FCC SAR Test Report

APPLICANT	:	**Paden LLC**
EQUIPMENT	:	**Electronic Display Device**
MODEL NAME	:	**DP75SDI**
FCC ID	:	**2AAIE-0610**
STANDARD	:	**FCC 47 CFR Part 2 (2.1093)** **ANSI/IEEE C95.1-1992** **IEEE 1528-2003**

The product was completely tested on Aug. 28, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

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

Table of Contents

1. Statement of Compliance 4
2. Administration Data 4
2.1 Testing Laboratory 4
2.2 Applicant 4
2.3 Application Details 4
3. General Information 5
3.1 Description of Equipment Under Test (EUT) 5
3.2 Maximum target power among production units 6
3.3 Applied Standard 7
3.4 Device Category and SAR Limits 7
3.5 Test Conditions 7
4. Specific Absorption Rate (SAR) 8
4.1 Introduction 8
4.2 SAR Definition 8
5. SAR Measurement System 9
5.1 E-Field Probe 10
5.2 Data Acquisition Electronics (DAE) 11
5.3 Robot 11
5.4 Measurement Server 12
5.5 Phantom 12
5.6 Device Holder 13
5.7 Data Storage and Evaluation 14
5.8 Test Equipment List 16
6. Tissue Simulating Liquids 17
7. System Verification Procedures 19
7.1 Purpose of System Performance check 19
7.2 System Setup 19
7.3 SAR System Verification Results 20
8. EUT Testing Position 20
9. Measurement Procedures 21
9.1 Spatial Peak SAR Evaluation 21
9.2 Power Reference Measurement 22
9.3 Area & Zoom Scan Procedures 22
9.4 Volume Scan Procedures 23
9.5 SAR Averaged Methods 23
9.6 Power Drift Monitoring 23
10. Conducted RF Output Power (Unit: dBm) 24
11. Exposure Position Conditions 29
12. SAR Test Results 30
12.1 Body SAR 30
12.2 Highest SAR Plot 32
13. Simultaneous Transmission Analysis 34
14. Uncertainty Assessment 35
15. References 37

Appendix A. Plots of System Performance Check
Appendix B. Plots of SAR Measurement
Appendix C. DASY Calibration Certificate

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA332112-04	Rev. 01	Initial issue of report	Jul. 23, 2013
FA332112-04	Rev. 02	1. Remove FCC OET65C in this report. 2. Remove Bluetooth in page28. 3. Explain the device of the diagonal is less than 200mm in page30.	Aug. 01, 2013
FA332112-04	Rev. 03	Remove SAR test data related to the GSM and WLAN.	Aug. 27, 2013

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Paden LLC Electronic Display Device, DP75SDI** are as follows.

<Highest SAR Summary>

Exposure Position	Frequency Band	Reported 1g-SAR (W/kg)	Equipment Class	Highest Reported 1g-SAR (W/kg)
Body (Separation 0.5cm)	WCDMA Band V	0.20	PCB	0.40
	WCDMA Band II	0.40		

Note: The reported SAR is derived from the measured SAR results scaled down by the transmission duty factor of each wireless interface while transmission duty factor for this device and intended operation is detailed in UBTDF analysis exhibit.

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

2. Administration Data

2.1 Testing Laboratory

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

2.2 Applicant

Company Name	Paden LLC
Address	699 Walnut Street, Suite 400, 4th Floor, Des Moines, Iowa, 50309

2.3 Application Details

Date of Start during the Test	Jul. 03, 2013
Date of End during the Test	Aug. 28, 2013

3. General Information

3.1 Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT	Electronic Display Device
Model Name	DP75SDI
FCC ID	2AAIE-0610
S / N	B0D8190232520069
Tx Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz
Rx Frequency Range	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz
Type of Modulation	GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK HSDPA: QPSK 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
Maximum Measured Output Power to Antenna	GSM850 : 32.1 dBm GSM1900 : 29.76 dBm WCDMA Band V :22.13 dBm WCDMA Band II : 22.00 dBm <WLAN Antenna 1> 802.11b : 15.82 dBm 802.11g :14.88 dBm 802.11n HT20 : 14.83 dBm <WLAN Antenna 2> 802.11b : 17.21 dBm 802.11g : 18.07 dBm 802.11n HT20 : 17.98 dBm
Antenna Type	Fixed Internal Antenna
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This device WiFi operation supports Tx diversity only and cannot transmit simultaneously.
3. According to the UBTDF analysis exhibit, GSM, WCDMA and WLAN maximum tune-up power scaled down with the transmission factor is applied in standalone SAR test exclusion threshold analysis and is exempted from SAR testing.

3.2 Maximum target power among production units

Mode	GSM 850		GSM 1900	
	Burst Average Power (dBm)	Frame-Average Power (dBm)	Burst Average Power (dBm)	Frame-Average Power (dBm)
GPRS/EDGE (GMSK, 1 Tx slot)	33.0	24.0	31.0	22.0
GPRS/EDGE (GMSK, 2 Tx slots)	33.0	27.0	30.0	24.0
EDGE (8PSK, 1 Tx slot)	28.0	19.0	27.0	18.0
EDGE (8PSK, 2 Tx slots)	28.0	22.0	27.0	21.0

Mode	WCDMA Band V	WCDMA Band II
	Average power(dBm)	
RMC 12.2Kbps	23.0	23.0
HSDPA Subtest-1	23.0	23.0

WLAN 2.4GHz	IEEE 802.11 Average Power (dBm)					
	Ant 1			Ant 2		
Channel	11b	11g	HT20	11b	11g	HT20
Ch1	16.0	10.0	10.0	17.0	9.5	8.5
Ch3						
Ch6	14.0	15.0	15.0	17.5	18.5	18
Ch9						
Ch11	14.5	10.0	8.0	16.5	10.5	9.5

3.3 Applied Standard

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

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC KDB 447498 D01 v05r01
- FCC KDB 941225 D01 v02
- FCC KDB 941225 D02 v02r02
- FCC KDB 941225 D07 v01r01

3.4 Device Category and SAR Limits

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 1.6 W/kg as averaged over any 1 gram of tissue.

3.5 Test Conditions

3.5.1 Ambient Condition

Ambient Temperature	20 to 24 ℃
Humidity	< 60 %

3.5.2 Test Configuration

For WWAN SAR testing, the device was controlled by using a base station emulator. Communication between the device and the emulator was established by air link. The distance between the EUT and the antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of EUT.

4. Specific Absorption Rate (SAR)

4.1 Introduction

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

4.2 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 heat capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

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

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

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

5. SAR Measurement System

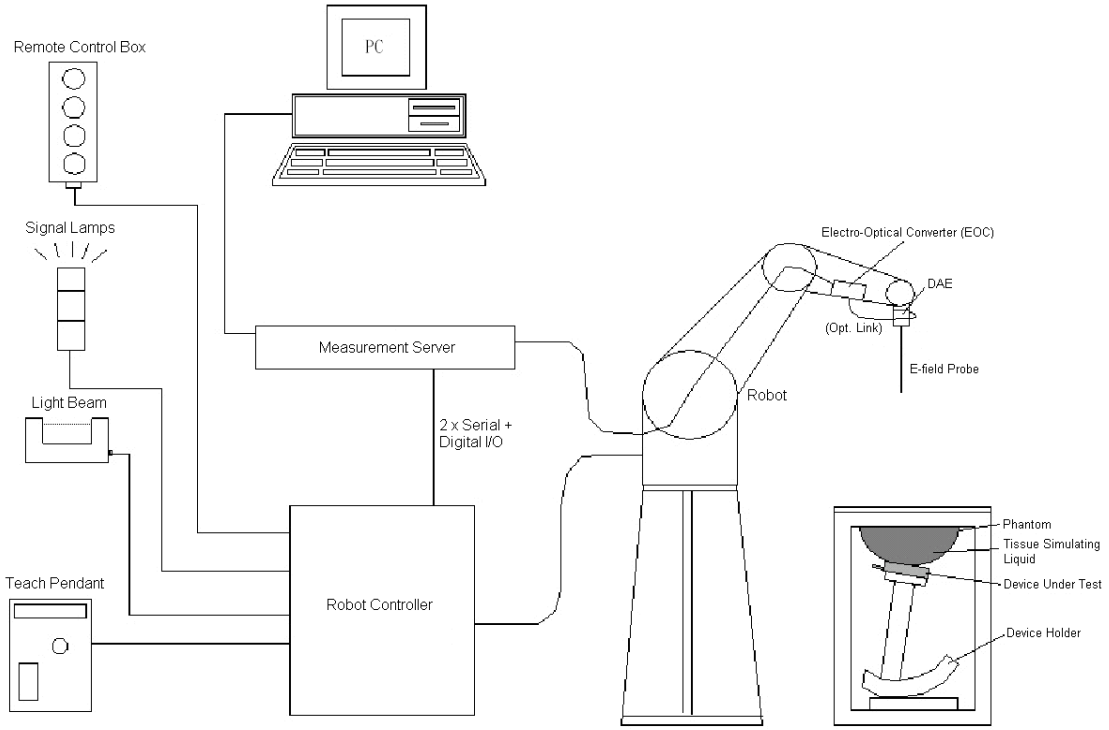


Fig 5.1 SPEAG DASY System Configurations

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 (EOC) 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

Component details are described in in the following sub-sections.

5.1 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.

5.1.1 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	10 µW/g to 100 mW/g; Linearity: ± 0.2 dB	
Dimensions	Overall length: 337 mm (Tip: 10 mm) Tip diameter: 4 mm (Body: 10 mm) Distance from probe tip to dipole centers: 3 mm	**Fig 5.2 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 (noise: typically < 1 µW/g)	
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 5.3 Photo of EX3DV4/ES3DV4**

5.1.2 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 ± 0.25dB. 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.

5.2 Data Acquisition Electronics (DAE)

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

Fig 5.4 Photo of DAE

5.3 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)

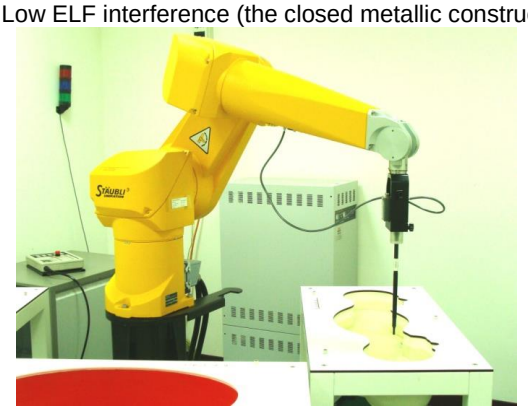


Fig 5.5 Photo of DASY4

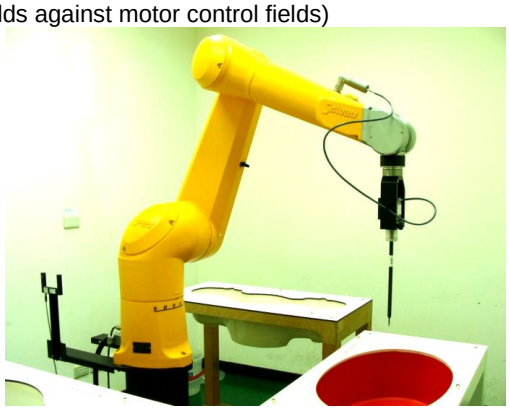


Fig 5.6 Photo of DASY5

5.4 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), chipdisk (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 5.7 Photo of Server for DASY4

Fig 5.8 Photo of Server for DASY5

5.5 Phantom

<SAM Twin Phantom>

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

Fig 5.9 Photo 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.

<ELI4 Phantom>

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

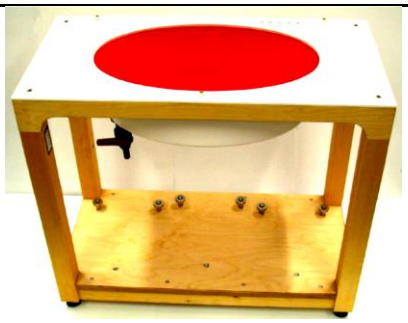


Fig 5.10 Photo of ELI4 Phantom

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

5.6 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 (ERP). 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 5.11 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.

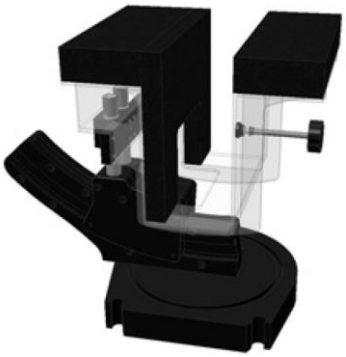


Fig 5.12 Laptop Extension Kit

5.7 Data Storage and Evaluation

5.7.1 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.

5.7.2 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	dcp_i
Device parameters：	- Frequency	f
	- Crest factor	cf
Media parameters：	- Conductivity	σ
	- 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：

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

with V_i = compensated signal of channel i, (i = x, y, z)
U_i = input signal of channel i, (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcp_i = diode compression point (DASY parameter)

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

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

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

with V_i = compensated signal of channel i, (i = x, y, z)
$Norm_i$ = sensor sensitivity of channel i, (i = x, y, z), μV/(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)：

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

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

$$\mathbf{SAR} = \mathbf{E_{tot}^2} \cdot \frac{\boldsymbol{\sigma}}{\boldsymbol{\rho} \cdot \mathbf{1000}}$$

with SAR = local specific absorption rate in mW/g
E_{tot} = total field strength in V/m
σ = 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.

5.8 Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	835MHz System Validation Kit	D835V2	499	Mar. 18, 2013	Mar. 17, 2014
SPEAG	1900MHz System Validation Kit	D1900V2	5d041	Mar. 20, 2013	Mar. 19, 2014
SPEAG	Data Acquisition Electronics	DAE4	778	Aug. 27, 2012	Aug. 26, 2013
SPEAG	Data Acquisition Electronics	DAE3	495	May. 08, 2013	May. 07, 2014
SPEAG	Data Acquisition Electronics	DAE4	1279	Jan. 28, 2013	Jan. 27, 2014
SPEAG	Dosimetric E-Field Probe	EX3DV4	3697	Sep. 28, 2012	Sep. 27, 2013
SPEAG	Dosimetric E-Field Probe	EX3DV4	3925	Jun. 12, 2013	Jun. 11, 2014
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 28, 2012	Sep. 27, 2013
Wisewind	Thermometer	ETP-101	TM560	Nov. 13, 2012	Nov. 12, 2013
Wisewind	Thermometer	ETP-101	TM685	Nov. 13, 2012	Nov. 12, 2013
Wisewind	Thermometer	HTC-1	TM281	Nov. 13, 2012	Nov. 12, 2013
Agilent	Wireless Communication Test Set	E5515C	MY50266977	May. 06, 2013	May. 05, 2015
SPEAG	Device Holder	N/A	N/A	NCR	NCR
Agilent	ESG Vector Series Signal Generator	E4438C	MY49070755	Oct. 02, 2012	Oct. 01, 2013
Agilent	ENA Network Analyzer	E5071C	MY46316648	Feb. 07, 2013	Feb. 06, 2014
Anritsu	Power Meter	ML2495A	1132003	Aug. 14, 2012	Aug. 13, 2013
Anritsu	Power Sensor	MA2411B	1126017	Aug. 14, 2012	Aug. 13, 2013
Agilent	Dual Directional Coupler	778D	50422	Note 2	
Woken	Attenuator 1	WK0602-XX	N/A	Note 2	
PE	Attenuator 2	PE7005-10	N/A	Note 2	
PE	Attenuator 3	PE7005- 3	N/A	Note 2	
Agilent	Dielectric Probe Kit	85070D	US01440205	Note 3	
AR	Power Amplifier	5S1G4M2	0328767	Note 4	
R&S	Spectrum Analyzer	FSP 30	101352	Nov. 07, 2012	Nov. 06, 2013

Table 5.1 Test Equipment List

Note:

1. The calibration certificate of DASY can be referred to appendix C of this report.
2. The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
3. The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated in pure water) and calibration kit (standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit are provided by Agilent.
4. In system check we need to monitor the level on the power meter, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1W input power according to the ratio of 1W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the power meter is critical and we do have calibration for it
5. Attenuator 1 insertion loss is calibrated by the network Analyzer, which the calibration is valid, before system check.

6. Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.1. 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. 6.2.

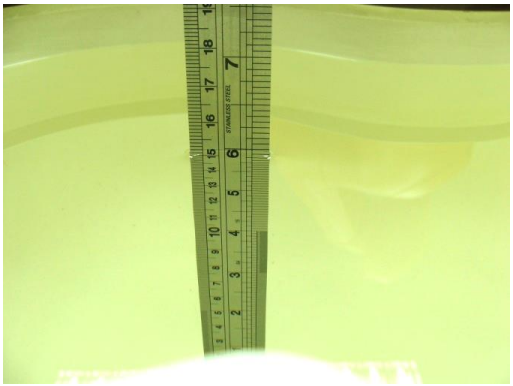


Fig 6.1 Photo of Liquid Height for Head SAR

Fig 6.2 Photo of Liquid Height for Body SAR

The following table gives the recipes for tissue simulating liquid.

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

Table 6.1 Recipes of Tissue Simulating Liquid

Simulating Liquid for 5G, Manufactured by SPEAG

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

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an Agilent 85070D Dielectric Probe Kit and an Agilent Network Analyzer.

The following table shows the measuring results for simulating liquid.

Frequency (MHz)	Liquid Type	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
835	Body	21.8	0.962	54.559	0.97	55.2	-0.82	-1.16	±5	Jul. 03, 2013
835	Body	21.8	0.962	54.559	0.97	55.2	-0.82	-1.16	±5	Jul. 03, 2013
835	Body	21.5	0.954	52.753	0.97	55.2	-1.65	-4.43	±5	Jul. 09, 2013
835	Body	22.5	0.963	54.257	0.97	55.2	-0.72	-1.71	±5	Aug. 01, 2013
835	Body	22.6	0.963	54.541	0.97	55.2	-0.72	-1.19	±5	Aug. 28, 2013
1900	Body	21.8	1.569	51.411	1.52	53.3	3.22	-3.54	±5	Jul. 03, 2013
1900	Body	21.5	1.563	51.122	1.52	53.3	2.83	-4.09	±5	Jul. 09, 2013
1900	Body	22.5	1.53	52.859	1.52	53.3	0.66	-0.83	±5	Aug. 01, 2013
1900	Body	22.5	1.516	53.631	1.52	53.3	-0.26	0.62	±5	Aug. 28, 2013

Table 6.2 Measuring Results for Simulating Liquid

7. System Verification Procedures

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.

7.1 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.

7.2 System Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that 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 equipment setup is shown below:

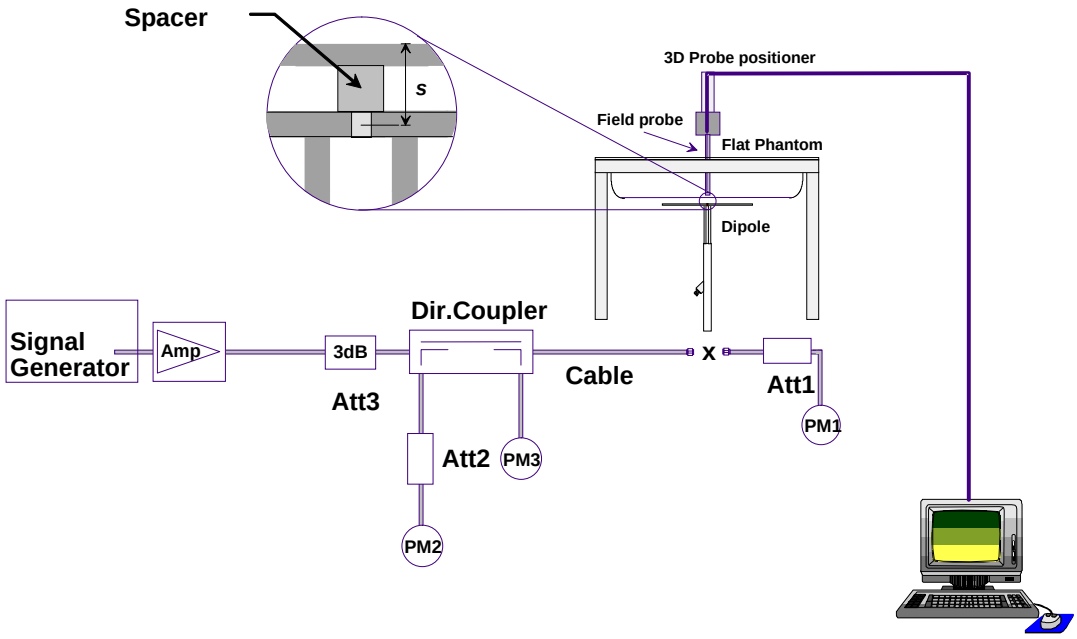


Fig 7.1 System Setup for System Evaluation

1. Signal Generator
2. Amplifier
3. Directional Coupler
4. Power Meter
5. Calibrated Dipole

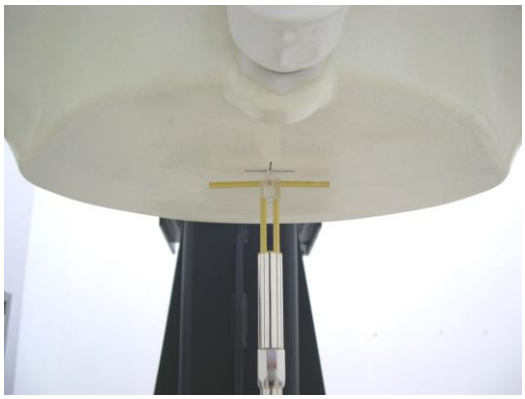


Fig 7.2 Photo of Dipole Setup

7.3 SAR System Verification Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Table 7.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Date	Frequency (MHz)	Liquid Type	Power fed onto reference dipole (mW)	Targeted SAR (W/kg)	Measured SAR (W/kg)	Normalized SAR (W/kg)	Deviation (%)
Jul. 03, 2013	835	Body	250	9.63	2.51	10.04	4.26
Jul. 03, 2013	835	Body	250	9.63	2.43	9.72	0.93
Jul. 09, 2013	835	Body	250	9.63	2.49	9.96	3.43
Aug. 01, 2013	835	Body	250	9.63	2.39	9.56	-0.73
Aug. 28, 2013	835	Body	250	9.63	2.40	9.60	-0.31
Jul. 03, 2013	1900	Body	250	40.8	10.0	40.0	-1.96
Jul. 09, 2013	1900	Body	250	40.8	9.96	39.84	-2.35
Aug. 01, 2013	1900	Body	250	40.8	10.0	40.0	-1.96
Aug. 28, 2013	1900	Body	250	40.8	10.3	41.2	0.98

Table 7.1 Target and Measurement SAR after Normalized

8. EUT Testing Position

Please refer to Appendix D for the test setup photos.

