ENGINEERING TEST REPORT

UHF Transceivers
Model No.: IC-F9021T
FCC ID: AFJ307803

Tested For

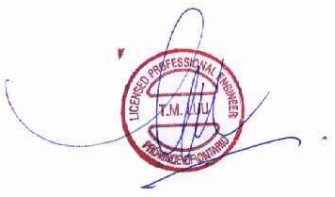
ICOM Incorporated

1-1-32, Kamiminami, Hirano-ku
Osaka,
Japan, 547-0003

In accordance with

SAR (Specific Absorption Rate) Requirements using guidelines established in IEEE C95.1-1992, FCC OET Bulletin 65 (Supplement C) and Industry Canada RSS-102 (Issue 4)

UltraTech's File No.: ICOM-233Q-SAR

This Test report is Issued under the Authority of Tri M. Luu, Professional Engineer, Vice President of Engineering UltraTech Group of Labs Date: July 6, 2010	
Report Prepared by: Steven Lu Issued Date: July 6, 2010	Tested by: Steven Lu Test Dates: May 6, June 16~June 30, 2010

The results in this Test Report apply only to the sample(s) tested, which has been randomly selected.

UltraTech Group of Labs

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FCC	VCCI	Industry Canada / Industrie Canada	NVLAP	BSMI	Korea KCC-RRL
91038	1309	46390-2049	NVLAP Lab Code 200093-0	SL2-IN-E-1119R	CA2049

TABLE OF CONTENTS

EXHIBIT 1. INTRODUCTION

1.1. SCOPE

Reference:	SAR (Specific Absorption Rate) Requirements IEEE C95.1-1992, FCC OET Bulletin 65 (Supplement C Edition 01-01) Industry Canada RSS-102 (Issue 4).
Title	Safety Levels with respect to human exposure to Radio Frequency Electromagnetic Fields Guideline for Evaluating the Environmental Effects of Radio Frequency Radiation
Purpose of Test:	To verify compliance with Federal regulated SAR requirements in Canada and the US.
Method of Measurements:	IEEE C95.1-1992, FCC OET Bulletin 65 (Supplement C Edition 01-01) and Industry Canada RSS-102 (Issue 4)
Device Category	Portable
Exposure Category	Occupational/Controlled

1.2. REFERENCES

The methods and procedures used for the measurements contained in this report are details in the following reference standards:

Publications	Year	Title
IEEE Std. 1528	2003	Draft Recommended practice for determining the Peak Spatial-Average Specific Absorption rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.
Industry Canada RSS102	2010	"Evaluation Procedure for Mobile and Portable Radio Transmitters with respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields"
NCRP Report No.86	1986	"Biological Effects and Exposure Criteria for radio Frequency Electromagnetic Fields"
FCC OET Bulletin 65	2001	"Evaluating Compliance with FCC Guidelines for Human Exposure to radio Frequency Fields"
ANSI/IEEE C95.3	2002	"Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave"
ANSI/IEEE C95.1	2005	"Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300GHz"

EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT AND MANUFACTURER INFORMATION

APPLICANT:	
Name:	ICOM Incorporated
Address:	1-1-32, Kamiminami, Hirano-ku, Osaka Japan, 547-0003
Contact Person:	Mr. Takayuki Watanabe Phone #: +81-66-793-5302 Fax #: +81-66-793-0013 Email Address: export@icom.co.jp

MANUFACTURER:	
Name:	ICOM Incorporated
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Contact Person:	Mr. Takayuki Watanabe Phone #: +81-66-793-5302 Fax #: +81-66-793-0013 Email Address: export@icom.co.jp

2.2. DEVICE UNDER TEST (D.U.T.) DESCRIPTION

The following is the information provided by the applicant.

Trade Name	ICOM Inc.
Type/Model Number	IC-F9021T
Type of Equipment	Licensed Non-Broadcast Transceiver
Serial Number	5000006
Frequency of Operation	380~470 MHz
Rated RF Power	5 Watts conducted (High) 1 Watt conducted (Low)
Modulation Employed	FM
Antenna	¼ Helical whip antenna (M/N: FA-S30U, 380-430 MHz, -2.6dBi, green ring) ¼ Helical whip antenna (M/N: FA-S58U, 430-470 MHz, -3.0dBi, red ring) ¼ Helical whip cut antenna (M/N: FA-S76UC, 380-520 MHz, -1.3 dBi, white ring)
Power Supply	Rechargeable Li-Ion battery pack (M/N: BP-254, 7.4 V, 3040 mAh) Battery Case (M/N: BP-237, for A6*AA (LR6) alkaline)
Primary User Functions of D.U.T.	UHF P25 Trunking Handheld Transceiver

2.2.1. Photograph of D.U.T (IC-F9021T)

< D.U.T.'s front and rear view without battery and antenna >

2.3. LIST OF D.U.T.'S ACCESSORIES:

2.3.1. Li-ion Chargeable Battery (M/N: BP-254)

< BP-254 Li-ion Battery >

*2.3.2. BP-237 Alkaline Battery Case for 6*AA (LR6)*

< BP-237 Battery Case >

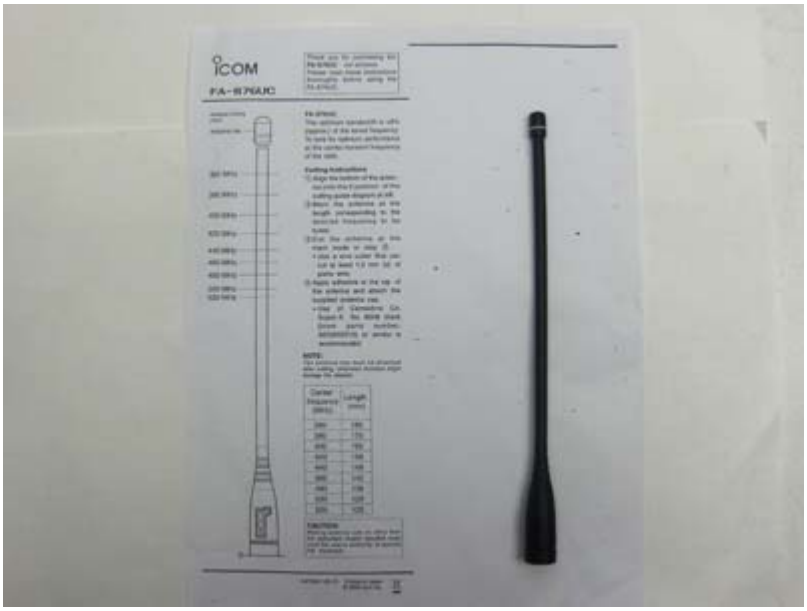
2.3.3. Belt-clip (M/N: MB-115)

< MB-115 Belt-clip >

2.3.4. Antennas: FA-S58U_Red Ring & FA-S30U_Green Ring

< FA-S58U (Red Ring) & FA-S30U (Green Ring) >

2.3.5. Cut Antenna: FA-S76UC



< FA-S76UC cut antenna >

2.3.6. ACC Adapter (M/N: AD-118)

<AD-118 ACC Adapter>

2.3.7. VOX/PTT Case (VS-1MC) + Headset (HS-94)

< VS-1MC VOX/PTT Case + HS-94 Headset >

2.3.8. Speaker-microphone (M/N: HM-184)

< HM-184 Speaker-Microphone>

2.4. SPECIAL CHANGES ON THE D.U.T.'S HARDWARE/SOFTWARE FOR TESTING PURPOSES

N/A

2.5. ANCILLARY EQUIPMENT

N/A

2.6. SPECIFIC OPERATING CONDITIONS

N/A

EXHIBIT 3. SUMMARY OF TEST RESULTS

3.1. LOCATION OF TESTS

All of the measurements described in this report were performed at UltraTech Group of Labs located at:

3000 Bristol Circle, in the city of Oakville, Province of Ontario, Canada.

All measurements were performed in UltraTech's shielded chamber, 16' x 13' x 8'.

3.2. APPLICABILITY & SUMMARY OF SAR RESULTS

The maximum peak spatial - average SAR measured was found to be **2.50 W/Kg** for head configuration and **4.36 W/Kg** for body configuration with 50% usage-based time-averaging applied for PTT device.

Because BP-237 Battery case just works in low output power mode (1W), only BP-254 Li-ion rechargeable battery can be used for SAR testing.

For body configuration tests, all the supplied body-worn accessories were checked through pre-scans and confirmed that those options were not affecting SAR compliance. Therefore the final evaluation for body configuration was performed only with M/N: MB-115 Belt Clip, M/N: AD-118 ACC Adapter and M/N: BP-254 Li-ion rechargeable battery.

3.3. SUMMARY OF MEASUREMENT RESULTS

3.3.1. Head Configuration Results of Part 1: FA-S58U Antenna

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
01	¼ helical whip antenna (M/N: FA-S58U, 430~470 MHz, red ring) 50% duty cycle for PTT	FIX	430	Low		1.02
02		FIX	450	Middle		1.23
03		FIX	470	High		1.01

3.3.2. Head Configuration Results of Part 2: FA-S30U Antenna

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
04	¼ helical whip antenna (M/N: FA-S30U, 380~430 MHz, green ring) 50% duty cycle for PTT	FIX	380	Low-1		2.43
05		FIX	392.5	Low-2		**2.50**
06		FIX	405	Middle		1.26
07		FIX	417.5	High-1		0.73
08		FIX	430	High-2		0.60

3.3.3. Head Configuration Results of Part 3: FA-S76UC Cutting Antenna*

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
09	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=175mm	FIX	380	Low-1		2.11
10		FIX	398	Low-2		---
11		FIX	416	Middle-1		0.52
12		FIX	434	Middle-2		0.47
13		FIX	452	High-1		---
14		FIX	470	High-2		0.46
15	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=165mm	FIX	380	Low-1		2.44
16		FIX	400	Low-2		1.51
17		FIX	416	Middle-1		---
18		FIX	434	Middle-2		0.62
19		FIX	452	High-1		---
20		FIX	470	High-2		0.57
21	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=156mm	FIX	380	Low-1		1.84
22		FIX	398	Low-2		---
23		FIX	420	Middle-1		1.03
24		FIX	434	Middle-2		0.89
25		FIX	452	High-1		---
26		FIX	470	High-2		0.74

* If the SAR results measured at the low-1 channel and middle-1 channel (or: low-2 channel and middle-2 channel) are below 50% limit, test at the low-2 channel (or: middle-1 channel) is skipped; if the SAR results measured at the high-2 channel and middle-2 channel are below 50% limit, test at the high-1 channel is skipped.

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	**Occupational/Controlled Exposure Category Limit**					**8.0**
27	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=148mm	FIX	380	Low-1		1.25
28		FIX	398	Low-2		---
29		FIX	416	Middle-1		1.37
30		FIX	440	Middle-2		1.04
31		FIX	452	High-1		---
32		FIX	470	High-2		0.88
33	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=142mm	FIX	380	Low-1		0.93
34		FIX	398	Low-2		---
35		FIX	416	Middle-1		1.60
36		FIX	434	Middle-2		1.18
37		FIX	452	High-1		---
38		FIX	460	High-2		1.16

3.3.4. Body Configuration Results of Part 1: FA-S58U Antenna

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
41	¼ helical whip antenna (M/N: FA-S58U, 430~470 MHz, red ring); 50% duty cycle for PTT; MB-115 Clip, AD-118 ACC Adapter.	FIX	470	Low		3.60
42		FIX	491	Middle		3.69
43		FIX	512	High		3.00

3.3.5. Body Configuration Results of Part 2: FA-S30U Antenna

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
44	¼ helical whip antenna (M/N: FA-S30U, 380~430 MHz, Green ring) 50% duty cycle for PTT; MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1		3.57
45		FIX	392.5	Low-2		**4.36**
46		FIX	405	Middle		3.40
47		FIX	417.5	High-1		2.38
48		FIX	430	High-2		1.96

3.3.6. Body Configuration Results of Part 3: FA-S76UC Cutting Antenna*

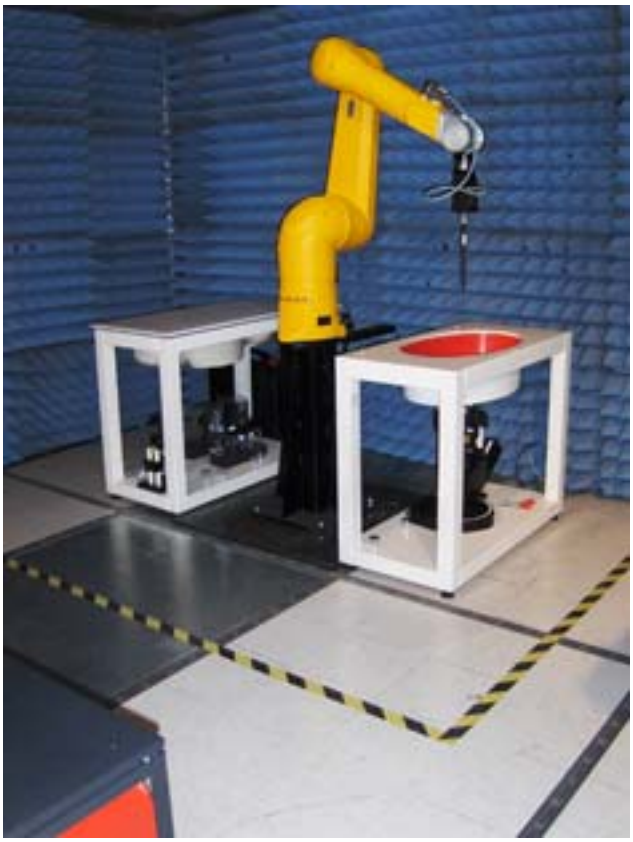
#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
49	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=175mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1		3.61
50		FIX	398	Low-2		---
51		FIX	416	Middle-1		1.58
52		FIX	434	Middle-2		1.35
53		FIX	452	High-1		---
54		FIX	470	High-2		1.04
55	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=165mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1		3.63
56		FIX	400	Low-2		3.52
57		FIX	416	Middle-1		---
58		FIX	434	Middle-2		1.92
59		FIX	452	High-1		---
60		FIX	470	High-2		1.38
61	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=156mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1		2.49
62		FIX	398	Low-2		---
63		FIX	420	Middle-1		3.34
64		FIX	434	Middle-2		2.79
65		FIX	452	High-1		---
66		FIX	470	High-2		1.89

* If the SAR results measured at the low-1 channel and middle-1 channel (or: low-2 channel and middle-2 channel) are below 50% limit, test at the low-2 channel (or: middle-1 channel) is skipped; if the SAR results measured at the high-2 channel and middle-2 channel are below 50% limit, test at the high-1 channel is skipped.

