

**TEST REPORT
FROM
RFI GLOBAL SERVICES LTD****Test of: WiMAX USB Modem GWU-200****To: OET Bulletin 65 Supplement C: (2001-01)****Test Report Serial No:
RFI/SAR/RP79027JD01A V5.0****Version 5.0 supersedes all previous versions****This Test Report Is Issued Under The
Authority Of Chris Guy, Head of Global
Approvals:****Checked By: Richeleiu Quoi****Issue Date: 13 December 2011****Test Dates: 10 November 2010 to 19 January 2011**

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TABLE OF CONTENTS

1. Customer Information	4
2. Equipment Under Test (EUT)	5
3. Test Specification, Methods and Procedures	8
4. Deviations from the Test Specification.....	9
5. Operation and Configuration of the EUT during Testing	10
6. Summary of Test Results	12
7. Measurements, Examinations and Derived Results	13
8. Measurement Uncertainty	24
Appendix 1. Test Equipment Used.....	26
Appendix 2. Measurement Methods.....	29
Appendix 3. SAR Distribution Scans	31
Appendix 4. Photographs	68
Appendix 5. Validation of System	84
Appendix 6. Simulated Tissues	86
Appendix 7. DASY4 System Details	87

1. Customer Information

Company Name:	Airspan Networks (Israel) Ltd
Address:	Unitronics Building Harava St. Airport City 70100

2. Equipment Under Test (EUT)

2.1. Identification of Equipment Under Test (EUT)

Description:	Mobile WiMAX USB Modem
Brand Name:	IGI Mobile
Model Name or Number:	Wimaxion (GWU-200)
Serial Number:	C00E30
IMEI Number:	Not Applicable
Hardware Version Number:	None Stated
Software Version Number:	None Stated
Hardware Revision of GSM Module:	Not Applicable
Software Revision of GSM Module:	Not Applicable
FCC ID Number:	PIDGWU-200
Country of Manufacture:	Korea
Date of Receipt:	10 November 2010

2.2. Description of EUT

The Equipment Under Test is a WiMAX USB Dongle Modem operating at 3700 MHz Band with maximum Downlink to Uplink ratio scaled to 29:18 for 5 MHz and 10 MHz channels. The device support QPSK and 16-QAM modulation only and operates using the 5MHz and 10MHz channel bandwidths.

2.3. Modifications Incorporated in the EUT

There were no modifications incorporated in the EUT during the test.

2.4. Accessories

The following accessories were supplied with the EUT during testing:

Description:	USB Cable
Brand Name:	None Stated on cable
Model Name or Number:	None Stated on cable
Serial Number:	Not Applicable
Cable Length and Type:	~132.5mm USB Cable
Country of Manufacture:	None Sated
Connected to Port	USB Port on Laptop to USB Connection on Dongle

2.5. Support Equipment

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

Description:	Laptop PC with Vertical and Horizontal USB port
Brand Name:	Dell
Model Name or Number:	Latitude D620
Serial Number:	None Stated
Cable Length and Type:	Not Applicable
Connected to Port:	Standard USB Port

2.6. Additional Information Related to Testing

Equipment Category	WiMAX 3700		
Type of Unit	Portable Transceiver		
Intended Operating Environment:	Within WiMAX 3700 MHz coverage		
Transmitter Maximum Output Power Characteristics:	WiMAX (5MHz Bandwidth)	Rated Power 18.0 dBm	
	WiMAX (10 MHz Bandwidth)	Rated Power 21.0 dBm	
Transmitter Frequency Range:	WiMAX (5MHz Bandwidth)	(3652 to 3697) MHz	
	WiMAX (10 MHz Bandwidth)	(3655 to 3695) MHz	
Transmitter Frequency Allocation of EUT When Under Test:	Bandwidth (MHz)	Channel Description	Frequency (MHz)
	5	Low	3652.5
	5	Middle	3675.0
	5	High	3697.5
	10	Low	3655.0
	10	Middle	3675.0
	10	High	3695.0
Modulation(s):	0 Hz		
Modulation Scheme (Crest Factor):	5MHz Bandwidth: 1/(15/48) 10MHz Bandwidth: 1/(15/48)		
Antenna Type:	Internal Unknown		
Antenna Length:	Unknown		
Number of Antenna Positions:	1 Fixed		
Power Supply Requirement:	3.5V to 5V USB Port Supply		
Battery Type(s):	Not Applicable		

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 v04

KDB 447498 D02 SAR Procedures for Dongle Xmtr v02

KDB 615223 D01 802.16e WiMax SAR Measurement Guidance v01

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

SAR test was performed as per FCC KDB procedures 447498 D01 and D02, 615223 and FCC April 2010 TCB workshop procedures for guidance and October 2010 presentation 'RF Exposure Procedures Update' for WiMAX devices.

Prior to testing the device test approach was discussed with the FCC under the following KDB inquiry number: 602952.

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:

- WiMAX allocated test mode at QPSK on both the 5 MHz and 10 MHz channel bandwidth, using a test mode provided by the device chip manufacturer to allow a transmission at up to 18 dBm on the uplink channel.
- With 5 MHz tested with 15 traffic and control channels active. And 10 MHz tested with 15 traffic and control channels active.
- The test mode software uses a setting 102 which uses 17 sub-channels for the 5 MHz channel bandwidth and the band width is set using a figure of 5000 for 5 MHz bandwidth. See below:

Airspan Networks (Israel) Ltd Commands	Command Function
##### Load the SW for 5MHz	Select 5 MHz BW
< /tffs/WIMAX_MFGS_5MHz.sh	Select 10 MHz BW
##### Load the SW for 10MHz	
< /tffs/WIMAX_MFGS_10MHz.sh	
##### Test Command for 5MHz	
cbe "setRfRxConfig rxGain=2500 channelBitmap=3 frequency=3675000"	Set Tx Frequency
cbe "setMfgConfig rx-path=both bandwidth=5000 frameDuration=5000 preambleIndex=0"	Set BW / Frame duration / Preamble
tx-power=-1000 rx-crc=1 frequency=3675000"	Set output power level
##### tx-power [-1000->2300]	
cbe "setMfgConfig tx-power=1800 frequency=3675000"	Set Rx Frequency
cbe "setRfRxConfig frequency=3675000"	
cbe "resetulie"	Set values
cbe "addUlie QPSK_1_2 CTC 1 102 0"	Set Modulation scheme
cbe "starttxtest 1"	Start transmission
cbe "stoptxtest "	
### Modulation, CTC, slotwidth [0->175], 0	
### cbe "addUlie QPSK_1_2 CTC 1 102 0"	
### cbe "addUlie QPSK_3_4 CTC 1 102 0"	
### cbe "addUlie 16QAM_1_2 CTC 1 102 0"	
### cbe "addUlie 16QAM_3_4 CTC 1 102 0"	

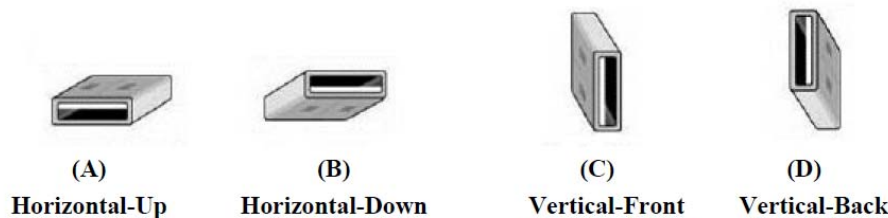
- The test mode software uses a setting 102 which uses 17 sub-channels for the 10 MHz channel bandwidth and the band width is set using a figure of 10000 for 10 MHz bandwidth. As the software setting only uses half the sub-channels the measured SAR value for the 10 MHz bandwidth is multiple by 2 to correct the sub-channel to 35.

##### Test Command for 10MHz	
cbe "setRfRxConfig rxGain=2500 channelBitmap=3 frequency=3650000"	
cbe "setMfgConfig rx-path=both bandwidth=10000 frameDuration=5000"	
preambleIndex=0 tx-power=-1000 rx-crc=1 frequency=3650000"	
##### tx-power [-1000->2300]	
cbe "setMfgConfig tx-power=2100 frequency=3650000"	
cbe "setRfRxConfig frequency=3650000"	
cbe "resetulie"	
cbe "addUlie QPSK_1_2 CTC 1 102 0"	Set Bandwidth / Frame duration / preamble
cbe "starttxtest 1"	Set modulation and slot-width
cbe "stoptxtest"	
### Modulation, CTC, slotwidth [0->175], 0	
### cbe "addUlie QPSK_1_2 CTC 1 102 0"	
### cbe "addUlie QPSK_3_4 CTC 1 102 0"	
### cbe "addUlie 16QAM_1_2 CTC 1 102 0"	
### cbe "addUlie 16QAM_3_4 CTC 1 102 0"	

5.2. Configuration and Peripherals

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

- Powered via a USB port.
- EUT was tested in the body-worn position with all 5 edges facing the SAR phantom at a separation distance of 5mm. The following configuration were used:
 - 1) Horizontal-up (See Appendix 4; photo PHT/79027JD01/002)
 - 2) Horizontal-down (See Appendix 4; photo PHT/79027JD01/002)
 - 3) Vertical-front (See Appendix 4; photo PHT/79027JD01/002)
 - 4) Vertical-back (See Appendix 4; photo PHT/79027JD01/002)



Note: These are USB connector orientations on laptop computers; USB dongles have the reverse configuration for plugging into the corresponding laptop computers.

USB Connector Orientations Implemented on Laptop Computers

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 EUT 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 than 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 EUT and its antenna.
- h) The EUT was transmitting at full power throughout the duration of the test powered by a USB port.

6. Summary of Test Results

Test Name	Specification Reference	Result
Specific Absorption Rate-WiMAX 3700 5MHz BW/QPSK Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-WiMAX 3700 5MHz BW/16-QAM Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-WiMAX 3700 10MHz BW/QPSK Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-WiMAX 3700 10MHz BW/16-QAM 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, Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire, RG23
8BG United Kingdom

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. Downlink (DL): Uplink (UL) Ratio SAR Scaling

The information provided by the customer for the approved equipment fillings states the following:

- 1) The control channel for PUSC zone may occupy up to 5 slots of which a slot is equivalent to a sub-channel with 3 symbol duration.
- 2) There are 35 slots in the 10 MHz channel configuration which corresponds to DL:UL of 29:18 and 17 slots in the 5 MHz channel configuration which corresponds to DL:UL of 29:18. As 5 slot are used for the control channel the control symbol maximum power are as follows:
 - a. 10 MHz channel: traffic symbol maximum power * 5/35 = 126 mW * 5/35 = 18 mW
 - b. 5 MHz channel: traffic symbol maximum power * 5/17 = 63 mW * 5/17 = 19 mW
- 3) The control symbol used for the test are active, therefore the "cf" factor used are:
 - a. 10 MHz channel: $cf = 1/(15/48)$
 - b. 5 MHz channel: $cf = 1/(15/48)$
- 4) The 10 MHz test mode used only 17 slots therefore the measured values for 10 MHz power and SAR level need to be multiplied by a factor of 2 for the equivalent value of 35 slots settings.

7.2.1. Scaling Factor QPSK

Tx Power (mW)	High	Middle	Low	Max Rated (tuned) Power mW
5 MHz	74	85	93	63
10 MHz	66	78	85	126

Note: Conducted Average Power Measurements

5 MHz Bandwidth Scale Factor: 29:18 with 18 symbols in UL consisting of 15 traffic symbol and 3 control symbols

$$\text{High Ch: } [(63 \cdot 5/17) \cdot 3 + (63 \cdot 15)] / (74 \cdot 15) = 0.901$$

$$\text{Middle Ch: } [(63 \cdot 5/17) \cdot 3 + (63 \cdot 15)] / (85 \cdot 15) = 0.785$$

$$\text{Low Ch: } [(63 \cdot 5/17) \cdot 3 + (63 \cdot 15)] / (93 \cdot 15) = 0.717$$

10 MHz Bandwidth Scale Factor: 29:18 with 18 symbols in UL consisting of 15 traffic symbol and 3 control symbols

$$\text{High Ch: } [(126 \cdot 5/35) \cdot 3 + (126 \cdot 15)] / (66 \cdot 15) = 1.964$$

$$\text{Middle Ch: } [(126 \cdot 5/35) \cdot 3 + (126 \cdot 15)] / (78 \cdot 15) = 1.662$$

$$\text{Low Ch: } [(126 \cdot 5/35) \cdot 3 + (126 \cdot 15)] / (85 \cdot 15) = 1.525$$

7.2.2. Scaling Factor 16-QAM

Tx Power (mW)	High	Middle	Low	Max Rated (tuned) Power mW
5 MHz	74	85	89	63
10 MHz	71	59	71	126

Note: Conducted Average Power Measurements

5 MHz Bandwidth Scale Factor: 29:18 with 18 symbols in UL consisting of 15 traffic symbol and 3 control symbols

High Ch: $[(63 \cdot 5/17) \cdot 3 + (63 \cdot 15)] / (74 \cdot 15) = 0.901$

Middle Ch: $[(63 \cdot 5/17) \cdot 3 + (63 \cdot 15)] / (85 \cdot 15) = 0.785$

Low Ch: $[(63 \cdot 5/17) \cdot 3 + (63 \cdot 15)] / (89 \cdot 15) = 0.750$

10 MHz Bandwidth Scale Factor: 29:18 with 18 symbols in UL consisting of 15 traffic symbol and 3 control symbols

High Ch: $[(126 \cdot 5/35) \cdot 3 + (126 \cdot 15)] / (71 \cdot 15) = 1.825$

Middle Ch: $[(126 \cdot 5/35) \cdot 3 + (126 \cdot 15)] / (59 \cdot 15) = 2.197$

Low Ch: $[(126 \cdot 5/35) \cdot 3 + (126 \cdot 15)] / (71 \cdot 15) = 1.825$

7.2.3. PAR Measurement QPSK

Tx Power (mW)	High	Middle	Low	Max
5 MHz	8.08	8.00	8.25	8.25
10 MHz	9.25	9.53	9.40	9.53

7.2.4. PAR Measurement 16-QAM

Tx Power (mW)	High	Middle	Low	Max
5 MHz	8.40	8.40	8.40	8.40
10 MHz	9.18	9.22	9.60	9.60

7.3. Test Results

7.3.1. Specific Absorption Rate - WiMAX 3700 / 5 MHz Bandwidth QPSK Body Configuration 1g Test Summary:

Tissue Volume:	1g
Maximum Scaled Level (W/kg):	0.342

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	22.8 to 22.8

Results:

EUT Position	Phantom Config.	Ch.	Scale Factor	Measured SAR (W/kg)	Scaled SAR (W/kg)	Limit (W/Kg)	Margin (W/kg)	Result
Horizontal-Up	Flat (SAM)	Middle	0.785	0.292	0.229	1.600	1.371	Complied
Horizontal-Down	Flat (SAM)	Middle	0.785	0.318	0.250	1.600	1.350	Complied
Vertical-Front	Flat (SAM)	Middle	0.785	0.206	0.162	1.600	1.438	Complied
Vertical-Back	Flat (SAM)	Middle	0.785	0.134	0.105	1.600	1.495	Complied
Top or Tip	Flat (SAM)	Middle	0.785	0.191	0.150	1.600	1.450	Complied
Horizontal-Down	Flat (SAM)	Low	0.717	0.333	0.239	1.600	1.361	Complied
Horizontal-Down	Flat (SAM)	High	0.901	0.380	0.342	1.600	1.258	Complied

Note(s):

- SAR measurements were performed with the EUT at a separation distance of 5mm from the 'SAM' phantom flat section.
- SAR scaled to a DL:UL symbol of 29:18

7.3.2. Specific Absorption Rate - WiMAX 3700 5 MHz Bandwidth 16-QAM Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Scaled Level (W/kg):	0.719

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	22.8 to 22.8

Results:

EUT Position	Phantom Config.	Ch.	Scale Factor	Measured SAR (W/kg)	Scaled SAR (W/kg)	Limit (W/Kg)	Margin (W/kg)	Result
Horizontal-Up	Flat (SAM)	Middle	0.785	0.290	0.228	1.600	1.372	Complied
Horizontal-Down	Flat (SAM)	Middle	0.785	0.305	0.239	1.600	1.361	Complied
Vertical-Front	Flat (SAM)	Middle	0.785	0.224	0.176	1.600	1.424	Complied
Vertical-Back	Flat (SAM)	Middle	0.785	0.114	0.089	1.600	1.511	Complied
Top or Tip	Flat (SAM)	Middle	0.785	0.201	0.158	1.600	1.442	Complied
Horizontal-Down	Flat (SAM)	Low	0.750	0.322	0.242	1.600	1.359	Complied
Horizontal-Down	Flat (SAM)	High	0.901	0.366	0.330	1.600	1.270	Complied

Note(s):

1. SAR measurements were performed with the EUT at a separation distance of 5mm from the 'SAM' phantom flat section.
2. SAR scaled to a DL:UL symbol of 29:18

7.3.3. Specific Absorption Rate - WiMAX 3700 10 MHz Bandwidth QPSK Body Configuration 1g

Test Summary:

Tissue Volume:	1g
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Maximum Scaled Level (W/kg):	0.268
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Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
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Temperature Variation in Liquid (°C):	22.8 to 22.8
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Results:

EUT Position	Phantom Config.	Ch.	Scale Factor	Measured SAR * 2 for 35 slot (W/kg)	Scaled SAR (W/kg)	Limit (W/Kg)	Margin (W/kg)	Result
Horizontal-Up	Flat (SAM)	Middle	1.662	0.232	0.386	1.600	1.214	Complied
Horizontal-Down	Flat (SAM)	Middle	1.662	0.248	0.412	1.600	1.188	Complied
Vertical-Front	Flat (SAM)	Middle	1.662	0.140	0.233	1.600	1.367	Complied
Vertical-Back	Flat (SAM)	Middle	1.662	0.094	0.156	1.600	1.444	Complied
Top or Tip	Flat (SAM)	Middle	1.662	0.148	0.246	1.600	1.354	Complied
Horizontal-Down	Flat (SAM)	Low	1.525	0.270	0.412	1.600	1.188	Complied
Horizontal-Down	Flat (SAM)	High	1.964	0.298	0.585	1.600	1.015	Complied

Note(s):

- SAR measurements were performed with the EUT at a separation distance of 5mm from the 'SAM' phantom flat section.
- SAR scaled to a DL:UL symbol of 29:18

7.3.4. Specific Absorption Rate - WiMAX 3700 10MHz Bandwidth 16-QAM Body Configuration 1g
Test Summary:

Tissue Volume:	1g
Maximum Scaled Level (W/kg):	0.729

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	22.8 to 22.8

Results:

EUT Position	Phantom Config.	Ch.	Scale Factor	Measured SAR * 2 for 35 slot (W/kg)	Scaled SAR (W/kg)	Limit (W/Kg)	Margin (W/kg)	Result
Horizontal-Up	Flat (SAM)	Middle	2.197	0.286	0.628	1.600	0.972	Complied
Horizontal-Down	Flat (SAM)	Middle	2.197	0.332	0.729	1.600	0.871	Complied
Vertical-Front	Flat (SAM)	Middle	2.197	0.164	0.360	1.600	1.240	Complied
Vertical-Back	Flat (SAM)	Middle	2.197	0.154	0.338	1.600	1.262	Complied
Top or Tip	Flat (SAM)	Middle	2.197	0.132	0.290	1.600	1.310	Complied
Horizontal-Down	Flat (SAM)	Low	1.825	0.34	0.621	1.600	0.980	Complied
Horizontal-Down	Flat (SAM)	High	1.825	0.346	0.631	1.600	0.969	Complied

Note(s):

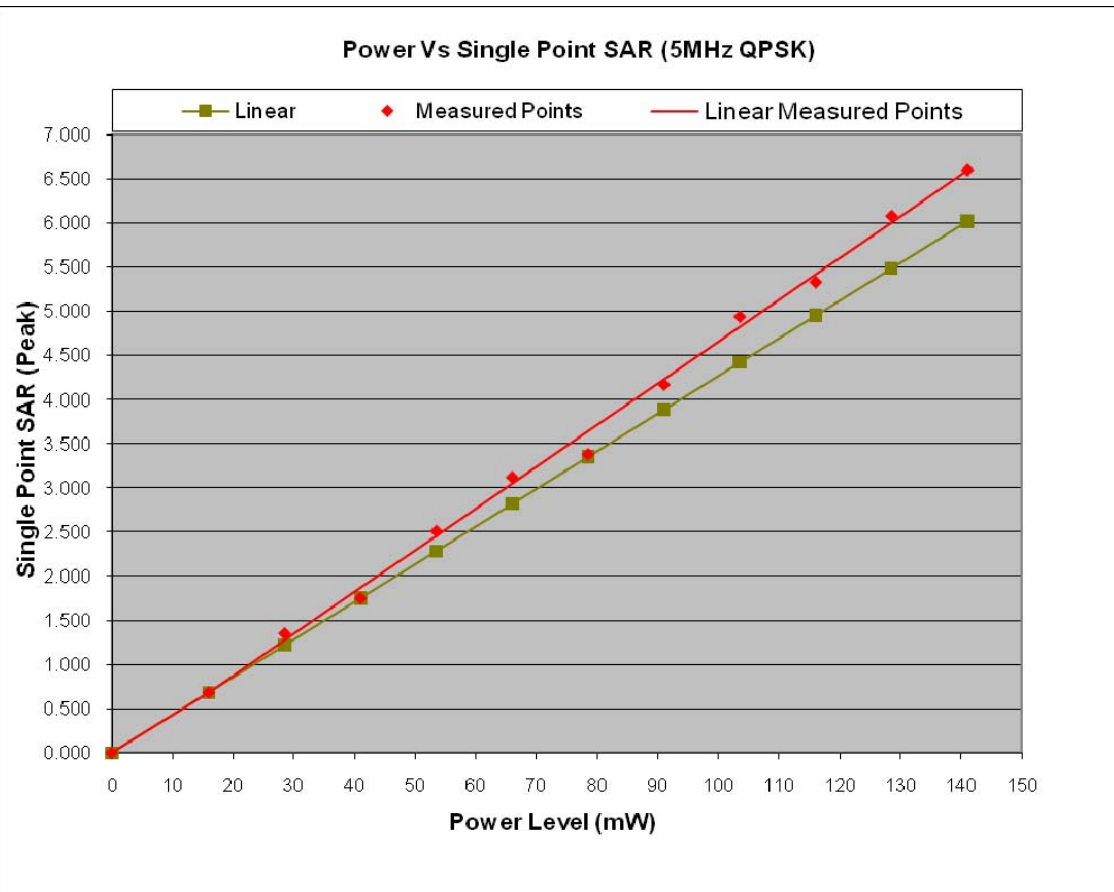
1. SAR measurements were performed with the EUT at a separation distance of 5mm from the 'SAM' phantom flat section.
2. SAR scaled to a DL:UL symbol of 29:18

7.3.5. SAR Linearity Plots**5 MHz Bandwidth QPSK:**

Power Level (mW)	16.0	28.5	41.0	53.5	66.0	78.5	91.0	103.5	116.0	128.5	141.0
Single Point Peak SAR(w/kg)	0.683	1.275	1.866	2.458	3.050	3.642	4.233	4.825	5.417	6.008	6.600
Linear Line	0.683	1.217	1.750	2.284	2.817	3.351	3.885	4.418	4.952	5.485	6.019
Estimation (%)	0.0	4.8	6.6	7.6	8.2	8.7	9.0	9.2	9.4	9.5	9.7

Note(s):

1. Single Point Peak SAR measurements were performed with the EUT at a separation distance of 0mm from the 'SAM' phantom flat section.
2. As per FCC KDB inquiry 602952 the power interval used was 12.5 mW up to the device maximum rated output power.
3. Appendix for photo setup

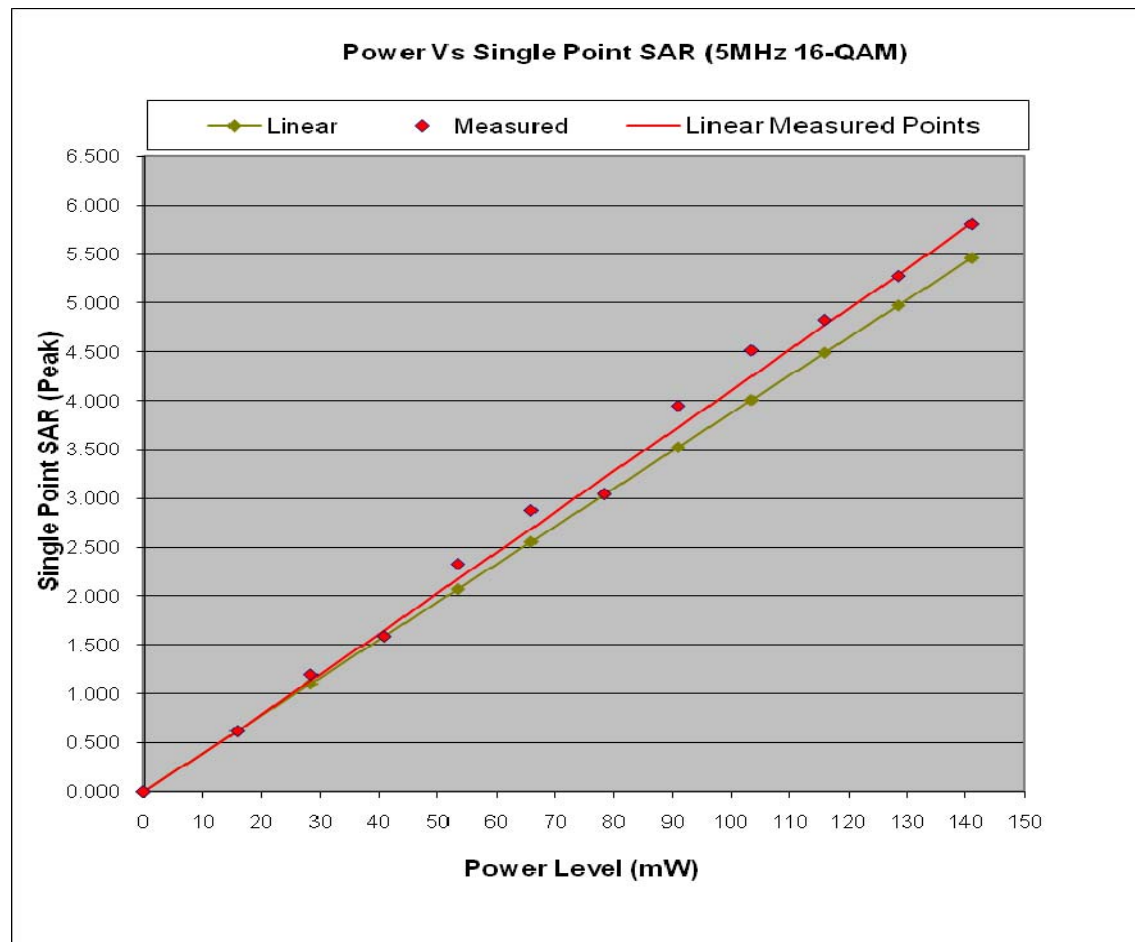


5 MHz Bandwidth 16-QAM:

Power Level (mW)	16.0	28.5	41.0	53.5	66.0	78.5	91.0	103.5	116.0	128.5	141.0
Single Point Peak SAR(w/kg)	0.619	1.138	1.657	2.176	2.695	3.215	3.734	4.253	4.772	5.291	5.810
Linear Line	0.619	1.103	1.586	2.070	2.553	3.037	3.521	4.004	4.488	4.971	5.455
Estimation (%)	0.0	3.2	4.5	5.1	5.6	5.8	6.1	6.2	6.3	6.4	6.5

