.50
16QAM	10	> 12	2	20.50
QPSK	5	≤ 8	0	22.50
QPSK	5	> 8	1	21.50
16QAM	5	≤ 8	1	21.50
16QAM	5	> 8	2	20.50
QPSK	3	≤ 4	0	22.50
QPSK	3	> 4	1	21.50
16QAM	3	≤ 4	1	21.50
16QAM	3	> 4	2	20.50
QPSK	1.4	≤ 5	0	22.50
QPSK	1.4	> 5	1	21.50
16QAM	1.4	≤ 5	1	21.50
16QAM	1.4	> 5	2	20.50

LTE Band 2				
Average Power (dBm)				
Modulation	BW (MHz)	RB size	MPR	Target Power
QPSK	20	≤ 18	0	22.50
QPSK	20	> 18	1	21.50
16QAM	20	≤ 18	1	21.50
16QAM	20	> 18	2	20.50
QPSK	15	≤ 16	0	22.50
QPSK	15	> 16	1	21.50
16QAM	15	≤ 16	1	21.50
16QAM	15	> 16	2	20.50
QPSK	10	≤ 12	0	22.50
QPSK	10	> 12	1	21.50
16QAM	10	≤ 12	1	21.50
16QAM	10	> 12	2	20.50
QPSK	5	≤ 8	0	22.50
QPSK	5	> 8	1	21.50
16QAM	5	≤ 8	1	21.50
16QAM	5	> 8	2	20.50
QPSK	3	≤ 4	0	22.50
QPSK	3	> 4	1	21.50
16QAM	3	≤ 4	1	21.50
16QAM	3	> 4	2	20.50
QPSK	1.4	≤ 5	0	22.50
QPSK	1.4	> 5	1	21.50
16QAM	1.4	≤ 5	1	21.50
16QAM	1.4	> 5	2	20.50

LTE Band 7				
Average Power (dBm)				
Modulation	BW (MHz)	RB size	MPR	Target Power
QPSK	20	≤ 18	0	21.50
QPSK	20	> 18	1	20.50
16QAM	20	≤ 18	1	20.50
16QAM	20	> 18	2	19.50
QPSK	15	≤ 16	0	21.50
QPSK	15	> 16	1	20.50
16QAM	15	≤ 16	1	20.50
16QAM	15	> 16	2	19.50
QPSK	10	≤ 12	0	21.50
QPSK	10	> 12	1	20.50
16QAM	10	≤ 12	1	20.50
16QAM	10	> 12	2	19.50
QPSK	5	≤ 8	0	21.50
QPSK	5	> 8	1	20.50
16QAM	5	≤ 8	1	20.50
16QAM	5	> 8	2	19.50

Mode			Maximum Average Power (dBm)
2.4GHz	802.11b	Chain Port 0	14.00
		Chain Port 1	14.50
	802.11g	Chain Port 0	12.00
		Chain Port 1	12.00
	802.11n HT20	Chain Port 0	11.00
		Chain Port 1	11.00
		Chain Port 0+1	11.50
	802.11n HT40	Chain Port 0	11.00
		Chain Port 1	11.50
		Chain Port 0+1	11.50
5.2GHz	802.11a	Chain Port 0	8.50
		Chain Port 1	8.00
	802.11n HT20	Chain Port 0	7.00
		Chain Port 1	7.50
		Chain Port 0+1	7.50
	802.11n HT40	Chain Port 0	7.50
		Chain Port 1	7.50
		Chain Port 0+1	7.50
	802.11ac-VHT20	Chain Port 0	6.50
		Chain Port 1	6.50
		Chain Port 0+1	6.50
	802.11ac-VHT40	Chain Port 0	5.00
		Chain Port 1	5.00
		Chain Port 0+1	5.50
	802.11ac-VHT80	Chain Port 0	5.50
		Chain Port 1	5.00
		Chain Port 0+1	5.50
5.8GHz	802.11a	Chain Port 0	8.50
		Chain Port 1	8.50
	802.11n HT20	Chain Port 0	7.50
		Chain Port 1	7.50
		Chain Port 0+1	7.50
	802.11n HT40	Chain Port 0	7.00
		Chain Port 1	7.50
		Chain Port 0+1	7.50
	802.11ac-VHT20	Chain Port 0	6.50
		Chain Port 1	6.50
		Chain Port 0+1	6.50
	802.11ac-VHT40	Chain Port 0	5.50
		Chain Port 1	5.50
		Chain Port 0+1	5.50
	802.11ac-VHT80	Chain Port 0	5.50
		Chain Port 1	5.50
		Chain Port 0+1	5.50

4.3 General LTE SAR Test and Reporting Considerations

Summarized necessary items addressed in KDB 941225 D05 v02r03	
FCC ID	SRQ-MF970
Equipment Name	LTE Ufi
Operating Frequency Range of each LTE transmission band	LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 7: 2502.5 MHz ~ 2567.5 MHz
Channel Bandwidth	LTE Band 12:1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 17: 5MHz, 10MHz LTE Band 4:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 2:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz
uplink modulations used	QPSK, and 16QAM
LTE Voice / Data requirements	Data only
LTE MPR permanently built-in by design	**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3**

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

LTE A-MPR	In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)
Spectrum plots for RB configuration	A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.
LTE Carrier Aggregation Combinations	Inter-Band and Intra-Band possible combinations as below page and the detail power verification please referred to page37.
LTE Carrier Aggregation Additional Information	This device does not support full CA features on 3GPP Release 10. Is supports a maximum of 2 carriers in the downlink only. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.

LTE Carrier Aggregation Combinations											
Inter-Band Combinations											
(PCC) B4	(SCC) B12	(PCC) B12	(SCC) B4	(PCC) B4	(SCC) B17	(PCC) B17	(SCC) B4	(PCC) B4	(SCC) B7	(PCC) B7	(SCC) B4
15M+5M		10M+20M		10M+10M		10M+10M		10M+20M		20M+10M	
10M+10M		5M+15M						10M+15M		10M+10M	
		10M+10M						10M+10M			

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

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 4

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	19957	1710.7	19965	1711.5	19975	1712.5	20000	1715	20025	1717.5	20050	1720
M	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5	20175	1732.5
H	20393	1754.3	20385	1753.5	20375	1752.5	20350	1750	20325	1747.5	20300	1745

LTE Band 2

	Bandwidth 1.4 MHz		Bandwidth 3 MHz		Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	18607	1850.7	18615	1851.5	18625	1852.5	18650	1855	18675	1857.5	18700	1860
M	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880	18900	1880
H	19193	1909.3	19185	1908.5	19175	1907.5	19150	1905	19125	1902.5	19100	1900

LTE Band 7

	Bandwidth 5 MHz		Bandwidth 10 MHz		Bandwidth 15 MHz		Bandwidth 20 MHz	
	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)	Ch. #	Freq. (MHz)
L	20775	2502.5	20800	2505	20825	2507.5	20850	2510
M	21100	2535	21100	2535	21100	2535	21100	2535
H	21425	2567.5	21400	2565	21375	2562.5	21350	2560
H	41565	2687.5	41540	2685	41515	2682.5	41490	2680

5. RF Exposure Limits

5.1 Uncontrolled Environment

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

5.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Limits for Occupational/Controlled Exposure (W/kg)

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

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

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

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

6. Specific Absorption Rate (SAR)

6.1 Introduction

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

6.2 SAR Definition

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

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

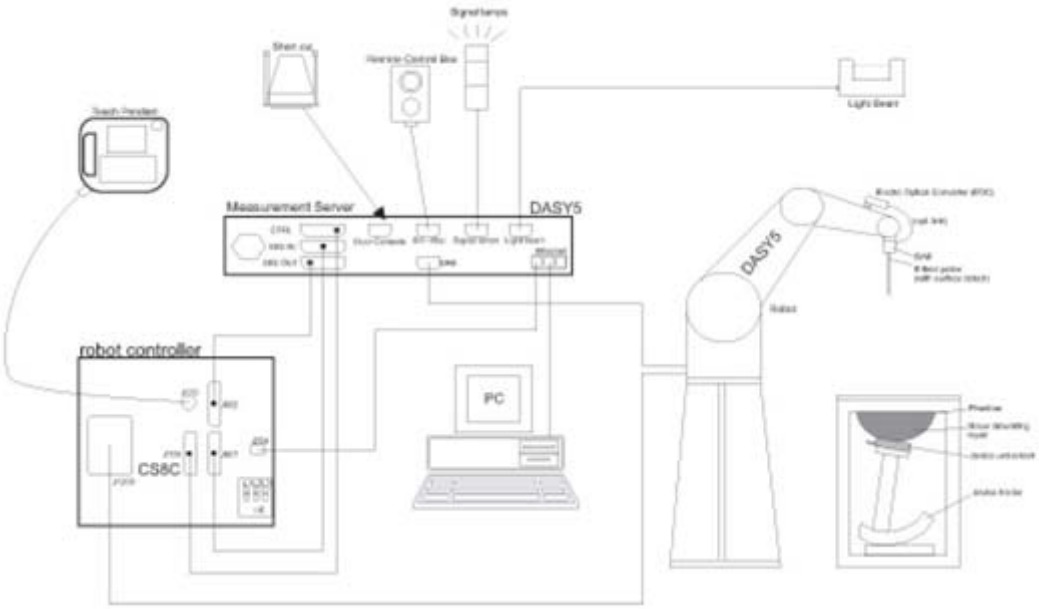
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

7. System Description and Setup

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



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

8. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

8.1 Spatial Peak SAR Evaluation

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

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

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

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

8.2 Power Reference Measurement

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

8.3 Area Scan

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

Area scan parameters extracted from FCC KDB 865664 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.	

8.4 Zoom Scan

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

Zoom scan parameters extracted from FCC KDB 865664 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	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

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

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

8.5 Volume Scan Procedures

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

8.6 Power Drift Monitoring

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

9. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	750MHz System Validation Kit	D750V3	1065	Nov. 19, 2014	Nov. 18, 2015
SPEAG	835MHz System Validation Kit	D835V2	4d091	Nov. 21, 2014	Nov. 20, 2015
SPEAG	1750MHz System Validation Kit	D1750V2	1069	Nov. 21, 2014	Nov. 20, 2015
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	Nov. 21, 2014	Nov. 20, 2015
SPEAG	2450MHz System Validation Kit	D2450V2	840	Nov. 19, 2014	Nov. 18, 2015
SPEAG	2600MHz System Validation Kit	D2600V2	1061	Nov. 19, 2014	Nov. 18, 2015
SPEAG	5000MHz System Validation Kit	D5GHzV2	1113	Nov. 24, 2014	Nov. 23, 2015
SPEAG	Data Acquisition Electronics	DAE4	679	Apr. 13, 2015	Apr. 12, 2016
SPEAG	Data Acquisition Electronics	DAE4	1210	May 21, 2015	May 20, 2016
SPEAG	Dosimetric E-Field Probe	EX3DV4	3911	Oct. 02, 2014	Oct. 01, 2015
SPEAG	Dosimetric E-Field Probe	EX3DV4	3857	May 28, 2015	May 27, 2016
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1753	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1754	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CB	TP-1477	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Agilent	Wireless Communication Test Set	E5515C	MY52102600	Dec. 09, 2014	Dec. 08, 2015
Anritus	Radio communication analyzer	MT8820C	6201091028	Dec. 09, 2014	Dec. 08, 2015
Agilent	ENA Series Network Analyzer	E5071C	MY46317418	Dec. 09, 2014	Dec. 08, 2015
Agilent	Dielectric Probe Kit	85070E	MY44300751	NCR	NCR
Anritsu	Power Senor	MA2411B	0917070	Jan. 23, 2015	Jan. 22, 2016
Anritsu	Power Meter	ML2495A	1005002	Jan. 23, 2015	Jan. 22, 2016
Anritsu	Power Sensor	MA2411B	1207253	Jan. 28, 2015	Jan. 27, 2016
Anritsu	Power Meter	ML2495A	1218010	Jan. 28, 2015	Jan. 27, 2016
SPEAG	ELI5 Phantom	QD OVA 002 AA	TP-1201	NCR	NCR
Agilent	Dual Directional Coupler	778D	50422	Note1	
Woken	Attenuator 1	WK0602-XX	N/A	Note1	
PE	Attenuator 2	PE7005-10	N/A	Note1	
PE	Attenuator 3	PE7005- 3	N/A	Note1	
AR	Power Amplifier	5S1G4M2	0328767	Note1	
Mini-Circuits	Power Amplifier	ZVE-3W	162601250	Note1	
Mini-Circuits	Power Amplifier	ZHL-42W+	13440021344	Note1	

General Note:

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

10. System Verification

10.1 Tissue Verification

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

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (εr)
For Body								
750	51.7	47.2	0	0.9	0.1	0	0.96	55.5
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
1750	70.2	0	0	0.4	0	29.4	1.49	53.40
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7
2600	68.1	0	0	0.1	0	31.8	2.16	52.5

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

<Tissue Dielectric Parameter Check Results>

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	Body	22.4	0.963	54.224	0.96	55.50	0.31	-2.30	±5	Jul. 23, 2015
835	Body	22.5	0.977	54.395	0.97	55.20	0.72	-1.46	±5	Jul. 22, 2015
1750	Body	22.6	1.498	53.247	1.49	53.40	0.54	-0.29	±5	Jul. 21, 2015
1900	Body	22.6	1.538	53.790	1.52	53.30	1.18	0.92	±5	Jul. 21, 2015
2450	Body	22.7	1.954	51.108	1.95	52.70	0.21	-3.02	±5	Jul. 28, 2015
2600	Body	22.5	2.209	51.123	2.16	52.50	2.27	-2.62	±5	Jul. 22, 2015
5200	Body	22.8	5.373	48.526	5.30	49.00	1.38	-0.97	±5	Jul. 09, 2015
5800	Body	22.8	6.219	47.128	6.00	48.20	3.65	-2.22	±5	Jul. 09, 2015

10.2 System Performance Check Results

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

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Dipole S/N	Probe S/N	DAE S/N	Measured SAR (W/kg)	Targeted SAR (W/kg)	Normalized SAR (W/kg)	Deviation (%)
Jul. 23, 2015	750	Body	250	1065	3911	679	2.17	8.64	8.68	0.46
Jul. 22, 2015	835	Body	250	4d091	3911	679	2.47	9.60	9.88	2.92
Jul. 21, 2015	1750	Body	250	1069	3911	679	8.97	38.10	35.88	-5.83
Jul. 21, 2015	1900	Body	250	5d118	3911	679	9.95	40.00	39.8	-0.50
Jul. 28, 2015	2450	Body	250	840	3911	679	13.40	51.00	53.6	5.10
Jul. 22, 2015	2600	Body	250	1061	3911	679	14.60	54.90	58.4	6.38
Jul. 09, 2015	5200	Body	100	1113	3857	1210	7.23	74.90	72.3	-3.47
Jul. 09, 2015	5800	Body	100	1113	3857	1210	7.28	75.40	72.8	-3.45

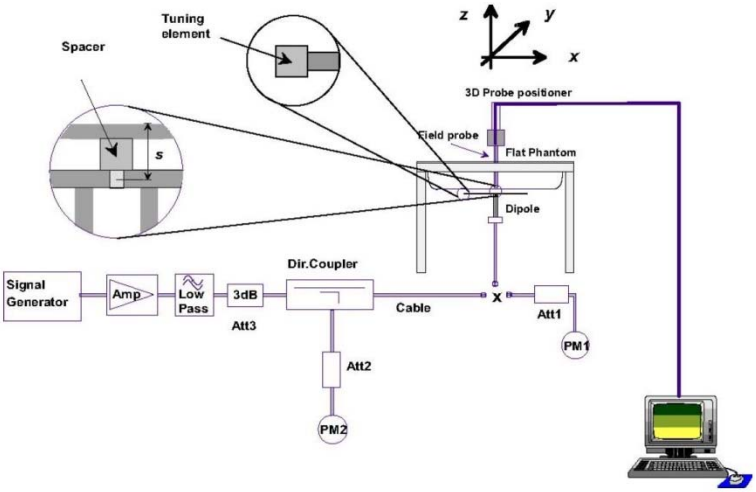


Fig 8.3.1 System Performance Check Setup

Fig 8.3.2 Setup Photo

11. RF Exposure Positions

11.1 Body Position

(a) To position the device parallel to the phantom surface with all sides and either keypad up or down.
(b) To adjust the device parallel to the flat phantom.
(c) To adjust the distance between the device and the flat phantom to 1 cm.

<EUT Setup Photos>

Please refer to Appendix D for the test setup photos.

12. Conducted RF Output Power (Unit: dBm)

<WCDMA Conducted Power>

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

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

HSUPA Setup Configuration:

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

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

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

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

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.

Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 6: β_{ed} can not be set directly, it is set by Absolute Grant Value.

Setup Configuration

DC-HSDPA 3GPP release 8 Setup Configuration:

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

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

C.8.1.12 Fixed Reference Channel Definition H-Set 12

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

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

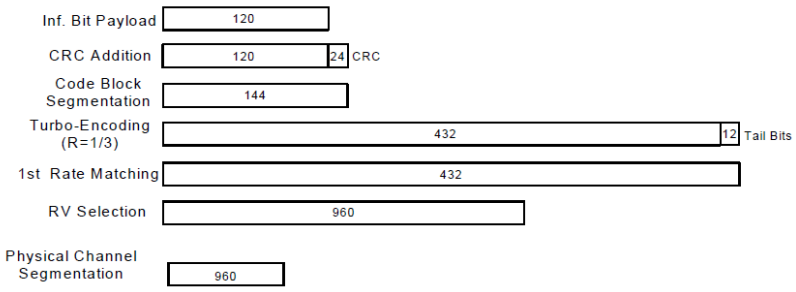


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

Setup Configuration

<WCDMA Conducted Power>

General Note:

1. Per KDB 941225 D01v03, SAR for Body exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's".
2. Per KDB 941225 D01v03, RMC 12.2kbps setting is used to evaluate SAR. If 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.

