TEST REPORT

MANUFACTURER	**:**	Shenzhen Chainway Information Technology Co.,Ltd.
PRODUCT NAME	**:**	Mobile Data Terminal
MODEL NAME	**:**	C72
BRAND NAME	**:**	CHAINWAY
STANDARD(S)	**:**	EN 50360: 2017 EN 50566: 2017 EN 62209-1: 2016 EN 62209-2: 2010 EN 62479: 2010
TEST DATE	**:**	2018-01-24 to 2018-05-27
ISSUE DATE	**:**	2018-05-28

Tested by: Gan Yueming

Gan Yueming(Test engineer)

Approved by: Peng Huarui

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DIRECTORY

Change History		
Issue	**Date**	**Reason for change**
1.0	2018-05-28	First edition

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1. Technical Information

Note: Provide by manufacturer.

1.1. Manufacturer and Factor Information

Manufacturer:	Shenzhen Chainway Information Technology Co.,Ltd.
Manufacturer Address:	9/F, Building 2, Daqian Industrial Park, Longchang Rd., District 67, Bao'an, Shenzhen
Factor:	Shenzhen Chainway Information Technology Co.,Ltd.
Factor Address:	9/F, Building 2, Daqian Industrial Park, Longchang Rd., District 67, Bao'an, Shenzhen

1.2. Equipment Under Test (EUT) Description

EUT Type:	Mobile Data Terminal
Hardware Version:	C70SE_MB_V11
Software Version:	C72E_MT6735_V1.1_EU_GITfcd74c4_20180115
Frequency Bands:	GSM900: 880.2 MHz ~ 914.8 MHz GSM1800: 1710.2 MHz ~ 1784.8 MHz WCDMA Band I: 1922.4 MHz ~ 1977.6 MHz WCDMA Band VIII: 882.4 MHz ~ 912.6 MHz LTE Band 1: 1920 MHz ~ 1980 MHz LTE Band 3: 1710 MHz ~ 1785 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 8: 880 MHz ~ 915 MHz LTE Band 20: 832 MHz ~ 862 MHz LTE Band 40: 2300 MHz ~ 2400 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2472 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.5GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8GHz Band: 5725 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz RFID: 865 MHz ~ 868MHz
Modulation Mode:	GSM/GPRS/EDGE WCDMA: AMR/RMC 12.2Kbps HSDPA/ HSUPA/ HSPA+ LTE: QPSK / 16QAM 802.11b/g/n HT20/HT40

	802.11a/n HT20/HT40 Bluetooth 2.1+EDR Bluetooth 4.0 - LE RFID		
Multi-slot Class:	Class 12		
Operation mode:	Class B		
Hotspot function:	Not Support		
Antenna type:	WWAN : Fixed Internal Antenna WLAN : Fixed Internal Antenna Bluetooth : Fixed Internal Antenna		
SIM cards description:	Single SIM card		
Max Scaled SAR-10g(W/Kg)	Head	0.291 W/kg	Limit(W/kg): 2.0W/kg
	Body-worn	1.325 W/kg	

Note: For a more detailed description, please refer to specification or user's manual supplied by the applicant and/or manufacturer.

1.3. Summary of Maximum SAR Value

Equipment Class	Frequency Band	Highest SAR Summary	
		Head (Separation 0mm)	Body-worn (Separation 5mm)
		10g SAR (W/kg)	
WWAN	GSM900	0.072	0.585
	GSM1800	0.110	1.325
	WCDMA Band I	0.213	0.652
	WCDMA Band VIII	0.040	0.215
	LTE Band 1	0.141	0.813
	LTE Band 3	0.199	0.735
	LTE Band 7	0.247	0.652
	LTE Band 8	0.044	0.236
	LTE Band 20	0.045	0.291
	LTE Band 40	0.087	0.292
WLAN	WLAN 2.4GHz	0.116	0.345
	WLAN 5GHz	0.291	0.322
Bluetooth	Bluetooth	N/A	N/A
RFID		N/A	0.959
Highest Simultaneous Transmission 10g SAR (W/kg)		Head	Body-worn
WWAN + WLAN 2.4GHz		0.363	1.67
WWAN + WLAN 5GHz		0.45	1.647
WWAN + Bluetooth		N/A	N/A

According to REDCA Technical Guidance on the publication with restriction in the Official Journal of Europe of the reference of standard EN 50566:2017, ensuring the safe a separation distance of 5mm or less is applied for handheld device and body-mounted wireless communication device used by the general public, the 5mm distance is used for SAR testing and this device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure (Localized 10-g SAR for head and trunk , limit: 2.0W/kg) specified in Council Recommendation 1999/519/EC, and ICNERP Guidance, and had been tested accordance with the measurement methods and procedures specified in EN 50360:2017, EN 50566:2017, EC 62209-1:2016 and EN62209-2:2010.

1.4. Photographs of the EUT

Please refer to the External Photos for the Photos of the EUT

1.5. Applied Reference Documents

Leading reference documents for testing:

No.	Identity	Document Title
1	EN 50360:2017	Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300MHz-3 GHz)
2	EN 50566: 2017	Product standard to demonstrate compliance of radio frequency fields from handheld and body-mounted wireless communication devices used by the general public (30 MHz - 6 GHz)
3	EN 62209-1: 2016	Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)
4	EN 62209-2: 2010	Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 2: Procedure to determine the Specific Absorption Rate (SAR) in the head and body for 30MHz to 6GHz Handheld and Body-Mounted Devices used in close proximity to the body
5	EN 62479	Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)

1.6. Test Environment/Conditions

Normal Temperature (NT):	20 ... 25 °C
Relative Humidity:	30 ... 75 %
Air Pressure:	980 ... 1020 hPa
Test frequency:	GSM 900MHz/1800MHz; WCDMA Band I/VIII; FDD-LTE Band 1/3/7/8/20/40; WLAN 2.4GHz; WLAN 5GHz; RFID
Operation mode:	Call established
Power Level:	GSM 900 MHz Maximum output power(level 5) GSM 1800MHz Maximum output power(level 0) WCDMA Band I/VIII (All Up Bits) FDD-LTE Band 1/3/7/8/20/40 (Maximum output power) WLAN 2.4GHz; (Maximum output power); WLAN 5GHz; (Maximum output power). RFID

During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established.
The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the Factory. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset.
The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the handset by at least 35 dB.
For SAR testing, EUT is in GPRS mode. In GPRS link mode, its crest factor is 2, because EUT is set in GPRS multi-slot class 12 with 4 uplink slots. In WCDMA and WI-FI mode, its crest factor is 1.

2. SAR Basic Restrictions

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 2.0 W/kg as averaged over any 10 gram of tissue. The basic restrictions given below are set so as to account for uncertainties related to individual sensitivities, environmental conditions, and for the fact that the age and health status of members of the public vary.

Basic restrictions for electric, magnetic and electromagnetic fields (0 Hz to 300 GHz)

Frequency range	Magnetic flux density (mT)	Current density (mA/m^2) (rms)	Whole body average SAR (W/kg)	Localised SAR (head and trunk) (W/kg)	Localised SAR (limbs) (W/kg)	Power density, S (W/m^2)
0 Hz	40	—	—	—	—	—
>0-1 Hz	—	8	—	—	—	—
1-4 Hz	—	8/f	—	—	—	—
4-1 000 Hz	—	2	—	—	—	—
1 000 Hz-100 kHz	—	f/500	—	—	—	—
100 kHz-10 MHz	—	f/500	0,08	2	4	—
10 MHz-10 GHz	—	—	0,08	2	4	—
10-300 GHz	—	—	—	—	—	10

Note:

1. f is the frequency in Hz.

3. Specific Absorption Rate (SAR)

3.1. 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 Middle than the limits for general population/uncontrolled.

3.2. 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)

SAR measurement can be either related to the temperature elevation in tissue by,

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

Where C is the specific head capacity, $\delta\mathrm{T}$ is the temperature rise and $\delta\mathrm{t}$ the exposure duration, or related to the electrical field in the tissue by

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

Where ζ is the conductivity of the tissue, ρ is the mass density of the tissue and $|\mathrm{E}|$ is the rms electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

4. SAR Measurement System

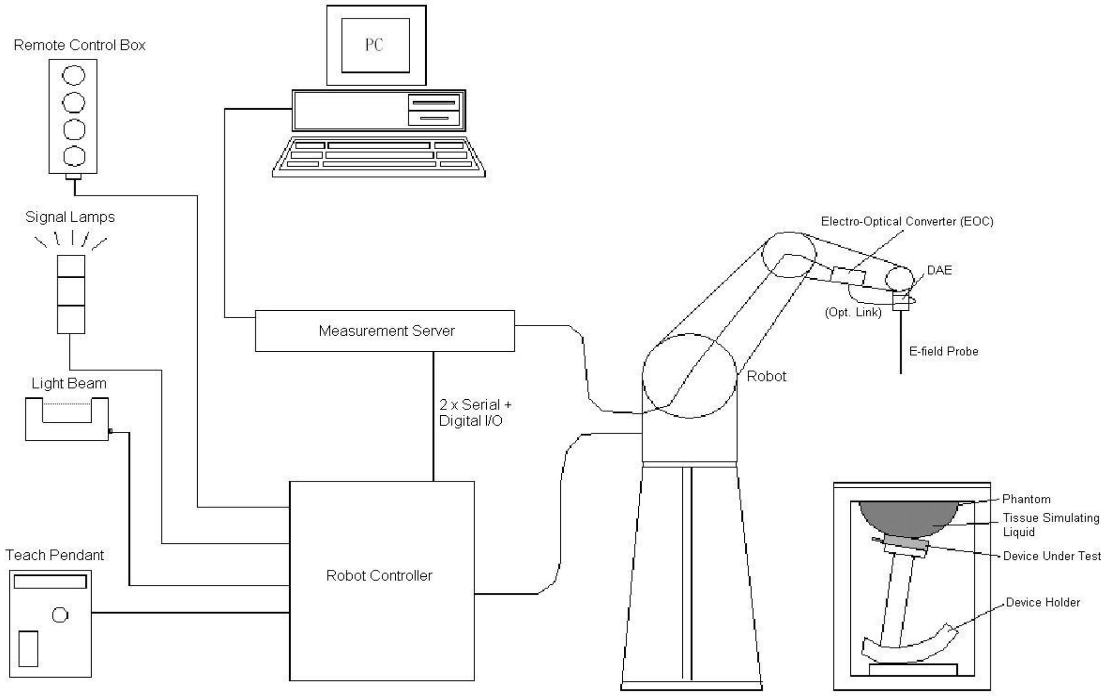


Fig 4.1 SPEAG DASY System Configurations

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

A standard high precision 6-axis robot with controller, a teach pendant and software

A data acquisition electronic (DAE) attached to the robot arm extension

A dosimetric probe equipped with an optical surface detector system

The electro-optical converter (ECO) performs the conversion between optical and electrical signals

A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.

A probe alignment unit which improves the accuracy of the probe positioning

A computer operating Windows XP

DASY software

Remove control with teach pendant and additional circuitry for robot safety such as warming lamps, etc.

The SAM twin phantom

A device holder

Tissue simulating liquid

Dipole for evaluating the proper functioning of the system

Some of the components are described in details in the following sub-sections.

4.1. E-Field Probe

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

E-Field Probe Specification

<ES3DV3 Probe >

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz to 3 GHz; Linearity: ± 0.2 dB
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 μW/g to 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm (Tip: 16 mm) Tip diameter: 6.8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.7 mm

Fig 3.2 Photo of ES3DV3

<EX3DV4 Probe>

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μW/g to 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm

Fig 3.3 Photo of EX3DV4

E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy shall be evaluated and within ± 0.25 dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

4.2. Data Acquisition Electronics (DAE)

The data acquisition electronics(DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 3.4Photo of DAE

4.3. Robot

The SPEAG DASY system uses the high precision robots (DASY4: RX90BL; DASY5: TX90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY4: CS7MB; DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:
High precision (repeatability ±0.035 mm)
High reliability (industrial design)
Jerk-free straight movements
Low ELF interference (the closed metallic construction shields against motor control fields)

Fig 3.5 Photo of DASY5

4.4. Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY4: 166 MHz, Intel Pentium;

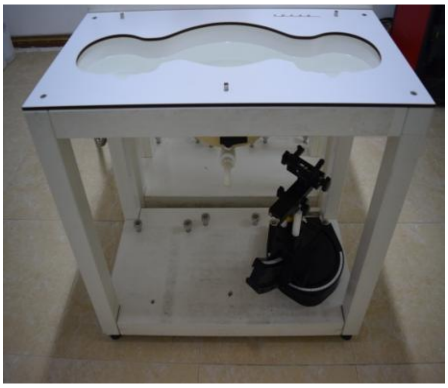
DASY5: 400 MHz, Intel Celeron), chip disk (DASY4: 32 MB; DASY5: 128 MB), RAM (DASY4: 64 MB, DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.

Fig 3.6 Photo of Server for DASY5

4.5. Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%) Center ear point: 6 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
Measurement Areas	Left Hand, Right Hand, Flat Phantom	**Fig 3.7Photo of SAM Phantom**

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

5. Device Holder

<Device Holder for SAM Twin Phantom>

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 20 %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR). Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

Fig 5.1 Device Holder

<Laptop Extension Kit>

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

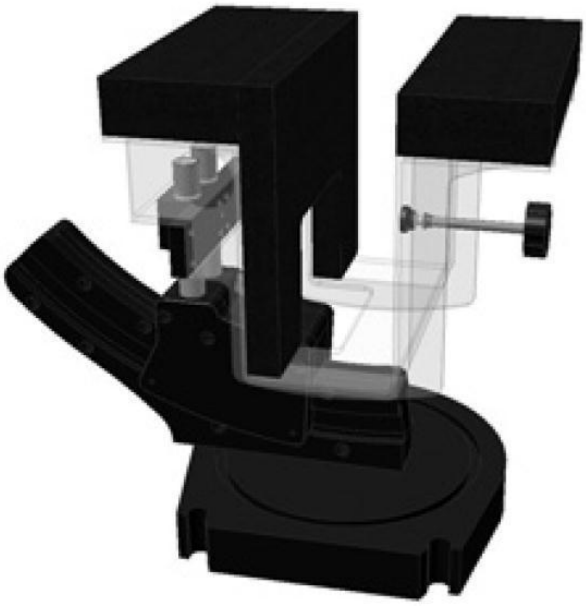


Fig 5.2 Laptop Extension Kit

5.1. Data Storage and Evaluation

Data Storage

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

Data Evaluation

The DASY post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software.

Probe parameters:	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcpi
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	ζ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \times \frac{cf}{dcp_i}$$

With Vi = compensated signal of channel i, (i = x, y, z)
Ui = input signal of channel i, (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcpi = diode compression point (DASY parameter)

From the compensated input signals, the primary field data for each channel can be evaluated:

$$\text{E-field Probes:} E_i = \sqrt{\frac{V_i}{Norm_i \times ConvF}}$$

$$\text{H-field Probes:} H_i = \sqrt{V_i} \times \frac{a_{i0} + a_{i1} + a_{i2} f^2}{f}$$

With V_i = compensated signal of channel i, (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i, (i = x, y, z), $\mu V/(V/m)^2$ for E-field

Probes ConvF = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \times \frac{\sigma}{\rho \times 1000}$$

with SAR = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

ζ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm^3

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

6. Tissue Simulating Liquids

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 5.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 5.2.The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in below table.

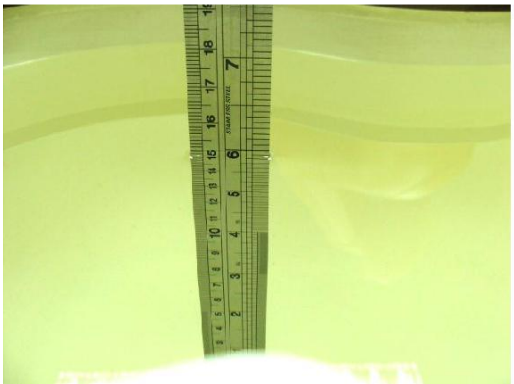


Fig 6.1 Photo of Liquid Height for Head SAR

Fig 6.2 Photo of Liquid Height for Body SAR

The following table gives the recipes for tissue simulating liquids

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (ζ)	Permittivity (εr)
Head								
750	41.1	57.0	0.2	1.4	0.2	0	0.89	41.9
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
2600	54.8	0	0	0.1	0	45.1	1.96	39.0

Simulating Liquid for 5GHz, Manufactured by SPEAG

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

Note: Please refer to the validation results for dielectric parameters of each frequency band.
The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using an Agilent 85033E Dielectric Probe Kit and an Agilent Network Analyzer.

Table 1: Dielectric Performance of Tissue Simulating Liquid

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Conductivity (σ)	Conductivity Target (σ)	Delta (σ) (%)	Limit (%)	Date
835	HSL	22.6	0.886	0.90	-1.56	±5	2018.02.03
900	HSL	22.9	0.973	0.97	0.31	±5	2018.02.05
900	HSL	22.3	0.971	0.97	0.10	±5	2018.05.28
1800	HSL	22.8	1.440	1.40	2.86	±5	2018.01.30
2000	HSL	22.4	1.451	1.40	3.64	±5	2018.01.24
2450	HSL	22.9	1.729	1.80	-3.94	±5	2018.01.31
2600	HSL	22.8	2.049	1.96	4.54	±5	2018.01.30
5200	HSL	22.4	4.696	4.66	0.77	±5	2018.04.14
5300	HSL	22.4	4.819	4.76	1.24	±5	2018.04.14
5500	HSL	22.4	5.075	5.07	0.10	±5	2018.04.14
5800	HSL	22.4	5.432	5.27	3.07	±5	2018.04.14

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Permittivity (ε_r)	Permittivity Target (ε_r)	Delta (ε_r) (%)	Limit (%)	Date
835	HSL	22.6	41.952	41.50	1.09	±5	2018.02.03
900	HSL	22.9	41.259	41.50	-0.58	±5	2018.02.05
900	HSL	22.3	41.309	41.50	-0.46	±5	2018.02.05
1800	HSL	22.8	41.065	40.00	2.66	±5	2018.01.30
2000	HSL	22.4	40.608	40.00	1.52	±5	2018.01.24
2450	HSL	22.9	37.305	39.20	-4.83	±5	2018.01.31
2600	HSL	22.8	37.739	39.00	-3.23	±5	2018.01.30
5200	HSL	22.4	37.048	36.00	2.91	±5	2018.04.14
5300	HSL	22.4	36.839	35.90	2.62	±5	2018.04.14
5500	HSL	22.4	36.416	35.50	2.58	±5	2018.04.14
5800	HSL	22.4	35.732	35.30	1.22	±5	2018.04.14

7. 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	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 7.1. 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)	Standard Uncertainty (1g)
Measurement System					
Probe Calibration	6.0	Normal	1	1	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	± 0.6 %
Linearity	4.7	Rectangular	√3	1	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	± 0.6 %
Readout Electronics	0.3	Normal	1	1	± 0.3 %
Response Time	0.8	Rectangular	√3	1	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	± 0.6 %
Test Sample Related					
Device Positioning	2.9	Normal	1	1	± 2.9 %
Device Holder	3.6	Normal	1	1	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	± 2.9 %
Phantom and Setup					
Phantom Uncertainty	4.0	Rectangular	√3	1	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	± 1.8 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	± 1.6 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	± 1.7 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	± 1.5 %
Combined Standard Uncertainty					± 11.0 %
Coverage Factor for 95 %					K=2
Expanded Uncertainty					± 22.0 %

Table 7.2 Uncertainty Budget of DASY for frequency range 300 MHz to 3 GHz according to EN62209-1

Error Description	Uncertainty Value (±%)	Probability	Divisor	(Ci) 1g	(Ci) 10g	Standard Uncertainty (1g) (±%)	Standard Uncertainty (10g) (±%)
Measurement System							
Probe Calibration	6.55	N	1	1	1	6.0	6.0
Axial Isotropy	4.7	R	1.732	0.7	0.7	1.9	1.9
Hemispherical Isotropy	9.6	R	1.732	0.7	0.7	3.9	3.9
Boundary Effects	2.0	R	1.732	1	1	1.2	1.2
Linearity	4.7	R	1.732	1	1	2.7	2.7
System Detection Limits	1.0	R	1.732	1	1	0.6	0.6
Modulation Response	3.2	R	1.732	1	1	1.8	1.8
Readout Electronics	0.3	N	1	1	1	0.3	0.3
Response Time	0.0	R	1.732	1	1	0.0	0.0
Integration Time	2.6	R	1.732	1	1	1.5	1.5
RF Ambient Noise	3.0	R	1.732	1	1	1.7	1.7
RF Ambient Reflections	3.0	R	1.732	1	1	1.7	1.7
Probe Positioner	0.4	R	1.732	1	1	0.2	0.2
Probe Positioning	6.7	R	1.732	1	1	3.9	3.9
Max. SAR Eval.	4.0	R	1.732	1	1	2.3	2.3
Test Sample Related							
Device Positioning	3.0	N	1	1	1	3.0	3.0
Device Holder	3.6	N	1	1	1	3.6	3.6
Power Drift	5.0	R	1.732	1	1	2.9	2.9
Power Scaling	0.0	R	1.732	1	1	0.0	0.0
Phantom and Setup							
Phantom Uncertainty	6.1	R	1.732	1	1	3.8	3.8
SAR correction	0.0	R	1.732	1	0.84	0.0	0.0
Liquid Conductivity Repeatability	0.2	N	1	0.78	0.71	0.1	0.1
Liquid Conductivity (target)	5.0	R	1.732	0.78	0.71	2.3	2.0
Liquid Conductivity (mea.)	2.5	R	1.732	0.78	0.71	1.1	1.0
Temp. unc. - Conductivity	3.4	R	1.732	0.78	0.71	1.5	1.4
Liquid Permittivity Repeatability	0.15	N	1	0.23	0.26	0.0	0.0
Liquid Permittivity (target)	5.0	R	1.732	0.23	0.26	0.7	0.8
Liquid Permittivity (mea.)	2.5	R	1.732	0.23	0.26	0.3	0.4
Temp. unc. - Permittivity	0.83	R	1.732	0.23	0.26	0.1	0.1
Combined Std. Uncertainty						12.5%	12.5%
Coverage Factor for 95 %						K=2	K=2
Expanded STD Uncertainty						25.1 %	25.1%

Table 7.3 Uncertainty Budget of DASY for frequency range 300 MHz to 3 GHz according to EN62209-2

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8. SAR Measurement Evaluation

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

8.1. Purpose of System Performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

8.2. System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave which comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below.
The output power on dipole port must be calibrated to 24 dBm (250 mW) before dipole is connected.

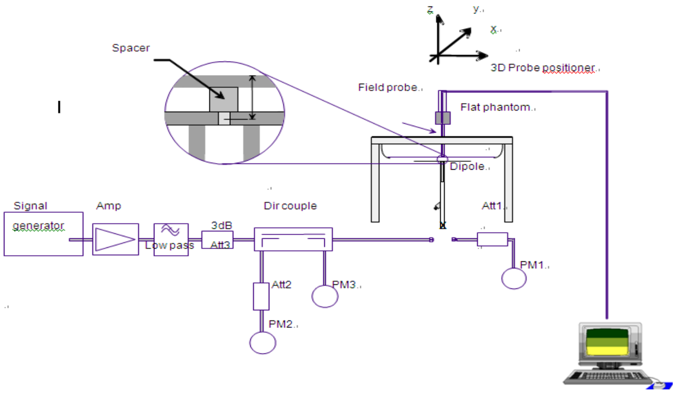

Fig 8.1 System Setup for System Evaluation **Fig 8.2 Photo of Dipole Setup**

8.3. Validation Results

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10 %.

<1g SAR>

Date	Frequency (MHz)2	Tissue Type	Input Power (mW)	Measured 1g SAR (W/kg)	Targeted 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Deviation (%)
2018.02.03	835	HSL	250	2.33	9.46	9.32	-1.48
2018.02.05	900	HSL	250	2.78	10.70	11.12	3.93
2018.05.28	900	HSL	250	2.72	10.70	10.88	1.68
2018.01.30	1800	HSL	250	10.60	39.20	42.4	8.16
2018.01.24	2000	HSL	250	10.90	40.50	43.6	7.65
2018.01.31	2450	HSL	250	13.00	52.50	52	-0.95
2018.01.30	2600	HSL	250	14.00	53.30	56	5.07
2018.04.14	5200	HSL	100	8.19	78.20	81.9	4.73
2018.04.14	5300	HSL	100	7.95	82.50	79.5	-3.64
2018.04.14	5600	HSL	100	8.02	83.70	80.2	-4.18
2018.04.14	5800	HSL	100	8.12	79.60	81.2	2.01

<10g SAR>

Date	Frequency (MHz)	Tissue Type	Input Power (mW)	Measured 10g SAR (W/kg)	Targeted 10g SAR (W/kg)	Normalized 10g SAR (W/kg)	Deviation (%)
2018.02.03	835	HSL	250	1.56	6.11	6.24	2.13
2018.02.05	900	HSL	250	1.81	6.92	7.24	4.62
2018.05.28	900	HSL	250	1.78	6.92	7.12	2.89
2018.01.30	1800	HSL	250	5.53	20.50	22.12	7.90
2018.01.24	2000	HSL	250	5.61	20.70	22.44	8.41
2018.01.31	2450	HSL	250	6.21	24.70	24.84	0.57
2018.01.30	2600	HSL	250	5.91	24.40	23.64	-3.11
2018.04.14	5200	HSL	100	2.21	22.50	22.1	-1.78
2018.04.14	5300	HSL	100	2.25	23.50	22.5	-4.26
2018.04.14	5600	HSL	100	2.21	24.00	22.1	-7.92
2018.04.14	5800	HSL	100	2.24	22.90	22.4	-2.18

Note: System checks the specific test data please see Annex C

9. Operational Conditions During Test

9.1. Information on the testing

The mobile phone antenna and battery are those specified by the manufacturer. The battery is fully charged before each measurement. The output power and frequency are controlled using a base station simulator. The mobile phone is set to transmit at its highest output peak power level.