Note(s):

1. Single Point Peak SAR measurements were performed with the EUT at a separation distance of 0mm from the 'SAM' phantom flat section.
2. As per FCC KDB inquiry 602952 the power interval used was 12.5 mW up to the device maximum rated output power.
3. Appendix for photo setup



10 MHz Bandwidth QPSK:

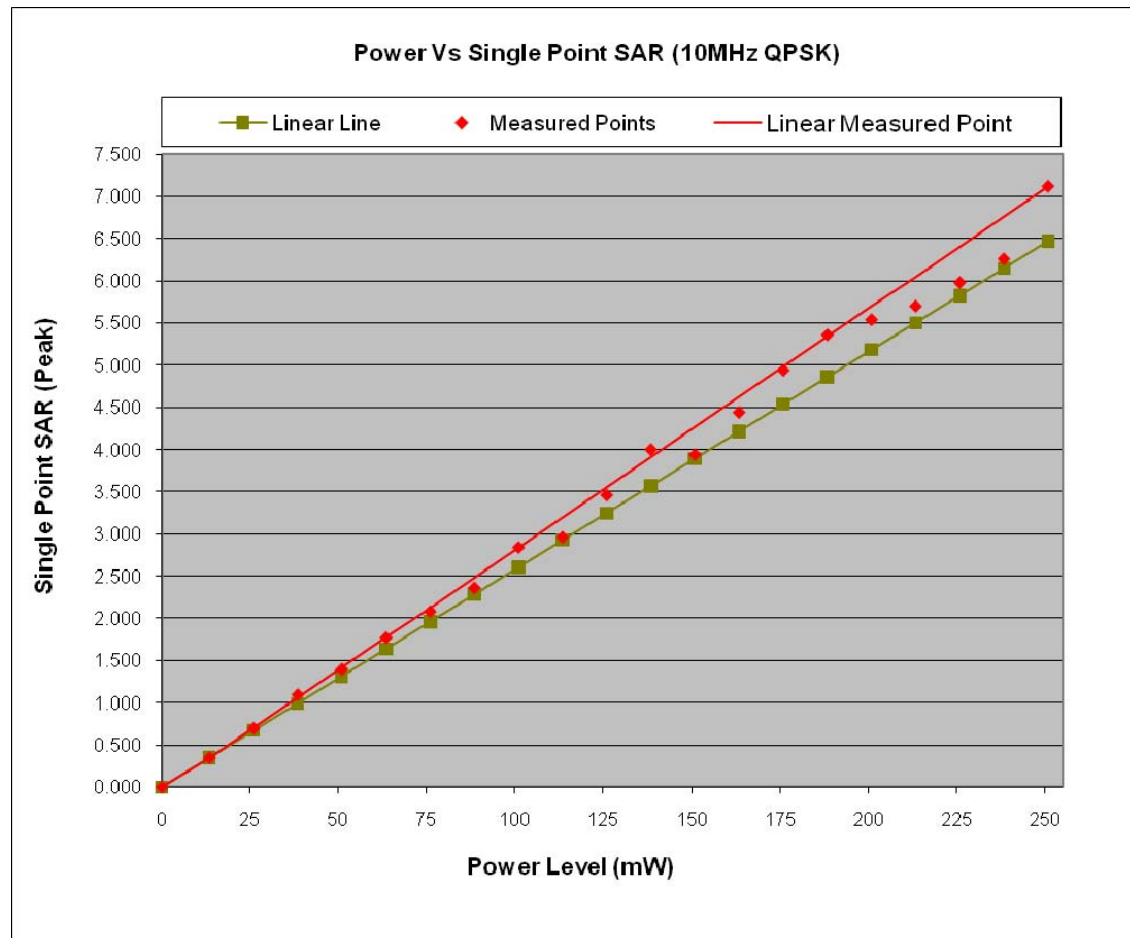
Power Level (mW)	13.5	26.0	38.5	51.0	63.5	76.0	88.5	101.0	113.5	126.0	138.5
Single Point Peak SAR(w/kg)	0.348	0.704	1.061	1.417	1.774	2.130	2.487	2.843	3.199	3.556	3.912
Linear Line	0.348	0.670	0.992	1.315	1.637	1.959	2.281	2.604	2.926	3.248	3.570
Estimation (%)	0.0	5.1	6.9	7.8	8.4	8.7	9.0	9.2	9.4	9.5	9.6

Table Continue

Power Level (mW)	151.0	163.5	176.0	188.5	201.0	213.5	226.0	238.5	251.0
Single Point Peak SAR(w/kg)	4.269	4.625	4.981	5.338	5.694	6.051	6.407	6.764	7.120
Linear Line	3.892	4.215	4.537	4.859	5.181	5.504	5.826	6.148	6.470
Estimation (%)	9.7	9.7	9.8	9.9	9.9	9.9	10.0	10.0	10.0

Note(s):

1. Single Point Peak SAR measurements were performed with the EUT at a separation distance of 0mm from the 'SAM' phantom flat section.
2. As per FCC KDB inquiry 602952 the power interval used was 12.5 mW up to the device maximum rated output power.
3. Appendix for photo setup



10 MHz Bandwidth 16-QAM:

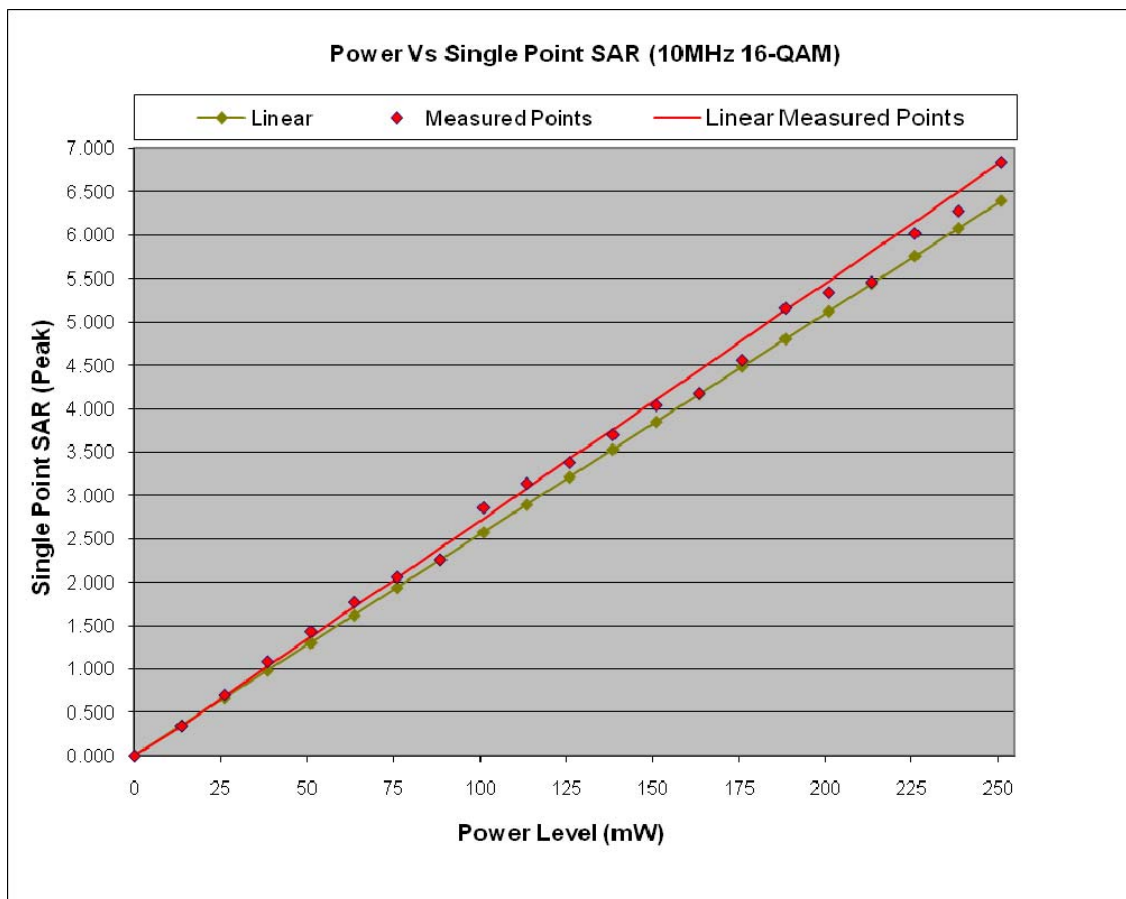
Power Level (mW)	13.5	26.0	38.5	51.0	63.5	76.0	88.5	101.0	113.5	126.0	138.5	151.0
Single Point Peak SAR(w/kg)	0.344	0.686	1.028	1.370	1.712	2.053	2.395	2.737	3.079	3.421	3.763	4.105
Linear Line	0.344	0.663	0.981	1.300	1.618	1.937	2.255	2.574	2.892	3.211	3.529	3.848
Estimation (%)	0.0	3.5	4.8	5.4	5.8	6.0	6.2	6.4	6.5	6.6	6.6	6.7

Table Continue

Power Level (mW)	163.5	176.0	188.5	201.0	213.5	226.0	238.5	251.0
Single Point Peak SAR(w/kg)	4.447	4.789	5.131	5.472	5.814	6.156	6.498	6.840
Linear Line	4.166	4.485	4.803	5.122	5.440	5.759	6.077	6.396
Estimation (%)	6.7	6.8	6.8	6.8	6.9	6.9	6.9	6.9

Note(s):

1. Single Point Peak SAR measurements were performed with the EUT at a separation distance of 0mm from the 'SAM' phantom flat section.
2. As per FCC KDB inquiry 602952 the power interval used was 12.5 mW up to the device maximum rated output power.
3. Appendix for photo setup



8. 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 measured (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-WiMAX 3700 Body Configuration 1g	95%	±20.80%

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.

8.1. Specific Absorption Rate- WiMAX 3700 MHz Body Configuration 1g

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	C _i (10g)	Standard Uncertainty		U _i or U _{eff}
							+ u (%)	- u (%)	
B	Probe calibration	6.550	6.550	normal (k=1)	1.0000	1.0000	6.550	6.550	∞
B	Axial Isotropy	0.250	0.250	normal (k=1)	1.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	1.300	1.300	normal (k=1)	1.0000	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	0.280	0.280	normal (k=1)	1.0000	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)	5.000	5.000	normal (k=1)	1.0000	0.6400	3.200	3.200	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	5.000	5.000	normal (k=1)	1.0000	0.6000	3.000	3.000	5
	Combined standard uncertainty			t-distribution			10.61	10.61	>250
	Expanded uncertainty			k = 1.96			20.80	20.80	>250

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	-
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 & Partner Engineering AG	Modification	SD 000 H01 DA	-	-
A1182	Handset Positioner	Schmid & Partner Engineering AG	V3.0	None	-	-
A1184	Data Acquisition Electronics	Schmid & Partner Engineering AG	DAE3	394	19 April 2010*	12
A1238	SAM Phantom	Schmid & Partner Engineering AG	SAM b	001	Calibrated before use	-
A1378	Probe	Schmid & Partner Engineering AG	EX3 DV3	3508	16 Sept 2010	12
A1961	3700 MHz Dipole Kit	Schmid & Partner Engineering AG	D3700V2	1003	14 Sept 2010	24
A1497	Amplifier	Mini-Circuits	zhl-42w (sma)	e020105	Calibrated as part of system	-
A1566	SAM Phantom	Schmid & Partner Engineering AG	SAM a	002	Calibrated before use	-
A1990	Digital Camera	Samsung	E515	A23WC90 8A05431K	-	-
A215	20 dB Attenuator	Narda	766-20	9402	Calibrated as part of system	-
A1531	Antenna	AARONIA AG	7025	02458	-	-
C1042	Network Analyzer Cable	Agilent	8120-4779	349	-	-
C1145	Cable	Rosenberger MICRO-COAX	FA147A F003003030	41843-1	Calibrated as part of system	-
C1146	Cable	Rosenberger MICRO-COAX	FA147A F030003030	41752-1	Calibrated as part of system	-

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
G0528	Robot Power Supply	Schmid & Partner Engineering AG	DASY4	None	Calibrated before use	-
G087	PSU	Thurlby Thandar	CPX200	100701	Calibrated before use	-
M1015	Network Analyser	Agilent Technologies	8753ES	US39172406	27 Sept 2010*	12
M1047	Robot Arm	Staubli	RX908 L	F00/SD8 9A1/A/01	Calibrated before use	-
M1159	Signal Generator	Agilent Technologies	E8241A	US42110332	Internal Checked 16 Aug 2010*	4
M1159	Signal Generator	Agilent Technologies	E8241A	US42110332	Internal Checked 15 Dec 2010*	4
M1071	Spectrum Analyzer	Agilent	HP8590E	3647U00514	(Monitoring use only)	-
M1270	Temperature/ Humidity/ Pressure Meter	RS Components	None	None	Internal Checked 31 March 2010*	12
S256	SAR Lab	RFI	Site 56	N/A	Calibrated before use	-
M1071	Spectrum Analyzer	Agilent	HP8590E	3647U00514	(Monitoring use only)	-
M1044	Diode Power Sensor	Rohde & Schwarz	NRV-Z1	893350/019	26 May 2010*	12
M265	Diode Power Sensor	Rohde & Schwarz	NRV-Z1	893350/017	26 May 2010*	12
M263	Dual Channel Power Meter	Rohde & Schwarz	NRVD	826558/004	27 May 2010*	12

*Note: All the assets were in calibration all time during the course of testing.

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.



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Accreditation No.: **SCS 108**

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Client

RFI

Certificate No: **EX3-3508_Jul11**

CALIBRATION CERTIFICATE

Object

EX3DV3 - SN:3508

Calibration procedure(s)

**QA CAL-01.v8, QA CAL-12.v7, QA CAL-14.v3, QA CAL-23.v4,
QA CAL-25.v4
Calibration procedure for dosimetric E-field probes**

Calibration date:

July 21, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: July 21, 2011

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Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
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:

- 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
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,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.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}**: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,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
Calibrated: July 21, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: EX3DV3 - SN:3508

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.73	0.67	0.47	$\pm 10.1 \%$
DCP (mV) ^B	102.3	101.7	104.7	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^E (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	112.7	$\pm 2.2 \%$
			Y	0.00	0.00	1.00	90.4	
			Z	0.00	0.00	1.00	86.7	

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 Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV3 - SN:3508

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	43.5	0.87	10.63	10.63	10.63	0.10	1.10	± 13.4 %
750	41.9	0.89	10.64	10.64	10.64	0.53	0.72	± 12.0 %
900	41.5	0.97	10.07	10.07	10.07	0.66	0.63	± 12.0 %
1750	40.1	1.37	9.10	9.10	9.10	0.67	0.58	± 12.0 %
1900	40.0	1.40	8.76	8.76	8.76	0.68	0.57	± 12.0 %
2450	39.2	1.80	7.82	7.82	7.82	0.54	0.66	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: EX3DV3- SN:3508

Calibration Parameter Determined in Body Tissue Simulating Media

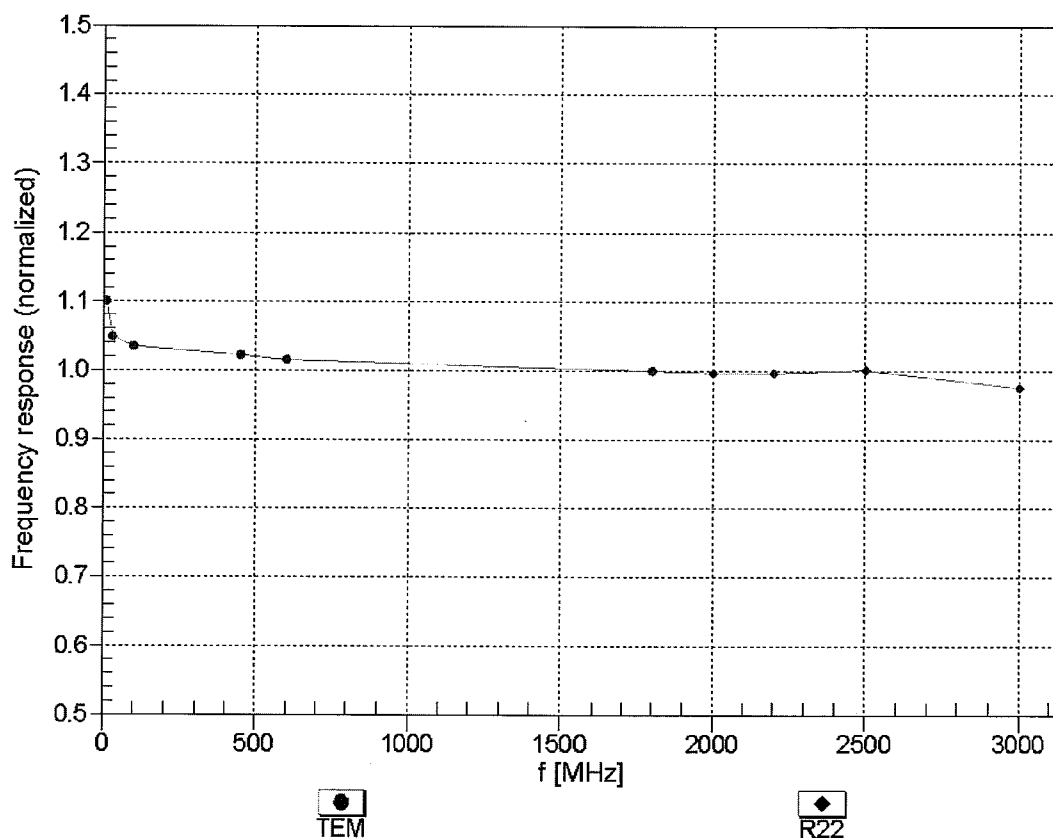
f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	56.7	0.94	11.56	11.56	11.56	0.05	1.10	± 13.4 %
750	55.5	0.96	10.63	10.63	10.63	0.56	0.75	± 12.0 %
900	55.0	1.05	10.33	10.33	10.33	0.80	0.57	± 12.0 %
1750	53.4	1.49	8.78	8.78	8.78	0.72	0.60	± 12.0 %
1900	53.3	1.52	8.14	8.14	8.14	0.78	0.57	± 12.0 %
2150	53.1	1.66	8.16	8.16	8.16	0.71	0.57	± 12.0 %
2450	52.7	1.95	7.64	7.64	7.64	0.80	0.51	± 12.0 %
2600	52.5	2.16	7.55	7.55	7.55	0.80	0.50	± 12.0 %
3700	51.0	3.55	6.76	6.76	6.76	0.25	1.662	± 13.1 %
5200	49.0	5.30	4.29	4.29	4.29	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.70	3.70	3.70	0.55	1.90	± 13.1 %
5800	48.2	6.00	3.78	3.78	3.78	0.55	1.90	± 13.1 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Frequency Response of E-Field

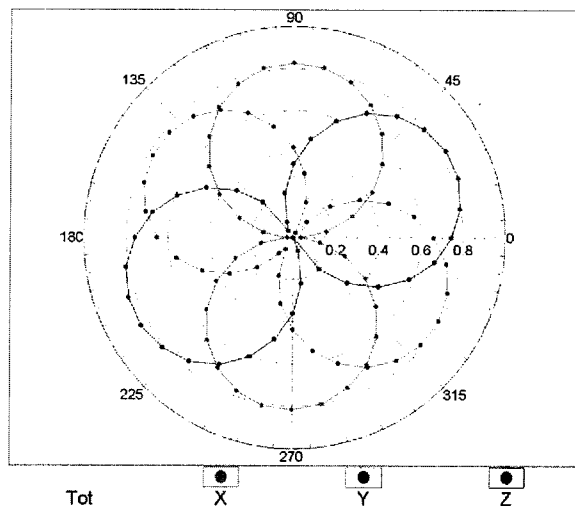
(TEM-Cell:ifi110 EXX, Waveguide: R22)



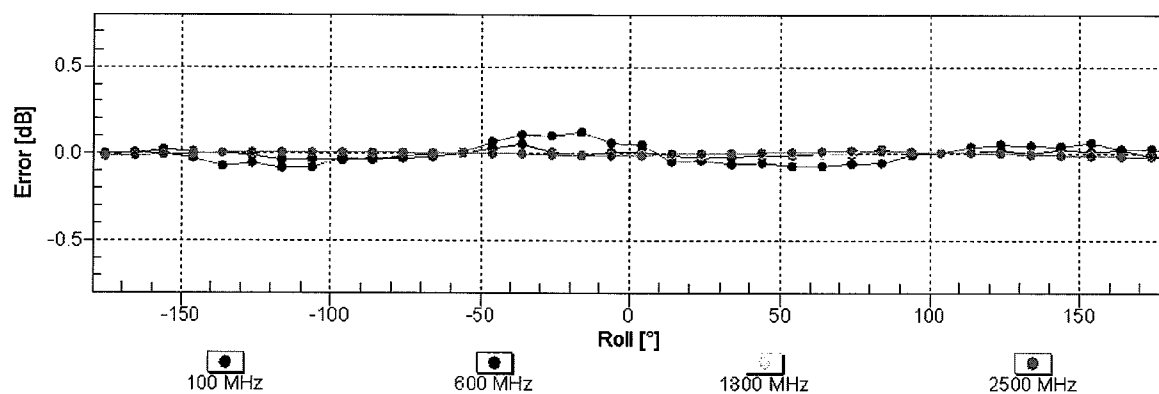
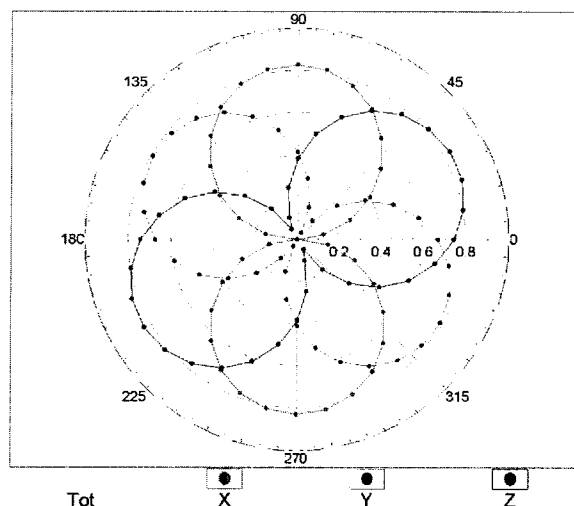
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

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

f=600 MHz,TEM

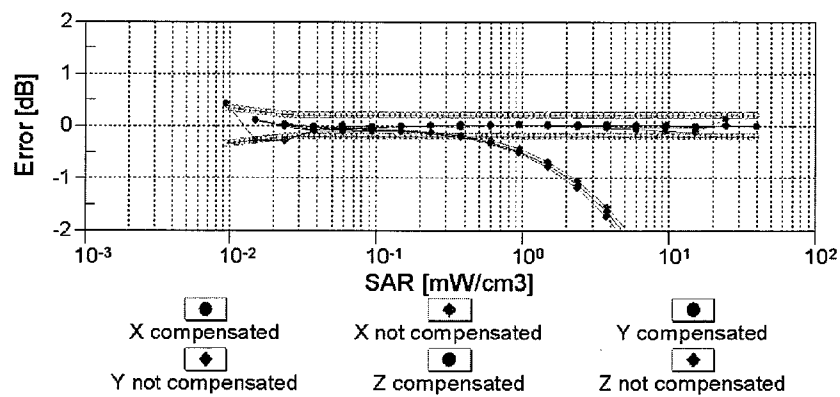
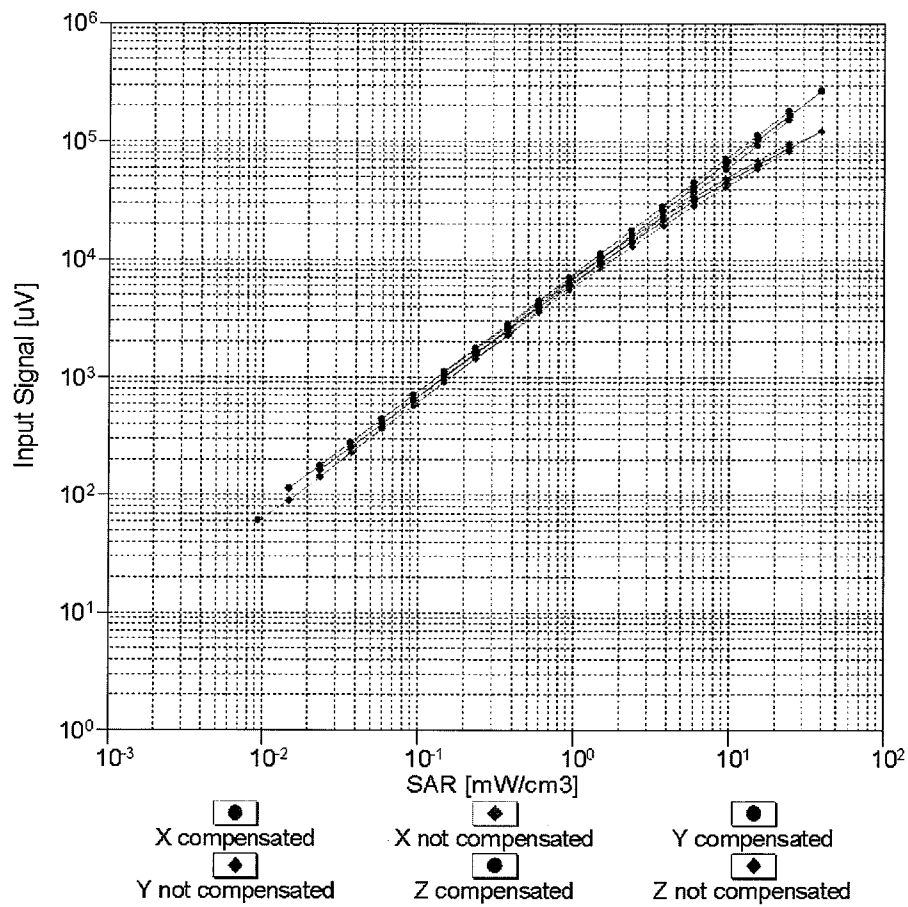


f=1800 MHz,R22



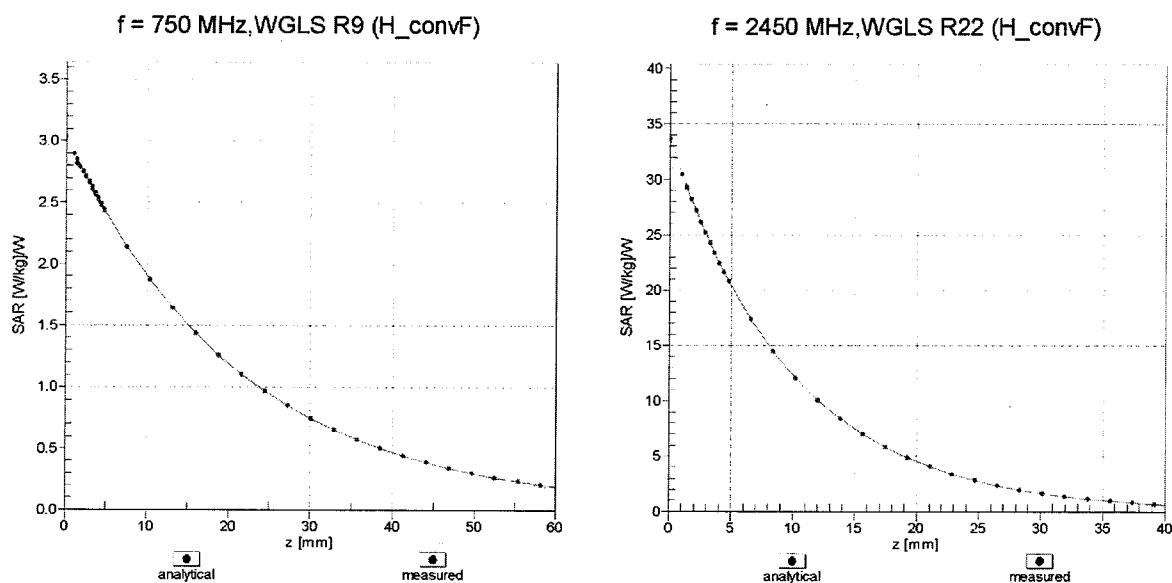
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell , $f = 900 \text{ MHz}$)