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

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

<SAR measurement>

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

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

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

9.1 Spatial Peak SAR Evaluation

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

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

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

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

9.2 Power Reference Measurement

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

9.3 Area & 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 is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r01 quoted below.

When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

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

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

9.4 Volume Scan Procedures

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

9.5 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.

9.6 Power Drift Monitoring

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

10. Conducted RF Output Power (Unit: dBm)

<GSM Conducted Power>

Band GSM850	Burst Average Power (dBm)			Tune-up Limit	Frame-Average Power (dBm)			Tune-up Limit
TX Channel	128	189	251		128	189	251	
Frequency (MHz)	824.2	836.4	848.8		824.2	836.4	848.8	
GPRS (GMSK, 1 Tx slot) – CS1	32.09	32.10	32.03	33.00	23.09	23.10	23.03	24.00
GPRS (GMSK, 2 Tx slots) – CS1	31.03	31.05	31.00	33.00	25.03	25.05	25.00	27.00
EDGE (GMSK, 1 Tx slot) – MCS1	32.08	32.09	32.02	33.00	23.08	23.09	23.02	24.00
EDGE (GMSK, 2 Tx slots) – MCS1	31.03	31.04	31.00	33.00	25.03	25.04	25.00	27.00
EDGE (8PSK, 1 Tx slot) – MCS5	26.14	26.15	26.07	28.00	17.14	17.15	17.07	19.00
EDGE (8PSK, 2 Tx slots) – MCS5	26.13	26.14	26.06	28.00	20.13	20.14	20.06	22.00
Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots. The calculated method are shown as below: Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB								

Band GSM1900	Burst Average Power (dBm)			Tune-up Limit	Frame-Average Power (dBm)			Tune-up Limit
TX Channel	512	661	810		512	661	810	
Frequency (MHz)	1850.2	1880	1909.8		1850.2	1880	1909.8	
GPRS (GMSK, 1 Tx slot) – CS1	29.17	29.51	29.76	31.00	20.17	20.51	20.76	22.00
GPRS (GMSK, 2 Tx slots) – CS1	28.09	28.43	28.69	30.00	22.09	22.43	22.69	24.00
EDGE (GMSK, 1 Tx slot) – MCS1	29.16	29.50	29.75	31.00	20.16	20.50	20.75	22.00
EDGE (GMSK, 2 Tx slots) – MCS1	28.08	28.43	28.68	30.00	22.08	22.43	22.68	24.00
EDGE (8PSK, 1 Tx slot) – MCS5	25.18	25.50	25.72	27.00	16.18	16.50	16.72	18.00
EDGE (8PSK, 2 Tx slots) – MCS5	25.15	25.47	25.70	27.00	19.15	19.47	19.70	21.00
Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots. The calculated method are shown as below: Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB								

<WCDMA Conducted Power>

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification.

A summary of these settings are illustrated below:

HSDPA Setup Configuration:

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

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

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

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

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

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

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

Setup Configuration

<WCDMA Conducted Power>

Band		WCDMA V			Tune-up Limit (dBm)	WCDMA II			Tune-up Limit (dBm)
TX Channel		4132	4182	4233		9262	9400	9538	
Rx Channel		4357	4407	4458		9662	9800	9938	
Frequency (MHz)		826.4	836.4	846.6		1852.4	1880	1907.6	
3GPP Rel 99	RMC 12.2Kbps	22.08	22.13	21.87	23.00	21.93	22.00	21.91	23.00
3GPP Rel 5	HSDPA Subtest-1	22.05	22.07	21.84	23.00	21.91	21.98	21.88	23.00
3GPP Rel 5	HSDPA Subtest-2	22.06	22.08	21.86	23.00	21.92	21.99	21.90	23.00
3GPP Rel 5	HSDPA Subtest-3	22.06	22.10	21.86	23.00	21.91	21.97	21.86	23.00
3GPP Rel 5	HSDPA Subtest-4	22.05	22.09	21.85	23.00	21.90	21.96	21.84	23.00
3GPP MPR specification		WCDMA V			MPR	WCDMA II			MPR
0	HSDPA Subtest-1	0.00	0.00	0.00	0	0.00	0.00	0.00	0
0	HSDPA Subtest-2	-0.01	-0.01	-0.02	0	-0.01	-0.01	-0.02	0
≦0.5	HSDPA Subtest-3	-0.01	-0.03	-0.02	0	0.00	0.01	0.02	0
≦0.5	HSDPA Subtest-4	0.00	-0.02	-0.01	0	0.01	0.02	0.04	0

<WLAN 2.4GHz Conducted Power>

SISO Mode	Transmitting configuration	
	WLAN Antenna 1 (Tx / Rx)	WLAN Antenna 2 (Tx / Rx)
WLAN 2.4GHz 802.11b	Yes	Yes
WLAN 2.4GHz 802.11g	Yes	Yes
WLAN 2.4GHz 802.11-HT20	Yes	Yes

Note: This device WiFi operation supports Tx diversity only and cannot transmit simultaneously.

<Antenna 1>

Tune-Up Limit	WLAN 2.4GHz 802.11b Average Power (dBm)						
	Power vs. Channel			Power vs. Data Rate			
	Channel	Frequency (MHz)	Data Rate 1Mbps	Channel	2Mbps	5.5Mbps	11Mbps
16.0	CH 1	2412	15.82	CH 1	15.81	15.81	15.55
14.0	CH 6	2437	13.84				
14.5	CH 11	2462	14.04				

Tune-Up Limit	WLAN 2.4GHz 802.11g Average Power (dBm)										
	Power vs. Channel			Power vs. Data Rate							
	Channel	Frequency (MHz)	Data Rate 6Mbps	Channel	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
10.0	CH 1	2412	9.62	CH 6	14.86	14.84	14.87	14.67	14.65	13.84	13.80
15.0	CH 6	2437	14.88								
10.0	CH 11	2462	9.38								

Tune-Up Limit	WLAN 2.4GHz 802.11n-HT20 Average Power (dBm)										
	Power vs. Channel			Power vs. MCS Index							
	Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
10.0	CH 1	2412	9.69	CH 6	14.80	14.80	13.48	14.55	14.58	13.78	13.73
15.0	CH 6	2437	14.83								
8.0	CH 11	2462	7.54								

<Antenna 2>

Tune-Up Limit	WLAN 2.4GHz 802.11b Average Power (dBm)						
	Power vs. Channel			Power vs. Data Rate			
	Channel	Frequency (MHz)	Data Rate 1Mbps	Channel	2Mbps	5.5Mbps	11Mbps
17.0	CH 1	2412	16.70	CH 6	17.17	17.20	16.98
17.5	CH 6	2437	17.21				
16.5	CH 11	2462	16.16				

Tune-Up Limit	WLAN 2.4GHz 802.11g Average Power (dBm)										
	Power vs. Channel			Power vs. Data Rate							
	Channel	Frequency (MHz)	Data Rate 6Mbps	Channel	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
9.5	CH 1	2412	9.19	CH 6	18.05	18.02	18.06	18.02	18.05	17.82	17.90
18.5	CH 6	2437	18.07								
10.5	CH 11	2462	10.42								

Tune-Up Limit	WLAN 2.4GHz 802.11n-HT20 Average Power (dBm)										
	Power vs. Channel			Power vs. MCS Index							
	Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
8.5	CH 1	2412	8.06	CH 6	17.97	17.97	17.21	17.97	17.97	17.95	17.73
18.5	CH 6	2437	17.98								
9.5	CH 11	2462	9.36								

11. Exposure Position Conditions

Distance of the Antenna to the EUT surface/edge						
Antennas	Front Face	Bottom Face	Edge1	Edge2	Edge3	Edge4
WWAN Antenna	≤ 25mm	≤ 25mm	≤ 25mm	≤ 25mm	155.53mm	48.29mm
WLAN Antenna 1	≤ 25mm	≤ 25mm	153.92mm	78.26mm	≤ 25mm	≤ 25mm
WLAN Antenna 2	≤ 25mm	≤ 25mm	153.92mm	≤ 25mm	≤ 25mm	84.16mm

Positions for SAR tests, Test distance: 0.5 mm						
Antennas	Front Face	Bottom Face	Edge1	Edge2	Edge3	Edge4
WWAN Antenna	Yes	Yes	Yes	Yes	NO	NO
WLAN Antenna 1	Yes	Yes	NO	NO	Yes	Yes
WLAN Antenna 2	Yes	Yes	NO	Yes	Yes	NO

Note:

1. This device of the diagonal is 198mm less than 200mm; more detail information please refers to setup photo.
2. Per KDB941225 D07v01r01, This type of mini-tablets is normally optimized for mobile web access and multimedia use. The test procedures are applicable to devices with a display and overall diagonal dimension ≤ 20 cm. UMPC mini-tablet devices must be tested for 1-g SAR on all surfaces and side edges with a transmitting antenna located at ≤ 25 mm from that surface or edge, at 5 mm separation from a flat phantom, for the data modes, wireless technologies and frequency bands supported by the device to determine SAR compliance.

12. SAR Test Results

Note:

1. Per KDB 447498 D01v05r01, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   Scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.
2. Tune-up scaling factor: to account for maximum tune-up tolerance limit.
3. Transmission duty cycle: the highest average duty cycle from UBTDF analysis.
4. WWAN Reported SAR= (measured SAR) * (tune-up scaling factor) * (transmission duty cycle).
5. According to the UBTDF analysis exhibit, GSM, WCDMA and WLAN maximum tune-up power scaled down with the transmission factor is applied in standalone SAR test exclusion threshold analysis and is exempted from SAR testing.

12.1 Body SAR

<WCDMA V>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Transmission Duty Cycle %	Reported 1g SAR (W/kg)
150	WCDMA V	RMC 12.2Kbps	Front Face	0.5cm	4182	836.4	22.13	23.0	1.222	-0.08	1.280	3.9	0.061
151	WCDMA V	RMC 12.2Kbps	Front Face	0.5cm	4132	826.4	22.08	23.0	1.236	0.12	1.350	3.9	0.065
152	WCDMA V	RMC 12.2Kbps	Front Face	0.5cm	4233	846.6	21.87	23.0	1.297	0.03	1.400	3.9	0.071
25	WCDMA V	RMC 12.2Kbps	Bottom Face	0.5cm	4182	836.4	22.13	23.0	1.222	0.18	0.832	3.9	0.040
112	WCDMA V	RMC 12.2Kbps	Bottom Face	0.5cm	4132	826.4	22.08	23.0	1.236	-0.14	0.936	3.9	0.045
113	WCDMA V	RMC 12.2Kbps	Bottom Face	0.5cm	4233	846.6	21.87	23.0	1.297	-0.05	0.946	3.9	0.048
29	WCDMA V	RMC 12.2Kbps	Edge 1	0.5cm	4182	836.4	22.13	23.0	1.222	-0.1	0.571	3.9	0.027
30	WCDMA V	RMC 12.2Kbps	Edge 2	0.5cm	4182	836.4	22.13	23.0	1.222	-0.09	0.085	3.9	0.004
153	WCDMA V	HSDPA Subtest-1	Front Face	0.5cm	4182	836.4	22.07	23.0	1.239	0.01	1.230	11.7	0.178
154	WCDMA V	HSDPA Subtest-1	Front Face	0.5cm	4132	826.4	22.05	23.0	1.245	0.04	1.280	11.7	0.186
155	WCDMA V	HSDPA Subtest-1	Front Face	0.5cm	4233	846.6	21.84	23.0	1.306	-0.17	1.300	11.7	**0.199**
127	WCDMA V	HSDPA Subtest-1	Bottom Face	0.5cm	4132	826.4	22.05	23.0	1.245	0.08	0.827	11.7	0.120
128	WCDMA V	HSDPA Subtest-1	Bottom Face	0.5cm	4182	836.4	22.07	23.0	1.239	0.02	0.758	11.7	0.110
129	WCDMA V	HSDPA Subtest-1	Bottom Face	0.5cm	4233	846.6	21.84	23.0	1.306	0.04	0.864	11.7	0.132
167	WCDMA V	HSDPA Subtest-1	Edge 1	0.5cm	4182	836.4	22.07	23.0	1.239	0.08	0.470	11.7	0.068
168	WCDMA V	HSDPA Subtest-1	Edge 2	0.5cm	4182	836.4	22.07	23.0	1.239	-0.02	0.073	11.7	0.011

<WCDMA II>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-Up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	Measured 1g SAR (W/kg)	Transmission Duty Cycle %	Reported 1g SAR (W/kg)
156	WCDMA II	RMC 12.2Kbps	Front Face	0.5cm	9400	1880	22.00	23.0	1.259	0.05	2.580	3.9	0.127
157	WCDMA II	RMC 12.2Kbps	Front Face	0.5cm	9262	1852.4	21.93	23.0	1.279	0.03	2.420	3.9	0.121
158	WCDMA II	RMC 12.2Kbps	Front Face	0.5cm	9538	1907.6	21.91	23.0	1.285	-0.1	2.900	3.9	0.145
99	WCDMA II	RMC 12.2Kbps	Bottom Face	0.5cm	9400	1880	22.00	23.0	1.259	-0.13	1.350	3.9	0.066
98	WCDMA II	RMC 12.2Kbps	Bottom Face	0.5cm	9262	1852.4	21.93	23.0	1.279	-0.01	1.160	3.9	0.058
97	WCDMA II	RMC 12.2Kbps	Bottom Face	0.5cm	9538	1907.6	21.91	23.0	1.285	-0.13	1.470	3.9	0.074
107	WCDMA II	RMC 12.2Kbps	Edge 1	0.5cm	9400	1880	22.00	23.0	1.259	-0.07	1.920	3.9	0.094
108	WCDMA II	RMC 12.2Kbps	Edge 1	0.5cm	9262	1852.4	21.93	23.0	1.279	0.06	1.630	3.9	0.081
116	WCDMA II	RMC 12.2Kbps	Edge 1	0.5cm	9538	1907.6	21.91	23.0	1.285	-0.01	2.110	3.9	0.106
109	WCDMA II	RMC 12.2Kbps	Edge 2	0.5cm	9400	1880	22.00	23.0	1.259	0.02	0.269	3.9	0.013
160	WCDMA II	HSDPA Subtest-1	Front Face	0.5cm	9262	1852.4	21.91	23.0	1.285	0.04	2.260	11.7	0.340
161	WCDMA II	HSDPA Subtest-1	Front Face	0.5cm	9400	1880	21.98	23.0	1.265	0.04	2.430	11.7	0.360
162	WCDMA II	HSDPA Subtest-1	Front Face	0.5cm	9538	1907.6	21.88	23.0	1.294	-0.05	2.660	11.7	**0.403**
163	WCDMA II	HSDPA Subtest-1	Bottom Face	0.5cm	9262	1852.4	21.91	23.0	1.285	0.03	1.260	11.7	0.189
164	WCDMA II	HSDPA Subtest-1	Bottom Face	0.5cm	9400	1880	21.98	23.0	1.265	-0.03	1.200	11.7	0.178
165	WCDMA II	HSDPA Subtest-1	Bottom Face	0.5cm	9538	1907.6	21.88	23.0	1.294	-0.01	1.390	11.7	0.210
130	WCDMA II	HSDPA Subtest-1	Edge 1	0.5cm	9262	1852.4	21.91	23.0	1.285	-0.04	1.610	11.7	0.242
131	WCDMA II	HSDPA Subtest-1	Edge 1	0.5cm	9400	1880	21.98	23.0	1.265	-0.06	1.840	11.7	0.272
132	WCDMA II	HSDPA Subtest-1	Edge 1	0.5cm	9538	1907.6	21.88	23.0	1.294	0.03	2.020	11.7	0.306
166	WCDMA II	HSDPA Subtest-1	Edge 2	0.5cm	9400	1880	21.98	23.0	1.265	-0.05	0.269	11.7	0.040

12.2 Highest SAR Plot

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/8/1

#155_WCDMA V_HSDPA Subtest-1_Front Face_0.5cm_Ch4233

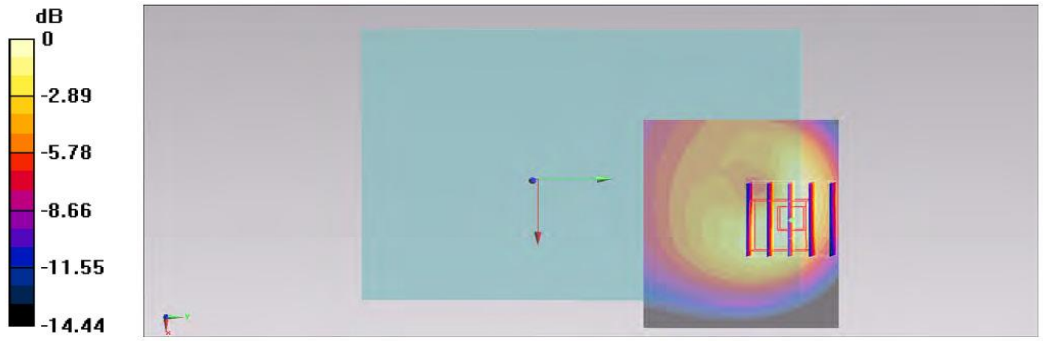
DUT: 332112-04

Communication System: WCDMA; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: MSL_850_130801 Medium parameters used: f = 847 MHz; σ = 0.975 S/m; ε_r = 54.413; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4233/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.69 W/kg

Configuration/Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 42.878 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 2.38 W/kg
SAR(1 g) = 1.3 W/kg; SAR(10 g) = 0.734 W/kg
Maximum value of SAR (measured) = 1.69 W/kg



0 dB = 1.69 W/kg = 2.28 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/8/1

#162_WCDMA II_HSDPA Subtest-1_Front Face_0.5cm_Ch9538

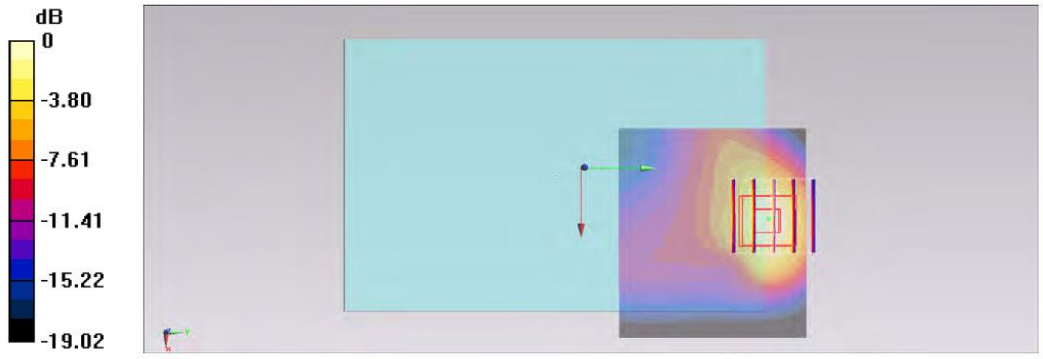
DUT: 332112-04

Communication System: WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130801 Medium parameters used: f = 1908 MHz; σ = 1.538 S/m; ε_r = 52.824; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9538/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.34 W/kg

Configuration/Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.435 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 4.93 W/kg
SAR(1 g) = 2.66 W/kg; SAR(10 g) = 1.4 W/kg
Maximum value of SAR (measured) = 3.28 W/kg



0 dB = 3.28 W/kg = 5.16 dBW/kg

13. Simultaneous Transmission Analysis

NO.	Simultaneous Transmission Configurations	Support
1.	GPRS/EDGE(Data) + WLAN2.4GHz(data)	No
2.	WCDMA(Data) + WLAN2.4GHz(data)	No

Test Engineer： Ted Sun, Galen Zhang, San Lin and Nick Yu

14. 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 14.1

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

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

(b) κ is the coverage factor

Table 14.1. Standard Uncertainty for Assumed Distribution

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

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

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

Table 14.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz

15. References

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

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

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

[4] SPEAG DASY System Handbook

[5] FCC KDB 447498 D01 v05r01, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, May 2013

[6] FCC KDB 941225 D01 v02, “SAR Measurement Procedures for 3G Devices – CDMA 2000 / Ev-Do / WCDMA / HSDPA / HSPA”, October 2007

[7] FCC KDB 941225 D02 v02r02, “SAR Guidance for HSPA, HSPA+, DC-HSDPA and 1x-Advanced”, May 2013.

[8] FCC KDB 941225 D07 v01r01, " SAR Evaluation Procedures for UMPC Mini-Tablet Devices", May 2013

Appendix A. Plots of System Performance Check

The plots are shown as follows.