Band			WCDMA Band V			WCDMA Band II		
Tx Channel			4132	4182	4233	9262	9400	9538
Rx Channel			4357	4407	4458	9662	9800	9938
Frequency (MHz)			826.4	836.4	846.6	1852.4	1880	1907.6
MPR (dB)	3GPP Rel 99	RMC 12.2Kbps	22.07	**22.37**	22.19	22.30	22.33	**22.39**
0	3GPP Rel 6	HSDPA Subtest-1	21.16	21.25	21.20	21.18	21.20	21.26
0	3GPP Rel 6	HSDPA Subtest-2	21.14	21.24	21.18	21.15	21.19	21.25
0.5	3GPP Rel 6	HSDPA Subtest-3	20.58	20.75	20.64	20.70	20.74	20.81
0.5	3GPP Rel 6	HSDPA Subtest-4	20.55	20.74	20.63	20.68	20.73	20.80
0	3GPP Rel 8	DC-HSDPA Subtest-1	21.27	20.97	20.95	21.35	21.80	21.82
0	3GPP Rel 8	DC-HSDPA Subtest-2	21.16	20.89	20.93	21.26	21.77	21.71
0.5	3GPP Rel 8	DC-HSDPA Subtest-3	20.69	20.49	20.35	20.79	21.29	21.15
0.5	3GPP Rel 8	DC-HSDPA Subtest-4	20.72	20.48	20.37	20.87	21.34	21.16
0	3GPP Rel 6	HSUPA Subtest-1	20.32	20.49	20.37	20.71	20.76	20.86
2	3GPP Rel 6	HSUPA Subtest-2	19.97	20.11	20.02	20.27	20.30	20.37
1	3GPP Rel 6	HSUPA Subtest-3	19.52	19.65	19.61	20.24	20.26	20.29
2	3GPP Rel 6	HSUPA Subtest-4	20.16	20.31	20.24	20.81	20.87	20.88
0	3GPP Rel 6	HSUPA Subtest-5	19.65	19.81	19.74	20.10	20.12	20.17

<LTE Conducted Power>

General Note:

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

<LTE Band 12>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				23060	23095	23130		
Frequency (MHz)				704	707.5	711		
10	QPSK	1	0	23.12	23.08	23.14	24.00	0
10	QPSK	1	24	23.24	23.25	23.16		
10	QPSK	1	49	23.03	23.01	23.10		
10	QPSK	25	0	22.02	22.10	21.94	23.00	1
10	QPSK	25	12	22.08	22.11	22.05		
10	QPSK	25	24	22.02	21.97	22.00		
10	QPSK	50	0	22.09	22.16	22.11		
10	16QAM	1	0	22.31	22.48	22.44	23.00	1
10	16QAM	1	24	22.68	22.47	22.37		
10	16QAM	1	49	22.33	22.33	22.41		
10	16QAM	25	0	21.08	21.17	20.92	22.00	2
10	16QAM	25	12	21.15	21.14	20.98		
10	16QAM	25	24	21.09	20.95	21.05		
10	16QAM	50	0	21.08	21.09	21.09		
Channel				23035	23095	23155	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				701.5	707.5	713.5		
5	QPSK	1	0	23.09	23.20	23.03	24.00	0
5	QPSK	1	12	23.06	22.99	22.91		
5	QPSK	1	24	23.17	23.02	23.15		
5	QPSK	12	0	21.93	22.07	21.92	23.00	1
5	QPSK	12	6	22.04	22.03	21.97		
5	QPSK	12	11	22.11	22.00	22.04		
5	QPSK	25	0	21.99	22.02	22.00		
5	16QAM	1	0	22.36	22.52	22.36	23.00	1
5	16QAM	1	12	22.30	22.39	22.38		
5	16QAM	1	24	22.50	22.26	22.51		
5	16QAM	12	0	21.05	21.11	21.02	22.00	2
5	16QAM	12	6	21.14	21.02	21.03		
5	16QAM	12	11	21.18	20.99	21.07		
5	16QAM	25	0	20.99	21.06	21.00		
Channel				23025	23095	23165	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				700.5	707.5	714.5		
3	QPSK	1	0	23.02	23.20	23.06	24.00	0
3	QPSK	1	7	23.22	23.22	23.20		
3	QPSK	1	14	23.03	23.14	23.11		
3	QPSK	8	0	22.03	22.10	22.02	23.00	1
3	QPSK	8	4	22.14	22.12	22.16		
3	QPSK	8	7	22.11	22.11	22.11		
3	QPSK	15	0	22.02	22.13	22.08		
3	16QAM	1	0	22.28	22.39	22.27	23.00	1
3	16QAM	1	7	22.49	22.41	22.62		
3	16QAM	1	14	22.29	22.26	22.40		
3	16QAM	8	0	21.07	21.05	21.08	22.00	2
3	16QAM	8	4	21.17	21.08	21.21		
3	16QAM	8	7	21.22	21.11	21.22		
3	16QAM	15	0	21.02	21.05	21.11		

Channel				23017	23095	23173	Tune up Limit (dBm)	Target MPR (dB)
Frequency (MHz)				699.7	707.5	715.3		
1.4	QPSK	1	0	22.93	22.98	23.06	24.00	0
1.4	QPSK	1	2	23.07	23.15	23.16		
1.4	QPSK	1	5	22.95	22.98	22.99		
1.4	QPSK	3	0	22.93	22.92	23.00		
1.4	QPSK	3	1	23.04	23.05	23.03		
1.4	QPSK	3	2	23.06	22.98	23.00		
1.4	QPSK	6	0	21.83	21.88	21.85	23.00	1
1.4	16QAM	1	0	22.31	22.30	22.34	23.00	1
1.4	16QAM	1	2	22.22	22.34	22.39		
1.4	16QAM	1	5	22.26	22.25	22.31		
1.4	16QAM	3	0	21.97	21.97	21.97		
1.4	16QAM	3	1	21.95	22.09	22.14		
1.4	16QAM	3	2	22.10	22.06	22.12		
1.4	16QAM	6	0	20.93	20.95	21.04	22.00	2

<LTE Band 17>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				23780	23790	23800		
Frequency (MHz)				709	710	711		
10	QPSK	1	0	23.17	23.14	23.19	24.00	0
10	QPSK	1	24	23.06	23.12	23.12		
10	QPSK	1	49	22.93	23.11	23.16		
10	QPSK	25	0	22.15	22.11	22.10	23.00	1
10	QPSK	25	12	22.09	22.07	22.05		
10	QPSK	25	24	22.04	22.11	22.02		
10	QPSK	50	0	22.12	22.06	22.05		
10	16QAM	1	0	22.51	22.48	22.54	23.00	1
10	16QAM	1	24	22.44	22.45	22.48		
10	16QAM	1	49	22.34	22.37	22.36		
10	16QAM	25	0	21.21	21.14	20.98	22.00	2
10	16QAM	25	12	21.06	21.01	20.92		
10	16QAM	25	24	21.06	21.12	20.99		
10	16QAM	50	0	21.13	21.07	21.02		
Channel				23755	23790	23825	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				706.5	710	713.5		
5	QPSK	1	0	23.14	23.09	22.96	24.00	0
5	QPSK	1	12	23.12	22.87	23.06		
5	QPSK	1	24	23.03	23.08	23.09		
5	QPSK	12	0	22.06	21.96	21.86	23.00	1
5	QPSK	12	6	22.11	21.93	21.96		
5	QPSK	12	11	22.09	21.94	21.97		
5	QPSK	25	0	22.07	22.01	21.98		
5	16QAM	1	0	22.51	22.39	22.20	23.00	1
5	16QAM	1	12	22.50	22.30	22.46		
5	16QAM	1	24	22.34	22.38	22.37		
5	16QAM	12	0	21.15	21.05	21.00	22.00	2
5	16QAM	12	6	21.11	21.00	21.07		
5	16QAM	12	11	21.08	21.02	20.91		
5	16QAM	25	0	21.15	20.92	20.97		

<LTE Band 4>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20050	20175	20300		
Frequency (MHz)				1720	1732.5	1745		
20	QPSK	1	0	21.61	21.58	21.60	22.50	0
20	QPSK	1	49	20.95	20.89	20.94		
20	QPSK	1	99	20.99	20.88	20.92		
20	QPSK	50	0	20.20	19.98	20.10	21.50	1
20	QPSK	50	24	20.07	20.01	20.03		
20	QPSK	50	49	19.94	19.95	20.07		
20	QPSK	100	0	20.09	19.90	20.09		
20	16QAM	1	0	20.92	20.72	20.89	21.50	1
20	16QAM	1	49	20.01	20.05	20.03		
20	16QAM	1	99	20.19	20.04	20.23		
20	16QAM	50	0	19.04	19.01	19.08	20.50	2
20	16QAM	50	24	19.02	18.91	18.99		
20	16QAM	50	49	19.02	18.97	18.92		
20	16QAM	100	0	18.92	18.98	18.96		
Channel				20025	20175	20325	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1717.5	1732.5	1747.5		
15	QPSK	1	0	21.26	21.27	21.12	22.50	0
15	QPSK	1	37	20.64	20.76	20.62		
15	QPSK	1	74	20.77	20.65	20.71		
15	QPSK	36	0	19.95	19.84	19.84	21.50	1
15	QPSK	36	18	19.76	19.71	19.69		
15	QPSK	36	37	19.69	19.57	19.60		
15	QPSK	75	0	19.85	19.78	19.73		
15	16QAM	1	0	20.55	20.49	20.51	21.50	1
15	16QAM	1	37	19.96	20.01	19.88		
15	16QAM	1	74	20.04	19.94	19.97		
15	16QAM	36	0	18.99	18.87	18.85	20.50	2
15	16QAM	36	18	18.78	18.68	18.73		
15	16QAM	36	37	18.69	18.68	18.63		
15	16QAM	75	0	18.92	18.77	18.79		
Channel				20000	20175	20350	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1715	1732.5	1750		
10	QPSK	1	0	21.18	21.05	21.22	22.50	0
10	QPSK	1	24	20.85	20.87	20.90		
10	QPSK	1	49	20.72	20.79	20.89		
10	QPSK	25	0	19.87	19.88	19.96	21.50	1
10	QPSK	25	12	19.78	19.82	19.93		
10	QPSK	25	24	19.79	19.77	19.73		
10	QPSK	50	0	19.89	19.83	19.91		
10	16QAM	1	0	20.42	20.31	20.47	21.50	1
10	16QAM	1	24	20.20	20.20	20.21		
10	16QAM	1	49	19.97	20.04	20.19		
10	16QAM	25	0	18.92	18.88	19.01	20.50	2
10	16QAM	25	12	18.79	18.80	18.94		
10	16QAM	25	24	18.81	18.81	18.74		
10	16QAM	50	0	18.79	18.81	18.89		

Channel				19975	20175	20375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1712.5	1732.5	1752.5		
5	QPSK	1	0	20.93	20.99	20.91	22.50	0
5	QPSK	1	12	20.75	20.82	20.66		
5	QPSK	1	24	20.79	20.78	20.70		
5	QPSK	12	0	19.78	19.89	19.70	21.50	1
5	QPSK	12	6	19.80	19.81	19.69		
5	QPSK	12	11	19.72	19.79	19.66		
5	QPSK	25	0	19.79	19.87	19.67		
5	16QAM	1	0	20.18	20.27	20.19	21.50	1
5	16QAM	1	12	20.14	20.25	20.01		
5	16QAM	1	24	19.92	20.09	19.98		
5	16QAM	12	0	18.70	18.97	18.70	20.50	2
5	16QAM	12	6	18.70	18.81	18.66		
5	16QAM	12	11	18.62	18.79	18.62		
5	16QAM	25	0	18.72	18.86	18.67		
Channel				19965	20175	20385	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1711.5	1732.5	1753.5		
3	QPSK	1	0	20.98	20.89	20.77	22.50	0
3	QPSK	1	7	20.95	21.18	20.94		
3	QPSK	1	14	20.70	20.85	20.65		
3	QPSK	8	0	19.81	19.80	19.75	21.50	1
3	QPSK	8	4	19.83	19.89	19.69		
3	QPSK	8	7	19.80	19.85	19.71		
3	QPSK	15	0	19.82	19.86	19.73		
3	16QAM	1	0	20.02	20.14	19.98	21.50	1
3	16QAM	1	7	20.21	20.27	20.14		
3	16QAM	1	14	19.85	20.02	19.96		
3	16QAM	8	0	18.81	18.87	18.80	20.50	2
3	16QAM	8	4	18.85	18.92	18.70		
3	16QAM	8	7	18.78	18.88	18.78		
3	16QAM	15	0	18.75	18.85	18.73		
Channel				19957	20175	20393	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1710.7	1732.5	1754.3		
1.4	QPSK	1	0	20.79	20.92	20.72	22.50	0
1.4	QPSK	1	2	20.89	20.86	20.81		
1.4	QPSK	1	5	20.84	20.77	20.74		
1.4	QPSK	3	0	20.76	20.81	20.68		
1.4	QPSK	3	1	20.88	20.86	20.71		
1.4	QPSK	3	2	20.74	20.90	20.78		
1.4	QPSK	6	0	19.70	19.72	19.70	21.50	1
1.4	16QAM	1	0	20.02	20.25	20.07	21.50	1
1.4	16QAM	1	2	20.08	20.14	20.12		
1.4	16QAM	1	5	20.13	20.17	20.11		
1.4	16QAM	3	0	19.72	19.87	19.73		
1.4	16QAM	3	1	19.79	19.86	19.82		
1.4	16QAM	3	2	19.79	19.95	19.89		
1.4	16QAM	6	0	18.83	18.84	18.79	20.50	2

<LTE Band 2>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				18700	18900	19100		
Frequency (MHz)				1860	1880	1900		
20	QPSK	1	0	21.64	21.63	21.76	22.50	0
20	QPSK	1	49	21.02	20.99	21.17		
20	QPSK	1	99	21.03	21.06	21.16		
20	QPSK	50	0	20.28	20.15	20.37	21.50	1
20	QPSK	50	24	20.08	19.97	20.08		
20	QPSK	50	49	20.08	20.10	20.22		
20	QPSK	100	0	19.98	20.09	20.17		
20	16QAM	1	0	20.96	20.90	21.15	21.50	1
20	16QAM	1	49	20.06	20.07	20.25		
20	16QAM	1	99	20.19	20.37	20.40		
20	16QAM	50	0	19.17	19.17	19.30	20.50	2
20	16QAM	50	24	19.05	18.95	19.23		
20	16QAM	50	49	19.08	19.05	19.19		
20	16QAM	100	0	19.02	19.09	19.19		
Channel				18675	18900	19125	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1857.5	1880	1902.5		
15	QPSK	1	0	21.37	21.46	21.47	22.50	0
15	QPSK	1	37	20.83	20.86	20.83		
15	QPSK	1	74	20.84	20.94	20.96		
15	QPSK	36	0	20.00	20.13	20.21	21.50	1
15	QPSK	36	18	19.77	19.91	20.00		
15	QPSK	36	37	19.75	19.78	19.85		
15	QPSK	75	0	19.78	19.97	20.06		
15	16QAM	1	0	20.69	20.67	20.71	21.50	1
15	16QAM	1	37	19.91	19.98	20.28		
15	16QAM	1	74	20.10	20.20	20.24		
15	16QAM	36	0	19.03	19.10	19.21	20.50	2
15	16QAM	36	18	18.81	18.90	19.03		
15	16QAM	36	37	18.78	18.94	18.82		
15	16QAM	75	0	18.90	18.99	19.09		
Channel				18650	18900	19150	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1855	1880	1905		
10	QPSK	1	0	21.12	21.15	21.18	22.50	0
10	QPSK	1	24	20.75	20.96	20.94		
10	QPSK	1	49	20.69	20.91	20.87		
10	QPSK	25	0	19.93	19.96	19.93	21.50	1
10	QPSK	25	12	19.79	19.86	19.88		
10	QPSK	25	24	19.62	19.73	19.84		
10	QPSK	50	0	19.88	19.90	19.96		
10	16QAM	1	0	20.36	20.43	20.48	21.50	1
10	16QAM	1	24	20.11	20.25	20.19		
10	16QAM	1	49	20.06	20.16	20.19		
10	16QAM	25	0	18.99	18.97	18.95	20.50	2
10	16QAM	25	12	18.80	18.86	18.87		
10	16QAM	25	24	18.68	18.75	18.83		
10	16QAM	50	0	18.86	18.88	18.96		

Channel				18625	18900	19175	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1852.5	1880	1907.5		
5	QPSK	1	0	20.92	20.97	20.98	22.50	0
5	QPSK	1	12	20.78	20.83	20.91		
5	QPSK	1	24	20.80	20.85	20.90		
5	QPSK	12	0	19.82	19.86	19.92	21.50	1
5	QPSK	12	6	19.81	19.90	19.91		
5	QPSK	12	11	19.69	19.77	19.86		
5	QPSK	25	0	19.79	19.82	19.87		
5	16QAM	1	0	20.24	20.29	20.23	21.50	1
5	16QAM	1	12	20.16	20.22	20.26		
5	16QAM	1	24	20.08	20.14	20.15		
5	16QAM	12	0	18.80	18.93	18.96	20.50	2
5	16QAM	12	6	18.79	18.91	18.92		
5	16QAM	12	11	18.66	18.79	18.86		
5	16QAM	25	0	18.84	18.82	18.86		
Channel				18615	18900	19185	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1851.5	1880	1908.5		
3	QPSK	1	0	20.90	20.96	20.92	22.50	0
3	QPSK	1	7	20.83	21.04	21.19		
3	QPSK	1	14	20.74	20.83	20.83		
3	QPSK	8	0	19.83	19.81	19.85	21.50	1
3	QPSK	8	4	19.81	19.88	19.90		
3	QPSK	8	7	19.79	19.77	19.86		
3	QPSK	15	0	19.79	19.84	19.85		
3	16QAM	1	0	20.10	20.17	20.11	21.50	1
3	16QAM	1	7	20.26	20.28	20.35		
3	16QAM	1	14	20.05	20.08	20.07		
3	16QAM	8	0	18.87	18.87	18.91	20.50	2
3	16QAM	8	4	18.86	18.90	18.94		
3	16QAM	8	7	18.86	18.85	18.92		
3	16QAM	15	0	18.74	18.84	18.87		
Channel				18607	18900	19193	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				1850.7	1880	1909.3		
1.4	QPSK	1	0	20.83	20.97	20.98	22.50	0
1.4	QPSK	1	2	20.81	20.90	20.94		
1.4	QPSK	1	5	20.78	20.81	20.88		
1.4	QPSK	3	0	20.72	20.80	20.75		
1.4	QPSK	3	1	20.81	20.86	20.88		
1.4	QPSK	3	2	20.79	20.83	20.85		
1.4	QPSK	6	0	19.71	19.75	19.77	21.50	1
1.4	16QAM	1	0	20.20	20.26	20.22	21.50	1
1.4	16QAM	1	2	20.09	20.19	20.19		
1.4	16QAM	1	5	20.17	20.21	20.18		
1.4	16QAM	3	0	19.78	19.88	19.85		
1.4	16QAM	3	1	19.86	19.92	19.89		
1.4	16QAM	3	2	19.88	19.89	19.96		
1.4	16QAM	6	0	18.81	18.83	18.91	20.50	2

