SAR TEST REOIRT

FOR

Bluebird Soft Inc.

Headheld Mobile Computer

Model No.: HM45

Brand: Pidion

Prepared for : Bluebird Soft Inc.
SEI Tower 13~14, 467-14, Dogok-dong,
Gangnam-gu, Seoul, South Korea.

Prepared By : AUDIX Technology Corporation
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File Number : C1M1305105
Report Number : EM-F1020380
Date of Test : May 13 ~ 22, 2013
Date of Report : May 22, 2013

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TEST REPORT VERIFICATION

Applicant	:	Bluebird Soft Inc.
EUT Description	:	Headheld Mobile Computer
	(A) Model No.	: HM45
	(B) Serial No.	: N/A
	(C) Brand	: Pidion
	(D) Power Supply	: DC 5V (Switching Power Supply) or DC 3.7V (Battery)
	(E) Test Voltage	: DC 3.7V (Via Battery)

Measurement Standards Used:

FCC 47 CFR Part 2 (§2.1093)
IEEE 1528-2003
FCC OET Bulletin 65 Supplement C, June 2001

(Measurement: KDB 447498 D01v05, KDB 648474 D04v01, KDB 941225 D01v02, KDB 941225 D03v01, KDB 248227 D01v01r02)

The device described above was tested by AUDIX Technology Corporation. The measurement results were contained in this test report and AUDIX Technology Corporation was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC OET Bulletin 65 Supplement C & IEEE 1528 requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test: May 13 ~ 22, 2013 Date of Report: May 23, 2013

Producer: _____
(Tina Huang/Administrator)

Signatory: _____
(Ben Cheng/Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product	Headheld Mobile Computer
Model Number	HM45
Serial Number	N/A
Applicant	Bluebird Soft Inc. SEI Tower 13~14, 467-14, Dogok-dong, Gangnam-gu, Seoul, Korea
Manufacturer	Bluebird Soft Inc. 802-806, Ssangyong IT Twin Tower B-dong, 442-5, Sangdaewon-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do, Korea
SAR Evaluation (Total SAR)	**Head-- SAR 1g : WLAN: 0.160(W/kg) ; WWAN: 0.226(W/kg)** **Body-- SAR 1g: WLAN: 0.046(W/kg) ; WWAN: 0.417(W/kg)**
Fundamental Range	802.11b/g: 2412MHz ~ 2462MHz 802.11a: 5745MHz ~ 5825MHz 802.11n-HT20: 2412MHz ~ 2462MHz and 5745MHz ~ 5825MHz Bluetooth: 2402MHz ~ 2480MHz GSM/GPRS/EDGE 850: UL: 824MHz to 849MHz DL: 869MHz to 894MHz GPRS/GPRS/EDGE 1900: UL: 1850MHz to 1910MHz DL: 1930MHz to 1990MHz WCDMA Band: Band II: UL: 1850MHz to 1910MHz; DL: 1930MHz to 1990MHz Band V: UL: 824MHz to 849MHz; DL: 869MHz to 894MHz
Frequency Channel	802.11b/g: 11 channels 802.11a: 4channels 802.11n-HT20: 2.4GHz: 11 channels 5GHz : 4channels Bluetooth: 79 channels (GFSK,π/4DQPSK, 8-DPSK) GSM/GPRS/EDGE 850: CH 128- CH 251 GSM/GPRS/EDGE 1900: CH 512-CH 810 WCDMA Band: Band II: UL: CH 9262-CH9538; DL: CH 9662-CH9938 Band V: UL: CH 4132-CH4233; DL: CH 4357-CH4458

Radio Technology	802.11b: DSSS Modulation (DBPSK/DQPSK/CCK) 802.11g: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) 802.11a: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) 802.11n: OFDM Modulation (BPSK/QPSK/16QAM/64QAM) Bluetooth: FHSS (GFSK,π/4DQPSK, 8-DPSK) WCDMA/HSPA/HSUPA GSM/GPRS/EDGE GPS/AGPS
Data Transfer Rate	802.11b: 1/2/5.5/11Mbps 802.11a/g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps Bluetooth: 1/2/3Mbps GSM:DL 14.4kbps/UL 14.4kbps GPRS: DL 85.6kbps/UL 85.6kbps EGPRS:DL 236.8kbps/UL 236.8kpbs WCDMA CS: DL 64kbps/UL 64kpbs WCDMA PS: DL 384kbps/UL 384kbps
Cradle	PIDiOn, M/N ISC-HM40 Input: DC 5V, 2A ; Output: DC 4.2V, 0.8A
Switching Power Supply	PHIHONG, M/N PSAA10R-050 Input: 100-240V, 50-60Hz Output: 5V, 2A Power Cable: Non-Shielded, Undetachable, 1.5m
Date of Receipt of Sample	May 10, 2013
Date of Test	May 13 ~ 22, 2013

1.2. Antenna Information

Antenna Part Number	Manufacture	Antenna Type	Peak Gain	
			Frequency	Max Gain
WLAN Antenna	arro	PCB	2400MHz	0.4dBi
			2421MHz	0.0dBi
			2442MHz	0.0dBi
			2463MHz	0.0dBi
			2484MHz	-0.4dBi
WWAN Antenna	arro	PCB	824MHz	-6.09dBi
			860MHz	-3.12dBi
			875MHz	-2.22dBi
			894MHz	-1.55dBi
			925MHz	-3.71dBi
			960MHz	-7.79dBi
			1710MHz	-4.13dBi
			1850MHz	-0.49dBi
			1920MHz	-0.38dBi
			1940MHz	-0.34dBi
			1980MHz	-0.80dBi
			2110MHz	0.83dBi
			2130MHz	0.48dBi
			2170MHz	0.07dBi

1.3. Test Environment

Ambient conditions in the laboratory:

Item	Require	Actual
Temperature (°C)	18-25	22 ± 2
Humidity (%RH)	30-70	50 ± 2

1.4. Description of Test Facility

Name of Firm : **AUDIX Technology Corporation**
EMC Department
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan, R.O.C.

Test Site : No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan, R.O.C.

NVLAP Lab. Code : 200077-0

TAF Accreditation No : 1724

1.5. Measurement Uncertainty

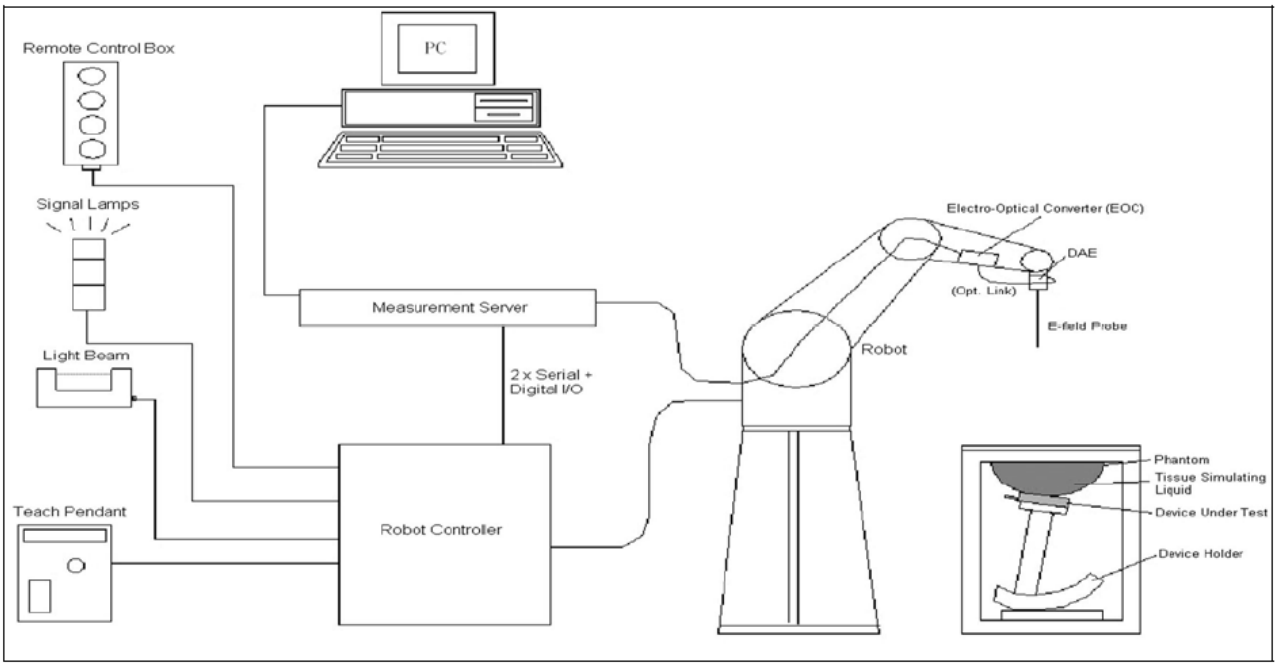
DASY5 Uncertainty Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram / 10 gram.								
Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±6.0%	N	1	1	1	±6.0%	±6.0%	∞
Axial Isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Test Sample Related								
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	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	$\sqrt{3}$	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	$\sqrt{3}$	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±11%	±10.8%	387
Expanded STD Uncertainty						±22%	±21.5%	

2. TEST EQUIPMENT

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Stäubli Robot TX90 XL	Stäubli	TX90	F12/5K9SA1/ A101	N/A	N/A
2.	Controller	SPEAG	CS8c	N/A	N/A	N/A
3.	SAM Twin Phantom	SPEAG	QD000 P40 CD	Tp 1515	N/A	N/A
4.	Device Holder	SPEAG	N/A	N/A	N/A	N/A
5.	Data Acquisition Electronic	SPEAG	DAE4	1337	May 07, 12'	Sep. 12, 13'
6.	E-Field Probe	SPEAG	EX3DV4	3855	May 09, 12'	Sep. 12, 13'
7.	SAR Software	SPEAG	DASY52	V52.8.2.843	N/A	N/A
8.	Network Analyzer	Agilent	E5071C	Y46214331	May 26, 12'	Sep. 12, 13'
9.	Signal Generator	Aglient	N5181A	MY50143917	May 08, 12'	Sep. 12, 13'
10.	Power Meter	Aglient	ML2487A	MY52180007	May 16, 12'	Sep. 12, 13'
11.	Power Sensor	Aglient	N10149	MY52080006	May 16, 12'	Sep. 12, 13'
12.	Dipole Antenna	SPEAG	D2450V2	888	May 02, 12'	Sep. 12, 14'
13.	Dipole Antenna	SPEAG	D835V2	4d136	May 03, 12'	Sep. 12, 14'
14.	Dipole Antenna	SPEAG	D1900V2	5d156	May 09, 12'	Sep. 12, 14'

3. SAR MEASUREMENT SYSTEM

3.1. 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.

3.1.1. 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.

3.1.2. 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 10mm² 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).

3.1.3. 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/m³ 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 (including FCC) utilize a physical step of 5x5x7 (8mmx8mmx5mm) providing a volume of 32mm in the X & Y axis, and 30mm in the Z axis.

3.1.4. Uncertainty of Inter-/Extrapolation and Averaging

In order to evaluate the uncertainty of the interpolation, extrapolation and averaged SAR calculation algorithms of the Postprocessor, DASY5 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.

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

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

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

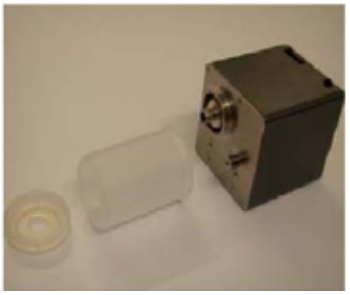
3.2. DASY5 E-Field Probe

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.

3.2.1. Isotropic E-Field Probe Specification

Model	Ex3DV4	
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	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%.	

3.2.2. Boundary Detection Unit and Probe Mounting Device



The DASY 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.

3.2.3. 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.

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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.

3.3. 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

3.4. 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.

3.5. 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 εr =3 and loss tangent δ = 0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

3.6. 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.

4. TISSUE SIMULATING LIQUID

4.1. Tissue Calibration Result

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

4.1.1. Head Tissue Simulate Measurement

Head Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
2450MHz	Reference result ± 5% window	39.2 37.24 to 41.16	1.80 1.71 to 1.89	N/A
	May 22, 2013	38.12	1.83	22.0

Head Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
835MHz	Reference result ± 5% window	41.5 39.425 to 43.575	0.90 0.855 to 0.945	N/A
	May 13, 2013	42.121	0.875	21.5

Head Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
1900MHz	Reference result ± 5% window	40.0 38.000 to 42.000	1.40 1.330 to 1.470	N/A
	May 15, 2013	39.415	1.381	21.5

4.1.2. Body Tissue Simulate Measurement

Body Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
2450MHz	Reference result ± 5% window	52.7 50.065 to 55.335	1.95 1.8525 to 2.0475	N/A
	May 21, 2013	51.63	1.83	22.0

Body Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
835MHz	Reference result ± 5% window	55.2 52.44 to 57.96	0.97 0.9215 to 1.0185	N/A
	May 17, 2013	53.15	0.965	21.5

Body Tissue Simulate Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
1900MHz	Reference result ± 5% window	53.3 50.635 to 55.965	1.52 1.444 to 1.596	N/A
	May 20, 2013	54.25	1.51	21.5

4.2. 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.

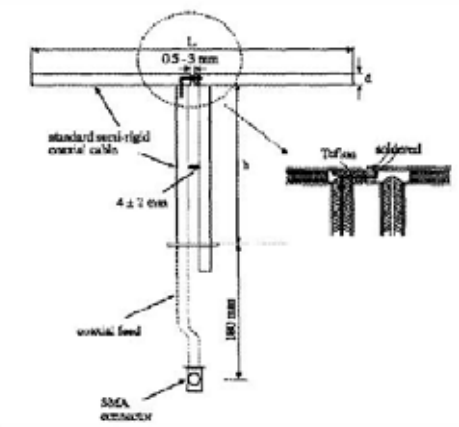
Target Frequency [MHz]	Head		Body	
	ε_r	σ [s/m]	ε_r	σ [s/m]
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

5. SAR MEASUREMENT PROCEDURE

5.1. SAR System Check

5.1.1. 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)
2450MHz	53.5	30.4	3.6

5.1.2. System Check Result

System Performance Check at WLAN (2450MHz) Dipole Kit: D2450V2 (Head)				
Frequency [MHz]	Description	SAR [w/kg] 1g	Tissue Temp. [°C]	Lab Temp. [°C]
2450MHz	Reference result ± 17% window	13.1 10.873 to 15.327	N/A	N/A
	May 22, 2013	13.0	22	22
Note: All SAR values are normalized to 1W forward power.				

System Performance Check at WLAN (2450MHz) Dipole Kit: D2450V2 (Body)				
Frequency [MHz]	Description	SAR [w/kg] 1g	Tissue Temp. [°C]	Lab Temp. [°C]
2450MHz	Reference result ± 17% window	12.9 10.707 to 15.093	N/A	N/A
	May 21, 2013	13.4	22.0	23.0
Note: All SAR values are normalized to 1W forward power.				

System Performance Check at GSM (835MHz) and WCDMA Band V Dipole Kit: D835V2 (Head)				
Frequency [MHz]	Description	SAR [w/kg] 1g	Tissue Temp. [°C]	Lab Temp. [°C]
835MHz	Reference result ± 17% window	2.34 1.942 to 2.738	N/A	N/A
	May 13, 2013	2.38	21.5	22
Note: All SAR values are normalized to 1W forward power.				

System Performance Check at GSM (835MHz) and WCDMA Band V Dipole Kit: D835V2 (Body)				
Frequency [MHz]	Description	SAR [w/kg] 1g	Tissue Temp. [°C]	Lab Temp. [°C]
835MHz	Reference result ± 17% window	2.45 2.034 to 2.867	N/A	N/A
	May 17, 2013	2.36	21.5	23
Note: All SAR values are normalized to 1W forward power.				

System Performance Check at PCS (1900MHz) and WCDMA Band II Dipole Kit: D1900V2 (Head)				
Frequency [MHz]	Description	SAR [w/kg] 1g	Tissue Temp. [°C]	Lab Temp. [°C]
1900MHz	Reference result ± 17% window	9.71 8.059 to 11.361	N/A	N/A
	May 15, 2013	9.62	21.5	22
Note: All SAR values are normalized to 1W forward power.				

System Performance Check at PCS (1900MHz) and WCDMA Band II Dipole Kit: D1900V2 (Body)				
Frequency [MHz]	Description	SAR [w/kg] 1g	Tissue Temp. [°C]	Lab Temp. [°C]
1900MHz	Reference result ± 17% window	10.1 3.383 to 11.817	N/A	N/A
	May 20, 2013	10.9	21.5	22.5
Note: All SAR values are normalized to 1W forward power.				

5.1.3. SAR System Check Data

System Performance Check Mode: WLAN (2450MHz)--Head

Date/Time: 5/22/2013 PM 01:45:10

Test Laboratory: Audix_SAR Lab

CW D2450

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:xxx

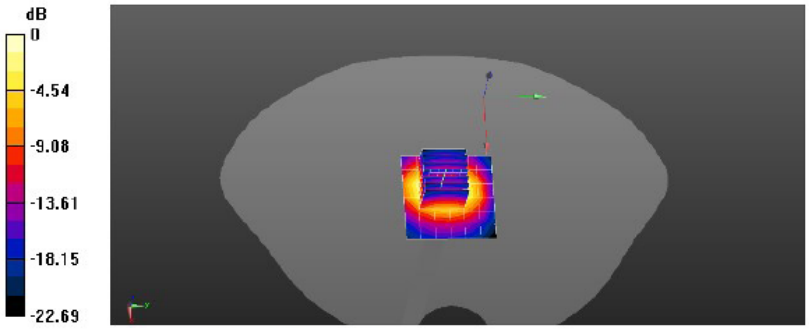
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.88 S/m; ε_r = 37.97; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.48, 7.48, 7.48); Calibrated: 5/9/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure 2/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 17.2 W/kg

Configuration/Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 76.159 V/m; Power Drift = -0.59 dB
Peak SAR (extrapolated) = 28.0 W/kg
SAR(1 g) = 13 W/kg; SAR(10 g) = 5.92 W/kg
Maximum value of SAR (measured) = 14.8 W/kg



System Performance Check Mode: WLAN (2450MHz)--Body

Date/Time: 5/21/2013 PM 02

Test Laboratory: Audix_SAR Lab

CW D2450

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:xxx

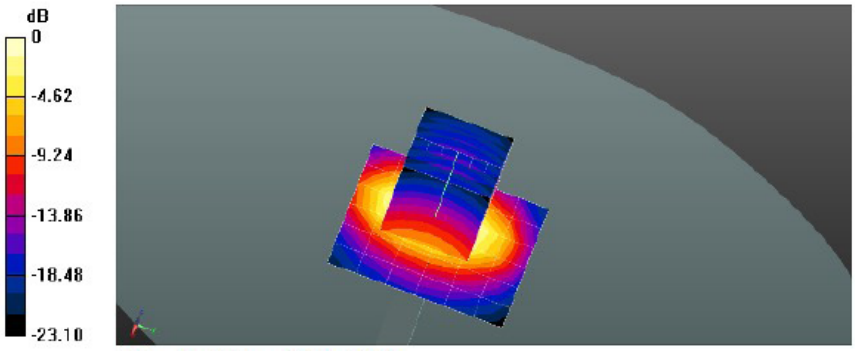
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.02 S/m; ε_r = 50.71; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.36, 7.36, 7.36); Calibrated: 5/9/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure 2/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 19.3 W/kg

Configuration/Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 68.901 V/m; Power Drift = -0.48 dB
Peak SAR (extrapolated) = 29.2 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.04 W/kg
Maximum value of SAR (measured) = 15.4 W/kg



0 dB = 15.4 W/kg = 11.88 dBW/kg

System Performance Check Mode: GSM (835MHz) and WCDMA Band V--Head

Date/Time: 5/13/2013 PM 01:50:05

Test Laboratory: Audix_SAR Lab

CW D835

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:xxx

Communication System: CW; Frequency: 835 MHz

Medium parameters used: f = 835 MHz; σ = 0.89 S/m; ε_r = 41.5; ρ = 1000 kg/m^3

Phantom section: Flat Section

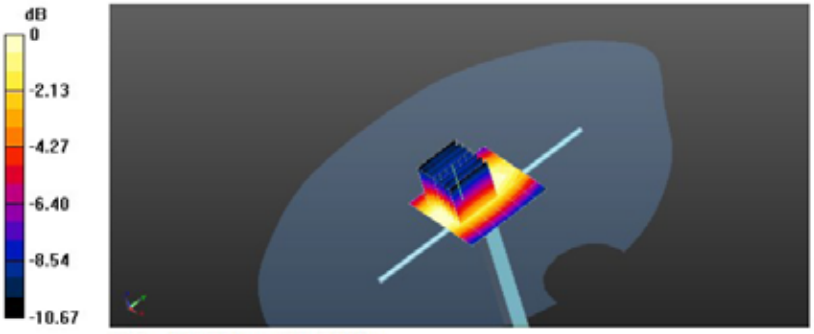
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(9.76, 9.76, 9.76); Calibrated: 5/9/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure 2/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 3.04 W/kg

Configuration/Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.490 V/m; Power Drift = -0.21 dB
Peak SAR (extrapolated) = 3.64 W/kg
SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.54 W/kg
Maximum value of SAR (measured) = 2.57 W/kg



0 dB = 2.57 W/kg = 4.10 dBW/kg

System Performance Check Mode: GSM (835MHz) and WCDMA Band V--Body

Date/Time: 5/17/2013 PM 01:22:12

Test Laboratory: Audix_SAR Lab

CW D835

DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:xxx

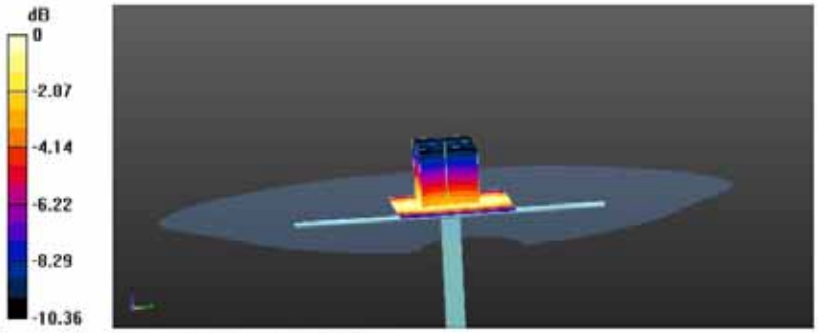
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.96 S/m; ε_r = 55.87; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(9.78, 9.78, 9.78); Calibrated: 5/9/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure 2/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 2.98 W/kg

Configuration/Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.853 V/m; Power Drift = -0.31 dB
Peak SAR (extrapolated) = 3.54 W/kg
SAR(1 g) = 2.36 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (measured) = 2.55 W/kg



0 dB = 2.55 W/kg = 4.07 dBW/kg

System Performance Check Mode: PCS (1900MHz) and WCDMA Band II--Head

Date/Time: 5/15/2013 PM 04:10:51

Test Laboratory: Audix_SAR Lab

CW D1900

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:xxx

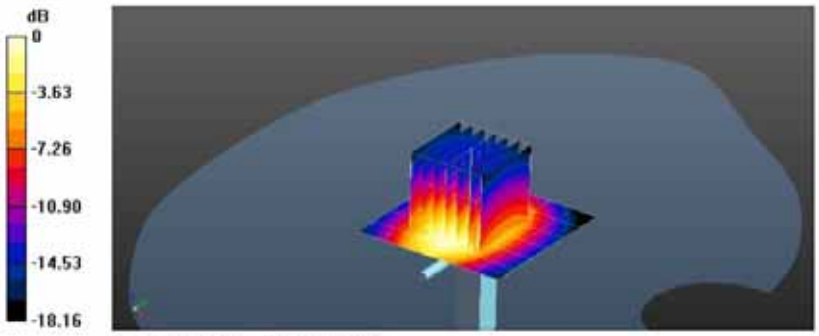
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.45 S/m; ε_r = 39.75; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(8.57, 8.57, 8.57); Calibrated: 5/9/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure 2/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 13.6 W/kg

Configuration/Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 84.912 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 9.62 W/kg; SAR(10 g) = 4.92 W/kg
Maximum value of SAR (measured) = 10.8 W/kg



0 dB = 10.8 W/kg = 10.33 dBW/kg

System Performance Check Mode: PCS (1900MHz) and WCDMA Band II--Body

Date/Time: 5/20/2013 PM 02:53:14

Test Laboratory: Audix_SAR Lab

CW D1900

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:xxx

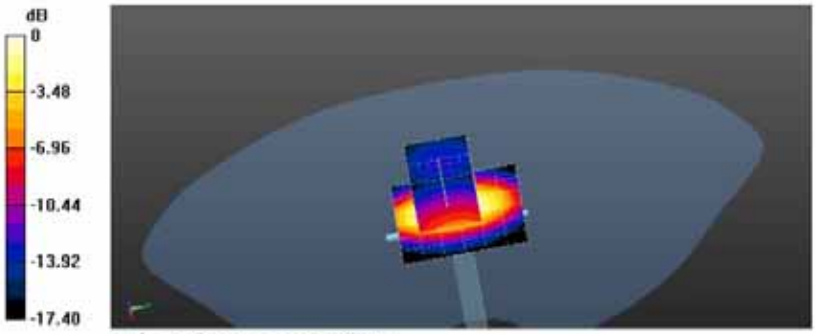
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.57 S/m; ε_r = 51.05; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.61, 7.61, 7.61); Calibrated: 5/9/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure 2/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 13.5 W/kg

Configuration/Unnamed procedure 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 79.944 V/m; Power Drift = -0.40 dB
Peak SAR (extrapolated) = 20.4 W/kg
SAR(1 g) = 10.9 W/kg; SAR(10 g) = 5.65 W/kg
Maximum value of SAR (measured) = 12.3 W/kg



0 dB = 12.3 W/kg = 10.90 dBW/kg

5.2. SAR Measurement Procedure

The Dasy5 calculates SAR using the following equation,

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

σ: represents the simulated tissue conductivity

ρ: 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 1mm²) 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 1mm³).

5.3. 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

5.4. Conducted Power Measurement

5.4.1. WLAN Function

Type of Network	Channel	Frequency (MHz)	**Average Output Power (dBm)**
802.11b	CH 1	2412	**16.47**
	CH 6	2437	**16.18**
	CH 11	2462	**16.40**
802.11g	CH 1	2412	**15.53**
	CH 6	2437	**15.51**
	CH 11	2462	**15.91**
802.11a	CH 149	5745	**7.22**
	CH 157	5785	**6.73**
	CH 165	5825	**6.87**
802.11n-HT20	CH 1	2412	**15.42**
	CH 6	2437	**15.52**
	CH 11	2462	**15.57**
	CH 149	5745	**5.24**
	CH 157	5785	**5.02**
	CH 165	5825	**5.03**

5.4.2. GSM/EGPRS and WCDMA Function

Channel / Mode	GSM850 Conducted RF output power (dBm)		
	CH 128	CH 190	CH 251
GSM	33.30	32.80	33.10
EDGE	26.80	26.50	26.70

Channel / Mode	PCS1900 Conducted RF output power (dBm)		
	CH 512	CH 661	CH 810
GSM	29.40	29.70	29.60
EDGE	25.10	25.30	25.20

UMTS Band II Conducted RF output power (dBm)						MPR (dB)
3GPP Release version	Model	3GPP 34.121 Case	CH 9262 1852.4MHz	CH 9400 1880.0MHz	CH 9538 1907.6MHz	
99	WCDMA	12.2kbps (RMC)	22.86	22.79	22.84	N/A
6	HSDPA	Case 1	22.08	22.20	22.01	0
6		Case 2	22.15	22.11	22.09	0
6		Case 3	22.02	22.05	21.99	0.5
6		Case 4	22.08	22.03	22.10	0.5
6	HSUPA	Case 1	22.05	22.13	22.04	0
6		Case 2	20.03	20.12	20.01	2
6		Case 3	21.08	21.19	21.01	1
6		Case 4	20.74	20.88	20.59	2
6.		Case 5	21.99	22.08	21.92	0

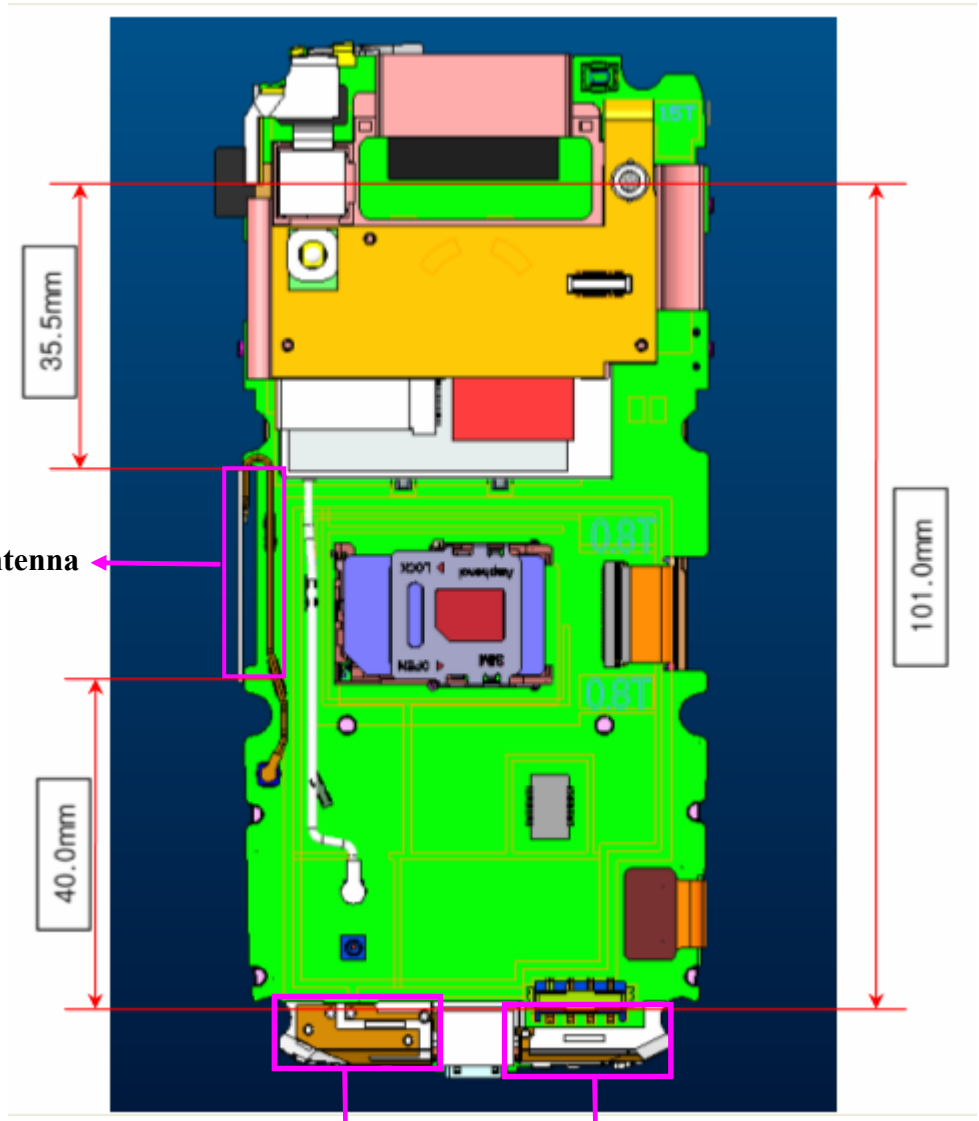
UMTS Band V Conducted RF output power (dBm)						MPR (dB)
3GPP Release version	Model	3GPP 34.121 Case	CH 4132 826.4MHz	CH 4180 836.6MHz	CH 4233 846.6MHz	
99	WCDMA	12.2kbps (RMC)	23.31	23.15	23.53	N/A
6	HSDPA	Case 1	22.25	22.23	22.10	0
6		Case 2	22.42	22.38	22.31	0
6		Case 3	22.35	22.27	22.24	0.5
6		Case 4	22.33	22.30	22.27	0.5
6	HSUPA	Case 1	22.23	22.15	22.01	0
6		Case 2	20.11	20.09	20.01	2
6		Case 3	21.01	210.07	20.99	1
6		Case 4	20.23	20.20	20.11	2
6		Case 5	22.1	22.08	21.98	0

5.4.3. Test Case

	Case	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	15/15
	βec	209/225	12/15	30/15	2/15	24/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	βhs	22/15	12/15	30/15	4/15	30/15
	βed	1309/225	94/75	47/15 47/15	56/75	134/15
	CM (dB)	1.0	3.0	2.0	3.0	1.0
	MPR(dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C. 11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27	

5.5. Exposure Positions Consideration

<Headheld Mobile Computer>



5.6. SAR Test Result

5.6.1. WLAN Function

Test Date: May. 22, 2013 Temperature : 22℃ Humidity : 50%

Liquid Temperature : 22℃				Depth of Liquid: > 15cm		
Test Mode: 2.4GHz (Head)						
Test Position Head	Antenna Position	Frequency		Conducted power (dBm)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz			
802.11b						
Left Cheek	Fixed	6	2437	16.18	**0.160**	1.6
Left Tilt	Fixed	6	2437	16.18	**0.053**	1.6
Right Cheek	Fixed	6	2437	16.18	**0.128**	1.6
Right Tilt	Fixed	6	2437	16.18	**0.035**	1.6

Test Mode: 2.4GHz, 802.11b, CH 2437, Left Cheek (Head)

Date/Time: 5/22/2013 PM 03:51:5

Test Laboratory: Audix_SAR Lab

802.11b MID LEFT CHEEK

DUT: HM45; Type: Bluebird Soft Inc; Serial: N/A

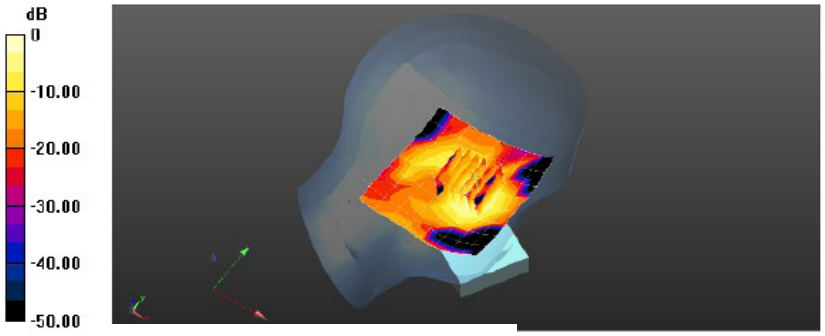
Communication System: 802.11 b; Frequency: 2437 MHz
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.883 S/m; ε_r = 38.021; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.48, 7.48, 7.48); Calibrated: 5/9/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure/Area Scan (9x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.161 W/kg

Configuration/Unnamed procedure/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.965 V/m; Power Drift = 1.62 dB
Peak SAR (extrapolated) = 0.434 W/kg
SAR(1 g) = 0.160 W/kg; SAR(10 g) = 0.082 W/kg
Maximum value of SAR (measured) = 0.199 W/kg



Test Mode: 2.4GHz, 802.11b, CH 2437, Left Tilt (Head)

Date/Time: 5/22/2013 PM 03:27:54

Test Laboratory: Audix_SAR Lab

802.11b MID LEFT TILT

DUT: HM45; Type: Bluebird Soft Inc; Serial: N/A

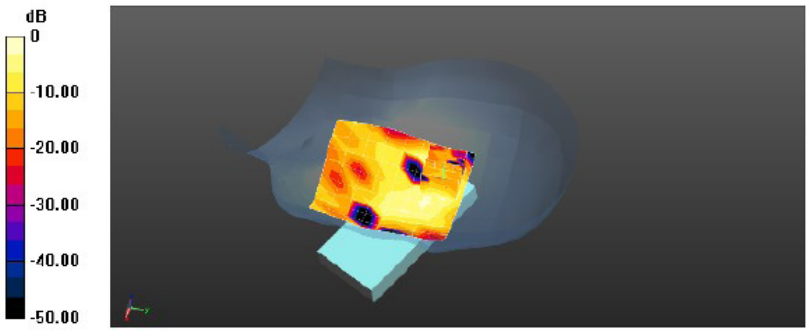
Communication System: 802.11 b; Frequency: 2437 MHz
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.883 S/m; ε_r = 38.021; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.48, 7.48, 7.48); Calibrated: 5/9/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure/Area Scan (9x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0565 W/kg

Configuration/Unnamed procedure/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.853 V/m; Power Drift = 1.65 dB
Peak SAR (extrapolated) = 0.100 W/kg
SAR(1 g) = 0.053 W/kg; SAR(10 g) = 0.022 W/kg
Maximum value of SAR (measured) = 0.0607 W/kg



Test Mode: 2.4GHz, 802.11b, CH 2437, Right Cheek (Head)

Date/Time: 5/22/2013 PM 04:16:28

Test Laboratory: Audix_SAR Lab

802.11b MID RIGHT CHEEK

DUT: HM45; Type: Bluebird Soft Inc; Serial: N/A

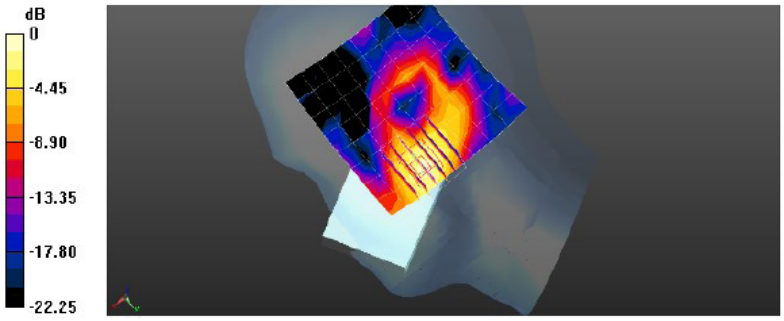
Communication System: 802.11 b; Frequency: 2437 MHz
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.883 S/m; ε_r = 38.021; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.48, 7.48, 7.48); Calibrated: 5/9/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure/Area Scan (9x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.125 W/kg

Configuration/Unnamed procedure/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.156 V/m; Power Drift = 1.52 dB
Peak SAR (extrapolated) = 0.237 W/kg
SAR(1 g) = 0.128 W/kg; SAR(10 g) = 0.065 W/kg
Maximum value of SAR (measured) = 0.140 W/kg



Test Mode: 2.4GHz, 802.11b, CH 2437, Right Tilt (Head)

Date/Time: 5/22/2013 PM 04:39:56

Test Laboratory: Audix_SAR Lab

802.11b MID RIGHT TILT

DUT: HM45; Type: Bluebird Soft Inc; Serial: N/A

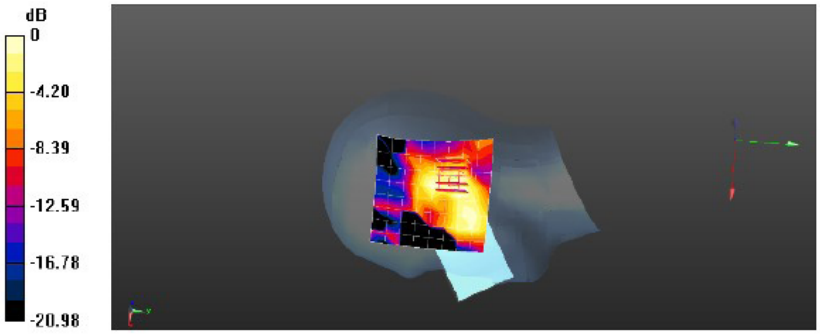
Communication System: 802.11b; Frequency: 2437 MHz
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.883 S/m; ε_r = 38.021; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.48, 7.48, 7.48); Calibrated: 5/9/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure/Area Scan (9x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0405 W/kg

Configuration/Unnamed procedure/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.208 V/m; Power Drift = 1.38 dB
Peak SAR (extrapolated) = 0.0620 W/kg
SAR(1 g) = 0.035 W/kg; SAR(10 g) = 0.019 W/kg
Maximum value of SAR (measured) = 0.0387 W/kg



Test Date: May. 21, 2013 Temperature : 23℃ Humidity : 52%

Liquid Temperature : 22℃				Depth of Liquid: **>** 15cm		
Test Mode: 2.4GHz (Body)						
Test Position Body	Antenna Position	Frequency		Conducted power (dBm)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz			
802.11b						
Front Side	Fixed	6	2437	16.18	**0.012**	1.6
Back Side	Fixed	6	2437	16.18	**0.00784**	1.6
Right Side	Fixed	6	2437	16.18	**0.046**	1.6

Test Mode: 2.4GHz, 802.11b, CH 2437, Front Side (Body)

Date/Time: 5/21/2013 PM 03:04:40

Test Laboratory: Audix_SAR Lab

802.11b MID FRONT

DUT: HM45; Type: Bluebird Soft Inc; Serial: N/A

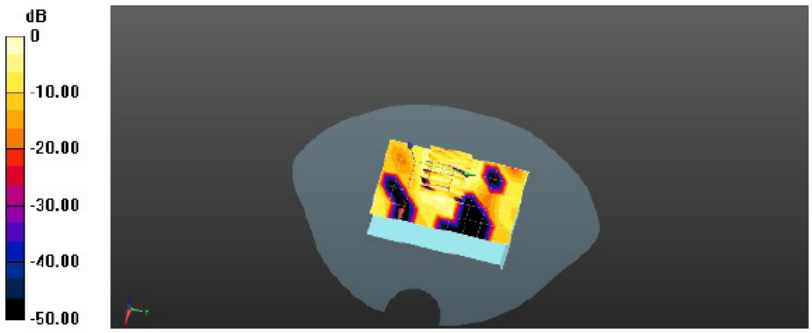
Communication System: 802.11 b; Frequency: 2437 MHz
Medium parameters used (interpolated): f = 2437 MHz; σ = 2.013 S/m; ε_r = 50.739; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.36, 7.36, 7.36); Calibrated: 5/9/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = -9.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0148 W/kg

Configuration/Unnamed procedure/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.665 V/m; Power Drift = 0.54 dB
Peak SAR (extrapolated) = 0.0210 W/kg
SAR(1 g) = 0.012 W/kg; SAR(10 g) = 0.00669 W/kg
Maximum value of SAR (measured) = 0.0130 W/kg



Test Mode: 2.4GHz, 802.11b, CH 2437, Back Side (Body)

Date/Time: 5/21/2013 PM 03:30:2

Test Laboratory: Audix_SAR Lab

802.11b MID BACK

DUT: HM45; Type: Bluebird Soft Inc; Serial: N/A

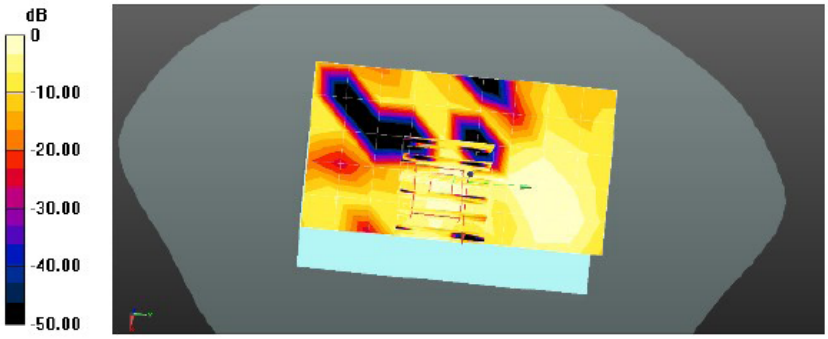
Communication System: 802.11 b; Frequency: 2437 MHz
Medium parameters used (interpolated): f = 2437 MHz; σ = 2.013 S/m; ε_r = 50.739; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.36, 7.36, 7.36); Calibrated: 5/9/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = -9.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0119 W/kg

Configuration/Unnamed procedure/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.581 V/m; Power Drift = 0.72 dB
Peak SAR (extrapolated) = 0.0140 W/kg
SAR(1 g) = 0.00784 W/kg; SAR(10 g) = 0.00438 W/kg
Maximum value of SAR (measured) = 0.00874 W/kg



Test Mode: 2.4GHz, 802.11b, CH 2437, Right Side (Body)

Date/Time: 5/21/2013 PM 05:02:1

Test Laboratory: Audix_SAR Lab

802.11b MID RIGHT

DUT: HM45-1; Type: Bluebird Soft Inc; Serial: N/A

Communication System: 802.11b; Frequency: 2437 MHz
Medium parameters used (interpolated): f = 2437 MHz; σ = 2.013 S/m; ε_r = 50.739; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.36, 7.36, 7.36); Calibrated: 5/9/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection), z = -9.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 5/7/2012
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: SN1706
- DASY52 52.8.4(1052); SEMCAD X 14.6.8(7028)

Configuration/Unnamed procedure/Area Scan (5x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0582 W/kg

Configuration/Unnamed procedure/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.086 V/m; Power Drift = 0.76 dB
Peak SAR (extrapolated) = 0.0990 W/kg
SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.013 W/kg
Maximum value of SAR (measured) = 0.0667 W/kg