No. 1 Workshop, M-10, Middle section, Science & Technology Park,
Nanshan District, Shenzhen, Guangdong, China 518057
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Email: ee.shenzhen@sgs.com

FCC SAR TEST REPORT

Application No.:	SZEM1409004946RF
Applicant:	UNION INFORMATION TECHNOLOGIES (USA) INC
Manufacturer/ Factory:	Shenzhen ACT Industrial Co., Ltd.
Product Name:	Eviant 10 3G
Model No.(EUT):	EVT10Q
Trade Mark:	EVIANT
FCC ID:	2AC7GEVT10Q
Standards:	IEEE Std C95(1991) IEEE1528(2003)
Date of Receipt:	2014-10-12
Date of Test:	2014-10-13 to 2014-10-15
Date of Issue:	2014-11-10
Test Result :	**PASS ***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Authorized Signature:

Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2014-11-10		Original

Authorized for issue by:		
Tested By	Chris-Zhong (Chris Zhong) /Project Engineer	2014-10-15 Date
Prepared By	Sade Luo. (Sade Luo) /Clerk	2014-11-10 Date
Checked By	Evan Mi (Evan Mi) /Reviewer	2014-11-13 Date

3 Test Summary

Frequency Band	Test position	Test mode	Max average SAR1-g(W/kg)	Conducted power (dBm)	Tune up Limit (dBm)	Scaled Factor	Scaled SAR (W/kg)	SAR limit (W/kg)	verdict
GSM850	Body	190/836.6	0.605	32.85	33.5	1.161	0.703	1.6	PASS
GSM1900		661/1880	0.994	29.26	31.0	1.493	**1.484**	1.6	PASS
WCDMA850		4182/836.6	0.271	23.38	25.0	1.452	0.394	1.6	PASS
WCDMA1900		9262/1852.4	0.411	24.12	25.0	1.225	0.503	1.6	PASS
WI-FI (2.4GHz)		11/2462	1.05	18.32	18.5	1.042	1.094	1.6	PASS
The highest simultaneous transmission SAR is 1.586 W/kg									

Remark: The maximum Scaled SAR value of **Body** is **1.484**W/kg.

4 Contents

5 General Information

5.1 Details of Applicant

Name:	UNION INFORMATION TECHNOLOGIES (USA) INC
Address:	20955 Pathfinder Road, Suite 100, Diamond Bar, CA 91765

5.2 Details of Manufacturer/ Factory

Name:	Shenzhen ACT Industrial Co., Ltd.
Address:	NO.5 Building, Beishan Industrial Park, Beishan Road, Yantian District, Shenzhen

5.3 General Description of EUT

Product Name:	Eviant 10 3G		
Model No.(EUT):	EVT10Q		
Trade Mark:	EVIANT		
Device Type :	portable device		
Product Phase:	production unit		
Exposure Category:	uncontrolled environment / general population		
Hardware Version:	V1.3		
Software Version:	V1.28		
FCC ID:	2AC7GEVT10Q		
Battery Information	Normal Voltage :11.1		
	Charging Voltage :15V		
	Rated capacity :2.5Ah		
	Battery Type :Rechargeable Li-ion Battery		
	Model: BP-2S		
Antenna Type:	Inner Antenna		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824-849	869-894
	GSM1900	1850-1910	1930-1990
	WCDMA850	824-849	869-894
	WCDMA1900	1850-1910	1930-1990
	WIFI	2412-2462	2412-2462
	BT	2402-2480	2402-2480
HSDPA UE Category:	14		
HSUPA UE Category	6		
Modulation Mode:	**GSM**:GMSK, QPSK **WCDMA:** QPSK **BT:** GFSK, π/4DQPSK, 8DPSK **WIFI:**IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(T20 and T40) : OFDM (64QAM, 16QAM, QPSK,BPSK)		

5.4 Description of Support Units

The EUT has been tested independently.

5.5 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab
No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057
Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

  CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **VCCI**

  The 3m Semi-anechoic chamber, Full-anechoic Chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197, G-416, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

  SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

- **Industry Canada (IC)**

  Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.

5.7 Deviation from Standards

None

5.8 Abnormalities from Standard Conditions

None

5.9 Other Information Requested by the Customer

None

5.10 Test Standards

Identity	Document Title
IEEE Std C95.1 – 1991	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2003	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB941225 D01	SAR test for 3G devices v02
KDB941225 D03	SAR Test Reduction GSMGPRSEDGE vo1
KDB447498 D01	General RF Exposure Guidance v05r02
KDB447498 D03	Supplement C Cross-Reference v01
KDB616217 D04	SAR for laptop and tablets v01r01
KDB 248227 D01	SAR meas for 802 11 a b g v01r02
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r02

5.11 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain)	**1.60 mW/g**	8.00 mW/g
Spatial Average SAR** (Whole Body)	0.08 mW/g	0.40 mW/g
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	4.00 mW/g	20.00 mW/g

Notes:

* The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

** The Spatial Average value of the SAR averaged over the whole body.

*** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation.)

5.12 Measurement Uncertainty

Measurements and results are all in compliance with the standards listed in section 12 of this report. All measurements and results are recorded and maintained at the laboratory performing the tests and measurement uncertainties are taken into account when comparing measurements to pass/ fail criteria. The Expanded uncertainty(95% CONFIDENCE INTERVAL) is **21.36%**.

A	b1	c	d	e = f(d,k)	g	i = C*g/e	k
Uncertainty Component	Section in P1528	Tol (%)	Prob . Dist.	Div.	Ci (1g)	1g ui (%)	Vi (Veff)
Probe calibration	E.2.1	6.3	N	1	1	6.30	∞
Axial isotropy	E.2.2	0.5	R	$\sqrt{3}$	$(1-\mathrm{Cp})^{1/2}$	0.20	∞
hemispherical isotropy	E.2.2	2.6	R	$\sqrt{3}$	$\sqrt{\mathrm{Cp}}$	1.06	∞
Boundary effect	E.2.3	1.0	R	$\sqrt{3}$	1	0.58	∞
Linearity	E.2.4	0.6	R	$\sqrt{3}$	1	0.35	∞
System detection limit	E.2.5	0.25	R	$\sqrt{3}$	1	0.14	∞
Readout electronics	E.2.6	0.3	N	1	1	0.30	∞
Response time	E.2.7	0	R	$\sqrt{3}$	1	0.00	∞
Integration time	E.2.8	2.6	R	$\sqrt{3}$	1	1.50	∞
RF ambient Condition –Noise	E.6.1	3	R	$\sqrt{3}$	1	1.73	∞
RF ambient Condition - reflections	E.6.1	3	R	$\sqrt{3}$	1	1.73	∞
Probe positioning- mechanical tolerance	E.6.2	1.5	R	$\sqrt{3}$	1	0.87	∞
Probe positioning- with respect to phantom	E.6.3	2.9	R	$\sqrt{3}$	1	1.67	∞
Max. SAR evaluation	E.5.2	1	R	$\sqrt{3}$	1	0.58	∞
Test sample positioning	E.4.2	3.7	N	1	1	3.70	9
Device holder uncertainty	E.4.1	3.6	N	1	1	3.60	∞
Output power variation –SAR drift measurement	6.6.2	5	R	$\sqrt{3}$	1	2.89	∞
Phantom uncertainty (shape and thickness tolerances)	E.3.1	4	R	$\sqrt{3}$	1	2.31	∞
Liquid conductivity - deviation from target values	E.3.2	5	R	$\sqrt{3}$	0.64	1.85	∞

Liquid conductivity - measurement uncertainty	E.3.2	5.78	N	1	0.64	3.68	5
Liquid permittivity - deviation from target values	E.3.3	5	R	$\sqrt{3}$	0.6	1.73	∞
Liquid permittivity - measurement uncertainty	E.3.3	0.62	N	1	0.6	0.372	5
Combined standard uncertainty				RSS		10.68	430
Expanded uncertainty (95% CONFIDENCE INTERVAL)				K=2		**21.36**	

Table 1： Measurement Uncertainty

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6 Equipments Used during Test

6.1 SPEAG DASY5

Test Platform	SPEAG DASY5 Professional
Location	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab
Description	SAR Test System (Frequency range 300MHz-3GHz) 835, 900, 1800, 1900, 2000, 2450 frequency band
Software Reference	DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Hardware Reference

	Model	Equipment	Serial Number	Calibration Date	Due date of calibration
☒	Robot	RX90L	F03/5V32A1/A01	NA	NA
☒	Twin Phantom	SAM 1	TP-1283	NA	NA
☐	Flat Phantom	ELI 5.0	1128	NA	NA
☒	DAE	DAE4	1303	2014-04-23	2015-04-22
☒	E-Field Probe	EX3DV4	3962	2013-12-10	2014-12-09
☒	Validation Kits	D835V2	4d015	2013-11-25	2014-11-24
☒	Validation Kits	D1900V2	184	2013-11-27	2014-11-26
☒	Validation Kits	D2450V2	733	2013-11-26	2014-11-25
☒	Agilent Network Analyzer	E5071B	MY42100549	2014-04-11	2015-04-11
☒	Dielectric Probe Kit	85070D	US01440210	NA	NA
☒	R&S Universal Radio Communication Tester	CMU200	103633	2014-04-11	2015-04-10
☒	RF Bi-Directional Coupler	ZABDC20-252H-N+	N989900825	2014-04-11	2015-04-10
☒	Agilent Signal Generator	E4438C	MY42082326	2014-04-11	2015-04-10
☒	Mini-Circuits Preamplifier	ZHL-42	QA0827002	2014-04-11	2015-04-10
☒	Agilent Power Meter	E4416A	GB41292095	2014-04-11	2015-04-10
☒	Agilent Power Sensor	8481H	MY41091234	2014-04-15	2015-04-14
☒	R&S Power Sensor	NRP-Z92	100025	2014-04-15	2015-04-14
☒	Attenuator	TS2-3dB	30704	2014-04-11	2015-04-10
☒	Coaxial low pass filter	VLF-2500(+)	NA	2014-04-11	2015-04-10
☒	50 Ω coaxial load	KARN-50+	00850	2014-04-11	2015-04-10
☒	DC POWER SUPPLY	SK1730SL5A	NA	2014-04-14	2015-04-13

Note: All the test equipments are calibrated once a year.

6.2 The SAR Measurement System

A photograph of the SAR measurement System is given in F-1.

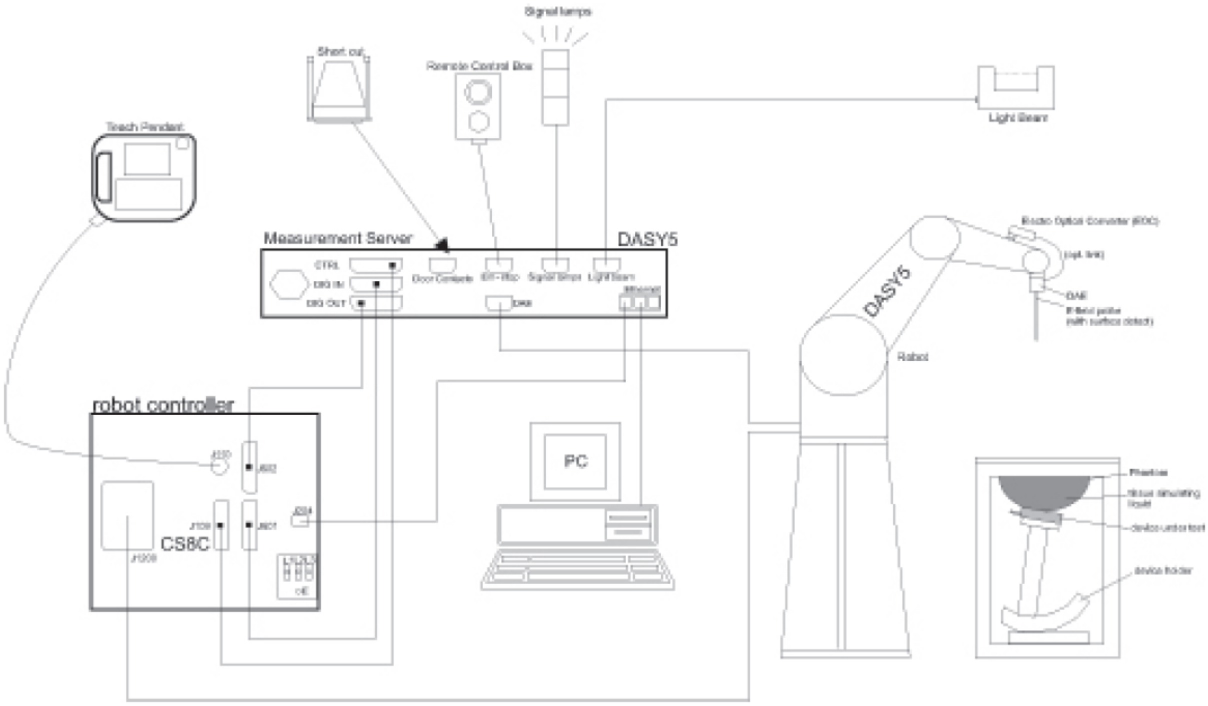
This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY5 professional system). A Model EX3DV4 3962 E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

The DASY5 system for performing compliance tests consists of the following items:
A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software .An arm extension for accommodation the data acquisition electronics (DAE).

A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.

A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.



F-1. SAR System Configuration

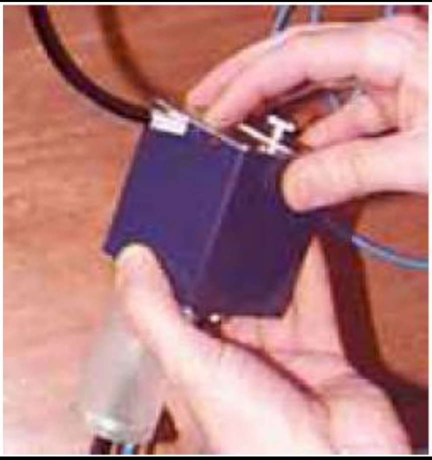
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand, right-hand and Body Worn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validating the proper functioning of the system.

6.3 Isotropic E-field Probe EX3DV4

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI

6.4 Data Acquisition Electronics (DAE)

Model	DAE3,DAE4
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)
Input Offset Voltage	< 5µV (with auto zero)
Input Bias Current	< 50 f A
Dimensions	60 x 60 x 68 mm



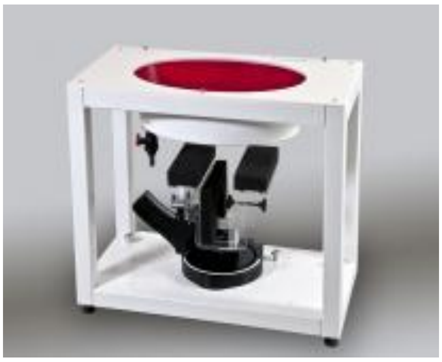
6.5 SAM Twin Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)
Dimensions (incl. Wooden Support)	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume	approx. 25 liters
Wooden Support	SPEAG standard phantom table

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.

6.6 ELI Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)	
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)	
Shell Thickness	2.0 ± 0.2 mm (bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	
Wooden Support	SPEAG standard phantom table	

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.

6.7 Device Holder for Transmitters

F-2. **Device Holder for Transmitters**

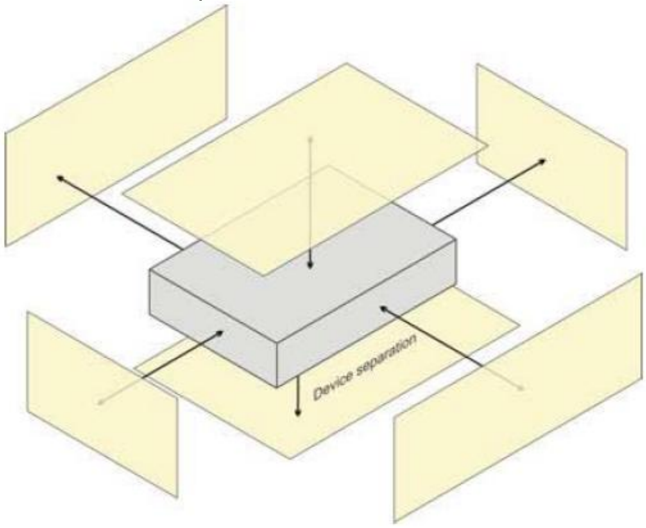
- The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source in 5mm distance, a positioning uncertainty of ±0.5mm would produce a SAR uncertainty of ±20%. An accurate device positioning is therefore crucial for 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 centres for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
- The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε=3 and loss tangentδ=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.

7 Description of Test Position

7.1 The Body Test Position

The SAR evaluation shall be performed for all surfaces of the DUT that are accessible during intended use, as indicated in Figure 3. The separation distance in testing shall correspond to the intended use distance as specified in the user instructions provided by the manufacturer. If the intended use is not specified, all surfaces of the DUT shall be tested directly against the flat phantom.

The surface of the generic device (or the surface of the carry accessory holding the DUT) pointing towards the flat phantom shall be parallel to the surface of the phantom.



F-3. **Test positions for a generic device**

8 SAR System Verification Procedure

8.1 Tissue Simulate Liquid

8.1.1 Recipes for Tissue Simulate Liquid

The bellowing tables give the recipes for tissue simulating liquids to be used in different frequency bands：

Ingredients (% by weight)	Frequency (MHz)									
	450		835		900		1800-2000		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	40.30	50.75	40.30	50.75	55.24	70.17	55.00	68.53
Salt (NaCl)	3.95	1.49	1.38	0.94	1.38	0.94	0.31	0.39	0.2	0.1
Sucrose	56.32	46.78	57.90	48.21	57.90	48.21	0	0	0	0
HEC	0.98	0.52	0.24	0	0.24	0	0	0	0	0
Bactericide	0.19	0.05	0.18	0.10	0.18	0.10	0	0	0	0
DGBE	0	0	0	0	0	0	44.45	29.44	44.80	31.37

Salt: 99^+% Pure Sodium Chloride

Sucrose: 98^+% Pure Sucrose

Water: De-ionized, 16 $M\Omega^+$ resistivity

HEC: Hydroxyethyl Cellulose

DGBE: 99^+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

Table 2： Recipe of Tissue Simulate Liquid

8.1.2 Measurement for Tissue Simulate Liquid

The dielectric properties for this Tissue Simulate Liquids were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Agilent E5071B Network Analyzer (300 KHz-8500 MHz). The Conductivity (σ) and Permittivity (ρ) are listed in Table 1.For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was 22±2°C.