<LTE Band 7>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune up Limit (dBm)	MPR (dB)
Channel				20850	21100	21350		
Frequency (MHz)				2510	2535	2560		
20	QPSK	1	0	21.11	21.05	21.04	21.50	0
20	QPSK	1	49	20.98	21.00	20.96		
20	QPSK	1	99	20.63	20.65	20.55		
20	QPSK	50	0	20.03	20.08	20.08	20.50	1
20	QPSK	50	24	20.13	19.99	20.06		
20	QPSK	50	49	20.06	19.85	19.83		
20	QPSK	100	0	20.10	20.09	20.04		
20	16QAM	1	0	20.29	20.26	20.28	20.50	1
20	16QAM	1	49	20.28	20.27	20.23		
20	16QAM	1	99	19.97	19.84	19.87		
20	16QAM	50	0	19.05	19.02	19.05	19.50	2
20	16QAM	50	24	19.09	18.99	19.06		
20	16QAM	50	49	19.03	18.79	18.87		
20	16QAM	100	0	19.09	19.04	19.03		
Channel				20825	21100	21375	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2507.5	2535	2562.5		
15	QPSK	1	0	21.09	21.08	20.99	21.50	0
15	QPSK	1	37	21.00	21.00	20.85		
15	QPSK	1	74	20.82	20.77	20.72		
15	QPSK	36	0	20.01	20.08	20.06	20.50	1
15	QPSK	36	18	20.06	20.04	20.05		
15	QPSK	36	37	19.95	19.89	19.93		
15	QPSK	75	0	20.03	20.07	20.01		
15	16QAM	1	0	20.23	20.26	20.25	20.50	1
15	16QAM	1	37	20.25	20.15	20.28		
15	16QAM	1	74	20.08	19.96	20.05		
15	16QAM	36	0	19.04	18.97	19.02	19.50	2
15	16QAM	36	18	19.10	18.97	19.02		
15	16QAM	36	37	18.96	18.81	18.91		
15	16QAM	75	0	19.05	18.96	19.01		

Channel				20800	21100	21400	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2505	2535	2565		
10	QPSK	1	0	21.09	21.04	21.14	21.50	0
10	QPSK	1	24	20.97	21.02	**21.16**		
10	QPSK	1	49	20.77	20.97	21.02		
10	QPSK	25	0	19.92	20.00	20.00	20.50	1
10	QPSK	25	12	19.98	20.06	19.95		
10	QPSK	25	24	19.82	19.89	19.92		
10	QPSK	50	0	19.92	19.94	19.95		
10	16QAM	1	0	20.43	20.30	20.35	20.50	1
10	16QAM	1	24	20.33	20.32	20.43		
10	16QAM	1	49	20.14	20.20	20.16		
10	16QAM	25	0	18.94	19.05	18.98	19.50	2
10	16QAM	25	12	18.96	19.09	18.93		
10	16QAM	25	24	18.77	18.96	18.93		
10	16QAM	50	0	18.83	18.99	18.98		
Channel				20775	21100	21425	Tune up Limit (dBm)	MPR (dB)
Frequency (MHz)				2502.5	2535	2567.5		
5	QPSK	1	0	21.05	21.11	21.06	21.50	0
5	QPSK	1	12	20.92	21.10	20.96		
5	QPSK	1	24	20.96	20.99	20.95		
5	QPSK	12	0	20.02	20.01	19.94	20.50	1
5	QPSK	12	6	20.16	20.01	20.00		
5	QPSK	12	11	20.03	20.06	19.97		
5	QPSK	25	0	19.99	20.02	19.97		
5	16QAM	1	0	20.25	20.38	20.30	20.50	1
5	16QAM	1	12	20.32	20.34	20.33		
5	16QAM	1	24	20.21	20.16	20.26		
5	16QAM	12	0	18.96	19.02	19.05	19.50	2
5	16QAM	12	6	19.11	18.97	19.05		
5	16QAM	12	11	18.94	19.02	19.05		
5	16QAM	25	0	18.92	18.95	18.94		

LTE Carrier Aggregation Conducted Power

General Note:

i. According to KDB941225 D05A v01, 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 only supports downlink carrier aggregation. Uplink carrier aggregation is not supported. Power measurements were performed with two DL carriers for the Release 8 configuration that had the highest output power across all bandwidths, channels and RB configuration for each band.

iv. During the carrier aggregation conducted power measurements we have attention to throughput traffic to make sure all the power measurement is corrected.

	PCC						SCC				Measured Power	
	LTE Band	BW (MHz)	Freq. (MHz)	Channel	UL# RB	UL RB Offset	LTE Band	BW (MHz)	Freq. (MHz)	Channel	LTE Rel 10 Tx. Power (dBm)	LTE Rel 8 Tx. Power (dBm)
Configure	LTE Band 4	15M	1717.5	20025	1	0	LTE Band 12	5M	707.5	23095	21.22	21.26
	LTE Band 4	15M	1732.5	20175	1	0	LTE Band 12	5M	707.5	23095	21.23	21.27
	LTE Band 4	15M	1747.5	20325	1	0	LTE Band 12	5M	707.5	23095	21.07	21.12
	LTE Band 12	10M	704	23060	1	24	LTE Band 4	20M	1720	20050	23.20	23.24
	LTE Band 12	10M	707.5	23095	1	24	LTE Band 4	20M	1720	20050	23.20	23.25
	LTE Band 12	10M	711	23130	1	24	LTE Band 4	20M	1720	20050	23.11	23.16
	LTE Band 4	10M	1715	20000	1	0	LTE Band 17	10M	711	23800	21.11	21.18
	LTE Band 4	10M	1732.5	20175	1	0	LTE Band 17	10M	711	23800	21.00	21.05
	LTE Band 4	10M	1750	20350	1	0	LTE Band 17	10M	711	23800	21.16	21.22
	LTE Band 17	10M	709	23780	1	0	LTE Band 4	10M	1750	20350	23.11	23.17
	LTE Band 17	10M	710	23790	1	0	LTE Band 4	10M	1750	20350	23.08	23.14
	LTE Band 17	10M	711	23800	1	0	LTE Band 4	10M	1750	20350	23.14	23.19
	LTE Band 4	10M	1715	20000	1	0	LTE Band 7	20M	2510	20850	21.12	21.18
	LTE Band 4	10M	1732.5	20175	1	0	LTE Band 7	20M	2510	20850	20.98	21.05
	LTE Band 4	10M	1750	20350	1	0	LTE Band 7	20M	2510	20850	21.16	21.22
	LTE Band 7	20M	2510	20850	1	0	LTE Band 4	10M	1750	20350	21.06	21.11
	LTE Band 7	20M	2535	21100	1	0	LTE Band 4	10M	1750	20350	21.00	21.05
	LTE Band 7	20M	2560	21350	1	0	LTE Band 4	10M	1750	20350	20.97	21.04

<WLAN Conducted Power>

General Note:

1. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
2. Per KDB 248227 D01v02r01, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio < 0.04, no additional SAR measurements for MIMO.
3. Per KDB 248227 D01v02r01, 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.
4. 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).
5. 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.
6. 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 WLAN Antenna 0>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN Antenna 0	802.11b	CH 1	2412	1Mbps	13.62	14.00	100.00
		CH 6	2437		13.08	14.00	
		CH 11	2462		13.04	14.00	
	802.11g	CH 1	2412	6Mbps	11.71	12.00	95.24
		CH 6	2437		10.45	12.00	
		CH 11	2462		10.92	12.00	
	802.11n-HT20	CH 1	2412	MCS0	10.41	11.00	94.67
		CH 6	2437		9.79	11.00	
		CH 11	2462		9.92	11.00	
	802.11n-HT40	CH 3	2422	MCS0	10.59	11.00	91.06
		CH 6	2437		10.22	11.00	
		CH 9	2452		9.44	11.00	

<2.4GHz WLAN Antenna 1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN Antenna 1	802.11b	CH 1	2412	1Mbps	13.98	14.50	100.00
		CH 6	2437		13.65	14.50	
		CH 11	2462		13.49	14.50	
	802.11g	CH 1	2412	6Mbps	11.96	12.00	95.30
		CH 6	2437		11.49	12.00	
		CH 11	2462		11.53	12.00	
	802.11n-HT20	CH 1	2412	MCS0	10.62	11.00	95.30
		CH 6	2437		10.46	11.00	
		CH 11	2462		10.28	11.00	
	802.11n-HT40	CH 3	2422	MCS0	10.85	11.50	90.39
		CH 6	2437		11.16	11.50	
		CH 9	2452		10.99	11.50	

<2.4GHz WLAN Antenna 0+1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
2.4GHz WLAN Antenna 0+1	802.11n-HT20	CH 1	2412	MCS0	11.00	11.50	94.96
		CH 6	2437		10.58	11.50	
		CH 11	2462		10.54	11.50	
	802.11n-HT40	CH 3	2422	MCS0	**11.22**	11.50	89.84
		CH 6	2437		10.96	11.50	
		CH 9	2452		10.66	11.50	

<5GHz WLAN Antenna 0>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN Antenna 0	802.11a	CH 36	5180	6Mbps	**8.31**	8.50	95.83
		CH 40	5200		8.05	8.50	
		CH 44	5220		8.02	8.50	
		CH 48	5240		8.18	8.50	
	802.11n-HT20	CH 36	5180	MCS0	6.68	7.00	95.54
		CH 40	5200		6.43	7.00	
		CH 44	5220		6.37	7.00	
		CH 48	5240		6.54	7.00	
	802.11n-HT40	CH 38	5190	MCS0	7.21	7.50	90.82
		CH 46	5230		7.36	7.50	
	802.11ac-VHT20	CH 36	5180	MCS0	6.26	6.50	95.47
		CH 40	5200		5.95	6.50	
		CH 44	5220		5.85	6.50	
		CH 48	5240		6.05	6.50	
	802.11ac-VHT40	CH 38	5190	MCS0	4.62	5.00	90.67
		CH 46	5230		4.92	5.00	
	802.11ac-VHT80	CH 42	5210	MCS0	5.08	5.50	84.17
5.8GHz WLAN Antenna 0	802.11a	CH 149	5745	MCS0	7.67	8.50	95.83
		CH 157	5785		8.04	8.50	
		CH 165	5825		**8.27**	8.50	
	802.11n-HT20	CH 149	5745	MCS0	6.82	7.50	95.64
		CH 157	5785		7.14	7.50	
		CH 165	5825		7.20	7.50	
	802.11n-HT40	CH 151	5755	MCS0	6.81	7.00	90.82
		CH 159	5795		6.75	7.00	
	802.11ac-VHT20	CH 149	5745	MCS0	5.54	6.50	95.47
		CH 157	5785		5.87	6.50	
		CH 165	5825		6.07	6.50	
	802.11ac-VHT40	CH 151	5755	MCS0	5.33	5.50	90.67
		CH 159	5795		5.20	5.50	
	802.11ac-VHT80	CH 155	5775	MCS0	4.74	5.50	84.17

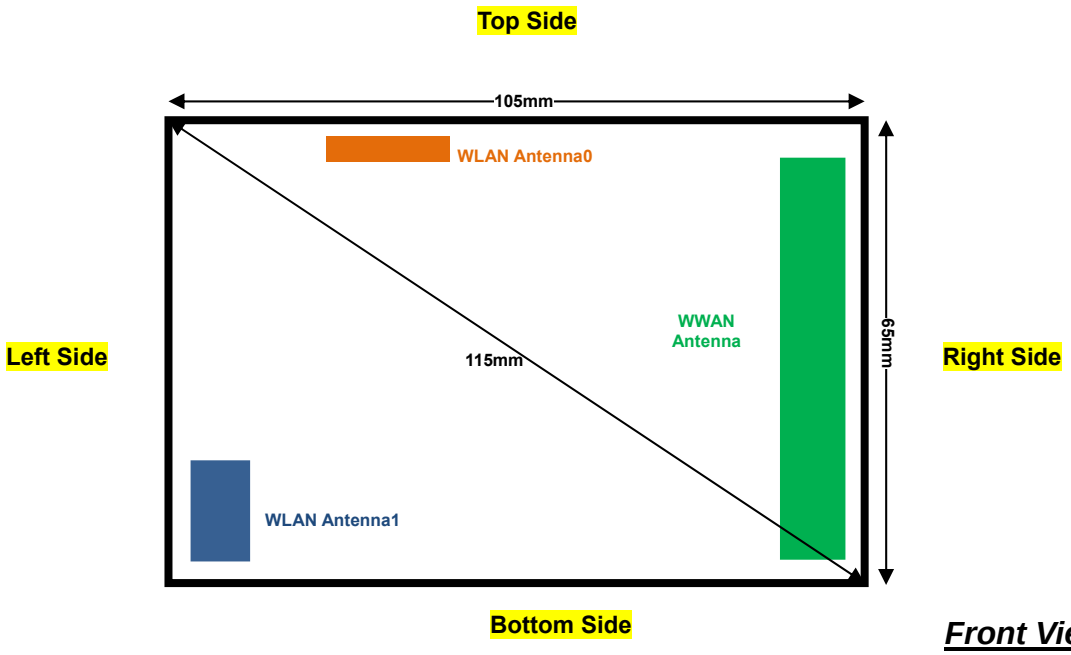
<5GHz WLAN Antenna 1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN Antenna 1	802.11a	CH 36	5180	6Mbps	7.29	8.00	95.39
		CH 40	5200		7.14	8.00	
		CH 44	5220		7.47	8.00	
		CH 48	5240		**7.66**	8.00	
	802.11n-HT20	CH 36	5180	MCS0	7.12	7.50	95.54
		CH 40	5200		6.90	7.50	
		CH 44	5220		7.22	7.50	
		CH 48	5240		7.30	7.50	
	802.11n-HT40	CH 38	5190	MCS0	7.09	7.50	91.33
		CH 46	5230		7.34	7.50	
	802.11ac-VHT20	CH 36	5180	MCS0	6.02	6.50	95.56
		CH 40	5200		5.88	6.50	
		CH 44	5220		6.22	6.50	
		CH 48	5240		6.28	6.50	
	802.11ac-VHT40	CH 38	5190	MCS0	4.50	5.00	91.43
		CH 46	5230		4.88	5.00	
	802.11ac-VHT80	CH 42	5210	MCS0	4.76	5.00	84.17
5.8GHz WLAN Antenna 1	802.11a	CH 149	5745	MCS0	8.05	8.50	95.39
		CH 157	5785		**8.25**	8.50	
		CH 165	5825		8.09	8.50	
	802.11n-HT20	CH 149	5745	MCS0	7.04	7.50	95.54
		CH 157	5785		7.12	7.50	
		CH 165	5825		7.02	7.50	
	802.11n-HT40	CH 151	5755	MCS0	7.07	7.50	91.33
		CH 159	5795		6.84	7.50	
	802.11ac-VHT20	CH 149	5745	MCS0	5.93	6.50	95.56
		CH 157	5785		6.18	6.50	
		CH 165	5825		5.98	6.50	
	802.11ac-VHT40	CH 151	5755	MCS0	5.46	5.50	91.43
		CH 159	5795		5.21	5.50	
	802.11ac-VHT80	CH 155	5775	MCS0	4.98	5.50	84.17

<5GHz WLAN Antenna 0+1>

	Mode	Channel	Frequency (MHz)	Data Rate	Average power (dBm)	Tune-Up Limit	Duty Cycle %
5.2GHz WLAN Antenna 0+1	802.11n-HT20	CH 36	5180	MCS0	7.04	7.50	95.17
		CH 40	5200		6.97	7.50	
		CH 44	5220		7.13	7.50	
		CH 48	5240		**7.43**	7.50	
	802.11n-HT40	CH 38	5190	MCS0	7.02	7.50	89.79
		CH 46	5230		7.40	7.50	
	802.11ac-VHT20	CH 36	5180	MCS0	6.31	6.50	96.56
		CH 40	5200		5.63	6.50	
		CH 44	5220		5.85	6.50	
		CH 48	5240		5.91	6.50	
	802.11ac-VHT40	CH 38	5190	MCS0	5.12	5.50	90.46
		CH 46	5230		5.37	5.50	
	802.11ac-VHT80	CH 42	5210	MCS0	5.13	5.50	83.81
5.8GHz WLAN Antenna 0+1	802.11n-HT20	CH 149	5745	MCS0	6.39	7.50	95.17
		CH 157	5785		6.57	7.50	
		CH 165	5825		**7.22**	7.50	
	802.11n-HT40	CH 151	5755	MCS0	7.12	7.50	89.79
		CH 159	5795		6.89	7.50	
	802.11ac-VHT20	CH 149	5745	MCS0	6.01	6.50	95.56
		CH 157	5785		6.25	6.50	
		CH 165	5825		6.49	6.50	
	802.11ac-VHT40	CH 151	5755	MCS0	5.36	5.50	90.46
		CH 159	5795		5.47	5.50	
	802.11ac-VHT80	CH 155	5775	MCS0	5.28	5.50	83.81

13. Antenna Location



Front View

Distance of the Antenna to the EUT surface/edge						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	94mm
WLAN Antenna 0	≤ 25mm	≤ 25mm	≤ 25mm	58mm	58mm	30mm
WLAN Antenna 1	≤ 25mm	≤ 25mm	48mm	≤ 25mm	91mm	≤ 25mm

Positions for SAR tests; Hotspot mode						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN Main	Yes	Yes	Yes	Yes	Yes	No
WLAN Antenna 0	Yes	Yes	Yes	No	No	No
WLAN Antenna 1	Yes	Yes	No	Yes	No	Yes

General Note:
Referring to KDB 941225 D06 v02, when the overall device length and width are ≥ 9cm*5cm, the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge

14. SAR Test Results

General Note:

1. Per KDB 447498 D01v05r02, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   b. 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.
   c. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   d. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   e. For WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
2. Per KDB 447498 D01v05r02, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the *reported* 1-g or 10-g SAR for the mid-band or highest output power channel is:
   - ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz
   - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
   - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz
3. Per KDB 941225 D01v03, SAR for Body exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”.
4. Per KDB 941225 D01v03, RMC 12.2kbps setting is used to evaluate SAR. If 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.
5. Per KDB 941225 D05v02r03, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
6. Per KDB 941225 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
7. Per KDB 941225 D05v02r03, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
8. Per KDB 941225 D05v02r03, 16QAM output power for each RB allocation configuration is > not ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, 16QAM SAR testing is not required.
9. Per KDB 941225 D05v02r03, Smaller bandwidth output power for each RB allocation configuration is > not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg; Per KDB 941225 D05v02r03, smaller bandwidth SAR testing is not required.
10. Per KDB 248227 D01v02r01, 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.
11. 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.
12. 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.
13. For WLAN SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
14. Per KDB 248227 D01v02r01, the simultaneous SAR provisions in KDB publication 447498 should be applied to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1g single transmission chain SAR measurements is < 1.6W/kg and SAR peak to location ratio < 0.04, no additional SAR measurements for MIMO.
15. During SAR testing the WLAN transmission was verified using a spectrum analyzer.