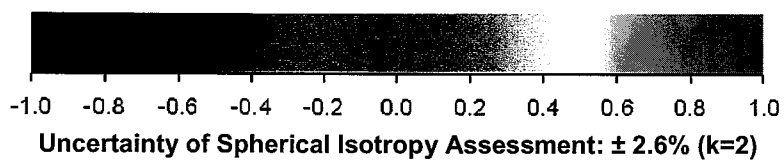
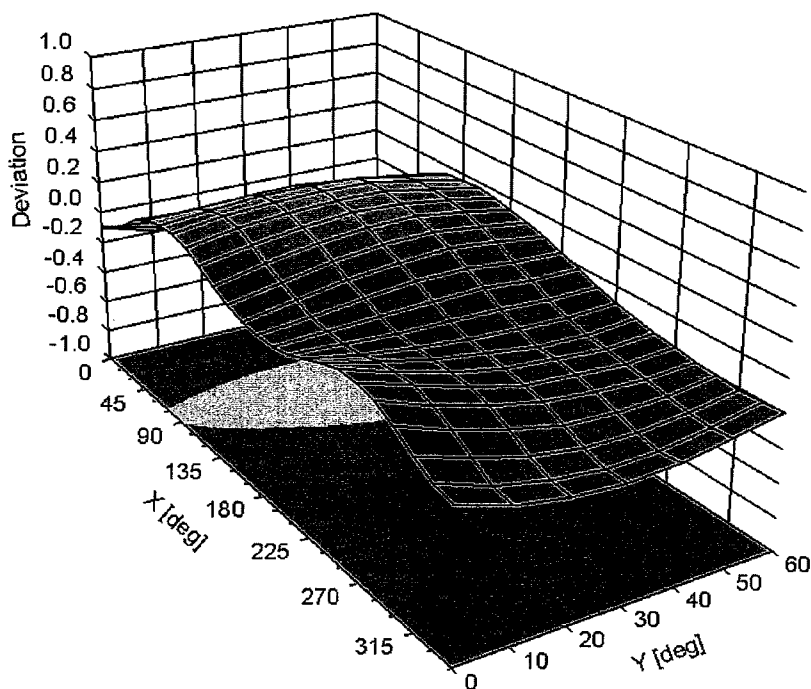
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ , θ), $f = 900 \text{ MHz}$



DASY/EASY - Parameters of Probe: EX3DV3 - SN:3508

Other Probe Parameters

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



07-2011
 Checked by [Signature]
 2011 [Signature]

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Accreditation No.: **SCS 108**

Client **RFI**

Certificate No: **D3700V2-1003_Sep11**

CALIBRATION CERTIFICATE

Object **D3700V2 - SN: 1003**

Calibration procedure(s) **QA CAL-22.v1**
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: **September 22, 2011**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe EX3DV4	SN: 3503	04-Mar-11 (No. EX3-3503_Mar11)	Mar-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Claudio Leubler** **Laboratory Technician** **[Signature]**

Approved by: **Katja Pokovic** **Technical Manager** **[Signature]**

Issued: September 23, 2011

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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.3 mm, dz = 3 mm	
Frequency	3700 MHz $\pm$ 1 MHz	

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	51.0	3.55 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	50.7 $\pm$ 6 %	3.59 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	6.35 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	63.3 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.28 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	22.8 mW / g $\pm$ 16.5 % (k=2)

Appendix

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.4 Ω - 5.4 j Ω
Return Loss	- 25.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.133 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 01, 2005

DASY5 Validation Report for Body TSL

Date: 22.09.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 - SN: 1003

Communication System: CW; Frequency: 3700 MHz

Medium parameters used: $f = 3700$ MHz; $\sigma = 3.59$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(6.81, 6.81, 6.81); Calibrated: 04.03.2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

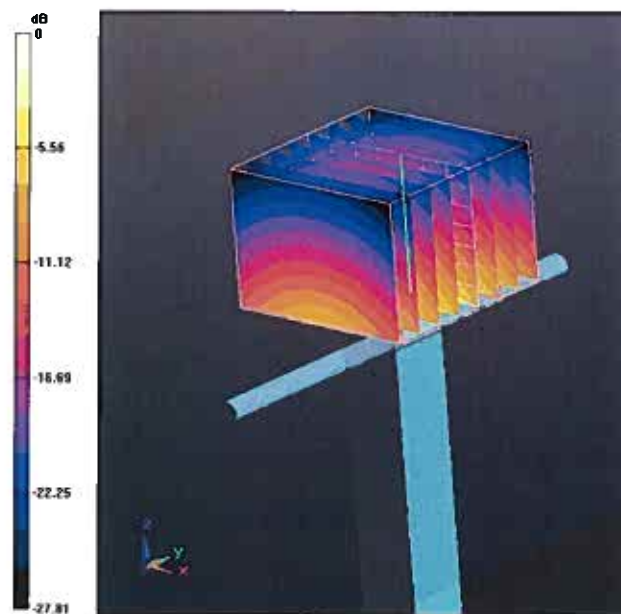
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm/Zoom Scan, dist=2.5mm (8x8x8)/Cube 0: Measurement grid: $dx=4.3$ mm, $dy=4.3$ mm, $dz=3$ mm

Reference Value = 54.453 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 17.375 W/kg

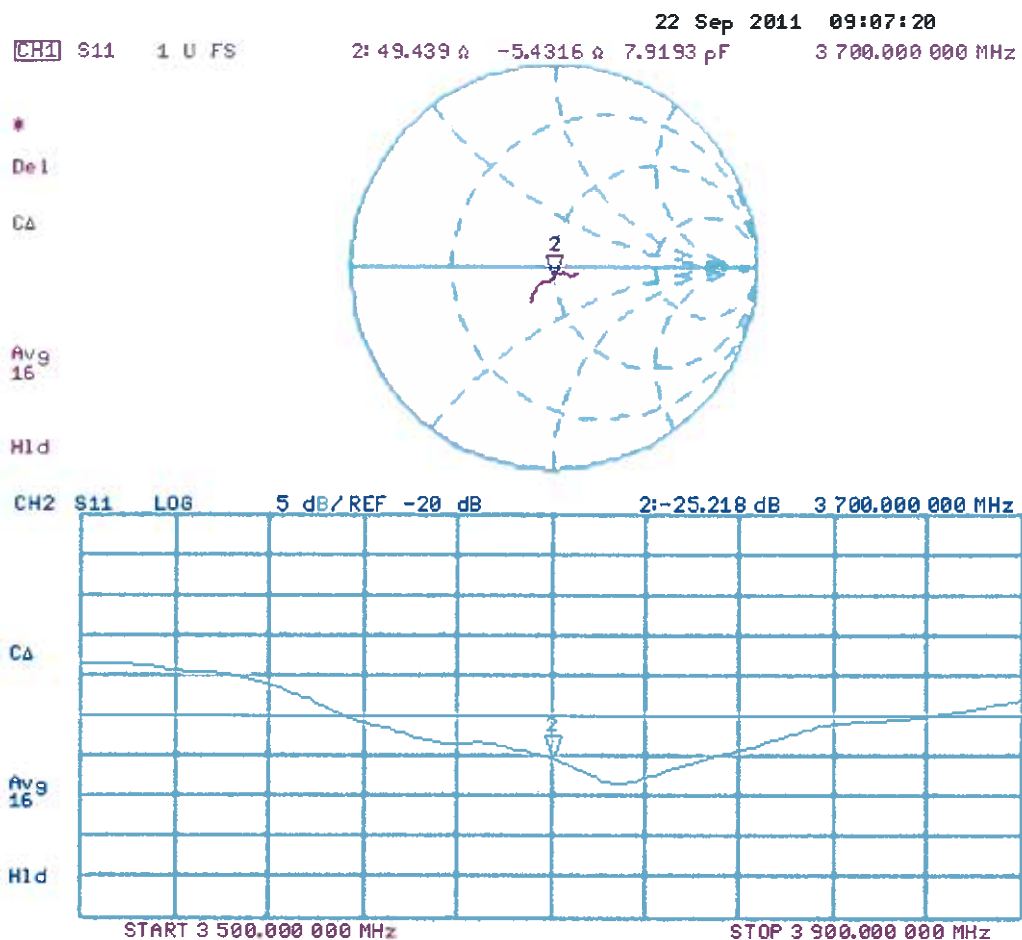
SAR(1 g) = 6.35 mW/g; SAR(10 g) = 2.28 mW/g

Maximum value of SAR (measured) = 9.704 mW/g



0 dB = 9.700mW/g

Impedance Measurement Plot for Body TSL



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 where 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 7x7x7 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, IEEE 1528 and FCC KDB procedures, against appropriate limits for each measurement position in accordance with the standard. In some cases the FCC was contacted using a PBA or KDB process to ensure test is performed correctly.

The test was performed in a shielded enclosure with the temperature controlled to remain between +18.0°C and +25.0°C. The tissue equivalent material fluid temperature was controlled to give a maximum variation of $\pm 2.0^{\circ}\text{C}$

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 and FCC KDB publication 450824.

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 7x7x7 cube of 343 points (5 mm spacing in each axis $\approx 27\text{g}$) 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 7x7x7 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/79027JD01/001	Horizontal-Up EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18dBm
SCN/79027JD01/002	Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18dBm
SCN/79027JD01/003	Vertical- Front EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18 dBm
SCN/79027JD01/004	Vertical- Back EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18 dBm
SCN/79027JD01/005	Top or Tip EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18 dBm
SCN/79027JD01/006	Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3652.5 MHz 18dBm
SCN/79027JD01/007	Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3697.5 MHz 18dBm
SCN/79027JD01/008	Horizontal-Up EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18dBm
SCN/79027JD01/009	Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18dBm
SCN/79027JD01/010	Vertical- Front EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18 dBm
SCN/79027JD01/011	Vertical- Back EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18 dBm
SCN/79027JD01/012	Top or Tip EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18 dBm
SCN/79027JD01/013	Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3652.5 MHz 18dBm
SCN/79027JD01/014	Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3697.5 MHz 18dBm
SCN/79027JD01/015	Horizontal-Up EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18dBm
SCN/79027JD01/016	Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18dBm
SCN/79027JD01/017	Vertical- Front EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18 dBm
SCN/79027JD01/018	Vertical- Back EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18 dBm

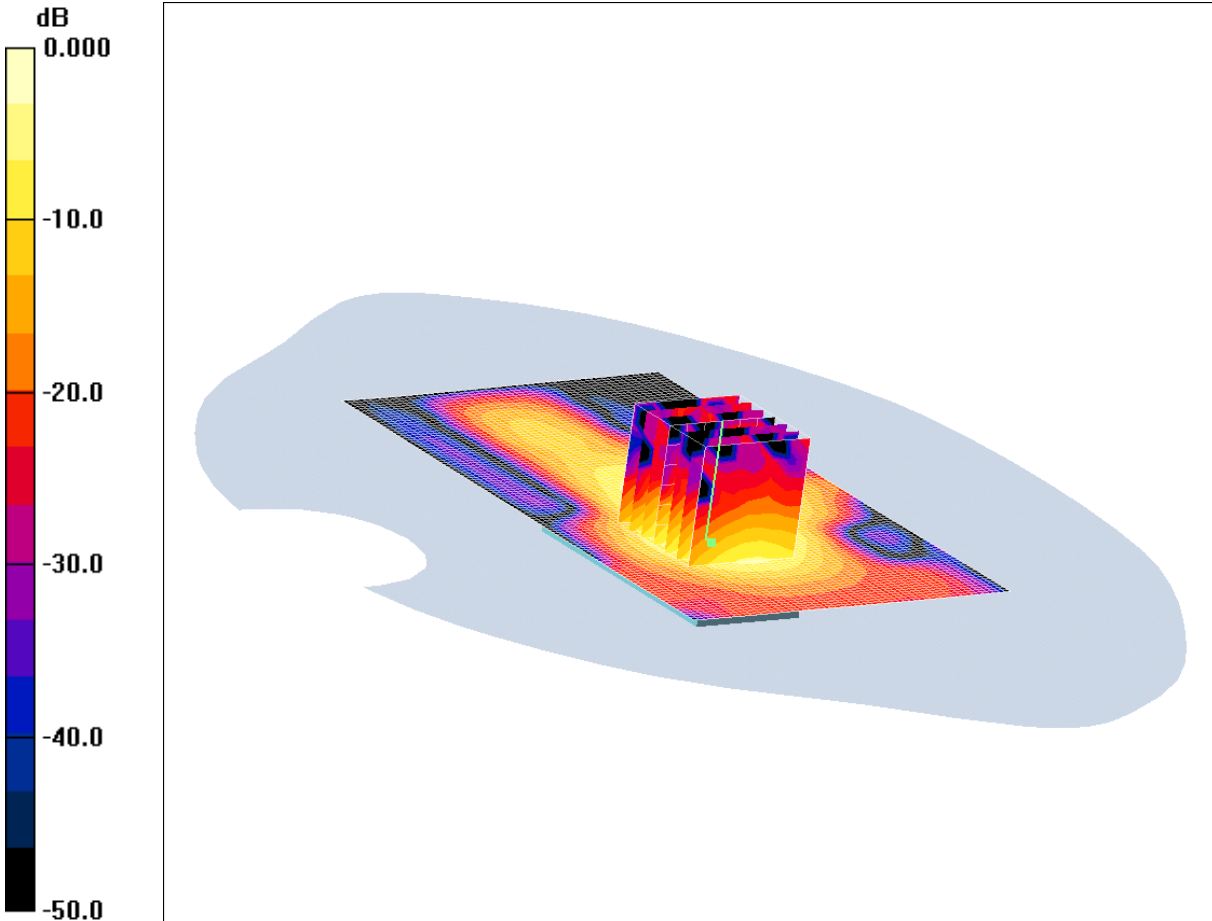
Scan Reference Number	Title
SCN/79027JD01/019	Top or Tip EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18 dBm
SCN/79027JD01/020	Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3655 MHz 18dBm
SCN/79027JD01/021	Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3695 MHz 18dBm
SCN/79027JD01/022	Horizontal-Up EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz 18dBm
SCN/79027JD01/023	Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz 18dBm
SCN/79027JD01/024	Vertical- Front EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz 18 dBm
SCN/79027JD01/025	Vertical- Back EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz 18 dBm
SCN/79027JD01/026	Top or Tip EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz 18 dBm
SCN/79027JD01/027	Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3655 MHz 18dBm
SCN/79027JD01/028	Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3695 MHz 18dBm
SCN/79027JD01/029	System Performance Check 3700 MHz Body 10 11 10
SCN/79027JD01/030	System Performance Check 3700 MHz Body 01 12 10
SCN/79027JD01/031	System Performance Check 3700 MHz Body 03 12 10
SCN/79027JD01/032	System Performance Check 3700 MHz Body 06 12 10
SCN/79027JD01/033	System Performance Check 3700 MHz Body 07 12 10
SCN/79027JD01/034	System Performance Check 3700 MHz Body 18 01 11
SCN/79027JD01/035	System Performance Check 3700 MHz Body 19 01 11

SCN/79027JD01/001: Horizontal-Up EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18dBm

Date 10/11/2010

DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.318mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3600 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.69$ mho/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Up EUT Facing Phantom - Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.384 mW/g

Horizontal- Up EUT Facing Phantom - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

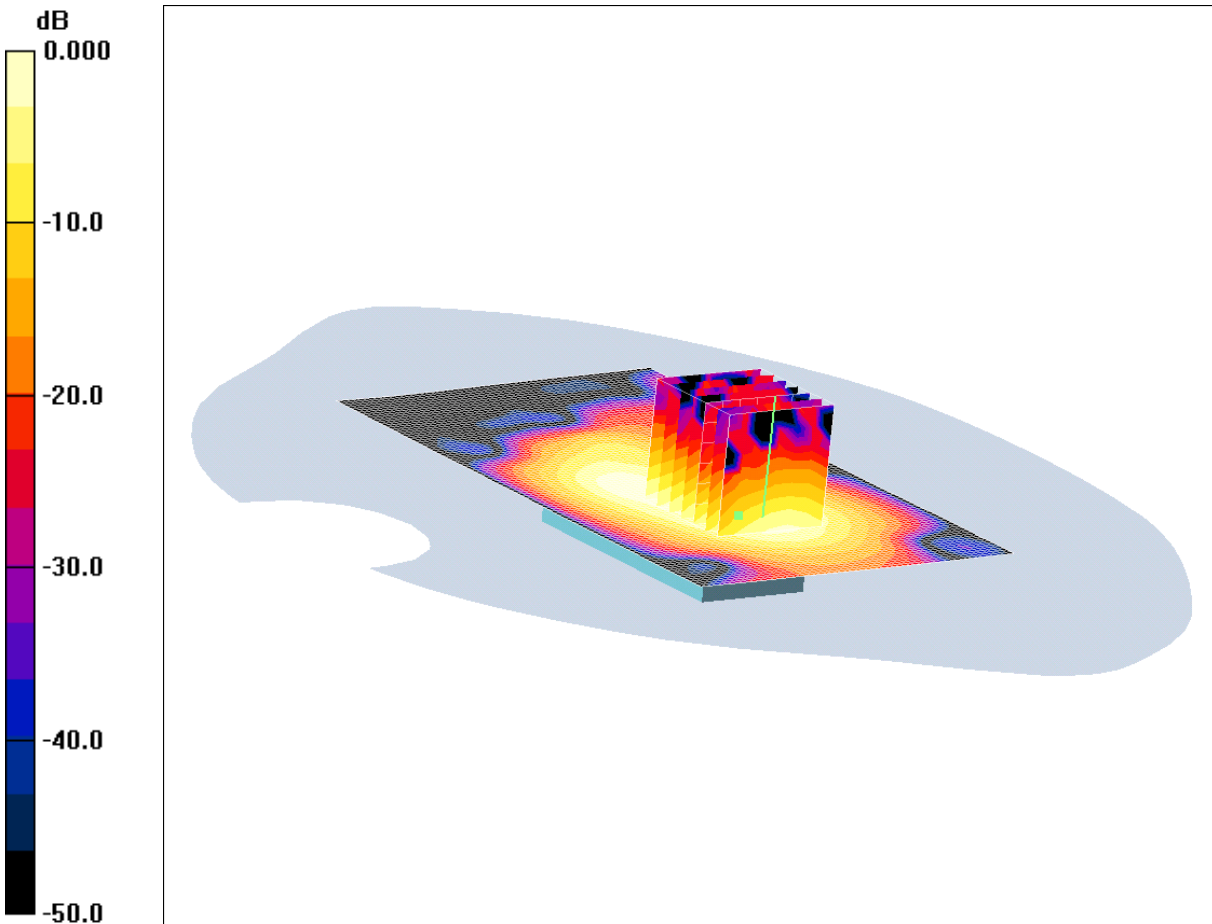
Reference Value = 8.26 V/m; Power Drift = 0.228 dB

Peak SAR (extrapolated) = 0.881 W/kg

SAR(1 g) = 0.292 mW/g; SAR(10 g) = 0.111 mW/g

Maximum value of SAR (measured) = 0.318 mW/g

SCN/79027JD01/002: Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18dBm
 Date 10/11/2010
 DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
 Serial: C00E30



0 dB = 0.326mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3600 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.69$ mho/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom - Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.325 mW/g

Horizontal- Down EUT Facing Phantom - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.40 V/m; Power Drift = 0.019 dB

Peak SAR (extrapolated) = 0.905 W/kg

SAR(1 g) = 0.318 mW/g; SAR(10 g) = 0.132 mW/g

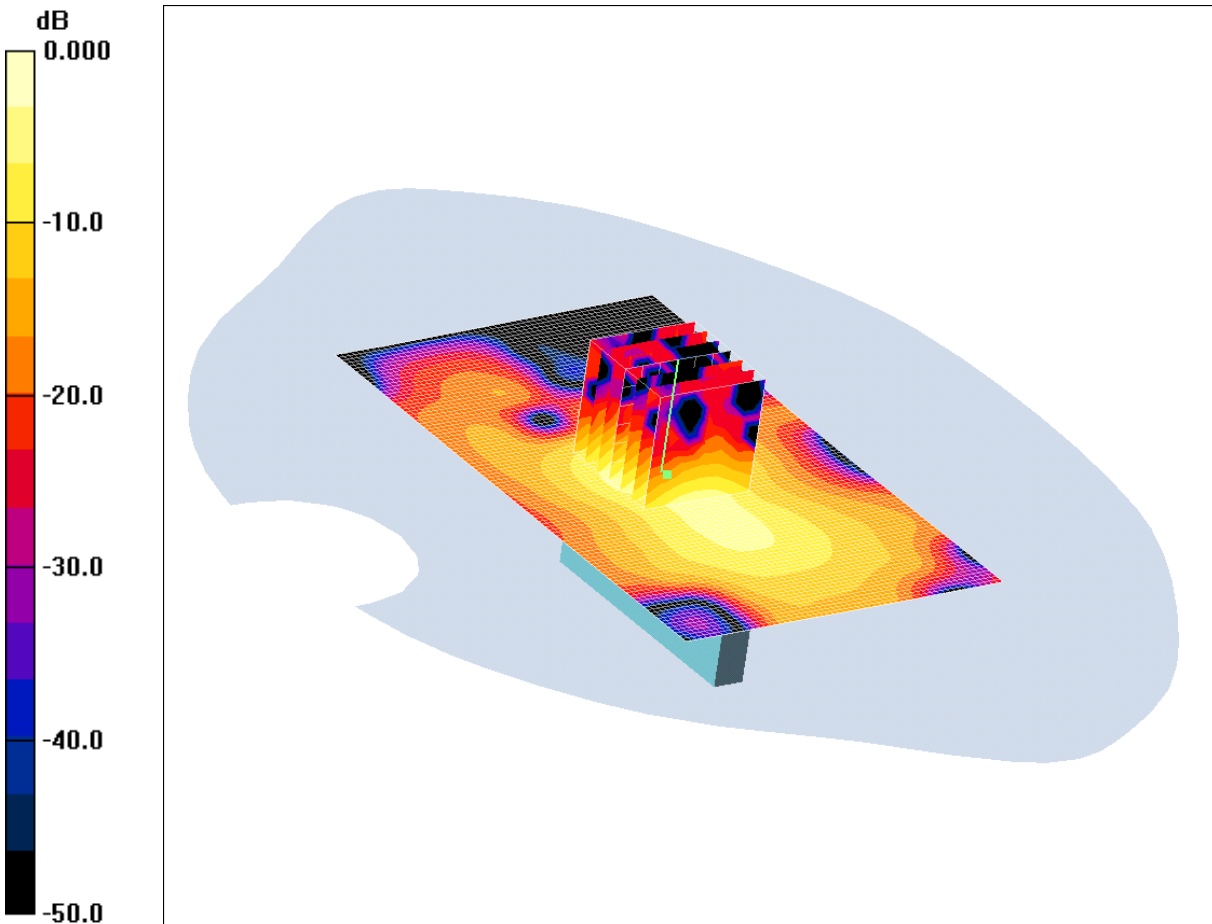
Maximum value of SAR (measured) = 0.326 mW/g

SCN/79027JD01/003: Vertical- Front EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18 dBm

Date 10/11/2010

DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.238mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3600 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.69$ mho/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Vertical-Front EUT Facing Phantom - Middle/Area Scan (61x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.220 mW/g

Vertical-Front EUT Facing Phantom - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.69 V/m; Power Drift = -0.203 dB

Peak SAR (extrapolated) = 0.584 W/kg

SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.074 mW/g

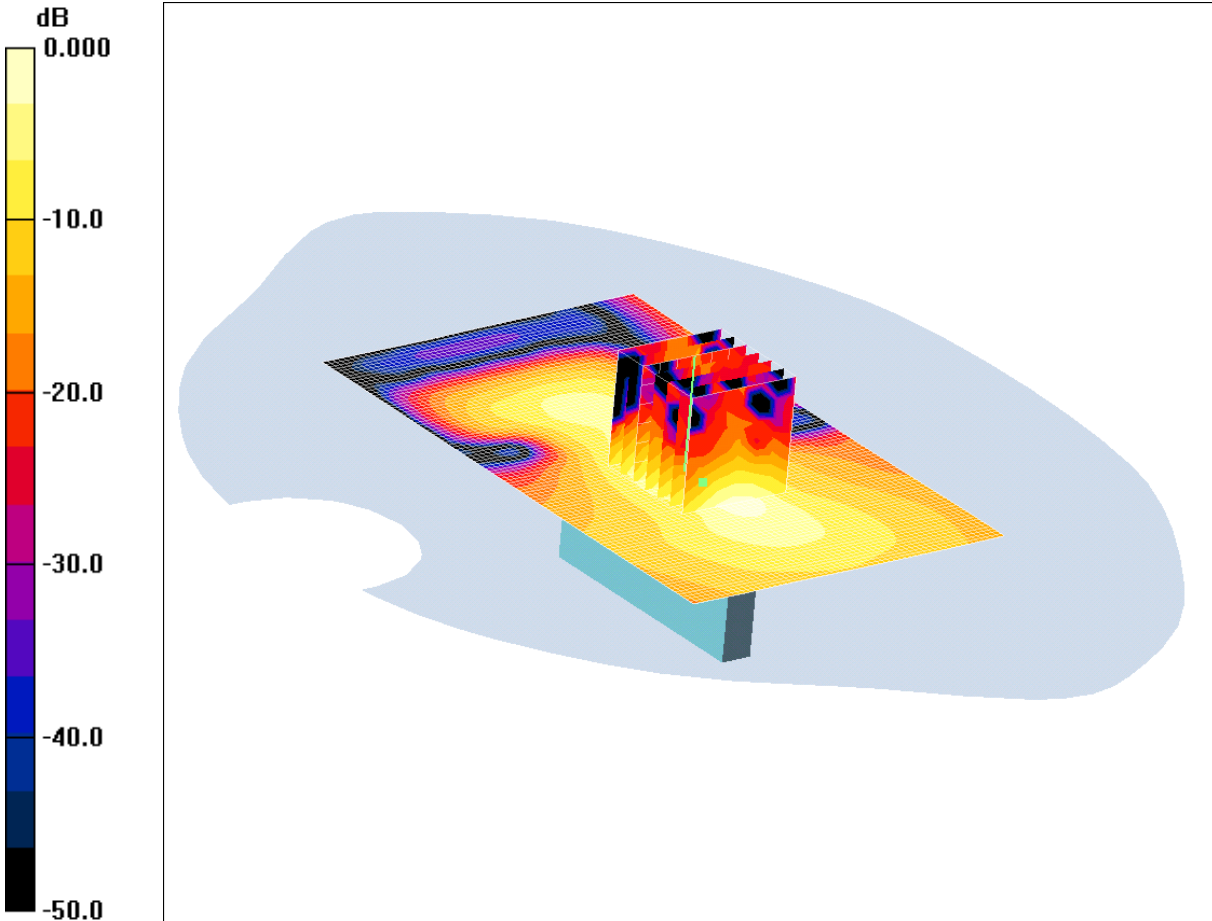
Maximum value of SAR (measured) = 0.238 mW/g