Tissue Type	Measured Frequency （MHz）	Target Tissue Body(±5%)		Measured Tissue Body		Liquid Temp. (℃)	Measured Date
		εr	σ(S/m)	εr	σ(S/m)		
835	835	55.20 (52.44~57.96)	0.97 (0.92~1.02)	55.5	0.9864	22.1	2014/10/13
1900	1900	53.30 (50.64~55.97)	1.52 (1.44~1.60)	51.9	1.546	22.4	2014/10/14
2450	2450	52.70 (50.07~55.34)	1.95 (1.85~2.05)	51.68	1.951	22.2	2014/10/15

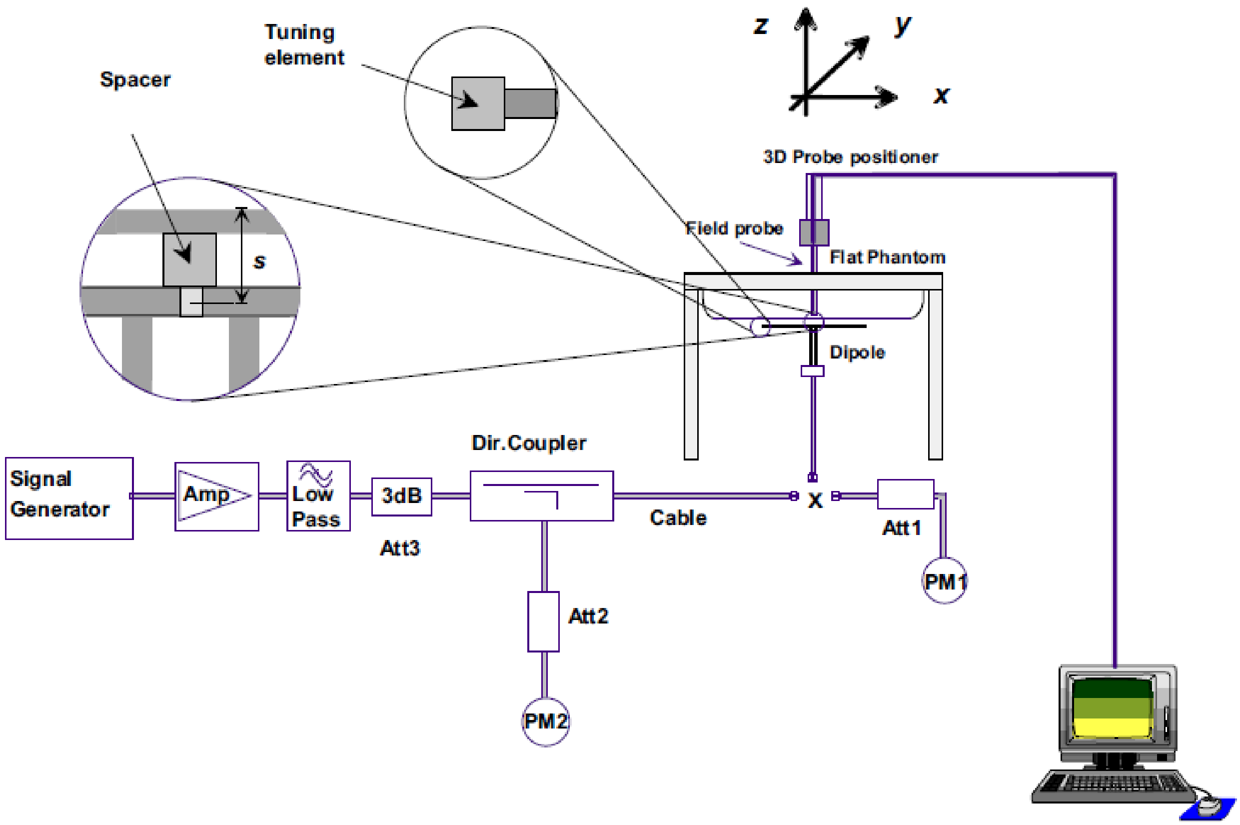
Table 3： Measurement result of Tissue electric parameters

Channel	Measured Frequency （MHz）	Target Tissue Body(±5%)		Measured Tissue Body		Liquid Temp. (℃)	Measured Date
		εr	σ(S/m)	εr	σ(S/m)		
128	824.2	55.20 (52.44~57.96)	0.97 (0.92~1.02)	55.59	0.9789	22.1	2014/10/13
190	837	55.20 (52.44~57.96)	0.97 (0.92~1.02)	55.4	0.9911		
251	849	55.20 (52.44~57.96)	0.99 (0.94~1.04)	55.29	1.012		
512	1850.2	53.30 (50.64~55.97)	1.52 (1.44~1.60)	52.1	1.49	22.4	2014/10/14
661	1880	53.30 (50.64~55.97)	1.52 (1.44~1.60)	51.97	1.516		
810	1910	53.30 (50.64~55.97)	1.52 (1.44~1.60)	52.01	1.559		
1	2412	52.75 (50.11~55.39)	1.91 (1.81~2.01)	51.83	1.905	22.2	2014/10/15
6	2437	52.72 (50.08~55.35)	1.94 (1.84~2.04)	51.75	1.934		
11	2462	52.68 (50.05~55.31)	1.97 (1.87~2.07)	51.6	1.966		

Table 4： Measurement result of Tissue electric parameters for Low/Mid/High Channel.

8.2 SAR System Validation

The microwave circuit arrangement for system verification is sketched in F-4. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the table 5 (A power level of 250mw was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range 22°C, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



F-1. the microwave circuit arrangement used for SAR system verification

PM1. Power Sensor NRP-Z92

PM2. Agilent Model E4416A Power Meter

8.2.1 Summary System Validation Result(s)

Validation Kit		Target SAR (normalized to 1w) (±10%)		Measured SAR (normalized to 1w)		Liquid Temp. (℃)	Measured date
		1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D835V2	Body	9.28 (8.352~10.208)	6.36 (5.454~6.666)	9.64	6.28	22.1	2014/10/13
D1900V2	Body	40.6 (36.54~44.66)	21.4 (19.44~23.76)	42.8	21.64	22.4	2014/10/14
D2450V2	Body	49.4 (44.46~54.34)	23.0 (20.7~25.3)	47.6	21.4	22.2	2014/10/15

Table 5： SAR System Validation Result

8.2.2 Detailed System Validation Results

Please see the Appendix A

9 Test results and Measurement Data

9.1 Operation Configurations

9.1.1 GSM Test Configuration

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a base station by air link. Using CMU200 the power lever is set to "5"and "0" in SAR of GSM 850 and GSM 1900. The tests in the band of GSM 850 and GSM 1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

9.1.2 WCDMA Test Configuration

1) RMC

As the SAR body tests for WCDMA Band II and Band V, we established the radio link through call processing. The maximum output power were verified on high, middle and low channels for each test band according to 3GPP TS 34.121 with the following configuration:

⑴ 12.2kbps RMC, 64,144,384 kbps RMC with TPC set to"all 1".

⑵Test loop Mode 1.

For the output power, the configurations for the DPCCH and DPDCH1 are as followed (EUT do not support the DPDCH2-n)

	ChannelBit Rate (kbps)	Channel SymbolRate (ksps)	Spreading Factor	Spreading Code Number	Bits/Slot
DPCCH	15	15	256	0	10
DPDCH1	15	15	256	64	10
	30	30	128	32	20
	60	60	64	16	40
	120	120	32	8	80
	240	240	16	4	160
	480	480	8	2	320
	960	960	4	1	640
DPDCHn	960	960	4	1, 2, 3	640

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits configured to all "1s". SAR for other spreading codes and multiple DPDCHn, when supported by the EUT, are not required when the maximum average outputs of each RF channel, for each spreading code and DPDCHn configuration, are less than ¼ dB higher than those measured in 12.2 kbps RMC.

2) HSDPA

SAR for body exposure configurations is measured according to the “Body SAR Measurements”“ procedures of 3G device. In addition, body SAR is also measured for HSDPA when the maximum average outputs of each RF channel with HSDPA active is at ¼ dB higher than that measured without HSDPA using 12.2kbps RMC or the maximum SAR 12.2kbps RMC is above 75% of the SAR limit. Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA.

HSDPA should be configured according to UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HAPRQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission condition, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. The c and d gain factors for DPCCH and DPDCH were set according to the values in the below table, hs for HS-DPCCH is set automatically to the correct value when ΔACK, ΔNACK, ΔCQI = 8. The variation of the βc /βd ratio causes a power reduction at sub-tests 2 - 4.

Sub-test	βc	βd	βd(SF)	βc/βd	βhs	CM(dB)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	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

Note1: ∆ACK, ∆NACK and ∆CQI= 8 Ahs = βhs/βc=30/15 βhs=30/15*βc

Note2: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 5.13.1.A,and HSDPA EVM with phase discontinuity in clause 5.13.1AA, ∆ACK and ∆NACK= 8 (Ahs=30/15) with βhs=30/15*βc,and ∆CQI= 7 (Ahs=24/15) with βhs=24/15*βc.

Note3: CM=1 forβc/βd =12/15, βhs/βc=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.

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI‟s
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 6： settings of required H-Set 1 QPSK acc. to 3GPP 34.121

HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	MaximumH S-DSCH Transport BlockBits/HS-DSCH TTI	Total Soft Channel Bits
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

Table 7： HSDPA UE category

3) HSUPA

Body SAR is also measured for HSUPA when the maximum average outputs of each RF channel with HSUPA active is at ¼ dB higher than that measured without HSUPA using 12.2kbps RMC or the maximum SAR 12.2kbps RMC is above 75% of the SAR limit. Body SAR for HSUPA is measured with E-DCH Sub-test 5, using H-set 1 and QPSK for FRC and 12.2kbps RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.2 kbps RMC without HSUPA.

Due to inner loop power control requirements in HSUPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSUPA should be configured according to the values indicated below as well as other applicable procedures described in the „WCDMA Handset‟ and „Release 5 HSUPA Data Device‟ sections of 3G device.

Sub-test	c	d	d (SF)	c/ d	hs(1)	ec	ed	ec (SF)	ed (code)	CM (2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	ed1:47/15 ed2:47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ ACK, Δ NACK and Δ CQI = 8 Ahs = hs/ c = 30/15 hs = 30/15 * c

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

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

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

Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g

Note 6: ed can not be set directly; it is set by Absolute Grant Value.

Table 8： Subtests for UMTS Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Speading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF4	11484	5.76
	4	4	2		20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF4	22996	?
	4	4	10		20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4.UE categories 1 to 6 support QPSK only.UE category 7 supports QPSK.(TS25.306-7.3.0).

Table 9： HSUPA UE category

9.1.3 WiFi Test Configuration

For the 802.11b/g/n SAR tests, a communication link is set up with the test mode software for Wi-Fi mode test. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 1, 6 and 11 respectively in the case of 2450 MHz during the test at the each test frequency channel .the EUT is operated at the RF continuous emission mode. Each channel should be tested at the lowest rate.802.11b/g/n operating modes are tested independently according to the service requirements in each frequency band. 802.11b/g/n modes are tested on channel 1, 6, 11; however if output power reduction is necessary for channels 1 and/or 11 to meet restricted band requirements the highest output channel closest to each of these channels must be tested instead.

SAR is not required for 802.11g/n channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels.

Mode	GHz	Channel	Turbo Channel	"Default Test Channels"			
				§15.247		UNII	
				802.11b	802.11g		
802.11 b/g	2.412	1[#]		√	∇		
	2.437	6	6	√	∇		
	2.462	11[#]		√	∇		

9.2 Measurement procedure

9.2.1 Scanning procedure

Step 1: Power reference measurement

The SAR measurement was taken at a selected spatial reference point to monitor power variations during testing. This fixed location point was measured and used as a reference value.

Step 2: *Area scan*

The SAR distribution at the exposed side of the head was measured at a distance of 4mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm*15mm or 10mm*10mm.Based on the area scan data, the area of the maximum absorption was determined by spline interpolation.

Step 3: *Zoom scan*

Around this point, a volume of 30mm*30mm*30mm (fine resolution volume scan, zoom scan) was assessed by measuring 7*7*7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

The data at the surface was extrapolated, since the centre of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification).The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points (10*10*10) were interpolated to calculate the average. All neighbouring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Power reference measurement (drift)

The SAR value at the same location as in step 1 was again measured. (If the value changed by more than 5%, the evaluation should be done repeatedly)

9.2.2 Data Storage

The DASY4 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DAE3". The 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 incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [m W/g], [m W/cm^2], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

9.2.3 Data Evaluation by SEMCAD

The SEMCAD software 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	Normi, 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	ε
	- 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 DASY4 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf / dcp_i$$

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: $$E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$$

H-field probes: $$H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$$

With
V_i = compensated signal of channel i (i = x, y, z)
$Norm_i$ = sensor sensitivity of channel I (i = x, y, z) [mV/(V/m)2] for E-field Probes
$ConvF$ = sensitivity enhancement in solution
a_{ij} = sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
E_i = electric field strength of channel i in V/m
H_i = magnetic field strength of channel i in A/m

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

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

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

$$SAR = (Etot^2 \cdot \sigma) / (\varepsilon \cdot 1000)$$

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]

ε= equivalent tissue density in g/cm3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}{}^2{}_2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}{}^2 \cdot 37.7$$

with P_{pwe} = equivalent power density of a plane wave in mW/cm2

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

H_{tot} = total magnetic field strength in A/m

9.3 Measurement of RF conducted Power

9.3.1 Conducted Power Of GSM850

Burst-Average Out Put Power(dBm)					Division Factors	Frame-Average Out Put Power(dBm)		
Channel		128	190	251		128	190	251
GPRS(GMSK)	1 TX Slot	33.16	33.36	33.52	-9.19	23.97	24.17	24.33
	2 TX Slots	33.08	33.22	33.45	-6.18	26.90	27.04	27.27
	3 TX Slots	32.94	33.07	33.22	-4.42	28.52	28.65	28.8
	4 TX Slots	32.70	32.85	33.08	-3.17	29.53	**29.68**	29.91
EGPRS(GMSK)	1 TX Slot	33.12	33.34	33.47	-9.19	23.93	24.15	24.28
	2 TX Slots	33.01	33.18	33.41	-6.18	26.83	27.00	27.23
	3 TX Slots	32.89	33.01	33.18	-4.42	28.47	28.59	28.76
	4 TX Slots	32.65	32.81	33.02	-3.17	29.48	29.64	29.85
EGPRS(8PSK)	1 TX Slot	25.84	25.99	26.06	-9.19	16.65	16.80	16.87
	2 TX Slots	25.78	25.88	25.93	-6.18	19.60	19.70	19.75
	3 TX Slots	25.65	25.76	25.84	-4.42	21.23	21.34	21.42
	4 TX Slots	25.61	25.73	25.74	-3.17	22.44	22.56	22.57

Table 10：Conducted Power Of GSM850

9.3.2 Conducted Power Of GSM1900

Burst-Average Out Put Power(dBm)					Division Factors	Frame-Average Out Put Power(dBm)		
Channel		512	661	810		512	661	810
GPRS(GMSK)	1 TX Slot	29.83	29.74	29.64	-9.19	20.64	20.55	20.45
	2 TX Slots	28.7	29.6	29.54	-6.18	22.52	23.42	23.36
	3 TX Slots	29.54	29.44	29.4	-4.42	25.12	25.02	24.98
	4 TX Slots	29.31	29.26	29.25	-3.17	26.14	**26.09**	26.08
EGPRS(GMSK)	1 TX Slot	29.79	29.69	29.61	-9.19	20.60	20.50	20.42
	2 TX Slots	28.67	29.58	29.52	-6.18	22.49	23.4	23.34
	3 TX Slots	29.51	29.41	29.36	-4.42	25.09	24.99	24.94
	4 TX Slots	29.28	29.22	29.22	-3.17	26.11	26.05	26.05
EGPRS(8PSK)	1 TX Slot	24.8	24.91	24.84	-9.19	15.61	15.72	15.65
	2 TX Slots	24.67	24.8	24.76	-6.18	18.49	18.62	18.58
	3 TX Slots	24.58	24.59	24.54	-4.42	20.16	20.17	20.12
	4 TX Slots	24.37	24.49	24.44	-3.17	21.20	21.32	21.27

Table 11：Conducted Power Of GSM1900

Note:

1) CMU200 measures GSM peak and average output power for active timeslots. For SAR the time based average power is relevant. The difference in between depends on the duty cycle of the TDMA signal:

No. of timeslots	1	2	3	4
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.075
Time based avg. power compared to slotted avg. power	-9.19	-6.18	-4.42	-3.17

2) The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power = 10 x log (Burst-averaged power mW x Slot used / 8

3) Per KDB 941225 D03v01,the bolded GPRS 4Tx slots mode was selected for SAR testing according to the highest frame –averaged output power table.

4) Per KDB 447498 D01v05r02,When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used

9.3.3 Conducted Power Of WCDMA850

Average Conducted Power(dBm)				
Channel		4132	4182	4233
WCDMA	12.2kbps RMC	23.44	**23.38**	23.47
	64kbps RMC	23.52	23.44	23.52
	144kbps RMC	23.48	23.49	23.49
	384kbps RMC	23.48	23.43	23.53
HSDPA	Subtest 1	22.49	22.35	22.47
	Subtest 2	22.4	22.44	22.48
	Subtest 3	21.98	21.93	21.67
	Subtest 4	21.63	21.92	22.09
HSUPA	Subtest 1	22.2	21.79	22.03
	Subtest 2	20.85	21.28	21.28
	Subtest 3	20.59	20.83	21.01
	Subtest 4	21.3	21.48	21.57
	Subtest 5	21.69	21.81	21.84

Table 12：Conducted Power Of WCDMA850

9.3.4 Conducted Power Of WCDMA1900

Average Conducted Power(dBm)				
Channel		9262	9400	9538
WCDMA	12.2kbps RMC	**24.12**	23.55	23.61
	64kbps RMC	24.14	23.63	23.63
	144kbps RMC	24.15	23.61	23.62
	384kbps RMC	24.2	23.61	23.59
HSDPA	Subtest 1	23.18	22.44	22.62
	Subtest 2	23.1	22.15	22.63
	Subtest 3	22.24	21.92	22.14
	Subtest 4	22.54	21.91	22.13
HSUPA	Subtest 1	23.03	22.37	22.3
	Subtest 2	21.63	21.12	20.98
	Subtest 3	21.91	21.35	20.67
	Subtest 4	22.03	21.36	21.62
	Subtest 5	22.53	21.99	21.91

Table 13：Conducted Power Of WCDMA1900

1) Per KDB 941225 D01v02 SAR is not required for handsets with HSDPA/HSUPA capabilities when the maximum average output of each RF channel with HSDPA/HSUPA active is less than ¼ dB higher than that measured without HSDPA/HSUPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75% of the SAR limit.
2) Per KDB 447498 D01v05r02,When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used

9.3.5 Conducted Power Of WIFI

Wi-Fi 2450MHz	Average Power (dBm) for Data Rates (Mbps)								
	Channel	1	2	5.5	11	/	/	/	/
802.11b	1	17.56	17.24	15.72	15.58	/	/	/	/
	6	18.05	17.78	16.24	16.05	/	/	/	/
	11	**18.32**	18.02	16.52	16.31	/	/	/	/
802.11g	Channel	6	9	12	18	24	36	48	54
	1	14.64	14.47	14.44	14.36	13.94	13.89	13.66	13.53
	6	14.96	14.76	14.72	14.65	14.22	14.14	13.95	13.82
	11	15.18	15.02	14.96	14.88	14.42	14.35	14.12	14.01
802.11n HT20	Channel	6.5	13	19.5	26	39	52	58.5	65
	1	14.71	14.62	14.49	14.42	14.15	13.8	13.73	13.65
	6	15.04	14.92	14.78	14.74	14.43	14.12	14.05	13.96
	11	15.22	15.13	15.04	14.99	14.65	14.34	14.25	14.14
802.11n HT40	Channel	13.5	27	40.5	54	81	108	121.5	135
	3	14.88	14.85	14.81	14.72	14.68	14.32	14.18	13.99
	6	15.13	15.1	15.08	15.01	14.95	14.6	14.45	14.26
	9	15.27	15.21	15.18	15.12	15.04	14.71	14.55	14.38

Table 14：Conducted Power Of WIFI

Note：

1) Indicates default channels per KDB Publication 248227 D01v01r02. When the adjacent channels are higher in power then the default channels, these “required channels” are considered for SAR testing instead of the default channels.
2) For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 0.25dB higher than those measured at the lowest data rate.
3) SAR is not required for 802.11g/n channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels.