14.1 Body SAR

<WCDMA SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WCDMA Band V	RMC 12.2Kbps	Front	1	4182	836.4	22.37	23.00	1.156	-0.03	0.646	0.747
#01	**WCDMA Band V**	**RMC 12.2Kbps**	**Back**	**1**	**4182**	**836.4**	**22.37**	**23.00**	**1.156**	**-0.03**	**0.676**	**0.782**
	WCDMA Band V	RMC 12.2Kbps	Right side	1	4182	836.4	22.37	23.00	1.156	-0.12	0.051	0.059
	WCDMA Band V	RMC 12.2Kbps	Top side	1	4182	836.4	22.37	23.00	1.156	-0.08	0.377	0.436
	WCDMA Band V	RMC 12.2Kbps	Bottom side	1	4182	836.4	22.37	23.00	1.156	-0.1	0.308	0.356
	WCDMA Band V	RMC 12.2Kbps	Back	1	4132	826.4	22.07	23.00	1.239	-0.03	0.573	0.710
	WCDMA Band V	RMC 12.2Kbps	Back	1	4233	846.6	22.19	23.00	1.205	0.09	0.613	0.739
	WCDMA Band II	RMC 12.2Kbps	Front	1	9538	1907.6	22.39	23.00	1.151	-0.05	0.719	0.827
	WCDMA Band II	RMC 12.2Kbps	Back	1	9538	1907.6	22.39	23.00	1.151	0.01	0.831	0.956
	WCDMA Band II	RMC 12.2Kbps	Right side	1	9538	1907.6	22.39	23.00	1.151	-0.12	0.291	0.335
	WCDMA Band II	RMC 12.2Kbps	Top side	1	9538	1907.6	22.39	23.00	1.151	-0.1	0.441	0.508
	WCDMA Band II	RMC 12.2Kbps	Bottom side	1	9538	1907.6	22.39	23.00	1.151	-0.11	0.122	0.140
	WCDMA Band II	RMC 12.2Kbps	Front	1	9262	1852.4	22.30	23.00	1.175	0.03	0.970	1.140
	WCDMA Band II	RMC 12.2Kbps	Front	1	9400	1880	22.33	23.00	1.167	-0.03	0.877	1.023
#02	**WCDMA Band II**	**RMC 12.2Kbps**	**Back**	**1**	**9262**	**1852.4**	**22.30**	**23.00**	**1.175**	**-0.03**	**1.050**	**1.234**
	WCDMA Band II	RMC 12.2Kbps	Back	1	9400	1880	22.33	23.00	1.167	-0.01	0.890	1.038

<LTE SAR>

Plot No.	Band	BW (MHz)	RB Size	RB Offset	Modulation	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 17	10M	1	0	QPSK	Front	1	23800	711	23.19	24.00	1.205	0.03	0.656	0.791
#03	**LTE Band 17**	**10M**	**1**	**0**	**QPSK**	**Back**	**1**	**23800**	**711**	**23.19**	**24.00**	**1.205**	**-0.03**	**0.742**	**0.894**
	LTE Band 17	10M	1	0	QPSK	Right side	1	23800	711	23.19	24.00	1.205	0.02	0.084	0.101
	LTE Band 17	10M	1	0	QPSK	Top side	1	23800	711	23.19	24.00	1.205	-0.09	0.347	0.418
	LTE Band 17	10M	1	0	QPSK	Bottom side	1	23800	711	23.19	24.00	1.205	-0.1	0.226	0.272
	LTE Band 17	10M	1	0	QPSK	Back	1	23780	709	23.17	24.00	1.211	-0.12	0.729	0.883
	LTE Band 17	10M	1	0	QPSK	Back	1	23790	710	23.14	24.00	1.219	0.07	0.726	0.885
	LTE Band 17	10M	25	0	QPSK	Front	1	23780	709	22.15	23.00	1.216	-0.01	0.529	0.643
	LTE Band 17	10M	25	0	QPSK	Back	1	23780	709	22.15	23.00	1.216	-0.01	0.588	0.715
	LTE Band 17	10M	25	0	QPSK	Right side	1	23780	709	22.15	23.00	1.216	-0.11	0.066	0.080
	LTE Band 17	10M	25	0	QPSK	Top side	1	23780	709	22.15	23.00	1.216	-0.03	0.276	0.336
	LTE Band 17	10M	25	0	QPSK	Bottom side	1	23780	709	22.15	23.00	1.216	-0.08	0.179	0.218
	LTE Band 17	10M	50	0	QPSK	Back	1	23780	709	22.12	23.00	1.225	0.04	0.604	0.740
	LTE Band 12	10M	1	24	QPSK	Front	1	23095	707.5	23.25	24.00	1.189	-0.03	0.649	0.771
	LTE Band 12	10M	1	24	QPSK	Back	1	23095	707.5	23.25	24.00	1.189	-0.03	0.723	0.859
	LTE Band 12	10M	1	24	QPSK	Right side	1	23095	707.5	23.25	24.00	1.189	-0.02	0.080	0.095
	LTE Band 12	10M	1	24	QPSK	Top side	1	23095	707.5	23.25	24.00	1.189	-0.08	0.336	0.399
	LTE Band 12	10M	1	24	QPSK	Bottom side	1	23095	707.5	23.25	24.00	1.189	-0.06	0.219	0.260
	LTE Band 12	10M	1	24	QPSK	Back	1	23060	704	23.24	24.00	1.191	-0.05	0.724	0.862
#04	**LTE Band 12**	**10M**	**1**	**24**	**QPSK**	**Back**	**1**	**23130**	**711**	**23.16**	**24.00**	**1.213**	**-0.04**	**0.714**	**0.866**
	LTE Band 12	10M	25	12	QPSK	Front	1	23095	707.5	22.11	23.00	1.227	0.05	0.514	0.631
	LTE Band 12	10M	25	12	QPSK	Back	1	23095	707.5	22.11	23.00	1.227	0.12	0.561	0.689
	LTE Band 12	10M	25	12	QPSK	Right side	1	23095	707.5	22.11	23.00	1.227	-0.11	0.064	0.079
	LTE Band 12	10M	25	12	QPSK	Top side	1	23095	707.5	22.11	23.00	1.227	-0.06	0.267	0.328
	LTE Band 12	10M	25	12	QPSK	Bottom side	1	23095	707.5	22.11	23.00	1.227	-0.1	0.174	0.214
	LTE Band 12	10M	50	0	QPSK	Back	1	23095	707.5	22.16	23.00	1.213	0.01	0.590	0.716

Plot No.	Band	BW (MHz)	RB Size	RB Offset	Modulation	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 4	20M	1	0	QPSK	Front	1	20050	1720	21.61	22.50	1.227	0.07	0.555	0.681
#05	**LTE Band 4**	**20M**	**1**	**0**	**QPSK**	**Back**	**1**	**20050**	**1720**	**21.61**	**22.50**	**1.227**	**0.06**	**1.140**	**1.399**
	LTE Band 4	20M	1	0	QPSK	Right side	1	20050	1720	21.61	22.50	1.227	0.1	0.494	0.606
	LTE Band 4	20M	1	0	QPSK	Top side	1	20050	1720	21.61	22.50	1.227	-0.1	0.374	0.459
	LTE Band 4	20M	1	0	QPSK	Bottom side	1	20050	1720	21.61	22.50	1.227	0.01	0.271	0.333
	LTE Band 4	20M	1	0	QPSK	Back	1	20175	1732.5	21.58	22.50	1.236	0.03	1.080	1.335
	LTE Band 4	20M	1	0	QPSK	Back	1	20300	1745	21.60	22.50	1.230	0.09	1.040	1.279
	LTE Band 4	20M	50	0	QPSK	Front	1	20050	1720	20.20	21.50	1.349	-0.04	0.412	0.556
	LTE Band 4	20M	50	0	QPSK	Back	1	20050	1720	20.20	21.50	1.349	0.01	0.838	1.130
	LTE Band 4	20M	50	0	QPSK	Right side	1	20050	1720	20.20	21.50	1.349	0.03	0.351	0.473
	LTE Band 4	20M	50	0	QPSK	Top side	1	20050	1720	20.20	21.50	1.349	0.03	0.202	0.272
	LTE Band 4	20M	50	0	QPSK	Bottom side	1	20050	1720	20.20	21.50	1.349	0.03	0.201	0.271
	LTE Band 4	20M	50	0	QPSK	Back	1	20175	1732.5	19.98	21.50	1.419	0.02	0.835	1.185
	LTE Band 4	20M	50	0	QPSK	Back	1	20300	1745	20.10	21.50	1.380	0.02	0.798	1.102
	LTE Band 4	20M	100	0	QPSK	Back	1	20050	1720	20.09	21.50	1.384	0.04	0.767	1.061
	LTE Band 2	20M	1	0	QPSK	Front	1	19100	1900	21.76	22.50	1.186	0.11	0.731	0.867
	LTE Band 2	20M	1	0	QPSK	Back	1	19100	1900	21.76	22.50	1.186	0.07	0.876	1.039
	LTE Band 2	20M	1	0	QPSK	Right side	1	19100	1900	21.76	22.50	1.186	-0.14	0.245	0.291
	LTE Band 2	20M	1	0	QPSK	Top side	1	19100	1900	21.76	22.50	1.186	-0.12	0.379	0.449
	LTE Band 2	20M	1	0	QPSK	Bottom side	1	19100	1900	21.76	22.50	1.186	-0.12	0.166	0.197
	LTE Band 2	20M	1	0	QPSK	Front	1	18700	1860	21.64	22.50	1.219	0.12	0.725	0.884
	LTE Band 2	20M	1	0	QPSK	Front	1	18900	1880	21.63	22.50	1.222	0.06	0.713	0.871
	LTE Band 2	20M	1	0	QPSK	Back	1	18700	1860	21.64	22.50	1.219	0.11	0.880	1.073
#06	**LTE Band 2**	**20M**	**1**	**0**	**QPSK**	**Back**	**1**	**18900**	**1880**	**21.63**	**22.50**	**1.222**	**0.03**	**0.891**	**1.089**
	LTE Band 2	20M	50	0	QPSK	Front	1	19100	1900	20.37	21.50	1.297	0.08	0.507	0.658
	LTE Band 2	20M	50	0	QPSK	Back	1	19100	1900	20.37	21.50	1.297	-0.06	0.616	0.799
	LTE Band 2	20M	50	0	QPSK	Right side	1	19100	1900	20.37	21.50	1.297	-0.1	0.159	0.206
	LTE Band 2	20M	50	0	QPSK	Top side	1	19100	1900	20.37	21.50	1.297	-0.19	0.261	0.339
	LTE Band 2	20M	50	0	QPSK	Bottom side	1	19100	1900	20.37	21.50	1.297	-0.01	0.119	0.154
	LTE Band 2	20M	100	0	QPSK	Front	1	19100	1900	20.17	21.50	1.358	0.02	0.470	0.638
	LTE Band 2	20M	100	0	QPSK	Back	1	19100	1900	20.17	21.50	1.358	-0.1	0.558	0.758

Plot No.	Band	BW (MHz)	RB Size	RB Offset	Modulation	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	LTE Band 7	20M	1	0	QPSK	Front	1	20850	2510	21.11	21.50	1.094	-0.01	0.339	0.371
	LTE Band 7	20M	1	0	QPSK	Back	1	20850	2510	21.11	21.50	1.094	0.04	0.979	1.071
#07	**LTE Band 7**	**20M**	**1**	**0**	**QPSK**	**Right side**	**1**	**20850**	**2510**	**21.11**	**21.50**	**1.094**	**-0.06**	**1.320**	**1.444**
	LTE Band 7	20M	1	0	QPSK	Top side	1	20850	2510	21.11	21.50	1.094	-0.03	0.689	0.754
	LTE Band 7	20M	1	0	QPSK	Bottom side	1	20850	2510	21.11	21.50	1.094	0.02	0.050	0.055
	LTE Band 7	20M	1	0	QPSK	Back	1	21100	2535	21.05	21.50	1.109	-0.05	0.991	1.099
	LTE Band 7	20M	1	0	QPSK	Back	1	21350	2560	21.04	21.50	1.112	-0.02	0.900	1.001
	LTE Band 7	20M	1	0	QPSK	Right side	1	21100	2535	21.05	21.50	1.109	0.08	1.180	1.309
	LTE Band 7	20M	1	0	QPSK	Right side	1	21350	2560	21.04	21.50	1.112	0.09	0.959	1.066
	LTE Band 7	20M	50	24	QPSK	Front	1	20850	2510	20.13	20.50	1.089	0.02	0.295	0.321
	LTE Band 7	20M	50	24	QPSK	Back	1	20850	2510	20.13	20.50	1.089	-0.01	0.739	0.805
	LTE Band 7	20M	50	24	QPSK	Right side	1	20850	2510	20.13	20.50	1.089	-0.14	1.070	1.165
	LTE Band 7	20M	50	24	QPSK	Top side	1	20850	2510	20.13	20.50	1.089	-0.02	0.555	0.604
	LTE Band 7	20M	50	24	QPSK	Bottom side	1	20850	2510	20.13	20.50	1.089	-0.04	0.033	0.036
	LTE Band 7	20M	50	24	QPSK	Back	1	21100	2535	19.99	20.50	1.125	-0.04	0.687	0.773
	LTE Band 7	20M	50	24	QPSK	Back	1	21350	2560	20.06	20.50	1.107	-0.14	0.625	0.692
	LTE Band 7	20M	50	24	QPSK	Right side	1	21100	2535	19.99	20.50	1.125	-0.08	0.896	1.008
	LTE Band 7	20M	50	24	QPSK	Right side	1	21350	2560	20.06	20.50	1.107	-0.02	0.731	0.809
	LTE Band 7	20M	100	0	QPSK	Back	1	20850	2510	20.10	20.50	1.096	-0.06	0.716	0.785
	LTE Band 7	20M	100	0	QPSK	Right side	1	20850	2510	20.10	20.50	1.096	0.06	1.060	1.162

<WLAN 2.4GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ant.	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Power Drift (dB)	Area Scan Max SAR(W/kg)	Measured 1g SAR (W/kg)	Reported 1g SAR (W/kg)
	WLAN 2.4GHz	802.11b 1Mbps	Front	1	Ant 0	1	2412	13.62	14.00	1.091	100	1.000		0.047		
	WLAN 2.4GHz	802.11b 1Mbps	Back	1	Ant 0	1	2412	13.62	14.00	1.091	100	1.000		0.0738		
	WLAN 2.4GHz	802.11b 1Mbps	Top side	1	Ant 0	1	2412	13.62	14.00	1.091	100	1.000	-0.02	0.138	0.077	0.084
	WLAN 2.4GHz	802.11b 1Mbps	Top side	1	Ant 0	6	2437	13.08	14.00	1.236	100	1.000	-0.18		0.078	0.096
	WLAN 2.4GHz	802.11b 1Mbps	Top side	1	Ant 0	11	2462	13.04	14.00	1.247	100	1.000	0.02		0.064	0.080
	WLAN 2.4GHz	802.11b 1Mbps	Front	1	Ant 1	1	2412	13.98	14.50	1.127	100	1.000		0.194		
	WLAN 2.4GHz	802.11b 1Mbps	Back	1	Ant 1	1	2412	13.98	14.50	1.127	100	1.000	-0.09	0.204	0.143	0.161
	WLAN 2.4GHz	802.11b 1Mbps	Left side	1	Ant 1	1	2412	13.98	14.50	1.127	100	1.000		0.0697		
	WLAN 2.4GHz	802.11b 1Mbps	Bottom side	1	Ant 1	1	2412	13.98	14.50	1.127	100	1.000		0.0961		
	WLAN 2.4GHz	802.11b 1Mbps	Back	1	Ant 1	6	2437	13.65	14.50	1.216	100	1.000	0.04		0.141	0.171
#08	**WLAN 2.4GHz**	**802.11b 1Mbps**	**Back**	**1**	**Ant 1**	**11**	**2462**	**13.49**	**14.50**	**1.262**	**100**	**1.000**	**0.08**		**0.149**	**0.188**
	WLAN 2.4GHz	802.11n HT40 MCS0	Front	1	Ant 0+1	1	2412	11.22	11.50	1.067	89.84	1.113		0.0513		
	WLAN 2.4GHz	802.11n HT40 MCS0	Back	1	Ant 0+1	1	2412	11.22	11.50	1.067	89.84	1.113		0.0592		
	WLAN 2.4GHz	802.11n HT40 MCS0	Left side	1	Ant 0+1	1	2412	11.22	11.50	1.067	89.84	1.113		0.0291		
	WLAN 2.4GHz	802.11n HT40 MCS0	Top side	1	Ant 0+1	1	2412	11.22	11.50	1.067	89.84	1.113	-0.01	0.068	0.028	0.033
	WLAN 2.4GHz	802.11n HT40 MCS0	Bottom side	1	Ant 0+1	1	2412	11.22	11.50	1.067	89.84	1.113		0.0439		
	WLAN 2.4GHz	802.11n HT40 MCS0	Top side	1	Ant 0+1	6	2437	10.96	11.50	1.132	89.84	1.113	0.02		0.025	0.032
	WLAN 2.4GHz	802.11n HT40 MCS0	Top side	1	Ant 0+1	11	2462	10.66	11.50	1.213	89.84	1.113	-0.03		0.020	0.027