System Check_Body_835MHz_130703

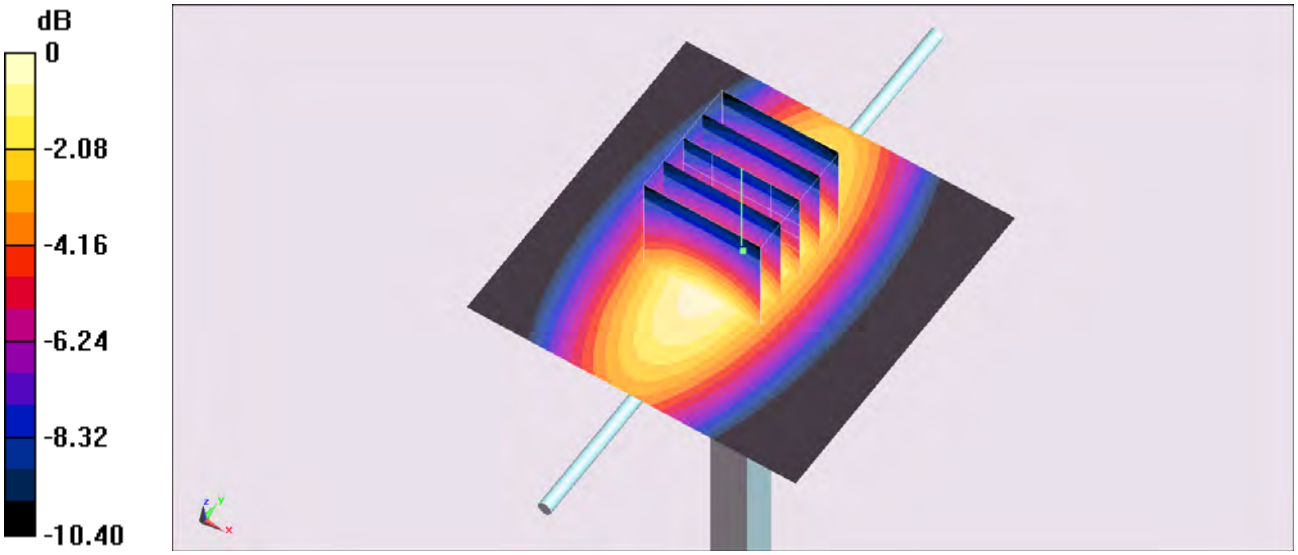
DUT: D835V2-SN:499

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_850_130703 Medium parameters used: f = 835 MHz; σ = 0.962 S/m; ε_r = 54.559; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.15 W/kg

Configuration/Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.821 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 3.69 W/kg
SAR(1 g) = 2.51 W/kg; SAR(10 g) = 1.66 W/kg
Maximum value of SAR (measured) = 3.16 W/kg



0 dB = 3.16 W/kg = 5.00 dBW/kg

System Check_Body_835MHz_130703

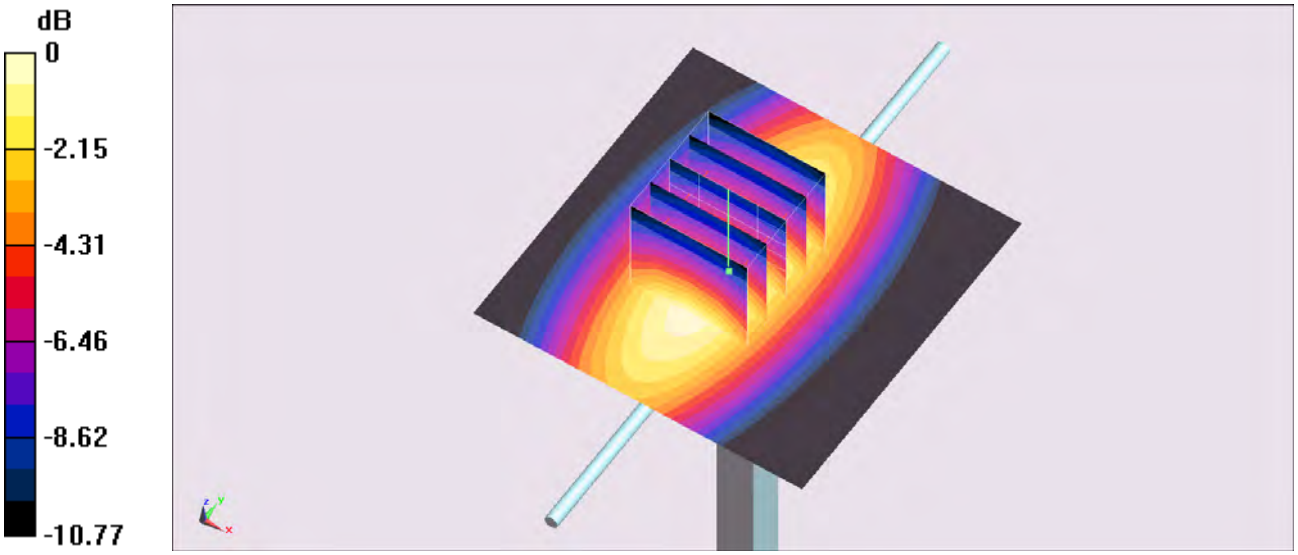
DUT: D835V2-SN:499

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_850_130703 Medium parameters used: f = 835 MHz; σ = 0.962 S/m; ε_r = 54.559; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(8.65, 8.65, 8.65); Calibrated: 2012/9/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2013/1/28
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.05 W/kg

Configuration/Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.542 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 3.58 W/kg
SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.61 W/kg
Maximum value of SAR (measured) = 3.07 W/kg



0 dB = 3.07 W/kg = 4.87 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/7/9

System Check_Body_835MHz_130709

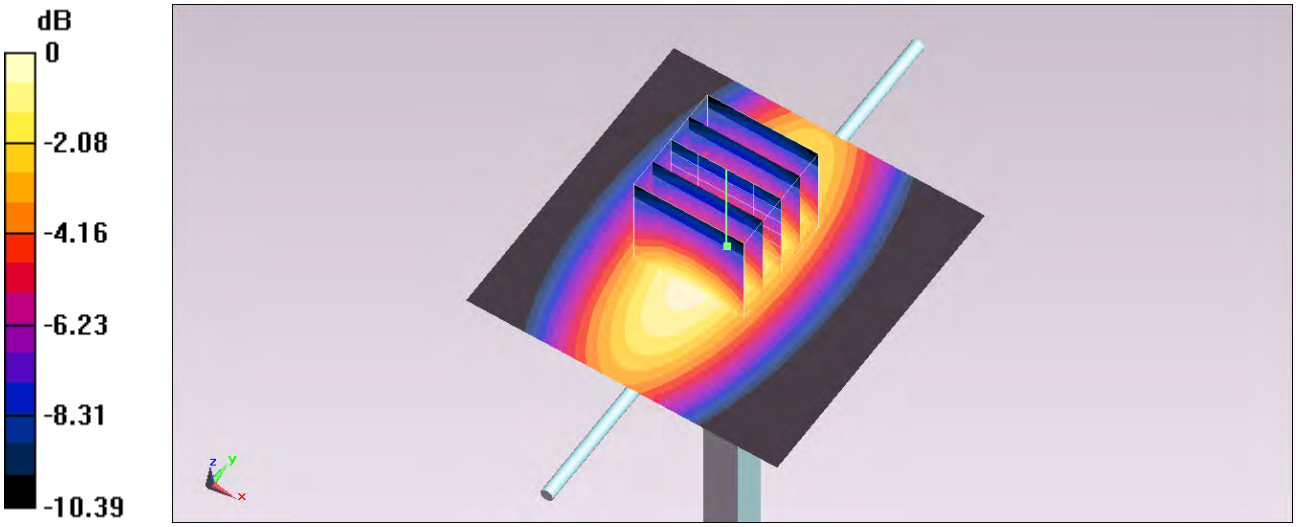
DUT: D835V2-SN:499

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_850_130709 Medium parameters used: f = 835 MHz; σ = 0.954 mho/m; ε_r = 52.753; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.12 mW/g

Configuration/Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.821 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 3.653 mW/g
SAR(1 g) = 2.49 mW/g; SAR(10 g) = 1.65 mW/g
Maximum value of SAR (measured) = 3.13 mW/g



0 dB = 3.13 mW/g = 9.91 dB mW/g

System Check_Body_835MHz_130801

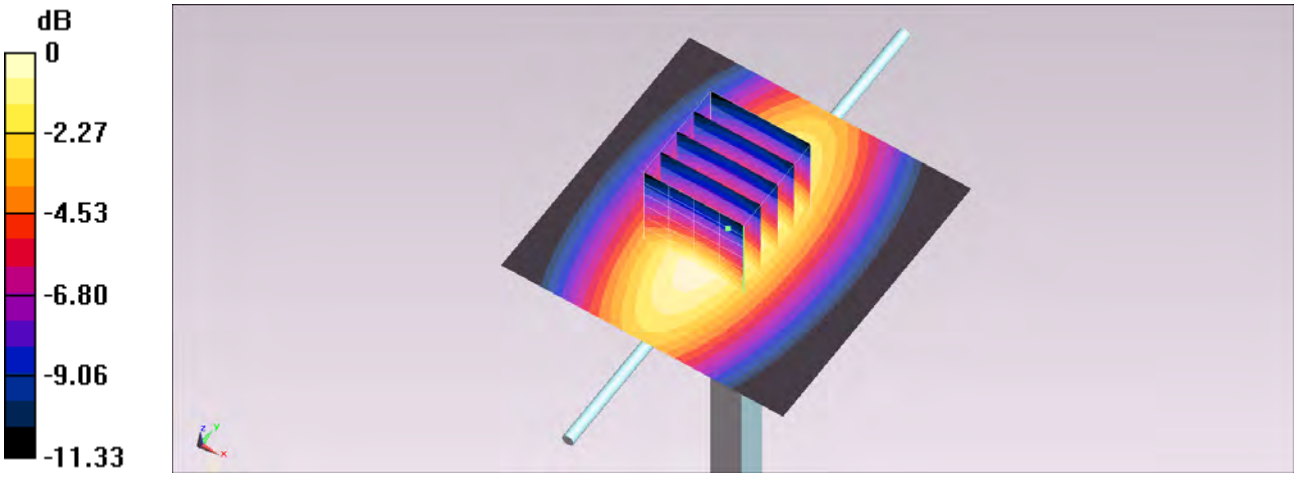
DUT: D835V2-SN:499

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_850_130801 Medium parameters used: f = 835 MHz; σ = 0.963 S/m; ε_r = 54.527; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.81 W/kg

Configuration/Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.779 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.55 W/kg
SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.54 W/kg
Maximum value of SAR (measured) = 2.79 W/kg



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

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/8/28

System Check_Body_835MHz_130828

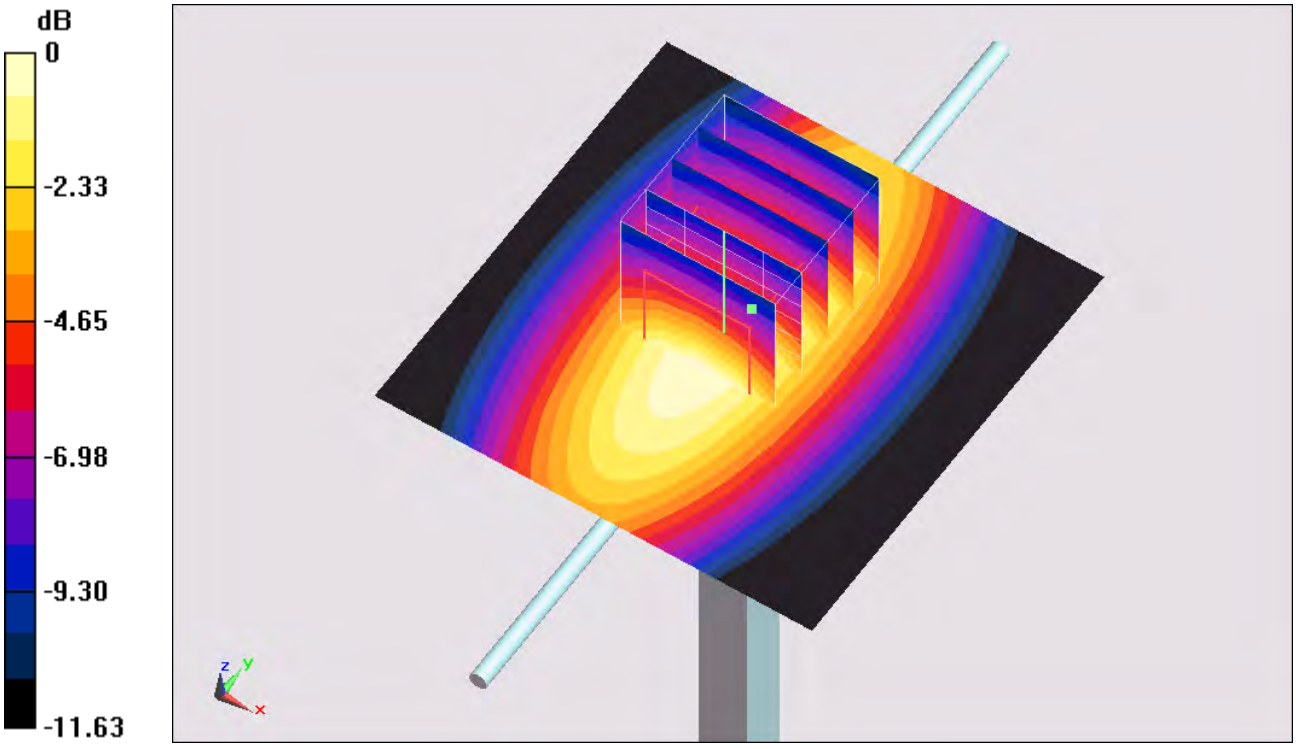
DUT: D835V2-SN:499

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_850_130828 Medium parameters used: f = 835 MHz; σ = 0.963 S/m; ε_r = 54.541; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v5.0 Left; Type: QDOVA002AA; Serial: TP:1131
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.01 W/kg

Configuration/Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.217 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 3.52 W/kg
SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.59 W/kg
Maximum value of SAR (measured) = 3.01 W/kg



0 dB = 3.01 W/kg = 4.79 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/7/3

System Check_Body_1900MHz_130703

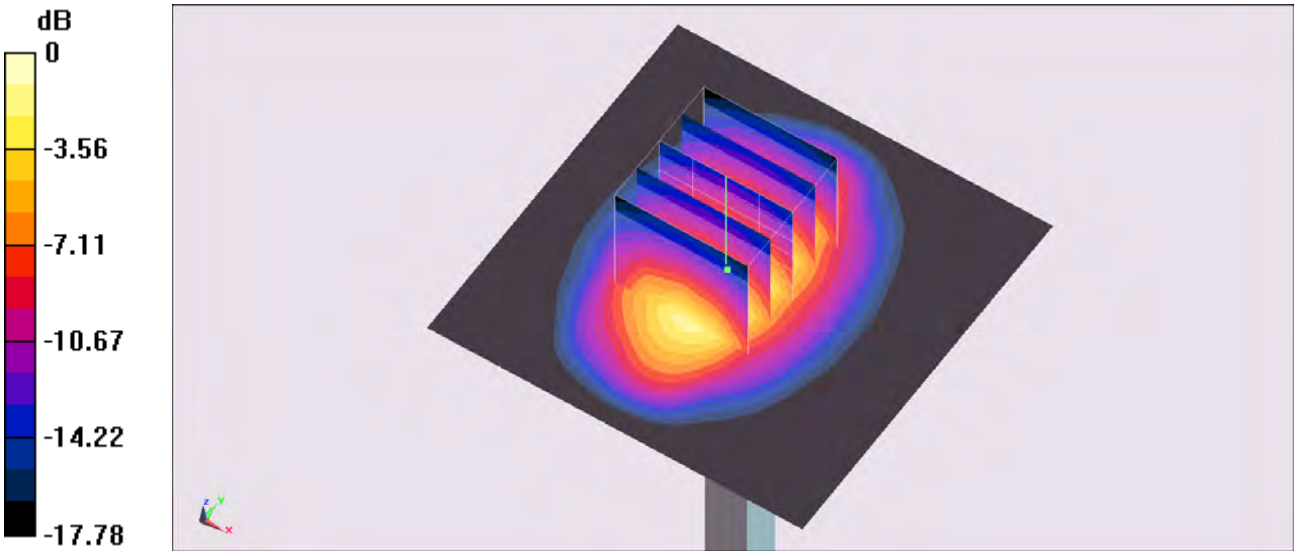
DUT: D1900V2-SN:5d041

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130703 Medium parameters used: f = 1900 MHz; σ = 1.569 S/m; ε_r = 51.411; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.1 W/kg

Configuration/Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 94.091 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.7 W/kg
SAR(1 g) = 10 W/kg; SAR(10 g) = 5.25 W/kg
Maximum value of SAR (measured) = 14.1 W/kg



0 dB = 14.1 W/kg = 11.49 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/7/9

System Check_Body_1900MHz_130709

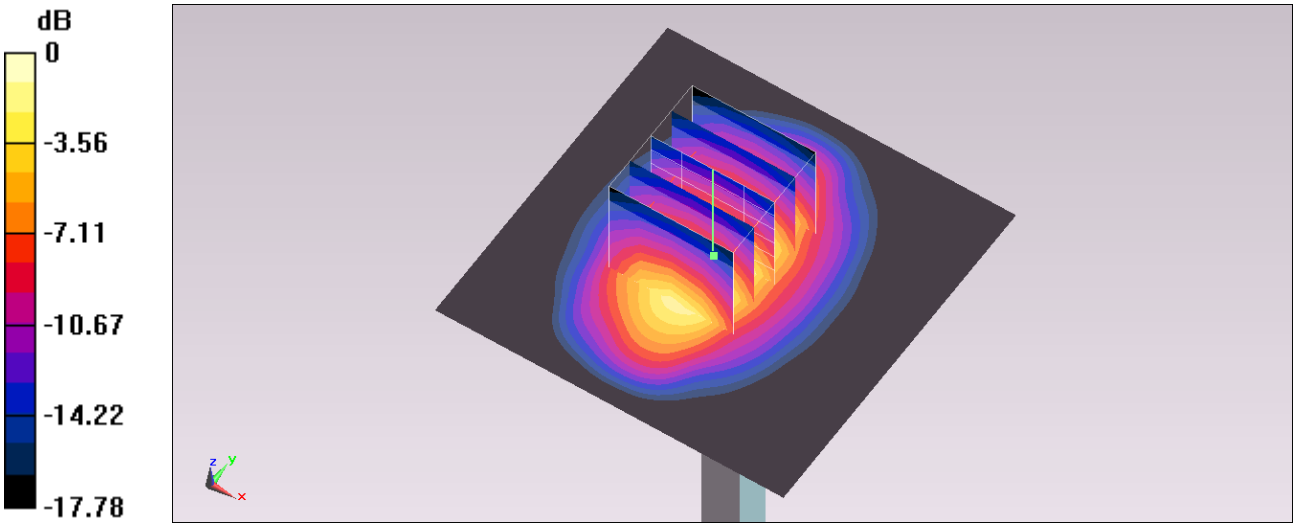
DUT: D1900V2-SN:5d041

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130709 Medium parameters used: f = 1900 MHz; σ = 1.563 mho/m; ε_r = 51.122; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 14.0 mW/g

Configuration/Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 94.091 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.591 mW/g
SAR(1 g) = 9.96 mW/g; SAR(10 g) = 5.23 mW/g
Maximum value of SAR (measured) = 14.0 mW/g



0 dB = 14.0 mW/g = 22.92 dB mW/g

System Check_Body_1900MHz_130801

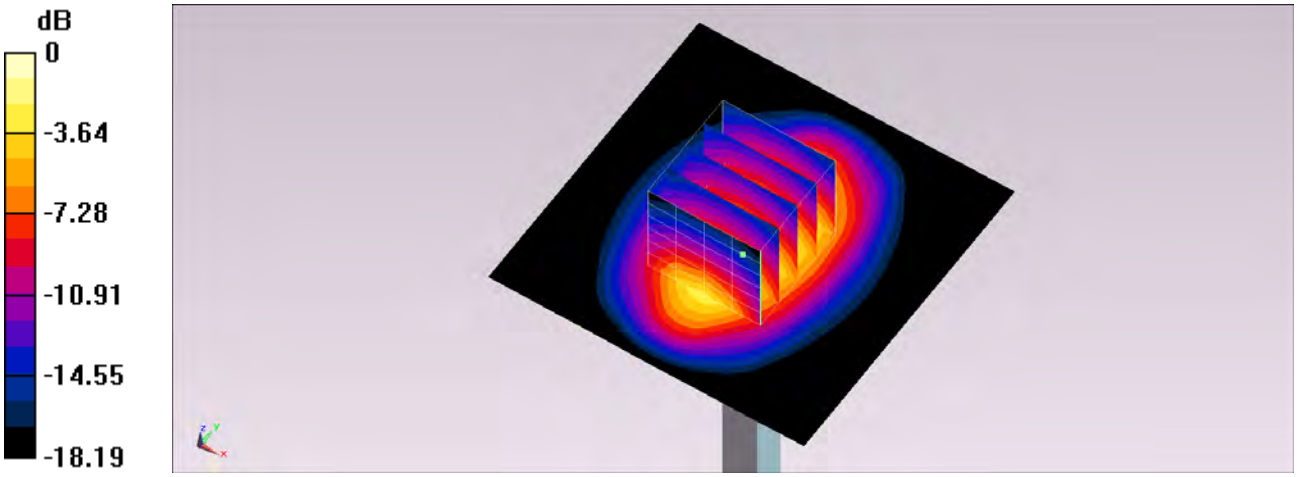
DUT: D1900V2-SN:5d041

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130801 Medium parameters used: f = 1900 MHz; σ = 1.53 S/m; ε_r = 52.859; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.4 W/kg