9.3.6 Conducted Power Of BT

BT:

Mode		Average Conducted Power(dBm)		
Band	Channel	GFSK	π/4DQPSK	8DPSK
BT	0	1.05	0.47	1.17
	39	1.12	0.86	1.28
	78	1.24	1.12	**1.35**

BLE:

Mode		Average Conducted Power(dBm)
Band	Channel	GFSK
BT 2.45GHz	0	0.52
	39	0.89
	78	**1.13**

Table 15：Conducted Power Of BT

9.4 Measurement of SAR average value

9.4.1 SAR Result Of GSM850

Test position		Test mode	Test ch./Freq.	SAR (W/kg)		Power drifit (dB)	Scaled SAR (1-g)	SAR limit (W/kg)	Liquid Temp.
				1-g	10-g				
Body	Back side 0mm	GPRS 4TS	190/836.6	0.605	0.349	-0.19	**0.703**	1.6	22.1
	Right side 0mm	GPRS 4TS	190/836.6	0.134	0.0754	-0.05	0.156	1.6	22.1
	Top side 0mm	GPRS 4TS	190/836.6	0.057	0.031	-0.17	0.066	1.6	22.1

Table 16：SAR of GSM850 for Body

9.4.2 SAR Result Of GSM1900

Test position		Test mode	Test ch./Freq.	SAR (W/kg)		Power drifit (dB)	Scaled SAR (1-g)	SAR limit (W/kg)	Liquid Temp.
				1-g	10-g				
Body	Back side 0mm	GPRS 4TS	661/1880	0.992	0.528	-0.14	1.481	1.6	22.4
	Back side 0mm	GPRS 4TS	512/1850.2	0.963	0.54	0.09	1.438	1.6	22.4
	Back side 0mm	GPRS 4TS	810/1909.8	0.906	0.516	0.13	1.352	1.6	22.4
	Top side 0mm	GPRS 4TS	661/1880	0.086	0.057	0.05	0.128	1.6	22.4
	Right side 0mm	GPRS 4TS	661/1880	0.912	0.386	-0.05	1.361	1.6	22.4
	Back side 0mm-repeat	GPRS 4TS	661/1880	0.994	0.524	-0.18	**1.484**	1.6	22.4

Table 17：SAR of GSM1900 for Body

9.4.3 SAR Result Of WCDMA850

Test position		Test mode	Test ch./Freq.	SAR (W/kg)		Power drifit (dB)	Scaled SAR (1-g)	SAR limit (W/kg)	Liquid Temp.
				1-g	10-g				
Body	Back side 0mm	RMC	4182/836.6	0.271	0.182	0.05	**0.394**	1.6	22.1
	Top side 0mm	RMC	4182/836.6	0.043	0.035	-0.15	0.063	1.6	22.1
	Right side 0mm	RMC	4182/836.6	0.048	0.029	-0.18	0.070	1.6	22.1

Table 18： SAR of WCDMA850 for Body

9.4.4 SAR Result Of WCDMA1900

Test position		Test mode	Test ch./Freq.	SAR (W/kg)		Power drifit (dB)	Scaled SAR (1-g)	SAR limit (W/kg)	Liquid Temp.
				1-g	10-g				
Body	Back side 0mm	RMC	9262/1852.4	0.402	0.175	0.102	0.492	1.6	22.4
	Top side 0mm	RMC	9262/1852.4	0.035	0.017	0.012	0.043	1.6	22.4
	Right side 0mm	RMC	9262/1852.4	0.411	0.175	-0.03	**0.503**	1.6	22.4

Table 19： SAR of WCDMA1900 for Body

Note:

1) Test positions of EUT(the distance between the EUT and the phantom is 0mm for all sides)
2) The maximum Scaled SAR value is marked in **bold.**
3) Per FCC KDB Publication 447498 D01v05r02, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
4) Per KDB865664 D01v01r02,for each frequency band repeated SAR measurement is required only when the measured SAR is ≥0.8W/Kg; if the deviation among the repeated measurement is ≤20%,and the measured SAR <1.45W/Kg, only one repeated measurement is required.

9.4.5 SAR Result Of WIFI

Test position		Test mode	Test Ch./Freq	SAR (W/kg)		Power drifit (dB)	Scaled SAR (1-g)	SAR limit (W/kg)	Liquid Temp. (℃)
				1-g	10-g				
Body	Back side 0mm	802.11b	11/2462	1.04	0.535	0.2	1.084	1.6	22.2
	Back side 0mm	802.11b	6/2437	0.93	0.492	-0.02	1.032	1.6	22.2
	Back side 0mm	802.11b	1/2412	0.777	0.42	-0.05	0.965	1.6	22.2
	Left side 0mm	802.11b	11/2462	0.245	0.111	-0.04	0.255	1.6	22.2
	Top side 0mm	802.11b	11/2462	0.115	0.080	0.16	0.120	1.6	22.2
	Back side 0mm-repeat	802.11b	11/2462	1.05	0.545	0.18	**1.094**	1.6	22.2

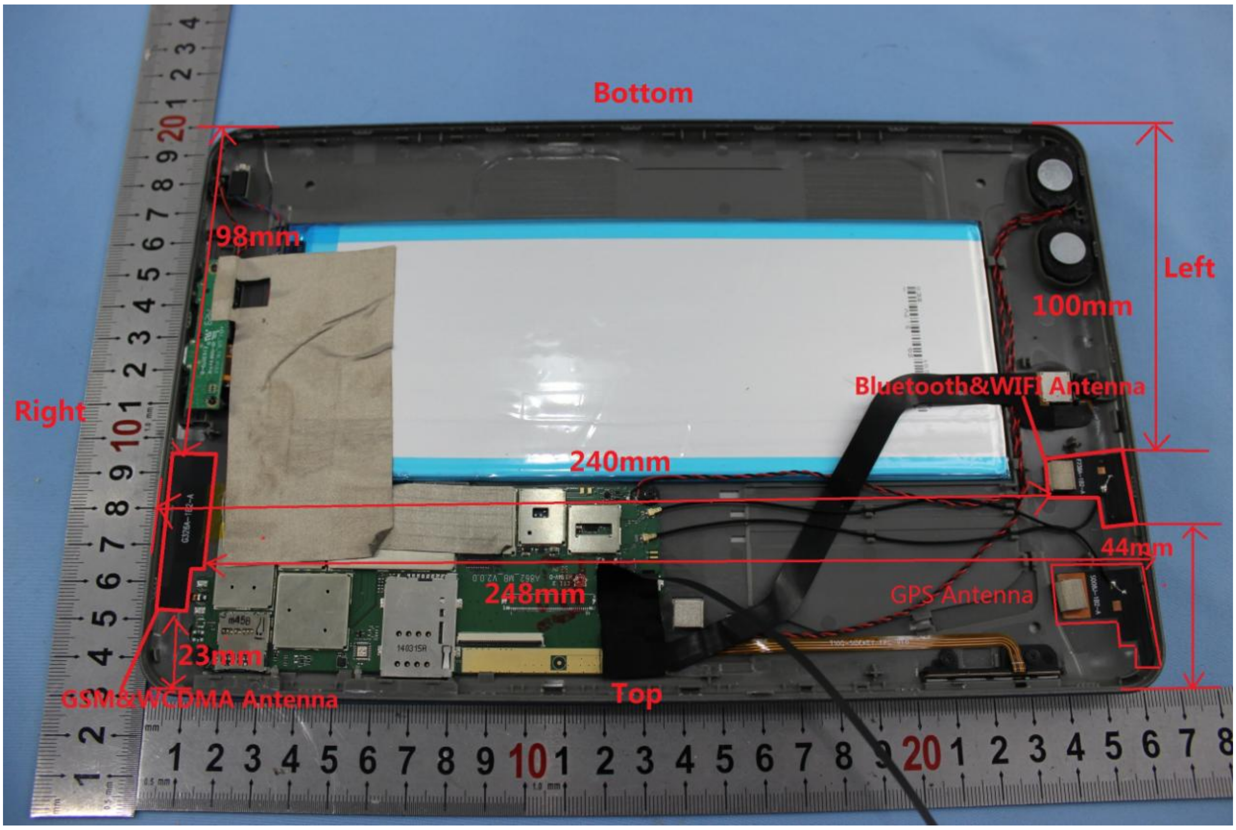
Table 20：SAR of WIFI for Body

Note:

5) Test positions of EUT(the distance between the EUT and the phantom is 0mm for all sides)
6) The maximum Scaled SAR value is marked in **bold**
7) Per FCC KDB Publication 447498 D01v05r02, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
8) Per KDB865664 D01v01r02, for each frequency band repeated SAR measurement is required only when the measured SAR is ≥0.8W/Kg; if the deviation among the repeated measurement is ≤20%, and the measured SAR <1.45W/Kg, only one repeated measurement is required.
9) Each channel was tested at the lowest data rate.

9.5 Multiple (single) Transmitter Evaluation

9.5.1 DUT Antenna Locations



The location of the antennas inside EVT10Q is shown as above picture, for it we can have some conclusion（s）:

9.5.2 EUT side for SAR Testing

Per KDB 447498 D01v05r02, According to the distance between WCDAM/GSM&WIFI antennas and the sides of EVT10Q we can draw the conclusion that:

EUT Sides for SAR Testing						
Mode	Front	Back	Left	Right	Top	Bottom
GSM	No	Yes	No	Yes	Yes	No
WCDMA	No	Yes	No	Yes	Yes	No
Wi-Fi（2.4GHz）	No	Yes	Yes	No	Yes	No

Table 21：EUT Sides for SAR Testing

Note: Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR Exclusion Threshold in KDB 447498D01 v05r02 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

9.5.3 Stand-alone SAR test evaluation

Per FCC KDB 447498 D01 v05r02, the SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{\text{Max Power of Channel(mW)}}{\text{Test Separation Dist(mm)}} * \sqrt{\text{Frequency(GHz)}} \leq 3.0$$

Note：
When the minimum *test separation distance* is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

1) Based on the maximum conducted power of WCDMA and the antenna to use separation distance, Stand-alone SAR evaluation is required for WCDMA; [(251/5)* √1.8524] = 68.3＞3.0.

2) Based on the maximum conducted power of GSM and the antenna to use separation distance, Stand-alone SAR evaluation is required for GSM; [(2512/5)* √0.8366] = 459.5＞3.0.

3) Based on the maximum conducted power of Wi-Fi and the antenna to use separation distance, Stand-alone SAR evaluation is required for Wi-Fi; [(67.9204/5)* √2.462] = 21.3＞3.0.

4) Based on the maximum conducted power of BT and the antenna to use separation distance, Stand-alone SAR evaluation is not required for BT; [(1.3646/5)* √2.480] = 0.4＜3.0.

9.5.4 Simultaneous SAR SAR test evaluation

1) Simultaneous Transmission

NO.	Simultaneous Transmission Configuration	Body
1	GPRS / EDGE(Data) + WiFi	Yes
2	GPRS / EDGE(Data) + BT	Yes
3	WCDMA(Data) + WiFi	Yes
4	WCDMA(Data) + BT	Yes
5	BT+WIFI (They share the same antenna and cannot transmit at the same time by design.)	NO

2) Simultaneous Transmission SAR Summation Scenario

WWAN Band	Exposure position	①MAX.WWAN SAR(W/kg)	②MAX.WLAN SAR(W/kg)	③MAX.BT SAR(W/kg)	Summed SAR ①+②	Summed SAR ①+③	Case NO.
GSM 850	Back	0.703	1.094	0.059	**1.797**	0.762	1#
	Left	NA	0.255	0.059	NA	NA	
	Right	0.156	NA	0.059	NA	0.215	
	Top	0.066	0.120	0.059	0.186	0.125	
GSM 1900	Back	1.484	1.094	0.059	**2.578**	1.543	2#
	Left	NA	0.255	0.059	NA	NA	
	Right	1.361	NA	0.059	NA	1.42	
	Top	0.128	0.120	0.059	0.248	0.187	
WCDMA 850	Back	0.394	1.094	0.059	1.488	0.453	
	Left	NA	0.255	0.059	NA	NA	
	Right	0.070	NA	0.059	NA	0.129	
	Top	0.063	0.120	0.059	0.183	0.122	
WCDMA 1900	Back	0.492	1.094	0.059	**1.586**	0.551	
	Left	NA	0.255	0.059	NA	NA	
	Right	0.503	NA	0.059	NA	0.562	
	Top	0.043	0.120	0.059	0.163	0.102	

Note：

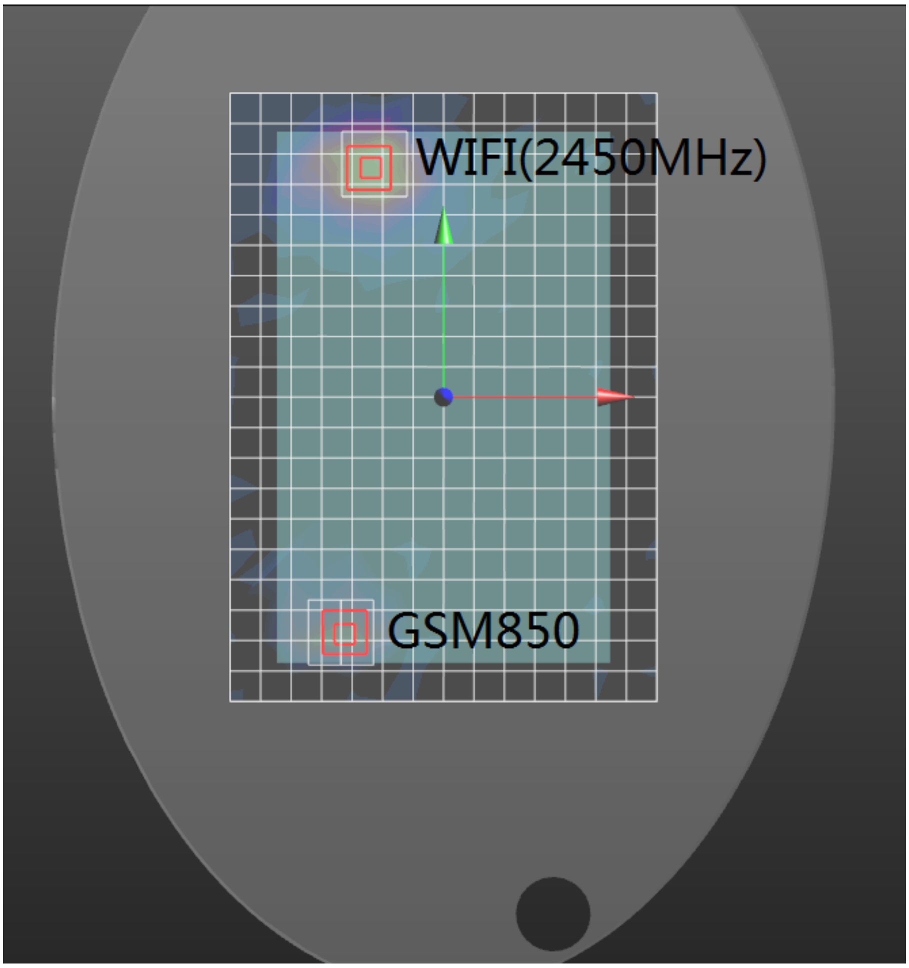
1) Per FCC KDB 447498 D01 v05r02, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion

$$\text{Estimated SAR}=\frac{\sqrt{f(GHz)}}{7.5} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

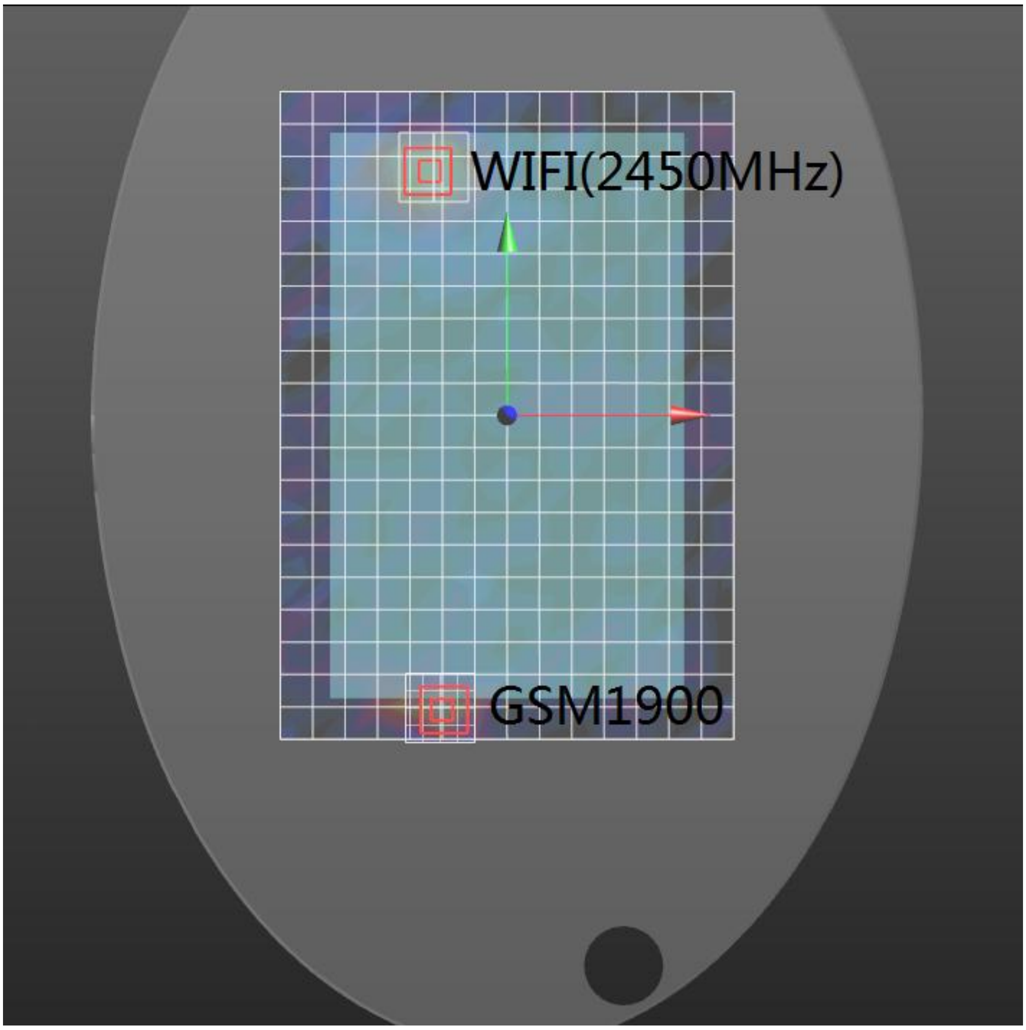
So for SAR $_{(BT)}=\frac{\sqrt{2.480}}{7.5} * \frac{1.4}{5}$=0.059W/kg

3) SPLSR Evaluation

Case NO. 1#	Band	SAR (W/kg)	SAR peak location（mm）			Distance（mm）	Summed SAR(W/kg)	SPLSR	Simultaneous SAR
			X	Y	Z				
Back	GSM850	0.703	-50	-116	-180	231.86	**1.797**	0.008	Not required
	WIFI	1.094	-34	115	-180				



Case NO.	Band	SAR (W/kg)	SAR peak location（mm）			Distance（mm）	Summed SAR(W/kg)	SPLSR	Simultaneous SAR
2#			X	Y	Z				
Back	GSM1900	1.484	-31	-135	-0.179	250	2.578	0.01	Not required
	WIFI	1.094	-34	115	-180				



Note：

1) When the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio. The simultaneous transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SAR to peak location separation ratio to qualify for test exclusion. The ratio is determined by $(SAR_1 + SAR_2)^{1.5}/R_i$, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion.