<WLAN 5GHz SAR>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ant.	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)
	WLAN 5.2GHz	802.11a 6Mbps	Front	1	Ant 0	36	5180	8.31	8.50	1.045	95.83	1.044	0.12	0.00618	0.007
	WLAN 5.2GHz	802.11a 6Mbps	Back	1	Ant 0	36	5180	8.31	8.50	1.045	95.83	1.044	0.01	0.020	0.022
	WLAN 5.2GHz	802.11a 6Mbps	Top Side	1	Ant 0	36	5180	8.31	8.50	1.045	95.83	1.044	0.096	0.024	0.026
	WLAN 5.2GHz	802.11a 6Mbps	Top Side	1	Ant 0	48	5240	8.18	8.50	1.076	95.83	1.044	-0.08	0.034	0.038
	WLAN 5.2GHz	802.11a 6Mbps	Top Side	1	Ant 0	40	5200	8.05	8.50	1.109	95.83	1.044	0.11	0.030	0.035
	WLAN 5.2GHz	802.11a 6Mbps	Front	1	Ant 1	48	5240	7.66	8.00	1.081	95.39	1.048	0.06	0.038	0.043
	WLAN 5.2GHz	802.11a 6Mbps	Back	1	Ant 1	48	5240	7.66	8.00	1.081	95.39	1.048	0.1	0.046	0.052
#09	**WLAN 5.2GHz**	**802.11a 6Mbps**	**Left Side**	**1**	**Ant 1**	**48**	**5240**	**7.66**	**8.00**	**1.081**	**95.39**	**1.048**	**-0.01**	**0.049**	**0.056**
	WLAN 5.2GHz	802.11a 6Mbps	Bottom Side	1	Ant 1	48	5240	7.66	8.00	1.081	95.39	1.048	0.085	0.027	0.031
	WLAN 5.2GHz	802.11a 6Mbps	Left Side	1	Ant 1	36	5180	7.29	8.00	1.178	95.39	1.048	0.11	0.037	0.046
	WLAN 5.2GHz	802.11a 6Mbps	Left Side	1	Ant 1	44	5220	7.47	8.00	1.130	95.39	1.048	-0.14	0.047	0.056
	WLAN 5.8GHz	802.11a 6Mbps	Front	1	Ant 0	165	5825	8.27	8.50	1.054	95.83	1.044	0.12	0.020	0.022
	WLAN 5.8GHz	802.11a 6Mbps	Back	1	Ant 0	165	5825	8.27	8.50	1.054	95.83	1.044	0.1	0.053	0.058
	WLAN 5.8GHz	802.11a 6Mbps	Top Side	1	Ant 0	165	5825	8.27	8.50	1.054	95.83	1.044	-0.18	0.083	0.091
#10	**WLAN 5.8GHz**	**802.11a 6Mbps**	**Top Side**	**1**	**Ant 0**	**149**	**5745**	**7.67**	**8.50**	**1.209**	**95.83**	**1.044**	**0.034**	**0.082**	**0.104**
	WLAN 5.8GHz	802.11a 6Mbps	Top Side	1	Ant 0	157	5785	8.04	8.50	1.110	95.83	1.044	0.041	0.086	0.100
	WLAN 5.8GHz	802.11a 6Mbps	Front	1	Ant 1	157	5785	8.25	8.50	1.059	95.39	1.048	0.01	0.058	0.064
	WLAN 5.8GHz	802.11a 6Mbps	Back	1	Ant 1	157	5785	8.25	8.50	1.059	95.39	1.048	0.15	0.050	0.056
	WLAN 5.8GHz	802.11a 6Mbps	Left Side	1	Ant 1	157	5785	8.25	8.50	1.059	95.39	1.048	0.04	0.062	0.069
	WLAN 5.8GHz	802.11a 6Mbps	Bottom Side	1	Ant 1	157	5785	8.25	8.50	1.059	95.39	1.048	0.049	0.051	0.057
	WLAN 5.8GHz	802.11a 6Mbps	Left Side	1	Ant 1	149	5745	8.05	8.50	1.110	95.39	1.048	-0.12	0.058	0.067
	WLAN 5.8GHz	802.11a 6Mbps	Left Side	1	Ant 1	165	5825	8.09	8.50	1.100	95.39	1.048	-0.057	0.062	0.071

14.2 Repeated SAR Measurement

No.	Band	BW (MHz)	RB Size	RB Offset	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Ratio	Reported 1g SAR (W/kg)
1st	WCDMA Band II	-	-	-	RMC 12.2K	Back	1	9262	1852.4	22.30	23.00	1.175	-0.03	1.050	1	1.234
2nd	WCDMA Band II	-	-	-	RMC 12.2K	Back	1	9262	1852.4	22.30	23.00	1.175	-0.03	0.981	1.070	1.153
1st	LTE Band 4	20M	1	0	QPSK	Back	1	20050	1720	21.61	22.50	1.227	0.06	1.140	1	1.399
2nd	LTE Band 4	20M	1	0	QPSK	Back	1	20050	1720	21.61	22.50	1.227	0.08	1.120	1.017	1.375
1st	LTE Band 7	20M	1	0	QPSK	Right side	1	20850	2510	21.11	21.50	1.094	-0.06	1.320	1	1.444
2nd	LTE Band 7	20M	1	0	QPSK	Right side	1	20850	2510	21.11	21.50	1.094	-0.01	1.300	1.015	1.422

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. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

15. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Body	Note
1.	WLAN2.4GHz Ant 0 + WLAN2.4GHz Ant 1	Yes	-
2.	WLAN5 GHz Ant 0 + WLAN5 GHz Ant 1	Yes	-
3.	WCDMA(Data) + WLAN2.4GHz SISO(data)	Yes	2.4GHz Hotspot
4.	WCDMA(Data) + WLAN2.4GHz MIMO(data)	Yes	2.4GHz Hotspot
5.	WCDMA(Data) + WLAN5GHz SISO(data)	Yes	WiFi Direct
6.	WCDMA(Data) + WLAN5GHz MIMO(data)	Yes	WiFi Direct
7.	LTE (Data) + WLAN2.4GHz SISO(data)	Yes	2.4GHz Hotspot
8.	LTE (Data) + WLAN2.4GHz MIMO(data)	Yes	2.4GHz Hotspot
9.	LTE (Data) + WLAN5 GHz SISO(data)	Yes	WiFi Direct
10.	LTE (Data) + WLAN5 GHz MIMO(data)	Yes	WiFi Direct

General Note:

1. This device has no voice function.
2. This device 2.4GHz WLAN supports hotspot operation and 5.2GHz/5.8GHz supports WiFi Direct (GC/GO).
3. EUT will choose either WLAN 2.4GHz or WLAN 5GHz according to the network signal condition; therefore, they will not transmit simultaneously.
4. EUT will choose either WCDMA or LTE according to the network signal condition; therefore, they will not transmit simultaneously.
5. The worst case 5 GHz WLAN reported SAR for each configuration was used for SAR summation. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with 5 GHz WLAN.
6. Per KDB 447498 D01v05r01, simultaneous transmission SAR is compliant if,
   i) Scalar SAR summation < 1.6W/kg.
   ii) SPLSR = $(SAR_1 + SAR_2)^{1.5}$ / (*min. separation distance, mm*), and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan
   If SPLSR ≤ 0.04, simultaneously transmission SAR measurement is not necessary
   iii) Simultaneously transmission SAR measurement, and the reported multi-band SAR < 1.6W/kg

15.1 Body Exposure Conditions

<WWAN + WLAN 2.4GHz (Antenna 0)>

WWAN Band		Exposure Position	WWAN Max. WWAN SAR (W/kg)	WLAN 2.4GHz Max. WLAN SAR (W/kg)	Summed SAR (W/kg)
WCDMA	Band V	Front	0.747	0.096	0.84
		Back	0.782	0.096	0.88
		Right side	0.059		0.06
		Top side	0.436	0.096	0.53
		Bottom side	0.356		0.36
	Band II	Front	1.140	0.096	1.24
		Back	1.234	0.096	1.33
		Right side	0.335		0.34
		Top side	0.508	0.096	0.60
		Bottom side	0.140		0.14
LTE	Band 17	Front	0.791	0.096	0.89
		Back	0.894	0.096	0.99
		Right side	0.101		0.10
		Top side	0.418	0.096	0.51
		Bottom side	0.272		0.27
	Band 12	Front	0.771	0.096	0.87
		Back	0.866	0.096	0.96
		Right side	0.095		0.10
		Top side	0.399	0.096	0.50
		Bottom side	0.260		0.26
	Band 4	Front	0.681	0.096	0.78
		Back	1.399	0.096	1.50
		Right side	0.606		0.61
		Top side	0.459	0.096	0.56
		Bottom side	0.333		0.33
	Band 2	Front	0.884	0.096	0.98
		Back	1.089	0.096	1.19
		Right side	0.291		0.29
		Top side	0.449	0.096	0.55
		Bottom side	0.197		0.20
	Band 7	Front	0.371	0.096	0.47
		Back	1.099	0.096	1.20
		Right side	1.444		1.44
		Top side	0.754	0.096	0.85
		Bottom side	0.055		0.06

<WWAN + WLAN 2.4GHz (Antenna 1)>

WWAN Band		Exposure Position	WWAN Max. WWAN SAR (W/kg)	WLAN 2.4GHz Max. WLAN SAR (W/kg)	Summed SAR (W/kg)
WCDMA	Band V	Front	0.747	0.188	0.94
		Back	0.782	0.188	0.97
		Left side		0.188	0.19
		Right side	0.059		0.06
		Top side	0.436		0.44
		Bottom side	0.356	0.188	0.54
	Band II	Front	1.140	0.188	1.33
		Back	1.234	0.188	1.42
		Left side		0.188	0.19
		Right side	0.335		0.34
		Top side	0.508		0.51
		Bottom side	0.140	0.188	0.33
LTE	Band 17	Front	0.791	0.188	0.98
		Back	0.894	0.188	1.08
		Left side		0.188	0.19
		Right side	0.101		0.10
		Top side	0.418		0.42
		Bottom side	0.272	0.188	0.46
	Band 12	Front	0.771	0.188	0.96
		Back	0.866	0.188	1.05
		Left side		0.188	0.19
		Right side	0.095		0.10
		Top side	0.399		0.40
		Bottom side	0.260	0.188	0.45
	Band 4	Front	0.681	0.188	0.87
		Back	1.399	0.188	**1.59**
		Left side		0.188	0.19
		Right side	0.606		0.61
		Top side	0.459		0.46
		Bottom side	0.333	0.188	0.52
	Band 2	Front	0.884	0.188	1.07
		Back	1.089	0.188	1.28
		Left side		0.188	0.19
		Right side	0.291		0.29
		Top side	0.449		0.45
		Bottom side	0.197	0.188	0.39
	Band 7	Front	0.371	0.188	0.56
		Back	1.099	0.188	1.29
		Left side		0.188	0.19
		Right side	1.444		1.44
		Top side	0.754		0.75
		Bottom side	0.055	0.188	0.24

<WWAN + WLAN 2.4GHz (Antenna 0+1)>

WWAN Band		Exposure Position	WWAN Max. WWAN SAR (W/kg)	WLAN 2.4GHz Max. WLAN SAR (W/kg)	Summed SAR (W/kg)
WCDMA	Band V	Front	0.747	0.033	0.78
		Back	0.782	0.033	0.82
		Left side		0.033	0.03
		Right side	0.059		0.06
		Top side	0.436	0.033	0.47
		Bottom side	0.356	0.033	0.39
	Band II	Front	1.140	0.033	1.17
		Back	1.234	0.033	1.27
		Left side		0.033	0.03
		Right side	0.335		0.34
		Top side	0.508	0.033	0.54
		Bottom side	0.140	0.033	0.17
LTE	Band 17	Front	0.791	0.033	0.82
		Back	0.894	0.033	0.93
		Left side		0.033	0.03
		Right side	0.101		0.10
		Top side	0.418	0.033	0.45
		Bottom side	0.272	0.033	0.31
	Band 12	Front	0.771	0.033	0.80
		Back	0.866	0.033	0.90
		Left side		0.033	0.03
		Right side	0.095		0.10
		Top side	0.399	0.033	0.43
		Bottom side	0.260	0.033	0.29
	Band 4	Front	0.681	0.033	0.71
		Back	1.399	0.033	1.43
		Left side		0.033	0.03
		Right side	0.606		0.61
		Top side	0.459	0.033	0.49
		Bottom side	0.333	0.033	0.37
	Band 2	Front	0.884	0.033	0.92
		Back	1.089	0.033	1.12
		Left side		0.033	0.03
		Right side	0.291		0.29
		Top side	0.449	0.033	0.48
		Bottom side	0.197	0.033	0.23
	Band 7	Front	0.371	0.033	0.40
		Back	1.099	0.033	1.13
		Left side		0.033	0.03
		Right side	1.444		1.44
		Top side	0.754	0.033	0.79
		Bottom side	0.055	0.033	0.09

<WWAN + WLAN 5GHz (Antenna 0)>

WWAN Band		Exposure Position	WWAN Max. WWAN SAR (W/kg)	WLAN 5.2GHz Max. WLAN SAR (W/kg)	Summed SAR (W/kg)
WCDMA	Band V	Front	0.747	0.007	0.75
		Back	0.782	0.022	0.80
		Right side	0.059		0.06
		Top side	0.436	0.038	0.47
		Bottom side	0.356		0.36
	Band II	Front	1.140	0.007	1.15
		Back	1.234	0.022	1.26
		Right side	0.335		0.34
		Top side	0.508	0.038	0.55
		Bottom side	0.140		0.14
LTE	Band 17	Front	0.791	0.007	0.80
		Back	0.894	0.022	0.92
		Right side	0.101		0.10
		Top side	0.418	0.038	0.46
		Bottom side	0.272		0.27
	Band 12	Front	0.771	0.007	0.78
		Back	0.866	0.022	0.89
		Right side	0.095		0.10
		Top side	0.399	0.038	0.44
		Bottom side	0.260		0.26
	Band 4	Front	0.681	0.007	0.69
		Back	1.399	0.022	1.42
		Right side	0.606		0.61
		Top side	0.459	0.038	0.50
		Bottom side	0.333		0.33
	Band 2	Front	0.884	0.007	0.89
		Back	1.089	0.022	1.11
		Right side	0.291		0.29
		Top side	0.449	0.038	0.49
		Bottom side	0.197		0.20
	Band 7	Front	0.371	0.007	0.38
		Back	1.099	0.022	1.12
		Right side	1.444		1.44
		Top side	0.754	0.038	0.79
		Bottom side	0.055		0.06

WWAN Band		Exposure Position	WWAN Max. WWAN SAR (W/kg)	WLAN 5.8GHz Max. WLAN SAR (W/kg)	Summed SAR (W/kg)
WCDMA	Band V	Front	0.747	0.022	0.77
		Back	0.782	0.058	0.84
		Right side	0.059		0.06
		Top side	0.436	0.104	0.54
		Bottom side	0.356		0.36
	Band II	Front	1.140	0.022	1.16
		Back	1.234	0.058	1.29
		Right side	0.335		0.34
		Top side	0.508	0.104	0.61
		Bottom side	0.140		0.14
LTE	Band 17	Front	0.791	0.022	0.81
		Back	0.894	0.058	0.95
		Right side	0.101		0.10
		Top side	0.418	0.104	0.52
		Bottom side	0.272		0.27
	Band 12	Front	0.771	0.022	0.79
		Back	0.866	0.058	0.92
		Right side	0.095		0.10
		Top side	0.399	0.104	0.50
		Bottom side	0.260		0.26
	Band 4	Front	0.681	0.022	0.70
		Back	1.399	0.058	**1.46**
		Right side	0.606		0.61
		Top side	0.459	0.104	0.56
		Bottom side	0.333		0.33
	Band 2	Front	0.884	0.022	0.91
		Back	1.089	0.058	1.15
		Right side	0.291		0.29
		Top side	0.449	0.104	0.55
		Bottom side	0.197		0.20
	Band 7	Front	0.371	0.022	0.39
		Back	1.099	0.058	1.16
		Right side	1.444		1.44
		Top side	0.754	0.104	0.86
		Bottom side	0.055		0.06

<WWAN + WLAN 5GHz (Antenna 1)>

WWAN Band		Exposure Position	WWAN Max. WWAN SAR (W/kg)	WLAN 5.2GHz Max. WLAN SAR (W/kg)	Summed SAR (W/kg)
WCDMA	Band V	Front	0.747	0.043	0.79
		Back	0.782	0.052	0.83
		Left side		0.056	0.06
		Right side	0.059		0.06
		Top side	0.436		0.44
		Bottom side	0.356	0.031	0.39
	Band II	Front	1.140	0.043	1.18
		Back	1.234	0.052	1.29
		Left side		0.056	0.06
		Right side	0.335		0.34
		Top side	0.508		0.51
		Bottom side	0.140	0.031	0.17
LTE	Band 17	Front	0.791	0.043	0.83
		Back	0.894	0.052	0.95
		Left side		0.056	0.06
		Right side	0.101		0.10
		Top side	0.418		0.42
		Bottom side	0.272	0.031	0.30
	Band 12	Front	0.771	0.043	0.81
		Back	0.866	0.052	0.92
		Left side		0.056	0.06
		Right side	0.095		0.10
		Top side	0.399		0.40
		Bottom side	0.260	0.031	0.29
	Band 4	Front	0.681	0.043	0.72
		Back	1.399	0.052	1.45
		Left side		0.056	0.06
		Right side	0.606		0.61
		Top side	0.459		0.46
		Bottom side	0.333	0.031	0.36
	Band 2	Front	0.884	0.043	0.93
		Back	1.089	0.052	1.14
		Left side		0.056	0.06
		Right side	0.291		0.29
		Top side	0.449		0.45
		Bottom side	0.197	0.031	0.23
	Band 7	Front	0.371	0.043	0.41
		Back	1.099	0.052	1.15
		Left side		0.056	0.06
		Right side	1.444		1.44
		Top side	0.754		0.75
		Bottom side	0.055	0.031	0.09

WWAN Band		Exposure Position	WWAN Max. WWAN SAR (W/kg)	WLAN 5.8GHz Max. WLAN SAR (W/kg)	Summed SAR (W/kg)
WCDMA	Band V	Front	0.747	0.064	0.81
		Back	0.782	0.056	0.84
		Left side		0.071	0.07
		Right side	0.059		0.06
		Top side	0.436		0.44
		Bottom side	0.356	0.057	0.41
	Band II	Front	1.140	0.064	1.20
		Back	1.234	0.056	1.29
		Left side		0.071	0.07
		Right side	0.335		0.34
		Top side	0.508		0.51
		Bottom side	0.140	0.057	0.20
LTE	Band 17	Front	0.791	0.064	0.86
		Back	0.894	0.056	0.95
		Left side		0.071	0.07
		Right side	0.101		0.10
		Top side	0.418		0.42
		Bottom side	0.272	0.057	0.33
	Band 12	Front	0.771	0.064	0.84
		Back	0.866	0.056	0.92
		Left side		0.071	0.07
		Right side	0.095		0.10
		Top side	0.399		0.40
		Bottom side	0.260	0.057	0.32
	Band 4	Front	0.681	0.064	0.75
		Back	1.399	0.056	1.46
		Left side		0.071	0.07
		Right side	0.606		0.61
		Top side	0.459		0.46
		Bottom side	0.333	0.057	0.39
	Band 2	Front	0.884	0.064	0.95
		Back	1.089	0.056	1.15
		Left side		0.071	0.07
		Right side	0.291		0.29
		Top side	0.449		0.45
		Bottom side	0.197	0.057	0.25
	Band 7	Front	0.371	0.064	0.44
		Back	1.099	0.056	1.16
		Left side		0.071	0.07
		Right side	1.444		1.44
		Top side	0.754		0.75
		Bottom side	0.055	0.057	0.11

Test Engineer： Ken Li and Ken Li

16. Uncertainty Assessment

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

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

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

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor[(a)]	1/k[(b)]	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

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

(b) κ is the coverage factor

Table 16.1. Standard Uncertainty for Assumed Distribution

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

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

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.0	Normal	1	1	1	± 6.0 %	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	√3	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	√3	0.7	± 3.9 %	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	1	± 0.2 %	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Rectangular	√3	0.64	0.43	± 0.9 %	± 0.6 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Rectangular	√3	0.6	0.49	± 0.9 %	± 0.7 %
Combined Standard Uncertainty						± 10.9 %	± 10.7 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 21.7 %**	**± 21.4 %**

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

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.55	Normal	1	1	1	± 6.55 %	± 6.55 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Probe Positioning	6.7	Rectangular	√3	1	1	± 3.9 %	± 3.9 %
Max. SAR Eval.	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Rectangular	√3	0.64	0.43	± 0.9 %	± 0.6 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Rectangular	√3	0.6	0.49	± 0.9 %	± 0.6 %
Combined Standard Uncertainty						± 12.0 %	± 11.8 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 24.0 %**	**± 23.7 %**

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

17. References

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

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

[3] IEEE Std. 1528-2013, “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 248227 D01 v02r01, “SAR Guidance for IEEE 802.11 (WiFi) Transmitters”, Jun 2015.