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	**Occupational/Controlled Exposure Category Limit**					**8.0**
67	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=148mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1		1.76
68		FIX	398	Low-2		---
69		FIX	416	Middle-1		3.66
70		FIX	440	Middle-2		3.43
71		FIX	452	High-1		---
72		FIX	470	High-2		2.24
73	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=142mm MB-115 Clip, AD-118 ACC Adapter.	FIX	380	Low-1		1.41
74		FIX	398	Low-2		---
75		FIX	416	Middle-1		3.68
76		FIX	434	Middle-2		3.86
77		FIX	452	High-1		---
78		FIX	460	High-2		3.00

EXHIBIT 4. SAR SYSTEM CONFIGURATION

4.1. DASY5 SYSTEM OVERVIEW



4.1.1. DASY5 System Specification

Positioning Equipment	Computer
DASAY5 Measurement Server	Type: HP Compaq dc7800p Convertible
Data Acquisition Electronics (DAE)	CPU : Intel® Core™ 2 Duo E8500
Light Beam Unit	Memory : 2GB RAM
Device Holder	Operating System : Windows XP Professional
Robot (STAUBLI TX90)	Monitor : HP L1950g LCD

4.1.1.1. DASY5 Measurement Server

The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz Intel ULV Celeron, 128MB chipdisk and 128MB RAM. The necessary circuits for communication with the DAE4 (or DAE3) electronics box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized pinout, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.

4.1.1.2. Data Acquisition Electronics

The data acquisition electronics (DAE4 or DAE3) consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of both the DAE4 as well as of the DAE3 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

4.1.1.3. Dosimetric Probes

These probes are specially designed and calibrated for use in liquids with high permittivity. They should not be used in air, since the spherical isotropy in air is poor (-2 dB). The dosimetric probes have special calibrations in various liquids at different frequencies.

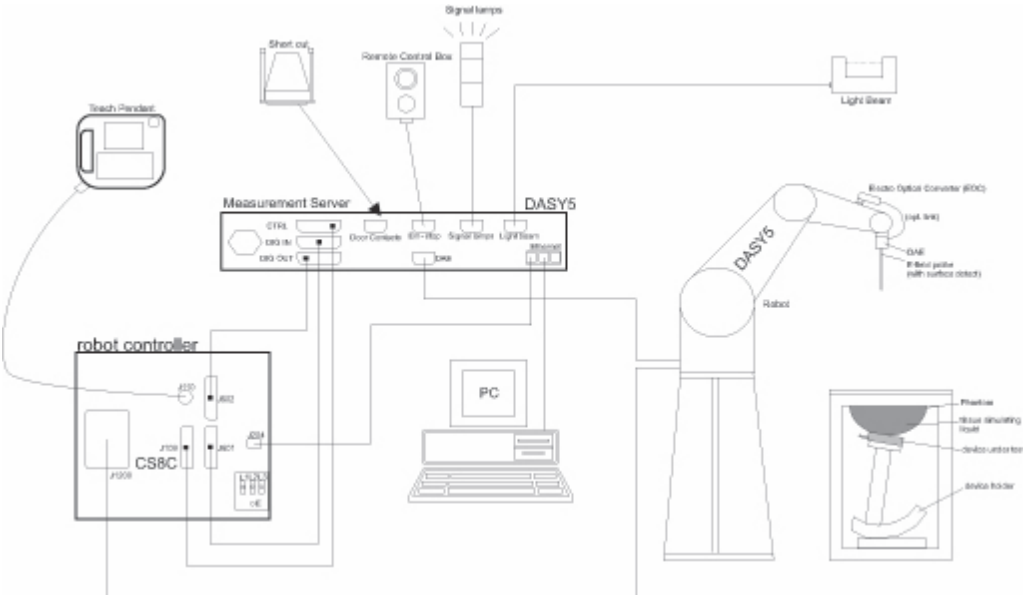
4.1.1.3.1. ES3DV3 Isotropic E-Filed Probe

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 900 and HSL 1750 Additional CF for other liquids and frequencies
Frequency	10 MHz to 4 GHz Linearity ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 µW/g to > 100 mW/g Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm

4.1.1.3.2. EX3DV4 Isotropic E-Filed Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 900 and HSL 1750 Additional CF for other liquids and frequencies
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm

4.1.2. DASY5 SAR SYSTEM block diagram

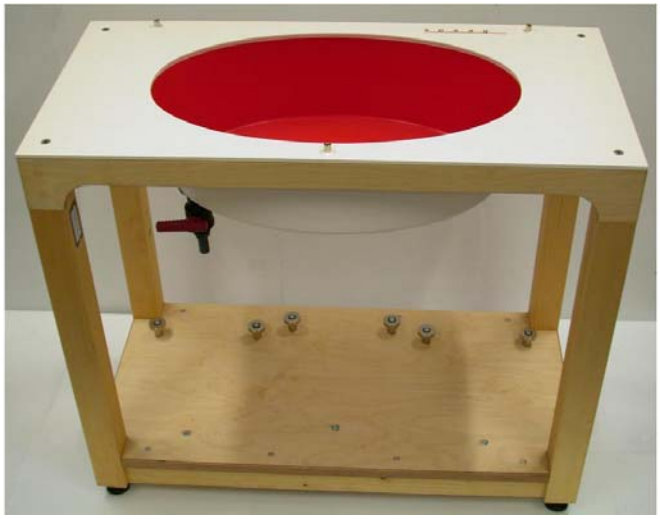


4.2. SAR TEST PHANTOMS

4.2.1. SAM Twin Phantom

For Head mounted devices placed next to the ear, the phantom used in the evaluation of the RF exposure of the user of the wireless device is an IEEE P1528 compliant SAM Twin phantom, shaped like a human head and filled with a mixture simulating the dielectric characteristics of the brain. A left sided head and a right sided head are evaluated to determine the worst case orientation for SAR.

4.2.2. ELI 4.0 Phantom

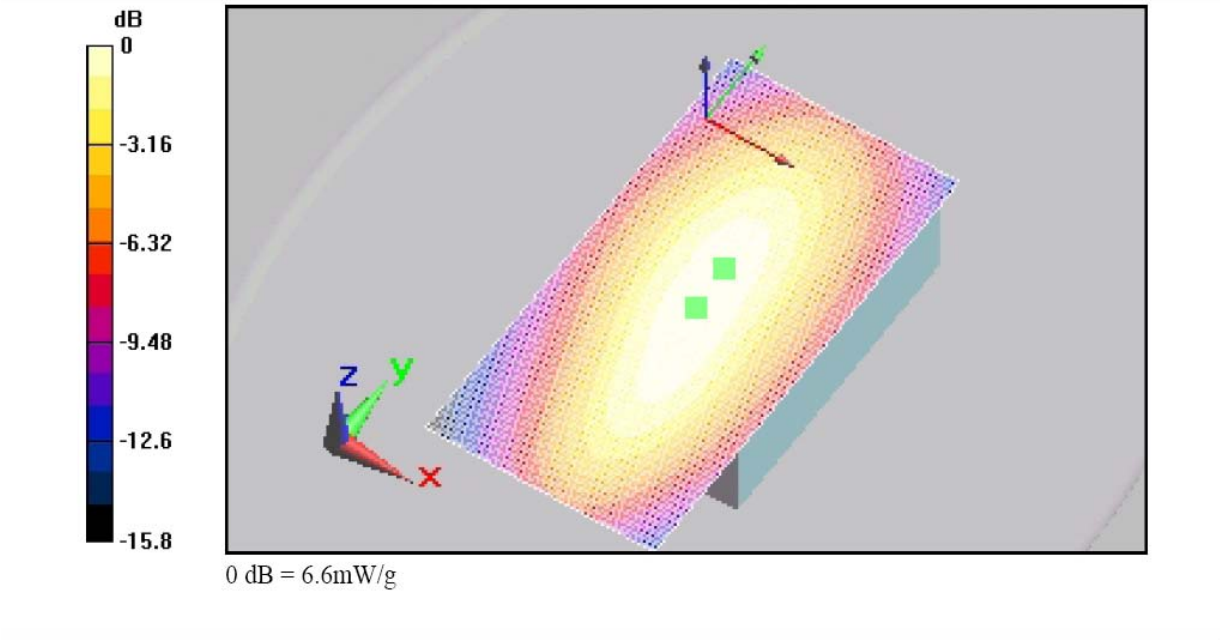


For body mounted and frontal held push-to-talk devices, an IEC 62209-2 compliant Oval Flat Phantom (ELI 4.0) with a base plate thickness of 2mm is used.

EXHIBIT 5. SAR DATA ACQUISITION METHODOLOGY

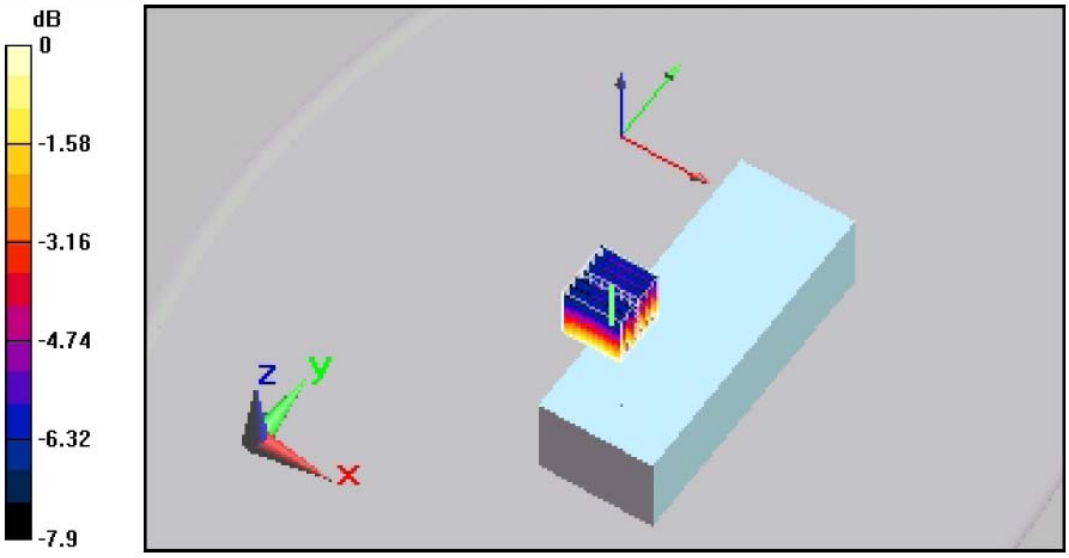
5.1. SAR MEASUREMENT PROCEDURE

The goal of the measurement process is to scan the phantom over a selected area in order to find the region of highest levels of RF energy and then to obtain a single value for the peak spatial-average of SAR over a volume that would contain one gram (in the shape of a cube) of biological tissue. The test procedure, of course, measures SAR in the simulated tissue.



< Area scan >

The software requests the user to move the probe to locations at two extreme corners of a rectangle that encloses the area to be scanned. An arbitrary origin and the spatial resolution for the scan are also specified. Under program control, the scan is performed automatically by the robot-guided probe.



0 dB = 6.47mW/g

< Zoom Scan >

The DASY5 software includes all numerical procedures necessary to evaluate the spatial peak SAR values.

Based on the Draft: SCC-34, SC-2, WG-2 - Computational Dosimetry, IEEE P1529/D0.0 (Draft Recommended Practice for Determining the Spatial-Peak Specific Absorption Rate (SAR) Associated with the Use of Wireless Handsets - Computational Techniques), a new algorithm has been implemented. The spatial-peak SAR can be computed over any required mass.

The base for the evaluation is a "cube" measurement in a volume of (30mm)3 (7x7x7 points). The measured volume must include the 1 g and 10 g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan. If the 10g cube or both cubes are not entirely inside the measured volumes, the system issues a warning regarding the evaluated spatial peak values within the postprocessing engine (SEMCAD X). This means that if the measured volume is shifted, higher values might be possible. To get the correct values you can use a finer measurement grid for the area scan. In complicated field distributions, a large grid spacing for the area scan might miss some details and give an incorrectly interpolated peak location.

The entire evaluation of the spatial peak values is performed within the postprocessing engine (SEMCAD X). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. extraction of the measured data (grid and values) from the Zoom Scan
2. calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. generation of a high-resolution mesh within the measured volume
4. interpolation of all measured values from the measurement grid to the high-resolution grid

5. extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface

6. calculation of the averaged SAR within masses of 1 g and 10 g

The significant parts are outlined in more detail within the following sections.

5.1.1. Interpolation, Extrapolation and Detection of Maxima

The probe is calibrated at the center of the dipole sensors which is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated.

In DASY5, the choice of the coordinate system defining the location of the measurement points has no influence on the uncertainty of the interpolation, Maxima Search and extrapolation routines. The interpolation, extrapolation and maximum search routines are all based on the modified Quadratic Shepard's method.

Thereby, the interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation. The DASY5 routines construct a once-continuously differentiable function that interpolates the measurement values as follows:

- For each measurement point a trivariate (3-D) / bivariate (2-D) quadratic is computed. It interpolates the measurement values at the data point and forms a least-square fit to neighboring measurement values.