9.6 Detailed Test Results

Please see the Appendix B

10 Photographs

10.1 EUT Test Setup

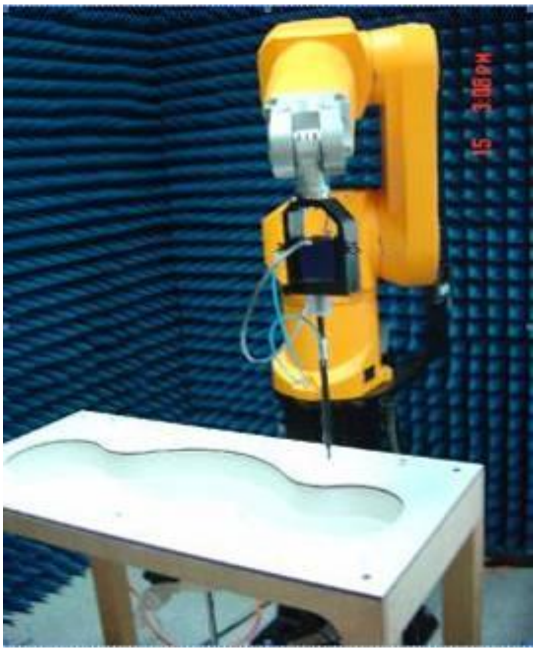


Photo 1: SAR measurement System

10.2 Photographs of EUT

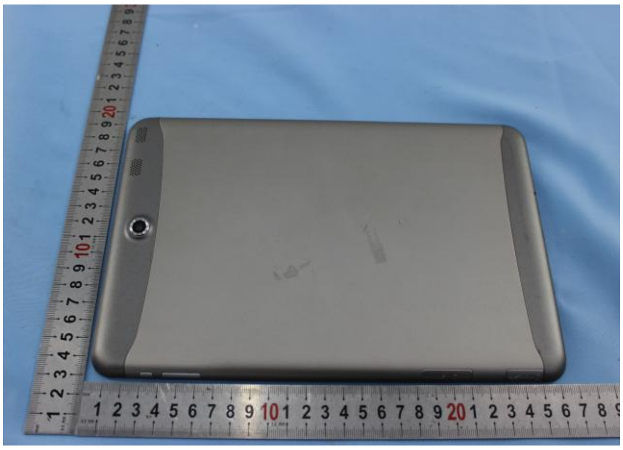
Photo 2: Front View	Photo 3: Back View
	

Photo 4: Accessory	N/A
	N/A

10.3 Photographs of EUT test position

Photo 5: Back side 0mm	Photo 6: Right side 0mm
	
Photo 7: Left side 0mm	**Photo 8: Top side 0mm**
	

10.4 Photographs of Tissue Simulate Liquid

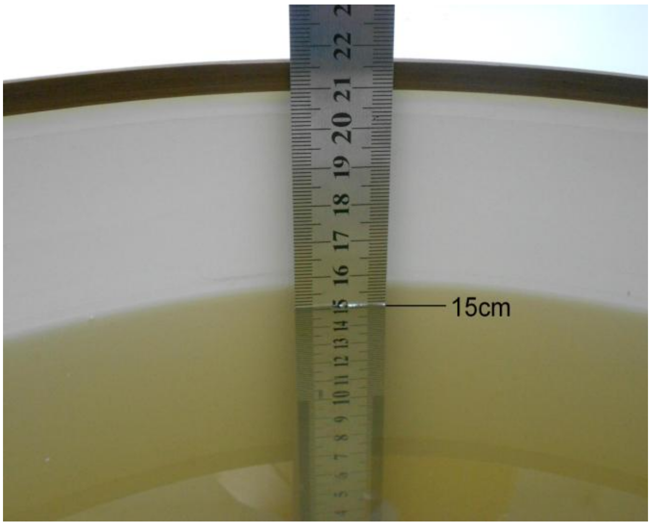
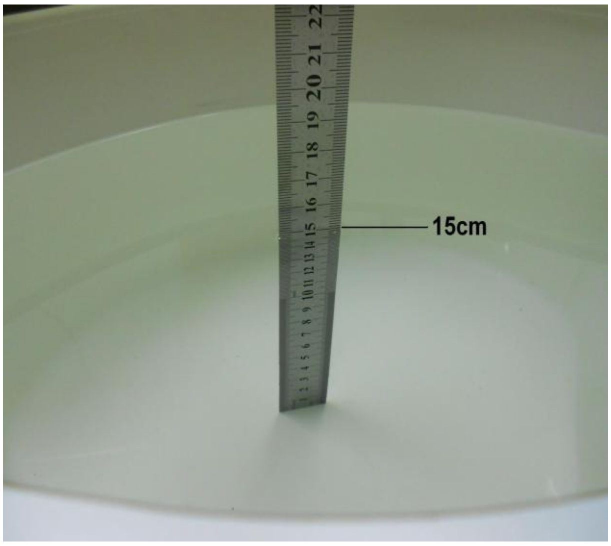
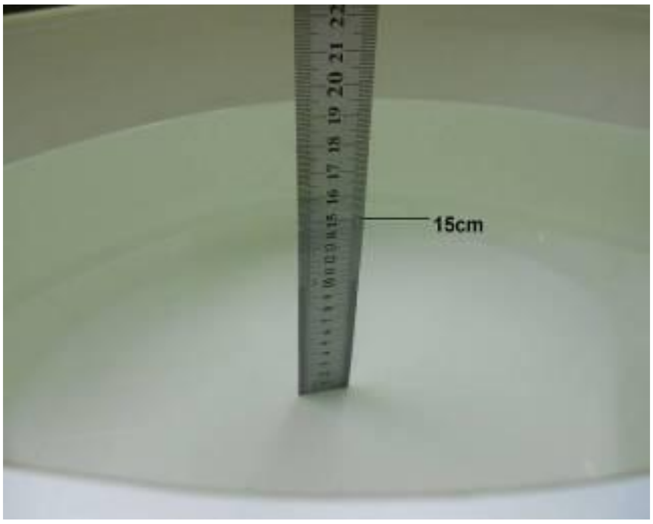
Photo 9: Tissue Simulant Liquid for Body 835	Photo 10: Tissue Simulant Liquid for Body 1900
	

Photo 11: Tissue Simulant Liquid for Body 2450	NA
	NA

10.5 EUT Constructional Details

Refer to Report No. SZEM140900494601 for EUT external and internal photos.

11 Calibration certificate

Please see the Appendix C

Appendix A : Detailed System Validation Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

---END---

Appendix A

Detailed System Validation Results

System Performance Check 835 MHz Body
System Performance Check 1900 MHz Body
System Performance Check 2450MHz Body

Date/Time: 2014-10-13 8:41:07

Test Laboratory: SGS-SAR Lab

System Performance Check 835MHz Body

DUT: Dipole 835MHz; Type: D835V2; Serial: 4d105

Communication System: UID 0, CW; Frequency: 835 MHz;Duty Cycle: 1:1

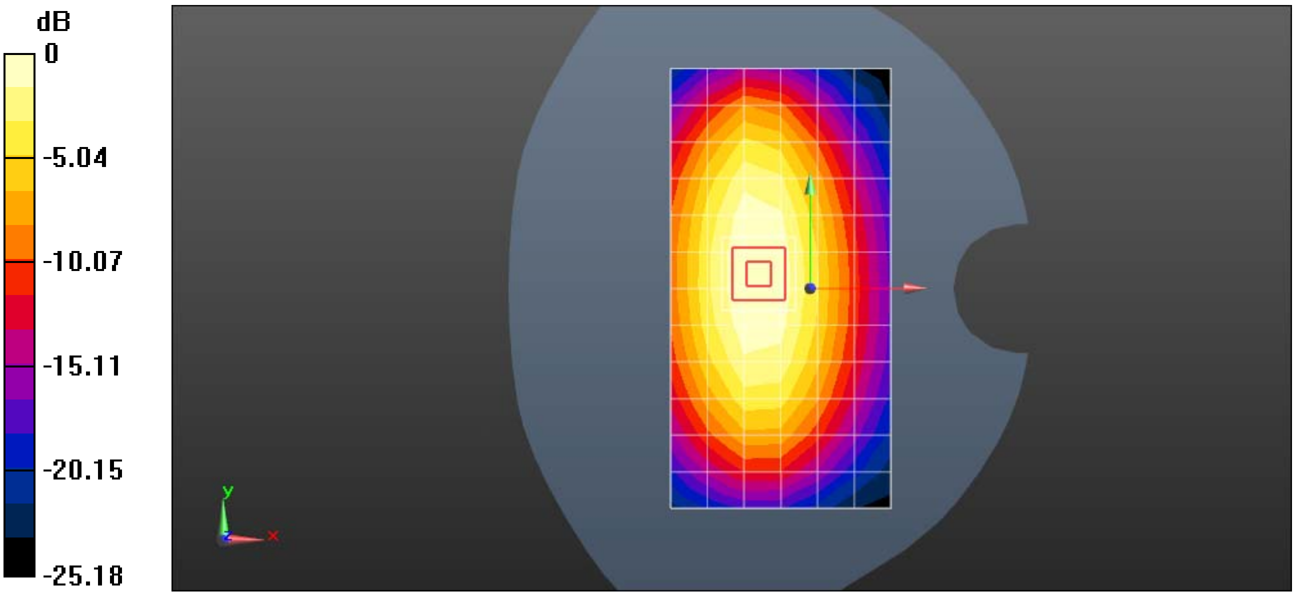
Medium: MSL835;Medium parameters used: f = 835 MHz; σ = 0.986 S/m; ε_r = 55.496; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(9.75, 9.75, 9.75); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE3 Sn569; Calibrated: 2013-11-22
- Phantom: SAM 1; Type: SAM V4.0; Serial: TP-1283
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/d=15mm, Pin=250mW/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.50 W/kg

Configuration/d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 61.14 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.58W/kg
SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.57 W/kg
Maximum value of SAR (measured) = 2.84W/kg



0 dB = 2.84 W/kg = 4.53 dBW/kg

Date/Time: 2014-10-14 8:51:51

Test Laboratory: SGS-SAR Lab

System Performance Check 1900 MHz Body

DUT: D1900V2; Type: D1900V2; Serial: 5d028

Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1

Medium: MSL1900;Medium parameters used: f = 1900 MHz; σ = 1.546 S/m; ε_r = 51.903; ρ = 1000 kg/m^3

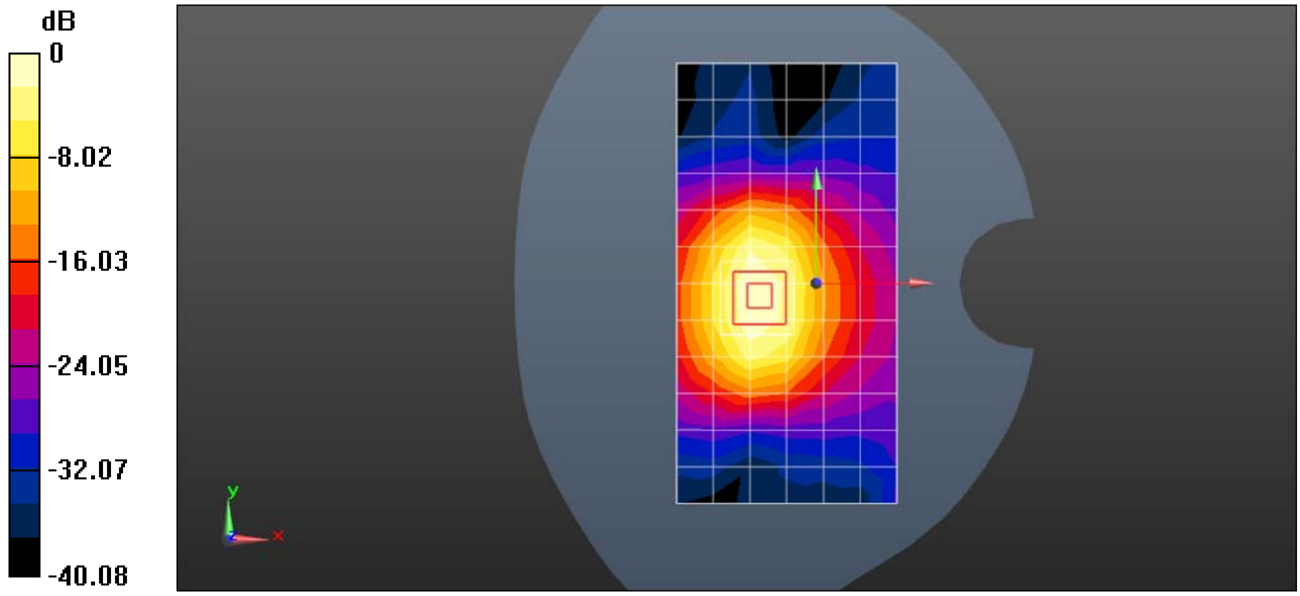
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: SAM 1; Type: SAM V4.0; Serial: TP-1283
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/d=15mm, Pin=250mW/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 10.5 W/kg

Body/d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 75.14 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 21.0 W/kg
SAR(1 g) = 10.7 W/kg; SAR(10 g) = 5.41 W/kg
Maximum value of SAR (measured) = 12.2 W/kg



0 dB = 10.5 W/kg = 10.21 dBW/kg

Date/Time: 2014-10-15 8:32:59

Test Laboratory: SGS-SAR Lab

System Performance Check 2450MHz Body

DUT: D2450V2; Type: D2450V2; Serial: 733

Communication System: UID 0, CW; Frequency: 2450 MHz;Duty Cycle: 1:1

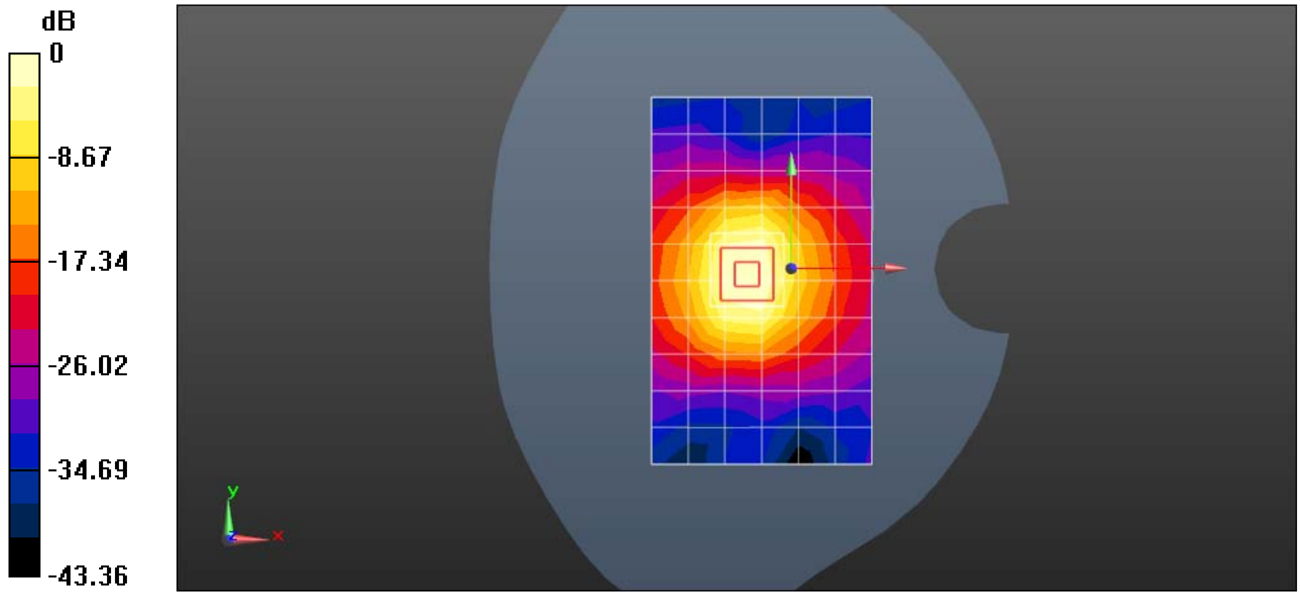
Medium: MSL2450;Medium parameters used: f = 2450 MHz; σ = 1.951 S/m; ε_r = 51.68; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.13, 7.13, 7.13); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: SAM 1; Type: SAM V4.0; Serial: TP-1283
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Body/d=10mm, Pin=250mW/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 9.85 W/kg