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

[7] FCC KDB 941225 D01 v03, “3G SAR MEAUREMENT PROCEDURES”, Oct 2014

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

[9] FCC KDB 941225 D05A v01r01, “Rel. 10 LTE SAR Test Guidance and KDB Inquiries”, Aug 2014

[10] FCC KDB 941225 D06 v02, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2014.

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

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

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/23

System Check_Body_750MHz_150723

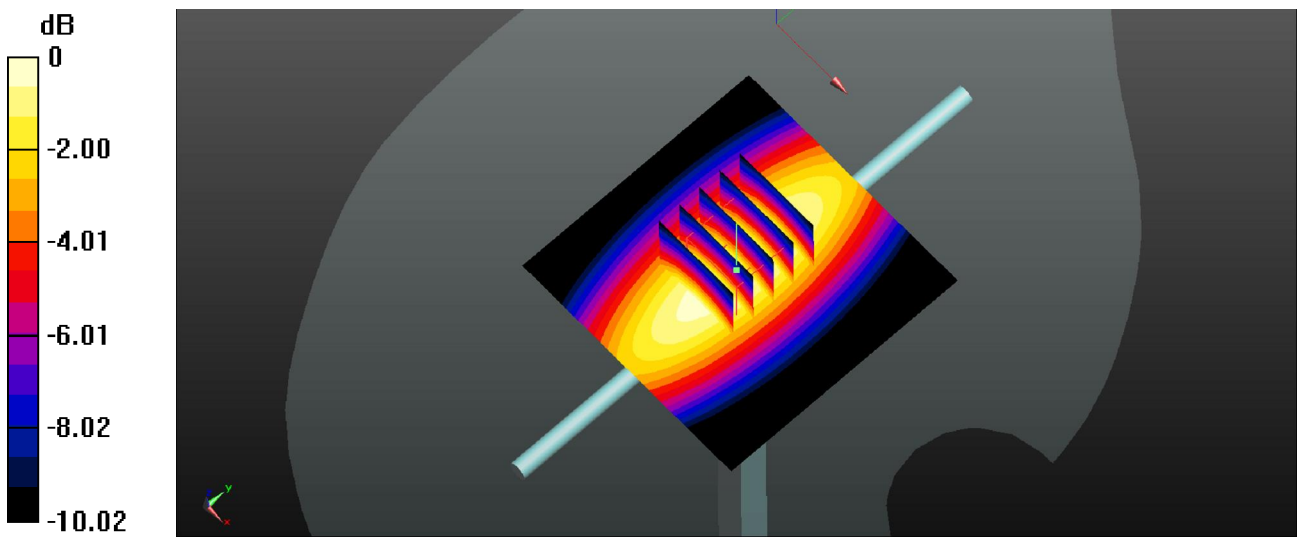
DUT: D750V3-SN:1065

Communication System: UID 0, CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: MSL_750_150723 Medium parameters used: f = 750 MHz; σ = 0.963 S/m; ε_r = 54.224; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(9.61, 9.61, 9.61); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.72 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.30 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.15 W/kg
SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1.44 W/kg
Maximum value of SAR (measured) = 2.72 W/kg



0 dB = 2.72 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/22

System Check_Body_835MHz_150722

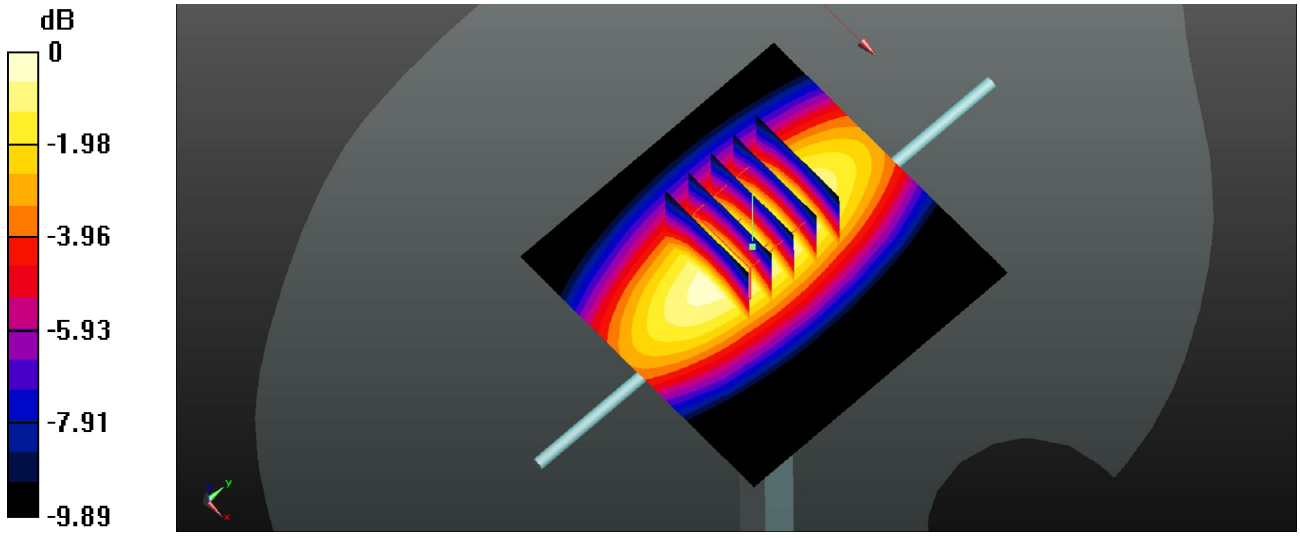
DUT: D835V2-SN:4d091

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_835_150722 Medium parameters used: f = 835 MHz; σ = 0.977 S/m; ε_r = 54.395; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(9.66, 9.66, 9.66); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.10 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.80 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.58 W/kg
SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.65 W/kg
Maximum value of SAR (measured) = 3.08 W/kg



0 dB = 3.08 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/21

System Check_Body_1750MHz_150721

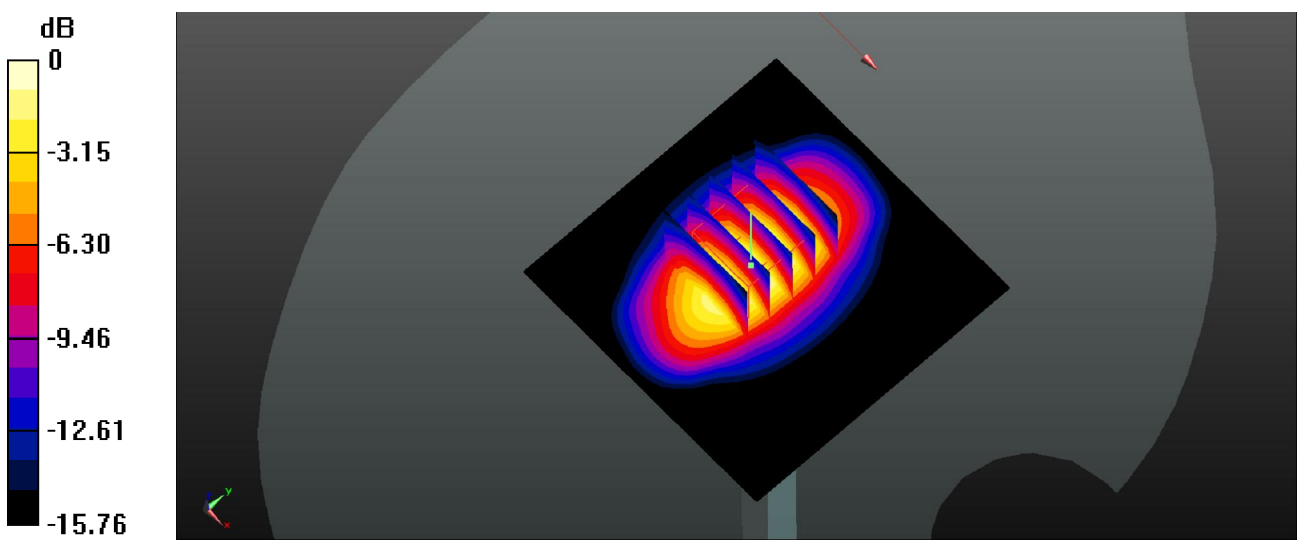
DUT: D1750V2-SN:1069

Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: MSL_1750_150721 Medium parameters used: f = 1750 MHz; σ = 1.498 S/m; ε_r = 53.247; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(7.93, 7.93, 7.93); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.4 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 80.62 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 15.2 W/kg
SAR(1 g) = 8.97 W/kg; SAR(10 g) = 4.88 W/kg
Maximum value of SAR (measured) = 12.3 W/kg



0 dB = 12.3 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/21

System Check_Body_1900MHz_150721

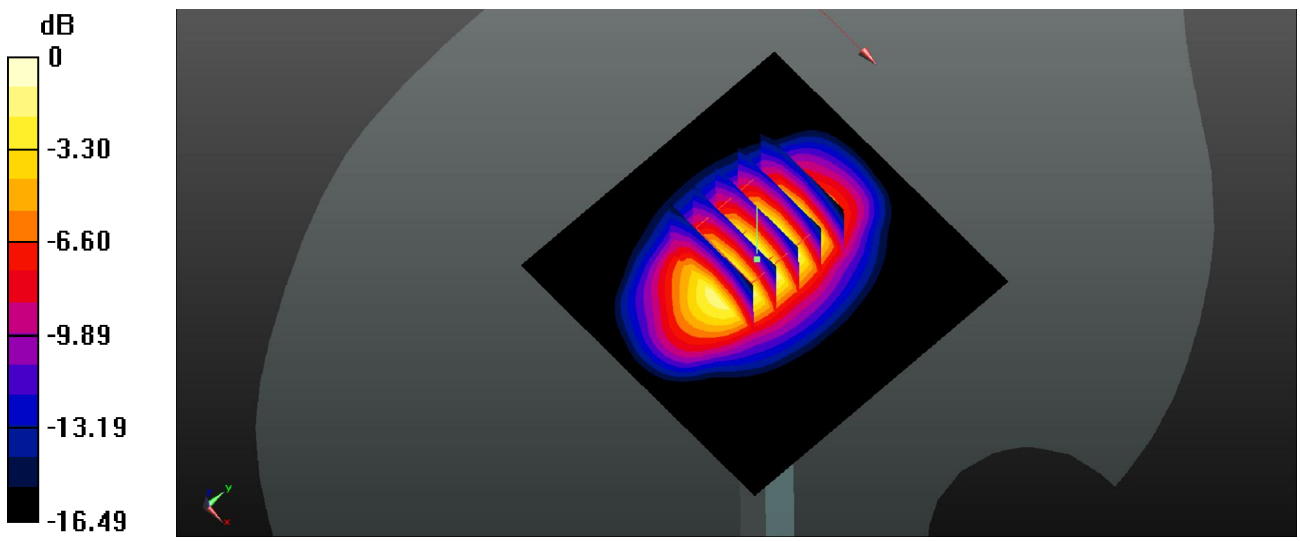
DUT: D1900V2-SN:5d118

Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_150721 Medium parameters used: f = 1900 MHz; σ = 1.538 S/m; ε_r = 53.79; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(7.57, 7.57, 7.57); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.9 W/kg

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 79.15 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 16.9 W/kg
SAR(1 g) = 9.95 W/kg; SAR(10 g) = 5.33 W/kg
Maximum value of SAR (measured) = 13.8 W/kg



0 dB = 13.8 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/28

System Check_Body_2450MHz_150728

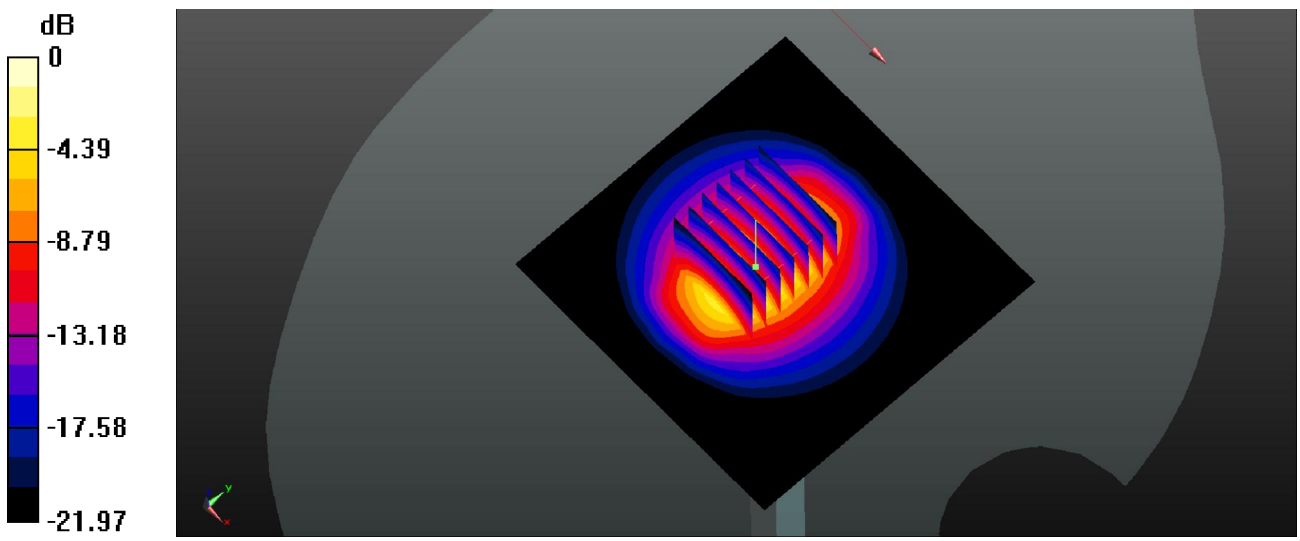
DUT: D2450V2-SN:840

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: MSL_2450_150728 Medium parameters used: f = 2450 MHz; σ = 1.954 S/m; ε_r = 51.108; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(7.18, 7.18, 7.18); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 20.3 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 79.87 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.15 W/kg
Maximum value of SAR (measured) = 20.4 W/kg



0 dB = 20.4 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/22

System Check_Body_2600MHz_150722

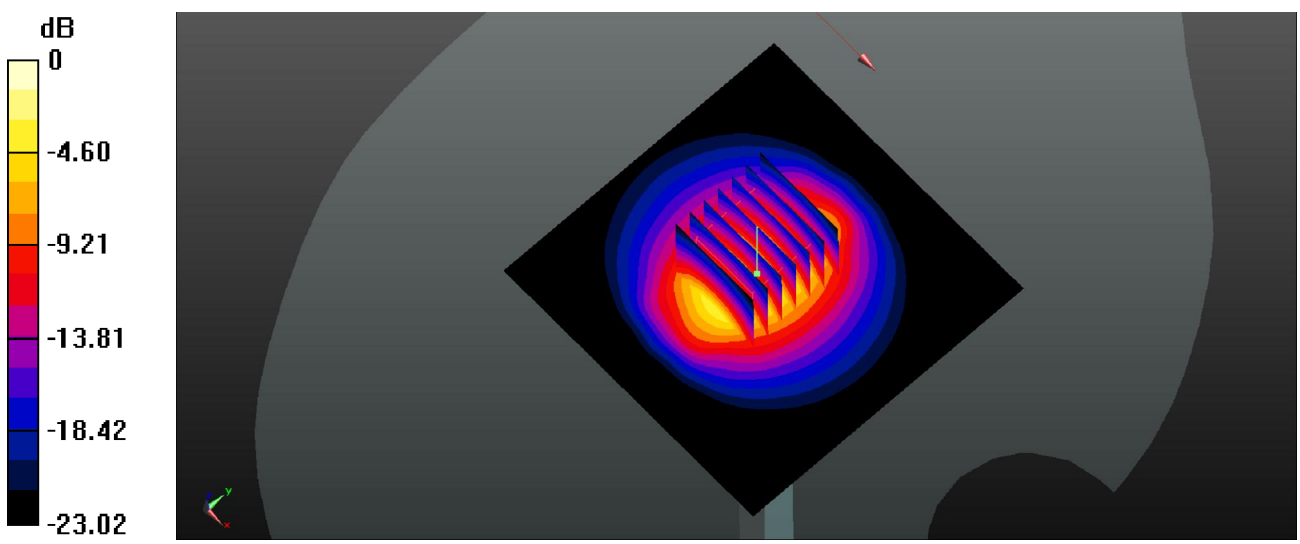
DUT: D2600V2-SN:1061

Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: MSL_2600_150722 Medium parameters used: f = 2600 MHz; σ = 2.209 S/m; ε_r = 51.123; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(7.03, 7.03, 7.03); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (81x81x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 22.2 W/kg

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.12 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 30.5 W/kg
SAR(1 g) = 14.6 W/kg; SAR(10 g) = 6.52 W/kg
Maximum value of SAR (measured) = 22.6 W/kg