The mobile phone is test in the “cheek” and “tilted” positions on the left and right sides of the phantom. The mobile phone is placed with the vertical centre line of the body of the mobile phone and the horizontal line crossing the centre of the earpiece in a plane parallel to the sagittal plane of the phantom.

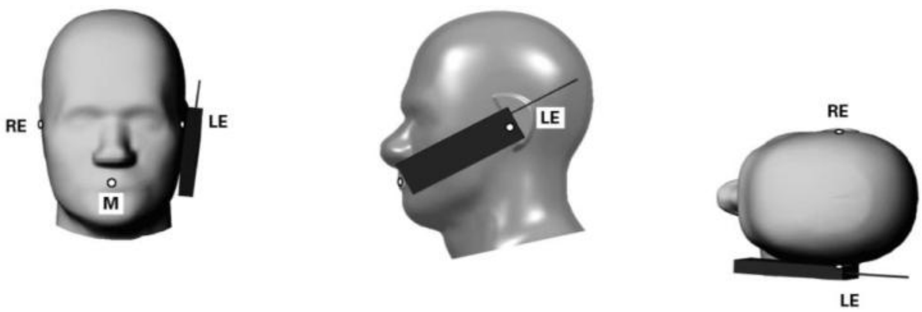

Fig 8.1 Illustration for Cheek Position

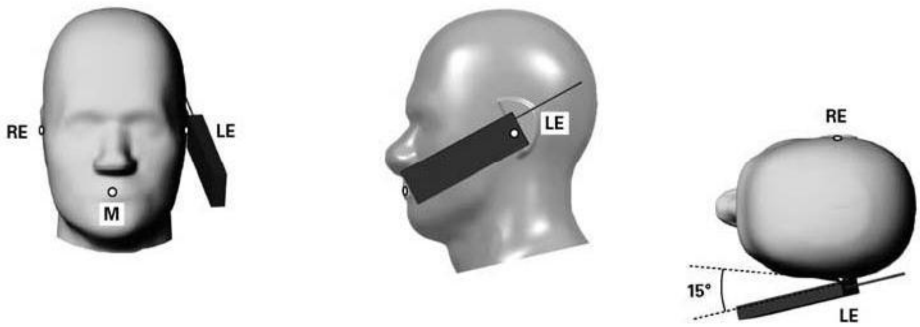

Fig 8.2 Illustration for Tilted Position

Description of the “cheek” position:

The mobile phone is well placed in the reference plane and the earpiece is in contact with the ear. Then the mobile phone is moved until any point on the front side get in contact with the cheek of the phantom or until contact with the ear is lost.

Description of the “tilted” position:

The mobile phone is well placed in the “cheek” position as described above. Then the mobile phone is moved outward away from the month by an angle of 15 degrees or until contact with the ear lost.

Remark: Please refer to Appendix B for the test setup photos.

9.2. Body-worn Configurations

The body-worn configurations shall be tested with the supplied accessories (belt-clips, holsters, etc.) attached to the device in normal use configuration.

For body-worn and other configurations a flat phantom shall be used which is comprised of material with electrical properties similar to the corresponding tissues.

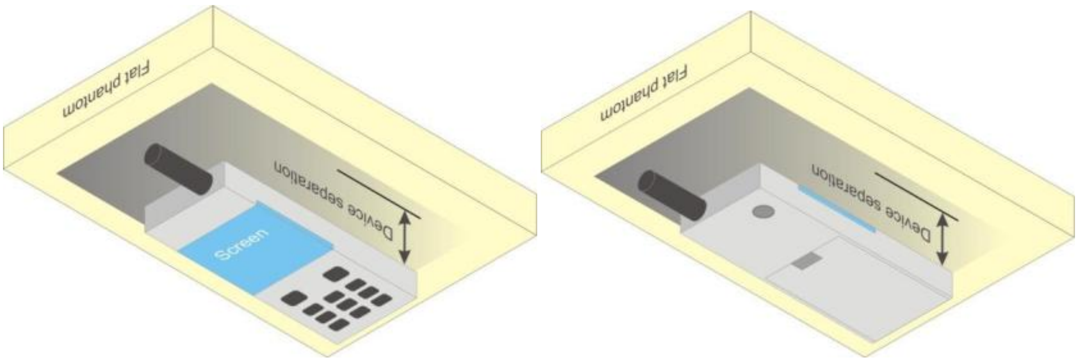

Fig 8.3 Illustration for Body Worn Position

9.3. Measurement procedure

The Following steps are used for each test position

1. Establish a call with the maximum output power with a base station simulator. The connection between the mobile and the base station simulator is established via air interface.
2. Measurement of the local E-field value at a fixed location. This value serves as a reference value for calculating a possible power drift.
3. Measurement of the SAR distribution with a grid of 8 to 15mm * 8 to15 mm and a constant distance to the inner surface of the phantom. Since the sensors cannot directly measure at the inner phantom surface, the values between the sensors and the inner phantom surface are extrapolated. With these values the area of the maximum SAR is calculated by an interpolation scheme.

4. Around this point, a cube of 30 * 30 * 30 mm or 32 * 32 * 32 mm is assessed by measuring 5 or 8 * 5 or 8*4 or 5 mm. With these data, the peak spatial-average SAR value can be calculated.

9.4. Description of interpolation/extrapolation scheme

The local SAR inside the phantom is measured using small dipole sensing elements inside a probe body. The probe tip must not be in contact with the phantom surface in order to minimize measurements errors, but the highest local SAR will occur at the surface of the phantom.

An extrapolation is using to determinate this highest local SAR values. The extrapolation is based on a fourth-order least-square polynomial fit of measured data. The local SAR value is then extrapolated from the liquid surface with a 1mm step.

The measurements have to be performed over a limited time (due to the duration of the battery) so the step of measurement is high. It could vary between 5 and 8 mm. To obtain an accurate assessment of the maximum SAR averaged over 10 grams and 1 gram requires a very fine resolution in the three dimensional scanned data array.

10. Measurement Procedures

The measurement procedures are as follows:

(a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the highest power channel.
(b) Keep DUT to radiate maximum output power or 100% duty factor (if applicable)
(c) Measure output power through RF cable and power meter.
(d) Place the DUT in the positions as Appendix E demonstrates.
(e) Set scan area, grid size and other setting on the DASY software.
(f) Measure SAR results for the highest power channel on each testing position.
(g) Find out the largest SAR result on these testing positions of each band
(h) Measure SAR results for other channels in worst SAR testing position if the 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

10.1. 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

10.2. Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures 5x5x7 points with step size 8, 8 and 5 mm for 300 MHz to 3 GHz, and 8x8x8 points with step size 4, 4 and 2.5 mm for 3 GHz to 6 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

10.3. 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 DUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing (step-size is 4, 4 and 2.5 mm). When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

10.4. SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

10.5. Power Drift Monitoring

All SAR testing is under the DUT 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 DUT 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 drift more than 5%, the SAR will be retested.

11. Measurement Of Conducted output power

GSM mode conducted output power values

GSM900	Burst Average Power (dBm)			Tune-up	Frame-Average Power (dBm)			Tune-up
TX Channel	975	38	124	Limit	975	37	124	Limit
Frequency (MHz)	880.2	897.6	914.8	(dBm)	880.2	897.4	914.8	(dBm)
GSM 1 Tx slot	33.52	33.69	33.67	34.00	24.52	24.69	24.67	25.00
GPRS 1 Tx slot	33.12	33.27	33.16	33.50	24.12	24.27	24.16	24.50
GPRS 2 Tx slots	32.84	32.88	32.90	33.00	26.84	26.88	26.90	27.00
GPRS 3 Tx slots	30.73	30.66	30.56	31.00	26.47	26.40	26.30	26.74
GPRS 4 Tx slots	29.71	29.78	29.46	30.00	26.71	26.78	26.46	27.00
EDGE 1 Tx slot	27.29	27.21	27.22	27.50	18.29	18.21	18.22	18.50
EDGE 2 Tx slots	26.92	26.35	26.49	27.00	20.92	20.35	20.49	21.00
EDGE 3 Tx slots	25.33	25.25	25.24	25.50	21.07	20.99	20.98	21.24
EDGE 4 Tx slots	24.50	24.27	23.17	24.50	21.50	21.27	20.17	21.50

GSM1800	Burst Average Power (dBm)			Tune-up	Frame-Average Power (dBm)			Tune-up
TX Channel	512	698	885	Limit	512	698	885	Limit
Frequency (MHz)	1710.2	1747.4	1784.8	(dBm)	1710.2	1747.4	1784.8	(dBm)
GSM 1 Tx slot	29.43	29.61	29.52	30.00	20.43	20.61	20.52	21.00
GPRS 1 Tx slot	29.36	29.48	29.28	29.50	20.36	20.48	20.28	20.50
GPRS 2 Tx slots	28.78	29.25	29.26	29.50	22.78	23.25	23.26	23.50
GPRS 3 Tx slots	27.89	27.97	27.93	28.00	23.63	23.71	23.67	23.74
GPRS 4 Tx slots	27.07	27.05	27.14	27.50	24.07	24.05	24.14	24.50
EDGE 1 Tx slot	26.30	26.80	26.52	27.00	17.30	17.80	17.52	18.00
EDGE 2 Tx slots	25.65	25.91	25.99	26.00	19.65	19.91	19.99	20.00
EDGE 3 Tx slots	24.10	24.32	24.62	25.00	19.84	20.06	20.36	20.74
EDGE 4 Tx slots	23.17	23.27	23.37	23.50	20.17	20.27	20.37	20.50

Timeslot consignations:

No. of Slots	Slot 1	Slot 2	Slot 3	Slot 4
Slot Consignation	1Up4Down	2Up3Down	3Up2Down	4Up1Down
Duty Cycle	1:83	1:4.15	1:2.77	1:208
Correct Factor	-9.03dB	-6.02dB	-4.26dB	-3.01dB

WCDMA mode conducted output power values

Band		WCDMA Band I			Tune-up Limit (dBm)	WCDMA Band VIII			Tune-up Limit (dBm)
TX Channel		9612	9750	9888		2712	2788	2863	
Rx Channel		10562	10700	10838		2937	3013	3088	
Frequency (MHz)		1922.4	1950	1977.6		882.4	897.6	912.6	
3GPP Rel 99	RMC 12.2Kbps	23.38	23.05	23.28	23.50	22.90	22.85	22.89	23.00
3GPP Rel 6	HSDPA Subtest-1	22.67	22.46	22.53	23.00	21.83	21.83	21.84	22.00
3GPP Rel 6	HSDPA Subtest-2	22.68	22.47	22.48	23.00	21.80	21.89	21.82	22.00
3GPP Rel 6	HSDPA Subtest-3	22.23	22.01	22.02	22.50	21.34	21.40	21.39	21.50
3GPP Rel 6	HSDPA Subtest-4	22.17	21.99	22.00	22.50	21.36	21.37	21.36	21.50
3GPP Rel 6	HSUPA Subtest-1	20.70	20.36	20.41	21.00	19.80	19.83	19.89	22.50
3GPP Rel 6	HSUPA Subtest-2	20.65	20.36	20.41	21.00	19.78	19.86	19.87	20.50
3GPP Rel 6	HSUPA Subtest-3	21.65	21.40	21.42	22.00	20.85	20.91	20.91	21.50
3GPP Rel 6	HSUPA Subtest-4	20.07	19.85	19.90	21.00	19.24	19.31	19.34	20.50
3GPP Rel 6	HSUPA Subtest-5	22.59	22.36	22.42	23.00	21.82	21.83	21.85	22.50
3GPP Rel 7	HSPA+ (16QAM) Subtest-1	21.46	21.30	21.33	22.00	21.13	21.18	21.17	20.00

LTE mode conducted output power values

<FDD-LTE Band 1>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				18100	18300	18500	
Frequency (MHz)				1930	1950	1970	
20	QPSK	1	0	**22.06**	21.86	21.98	22.50
20	QPSK	1	99	21.89	21.90	21.93	
20	QPSK	18	0	21.94	21.74	21.95	22.50
20	QPSK	18	82	21.90	21.91	21.95	
Channel				18075	18300	18525	Tune-up limit (dBm)
Frequency (MHz)				1927.5	1950	1972.5	
15	QPSK	1	0	21.80	21.88	21.89	22.50
15	QPSK	1	74	21.86	21.88	21.90	
15	QPSK	16	0	21.82	21.87	21.86	22.50
15	QPSK	16	59	21.97	21.84	21.99	
Channel				18050	18300	18550	Tune-up limit (dBm)
Frequency (MHz)				1925	1950	1975	
10	QPSK	1	0	22.01	22.03	22.05	22.50
10	QPSK	1	49	21.98	21.97	21.86	
10	QPSK	12	0	21.88	21.96	21.99	22.50
10	QPSK	12	38	21.89	21.86	21.87	
Channel				18025	18300	18575	Tune-up limit (dBm)
Frequency (MHz)				1922.5	1950	1977.5	
5	QPSK	1	0	21.71	21.57	21.75	22.50
5	QPSK	1	24	21.80	21.73	21.56	
5	QPSK	8	0	21.92	21.70	21.70	22.50
5	QPSK	8	17	21.90	21.86	21.70	

<FDD-LTE Band 3>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				19300	19575	19850	
Frequency (MHz)				1720	1747.5	1775	
20	QPSK	1	0	22.16	**22.29**	22.16	22.50
20	QPSK	1	99	21.74	22.11	22.04	
20	QPSK	18	0	21.80	22.23	21.86	22.50
20	QPSK	18	82	21.77	21.78	21.79	
Channel				19275	19575	19875	Tune-up limit (dBm)
Frequency (MHz)				1717.5	1747.5	1777.5	
15	QPSK	1	0	21.86	21.88	21.90	22.50
15	QPSK	1	74	21.76	21.87	21.89	
15	QPSK	16	0	21.90	21.88	21.99	22.50
15	QPSK	16	59	21.98	21.91	21.90	
Channel				19250	19575	19900	Tune-up limit (dBm)
Frequency (MHz)				1715	1747.5	1780	
10	QPSK	1	0	21.80	21.86	21.82	22.50
10	QPSK	1	49	21.88	21.86	21.79	
10	QPSK	12	0	21.88	21.80	21.79	22.50
10	QPSK	12	38	21.86	21.84	21.82	
Channel				19225	19575	19925	Tune-up limit (dBm)
Frequency (MHz)				1712.5	1747.5	1782.5	
5	QPSK	1	0	21.75	21.90	21.80	22.50
5	QPSK	1	24	21.70	21.91	21.77	
5	QPSK	8	0	21.87	22.09	21.76	22.50
5	QPSK	8	17	21.79	21.78	21.70	
Channel				19215	19575	19935	Tune-up limit (dBm)
Frequency (MHz)				1711.5	1747.5	1783.5	
3	QPSK	1	0	21.77	21.78	21.79	22.50
3	QPSK	1	14	21.80	21.82	21.80	
3	QPSK	4	0	21.79	21.77	21.75	22.50
3	QPSK	4	11	21.70	21.76	21.80	

Channel				19207	19575	19943	Tune-up limit (dBm)
Frequency (MHz)				1710.7	1747.5	1784.3	
1.4	QPSK	1	0	21.77	21.95	21.80	22.50
1.4	QPSK	1	5	21.79	21.90	21.82	
1.4	QPSK	5	0	22.01	22.15	22.03	22.50
1.4	QPSK	5	1	21.90	21.92	21.98	

<FDD-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)
Channel				20850	21100	21350	
Frequency (MHz)				2510	2535	2560	
20	QPSK	1	0	22.17	22.15	22.28	22.50
20	QPSK	1	99	21.85	21.88	21.85	
20	QPSK	18	0	22.20	22.25	22.10	22.50
20	QPSK	18	82	22.12	22.16	22.09	
Channel				20825	21100	21375	Tune-up limit (dBm)
Frequency (MHz)				2507.5	2535	2562.5	
15	QPSK	1	0	22.09	22.18	22.07	22.50
15	QPSK	1	74	22.03	22.10	22.01	
15	QPSK	16	0	21.98	21.97	21.89	22.50
15	QPSK	16	59	21.88	21.87	21.89	
Channel				20800	21100	21400	Tune-up limit (dBm)
Frequency (MHz)				2505	2535	2565	
10	QPSK	1	0	21.80	21.89	21.88	22.50
10	QPSK	1	49	21.82	21.86	21.84	
10	QPSK	12	0	21.79	21.80	21.82	22.50
10	QPSK	12	38	21.88	21.83	21.85	
Channel				20775	21100	21425	Tune-up limit (dBm)
Frequency (MHz)				2502.5	2535	2567.5	
5	QPSK	1	0	21.95	21.81	21.73	22.50
5	QPSK	1	24	21.51	21.62	21.63	
5	QPSK	8	0	21.80	21.96	21.82	22.50
5	QPSK	8	17	21.79	21.83	21.80	

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<FDD-LTE Band 8>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				21500	21625	21750	
Frequency (MHz)				885	897.5	910	
10	QPSK	1	0	22.37	22.55	22.22	22.50
10	QPSK	1	49	22.13	22.22	22.04	
10	QPSK	12	0	22.14	22.24	22.13	22.50
10	QPSK	12	38	22.10	22.15	22.14	
Channel				21475	21625	21775	Tune-up limit (dBm)
Frequency (MHz)				882.5	897.5	912.5	
5	QPSK	1	0	21.81	22.09	21.83	22.50
5	QPSK	1	24	21.76	21.93	21.72	
5	QPSK	8	0	21.90	22.22	21.98	22.50
5	QPSK	8	17	21.89	21.92	21.93	
Channel				21465	21625	21785	Tune-up limit (dBm)
Frequency (MHz)				881.5	897.5	913.5	
3	QPSK	1	0	21.94	21.95	21.96	22.50
3	QPSK	1	14	21.89	21.88	21.80	
3	QPSK	4	0	21.92	21.98	21.93	22.50
3	QPSK	4	11	21.97	21.90	21.96	
Channel				21457	21625	21793	Tune-up limit (dBm)
Frequency (MHz)				880.7	897.5	914.3	
1.4	QPSK	1	0	21.84	22.50	21.85	22.50
1.4	QPSK	1	5	21.90	22.32	21.89	
1.4	QPSK	5	0	22.03	22.26	21.90	22.50
1.4	QPSK	5	1	21.98	22.31	22.01	

<FDD-LTE Band 20>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				24250	24300	24350	
Frequency (MHz)				842	847	852	
20	QPSK	1	0	22.23	22.21	22.12	22.50
20	QPSK	1	99	21.78	21.89	21.98	
20	QPSK	18	0	21.90	22.08	21.93	22.50
20	QPSK	18	82	22.03	21.98	22.04	
Channel				24225	24300	24375	Tune-up limit (dBm)
Frequency (MHz)				839.5	847	854.5	
15	QPSK	1	0	21.90	21.98	21.93	22.50
15	QPSK	1	74	21.92	22.01	22.06	
15	QPSK	16	0	21.99	22.05	22.04	22.50
15	QPSK	16	59	22.03	22.04	22.04	
Channel				24200	24300	24400	Tune-up limit (dBm)
Frequency (MHz)				837	847	857	
10	QPSK	1	0	22.15	21.84	21.95	22.50
10	QPSK	1	49	21.95	21.87	21.98	
10	QPSK	12	0	21.90	21.87	21.96	22.50
10	QPSK	12	38	21.97	21.89	21.92	
Channel				24175	24300	24425	Tune-up limit (dBm)
Frequency (MHz)				834.5	847	859.5	
5	QPSK	1	0	22.01	21.65	21.78	22.50
5	QPSK	1	24	21.80	21.61	21.11	
5	QPSK	8	0	21.90	21.86	22.01	22.50
5	QPSK	8	17	22.02	22.03	21.98	

<TDD-LTE Band 40>

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	Tune-up limit (dBm)
Channel				38750	39150	39550	
Frequency (MHz)				2310	2350	2390	
20	QPSK	1	0	23.28	23.36	23.32	23.50
20	QPSK	1	99	23.10	23.01	22.98	
20	QPSK	18	0	22.90	23.30	23.29	23.50
20	QPSK	18	82	23.01	23.10	23.10	
Channel				38725	39150	39575	Tune-up limit (dBm)
Frequency (MHz)				2307.5	2350	2392.5	
15	QPSK	1	0	22.90	23.01	23.10	23.50
15	QPSK	1	74	23.01	23.20	23.18	
15	QPSK	16	0	23.11	23.13	23.05	23.50
15	QPSK	16	59	22.99	22.98	22.97	
Channel				38700	39150	39600	Tune-up limit (dBm)
Frequency (MHz)				2305	2350	2395	
10	QPSK	1	0	22.90	23.10	23.12	23.50
10	QPSK	1	49	23.15	23.14	23.10	
10	QPSK	12	0	23.11	23.10	23.08	23.50
10	QPSK	12	38	23.01	23.05	23.06	
Channel				38675	39150	39625	Tune-up limit (dBm)
Frequency (MHz)				2302.5	2350	2397.5	
5	QPSK	1	0	22.29	22.79	22.80	23.50
5	QPSK	1	24	22.89	22.98	21.99	
5	QPSK	8	0	22.56	22.92	22.80	23.50
5	QPSK	8	17	22.50	22.39	22.37	

RFID mode conducted output power values

Channel		Perp=Pconducted+antenna gain(dBm)	Tune-Up Limit(dBm)
1	865.7MHz	31.91	33.0
2	866.3MHz	32.26	33.0
3	866.9MHz	32.43	33.0
4	867.5MHz	32.31	33.0

WLAN 2.4GHz mode conducted output power values

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
WLAN 2.4GHz	802.11b 1Mbps	CH 1	2412	12.63	14.5	100
		CH 7	2442	14.11	14.5	100
		CH 13	2472	13.27	14.5	100
	802.11g 6Mbps	CH 1	2412	9.01	10.00	100
		CH 7	2442	12.14	13.00	100
		CH 13	2472	9.16	10.00	100
	802.11n-HT20 MCS0	CH 1	2412	9.18	10	100
		CH 7	2442	12.01	13	100
		CH 13	2472	9.14	10	100
	802.11n-HT40 MCS0	CH 3	2422	10.75	11.50	100
		CH 7	2442	11.29	11.50	100
		CH 11	2462	10.53	11.50	100

WLAN 5GHz mode conducted output power values

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
WLAN 5.2GHz&5.3 GHz	802.11a 6Mbps	CH 36	5180	12.30	13.00	100
		CH 52	5260	12.29	13.00	100
		CH 64	5320	9.97	11.50	100
	802.11n-HT20 MCS0	CH 36	5180	12.12	12.50	100
		CH 52	5260	12.10	12.50	100
		CH 64	5320	11.80	12.50	100
	802.11n-HT40 MCS0	CH 38	*5190*	**13.98**	**14.50**	100
		CH 54	5270	13.90	14.50	100
		CH 62	5310	12.90	13.50	100

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
WLAN 5.5GHz	802.11a 6Mbps	CH 100	5500	9.83	10.50	100
		CH 116	5580	10.82	11.50	100
		CH 144	5720	10.87	11.50	100
	802.11n-HT20 MCS0	CH 100	5500	10.50	11.00	100
		CH 116	5580	10.41	11.00	100
		CH 140	5700	10.05	11.00	100
	802.11n-HT40 MCS0	CH 102	5510	11.32	12.00	100
		CH 110	5550	12.30	13.00	100
		CH 142	5710	**12.35**	**13.00**	100

	Mode	Channel	Frequency (MHz)	Average power (dBm)	Tune-Up Limit	Duty Cycle %
WLAN 5.8GHz	802.11a 6Mbps	CH 149	5745	10.88	11.50	100
		CH 161	5805	10.25	11.00	100
		CH 165	5825	**11.61**	**12.00**	100
	802.11n-HT20 MCS0	CH 149	5745	10.48	11.00	100
		CH 157	5785	10.42	11.00	100
		CH 165	5825	10.18	11.00	100
	802.11n-HT40 MCS0	CH 151	5755	11.01	11.50	100
		CH 159	5795	11.00	11.50	100

Bluetooth mode conducted output power values

Mode	EIRP (dBm)		
	2.1 / EDR		
	GFSK	π/4-DQPSK	8-DPSK
Bluetooth	5.34	4.92	4.83

Mode	Channel	Frequency (MHz)	EIRP (dBm)
			GFSK
LE	CH 00	2402	-1.02
	CH 19	2440	-1.12
	CH 39	2480	-1.49

12. Test Results List

Test Guidance:

1. The reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   a. Tune-up scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
   b. For SAR testing of WLAN signal with non-100% duty cycle, the measured SAR is scaled-up by the duty cycle scaling factor which is equal to "1/(duty cycle)"
   c. For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor
   d. For WLAN/Bluetooth: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor
   e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix 63.3%/62.9% = 1.006 is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)* Tune-up Scaling Factor* scaling factor for extended cyclic prefix.
2. The SAR test shall be performed at the middle frequency channels of each operating mode as the primary test channel. If the SAR measured at the middle channel for each test configuration is at least 3.0dB lower than the SAR limit, testing at the high and low channels is optional. And the High and Low frequency channels must be tested at a worst exposure position, and if the primary test channel reported SAR is ≥ 1.0 W/kg at the test exposure position, the High and Low frequency channels are also must be required.

