

## SAR Test Report

Product Name : GSM Mobile Phone

Model No. : HUAWEI G7300

FCC ID : QISG7300A

Applicant : HUAWEI TECHNOLOGIES CO., LTD

Address : Administration Building, Huawei Base, Bantian, Longgang  
District, Shenzhen 518129

Date of Receipt : 21/12/2011

Date of Test : 10/01/2012

Issued Date : 13/01/2012

Report No. : 11CS074R-HP-US-P03V01

Report Version : V1.3

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# Test Report Certification

Issued Date: 13/01/2011

Report No.: 11CS074R-HP-US-P03V01



Product Name : GSM Mobile Phone

Applicant : HUAWEI TECHNOLOGIES CO., LTD

Address : Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129

Manufacturer : HUAWEI TECHNOLOGIES CO., LTD

Address : Administration Building, Huawei Base, Bantian, Longgang District, Shenzhen 518129

Model No. : HUAWEI G7300

FCC ID : QISG7300A

Brand Name : HUAWEI

EUT Voltage : DC 3.7V

Applicable Standard : FCC Oet65 Supplement C June 2001  
: IEEE Std. 1528-2003,47CFR § 2.1093

Test Result : Max. SAR Measurement (1g)  
Head: 0.609W/kg  
Body: 1.010W/kg

Performed Location : Suzhou EMC Laboratory  
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**Laboratory Information**

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

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<b>Norway</b>	<b>:</b>	<b>Nemko, DNV</b>
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The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

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## 1. General Information

### 1.1. EUT Description

Product Name	GSM Mobile Phone
Model No.	HUAWEI G7300
IMEI	861132000822212
Hardware Version	P2
Software Version	HUAWEI_G7300_S_WIFI_V100R001B201C00SP07
Device Category	Portable
RF Exposure Environment	Uncontrolled
Antenna Type	Internal
<b>2G</b>	
Support Band	GSM850/PCS1900
GPRS Type	Class B
GPRS Class	Class 12
Tx Frequency Range	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
Rx Frequency Range	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
Release Version	R99
Type of modulation	GMSK for GSM/GPRS, 8PSK for EDGE
Antenna Gain	-0.55dBi for GSM850 1.03dBi for PCS1900
Max. Output Power (Avg. Burst Power)	GSM850: 32.19 dBm PCS1900: 29.36 dBm
Max. Output Power (Radiated)	GSM850: 30.88 dBm- ERP PCS1900: 30.39 dBm- EIRP
<b>Bluetooth</b>	
Bluetooth Frequency	2402~2480MHz
Type of modulation	FHSS
Data Rate	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK)
Antenna Gain	0.33dBi
Max. Output Power (Avg. Power)	0.18dBm
<b>Wi-Fi</b>	
Wi-Fi Frequency	2412~2462MHz
Type of modulation	802.11b: DSSS; 802.11g: OFDM

Data Rate	802.11b: 1/2/5.5/11 Mbps
	802.11g: 6/9/12/18/24/36/48/54 Mbps
Antenna Gain	-0.16dBi
Max. Output Power (Avg. Power)	19.28 dBm
<b>Components</b>	
Headset Model Number	HUAWEI G7300
Battery	Brand name: HUAWEI Model No. : HBG7300 Voltage and Capacitance: DC 3.7V 1300mAh
Adapter	Brand name: HUAWEI Model No. : HS-050040U6 Input: 100-240V~50/60Hz 0.2A Output: 5.0VDC, 400mA

## 1.2. Test Procedure

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	EUT communicate with CMU 200, and test them respectively at GSM 850 & PCS1900.

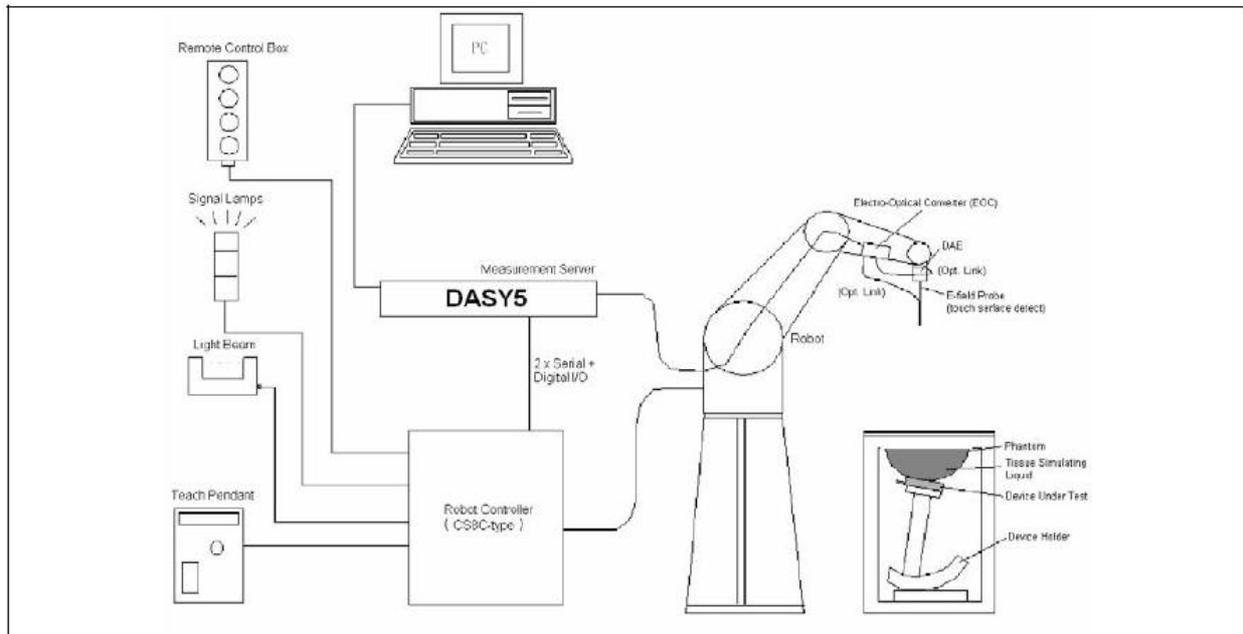
## 1.3. Test Environment

Ambient conditions in the laboratory:

Items	Required	Actual
Temperature (°C)	18-25	21.5± 2
Humidity (%RH)	30-70	52

## 2. SAR Measurement System

### 2.1. DASY5 System Description



The DASY5 system for performing compliance tests consists of the following items:

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

**2.1.1. Applications**

Predefined procedures and evaluations for automated compliance testing with all worldwide standards, e.g., IEEE 1528, OET 65, IEC 62209-1, IEC 62209-2, EN 50360, EN 50383 and others.

**2.1.2. Area Scans**

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a 10mm<sup>2</sup> step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

When an Area Scan has measured all reachable points, it computes the field maxima found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE 1528-2003, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan).

**2.1.3. Zoom Scan (Cube Scan Averaging)**

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. A density of 1000 kg/m<sup>3</sup> is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1 g cube is 10mm, with the side length of the 10 g cube 21,5mm.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications utilize a physical step of 7x7x7 (5mmx5mmx5mm) providing a volume of 30mm in the X & Y axis, and 30mm in the Z axis.

**2.1.4. Uncertainty of Inter-/Extrapolation and Averaging**

In order to evaluate the uncertainty of the interpolation, extrapolation and averaged SAR calculation algorithms of the Postprocessor, DASYS5 allows the generation of measurement grids which are artificially predefined by analytically based test functions. Therefore, the grids of area scans and zoom scans can be filled with uncertainty test data, according to the SAR benchmark functions of IEEE 1528. The three analytical functions shown in equations as below are used to describe the possible range of the expected SAR distributions for the tested handsets. The field gradients are covered by the spatially flat distribution f1, the spatially steep distribution f3 and f2 accounts for H-field cancellation on the phantom/tissue surface.

$$f_1(x, y, z) = Ae^{-\frac{z}{2a}} \cos^2 \left( \frac{\pi \sqrt{x'^2 + y'^2}}{2 \cdot 5a} \right)$$

$$f_2(x, y, z) = Ae^{-\frac{z}{a}} \frac{a^2}{a^2 + x'^2} \left( 3 - e^{-\frac{2z}{a}} \right) \cos^2 \left( \frac{\pi y'}{2 \cdot 3a} \right)$$

$$f_3(x, y, z) = A \frac{a^2}{\frac{a^2}{4} + x'^2 + y'^2} \left( e^{-\frac{2z}{a}} + \frac{a^2}{2(a + 2z)^2} \right)$$

**2.2. DASY5 E-Field Probe**

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 62209-1, IEC 62209, etc.) under ISO 17025. The calibration data are in Appendix D.

**2.2.1. Isotropic E-Field Probe Specification**

<b>Model</b>	EX3DV4	
<b>Construction</b>	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
<b>Frequency</b>	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
<b>Directivity</b>	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
<b>Dynamic Range</b>	10 µW/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
<b>Dimensions</b>	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
<b>Application</b>	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

**2.3. Boundary Detection Unit and Probe Mounting Device**

The DASY5 probes use a precise connector and an additional holder for the probe, consisting of a plastic tube and a flexible silicon ring to center the probe. The connector at the DAE is flexibly mounted and held in the default position with magnets and springs. Two switching systems in the connector mount detect frontal and lateral probe collisions and trigger the necessary software response.



**2.4. DATA Acquisition Electronics (DAE) and Measurement Server**

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit.

Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE4 is 200M Ohm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.



The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz intel ULV Celeron, 128MB chipdisk and 128MB RAM. The necessary circuits for communication with the DAE electronics box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.



**2.5. Robot**

The DASY5 system uses the high precision robots TX90 XL type out of the newer series from Stäubli SA (France). For the 6-axis controller DASY5 system, the CS8C robot controller version from Stäubli is used.

The XL robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)
- 6-axis controller



**2.6. Light Beam Unit**

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.

The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.



## 2.7. Device Holder

The DASY5 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).

Thus the device needs no repositioning when changing the angles.

The DASY5 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity  $\epsilon_r = 3$  and loss tangent  $\delta = 0.02$ . 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.



## 2.8. SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

- Left head
- Right head
- Flat phantom



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

### 3. Tissue Simulating Liquid

#### 3.1. The composition of the tissue simulating liquid

INGREDIENT (% Weight)	835MHz Head	835MHz Body	1900MHz Head	1900MHz Body	2450MHz Head	2450MHz Body
<b>Water</b>	40.45	52.4	54.90	40.5	46.7	73.2
<b>Salt</b>	1.45	1.40	0.18	0.50	0.00	0.04
<b>Sugar</b>	57.6	45.0	0.00	58.0	0.00	0.00
<b>HEC</b>	0.40	1.00	0.00	0.50	0.00	0.00
<b>Preventol</b>	0.10	0.20	0.00	0.50	0.00	0.00
<b>DGBE</b>	0.00	0.00	44.92	0.00	53.3	26.7

**3.2. Tissue Calibration Result**

The dielectric parameters of the liquids were verified prior to the SAR evaluation using DASY5 Dielectric Probe Kit and Agilent Vector Network Analyzer E5071C

<b>Head Tissue Simulant Measurement</b>				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		$\epsilon_r$	$\sigma$ [s/m]	
835 MHz	Reference result ± 5% window	41.50 39.43 to 43.58	0.90 0.86 to 0.95	N/A
	10-01-2012	42.27	0.91	21.0

<b>Body Tissue Simulant Measurement</b>				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		$\epsilon_r$	$\sigma$ [s/m]	
835 MHz	Reference result ± 5% window	55.2 52.44 to 57.96	0.97 0.92 to 1.02	N/A
	10-01-2012	54.73	0.98	21.0

<b>Head Tissue Simulant Measurement</b>				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		$\epsilon_r$	$\sigma$ [s/m]	
1900 MHz	Reference result ± 5% window	40.0 38.00 to 42.00	1.40 1.33 to 1.47	N/A
	10-01-2012	39.27	1.42	21.0

<b>Body Tissue Simulant Measurement</b>				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		$\epsilon_r$	$\sigma$ [s/m]	
1900 MHz	Reference result ± 5% window	53.3 50.64 to 55.97	1.52 1.44 to 1.60	N/A
	10-01-2012	52.45	1.54	21.0

<b>Head Tissue Simulant Measurement</b>				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		$\epsilon_r$	$\sigma$ [s/m]	
2450MHz	Reference result ± 5% window	39.2 37.24 to 41.16	1.80 1.71 to 1.89	N/A
	10-01-2012	38.60	1.84	21.0

<b>Body Tissue Simulant Measurement</b>				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		$\epsilon_r$	$\sigma$ [s/m]	
2450MHz	Reference result ± 5% window	52.7 50.07 to 55.34	1.95 1.85 to 2.05	N/A
	10-01-2012	52.30	2.01	21.0

**3.3. Tissue Dielectric Parameters for Head and Body Phantoms**

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

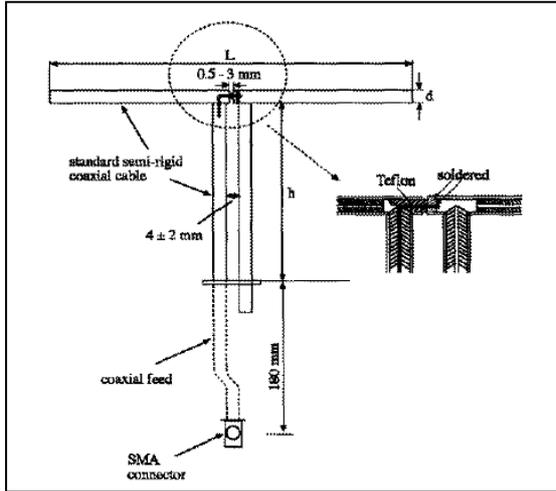
Target Frequency (MHz)	Head		Body	
	$\epsilon_r$	$\sigma$ (S/m)	$\epsilon_r$	$\sigma$ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
<b>835</b>	<b>41.5</b>	<b>0.90</b>	<b>55.2</b>	<b>0.97</b>
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
<b>1800 – 2000</b>	<b>40.0</b>	<b>1.40</b>	<b>53.3</b>	<b>1.52</b>
<b>2450</b>	<b>39.2</b>	<b>1.80</b>	<b>52.7</b>	<b>1.95</b>
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

( $\epsilon_r$  = relative permittivity,  $\sigma$  = conductivity and  $\rho = 1000 \text{ kg/m}^3$ )

## 4. SAR Measurement Procedure

### 4.1. SAR System Validation

#### 4.1.1. Validation Dipoles



The dipoles used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. the table below provides details for the mechanical and electrical specifications for the dipoles.

Frequency	L (mm)	h (mm)	d (mm)
835MHz	161.0	89.8	3.6
1900MHz	68.0	39.5	3.6
2450MHz	51.5	30.4	3.6

**4.1.2. Validation Result**

<b>System Performance Check at 835MHz &amp;1900MHz for Head</b>				
<b>Validation Kit: D835V2-SN 4d094</b>				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
835 MHz	Reference result ± 10% window	9.70 8.73 to 10.67	6.30 5.67 to 6.93	N/A
	10-01-2012	10.04	6.56	21.0
<b>Validation Kit: D1900V2-SN 5d121</b>				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
1900 MHz	Reference result ± 10% window	39.8 35.82 to 43.78	21.1 18.99 to 23.21	N/A
	10-01-2012	42.00	21.44	21.0
Note: All SAR values are normalized to 1W forward power.				
<b>System Performance Check at 835MHz &amp;1900MHz for Body</b>				
<b>Validation Kit: D835V2-SN 4d094</b>				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
835 MHz	Reference result ± 10% window	9.90 8.91 to 10.89	6.53 5.88 to 7.18	N/A
	10-01-2012	9.68	6.24	21.0
<b>Validation Kit: D1900V2-SN 5d121</b>				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
1900 MHz	Reference result ± 10% window	41.4 37.26 to 45.54	22.3 20.07 to 24.53	N/A
	10-01-2012	42.40	21.60	21.0
Note: All SAR values are normalized to 1W forward power.				

<b>System Performance Check at 2450MHz for Head</b>				
<b>Validation Dipole: D2450V2-SN 839</b>				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
2450 MHz	Reference result ± 10% window	52.3 47.07 to 57.53	24.5 22.05 to 26.95	N/A
	10-01-2012	52.00	23.16	21.0
<b>System Performance Check at 2450MHz for Body</b>				
<b>Validation Dipole: D2450V2-SN 839</b>				
Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
2450 MHz	Reference result ± 10% window	51.6 46.44 to 56.76	24.2 21.78 to 26.62	N/A
	10-01-2012	50.00	22.88	21.0
Note: All SAR values are normalized to 1W forward power.				

#### 4.2. SAR Measurement Procedure

The DASY5 calculates SAR using the following equation,

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

$\sigma$ : represents the simulated tissue conductivity

$\rho$ : represents the tissue density

The EUT is set to transmit at the required power in line with product specification, at each frequency relating to the LOW, MID, and HIGH channel settings.

Pre-scans are made on the device to establish the location for the transmitting antenna, using a large area scan in either air or tissue simulation fluid.

The EUT is placed against the Universal Phantom where the maximum area scan dimensions are larger than the physical size of the resonating antenna. When the scan size is not large enough to cover the peak SAR distribution, it is modified by either extending the area scan size in both the X and Y directions, or the device is shifted within the predefined area.

The area scan is then run to establish the peak SAR location (interpolated resolution set at  $1\text{mm}^2$ ) which is then used to orient the center of the zoom scan. The zoom scan is then executed and the 1g and 10g averages are derived from the zoom scan volume (interpolated resolution set at  $1\text{mm}^3$ ).

## 5. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE-1528, FCC Supplement C, and comply with ANSI/IEEE C95.1-1992 “Uncontrolled Environments” limits. These limits apply to a location which is deemed as “Uncontrolled Environment” which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

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

Type Exposure	Uncontrolled Environment Limit
Spatial Peak SAR (1g cube tissue for brain or body)	1.60 W/kg
Spatial Average SAR (whole body)	0.08 W/kg
Spatial Peak SAR (10g for hands, feet, ankles and wrist)	4.00 W/kg

## 6. Test Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Cali. Due Date
Stäubli Robot TX60L	Stäubli	TX60L	F10/5C90A1/A/01	only once
Controller	Stäubli	SP1	S-0034	only once
Dipole Validation Kits	Speag	D835V2	4d094	2012.03.15
Dipole Validation Kits	Speag	D1900V2	5d121	2012.03.23
Dipole Validation Kits	Speag	D2450V2	839	2012.03.12
SAM Twin Phantom	Speag	SAM	TP-1561/1562	N/A
Device Holder	Speag	SD 000 H01 HA	N/A	N/A
Data Acquisition Electronic	Speag	DAE4	915	2012.07.26
E-Field Probe	Speag	EX3DV4	3661	2012.01.24
SAR Software	Speag	DASY5	V5.2 Build 162	N/A
Power Amplifier	Mini-Circuit	ZVA-183-S+	N657400950	N/A
Directional Coupler	Agilent	778D	20160	N/A
Universal Radio Communication Tester	R&S	CMU 200	117088	2012.04.29
Vector Network	Agilent	E5071C	MY48367267	2012.04.10
Signal Generator	Agilent	E4438C	MY49070163	2012.04.23
Power Meter	Anritsu	ML2495A	0905006	2012.01.12
Wide Bandwidth Sensor	Anritsu	MA2411B	0846014	2012.01.12

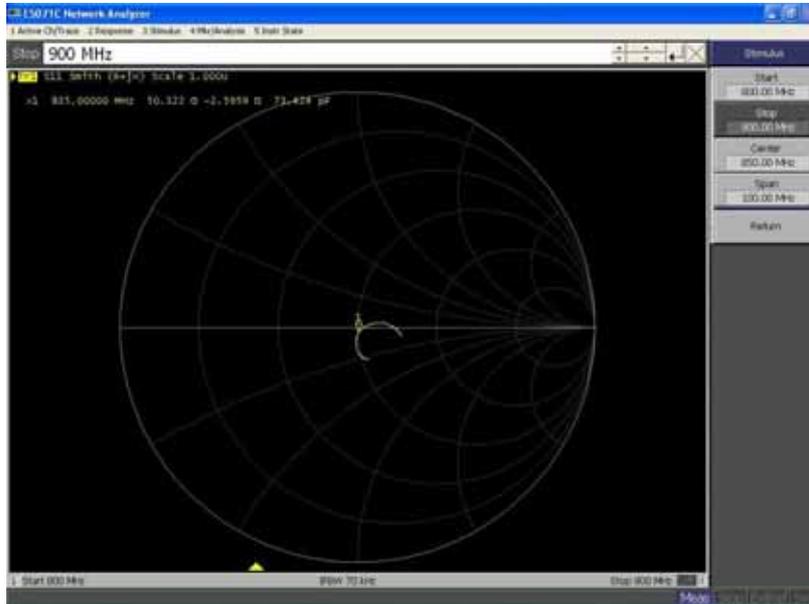
Note: Per KDB 450824 D02 requirements for dipole calibration, Quietek Lab has adopted two years calibration intervals. On annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss is within 20% of calibrated measurement (Show below);
4. Impedance is within 5Ω of calibrated measurement (Show below).

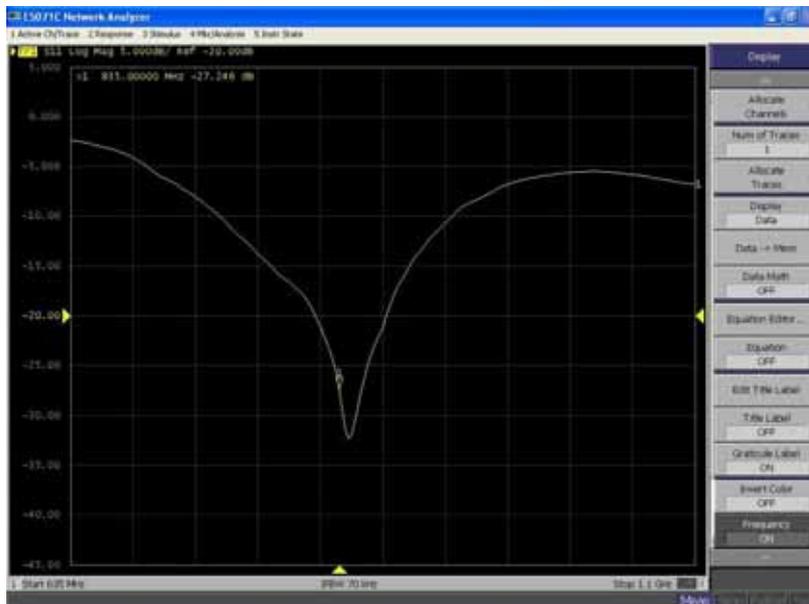
Impedance Plot for D835V2

835 Head

Calibrated impedance: 52.2 Ω; Measured impedance: 50.322 Ω (within 5Ω)

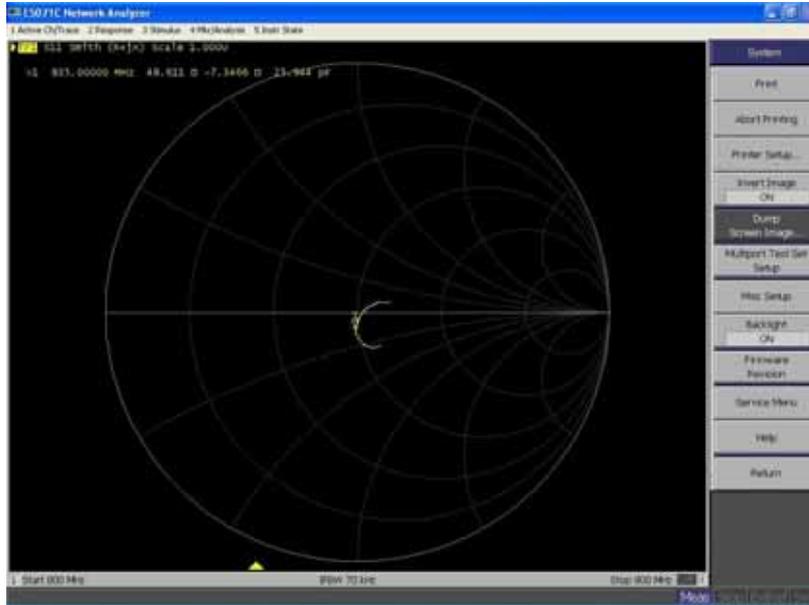


Calibrated return loss: -29.4 dB; Measured impedance: -27.246 dB (within 20%)

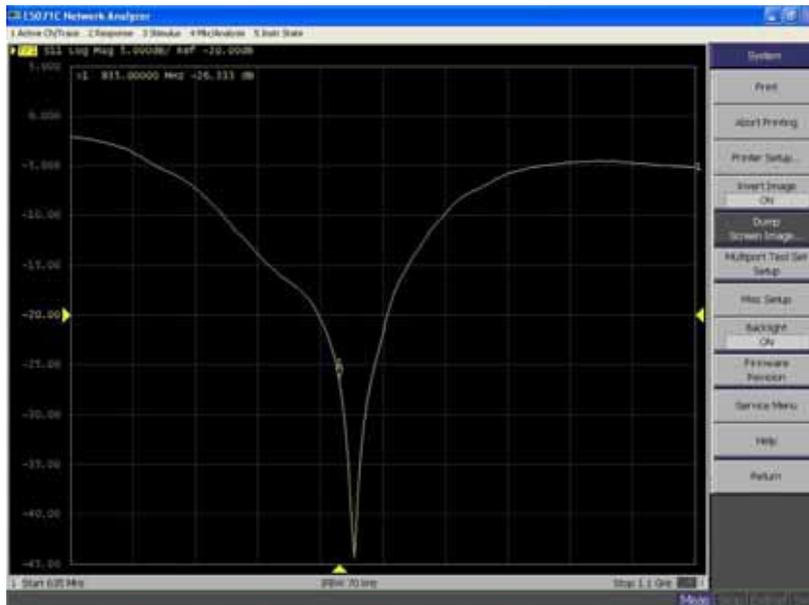


835 Body

Calibrated impedance: 48.0 Ω; Measured impedance: 48.611 Ω (within 5Ω)



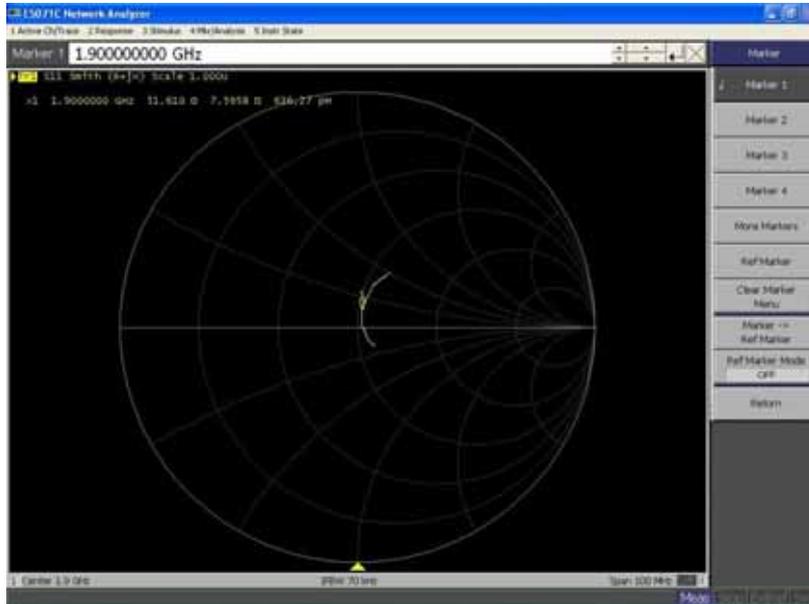
Calibrated return loss: -25.5 dB; Measured impedance: -26.333 dB (within 20%)



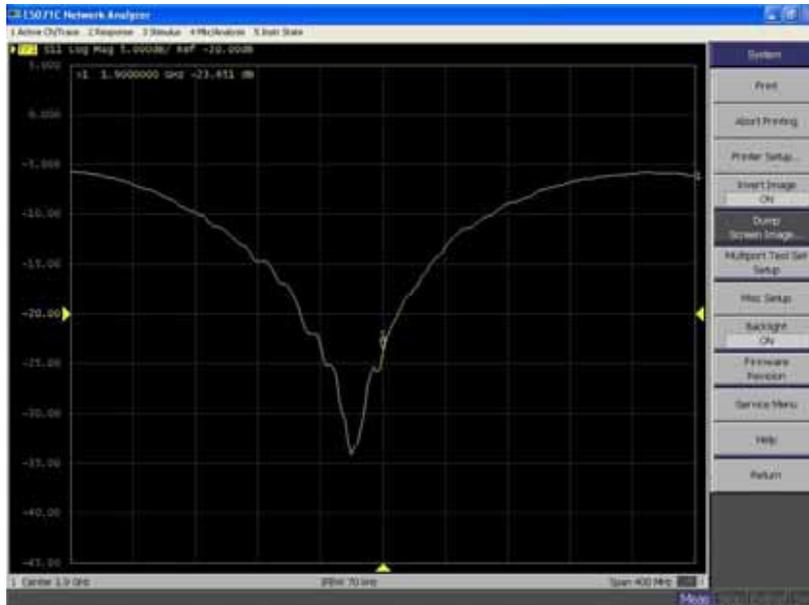
Impedance Plot for D1900V2

1900 Head

Calibrated impedance: 50.6 Ω; Measured impedance: 51.610 Ω (within 5Ω)

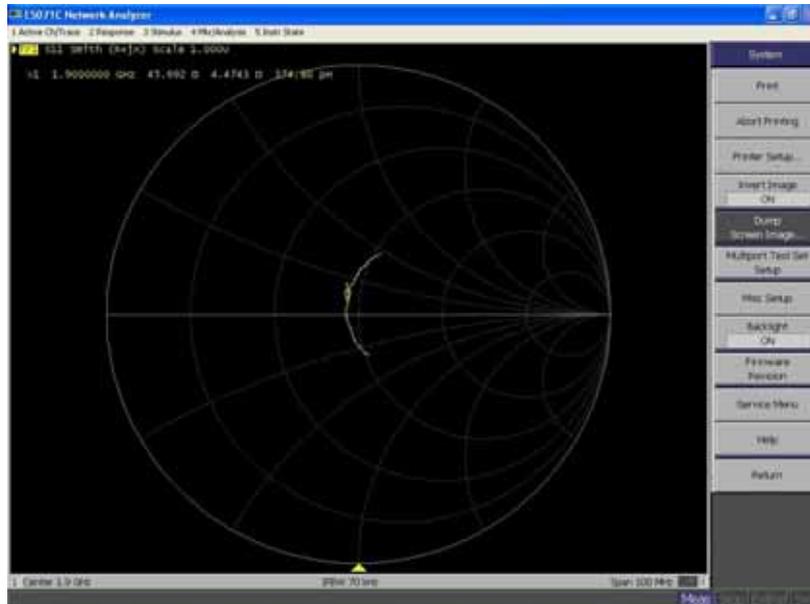


Calibrated return loss: -22.7 dB; Measured impedance: -23.651 dB (within 20%)

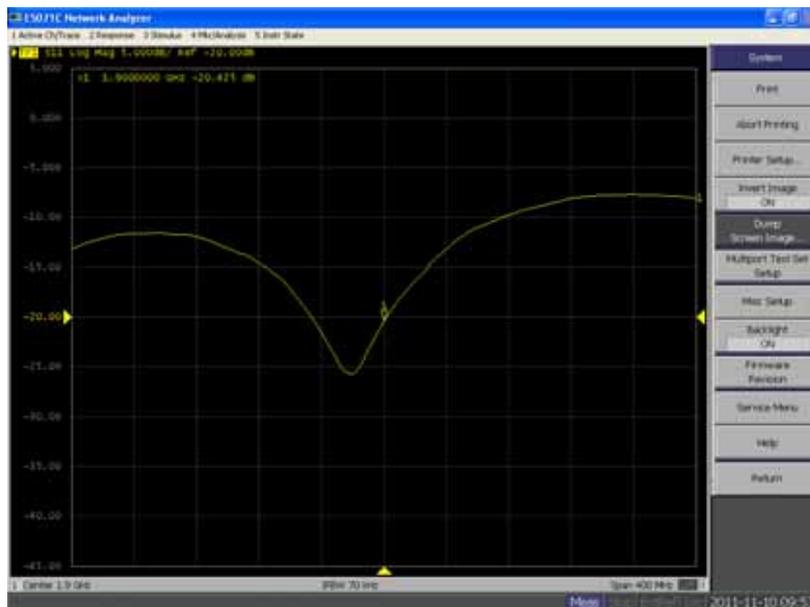


1900 Body

Calibrated impedance: 46.1 Ω; Measured impedance: 45.692 Ω (within 5Ω)



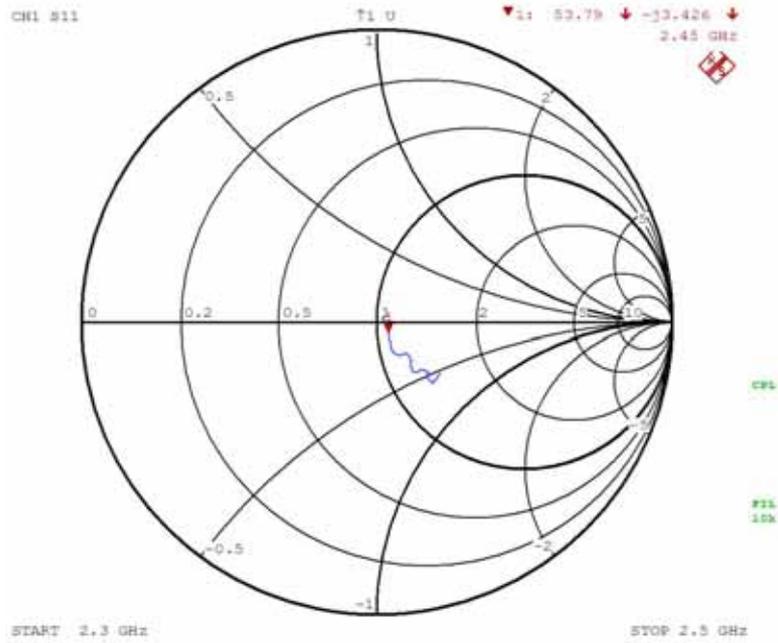
Calibrated return loss: -21.5 dB; Measured impedance: -20.425 dB (within 20%)



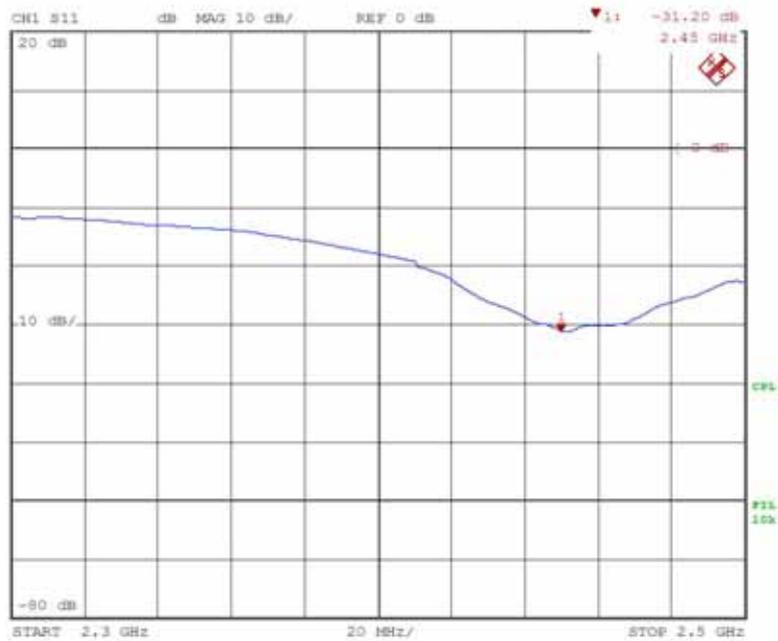
Impedance Plot for D2450V2

2450 Head

Calibrated impedance: 53.5  $\Omega$ ; Measured impedance: 53.79  $\Omega$  (within 5 $\Omega$ )

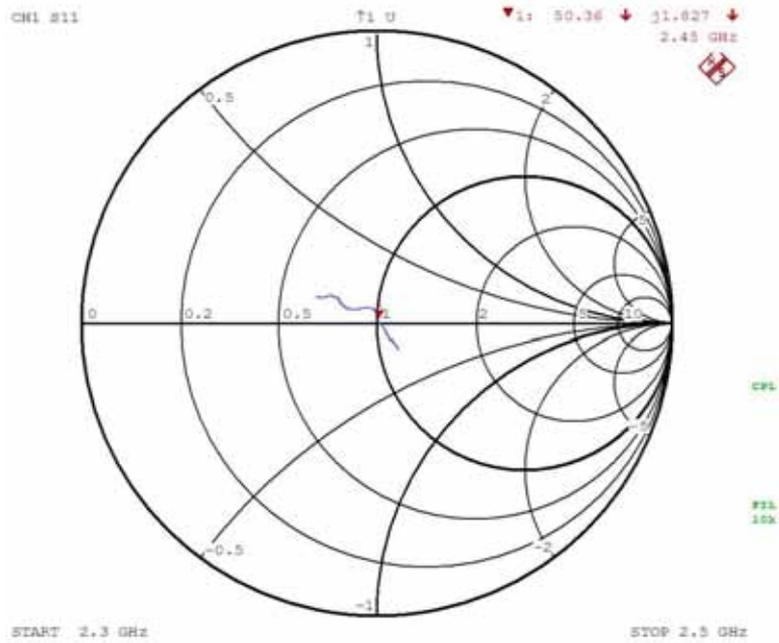


Calibrated return loss: -29.4 dB; Measured impedance: -31.2 dB (within 20%)

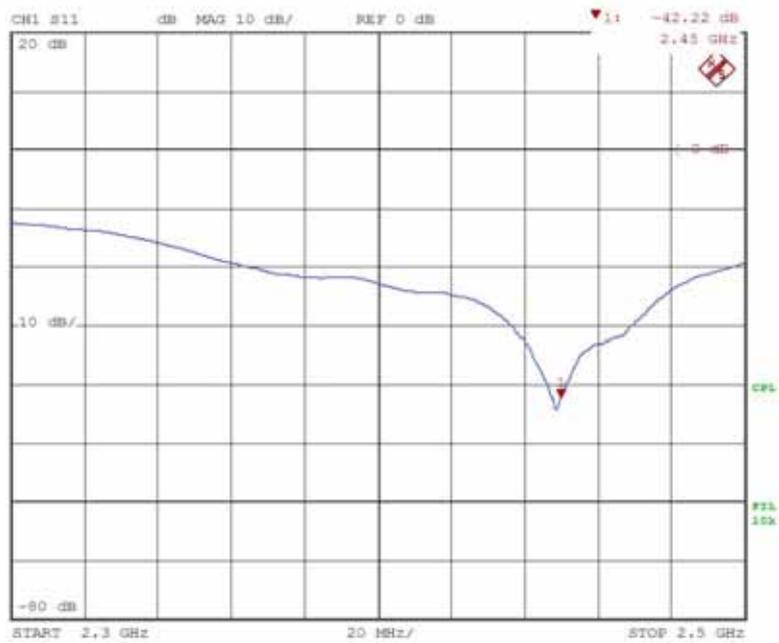


2450 Body

Calibrated impedance: 50 Ω; Measured impedance: 50.36 Ω (within 5Ω)



Calibrated return loss: -40.8 dB; Measured impedance: -42.22 dB (within 20%)



7. Measurement Uncertainty

DASY5 Uncertainty								
Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram / 10 gram.								
Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(vi) V <sub>eff</sub>
<b>Measurement System</b>								
Probe Calibration	±5.5%	N	1	1	1	±5.5%	±5.5%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	√3	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	√3	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
<b>Test Sample Related</b>								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
<b>Phantom and Setup</b>								
Phantom Uncertainty	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	√3	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	√3	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
<b>Combined Std. Uncertainty</b>						±10.7%	±10.5%	387
<b>Expanded STD Uncertainty</b>						±21.4%	±21.0%	

## 8. Conducted Power Measurement

Mode	Frequency (MHz)	Avg. Burst Power (dBm)	Duty Cycle Factor (dB)	Frame Power (dBm)
Maximum Power<SIM 1>				
GSM850	824.2	32.19	-9	23.19
	836.4	32.01	-9	23.01
	848.8	31.97	-9	22.97
GPRS850(1 Slot)	824.2	32.13	-9	23.13
	836.4	31.94	-9	22.94
	848.8	31.92	-9	22.92
GPRS850(2 Slot)	824.2	31.38	-6	25.38
	836.4	31.16	-6	25.16
	848.8	31.14	-6	25.14
GPRS850(3 Slot)	824.2	29.73	-4.25	25.48
	836.4	29.51	-4.25	25.26
	848.8	29.46	-4.25	25.21
GPRS850(4 Slot)	824.2	28.87	-3	25.87
	836.4	28.66	-3	25.66
	848.8	28.63	-3	25.63
EDGE850 (1 slot)	824.2	27.04	-9	18.04
	836.4	26.82	-9	17.82
	848.8	26.75	-9	17.75
EDGE850 (2 slot)	824.2	26.99	-6	20.99
	836.4	26.77	-6	20.77
	848.8	26.72	-6	20.72
EDGE850 (3 slot)	824.2	26.99	-4.25	22.74
	836.4	26.74	-4.25	22.49
	848.8	26.69	-4.25	22.44
EDGE850 (4 slot)	824.2	26.93	-3	23.93
	836.4	26.69	-3	23.69
	848.8	26.65	-3	23.65
PCS1900	1850.2	29.36	-9	20.36
	1880.0	29.27	-9	20.27
	1909.8	29.12	-9	20.12
GPRS1900(1 Slot)	1850.2	29.36	-9	20.36
	1880.0	29.26	-9	20.26
	1909.8	29.09	-9	20.09

GPRS1900(2 Slot)	1850.2	28.55	-6	22.55
	1880.0	28.45	-6	22.45
	1909.8	28.29	-6	22.29
GPRS1900(3 Slot)	1850.2	26.98	-4.25	22.73
	1880.0	26.85	-4.25	22.60
	1909.8	26.67	-4.25	22.42
GPRS1900(4 Slot)	1850.2	26.11	-3	23.11
	1880.0	26.01	-3	23.01
	1909.8	25.87	-3	22.87
EDGE1900(1 Slot)	1850.2	26.27	-9	17.27
	1880.0	26.16	-9	17.16
	1909.8	25.97	-9	16.97
EDGE 1900 (2 slot)	1850.2	26.25	-6	20.25
	1880.0	26.12	-6	20.12
	1909.8	25.93	-6	19.93
EDGE1900(3 Slot)	1850.2	26.18	-4.25	21.93
	1880.0	26.08	-4.25	21.83
	1909.8	25.91	-4.25	21.66
EDGE 1900 (4 slot)	1850.2	26.08	-3	23.08
	1880.0	26.00	-3	23.00
	1909.8	25.83	-3	22.83
Maximum Power<SIM 2>				
GSM850	836.4	31.86	-9	22.86
PCS1900	1880.0	28.87	-9	19.87

Note 1: All SAR testing was done in SIM 1.

Note 2: According to the output value listed above, the EDGE mode was not determined for SAR testing, refer to KDB 941225.

Note 3: According to KDB941225, the source-based time-averaged output power of GPRS is lower than GSM voice mode, the GPRS mode is optional.

WLAN output power

Test Mode	Data Rate (Mbps)	Channel No.	Frequency (MHz)	Average Power (dBm)
802.11b	1	01	2412	19.09
		06	2437	19.28
		11	2462	19.19
802.11g	6	01	2412	16.58
		06	2437	16.72
		11	2462	16.73

Note : According to the KDB 248227. SAR is not required for 802.11g channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels

Bluetooth output power

Test Mode	Channel No.	Frequency (MHz)	Average Power (dBm)
1Mbps(GFSK_DH5)	00	2402	-1.80
	39	2441	-1.14
	78	2480	0.18
2Mbps(Pi/4 DQPSK_DH5)	00	2402	-2.04
	39	2441	-1.09
	78	2480	-0.38
3Mbps(8DPSK_DH5)	00	2402	-1.91
	39	2441	-1.08
	78	2480	-0.26

Note : According to the KDB 447498. Bluetooth max output power is 0.18dBm less than Pref (12mw =10.79dBm), standalone SAR is not required.

## **9. Test Results**

### **9.1. SAR Test Results Summary**

#### **9.1.1. Test position and configuration**

Head SAR was performed with the device configured in the positions according to IEEE1528, and Body SAR was performed with the device 15mm from the phantom. Body SAR was also performed with the headset attached and without.

#### **9.1.2. Body SAR with Headset**

Testing with the headset was performed at the position and channels that resulted in the highest body SAR. This testing was performed with GPRS transmitting with 2/3/4 uplink timeslots. This operation mode represents the maximum SAR situation, when downloading data via GPRS and listening to music by headset. SAR without the headset attached was significantly higher than with the headset, and also was verified several times and confirmed, so the final test data shown were the worst case without headset.

In the Body SAR test result table, body-worn means display of device down, body-front means display of device up.

#### **9.1.3. Operation Mode**

This is a multislots class 12 device capable of 4 uplink timeslots. During the head SAR test, the device was transmitting with 1 uplink timeslot; during the body SAR test, it was transmitting with 2/3/4 uplink timeslots. Additionally, this device doesn't support dual transfer mode (DTM) and not support simultaneous transmission between Wi-Fi and GPRS.

#### **9.1.4. Co-located SAR**

According to KDB 648474, Bluetooth output power is 0.18dBm less than Pref (12mw =10.79dBm).

- 1, 9.5cm away from GSM antenna( $\cong$  2.5cm)
- 3, 4.2cm away from WLAN antenna ( $\cong$  2.5cm).

Therefore, standalone SAR and simultaneous SAR for Bluetooth is not required.

The closest separation between GSM antenna and Wi-Fi antenna is 7.3cm, but the Wi-Fi power is more than 2\*Pref, so standalone SAR for WLAN is required.

The simultaneous transmission between WLAN and GSM:

Head Max SAR value and the sum of the 1-g SAR for WLAN & GSM.

Max 1-g SAR (W/kg)			Σ 1-g SAR (W/kg)
Position	WLAN	GSM	
Left-Cheek	0.038	0.608	0.646
Right-Cheek	0.030	0.609	0.639

Body SAR value and the sum of the 1-g SAR for WLAN & GSM.

Max 1-g SAR (W/kg)			Σ 1-g SAR (W/kg)
Position	WLAN	GSM	
Body-Worn	0.022	0.510	0.532

Note: This device just supports simultaneous transmission between Wi-Fi and GSM.

**Conclusion:**

Simultaneous Transmission  
WLAN & GSM

Require for Simultaneous Transmission SAR with Volume Scans  
No (The sum of the 1-g SAR is < 1.6 W/kg)

**9.1.5. Test Result**

<b>SAR MEASUREMENT</b>							
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%) : 52			
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15			
Product: GSM Mobile Phone							
Test Mode: GSM850 <SIM 1>							
Test Position Head	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz				
Left-Cheek	Fixed	128	824.2	23.19	--	--	1.6
Left-Cheek	Fixed	189	836.4	23.01	-0.140	0.608	1.6
Left-Cheek	Fixed	251	848.8	22.97	--	--	1.6
Left-Tilted	Fixed	189	836.4	23.01	-0.081	0.362	1.6
Right-Cheek	Fixed	128	824.2	23.19	--	--	1.6
Right-Cheek	Fixed	189	836.4	23.01	-0.120	0.609	1.6
Right-Cheek	Fixed	251	848.8	22.97	--	--	1.6
Right-Tilted	Fixed	189	836.4	23.01	-0.038	0.400	1.6
Test Mode: GSM850 <SIM 2>							
Right-Cheek	Fixed	189	836.4	22.86	0.102	0.574	1.6
Note: when the 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional, refer to KDB 941225.							

SAR MEASUREMENT								
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 52				
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15				
Product: GSM Mobile Phone								
Test Mode: GSM850								
Test Position Body	Antenna Position	Frequency		Separation Distance (mm)	Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz					
Body-worn	Fixed	128	824.2	15	23.19	--	--	1.6
Body-worn	Fixed	189	836.4	15	23.01	0.023	0.510	1.6
Body-worn	Fixed	251	848.8	15	22.97	--	--	1.6
Test Mode: GPRS850 2slot								
Body-worn	Fixed	189	836.4	15	25.16	-0.074	0.908	1.6
Test Mode: GPRS850 3slot								
Body-worn	Fixed	189	836.4	15	25.26	0.024	0.918	1.6
Test Mode: GPRS850 4slot								
Body-worn	Fixed	128	824.2	15	25.87	0.009	1.000	1.6
Body-worn	Fixed	189	836.4	15	25.66	0.027	1.010	1.6
Body-worn	Fixed	251	848.8	15	25.63	-0.016	0.957	1.6
Body-front	Fixed	189	836.4	15	25.66	-0.191	0.764	1.6
Body-worn (With Headset)	Fixed	189	836.4	15	25.66	0.125	0.833	1.6
Note: when the 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional, refer to KDB 941225.								

SAR MEASUREMENT							
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 52			
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15			
Product: GSM Mobile Phone							
Test Mode: PCS1900 <SIM 1>							
Test Position Head	Antenna Position	Frequency		Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz				
Left-Cheek	Fixed	512	1850.2	20.36	--	--	1.6
Left-Cheek	Fixed	661	1880.0	20.27	0.039	0.603	1.6
Left-Cheek	Fixed	810	1909.8	20.12	--	--	1.6
Left-Tilted	Fixed	661	1880.0	20.27	-0.015	0.215	1.6
Right-Cheek	Fixed	512	1850.2	20.36	--	--	1.6
Right-Cheek	Fixed	661	1880.0	20.27	-0.061	0.467	1.6
Right-Cheek	Fixed	810	1909.8	20.12	--	--	1.6
Right-Tilted	Fixed	661	1880.0	20.27	0.031	0.254	1.6
Test Mode: PCS1900 <SIM 2>							
Left-Cheek	Fixed	661	1880.0	19.87	-0.167	0.490	1.6
Note: when the 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional, refer to KDB 941225.							

SAR MEASUREMENT								
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 52				
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15				
Product: GSM Mobile Phone								
Test Mode: PCS1900								
Test Position Body	Antenna Position	Frequency		Separation Distance (mm)	Frame Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz					
Body-worn	Fixed	512	1850.2	15	20.36	--	--	1.6
Body-worn	Fixed	661	1880.0	15	20.27	0.111	0.198	1.6
Body-worn	Fixed	810	1909.8	15	20.12	--	--	1.6
Test Mode: GPRS1900 2slot								
Body-worn	Fixed	661	1880.0	15	22.45	0.078	0.356	1.6
Test Mode: GPRS1900 3slot								
Body-worn	Fixed	661	1880.0	15	22.60	0.191	0.362	1.6
Test Mode: GPRS1900 4slot								
Body-worn	Fixed	512	1850.2	15	23.11	--	--	1.6
Body-worn	Fixed	661	1880.0	15	23.01	-0.111	0.393	1.6
Body-worn	Fixed	810	1909.8	15	22.87	--	--	1.6
Body-front	Fixed	661	1880.0	15	23.01	0.117	0.326	1.6
Body-worn (With Headset)	Fixed	661	1880.0	15	23.01	-0.002	0.344	1.6
Note: when the 1-g SAR is ≤ 0.8 W/kg, testing for low and high channel is optional, refer to KDB 941225.								

SAR MEASUREMENT							
Ambient Temperature (°C): 21.5 ±2				Relative Humidity (%): 52			
Liquid Temperature (°C): 21.0 ±2				Depth of Liquid (cm):>15			
Product: GSM Mobile Phone							
Test Mode: 802.11b							
Test Position Head	Antenna Position	Frequency		Average Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz				
Left-Cheek	Fixed	1	2412	19.09	--	--	1.6
Left-Cheek	Fixed	6	2437	19.28	0.082	0.038	1.6
Left-Cheek	Fixed	11	2462	19.19	--	--	1.6
Left-Tilted	Fixed	6	2437	19.28	-0.131	0.036	1.6
Right-Cheek	Fixed	1	2412	19.09	--	--	1.6
Right-Cheek	Fixed	6	2437	19.28	-0.132	0.030	1.6
Right-Cheek	Fixed	11	2462	19.19	--	--	1.6
Left-Tilted	Fixed	6	2437	19.28	-0.104	0.029	1.6

Note: When the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required, refer to KDB 447498.

SAR MEASUREMENT								
Ambient Temperature (°C): 21.5 ±2					Relative Humidity (%): 52			
Liquid Temperature (°C): 21.0 ±2					Depth of Liquid (cm):>15			
Product: GSM Mobile Phone								
Test Mode: 802.11b								
Test Position Body	Antenna Position	Frequency		Separation Distance (mm)	Average Power (dBm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz					
Body-worn	Fixed	1	2412	15	19.09	--	--	1.6
Body-worn	Fixed	6	2437	15	19.28	-0.187	0.022	1.6
Body-worn	Fixed	11	2462	15	19.19	--	--	1.6
Body-front	Fixed	6	2437	15	19.28	-0.17	0.010	1.6
Body-worn (With Headset)	Fixed	6	2437	15	19.28	-0.129	0.015	1.6
Note: When the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required, refer to KDB 447498.								

## Appendix A. SAR System Validation Data

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

System Check Head 835MHz

**DUT: Dipole 835 MHz D835V2; Type: D835V2**

Communication System: CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1;

Frequency: 835 MHz; Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 42.27$ ;  $\rho = 1000 \text{ kg/m}^3$  ;

Phantom section: Flat Section ; Input Power=250mW

Ambient temperature ( $^{\circ}\text{C}$ ): 21.5, Liquid temperature ( $^{\circ}\text{C}$ ): 21.0

DASY5 Configuration:

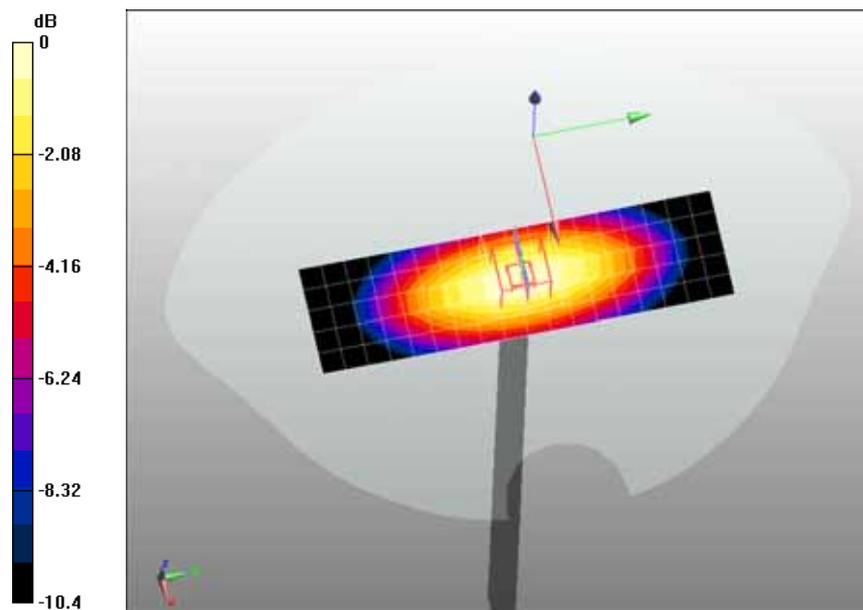
- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/System Check GSM850 Head/Area Scan (6x19x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$ , Maximum value of SAR (measured) = 2.59 mW/g

**Configuration/System Check GSM850 Head/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$ , Reference Value = 55.7 V/m; Power Drift = -0.078 dB

Peak SAR (extrapolated) = 3.8 W/kg

**SAR(1 g) = 2.51 mW/g; SAR(10 g) = 1.64 mW/g** Maximum value of SAR (measured) = 2.71 mW/g



0 dB = 2.71mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

System Check Body 835MHz

**DUT: Dipole 835 MHz D835V2; Type: D835V2**

Communication System: CW; Communication System Band: D835 (835.0 MHz); Duty Cycle: 1:1;

Frequency: 835 MHz; Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.98 \text{ mho/m}$ ;  $\epsilon_r = 54.73$ ;  $\rho = 1000 \text{ kg/m}^3$  ;

Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

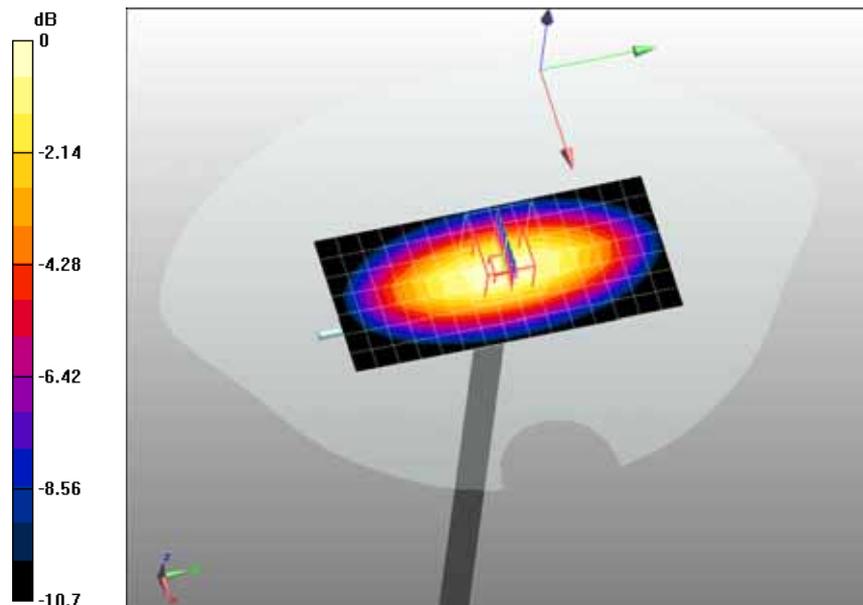
- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/System Check GSM835 Body/Area Scan (8x16x1):** Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 2.49 mW/g

**Configuration/System Check GSM835 Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 52.1 V/m; Power Drift = 0.027 dB

Peak SAR (extrapolated) = 3.68 W/kg

**SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.56 mW/g** Maximum value of SAR (measured) = 2.61 mW/g



0 dB = 2.61mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

System Check Head 1900MHz

**DUT: Dipole 1900 MHz D1900V2; Type: D1900V2**

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle: 1:1;

Frequency: 1900 MHz; Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.42$  mho/m;  $\epsilon_r = 39.27$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(8.68, 8.68, 8.68); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

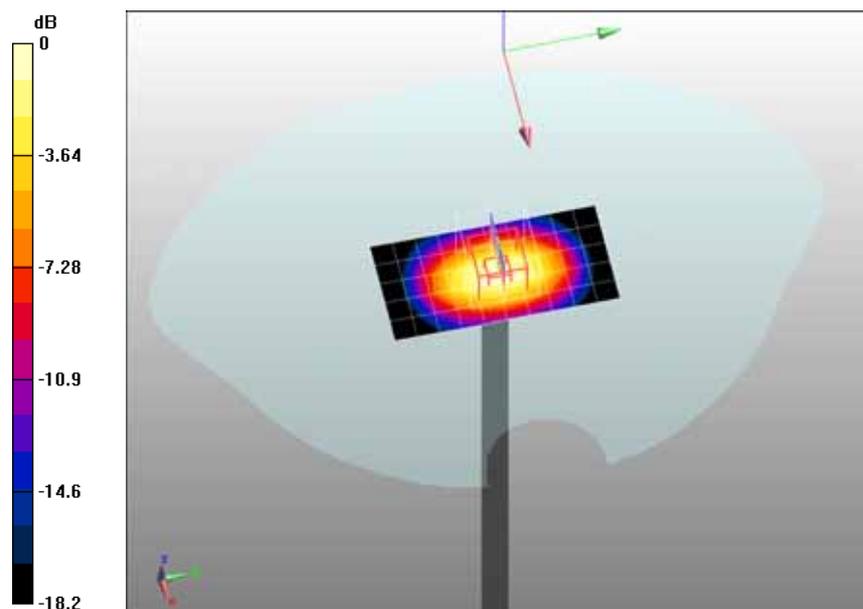
**Configuration/System Check PCS1900 Head/Area Scan (6x11x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 11.1 mW/g

**Configuration/System Check PCS1900 Head/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 90.8 V/m; Power Drift = -0.099 dB

Peak SAR (extrapolated) = 20 W/kg

**SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.36 mW/g** Maximum value of SAR (measured) = 12 mW/g



0 dB = 12mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

System Check Body 1900MHz

**DUT: Dipole 1900 MHz D1900V2; Type: D1900V2**

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Duty Cycle: 1:1;

Frequency: 1900 MHz; Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 52.45$ ;  $\rho = 1000$  kg/m<sup>3</sup>; Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

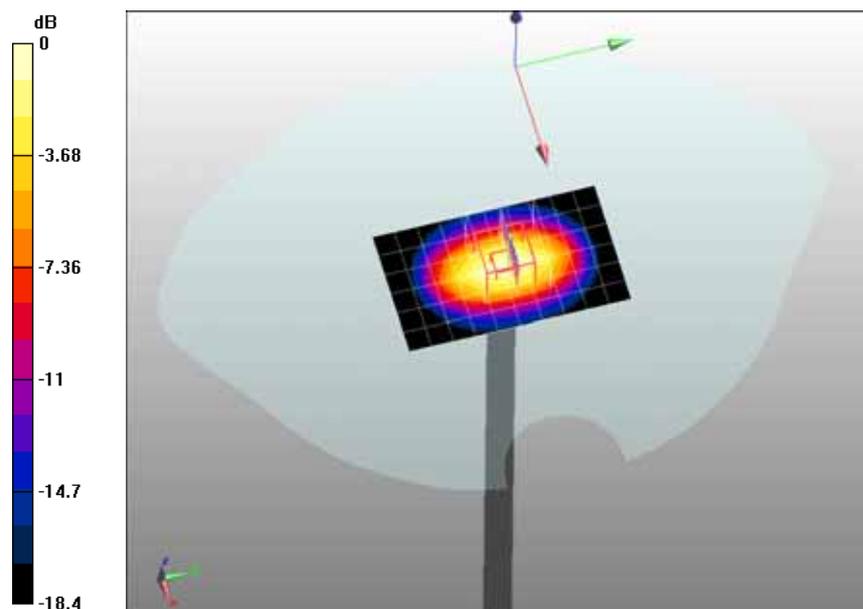
**Configuration/System Check PCS1900 Body/Area Scan (7x11x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 12 mW/g

**Configuration/System Check PCS1900 Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 88.6 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 19.7 W/kg

**SAR(1 g) = 10.6 mW/g; SAR(10 g) = 5.4 mW/g** Maximum value of SAR (measured) = 12 mW/g



0 dB = 12mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

System Check Head 2450MHz

**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2**

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1;

Frequency: 2450 MHz; Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.84$  mho/m;  $\epsilon_r = 38.6$ ;  $\rho = 1000$  kg/m<sup>3</sup> ;

Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.8, 7.8, 7.8); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

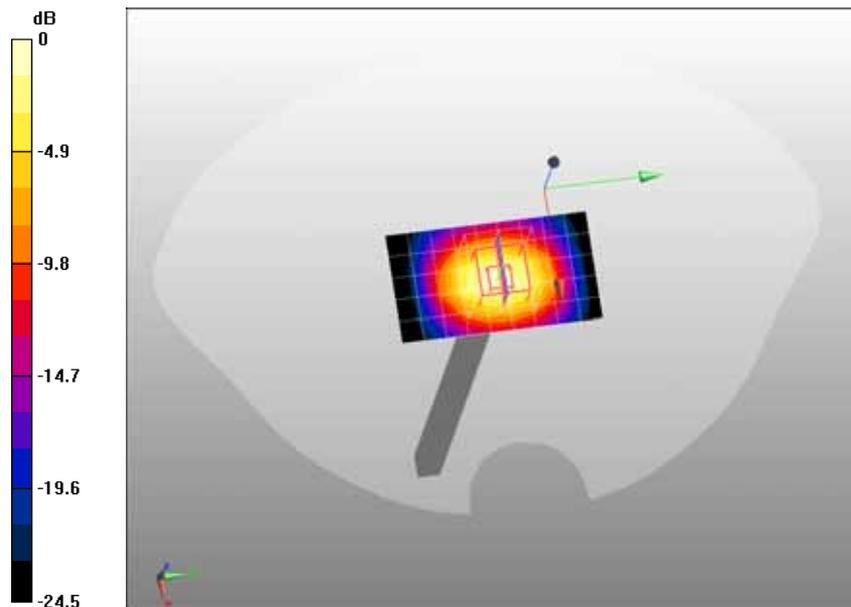
**Configuration/Head 2450MHz/Area Scan (6x10x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 13.4 mW/g

**Configuration/Head 2450MHz/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 89.4 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 28.8 W/kg

**SAR(1 g) = 13 mW/g; SAR(10 g) = 5.79 mW/g** Maximum value of SAR (measured) = 14.8 mW/g



0 dB = 14.8mW/g

Date/Time: 14-08-2011

Test Laboratory: QuieTek Lab

System Check Body 2450MHz

**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2**

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Duty Cycle: 1:1;

Frequency: 2450 MHz; Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.01$  mho/m;  $\epsilon_r = 52.3$ ;  $\rho = 1000$  kg/m<sup>3</sup> ;

Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.55, 7.55, 7.55); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

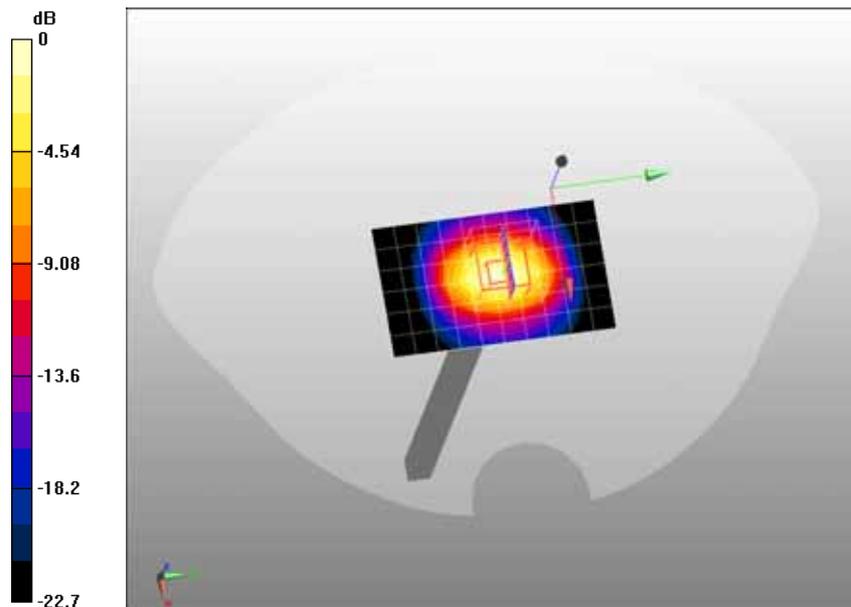
**Configuration/Body 2450MHz/Area Scan (7x11x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 14 mW/g

**Configuration/Body 2450MHz/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 84.1 V/m; Power Drift = 0.029 dB

Peak SAR (extrapolated) = 25.6 W/kg

**SAR(1 g) = 12.5 mW/g; SAR(10 g) = 5.72 mW/g** Maximum value of SAR (measured) = 14.3 mW/g



0 dB = 14.3mW/g

**Appendix B. SAR measurement Data**

**Date/Time: 10-01-2012**

Test Laboratory: QuieTek Lab

GSM850 Mid Touch-Left

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8.3; Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.91$  mho/m;  $\epsilon_r = 42.3$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Left Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**Configuration/GSM850 Mid Touch-Left/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

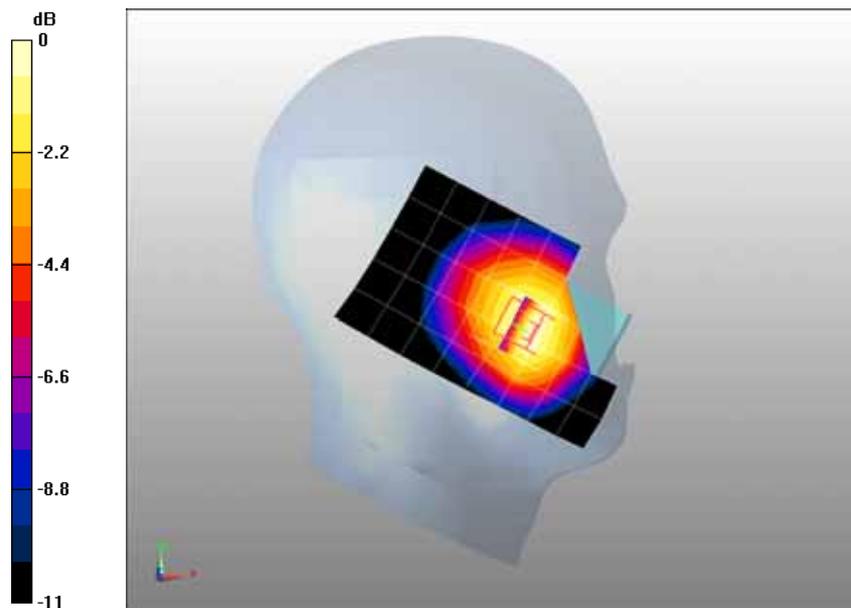
Maximum value of SAR (measured) = 0.610 mW/g

**Configuration/GSM850 Mid Touch-Left/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm,

dy=8mm, dz=5mm, Reference Value = 9.97 V/m; Power Drift = -0.140 dB

Peak SAR (extrapolated) = 0.733 W/kg

**SAR(1 g) = 0.608 mW/g; SAR(10 g) = 0.460 mW/g** Maximum value of SAR (measured) = 0.643 mW/g



0 dB = 0.643mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GSM850 Mid Tilt-Left

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8.3; Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.91$  mho/m;  $\epsilon_r = 42.3$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Left Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

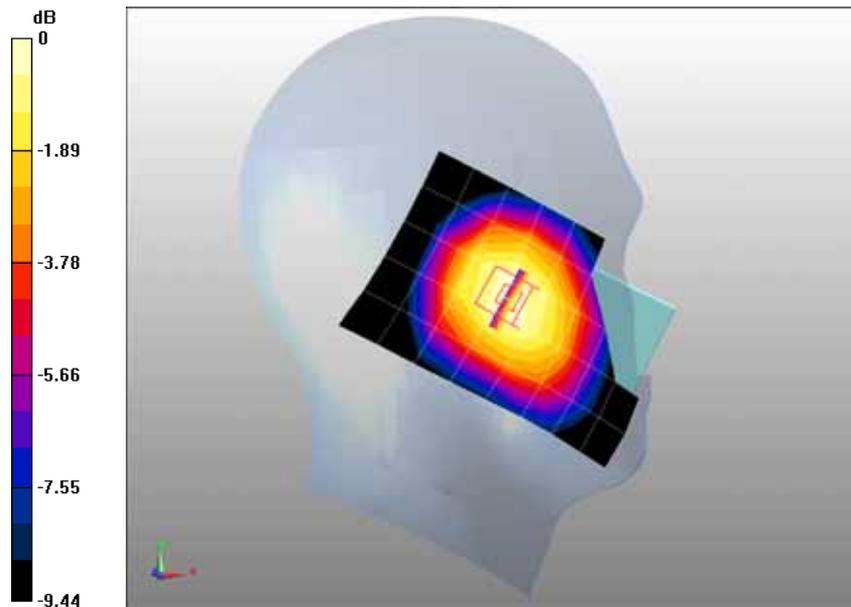
**Configuration/GSM850 Mid Tilt-Left/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.358 mW/g

**Configuration/GSM850 Mid Tilt-Left/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 15.1 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 0.458 W/kg

**SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.274 mW/g** Maximum value of SAR (measured) = 0.378 mW/g



0 dB = 0.378mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GSM850 Mid Touch-Right

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8.3; Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.91$  mho/m;  $\epsilon_r = 42.3$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Right Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

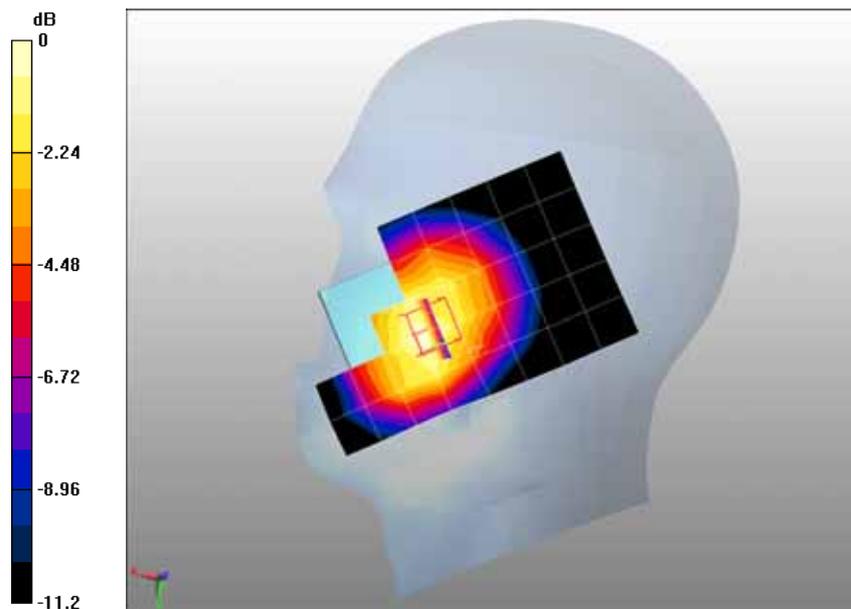
**Configuration/GSM850 Mid Touch-Right/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.642 mW/g

**Configuration/GSM850 Mid Touch-Right/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 7.42 V/m; Power Drift = -0.120 dB

Peak SAR (extrapolated) = 0.893 W/kg

**SAR(1 g) = 0.609 mW/g; SAR(10 g) = 0.434 mW/g** Maximum value of SAR (measured) = 0.641 mW/g



0 dB = 0.641mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GSM850 Mid Tilt-Right

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8.3; Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.91$  mho/m;  $\epsilon_r = 42.3$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Right Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

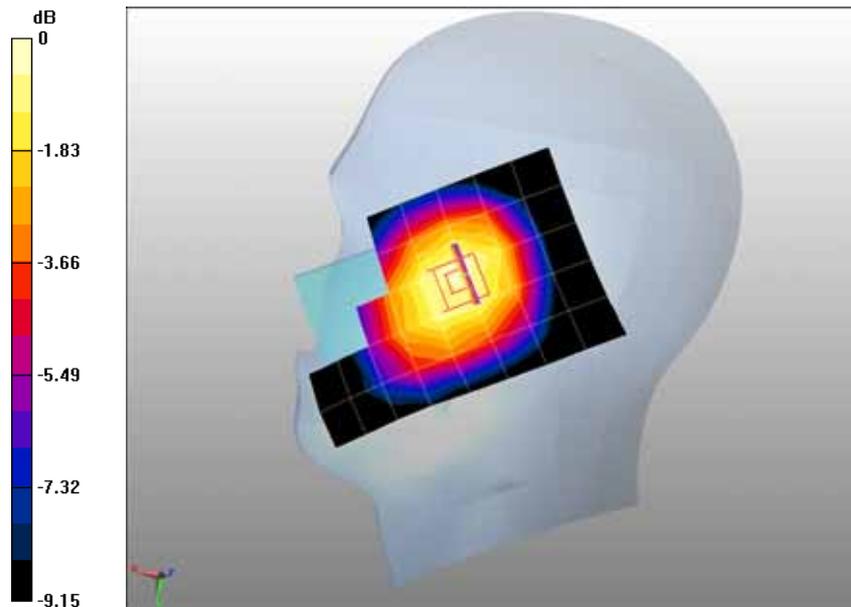
**Configuration/GSM850 Mid Tilt-Right/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.406 mW/g

**Configuration/GSM850 Mid Tilt-Right/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 14.9 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 0.508 W/kg

**SAR(1 g) = 0.400 mW/g; SAR(10 g) = 0.302 mW/g** Maximum value of SAR (measured) = 0.422 mW/g



0 dB = 0.422mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GSM850 Mid Touch-Right<SIM 2>

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8.3; Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.91$  mho/m;  $\epsilon_r = 42.3$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Right Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

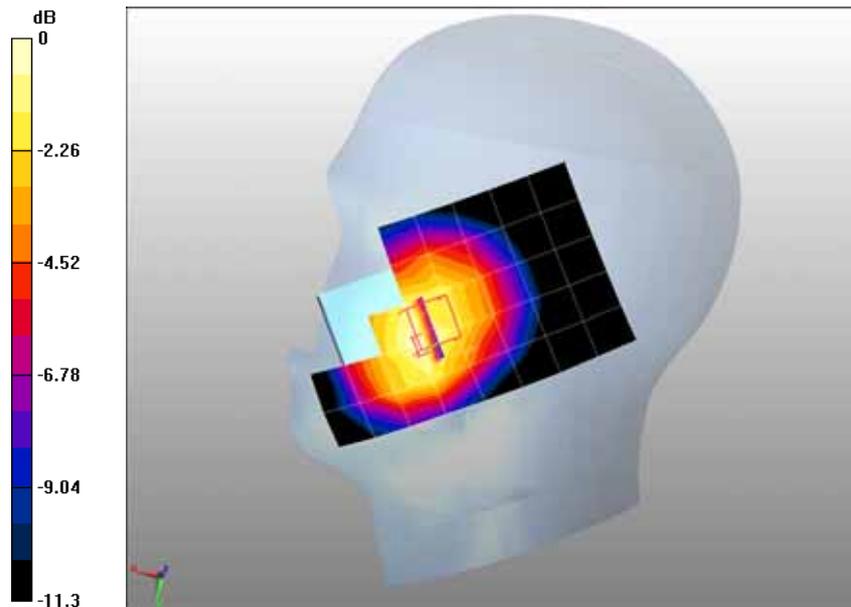
**Configuration/GSM850 Mid Touch-Right/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.619 mW/g

**Configuration/GSM850 Mid Touch-Right/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 6.72 V/m; Power Drift = 0.102 dB

Peak SAR (extrapolated) = 0.823 W/kg

**SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.419 mW/g** Maximum value of SAR (measured) = 0.611 mW/g



0 dB = 0.611mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GSM850 Mid Body-Back

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Duty Cycle: 1:8.3; Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.98$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

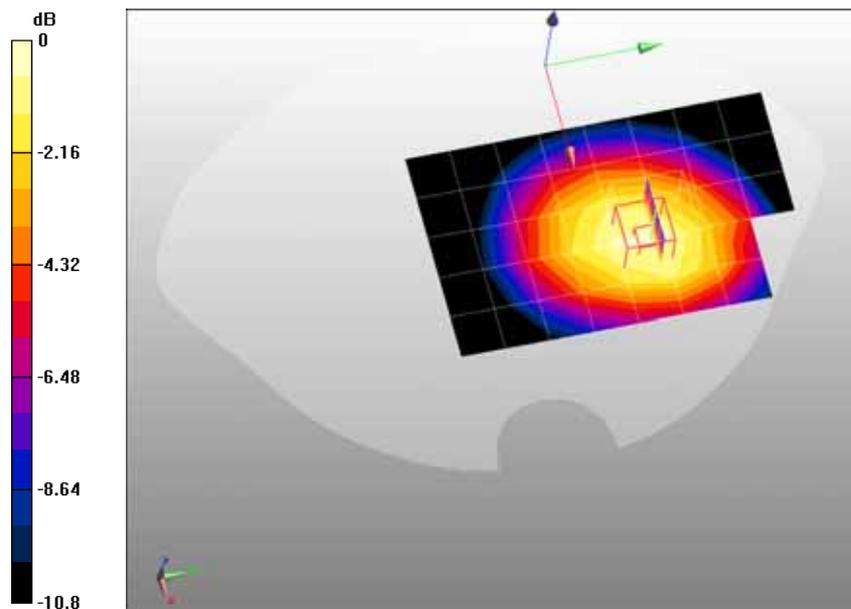
**Configuration/GSM850 Mid Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.493 mW/g

**Configuration/GSM850 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 9.77 V/m; Power Drift = 0.023 dB

Peak SAR (extrapolated) = 0.683 W/kg

**SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.370 mW/g** Maximum value of SAR (measured) = 0.538 mW/g



0 dB = 0.538mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS850 Mid Body-Back(2up)

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: GSM850; Duty Cycle: 1:4.2 ;  
 Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.98$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

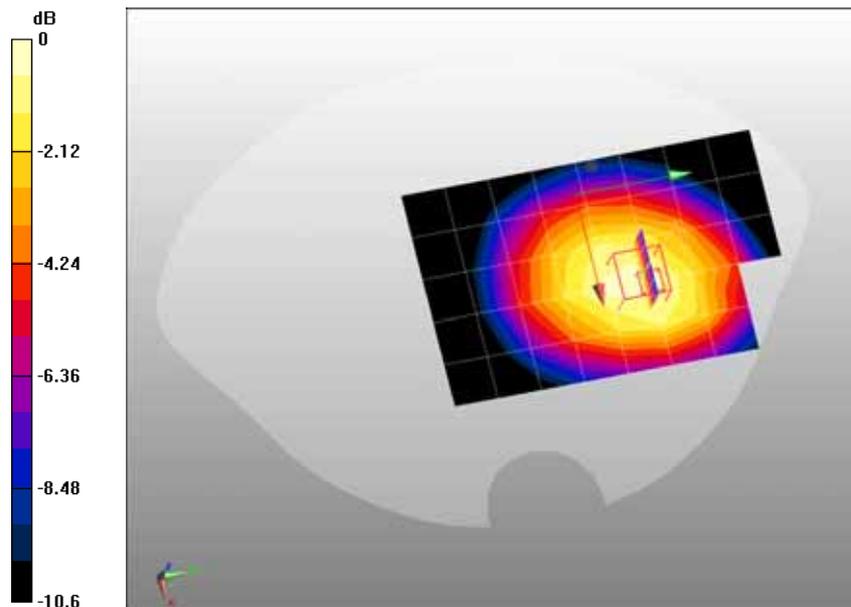
**Configuration/GPRS850 Mid Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.916 mW/g

**Configuration/GPRS850 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 13.3 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 1.24 W/kg

**SAR(1 g) = 0.908 mW/g; SAR(10 g) = 0.629 mW/g** Maximum value of SAR (measured) = 0.955 mW/g



0 dB = 0.955mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS850 Mid Body-Back(3up)

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: GPRS/EGPRS-3 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.8 ;  
 Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.98$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

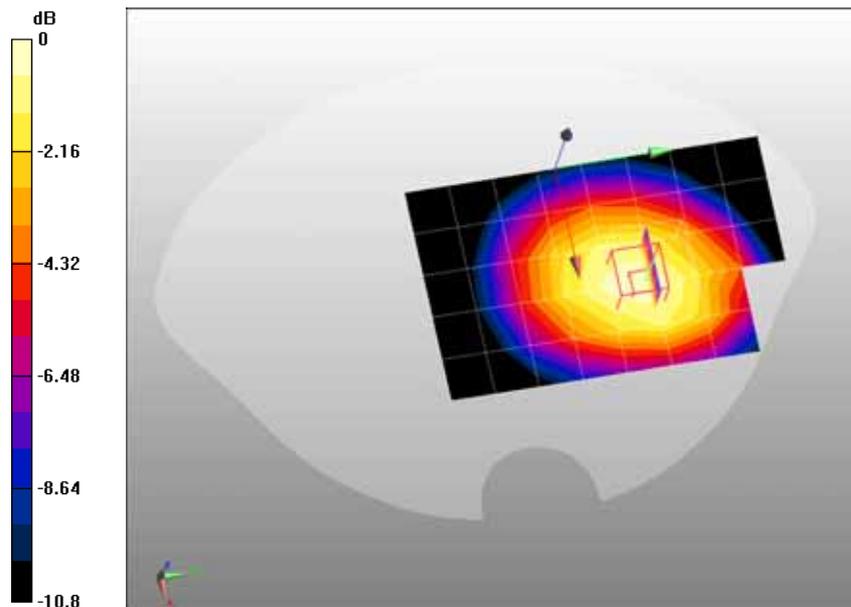
**Configuration/GPRS850 Mid Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.946 mW/g

**Configuration/GPRS850 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 13.5 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 1.24 W/kg

**SAR(1 g) = 0.918 mW/g; SAR(10 g) = 0.665 mW/g** Maximum value of SAR (measured) = 0.964 mW/g



0 dB = 0.964mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS850 Low Body-Back(4up)

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: GPRS/EGPRS-4 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.1 ;  
 Frequency: 824.2 MHz; Medium parameters used:  $f = 824.2$  MHz;  $\sigma = 0.96$  mho/m;  $\epsilon_r = 54.8$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

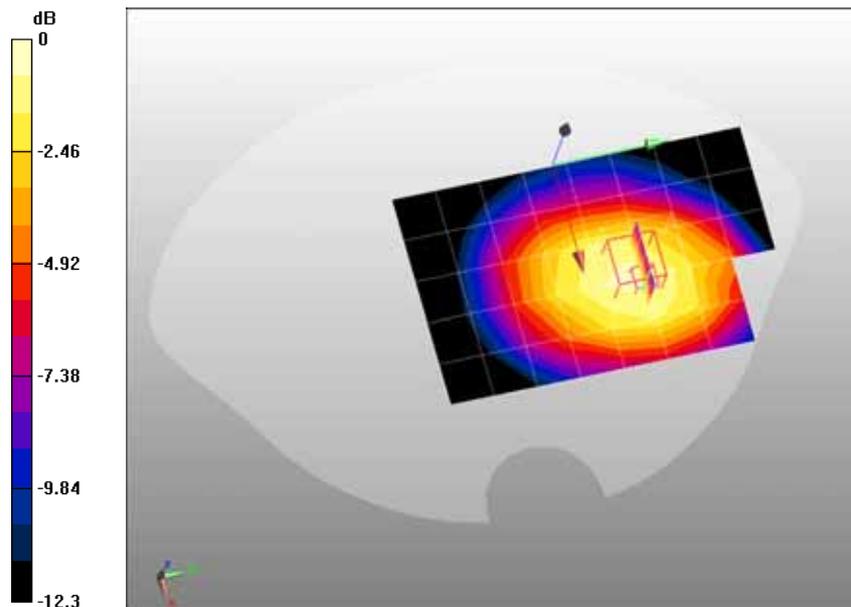
**Configuration/GPRS850 Low Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 1.04 mW/g

**Configuration/GPRS850 Low Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 13.9 V/m; Power Drift = 0.009 dB

Peak SAR (extrapolated) = 1.42 W/kg

**SAR(1 g) = 1.00 mW/g; SAR(10 g) = 0.702 mW/g** Maximum value of SAR (measured) = 1.11 mW/g



0 dB = 1.11mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS850 Mid Body-Back(4up)

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: GPRS/EGPRS-4 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.1 ;  
 Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.98$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

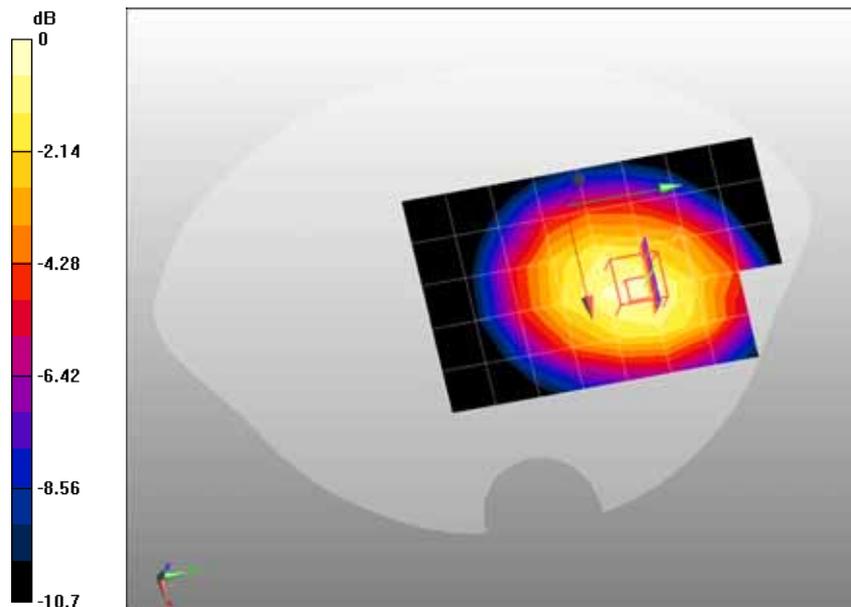
**Configuration/GPRS850 Mid Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.996 mW/g

**Configuration/GPRS850 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 14.2 V/m; Power Drift = 0.027 dB

Peak SAR (extrapolated) = 1.33 W/kg

**SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.736 mW/g** Maximum value of SAR (measured) = 1.06 mW/g



0 dB = 1.06mW/g

Z-Axis Plot



Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS850 High Body-Back(4up)

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: GPRS/EGPRS-4 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.1 ;  
 Frequency: 848.8 MHz; Medium parameters used:  $f = 848.8 \text{ MHz}$ ;  $\sigma = 0.99 \text{ mho/m}$ ;  $\epsilon_r = 54.6$ ;  $\rho = 1000 \text{ kg/m}^3$  ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

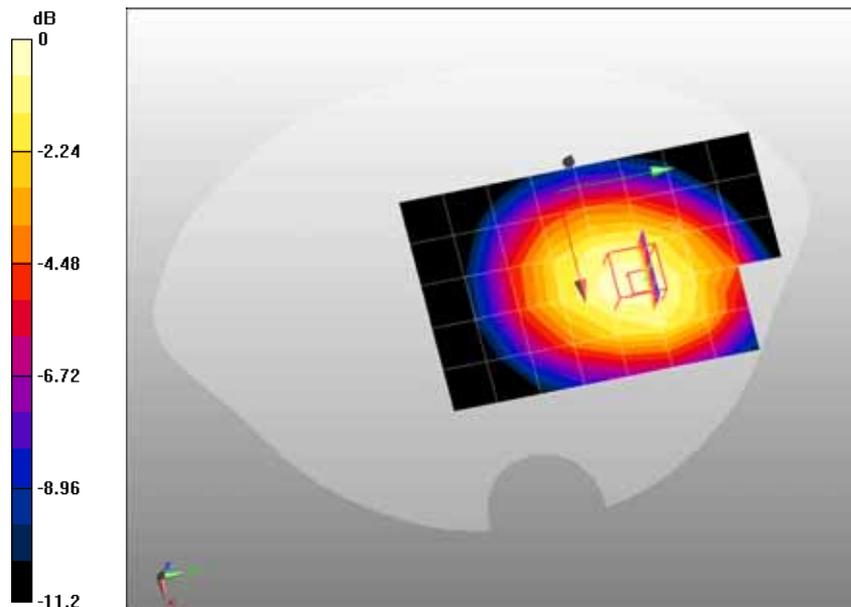
**Configuration/GPRS850 High Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.995 mW/g

**Configuration/GPRS850 High Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 13.9 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 1.29 W/kg

**SAR(1 g) = 0.957 mW/g; SAR(10 g) = 0.694 mW/g** Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS850 Mid Body-Front(4up)

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: GPRS/EGPRS-4 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.1 ;  
 Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.98$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

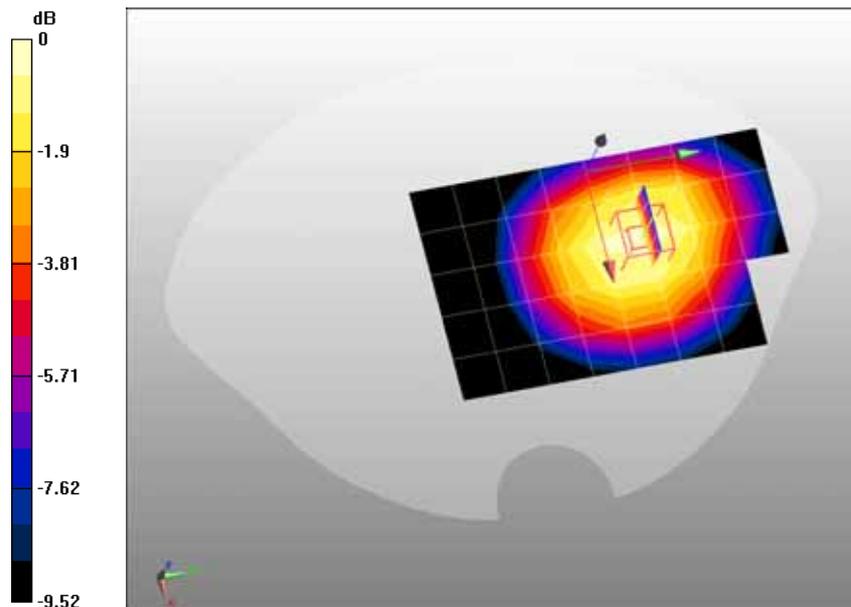
**Configuration/GPRS850 Mid Body-Front/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.799 mW/g

**Configuration/GPRS850 Mid Body-Front/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 11.3 V/m; Power Drift = -0.191 dB

Peak SAR (extrapolated) = 0.993 W/kg

**SAR(1 g) = 0.764 mW/g; SAR(10 g) = 0.566 mW/g** Maximum value of SAR (measured) = 0.807 mW/g



0 dB = 0.807mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS850 Mid Body-Back(4up)(with headset)

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: GPRS/EGPRS-4 Slot; Communication System Band: GSM 850; Duty Cycle: 1:2.1 ;  
 Frequency: 836.4 MHz; Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.98$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(9.58, 9.58, 9.58); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

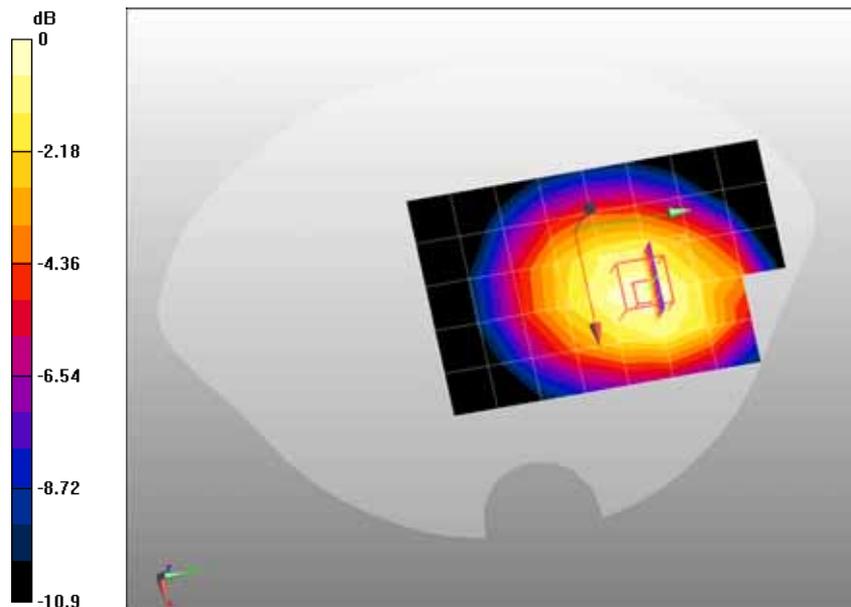
**Configuration/GPRS850 Mid Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.864 mW/g

**Configuration/GPRS850 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 13 V/m; Power Drift = 0.125 dB

Peak SAR (extrapolated) = 1.12 W/kg

**SAR(1 g) = 0.833 mW/g; SAR(10 g) = 0.601 mW/g** Maximum value of SAR (measured) = 0.876 mW/g



0 dB = 0.876mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

PCS1900 Mid Touch-Left

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz);  
 Duty Cycle: 1:8.3; Frequency: 1880 MHz; Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Left Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(8.68, 8.68, 8.68); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

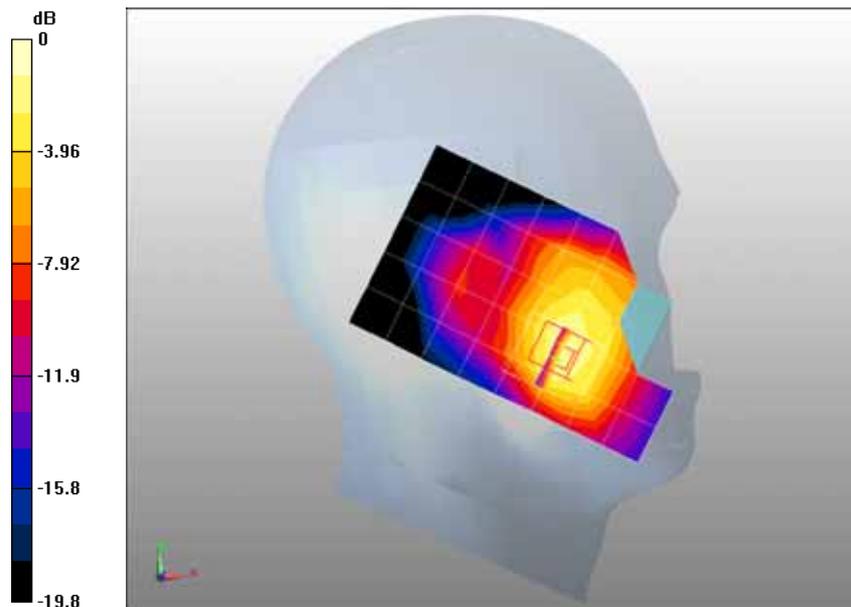
**Configuration/PCS1900 Mid Touch-Left/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.540 mW/g

**Configuration/PCS1900 Mid Touch-Left/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 7.9 V/m; Power Drift = 0.039 dB

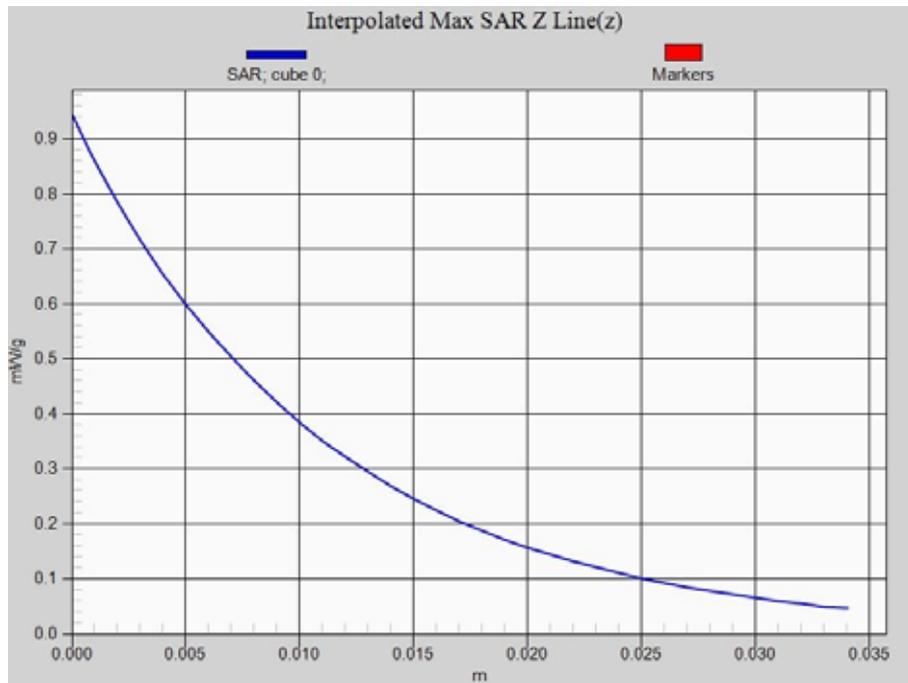
Peak SAR (extrapolated) = 0.943 W/kg

**SAR(1 g) = 0.603 mW/g; SAR(10 g) = 0.359 mW/g** Maximum value of SAR (measured) = 0.655 mW/g



0 dB = 0.655mW/g

Z-Axis Plot



Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

PCS1900 Mid Tilt-Left

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz);  
 Duty Cycle: 1:8.3; Frequency: 1880 MHz; Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Left Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(8.68, 8.68, 8.68); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

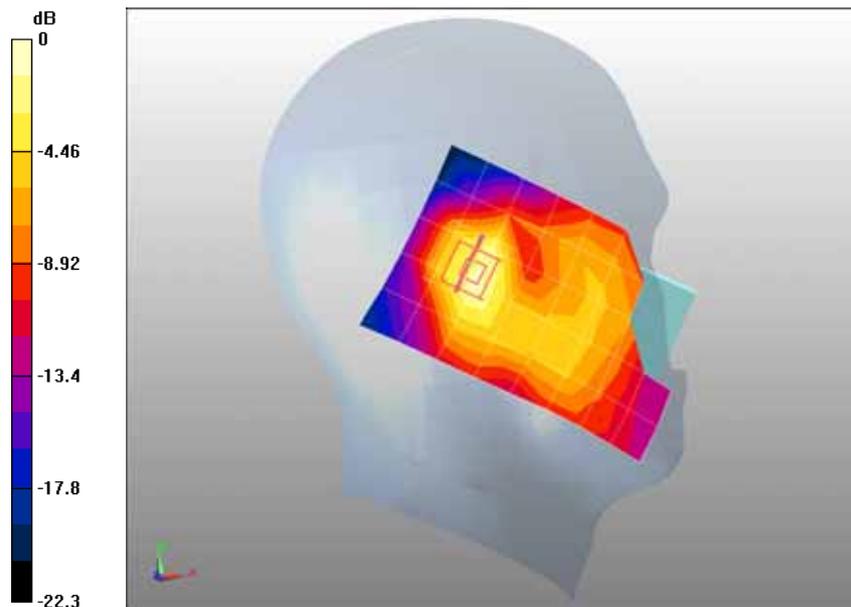
**Configuration/PCS1900 Mid Tilt-Left/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.208 mW/g

**Configuration/PCS1900 Mid Tilt-Left/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 12.8 V/m; Power Drift = -0.015 dB

Peak SAR (extrapolated) = 0.359 W/kg

**SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.119 mW/g** Maximum value of SAR (measured) = 0.240 mW/g



0 dB = 0.240mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

PCS1900 Mid Touch-Right

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz);  
 Duty Cycle: 1:8.3; Frequency: 1880 MHz; Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Right Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(8.68, 8.68, 8.68); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

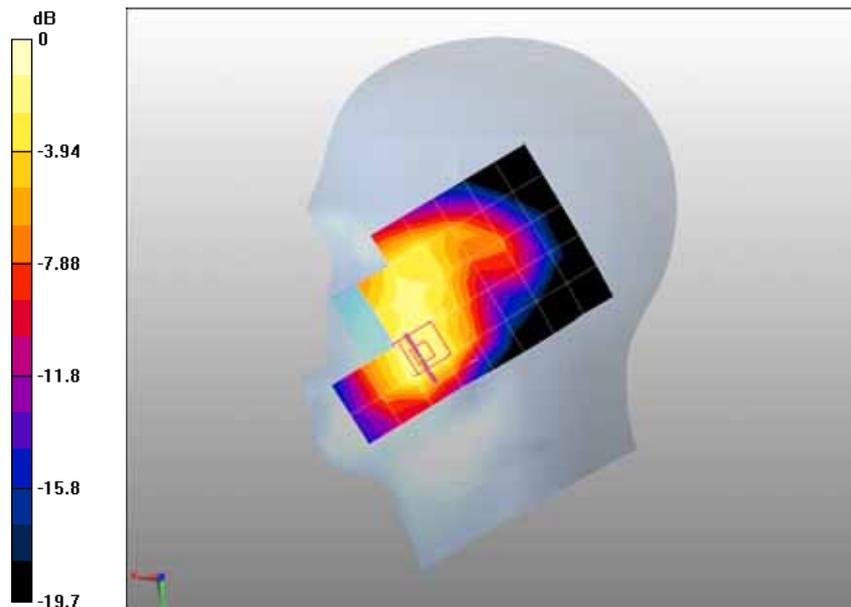
**Configuration/PCS1900 Mid Touch-Right/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.361 mW/g

**Configuration/PCS1900 Mid Touch-Right/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 7.03 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 0.798 W/kg

**SAR(1 g) = 0.467 mW/g; SAR(10 g) = 0.266 mW/g** Maximum value of SAR (measured) = 0.503 mW/g



0 dB = 0.503mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

PCS1900 Mid Tilt-Right

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz);  
 Duty Cycle: 1:8.3; Frequency: 1880 MHz; Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Right Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(8.68, 8.68, 8.68); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

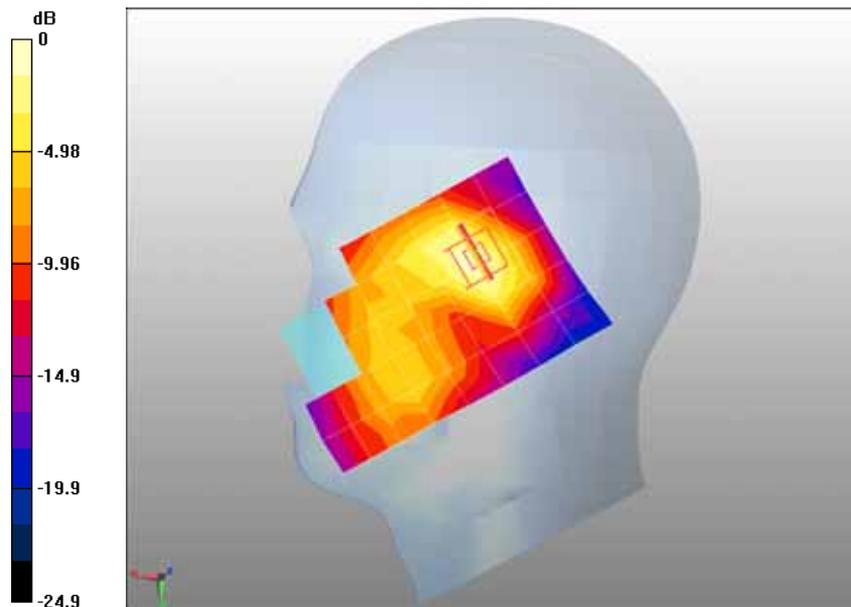
**Configuration/PCS1900 Mid Tilt-Right/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.269 mW/g

**Configuration/PCS1900 Mid Tilt-Right/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 12.3 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 0.431 W/kg

**SAR(1 g) = 0.254 mW/g; SAR(10 g) = 0.142 mW/g** Maximum value of SAR (measured) = 0.270 mW/g



0 dB = 0.270mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

PCS1900 Mid Touch-Left<SIM 2>

**DUT: GSM Mobile Phone ; Type: G7300**

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz);  
 Duty Cycle: 1:8.3; Frequency: 1880 MHz; Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Left Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(8.68, 8.68, 8.68); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

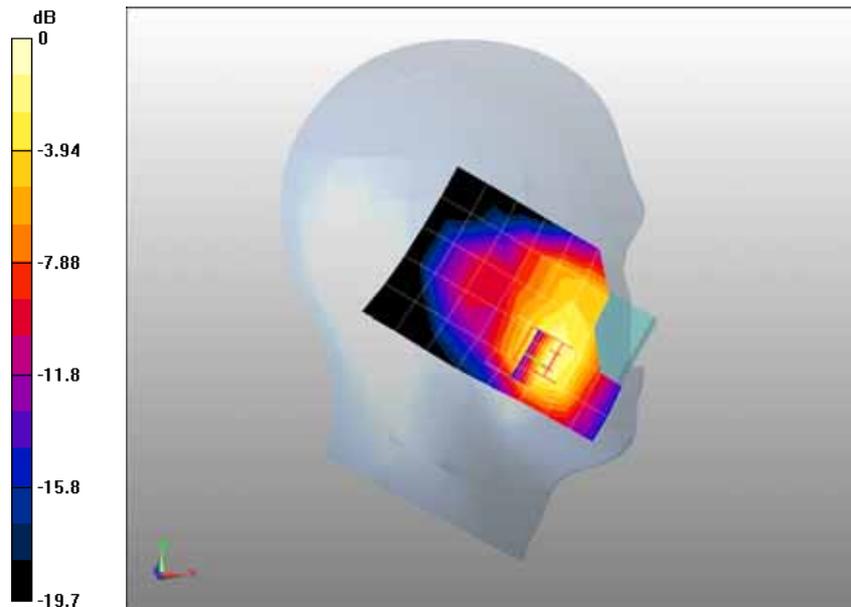
**Configuration/PCS1900 Mid Touch-Left/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.406 mW/g

**Configuration/PCS1900 Mid Touch-Left/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 7.11 V/m; Power Drift = -0.167 dB

Peak SAR (extrapolated) = 0.809 W/kg

**SAR(1 g) = 0.490 mW/g; SAR(10 g) = 0.278 mW/g** Maximum value of SAR (measured) = 0.521 mW/g



0 dB = 0.521mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

PCS1900 Mid Body-Back

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz);  
 Duty Cycle: 1:8.3; Frequency: 1880 MHz; Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 52.5$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

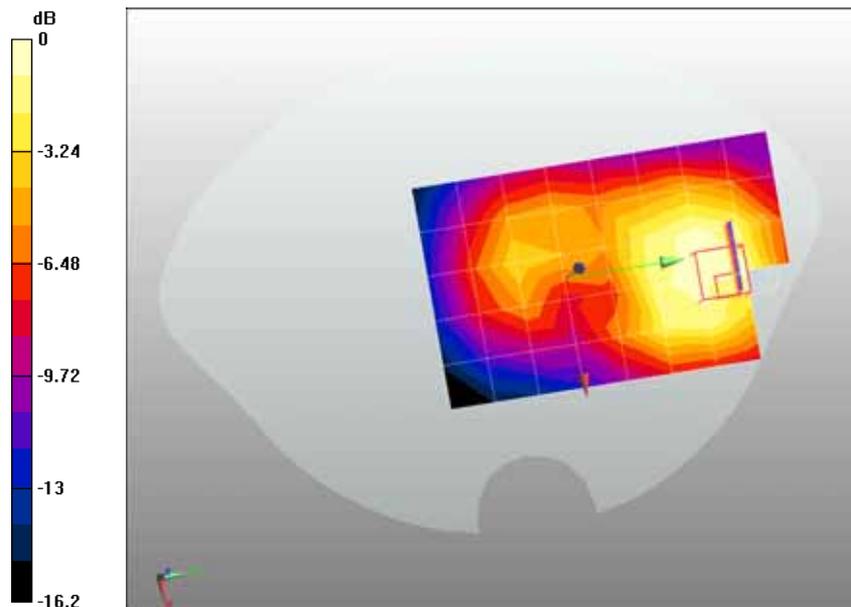
**Configuration/PCS1900 Mid Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.191 mW/g

**Configuration/PCS1900 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 6.82 V/m; Power Drift = 0.111 dB

Peak SAR (extrapolated) = 0.321 W/kg

**SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.121 mW/g** Maximum value of SAR (measured) = 0.214 mW/g



0 dB = 0.214mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS1900 Mid Body-Back(2up)

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: GPRS/EGPRS-2 Slot; Communication System Band: PCS1900; Duty Cycle: 1:4.2 ;  
 Frequency: 1880 MHz; Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 52.5$ ;  $\rho = 1000$  kg/m<sup>3</sup> ;  
 Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

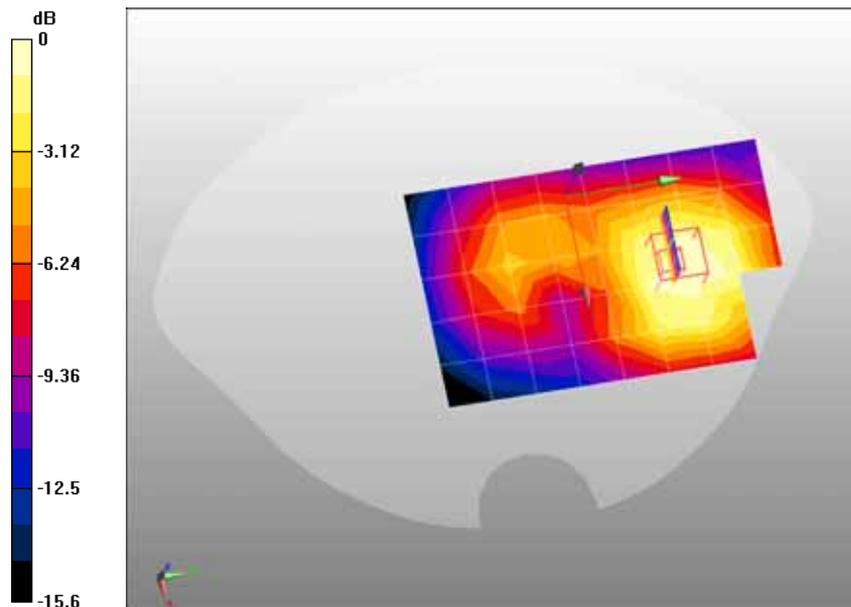
**Configuration/GPRS1900 Mid Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.336 mW/g

**Configuration/GPRS1900 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 9.02 V/m; Power Drift = 0.078 dB

Peak SAR (extrapolated) = 0.581 W/kg

**SAR(1 g) = 0.356 mW/g; SAR(10 g) = 0.218 mW/g** Maximum value of SAR (measured) = 0.380 mW/g



0 dB = 0.380mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS1900 Mid Body-Back(3up)

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: GPRS/EGPRS-3 Slot; Communication System Band: PCS 1900; Duty Cycle:

1:2.8 ; Frequency: 1880 MHz; Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.51 \text{ mho/m}$ ;  $\epsilon_r = 52.5$ ;  $\rho = 1000 \text{ kg/m}^3$  ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

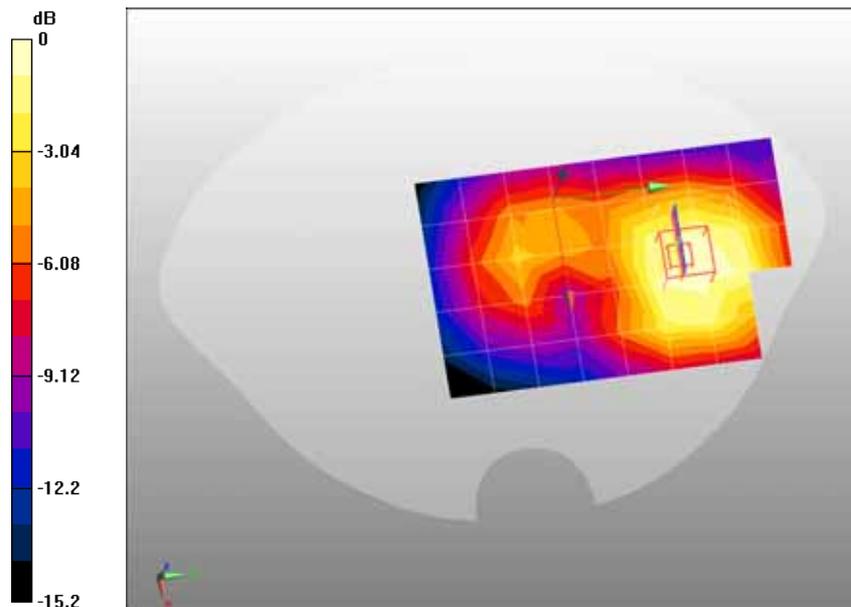
**Configuration/GPRS1900 Mid Body-Back/Area Scan (6x9x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$

Maximum value of SAR (measured) = 0.340 mW/g

**Configuration/GPRS1900 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ , Reference Value = 9.03 V/m; Power Drift = 0.191 dB

Peak SAR (extrapolated) = 0.587 W/kg

**SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.222 mW/g** Maximum value of SAR (measured) = 0.389 mW/g



0 dB = 0.389mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS1900 Mid Body-Back(4up)

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: GPRS/EGPRS-4 Slot; Communication System Band: PCS 1900; Duty Cycle:

1:2.1 ; Frequency: 1880 MHz; Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 52.5$ ;  $\rho = 1000$  kg/m<sup>3</sup> ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

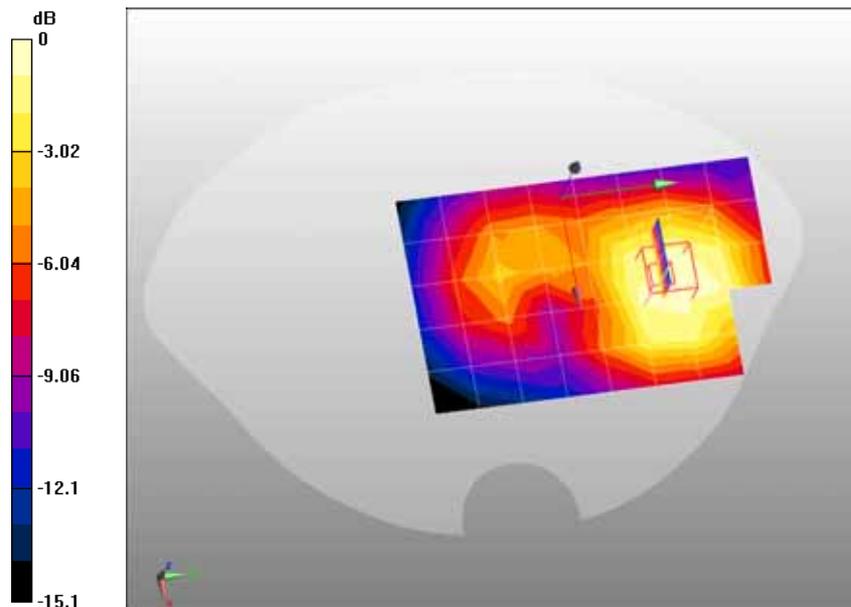
**Configuration/GPRS1900 Mid Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.382 mW/g

**Configuration/GPRS1900 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 9.72 V/m; Power Drift = -0.111 dB

Peak SAR (extrapolated) = 0.636 W/kg

**SAR(1 g) = 0.393 mW/g; SAR(10 g) = 0.242 mW/g** Maximum value of SAR (measured) = 0.422 mW/g



0 dB = 0.422mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS1900 Mid Body-Front(4up)

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: GPRS/EGPRS-4 Slot; Communication System Band: PCS 1900; Duty Cycle:

1:2.1 ; Frequency: 1880 MHz; Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.51 \text{ mho/m}$ ;  $\epsilon_r = 52.5$ ;  $\rho = 1000 \text{ kg/m}^3$  ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

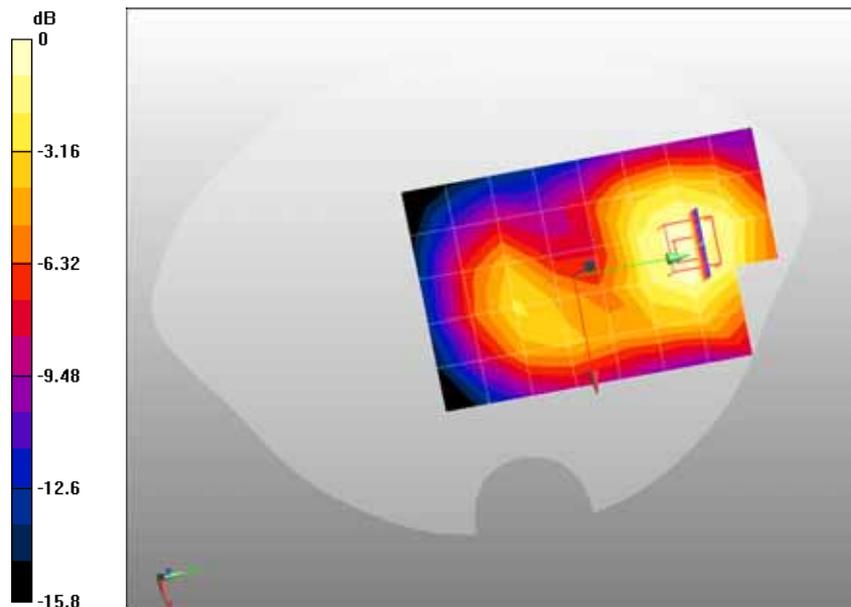
**Configuration/GPRS1900 Mid Body-Front/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.332 mW/g

**Configuration/GPRS1900 Mid Body-Front/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 9.42 V/m; Power Drift = 0.117 dB

Peak SAR (extrapolated) = 0.516 W/kg

**SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.202 mW/g** Maximum value of SAR (measured) = 0.345 mW/g



0 dB = 0.345mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

GPRS1900 Mid Body-Back(4up)(With headset)

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: GPRS/EGPRS-4 Slot; Communication System Band: PCS 1900; Duty Cycle:

1:2.1 ; Frequency: 1880 MHz; Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.51 \text{ mho/m}$ ;  $\epsilon_r = 52.5$ ;  $\rho = 1000 \text{ kg/m}^3$  ; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

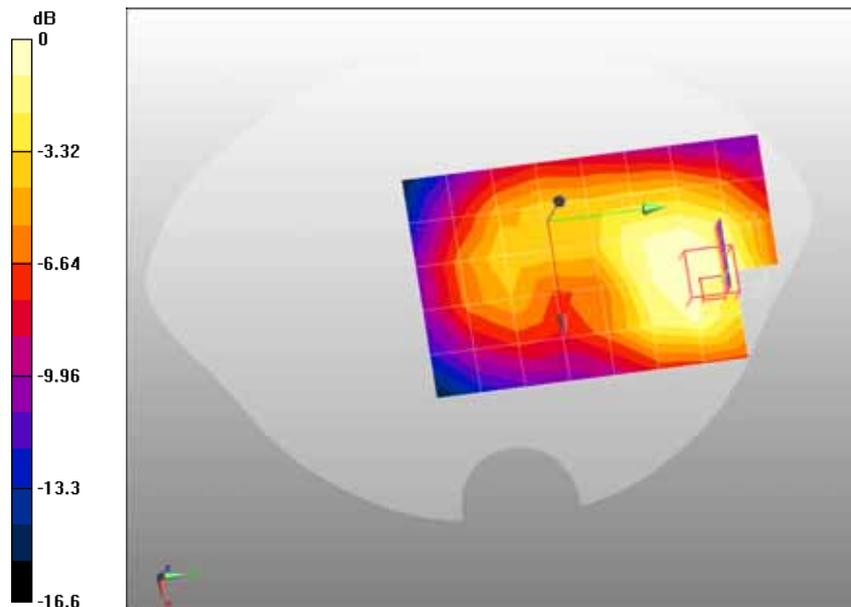
**Configuration/GPRS1900 Mid Body-Back/Area Scan (6x9x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.329 mW/g

**Configuration/GPRS1900 Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 9.68 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 0.537 W/kg

**SAR(1 g) = 0.344 mW/g; SAR(10 g) = 0.210 mW/g** Maximum value of SAR (measured) = 0.364 mW/g



0 dB = 0.364mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

802.11b 2437MHz Touch-Left

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.83$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>; Phantom section: Left Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

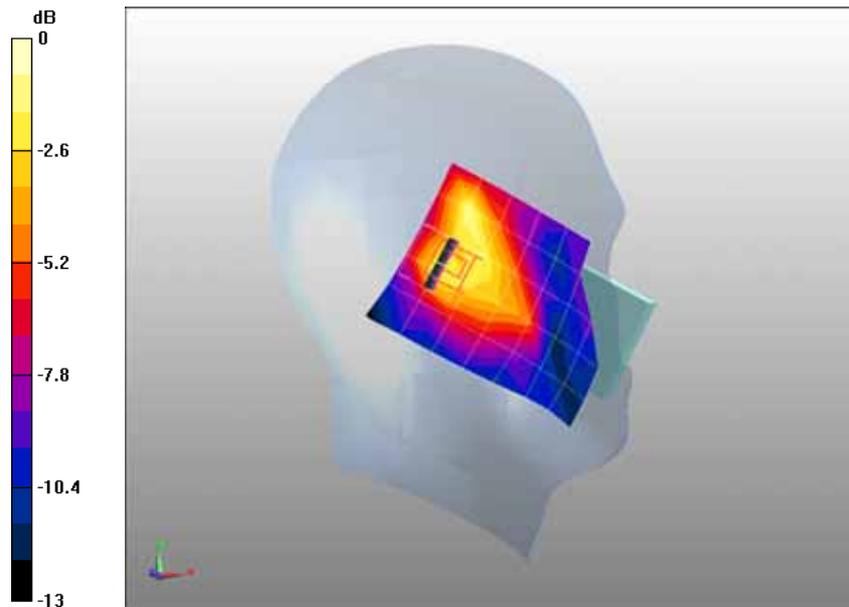
**Configuration/802.11b Mid Touch-Left/Area Scan (6x8x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.032 mW/g

**Configuration/802.11b Mid Touch-Left/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 4.5 V/m; Power Drift = 0.082 dB

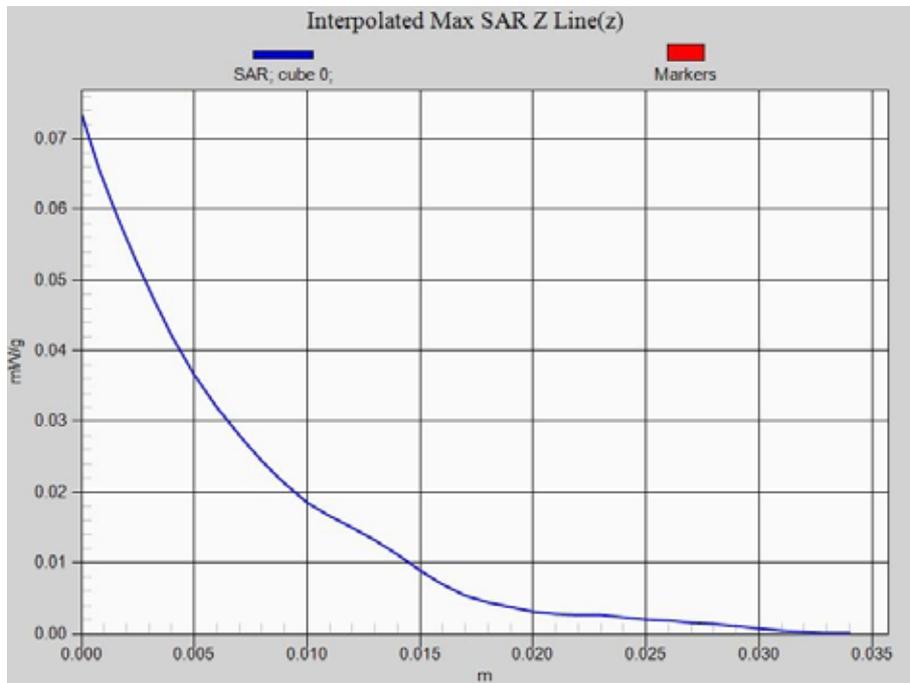
Peak SAR (extrapolated) = 0.073 W/kg

**SAR(1 g) = 0.038 mW/g; SAR(10 g) = 0.018 mW/g** Maximum value of SAR (measured) = 0.041 mW/g



0 dB = 0.041mW/g

Z-Axis Plot



Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

802.11b 2437MHz Tilt-Left

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.83$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>; Phantom section: Left Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

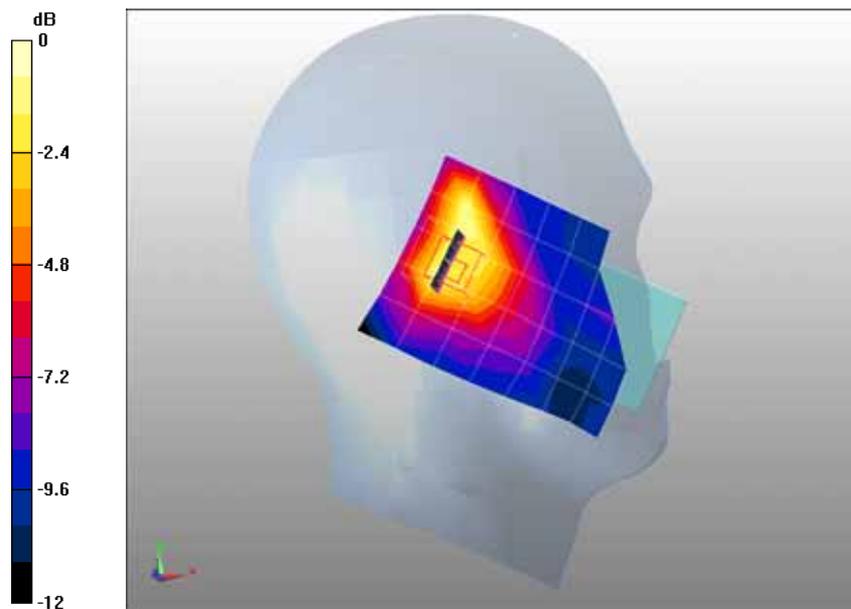
**Configuration/802.11b Mid Tilt-Left/Area Scan (6x8x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.033 mW/g

**Configuration/802.11b Mid Tilt-Left/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 4.77 V/m; Power Drift = -0.131 dB

Peak SAR (extrapolated) = 0.069 W/kg

**SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.017 mW/g** Maximum value of SAR (measured) = 0.040 mW/g



0 dB = 0.040mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

802.11b 2437MHz Touch-Right

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.83$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>; Phantom section: Right Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

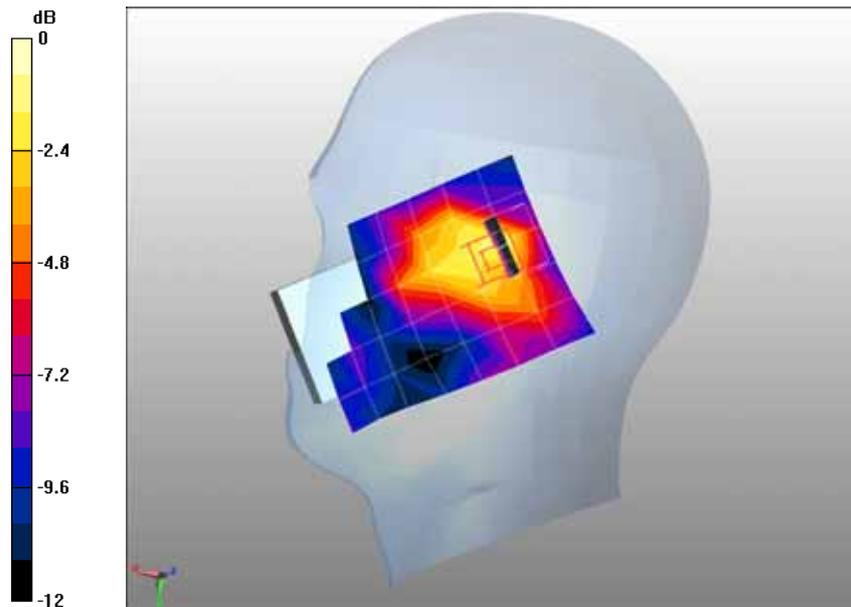
**Configuration/802.11b Mid Touch-Right/Area Scan (6x8x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.026 mW/g

**Configuration/802.11b Mid Touch-Right/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 4.37 V/m; Power Drift = -0.132 dB

Peak SAR (extrapolated) = 0.061 W/kg

**SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.015 mW/g** Maximum value of SAR (measured) = 0.033 mW/g



0 dB = 0.033mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

802.11b 2437MHz Tilt-Right

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.83$  mho/m;  $\epsilon_r = 38.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>; Phantom section: Right Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.72, 7.72, 7.72); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

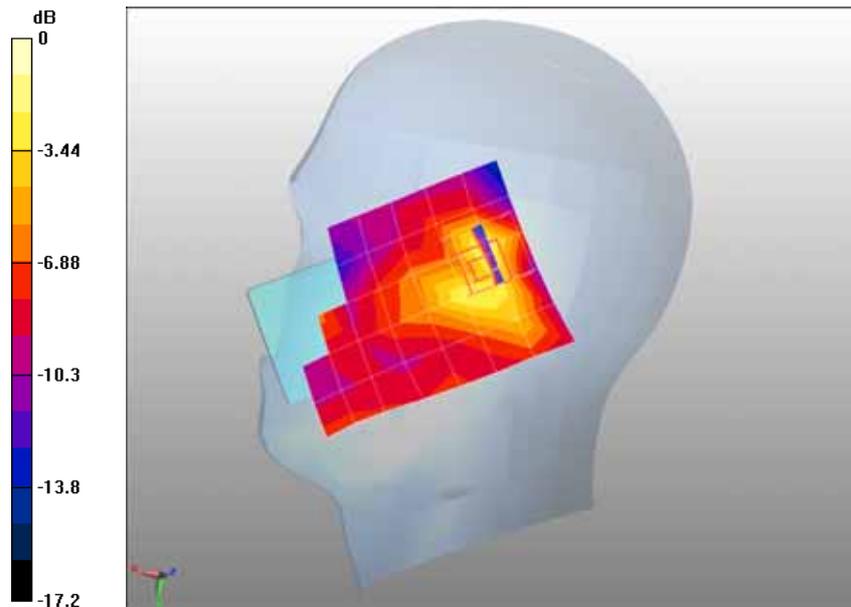
**Configuration/802.11b Mid Tilt-Right/Area Scan (6x8x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.021 mW/g

**Configuration/802.11b Mid Tilt-Right/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 4.32 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 0.056 W/kg

**SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.014 mW/g** Maximum value of SAR (measured) = 0.029 mW/g



0 dB = 0.029mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

802.11b 2437MHz Body-Back

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.99$  mho/m;  $\epsilon_r = 52.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.55, 7.55, 7.55); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

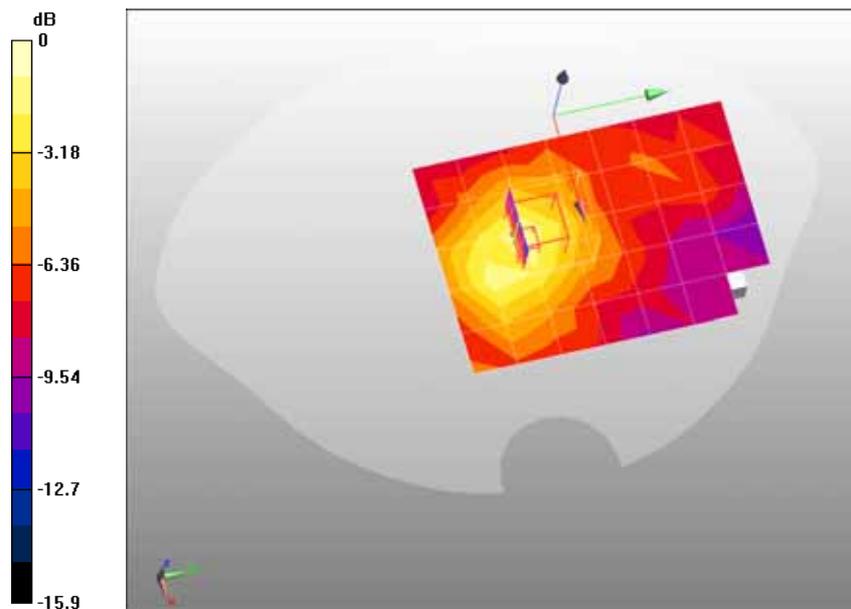
**Configuration/802.11b Mid Body-Back/Area Scan (6x8x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.018 mW/g

**Configuration/802.11b Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 3.26 V/m; Power Drift = -0.187 dB

Peak SAR (extrapolated) = 0.044 W/kg

**SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.011 mW/g** Maximum value of SAR (measured) = 0.023 mW/g



0 dB = 0.023mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

802.11b 2437MHz Body-Back(With headset)

**DUT: GSM Mobile Phone; Type: G7300**

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.99$  mho/m;  $\epsilon_r = 52.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.55, 7.55, 7.55); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

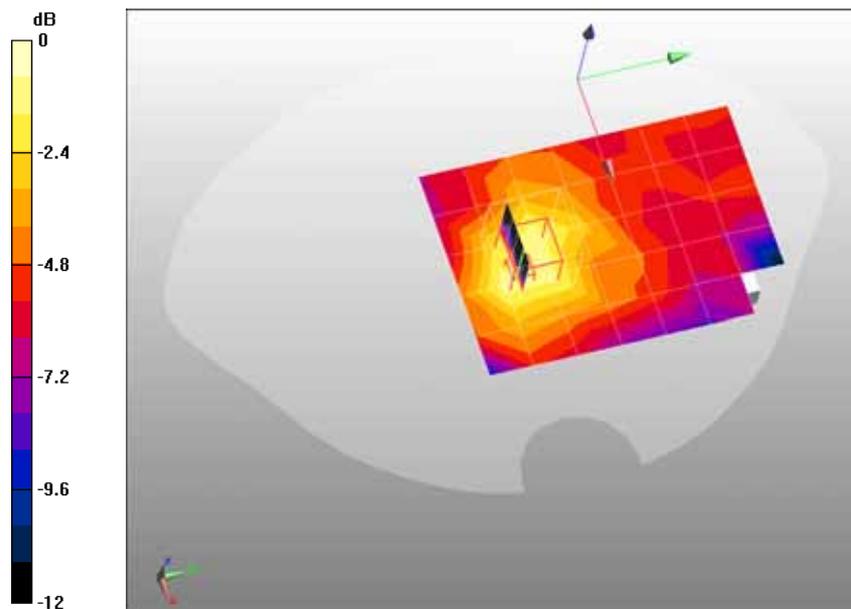
**Configuration/802.11b Mid Body-Back/Area Scan (6x8x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.012 mW/g

**Configuration/802.11b Mid Body-Back/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 2.51 V/m; Power Drift = -0.129 dB

Peak SAR (extrapolated) = 0.031 W/kg

**SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.008 mW/g** Maximum value of SAR (measured) = 0.015 mW/g



0 dB = 0.015mW/g

Date/Time: 10-01-2012

Test Laboratory: QuieTek Lab

802.11b 2437MHz Body-Front

DUT: GSM Mobile Phone; Type: G7300

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used:  $f = 2437$  MHz;  $\sigma = 1.99$  mho/m;  $\epsilon_r = 52.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>; Phantom section: Flat Section

Ambient temperature (°C): 21.5, Liquid temperature (°C): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3661; ConvF(7.55, 7.55, 7.55); Calibrated: 24/01/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 26/07/2011
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

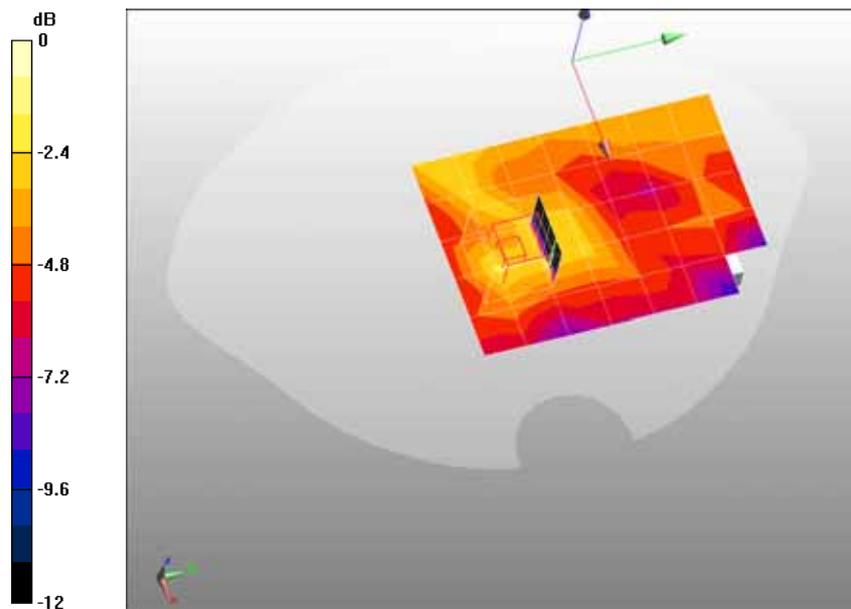
**Configuration/802.11b Mid Body-Front/Area Scan (6x8x1):** Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (measured) = 0.007 mW/g

**Configuration/802.11b Mid Body-Front/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 2.06 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.048 W/kg

**SAR(1 g) = 0.010 mW/g; SAR(10 g) = 0.004 mW/g** Maximum value of SAR (measured) = 0.012 mW/g



0 dB = 0.012mW/g

## Appendix C. Test Setup Photographs & EUT Photographs

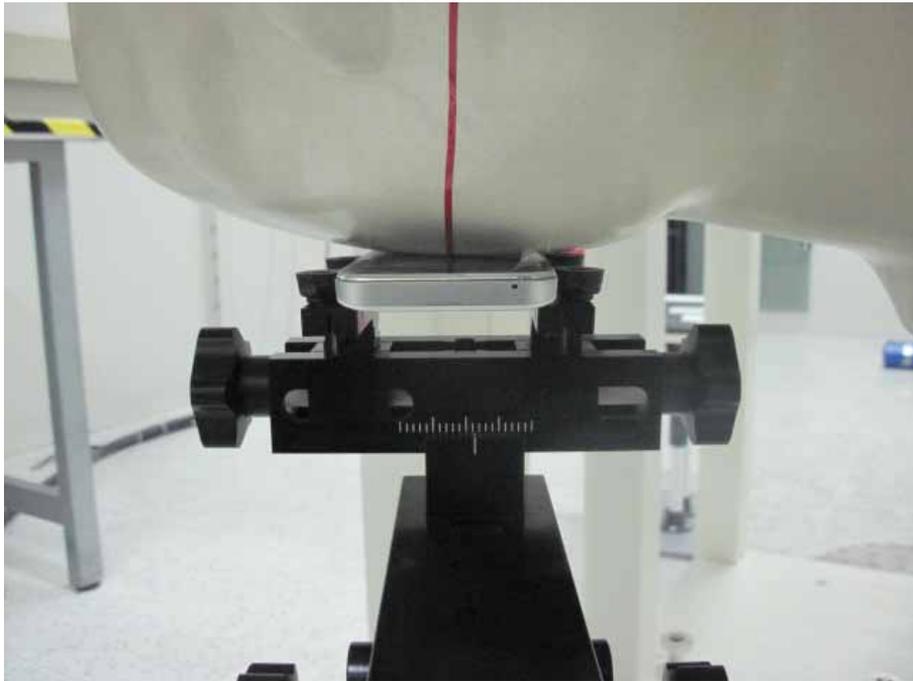
### Test Setup Photographs



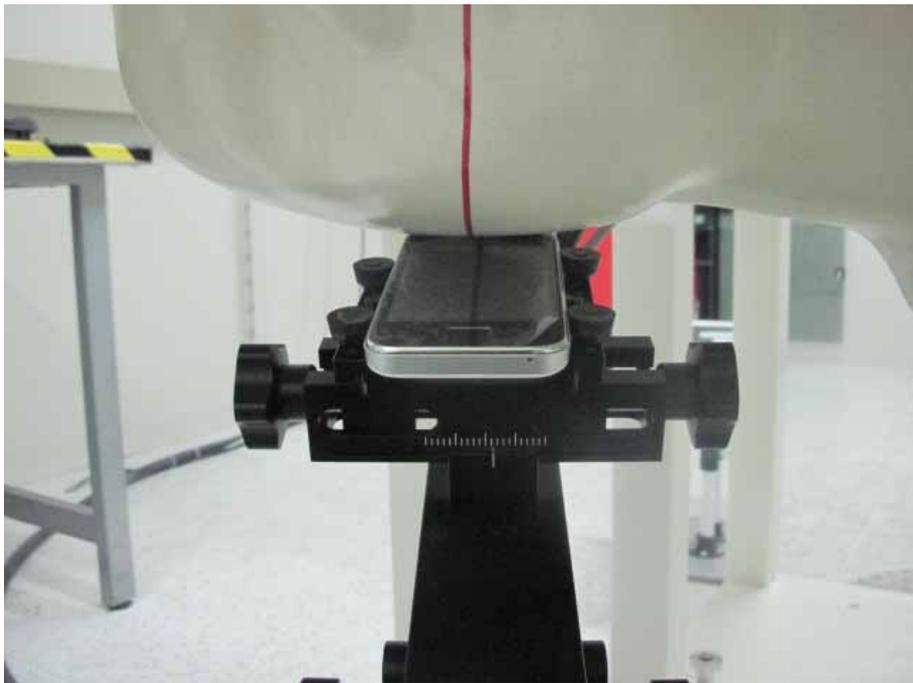
Left-Cheek Touch



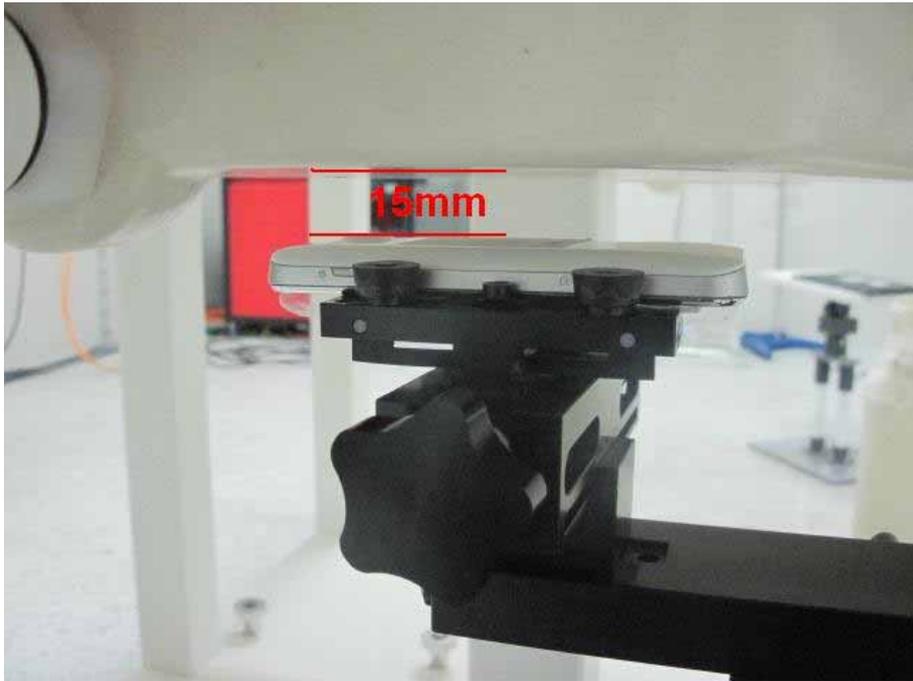
Left-Tilt 15°



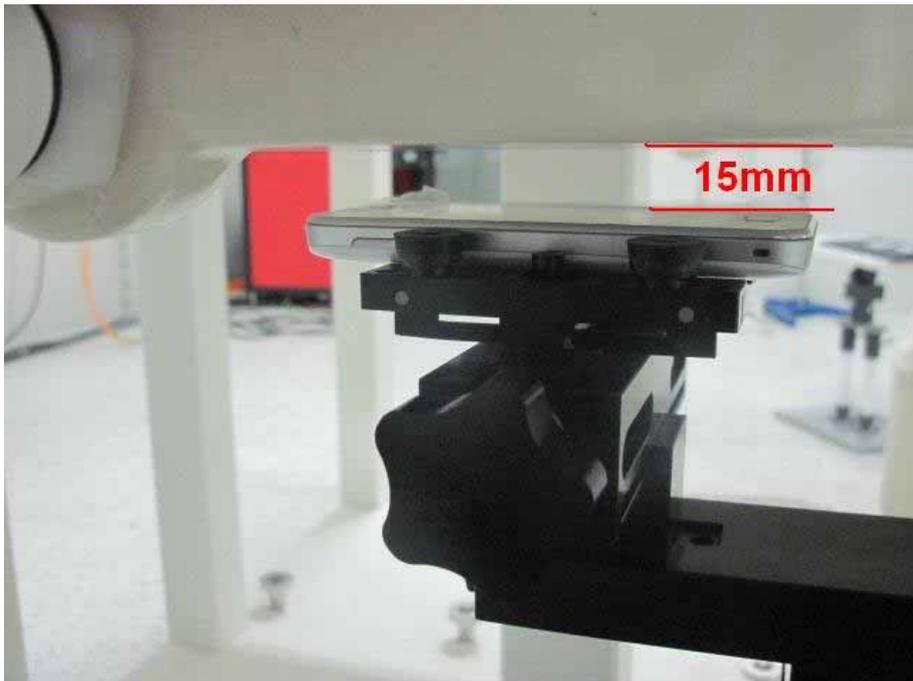
Right-Cheek Touch



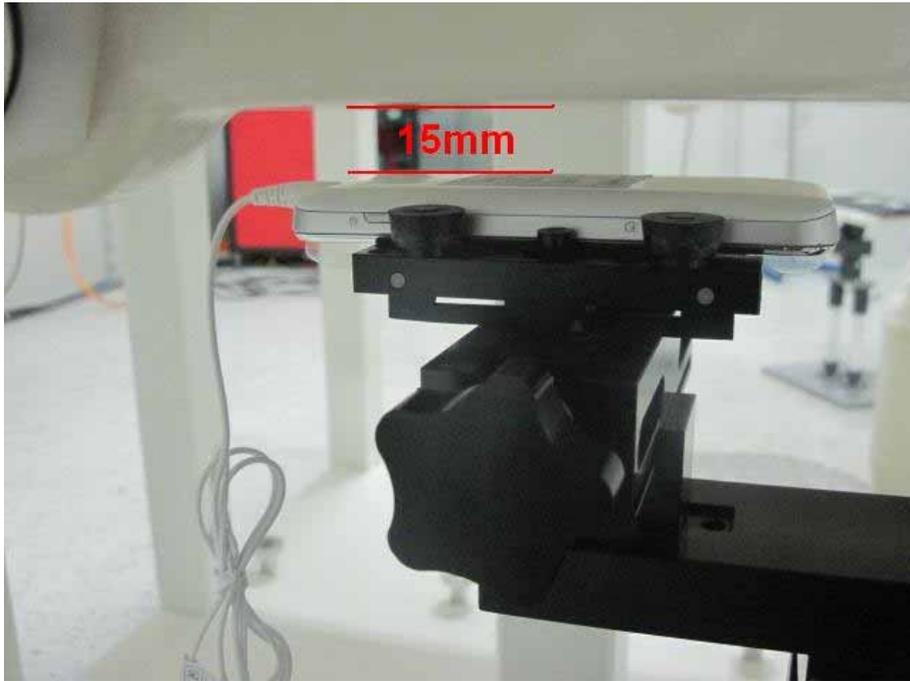
Right-Tilt 15°



Body SAR Back 15mm



Body SAR Front 15mm



Body SAR Back 15mm with Headset

**Depth of the liquid in the phantom – Zoom in**

Note: The position used in the measurements were according to IEEE 1528 - 2003



EUT Photographs

(1) EUT Photo



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo



**Appendix D. Probe Calibration Data**

**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  
**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**

Client **Auden**

Certificate No. **EX3-3661\_Jan11**

CALIBRATION CERTIFICATE																																																			
Object	EX3DV4 - SN:3661																																																		
Calibration procedure(s)	QA CAL-01.v7, QA CAL-14.v3, QA CAL-23.v4 and QA CAL-25.v3 Calibration procedure for dosimetric E-field probes																																																		
Calibration date:	January 24, 2011																																																		
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity &lt; 70%.</p> <p>Calibration Equipment used (M&amp;TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter E4419B</td> <td>GB41293874</td> <td>1-Apr-10 (No. 217-01136)</td> <td>Apr-11</td> </tr> <tr> <td>Power sensor E4412A</td> <td>MY41495277</td> <td>1-Apr-10 (No. 217-01136)</td> <td>Apr-11</td> </tr> <tr> <td>Power sensor E4412A</td> <td>MY41498087</td> <td>1-Apr-10 (No. 217-01136)</td> <td>Apr-11</td> </tr> <tr> <td>Reference 3 dB Attenuator</td> <td>SN: S5054 (3c)</td> <td>30-Mar-10 (No. 217-01159)</td> <td>Mar-11</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: S5086 (20b)</td> <td>30-Mar-10 (No. 217-01161)</td> <td>Mar-11</td> </tr> <tr> <td>Reference 30 dB Attenuator</td> <td>SN: S5129 (30b)</td> <td>30-Mar-10 (No. 217-01160)</td> <td>Mar-11</td> </tr> <tr> <td>Reference Probe ES3DV2</td> <td>SN: 3013</td> <td>29-Dec-10 (No. ES3-3013_Dec10)</td> <td>Dec-11</td> </tr> <tr> <td>DAE4</td> <td>SN: 660</td> <td>20-Apr-10 (No. DAE4-660_Apr10)</td> <td>Apr-11</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>RF generator HP 8648C</td> <td>US3642U01700</td> <td>4-Aug-99 (in house check Oct-09)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585</td> <td>18-Oct-01 (in house check Oct-10)</td> <td>In house check: Oct-11</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11	Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11	Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11	Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11	Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11	Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11	Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11	DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11	Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11
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Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11																																																
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11																																																
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11																																																
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11																																																
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11																																																
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11																																																
Secondary Standards	ID #	Check Date (in house)	Scheduled Check																																																
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11																																																
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11																																																
Calibrated by:	Name <b>Katja Pakovic</b>	Function <b>Technical Manager</b>	Signature 																																																
Approved by:	Name <b>Fin Borchelt</b>	Function <b>R&amp;D Director</b>	Signature 																																																
			Issued: January 25, 2011																																																
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.																																																			

**Calibration Laboratory of**  
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**Engineering AG**  
 Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

**Glossary:**

TSL	tissue simulating liquid
NORM <sub>x,y,z</sub>	sensitivity in free space
ConvF	sensitivity in TSL / NORM <sub>x,y,z</sub>
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization $\varphi$	$\varphi$ rotation around probe axis
Polarization $\vartheta$	$\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

**Calibration is Performed According to the Following Standards:**

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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

**Methods Applied and Interpretation of Parameters:**

- **NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the E<sup>2</sup>-field uncertainty inside TSL (see below *ConvF*).
- **NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- **DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- **A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; VR<sub>x,y,z</sub>**: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- **ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to **NORM<sub>x,y,z</sub> \* ConvF** whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- **Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- **Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

EX3DV4 SN:3661

January 24, 2011

# Probe EX3DV4

## SN:3661

Manufactured:	October 20, 2008
Last calibrated:	December 30, 2009
Recalibrated:	January 24, 2011

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

EX3DV4 SN:3661

January 24, 2011

**DASY/EASY - Parameters of Probe: EX3DV4 SN:3661**

**Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ( $\mu V/(V/m)^2$ ) <sup>A</sup>	0.47	0.52	0.50	$\pm 10.1\%$
DCP (mV) <sup>B</sup>	99.7	99.0	97.2	

**Modulation Calibration Parameters**

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc <sup>E</sup> (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	157.5	$\pm 3.4\%$
			Y	0.00	0.00	1.00	151.6	
			Z	0.00	0.00	1.00	156.6	

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%.

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter; uncertainty not required.

<sup>E</sup> Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

EX3DV4 SN:3661

January 24, 2011

**DASY/EASY - Parameters of Probe: EX3DV4 SN:3661**

**Calibration Parameter Determined in Head Tissue Simulating Media**

f [MHz]	Validity [MHz] <sup>c</sup>	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
750	± 50 / ± 100	41.9 ± 5%	0.89 ± 5%	9.96	9.96	9.96	0.47	0.71 ± 11.0%
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	9.58	9.58	9.58	0.58	0.67 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	9.05	9.05	9.05	0.31	0.97 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	8.68	8.68	8.68	0.40	0.95 ± 11.0%
2000	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	8.53	8.53	8.53	0.47	0.81 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	7.80	7.80	7.80	0.28	1.13 ± 11.0%
5200	± 50 / ± 100	36.0 ± 5%	4.66 ± 5%	4.88	4.88	4.88	0.40	1.80 ± 13.1%
5300	± 50 / ± 100	35.9 ± 5%	4.76 ± 5%	4.59	4.59	4.59	0.42	1.80 ± 13.1%
5500	± 50 / ± 100	35.6 ± 5%	4.96 ± 5%	4.41	4.41	4.41	0.45	1.80 ± 13.1%
5600	± 50 / ± 100	35.5 ± 5%	5.07 ± 5%	4.17	4.17	4.17	0.50	1.80 ± 13.1%
5800	± 50 / ± 100	35.3 ± 5%	5.27 ± 5%	4.15	4.15	4.15	0.50	1.80 ± 13.1%

<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

EX3DV4 SN:3661

January 24, 2011

## DASY/EASY - Parameters of Probe: EX3DV4 SN:3661

### Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz] <sup>c</sup>	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
750	± 50 / ± 100	55.5 ± 5%	0.96 ± 5%	9.75	9.75	9.75	0.47	0.79 ± 11.0%
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	9.58	9.58	9.58	0.35	0.89 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	7.95	7.95	7.95	0.64	0.68 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	7.72	7.72	7.72	0.52	0.75 ± 11.0%
2000	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	7.81	7.81	7.81	0.46	0.80 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	7.55	7.55	7.55	0.66	0.64 ± 11.0%
5200	± 50 / ± 100	49.0 ± 5%	5.30 ± 5%	4.42	4.42	4.42	0.50	1.90 ± 13.1%
5300	± 50 / ± 100	48.9 ± 5%	5.42 ± 5%	4.20	4.20	4.20	0.55	1.90 ± 13.1%
5500	± 50 / ± 100	48.6 ± 5%	5.65 ± 5%	3.88	3.88	3.88	0.55	1.90 ± 13.1%
5600	± 50 / ± 100	48.5 ± 5%	5.77 ± 5%	3.59	3.59	3.59	0.60	1.90 ± 13.1%
5800	± 50 / ± 100	48.2 ± 5%	6.00 ± 5%	3.87	3.87	3.87	0.60	1.90 ± 13.1%

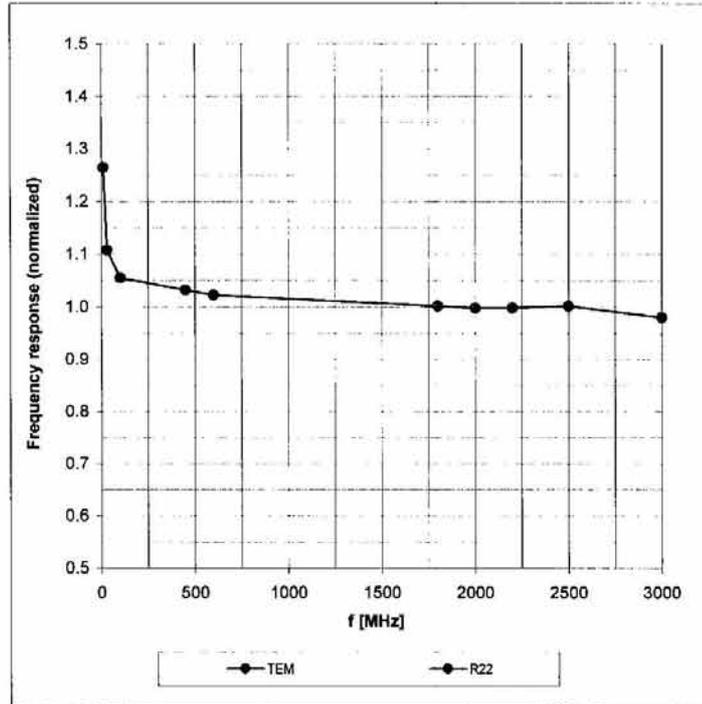
<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

EX3DV4 SN:3661

January 24, 2011

### Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)

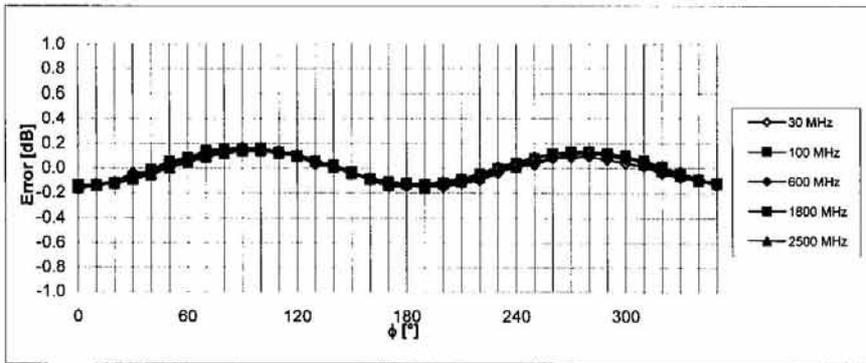
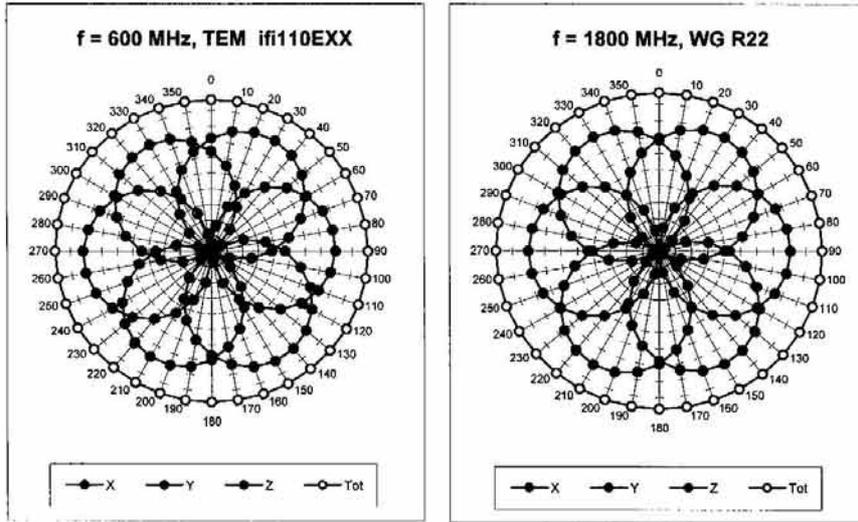


Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  (k=2)

EX3DV4 SN:3661

January 24, 2011

Receiving Pattern ( $\phi$ ),  $\theta = 0^\circ$

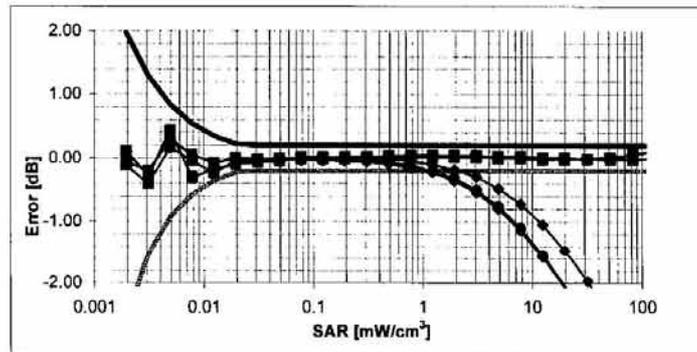
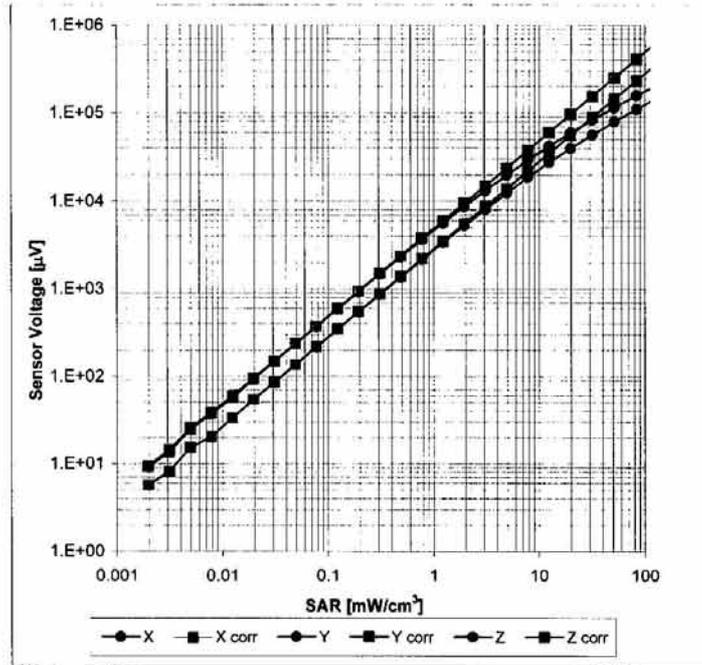


Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  (k=2)

EX3DV4 SN:3661

January 24, 2011

**Dynamic Range f(SAR<sub>head</sub>)**  
 (TEM cell, f = 900 MHz)

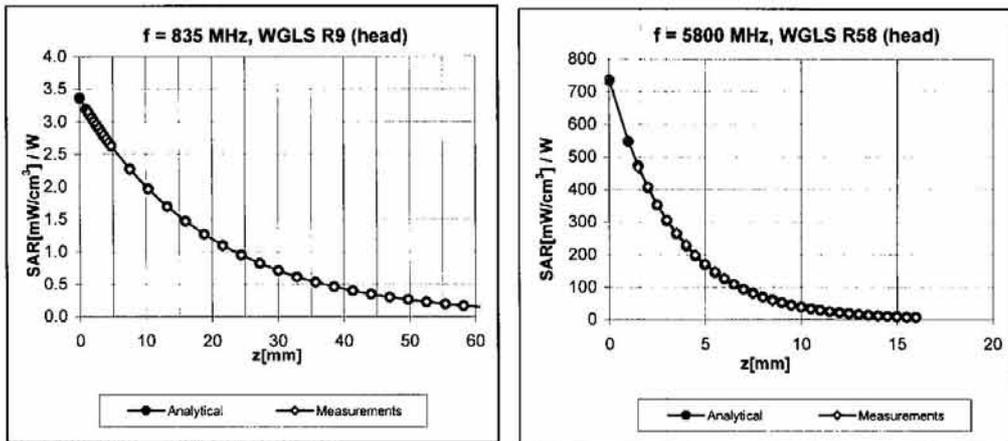


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

EX3DV4 SN:3661

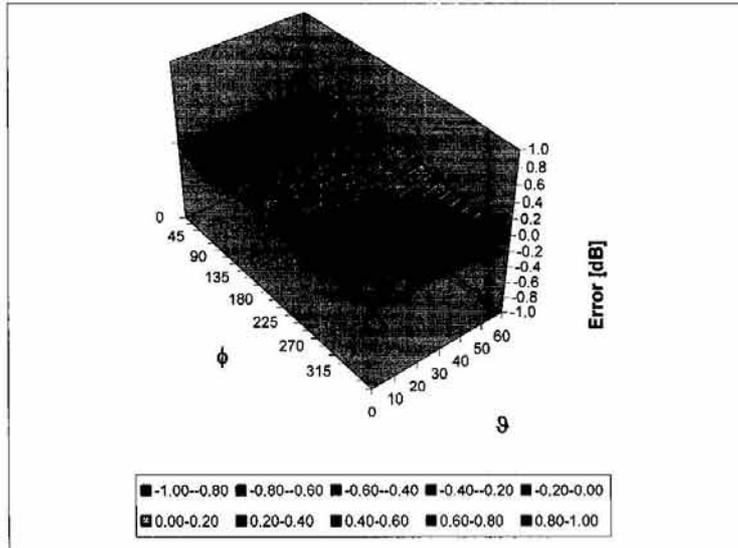
January 24, 2011

### Conversion Factor Assessment



### Deviation from Isotropy in HSL

Error ( $\phi$ ,  $\theta$ ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment:  $\pm 2.6\%$  (k=2)

EX3DV4 SN:3661

January 24, 2011

**Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

**Appendix E. Dipole Calibration Data**

**Calibration Laboratory of  
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Zeughausstrasse 43, 8004 Zurich, Switzerland



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

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Quietek (Auden)**

Certificate No: **D835V2-4d094\_Mar10**

CALIBRATION CERTIFICATE																																															
Object	D835V2 - SN: 4d094																																														
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits																																														
Calibration date:	March 15, 2010																																														
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity &lt; 70%.</p> <p>Calibration Equipment used (M&amp;TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter EPM-442A</td> <td>GB37480704</td> <td>06-Oct-09 (No. 217-01086)</td> <td>Oct-10</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37292783</td> <td>06-Oct-09 (No. 217-01086)</td> <td>Oct-10</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: 5086 (20g)</td> <td>31-Mar-09 (No. 217-01025)</td> <td>Mar-10</td> </tr> <tr> <td>Type-N mismatch combination</td> <td>SN: 5047.2 / 08327</td> <td>31-Mar-09 (No. 217-01029)</td> <td>Mar-10</td> </tr> <tr> <td>Reference Probe ES3DV3</td> <td>SN: 3205</td> <td>26-Jun-09 (No. ES3-3205_Jun09)</td> <td>Jun-10</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>02-Mar-10 (No. DAE4-601_Mar10)</td> <td>Mar-11</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>18-Oct-02 (in house check Oct-09)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>RF generator R&amp;S SMT-06</td> <td>100005</td> <td>4-Aug-99 (in house check Oct-09)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585 S4206</td> <td>18-Oct-01 (in house check Oct-09)</td> <td>In house check: Oct-10</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10	Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10	Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10	Type-N mismatch combination	SN: 5047.2 / 08327	31-Mar-09 (No. 217-01029)	Mar-10	Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10	DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11	RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11	Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10
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Calibrated by:	Name Dirce Iliev	Function Laboratory Technician	Signature 																																												
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature 																																												
			Issued: March 15, 2010																																												
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**Calibration Laboratory of  
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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 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

**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.

**Measurement Conditions**

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

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
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	42.9 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature during test	(21.5 ± 0.2) °C	----	----

**SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.43 mW / g
SAR normalized	normalized to 1W	9.72 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	<b>9.70 mW /g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.58 mW / g
SAR normalized	normalized to 1W	6.32 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	<b>6.30 mW /g ± 16.5 % (k=2)</b>

**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	55.3 ± 6 %	1.01 mho/m ± 6 %
Body TSL temperature during test	(21.3 ± 0.2) °C	----	----

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.55 mW / g
SAR normalized	normalized to 1W	10.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	<b>9.90 mW / g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.67 mW / g
SAR normalized	normalized to 1W	6.68 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	<b>6.53 mW / g ± 16.5 % (k=2)</b>

**Appendix**

**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	52.2 $\Omega$ - 2.7 j $\Omega$
Return Loss	- 29.4 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	48.0 $\Omega$ - 4.8 j $\Omega$
Return Loss	- 25.5 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.388 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.

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	September 15, 2009

## DASY5 Validation Report for Head TSL

Date/Time: 08.03.2010 10:52:27

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d094**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL900

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 42.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.04, 6.04, 6.04); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement**

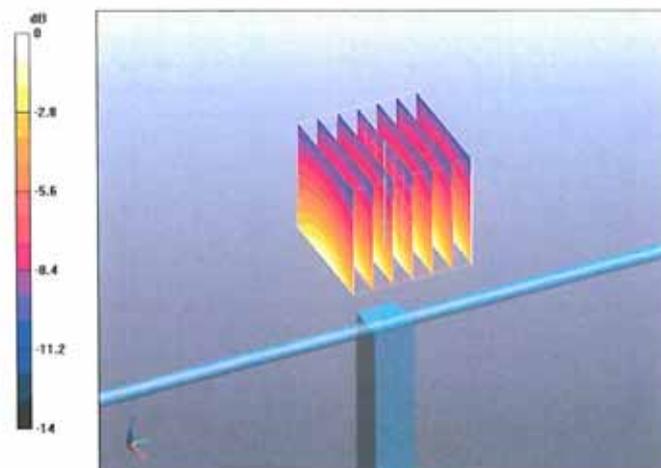
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.3 V/m; Power Drift = 0.00297 dB

Peak SAR (extrapolated) = 3.65 W/kg

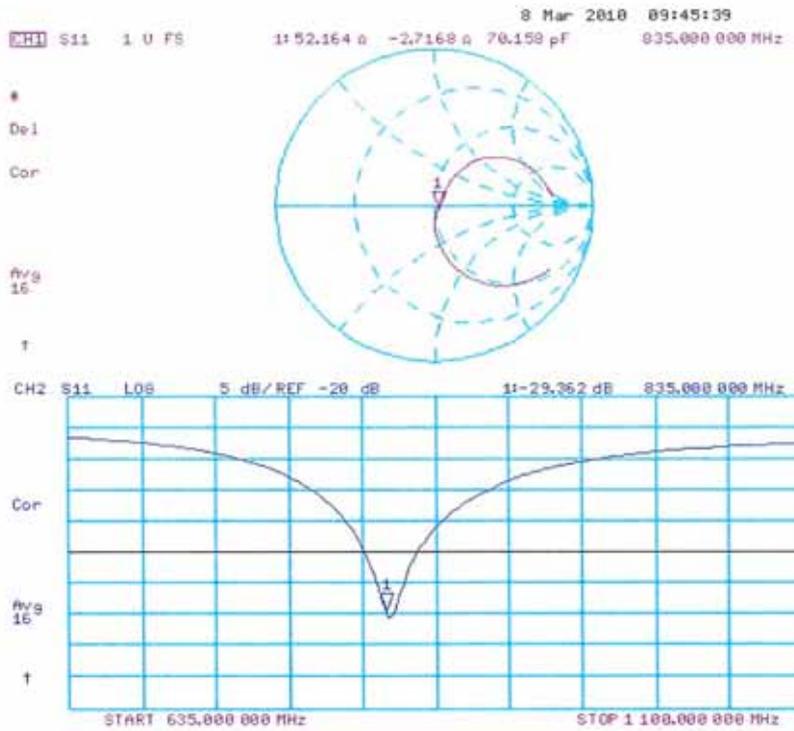
**SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.58 mW/g**

Maximum value of SAR (measured) = 2.84 mW/g



0 dB = 2.84mW/g

Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body

Date/Time: 15.03.2010 11:52:53

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d094**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: MSL900

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 1.01 \text{ mho/m}$ ;  $\epsilon_r = 55.3$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.97, 5.97, 5.97); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Pin250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement**

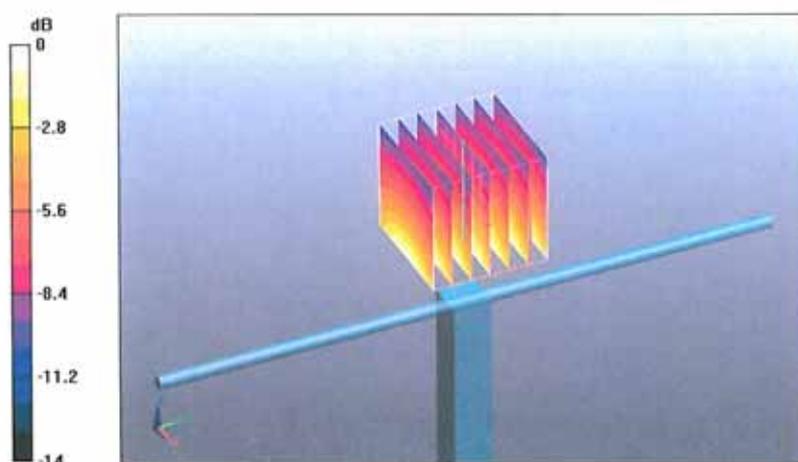
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.9 V/m; Power Drift = -0.00975 dB

Peak SAR (extrapolated) = 3.77 W/kg

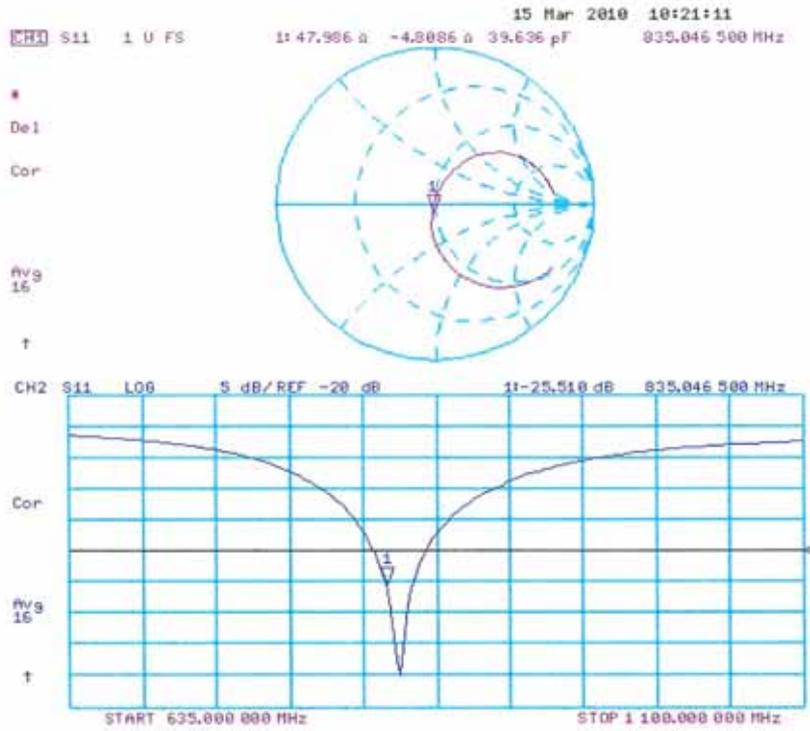
**SAR(1 g) = 2.55 mW/g; SAR(10 g) = 1.67 mW/g**

Maximum value of SAR (measured) = 2.98 mW/g



0 dB = 2.98mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 108**

Client **Quietek (Auden)**

Certificate No: **D1900V2-5d121\_Mar10**

## CALIBRATION CERTIFICATE

Object: **D1900V2 - SN: 5d121**

Calibration procedure(s): **QA CAL-05.v7  
Calibration procedure for dipole validation kits**

Calibration date: **March 23, 2010**

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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 23, 2010

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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 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

**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.

**Measurement Conditions**

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

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

**Head TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.1 ± 6 %	1.45 mho/m ± 6 %
Head TSL temperature during test	(21.5 ± 0.2) °C	----	----

**SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 mW / g
SAR normalized	normalized to 1W	40.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	<b>39.8 mW /g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR normalized	normalized to 1W	21.2 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	<b>21.1 mW /g ± 16.5 % (k=2)</b>

**Body TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.9 ± 6 %	1.58 mho/m ± 6 %
Body TSL temperature during test	(21.5 ± 0.2) °C	----	----

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.5 mW / g
SAR normalized	normalized to 1W	42.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	<b>41.4 mW / g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.60 mW / g
SAR normalized	normalized to 1W	22.4 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	<b>22.3 mW / g ± 16.5 % (k=2)</b>

**Appendix**

**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	50.6 $\Omega$ + 7.4 j $\Omega$
Return Loss	- 22.7 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	46.1 $\Omega$ + 7.1 j $\Omega$
Return Loss	- 21.5 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.205 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.

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	August 25, 2009

**DASY5 Validation Report for Head TSL**

Date/Time: 23.03.2010 12:23:06

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d121**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL U11 BB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement**

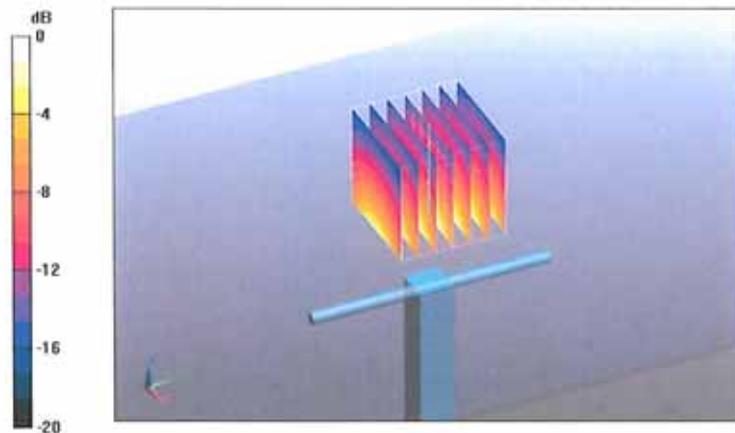
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.6 V/m; Power Drift = 0.00658 dB

Peak SAR (extrapolated) = 18.5 W/kg

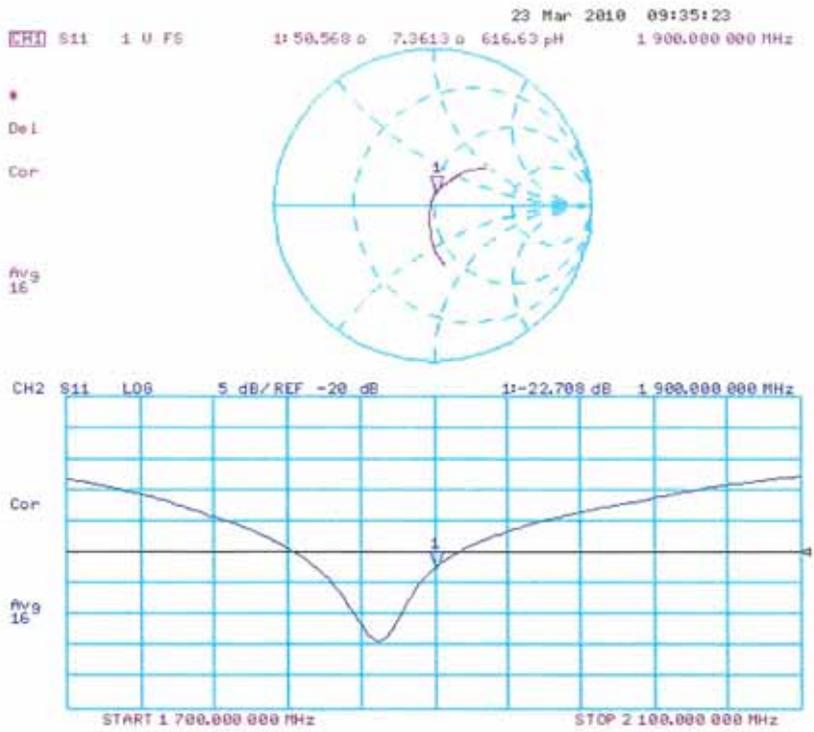
**SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.3 mW/g**

Maximum value of SAR (measured) = 12.8 mW/g



0 dB = 12.8mW/g

Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body

Date/Time: 17.03.2010 13:29:09

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d121**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: MSL U11 BB

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.58$  mho/m;  $\epsilon_r = 55$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0:** Measurement

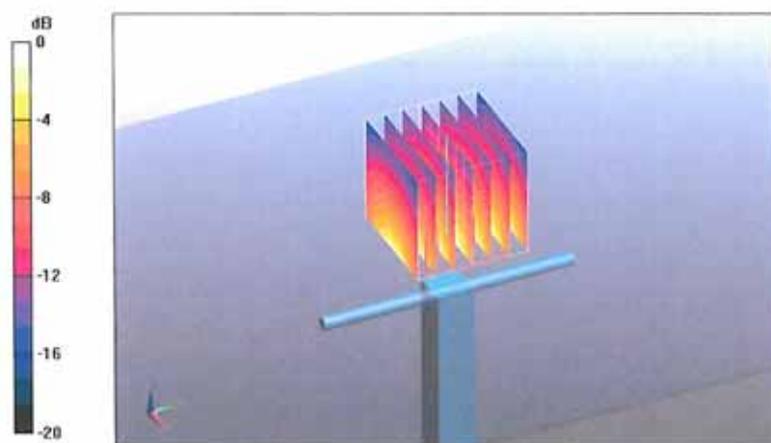
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97 V/m; Power Drift = 0.00345 dB

Peak SAR (extrapolated) = 17.6 W/kg

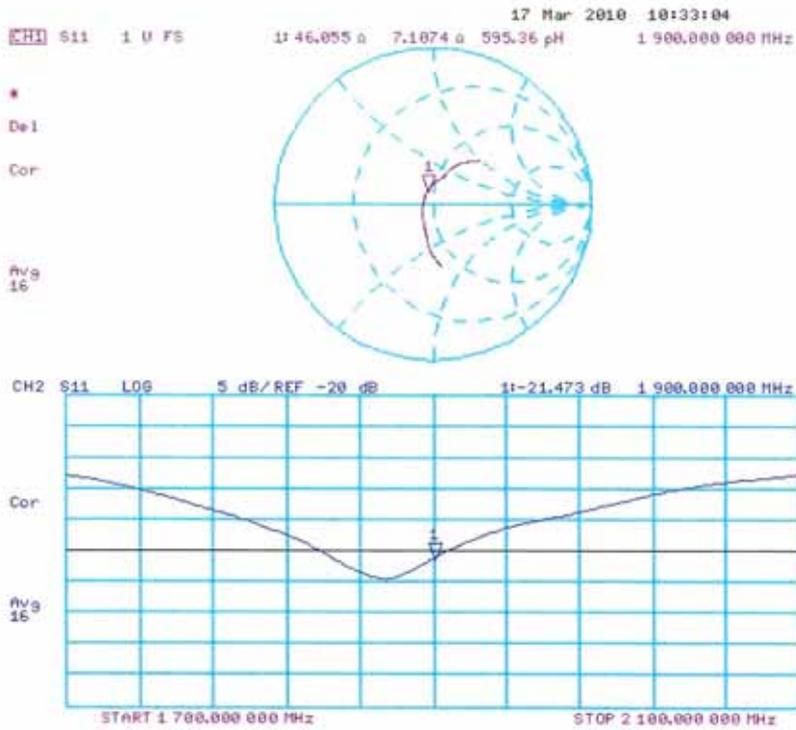
**SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.6 mW/g**

Maximum value of SAR (measured) = 13.3 mW/g



0 dB = 13.3mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 108**

Client **Quietek (Auden)**

Certificate No: **D2450V2-839\_Mar10**

## CALIBRATION CERTIFICATE

Object: **D2450V2 - SN: 839**

Calibration procedure(s): **QA CAL-05.v7  
Calibration procedure for dipole validation kits**

Calibration date: **March 12, 2010**

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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

Calibrated by:	Name <b>Mike Meili</b>	Function Laboratory Technician	Signature 
Approved by:	Name <b>Katja Pokovic</b>	Technical Manager	

Issued: March 18, 2010

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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 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

**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.

### Measurement Conditions

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

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

### Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.4 ± 6 %	1.80 mho/m ± 6 %
Head TSL temperature during test	(21.0 ± 0.2) °C	----	----

### SAR result with Head TSL

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.0 mW / g
SAR normalized	normalized to 1W	52.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	<b>52.3 mW /g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.11 mW / g
SAR normalized	normalized to 1W	24.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	<b>24.5 mW /g ± 16.5 % (k=2)</b>

**Body TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.4 ± 6 %	2.00 mho/m ± 6 %
Body TSL temperature during test	(21.0 ± 0.2) °C	----	----

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.0 mW / g
SAR normalized	normalized to 1W	52.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	<b>51.6 mW / g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.06 mW / g
SAR normalized	normalized to 1W	24.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	<b>24.2 mW / g ± 16.5 % (k=2)</b>

**Appendix**

**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	53.5 $\Omega$ - 0.6 j $\Omega$
Return Loss	- 29.4 dB

**Antenna Parameters with Body TSL**

Impedance, transformed to feed point	50.0 $\Omega$ + 0.9 j $\Omega$
Return Loss	- 40.8 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.134 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.

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	July 20, 2009

## DASY5 Validation Report for Head TSL

Date/Time: 12.03.2010 13:24:52

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:839**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL U11 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.81$  mho/m;  $\epsilon_r = 40.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

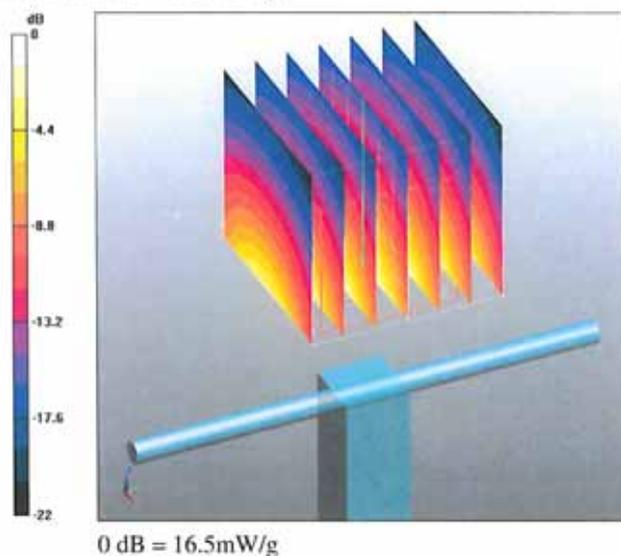
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 99.1 V/m; Power Drift = 0.060 dB

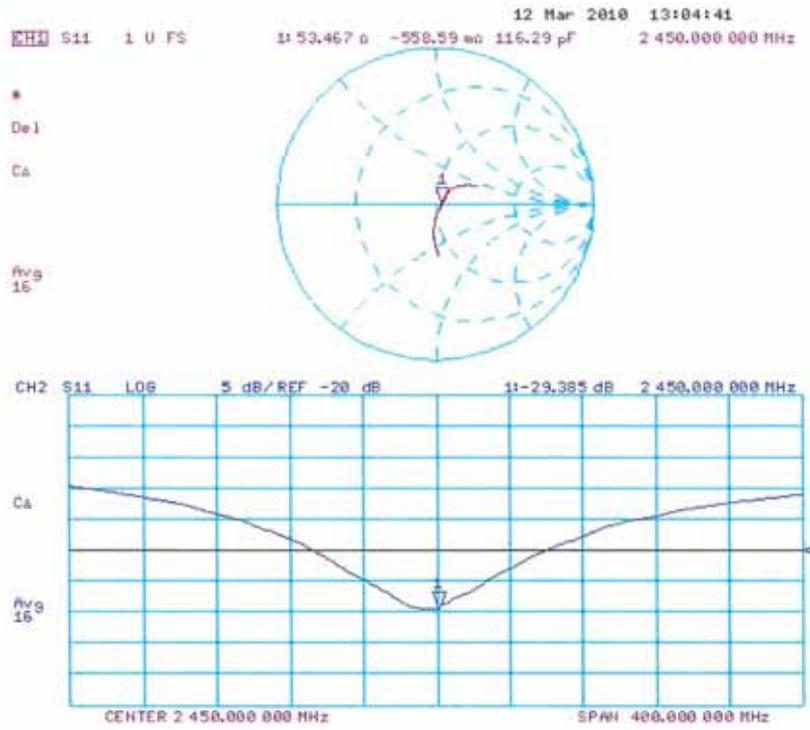
Peak SAR (extrapolated) = 26.5 W/kg

**SAR(1 g) = 13 mW/g; SAR(10 g) = 6.11 mW/g**

Maximum value of SAR (measured) = 16.5 mW/g



Impedance Measurement Plot for Head TSL



## DASY5 Validation Report for Body

Date/Time: 12.03.2010 15:25:35

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:839**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL U10 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.01$  mho/m;  $\epsilon_r = 54.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

**Body/d=10mm, Pin250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

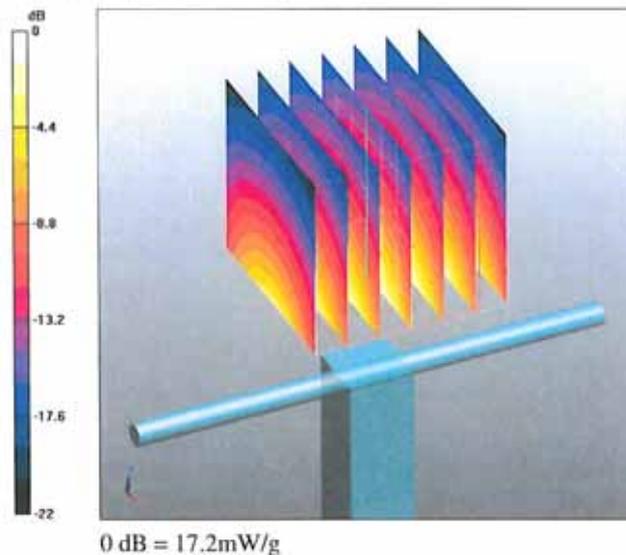
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.9 V/m; Power Drift = -0.0047 dB

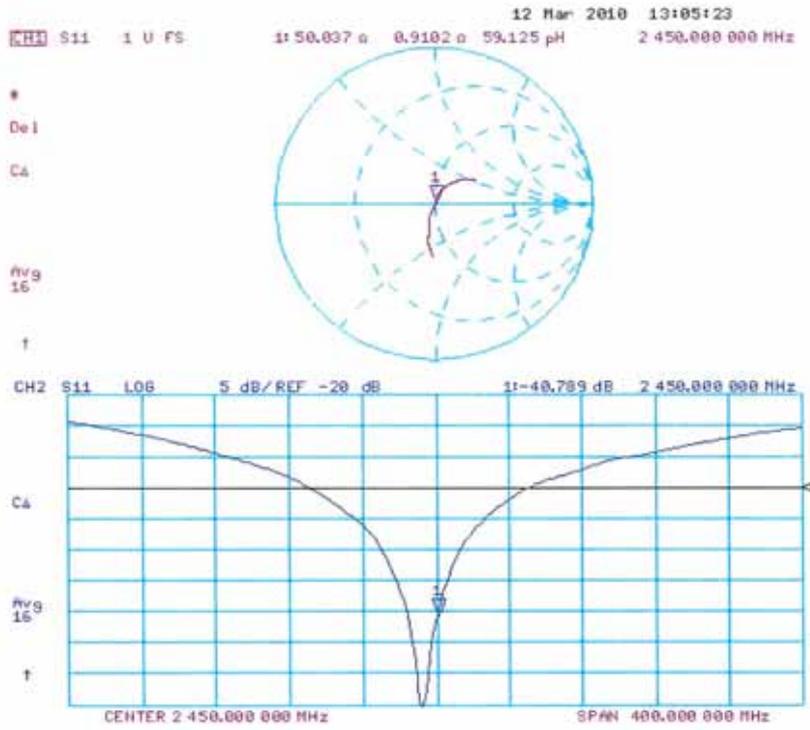
Peak SAR (extrapolated) = 27.1 W/kg

**SAR(1 g) = 13 mW/g; SAR(10 g) = 6.06 mW/g**

Maximum value of SAR (measured) = 17.2 mW/g



Impedance Measurement Plot for Body TSL



**Appendix F. DAE Calibration Data**

**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  
**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**

Client: **Auden**

Certificate No.: **DAE4-915\_Jul11**

**CALIBRATION CERTIFICATE**

Object: **DAE4 - SD 000 D04 BK - SN: 915**

Calibration procedure(s): **QA CAL-06.v23  
 Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **July 26, 2011**

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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V1.1	SE UMS 006 AB 1004	08-Jun-11 (in house check)	In house check: Jun-12

Calibrated by: **Andree Guntli** (Name), **Technician** (Function), *[Signature]* (Signature)

Approved by: **Fin Bormholt** (Name), **R&D Director** (Function), *[Signature]* (Signature)

Issued: July 26, 2011

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

**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  
**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

DAE data acquisition electronics  
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

## Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement:* Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

**DC Voltage Measurement**

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 $\mu$ V , full range = -100...+300 mV

Low Range: 1LSB = 61nV , full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.285 $\pm$ 0.1% (k=2)	404.391 $\pm$ 0.1% (k=2)	404.754 $\pm$ 0.1% (k=2)
Low Range	3.97635 $\pm$ 0.7% (k=2)	4.00755 $\pm$ 0.7% (k=2)	3.98639 $\pm$ 0.7% (k=2)

**Connector Angle**

Connector Angle to be used in DASY system	116.0 $\circ$ $\pm$ 1 $\circ$
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**Appendix**

**1. DC Voltage Linearity**

High Range	Reading ( $\mu\text{V}$ )	Difference ( $\mu\text{V}$ )	Error (%)
Channel X + Input	200000.4	-0.64	-0.00
Channel X + Input	20001.45	1.55	0.01
Channel X - Input	-19997.34	2.36	-0.01
Channel Y + Input	199995.7	-0.78	-0.00
Channel Y + Input	19998.85	-1.15	-0.01
Channel Y - Input	-19999.50	0.20	-0.00
Channel Z + Input	199994.5	-1.17	-0.00
Channel Z + Input	19999.11	-0.79	-0.00
Channel Z - Input	-19999.13	0.37	-0.00

Low Range	Reading ( $\mu\text{V}$ )	Difference ( $\mu\text{V}$ )	Error (%)
Channel X + Input	1999.6	-0.27	-0.01
Channel X + Input	200.22	0.52	0.26
Channel X - Input	-199.22	0.78	-0.39
Channel Y + Input	1999.9	-0.17	-0.01
Channel Y + Input	199.72	-0.28	-0.14
Channel Y - Input	-200.18	-0.28	0.14
Channel Z + Input	1999.9	0.05	0.00
Channel Z + Input	199.87	-0.13	-0.07
Channel Z - Input	-200.28	-0.38	0.19

**2. Common mode sensitivity**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading ( $\mu\text{V}$ )	Low Range Average Reading ( $\mu\text{V}$ )
Channel X	200	-15.44	-17.05
	- 200	18.73	17.12
Channel Y	200	-5.83	-6.14
	- 200	5.34	4.60
Channel Z	200	-0.97	-1.09
	- 200	-0.24	-0.53

**3. Channel separation**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X ( $\mu\text{V}$ )	Channel Y ( $\mu\text{V}$ )	Channel Z ( $\mu\text{V}$ )
Channel X	200	-	3.91	0.10
Channel Y	200	2.17	-	5.26
Channel Z	200	0.57	-0.09	-

**4. AD-Converter Values with inputs shorted**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16140	15733
Channel Y	15996	15679
Channel Z	15882	15699

**5. Input Offset Measurement**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.08	-0.73	2.01	0.38
Channel Y	-1.66	-4.46	-0.38	0.45
Channel Z	0.49	-0.80	1.79	0.32

**6. Input Offset Current**

Nominal Input circuitry offset current on all channels: <25fA

**7. Input Resistance** (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

**8. Low Battery Alarm Voltage** (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

**9. Power Consumption** (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9