Body/d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 82.08 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 26.5 W/kg
SAR(1 g) = 11.9 W/kg; SAR(10 g) = 5.35 W/kg
Maximum value of SAR (measured) = 13.5 W/kg



0 dB = 9.85 W/kg = 9.93 dBW/kg

Appendix B

Detailed Test Results

GSM850 for Body
GSM1900 for Body
WCDMA Band V for Body
WCDMA Band II for Body
WIFI for Body

Date/Time: 2014-10-13 10:17:05

Test Laboratory: SGS-SAR Lab

EVT10Q GSM850 GPRS 4TS 190CH Back side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, GPRS/EGPRS Mode(4up) Communication System (0);
Frequency: 836.6 MHz;Duty Cycle: 1:2.0797

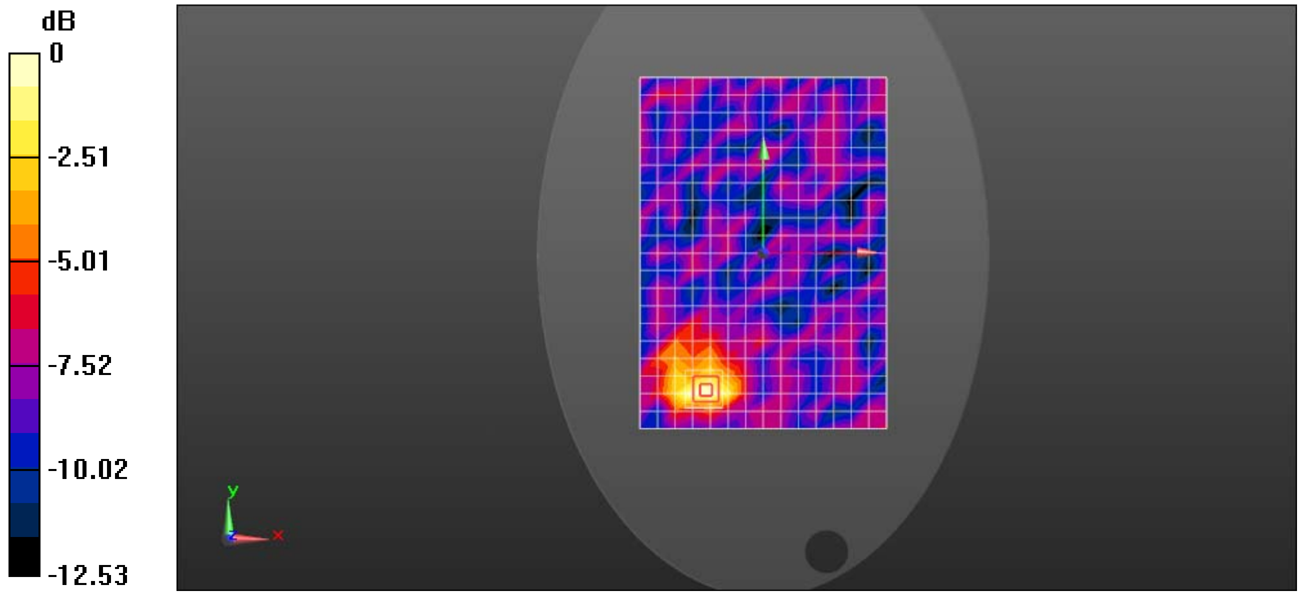
Medium: MSL850;Medium parameters used: f = 837 MHz; σ = 0.984 S/m; ε_r = 55.281;
ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(9.75, 9.75, 9.75); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.604 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 7.645 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.605 W/kg; SAR(10 g) = 0.349 W/kg
Maximum value of SAR (measured) = 0.682 W/kg



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

Date/Time: 2014-10-13 11:53:35

Test Laboratory: SGS-SAR Lab

EVT10Q GSM850 GPRS 4TS 190CH Right side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, GPRS/EGPRS Mode(4up) Communication System (0);
Frequency: 836.6 MHz;Duty Cycle: 1:2.0797

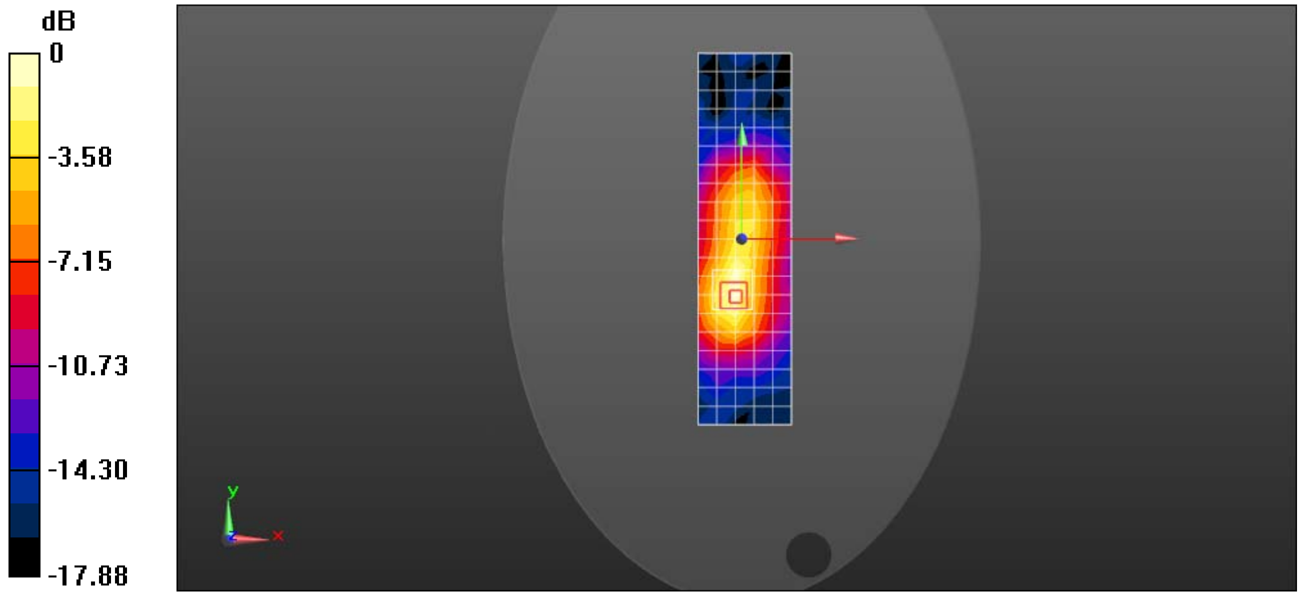
Medium: MSL835;Medium parameters used: f = 837 MHz; σ = 0.984 S/m; ε_r = 55.281;
ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(9.75, 9.75, 9.75); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (6x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.156 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 9.638 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.134 W/kg; SAR(10 g) = 0.075 W/kg
Maximum value of SAR (measured) = 0.152 W/kg



0 dB = 0.156 W/kg = -8.05 dBW/kg

Date/Time: 2014-10-13 13:39:26

Test Laboratory: SGS-SAR Lab

EVT10Q GSM850 GPRS 4TS 190CH Top side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, GPRS/EGPRS Mode(4up) Communication System (0);
Frequency: 836.6 MHz;Duty Cycle: 1:2.0797

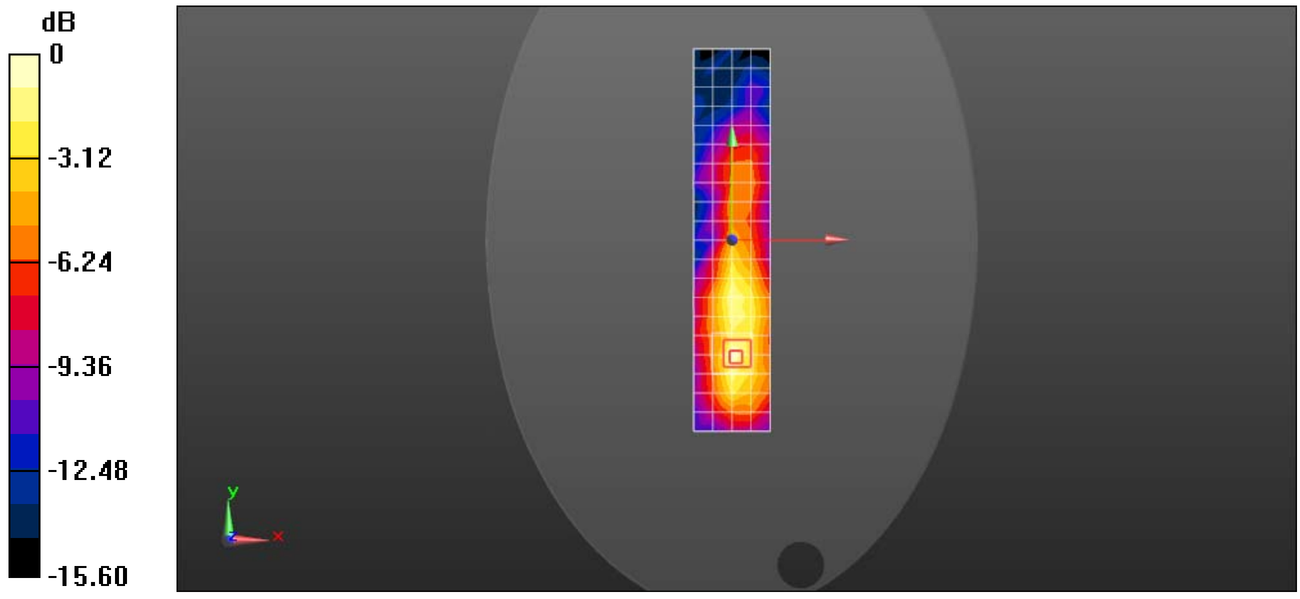
Medium: MSL835;Medium parameters used: f = 837 MHz; σ = 0.984 S/m; ε_r = 55.281;
ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(9.75, 9.75, 9.75); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (5x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0633 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 5.098 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.116 W/kg
SAR(1 g) = 0.057 W/kg; SAR(10 g) = 0.031 W/kg
Maximum value of SAR (measured) = 0.0623 W/kg



0 dB = 0.0633 W/kg = -11.99 dBW/kg

Date/Time: 2014-10-14 9:54:36

Test Laboratory: SGS-SAR Lab

EVT10Q GSM1900 GPRS 4TS 661CH Back side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, GPRS/EGPRS Mode(4up) Communication System (0);
Frequency: 1880 MHz;Duty Cycle: 1:2.0797

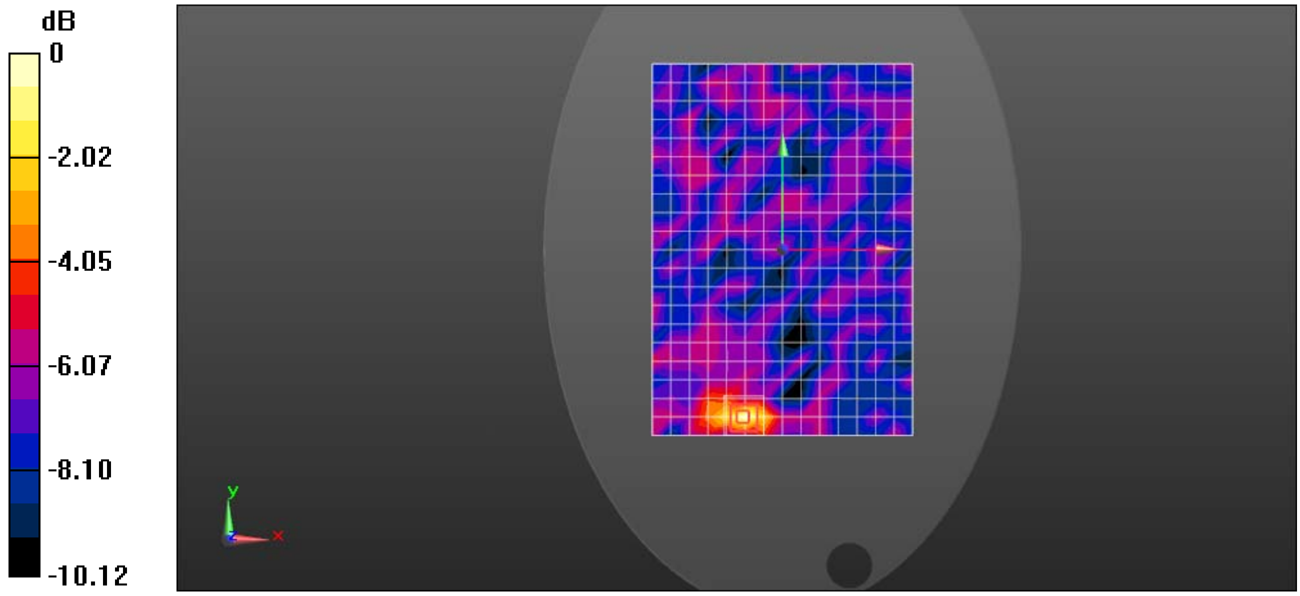
Medium: MSL1900;Medium parameters used: f = 1880 MHz; σ = 1.516 S/m; ε_r = 51.971;
ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.01 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 12.70 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 2.65 W/kg
SAR(1 g) = 0.992 W/kg; SAR(10 g) = 0.528 W/kg
Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 1.01 W/kg = 0.03 dBW/kg

Date/Time: 2014-10-14 10:45:41

Test Laboratory: SGS-SAR Lab

EVT10Q GSM1900 GPRS 4TS 512CH Back side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, GPRS/EGPRS Mode(4up) Communication System (0);
Frequency: 1850.2 MHz;Duty Cycle: 1:2.0797

Medium: MSL1900;Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.49 S/m;
ε_r = 52.098; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

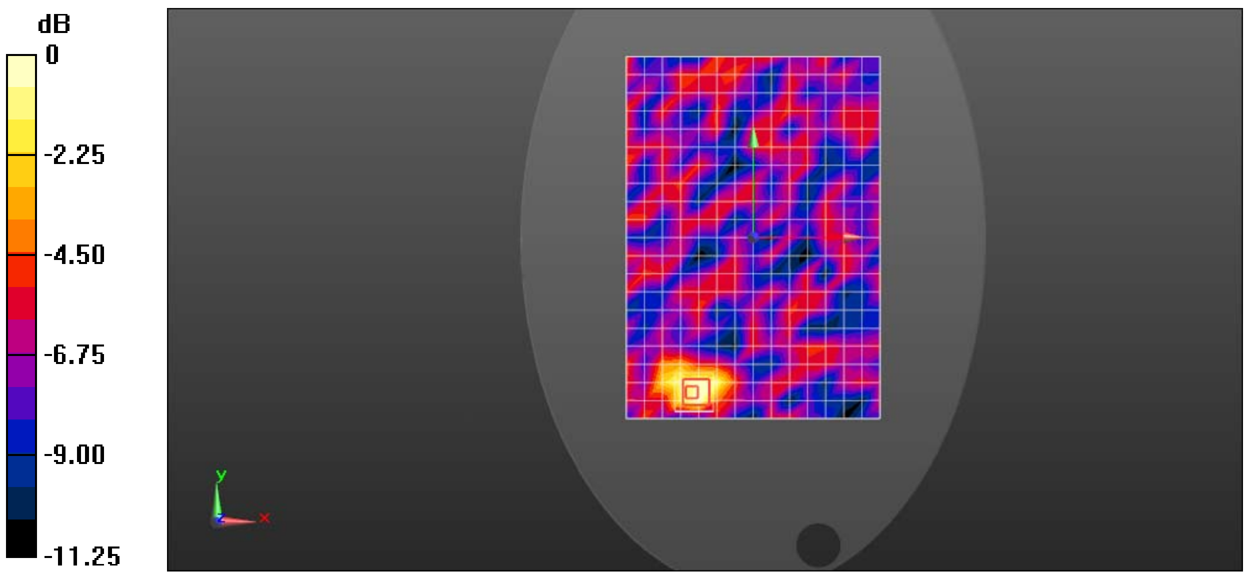
- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.771 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 7.202 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 2.61 W/kg
SAR(1 g) = 0.963 W/kg; SAR(10 g) = 0.540 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.08 W/kg



0 dB = 0.771 W/kg = -1.13 dBW/kg

Date/Time: 2014-10-14 11:36:43

Test Laboratory: SGS-SAR Lab

EVT10Q GSM1900 GPRS 4TS 810CH Back side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, GPRS/EGPRS Mode(4up) Communication System (0);
Frequency: 1909.8 MHz;Duty Cycle: 1:2.0797

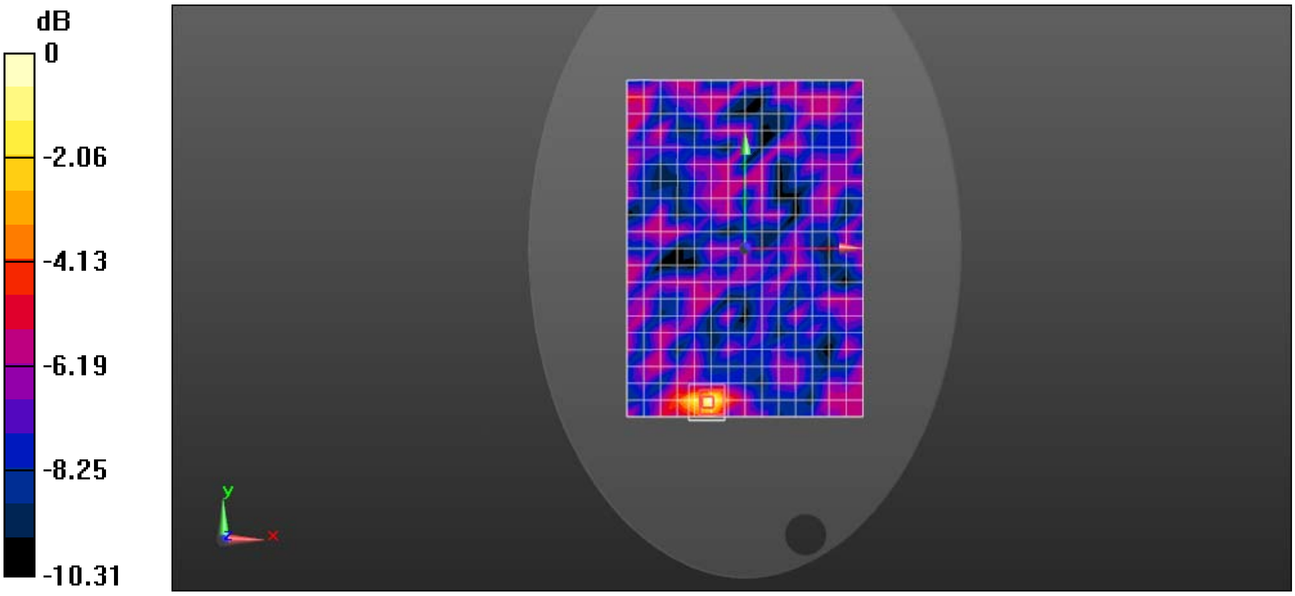
Medium: MSL1900;Medium parameters used: f = 1910 MHz; σ = 1.559 S/m; ε_r = 52.013;
ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.07 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 8.443 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 2.31 W/kg
SAR(1 g) = 0.906 W/kg; SAR(10 g) = 0.516 W/kg
Maximum value of SAR (measured) = 0.979 W/kg