12.1. Head SAR

Measurement Results for GSM/WCDMA

Plot No.	Band	Mode	Test Position	Ch.	Average Power (dBm)	Tune-up Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	GSM900	GSM Voice	Right Cheek	38	33.69	1.074	0.041	0.043
	GSM900	GSM Voice	Right Tilt	38	33.69	1.074	0.013	0.014
	GSM900	GSM Voice	Left Cheek	38	33.69	1.074	0.032	0.034
	GSM900	GSM Voice	Left Tilt	38	33.69	1.074	0.012	0.013
	GSM900	GSM Voice	Right Cheek	975	33.52	1.117	0.034	0.038
1#	GSM900	GSM Voice	Right Cheek	124	33.67	1.079	**0.066**	**0.072**
	GSM1800	GSM Voice	Right Cheek	698	29.61	1.094	0.068	0.075
	GSM1800	GSM Voice	Right Tilt	698	29.61	1.094	0.036	0.040
2#	GSM1800	GSM Voice	Left Cheek	698	29.61	1.094	**0.101**	**0.110**
	GSM1800	GSM Voice	Left Tilt	698	29.61	1.094	0.051	0.055
	GSM1800	GSM Voice	Left Cheek	512	29.43	1.140	0.085	0.097
	GSM1800	GSM Voice	Left Cheek	885	29.52	1.117	0.058	0.065
	WCDMA Band I	RMC 12.2Kbps	Right Cheek	9750	23.05	1.109	0.119	0.132
	WCDMA Band I	RMC 12.2Kbps	Right Tilt	9750	23.05	1.109	0.064	0.071
	WCDMA Band I	RMC 12.2Kbps	Left Cheek	9750	23.05	1.109	0.192	0.213
	WCDMA Band I	RMC 12.2Kbps	Left Tilt	9750	23.05	1.109	0.060	0.067
	WCDMA Band I	RMC 12.2Kbps	Left Cheek	9612	23.38	1.028	0.153	0.157
3#	WCDMA Band I	RMC 12.2Kbps	Left Cheek	9888	23.28	1.052	**0.193**	**0.203**
4#	WCDMA Band VIII	RMC 12.2Kbps	Right Cheek	2787	22.85	1.035	**0.038**	**0.040**
	WCDMA Band VIII	RMC 12.2Kbps	Right Tilt	2787	22.85	1.035	0.008	0.008
	WCDMA Band VIII	RMC 12.2Kbps	Left Cheek	2787	22.85	1.035	0.013	0.013
	WCDMA Band VIII	RMC 12.2Kbps	Left Tilt	2787	22.85	1.035	0.003	0.003
	WCDMA Band VIII	RMC 12.2Kbps	Right Cheek	2712	22.90	1.023	0.013	0.014
	WCDMA Band VIII	RMC 12.2Kbps	Right Cheek	2863	22.89	1.026	0.018	0.019

Measurement Results for LTE Band (QPSK, 1RB 0Offset)

Plot No.	Band	BW (MHz)	Test Position	Ch.	Average Power (dBm)	Tune-up Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 1	20Mhz	Right Cheek	18300	21.66	1.213	0.034	0.041
	LTE Band 1	20Mhz	Right Tilt	18300	21.66	1.213	0.031	0.037
	LTE Band 1	20Mhz	Left Cheek	18300	21.66	1.213	0.092	0.112
	LTE Band 1	20Mhz	Left Tilt	18300	21.66	1.213	0.038	0.046
	LTE Band 1	20Mhz	Left Cheek	18100	22.06	1.107	0.086	0.095
5#	LTE Band 1	20Mhz	Left Cheek	18500	21.93	1.140	**0.124**	**0.141**
	LTE Band 3	20Mhz	Right Cheek	19575	22.29	1.050	0.088	0.092
	LTE Band 3	20Mhz	Right Tilt	19575	22.29	1.050	0.038	0.040
6#	LTE Band 3	20Mhz	Left Cheek	19575	22.29	1.050	**0.190**	**0.199**
	LTE Band 3	20Mhz	Left Tilt	19575	22.29	1.050	0.012	0.013
	LTE Band 3	20Mhz	Left Cheek	19300	22.16	1.081	0.181	0.196
	LTE Band 3	20Mhz	Left Cheek	19850	22.16	1.081	0.111	0.120
	LTE Band 7	20Mhz	Right Cheek	21100	22.15	1.084	0.106	0.115
	LTE Band 7	20Mhz	Right Tilt	21100	22.15	1.084	0.095	0.103
	LTE Band 7	20Mhz	Left Cheek	21100	22.15	1.084	0.166	0.180
	LTE Band 7	20Mhz	Left Tilt	21100	22.15	1.084	0.063	0.068
	LTE Band 7	20Mhz	Left Cheek	20850	21.47	1.268	0.149	0.189
7#	LTE Band 7	20Mhz	Left Cheek	21350	22.28	1.052	**0.235**	**0.247**
	LTE Band 8	10Mhz	Right Cheek	21625	22.25	1.059	0.014	0.015
	LTE Band 8	10Mhz	Right Tilt	20525	22.25	1.059	0.006	0.007
	LTE Band 8	10Mhz	Left Cheek	20525	22.25	1.059	0.030	0.032
	LTE Band 8	10Mhz	Left Tilt	20525	22.25	1.059	0.010	0.011
	LTE Band 8	10Mhz	Left Cheek	21500	22.04	1.112	0.033	0.036
8#	LTE Band 8	10Mhz	Left Cheek	21750	22.22	1.067	**0.042**	**0.044**
	LTE Band 20	20Mhz	Right Cheek	24300	22.21	1.069	0.036	0.039
	LTE Band 20	20Mhz	Right Tilt	24300	22.21	1.069	0.014	0.014
	LTE Band 20	20Mhz	Left Cheek	24300	22.21	1.069	0.035	0.037
	LTE Band 20	20Mhz	Left Tilt	24300	22.21	1.069	0.020	0.021
9#	LTE Band 20	20Mhz	Right Cheek	24250	22.23	1.064	**0.043**	**0.045**
	LTE Band 20	20Mhz	Right Cheek	24350	22.12	1.091	0.040	0.044

Plot No.	Band	BW (MHz)	Test Position	Ch.	Average Power (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 40	20Mhz	Right Cheek	39150	23.36	1.033	62.9	1.006	0.038	0.039
	LTE Band 40	20Mhz	Right Tilt	39150	23.36	1.033	62.9	1.006	0.030	0.031
10#	LTE Band 40	20Mhz	Left Cheek	39150	23.36	1.033	62.9	1.006	0.057	**0.059**
	LTE Band 40	20Mhz	Left Tilt	39150	23.36	1.033	62.9	1.006	0.023	0.024
	LTE Band 40	20Mhz	Left Cheek	38750	22.60	1.230	62.9	1.006	0.023	0.028
	LTE Band 40	20Mhz	Left Cheek	39550	21.32	1.652	62.9	1.006	0.053	0.088

Measurement Results for WLAN

Plot No.	**Band**	**Mode**	**Test Position**	**Ch.**	**Average Power (dBm)**	**Tune-Up Limit (dBm)**	**Tune-up Scaling Factor**	**Measured 10g SAR (W/kg)**	**Reported 10g SAR (W/kg)**
	WLAN2.4GHz	802.11b 1Mbps	Right Cheek	7	14.11	14.50	1.094	0.030	0.032
	WLAN2.4GHz	802.11b 1Mbps	Right Tilt	7	14.11	14.50	1.094	0.019	0.020
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	7	14.11	14.50	1.094	0.050	0.055
	WLAN2.4GHz	802.11b 1Mbps	Left Tilt	7	14.11	14.50	1.094	0.034	0.038
	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	1	12.63	14.50	1.538	0.015	0.023
11#	WLAN2.4GHz	802.11b 1Mbps	Left Cheek	13	13.27	14.50	1.327	**0.087**	**0.116**
	WLAN5GHz	802.11n-HT40	Right Cheek	54	13.38	13.50	1.028	0.000	0.000
	WLAN5GHz	802.11n-HT40	Right Tilt	54	13.38	13.50	1.028	0.037	0.038
	WLAN5GHz	802.11n-HT40	Left Cheek	54	13.38	13.50	1.028	0.029	0.029
	WLAN5GHz	802.11n-HT40	Left Tilt	54	13.38	13.50	1.028	0.038	0.039
	WLAN5GHz	802.11n-HT40	Left Tilt	38	13.98	14.00	1.005	0.041	0.041
12#	WLAN5GHz	802.11n-HT40	Left Tilt	62	12.90	13.00	1.023	0.042	**0.043**
	WLAN5GHz	802.11n-HT40	Right Cheek	118	12.20	12.50	1.072	0.177	0.190
	WLAN5GHz	802.11n-HT40	Right Tilt	118	12.20	12.50	1.072	0.224	0.240
	WLAN5GHz	802.11n-HT40	Left Cheek	118	12.20	12.50	1.072	0.189	0.203
13#	WLAN5GHz	802.11n-HT40	Left Tilt	118	12.20	12.50	1.072	0.272	**0.291**
	WLAN5GHz	802.11n-HT40	Left Tilt	102	11.32	11.50	1.042	0.101	0.105
	WLAN5GHz	802.11n-HT40	Left Tilt	142	12.35	12.50	1.035	0.126	0.130

Plot No.	Band	Mode	Test Position	Ch.	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5GHz	802.11a 6Mbps	Right Cheek	161	10.25	10.50	1.059	0.057	0.060
	WLAN5GHz	802.11a 6Mbps	Right Tilt	161	10.25	10.50	1.059	0.071	0.075
	WLAN5GHz	802.11a 6Mbps	Left Cheek	161	10.25	10.50	1.059	0.052	0.055
14#	WLAN5GHz	802.11a 6Mbps	Left Tilt	161	10.25	10.50	1.059	0.083	**0.087**
	WLAN5GHz	802.11a 6Mbps	Left Tilt	149	10.88	11.00	1.028	0.069	0.071
	WLAN5GHz	802.11a 6Mbps	Left Tilt	165	11.61	12.00	1.094	0.064	0.070

12.2. Body-worn SAR

Measurement Results for GSM/WCDMA（test distance 5mm）

Plot No.	Band	Mode	Test Position	Ch.	Average Power (dBm)	Tune-up Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	GSM900	GPRS(4 TX slots)	Front Side	38	29.78	1.052	0.107	0.113
	GSM900	GPRS(4 TX slots)	Back Side	38	29.78	1.052	0.436	0.459
15#	GSM900	GPRS(4 TX slots)	Back Side	975	29.71	1.069	**0.547**	**0.585**
	GSM900	GPRS(4 TX slots)	Back Side	124	29.46	1.132	0.398	0.451
	GSM900	GPRS(4 TX slots)	Back Side Headset	975	29.71	1.069	0.532	0.569
	GSM1800	GPRS(4 TX slots)	Front Side	698	27.05	1.109	0.298	0.331
	GSM1800	GPRS(4 TX slots)	Back Side	698	27.05	1.109	0.640	0.710
	GSM1800	GPRS(4 TX slots)	Back Side	512	27.07	1.104	0.697	0.770
16#	GSM1800	GPRS(4 TX slots)	Back Side	885	27.14	1.086	**1.220**	**1.325**
	GSM1800	GPRS(4 TX slots)	Back Side Headset	885	27.14	1.086	1.180	1.282
	WCDMA Band I	RMC 12.2Kbps	Front Side	9750	23.05	1.109	0.247	0.274
	WCDMA Band I	RMC 12.2Kbps	Back Side	9750	23.05	1.109	0.391	0.434
17#	WCDMA Band I	RMC 12.2Kbps	Back Side	9612	23.05	1.109	**0.588**	**0.652**
	WCDMA Band I	RMC 12.2Kbps	Back Side	9888	23.38	1.028	0.281	0.289
	WCDMA Band I	RMC 12.2Kbps	Back Side Headset	9612	23.28	1.052	0.582	0.612

	WCDMA Band VIII	RMC 12.2Kbps	Front Side	2788	22.85	1.035	0.177	0.183
	WCDMA Band VIII	RMC 12.2Kbps	Back Side	2788	22.85	1.035	0.183	0.189
18#	WCDMA Band VIII	RMC 12.2Kbps	Back Side	2712	22.90	1.023	**0.210**	**0.215**
	WCDMA Band VIII	RMC 12.2Kbps	Back Side	2863	22.89	1.026	0.180	0.185
	WCDMA Band VIII	RMC 12.2Kbps	Back Side Headset	2712	22.90	1.023	0.180	0.184

Measurement Results for LTE Band (QPSK, 1RB 0Offset)

Plot No.	Band	BW (MHz)	Test Position	Ch.	Average Power (dBm)	Tune-up Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 1	20Mhz	Front Side	18300	21.66	1.213	0.223	0.271
	LTE Band 1	20Mhz	Back Side	18300	21.66	1.213	0.582	0.706
19#	LTE Band 1	20Mhz	Back Side	18100	22.06	1.107	**0.735**	**0.813**
	LTE Band 1	20Mhz	Back Side	18500	21.93	1.140	0.417	0.475
	LTE Band 1	20Mhz	Back Side Headset	18100	22.06	1.107	0.730	0.808
	LTE Band 3	10Mhz	Front Side	19575	22.29	1.050	0.362	0.380
	LTE Band 3	10Mhz	Back Side	19575	22.29	1.050	0.625	0.656
	LTE Band 3	10Mhz	Front Side	19300	22.16	1.081	0.387	0.419
	LTE Band 3	10Mhz	Front Side	19850	22.16	1.081	0.247	0.267
20#	LTE Band 3	10Mhz	Back Side	19300	22.16	1.081	**0.680**	**0.735**
	LTE Band 3	10Mhz	Back Side	19850	22.16	1.081	0.649	0.702
	LTE Band 3	10Mhz	Back Side Headset	19300	22.16	1.081	0.650	0.703
	LTE Band 7	20Mhz	Front Side	21100	22.15	1.084	0.552	0.598
	LTE Band 7	20Mhz	Back Side	21100	22.15	1.084	0.235	0.255
	LTE Band 7	20Mhz	Front Side	20850	21.47	1.268	0.433	0.549
21#	LTE Band 7	20Mhz	Front Side	21350	22.28	1.052	**0.620**	**0.652**
	LTE Band 7	20Mhz	Front Side Headset	21350	22.28	1.052	0.580	0.610
	LTE Band 8	10Mhz	Front Side	21625	22.25	1.059	0.180	0.191

	LTE Band 8	10Mhz	Back Side	21625	22.25	1.059	0.167	0.177
22#	LTE Band 8	10Mhz	Front Side	21500	22.04	1.112	**0.212**	**0.236**
	LTE Band 8	10Mhz	Front Side	21750	22.22	1.067	0.159	0.170
	LTE Band 8	10Mhz	Front Side Headset	21500	22.04	1.112	0.200	0.222
	LTE Band 20	20Mhz	Front Side	24300	22.21	1.069	0.167	0.179
	LTE Band 20	20Mhz	Back Side	24300	22.21	1.069	0.272	0.291
23#	LTE Band 20	20Mhz	Back Side	24250	22.23	1.064	**0.287**	**0.305**
	LTE Band 20	20Mhz	Back Side	24350	22.12	1.091	0.240	0.262
	LTE Band 20	20Mhz	Back Side Headset	24250	22.23	1.064	0.281	0.299

Plot No.	Band	BW (MHz)	Test Position	Ch.	Average Power (dBm)	Tune-up Scaling Factor	Duty Cycle %	Duty Cycle Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	LTE Band 40	20Mhz	Front Side	39150	23.36	1.033	62.9	1.006	0.099	0.103
	LTE Band 40	20Mhz	Back Side	39150	23.36	1.033	62.9	1.006	0.063	0.065
	LTE Band 40	20Mhz	Front Side	38750	22.60	1.230	62.9	1.006	0.083	0.103
24#	LTE Band 40	20Mhz	Front Side	39550	21.32	1.652	62.9	1.006	**0.177**	**0.294**
	LTE Band 40	20Mhz	Front Side Headset	39550	21.32	1.652	62.9	1.006	0.174	0.289

Measurement Results for WLAN Band

Plot No.	Band	Mode	Test Position	Ch.	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN2.4GHz	802.11b	Front Side	7	14.11	14.50	1.094	0.035	0.038
	WLAN2.4GHz	802.11b	Back Side	7	14.11	14.50	1.094	0.256	0.280
	WLAN2.4GHz	802.11b	Back Side	1	12.63	14.50	1.538	0.199	0.306
25#	WLAN2.4GHz	802.11b	Back Side	13	13.27	14.50	1.327	**0.260**	**0.345**
	WLAN2.4GHz	802.11b	Back Side Headset	13	13.27	14.50	1.327	0.252	0.335

Plot No.	Band	Mode	Test Position	Ch.	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	WLAN5GHz	802.11n-HT40	Front Side	54	13.38	13.50	1.028	0.022	0.022
	WLAN5GHz	802.11n-HT40	Back Side	54	13.38	13.50	1.028	0.313	0.322
	WLAN5GHz	802.11n-HT40	Back Side	38	13.98	14.00	1.005	0.291	0.292
26#	WLAN5GHz	802.11n-HT40	Back Side	62	12.90	13.00	1.023	0.359	**0.367**
	WLAN5GHz	802.11n-HT40	Back Side Headset	62	12.90	13.00	1.023	0.302	0.309
	WLAN5GHz	802.11n-HT40	Front Side	118	12.20	12.50	1.072	0.038	0.041
27#	WLAN5GHz	802.11n-HT40	Back Side	118	12.20	12.50	1.072	0.396	**0.424**
	WLAN5GHz	802.11n-HT40	Back Side	102	11.32	11.50	1.042	0.365	0.380
	WLAN5GHz	802.11n-HT40	Back Side	142	12.35	12.50	1.035	0.358	0.371
	WLAN5GHz	802.11n-HT40	Back Side Headset	118	12.20	12.50	1.072	0.325	0.348
	WLAN5GHz	802.11a 6Mbp	Front Side	161	10.25	10.50	1.059	0.043	0.045
	WLAN5GHz	802.11a 6Mbp	Back Side	161	10.25	10.50	1.059	0.216	0.229
28#	WLAN5GHz	802.11a 6Mbp	Back Side	149	10.88	11.00	1.028	0.322	**0.331**
	WLAN5GHz	802.11a 6Mbp	Back Side	165	11.61	12.00	1.094	0.270	0.295
	WLAN5GHz	802.11a 6Mbp	Back Side Headset	149	10.88	11.00	1.028	0.298	0.306

Measurement Results for RFID

Plot No.	Band	Test Position	Gap (mm)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Measured 10g SAR (W/kg)	Reported 10g SAR (W/kg)
	RFID	Front Side	5mm	32.43	33.00	1.140	0.632	0.721
	RFID	Left Side	5mm	32.43	33.00	1.140	0.529	0.603
	RFID	Right Side	5mm	32.43	33.00	1.140	0.626	0.714
	RFID	Top Side	5mm	32.43	33.00	1.140	0.639	0.729
29#	RFID	Top Side	5mm	31.91	33.00	1.285	0.746	**0.959**
	RFID	Top Side	5mm	32.31	33.00	1.172	0.604	0.708

13. Simultaneous SAR

Simultaneous Evaluation:

No.	Simultaneous transmission Condition	Head	Body-worn
1	GSM/GPRS/EDGE + WLAN 2.4GHz	Yes	Yes
2	WCDMA + WLAN 2.4GHz	Yes	Yes
3	LTE + WLAN 2.4GHz	Yes	Yes
4	GSM/GPRS/EDGE + WLAN 5GHz	Yes	Yes
5	WCDMA + WLAN 5GHz	Yes	Yes
6	LTE + WLAN 5GHz	Yes	Yes
7	GSM/GPRS/EDGE + Bluetooth	Yes	Yes
8	WCDMA + Bluetooth	Yes	Yes
9	LTE + Bluetooth	Yes	Yes

Note:

1、WLAN 2.4GHz and Bluetooth share the same antenna, they cannot transmit simultaneously.

2、According to the EUT character, WWAN+WWAN/WLAN+WALN/WLAN+Bluetooth cannot transmit simultaneously.

3、The maximum SAR summation is calculated based on the same configuration and test position.

4、When 10-g SAR scalar summation < 2.0 W/kg, the Simultaneous SAR is not required.

5、DUT will choose either 2G/3G/4G according to the network signal condition, therefore, 2G/3G/4G will not transmit simultaneously.

6、Bluetooth stand-alone SAR test is not required and is considered zero in the SAR summation.

7、Multi-band transmission analysis for Body SAR is performed following EN62209-2 procedure.

8、One way of determining the threshold power level available to the secondary transmitter ($P_{available}$) is to calculate it from the measured peak spatial-average SAR of the primary transmitter (SAR1) according to the equation:

$P_{available} = P_{th,m} \times (SAR_{lim} - SAR_1) / SAR_{lim}$ =6.75mW

where $P_{th,m}$ is the threshold exclusion power level taken from Annex B of IEC 62479 for the frequency of the secondary transmitter at the separation distance used in the testing.

9、The output power of the BT is 3.42mW (5.34dBm) less than $P_{available}$, SAR measurement for the BT is not necessary.

Annex A General Information

1. Identification of the Responsible Testing Laboratory

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Department:	Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Responsible Test Lab Manager:	Mr. Su Feng
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. List of Test Equipments

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	4d227	2017.06.13	2018.06.12
SPEAG	900MHz System Validation Kit	D900V2	1d064	2017.10.10	2018.10.09
SPEAG	1800MHz System Validation Kit	D1800V2	2d158	2017.10.11	2018.10.10
SPEAG	1900MHz System Validation Kit	D1900V2	5d211	2017.06.15	2018.06.14
SPEAG	2000MHz System Validation Kit	D2000V2	1050	2017.10.11	2018.10.10
SPEAG	2450MHz System Validation Kit	D2450V2	805	2017.10.12	2018.10.11
SPEAG	2600MHz System Validation Kit	D2600V2	1139	2017.06.07	2018.06.06
SPEAG	5000MHz System Validation Kit	D5GHzV2	1176	2017.09.25	2018.09.24
SPEAG	Dosimetric E-Field Probe	ES3DV3	3154	2017.10.30	2018.10.29
SPEAG	Dosimetric E-Field Probe	EX3DV4	3823	2017.09.30	2018.09.29
SPEAG	Data Acquisition Electronics	DAE4	480	2017.09.27	2018.09.26
SPEAG	SAM Twin Phantom 1	QD 000 P40 CB	TP-1471	NCR	NCR
SPEAG	SAM Twin Phantom 2	QD 000 P40 CB	TP-1464	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
R&S	Network Emulator	CMW500	124534	2018.04.17	2019.04.16
Agilent	Network Emulator	8960	10752	2018.04.17	2019.04.16
Agilent	Network Analyzer	E5071B	MY42404762	2018.04.17	2019.04.16
mini-circuits	Amplifier	ZHL-42W+	608501717	NCR	NCR
mini-circuits	Amplifier	ZVE-8G+	754401735	NCR	NCR
Agilent	Signal Generator	SMP_02	N/A	2017.07.08	2018.07.07
Agilent	Signal Generator	N5182B	MY53050509	2018.04.17	2019.04.16
Agilent	Power Senor	N8482A	MY41091706	2017.07.08	2018.07.07
Agilent	Power Meter	E4416A	MY45102093	2017.12.07	2018.12.06
Anritsu	Power Sensor	MA2411B	N/A	2017.07.08	2018.07.07
R&S	Power Meter	NRVD	101066	2017.07.08	2018.07.07
MCL	Attenuation1	351-218-010	N/A	NA	NA
N/A	Tissue Simulating Liquids	835-5000MHz	N/A	Within 24H	
N/A	Temperature and humidity meter	DC-803	N/A	2017.12.08	2018.12.07

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Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China

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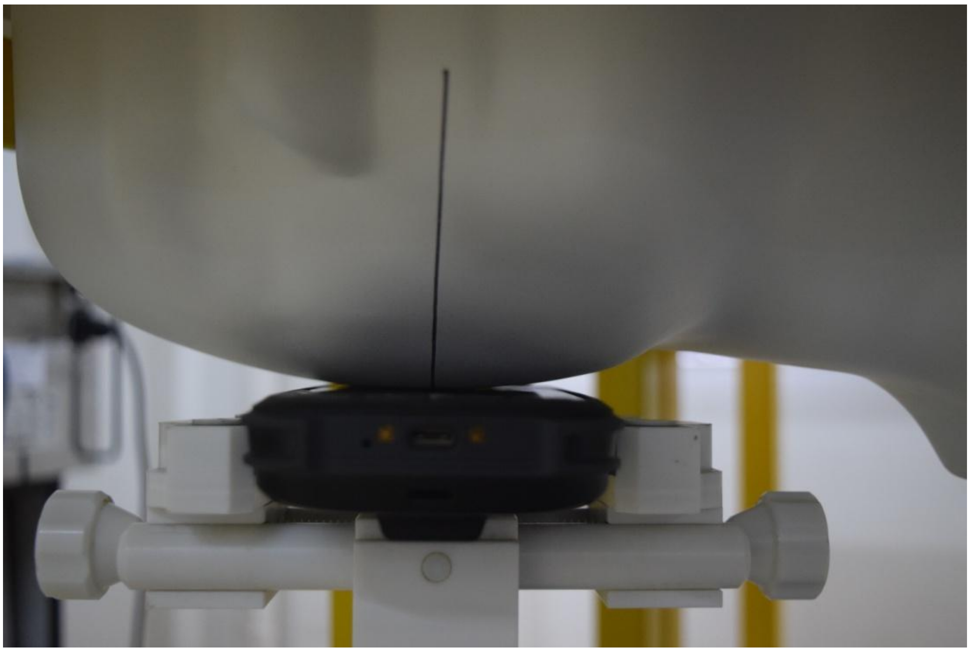
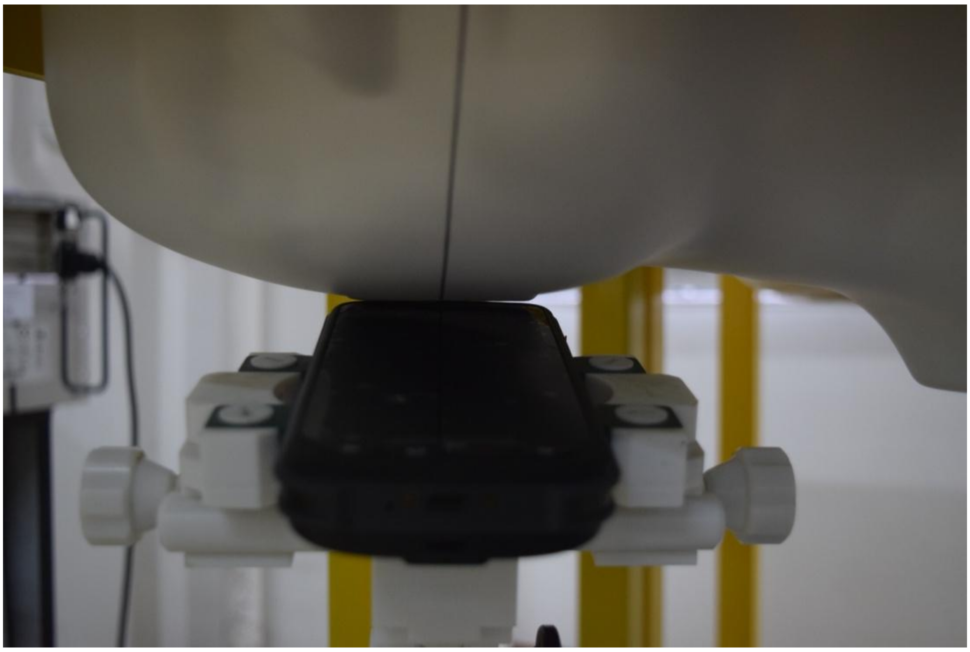
Annex B Test Setup Photos