Configuration/Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 93.062 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 10 W/kg; SAR(10 g) = 5.24 W/kg
Maximum value of SAR (measured) = 12.6 W/kg



0 dB = 12.6 W/kg = 11.00 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/8/28

System Check_Body_1900MHz_130828

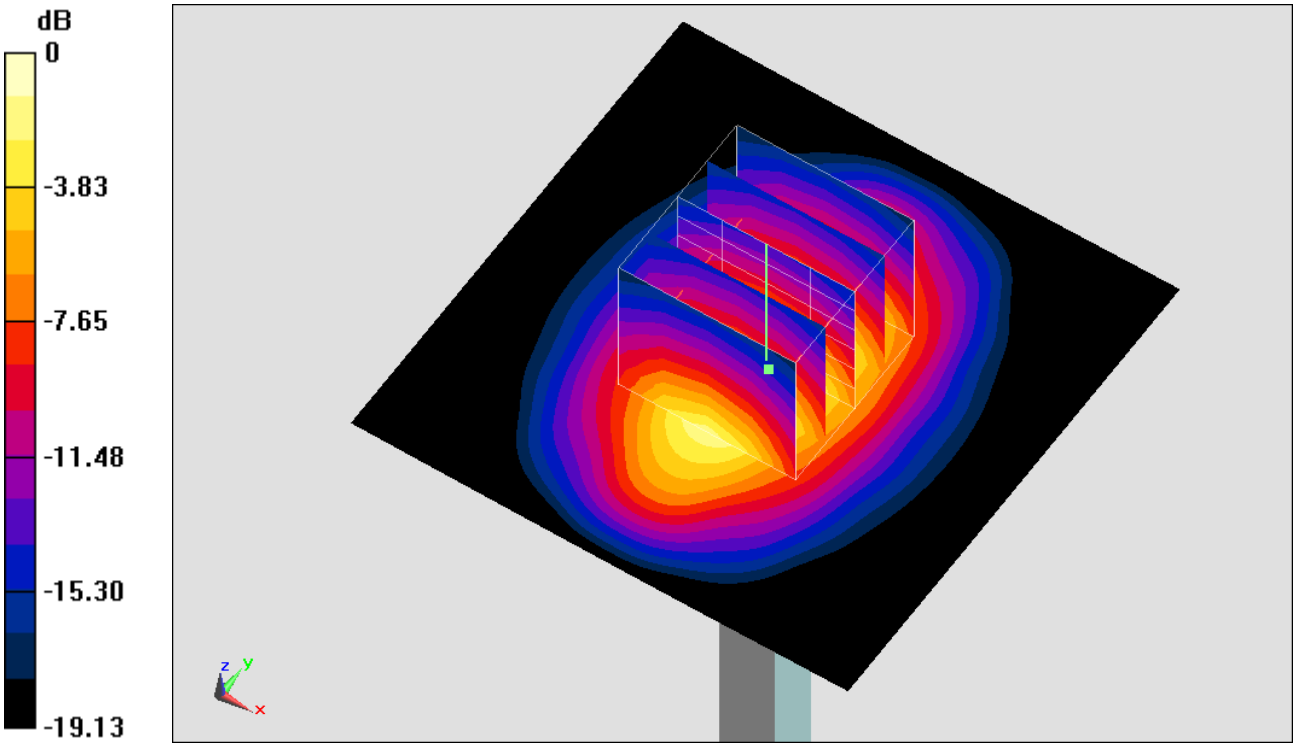
DUT: D1900V2-SN:5d041

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130828 Medium parameters used: f = 1900 MHz; σ = 1.516 S/m; ε_r = 53.631; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Pin=250mW/Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.6 W/kg

Configuration/Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 99.847 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 10.3 W/kg; SAR(10 g) = 5.31 W/kg
Maximum value of SAR (measured) = 14.7 W/kg



0 dB = 14.7 W/kg = 11.67 dBW/kg

Appendix B. Plots of SAR Measurement

The plots are shown as follows.

#150_WCDMA V_RMC 12.2Kbps_Front Face_0.5cm_Ch4182

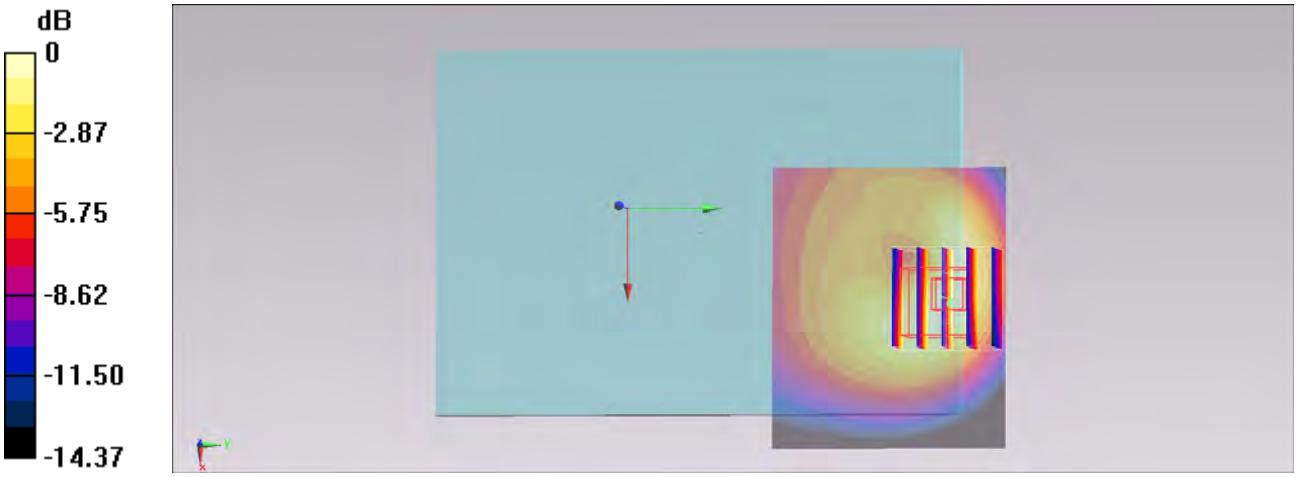
DUT: 332112-04

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130801 Medium parameters used : f = 836.4 MHz; σ = 0.965 S/m; ε_r = 54.509; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4182/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.63 W/kg

Configuration/Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 42.802 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 2.30 W/kg
SAR(1 g) = 1.28 W/kg; SAR(10 g) = 0.733 W/kg
Maximum value of SAR (measured) = 1.61 W/kg



0 dB = 1.61 W/kg = 2.07 dBW/kg

#151_WCDMA V_RMC 12.2Kbps_Front Face_0.5cm_Ch4132

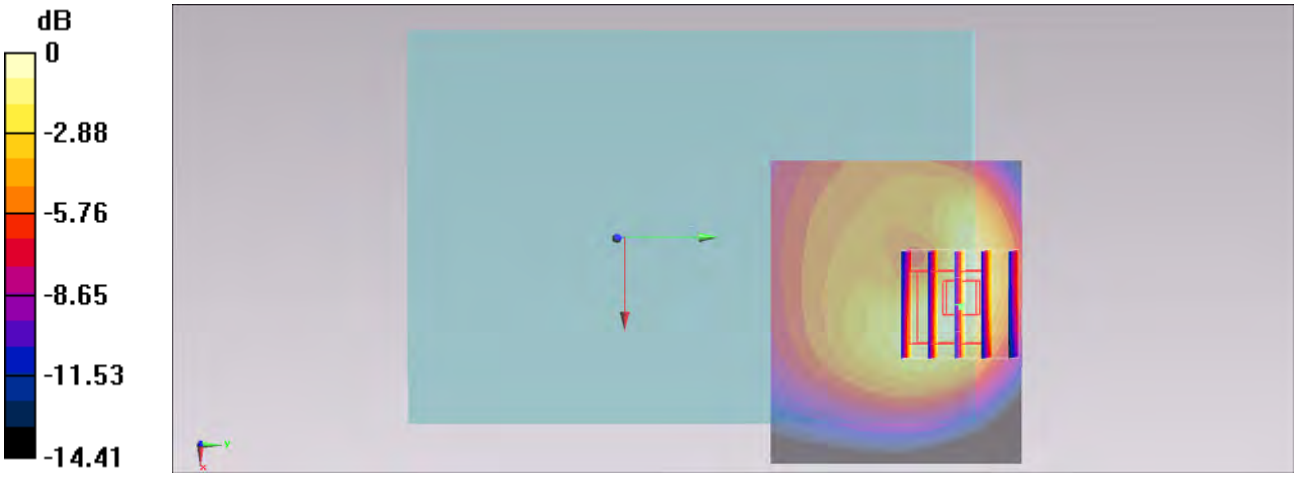
DUT: 332112-04

Communication System: WCDMA; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130801 Medium parameters used : f = 826.4 MHz; σ = 0.955 S/m; ε_r = 54.612; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4132/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.66 W/kg

Configuration/Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 43.130 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 2.45 W/kg
SAR(1 g) = 1.35 W/kg; SAR(10 g) = 0.772 W/kg
Maximum value of SAR (measured) = 1.70 W/kg



0 dB = 1.70 W/kg = 2.30 dBW/kg

#152_WCDMA V_RMC 12.2Kbps_Front Face_0.5cm_Ch4233

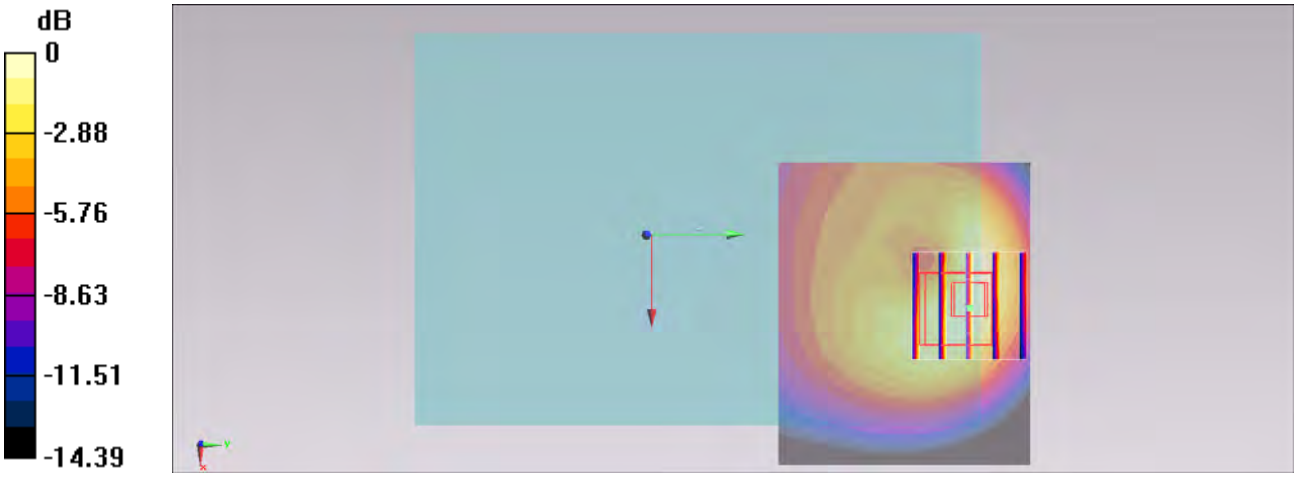
DUT: 332112-04

Communication System: WCDMA; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: MSL_850_130801 Medium parameters used: f = 847 MHz; σ = 0.975 S/m; ε_r = 54.413; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4233/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.73 W/kg

Configuration/Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 44.029 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.51 W/kg
SAR(1 g) = 1.4 W/kg; SAR(10 g) = 0.800 W/kg
Maximum value of SAR (measured) = 1.76 W/kg



0 dB = 1.76 W/kg = 2.46 dBW/kg

#25_WCDMA V_RMC 12.2Kbps_Bottom Face_0.5cm_Ch4182

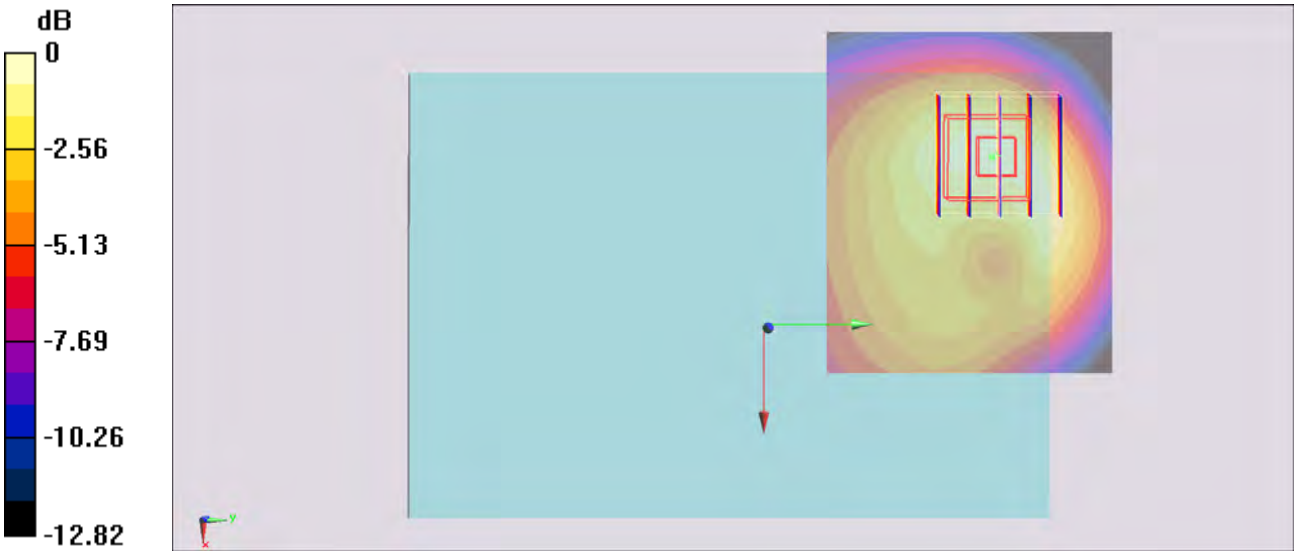
DUT: 332112-04

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130703 Medium parameters used: f = 836.4 MHz; σ = 0.964 S/m; ε_r = 54.54; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(8.65, 8.65, 8.65); Calibrated: 2012/9/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2013/1/28
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4182/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.07 W/kg

Configuration/Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.793 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.832 W/kg; SAR(10 g) = 0.521 W/kg
Maximum value of SAR (measured) = 1.08 W/kg



0 dB = 1.08 W/kg = 0.33 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/7/3

#112_WCDMA V_RMC 12.2Kbps_Bottom Face_0.5cm_Ch4132

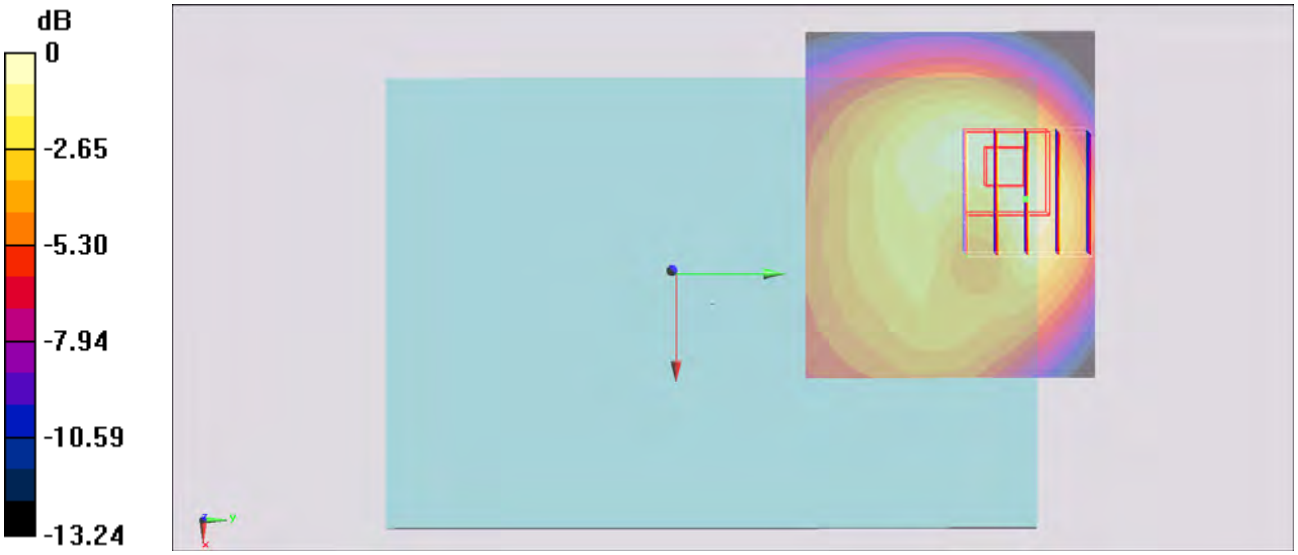
DUT: 332112-04

Communication System: WCDMA; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130703 Medium parameters used : f = 826.4 MHz; σ = 0.954 S/m; ε_r = 54.647; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4132/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.26 W/kg

Configuration/Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.908 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.936 W/kg; SAR(10 g) = 0.572 W/kg
Maximum value of SAR (measured) = 1.23 W/kg



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

#113_WCDMA V_RMC 12.2Kbps_Bottom Face_0.5cm_Ch4233

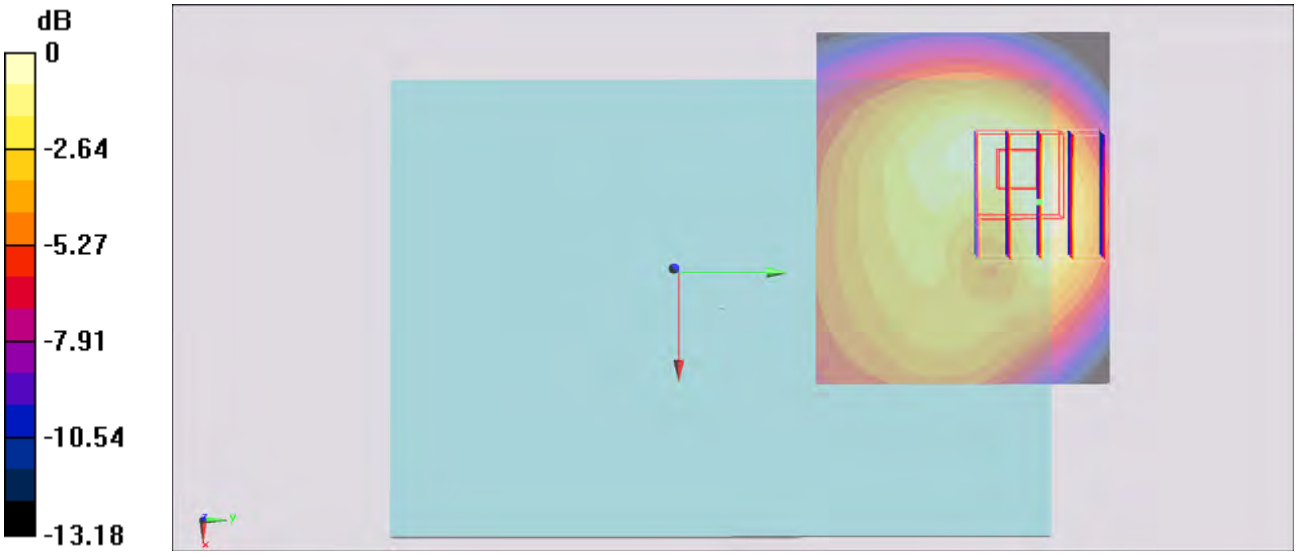
DUT: 332112-04

Communication System: WCDMA; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: MSL_850_130703 Medium parameters used: f = 847 MHz; σ = 0.974 S/m; ε_r = 54.445; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4233/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.27 W/kg

Configuration/Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.070 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 0.946 W/kg; SAR(10 g) = 0.581 W/kg
Maximum value of SAR (measured) = 1.25 W/kg



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

#29_WCDMA V_RMC 12.2Kbps_Edge 1_0.5cm_Ch4182

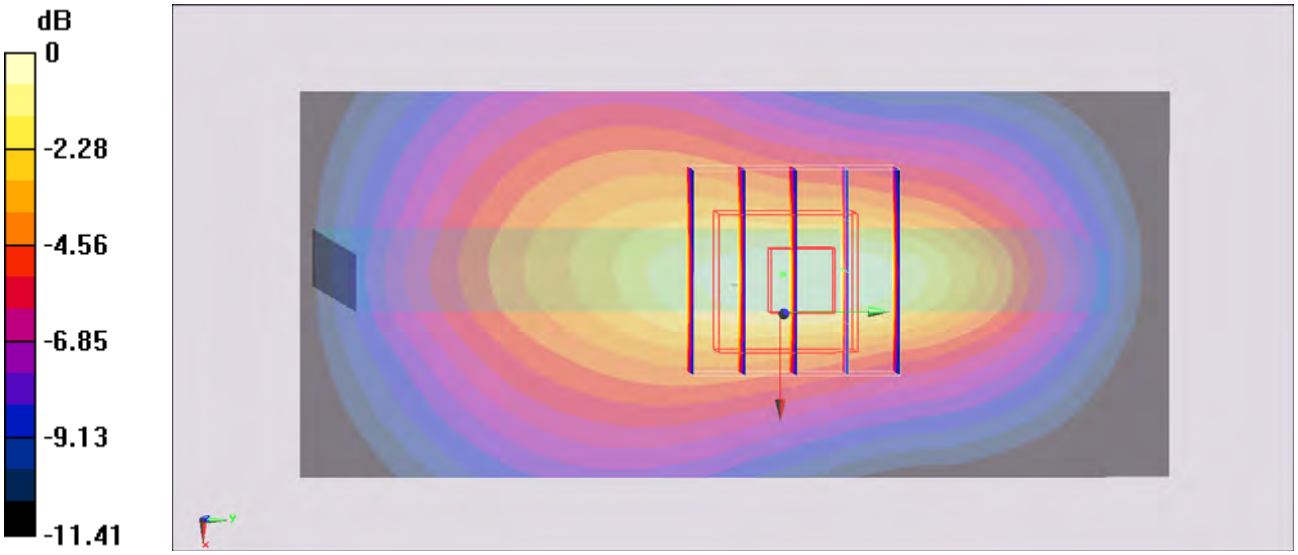
DUT: 332112-04

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130703 Medium parameters used: f = 836.4 MHz; σ = 0.964 S/m; ε_r = 54.54; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(8.65, 8.65, 8.65); Calibrated: 2012/9/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2013/1/28
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4182/Area Scan (41x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.737 W/kg