0 dB = 1.07 W/kg = 0.29 dBW/kg

Date/Time: 2014-10-14 13:31:41

Test Laboratory: SGS-SAR Lab

EVT10Q GSM1900 GPRS 4TS 661CH Top side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, GPRS/EGPRS Mode(4up) Communication System (0);
Frequency: 1880 MHz;Duty Cycle: 1:2.0797

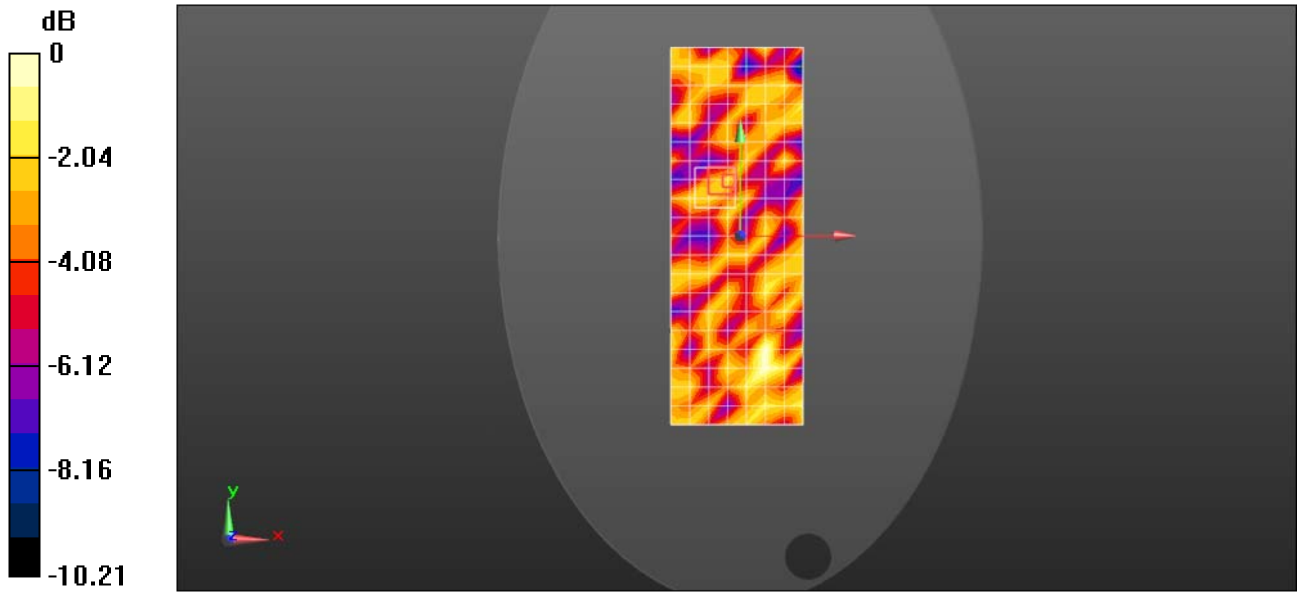
Medium: MSL1900;Medium parameters used: f = 1880 MHz; σ = 1.516 S/m; ε_r = 51.971;
ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (8x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.138 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 7.023 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.086 W/kg; SAR(10 g) = 0.057 W/kg
Maximum value of SAR (measured) = 0.0990 W/kg



0 dB = 0.138 W/kg = -8.61 dBW/kg

Date/Time: 2014-10-14 12:15:44

Test Laboratory: SGS-SAR Lab

EVT10Q GSM1900 GPRS 4TS 661CH Right side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, GPRS/EGPRS Mode(4up) Communication System (0);
Frequency: 1880 MHz;Duty Cycle: 1:2.0797

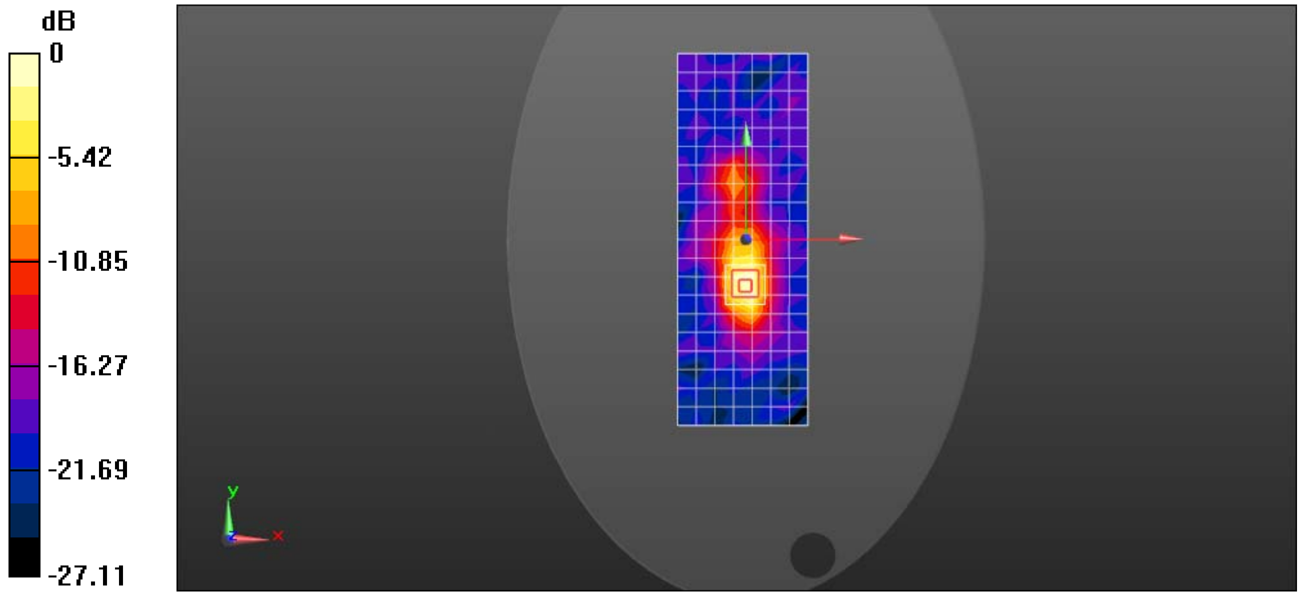
Medium: MSL1900;Medium parameters used: f = 1880 MHz; σ = 1.516 S/m; ε_r = 51.971;
ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (8x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.654 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 9.513 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 2.11 W/kg
SAR(1 g) = 0.912 W/kg; SAR(10 g) = 0.386 W/kg
Maximum value of SAR (measured) = 1.07 W/kg



0 dB = 0.654 W/kg = -1.84 dBW/kg

Date/Time: 2014-10-14 14:11:43

Test Laboratory: SGS-SAR Lab

EVT10Q GSM1900 GPRS 4TS 661CH Back side 0mm-repeat

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, GPRS/EGPRS Mode(4up) Communication System (0);
Frequency: 1880 MHz;Duty Cycle: 1:2.0797

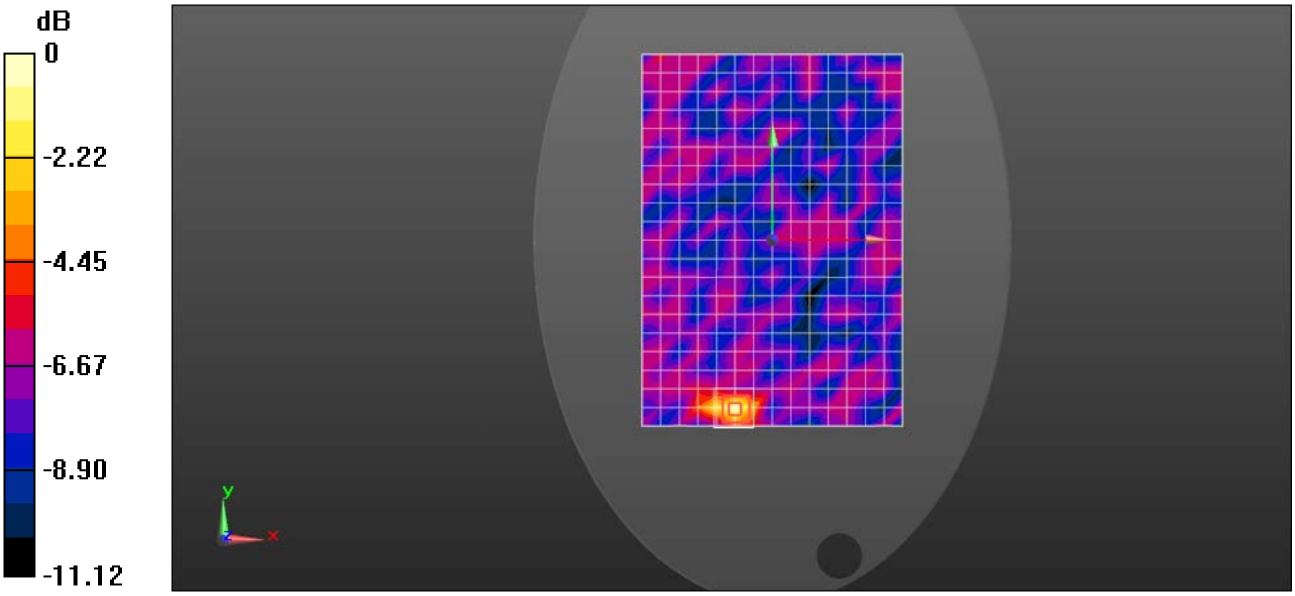
Medium: MSL1900;Medium parameters used: f = 1880 MHz; σ = 1.516 S/m; ε_r = 51.971;
ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.09 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 11.23 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 2.54 W/kg
SAR(1 g) = 0.994 W/kg; SAR(10 g) = 0.524 W/kg
Maximum value of SAR (measured) = 1.15 W/kg



0 dB = 1.09 W/kg = 0.36 dBW/kg

Date/Time: 2014-10-13 14:28:18

Test Laboratory: SGS-SAR Lab

EVT10Q WCDMA Band V 4182CH Back side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WCDMA (0); Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: MSL835;Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.984 S/m; ε_r = 55.294; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

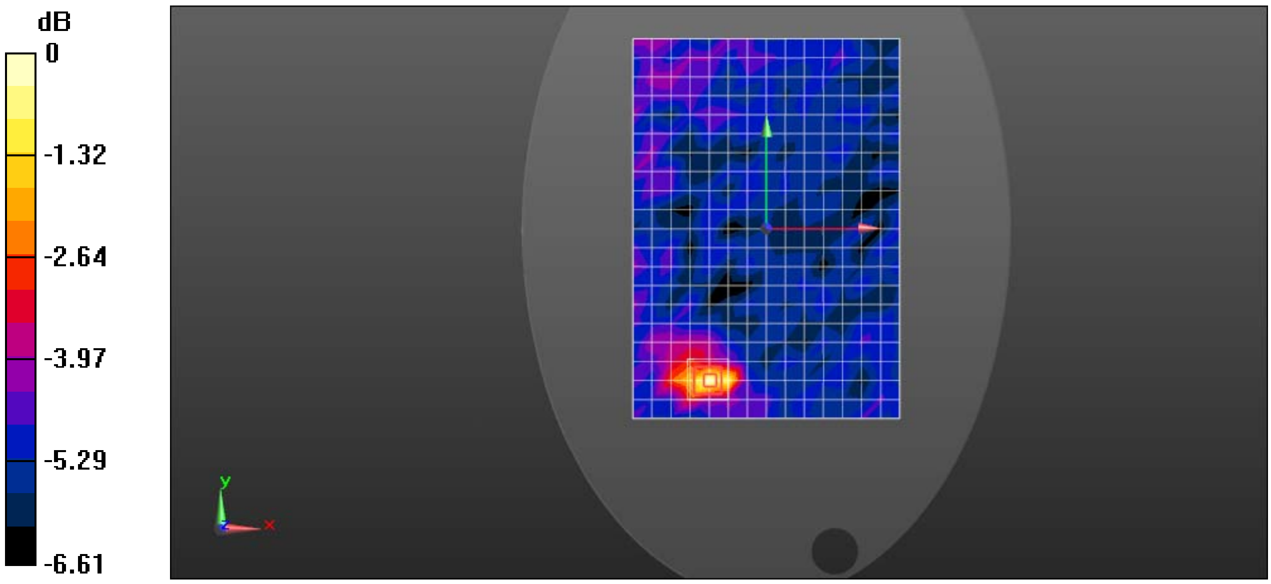
- Probe: EX3DV4 - SN3962; ConvF(9.75, 9.75, 9.75); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.305 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 8.458 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.513 W/kg
SAR(1 g) = 0.271 W/kg; SAR(10 g) = 0.182 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.319 W/kg



0 dB = 0.305 W/kg = -5.16 dBW/kg

Date/Time: 2014-10-13 16:13:26

Test Laboratory: SGS-SAR Lab

EVT10Q WCDMA Band V 4182CH Top side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WCDMA (0); Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: MSL835;Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.984 S/m; ε_r = 55.294; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

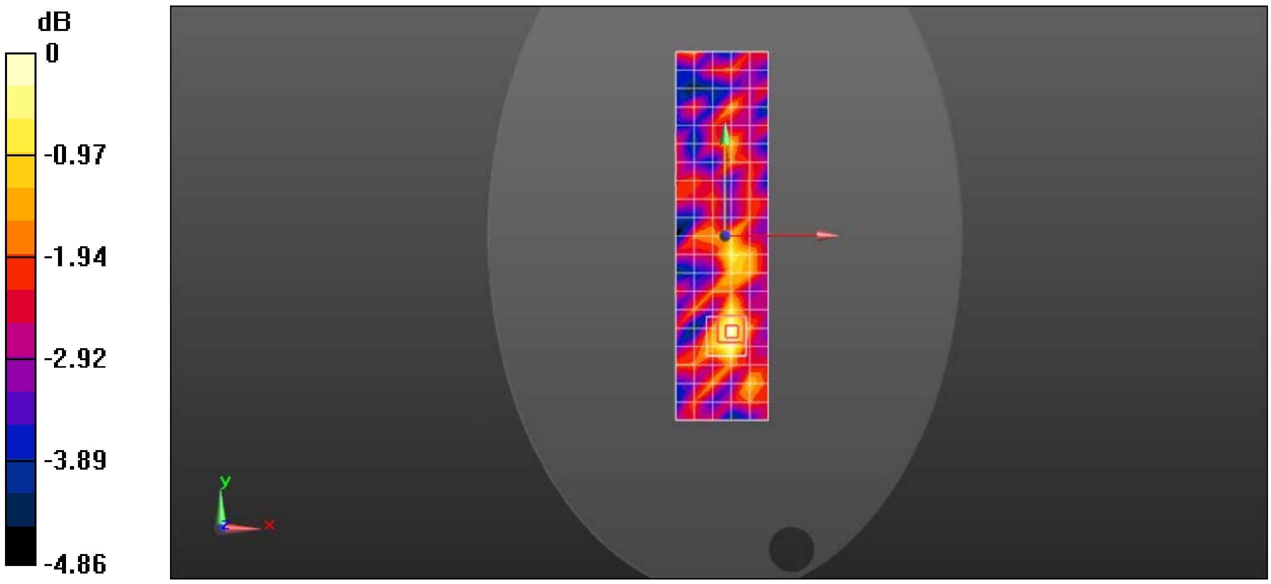
- Probe: EX3DV4 - SN3962; ConvF(9.75, 9.75, 9.75); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (6x21x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0502 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 6.202 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.0580 W/kg
SAR(1 g) = 0.043 W/kg; SAR(10 g) = 0.035 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0454 W/kg



0 dB = 0.0502 W/kg = -12.99 dBW/kg

Date/Time: 2014-10-13 15:28:10

Test Laboratory: SGS-SAR Lab

EVT10Q WCDMA Band V 4182CH Right side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WCDMA (0); Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium: MSL835;Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.984 S/m; ε_r = 55.294; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

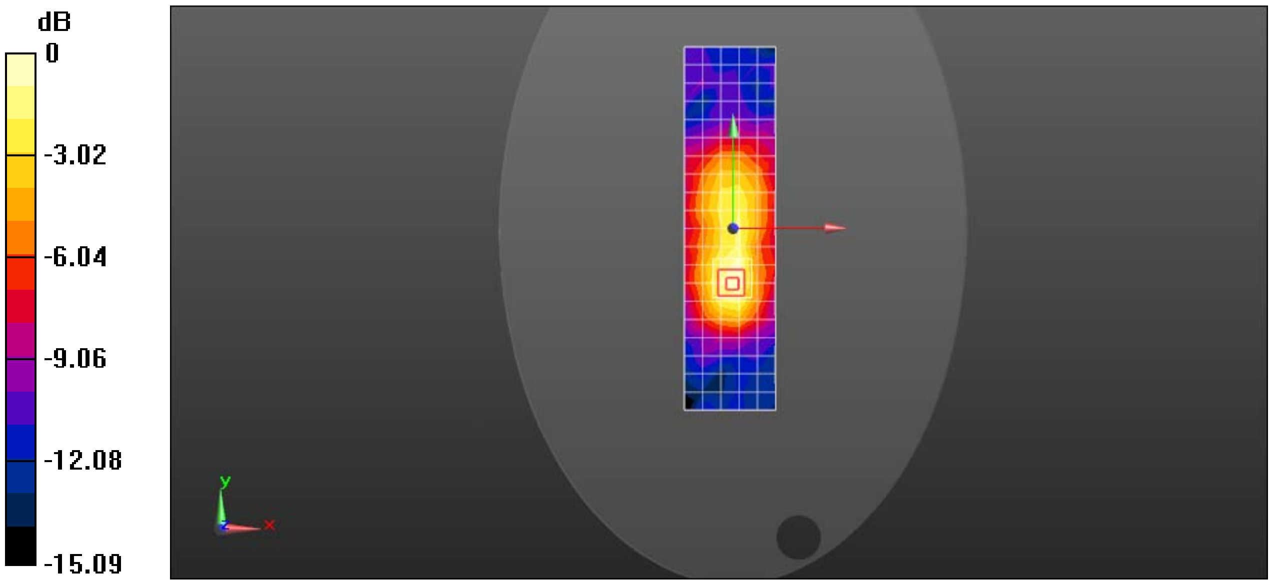
- Probe: EX3DV4 - SN3962; ConvF(9.75, 9.75, 9.75); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (6x21x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0469 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 5.696 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.0890 W/kg
SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.029 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0531 W/kg