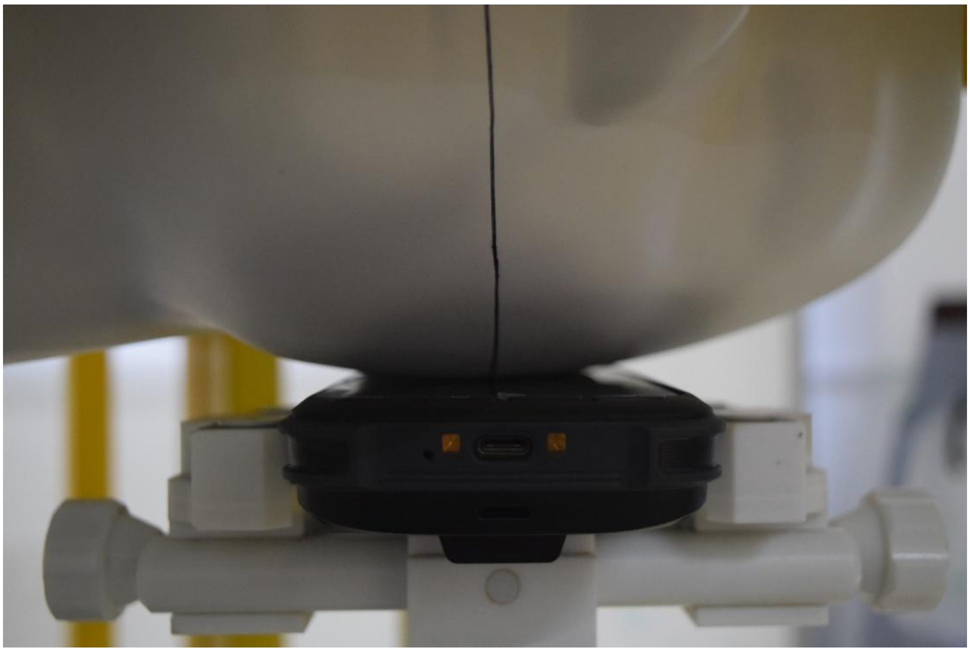
Head



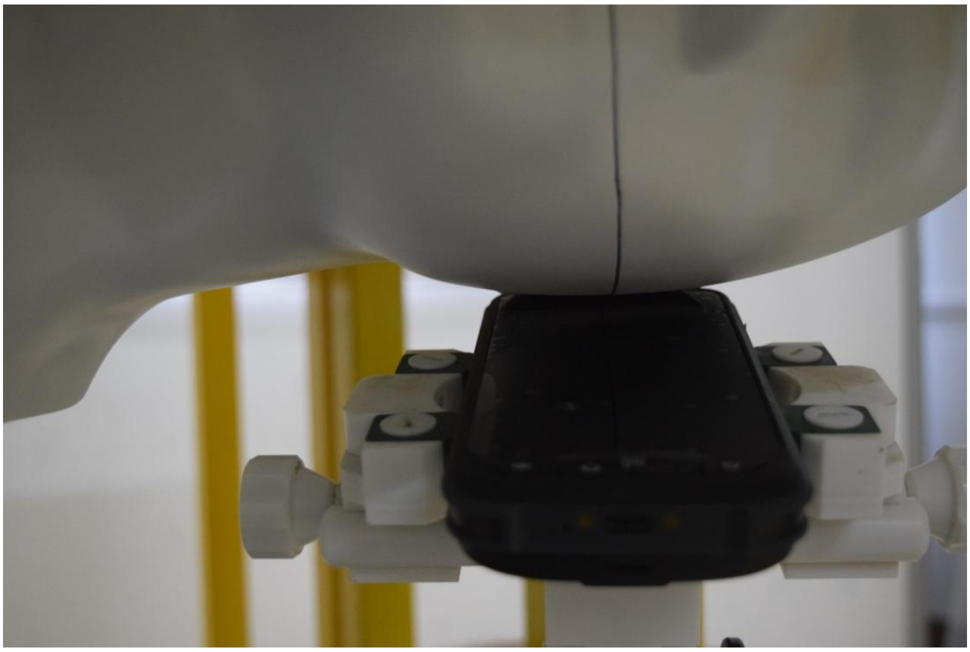
Right Cheek



Right Tilt



Left Cheek



Left Tilt

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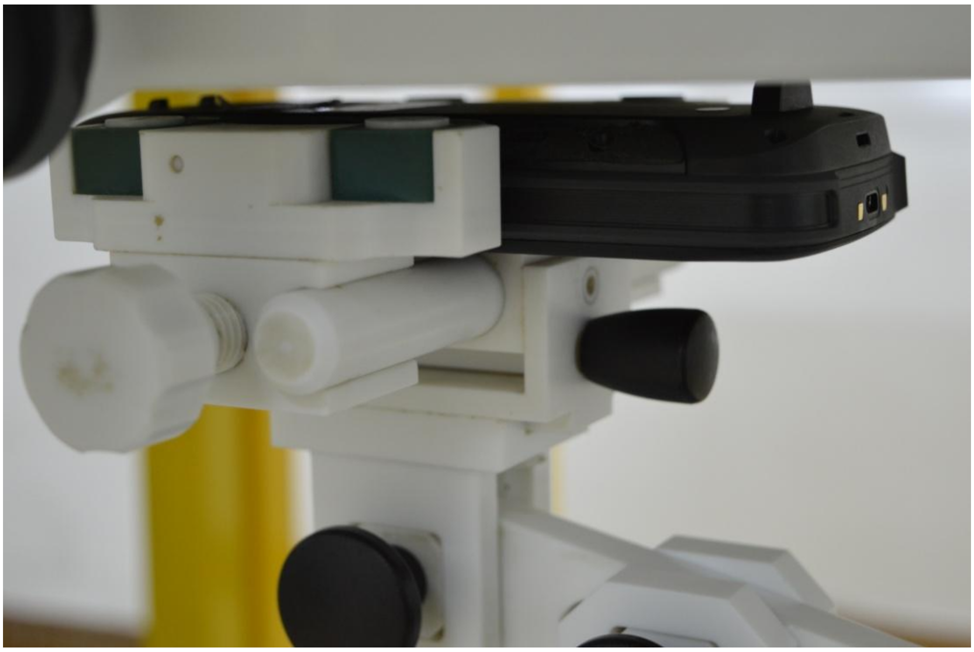
Body

Front Side_5mm



Back Side_5mm

RFID test position

Top Side_5mm

Front Side_5mm

Left Side_5mm

Right Side_5mm

Annex C Plots of System Performance Check

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System Check_835MHz_Head_180203

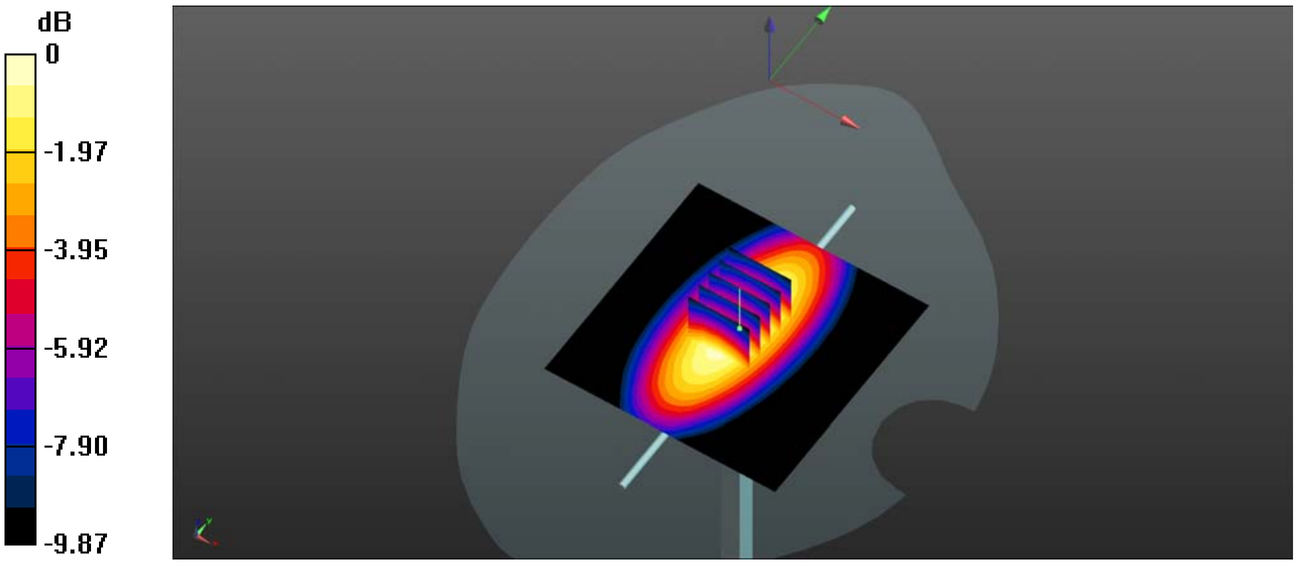
DUT: Dipole 835 MHz

Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_835_180203 Medium parameters used: f = 835 MHz; σ = 0.886 S/m; ε_r = 41.952; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.26, 6.26, 6.26); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW835/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.51 W/kg

CW835/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.36 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 3.39 W/kg
SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.56 W/kg
Maximum value of SAR (measured) = 2.52 W/kg



0 dB = 2.51 W/kg

System Check_900MHz_Head_180205

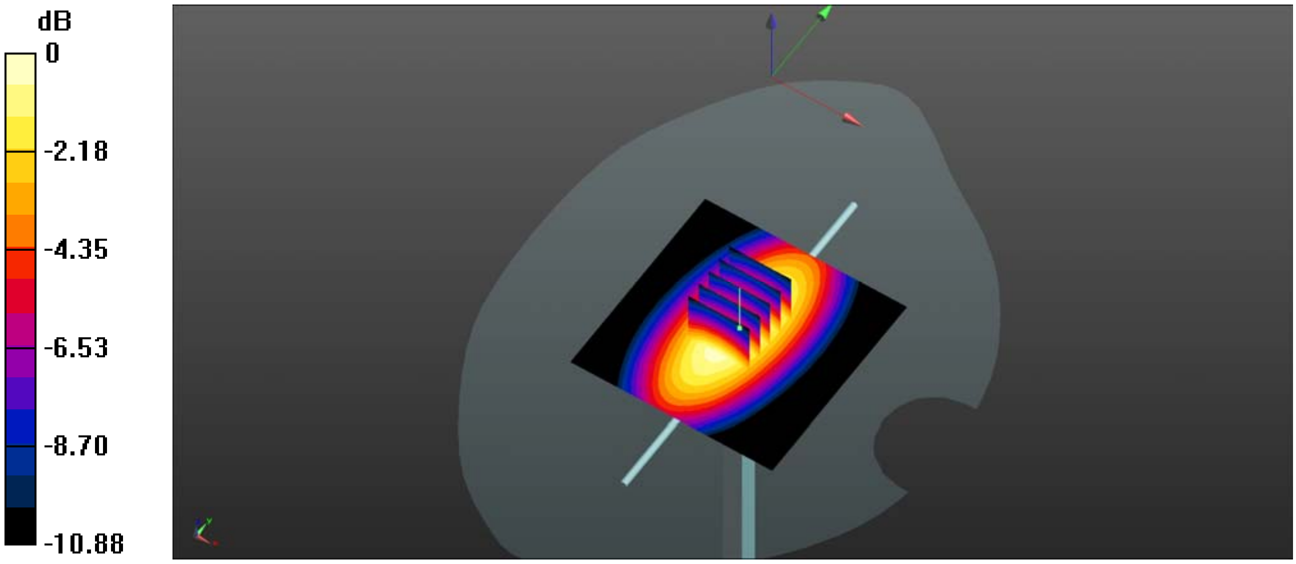
DUT: Dipole 900 MHz

Communication System: UID 0, CW (0); Frequency: 900 MHz;Duty Cycle: 1:1
Medium: HSL_900_180205 Medium parameters used: f = 900 MHz; $\sigma = 0.973$ S/m; $\varepsilon_r = 41.259$; $\rho = 1000$ kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.16, 6.16, 6.16); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW900/Area Scan (71x71x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.00 W/kg

CW900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.75 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 4.14 W/kg
SAR(1 g) = 2.78 W/kg; SAR(10 g) = 1.81 W/kg
Maximum value of SAR (measured) = 3.01 W/kg



0 dB = 3.00 W/kg

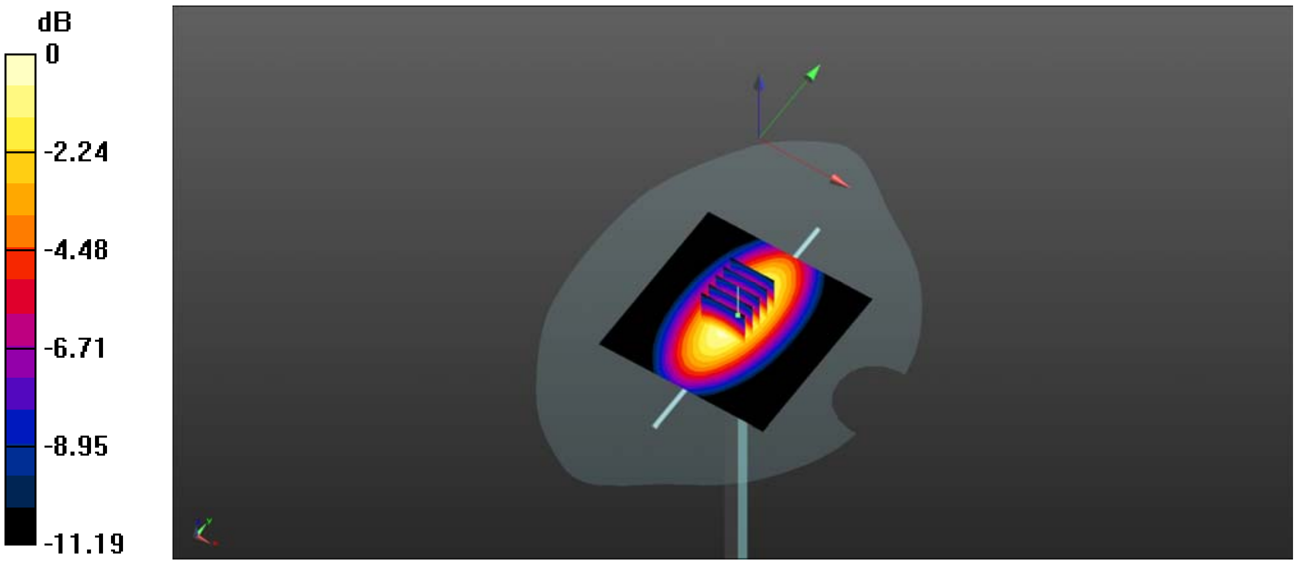
System Check_900MHz_Head_180528

Communication System: UID 0, CW (0); Frequency: 900 MHz;Duty Cycle: 1:1
Medium: HSL_900_180528 Medium parameters used: f = 900 MHz; σ = 0.971 S/m; ε_r = 41.309; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃; Liquid Temperature：22.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.16, 6.16, 6.16); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW900/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.17 W/kg

CW900/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.84 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 4.40 W/kg
SAR(1 g) = 2.72 W/kg; SAR(10 g) = 1.78 W/kg
Maximum value of SAR (measured) = 3.16 W/kg



0 dB = 3.17 W/kg

Test Laboratory: SAR Lab. of Shenzhen Morlab Communications Technology Co., Ltd. Date: 2018.01.30

System Check_1800MHz_Head_180130

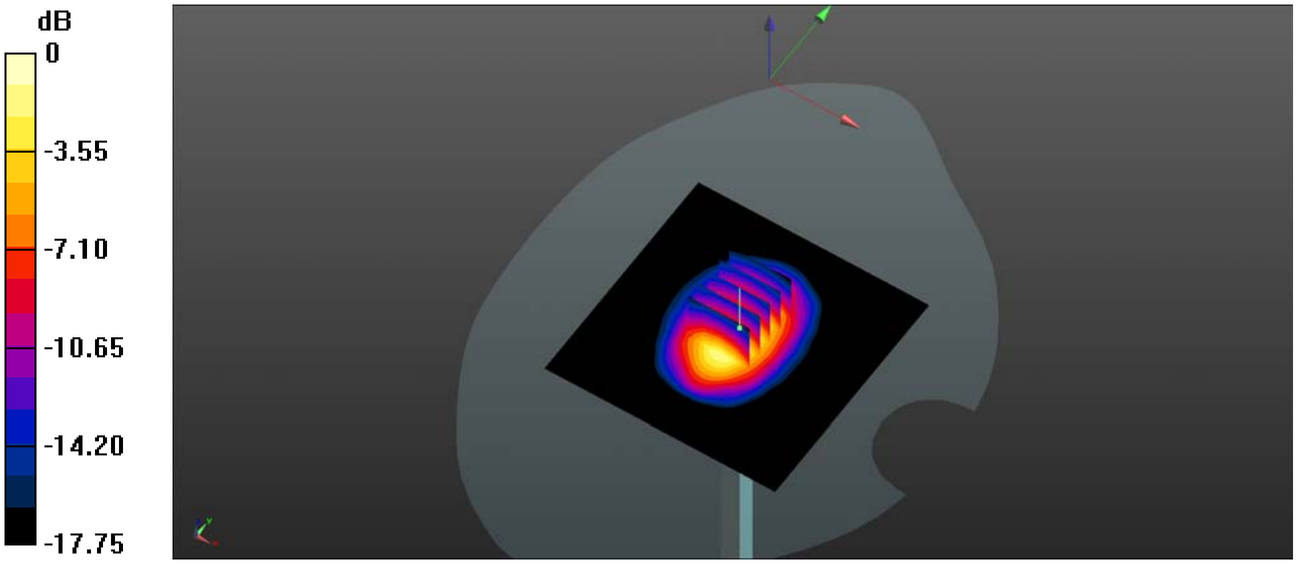
DUT: Dipole 1800 MHz

Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium: HSL_1800_180130 Medium parameters used: f = 1800 MHz; σ = 1.44 S/m; ε_r = 41.065; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(5.15, 5.15, 5.15); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW1800/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 12.1 W/kg

CW1800/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 90.62 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 19.5 W/kg
SAR(1 g) = 10.6 W/kg; SAR(10 g) = 5.53 W/kg
Maximum value of SAR (measured) = 11.9 W/kg



0 dB = 11.9 W/kg

System Check_2000MHz_Head_180130

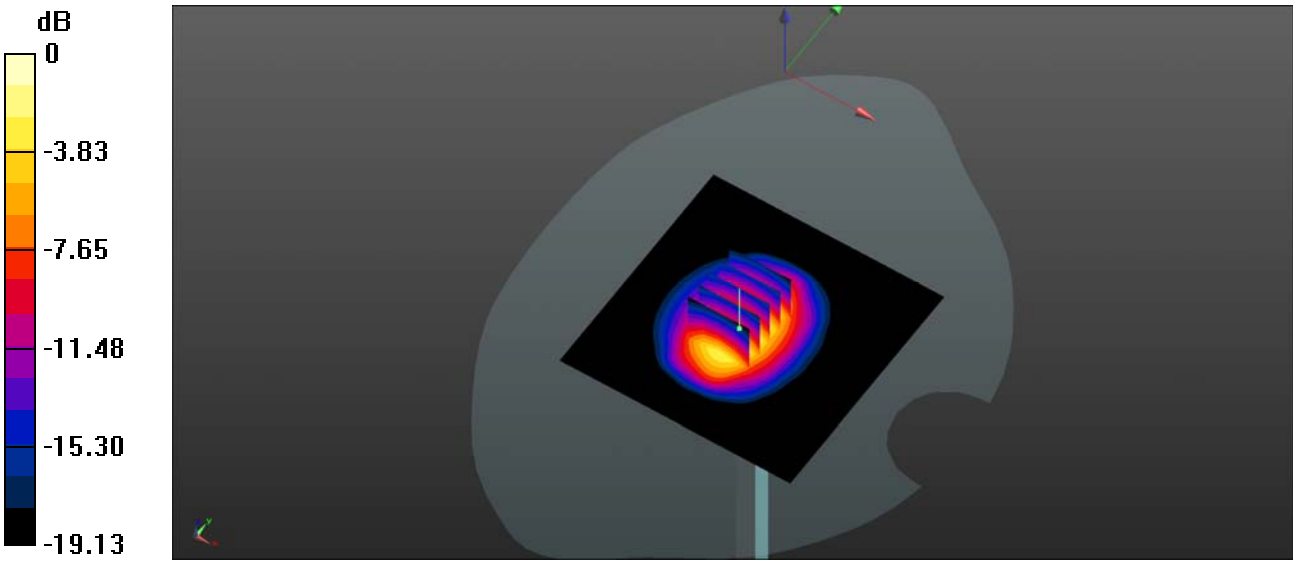
DUT: Dipole 2000 MHz

Communication System: UID 0, CW (0); Frequency: 2000 MHz;Duty Cycle: 1:1
Medium: HSL_2000_180124 Medium parameters used: f = 2000 MHz; σ = 1.451 S/m; ε_r = 40.608; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.98, 4.98, 4.98); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:02
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW2000/Area Scan (81x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.5 W/kg

CW2000/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 92.72 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 23.2 W/kg
SAR(1 g) = 10.9 W/kg; SAR(10 g) = 5.61 W/kg
Maximum value of SAR (measured) = 13.4 W/kg



0 dB = 13.5 W/kg

System Check_2450MHz_Head_180131

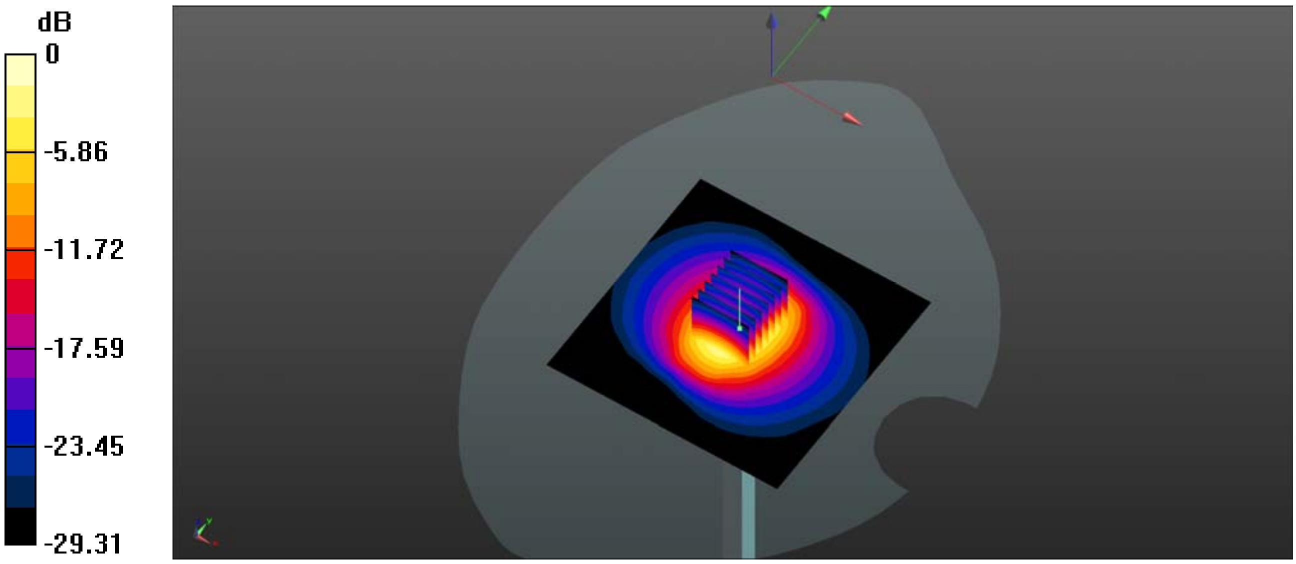
DUT: Dipole 2450 MHz

Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: HSL_2450_180131 Medium parameters used: f = 2450 MHz; σ = 1.729 S/m; ε_r = 37.305; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.61, 4.61, 4.61); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW2450/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 12.4 W/kg

CW2450/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 83.90 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 13 W/kg; SAR(10 g) = 6.21 W/kg
Maximum value of SAR (measured) = 12.2 W/kg