0 dB = 22.6 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015.07.09

System Check_Body_5200MHz_150709

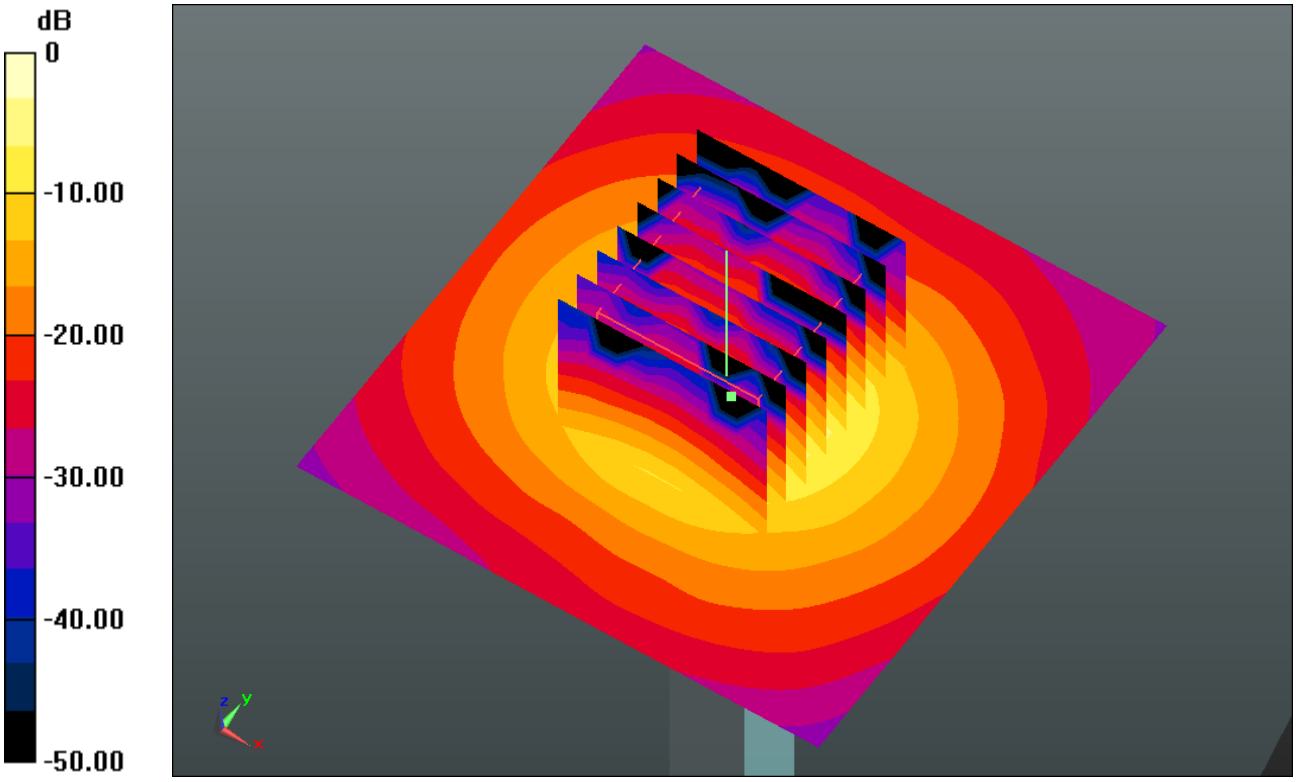
DUT: D5GHzV2-SN:1113

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5000_150709 Medium parameters used: f = 5200 MHz; σ = 5.373 mho/m; ε_r = 48.526; ρ = 1000 kg/m^3
Ambient Temperature：23.7 ℃； Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(4.45, 4.45, 4.45); Calibrated: 2015.05.28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2015.05.21
- Phantom: SAM2; Type: SAM; Serial: TP-1477
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.4.5 (3634)

Pin=100mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 15.819 mW/g

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 41.759 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 24.851 W/kg
SAR(1 g) = 7.23 mW/g; SAR(10 g) = 2.1 mW/g
Maximum value of SAR (measured) = 15.559 mW/g



0 dB = 15.560mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015.07.09

System Check_Body_5800MHz_150709

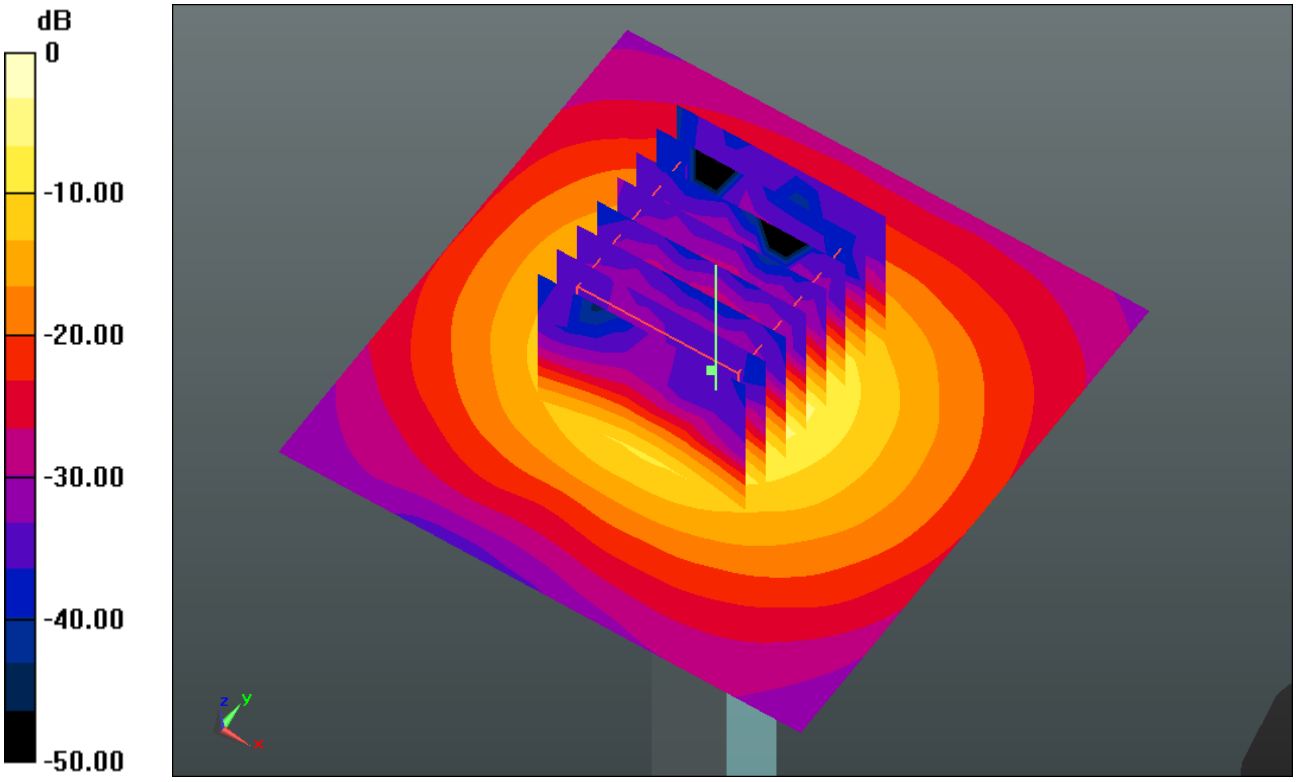
DUT: D5GHzV2-SN:1113

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: MSL_5000_150709 Medium parameters used: f = 5800 MHz; σ = 6.219 mho/m; ε_r = 47.128; ρ = 1000 kg/m^3
Ambient Temperature：23.7 ℃； Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(4.16, 4.16, 4.16); Calibrated: 2015.05.28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2015.05.21
- Phantom: SAM2; Type: SAM; Serial: TP-1477
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.4.5 (3634)

Pin=100mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 18.142 mW/g

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 36.933 V/m; Power Drift = -0.0087 dB
Peak SAR (extrapolated) = 33.032 W/kg
SAR(1 g) = 7.28 mW/g; SAR(10 g) = 2.02 mW/g
Maximum value of SAR (measured) = 17.784 mW/g



0 dB = 17.780mW/g

Appendix B. Plots of High SAR Measurement

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/22

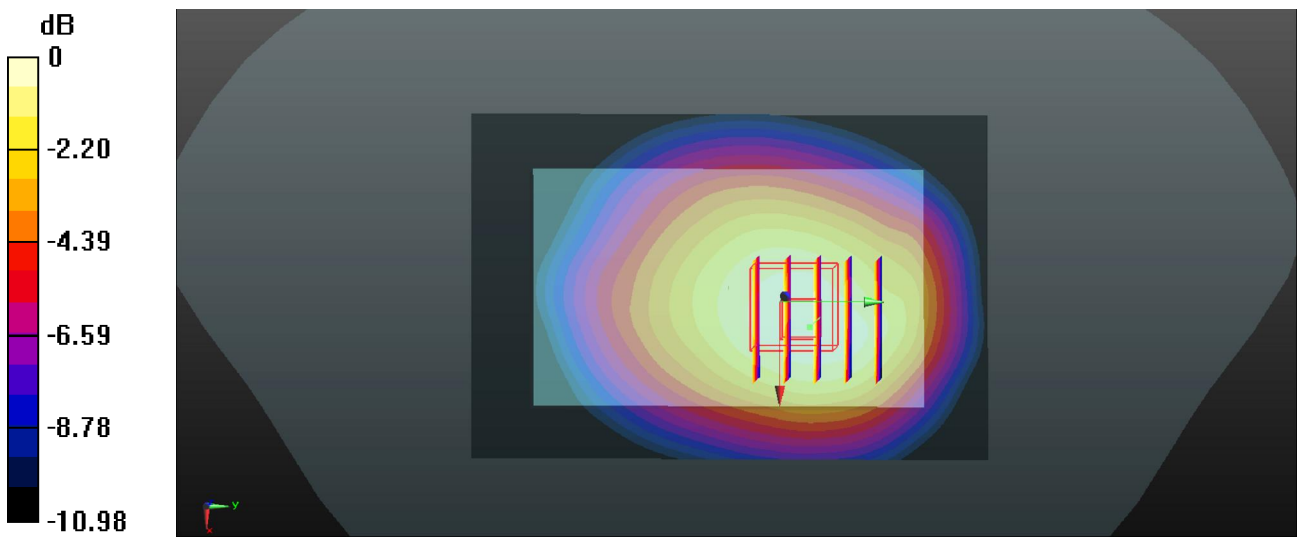
#01 WCDMA Band V_RMC 12.2Kbps_Back_1.0cm_Ch4182

Communication System: UID 0, WCDMA (0); Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_835_150722 Medium parameters used: f = 836.4 MHz; σ = 0.978 S/m; ε_r = 54.384; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(9.66, 9.66, 9.66); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch4182/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.824 W/kg

Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.30 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.921 W/kg
SAR(1 g) = 0.676 W/kg; SAR(10 g) = 0.483 W/kg
Maximum value of SAR (measured) = 0.812 W/kg



0 dB = 0.812 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/21

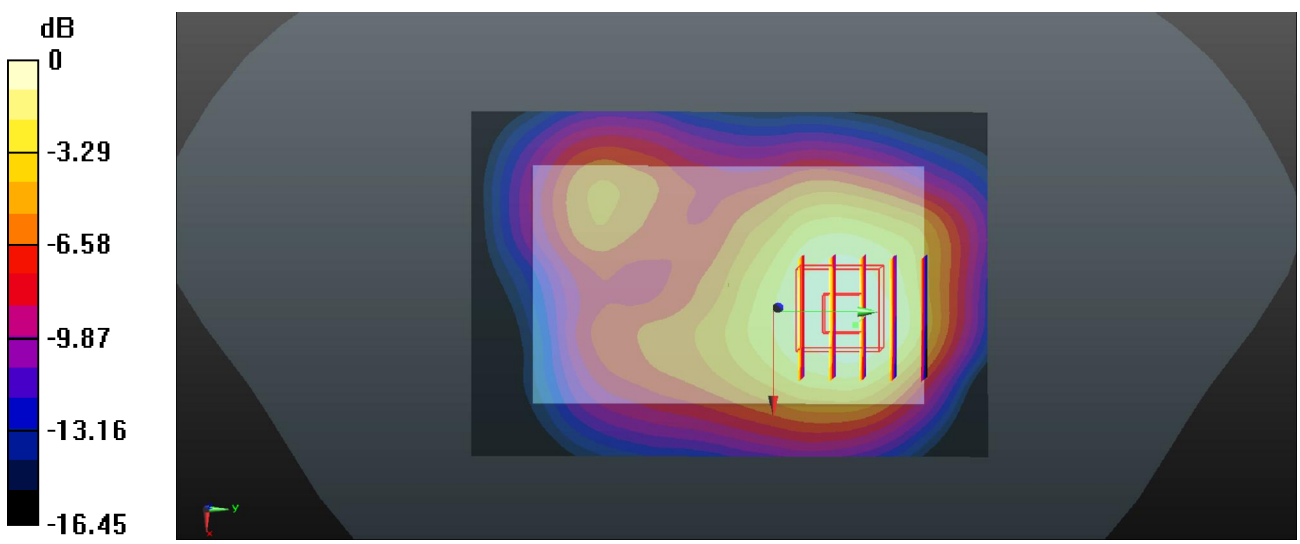
#02 WCDMA Band II_RMC 12.2Kbps_Back_1.0cm_Ch9262

Communication System: UID 0, WCDMA (0); Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: MSL_1900_150721 Medium parameters used: f = 1852.4 MHz; σ = 1.481 S/m; ε_r = 53.876; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(7.57, 7.57, 7.57); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9262/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.40 W/kg

Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.82 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.664 W/kg
Maximum value of SAR (measured) = 1.28 W/kg



0 dB = 1.28 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/23

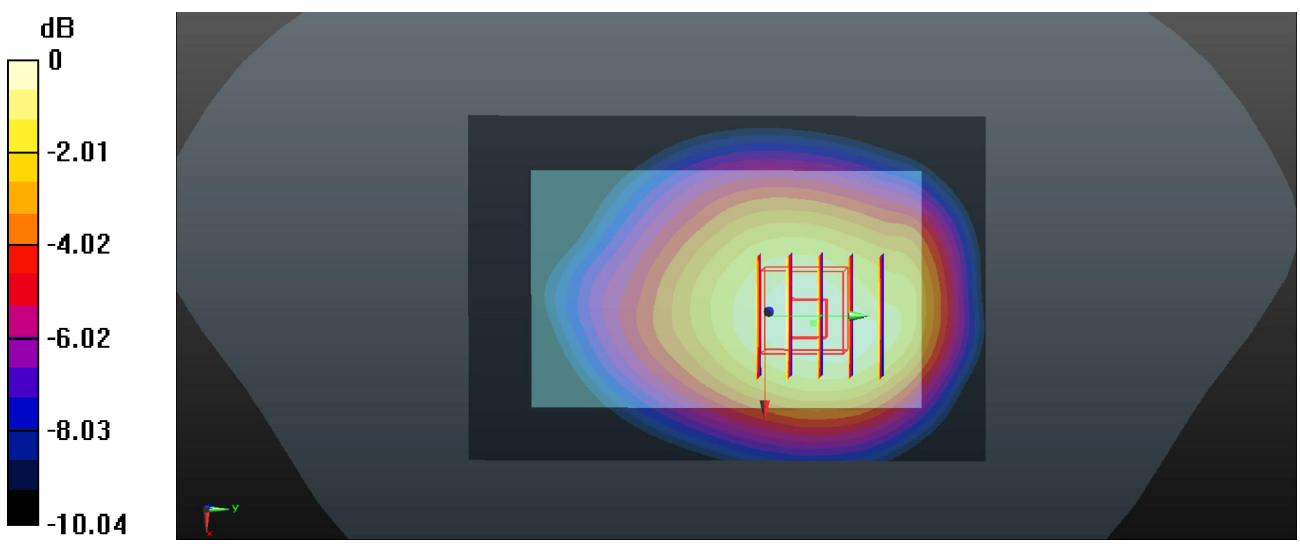
#03 LTE Band 17_QPSK_10M(1,0)_Back_1.0cm_Ch23800

Communication System: UID 0, FDD-LTE (0); Frequency: 711 MHz;Duty Cycle: 1:1
Medium: MSL_750_150723 Medium parameters used: f = 711 MHz; σ = 0.937 S/m; ε_r = 55.127; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(9.61, 9.61, 9.61); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23800/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.881 W/kg

Ch23800/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.94 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.978 W/kg
SAR(1 g) = 0.742 W/kg; SAR(10 g) = 0.535 W/kg
Maximum value of SAR (measured) = 0.877 W/kg



0 dB = 0.877 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/23

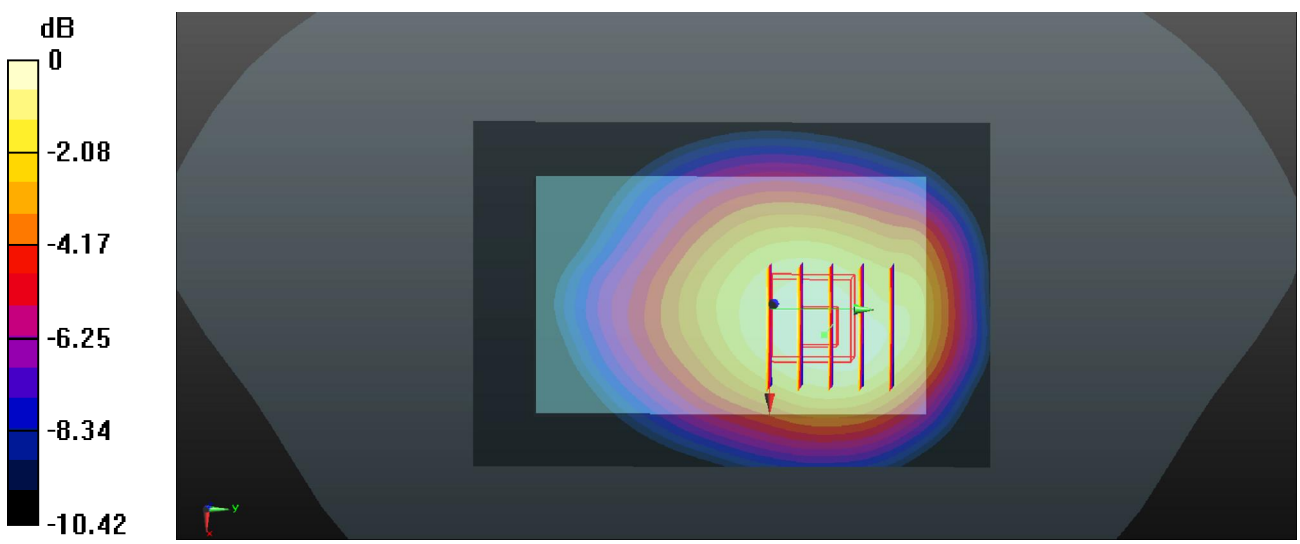
#04 LTE Band 12_QPSK_10M(1,24)_Back_1.0cm_Ch23130

Communication System: UID 0, FDD-LTE (0); Frequency: 711 MHz;Duty Cycle: 1:1
Medium: MSL_750_150723 Medium parameters used: f = 711 MHz; σ = 0.937 S/m; ε_r = 55.127; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(9.61, 9.61, 9.61); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch23130/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.874 W/kg

Ch23130/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.41 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.953 W/kg
SAR(1 g) = 0.714 W/kg; SAR(10 g) = 0.515 W/kg
Maximum value of SAR (measured) = 0.854 W/kg