0 dB = 0.0469 W/kg = -13.29 dBW/kg

Date/Time: 2014-10-14 14:58:49

Test Laboratory: SGS-SAR Lab

EVT10Q WCDMA Band II 9262CH Back side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WCDMA (0); Frequency: 1852.4 MHz;Duty Cycle: 1:1

Medium: MSL1900;Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.485 S/m; ε_r = 52.242; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

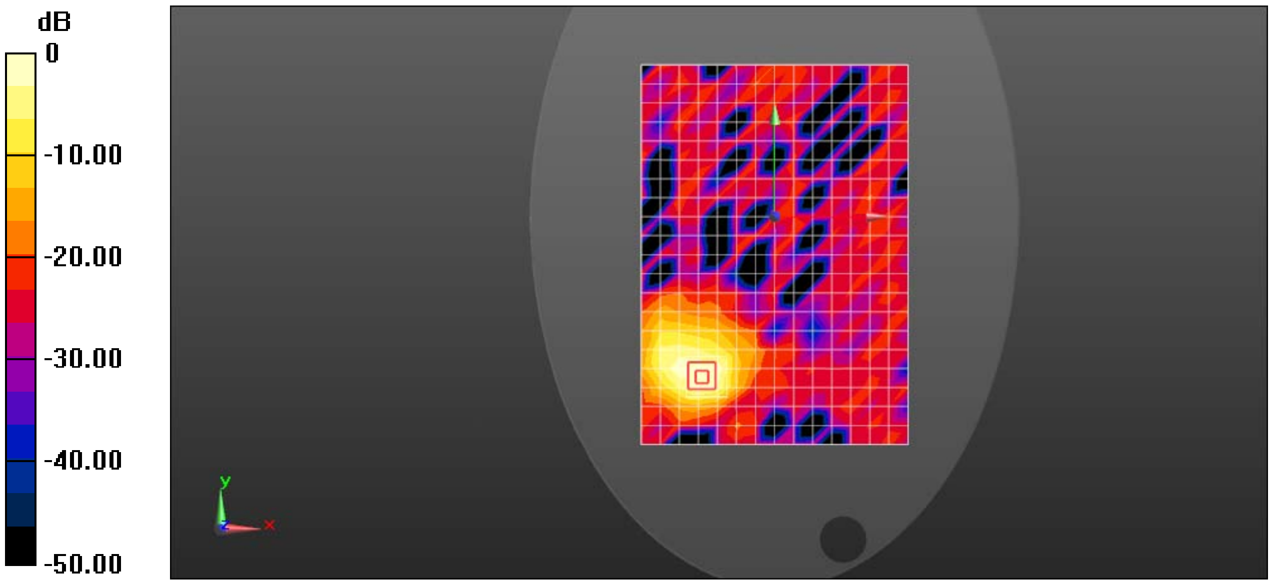
- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.294 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 3 V/m; Power Drift =0.102dB
Peak SAR (extrapolated) = 0.868 W/kg
SAR(1 g) = 0.402 W/kg; SAR(10 g) = 0.175 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.474 W/kg



0 dB = 0.294 W/kg = -5.32 dBW/kg

Date/Time: 2014-10-14 16:41:28

Test Laboratory: SGS-SAR Lab

EVT10Q WCDMA Band II 9262CH Top side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WCDMA (0); Frequency: 1852.4 MHz;Duty Cycle: 1:1

Medium: MSL1900;Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.485 S/m; ε_r = 52.242; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

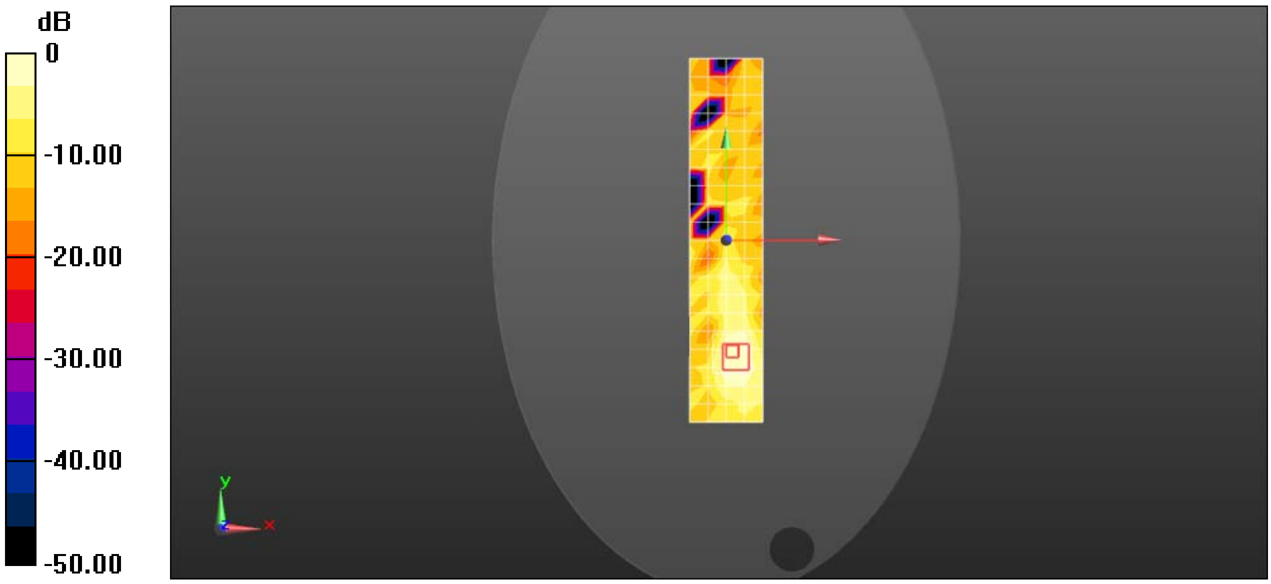
- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (5x21x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0282 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 1.842 V/m; Power Drift =0.012 dB
Peak SAR (extrapolated) = 0.127 W/kg
SAR(1 g) = 0.035 W/kg; SAR(10 g) = 0.017 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.0407 W/kg



0 dB = 0.0282 W/kg = -15.49 dBW/kg

Date/Time: 2014-10-14 15:51:45

Test Laboratory: SGS-SAR Lab

EVT10Q WCDMA Band II 9262CH Right side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WCDMA (0); Frequency: 1852.4 MHz;Duty Cycle: 1:1

Medium: MSL1900;Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.485 S/m; ε_r = 52.242; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

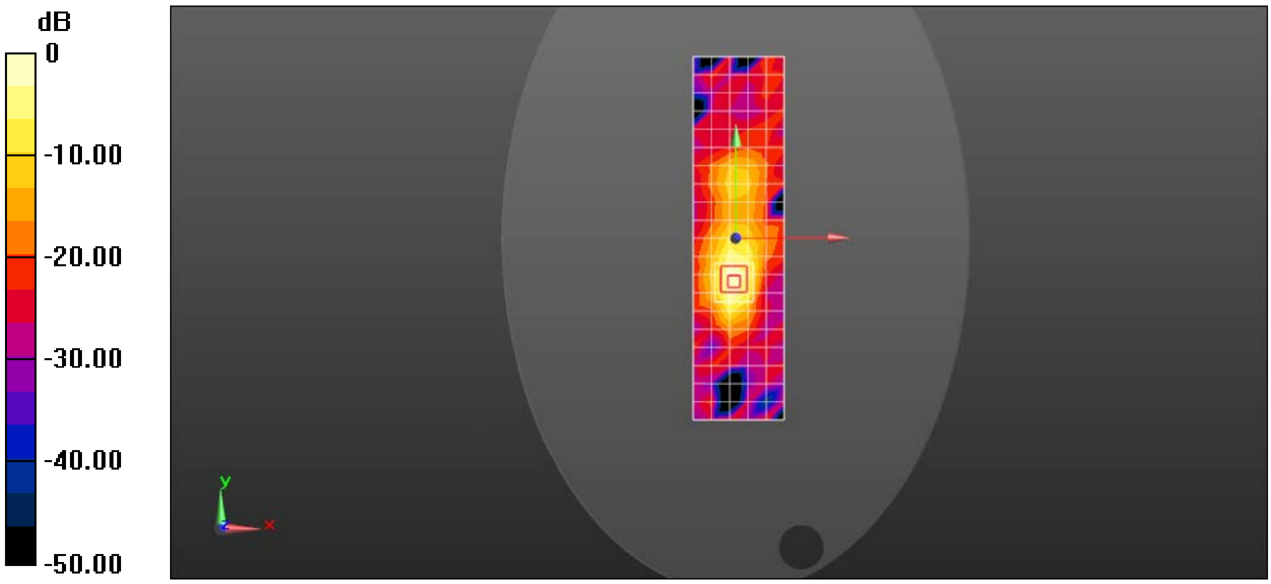
- Probe: EX3DV4 - SN3962; ConvF(7.68, 7.68, 7.68); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (6x21x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.386 W/kg

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 6.214 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.916 W/kg
SAR(1 g) = 0.411 W/kg; SAR(10 g) = 0.175 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.486 W/kg



0 dB = 0.386 W/kg = -4.14 dBW/kg

Date/Time: 2014-10-15 9:07:53

Test Laboratory: SGS-SAR Lab

EVT10Q WIFI 802.11b 11CH Back side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WI-FI(2.4GHz) (0); Frequency: 2462 MHz;Duty Cycle: 1:1

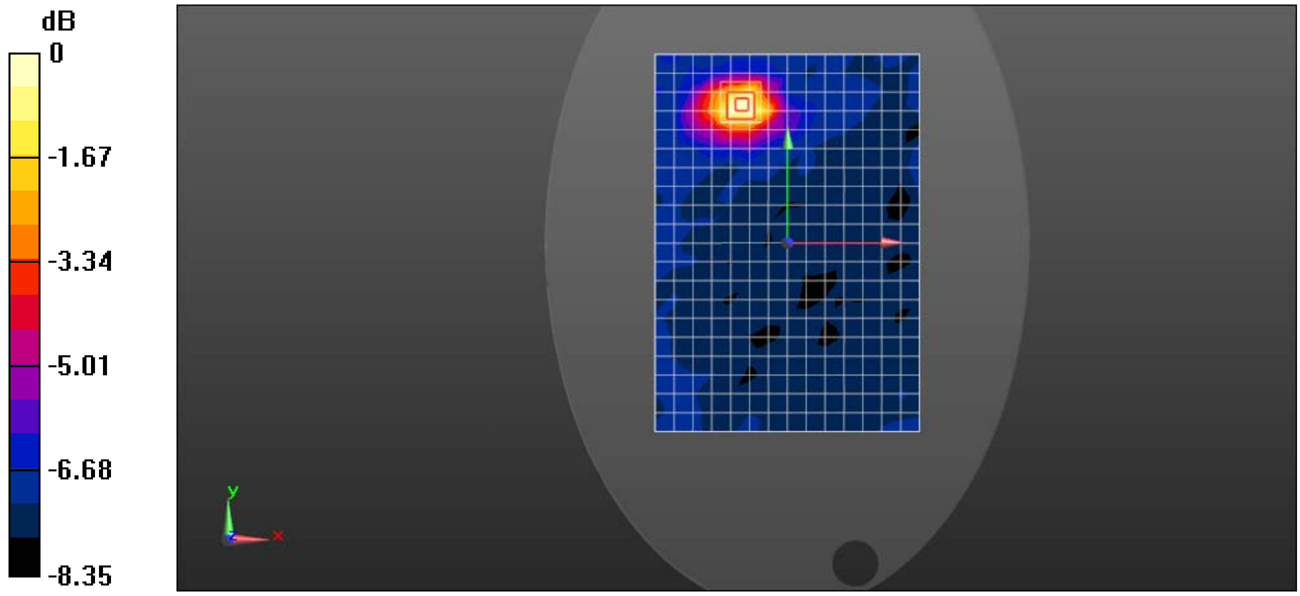
Medium: MSL2450;Medium parameters used: f = 2462 MHz; σ = 1.966 S/m; ε_r = 51.603;
ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.13, 7.13, 7.13); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.787 W/kg

EVT10Q/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.049 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 2.98 W/kg
SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.535 W/kg
Maximum value of SAR (measured) = 1.07 W/kg



0 dB = 0.787 W/kg = -1.04 dBW/kg

Date/Time: 2014-10-15 12:03:51

Test Laboratory: SGS-SAR Lab

EVT10Q WIFI 802.11b 6CH Back side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WI-FI(2.4GHz) (0); Frequency: 2437 MHz;Duty Cycle: 1:1

Medium: MSL2450;Medium parameters used: f = 2437 MHz; σ = 1.934 S/m; ε_r = 51.752; ρ = 1000 kg/m^3

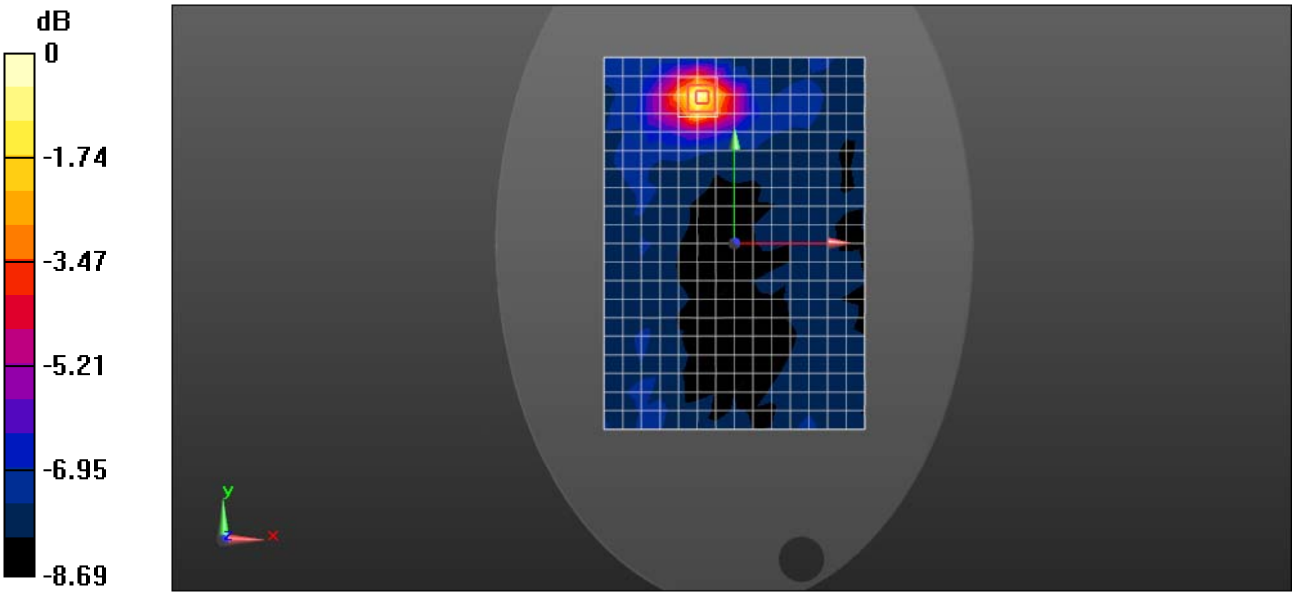
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.13, 7.13, 7.13); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.867 W/kg

EVT10Q/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.232 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 2.65 W/kg
SAR(1 g) = 0.930 W/kg; SAR(10 g) = 0.492 W/kg
Maximum value of SAR (measured) = 0.914 W/kg



0 dB = 0.867 W/kg = -0.62 dBW/kg

Date/Time: 2014-10-15 11:12:56

Test Laboratory: SGS-SAR Lab

EVT10Q WIFI 802.11b 1CH Back side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WI-FI(2.4GHz) (0); Frequency: 2412 MHz;Duty Cycle: 1:1

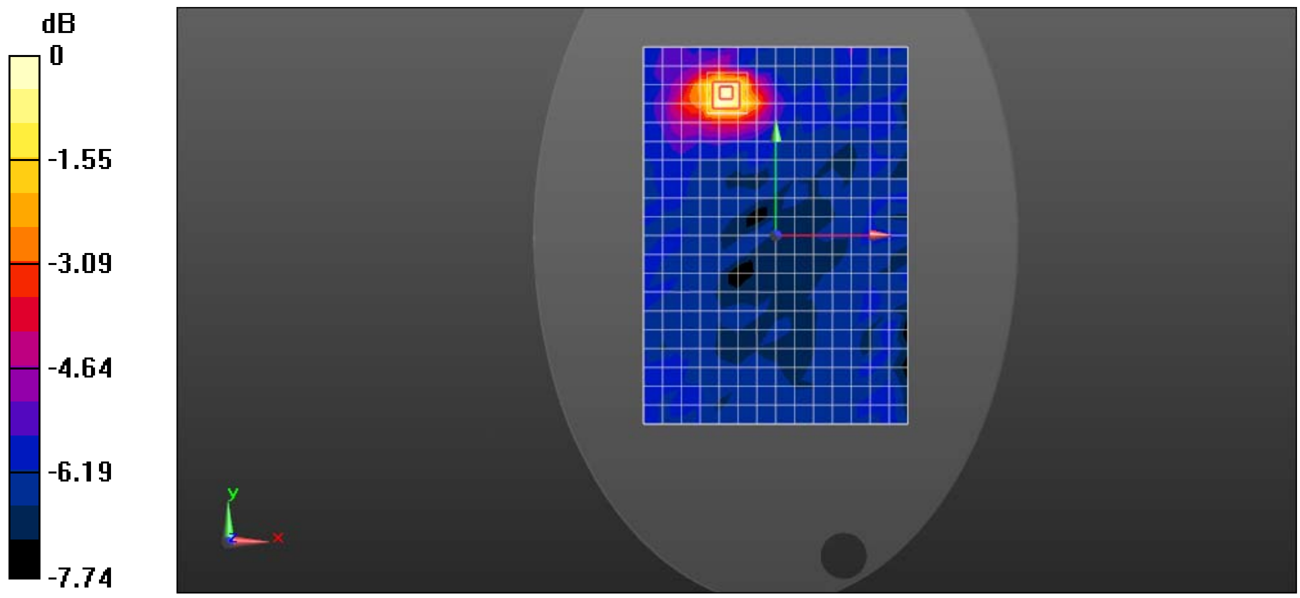
Medium: MSL2450;Medium parameters used: f = 2412 MHz; σ = 1.905 S/m; ε_r = 51.831; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.13, 7.13, 7.13); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.600 W/kg

EVT10Q/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.369 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 2.09 W/kg
SAR(1 g) = 0.777 W/kg; SAR(10 g) = 0.420 W/kg
Maximum value of SAR (measured) = 0.800 W/kg



0 dB = 0.600 W/kg = -2.22 dBW/kg

Date/Time: 2014-10-15 9:57:51

Test Laboratory: SGS-SAR Lab

EVT10Q WIFI 802.11b 11CH Left side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WI-FI(2.4GHz) (0); Frequency: 2462 MHz;Duty Cycle: 1:1