0 dB = 12.4 W/kg

System Check_2600MHz_Head_180130

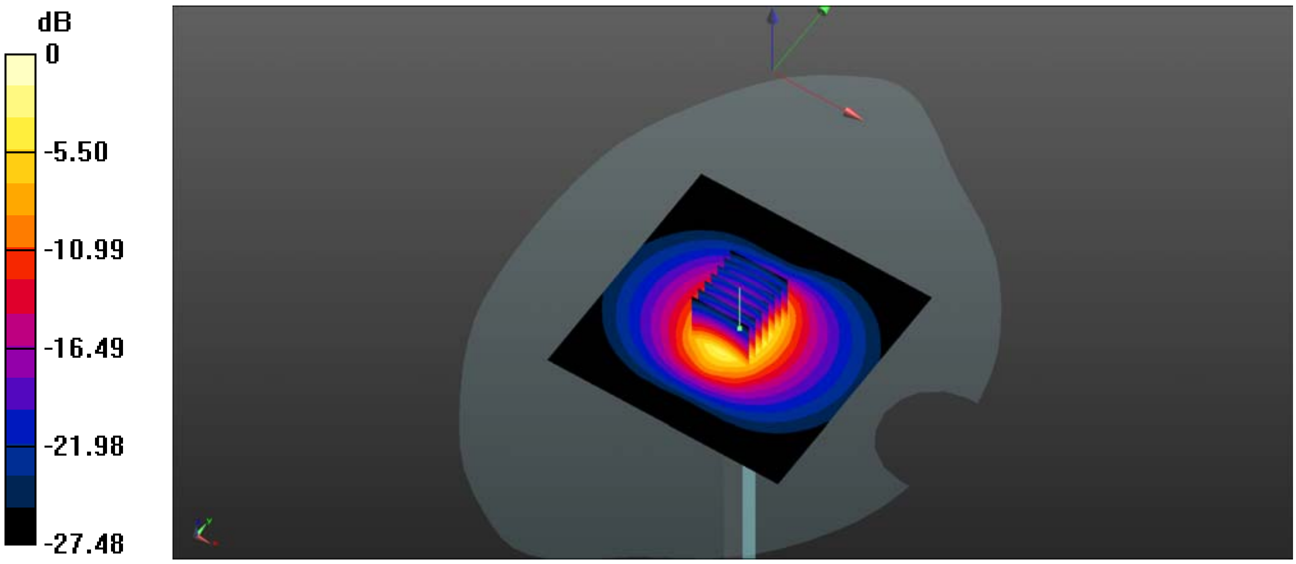
DUT: Dipole 2600 MHz

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: HSL_2600_180130 Medium parameters used: f = 2600 MHz; σ = 2.049 S/m; ε_r = 37.739; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.26, 4.26, 4.26); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW2600/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 15.8 W/kg

CW2600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.31 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 35.2 W/kg
SAR(1 g) = 14 W/kg; SAR(10 g) = 5.91 W/kg
Maximum value of SAR (measured) = 15.6 W/kg



0 dB = 15.8 W/kg

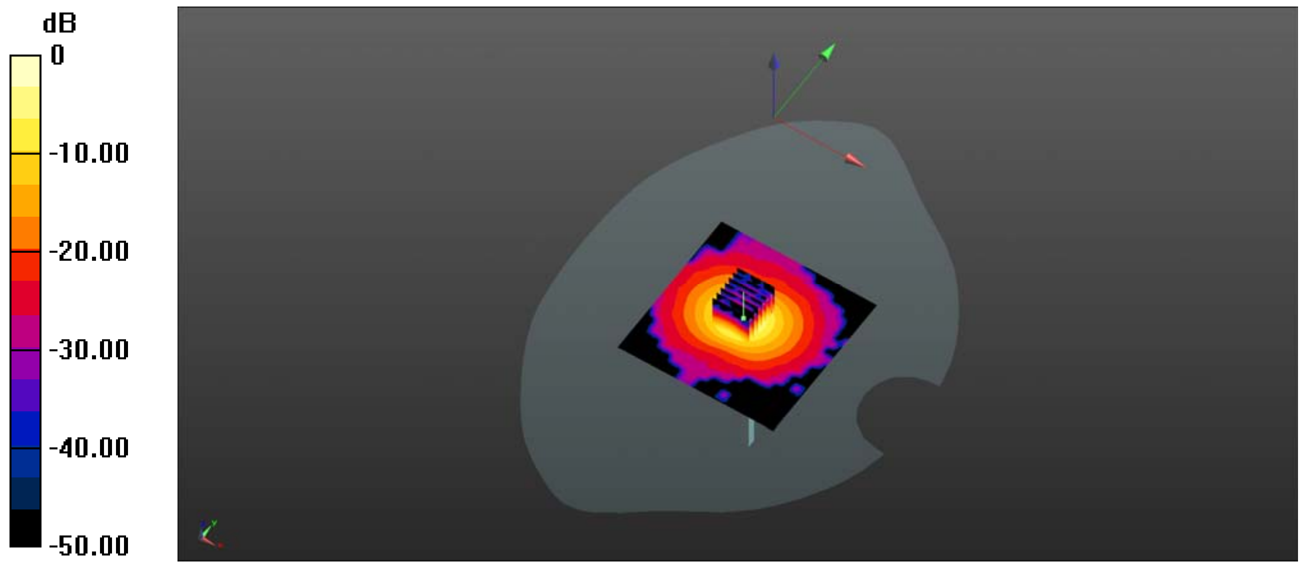
System Check_5200MHz_Head_180414

Communication System: UID 0, CW (0); Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: HSL_5200_180414 Medium parameters used: f = 5200 MHz; σ = 4.696 S/m; ε_r = 37.048; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(5.42, 5.42, 5.42); Calibrated: 2017.09.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW5200/Area Scan (201x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.39 W/kg

CW5200/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=4mm
Reference Value = 34.81 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 45.7 W/kg
SAR(1 g) = 8.19 W/kg; SAR(10 g) = 2.21 W/kg
Maximum value of SAR (measured) = 8.00 W/kg



0 dB = 8.00 W/kg

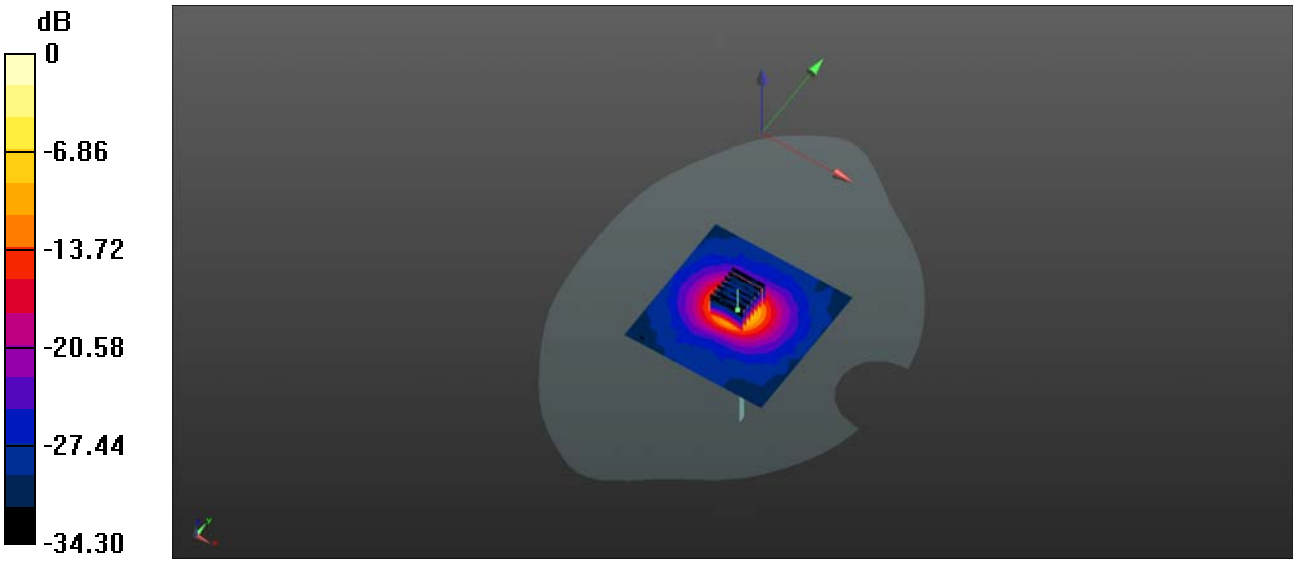
System Check_5300MHz_Head_180414

Communication System: UID 0, CW (0); Frequency: 5300 MHz;Duty Cycle: 1:1
Medium: HSL_5300_180414 Medium parameters used: f = 5300 MHz; σ = 4.819 S/m; ε_r = 36.839; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(5.18, 5.18, 5.18); Calibrated: 2017.09.30;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW5300/Area Scan (201x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.05 W/kg

CW5300/Zoom Scan (7x7x13)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 35.74 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 35.4 W/kg
SAR(1 g) = 7.95 W/kg; SAR(10 g) = 2.25 W/kg
Maximum value of SAR (measured) = 16.1 W/kg



0 dB = 16.1 W/kg

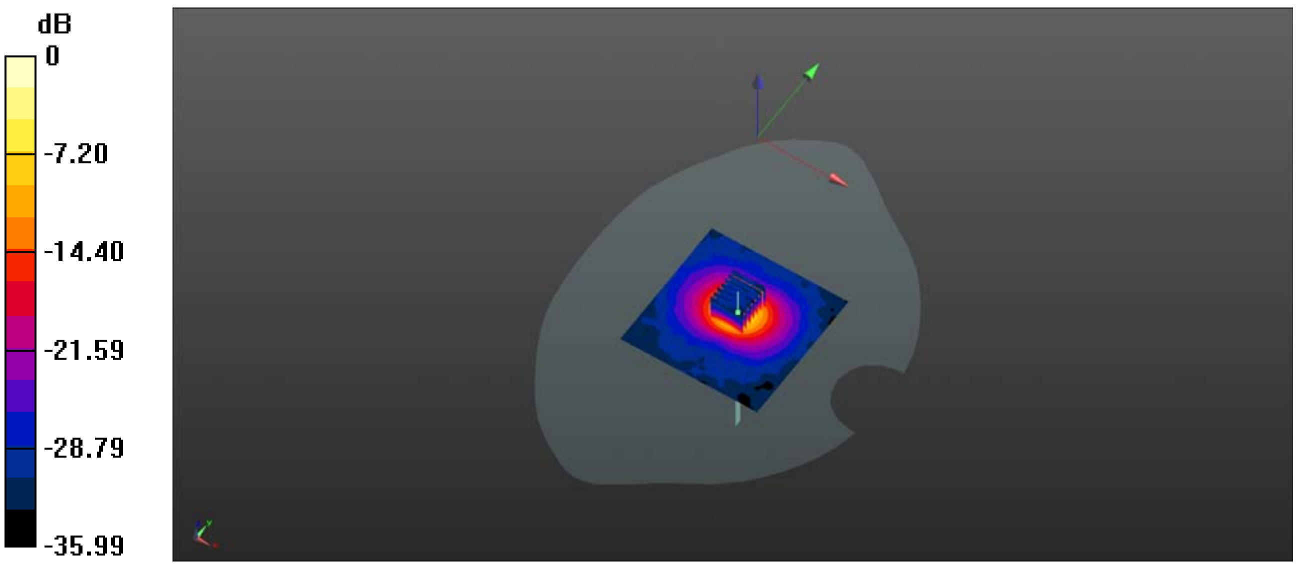
System Check_5500MHz_Head_180414

Communication System: UID 0, CW (0); Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: HSL_5500_180414 Medium parameters used: f = 5500 MHz; σ = 5.075 S/m; ε_r = 36.416; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(4.69, 4.69, 4.69); Calibrated: 2017.09.30;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW5500/Area Scan (201x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 8.55 W/kg

CW5500/Zoom Scan (7x7x13)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 32.87 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 39.8 W/kg
SAR(1 g) = 8.02 W/kg; SAR(10 g) = 2.21 W/kg
Maximum value of SAR (measured) = 17.3 W/kg



0 dB = 17.3 W/kg

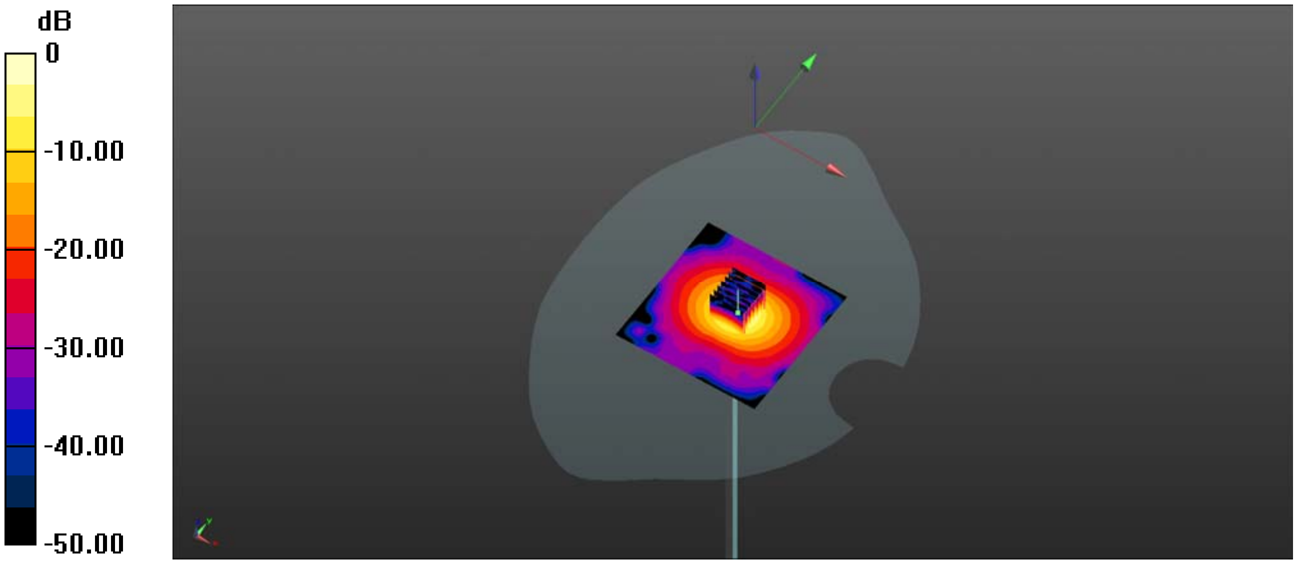
System Check_5800MHz_Head_180414

Communication System: UID 0, CW (0); Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: HSL_5800_180414 Medium parameters used: f = 5800 MHz; σ = 5.432 S/m; ε_r = 35.732; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(4.57, 4.57, 4.57); Calibrated: 2017.09.30;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

CW5800/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 16.6 W/kg

CW5800/Zoom Scan (7x7x13)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 34.60 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 44.2 W/kg
SAR(1 g) = 8.12 W/kg; SAR(10 g) = 2.24 W/kg
Maximum value of SAR (measured) = 17.5 W/kg



0 dB = 17.5 W/kg

Annex D Plots of Maximum SAR Test Results

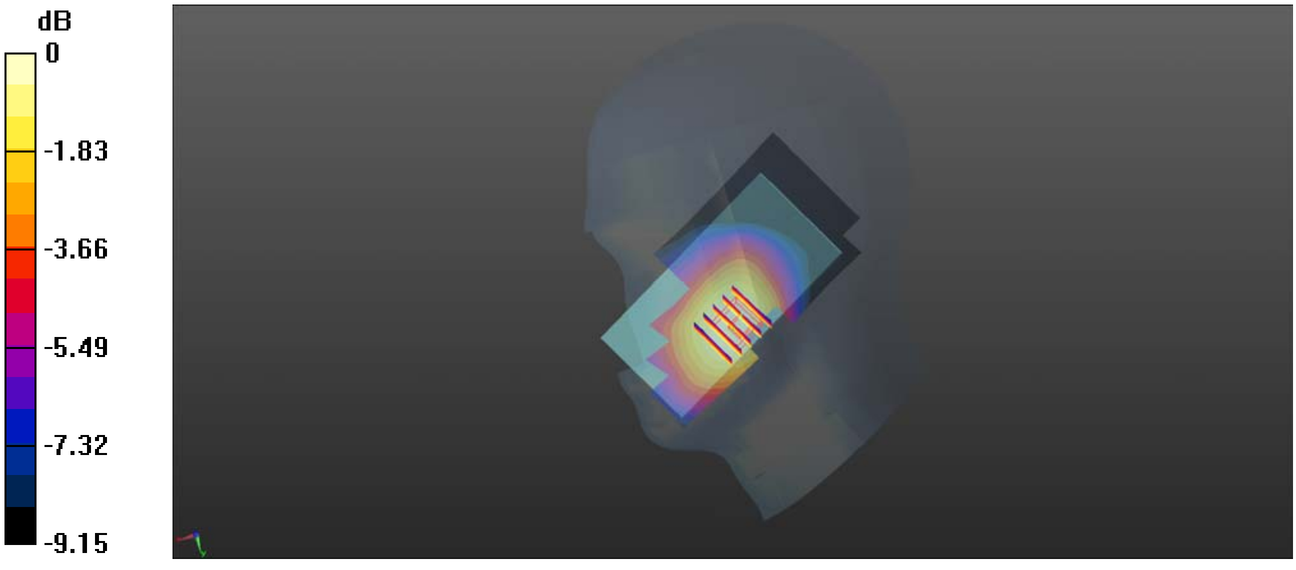
GSM900_GSM Voice_Right Cheek_Ch124

Communication System: UID 0, Generic GSM (0); Frequency: 914.8 MHz;Duty Cycle: 1:8.3
Medium: HSL_900_180205 Medium parameters used: f = 915 MHz; σ = 0.989 S/m; ε_r = 41.104; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.16, 6.16, 6.16); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch124/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0908 W/kg

Ch124/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.872 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.109 W/kg
SAR(1 g) = 0.087 W/kg; SAR(10 g) = 0.066 W/kg
Maximum value of SAR (measured) = 0.0913 W/kg



0 dB = 0.0908 W/kg

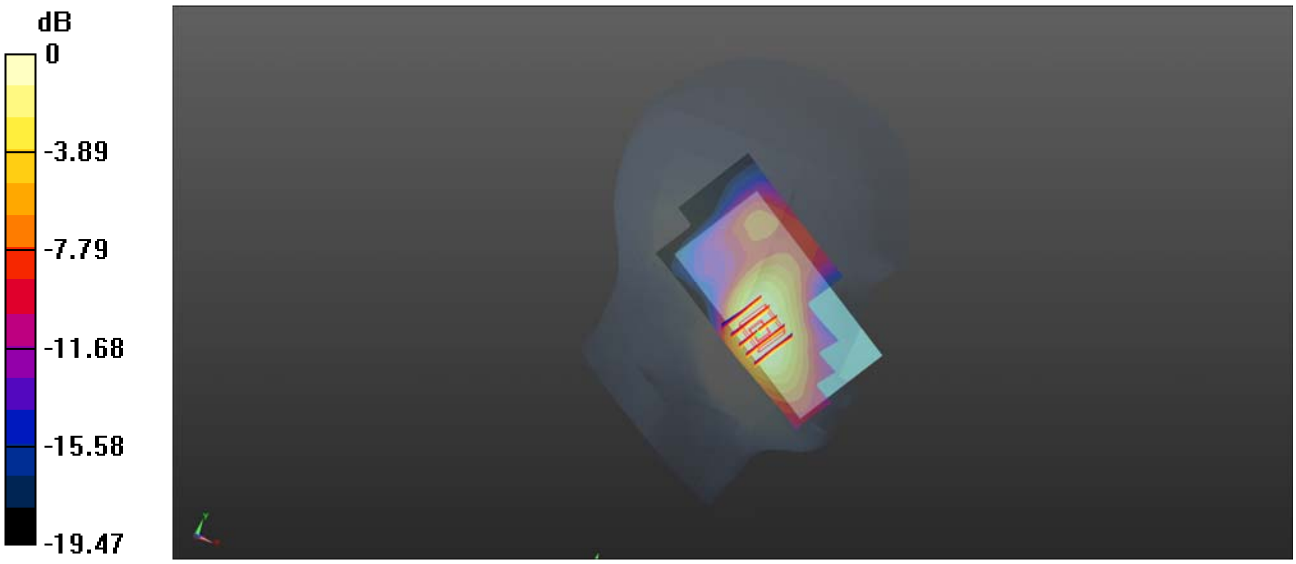
GSM1800_GSM Voice_Left Cheek_Ch698

Communication System: UID 0, Generic GSM (0); Frequency: 1747.4 MHz;Duty Cycle: 1:8.3
Medium: HSL_1800_180130 Medium parameters used: f = 1747.4 MHz; σ = 1.377 S/m; ε_r = 41.333; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(5.15, 5.15, 5.15); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch698/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.183 W/kg

Ch698/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.141 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.260 W/kg
SAR(1 g) = 0.164 W/kg; SAR(10 g) = 0.101 W/kg
Maximum value of SAR (measured) = 0.178 W/kg



0 dB = 0.183 W/kg

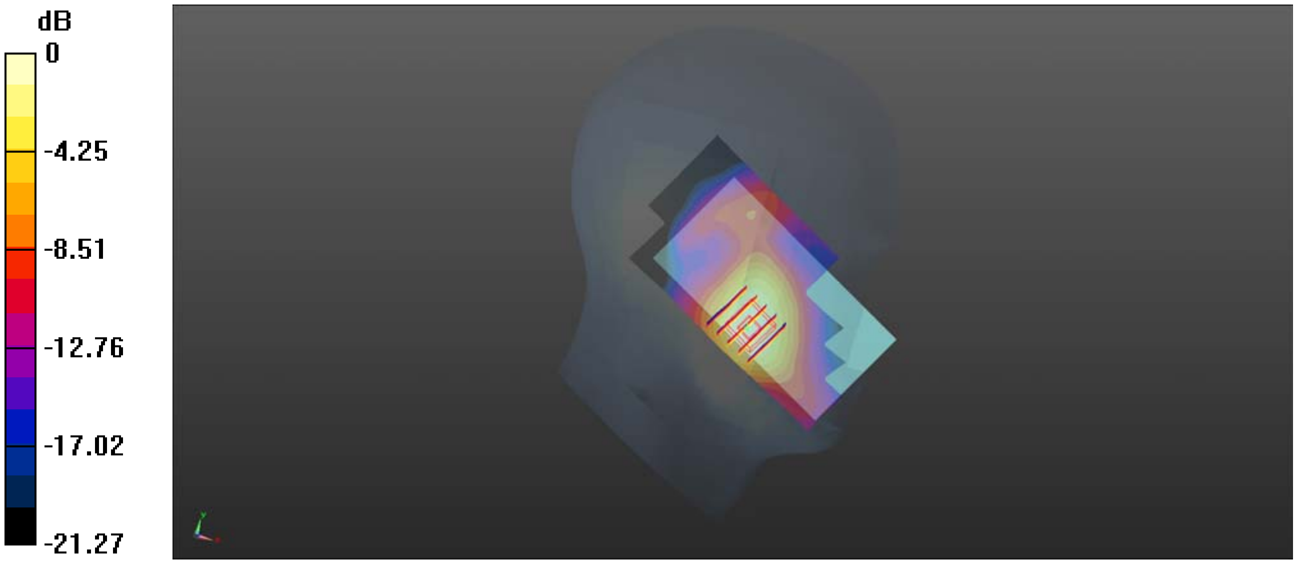
WCDMA Band I_RMC 12.2Kbps_Left Cheek_Ch9888

Communication System: UID 0, UMTS-FDD (0); Frequency: 1977.6 MHz;Duty Cycle: 1:1
Medium: HSL_2000_180124 Medium parameters used: f = 1978 MHz; σ = 1.434 S/m; ε_r = 39.138; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.98, 4.98, 4.98); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9888/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.380 W/kg

Ch9888/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.771 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.620 W/kg
SAR(1 g) = 0.346 W/kg; SAR(10 g) = 0.193 W/kg
Maximum value of SAR (measured) = 0.385 W/kg



0 dB = 0.380 W/kg

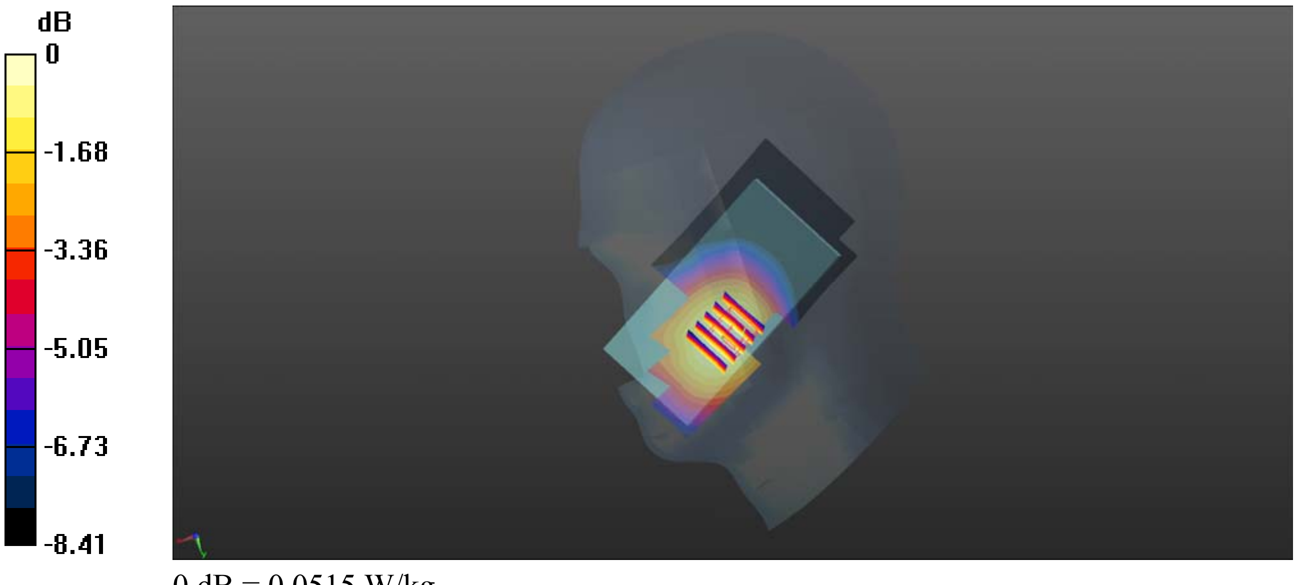
WCDMA Band VIII_RMC 12.2Kbps_Right Cheek_Ch2787