Configuration/Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.213 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.870 W/kg
SAR(1 g) = 0.571 W/kg; SAR(10 g) = 0.356 W/kg
Maximum value of SAR (measured) = 0.726 W/kg



0 dB = 0.726 W/kg = -1.39 dBW/kg

#30_WCDMA V_RMC 12.2Kbps_Edge 2_0.5cm_Ch4182

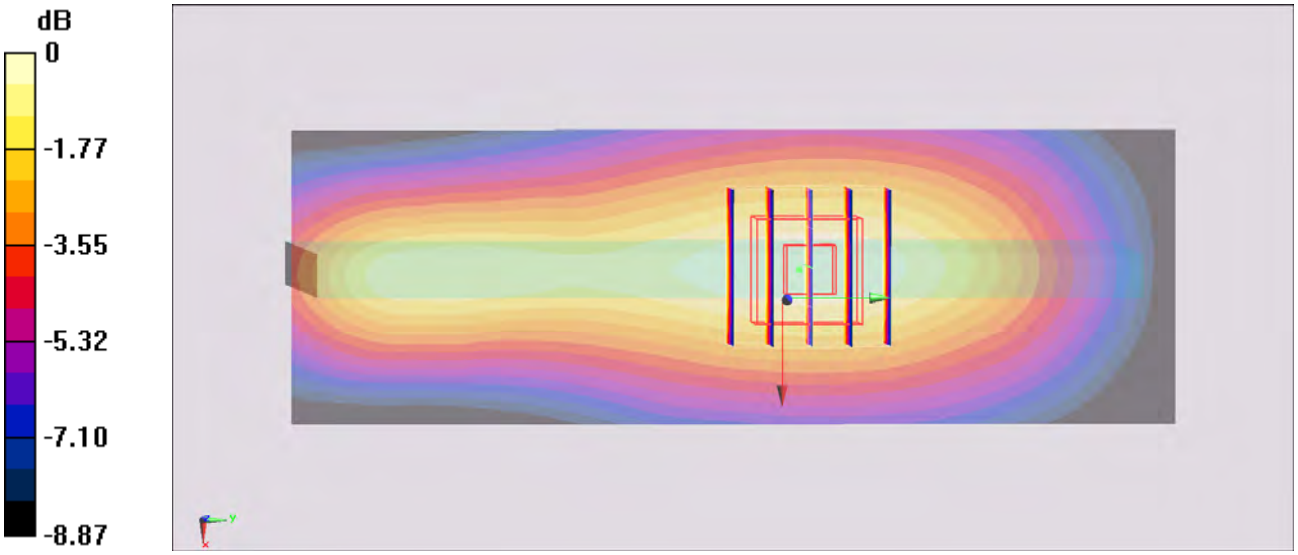
DUT: 332112-04

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130703 Medium parameters used: f = 836.4 MHz; σ = 0.964 S/m; ε_r = 54.54; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(8.65, 8.65, 8.65); Calibrated: 2012/9/28;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1279; Calibrated: 2013/1/28
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4182/Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.103 W/kg

Configuration/Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.633 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.119 W/kg
SAR(1 g) = 0.085 W/kg; SAR(10 g) = 0.059 W/kg
Maximum value of SAR (measured) = 0.104 W/kg



0 dB = 0.104 W/kg = -9.83 dBW/kg

#153_WCDMA V_HSDPA Subtest-1_Front Face_0.5cm_Ch4182

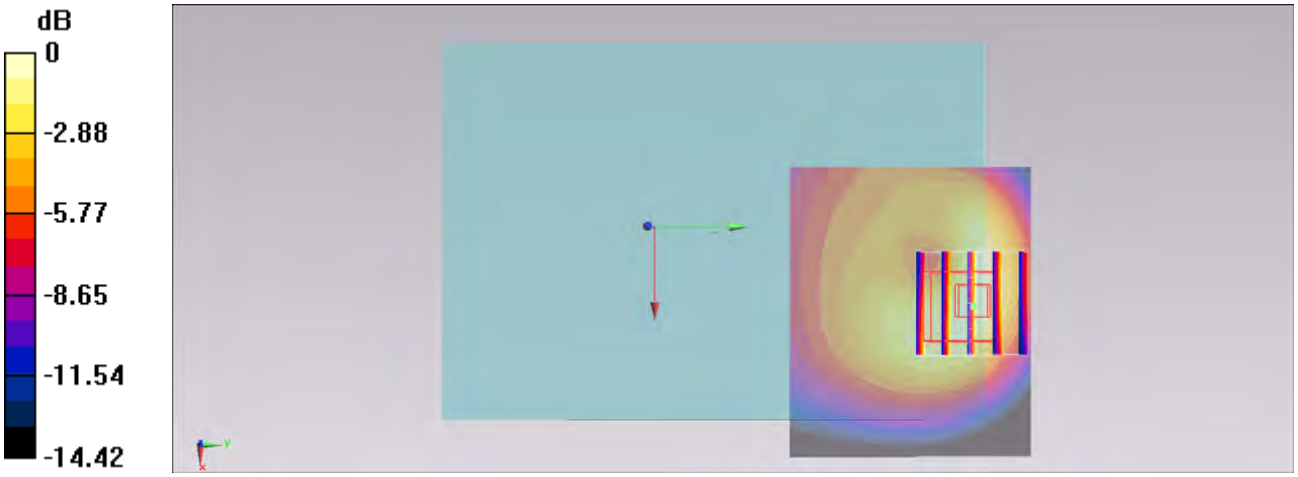
DUT: 332112-04

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130801 Medium parameters used : f = 836.4 MHz; σ = 0.965 S/m; ε_r = 54.509; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4182/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.54 W/kg

Configuration/Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 41.589 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 2.24 W/kg
SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.702 W/kg
Maximum value of SAR (measured) = 1.54 W/kg



0 dB = 1.54 W/kg = 1.88 dBW/kg

#154_WCDMA V_HSDPA Subtest-1_Front Face_0.5cm_Ch4132

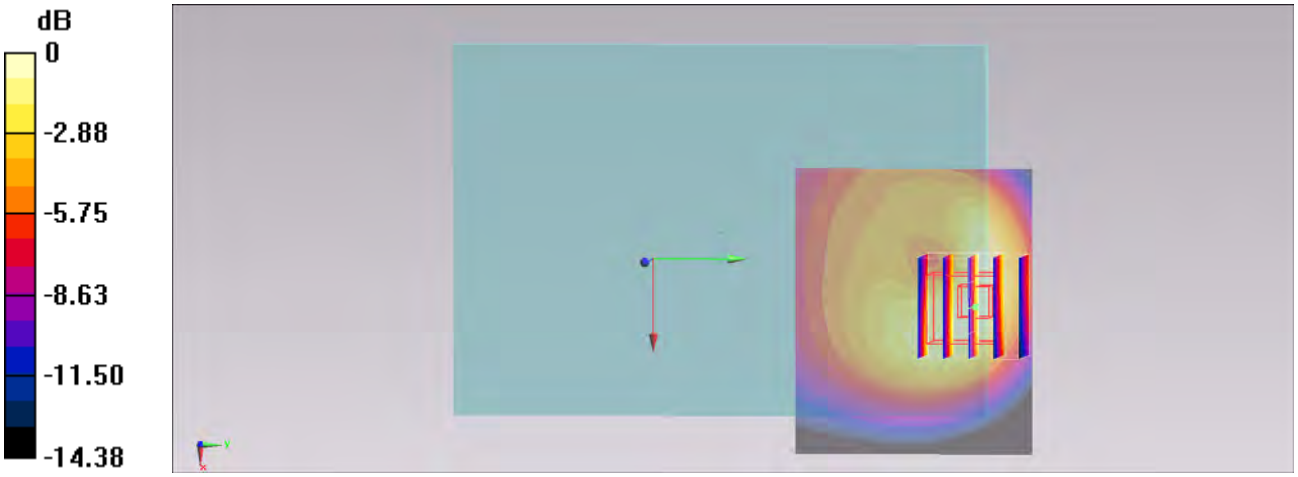
DUT: 332112-04

Communication System: WCDMA; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130801 Medium parameters used : f = 826.4 MHz; σ = 0.955 S/m; ε_r = 54.612; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4132/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.63 W/kg

Configuration/Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 42.799 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 2.30 W/kg
SAR(1 g) = 1.28 W/kg; SAR(10 g) = 0.737 W/kg
Maximum value of SAR (measured) = 1.60 W/kg



0 dB = 1.60 W/kg = 2.04 dBW/kg

#155_WCDMA V_HSDPA Subtest-1_Front Face_0.5cm_Ch4233

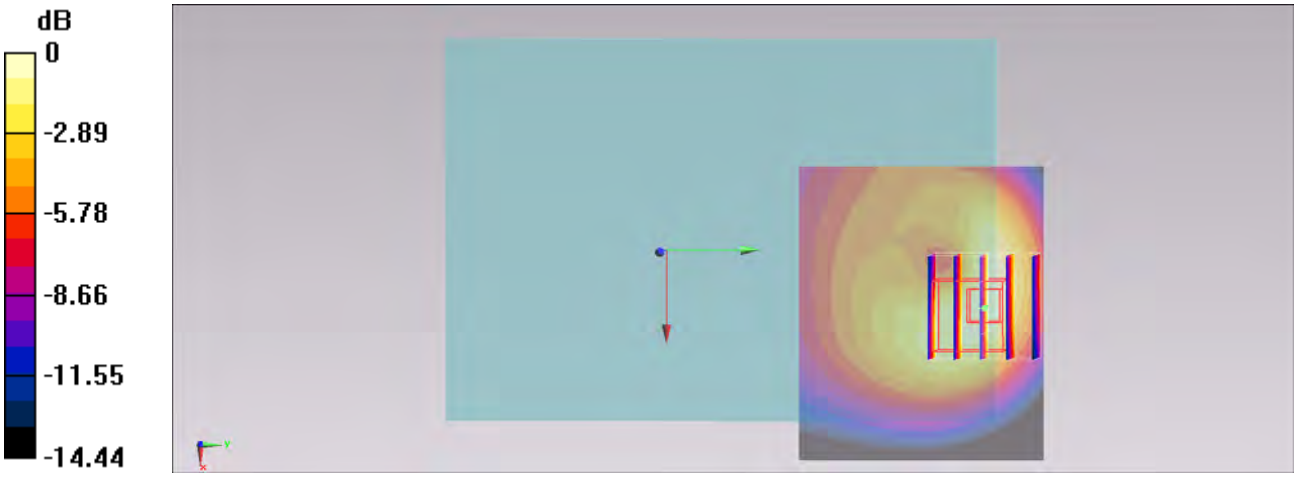
DUT: 332112-04

Communication System: WCDMA; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: MSL_850_130801 Medium parameters used: f = 847 MHz; σ = 0.975 S/m; ε_r = 54.413; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4233/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.69 W/kg

Configuration/Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 42.878 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 2.38 W/kg
SAR(1 g) = 1.3 W/kg; SAR(10 g) = 0.734 W/kg
Maximum value of SAR (measured) = 1.69 W/kg



0 dB = 1.69 W/kg = 2.28 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/7/9

#127_WCDMA V_HSDPA Subtest-1_Bottom Face_0.5cm_Ch4132

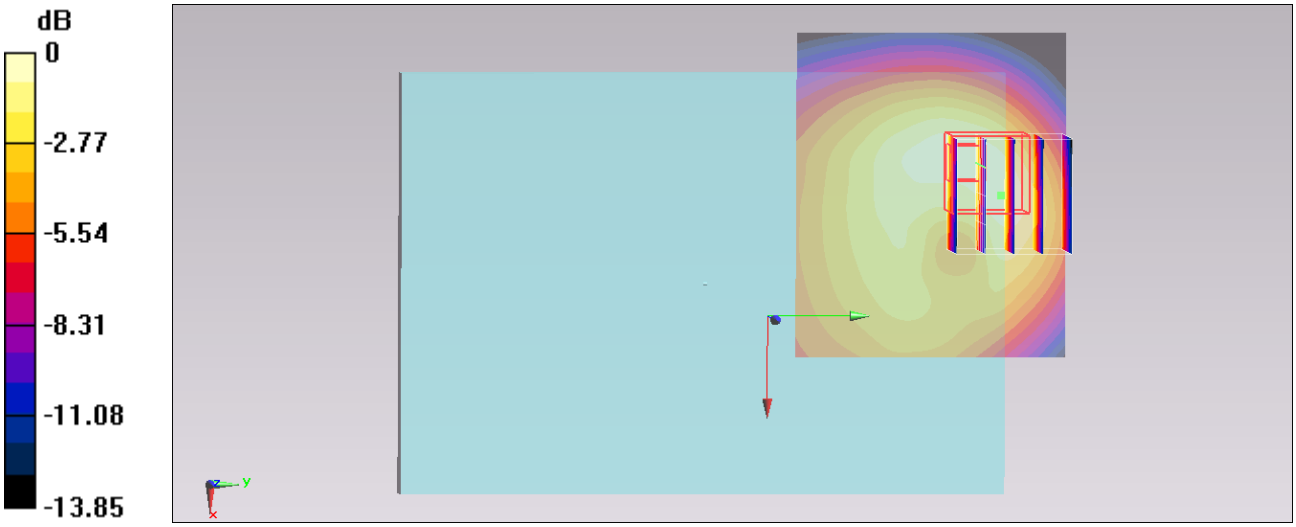
DUT: 332112-04

Communication System: WCDMA; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130709 Medium parameters used: f = 826.4 MHz; σ = 0.945 mho/m; ε_r = 52.831; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch4132/Area Scan (61x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.11 mW/g

Configuration/Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.228 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.354 mW/g
SAR(1 g) = 0.827 mW/g; SAR(10 g) = 0.499 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09 mW/g = 0.75 dB mW/g

#128_WCDMA V_HSDPA Subtest-1_Bottom Face_0.5cm_Ch4182

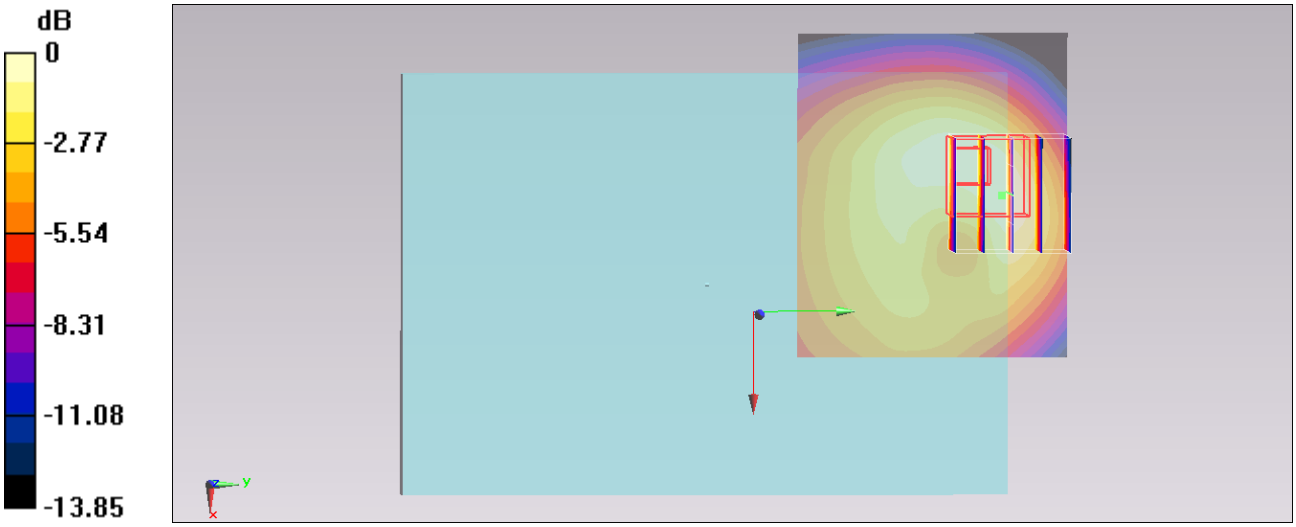
DUT: 332112-04

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130709 Medium parameters used: f = 836.4 MHz; σ = 0.955 mho/m; ε_r = 52.734; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch4182/Area Scan (61x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.04 mW/g

Configuration/Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.047 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.242 mW/g
SAR(1 g) = 0.758 mW/g; SAR(10 g) = 0.461 mW/g
Maximum value of SAR (measured) = 0.999 mW/g



0 dB = 0.999 mW/g = -0.01 dB mW/g

#129_WCDMA V_HSDPA Subtest-1_Bottom Face_0.5cm_Ch4233

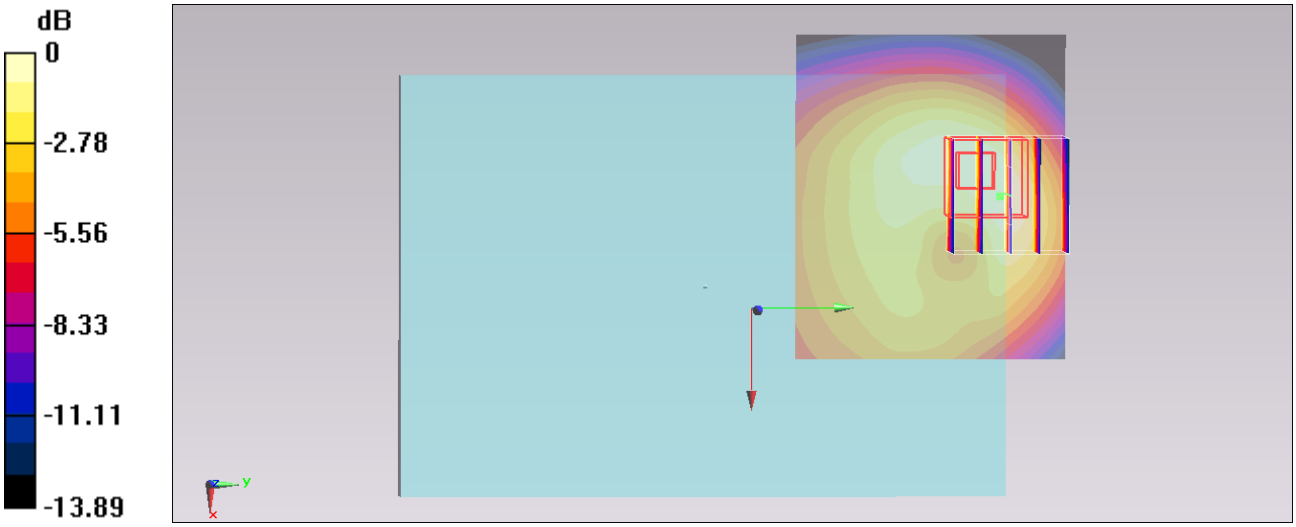
DUT: 332112-04

Communication System: WCDMA; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: MSL_850_130709 Medium parameters used: f = 847 MHz; σ = 0.965 mho/m; ε_r = 52.625; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch4233/Area Scan (61x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.19 mW/g

Configuration/Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.358 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.444 mW/g
SAR(1 g) = 0.864 mW/g; SAR(10 g) = 0.528 mW/g
Maximum value of SAR (measured) = 1.15 mW/g