SCN/79027JD01/004: Vertical- Back EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18 dBm

Date 10/11/2010

DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.153mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3600 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.69$ mho/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Vertical- Back EUT Facing Phantom - Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.143 mW/g

Vertical- Back EUT Facing Phantom - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.82 V/m; Power Drift = 0.180 dB

Peak SAR (extrapolated) = 0.398 W/kg

SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.049 mW/g

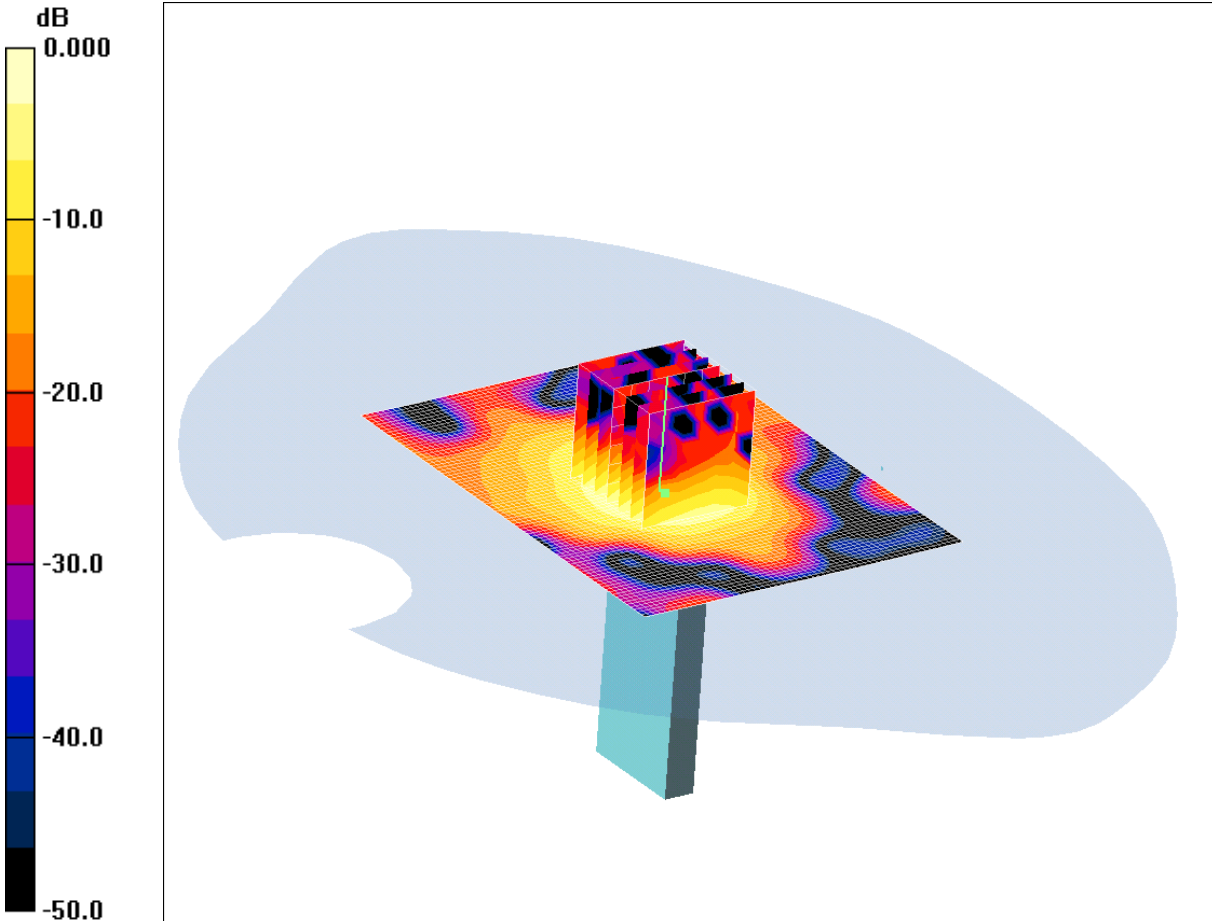
Maximum value of SAR (measured) = 0.153 mW/g

SCN/79027JD01/005: Top or Tip EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3675 MHz 18 dBm

Date 10/11/2010

DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.210mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3600 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.69$ mho/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Top or Tip EUT Facing Phantom - Middle/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.181 mW/g

Top or Tip EUT Facing Phantom - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

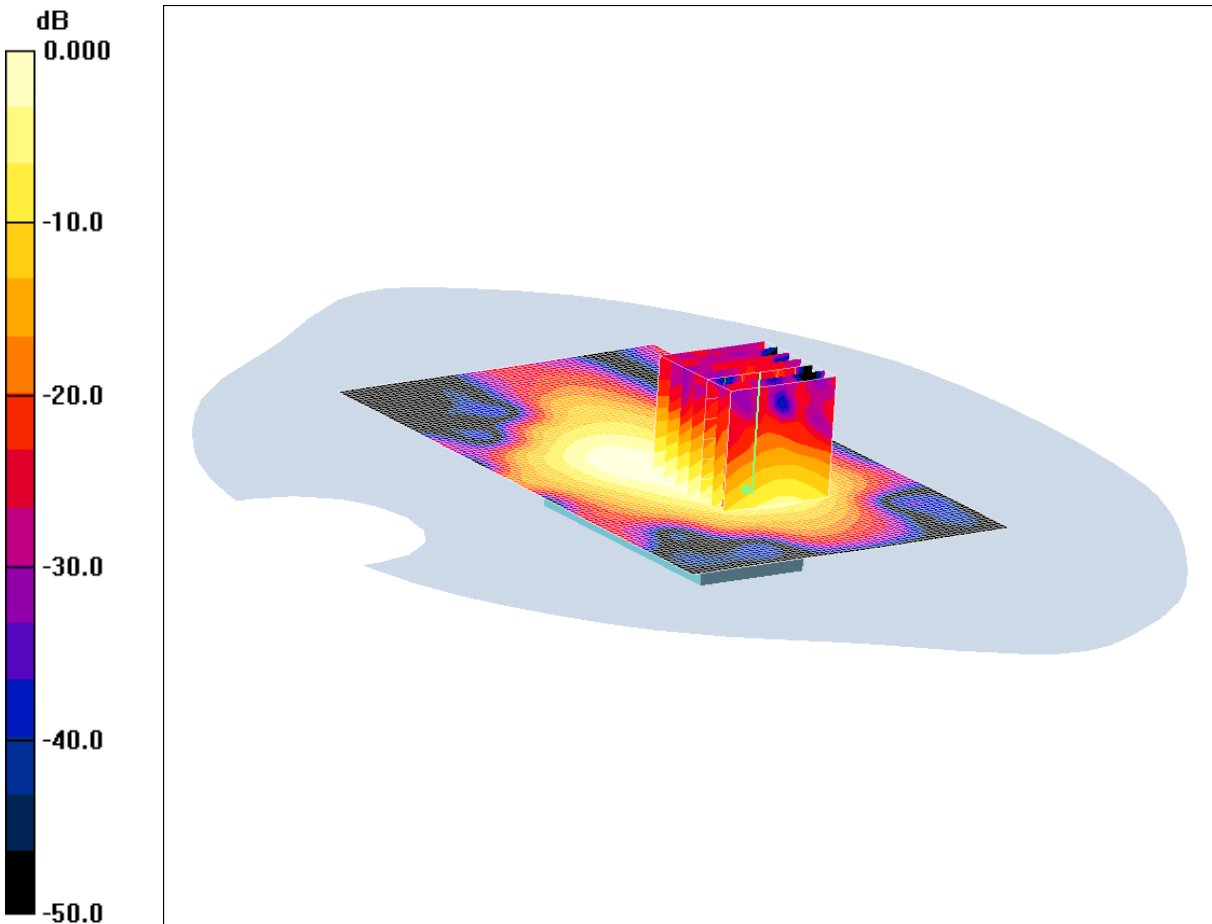
Reference Value = 6.64 V/m; Power Drift = 0.094 dB

Peak SAR (extrapolated) = 0.534 W/kg

SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.071 mW/g

Maximum value of SAR (measured) = 0.210 mW/g

SCN/79027JD01/006: Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3652.5 MHz 18dBm
 Date 06/12/2010
 DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
 Serial: C00E30



0 dB = 0.344mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3652.5 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3652.5$ MHz; $\sigma = 3.63$ mho/m; $\epsilon_r = 49.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom - Low/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.437 mW/g

Horizontal- Down EUT Facing Phantom - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

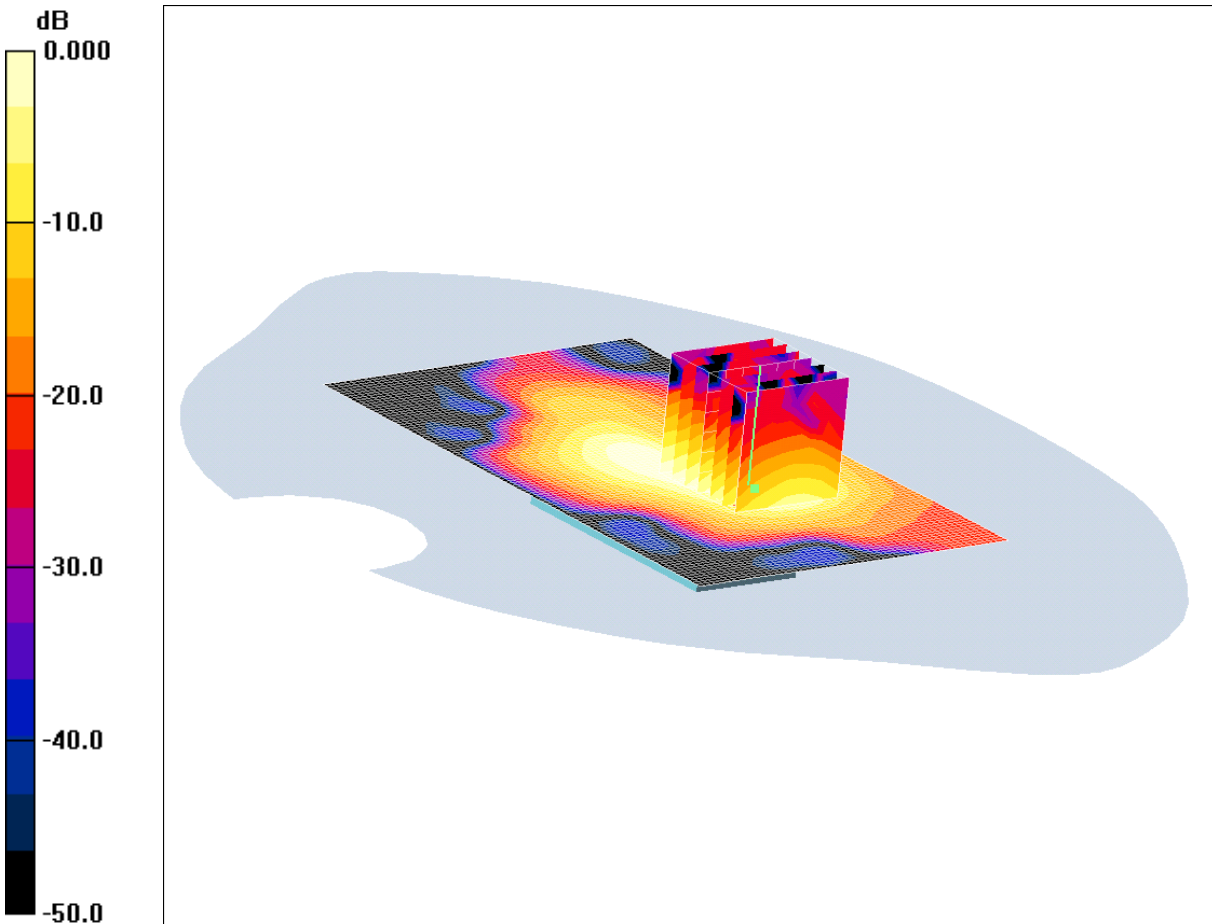
Reference Value = 7.20 V/m; Power Drift = 0.121 dB

Peak SAR (extrapolated) = 0.924 W/kg

SAR(1 g) = 0.333 mW/g; SAR(10 g) = 0.140 mW/g

Maximum value of SAR (measured) = 0.344 mW/g

SCN/79027JD01/007: Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 5MHz BW 3697.5 MHz 18dBm
 Date 06/12/2010
 DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
 Serial: C00E30



0 dB = 0.388mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3697.5 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3697.5$ MHz; $\sigma = 3.7$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom - High/Area Scan (61x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.462 mW/g

Horizontal- Down EUT Facing Phantom - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.98 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.380 mW/g; SAR(10 g) = 0.161 mW/g

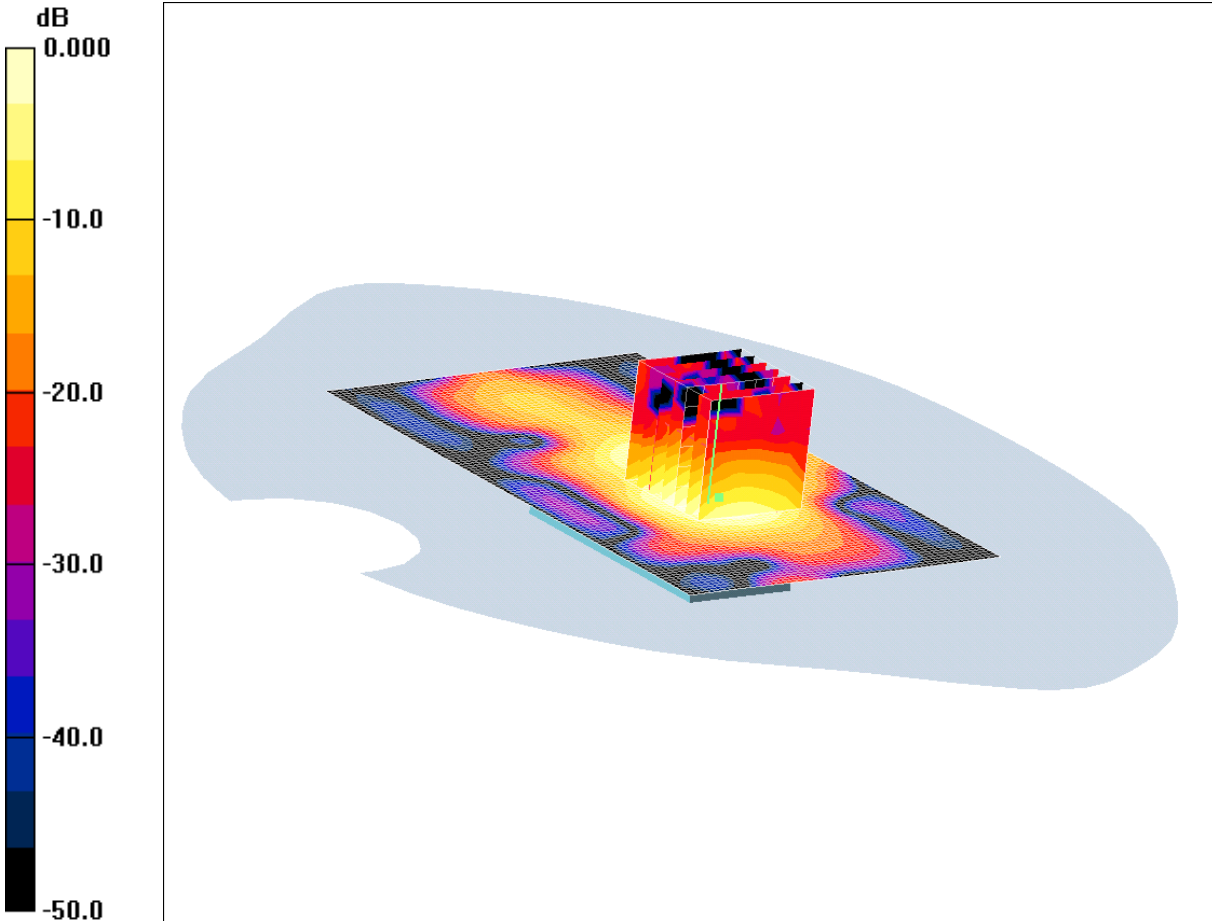
Maximum value of SAR (measured) = 0.388 mW/g

SCN/79027JD01/008: Horizontal-Up EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18dBm

Date 01/12/2010

DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.316mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.68$ mho/m; $\epsilon_r = 48.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Up EUT Facing Phantom - Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

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

Horizontal- Up EUT Facing Phantom - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

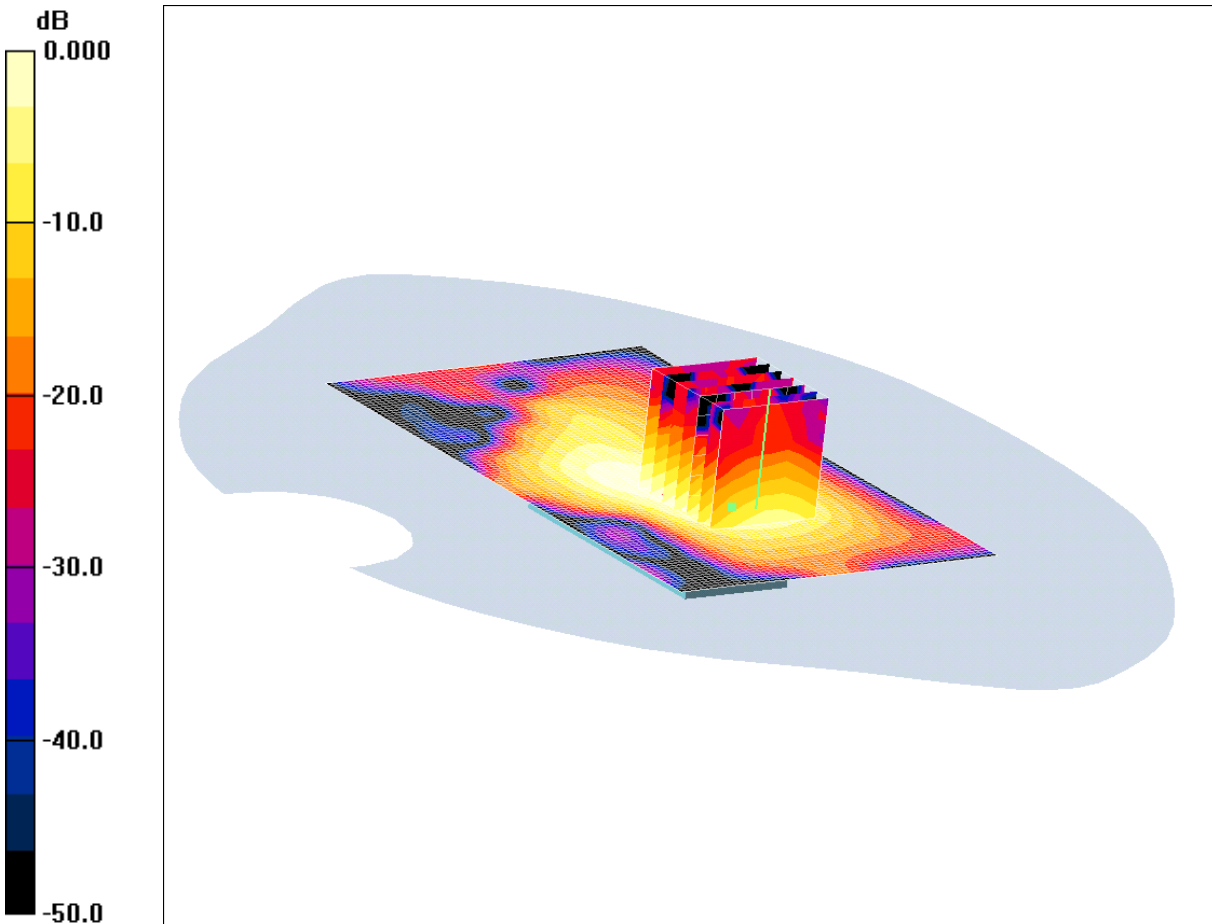
Reference Value = 5.15 V/m; Power Drift = -0.411 dB

Peak SAR (extrapolated) = 0.868 W/kg

SAR(1 g) = 0.290 mW/g; SAR(10 g) = 0.110 mW/g

Maximum value of SAR (measured) = 0.316 mW/g

SCN/79027JD01/009: Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18dBm
 Date 06/12/2010
 DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
 Serial: C00E30



0 dB = 0.319mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.66$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom - Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.373 mW/g

Horizontal- Down EUT Facing Phantom - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

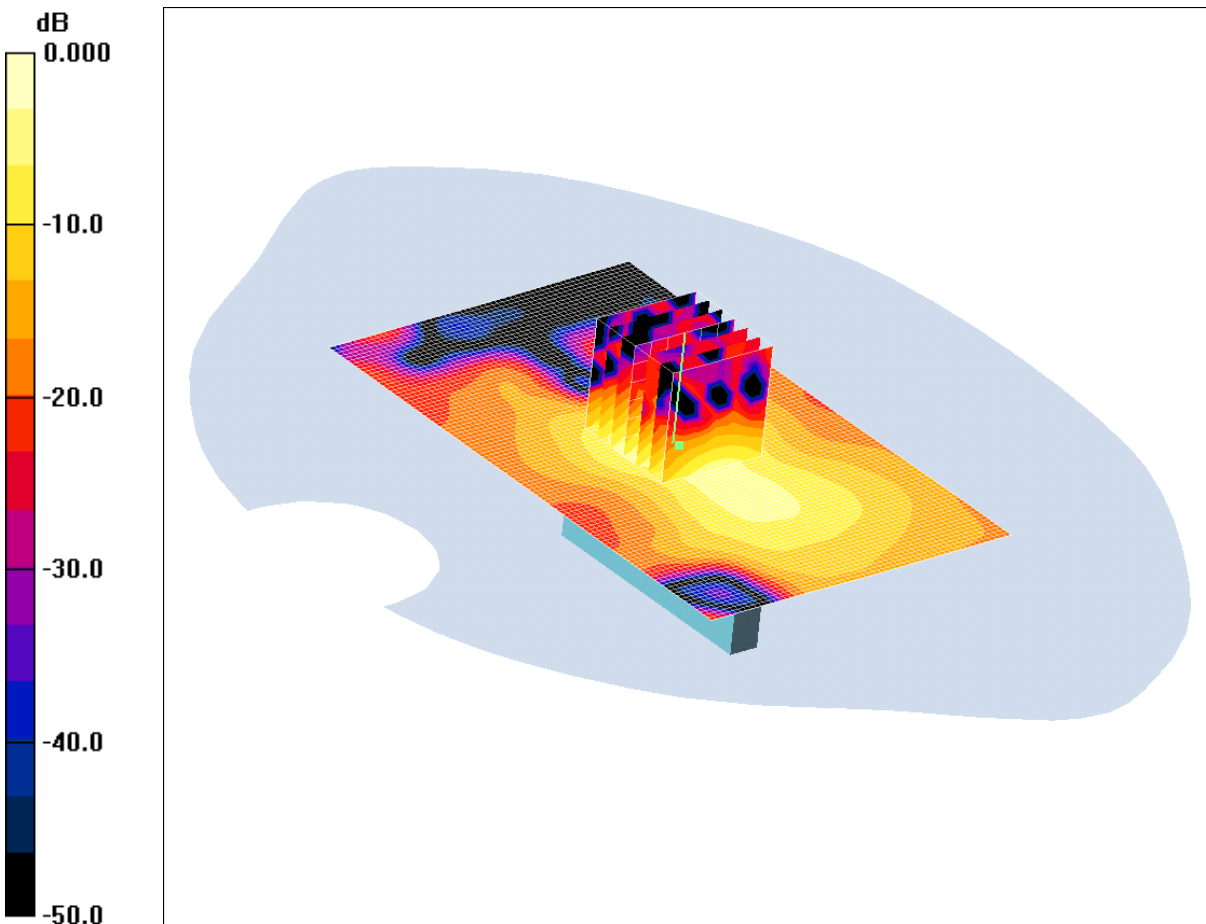
Reference Value = 6.63 V/m; Power Drift = 0.068 dB

Peak SAR (extrapolated) = 0.830 W/kg

SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.131 mW/g

Maximum value of SAR (measured) = 0.319 mW/g

SCN/79027JD01/010: Vertical- Front EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18 dBm
 Date 01/12/2010
 DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
 Serial: C00E30



0 dB = 0.248mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.68$ mho/m; $\epsilon_r = 48.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Vertical-Front EUT Facing Phantom - Middle 2/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.255 mW/g

Vertical-Front EUT Facing Phantom - Middle 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

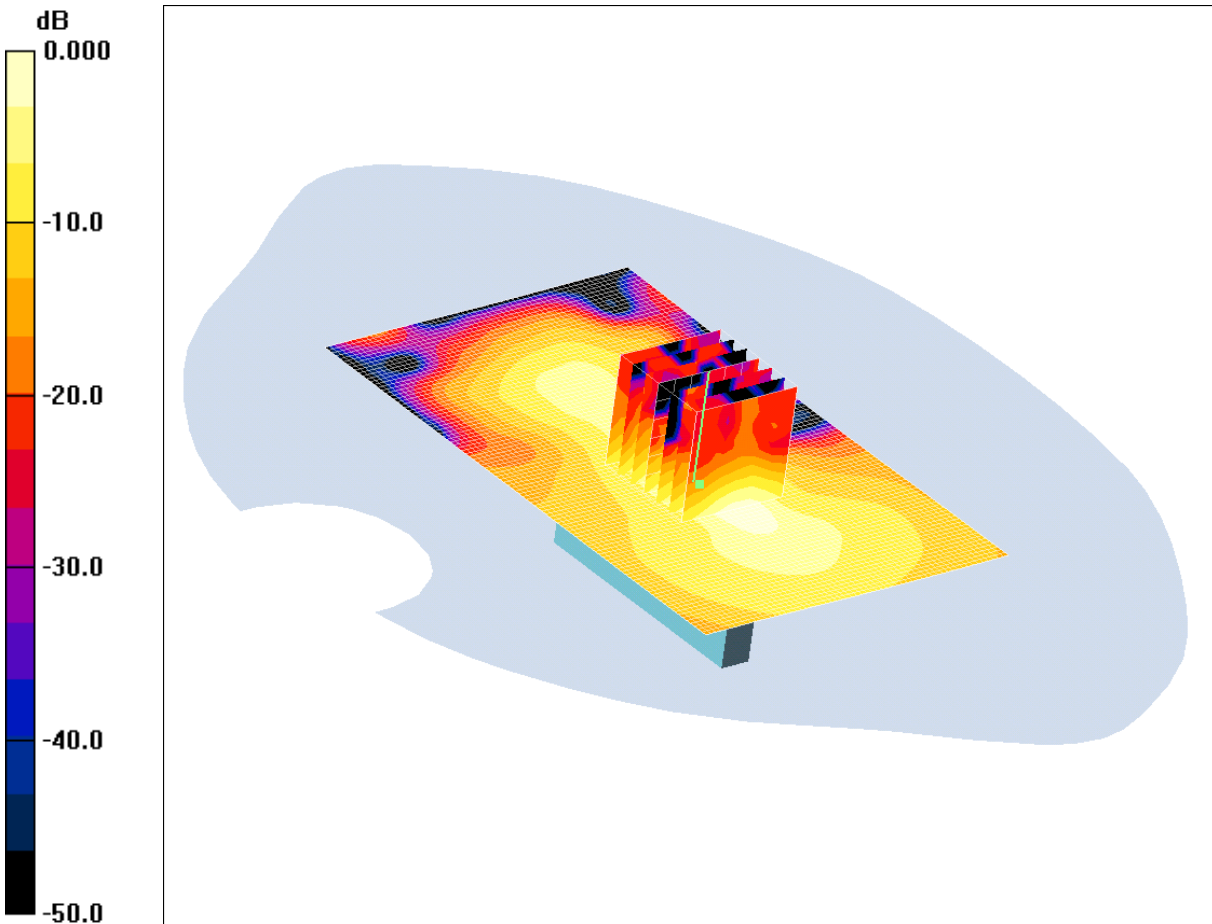
Reference Value = 7.93 V/m; Power Drift = 0.413 dB