0 dB = 0.854 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/21

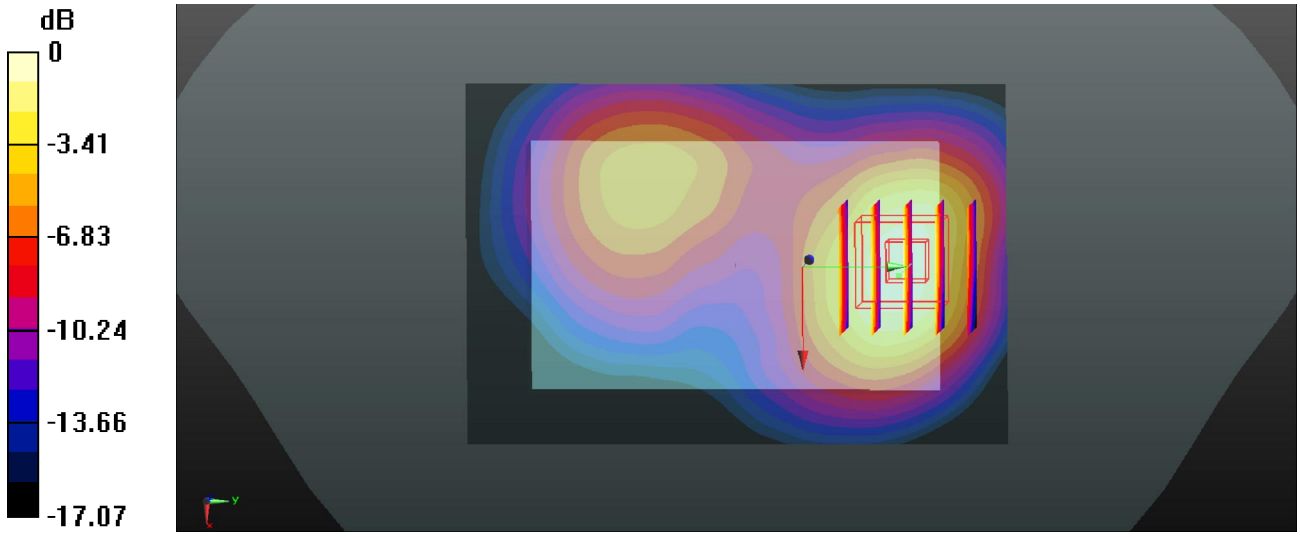
#05 LTE Band 4_QPSK_20M(1,0)_Back_1.0cm_Ch20050

Communication System: UID 0, FDD-LTE (0); Frequency: 1720 MHz;Duty Cycle: 1:1
Medium: MSL_1750_150721 Medium parameters used: f = 1720 MHz; σ = 1.456 S/m; ε_r = 53.23; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(7.93, 7.93, 7.93); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20050/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.45 W/kg

Ch20050/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.591 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.88 W/kg
SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.659 W/kg
Maximum value of SAR (measured) = 1.54 W/kg



0 dB = 1.54 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/21

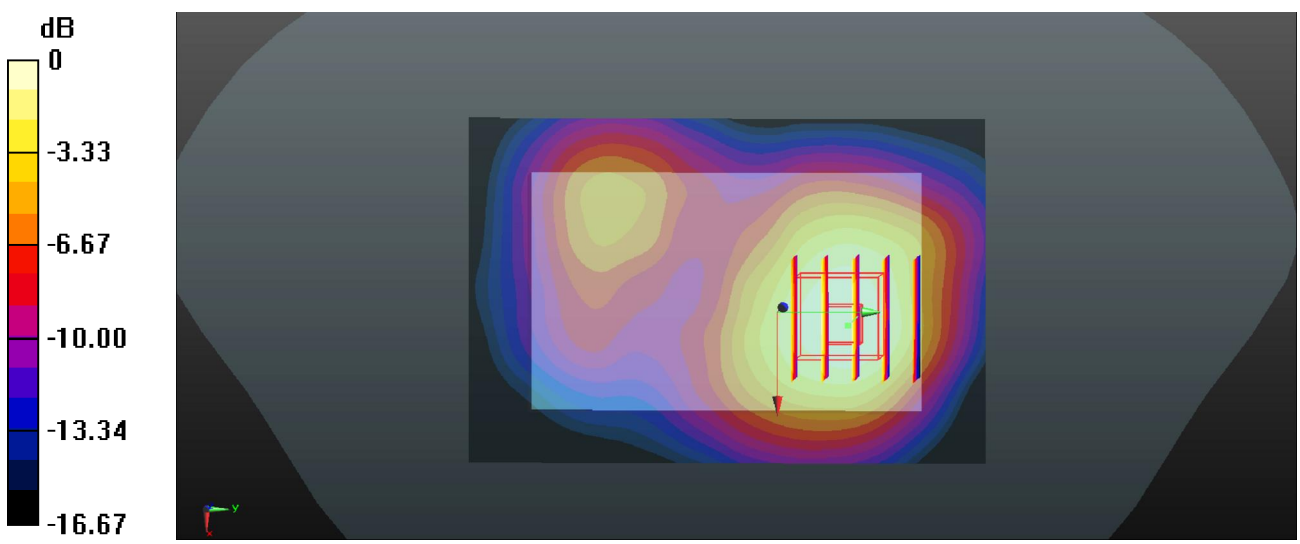
#06 LTE Band 2_QPSK_20M(1,0)_Back_1.0cm_Ch18900

Communication System: UID 0, FDD-LTE (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_150721 Medium parameters used: f = 1880 MHz; σ = 1.513 S/m; ε_r = 53.825; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(7.57, 7.57, 7.57); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch18900/Area Scan (61x91x1): Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.22 W/kg

Ch18900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.87 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.891 W/kg; SAR(10 g) = 0.553 W/kg
Maximum value of SAR (measured) = 1.12 W/kg



0 dB = 1.12 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/22

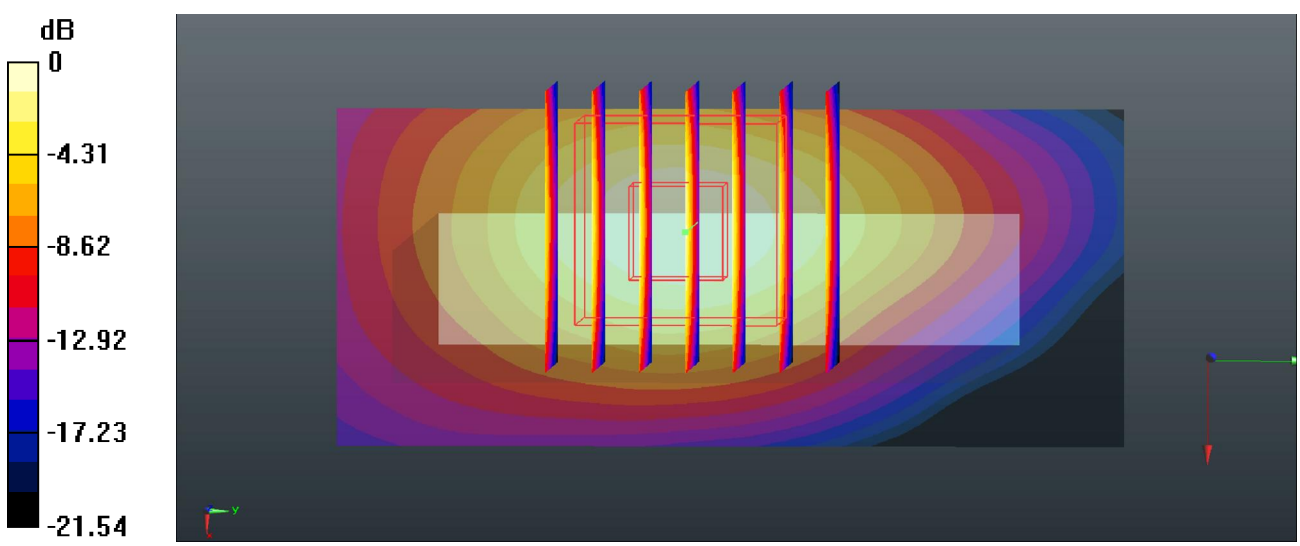
#07 LTE Band 7_QPSK_20M(1,0)_Right side_1.0cm_Ch20850

Communication System: UID 0, FDD-LTE (0); Frequency: 2510 MHz;Duty Cycle: 1:1
Medium: MSL_2600_150722 Medium parameters used: f = 2510 MHz; σ = 2.113 S/m; ε_r = 51.294; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(7.03, 7.03, 7.03); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1753
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch20850/Area Scan (31x71x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 2.04 W/kg

Ch20850/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.959 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 2.58 W/kg
SAR(1 g) = 1.32 W/kg; SAR(10 g) = 0.628 W/kg
Maximum value of SAR (measured) = 1.97 W/kg



0 dB = 1.97 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015/7/28

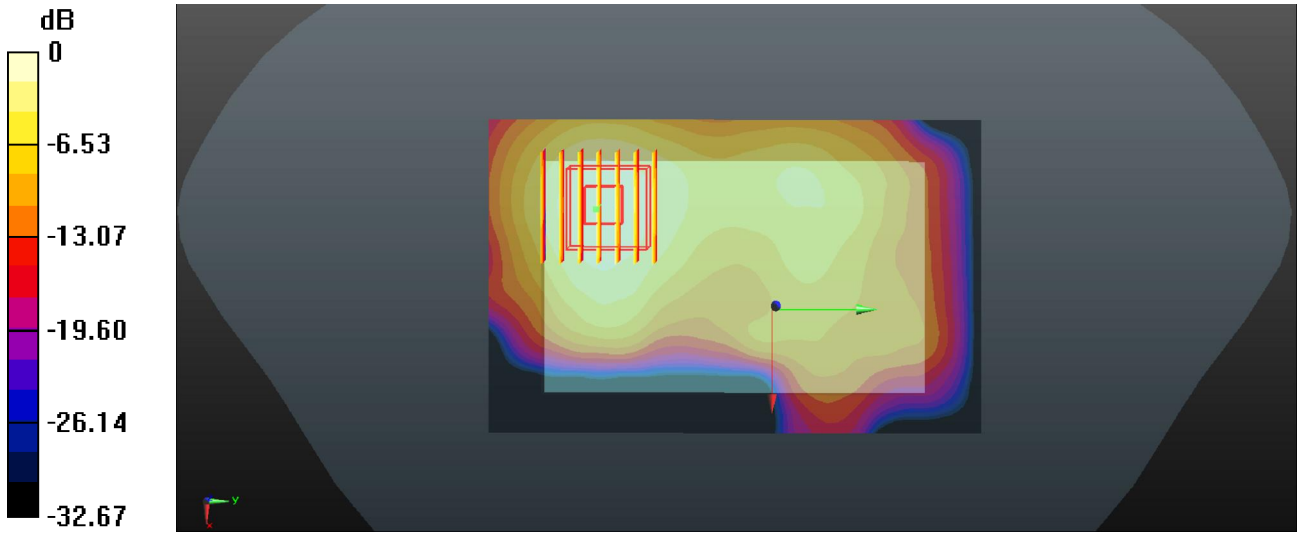
#08 WLAN 2.4GHz_802.11b 1Mbps_Back_1.0cm_Ch11_Ant 1

Communication System: UID 0, 802.11b (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_150728 Medium parameters used: f = 2462 MHz; σ = 1.971 S/m; ε_r = 51.063; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature ：22.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3911; ConvF(7.18, 7.18, 7.18); Calibrated: 2014/10/2;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn679; Calibrated: 2015/4/13
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1754
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch11/Area Scan (71x111x1): Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.215 W/kg

Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.468 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.269 W/kg
SAR(1 g) = 0.149 W/kg; SAR(10 g) = 0.081 W/kg
Maximum value of SAR (measured) = 0.212 W/kg



0 dB = 0.212 W/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015.07.09

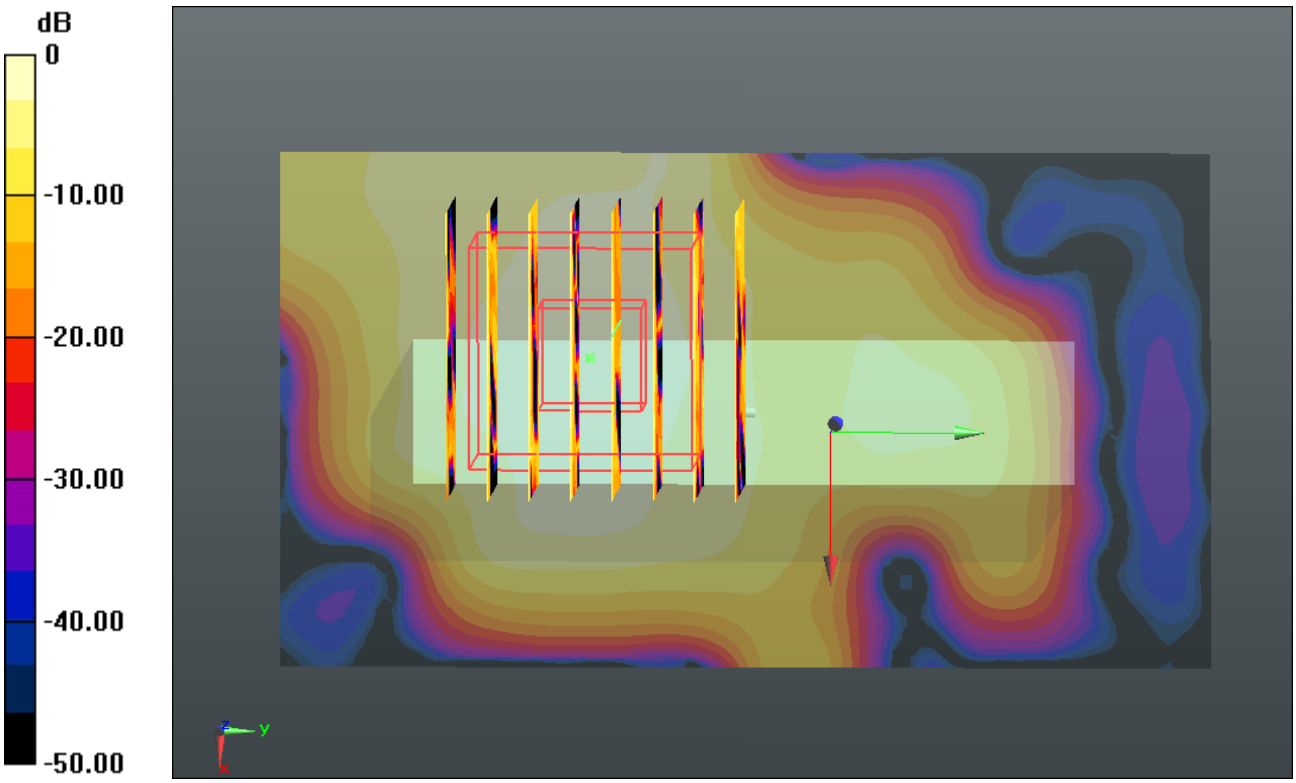
#09_WLAN 5.2GHz_802.11a 6Mbps_Left Side_1cm_Ch48_Ant.0

Communication System: WIFI (0); Frequency: 5240 MHz;Duty Cycle: 1:1.048
Medium: MSL_5000_150709 Medium parameters used: f = 5240 MHz; σ = 5.423 mho/m; ε_r = 48.422; ρ = 1000 kg/m^3
Ambient Temperature：23.7 ℃； Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(4.45, 4.45, 4.45); Calibrated: 2015.05.28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2015.05.21
- Phantom: SAM2; Type: SAM; Serial: TP-1477
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.4.5 (3634)

Ch48/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.120 mW/g

Ch48/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.596 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.201 W/kg
SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.124 mW/g



0 dB = 0.120mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2015.07.09

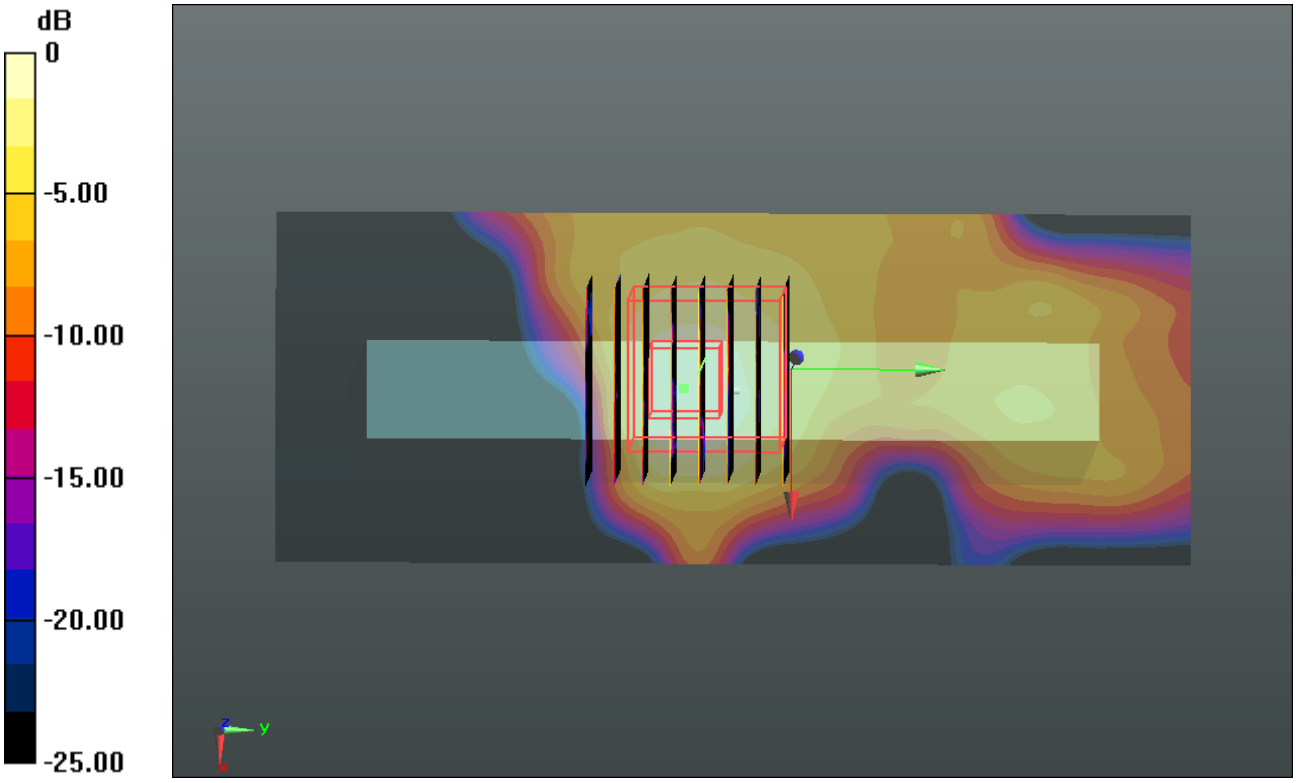
#10_WLAN 5.8GHz_802.11a 6Mbps_Top Side_1cm_Ch149_Ant.0

Communication System: WIFI (0); Frequency: 5745 MHz;Duty Cycle: 1:1.044
Medium: MSL_5000_150709 Medium parameters used: f = 5745 MHz; σ = 6.162 mho/m; ε_r = 47.294; ρ = 1000 kg/m^3
Ambient Temperature：23.7 ℃； Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3857; ConvF(4.16, 4.16, 4.16); Calibrated: 2015.05.28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2015.05.21
- Phantom: SAM2; Type: SAM; Serial: TP-1477
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.4.5 (3634)

Ch149/Area Scan (51x131x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.229 mW/g

Ch149/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.597 V/m; Power Drift = 0.034 dB
Peak SAR (extrapolated) = 0.401 W/kg
SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.027 mW/g
Maximum value of SAR (measured) = 0.232 mW/g



0 dB = 0.230mW/g