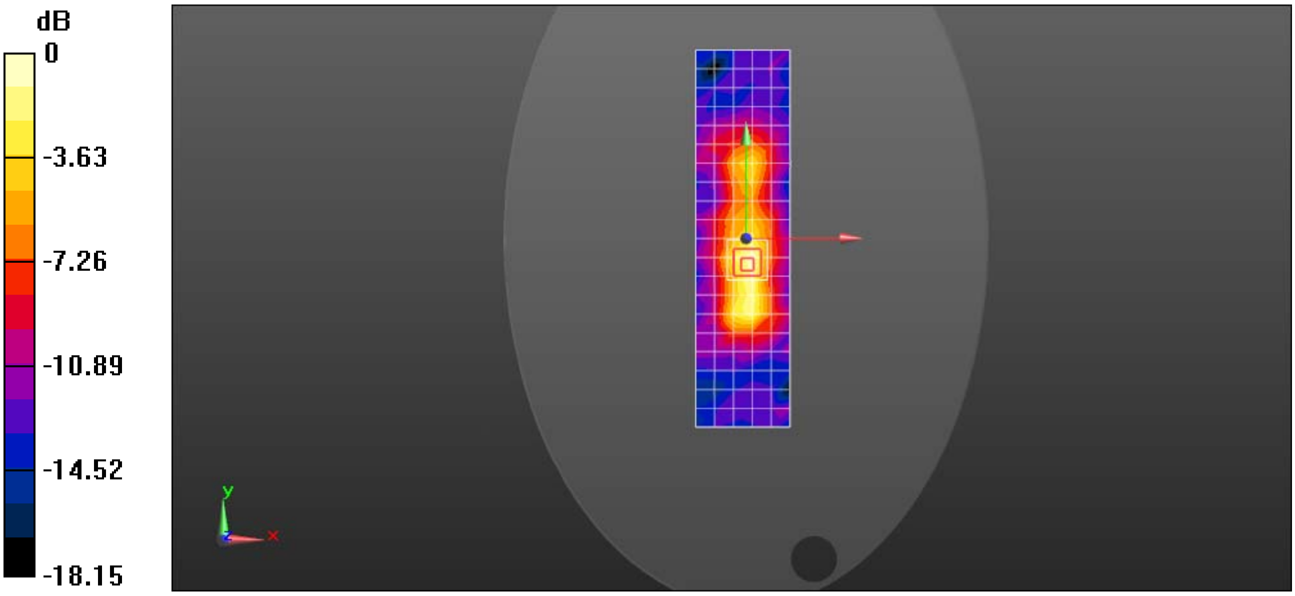
Medium: MSL2450;Medium parameters used: f = 2462 MHz; σ = 1.966 S/m; ε_r = 51.603; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.13, 7.13, 7.13); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (6x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.224 W/kg

EVT10Q/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.164 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.659 W/kg
SAR(1 g) = 0.245 W/kg; SAR(10 g) = 0.111 W/kg
Maximum value of SAR (measured) = 0.258 W/kg



0 dB = 0.224 W/kg = -6.50 dBW/kg

Date/Time: 2014-10-15 10:37:59

Test Laboratory: SGS-SAR Lab

EVT10Q WIFI 802.11b 11CH Top side 0mm

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WI-FI(2.4GHz) (0); Frequency: 2462 MHz;Duty Cycle: 1:1

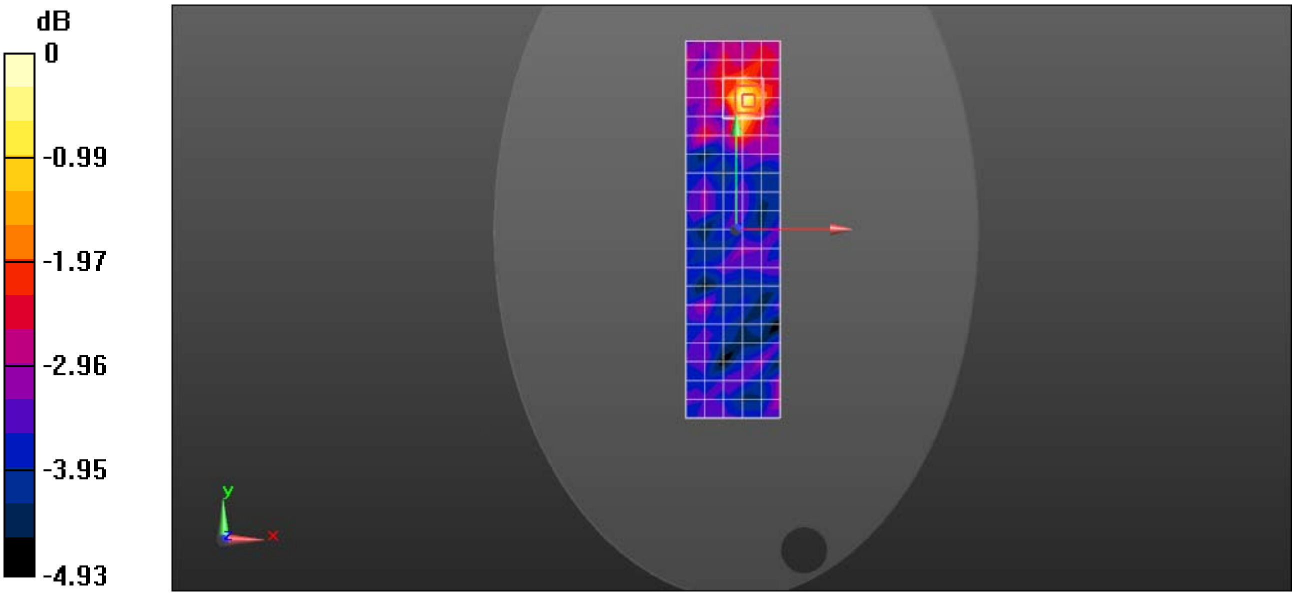
Medium: MSL2450;Medium parameters used: f = 2462 MHz; σ = 1.966 S/m; ε_r = 51.603; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.13, 7.13, 7.13); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Area Scan (6x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.114 W/kg

EVT10Q/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.593 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.206 W/kg
SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.080 W/kg
Maximum value of SAR (measured) = 0.116 W/kg



0 dB = 0.114 W/kg = -9.45 dBW/kg

Date/Time: 2014-10-15 16:11:35

Test Laboratory: SGS-SAR Lab

EVT10Q WIFI 802.11b 11CH Back side 0mm-repeat

DUT: EVT10Q; Type: Eviant 10 3G; Serial: N/A

Communication System: UID 0, WI-FI(2.4GHz) (0); Frequency: 2462 MHz;Duty Cycle: 1:1

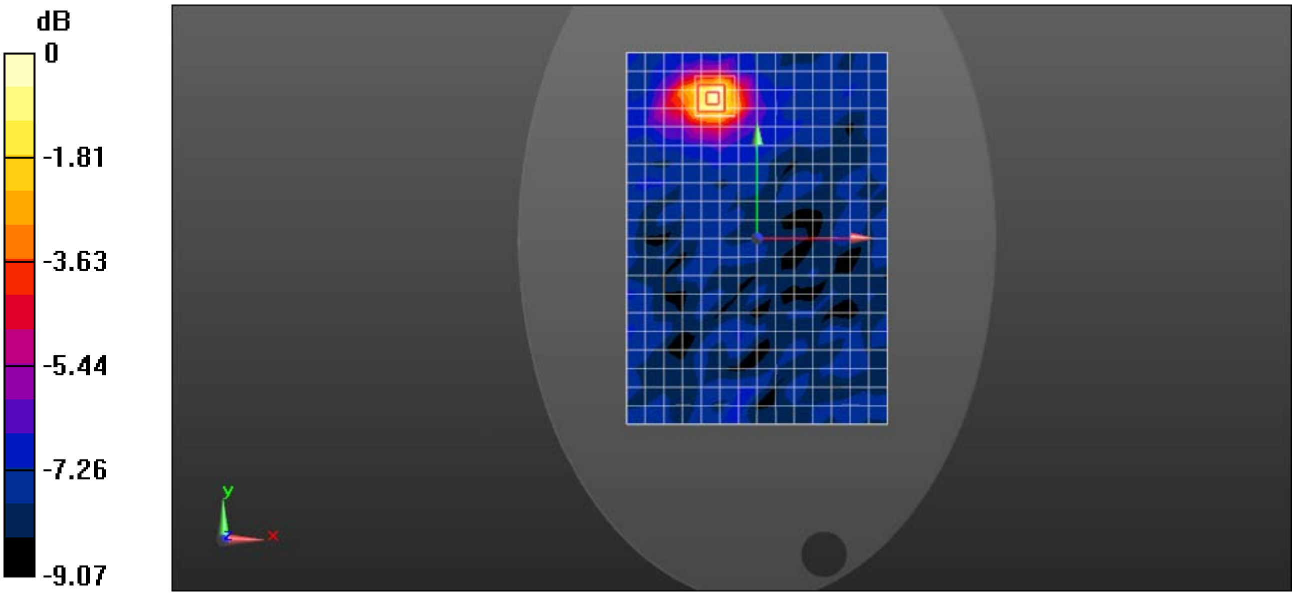
Medium: MSL2450;Medium parameters used: f = 2462 MHz; σ = 1.966 S/m; ε_r = 51.603; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY 5 Configuration:

- Probe: EX3DV4 - SN3962; ConvF(7.13, 7.13, 7.13); Calibrated: 2013-12-10;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 31.0
- Electronics: DAE4 Sn1303; Calibrated: 2014-04-23
- Phantom: ELI V5.0; Type: ELI; Serial: 1128
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

EVT10Q/Body/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=8mm
Reference Value = 8.041 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 2.63 W/kg
SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.545 W/kg
Maximum value of SAR (measured) = 1.11 W/kg

EVT10Q/Body/Area Scan (15x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.904 W/kg



0 dB = 1.11 W/kg = 0.46 dBW/kg

Appendix C

Calibration certificate

D835V2-SN4d105(2013-11-25)
D1900V2-SN5d028(2013-11-27)
D2450V2-SN 733(2013-11-26)
DAE4-SN 1303(2014-04-23)
EX3DV4-SN 3962(2013-12-10)

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S **Schweizerischer Kalibrierdienst**
C **Service suisse d'étalonnage**
S **Servizio svizzero di taratura**
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **SGS-SZ (Auden)**

Certificate No: D835V2-4d105_Nov13

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d105
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	November 25, 2013

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	US37292783	09-Oct-13 (No. 217-01827)	Oct-14
Power sensor HP 8481A	MY41092317	09-Oct-13 (No. 217-01828)	Oct-14
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-13 (No. 217-01736)	Apr-14
Type-N mismatch combination	SN: 5047.3 / 06327	04-Apr-13 (No. 217-01739)	Apr-14
Reference Probe ES3DV3	SN: 3205	28-Dec-12 (No. ES3-3205_Dec12)	Dec-13
DAE4	SN: 601	25-Apr-13 (No. DAE4-601_Apr13)	Apr-14

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-15
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-13)	In house check: Oct-14

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	Israe El-Naouq
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 26, 2013

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.8 ± 6 %	0.94 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.50 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.64 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.61 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.26 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.7 ± 6 %	1.01 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.39 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**9.28 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.55 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**6.06 W/kg ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.4 Ω - 4.1 jΩ
Return Loss	- 27.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.9 Ω - 6.0 jΩ
Return Loss	- 23.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.395 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	May 26, 2010

DASY5 Validation Report for Head TSL

Date: 25.11.2013

Test Laboratory: SPEAG, Zurich, Switzerland

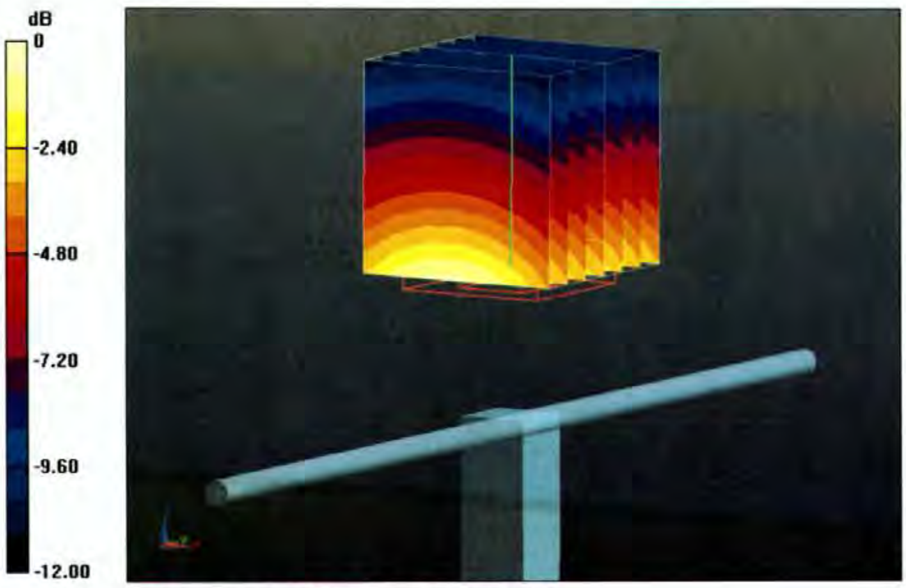
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d105

Communication System: UID 0 - CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.94 S/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

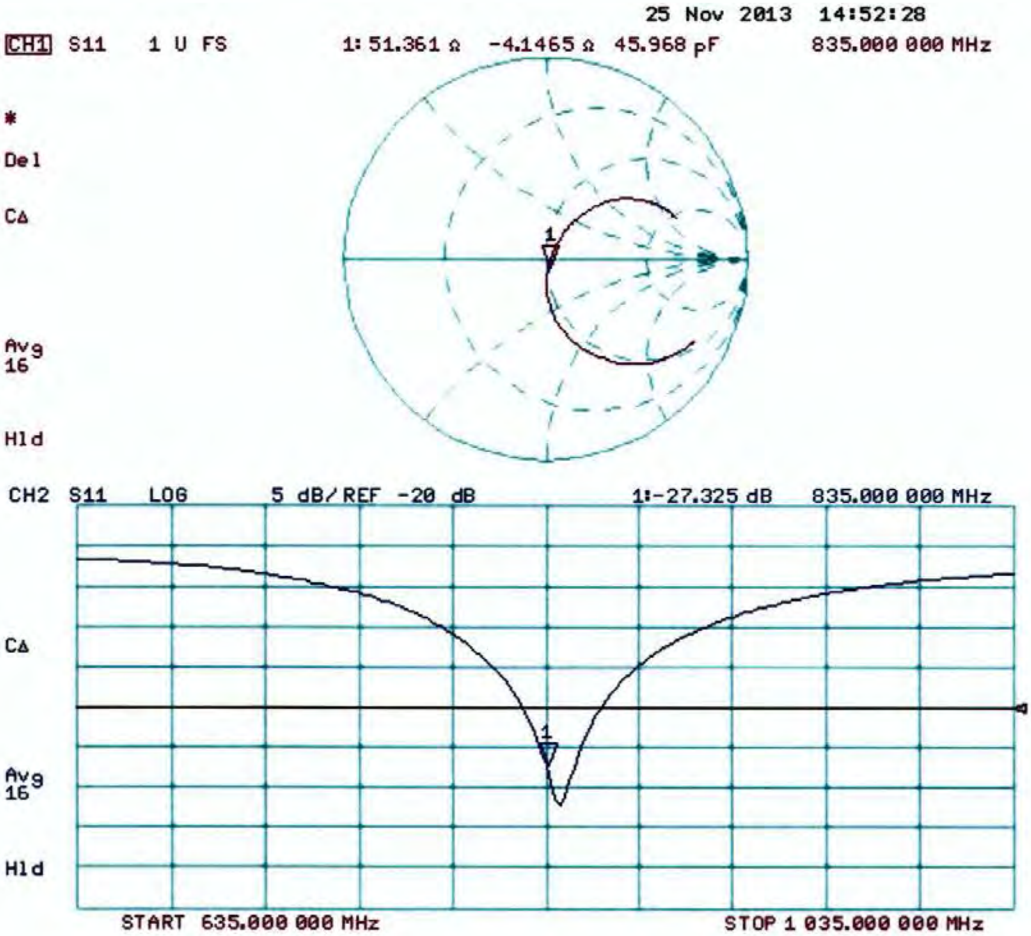
- Probe: ES3DV3 - SN3205; ConvF(6.05, 6.05, 6.05); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.324 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 3.80 W/kg
SAR(1 g) = 2.5 W/kg; SAR(10 g) = 1.61 W/kg
Maximum value of SAR (measured) = 2.92 W/kg



0 dB = 2.92 W/kg = 4.65 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.11.2013

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d105

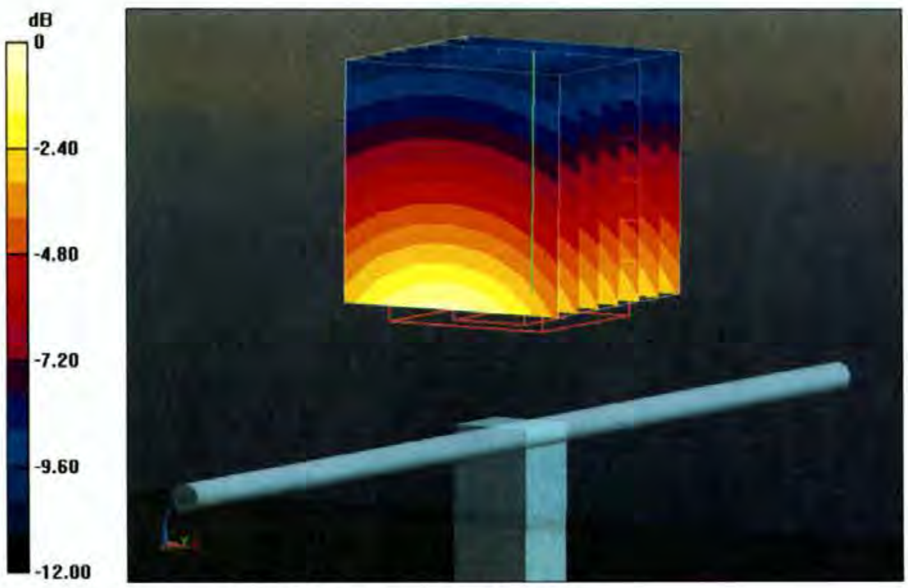
Communication System: UID 0 - CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1.007 S/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.04, 6.04, 6.04); Calibrated: 28.12.2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 25.04.2013
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.53 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 3.53 W/kg
SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (measured) = 2.78 W/kg



0 dB = 2.78 W/kg = 4.44 dBW/kg

Impedance Measurement Plot for Body TSL