Communication System: UID 0, UMTS-FDD (0); Frequency: 897.4 MHz;Duty Cycle: 1:1
Medium: HSL_900_180205 Medium parameters used: f = 897.4 MHz; σ = 0.971 S/m; ε_r = 41.284; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.16, 6.16, 6.16); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch2787/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0515 W/kg

Ch2787/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.976 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.0610 W/kg
SAR(1 g) = 0.050 W/kg; SAR(10 g) = 0.038 W/kg
Maximum value of SAR (measured) = 0.0510 W/kg



0 dB = 0.0515 W/kg

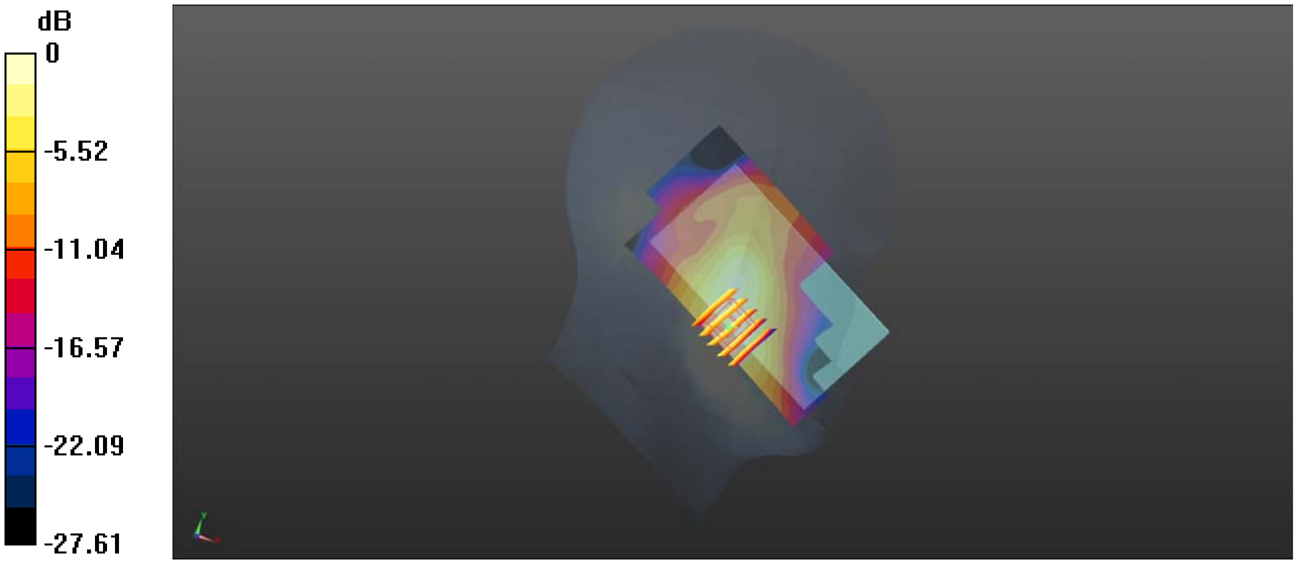
LTE Band 1_20MHz_QPSK_1RB_0Offset_Left Cheek_Ch18500

Communication System: UID 0, LTE (0); Frequency: 1970 MHz;Duty Cycle: 1:1
Medium: HSL_2000_180124 Medium parameters used: f = 1970 MHz; σ = 1.417 S/m; ε_r = 40.735; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.98, 4.98, 4.98); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch18500/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.220 W/kg

Ch18500/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.726 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.334 W/kg
SAR(1 g) = 0.207 W/kg; SAR(10 g) = 0.124 W/kg
Maximum value of SAR (measured) = 0.231 W/kg



0 dB = 0.220 W/kg

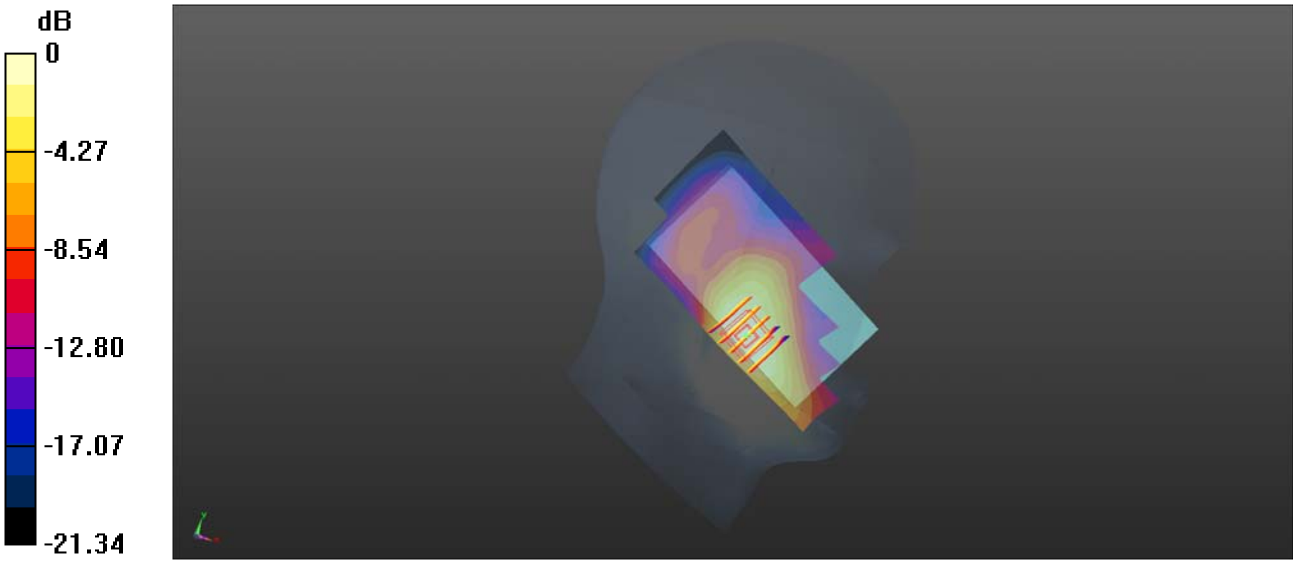
LTE Band 3_20MHz_QPSK_1RB_0Offset_Left Cheek_Ch19575

Communication System: UID 0, LTE (0); Frequency: 1747.5 MHz;Duty Cycle: 1:1
Medium: HSL_1800_180130 Medium parameters used: f = 1747.5 MHz; σ = 1.377 S/m; ε_r = 41.333; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(5.15, 5.15, 5.15); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch19575/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.326 W/kg

Ch19575/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.164 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.457 W/kg
SAR(1 g) = 0.302 W/kg; SAR(10 g) = 0.190 W/kg
Maximum value of SAR (measured) = 0.325 W/kg



0 dB = 0.326 W/kg

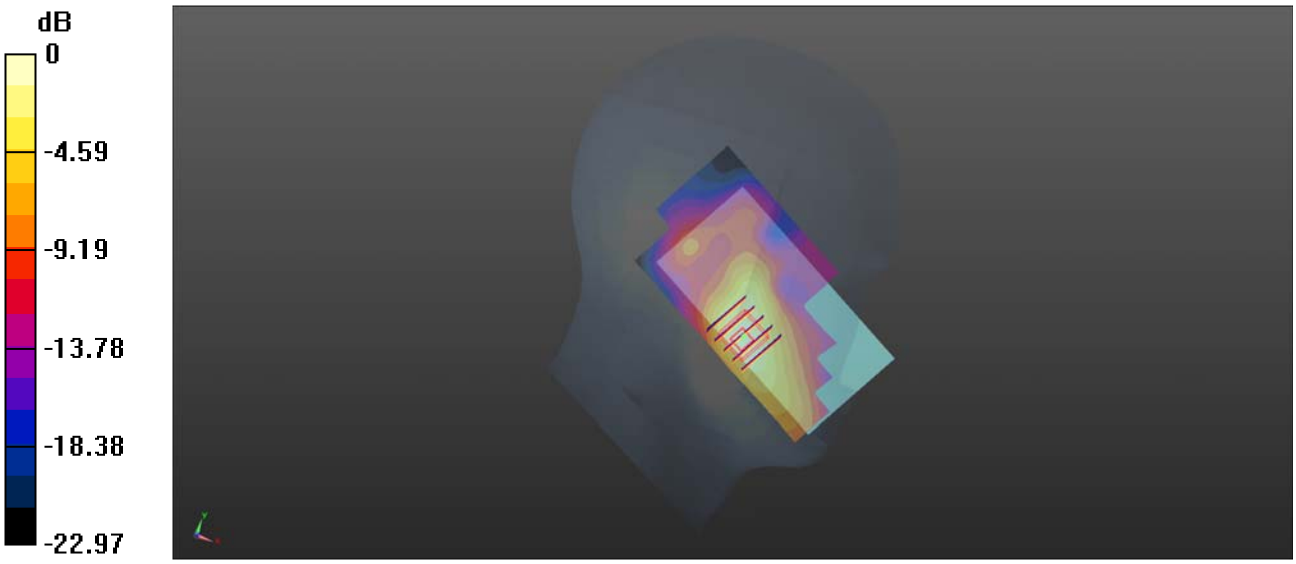
LTE Band 7_20MHz_QPSK_1RB_0Offset_Left Cheek_Ch21350

Communication System: UID 0, LTE (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium: HSL_2600_180130 Medium parameters used: f = 2560 MHz; σ = 2.001 S/m; ε_r = 37.928; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.26, 4.26, 4.26); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch21350/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.565 W/kg

Ch21350/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.954 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.472 W/kg; SAR(10 g) = 0.235 W/kg
Maximum value of SAR (measured) = 0.503 W/kg



0 dB = 0.565 W/kg

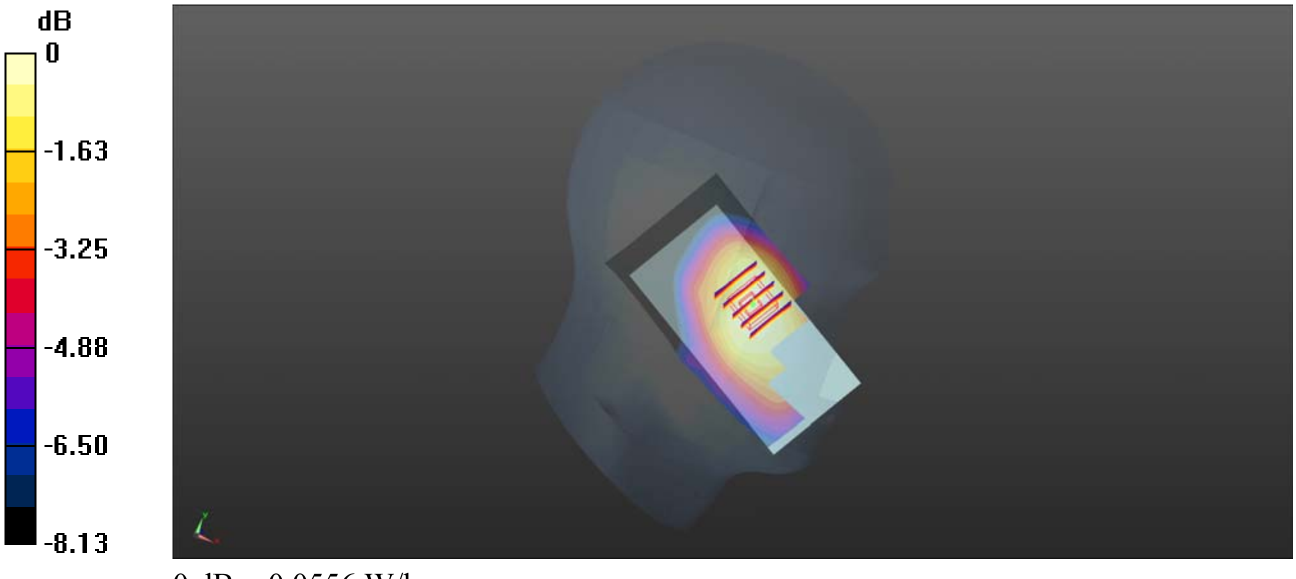
LTE Band 8_10MHz_QPSK_1RB_0Offset_Left Cheek_Ch21750

Communication System: UID 0, LTE (0); Frequency: 910 MHz;Duty Cycle: 1:1
Medium: HSL_900_180205 Medium parameters used: f = 910 MHz; $\sigma = 0.984$ S/m; $\varepsilon_r = 41.158$; $\rho = 1000$ kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.16, 6.16, 6.16); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch21750/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0556 W/kg

Ch21750/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.906 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.0670 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.042 W/kg
Maximum value of SAR (measured) = 0.0565 W/kg



0 dB = 0.0556 W/kg

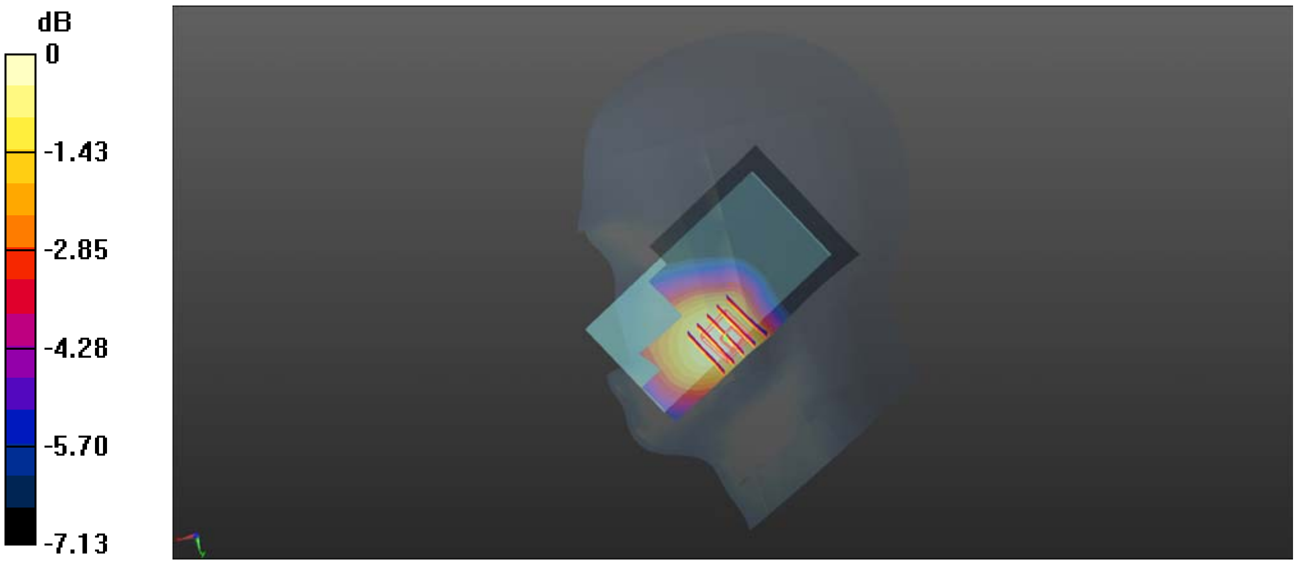
LTE Band 20_20MHz_QPSK_1RB_0Offset_Right Cheek_Ch24250

Communication System: UID 0, LTE (0); Frequency: 842 MHz;Duty Cycle: 1:1
Medium: HSL_835_180203 Medium parameters used: f = 842 MHz; σ = 0.927 S/m; ε_r = 41.757; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.26, 6.26, 6.26); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch24250/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0554 W/kg

Ch24250/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.578 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.0700 W/kg
SAR(1 g) = 0.055 W/kg; SAR(10 g) = 0.043 W/kg
Maximum value of SAR (measured) = 0.0571 W/kg



0 dB = 0.0554 W/kg

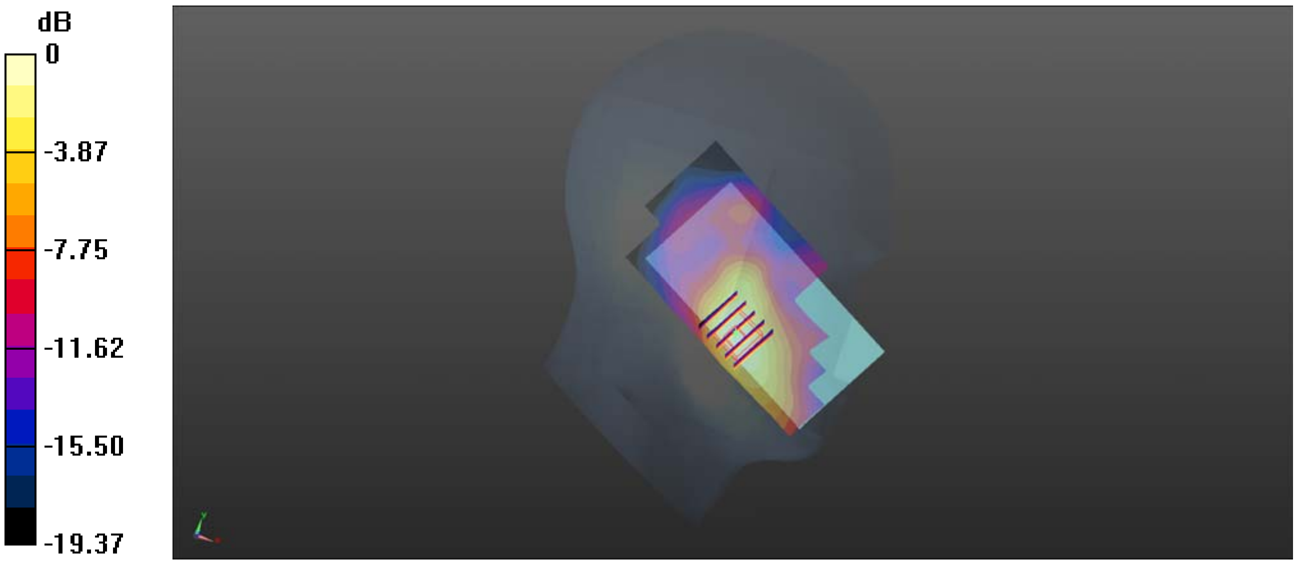
LTE Band 40_20MHz_QPSK_1RB_0Offset_Left Cheek_Ch39150

Communication System: UID 0, LTE (0); Frequency: 2350 MHz;Duty Cycle: 1:1
Medium: HSL_2300_180131 Medium parameters used: f = 2350 MHz; σ = 1.722 S/m; ε_r = 40.291; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.76, 4.76, 4.76); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch39150/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.128 W/kg

Ch39150/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.638 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.230 W/kg
SAR(1 g) = 0.111 W/kg; SAR(10 g) = 0.057 W/kg
Maximum value of SAR (measured) = 0.121 W/kg



0 dB = 0.128 W/kg

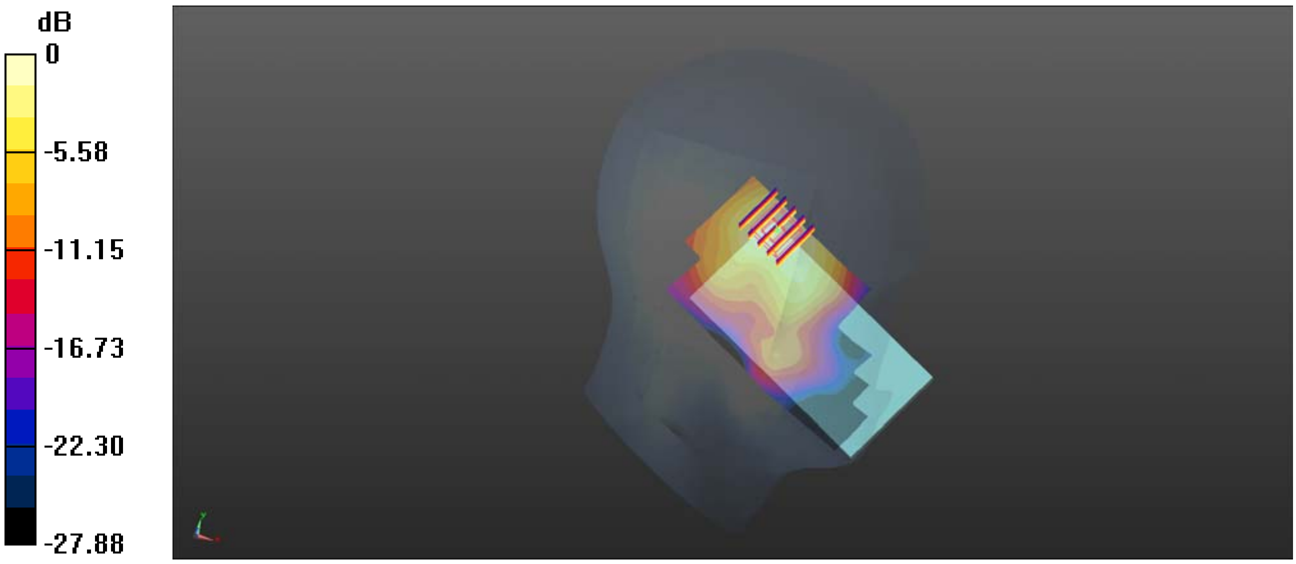
WLAN 2.4GHz_802.11b 1Mbps_Left Cheek_Ch13

Communication System: UID 0, WLAN 2.4GHz 802.11b (0); Frequency: 2472 MHz;Duty Cycle: 1:1
Medium: HSL_2450_180131 Medium parameters used: f = 2472 MHz; σ = 1.778 S/m; ε_r = 37.255; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.61, 4.61, 4.61); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch13/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.190 W/kg

Ch13/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.548 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.400 W/kg
SAR(1 g) = 0.177 W/kg; SAR(10 g) = 0.087 W/kg
Maximum value of SAR (measured) = 0.190 W/kg



0 dB = 0.190 W/kg

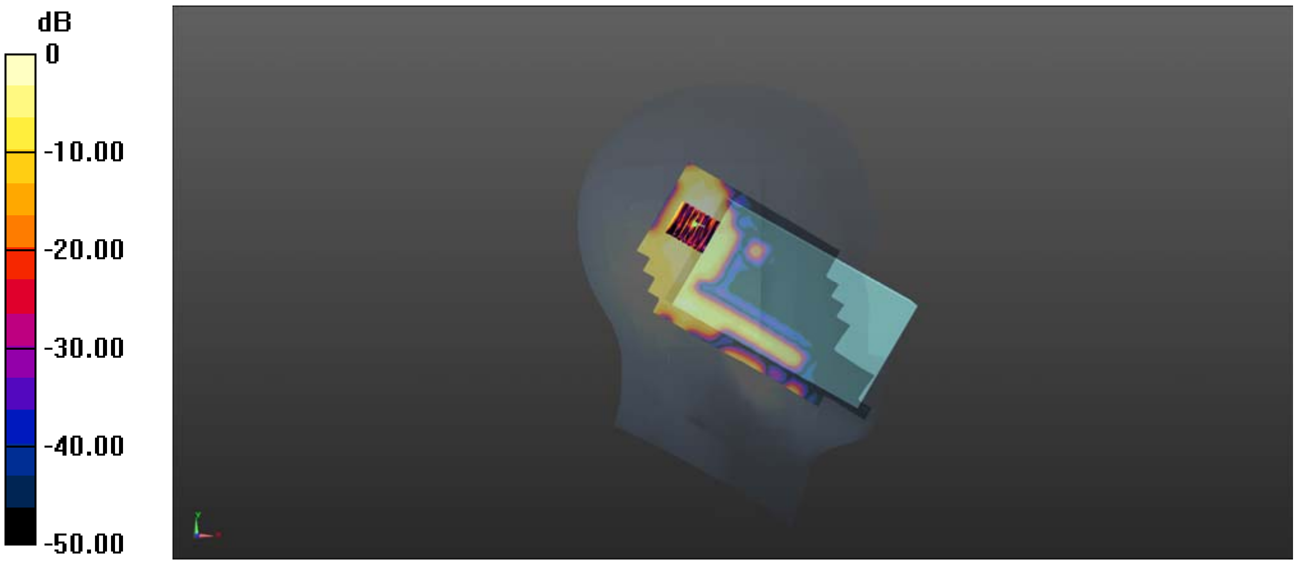
WLAN 5GHz Band 1&2_802.11 n-HT40 MCS0_Left Tilt_Ch62

Communication System: UID 0, WLAN 5GHz (0); Frequency: 5310 MHz;Duty Cycle: 1:1
Medium: HSL_5200_180414 Medium parameters used: f = 5310 MHz; σ = 4.831 S/m; ε_r = 36.812; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(5.18, 5.18, 5.18); Calibrated: 2017.09.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch62/Area Scan (101x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.141 W/kg

Ch62/Zoom Scan (7x7x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.233 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.622 W/kg
SAR(1 g) = 0.131 W/kg; SAR(10 g) = 0.042 W/kg
Maximum value of SAR (measured) = 0.157 W/kg