- the spatial location of the quadratic with respect to the measurement values is is attenuated by an inverse distance weighting. This is performed since the calculated quadratic will fit measurement values at nearby points more accurate than at points located further away.

- After the quadratics are calculated for at all measurement points, the interpolating function is calculated as a weighted average of the quadratics.

There are two control parameters that govern the behavior of the interpolation method. One specifies the number of measurement points to be used in computing the least-square fits for the local quadratics. These measurement points are the ones nearest the input point for which the quadratic is being computed. The second parameter specifies the number of measurement points that will be used in calculating the weights for the quadratics to produce the final function. The input data points used there are the ones nearest the point at which the interpolation is desired. Appropriate defaults are chosen for each of the control parameters

The trivariate quadratics that have been previously computed for the 3-D interpolation and whose input data are at the closest distance from the phantom surface, are used in order to extrapolate the fields to the surface of the phantom.

In order to determine all the field maxima in 2-D (Area Scan) and 3-D (Zoom Scan), the measurement grid is refined by a default factor of 10 and the interpolation function is used to evaluate all field values between corresponding measurement points. Subsequently, a linear search is applied to find all the candidate maxima. In a last step, non physical maxima are removed and only those maxima which are within 2 dB of the global maximum value are retained.

Important: To be processable by the interpolation/extrapolation scheme, the Area Scan requires at least 6 measurement points. The Cube Scan requires at least 10 measurement points to allow an application of these algorithms.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extrema of the SAR distribution. The uncertainty on the locations of the extrema is less than 1/20 of the grid size. Only local maxima within -2 dB of the global maximum are searched and passed for the Cube Scan measurement.

In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

5.1.2. Averaging and Determination of Spatial Peak SAR

The interpolated data is used to average the SAR over the 1g and 10g cubes by spatially discretizing the entire measured volume. The resolution of this spatial grid used to calculate the averaged SAR is 1mm or about 42875 interpolated points. The resulting volumes are defined as cubical volumes containing the appropriate tissue parameters that are centered at the location. The location is defined as the center of the incremental volume (voxel).

The spatial-peak SAR must be evaluated in cubical volumes containing a mass that is within 5% of the required mass. The cubical volume centered at each location, as defined above, should be expanded in all directions until the desired value for the mass is reached, with no surface boundaries of the averaging volume extending beyond the outermost surface of the considered region. In addition, the cubical volume should not consist of more than 10% of air. If these conditions are not satisfied then the center of the averaging volume is moved to the next location. Otherwise, the exact size of the final sampling cube is found using an inverse polynomial approximation algorithm, leading to results with improved accuracy. If one boundary of the averaging volume reaches the boundary of the measured volume during its expansion, it will not be evaluated at all. Reference is kept of all locations used and those not used for averaging the SAR. All average SAR values are finally assigned to the centered location in each valid averaging volume.

All locations included in an averaging volume are marked to indicate that they have been used at least once. If a location has been marked as used, but has never been assigned to the center of a cube, the highest averaged SAR value of all other cubical volumes which have used this location for averaging, is assigned to this location. Only those locations that are not part of any valid averaging volume should be marked as unused. For the case of an unused location, a new averaging volume must be constructed which will have the unused location centered at one surface of the cube. The remaining five surfaces are expanded evenly in all directions until the required mass is enclosed, regardless of the amount of included air. Of the six possible cubes with one surface centered on the unused location, the smallest cube is used, which still contains the required mass.

If the final cube containing the highest averaged SAR touches the surface of the measured volume, an appropriate warning is issued within the postprocessing engine.

5.1.3. Evaluation Errors

5.1.3.1. Cube shape

The mentioned procedures search for the maximum averaged 1g and 10g volumes of cubical shape according to the ANSII and ICNIRP standard. A density of 1000 kg/m3 is used to represent the head tissue density and not the tissue simulating liquid density.

5.1.3.2. Extrapolation

For the extrapolation the distance must be specified in the Area Scan and Zoom Scan Jobs. The distance is defined as the distance between the probe sensor center and the phantom surface. The recommended distance is 4-5 mm.

5.1.3.3. Boundary effects

The dosimetric probes are calibrated in a gradient field with energy flow and decay in direction of the probe axis. During calibration the probe tip is completely surrounded by the simulating solution. If the probe is used in the immediate vicinity of a media boundary, the field in the probe is altered due to interaction with the field in the boundary and the probe sensitivity changes. The influence of the boundary effect depends on the probe construction, the media parameters and the probe orientation with respect to the boundary. It disappears at a distance of 1mm (E1D-probe) to 5mm (ET3D-probes) between the probe tip and the boundary. The boundary effect must be considered in the extrapolation to the surface.

EXHIBIT 6. MEASUREMENTS, EXAMINATIONS & TEST DATA

6.1. TEST CONFIGURATIONS

D.U.T. Information		Condition	
Product Name	UHF P25 Trunking Handheld Trarnsceiver	**Robot Type**	6 Axis
Model Number	IC-F9021T	**Scan Type**	SAR – Area/Zoom/Att. Vs Depth
Serial Number	5000006	**Measured Field**	E
Frequency Band [MHz]	380-470	**Phantom Type**	2_{mm} base Flat Phantom
Frequency Tested [MHz]	380, 392.5, 398, 400, 405, 416, 417.5, 420, 430, 434, 440, 450, 452, 460, 470	**Phantom Position**	Waist
Rated Conducted Power [W]	5W (High power mode) 1W (Low power mode)	**Room Temperature [°C]**	21.0 ± 1
Antenna Type	ICOM Helical whip antenna (M/N: FA-S30U, 380-430 MHz, green ring) ICOM Helical whip antenna (M/N: FA-S58U, 430-470 MHz, red ring) ICOM helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring)	**Room Humidity [%]**	40 ± 10
Modulation	FM	**Tissue Temperature [°C]**	21.0 ± 1
Worst Case Duty Cycle	50 %		
Duty Cycle Tested	100 %		
Source(or Usage)-Based Time-Average Factor	0.5 (mechanical PTT button)		

Type of Tissue	Brain	Muscle
Test Frequency [MHz]	450	450
Target Conductivity [S/m]	0.87	0.94
Measured Conductivity [S/m]	0.86 (-1.6 %)	0.93 (-1.5 %)
Target Dielectric Constant	43.5	56.7
Measured Dielectric Constant	42.4 (-2.4 %)	56.0 (-1.3 %)
Penetration Depth (Plane Wave Excitation) [mm]	43.2	45.0
Probe Model Number	EX3DV4	EX3DV4
Probe Serial Number	3673	3673
Probe Orientation	Isotropic	Isotropic
Probe Sensor Offset [mm]	1	1
Probe Tip Diameter [mm]	2.5	2.5
Conversion Factor (γ)	9.20 (+/- 13.3%)	9.80 (+/- 13.3%)

6.2. GENERAL TEST SETUP

6.2.1. Equipment Configuration

Power and signal distribution, grounding, interconnecting cabling and physical placement of equipment of a test system shall simulate the typical application and usage in so far as is practicable, and shall be in accordance with the relevant product specifications of the manufacturer.

The configuration that tends to maximize the D.U.T's emission or minimize its immunity is not usually intuitively obvious and in most instances selection will involve some trial and error testing. For example, interface cables may be moved or equipment re-orientated during initial stages of testing and the effects on the results observed.

Only configurations within the range of positions likely to occur in normal use need to be considered.

The configuration selected shall be fully detailed and documented in the test report, together with the justification for selecting that particular configuration.

6.2.2. Exercising Equipment

The exercising equipment and other auxiliary equipment shall be sufficiently decoupled from the D.U.T. so that the performance of such equipment does not significantly influence the test results.

6.3. PHOTOGRAPHS OF D.U.T. POSITION

6.3.1. Prescan

6.3.1.1. Headset Accessories at High Frequency Band

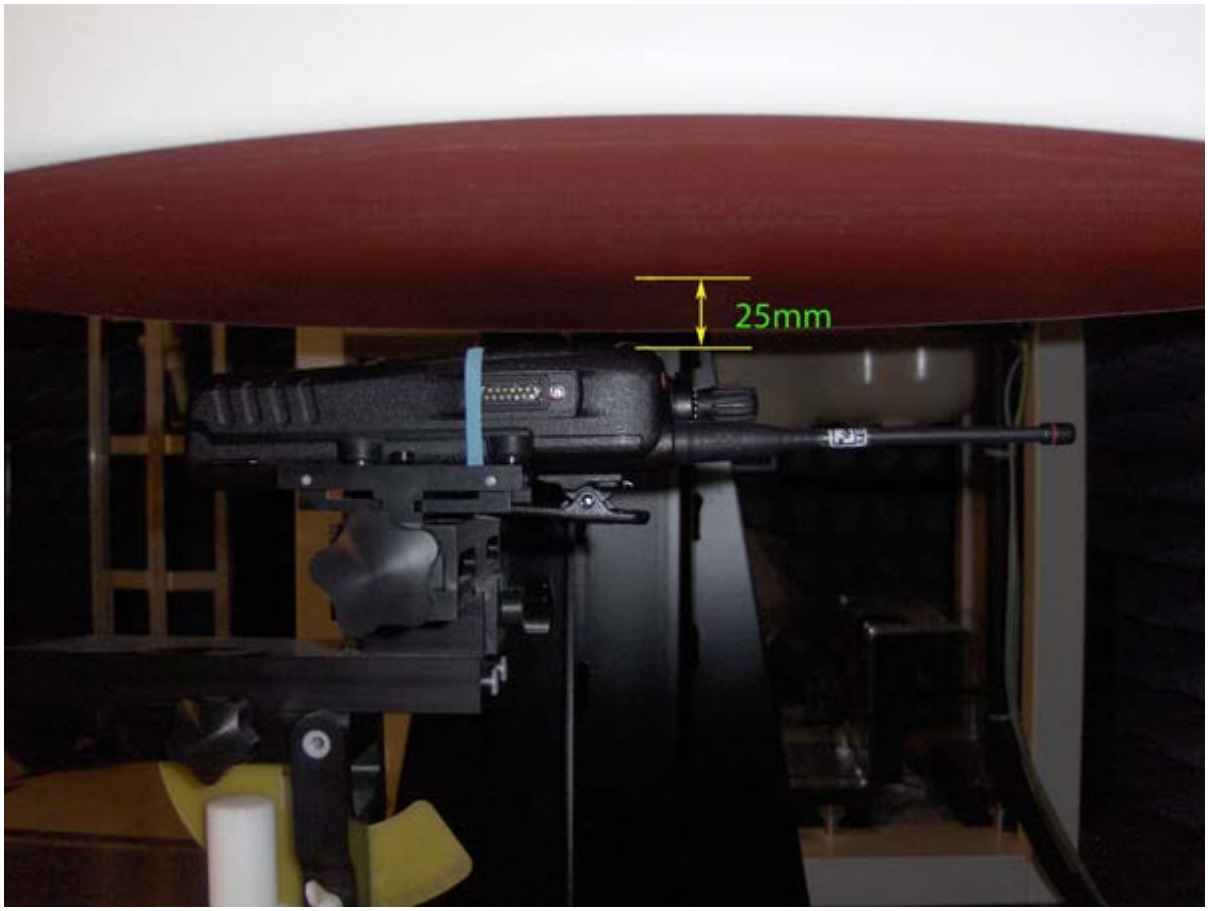
Back side of EUT in parallel to the phantom with the belt-clip (M/N: MB-115) in contact; using FA-S58U antenna and BP-254 chargeable battery: attached 3 different- types accessories separately.

6.3.1.2. Headset Accessories at Low Frequency Band

Back side of EUT in parallel to the phantom with the belt-clip (M/N: MB-115) in contact; using FA-S30U and BP-254 chargeable battery: attached 3 different- types accessories separately.

6.3.2. Head Configuration

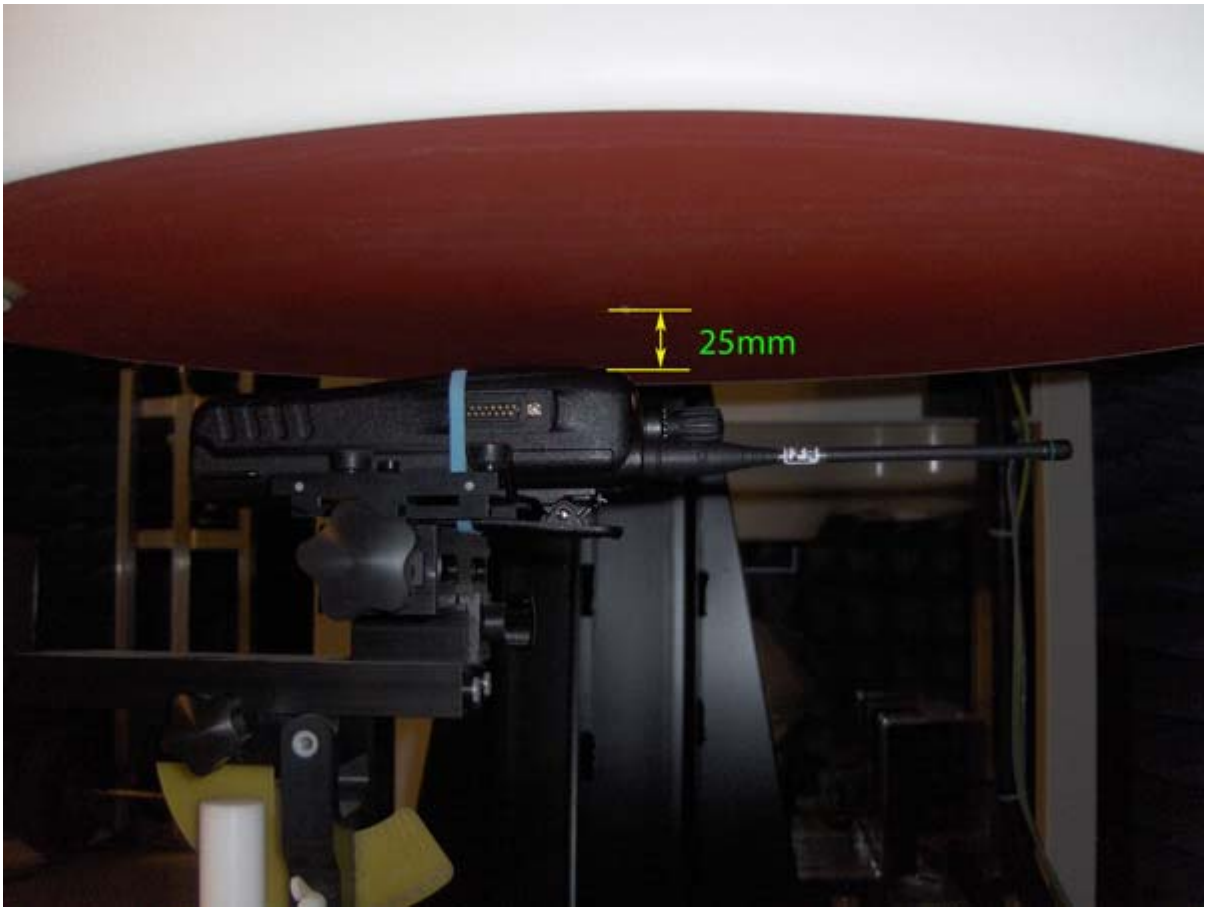
6.3.2.1. Head-front Part 1: FA-S58U Antenna:



< FA-S58U: 430MHz~470MHz; Red Ring>

Remark: Distance between EUT and phantom = 25 mm

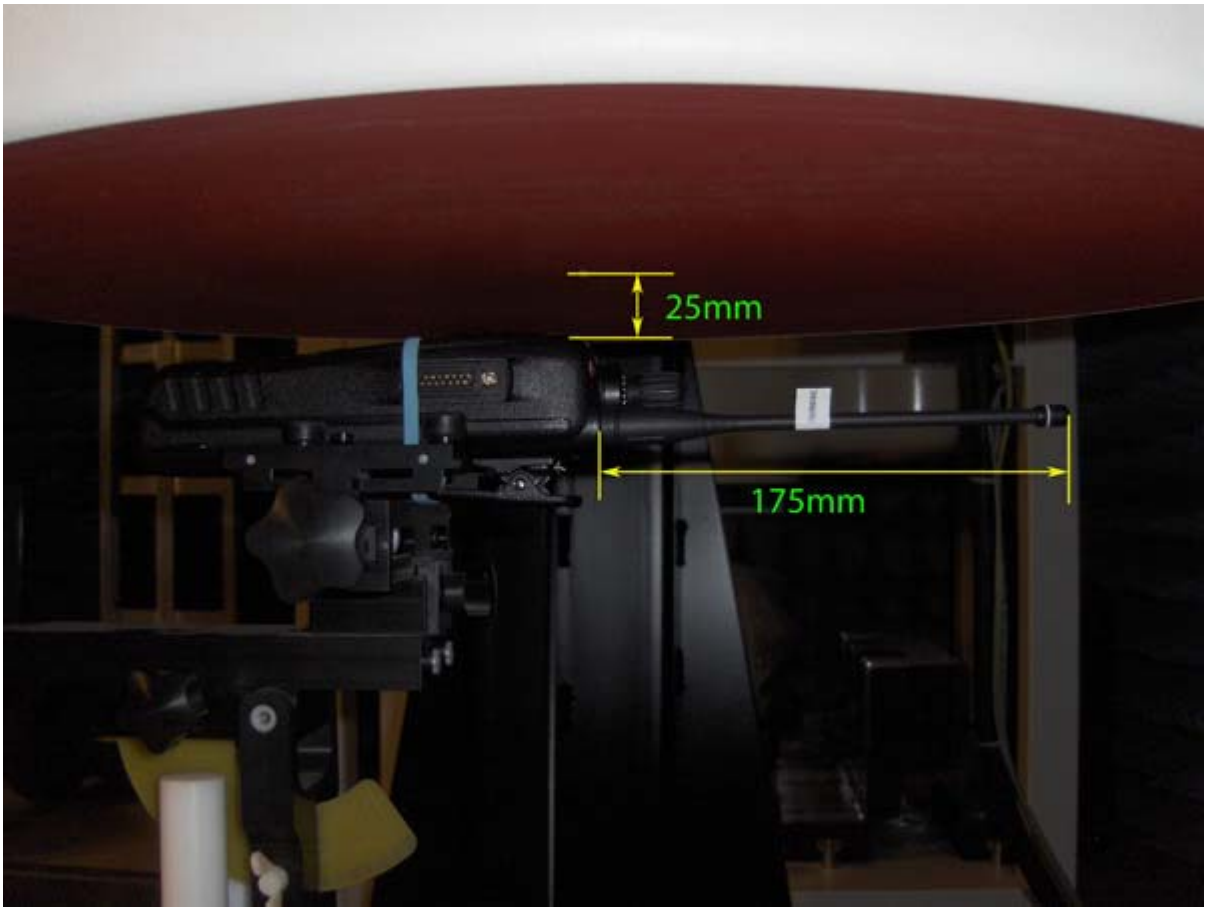
6.3.2.2. Head-front Part 2: FA-S30U Antenna:



< FA-S30U: 380MHz~430MHz; Green Ring>

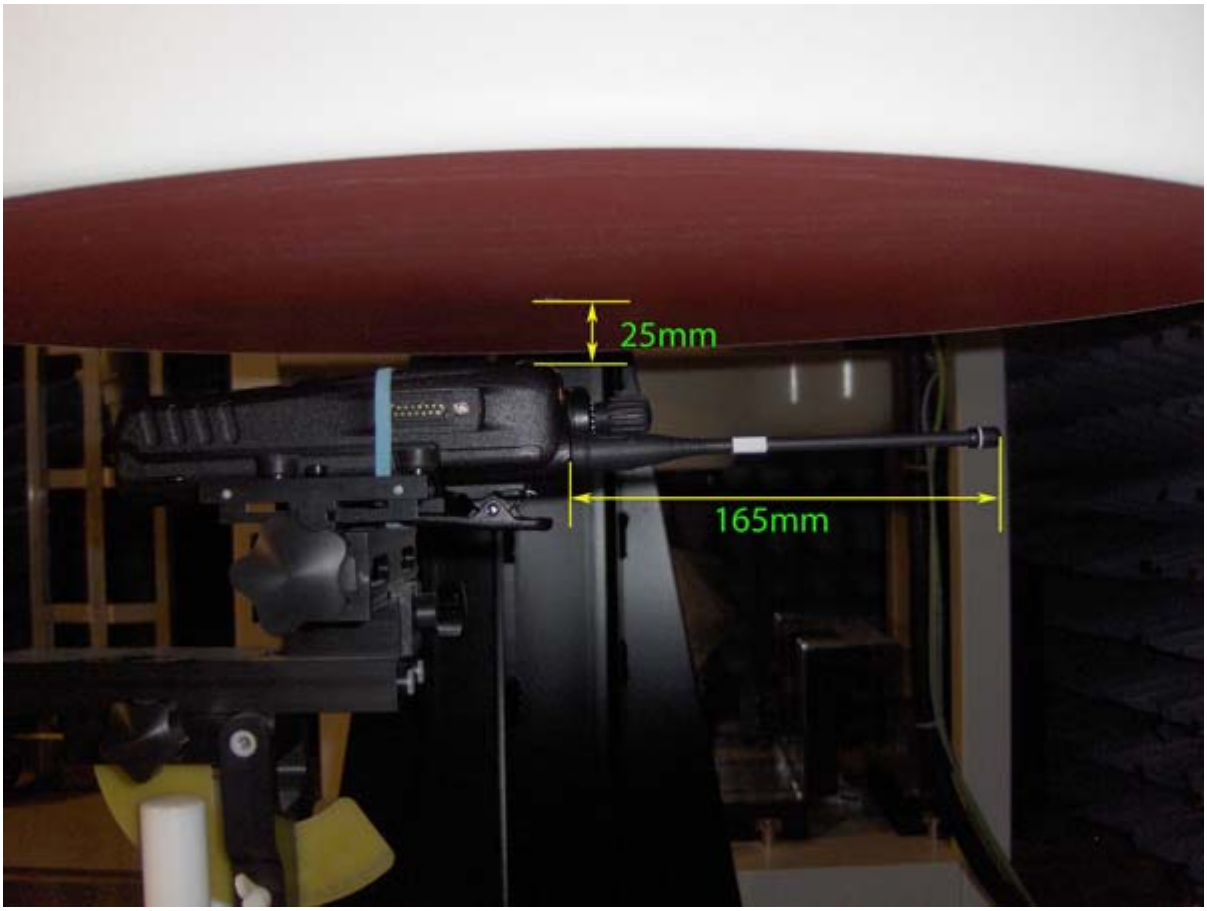
Remark: Distance between EUT and phantom = 25 mm

6.3.2.3. Head-front Part 3: FA-S76UC Cutting Antenna



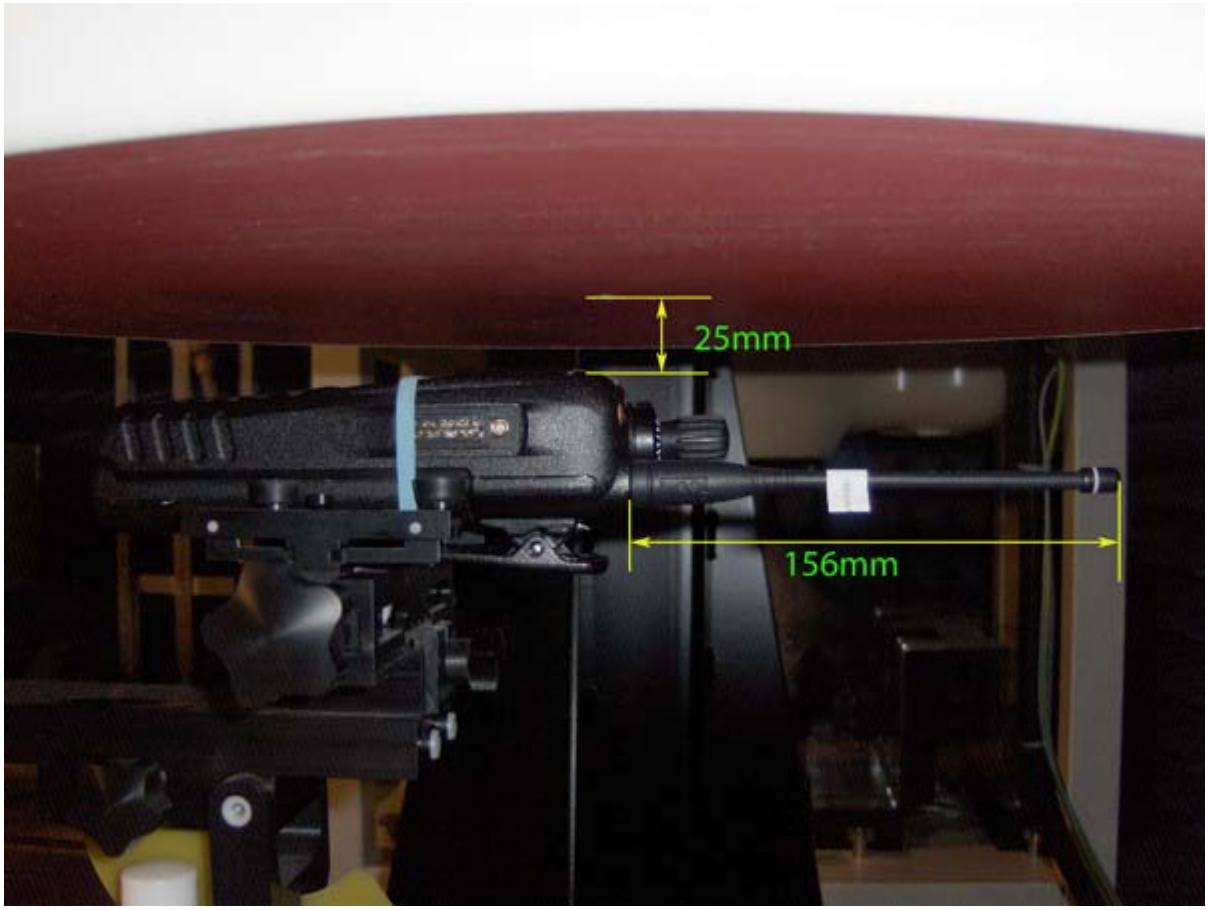
< FA-S76UC cut antenna with the length of 175mm >

Remark: Distance between EUT and phantom = 25 mm



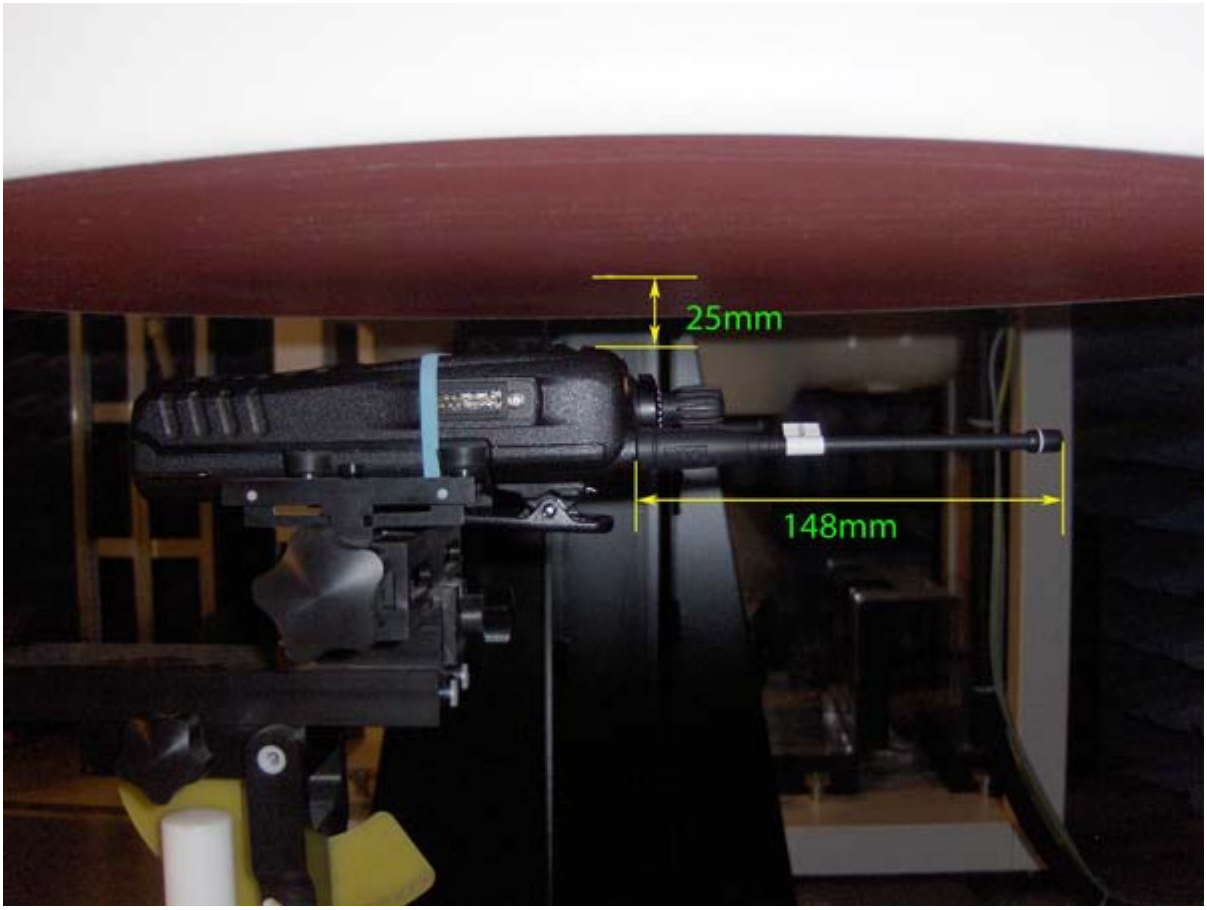
< FA-S76UC cut antenna with the length of 165mm >

Remark: Distance between EUT and phantom = 25 mm



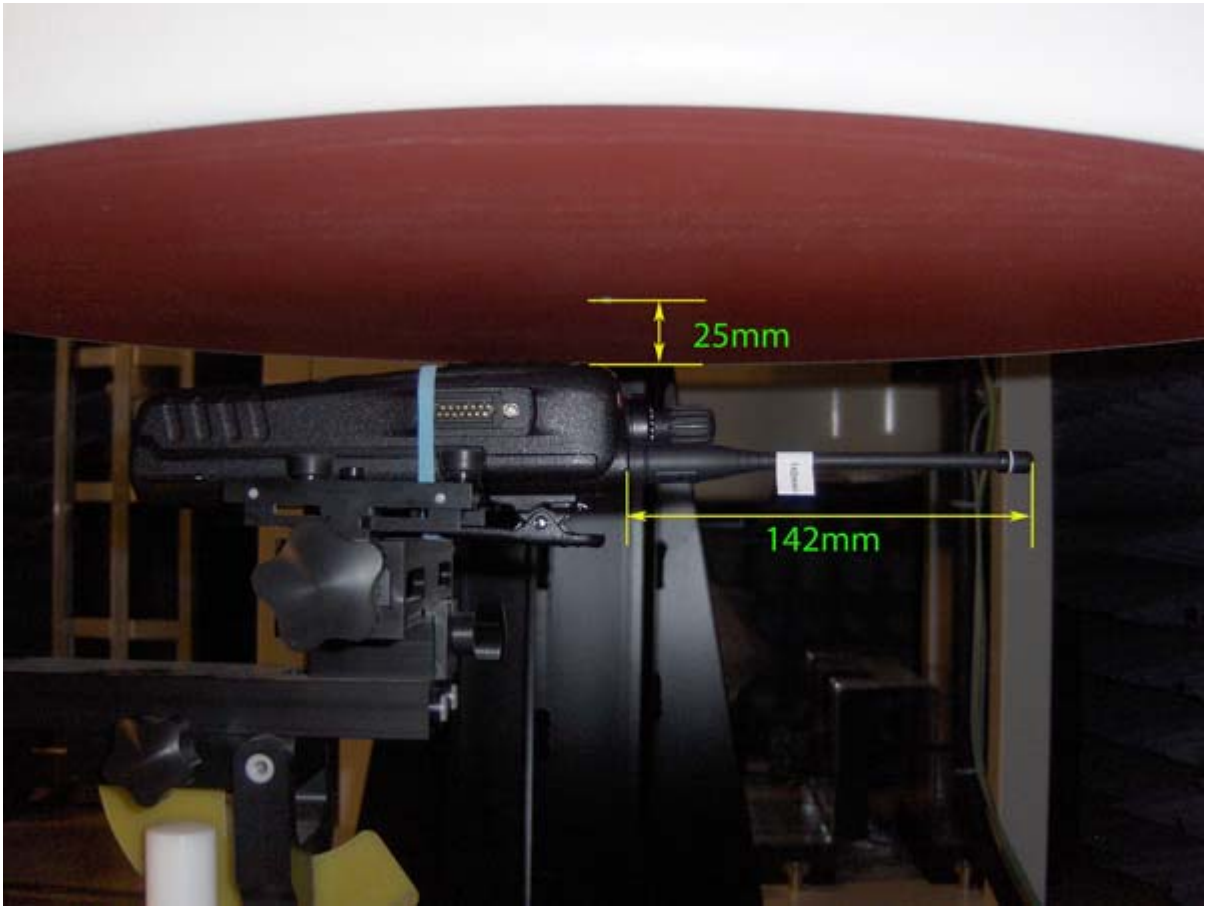
< FA-S76UC cut antenna with the length of 156mm >

Remark: Distance between EUT and phantom = 25 mm



< FA-S76UC cut antenna with the length of 148mm >

Remark: Distance between EUT and phantom = 25 mm



< FA-S76UC cut antenna with the length of 142mm >

Remark: Distance between EUT and phantom = 25 mm

6.3.3. Body Configuration

6.3.3.1. Body-worn Part 1: FA-S58U Antenna:

Back side of EUT in parallel to the phantom with the belt-clip in contact, Belt-clip (M/N: MB-115) and ACC Adapter (M/N: AD-118)

< FA-S58U: 430MHz~470MHz; Red Ring >

Remark: Belt clip touch the phantom bottom

6.3.3.2. Body-worn Part 2: FA-S30U Antenna:

Back side of EUT in parallel to the phantom with the belt-clip in contact, Belt-clip (M/N: MB-115) and ACC Adapter (M/N: AD-118)

< FA-S30U: 380MHz~430MHz; Green Ring>

Remark: Belt clip touch the phantom bottom

6.3.3.3. Body-worn Part 3: FA-S76UC Cutting Antenna

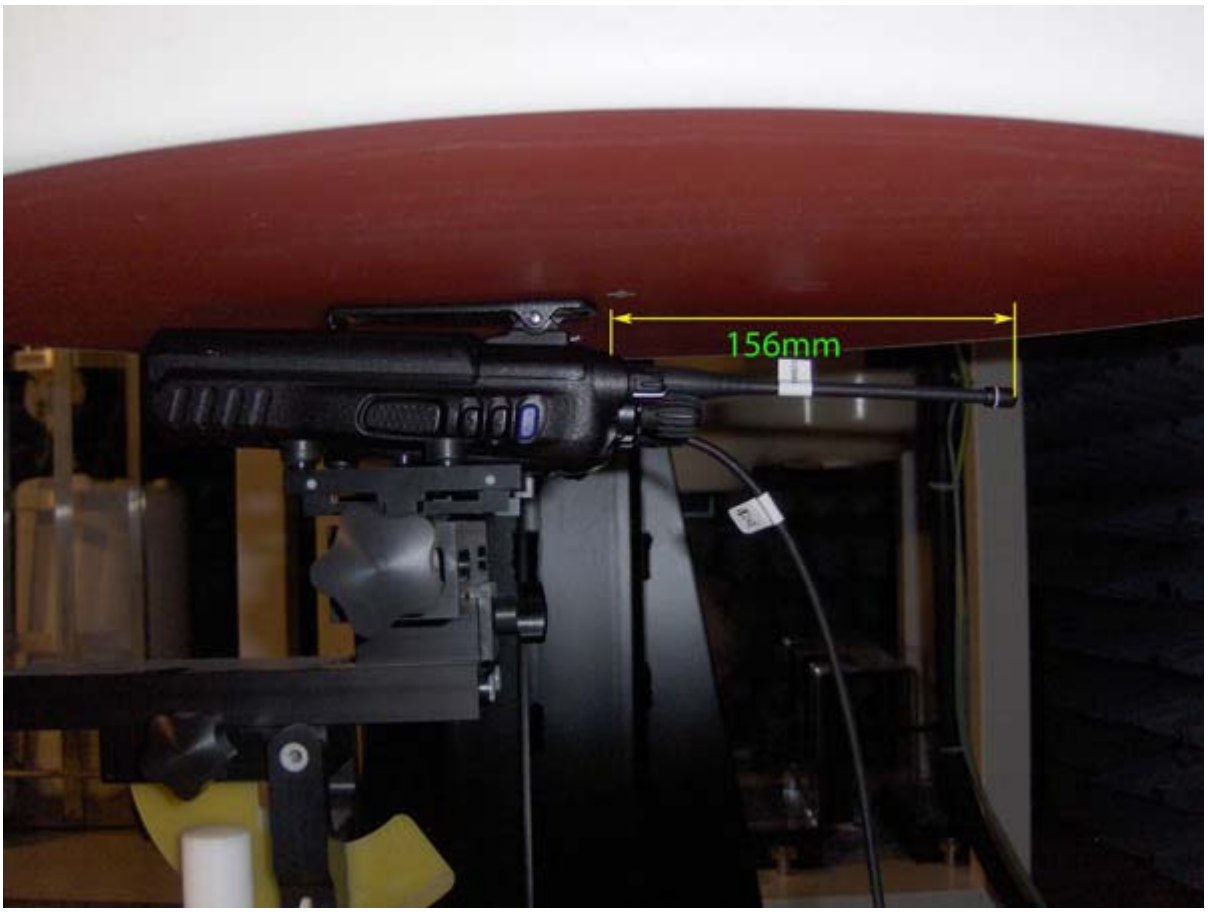
Back side of EUT in parallel to the phantom with the belt-clip in contact, Belt-clip (M/N: MB-115) and ACC Adapter (M/N: AD-118)

< FA-S76UC cut antenna with the length of 175mm >

Remark: Belt clip touch the phantom bottom

< FA-S76UC cut antenna with the length of 165mm >

Remark: Belt clip touch the phantom bottom



< FA-S76UC cut antenna with the length of 156mm >

Remark: Belt clip touch the phantom bottom

< FA-S76UC cut antenna with the length of 148mm >

Remark: Belt clip touch the phantom bottom

< FA-S76UC cut antenna with the length of 142mm >

Remark: Belt clip touch the phantom bottom

6.4. SAR MEASUREMENT DATA

6.4.1. Prescan Results

- **Headset Accessories at High Frequency Band**

#	Configuration	Antenna Position	Frequency [MHz]	MAX SAR_{1g} [W/Kg]		Top Value of MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
101	¼ helical whip antenna (M/N: FA-S58U, 430~470 MHz, blue ring); HM-184 Speaker Microphone; 50% duty cycle for PTT BP-254 Li-Ion Chargeable Battery	FIX	450	3.12		
102	¼ helical whip antenna (M/N: FA-S58U, 430~470 MHz, blue ring); VS-1MC VOX/PTT Case; 50% duty cycle for PTT BP-254 Li-Ion Chargeable Battery	FIX	450	3.41		
103	¼ helical whip antenna (M/N: FA-S58U, 430~470 MHz, blue ring); AD-118 ACC Adapter ; 50% duty cycle for PTT BP-254 Li-Ion Chargeable Battery	FIX	450	3.69		3.69

- **Headset Accessories at Low Frequency Band**

#	Configuration	Antenna Position	Frequency [MHz]	MAX SAR_{1g} [W/Kg]		Top Value of MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
104	¼ helical whip antenna (M/N: FA-S30U, 430~470 MHz, blue ring); HM-184 Speaker Microphone; 50% duty cycle for PTT BP-254 Li-Ion Chargeable Battery	FIX	392.5	3.83		
105	¼ helical whip antenna (M/N: FA-S30U, 430~470 MHz, blue ring); VS-1MC VOX/PTT Case; 50% duty cycle for PTT BP-254 Li-Ion Chargeable Battery	FIX	392.5	4.12		
106	¼ helical whip antenna (M/N: FA-S30U, 430~470 MHz, blue ring); AD-118 ACC Adapter ; 50% duty cycle for PTT BP-254 Li-Ion Chargeable Battery	FIX	392.5	4.36		4.36
107	¼ helical whip antenna (M/N: FA-S30U, 430~470 MHz, blue ring); HM-184 Speaker Microphone; 50% duty cycle for PTT BP-254 Li-Ion Chargeable Battery	FIX	417.5	2.17		
108	¼ helical whip antenna (M/N: FA-S30U, 430~470 MHz, blue ring); VS-1MC VOX/PTT Case; 50% duty cycle for PTT BP-254 Li-Ion Chargeable Battery	FIX	417.5	2.31		
109	¼ helical whip antenna (M/N: FA-S30U, 430~470 MHz, blue ring); AD-118 ACC Adapter ; 50% duty cycle for PTT BP-254 Li-Ion Chargeable Battery	FIX	417.5	2.38		2.38

6.4.2. Head Configuration Results of Part 1: FA-S58U Antenna

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
01	¼ helical whip antenna (M/N: FA-S58U, 430~470 MHz, red ring) 50% duty cycle for PTT	FIX	430	Low		1.02
02		FIX	450	Middle		1.23
03		FIX	470	High		1.01

6.4.2.1. ¼ helical whip antenna (M/N: FA-S58U), 430 MHz; #01

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S58U_Head_430MHz(Lf)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

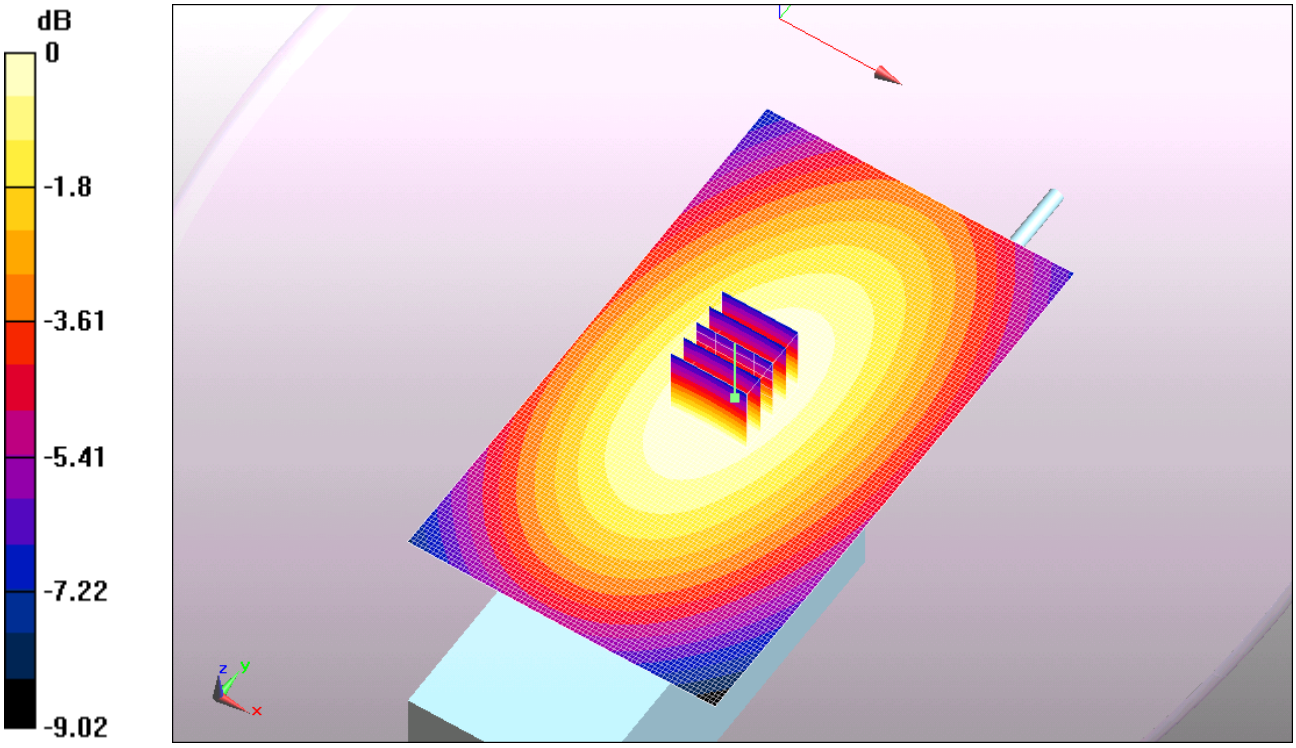
Communication System: CW; Frequency: 430 MHz
Medium parameters used: f = 430 MHz; σ = 0.849 mho/m; ε_r = 42.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

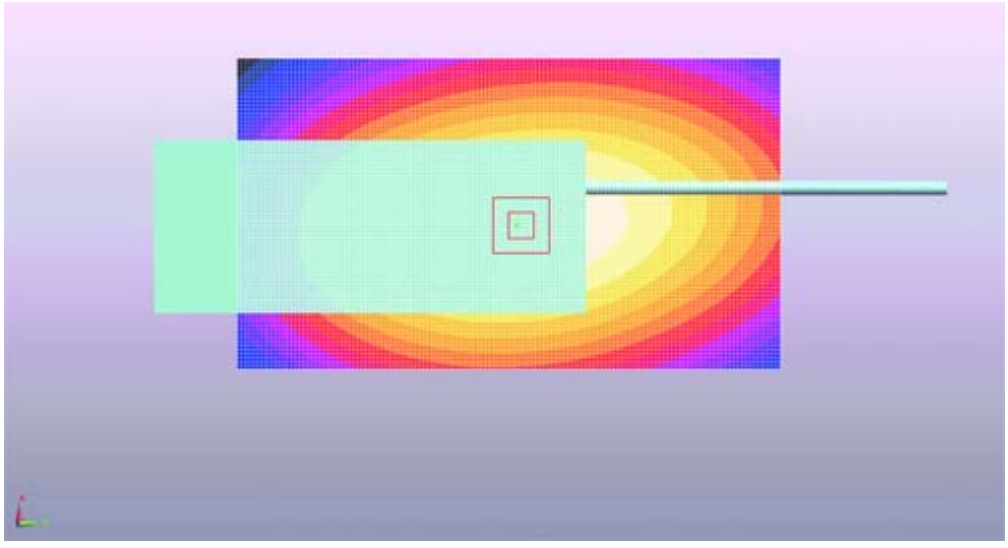
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

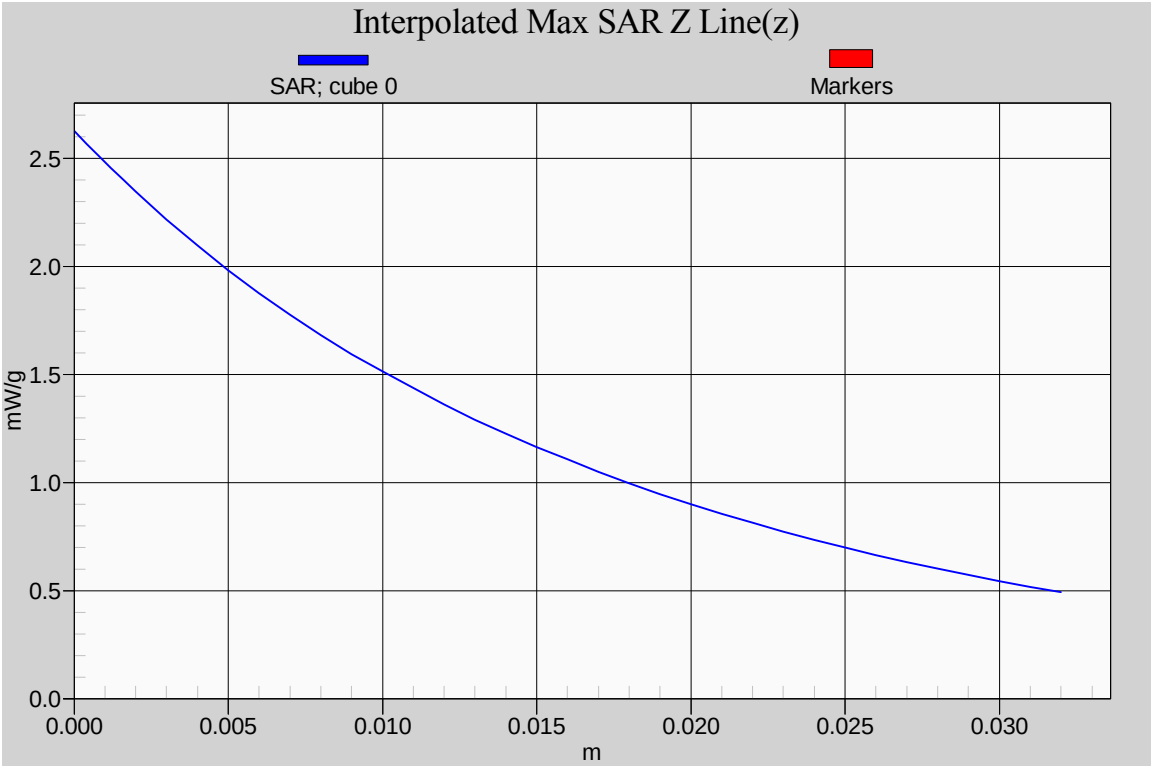
Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 53.2 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 2.63 W/kg
SAR(1 g) = 2.04 mW/g; SAR(10 g) = 1.54 mW/g
Maximum value of SAR (measured) = 2.35 mW/g

Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.34 mW/g



0 dB = 2.34mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.2.2. ¼ helical whip antenna (M/N: FA-S58U), 450 MHz; #02

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S58U_Head_450MHz(Mf)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

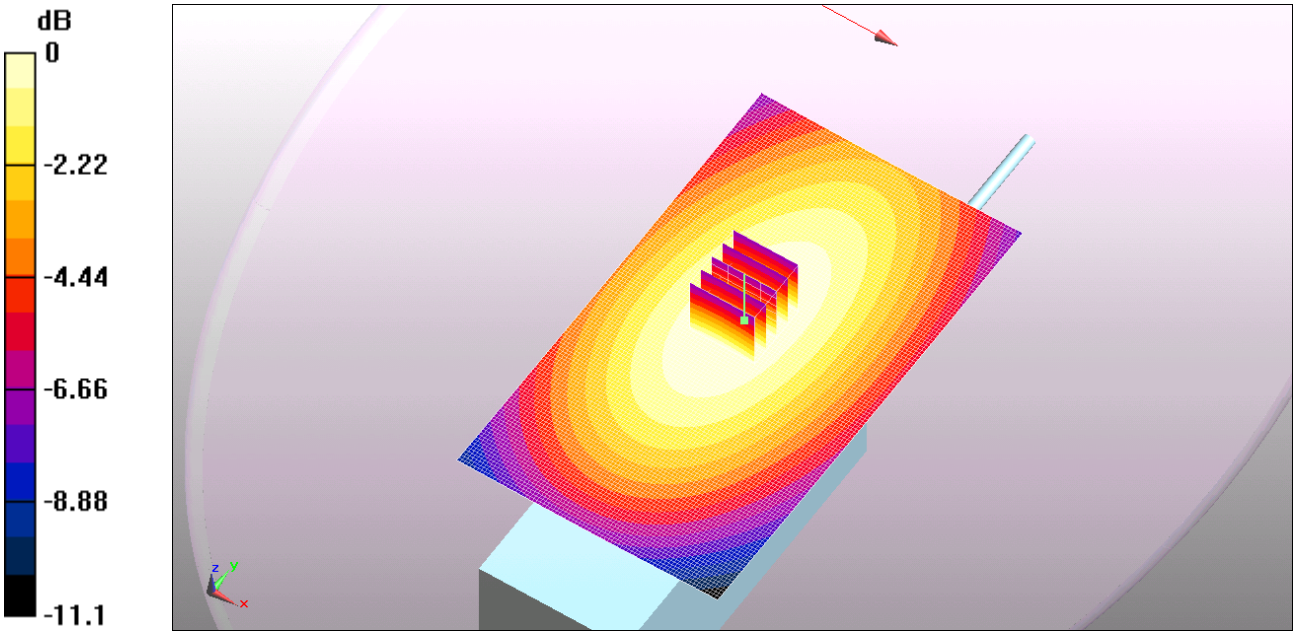
Communication System: CW; Frequency: 450 MHz
Medium parameters used: f = 450 MHz; σ = 0.867 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

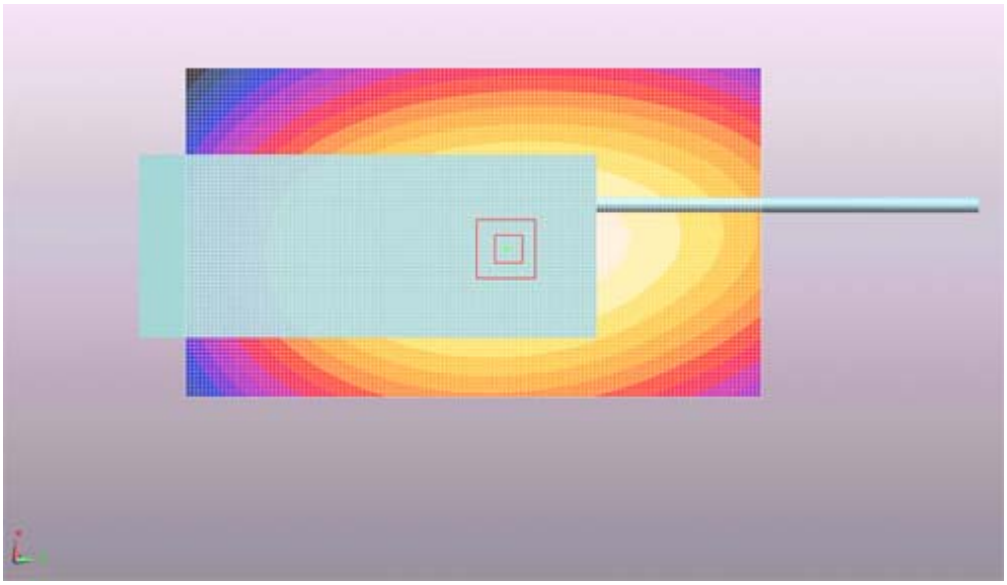
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

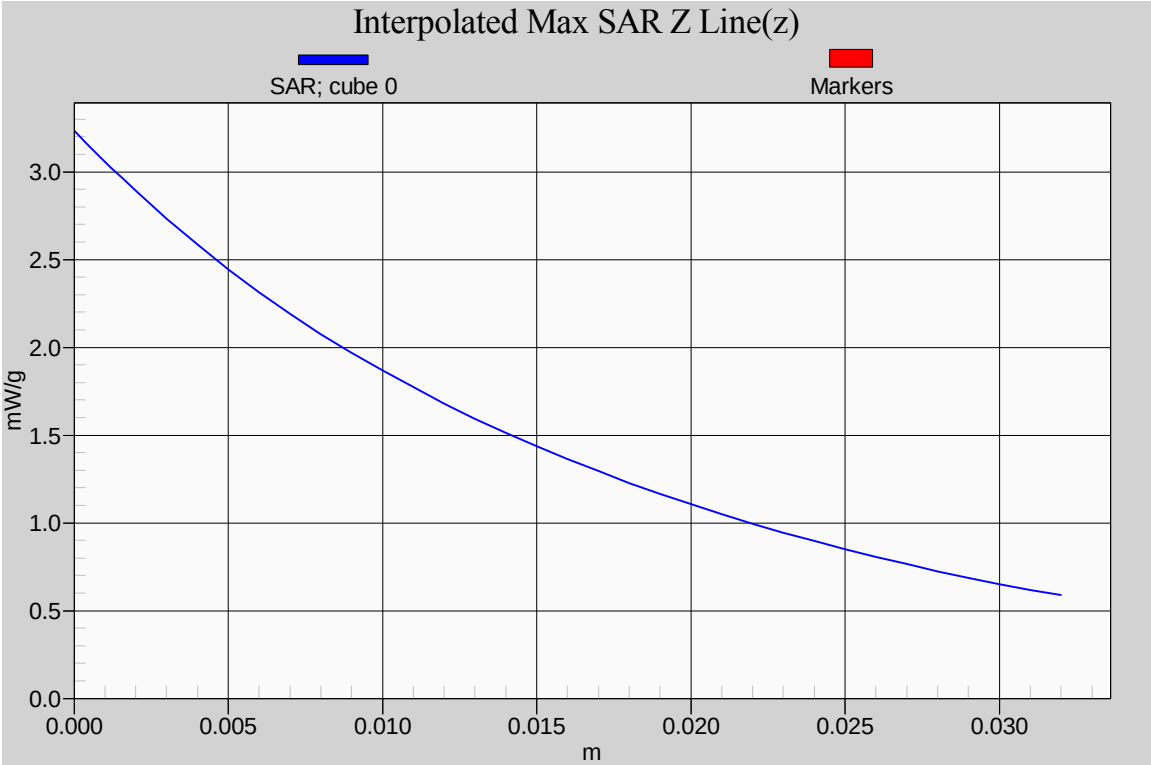
Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 58.9 V/m; Power Drift = -0.152 dB
Peak SAR (extrapolated) = 3.23 W/kg
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.87 mW/g
Maximum value of SAR (measured) = 2.89 mW/g

Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.92 mW/g



0 dB = 2.92mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
3.0
2.5
2.0
1.5
1.0
0.5
0.0
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.2.3. ¼ helical whip antenna (M/N: FA-S58U), 470 MHz; #03

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S58U_Head_470MHz(Hf)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

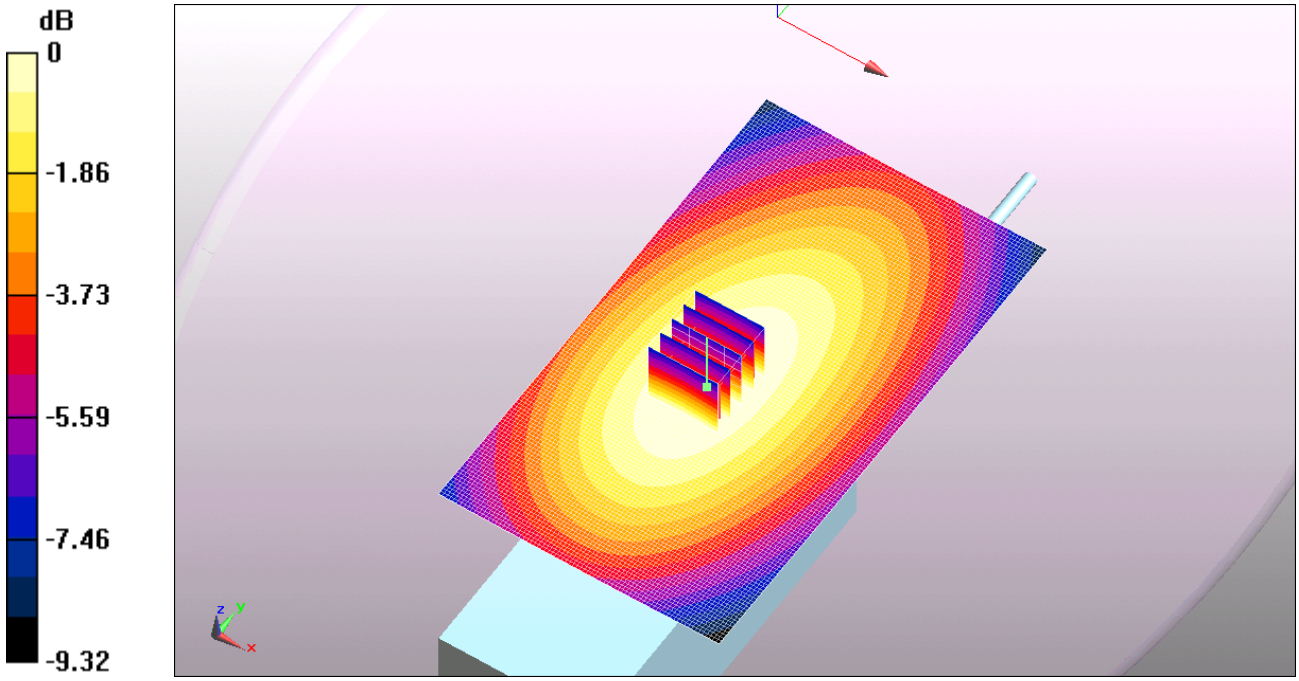
Communication System: CW; Frequency: 470 MHz
Medium parameters used: f = 470 MHz; σ = 0.887 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

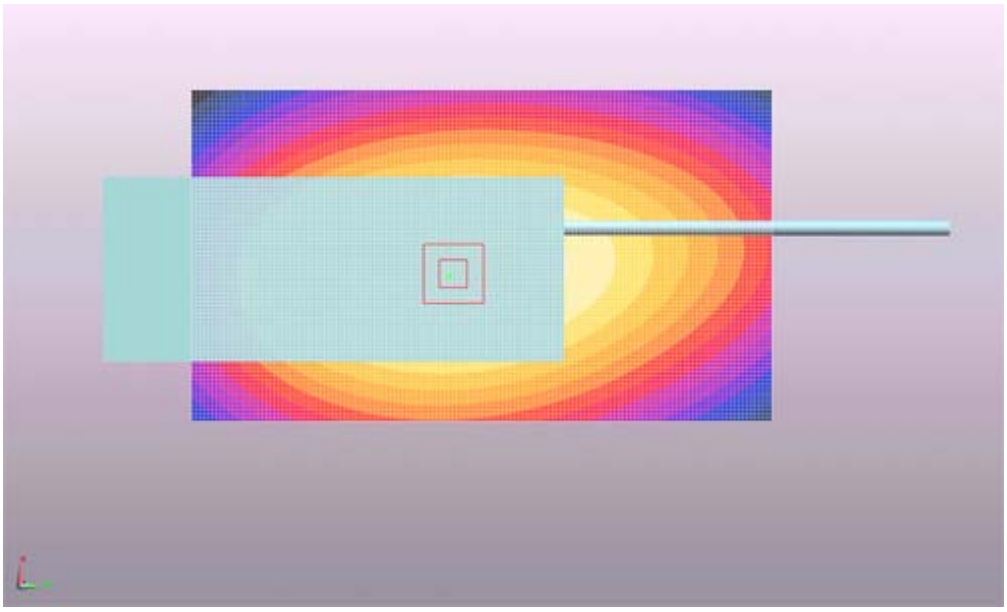
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

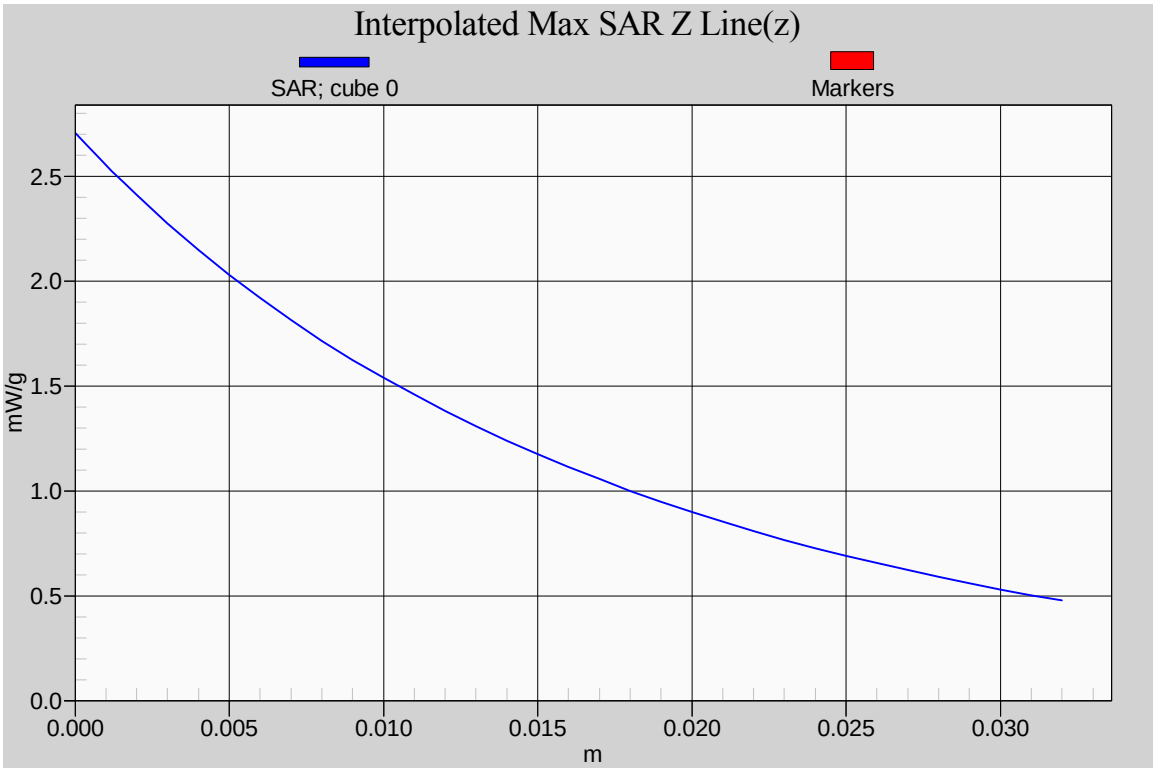
Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 53 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 2.7 W/kg
SAR(1 g) = 2.01 mW/g; SAR(10 g) = 1.51 mW/g
Maximum value of SAR (measured) = 2.41 mW/g

Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.41 mW/g



0 dB = 2.41mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.3. Head Configuration Results of Part 2: FA-S30U Antenna

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
04	¼ helical whip antenna (M/N: FA-S30U, 380~430 MHz, green ring) 50% duty cycle for PTT	FIX	380	Low-1		2.43
05		FIX	392.5	Low-2		**2.50**
06		FIX	405	Middle		1.26
07		FIX	417.5	High-1		0.73
08		FIX	430	High-2		0.60

6.4.3.1. ¼ helical whip antenna (M/N: FA-S30U), 380 MHz; #04

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S30U_Head_380MHz(L1f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

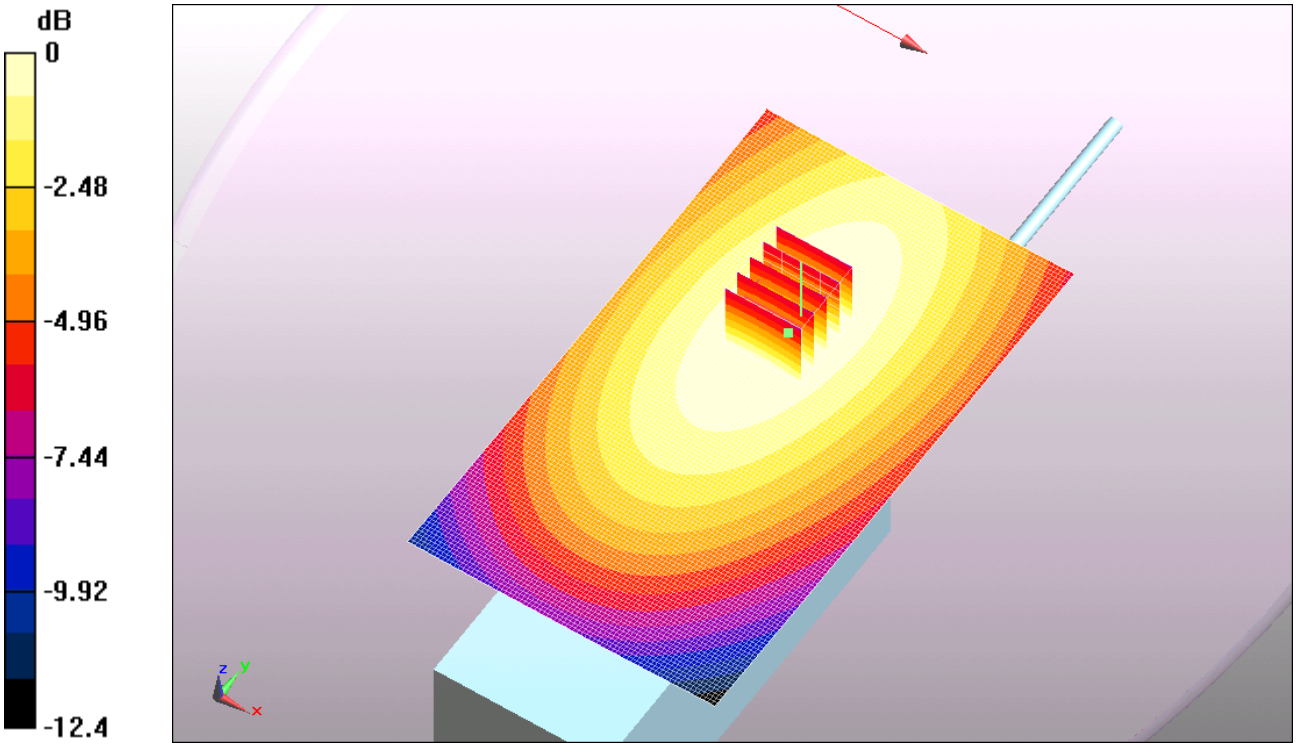
Communication System: CW; Frequency: 380 MHz
Medium parameters used: f = 380 MHz; σ = 0.806 mho/m; ε_r = 44.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

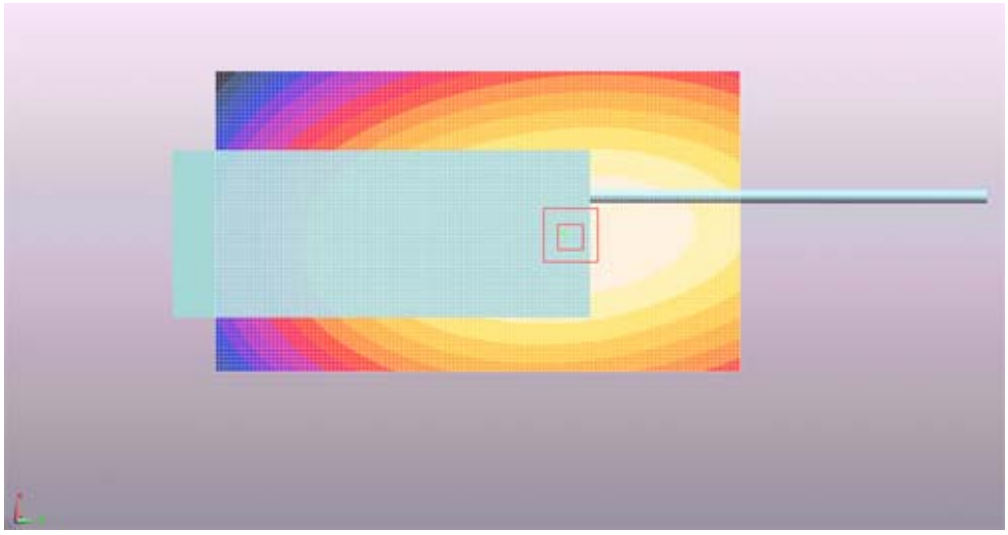
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

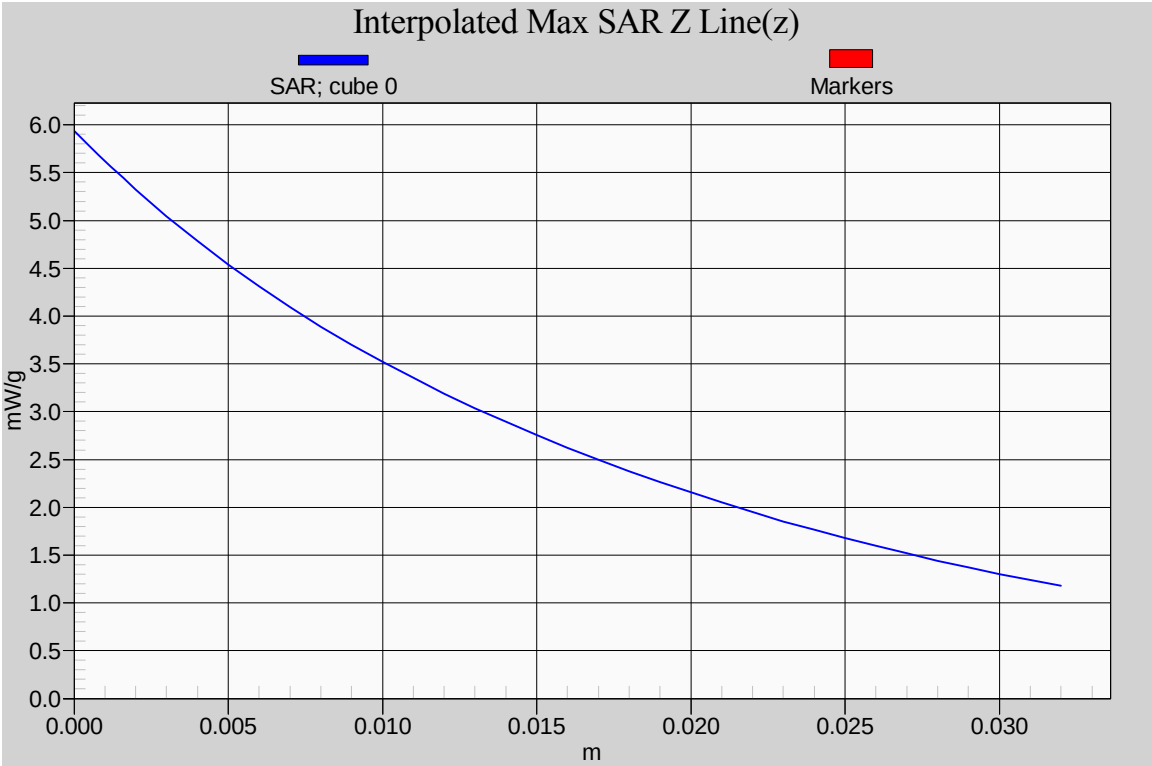
Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 81.5 V/m; Power Drift = -0.00577 dB
Peak SAR (extrapolated) = 5.93 W/kg
SAR(1 g) = 4.85 mW/g; SAR(10 g) = 3.71 mW/g
Maximum value of SAR (measured) = 5.32 mW/g

Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 5.35 mW/g



0 dB = 5.35mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.3.2. ¼ helical whip antenna (M/N: FA-S30U), 392.5 MHz; #05

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S30U_Head_392.5MHz(L2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

Communication System: CW; Frequency: 392.5 MHz
Medium parameters used (interpolated): f = 392.5 MHz; σ = 0.816 mho/m; ε_r = 43.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

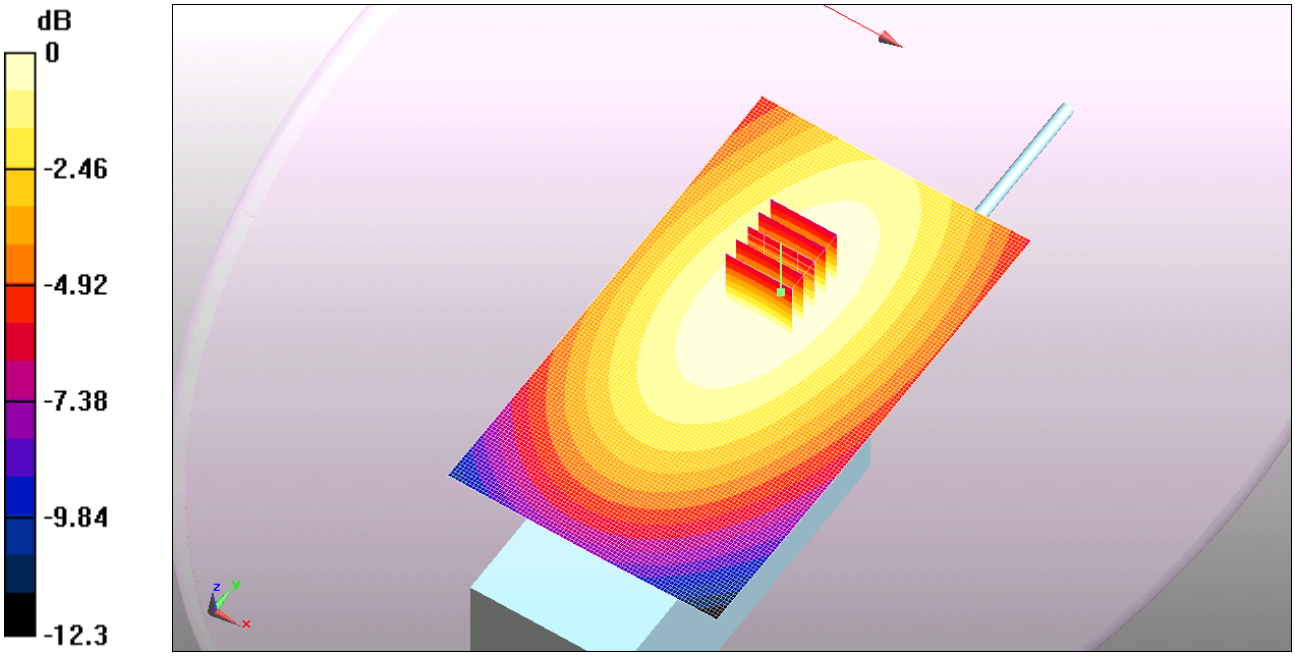
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 83.3 V/m; Power Drift = -0.092 dB
Peak SAR (extrapolated) = 6.17 W/kg
SAR(1 g) = 4.99 mW/g; SAR(10 g) = 3.81 mW/g

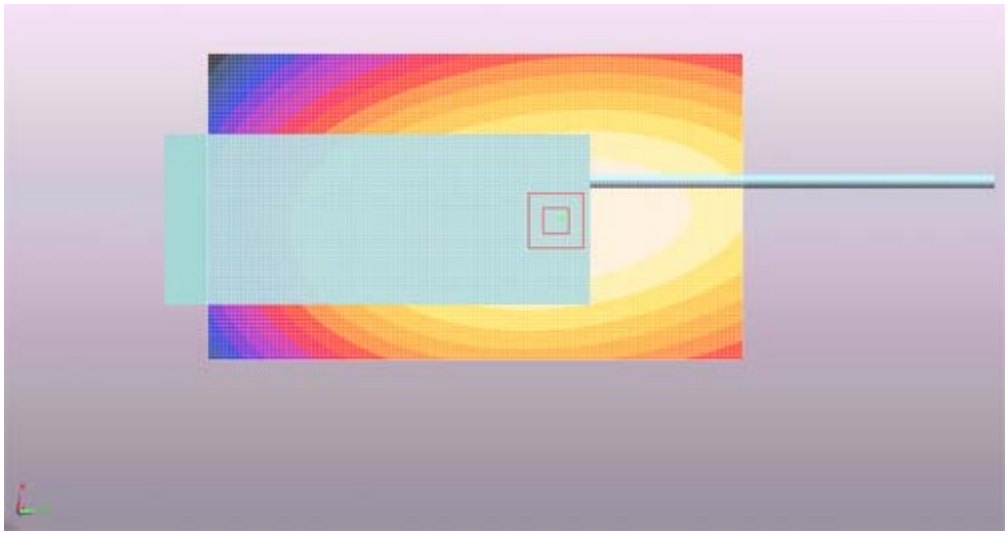
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 5.53 mW/g

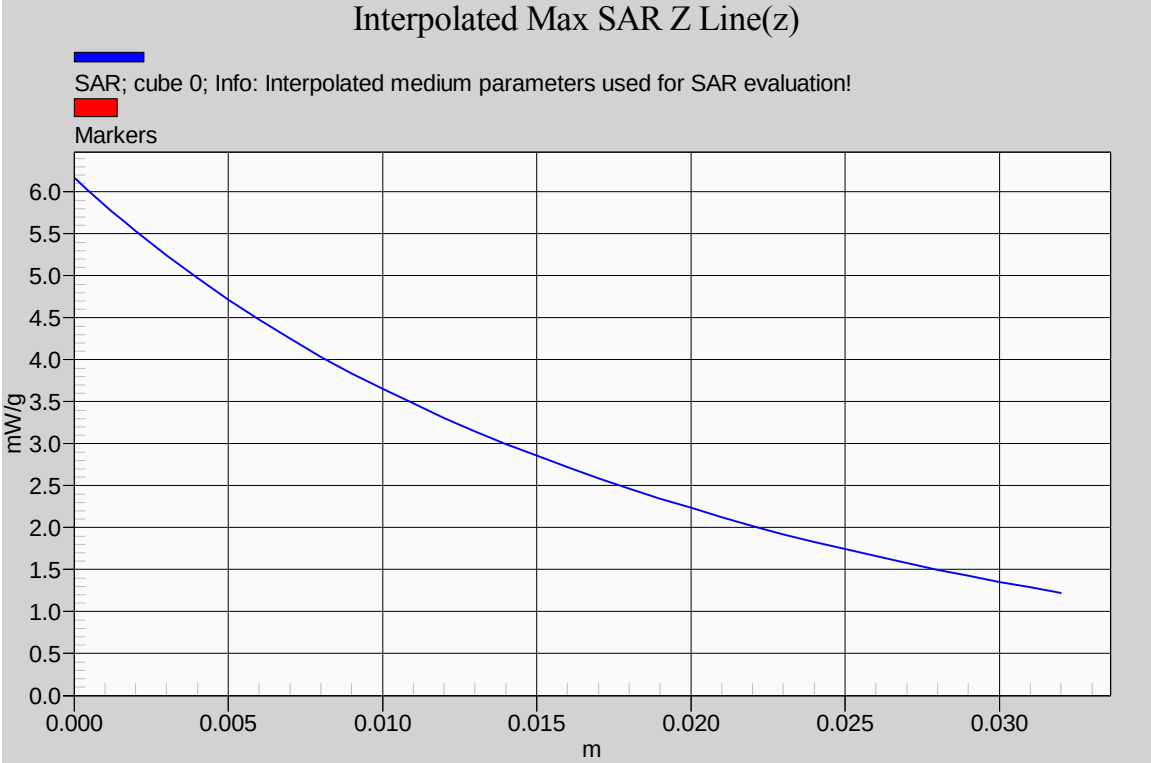
Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 5.53 mW/g



0 dB = 5.53mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0; Info: Interpolated medium parameters used for SAR evaluation!
Markers
mW/g
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.3.3. ