TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

Test Report Serial No:
RFI/SARE2/RP73402JD03A

Supersedes Test Report Serial No:
RFI/SARE1/RP73402JD03A

This Test Report Is Issued Under The Authority Of Steve Flooks, Radio Performance Service Leader:  **pp Brian Watson**	
Checked By: Brian Watson 	**Report Copy No: PDF01**
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Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

Table of Contents

1. Customer Information

Company Name:	MaxID Ltd
Address:	Hillswood Business Park 3000 Hillswood Drive Chertsey KT16 0RS UK
Contact Name:	Roger Biggs

2. Equipment Under Test (EUT)

The following information (with the exception of the date of receipt) has been supplied by the customer:

2.1. Description of EUT

The equipment under test is a Rugged Multifunctional Mobile Computer with HF RFID, GSM/GPRS, Wireless LAN, GPS, finger sensor and barcode/imager functionality.

2.2. Identification of Equipment Under Test (EUT)

Description:	Rugged Mobile Computer
Brand Name:	MaxID
Model Name or Number:	iDL3ID FCC test unit 1
Serial Number:	505159
IMEI Number:	35 9811000479573
Hardware Version Number:	VER 1.0
Software Version Number:	03.0006.13
Hardware Revision of GSM Module:	G24 model F6413
Software Revision of GSM Module:	G24-G-0C-11-B2R
FCC ID Number:	TFTIDL3ID01
Country of Manufacture:	United States of America
Date of Receipt:	05 March 2008

2.3. Modifications Incorporated in the EUT

The EUT was sent to the client during test interval. The FPC interface was configured with a connector to the Metrologic imager. The RF elements of the product were untouched and a barcode reader added.

2.4. Accessories

The following accessories were supplied with the EUT during testing:

Description:	AC - DC Power Supply
Brand Name:	Netgear
Model Name or Number:	DV-1280-3UK
Serial Number:	330 - 10102-01
Cable Length and Type:	~2.0m
Country of Manufacture:	China
Connected to Port	12v DC 5mm Port (240 V AC UK plug)

Description:	Battery
Brand Name:	None Stated
Model Name or Number:	None Stated
Serial Number:	None Stated
Cable Length and Type:	Not Applicable
Country of Manufacture:	None Stated
Connected to Port	Two Pin port unique to Manufacturer

Description:	Docking Station
Brand Name:	MaxID
Model Name or Number:	iDL-DDN
Serial Number:	CHN00002
Cable Length and Type:	2.0m Two core power cable
Country of Manufacture:	None Stated
Connected to Port	12v DC 5mm Port

2.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	USB Cable
Brand Name:	None Stated
Model Name or Number:	USB Type A
Serial Number:	None Stated
Cable Length and Type:	~1.5m
Connected to Port:	USB

Description:	Serial Cable
Brand Name:	None Stated
Model Name or Number:	RS-232
Serial Number:	None Stated
Cable Length and Type:	~2.0m
Connected to Port:	Serial

Description:	USB to Serial Converter
Brand Name:	None Stated
Model Name or Number:	GMUS-03
Serial Number:	None Stated
Cable Length and Type:	0.30m
Connected to Port:	Serial

2.6. Additional Information Related to Testing

Equipment Category	GSM/GPRS, WiFi, RFID and GPS		
Type of Unit	Portable battery powered device		
Intended Operating Environment:	Within GSM/GPRS, WiFi, RFID and GSP coverage		
Transmitter Maximum Output Power Characteristics:	WiFi	20.0 dBm	
	GSM850	33.0 dBm	
	PCS1900	30.0 dBm	
	RFID 13.56MHz	26.9 dBuA/m maximum at 3m	
Transmitter Frequency Range:	WiFi	(2412 to 2462) MHz	
	GSM850	(824 to 849) MHz	
	PCS1900	(1850 to 1910) MHz	
	RFID 13.56MHz	(13.55 to 13.57) MHz	
Transmitter Frequency Allocation of EUT When Under Test:	**Channel Number**	**Channel Description**	**Frequency (MHz)**
	1	Low	2412
	6	Middle	2437
	11	High	2462
	128	Low	824.2
	189	Middle	836.4
	251	High	848.8
	512	Low	1850.2
	660	Middle	1879.8
	810	High	1909.8
	0	Middle	13.56
Modulation(s):	GSM: 217Hz, WiFi: 0Hz,		
Modulation Scheme (Crest Factor):	GSM: 8.3, GPRS: 4, WiFi: 1		
Antenna Type, Antenna Length:	Internal, Unknown		
Number of Antenna Positions:	1 Fixed (Main Antenna)		
Power Supply Requirement:	3.7V DC		
Battery Type(s):	Unknown		

3. Test Specification, Methods and Procedures

3.1. Test Specification

Reference:	OET Bulletin 65 Supplement C: (2001-01)
Title:	Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
Purpose of Test:	To determine whether the equipment met the basic restrictions as defined in OET Bulletin 65 Supplement C: (2001-01) using the SAR averaging method as described in the test specification above.

3.2. Methods and Procedures Reference Documentation

The methods and procedures used were as detailed in:

Federal Communications Commission, “Evaluating compliance with FCC Guidelines for human exposure to radio frequency electromagnetic fields”, OET Bulletin 65 Supplement C, FCC, Washington, D.C, 20554, 2001.

Thomas Schmid, Oliver Egger and Neils Kuster, “Automated E-field scanning system for dosimetric assessments”, IEEE Transaction on microwave theory and techniques,
Vol. 44, pp. 105-113, January 1996.

Neils Kuster, Ralph Kastle and Thomas Schmid, “Dosimetric evaluation of mobile communications equipment with know precision”, IEICE Transactions of communications, Vol. E80-B, No.5, pp. 645-652, May 1997.

KDB 447498 D01 Mobile Portable RF Exposure v03.

KDB 648474 D01 SAR Handsets Multi Xmiter and Ant v01r02.

KDB 248227 SAR Measurement Procedures for 802.11 a/b/g Transmitters Rev.1.2.

3.3. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

Test performed with USB and RS232 Serial connectors attached to device in order to acquire test mode and maximum transmit power.

Test was performed as per “447498 D01 Mobile Portable RF Exposure v03”, according to the handset procedures in IEEE Std 1528-2003, OET Bulletin 65 Supplement C 01-01 and the specific FCC test procedures.

SAR measurements on 802.11g mode was not measured as maximum average output power was less than ¼ dB higher than that measured on the corresponding 802.11b channels, as per KDB 248227.

5. Operation and Configuration of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating mode(s) unless otherwise stated:

- GSM850 call allocated mode
- PCS1900 call allocated mode
- GPRS850 and GPRS1900 data allocated mode
- EGPRS850 and EGPRS1900 data allocated mode
- WiFi active

5.2. Configuration and Peripherals

The EUT was tested in the following configuration(s) unless otherwise stated:

- Body-worn configuration only
- Standalone battery powered
- The EUT was configured to transmit at maximum power in the WiFi 802.11b mode, using the manufacturer Software “BGW211 eval version3”.
- GPRS configured with 2 uplink, 2 downlink enabled and Code Scheme 4
- EGPRS configured with 2 uplink, 2 downlink enabled, 8PSK and Coding Scheme 9

Body Configuration

a) The EUT was placed in a normal operating position where the centre of EUT was aligned with the centre reference point on the flat section of the ‘SAM’ phantom.

b) With the EUT touching the phantom at an imaginary centre line. The EUT was aligned with a marked plane (X and Y axis) consisting of two lines.

c) For the touch-safe position the handset was gradually moved towards the flat section of the ‘SAM’ phantom until any point of the EUT touched the phantom.

d) For position(s) greater then 0mm separation the EUT was positioned as per the touch-safe position, and then the vertical height was decreased/adjusted as required.

e) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.

f) The device was keyed to operate continuously in the transmit mode for the duration of the test.

g) The location of the maximum spatial SAR distribution (hot spot) was determined relative to the handset and its antenna.

h) The EUT was transmitting at full power throughout the duration of the test powered by a fully charged battery.

6. Summary of Test Results

Test Name	Specification Reference	Compliancy Status
Specific Absorption Rate-GSM850 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-PCS1900 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-GPRS850 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-GPRS1900 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-EGPRS850 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-EGPRS1900 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-WiFi & WLAN Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of
RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ.

7. Measurements, Examinations and Derived Results

7.1. General Comments

This section contains test results only.

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to section 8 for details of measurement uncertainties.

7.2. Test Results

7.2.1.Specific Absorption Rate - GSM850 Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.065

Environmental Conditions:

Temperature Variation in Lab (℃):	23.0 to 23.0
Temperature Variation in Liquid (℃):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	189	0.065	1.600	1.535	1	Complied
Rear of EUT Facing Phantom	Flat (SAM)	189	0.031	1.600	1.569	1	Complied

Note(s):

1. *SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.*

7.2.2.Specific Absorption Rate - PCS1900 Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.037

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	660	0.037	1.600	1.563	1	Complied
Rear of EUT Facing Phantom	Flat (SAM)	660	0.015	1.600	1.586	1	Complied

Note(s):

1. *SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.*

7.2.3.Specific Absorption Rate - GPRS850 Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.113

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	189	0.113	1.600	1.487	1	Complied

Note(s):

1. *SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.*

7.2.4.Specific Absorption Rate - GPRS1900 Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.090

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	660	0.090	1.600	1.510	1	Complied

Note(s):

1. *SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.*

7.2.5.Specific Absorption Rate - EGPRS850 Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.020

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	189	0.020	1.600	1.580	1	Complied

Note(s):

1. *SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.*

7.2.6.Specific Absorption Rate - EGPRS1900 Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.021

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	660	0.021	1.600	1.579	1	Complied

Note(s):

1. *SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.*

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

7.2.7.Specific Absorption Rate - WiFi & WLAN Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.00151

Environmental Conditions:

Temperature Variation in Lab (°C):	24.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Facing Phantom	Flat (SAM)	6	0.00151	1.600	1.598	1, 2, 3	Complied
Front of EUT Facing Phantom	Flat (SAM)	6	0.00149	1.600	1.599	1, 2, 3	Complied

Note(s):

1. *WiFi 802.11b enabled.*
2. *SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.*
3. *Power Drift exceeded 5% due to low SAR level measured near noise floor.*

7.2.8. EIRP/ERP Measurement

Channel Number	Frequency (MHZ)	TX Power before Test (dBm)	Note
1	2412.0	13.9	EIRP
6	2437.0	13.2	EIRP
11	2462.0	10.7	EIRP
128	824.2	20.9	ERP
189	836.4	21.9	ERP
251	848.8	21.3	ERP
512	1850.2	18.4	EIRP
660	1879.8	22.6	EIRP
810	1909.8	23.9	EIRP

7.2.9. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently, the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor, such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Test Name	Confidence Level	Calculated Uncertainty (%)
Specific Absorption Rate-GSM850 Body Configuration 1g	95%	18.03
Specific Absorption Rate-PCS1900 Body Configuration 1g	95%	18.30
Specific Absorption Rate-GPRS/EGPRS 850 Body Configuration 1g	95%	18.03
Specific Absorption Rate-GPRS/EGPRS 1900 Body Configuration 1g	95%	18.30
Specific Absorption Rate-WiFi & WLAN Body Configuration 1g	95%	19.33

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

Measurement Uncertainty (Continued)

7.3. Specific Absorption Rate Uncertainty at 850 MHz Body 1g, GSM Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (10g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	11.000	11.000	normal (k=2)	2.0000	1.0000	5.500	5.500	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	3.600	3.600	normal (k=1)	1.0000	0.6400	2.304	2.304	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.000	4.000	normal (k=1)	1.0000	0.6000	2.400	2.400	5
	Combined standard uncertainty			t-distribution			9.20	9.20	>500
	Expanded uncertainty			k = 1.96			18.03	18.03	>500

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

Measurement Uncertainty (Continued)

7.4. Specific Absorption Rate Uncertainty at 1900 MHz Body 1g, PCS Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (10g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	11.000	11.000	normal (k=2)	2.0000	1.0000	5.500	5.500	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.170	4.170	normal (k=1)	1.0000	0.6400	2.669	2.669	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.230	4.230	normal (k=1)	1.0000	0.6000	2.538	2.538	5
	Combined standard uncertainty			t-distribution			9.34	9.34	>400
	Expanded uncertainty			k = 1.96			18.30	18.30	>400

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

Measurement Uncertainty (Continued)

7.5. Specific Absorption Rate Uncertainty at 850 MHz Body 1g, GPRS Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (10g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	11.000	11.000	normal (k=2)	2.0000	1.0000	5.500	5.500	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	3.600	3.600	normal (k=1)	1.0000	0.6400	2.304	2.304	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.000	4.000	normal (k=1)	1.0000	0.6000	2.400	2.400	5
	Combined standard uncertainty			t-distribution			9.20	9.20	>500
	Expanded uncertainty			k = 1.96			18.03	18.03	>500

Measurement Uncertainty (Continued)

7.6. Specific Absorption Rate Uncertainty at 1900 MHz Body 1g, GPRS Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (10g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	11.000	11.000	normal (k=2)	2.0000	1.0000	5.500	5.500	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.170	4.170	normal (k=1)	1.0000	0.6400	2.669	2.669	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.230	4.230	normal (k=1)	1.0000	0.6000	2.538	2.538	5
	Combined standard uncertainty			t-distribution			9.34	9.34	>400
	Expanded uncertainty			k = 1.96			18.30	18.30	>400

Measurement Uncertainty (Continued)

7.7. Specific Absorption Rate Uncertainty at 2450 MHz Body 1g, WiFi Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (10g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	11.800	11.800	normal (k=2)	2.0000	1.0000	5.900	5.900	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	2.920	2.920	normal (k=1)	1.0000	1.0000	2.920	2.920	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	3.930	3.930	normal (k=1)	1.0000	0.6400	2.515	2.515	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	3.940	3.940	normal (k=1)	1.0000	0.6000	2.364	2.364	5
	Combined standard uncertainty			t-distribution			9.86	9.86	>400
	Expanded uncertainty			k = 1.96			19.33	19.33	>400

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A034	Narda 20W Termination	Narda	374BNM	8706	Calibrated as part of system	-
A1094	Digital Camera	Sony	MVC - FD81	125805	-	-
A1097	SMA Directional Coupler	MiDISCO	MDC6223-30	None	Calibrated as part of system	-
A1137	3dB Attenuator	Narda	779	04690	Calibrated as part of system	-
A1174	Dielectric Probe Kit	Agilent Technologies	85070C	Us99360072	Calibrated before use	-
A1328	Handset Positioner	Schmid & Partners	Modification	SD 000 H01 DA	-	-
A1182	Handset Positioner	Schmid & Partners	V3.0	None	-	-
A1184	Data Acquisition Electronics	Schmid & Partner	DAE3	394	25 May 2007	12
A1185	Probe	Schmid & Partner	ET3 DV6	1528	06 July 2007	12
A1378	Probe	Schmid & Partner	EX3 DV3	3508	20 April 2007, verified on 25th March 2008	13
A1238	SAM Phantom	Schmid & Partners	SAM b	001	Calibrated before use	-
A1566	SAM Phantom	Schmid & Partners	SAM a	002	Calibrated before use	-
A1322	2450 MHz Dipole Kit	Schmid & Partner Engineering AG	D2450V2	725	17 January 2007	24
A1237	1900 MHz Dipole Kit	Schmid & Partner Engineering AG	D1900V2	540	11 June 2007	24
A1329	900 MHz Dipole Kit	Schmid & Partner Engineering AG	D900V2	185	18 May 2007	24
A1497	Amplifier	Mini-Circuits	zhl-42w (sma)	e020105	Calibrated as part of system	-

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

Equipment Used (Continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A215	20 dB Attenuator	Narda	766-20	9402	Calibrated as part of system	-
C1144	Cable	Rosenberger MICRO-COAX	FA147AF00150 3030	41842-1	Calibrated as part of system	-
C1145	Cable	Rosenberger MICRO-COAX	FA147AF00300 3030	41843-1	Calibrated as part of system	-
C1146	Cable	Rosenberger MICRO-COAX	FA147AF03000 3030	41752-1	Calibrated as part of system	-
G051	Signal Generator	Gigatronics	7100/.01-20	749472	Calibrated before use	-
G0528	Robot Power Supply	Schmid & Partner	DASY	None	Calibrated before use	-
G087	PSU	Thurlby Thandar	CPX200	100701	Calibrated before use	-
M010	NRV Power Meter	Rohde & Schwarz	NRV	882 317/065	06 July 2007	12
M053	HP 8594A Spectrum Analyser	HP	8594A	3108U00205	23 February 2006 (Monitoring use only)	-
M1015	Network Analyser	Agilent Technologies	8753ES	US39172406	24 September 2007	12
M1047	Robot Arm	Staubli	RX908 L	F00/SD89A1/ A/01	Calibrated before use	-
M1069	Diode Power Sensor	Rohde & Schwarz	NRV-Z2	838824/010	12 June 2007	12
M1129	Power Sensor	Rohde & Schwarz	URY-Z2	890242/16	12 June 2007	12

Equipment Used (Continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
M136	Temperature/Humidity/Pressure Meter	RS Components	None	None	Internal Calibration	-
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	24 April 2008	12
M1267	Thermal Power Sensor	Rohde & Schwarz	NRV-Z52	100155	24 April 2008	12
M509	Thermometer	Testo	110	40378800433	20 April 2007	13
M1140	Radio Communication Analyser	Anritsu	MT8820A	6K0000047	-	-
A512	Double ridged Horn	EMCO	3115	3993	17 Sept 2004 (Monitoring use only)	-
M1093	Communications Test Set	Will tek	4202S	0513018	-	-
A1531	Antenna	AARONIA AG	7025	02458	-	-
S256	Site 56	RFI	N/A	N/A	Calibrated before use	-

NB In accordance with UKAS requirements, all the measurement equipment is on a calibration schedule.

A.1.1. Calibration Certificates

This section contains the calibration certificates and data for the Probe(s) and Dipole(s) used, which are not included in the total number of pages for this report.

A1185
12/07/07 NM

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 Federal Office of Metrology and Accreditation
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 RFI

Certificate No: ET3-1528_Jul07

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1528
Calibration procedure(s)	QA CAL-01.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	July 6, 2007
Condition of the calibrated item	In Tolerance

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 (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: July 6, 2007

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

S Schweizerischer Kalibrierdienst
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S Swiss Calibration Service

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ 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:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * 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*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *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 *NORMx,y,z * 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 ± 50 MHz to ± 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.

Probe ET3DV6

SN:1528

Manufactured:	March 21, 2000
Last calibrated:	July 12, 2006
Recalibrated:	July 6, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ET3DV6 SN:1528

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**1.52** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**96** mV
NormY	**1.83** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**94** mV
NormZ	**1.57** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**96** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	8.9	4.7
SAR_{be} [%]	With Correction Algorithm	0.1	0.2

TSL **1750 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	10.1	5.9
SAR_{be} [%]	With Correction Algorithm	0.3	0.6

Sensor Offset

Probe Tip to Sensor Center	**2.7** mm

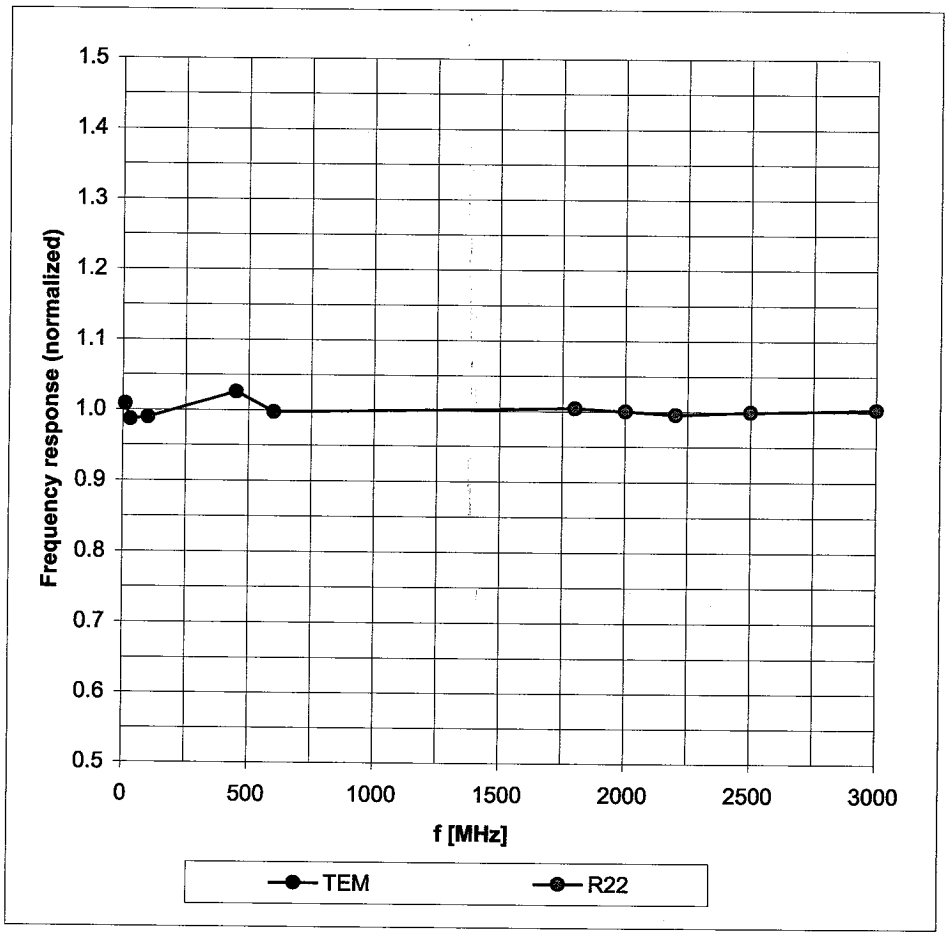
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

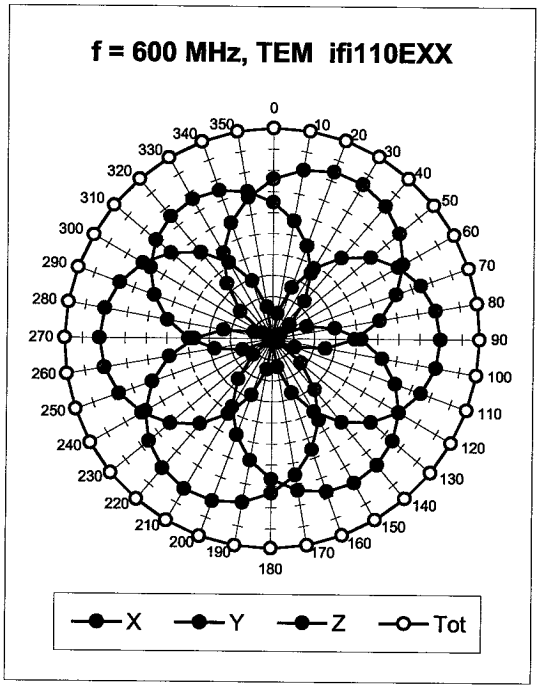
Frequency Response of E-Field

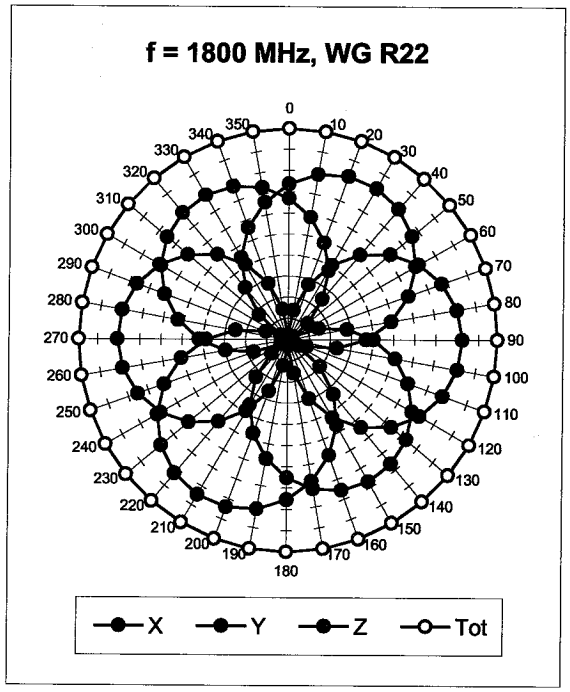
(TEM-Cell:ifi110 EXX, Waveguide: R22)

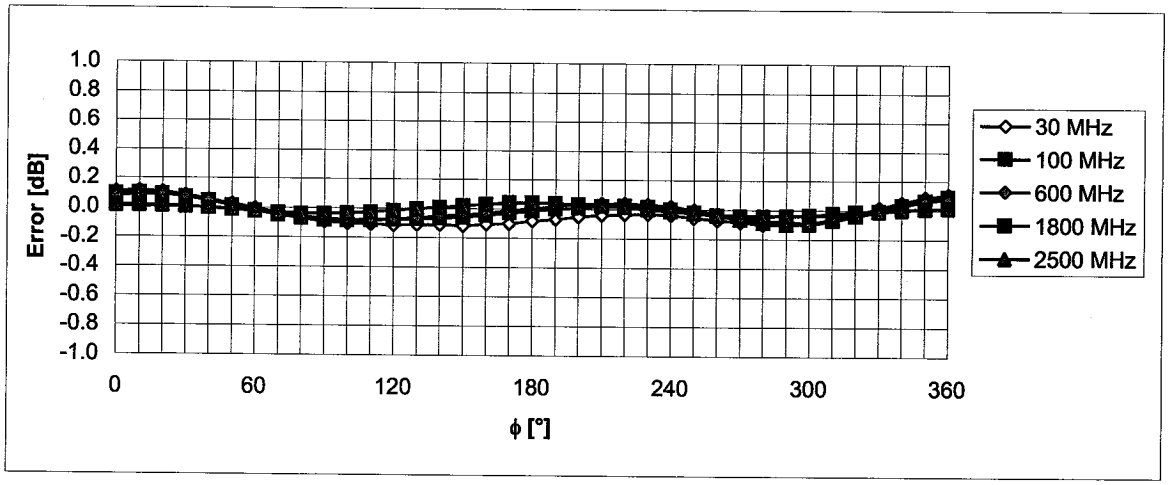


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



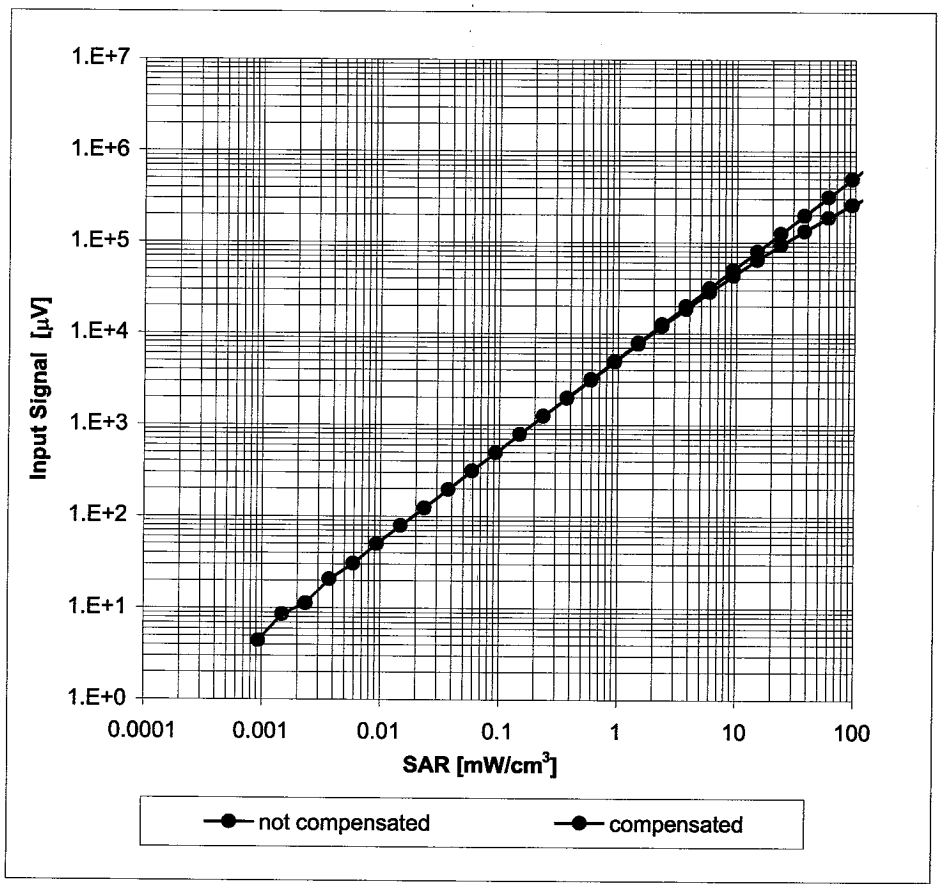


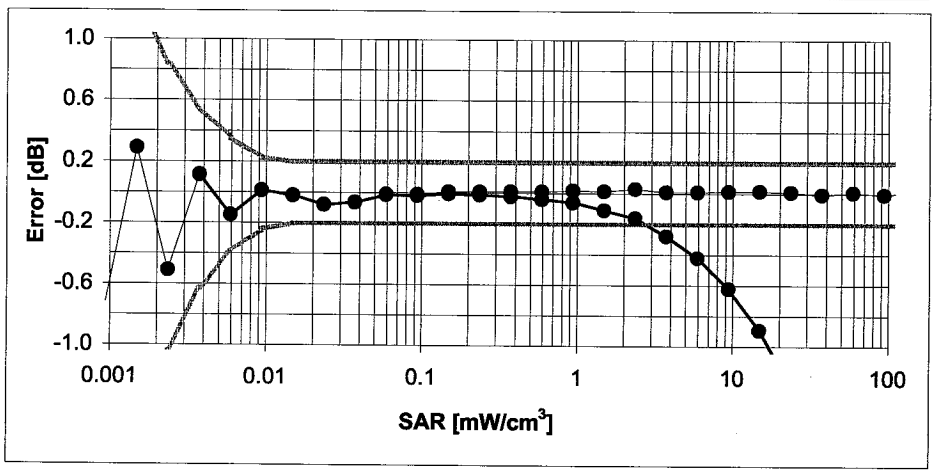


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

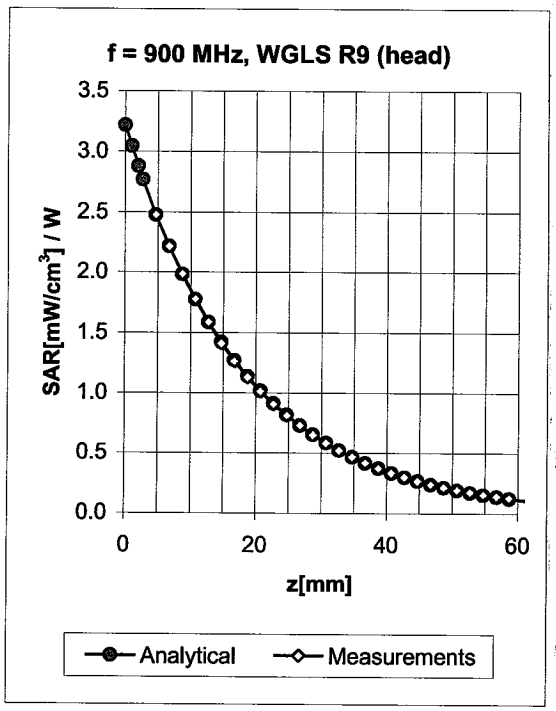
(Waveguide R22, f = 1800 MHz)

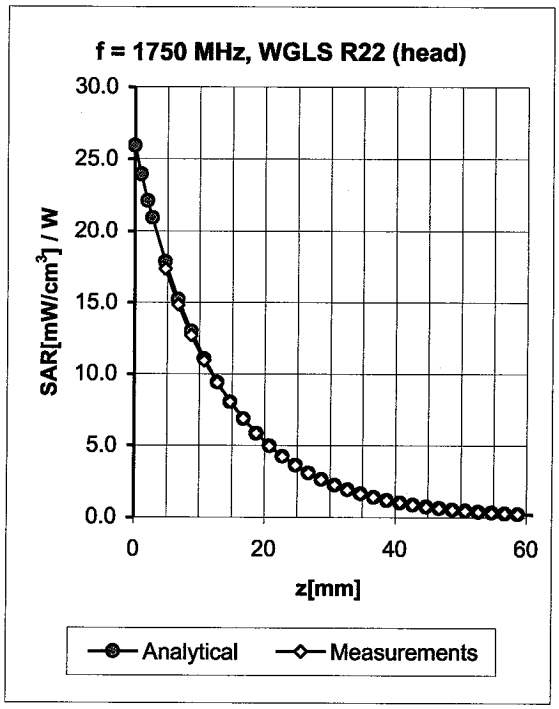




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



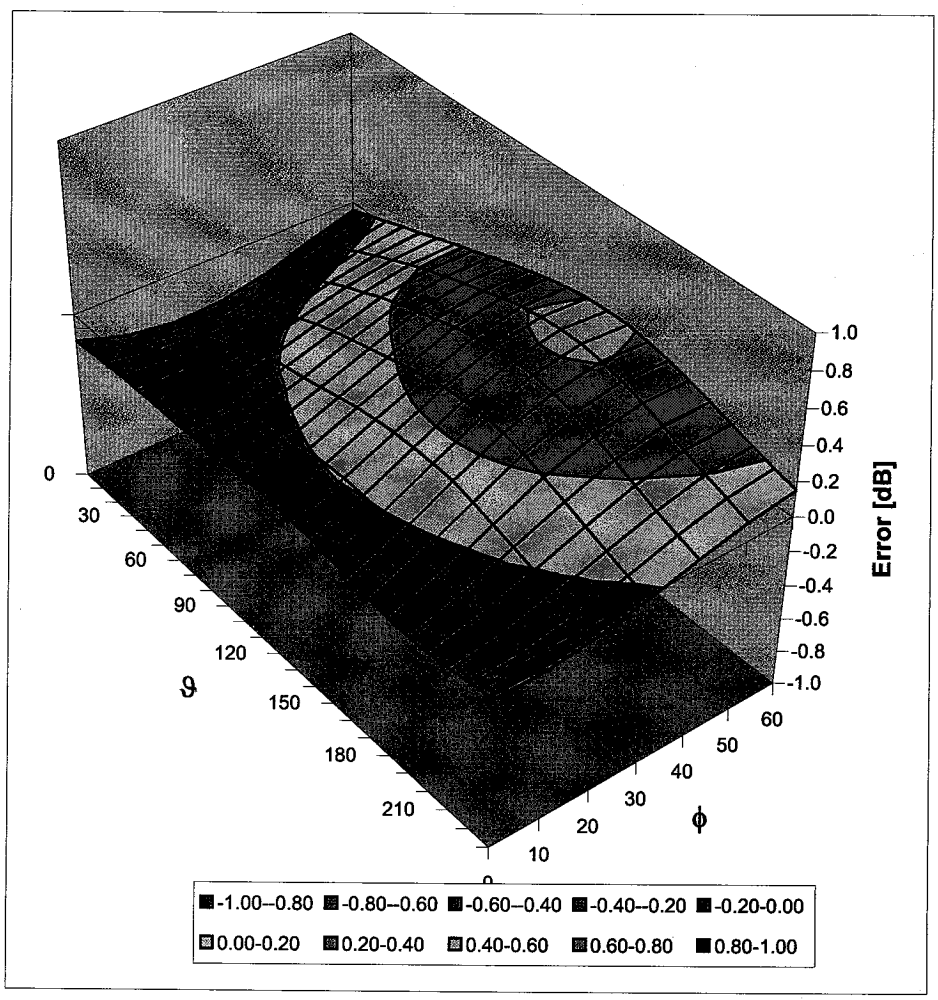


f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 99	Head	41.5 ± 5%	0.90 ± 5%	0.32	2.62	6.39 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.37	2.41	6.30 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.51	2.72	5.12 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.58	2.53	4.98 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.31	2.80	6.19 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.32	2.89	5.90 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.67	2.32	4.78 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.75	2.22	4.57 ± 11.0% (k=2)

[C] **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.**

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

A1378

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Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client RFI

Certificate No: EX3-3508_Nov06

CALIBRATION CERTIFICATE

CAL DUE 16/11/07

Object	EX3DV3 - SN:3508
Calibration procedure(s)	QA CAL-01.v5 Calibration procedure for dosimetric E-field probes
Calibration date:	November 16, 2006
Condition of the calibrated item	In Tolerance

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 (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41495277	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41498087	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	4-Apr-06 (METAS, No. 251-00558)	Apr-07
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	2-Jan-06 (SPEAG, No. ES3-3013_Jan06)	Jan-07
DAE4	SN: 654	21-Jun-06 (SPEAG, No. DAE4-654_Jun06)	Jun-07

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: November 17, 2006

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ 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) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * 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*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *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 *NORMx,y,z * 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 ± 50 MHz to ± 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.

Probe EX3DV3

SN:3508

Manufactured:	December 19, 2003
Last calibrated:	March 18, 2006
Recalibrated:	November 16, 2006

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV3 SN:3508

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**0.780** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**95** mV
NormY	**0.640** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**96** mV
NormZ	**0.610** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**97** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **2450 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	2.6	1.0
SAR_{be} [%]	With Correction Algorithm	0.2	0.4

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

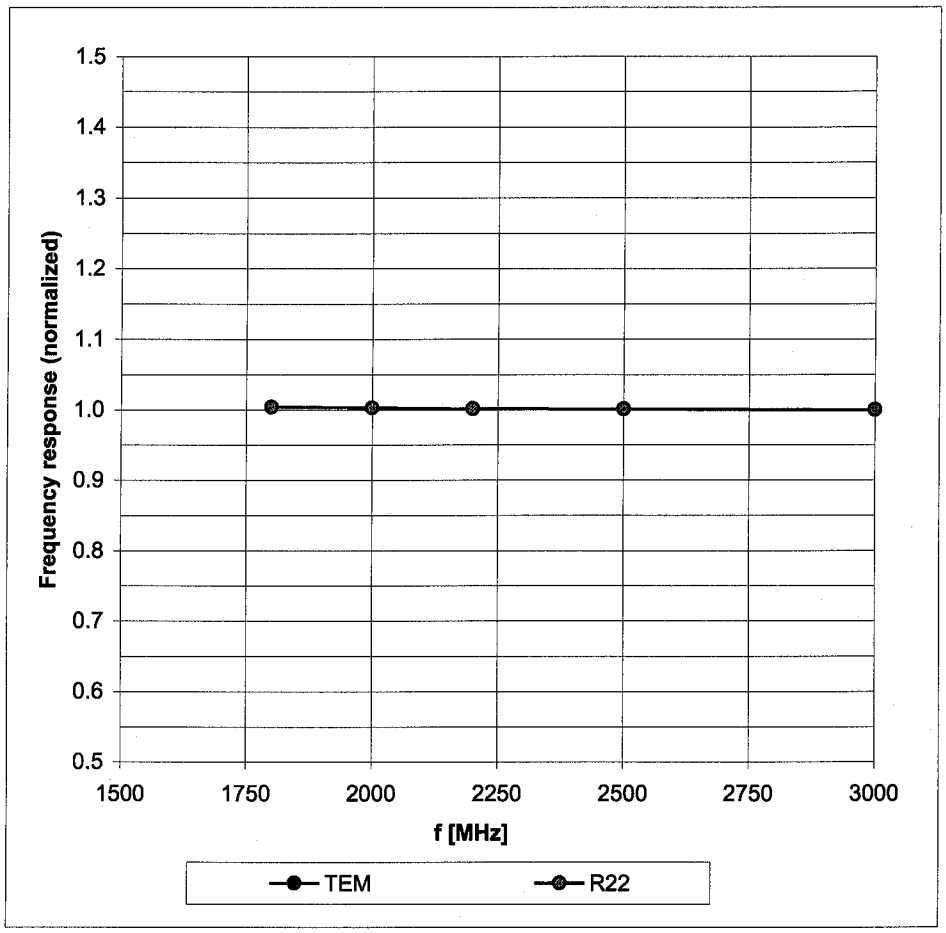
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

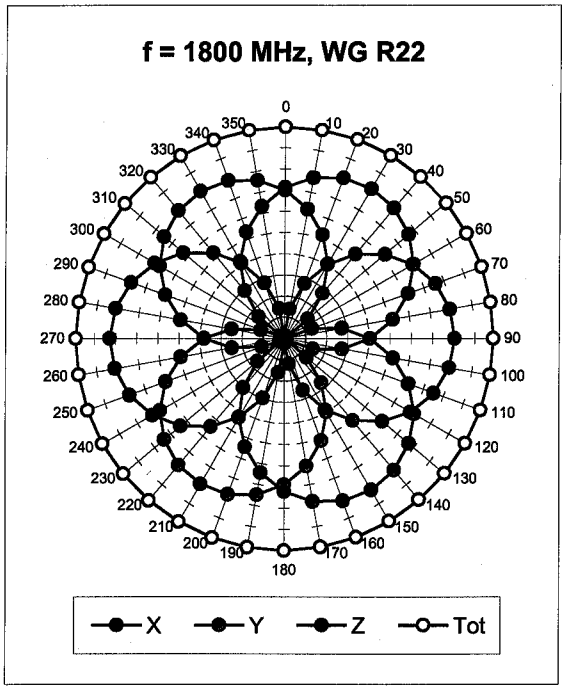
Frequency Response of E-Field

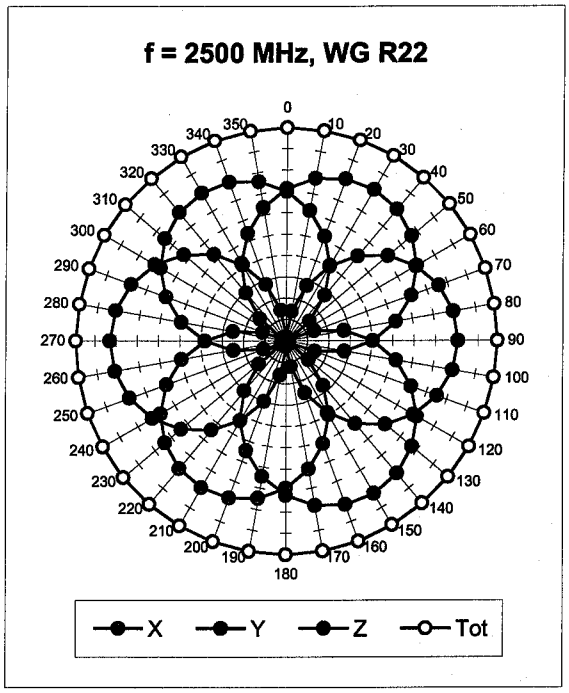
(TEM-Cell:ifi110 EXX, Waveguide: R22)

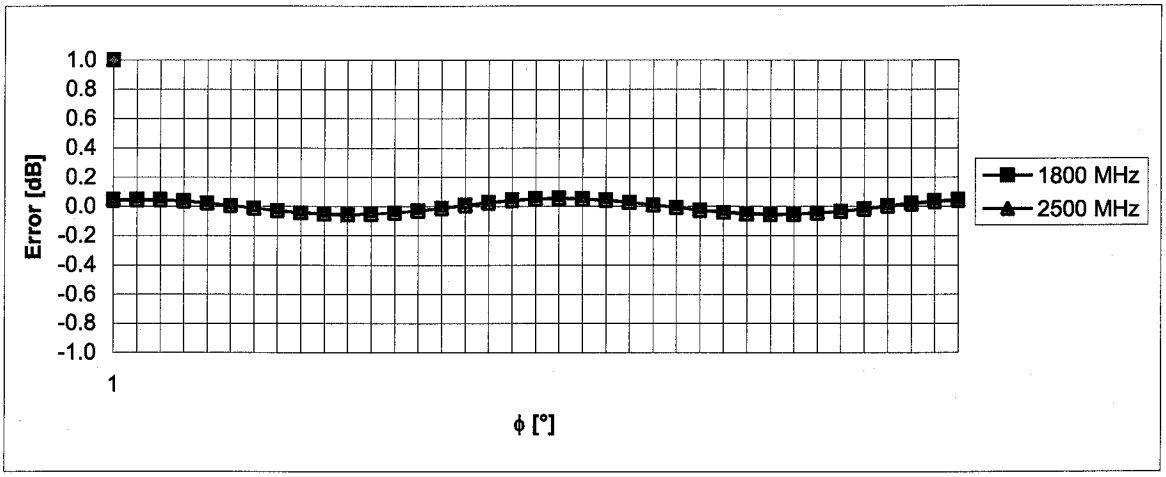


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



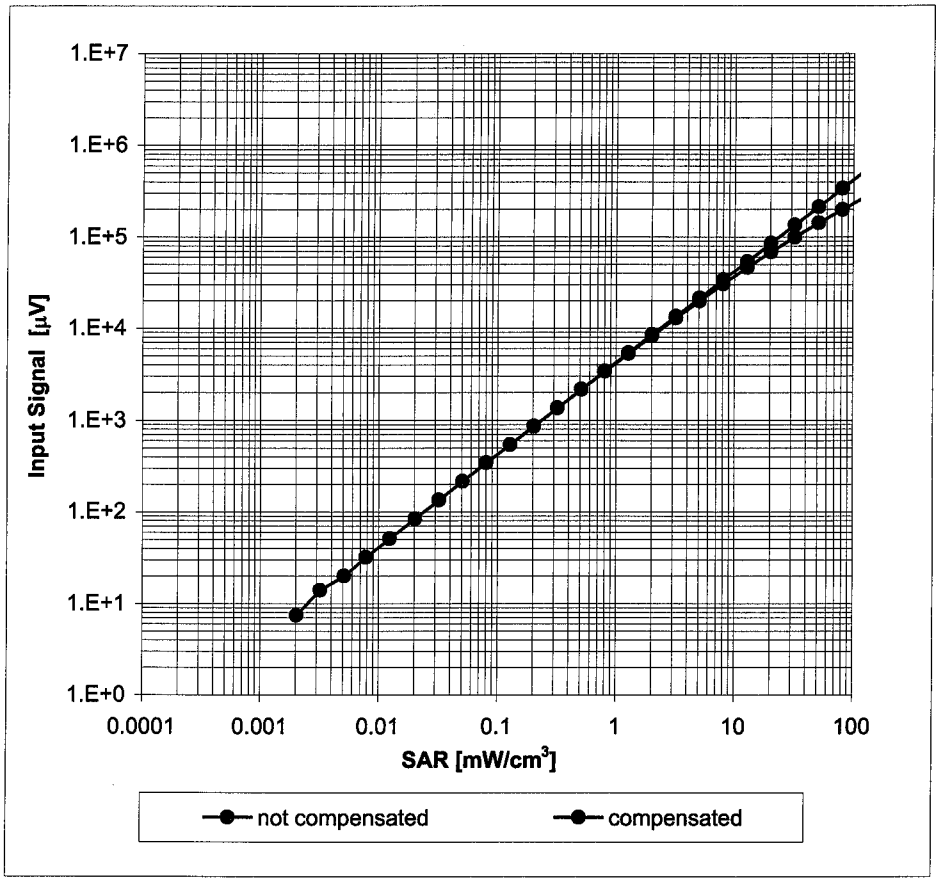


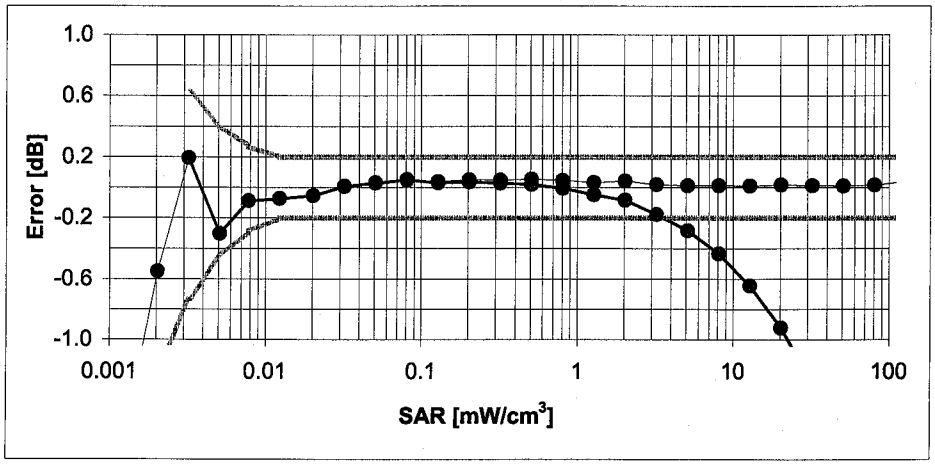


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

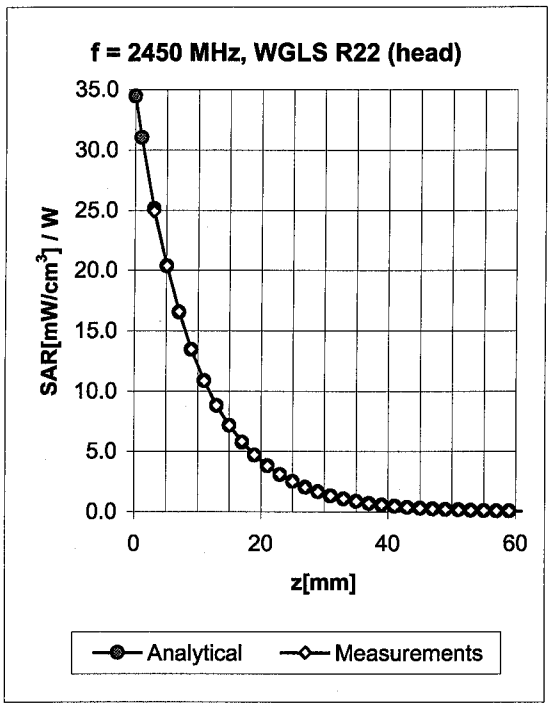
(Waveguide R22, f = 1800 MHz)

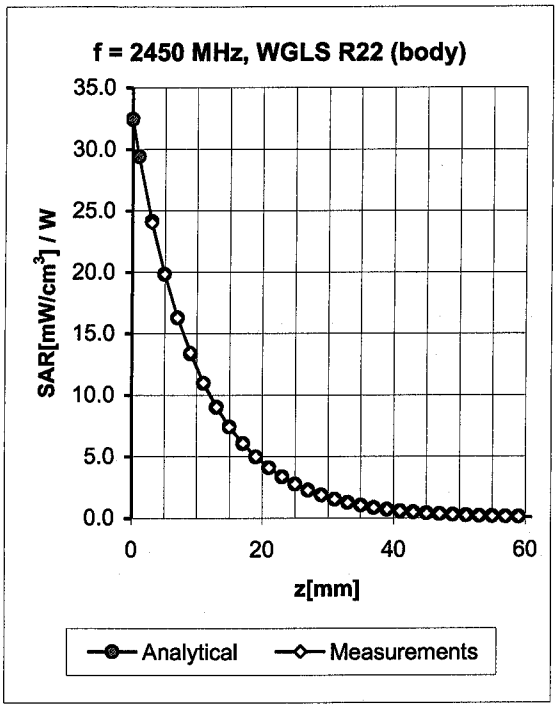




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



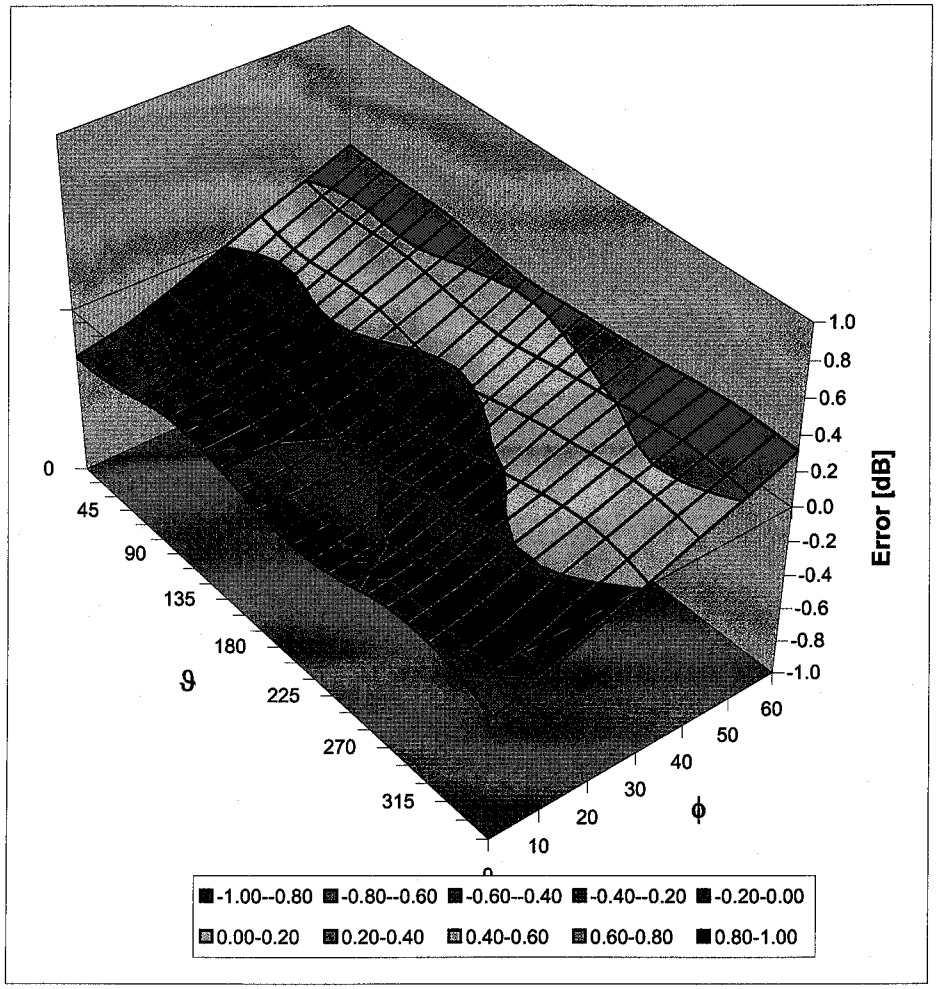


f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.33	1.00	8.00 ± 11.8% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.33	1.00	7.89 ± 11.8% (k=2)
2600	± 50 / ± 100	Body	52.5 ± 5%	2.16 ± 5%	0.29	1.00	7.76 ± 11.8% (k=2)

[C] **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.**

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

A1378

27/04/07 NM

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 Federal Office of Metrology and Accreditation
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 RFI

Certificate No: EX3-3508_Apr07

CALIBRATION CERTIFICATE

Object	EX3DV3 - SN:3508
Calibration procedure(s)	QA CAL-01.v5 and QA CAL-14.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	April 20, 2007
Condition of the calibrated item	In Tolerance

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 (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	21-Jun-06 (SPEAG, No. DAE4-654_Jun06)	Jun-07

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: April 21, 2007

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ 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:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * 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*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *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 *NORMx,y,z * 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 ± 50 MHz to ± 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.

Probe EX3DV3

SN:3508

Manufactured:	December 19, 2003
Last calibrated:	November 16, 2006
Recalibrated:	April 20, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV3 SN:3508

Sensitivity in Free Space[A]

Diode Compression[B]

NormX	**0.780** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**95** mV
NormY	**0.650** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**96** mV
NormZ	**0.610** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**97** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	3.3	1.2
SAR_{be} [%]	With Correction Algorithm	0.0	0.0

TSL **1810 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	4.2	2.3
SAR_{be} [%]	With Correction Algorithm	0.8	0.8

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

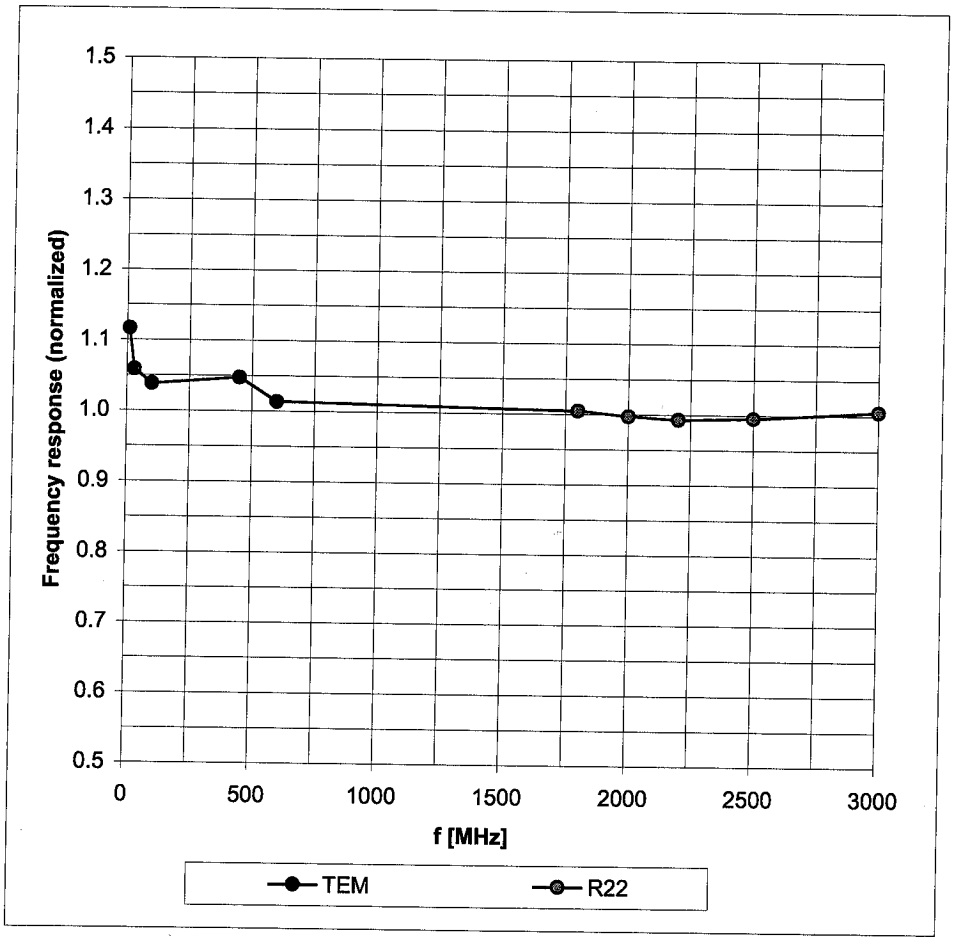
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

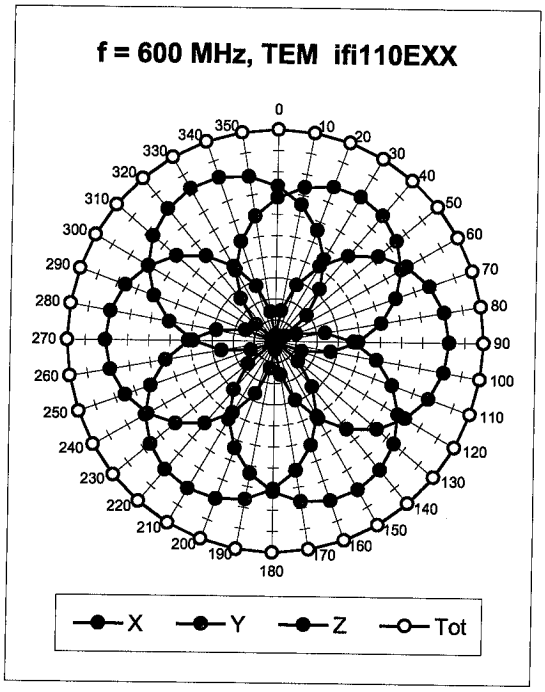
Frequency Response of E-Field

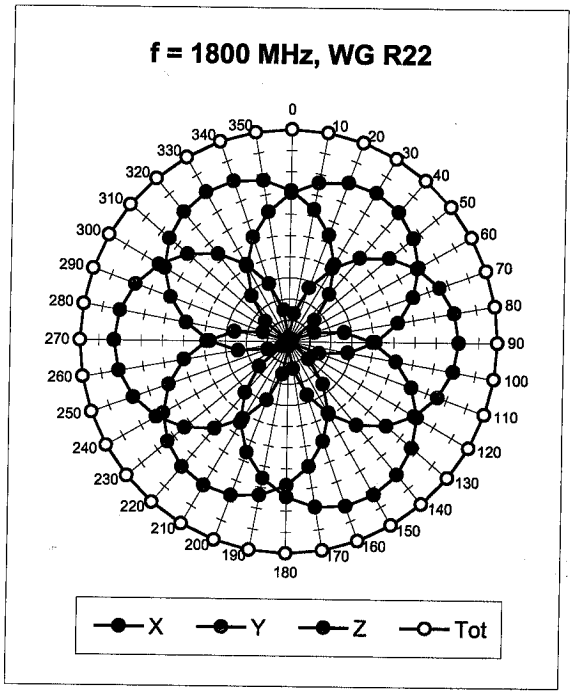
(TEM-Cell:ifi110 EXX, Waveguide: R22)

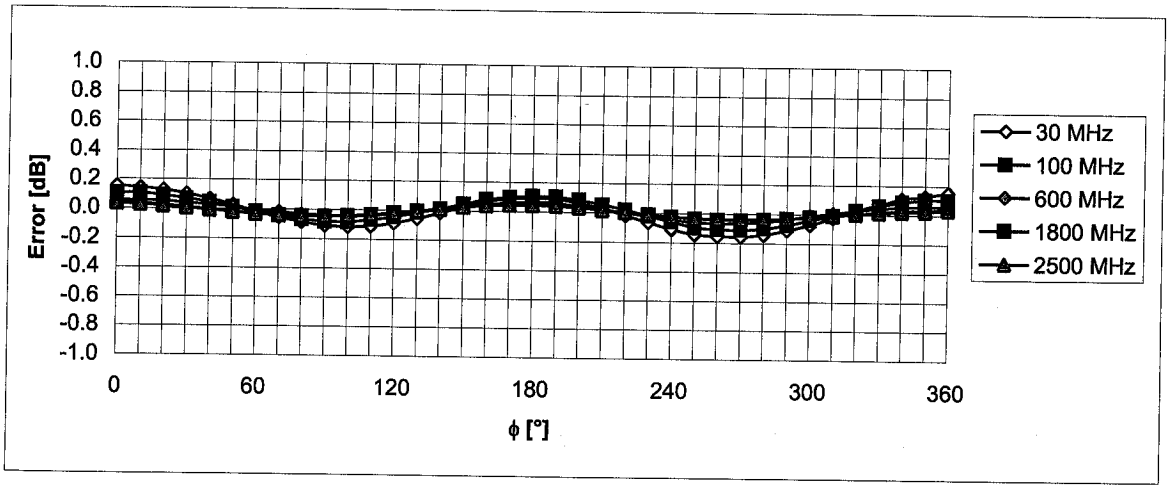


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



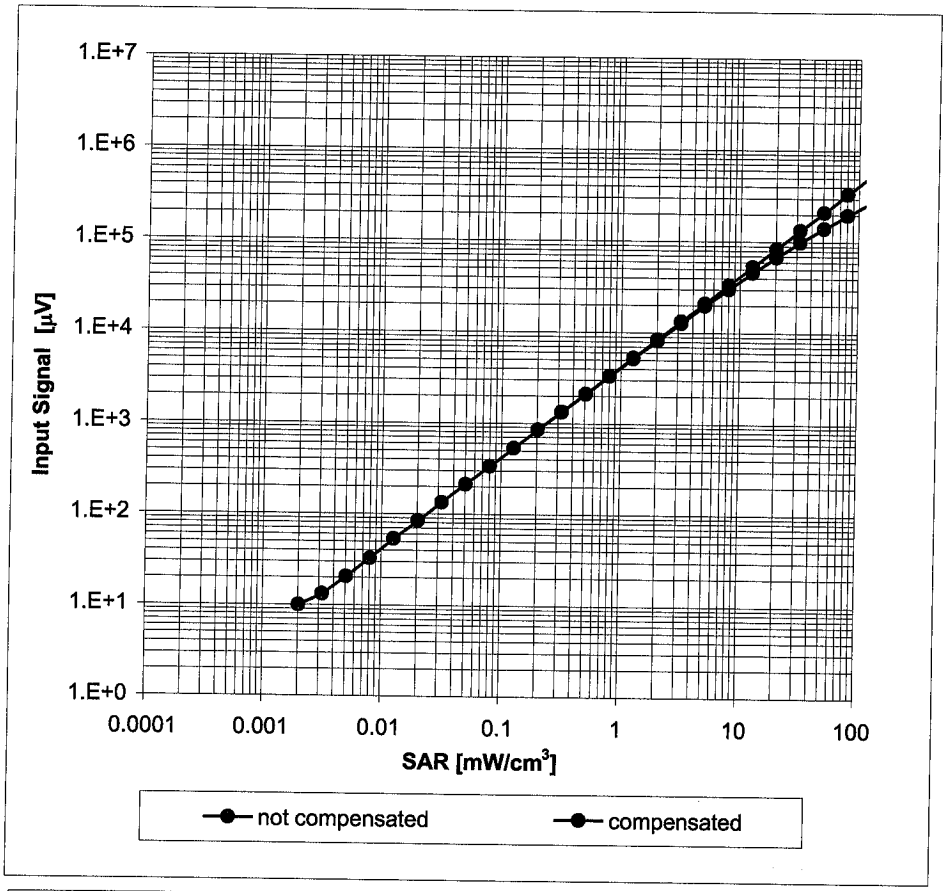


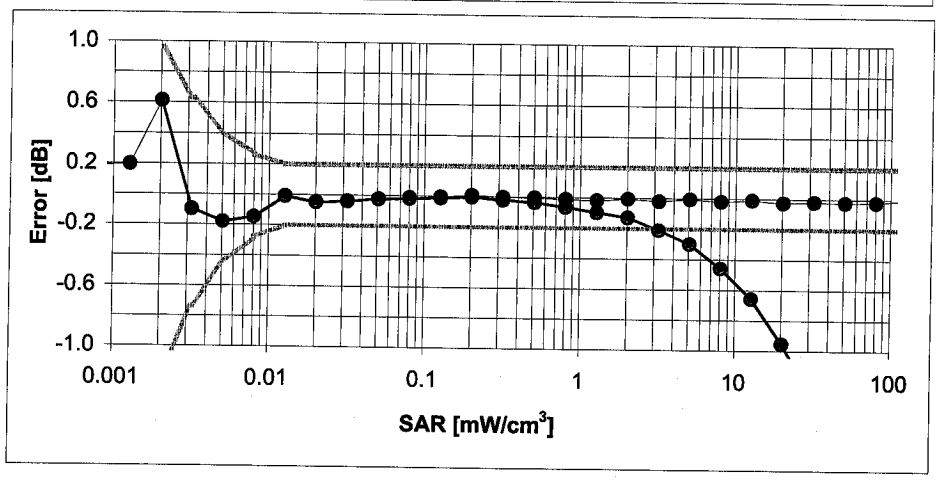


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

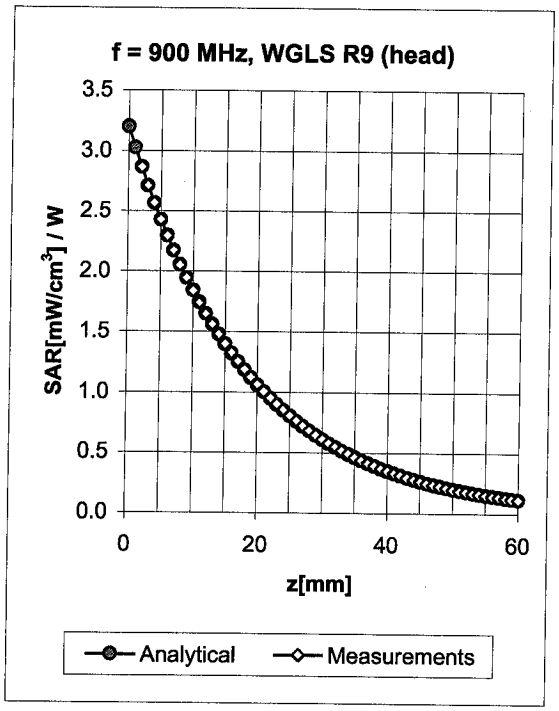
(Waveguide R22, f = 1800 MHz)

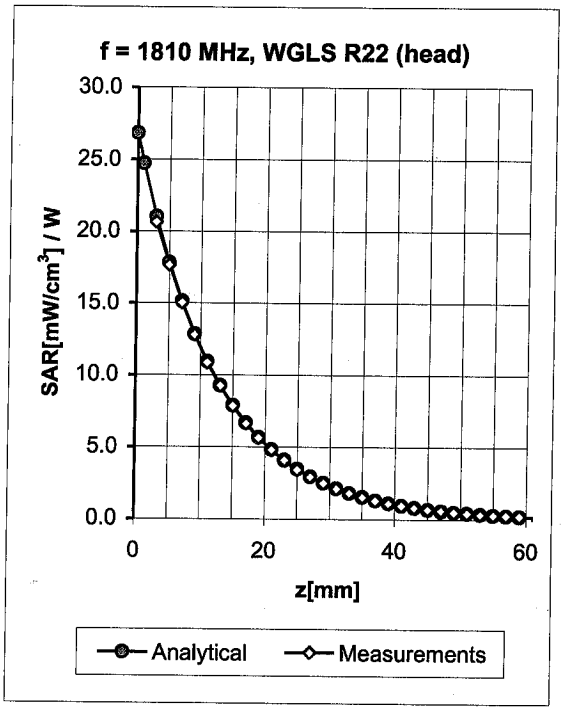




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



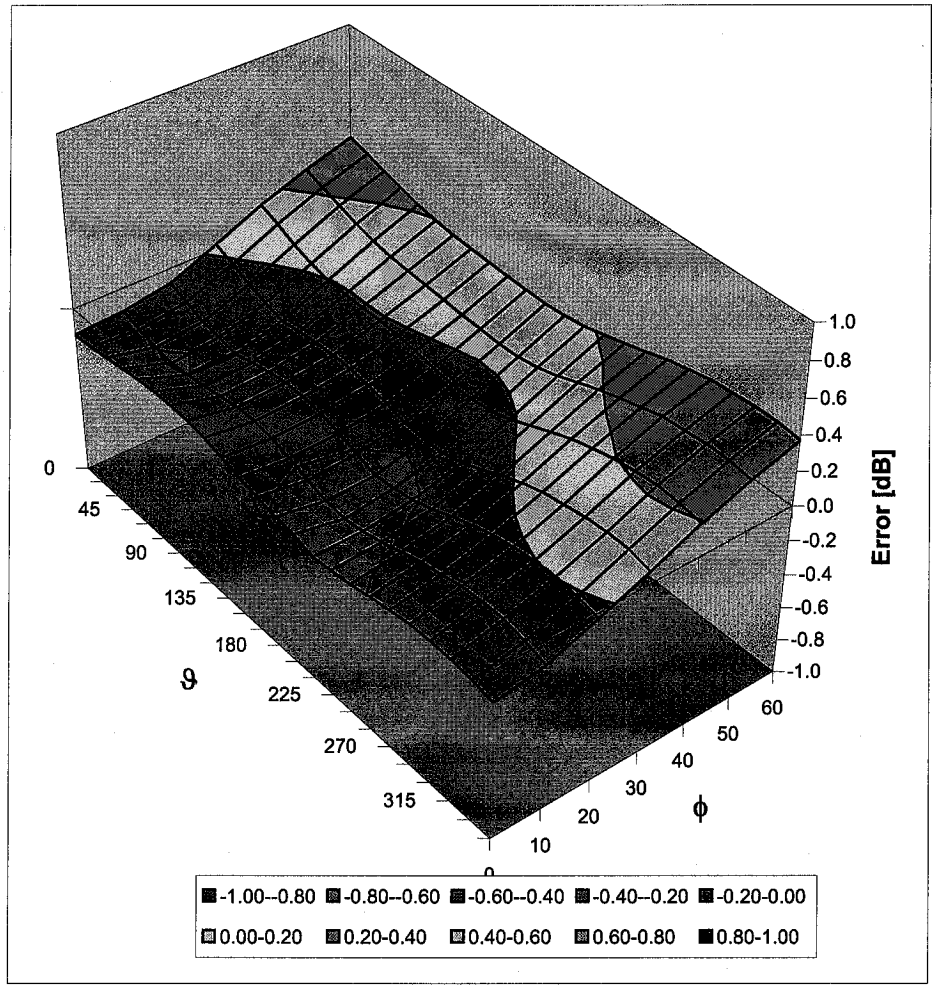


f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.53	0.80	9.64 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.16	1.29	8.69 ± 11.0% (k=2)
5200	± 50 / ± 100	Head	36.0 ± 5%	4.66 ± 5%	0.40	1.70	5.38 ± 13.1% (k=2)
5500	± 50 / ± 100	Head	35.6 ± 5%	4.96 ± 5%	0.40	1.70	4.77 ± 13.1% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.40	1.70	4.64 ± 13.1% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.32	1.75	4.71 ± 13.1% (k=2)
5500	± 50 / ± 100	Body	48.6 ± 5%	5.65 ± 5%	0.28	1.75	4.38 ± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.38	1.75	4.19 ± 13.1% (k=2)

[C] **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.**

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Appendix 2. Measurement Methods

A.2.1. Evaluation Procedure

The Specific Absorption Rate (SAR) evaluation was performed in the following manner:

a) (i) The evaluation was performed in an applicable area of the phantom depending on the type of device being tested. For devices worn about the ear during normal operation, both the left and right ear positions were evaluated at the centre frequency of the band at maximum power. The side, which produced the greatest SAR, determined which side of the phantom would be used for the entire evaluation. The positioning of the head worn device relative to the phantom was dictated by the test specification identified in section 3.1 of this report.

(ii) For body worn devices or devices which can be operated within 20 cm of the body, the flat section of the SAM phantom was used were the size of the device(s) is normal. For bigger devices and base station the 2mm Oval phantom is used for evaluation. The type of device being evaluated dictated the distance of the EUT to the outer surface of the phantom flat section.

b) The SAR was determined by a pre-defined procedure within the DASY4 software. The exposed region of the phantom was scanned near the inner surface with a grid spacing of 20mm x 20mm or appropriate resolution.

c) A 5x5x7 matrix was performed around the greatest spatial SAR distribution found during the area scan of the applicable exposed region. SAR values were then calculated using a 3-D spline interpolation algorithm and averaged over spatial volumes of 1 and 10 grams.

d) If the EUT had any appreciable drift over the course of the evaluation, then the EUT was re-evaluated. Any unusual anomalies over the course of the test also warranted a re-evaluation.

A.2.2. Specific Absorption Rate (SAR) Measurements to OET Bulletin 65 Supplement C: (2001-01)

Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields

SAR measurements were performed in accordance with Appendix D of the standard FCC OET Bulletin 65 Supplement C: 2001, against appropriate limits for each measurement position in accordance with the standard.

The test was performed in a shielded enclosure with the temperature controlled to remain between +18.0ºC and +25.0ºC. The tissue equivalent material fluid temperature was controlled to give a maximum variation of ± 2.0ºC

Prior to any SAR measurements on the EUT, system validation and material dielectric property measurements were conducted. In the absence of a detailed procedure within the specification, system validation and material dielectric property measurements were performed in accordance with Appendix C and Appendix D of FCC OET Bulletin 65 Supplement C: 2001.

Following the successful system validation and material dielectric property measurements, a SAR versus time sweep shall be performed within 10 mm of the phantom inner surface. If the EUT power output is stable after three minutes then the measurement probe will perform a coarse surface level scan at each test position in order to ascertain the location of the maximum local SAR level. Once this area had been established, a 5x5x7 cube of 343 points (5 mm spacing in each axis ≈ 27g) will be centred at the area of concern. Extrapolation and interpolation will then be carried out on the 27g of tissue and the highest averaged SAR over a 10g cube determined.

Once the maximum interpolated SAR measurement is complete; the coarse scan is visually assessed to check for secondary peaks within 50% of the maximum SAR level. If there are any further SAR measurements required, extra 5x5x7 cubes shall be centred on each of these extra local SAR maxima.

At the end of each position test case a second time sweep shall be performed to check whether the EUT has remained stable throughout the test.

Appendix 3. SAR Distribution Scans

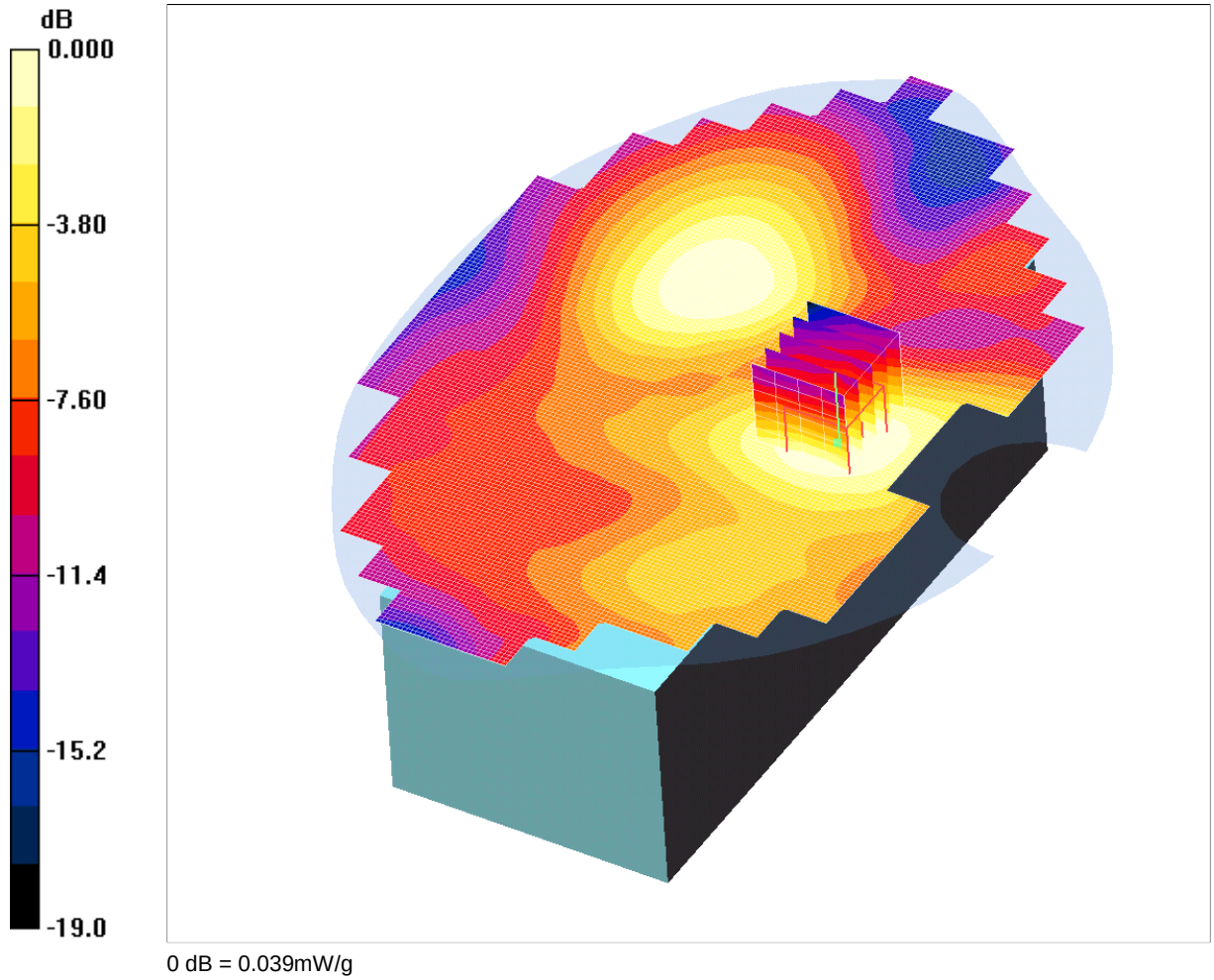
This appendix contains SAR distribution scans which are not included in the total number of pages for this report.

Scan Reference Number	Title
SCN/73402JD03/001	Front Of EUT Facing Phantom PCS CH660
SCN/73402JD03/002	Rear Of EUT Facing Phantom PCS CH660
SCN/73402JD03/003	Front Of EUT Facing Phantom GPRS CH660
SCN/73402JD03/004	Front Of EUT Facing Phantom GSM CH189
SCN/73402JD03/005	Rear Of EUT Facing Phantom GSM CH189
SCN/73402JD03/006	Front Of EUT Facing Phantom GPRS CH189
SCN/73402JD03/007	Front Of EUT Facing Phantom EGPRS CH189
SCN/73402JD03/008	Front Of EUT Facing Phantom EGPRS CH660
SCN/73402JD03/009	Front Of EUT Facing Phantom WiFi CH6 802_11b
SCN/73402JD03/010	Rear Of EUT Facing Phantom WiFi CH6 802_11b
SCN/73402JD03/011	System Performance Check 1900MHz Body 27 03 08
SCN/73402JD03/012	System Performance Check 900MHz Body 27 03 08
SCN/73402JD03/013	System Performance Check 1900MHz Body 28 03 08
SCN/73402JD03/014	System Performance Check 900MHz Body 28 03 08
SCN/73402JD03/015	System Performance Check 2450MHz Body 09 05 08

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/001: Front Of EUT Facing Phantom PCS CH660
Date: 27/03/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.039mW/g

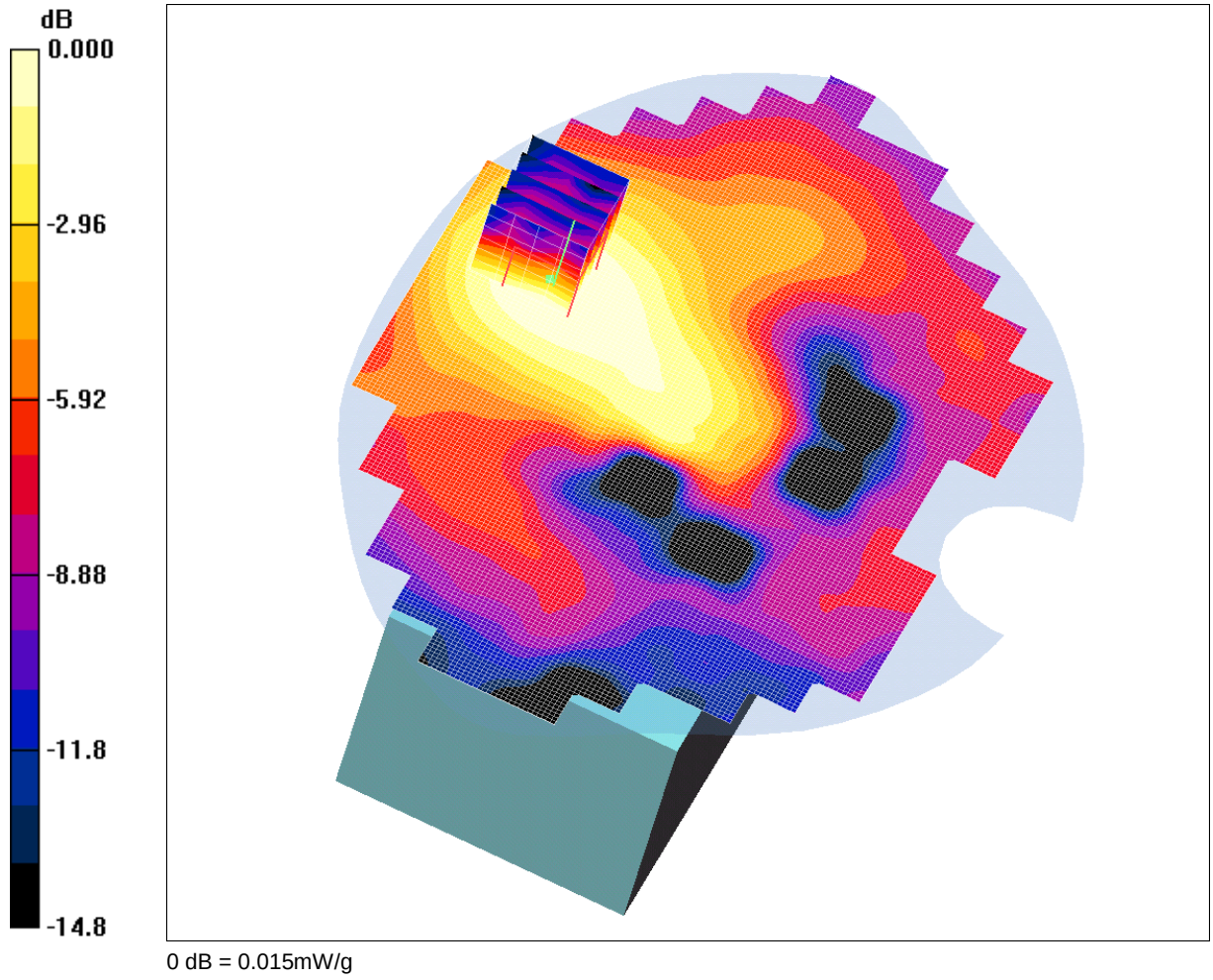
Communication System: PCS 1900; Frequency: 1879.8 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1879.8 MHz; σ = 1.57 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom With - Middle/Area Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.041 mW/g
Front Of EUT Facing Phantom With - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.66 V/m; Power Drift = 0.075 dB
Peak SAR (extrapolated) = 0.058 W/kg
SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.039 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/002: Rear Of EUT Facing Phantom PCS CH660
Date: 27/03/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.015mW/g

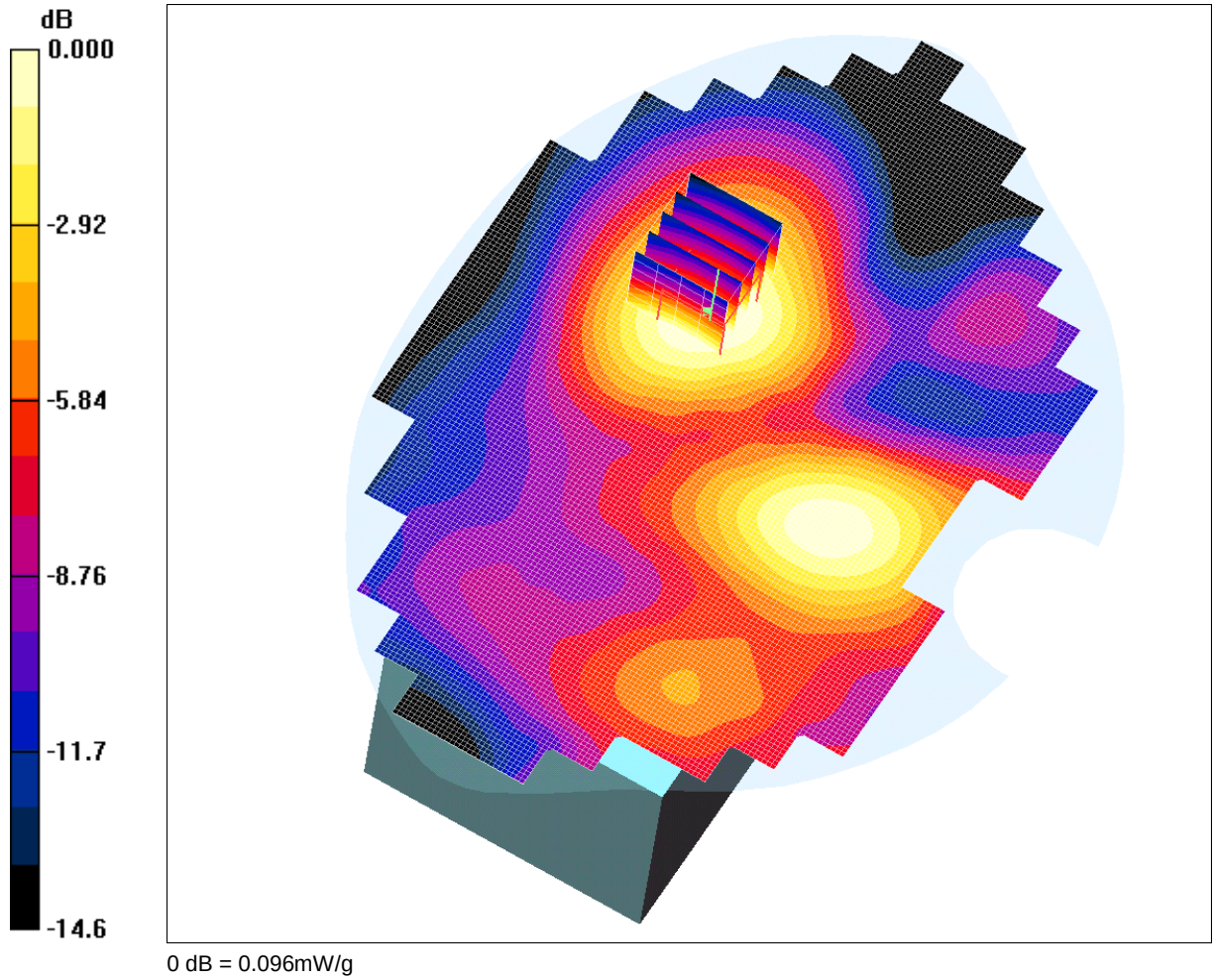
Communication System: PCS 1900; Frequency: 1879.8 MHz;Duty Cycle: 1:8.3
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1879.8 MHz; σ = 1.57 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Rear Of EUT Facing Phantom With - Middle/Area Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.015 mW/g
Rear Of EUT Facing Phantom With - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.54 V/m; Power Drift = -0.167 dB
Peak SAR (extrapolated) = 0.021 W/kg
SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.00941 mW/g
Maximum value of SAR (measured) = 0.015 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/003: Front Of EUT Facing Phantom GPRS CH660
Date: 27/03/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.096mW/g

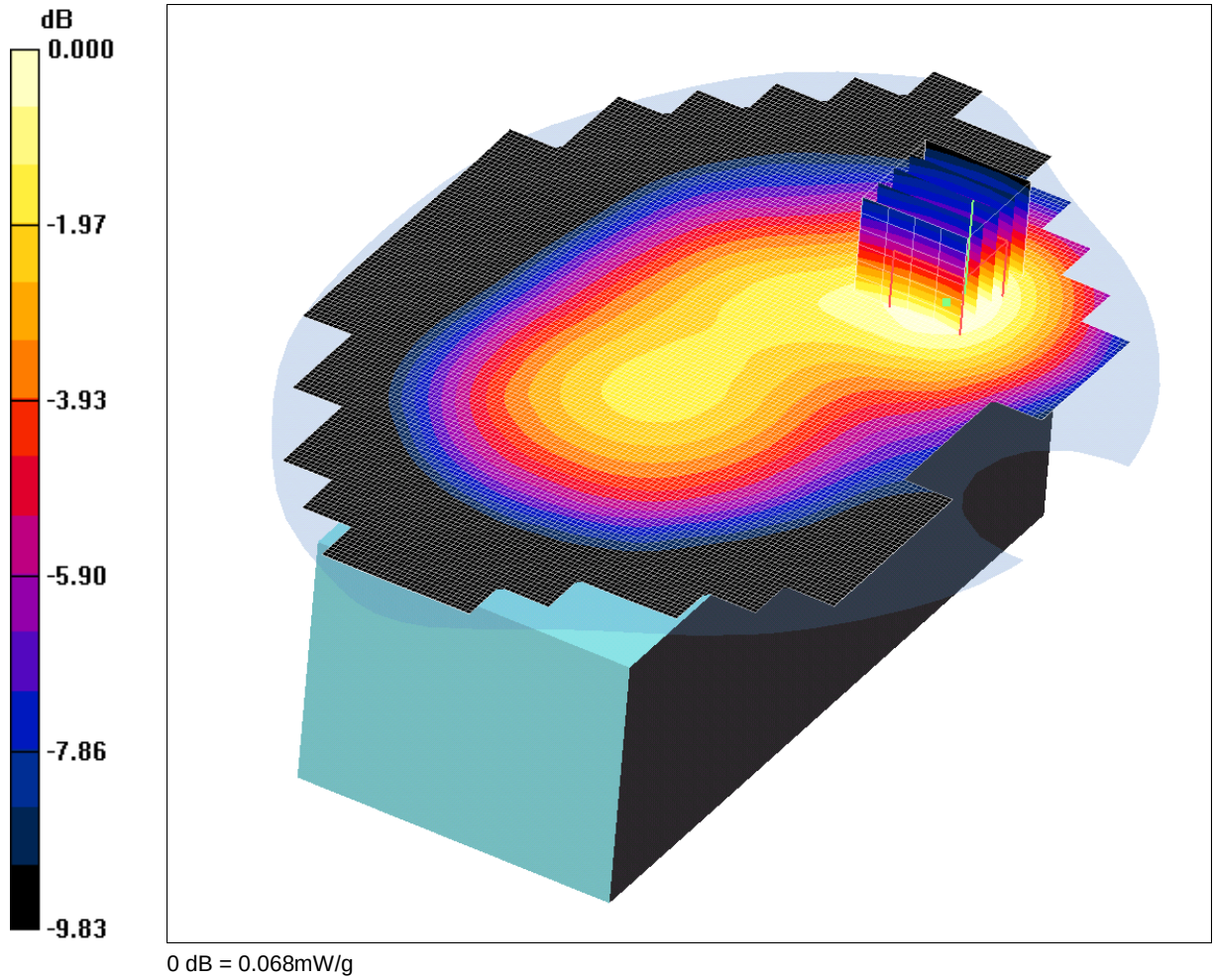
Communication System: GPRS 1900; Frequency: 1879.8 MHz;Duty Cycle: 1:4
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1879.8 MHz; σ = 1.57 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom With - Middle/Area Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.097 mW/g
Front Of EUT Facing Phantom With - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.90 V/m; Power Drift = -0.086 dB
Peak SAR (extrapolated) = 0.136 W/kg
SAR(1 g) = 0.090 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.096 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/004: Front Of EUT Facing Phantom GSM CH189
Date: 27/03/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.068mW/g

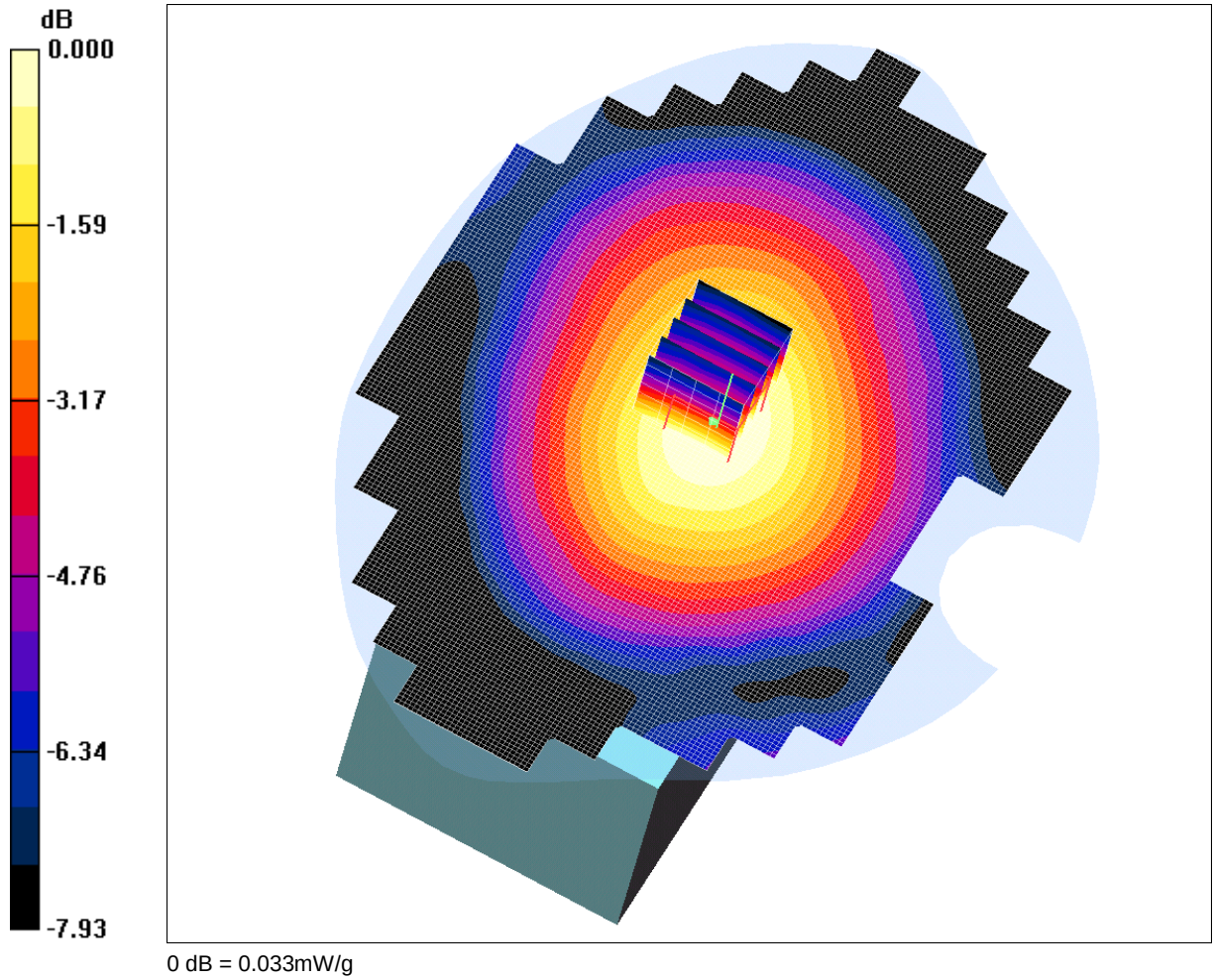
Communication System: 850 MHz; Frequency: 836.4 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.96 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(6.19, 6.19, 6.19); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom With - Middle/Area Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.070 mW/g
Front Of EUT Facing Phantom With - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.03 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 0.091 W/kg
SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.045 mW/g
Maximum value of SAR (measured) = 0.068 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/005: Rear Of EUT Facing Phantom GSM CH189
Date: 27/03/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.033mW/g

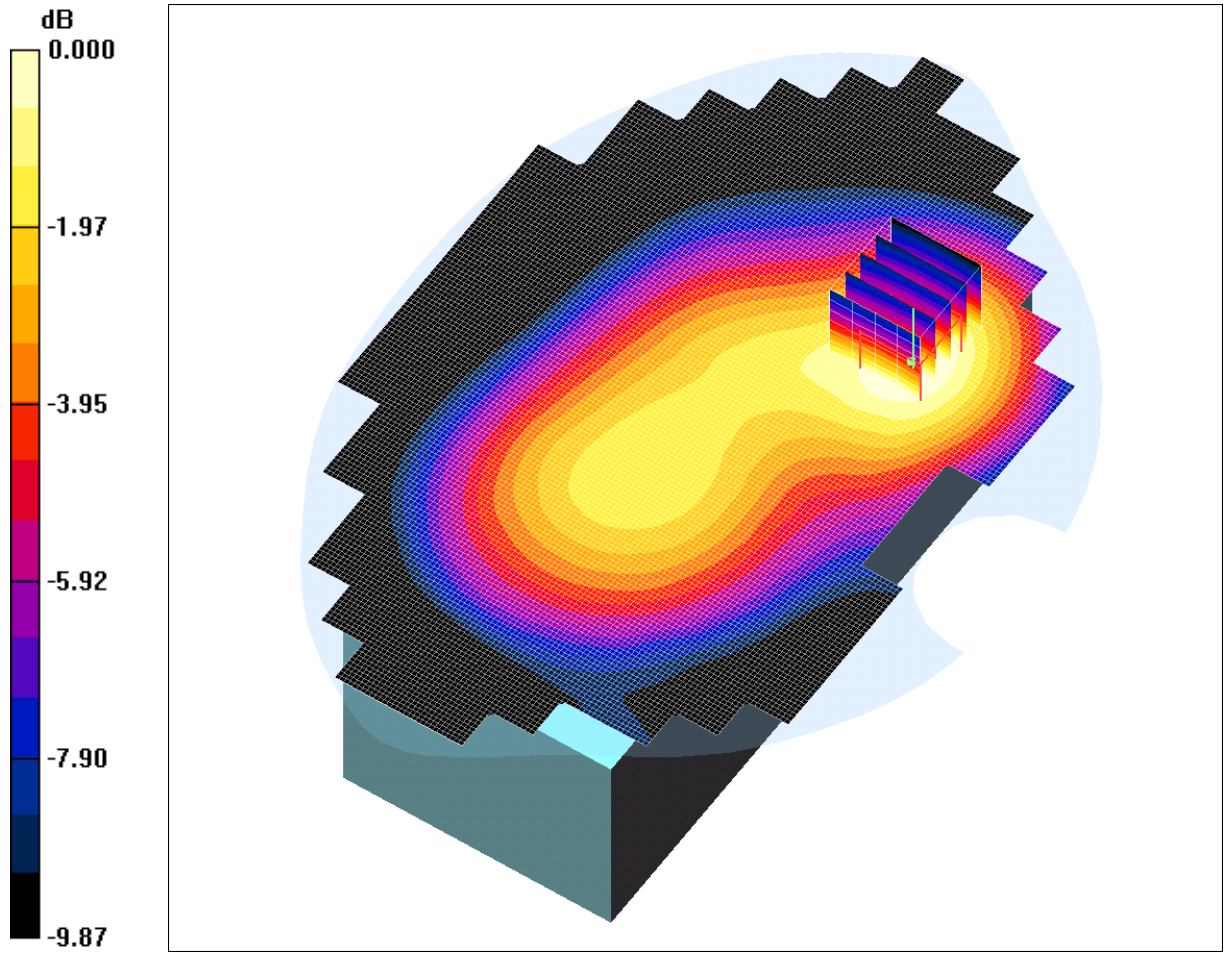
Communication System: 850 MHz; Frequency: 836.4 MHz;Duty Cycle: 1:8.3
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.96 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(6.19, 6.19, 6.19); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Rear Of EUT Facing Phantom With - Middle/Area Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.033 mW/g
Rear Of EUT Facing Phantom With - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.05 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 0.040 W/kg
SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.033 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/006: Front Of EUT Facing Phantom GPRS CH189
Date: 27/03/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.120mW/g

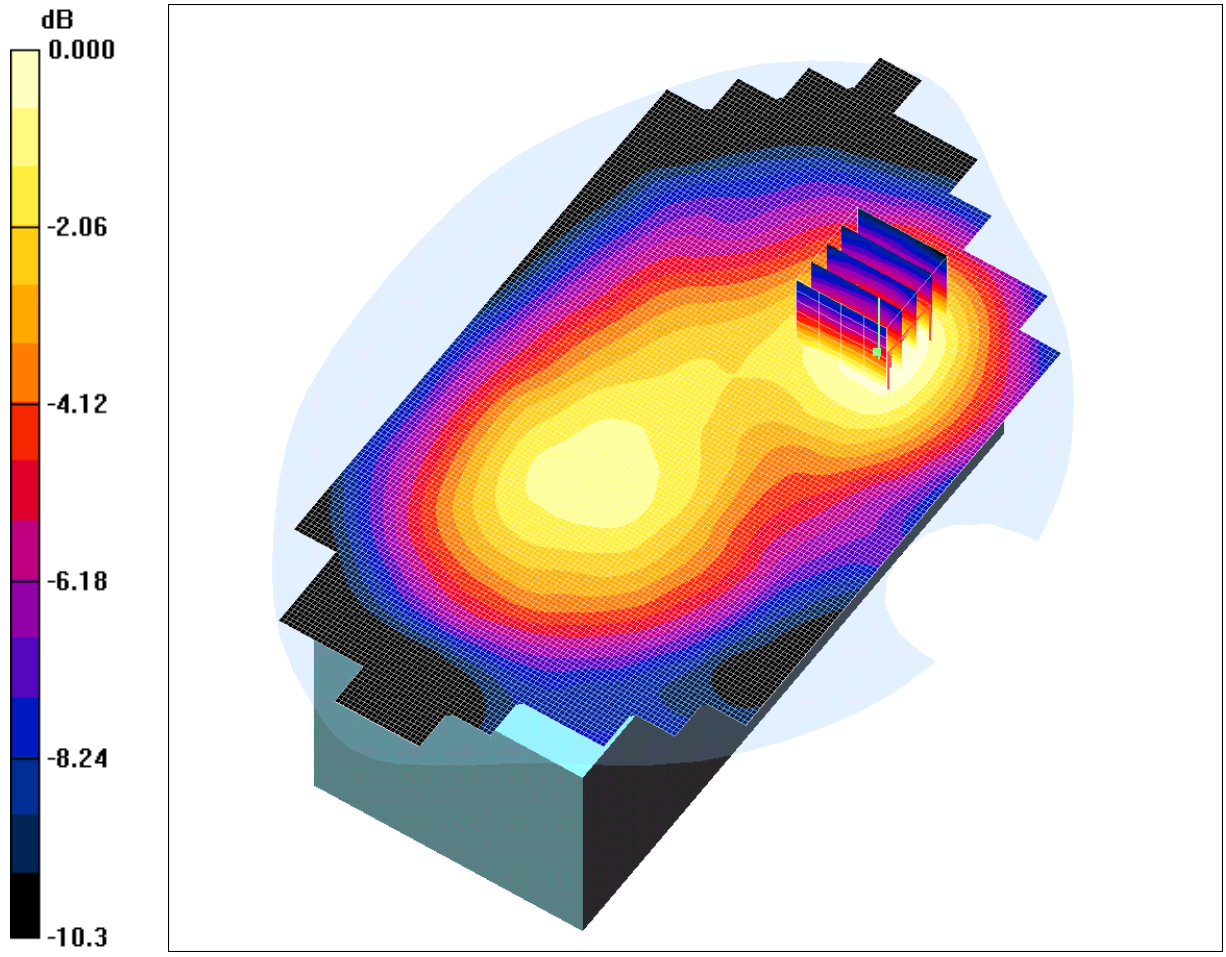
Communication System: GPRS 850 MHz; Frequency: 836.4 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.96 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(6.19, 6.19, 6.19); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom With - Middle/Area Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.122 mW/g
Front Of EUT Facing Phantom With - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.49 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 0.155 W/kg
SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.079 mW/g
Maximum value of SAR (measured) = 0.120 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/007: Front Of EUT Facing Phantom EGPRS CH189
Date: 28/03/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.021mW/g

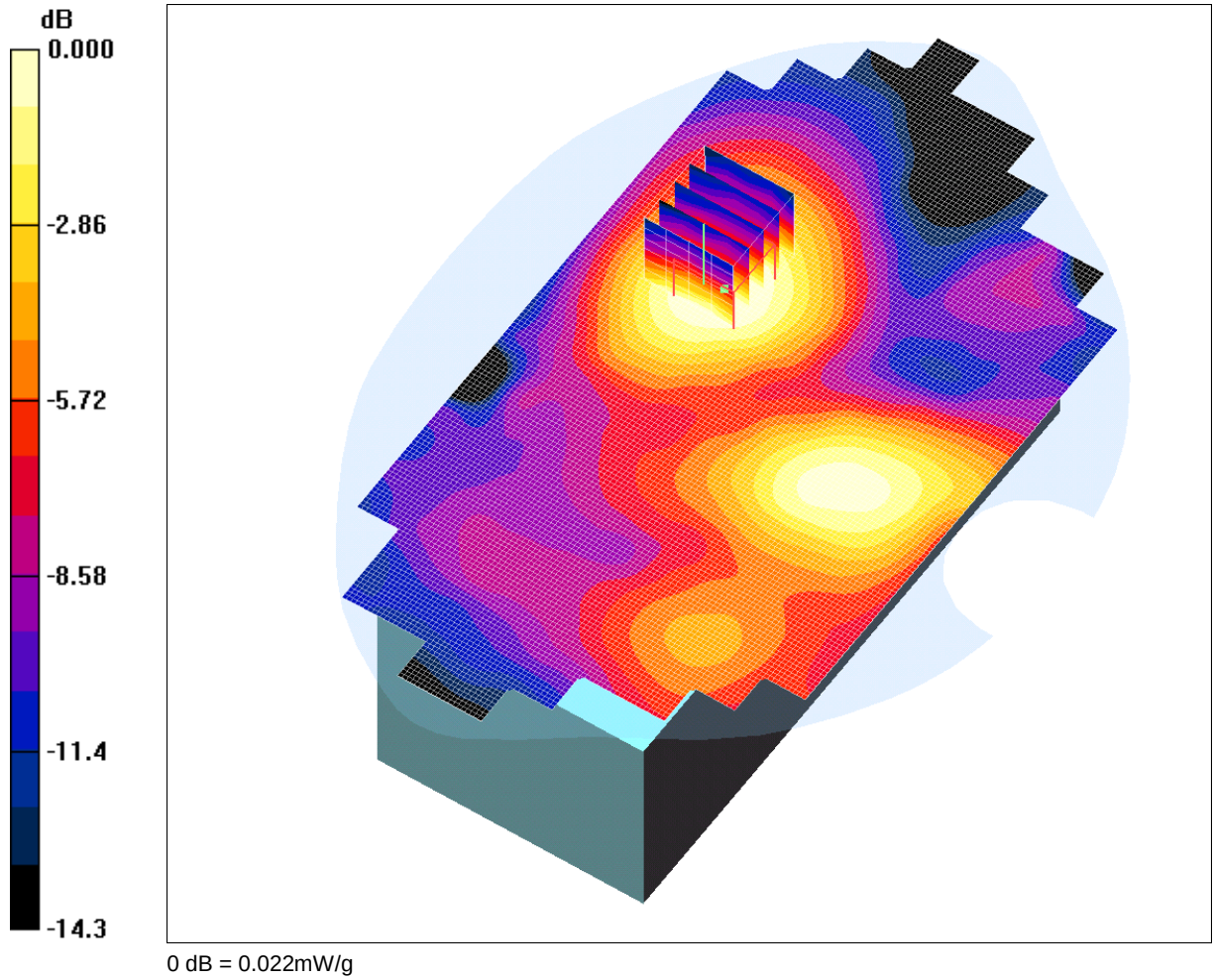
Communication System: EGPRS 850 MHz; Frequency: 836.4 MHz;Duty Cycle: 1:4
Medium: 900 MHz MSL Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.96 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(6.19, 6.19, 6.19); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom With - Middle 2/Area Scan (101x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.021 mW/g
Front Of EUT Facing Phantom With - Middle 2/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.87 V/m; Power Drift = 0.287 dB
Peak SAR (extrapolated) = 0.029 W/kg
SAR(1 g) = 0.020 mW/g; SAR(10 g) = 0.014 mW/g
Maximum value of SAR (measured) = 0.021 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/008: Front Of EUT Facing Phantom EGPRS CH660
Date: 28/03/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.022mW/g

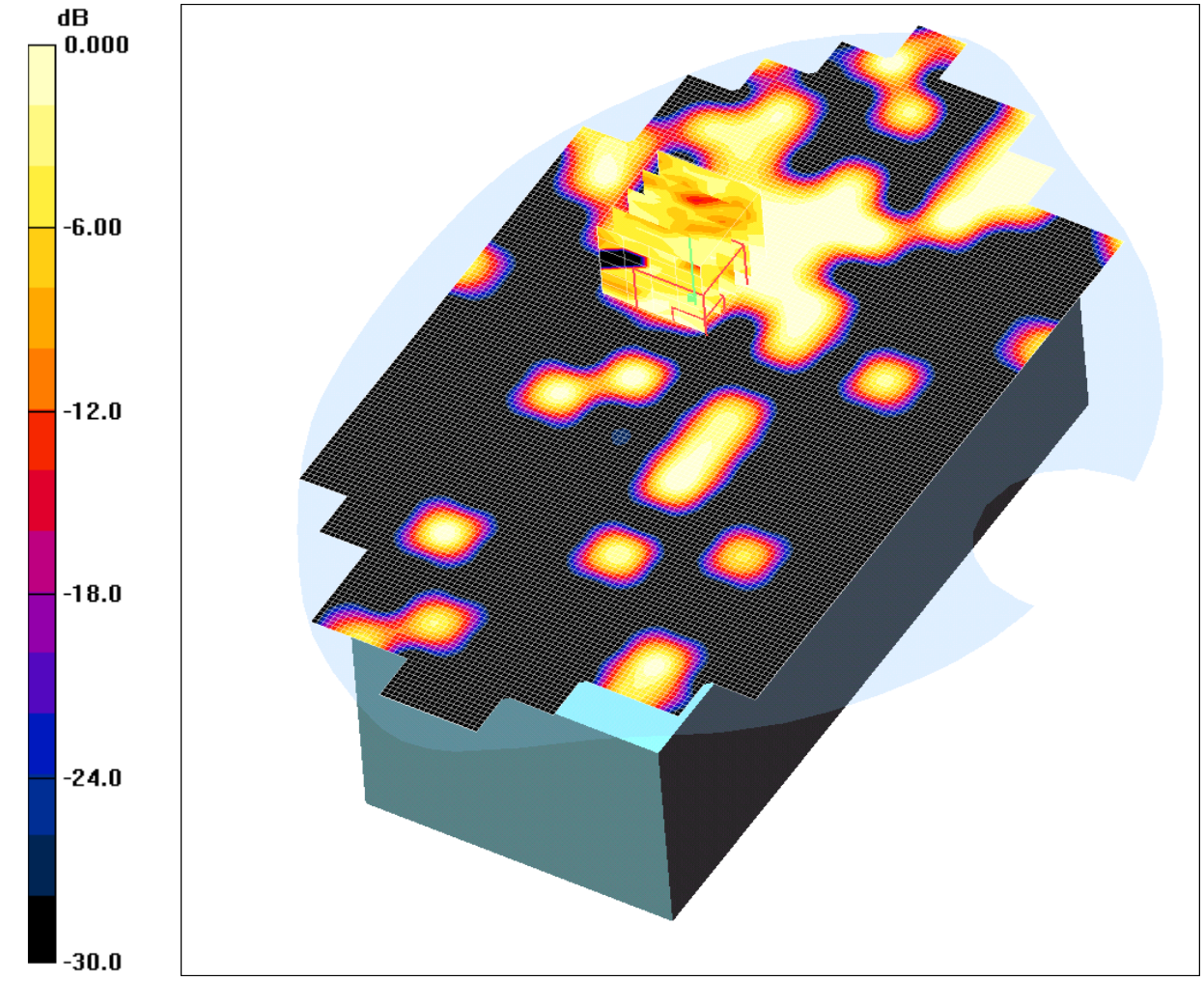
Communication System: EGPRS 1900; Frequency: 1879.8 MHz;Duty Cycle: 1:4
Medium: 1900 MHz MSL Medium parameters used (interpolated): f = 1879.8 MHz; σ = 1.55 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom With - Middle 2/Area Scan (101x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.023 mW/g
Front Of EUT Facing Phantom With - Middle 2/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.81 V/m; Power Drift = -0.218 dB
Peak SAR (extrapolated) = 0.033 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.013 mW/g
Maximum value of SAR (measured) = 0.022 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/009: Front Of EUT Facing Phantom WiFi CH6
Date: 09/05/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.002mW/g

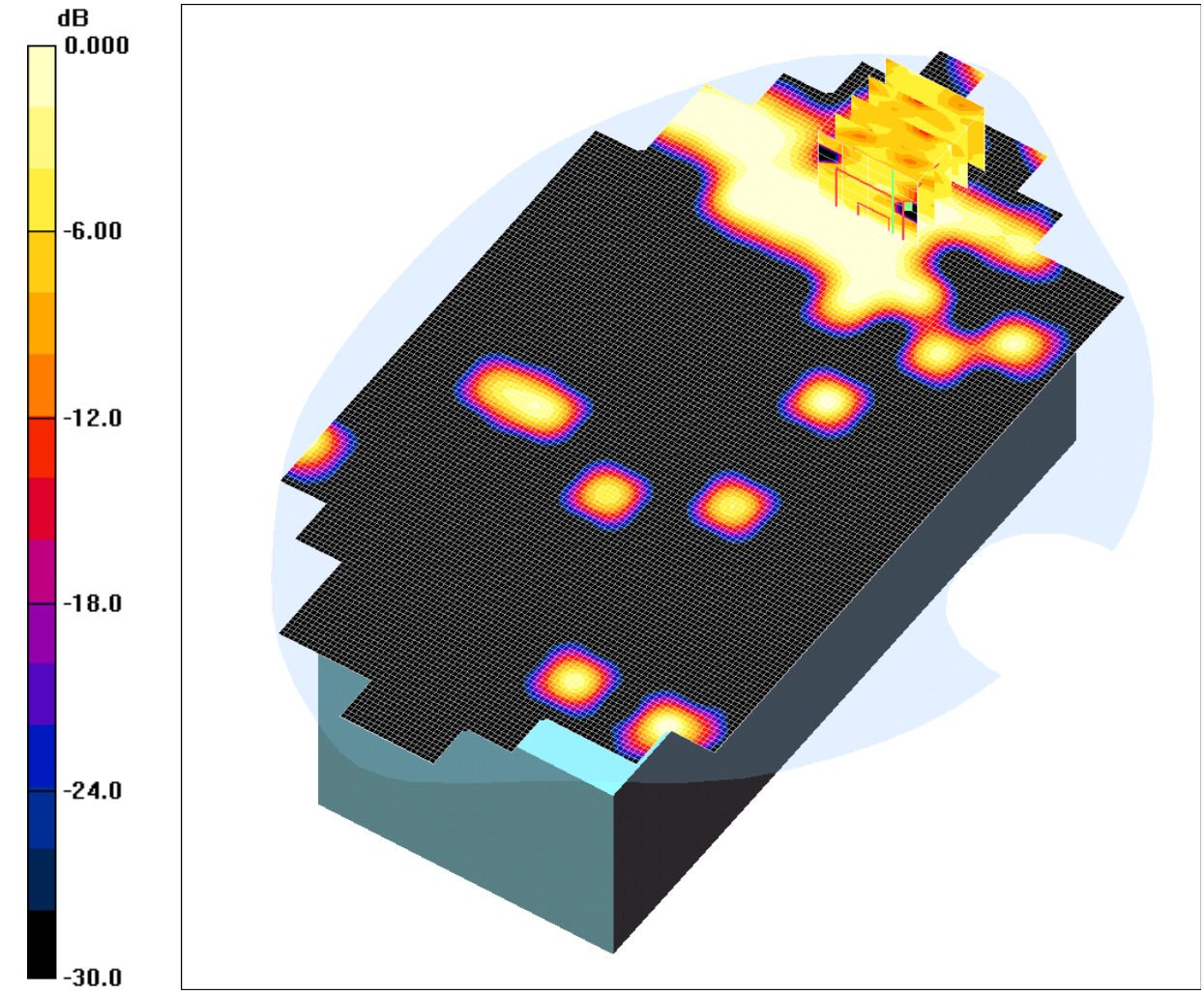
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.91 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV3 - SN3508add; ConvF(7.89, 7.89, 7.89); Calibrated: 16/11/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom With - Middle/Area Scan (101x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.004 mW/g
Front Of EUT Facing Phantom With - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.475 V/m; Power Drift = 0.673 dB: Peak SAR (extrapolated) = 0.007 W/kg
SAR(1 g) = 0.00151 mW/g; SAR(10 g) = 0.000517 mW/g:
Maximum value of SAR (measured) = 0.002 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/010: Rear Of EUT Facing Phantom WiFi CH6
Date: 09/05/2008
DUT: MaxID; Type: iDl3ID ; Serial: 505159



0 dB = 0.002mW/g

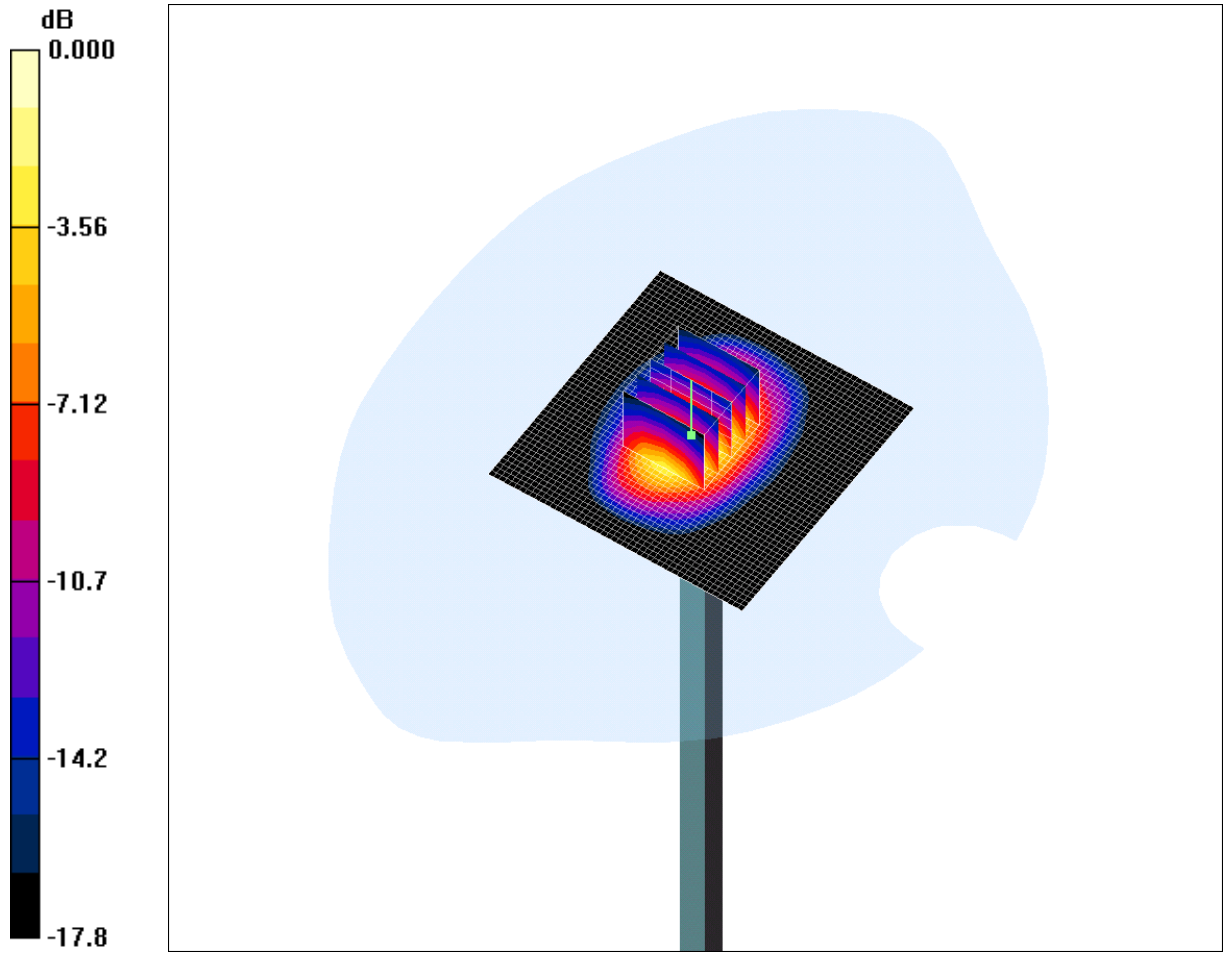
Communication System: WLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): f = 2437 MHz; σ = 1.91 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV3 - SN3508add; ConvF(7.89, 7.89, 7.89); Calibrated: 16/11/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom With - Middle/Area Scan (101x191x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.006 mW/g
Front Of EUT Facing Phantom With - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.736 V/m; Power Drift = -1.37 dB: Peak SAR (extrapolated) = 0.007 W/kg
SAR(1 g) = 0.00149 mW/g; SAR(10 g) = 0.000685 mW/g
Maximum value of SAR (measured) = 0.002 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/011: System Performance Check 1900MHz Body 27 03 08
Date: 27/03/2008
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN540



0 dB = 10.8mW/g

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 MHz MSL Medium parameters used: f = 1900 MHz; σ = 1.6 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

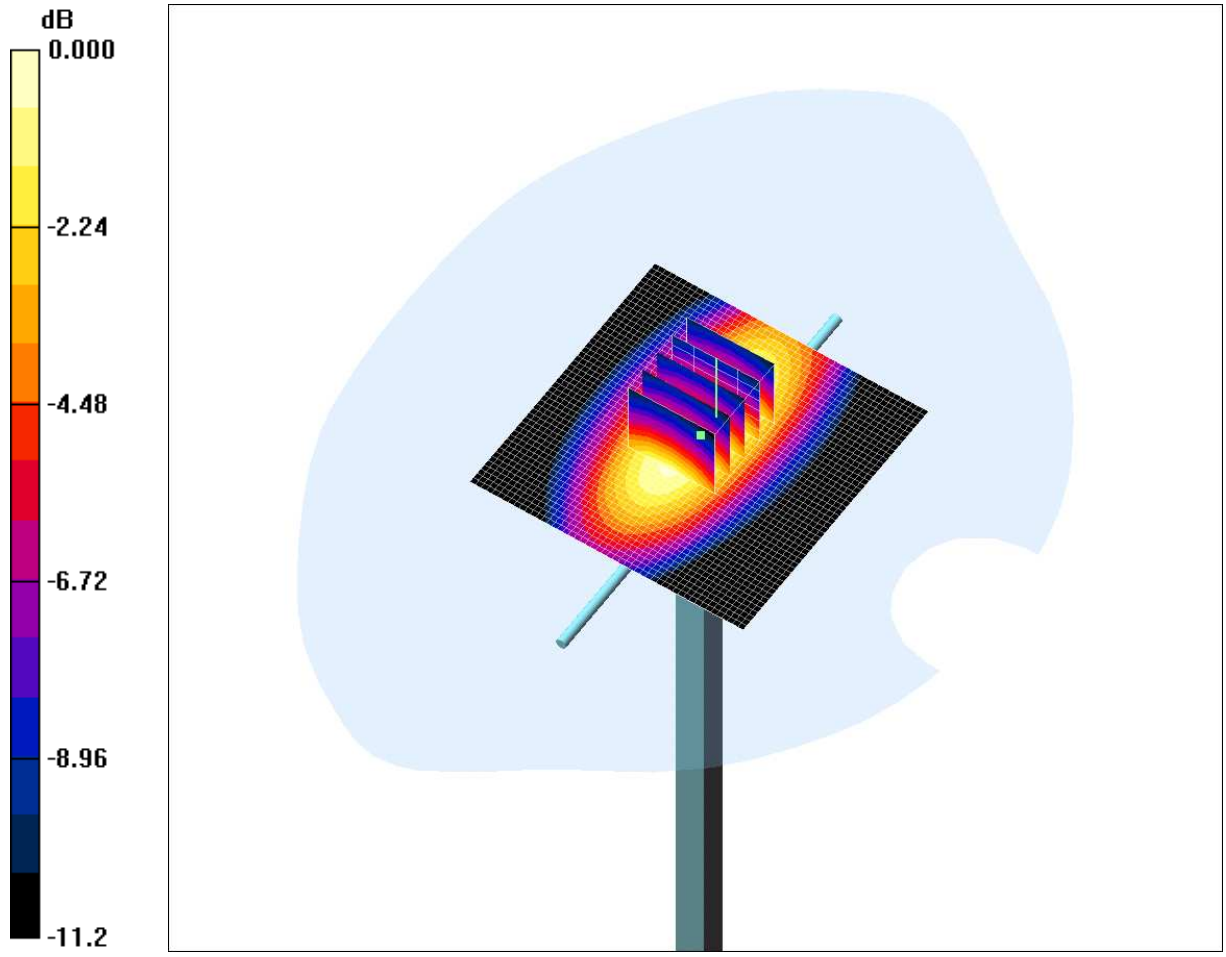
d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 13.2 mW/g

d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 84.5 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 9.61 mW/g; SAR(10 g) = 5 mW/g
Maximum value of SAR (measured) = 10.8 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/012: System Performance Check 900MHz Body 27 03 08
Date: 27/03/2008
DUT: Dipole 900 MHz; Type: D900V2; Serial: SN185



0 dB = 2.91mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used: f = 900 MHz; σ = 1.02 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(5.9, 5.9, 5.9); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

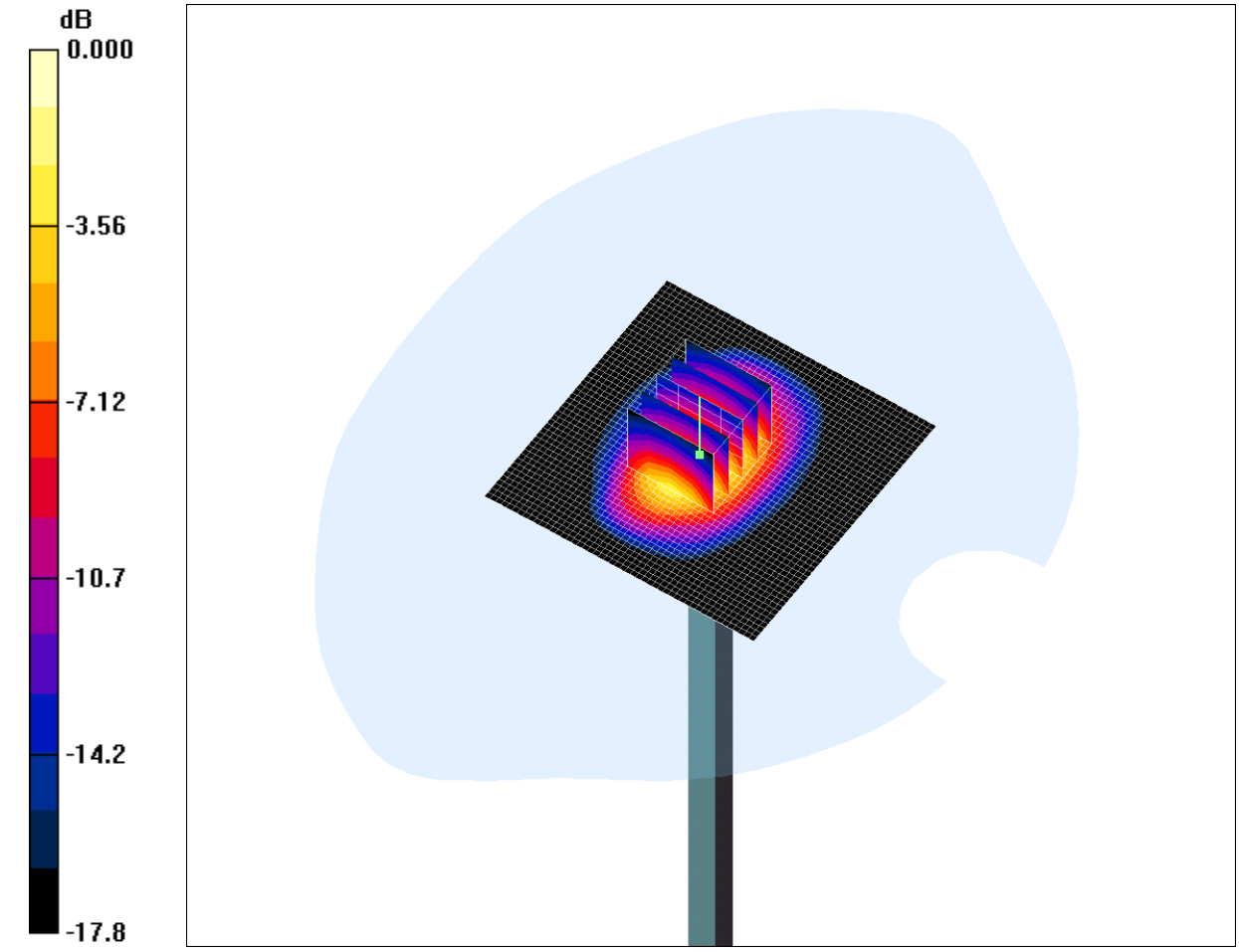
d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 2.99 mW/g

d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.2 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 3.96 W/kg
SAR(1 g) = 2.7 mW/g; SAR(10 g) = 1.74 mW/g
Maximum value of SAR (measured) = 2.91 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/013: System Performance Check 1900MHz Body 28 03 08
Date: 28/03/2008
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN540



0 dB = 10.7mW/g

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 MHz MSL Medium parameters used: f = 1900 MHz; σ = 1.57 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

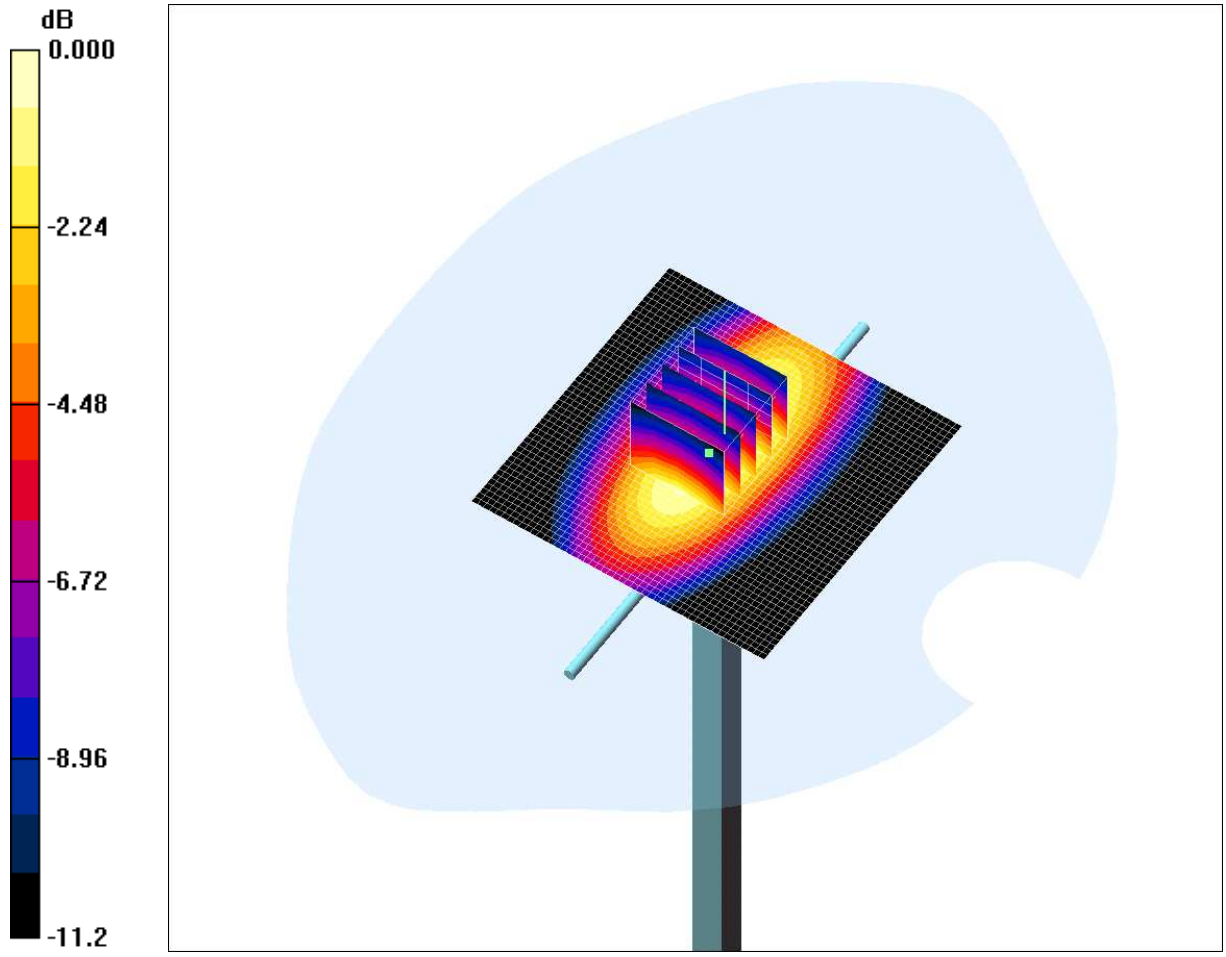
d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 13.1 mW/g

d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 84.1 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 16.9 W/kg
SAR(1 g) = 9.51 mW/g; SAR(10 g) = 4.95 mW/g
Maximum value of SAR (measured) = 10.7 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73402JD03/014: System Performance Check 900MHz Body 28 03 08
Date: 28/03/2008
DUT: Dipole 900 MHz - SPARE; Type: D900V2; Serial: SN185



0 dB = 2.94mW/g

Communication System: CW; Frequency: 900 MHz;Duty Cycle: 1:1
Medium: 900 MHz MSL Medium parameters used: f = 900 MHz; σ = 1.02 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1528; ConvF(5.9, 5.9, 5.9); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 3.03 mW/g

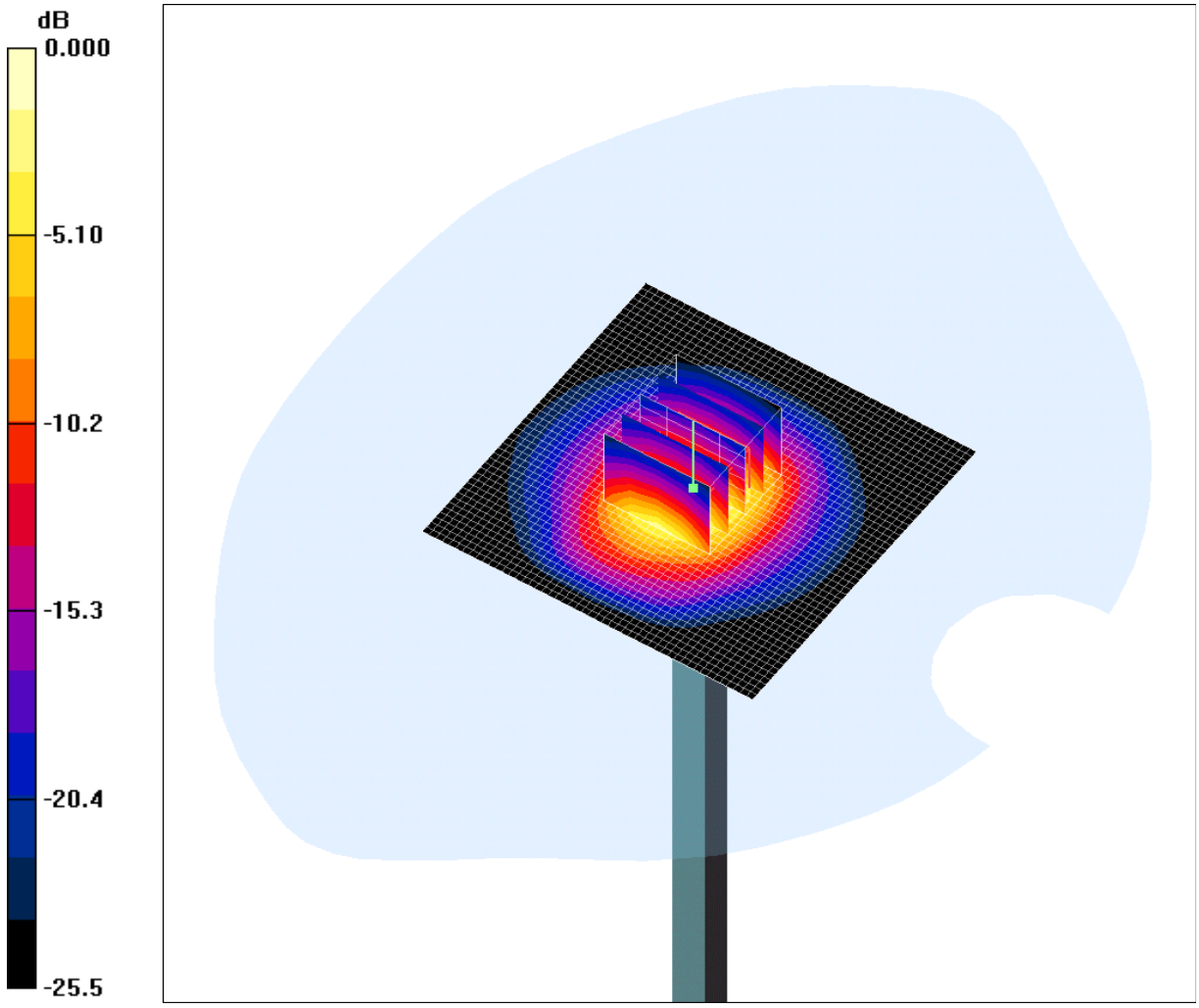
d=15mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.4 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 3.98 W/kg
SAR(1 g) = 2.71 mW/g; SAR(10 g) = 1.75 mW/g

Maximum value of SAR (measured) = 2.94 mW/g

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

SCN/73125JD03/015: System Performance Check 2450MHz Body 09 05 08
Date: 09/05/2008
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:725



0 dB = 15.1mW/g

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used: f = 2450 MHz; σ = 1.92 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: EX3DV3 - SN3508add; ConvF(7.89, 7.89, 7.89); Calibrated: 16/11/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW 1/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 19.5 mW/g
d=10mm, Pin=250mW 1/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 88.4 V/m; Power Drift = 0.023 dB; Peak SAR (extrapolated) = 30.7 W/kg
SAR(1 g) = 13.6 mW/g; SAR(10 g) = 5.99 mW/g: Maximum value of SAR (measured) = 15.1 mW/g

Appendix 4. Photographs

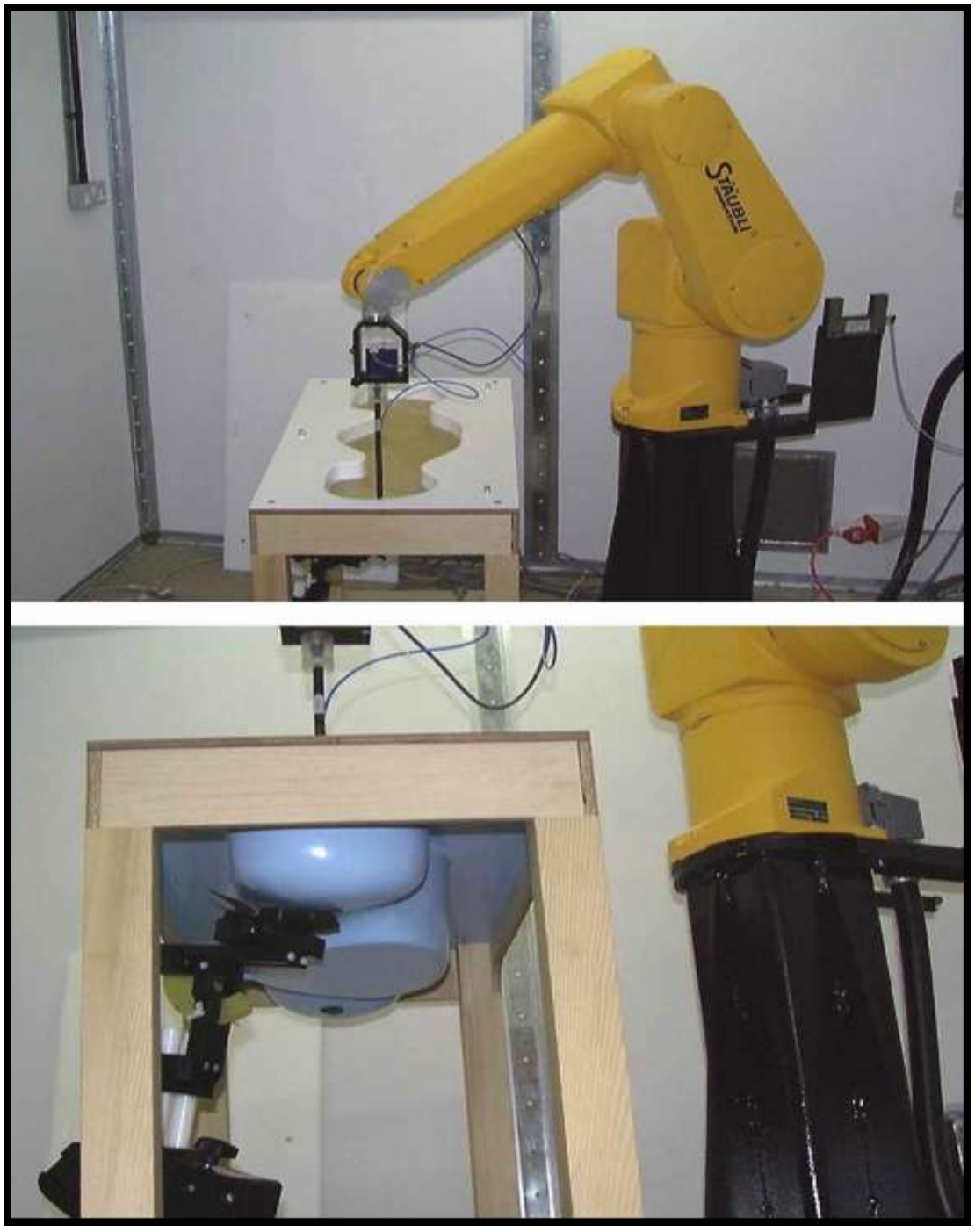
This appendix contains the following photographs:

Photo Reference Number	Title
PHT/73402JD03/001	Test configuration for the measurement of Specific Absorption Rate (SAR)
PHT/73402JD03/002	Front of EUT Facing Phantom
PHT/73402JD03/003	Rear of EUT Facing Phantom
PHT/73402JD03/004	Front View of EUT
PHT/73402JD03/005	Rear View of EUT
PHT/73402JD03/006	Internal View of EUT
PHT/73402JD03/007	Battery View of EUT
PHT/73402JD03/008	Top View of EUT Docking Station
PHT/73402JD03/009	Bottom View of EUT Docking Station
PHT/73402JD03/010	Charger View
PHT/73402JD03/011	USB Cable Extension View
PHT/73402JD03/012	USB to Serial Converter Cable and Serial Cable View
PHT/73402JD03/013	2450 MHz Fluid Level
PHT/73402JD03/014	1900 MHz Fluid Level
PHT/73402JD03/015	850 MHz Fluid Level

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

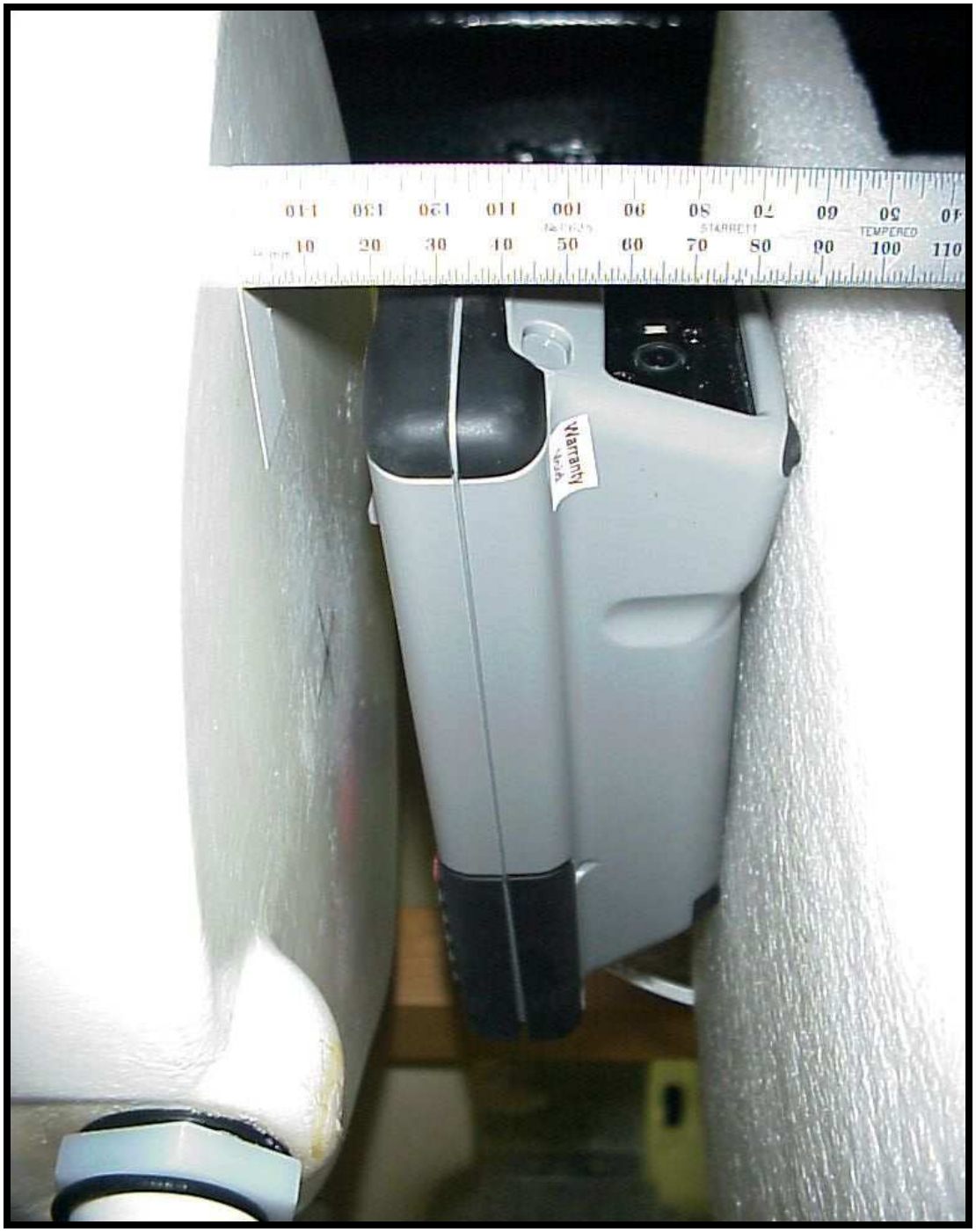
PHT/73402JD03/001: Test configuration for the measurement of Specific Absorption Rate (SAR)



Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/002: Front of EUT Facing Phantom



Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/003: Rear of EUT Facing Phantom

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/004: Front View of EUT

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/005: Rear View of EUT

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/006: Internal View of EUT

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/007: Battery View of EUT

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/008: Top View of EUT Docking Station

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/009: Bottom View of EUT Docking Station

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/010: Charger View

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/011: USB Cable Extension View

Test of: MaxID Ltd
iDL3ID

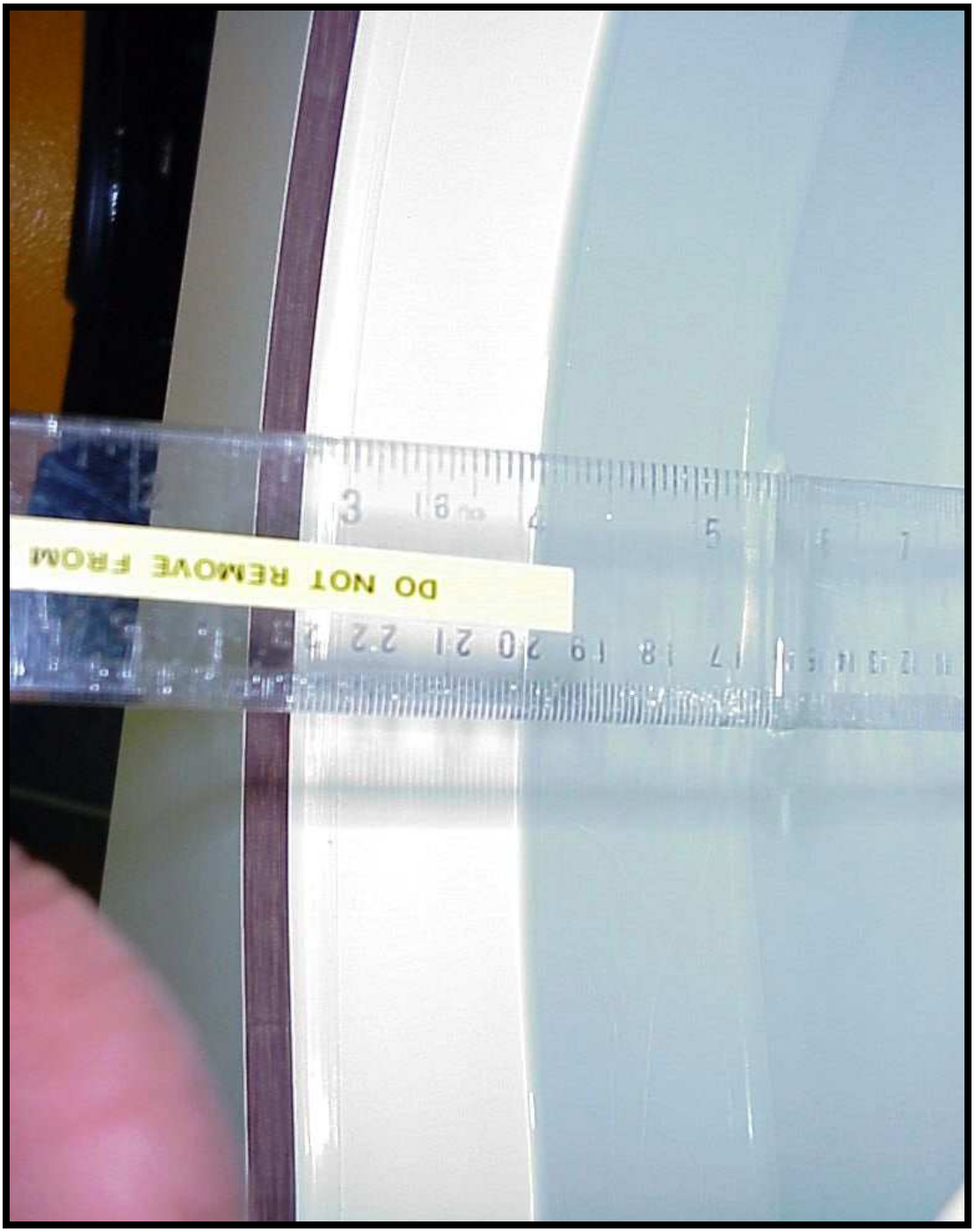
To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/012: USB to Serial Converter Cable and Serial Cable View

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

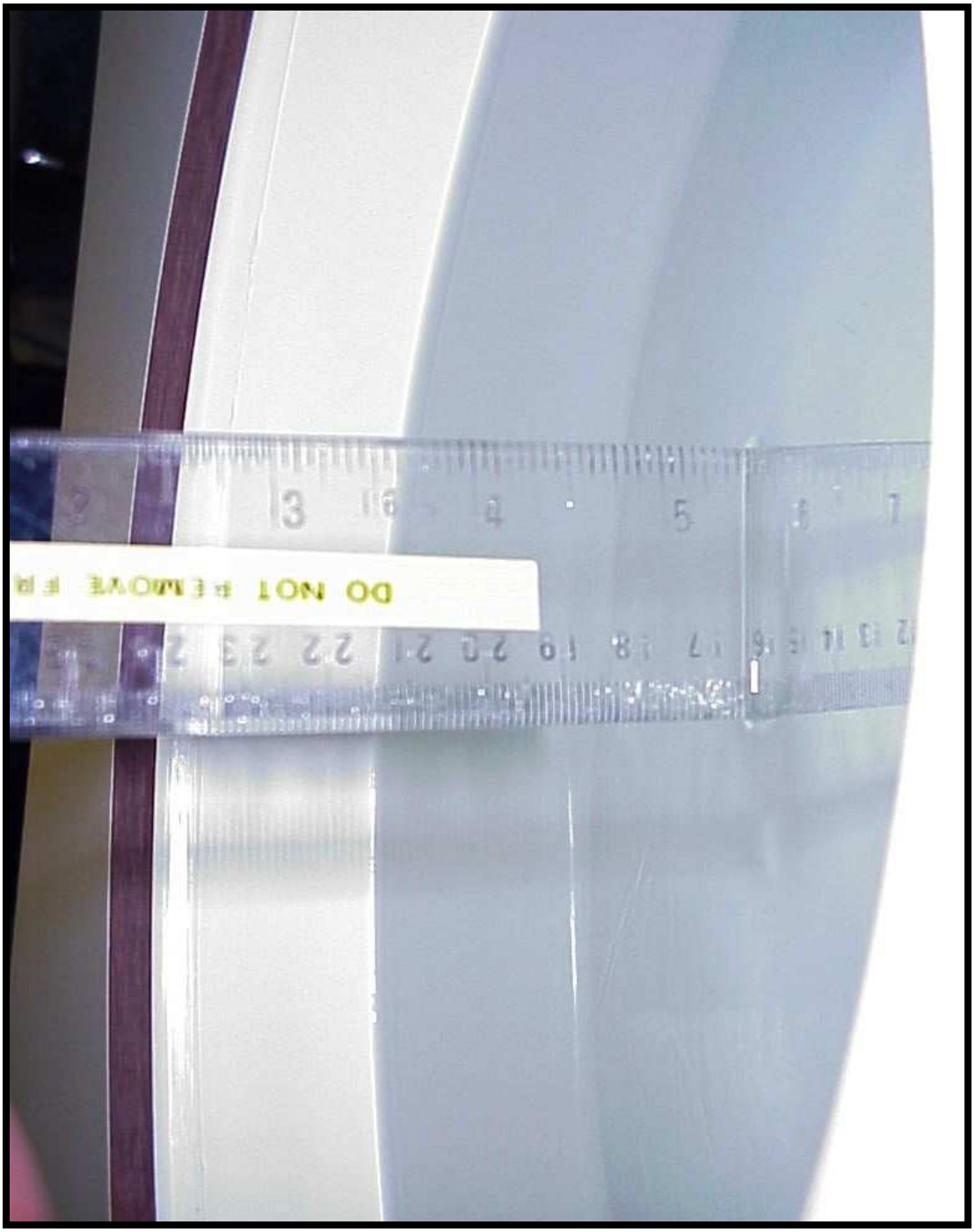
PHT/73402JD03/013: 2450 MHz Fluid Level



Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

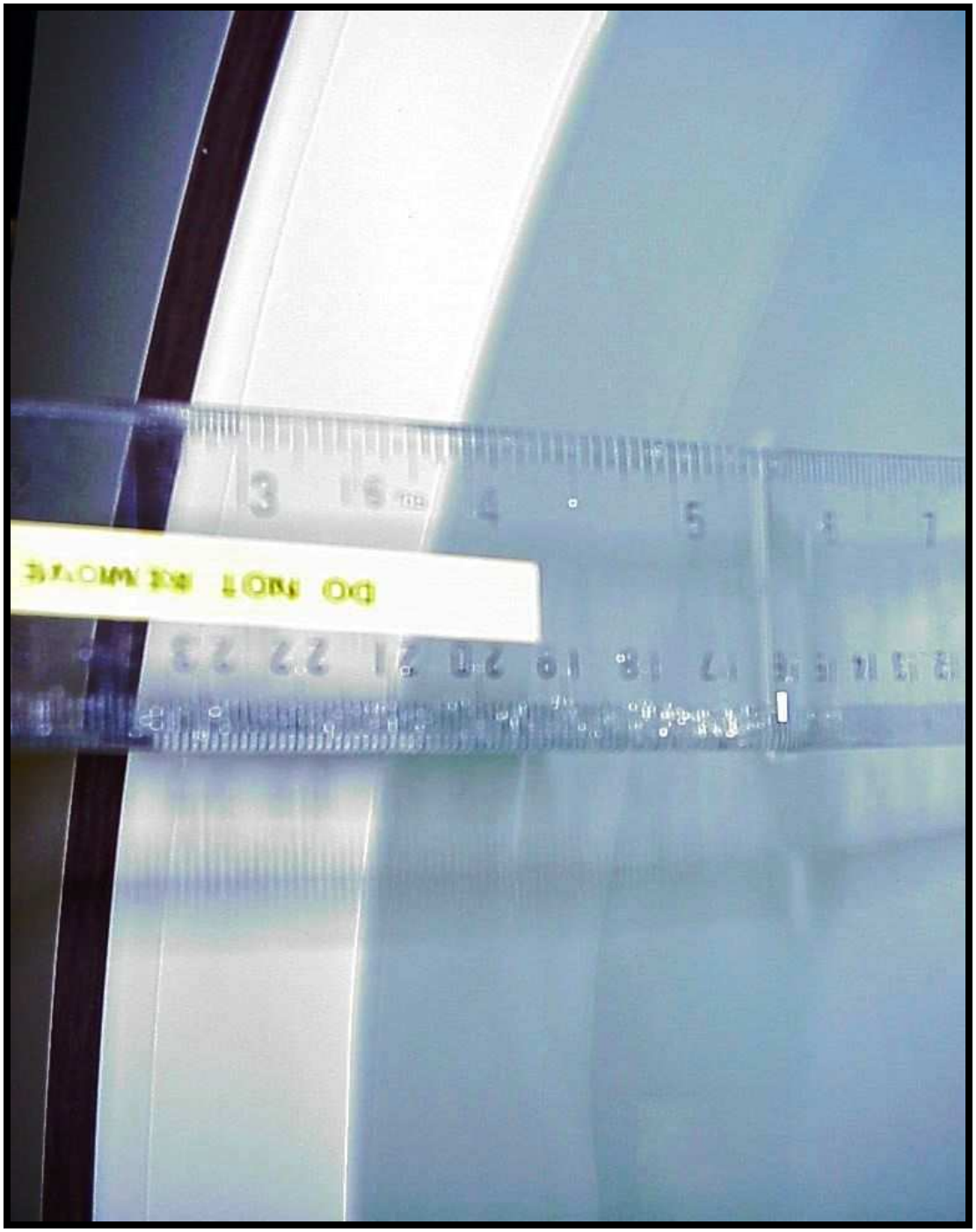
PHT/73402JD03/014: 1900 MHz Fluid Level



Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

PHT/73402JD03/015: 850 MHz Fluid Level



Appendix 5. Validation of System

Prior to the assessment, the system was verified in the flat region of the phantom.
A 900 MHz, 1900MHz and 2450 MHz dipole was used. A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of ±5% for the 900 MHz, 1900MHz and 2450 MHz dipole. The applicable verification (normalised to 1 Watt).

Date: 25/03/2008

Validation Dipole and Serial Number: D2450V2: SN: 725

Simulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	2450	23.0 ºC	23.0 ºC	ε_r	52.70	51.46	-0.02	5.00
				σ	1.95	1.94	-0.01	5.00
				1g SAR	53.30	53.20	-0.19	5.00
				10g SAR	24.50	24.48	-0.08	5.00

Date: 26/03/2008

Validation Dipole and Serial Number: D2450V2: SN: 725

Simulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	2450	23.0 ºC	23.0 ºC	ε_r	52.70	51.46	-0.02	5.00
				σ	1.95	1.94	-0.01	5.00
				1g SAR	53.30	52.80	-0.94	5.00
				10g SAR	24.50	24.40	-0.41	5.00

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

Date: 27/03/2008

Validation Dipole and Serial Number: D900V2 SN: 185

Simulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	900	23.0 ºC	23.0 ºC	ε_r	55.00	52.90	-3.83	5.00
				σ	1.05	1.02	-3.11	5.00
				1g SAR	10.50	10.80	2.86	5.00
				10g SAR	6.88	6.96	1.16	5.00

Date: 27/03/2008

Validation Dipole and Serial Number: D1900V2:SN: 540

Simulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	1900	23.0 ºC	23.0 ºC	ε_r	53.30	52.33	-1.81	5.00
				σ	1.52	1.53	0.95	5.00
				1g SAR	38.00	38.44	1.16	5.00
				10g SAR	20.70	20.00	-3.38	5.00

Test of: MaxID Ltd
iDL3ID

To: OET Bulletin 65 Supplement C: (2001-01)

Date: 28/03/2008

Validation Dipole and Serial Number: D900V2 SN: 185

Simulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	900	23.0 ºC	23.0 ºC	ε_r	55.00	52.90	-3.83	5.00
				σ	1.05	1.02	-3.11	5.00
				1g SAR	10.50	10.84	3.24	5.00
				10g SAR	6.88	7.00	1.74	5.00

Date: 28/03/2008

Validation Dipole and Serial Number: D1900V2 SN: 540

Simulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	1900	23.0 ºC	23.0 ºC	ε_r	53.30	52.38	-1.72	5.00
				σ	1.52	1.57	3.30	5.00
				1g SAR	10.50	38.04	0.11	5.00
				10g SAR	6.88	19.80	-4.35	5.00

Date: 09/04/2008

Validation Dipole and Serial Number: D2450V2: SN: 725

Simulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	2450	24.0 ºC	24.0 ºC	ε_r	52.70	50.57	-4.05	5.00
				σ	1.95	1.91	-2.28	5.00
				1g SAR	53.30	54.40	2.06	5.00
				10g SAR	24.50	23.96	-2.20	5.00

Appendix 6. Simulated Tissues

The body mixture consists of water and glycol. Visual inspection is made to ensure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

Ingredient	Frequency
	2450 MHz Body
De-Ionised Water	68.64
Diglycol Butyl Ether (DGBE)	31.37

Ingredient	Frequency
	1800/1900 MHz Body
De-Ionised Water	69.79%
Diglycol Butyl Ether (DGBE)	30.00%
Salt	0.20%

Ingredient	Frequency
	835/850/900 MHz Body
De-Ionised Water	50.75%
Sugar	48.21%
Salt	0.94%
Kathon	0.10%

Appendix 7. DASY4 System Details

A.7.1. DASY4 SAR Measurement System

RFI Global Services Ltd, SAR measurement facility utilises the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 system is comprised of the robot controller, computer, near-field probe, probe alignment sensor, and the SAM phantom containing brain or muscle equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller; teach pendant (Joystick), and remote control. This is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. The data acquisition electronics (DAE) performs signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection etc. The DAE is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE3 utilises a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching mulitplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

A.7.2. DASY4 SAR System Specifications

Robot System

Positioner:	Stäubli Unimation Corp. Robot Model: RX90L
Repeatability:	0.025 mm
No. of Axis:	6
Serial Number:	F00/SD89A1/A/01
Reach:	1185 mm
Payload:	3.5 kg
Control Unit:	CS7
Programming Language:	V+

Data Acquisition Electronic (DAE) System

Serial Number:	DAE3 SN:394

Cell Controller

PC:	Dell Precision 340
Operating System:	Windows 2000
Data Card:	DASY4 Measurement Server
Serial Number:	1080

Data Converter

Features:	Signal Amplifier, multiplexer, A/D converted and control logic.
Software:	DASY4 Software
Connecting Lines:	Optical downlink for data and status info. Optical uplink for commands and clock.

PC Interface Card

Function:	24 bit (64 MHz) DSP for real time processing Link to DAE3 16 nit A/D converter for surface detection system serial link to robot direct emergency stop output for robot.

DASY4 SAR System Specifications (Continued)

E-Field Probe

Model:	ET3DV6
Serial No:	1528
Construction:	Triangular core fibre optic detection system
Frequency:	10 MHz to 3 GHz
Linearity:	±0.2 dB (30 MHz to 3 GHz)
Probe Length (mm):	337
Probe Diameter (mm):	12
Tip Length (mm):	10
Tip Diameter (mm):	6.8
Sensor X Offset (mm):	2.7
Sensor Y Offset (mm):	2.7
Sensor Z Offset (mm):	2.7

E-Field Probe

Model:	EX3DV3
Serial No:	3508
Construction:	Triangular core
Frequency:	10 MHz to >6 GHz
Linearity:	±0.2 dB (30 MHz to 6 GHz)
Probe Length (mm):	330
Probe Diameter (mm):	12
Tip Length (mm):	20
Tip Diameter (mm):	2.5
Sensor X Offset (mm):	1
Sensor Y Offset (mm):	1
Sensor Z Offset (mm):	1

Phantom

Phantom:	SAM Phantom
Shell Material:	Fibreglass
Thickness:	2.0 ±0.1 mm