0 dB = 0.157 W/kg

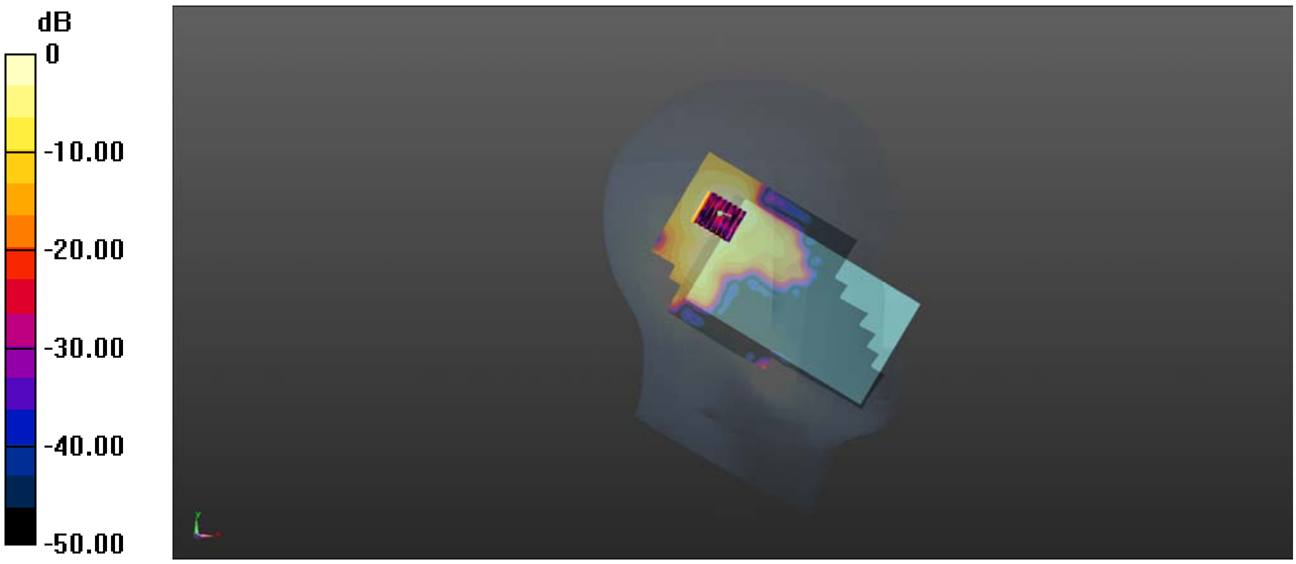
WLAN 5GHz Band 3_802.11 n-HT40 MCS0_Left Tilt_Ch118

Communication System: UID 0, WLAN 5GHz (0); Frequency: 5580 MHz;Duty Cycle: 1:1
Medium: HSL_5500_180414 Medium parameters used: f = 5580 MHz; σ = 5.164 S/m; ε_r = 36.212; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(4.49, 4.49, 4.49); Calibrated: 2017.09.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch118/Area Scan (111x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.743 W/kg

Ch118/Zoom Scan (7x7x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.923 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.75 W/kg
SAR(1 g) = 0.785 W/kg; SAR(10 g) = 0.272 W/kg
Maximum value of SAR (measured) = 0.762 W/kg



0 dB = 0.762 W/kg

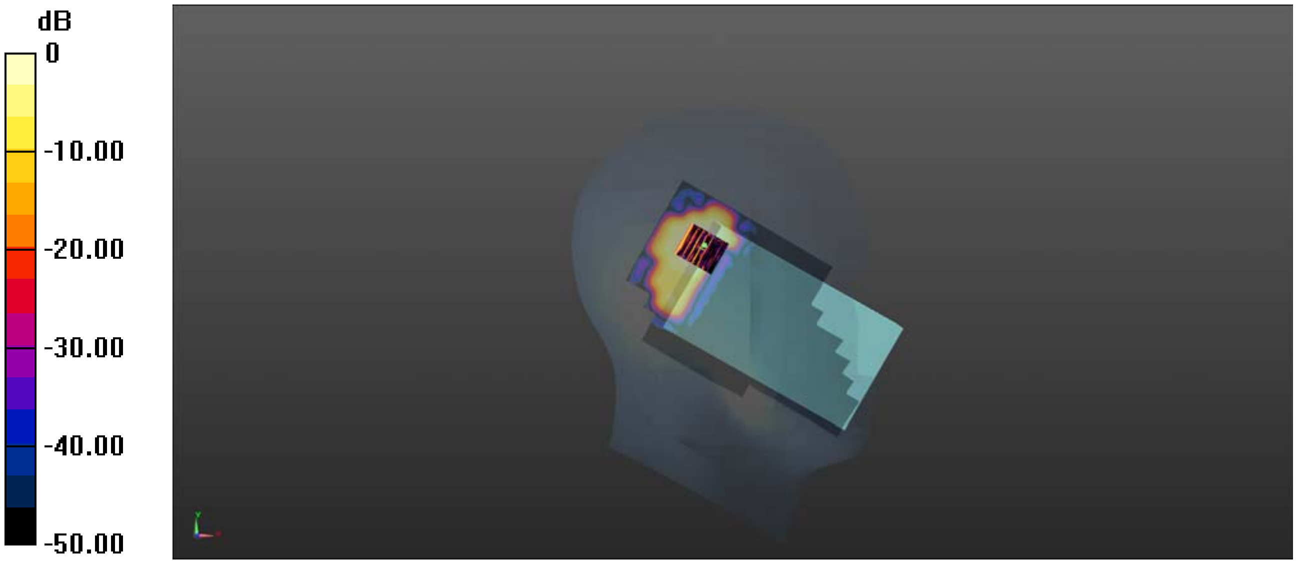
WLAN 5GHz Band 4 802.11a 6Mbp_Left Tilt_Ch161

Communication System: UID 0, WLAN 5GHz (0); Frequency: 5805 MHz;Duty Cycle: 1:1
Medium: HSL_5800_180414 Medium parameters used: f = 5805 MHz; $\sigma = 5.442$ S/m; $\varepsilon_r = 35.717$; $\rho = 1000$ kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(4.57, 4.57, 4.57); Calibrated: 2017.09.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch161/Area Scan (101x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.266 W/kg

Ch161/Zoom Scan (7x7x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.258 W/kg; SAR(10 g) = 0.083 W/kg
Maximum value of SAR (measured) = 0.264 W/kg



0 dB = 0.264 W/kg

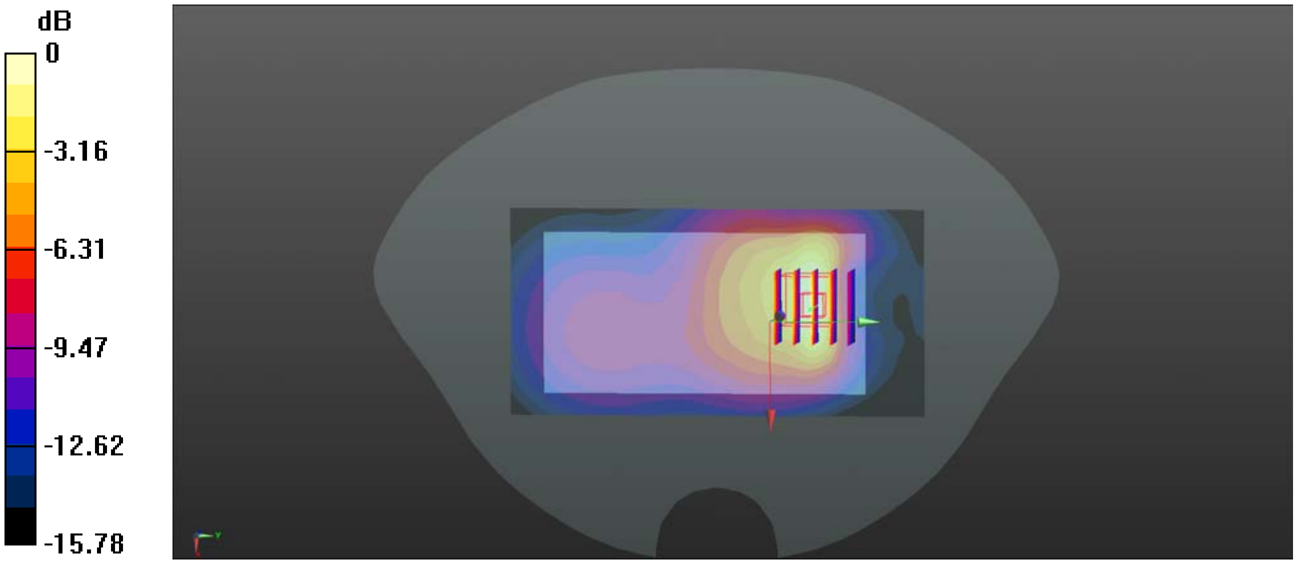
GSM900_GPRS(4 TX slots)_Back Side_5mm_Ch975

Communication System: UID 0, EGSM900(class 12) (0); Frequency: 880.2 MHz;Duty Cycle: 1:2.08
Medium: HSL_900_180205 Medium parameters used (interpolated): f = 880.2 MHz; σ = 0.952 S/m; ε_r = 41.483; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.16, 6.16, 6.16); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch38/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.21 W/kg

Ch38/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.16 V/m; Power Drift = 3.83 dB
Peak SAR (extrapolated) = 1.92 W/kg
SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.547 W/kg
Maximum value of SAR (measured) = 1.17 W/kg



0 dB = 1.21 W/kg

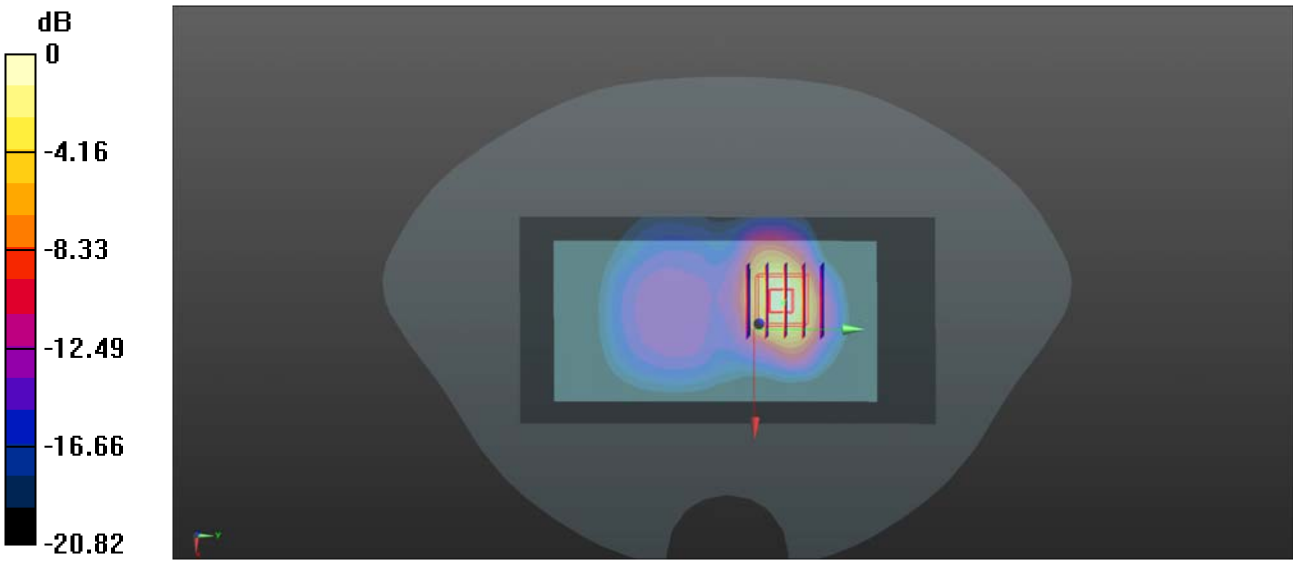
GSM1800_GPRS(4 TX slots)_Back Side_5mm_Ch885

Communication System: UID 0, DCS 1800 (0); Frequency: 1784.8 MHz;Duty Cycle: 1:2.08
Medium: HSL_1800_180130 Medium parameters used: f = 1785 MHz; σ = 1.422 S/m; ε_r = 41.148; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(5.15, 5.15, 5.15); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch885/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.52 W/kg

Ch885/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.43 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 5.26 W/kg
SAR(1 g) = 2.64 W/kg; SAR(10 g) = 1.22 W/kg
Maximum value of SAR (measured) = 2.98 W/kg



0 dB = 3.52 W/kg

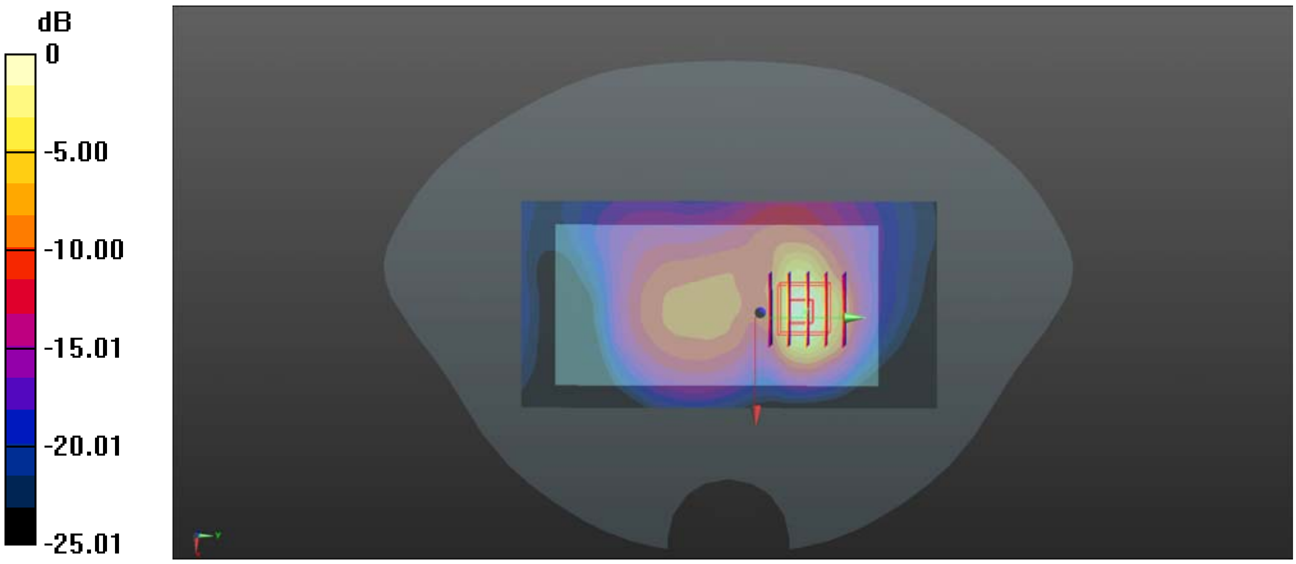
WCDMA Band I_RMC 12.2Kbps_Back Side_5mm_Ch9612

Communication System: UID 0, UMTS-FDD (0); Frequency: 1922.4 MHz;Duty Cycle: 1:1
Medium: HSL_2000_180124 Medium parameters used: f = 1922.4 MHz; σ = 1.376 S/m; ε_r = 39.388; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.98, 4.98, 4.98); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1462
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch9612/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.49 W/kg

Ch9612/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.66 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 2.98 W/kg
SAR(1 g) = 1.35 W/kg; SAR(10 g) = 0.588 W/kg
Maximum value of SAR (measured) = 1.50 W/kg



0 dB = 1.49 W/kg

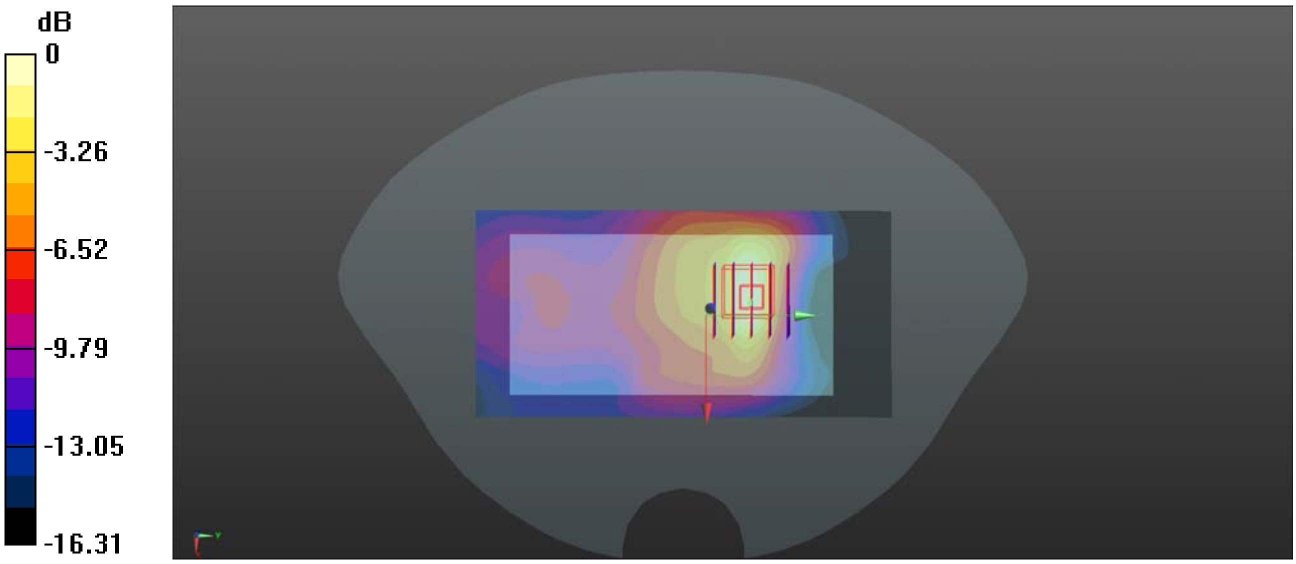
WCDMA Band VIII_RMC 12.2Kbps_Back Side_5mm_Ch2712

Communication System: UID 0, UMTS-FDD (0); Frequency: 882.4 MHz;Duty Cycle: 1:1
Medium: HSL_900_180205 Medium parameters used: f = 882.4 MHz; σ = 0.955 S/m; ε_r = 41.455; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.16, 6.16, 6.16); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch2712/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.472 W/kg

Ch2712/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.32 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.749 W/kg
SAR(1 g) = 0.394 W/kg; SAR(10 g) = 0.210 W/kg
Maximum value of SAR (measured) = 0.450 W/kg



0 dB = 0.472 W/kg

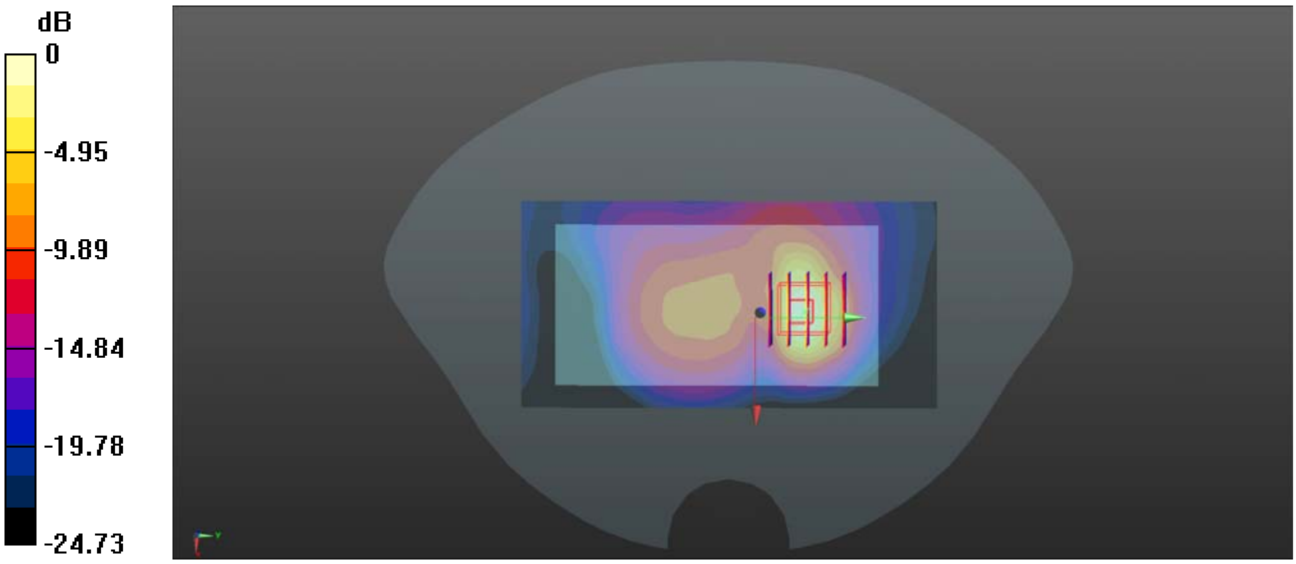
LTE Band 1_20MHz_QPSK_1RB_0Offset_Back Side_5mm_Ch18100

Communication System: UID 0, LTE (0); Frequency: 1930 MHz;Duty Cycle: 1:1
Medium: HSL_2000_180124 Medium parameters used: f = 1930 MHz; σ = 1.373 S/m; ε_r = 40.899; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.98, 4.98, 4.98); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch18100/Area Scan (71x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.87 W/kg

Ch18100/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.938 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 3.68 W/kg
SAR(1 g) = 1.69 W/kg; SAR(10 g) = 0.735 W/kg
Maximum value of SAR (measured) = 1.77 W/kg



0 dB = 1.87 W/kg

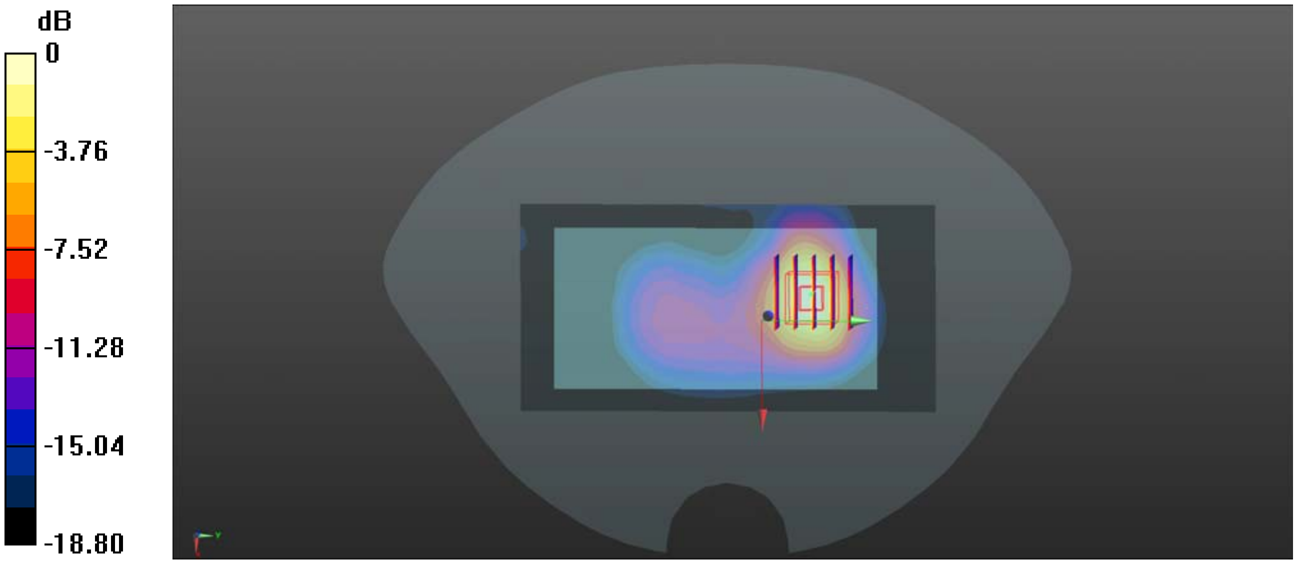
LTE Band 3_20MHz_QPSK_1RB_0Offset_Back Side_5mm_Ch19300

Communication System: UID 0, LTE (0); Frequency: 1720 MHz;Duty Cycle: 1:1
Medium: HSL_1800_180130 Medium parameters used: f = 1720 MHz; σ = 1.348 S/m; ε_r = 41.477; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(5.15, 5.15, 5.15); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch19300/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.63 W/kg

Ch19300/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.255 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 2.56 W/kg
SAR(1 g) = 1.36 W/kg; SAR(10 g) = 0.680 W/kg
Maximum value of SAR (measured) = 1.53 W/kg



0 dB = 1.63 W/kg

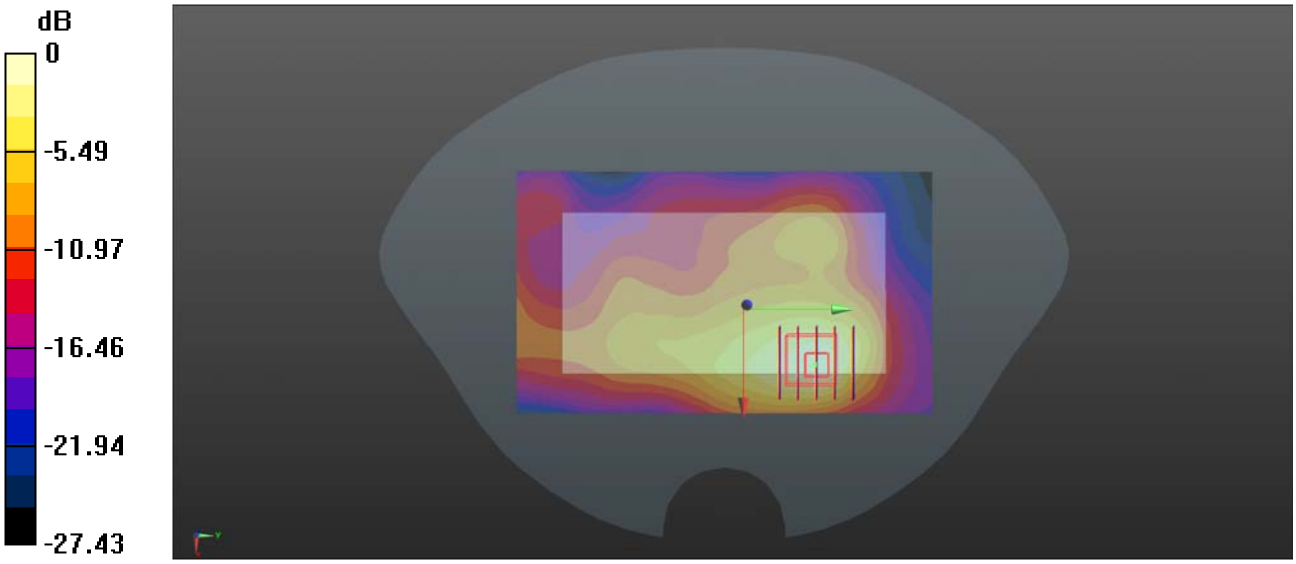
LTE Band 7_20MHz_QPSK_1RB_0Offset_Front Side_5mm_Ch21350

Communication System: UID 0, LTE (0); Frequency: 2560 MHz;Duty Cycle: 1:1
Medium: HSL_2600_180130 Medium parameters used: f = 2560 MHz; σ = 2.001 S/m; ε_r = 37.928; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.8 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.26, 4.26, 4.26); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch21350/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.61 W/kg

Ch21350/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.332 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 3.71 W/kg
SAR(1 g) = 1.4 W/kg; SAR(10 g) = 0.620 W/kg
Maximum value of SAR (measured) = 1.54 W/kg



0 dB = 1.61 W/kg

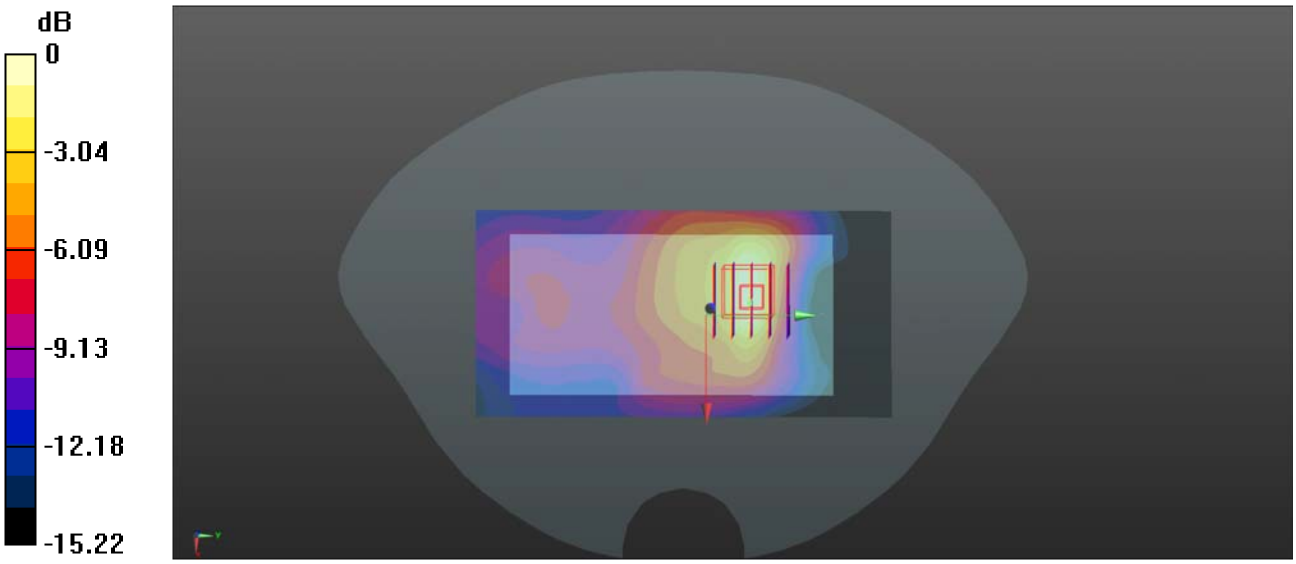
LTE Band 8_10MHz_QPSK_1RB_0Offset_Front Side_5mm_Ch21500

Communication System: UID 0, LTE (0); Frequency: 885 MHz;Duty Cycle: 1:1
Medium: HSL_900_180205 Medium parameters used: f = 885 MHz; σ = 0.957 S/m; ε_r = 41.422; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.16, 6.16, 6.16); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch21500/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.433 W/kg

Ch21500/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.632 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.736 W/kg
SAR(1 g) = 0.393 W/kg; SAR(10 g) = 0.212 W/kg
Maximum value of SAR (measured) = 0.446 W/kg



0 dB = 0.433 W/kg

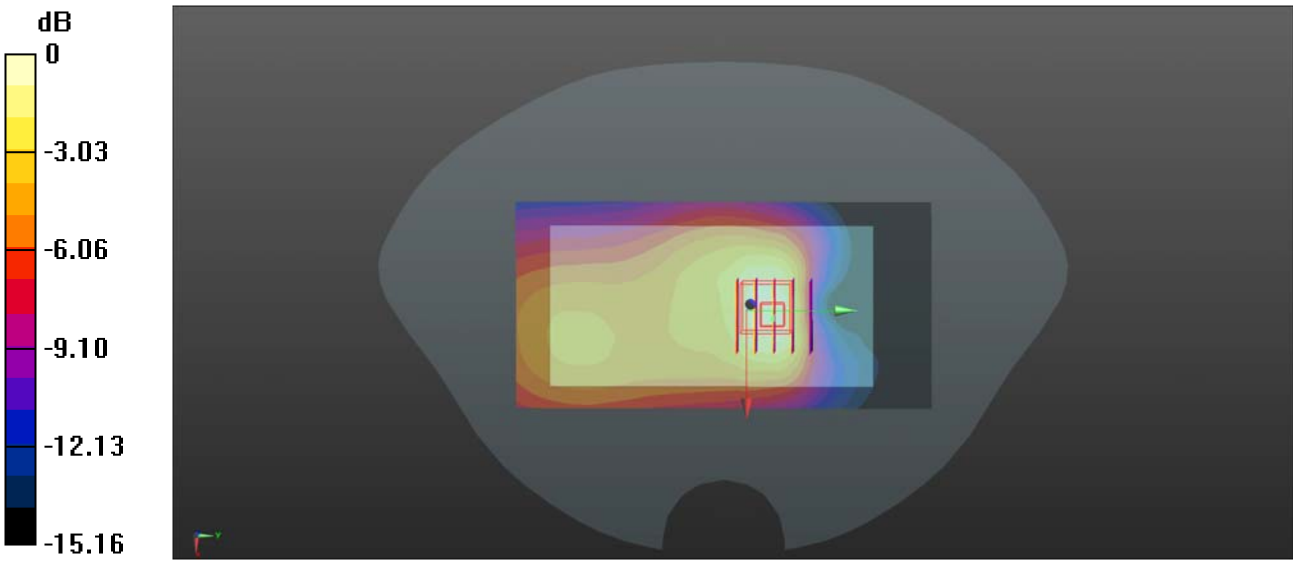
LTE Band 20_20MHz_QPSK_1RB_0Offset_Back Side_5mm_Ch24250

Communication System: UID 0, LTE (0); Frequency: 842 MHz;Duty Cycle: 1:1
Medium: HSL_835_180203 Medium parameters used: f = 842 MHz; σ = 0.927 S/m; ε_r = 41.757; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.26, 6.26, 6.26); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1464
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch24250/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.524 W/kg

Ch24250/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.77 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.932 W/kg
SAR(1 g) = 0.507 W/kg; SAR(10 g) = 0.287 W/kg
Maximum value of SAR (measured) = 0.568 W/kg



0 dB = 0.524 W/kg

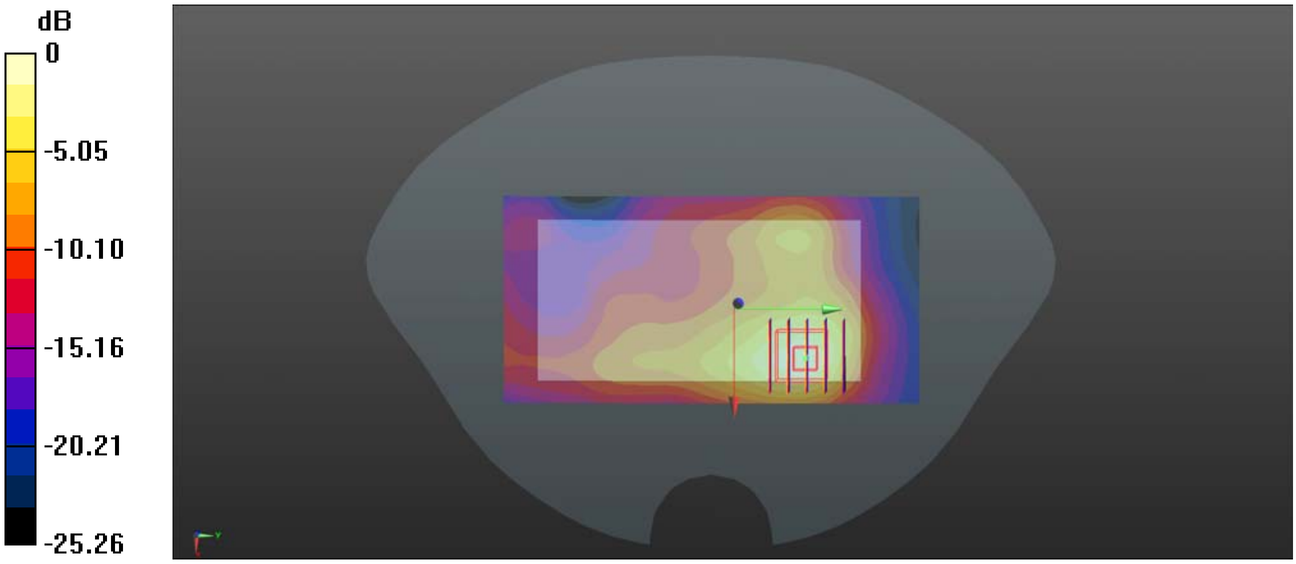
LTE Band 40_20MHz_QPSK_1RB_0Offset_Front Side_5mm_Ch39550

Communication System: UID 0, LTE (0); Frequency: 2390 MHz;Duty Cycle: 1:1
Medium: HSL_2300_180131 Medium parameters used: f = 2390 MHz; σ = 1.778 S/m; ε_r = 39.915; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.76, 4.76, 4.76); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch39550/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.465 W/kg

Ch39550/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.797 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.392 W/kg; SAR(10 g) = 0.177 W/kg
Maximum value of SAR (measured) = 0.432 W/kg



0 dB = 0.465 W/kg

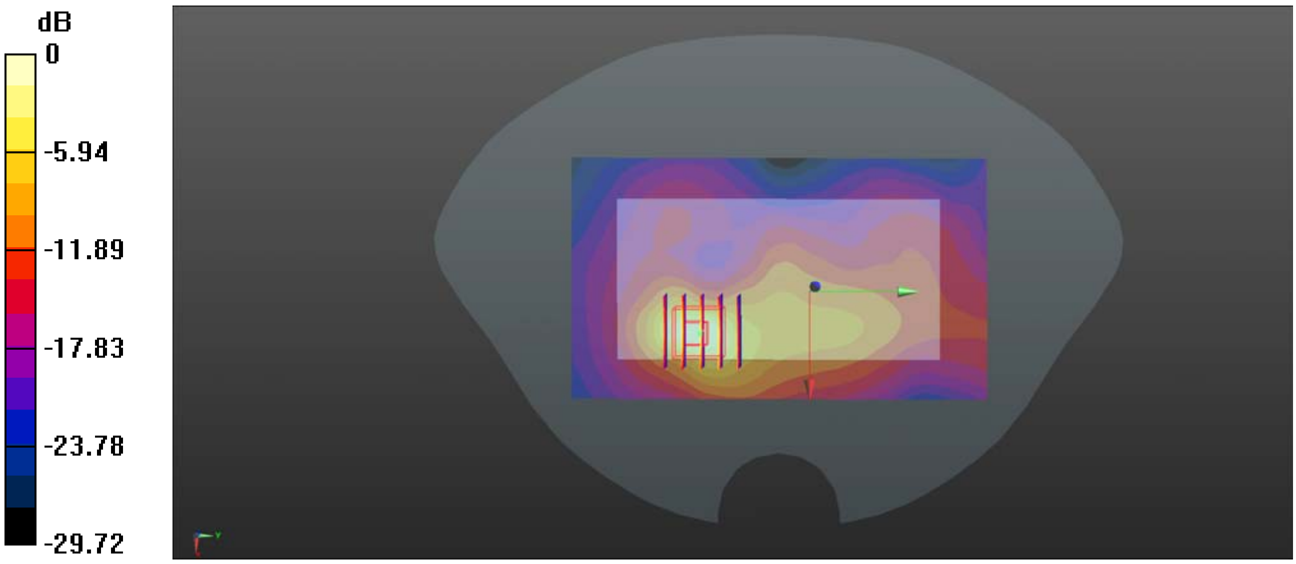
WLAN 2.4GHz_802.11b 1Mbps_Back Side_5mm_Ch13

Communication System: UID 0, WLAN 2.4GHz 802.11b (0); Frequency: 2472 MHz;Duty Cycle: 1:1
Medium: HSL_2450_180131 Medium parameters used: f = 2472 MHz; σ = 1.778 S/m; ε_r = 37.255; ρ = 1000 kg/m^3
Ambient Temperature：23.2 ℃; Liquid Temperature：22.9 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(4.61, 4.61, 4.61); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch13/Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.709 W/kg

Ch13/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.954 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 2.17 W/kg
SAR(1 g) = 0.733 W/kg; SAR(10 g) = 0.260 W/kg
Maximum value of SAR (measured) = 0.874 W/kg



0 dB = 0.709 W/kg

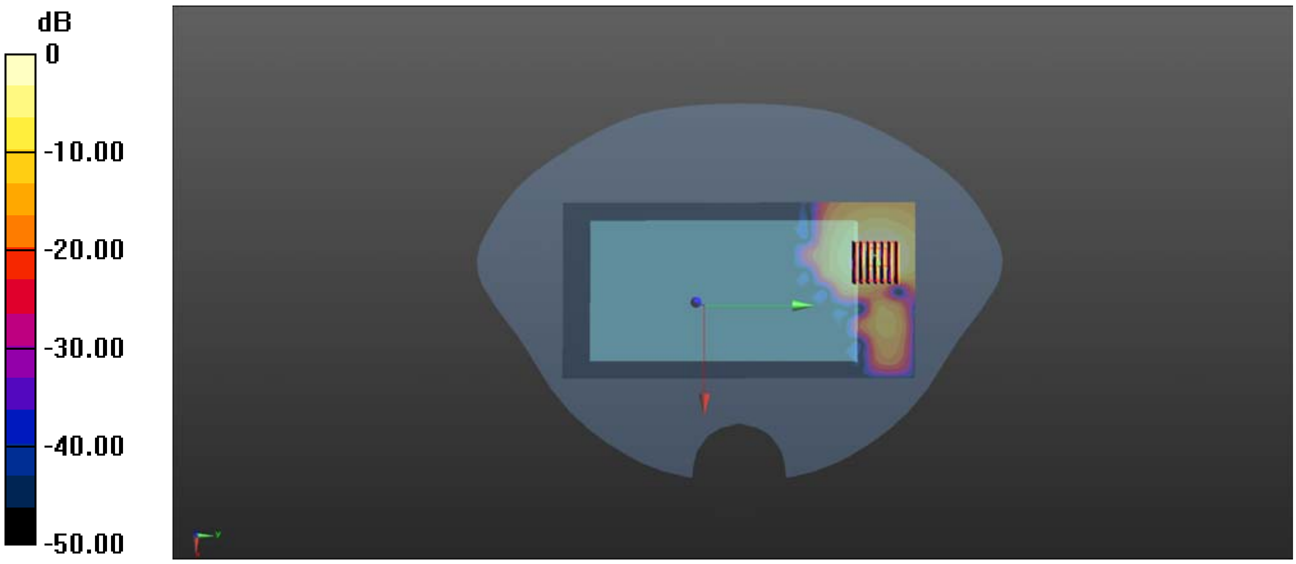
WLAN 5GHz Band 1_802.11 n-HT40 MCS0_Back Side_5mm_Ch62

Communication System: UID 0, WLAN 5GHz (0); Frequency: 5310 MHz;Duty Cycle: 1:1
Medium: HSL_5300_180414 Medium parameters used: f = 5310 MHz; σ = 4.831 S/m; ε_r = 36.812; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(5.18, 5.18, 5.18); Calibrated: 2017.09.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch62/Area Scan (101x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.31 W/kg

Ch62/Zoom Scan (7x7x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 4.76 W/kg
SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.359 W/kg
Maximum value of SAR (measured) = 1.19 W/kg



0 dB = 1.19 W/kg

Test Laboratory: SAR Lab. of Shenzhen Morlab Communications Technology Co., Ltd. Date: 2018.04.14

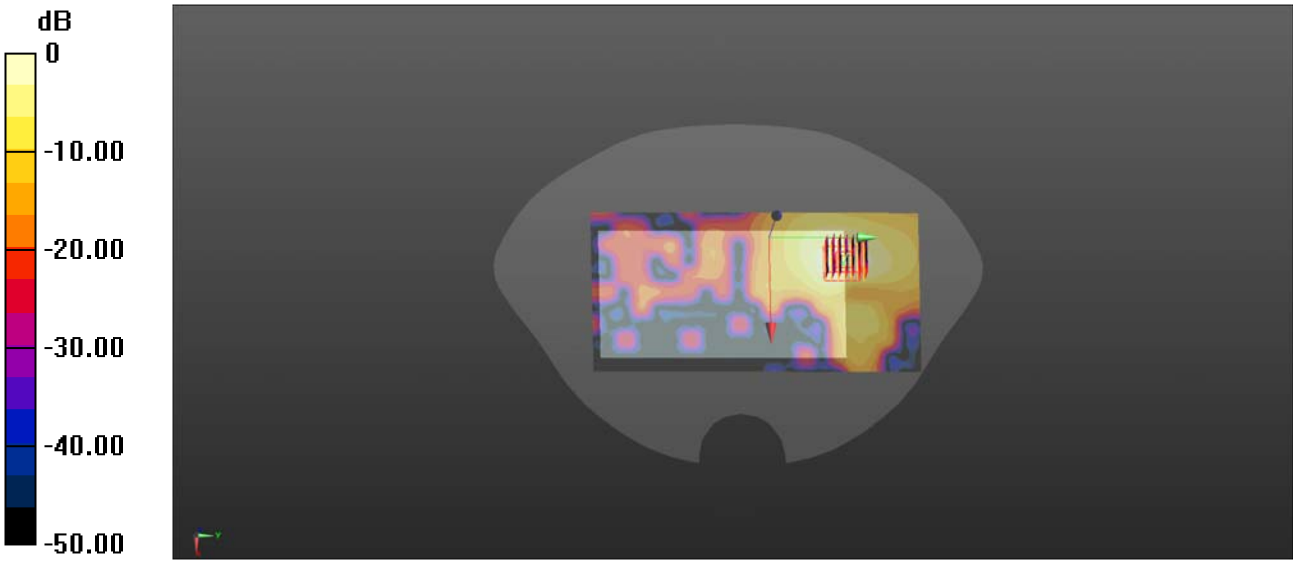
WLAN 5GHz Band 3_802.11 n-HT40 MCS0_Back Side_5mm_Ch118

Communication System: UID 0, WLAN 5GHz (0); Frequency: 5580 MHz;Duty Cycle: 1:1
Medium: HSL_5500_180414 Medium parameters used: f = 5580 MHz; σ = 5.164 S/m; ε_r = 36.212; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(4.49, 4.49, 4.49); Calibrated: 2017.09.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch118/Area Scan (101x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.04 W/kg

Ch118/Zoom Scan (7x7x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.2730 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 4.14 W/kg
SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.396 W/kg
Maximum value of SAR (measured) = 0.991 W/kg



0 dB = 0.991 W/kg

Test Laboratory: SAR Lab. of Shenzhen Morlab Communications Technology Co., Ltd. Date: 2018.04.14

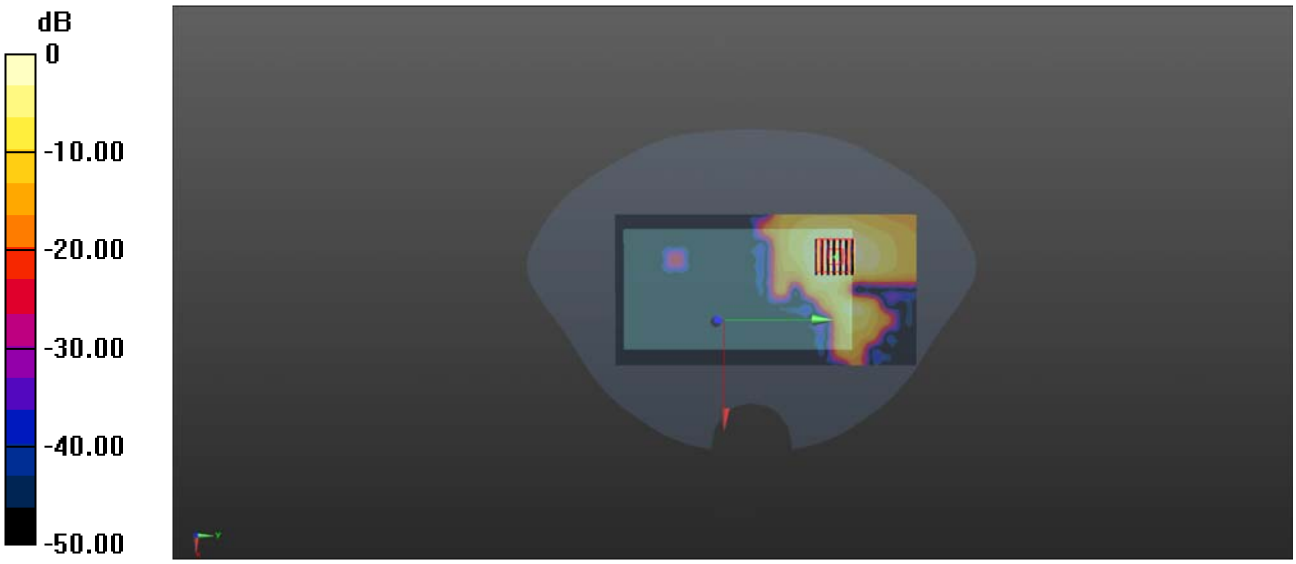
WLAN 5GHz Band 4 802.11a 6Mbp_Back Side_5mm_Ch149

Communication System: UID 0, WLAN 5GHz (0); Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: HSL_5800_180414 Medium parameters used: f = 5745 MHz; σ = 5.369 S/m; ε_r = 35.904; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：22.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3823; ConvF(4.57, 4.57, 4.57); Calibrated: 2017.09.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 1; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch149/Area Scan (101x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.912 W/kg

Ch149/Zoom Scan (7x7x15)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.3120 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.98 W/kg
SAR(1 g) = 0.946 W/kg; SAR(10 g) = 0.322 W/kg
Maximum value of SAR (measured) = 0.909 W/kg



0 dB = 0.909 W/kg

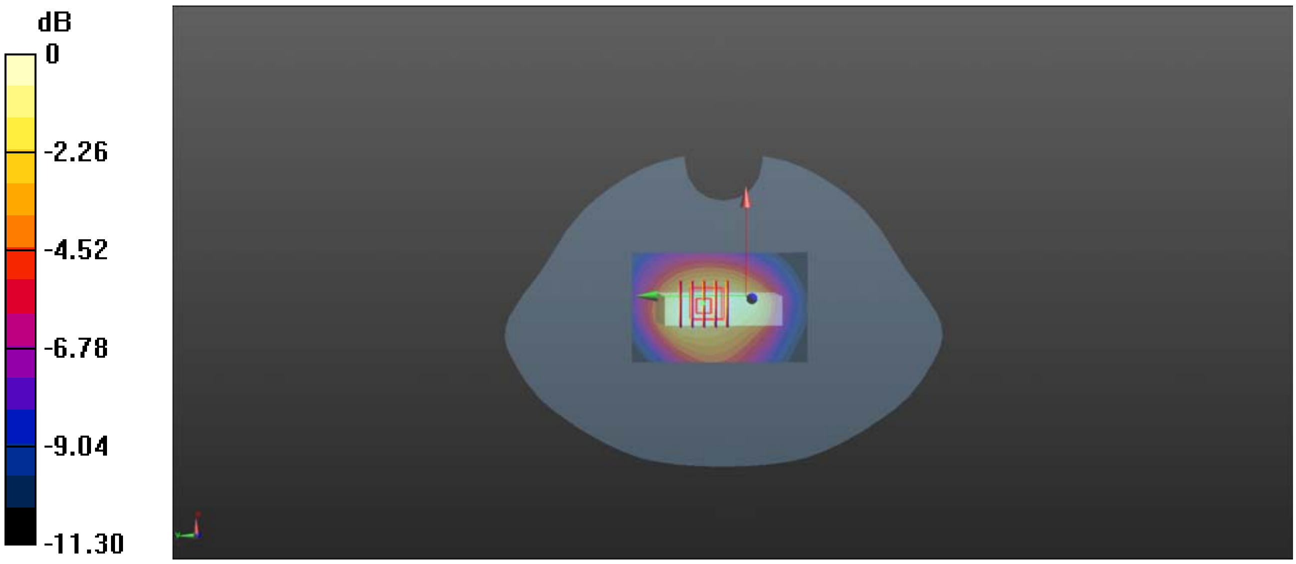
RFID_Top Side_5mm_Frequency:865.7

Communication System: UID 0, RFID (0); Frequency: 865.7 MHz;Duty Cycle: 1:1
Medium: HSL_900_180528 Medium parameters used: f = 866 MHz; σ = 0.939 S/m; ε_r = 41.673; ρ = 1000 kg/m^3
Ambient Temperature：23.1 ℃; Liquid Temperature：22.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3154; ConvF(6.16, 6.16, 6.16); Calibrated: 2017.10.30;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2017.09.27
- Phantom: SAM 2; Type: QD000P40CC; Serial: TP:1471
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Ch865.7/Area Scan (51x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.20 W/kg

Ch865.7/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.36 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.746 W/kg
Maximum value of SAR (measured) = 1.16 W/kg



0 dB = 1.20 W/kg