Peak SAR (extrapolated) = 0.625 W/kg

SAR(1 g) = 0.224 mW/g; SAR(10 g) = 0.082 mW/g

Maximum value of SAR (measured) = 0.248 mW/g

SCN/79027JD01/011: Vertical- Back EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18 dBm
 Date 06/12/2010
 DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
 Serial: C00E30



0 dB = 0.124mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.66$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Vertical-Back EUT Facing Phantom - Middle /Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.129 mW/g

Vertical-Back EUT Facing Phantom - Middle /Zoom Scan (7x7x7) 2 (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.97 V/m; Power Drift = 0.259 dB

Peak SAR (extrapolated) = 0.309 W/kg

SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.042 mW/g

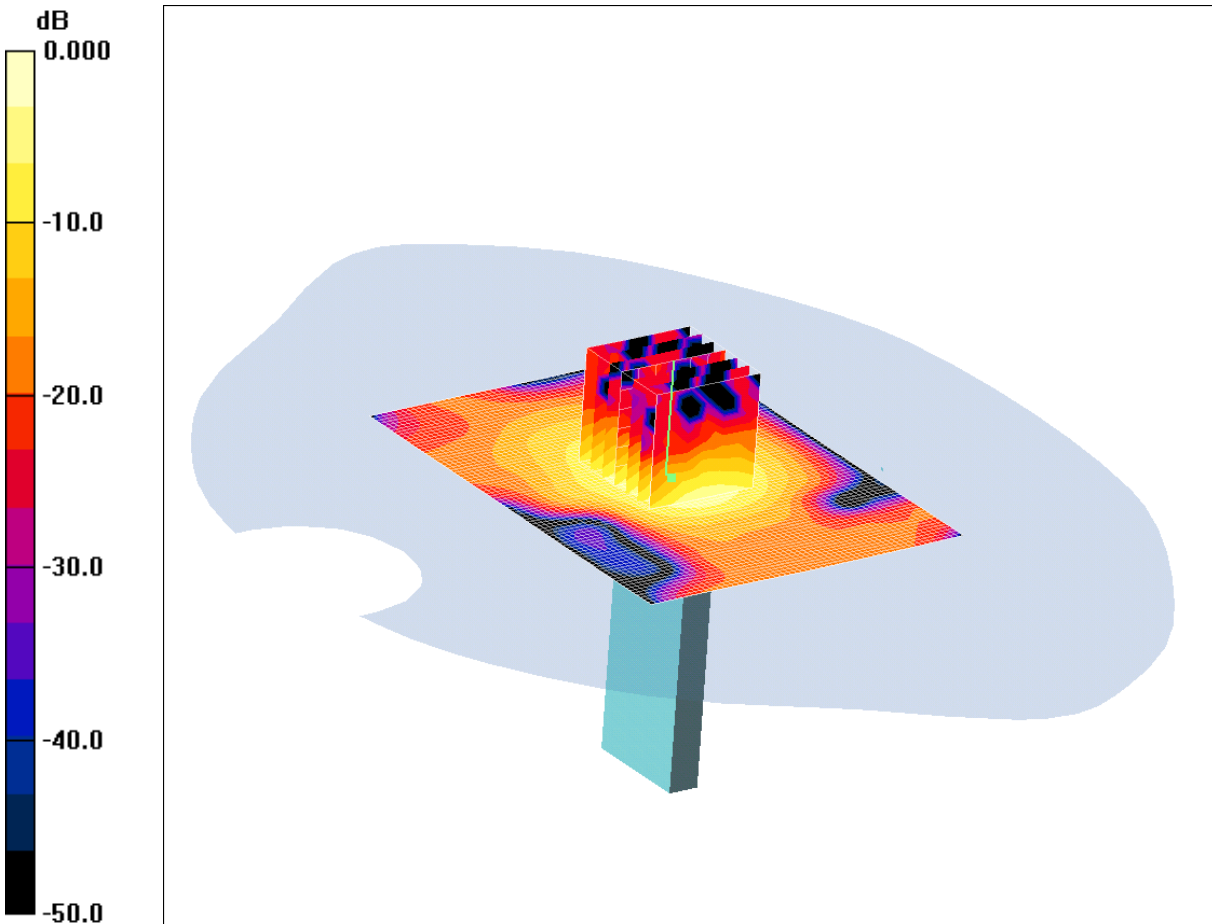
Maximum value of SAR (measured) = 0.124 mW/g

SCN/79027JD01/012: Top or Tip EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3675 MHz 18 dBm

Date 03/12/2010

DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.233mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.54$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Top or Tip EUT Facing Phantom - Middle/Area Scan (61x81x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.193 mW/g

Top or Tip EUT Facing Phantom - Middle/Zoom Scan (7x7x7) 2 (7x7x7)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.70 V/m; Power Drift = 0.013 dB

Peak SAR (extrapolated) = 0.583 W/kg

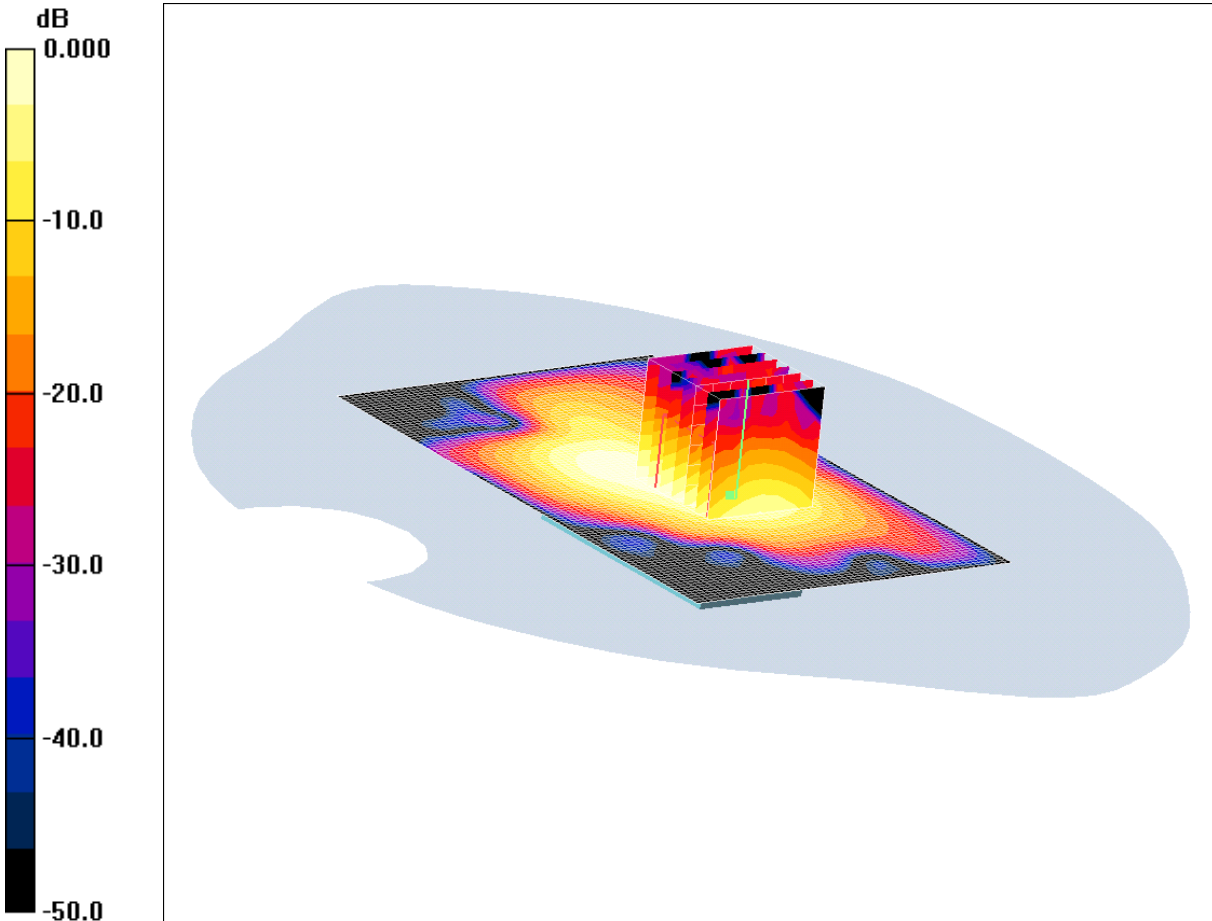
SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.072 mW/g

Maximum value of SAR (measured) = 0.233 mW/g

SCN/79027JD01/013: Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3652.5 MHz
18dBm

Date 06/12/2010

DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
Serial: C00E30



0 dB = 0.337mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3652.5 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3652.5$ MHz; $\sigma = 3.63$ mho/m; $\epsilon_r = 49.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom - Low/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.362 mW/g

Horizontal- Down EUT Facing Phantom - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.92 V/m; Power Drift = -0.269 dB

Peak SAR (extrapolated) = 0.879 W/kg

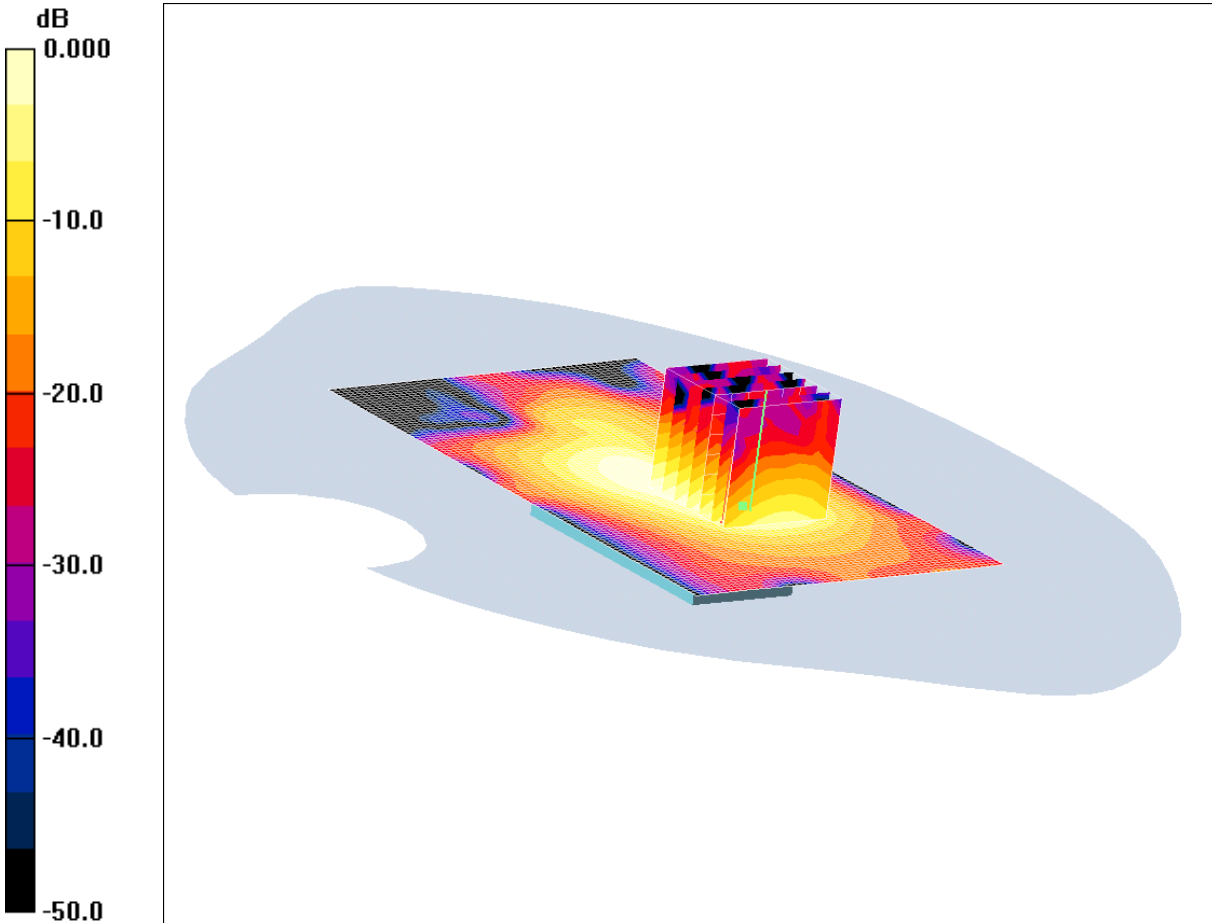
SAR(1 g) = 0.322 mW/g; SAR(10 g) = 0.136 mW/g

Maximum value of SAR (measured) = 0.337 mW/g

SCN/79027JD01/014: Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 5MHz BW 3697.5 MHz
18dBm

Date 06/12/2010

DUT: Airspan Networks (Israeli) Ltd - Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
Serial: C00E30



0 dB = 0.377mW/g

Communication System: WiMAX - 5 MHz BW; Frequency: 3697.5 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3697.5$ MHz; $\sigma = 3.7$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom - High/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.486 mW/g

Horizontal- Down EUT Facing Phantom - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.93 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 0.997 W/kg

SAR(1 g) = 0.366 mW/g; SAR(10 g) = 0.156 mW/g

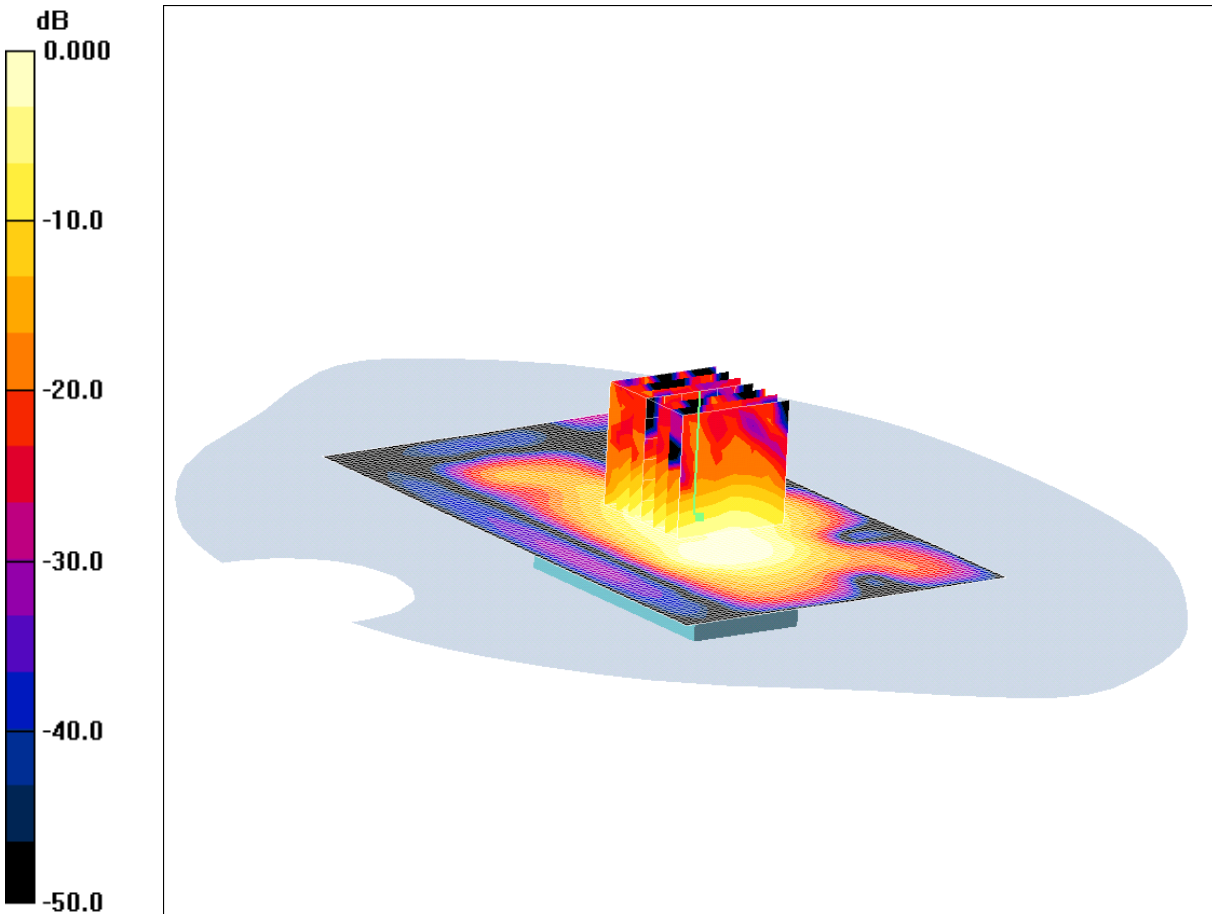
Maximum value of SAR (measured) = 0.377 mW/g

SCN/79027JD01/015: Horizontal-Up EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18dBm

Date: 07/12/2010

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.134mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.66$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 19/04/2010
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Up EUT Facing Phantom – Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.146 mW/g

Horizontal- Up EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.85 V/m; Power Drift = 0.413 dB

Peak SAR (extrapolated) = 0.287 W/kg

SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.044 mW/g

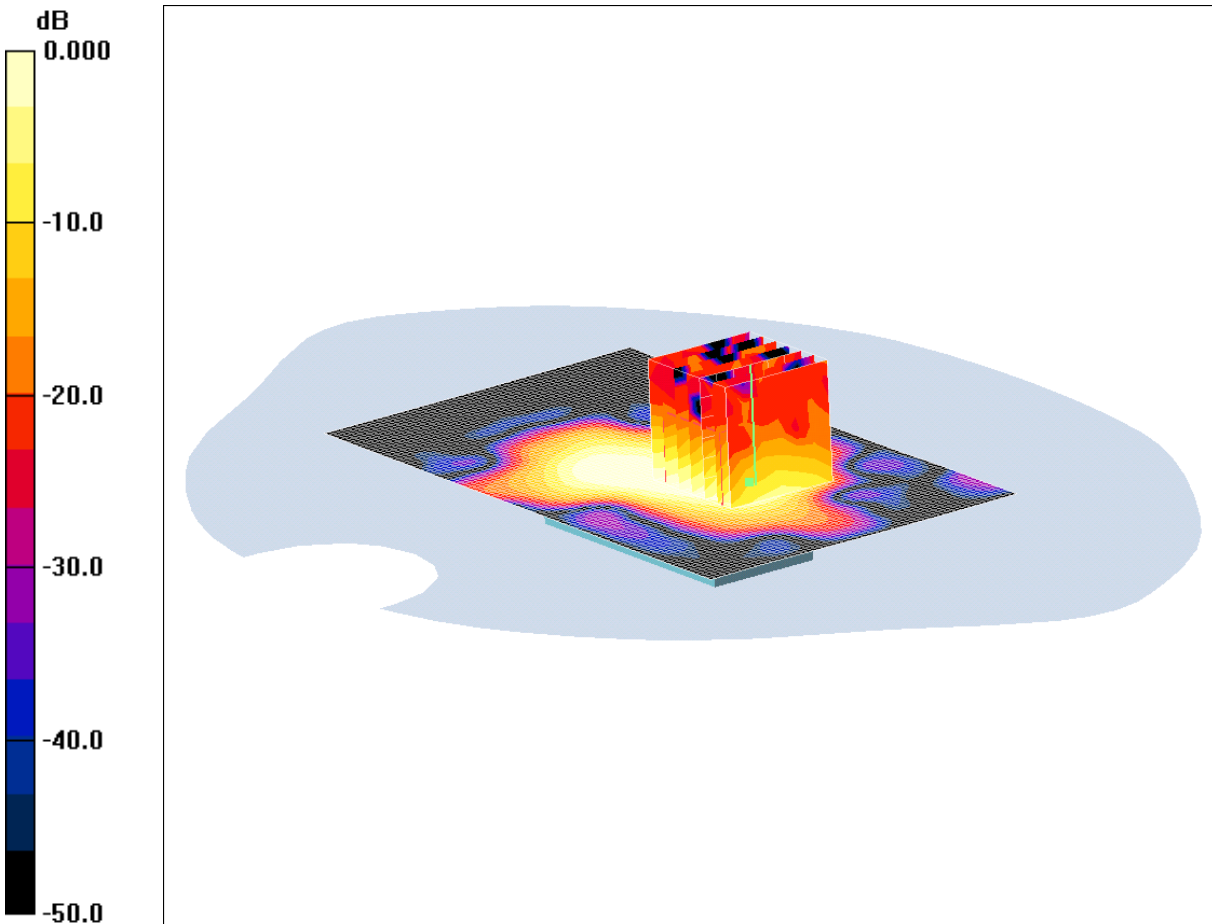
Maximum value of SAR (measured) = 0.134 mW/g

SCN/79027JD01/016: Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18dBm

Date: 07/12/2010

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.132mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.66$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom – Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.220 mW/g

Horizontal- Down EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.29 V/m; Power Drift = 0.202 dB

Peak SAR (extrapolated) = 0.334 W/kg

SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.051 mW/g

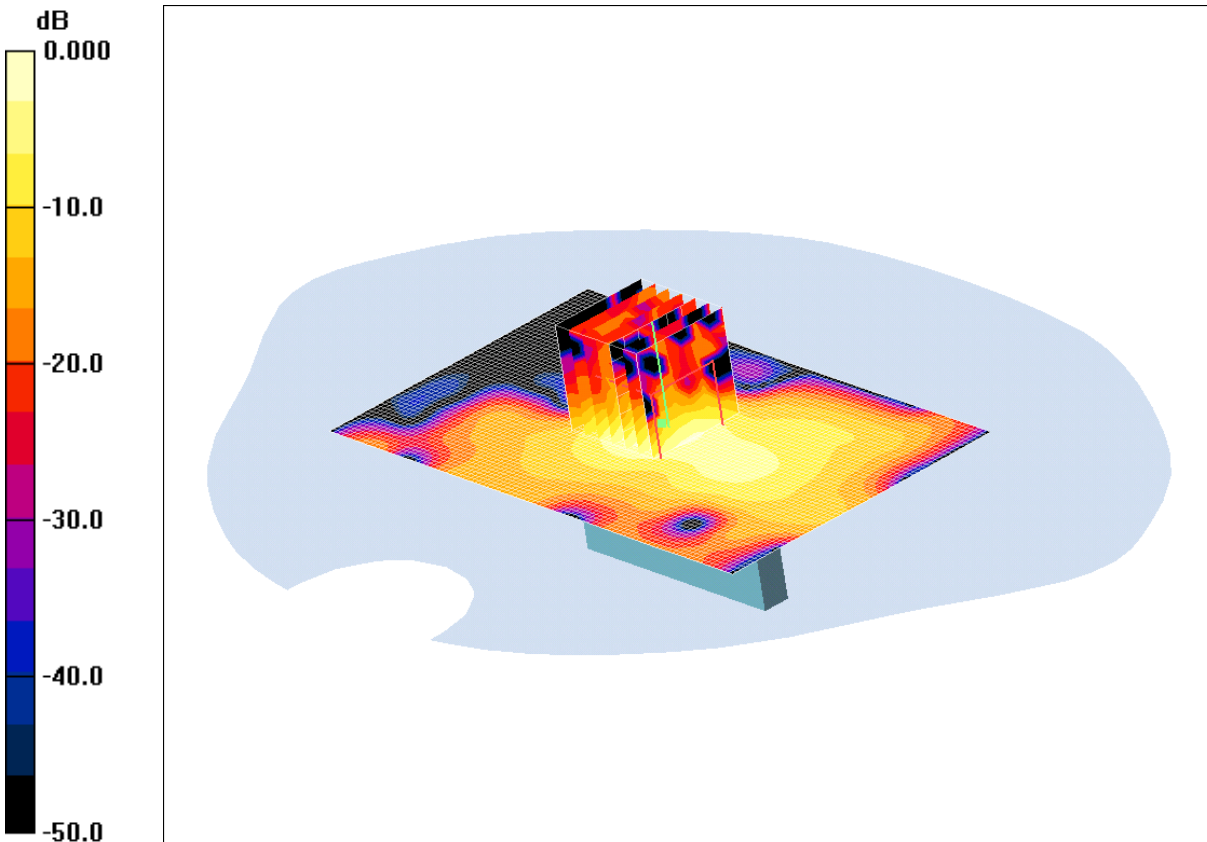
Maximum value of SAR (measured) = 0.132 mW/g

SCN/79027JD01/017: Vertical- Front EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18 dBm

Date: 07/12/2010

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.084mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.66$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 19/04/2010
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Vertical-Front EUT Facing Phantom – Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.089 mW/g

Vertical-Front EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.96 V/m; Power Drift = 0.022 dB

Peak SAR (extrapolated) = 0.164 W/kg

SAR(1 g) = 0.070 mW/g; SAR(10 g) = 0.025 mW/g

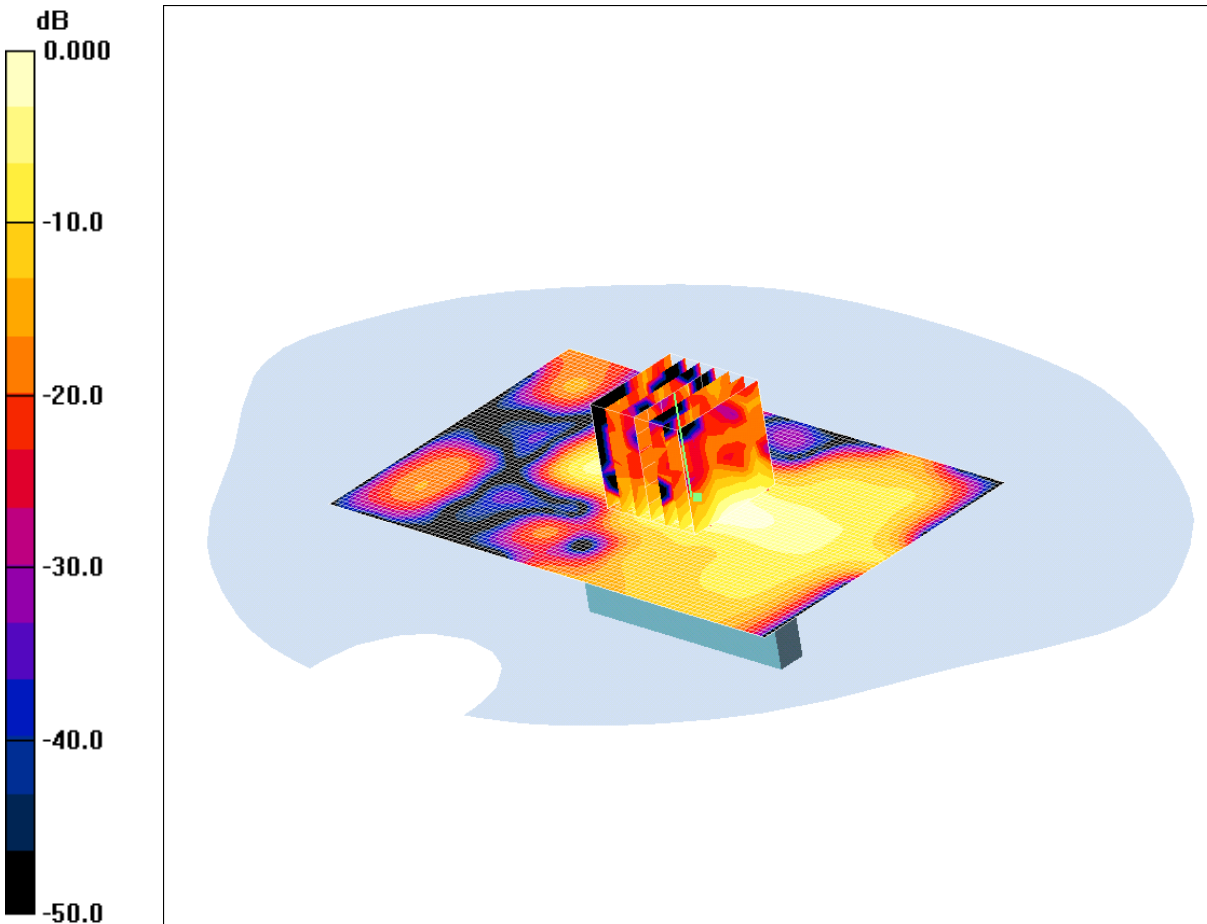
Maximum value of SAR (measured) = 0.084 mW/g

SCN/79027JD01/018: Vertical- Back EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18 dBm

Date: 07/12/2010

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.059mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.66$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Vertical – Back EUT Facing Phantom – Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.056 mW/g

Vertical – Back EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.17 V/m; Power Drift = 0.004 dB

Peak SAR (extrapolated) = 0.103 W/kg

SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.016 mW/g

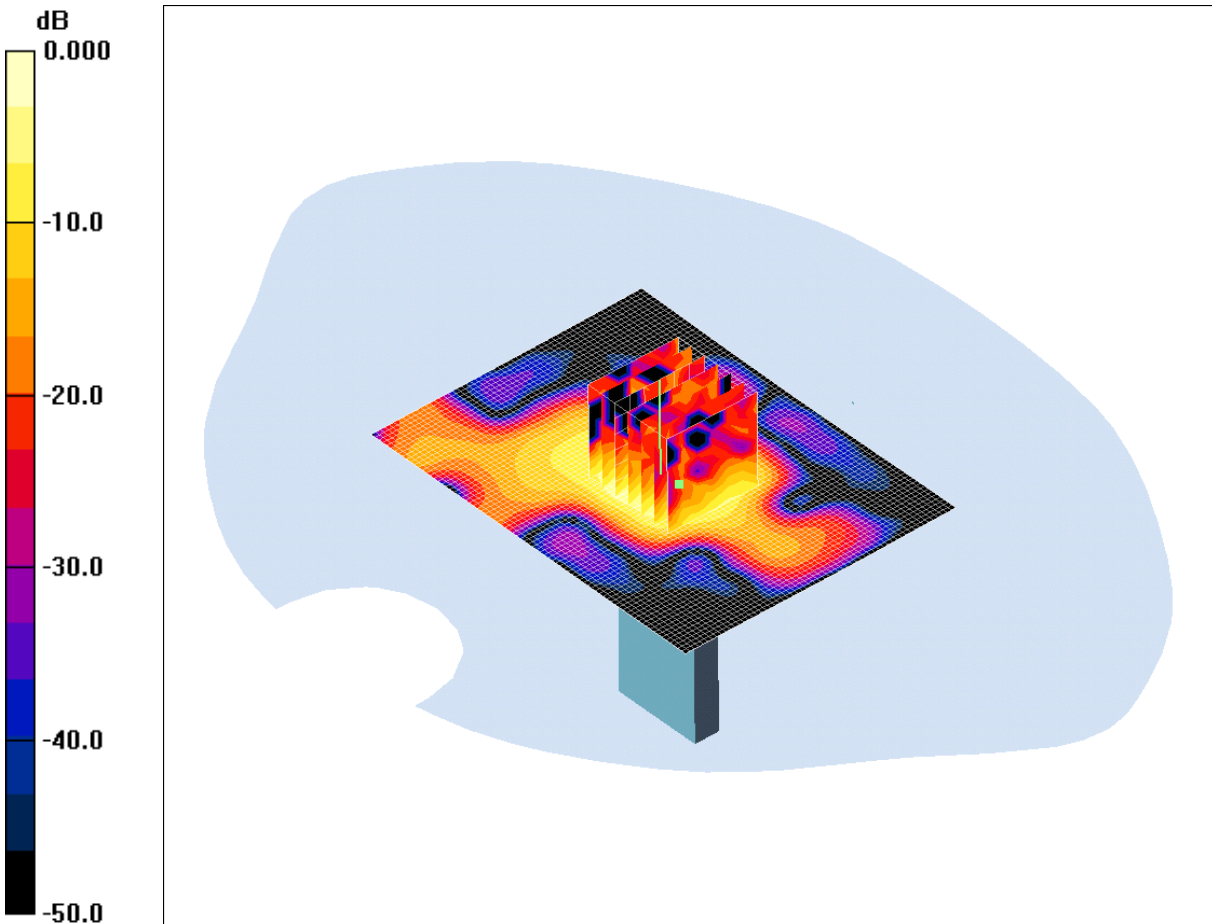
Maximum value of SAR (measured) = 0.059 mW/g

SCN/79027JD01/019: Top or Tip EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3675 MHz 18 dBm

Date: 07/12/2010

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.093mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.66$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Top or Tip EUT Facing Phantom – Middle/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.102 mW/g

Top or Tip EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.04 V/m; Power Drift = 0.143 dB

Peak SAR (extrapolated) = 0.176 W/kg

SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.027 mW/g

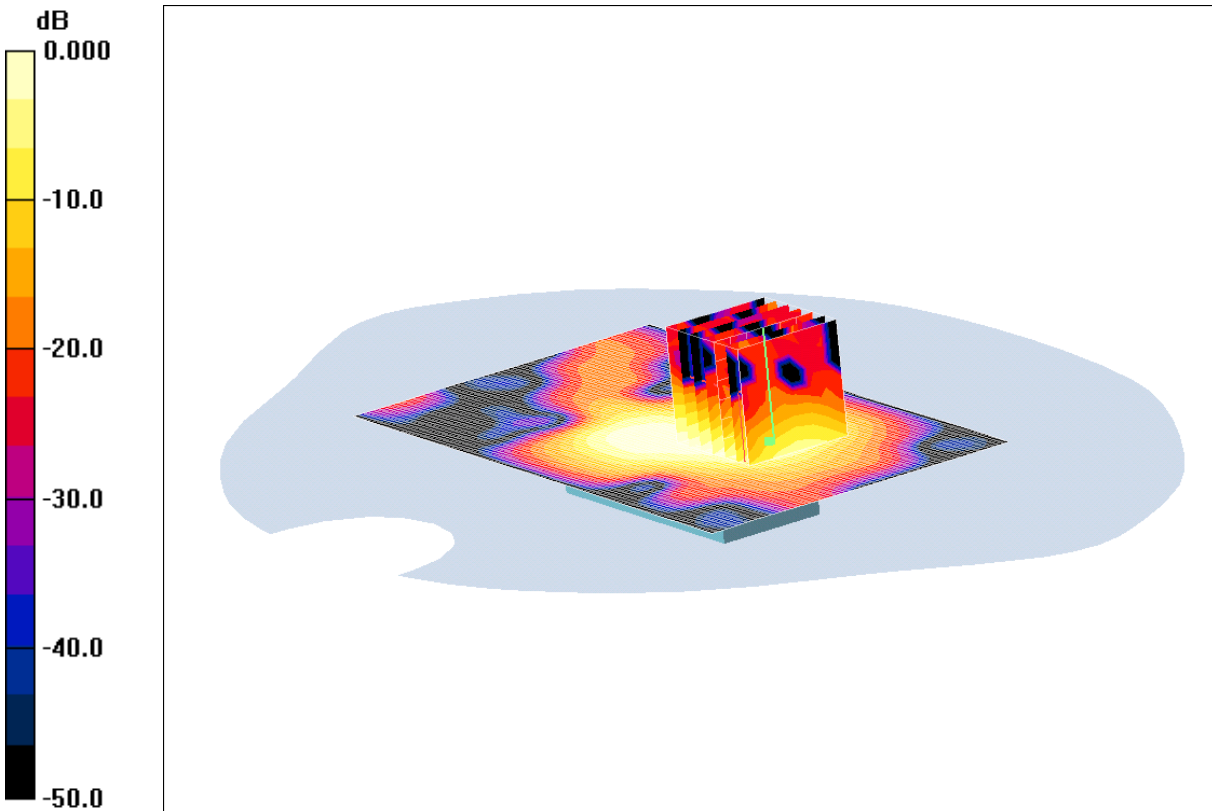
Maximum value of SAR (measured) = 0.093 mW/g

SCN/79027JD01/020: Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3655 MHz 18dBm

Date: 18/01/2011

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.141mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3655 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3655$ MHz; $\sigma = 3.45$ mho/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 19/04/2010
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom – Low/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.161 mW/g

Horizontal- Down EUT Facing Phantom – Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.73 V/m; Power Drift = 0.096 dB

Peak SAR (extrapolated) = 0.387 W/kg

SAR(1 g) = 0.135 mW/g; SAR(10 g) = 0.053 mW/g

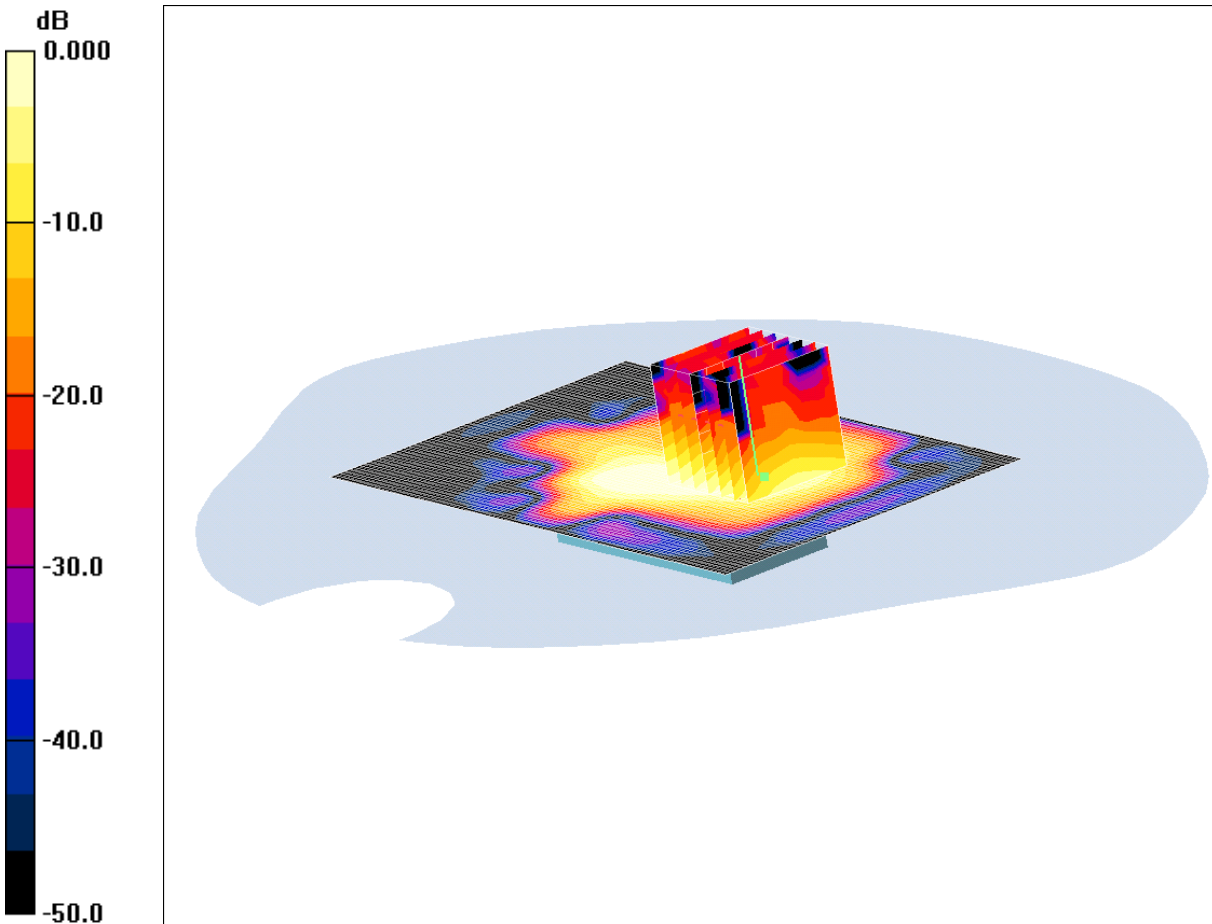
Maximum value of SAR (measured) = 0.141 mW/g

SCN/79027JD01/021: Horizontal-Down EUT Facing Phantom Wi-MAX QPSK 10MHz BW 3695 MHz 18dBm

Date: 18/01/2011

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.154mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3695 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3695$ MHz; $\sigma = 3.52$ mho/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom – High/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.227 mW/g

Horizontal- Down EUT Facing Phantom – High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.26 V/m; Power Drift = -0.399 dB

Peak SAR (extrapolated) = 0.435 W/kg

SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.062 mW/g

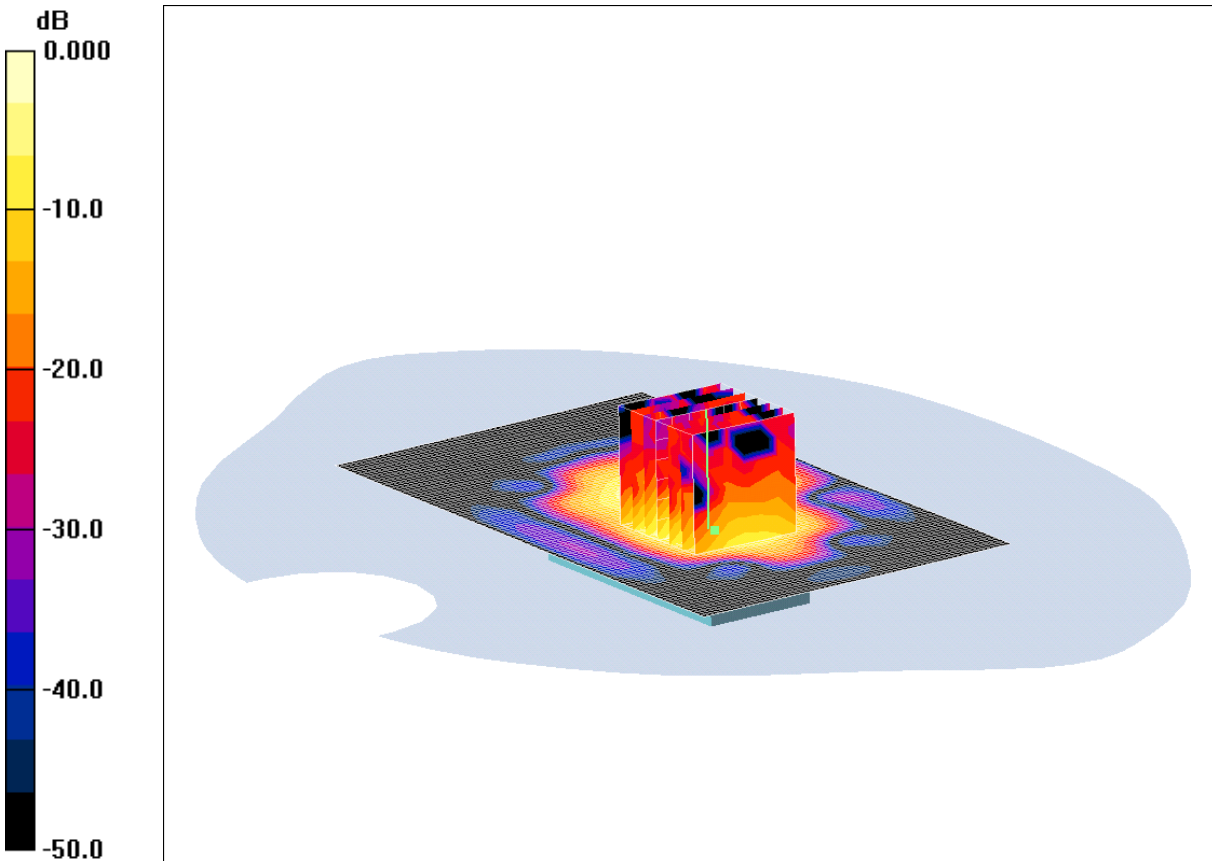
Maximum value of SAR (measured) = 0.154 mW/g

SCN/79027JD01/022: Horizontal-Up EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz 18dBm

Date: 19/01/2011

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.161mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.48$ mho/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 19/04/2010
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Up EUT Facing Phantom – Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.145 mW/g

Horizontal- Up EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.87 V/m; Power Drift = 0.142 dB

Peak SAR (extrapolated) = 0.439 W/kg

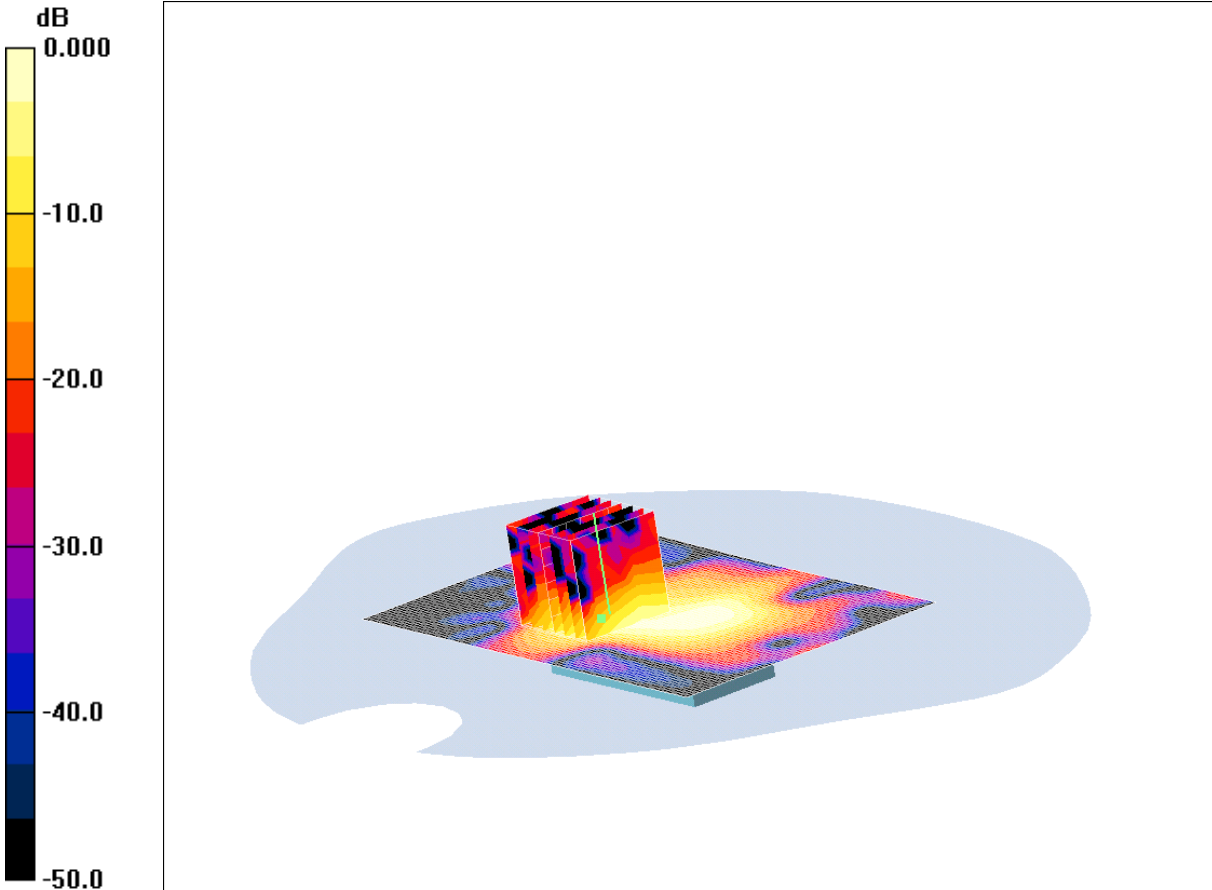
SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.054 mW/g

Maximum value of SAR (measured) = 0.161 mW/g

SCN/79027JD01/023: Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz
18dBm

Date: 19/01/2011

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
Serial: C00E30



0 dB = 0.198mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.48$ mho/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 19/04/2010
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom – Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.186 mW/g

Horizontal- Down EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.24 V/m; Power Drift = 0.234 dB

Peak SAR (extrapolated) = 0.495 W/kg

SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.057 mW/g

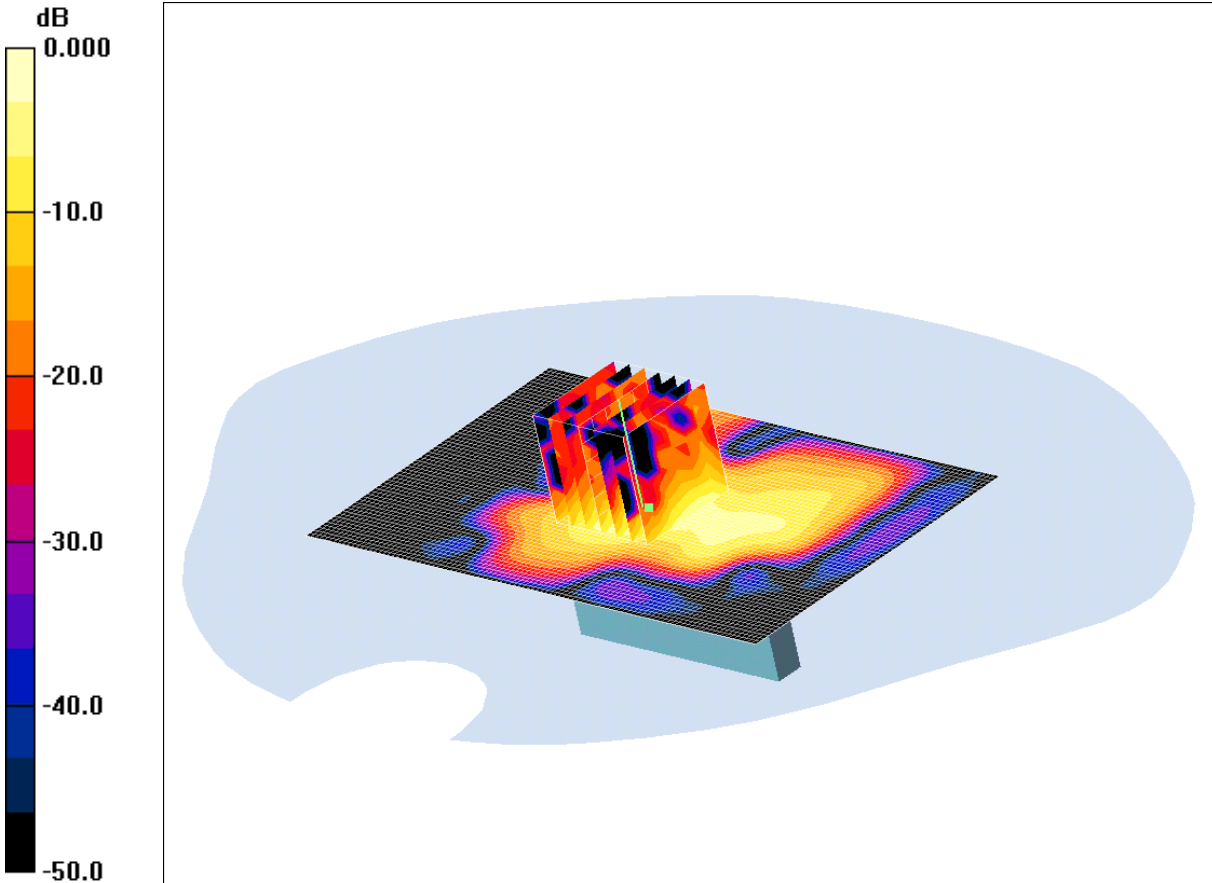
Maximum value of SAR (measured) = 0.198 mW/g

SCN/79027JD01/024: Vertical- Front EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz 18 dBm

Date/: 19/01/2011

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.094mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.48$ mho/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 19/04/2010
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Vertical-Front EUT Facing Phantom – Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.093 mW/g

Vertical-Front EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.09 V/m; Power Drift = 0.133 dB

Peak SAR (extrapolated) = 0.191 W/kg

SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.029 mW/g

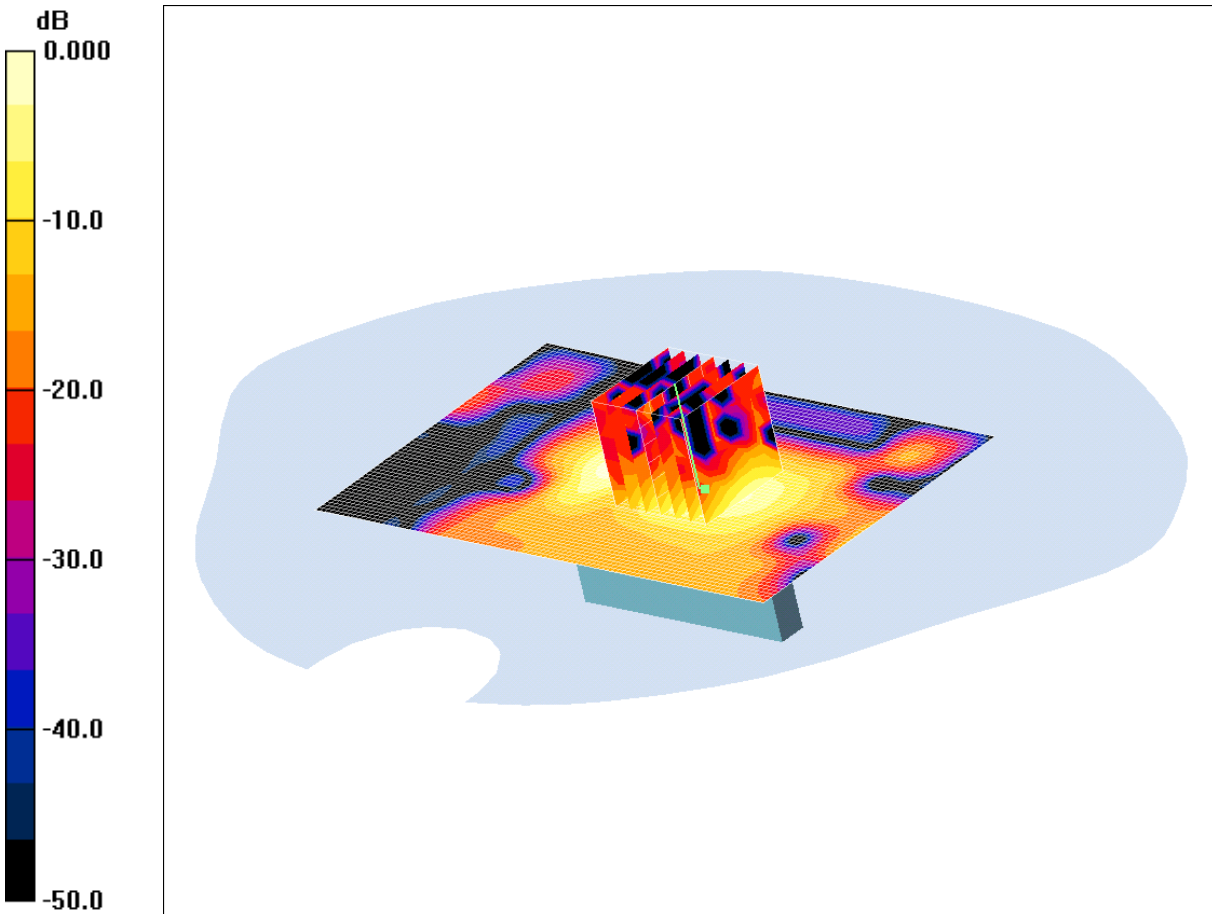
Maximum value of SAR (measured) = 0.094 mW/g