0 dB = 1.15 mW/g = 1.21 dB mW/g

#167_WCDMA V_HSDPA Subtest-1_Edge 1_0.5cm_Ch4182

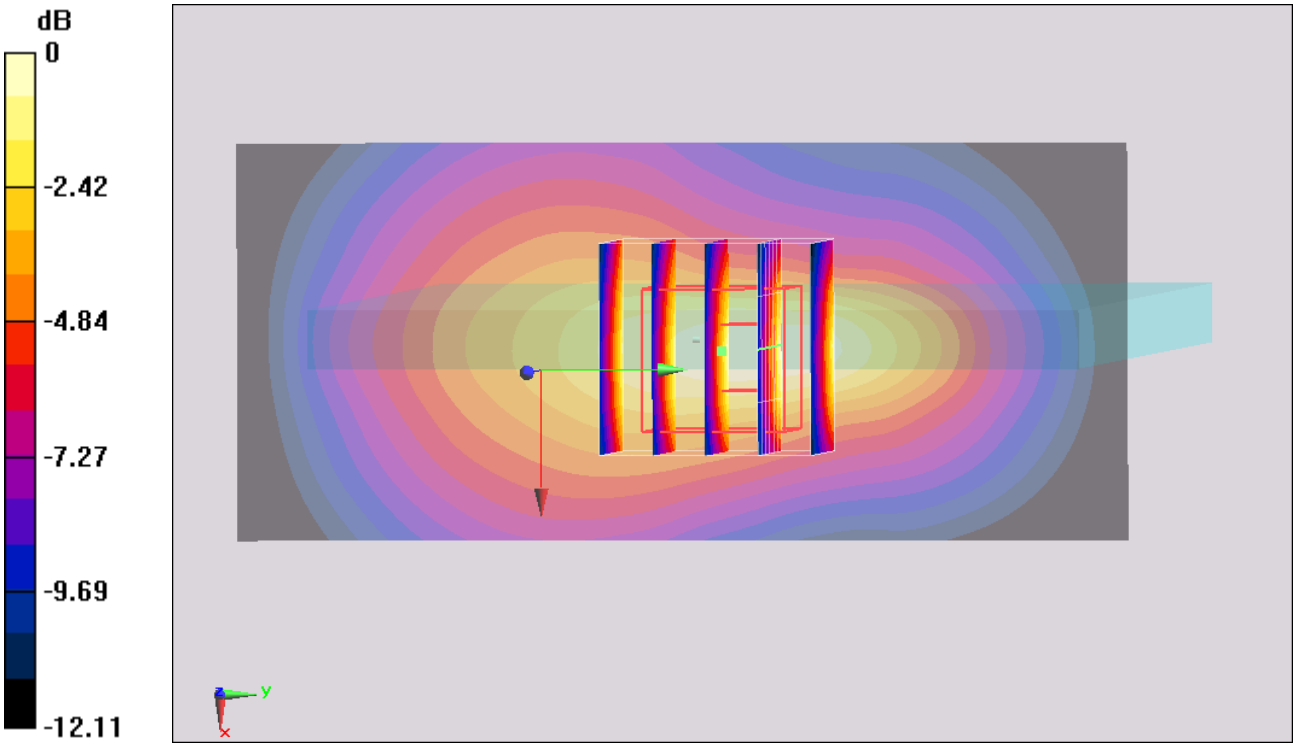
DUT: 332112-04

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130828 Medium parameters used: f = 836.4 MHz; σ = 0.964 S/m; ε_r = 54.526; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v5.0 Left; Type: QDOVA002AA; Serial: TP:1131
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4182/Area Scan (41x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.586 W/kg

Configuration/Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.147 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.732 W/kg
SAR(1 g) = 0.470 W/kg; SAR(10 g) = 0.288 W/kg
Maximum value of SAR (measured) = 0.604 W/kg



0 dB = 0.604 W/kg = -2.19 dBW/kg

#168_WCDMA V_HSDPA Subtest-1_Edge 2_0.5cm_Ch4182

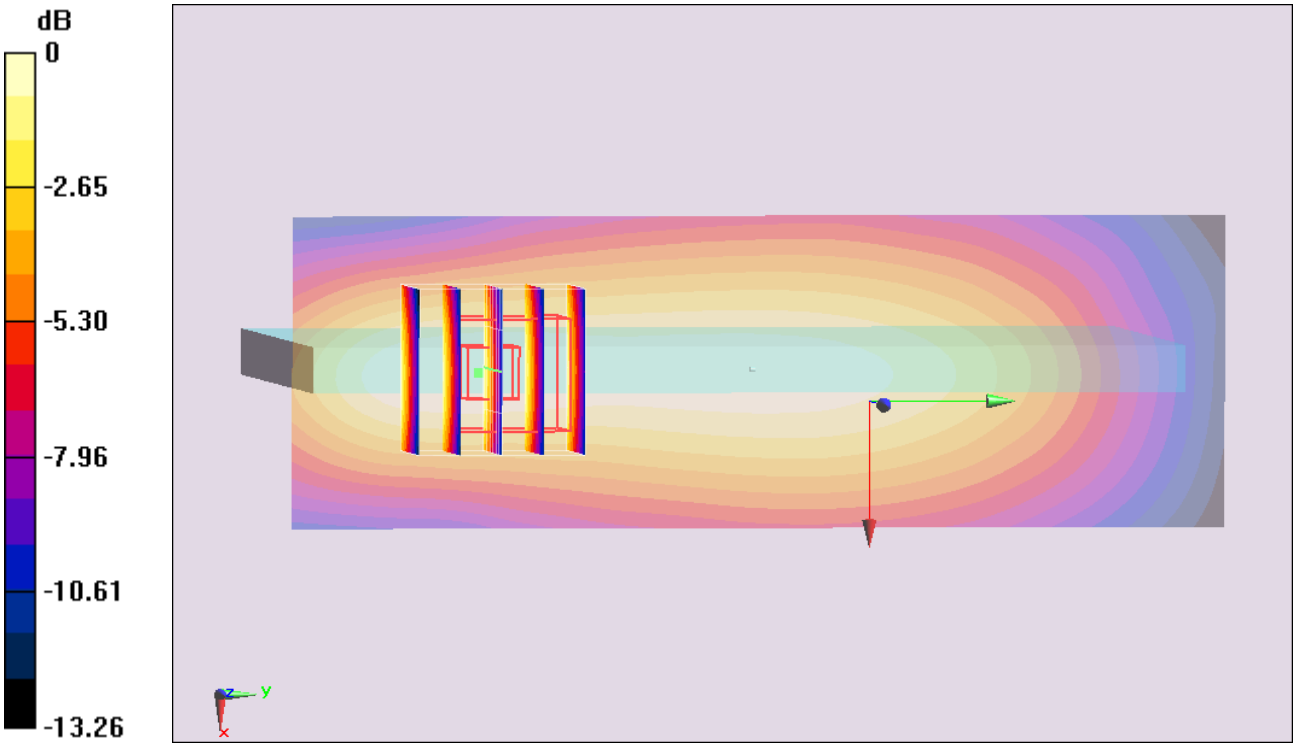
DUT: 332112-04

Communication System: WCDMA; Frequency: 836.4 MHz;Duty Cycle: 1:1
Medium: MSL_850_130828 Medium parameters used: f = 836.4 MHz; σ = 0.964 S/m; ε_r = 54.526; ρ = 1000 kg/m^3
Ambient Temperature：23.6 ℃; Liquid Temperature：22.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(10.02, 10.02, 10.02); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v5.0 Left; Type: QDOVA002AA; Serial: TP:1131
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch4182/Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0965 W/kg

Configuration/Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.077 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.111 W/kg
SAR(1 g) = 0.073 W/kg; SAR(10 g) = 0.047 W/kg
Maximum value of SAR (measured) = 0.0937 W/kg



0 dB = 0.0937 W/kg = -10.28 dBW/kg

#156_WCDMA II_RMC 12.2Kbps_Front Face_0.5cm_Ch9400

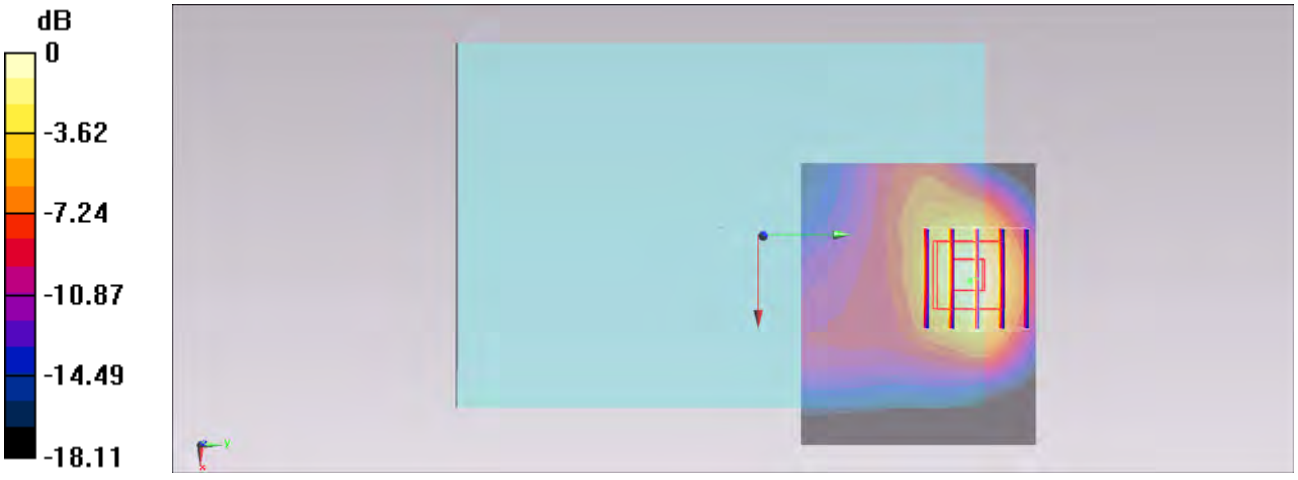
DUT: 332112-04

Communication System: WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130801 Medium parameters used: f = 1880 MHz; σ = 1.513 S/m; ε_r = 52.954; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9400/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.29 W/kg

Configuration/Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.582 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 4.71 W/kg
SAR(1 g) = 2.58 W/kg; SAR(10 g) = 1.37 W/kg
Maximum value of SAR (measured) = 3.20 W/kg



0 dB = 3.20 W/kg = 5.05 dBW/kg

#157_WCDMA II_RMC 12.2Kbps_Front Face_0.5cm_Ch9262

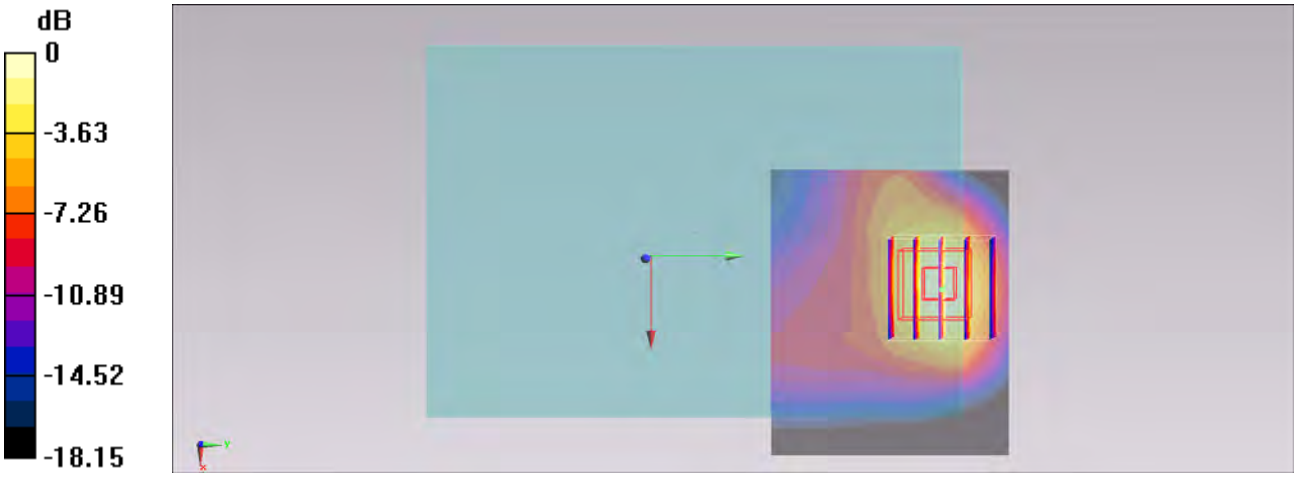
DUT: 332112-04

Communication System: WCDMA; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130801 Medium parameters used : f = 1852.4 MHz; σ = 1.49 S/m; ε_r = 53.057; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9262/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.09 W/kg

Configuration/Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.489 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 4.41 W/kg
SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.29 W/kg
Maximum value of SAR (measured) = 2.98 W/kg



0 dB = 2.98 W/kg = 4.74 dBW/kg

#158_WCDMA II_RMC 12.2Kbps_Front Face_0.5cm_Ch9538

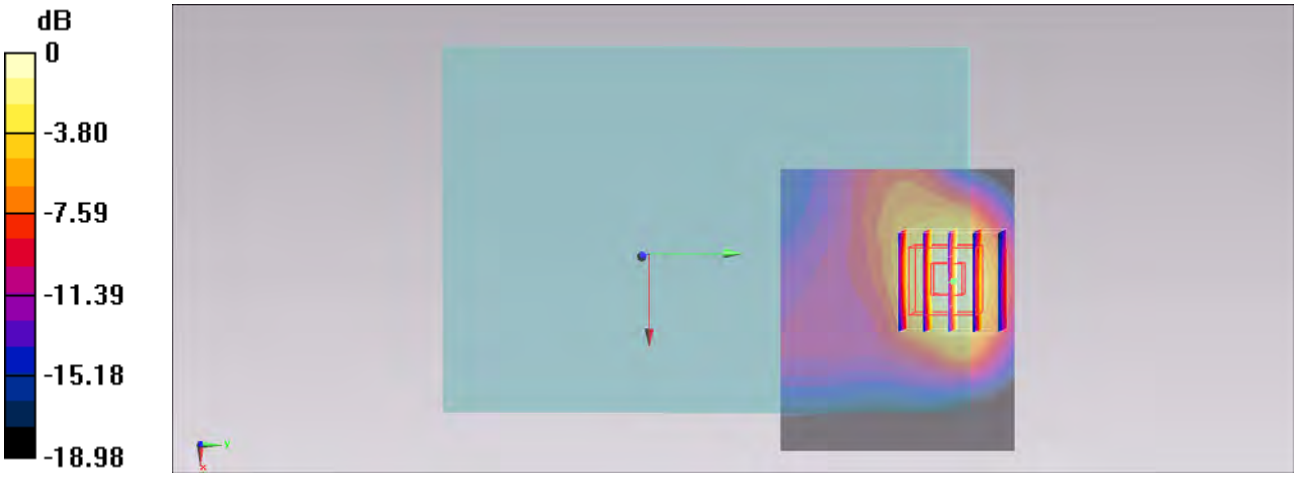
DUT: 332112-04

Communication System: WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130801 Medium parameters used: f = 1908 MHz; σ = 1.538 S/m; ε_r = 52.824; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9538/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.86 W/kg

Configuration/Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 50.553 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 5.50 W/kg
SAR(1 g) = 2.9 W/kg; SAR(10 g) = 1.5 W/kg
Maximum value of SAR (measured) = 3.54 W/kg



0 dB = 3.54 W/kg = 5.49 dBW/kg

#99_WCDMA II_RMC 12.2Kbps_Bottom Face_0.5cm_Ch9400

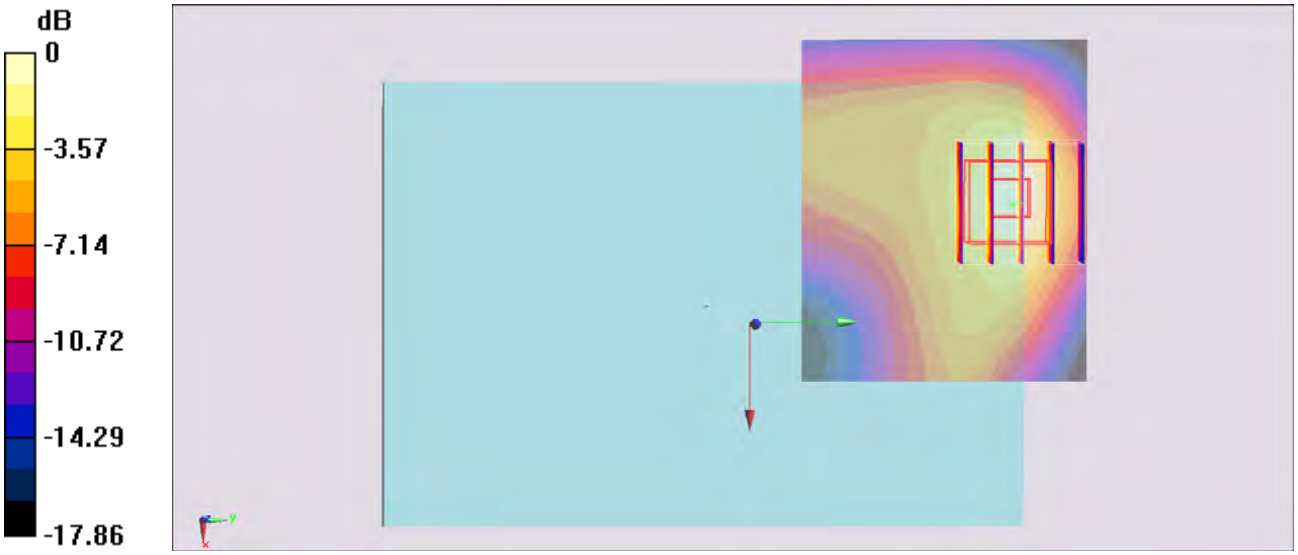
DUT: 332112-04

Communication System: WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130703 Medium parameters used: f = 1880 MHz; σ = 1.531 S/m; ε_r = 51.481; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9400/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.87 W/kg

Configuration/Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.671 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 2.32 W/kg
SAR(1 g) = 1.35 W/kg; SAR(10 g) = 0.763 W/kg
Maximum value of SAR (measured) = 1.85 W/kg



0 dB = 1.85 W/kg = 2.67 dBW/kg

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2013/7/3

#98_WCDMA II_RMC 12.2Kbps_Bottom Face_0.5cm_Ch9262

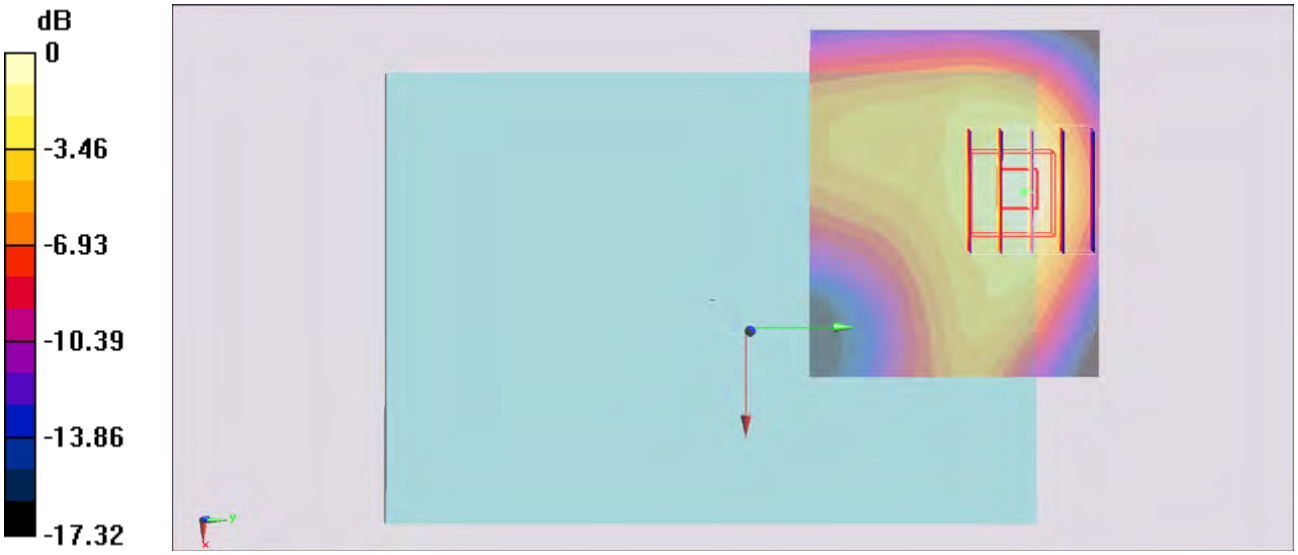
DUT: 332112-04

Communication System: WCDMA; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130703 Medium parameters used: f = 1852.4 MHz; σ = 1.492 S/m; ε_r = 51.582; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9262/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.56 W/kg

Configuration/Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.576 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.96 W/kg
SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.670 W/kg
Maximum value of SAR (measured) = 1.55 W/kg



0 dB = 1.55 W/kg = 1.90 dBW/kg

#97_WCDMA II_RMC 12.2Kbps_Bottom Face_0.5cm_Ch9538

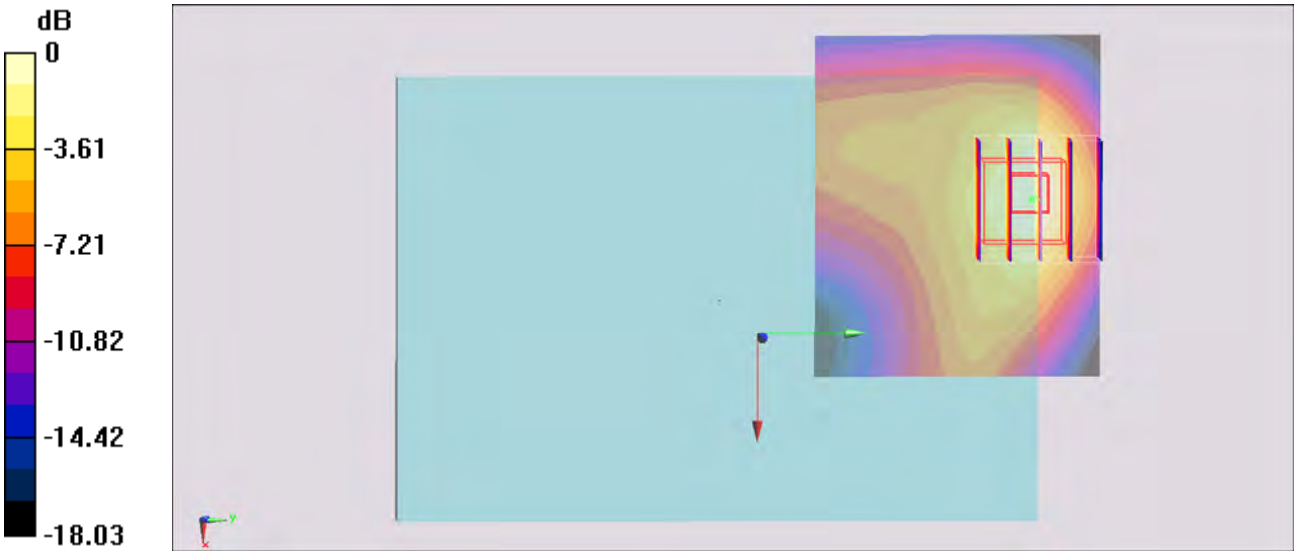
DUT: 332112-04

Communication System: WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130703 Medium parameters used: f = 1908 MHz; σ = 1.582 S/m; ε_r = 51.396; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9538/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.10 W/kg

Configuration/Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.534 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 2.57 W/kg
SAR(1 g) = 1.47 W/kg; SAR(10 g) = 0.820 W/kg
Maximum value of SAR (measured) = 2.02 W/kg



0 dB = 2.02 W/kg = 3.05 dBW/kg

#107_WCDMA II_RMC 12.2Kbps_Edge 1_0.5cm_Ch9400

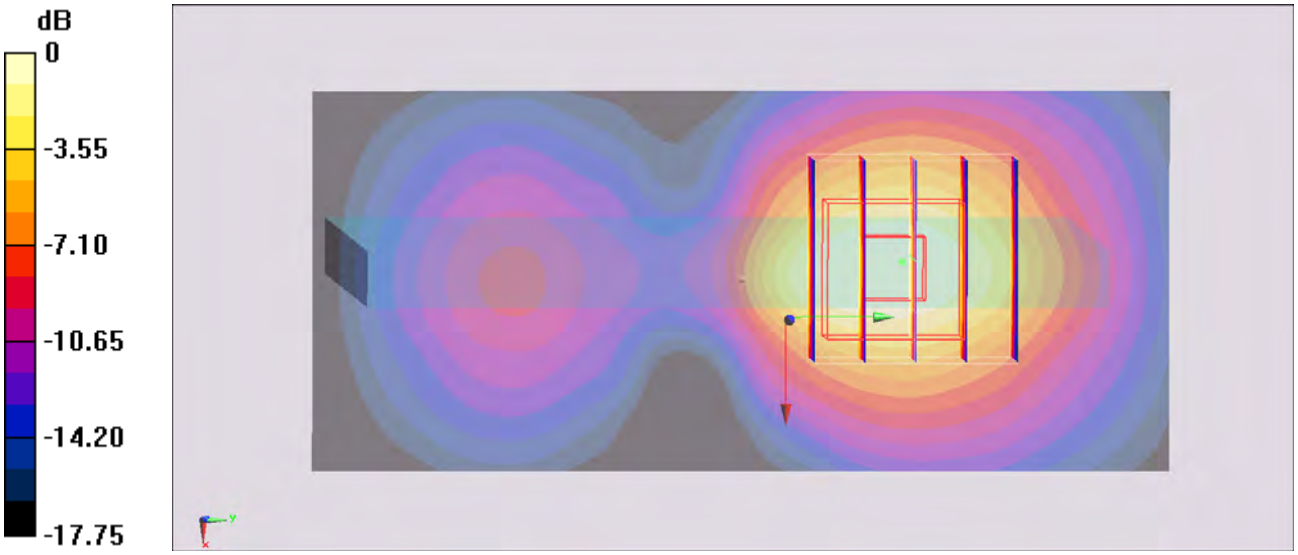
DUT: 332112-04

Communication System: WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130703 Medium parameters used: f = 1880 MHz; σ = 1.531 S/m; ε_r = 51.481; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9400/Area Scan (41x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.76 W/kg

Configuration/Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.036 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 3.29 W/kg
SAR(1 g) = 1.92 W/kg; SAR(10 g) = 1.04 W/kg
Maximum value of SAR (measured) = 2.56 W/kg



0 dB = 2.56 W/kg = 4.08 dBW/kg

#108_WCDMA II_RMC 12.2Kbps_Edge 1_0.5cm_Ch9262

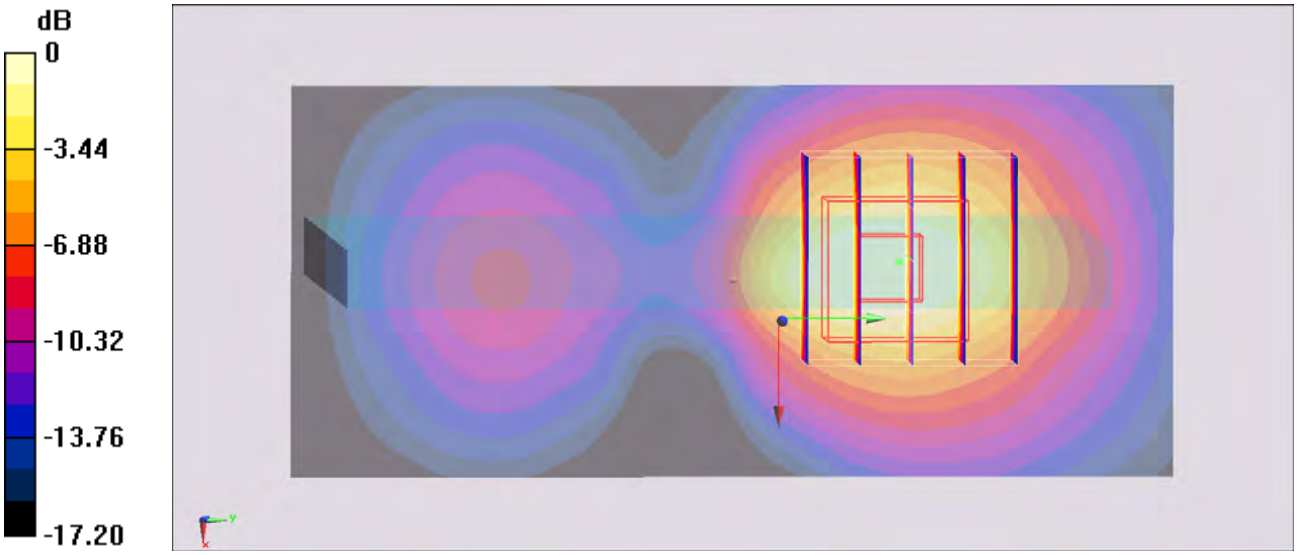
DUT: 332112-04

Communication System: WCDMA; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130703 Medium parameters used: f = 1852.4 MHz; σ = 1.492 S/m; ε_r = 51.582; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9262/Area Scan (41x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.35 W/kg

Configuration/Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.322 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 2.76 W/kg
SAR(1 g) = 1.63 W/kg; SAR(10 g) = 0.888 W/kg
Maximum value of SAR (measured) = 2.18 W/kg



0 dB = 2.18 W/kg = 3.38 dBW/kg

#116_WCDMA II_RMC 12.2Kbps_Edge 1_0.5cm_Ch9538

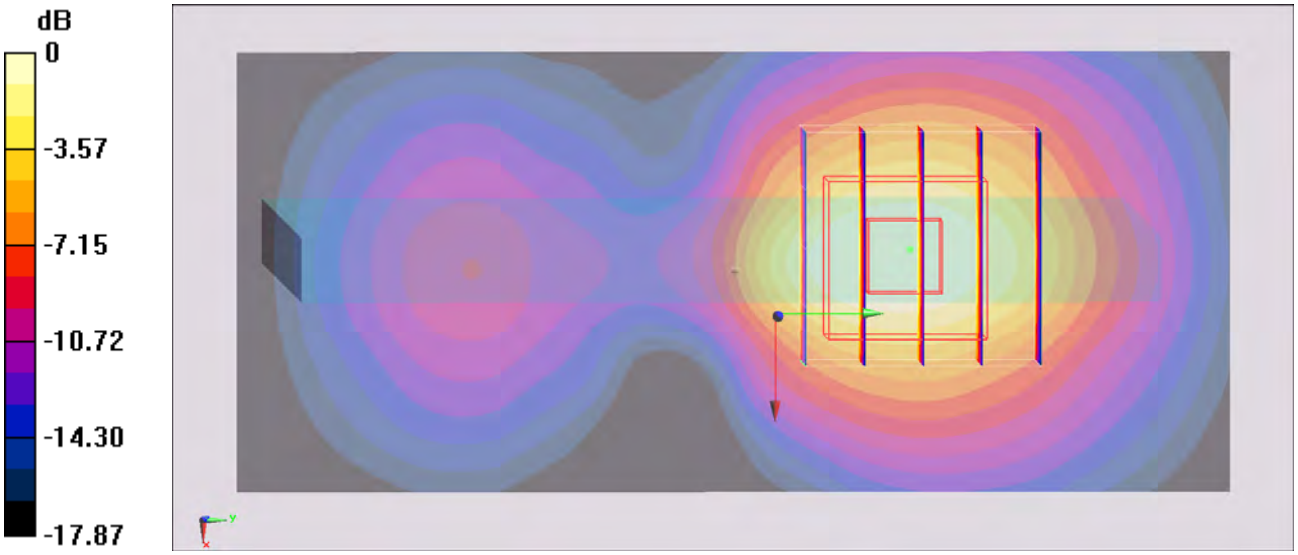
DUT: 332112-04

Communication System: WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130703 Medium parameters used: f = 1908 MHz; σ = 1.582 S/m; ε_r = 51.396; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9538/Area Scan (41x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.04 W/kg

Configuration/Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.610 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.66 W/kg
SAR(1 g) = 2.11 W/kg; SAR(10 g) = 1.13 W/kg
Maximum value of SAR (measured) = 2.86 W/kg



0 dB = 2.86 W/kg = 4.56 dBW/kg

#109_WCDMA II_RMC 12.2Kbps_Edge 2_0.5cm_Ch9400

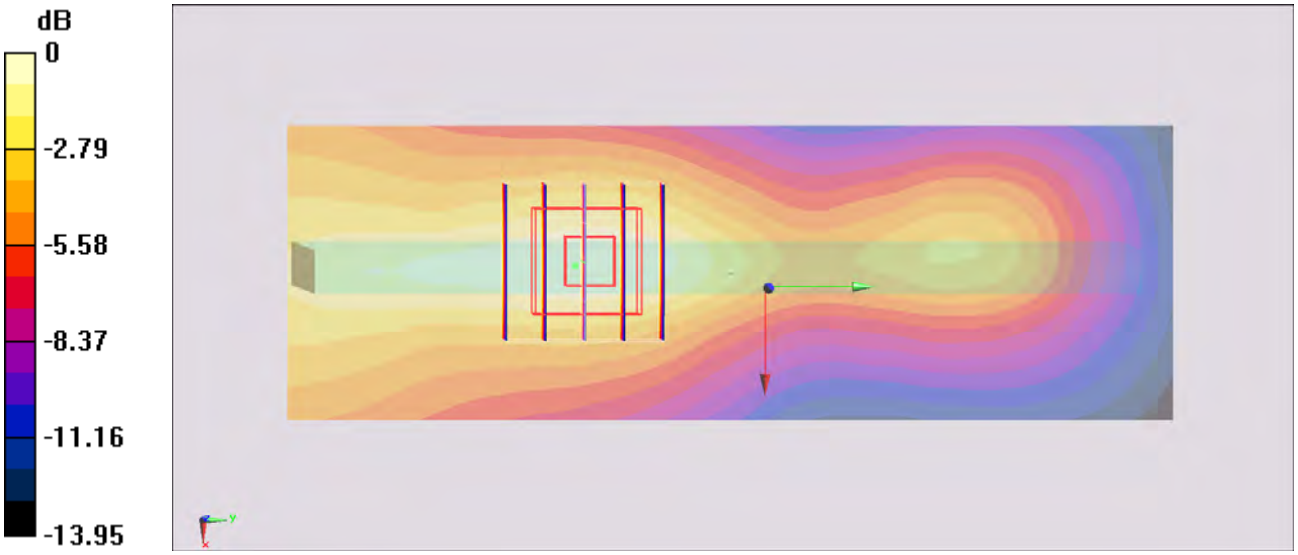
DUT: 332112-04

Communication System: WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130703 Medium parameters used: f = 1880 MHz; σ = 1.531 S/m; ε_r = 51.481; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: 1173
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9400/Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.355 W/kg

Configuration/Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.495 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.426 W/kg
SAR(1 g) = 0.269 W/kg; SAR(10 g) = 0.162 W/kg
Maximum value of SAR (measured) = 0.355 W/kg



0 dB = 0.355 W/kg = -4.50 dBW/kg

#160_WCDMA II_HSDPA Subtest-1_Front Face_0.5cm_Ch9262

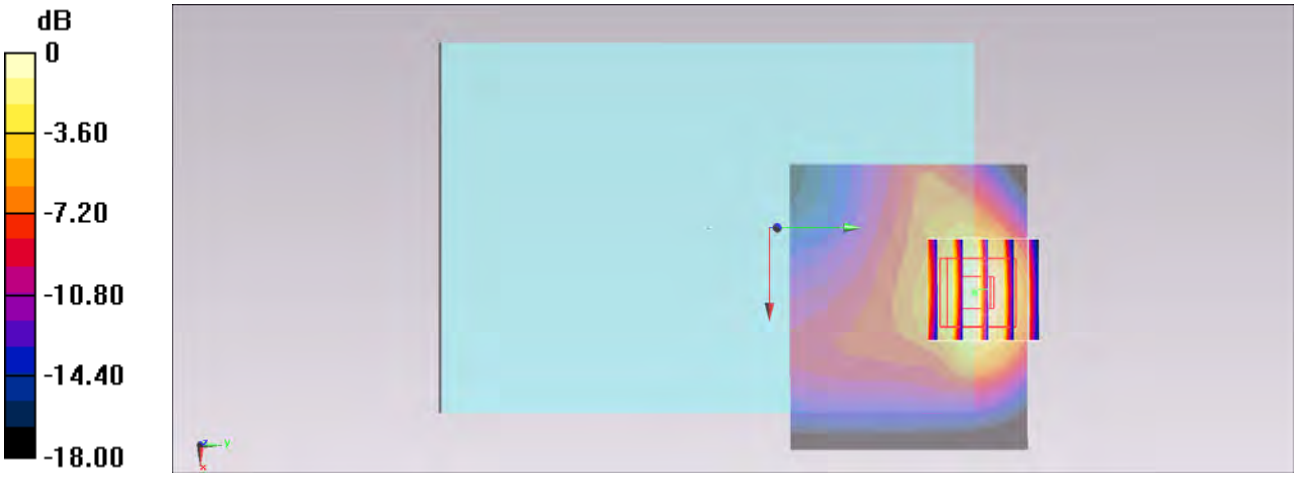
DUT: 332112-04

Communication System: WCDMA; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130801 Medium parameters used : f = 1852.4 MHz; σ = 1.49 S/m; ε_r = 53.057; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9262/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.88 W/kg

Configuration/Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 44.920 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 4.08 W/kg
SAR(1 g) = 2.26 W/kg; SAR(10 g) = 1.21 W/kg
Maximum value of SAR (measured) = 2.81 W/kg



0 dB = 2.81 W/kg = 4.49 dBW/kg

#161_WCDMA II_HSDPA Subtest-1_Front Face_0.5cm_Ch9400

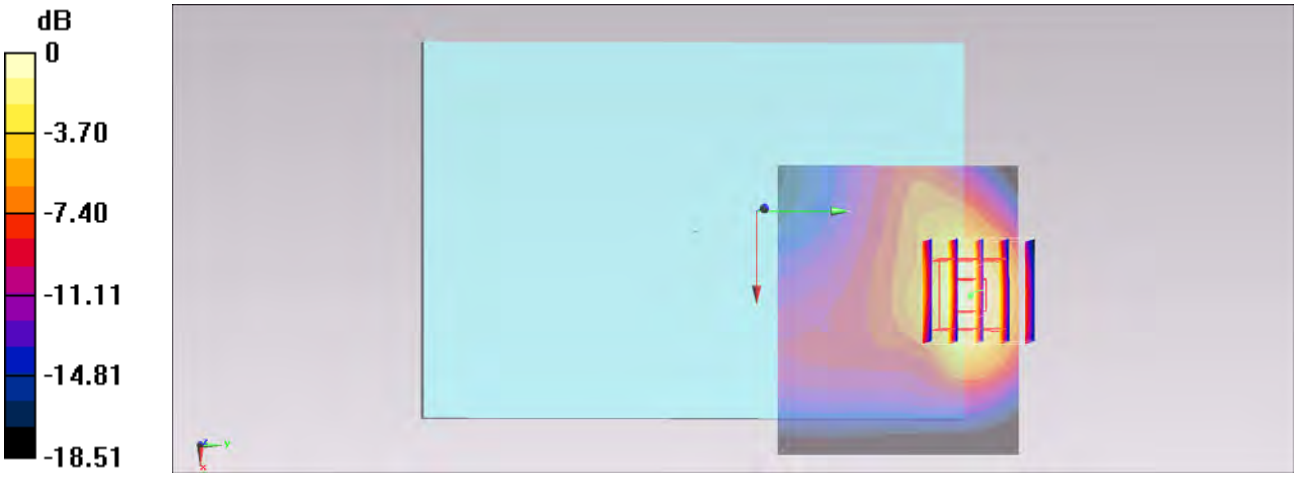
DUT: 332112-04

Communication System: WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130801 Medium parameters used: f = 1880 MHz; σ = 1.513 S/m; ε_r = 52.954; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9400/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.07 W/kg

Configuration/Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.221 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 4.49 W/kg
SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.29 W/kg
Maximum value of SAR (measured) = 3.01 W/kg



0 dB = 3.01 W/kg = 4.79 dBW/kg

#162_WCDMA II_HSDPA Subtest-1_Front Face_0.5cm_Ch9538

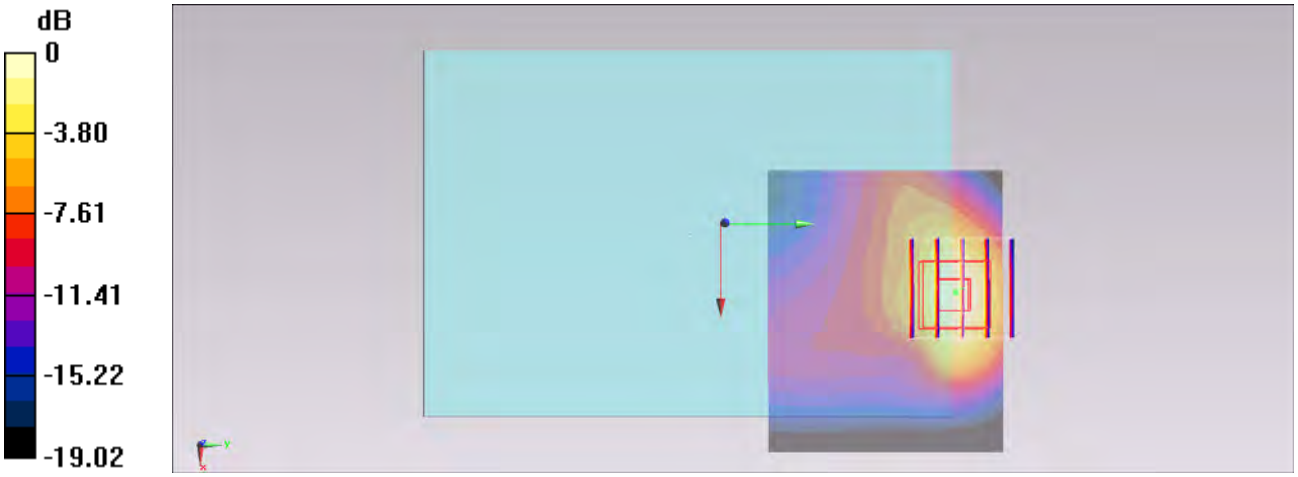
DUT: 332112-04

Communication System: WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130801 Medium parameters used: f = 1908 MHz; σ = 1.538 S/m; ε_r = 52.824; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3270; ConvF(4.67, 4.67, 4.67); Calibrated: 2012/9/28;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn778; Calibrated: 2012/8/27
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9538/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.34 W/kg

Configuration/Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.435 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 4.93 W/kg
SAR(1 g) = 2.66 W/kg; SAR(10 g) = 1.4 W/kg
Maximum value of SAR (measured) = 3.28 W/kg



0 dB = 3.28 W/kg = 5.16 dBW/kg

#163_WCDMA II_HSDPA Subtest-1_Bottom Face_0.5cm_Ch9262

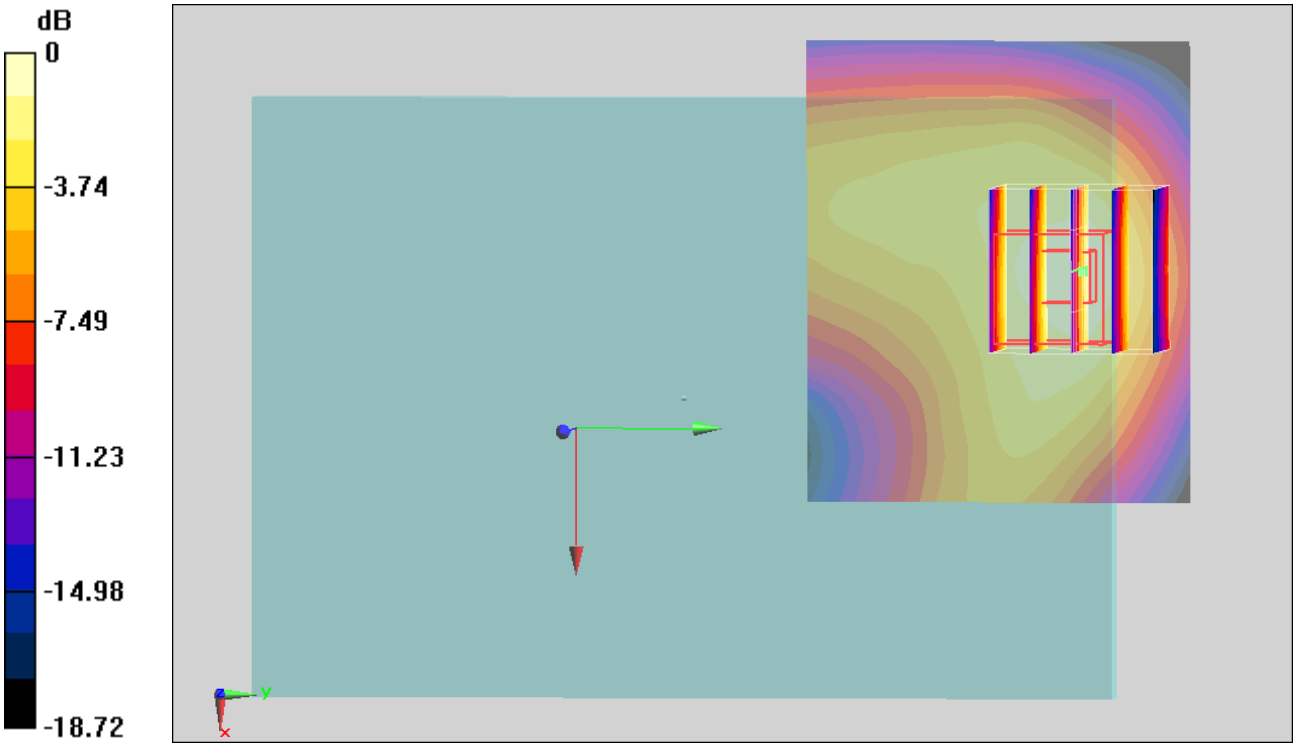
DUT: 332112-04

Communication System: WCDMA; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130828 Medium parameters used: f = 1852.4 MHz; σ = 1.478 S/m; ε_r = 53.849; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9262/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.37 W/kg

Configuration/Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.683 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.79 W/kg
SAR(1 g) = 1.26 W/kg; SAR(10 g) = 0.606 W/kg
Maximum value of SAR (measured) = 1.39 W/kg



0 dB = 1.39 W/kg = 1.43 dBW/kg

#164_WCDMA II_HSDPA Subtest-1_Bottom Face_0.5cm_Ch9400

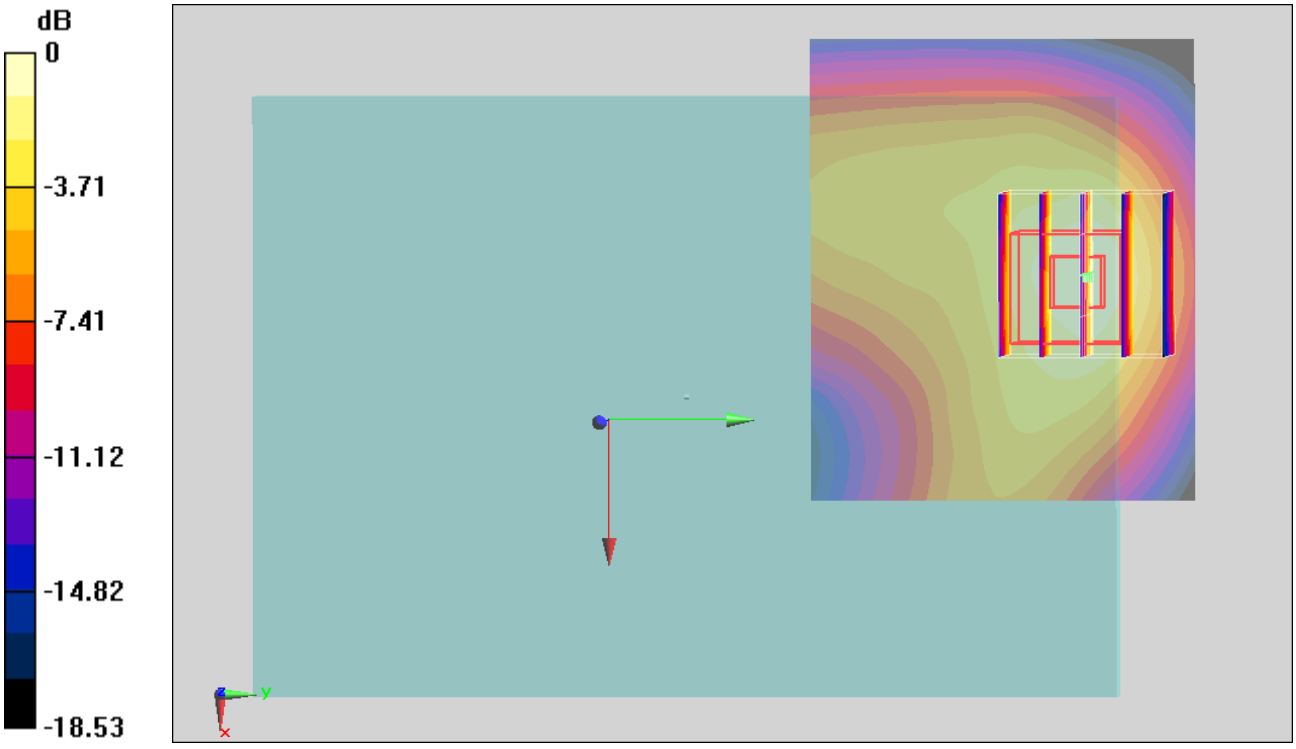
DUT: 332112-04

Communication System: WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130828 Medium parameters used: f = 1880 MHz; σ = 1.5 S/m; ε_r = 53.744; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9400/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.63 W/kg

Configuration/Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.044 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 2.09 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.682 W/kg
Maximum value of SAR (measured) = 1.63 W/kg



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

#165_WCDMA II_HSDPA Subtest-1_Bottom Face_0.5cm_Ch9538

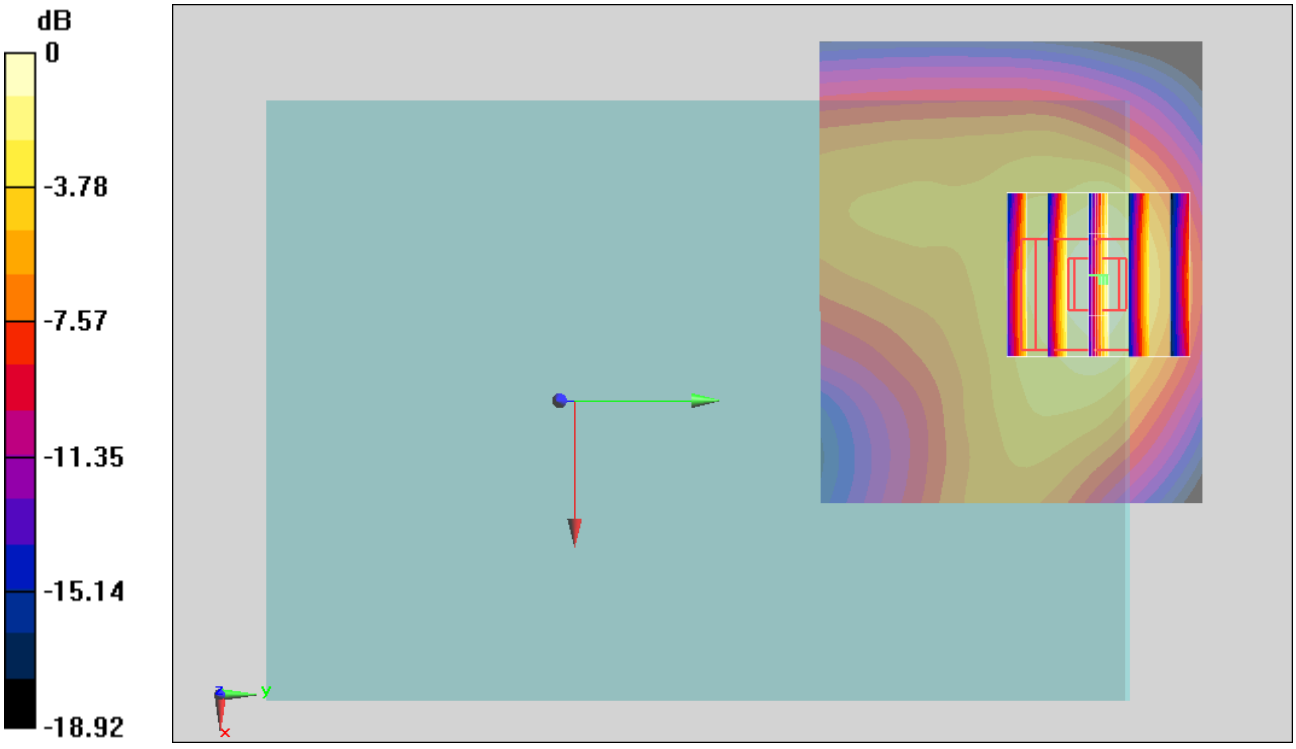
DUT: 332112-04

Communication System: WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130828 Medium parameters used: f = 1908 MHz; σ = 1.523 S/m; ε_r = 53.589; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9538/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.71 W/kg

Configuration/Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.081 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 2.28 W/kg
SAR(1 g) = 1.39 W/kg; SAR(10 g) = 0.713 W/kg
Maximum value of SAR (measured) = 1.78 W/kg



0 dB = 1.78 W/kg = 2.50 dBW/kg

#130_WCDMA II_HSDPA Subtest-1_Edge 1_0.5cm_Ch9262

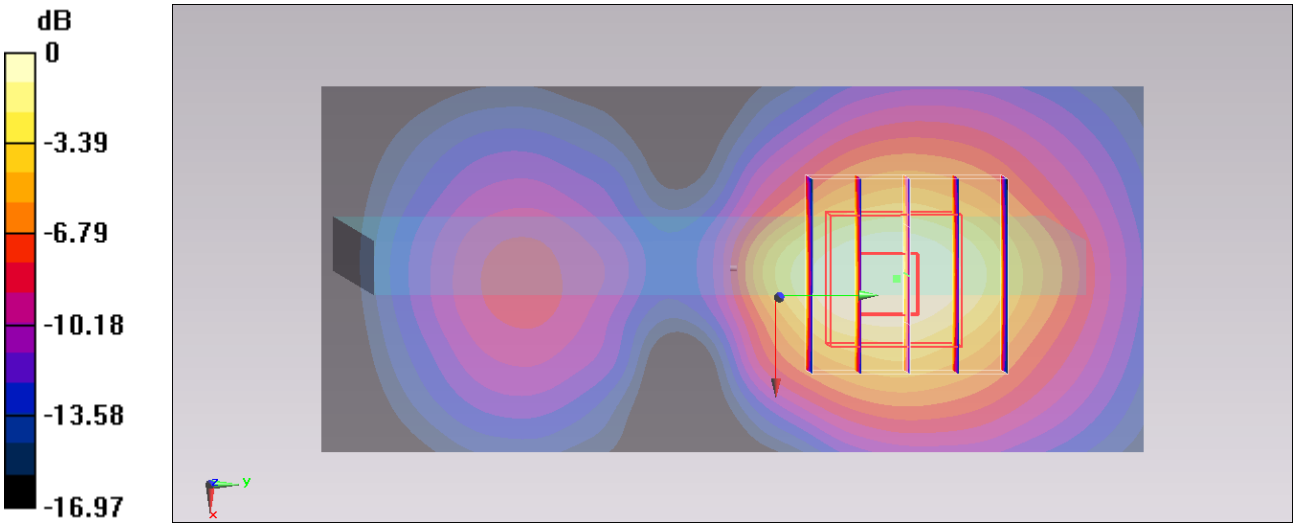
DUT: 332112-04

Communication System: WCDMA; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130709 Medium parameters used: f = 1852.4 MHz; σ = 1.505 mho/m; ε_r = 51.187; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch9262/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.38 mW/g

Configuration/Ch9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 39.118 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 2.743 mW/g
SAR(1 g) = 1.61 mW/g; SAR(10 g) = 0.884 mW/g
Maximum value of SAR (measured) = 2.15 mW/g



0 dB = 2.15 mW/g = 6.65 dB mW/g

#131_WCDMA II_HSDPA Subtest-1_Edge 1_0.5cm_Ch9400

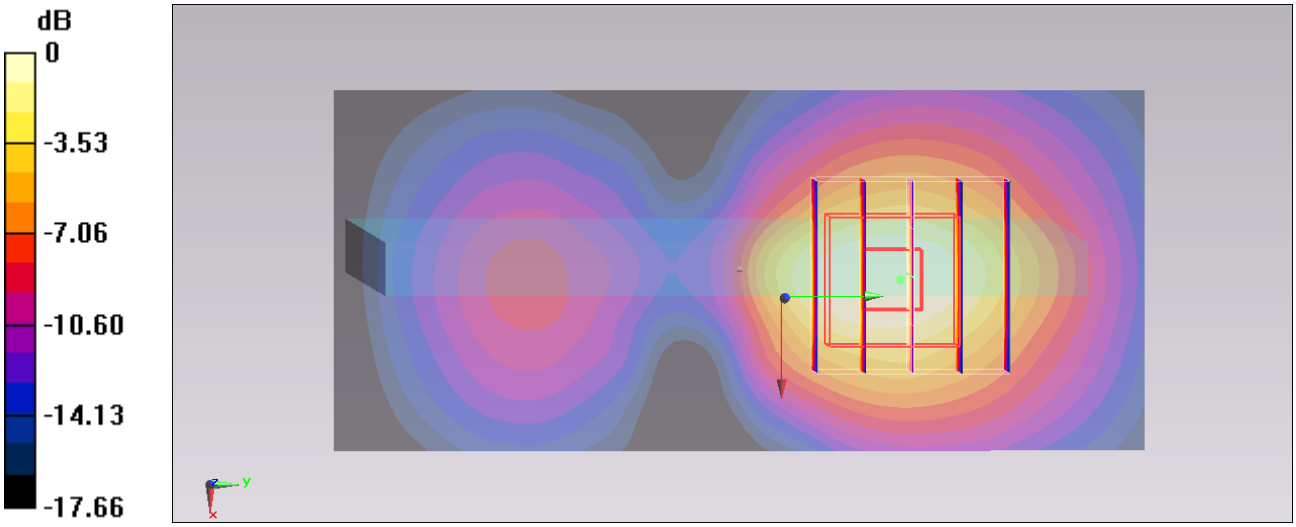
DUT: 332112-04

Communication System: WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130709 Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 51.17; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch9400/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.70 mW/g

Configuration/Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 41.144 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 3.159 mW/g
SAR(1 g) = 1.84 mW/g; SAR(10 g) = 1.000 mW/g
Maximum value of SAR (measured) = 2.47 mW/g



0 dB = 2.47 mW/g = 7.85 dB mW/g

#132_WCDMA II_HSDPA Subtest-1_Edge 1_0.5cm_Ch9538

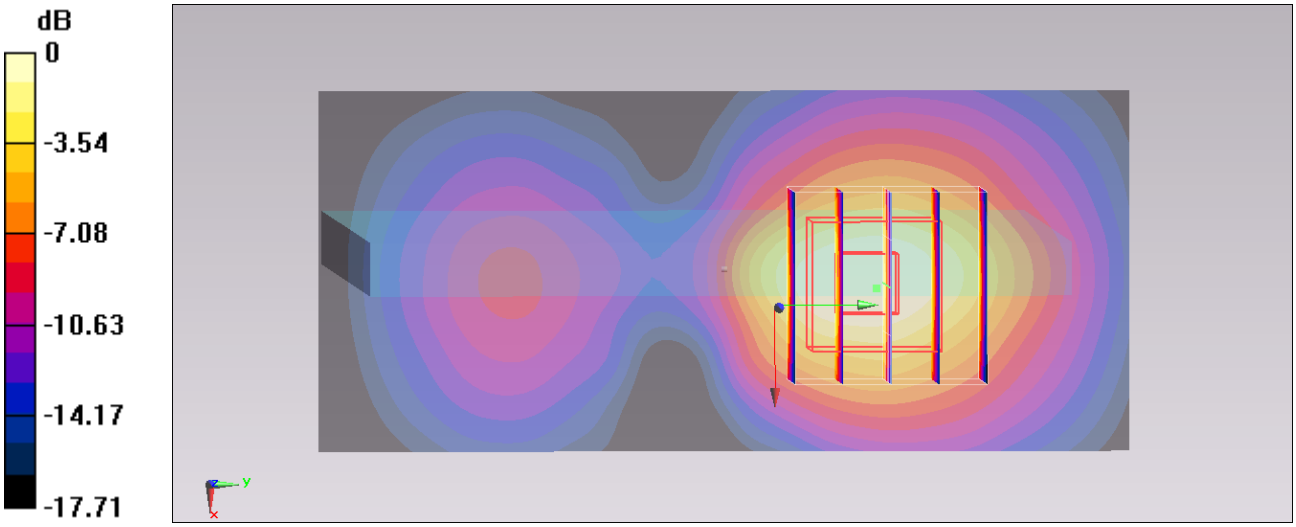
DUT: 332112-04

Communication System: WCDMA; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130709 Medium parameters used: f = 1908 MHz; σ = 1.573 mho/m; ε_r = 51.111; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1029
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch9538/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.95 mW/g

Configuration/Ch9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 42.895 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.512 mW/g
SAR(1 g) = 2.02 mW/g; SAR(10 g) = 1.09 mW/g
Maximum value of SAR (measured) = 2.78 mW/g



0 dB = 2.78 mW/g = 8.88 dB mW/g

#166_WCDMA II_HSDPA Subtest-1_Edge 2_0.5cm_Ch9400

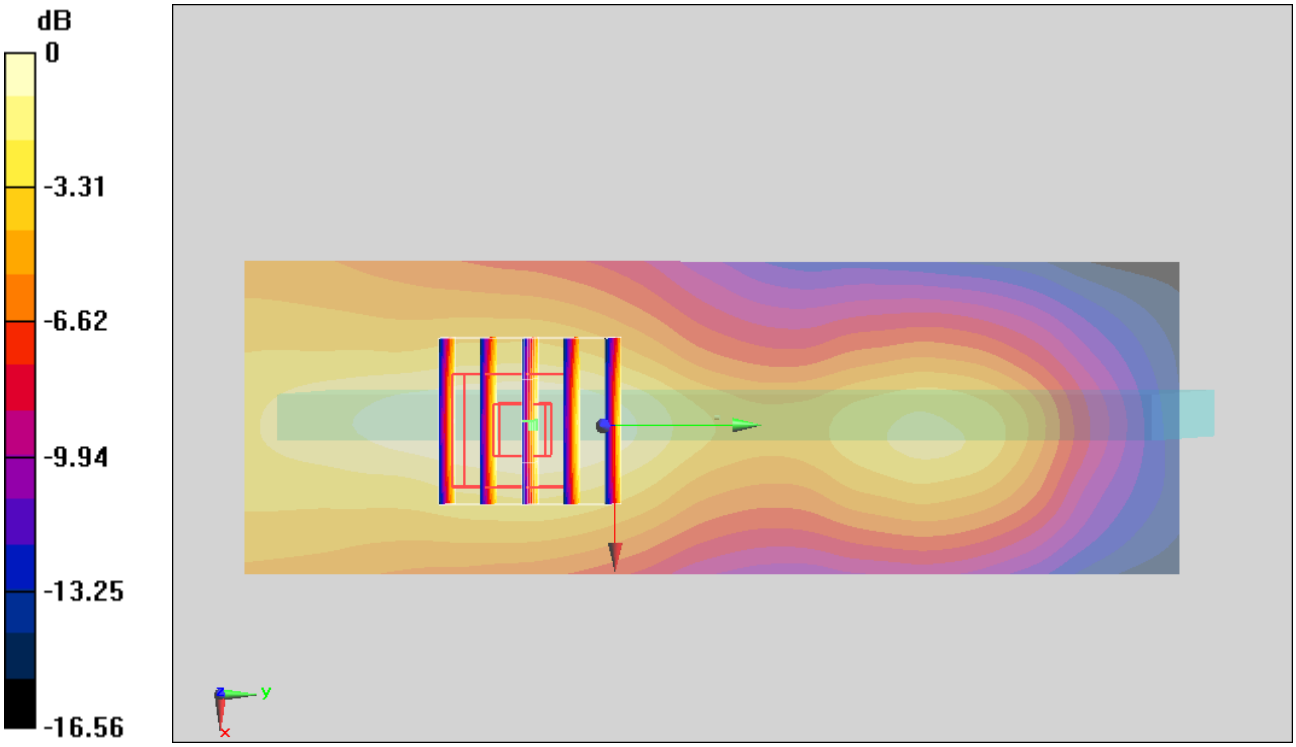
DUT: 332112-04

Communication System: WCDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_130828 Medium parameters used: f = 1880 MHz; σ = 1.5 S/m; ε_r = 53.744; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：22.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3925; ConvF(7.91, 7.91, 7.91); Calibrated: 2013/6/12;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2013/5/8
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1127
- Measurement SW: DASY52, Version 52.8 (6); SEMCAD X Version 14.6.9 (7117)

Configuration/Ch9400/Area Scan (41x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.377 W/kg

Configuration/Ch9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.767 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.436 W/kg
SAR(1 g) = 0.269 W/kg; SAR(10 g) = 0.160 W/kg
Maximum value of SAR (measured) = 0.351 W/kg



0 dB = 0.351 W/kg = -4.55 dBW/kg