SCN/79027JD01/025: Vertical- Back EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz 18 dBm

Date: 19/01/2011

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.090mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.48$ mho/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Vertical-Back EUT Facing Phantom – Middle/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.103 mW/g

Vertical-Back EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.48 V/m; Power Drift = 0.320 dB

Peak SAR (extrapolated) = 0.196 W/kg

SAR(1 g) = 0.077 mW/g; SAR(10 g) = 0.027 mW/g

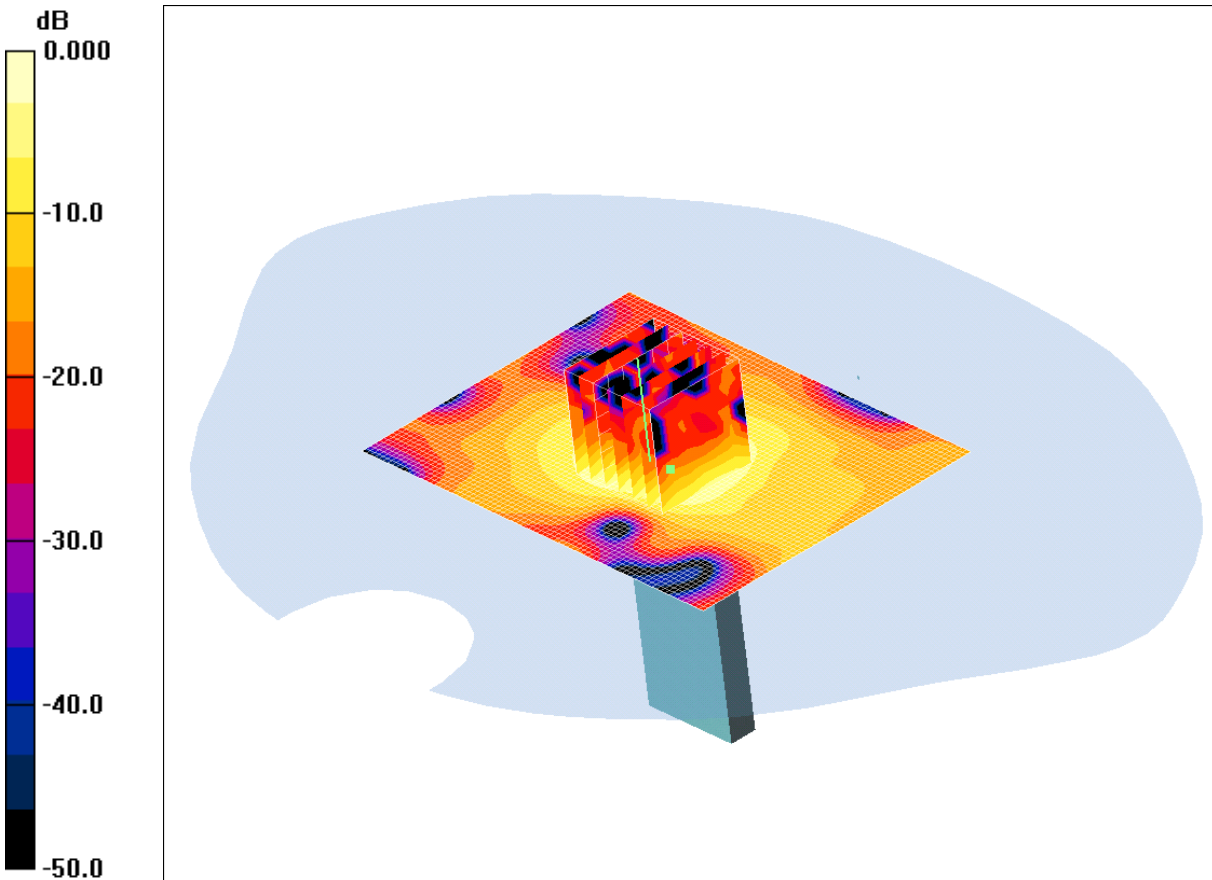
Maximum value of SAR (measured) = 0.090 mW/g

SCN/79027JD01/026: Top or Tip EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3675 MHz 18 dBm

Date: 19/01/2011

DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;

Serial: C00E30



0 dB = 0.077mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3675 MHz; Duty Cycle: 1:3.2

Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3675$ MHz; $\sigma = 3.48$ mho/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 19/04/2010
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Top or Tip EUT Facing Phantom – Middle/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.085 mW/g

Top or Tip EUT Facing Phantom – Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

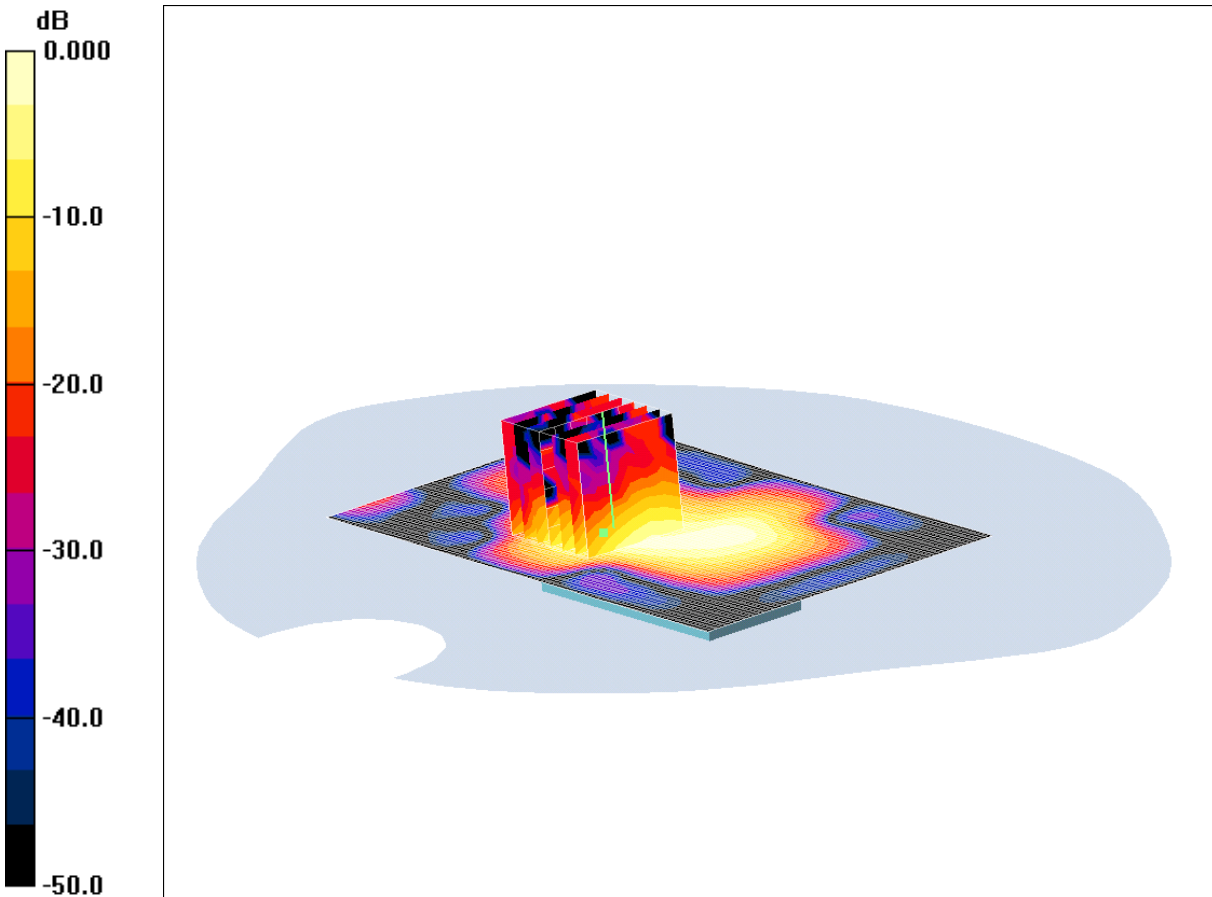
Reference Value = 4.42 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 0.152 W/kg

SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.077 mW/g

SCN/79027JD01/027: Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3655 MHz 18dBm
 Date: 19/01/2011
 DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
 Serial: C00E30



0 dB = 0.202mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3655 MHz; Duty Cycle: 1:3.2
 Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3655$ MHz; $\sigma = 3.45$ mho/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 DASY4 Configuration:
 - Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn394; Calibrated: 19/04/2010
 - Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
 - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom – Low/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.226 mW/g

Horizontal- Down EUT Facing Phantom – Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

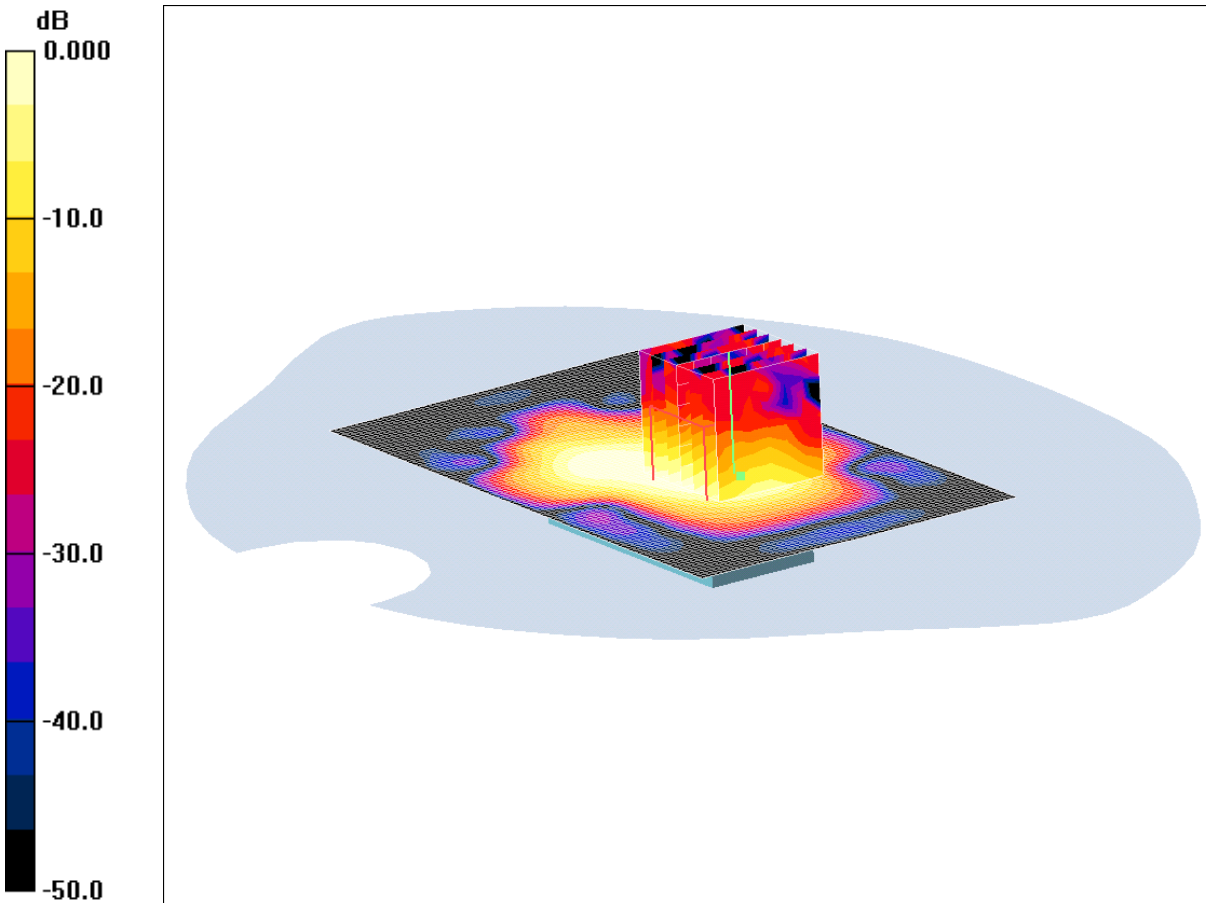
Reference Value = 4.24 V/m; Power Drift = 0.149 dB

Peak SAR (extrapolated) = 0.505 W/kg

SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.060 mW/g

Maximum value of SAR (measured) = 0.202 mW/g

SCN/79027JD01/028: Horizontal-Down EUT Facing Phantom Wi-MAX 16-QAM 10MHz BW 3695 MHz 18dBm
 Date: 19/01/2011
 DUT: Airspan Networks (Israeli) Ltd – Mobile WiMAX USB Modem; Type: USB Modem; Model: GWU-200;
 Serial: C00E30



0 dB = 0.176mW/g

Communication System: WiMAX – 10 MHz BW; Frequency: 3695 MHz; Duty Cycle: 1:3.2
 Medium: 3700 MHz MSL Medium parameters used (interpolated): $f = 3695$ MHz; $\sigma = 3.52$ mho/m; $\epsilon_r = 49.4$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 DASY4 Configuration:
 - Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn394; Calibrated: 19/04/2010
 - Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207
 - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Horizontal- Down EUT Facing Phantom – High/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.197 mW/g

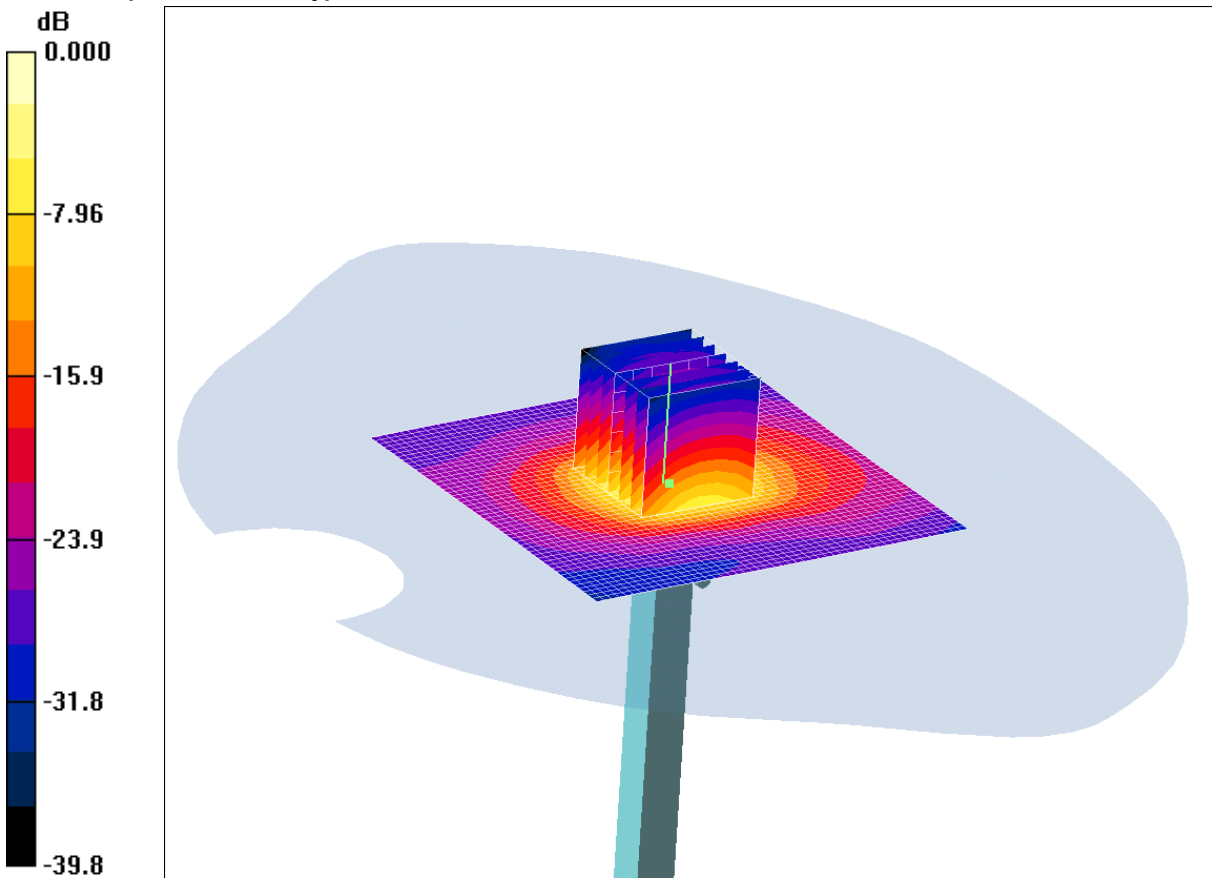
Horizontal- Down EUT Facing Phantom – High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 3.98 V/m; Power Drift = 0.265 dB
 Peak SAR (extrapolated) = 0.519 W/kg
SAR(1 g) = 0.173 mW/g; SAR(10 g) = 0.068 mW/g

Maximum value of SAR (measured) = 0.176 mW/g

SCN/79027JD01/029: System Performance Check 3700 MHz Body 10 11 10

Date 10/11/2010

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 – SN:1003



0 dB = 18.3mW/g

Communication System: CW; Frequency: 3700 MHz; Duty Cycle: 1:1

Medium: 3600 MHz MSL Medium parameters used: $f = 3700$ MHz; $\sigma = 3.72$ mho/m; $\epsilon_r = 48.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 20.1 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 72.0 V/m; Power Drift = -0.045 dB

Peak SAR (extrapolated) = 51.8 W/kg

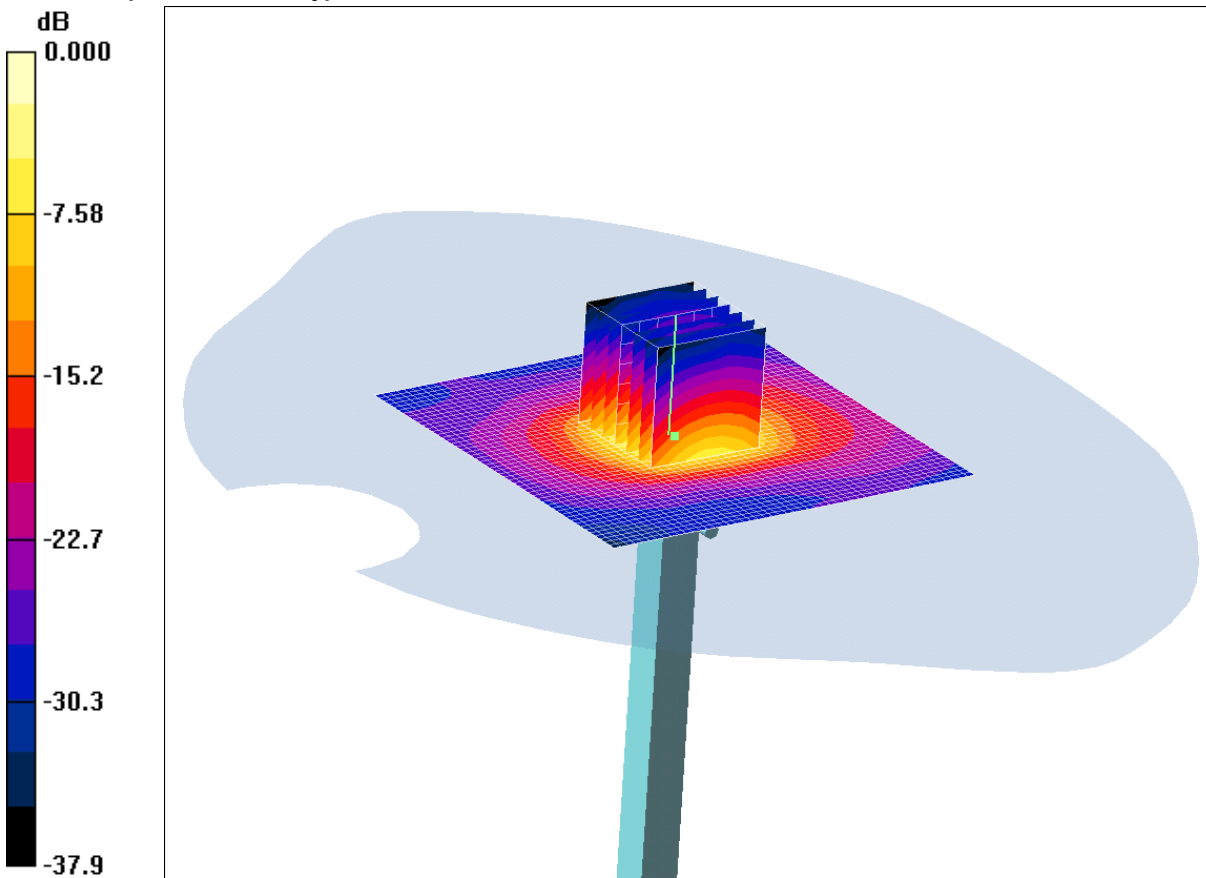
SAR(1 g) = 16.9 mW/g; SAR(10 g) = 5.89 mW/g

Maximum value of SAR (measured) = 18.3 mW/g

SCN/79027JD01/030: System Performance Check 3700 MHz Body 01 12 10

Date 01/12/2010

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 – SN:1003



0 dB = 18.6mW/g

Communication System: CW; Frequency: 3700 MHz; Duty Cycle: 1:1

Medium: 3700 MHz MSL Medium parameters used: $f = 3700 \text{ MHz}$; $\sigma = 3.72 \text{ mho/m}$; $\epsilon_r = 48.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 20.8 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 72.0 V/m; Power Drift = -0.118 dB

Peak SAR (extrapolated) = 51.7 W/kg

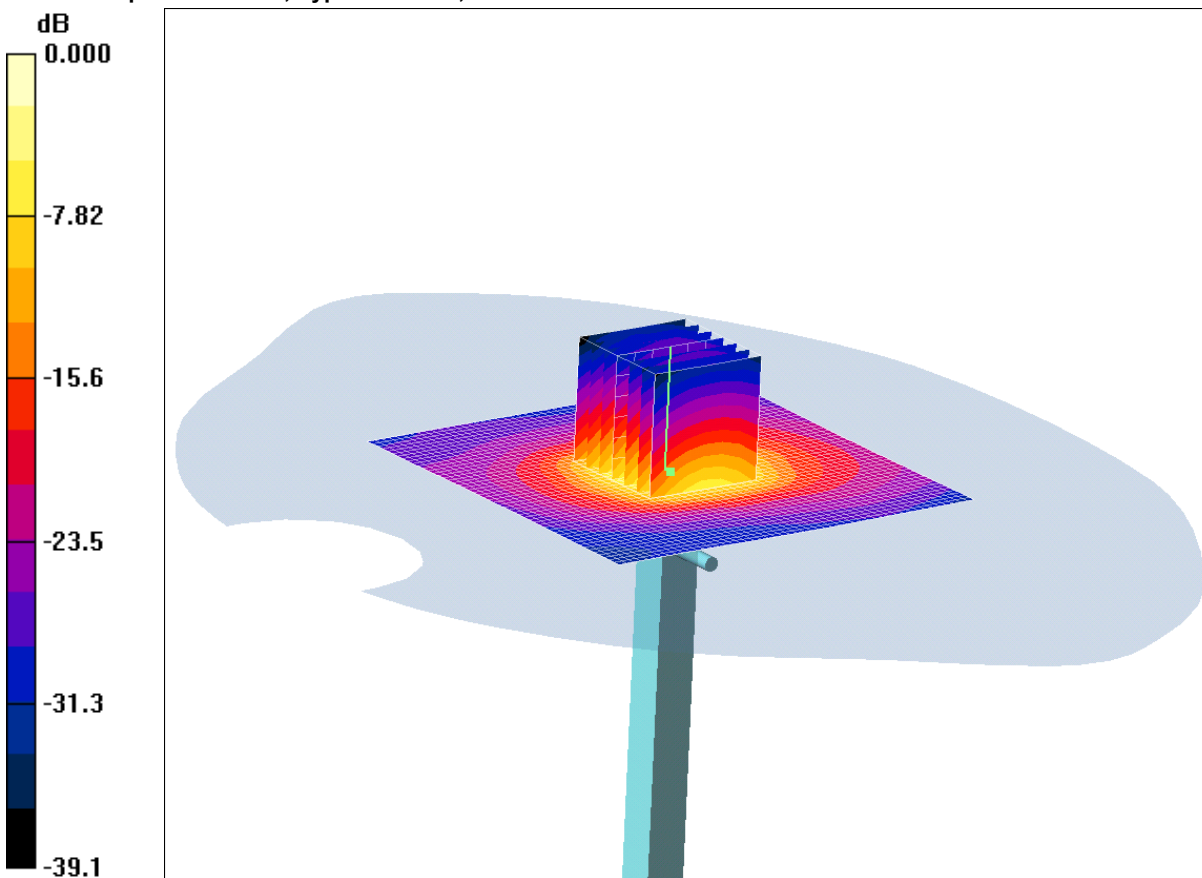
SAR(1 g) = 16.9 mW/g; SAR(10 g) = 5.89 mW/g

Maximum value of SAR (measured) = 18.6 mW/g

SCN/79027JD01/031: System Performance Check 3700 MHz Body 03 12 10

Date 03/12/2010

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 – SN:1003



0 dB = 18.4mW/g

Communication System: CW; Frequency: 3700 MHz; Duty Cycle: 1:1

Medium: 3700 MHz MSL Medium parameters used: $f = 3700 \text{ MHz}$; $\sigma = 3.58 \text{ mho/m}$; $\epsilon_r = 50.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 20.2 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 73.7 V/m; Power Drift = -0.066 dB

Peak SAR (extrapolated) = 50.5 W/kg

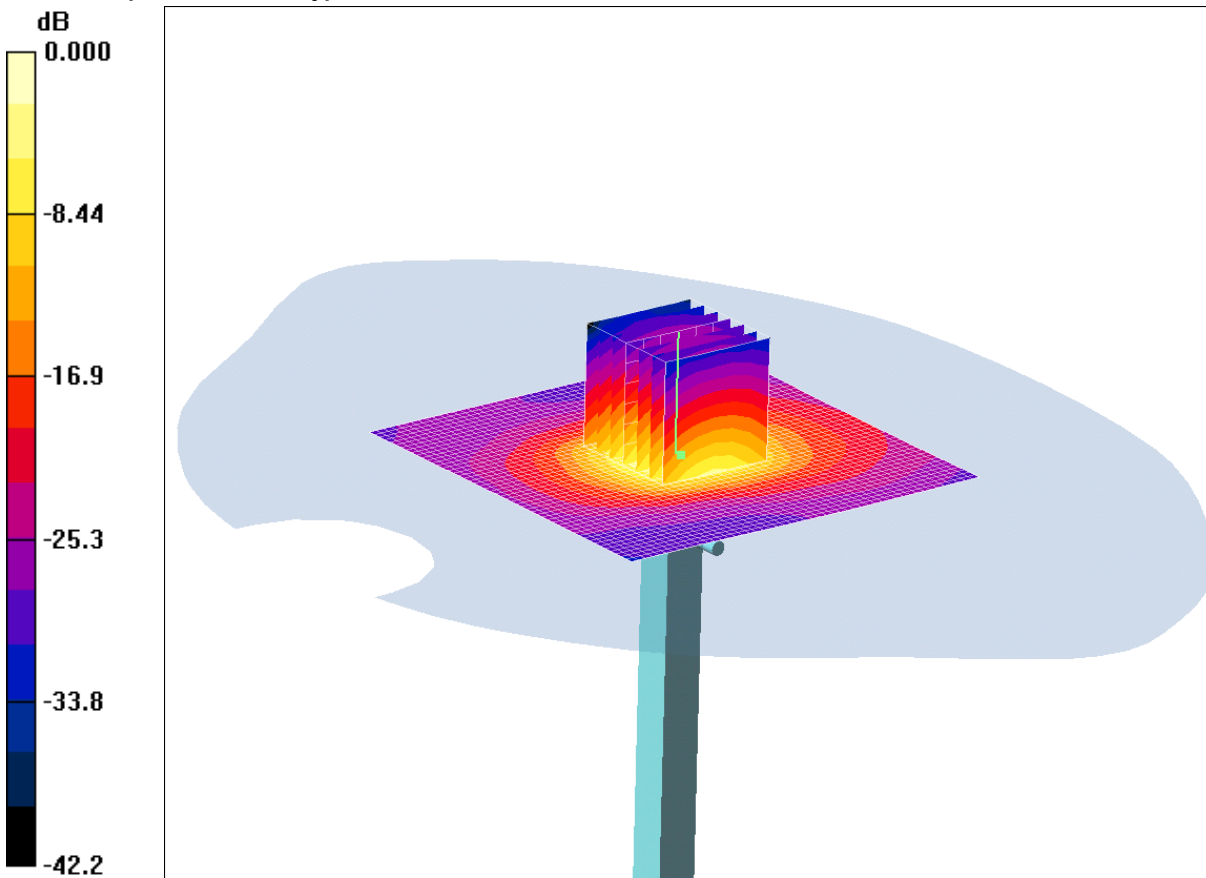
SAR(1 g) = 16.8 mW/g; SAR(10 g) = 5.89 mW/g

Maximum value of SAR (measured) = 18.4 mW/g

SCN/79027JD01/032: System Performance Check 3700 MHz Body 06 12 10

Date 06/12/2010

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 – SN:1003



0 dB = 19.3mW/g

Communication System: CW; Frequency: 3700 MHz; Duty Cycle: 1:1

Medium: 3700 MHz MSL Medium parameters used: $f = 3700 \text{ MHz}$; $\sigma = 3.7 \text{ mho/m}$; $\epsilon_r = 49$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 21.2 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 72.0 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 50.1 W/kg

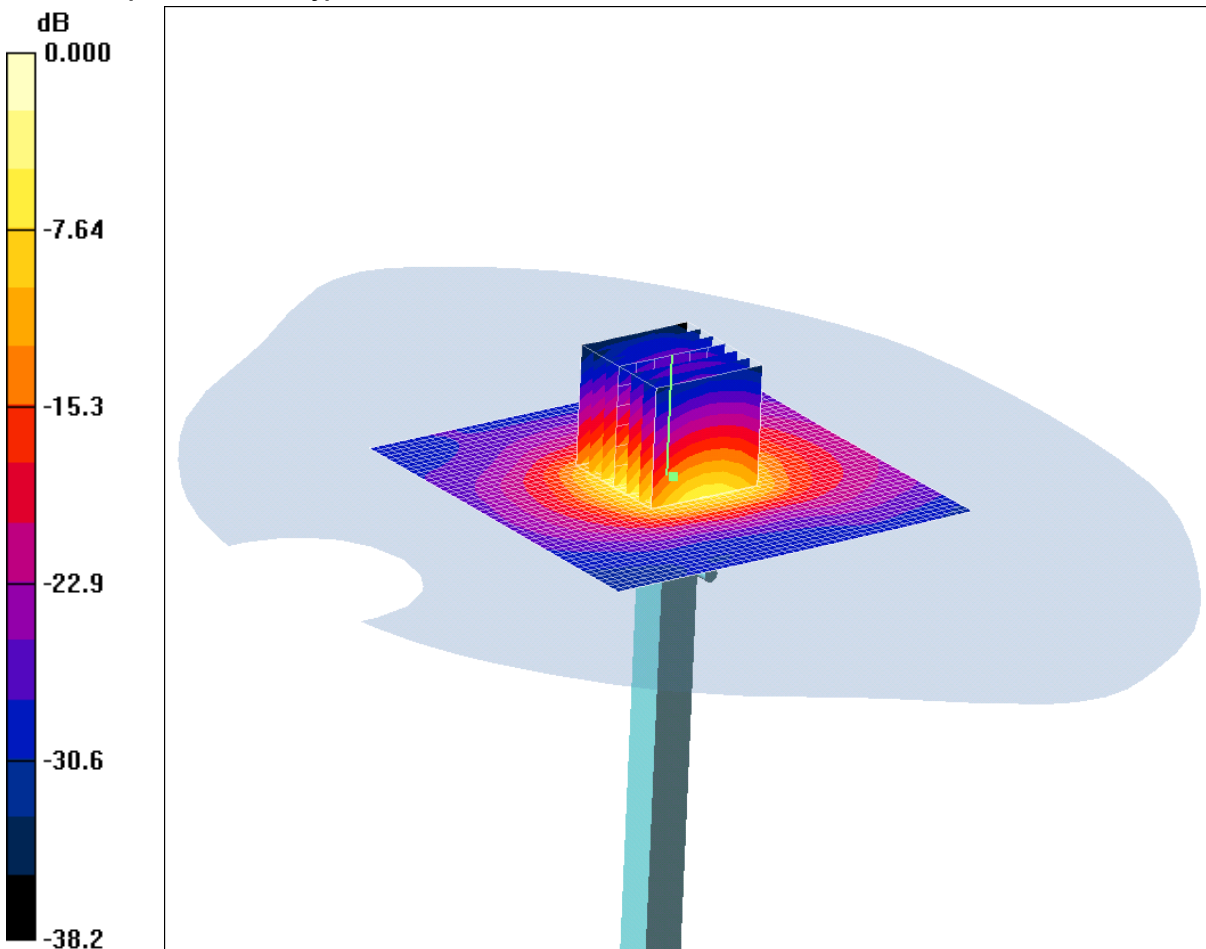
SAR(1 g) = 16.9 mW/g; SAR(10 g) = 5.93 mW/g

Maximum value of SAR (measured) = 19.3 mW/g

SCN/79027JD01/033: System Performance Check 3700 MHz Body 07 12 10

Date 07/12/2010

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 – SN:1003



0 dB = 17.9mW/g

Communication System: CW; Frequency: 3700 MHz; Duty Cycle: 1:1

Medium: 3700 MHz MSL Medium parameters used: $f = 3700$ MHz; $\sigma = 3.7$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 17.6 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 69.0 V/m; Power Drift = 0.073 dB

Peak SAR (extrapolated) = 47.0 W/kg

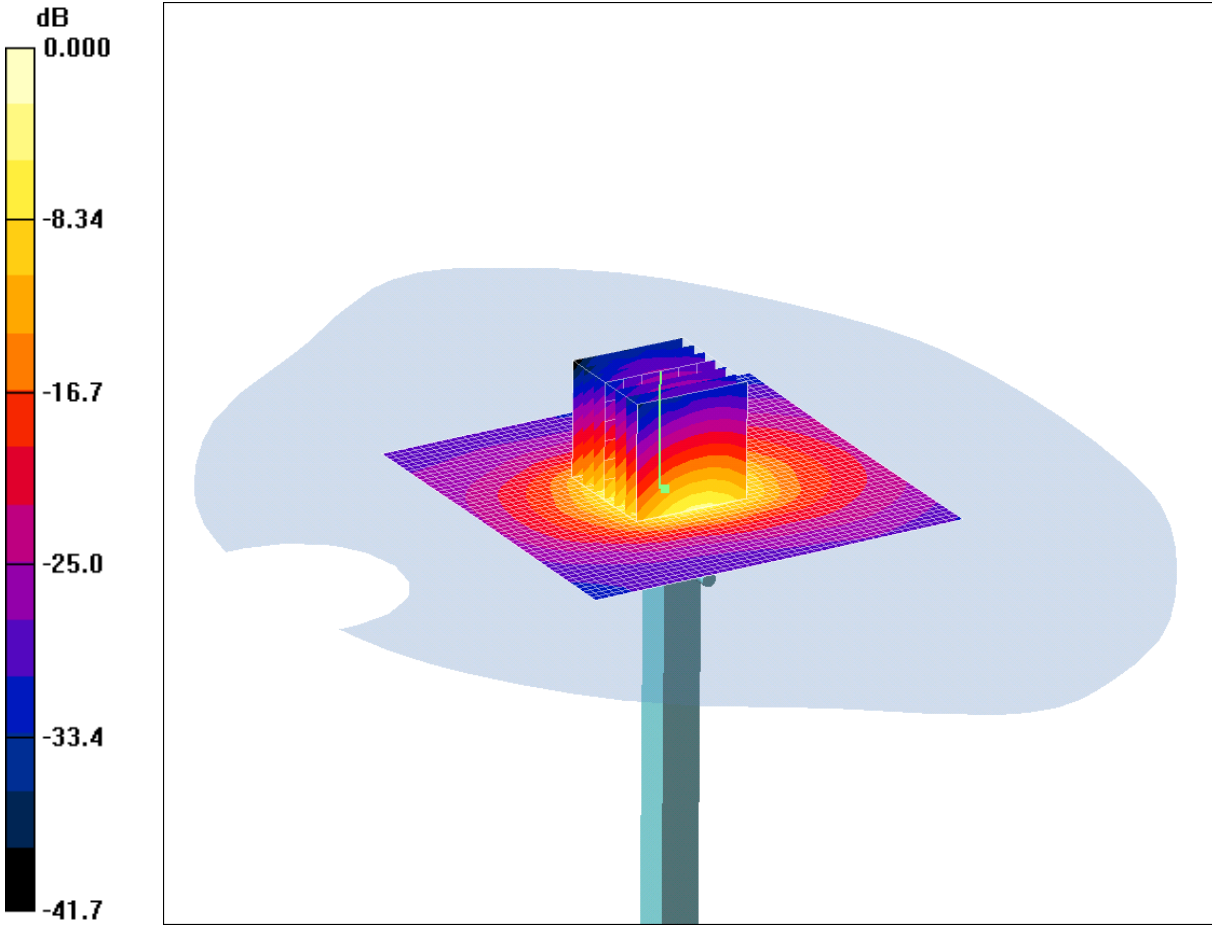
SAR(1 g) = 15.9 mW/g; SAR(10 g) = 5.61 mW/g

Maximum value of SAR (measured) = 17.9 mW/g

SCN/79027JD01/034: System Performance Check 3700 MHz Body 18 01 11

Date 18/01/2011

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 – SN:1003



0 dB = 17.7mW/g

Communication System: CW; Frequency: 3700 MHz; Duty Cycle: 1:1

Medium: 3700 MHz MSL Medium parameters used: $f = 3700 \text{ MHz}$; $\sigma = 3.52 \text{ mho/m}$; $\epsilon_r = 49.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 20.9 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 73.0 V/m; Power Drift = 0.076 dB

Peak SAR (extrapolated) = 51.8 W/kg

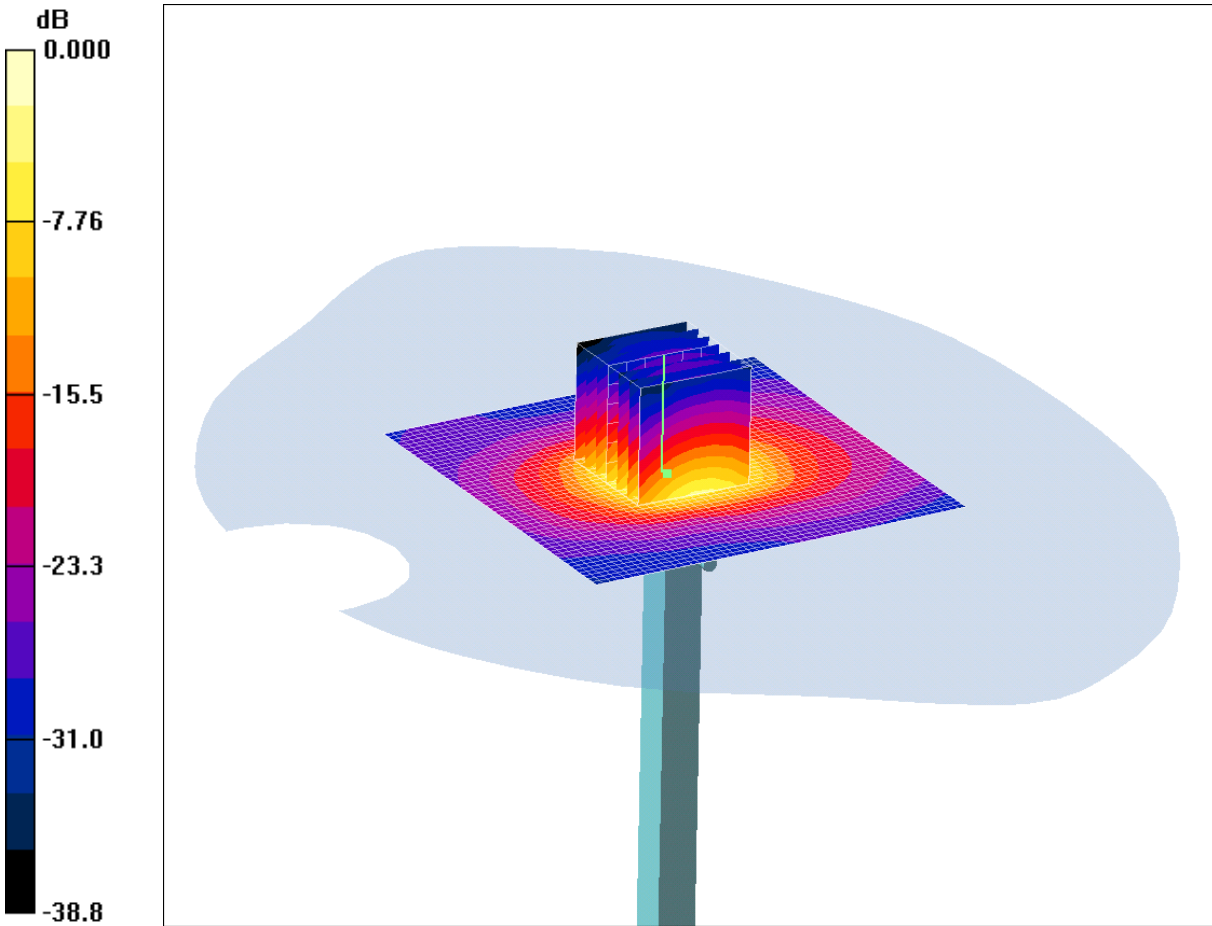
SAR(1 g) = 16.7 mW/g; SAR(10 g) = 5.86 mW/g

Maximum value of SAR (measured) = 17.7 mW/g

SCN/79027JD01/035: System Performance Check 3700 MHz Body 19 01 11

Date 19/01/2011

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: D3700V2 – SN:1003



0 dB = 17.6mW/g

Communication System: CW; Frequency: 3700 MHz; Duty Cycle: 1:1

Medium: 3700 MHz MSL Medium parameters used: $f = 3700 \text{ MHz}$; $\sigma = 3.52 \text{ mho/m}$; $\epsilon_r = 49.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 – SN3508 (add ConvF); ConvF(6.48, 6.48, 6.48); Calibrated: 16/09/2010

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 19/04/2010

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 21.3 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 74.1 V/m; Power Drift = -0.040 dB

Peak SAR (extrapolated) = 52.1 W/kg

SAR(1 g) = 16.8 mW/g; SAR(10 g) = 5.89 mW/g

Maximum value of SAR (measured) = 17.6 mW/g

Appendix 4. Photographs

This appendix contains the following photographs:

Photo Reference Number	Title
PHT/79027JD01/001	Test configuration for the measurement of Specific Absorption Rate (SAR)
PHT/79027JD01/002	Horizontal – Up of EUT Facing Phantom
PHT/79027JD01/003	Horizontal – Down of EUT Facing Phantom
PHT/79027JD01/004	Vertical – Front of EUT Facing Phantom
PHT/79027JD01/005	Vertical – Back of EUT Facing Phantom
PHT/79027JD01/006	Top or Tip of EUT Facing Phantom
PHT/79027JD01/007	Horizontal – Up View
PHT/79027JD01/008	Horizontal – Down View
PHT/79027JD01/009	Vertical – Front View
PHT/79027JD01/010	Vertical-Back View
PHT/79027JD01/011	Top or Tip View
PHT/79027JD01/012	USB Extension
PHT/79027JD01/013	3700 MHz Body Fluid Level
PHT/79027JD01/014	Linearity Test configuration
PHT/79027JD01/015	Internal View of EUT

PHT/79027JD01/001: Test configuration for the measurement of Specific Absorption Rate (SAR)



PHT/79027JD01/002: Horizontal - Up of EUT Facing Phantom



PHT/79027JD01/003: Horizontal - Down of EUT Facing Phantom



PHT/79027JD01/004: Vertical - Front of EUT Facing Phantom



PHT/79027JD01/005: Vertical - Back of EUT Facing Phantom



PHT/79027JD01/006: Top or Tip of EUT Facing Phantom



PHT/79027JD01/007: Horizontal - Up View



PHT/79027JD01/008: Horizontal - Down View



PHT/79027JD01/009: Vertical - Front View



PHT/79027JD01/010: Vertical-Back View



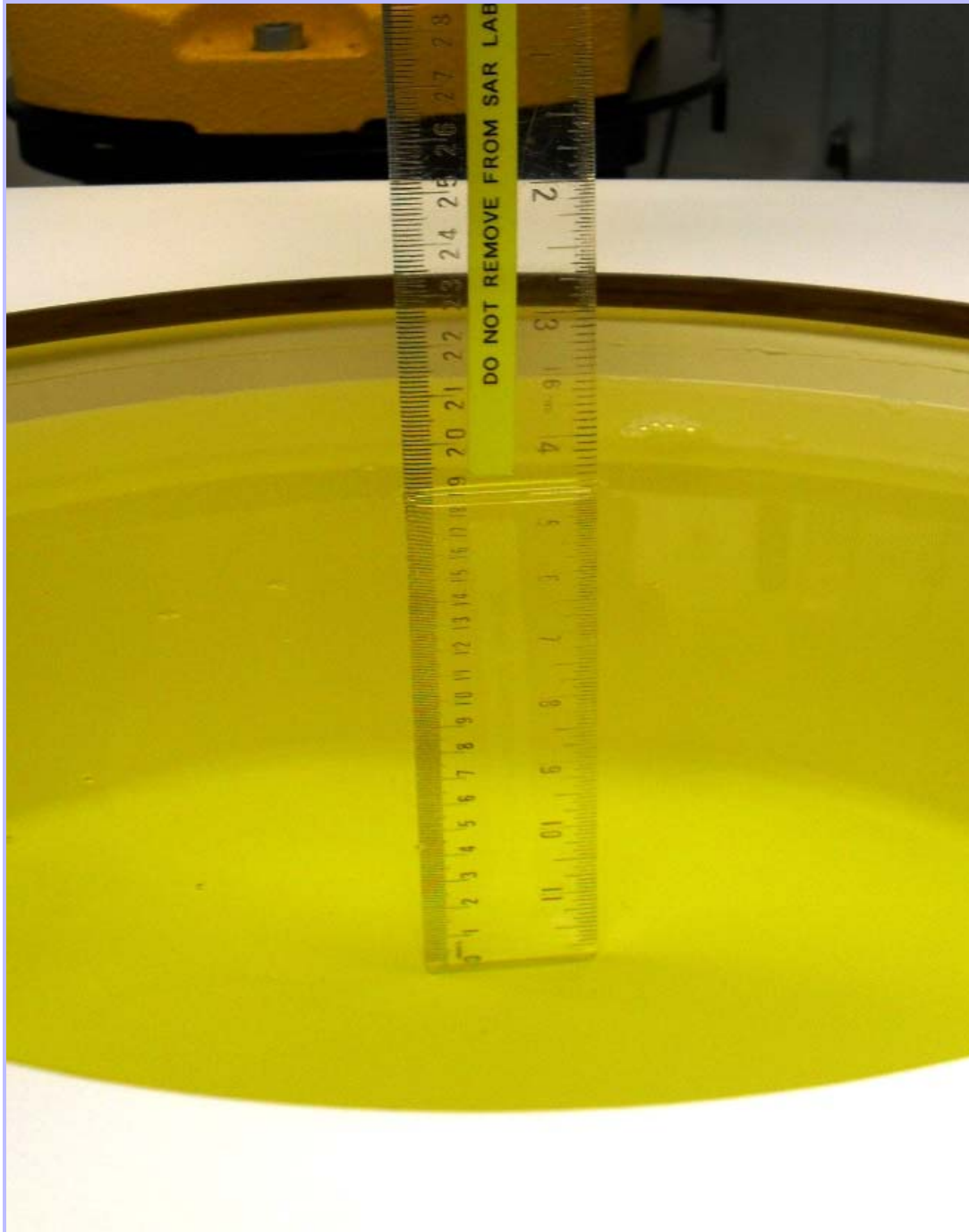
PHT/79027JD01/011: Top or Tip View



PHT/79027JD01/012: USB Extension



PHT/79027JD01/013: 3700 MHz Body Fluid Level

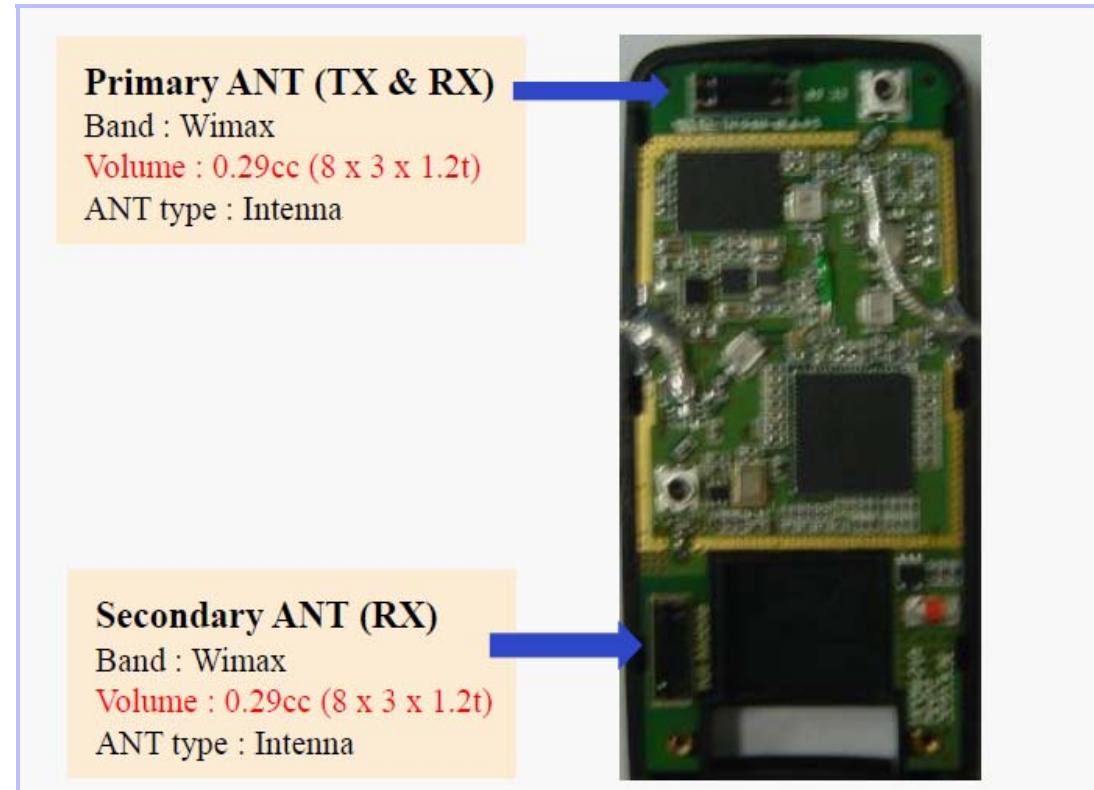


PHT/79027JD01/014: Linearity Test configuration



Note: Separation between the outer casing of the dongle and the phantom flat section was 0mm. The separation between the actual device antenna and phantom flat section was <2.5mm.

PHT/79027JD01/015: Internal View of EUT



Appendix 5. Validation of System

Prior to the assessment, the system was verified in the flat region of the phantom. A 3700 MHz dipole was used. A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of $\pm 5\%$ for the 3700 MHz dipole. The applicable verification (normalised to 1 Watt).

Date: 10/11/2010

Validation Dipole and Serial Number: D3700V2; SN: 1003

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	3700	23.0 °C	21.6 °C	ϵ_r	51.00	48.69	-4.53	5.00
				σ	3.55	3.72	4.66	5.00
				1g SAR	65.10	67.60	3.84	5.00
				10g SAR	23.30	23.56	1.12	5.00

Date: 01/12/2010

Validation Dipole and Serial Number: D3700V2; SN: 1003

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	3700	23.0 °C	22.1 °C	ϵ_r	51.00	48.77	-4.38	5.00
				σ	3.55	3.71	4.63	5.00
				1g SAR	65.10	67.60	3.84	5.00
				10g SAR	23.30	23.56	1.12	5.00

Date: 03/12/2010

Validation Dipole and Serial Number: D3700V2; SN: 1003

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	3700	23.0 °C	22.2 °C	ϵ_r	51.00	50.10	-1.76	5.00
				σ	3.55	3.57	0.62	5.00
				1g SAR	65.10	67.20	3.23	5.00
				10g SAR	23.30	23.56	1.12	5.00

Validation of System (Continued)

Date: 06/12/2010

Validation Dipole and Serial Number: D3700V2; SN: 1003

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	3700	23.0 °C	22.8 °C	ϵ_r	51.00	48.97	-3.99	5.00
				σ	3.55	3.70	4.10	5.00
				1g SAR	65.10	67.60	3.84	5.00
				10g SAR	23.30	23.72	1.80	5.00

Date: 07/12/2010

Validation Dipole and Serial Number: D3700V2; SN: 1003

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	3700	23.0 °C	22.8 °C	ϵ_r	51.00	48.97	-3.99	5.00
				σ	3.55	3.70	4.10	5.00
				1g SAR	65.10	63.60	-2.30	5.00
				10g SAR	23.30	22.44	-3.69	5.00

Date: 18/01/2011

Validation Dipole and Serial Number: D3700V2; SN: 1003

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	3700	23.0 °C	22.8 °C	ϵ_r	51.00	49.34	-3.25	5.00
				σ	3.55	3.52	-0.90	5.00
				1g SAR	65.10	66.80	2.61	5.00
				10g SAR	23.30	23.44	0.60	5.00

Date: 19/01/2011

Validation Dipole and Serial Number: D3700V2; SN: 1003

Simulant	Frequency (MHz)	Room Temp	Liquid Temp	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	3700	23.0 °C	22.8 °C	ϵ_r	51.00	49.34	-3.25	5.00
				σ	3.55	3.52	-0.90	5.00
				1g SAR	65.10	67.20	3.23	5.00
				10g SAR	23.30	23.56	1.12	5.00

Appendix 6. Simulated Tissues

The body mixture consists of Polysorbate 20, Water and salt. 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
	2450/3700 MHz Body
De-Ionized Water	71.70
Polysorbate 20 (Tween 20)	28.00
Salt	0.30

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 multiplexer, 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
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PC 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 bit A/D converter for surface detection system serial link to robot direct emergency stop output for robot.
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DASY4 SAR System Specifications (Continued)	
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 $\pm$ 0.1 mm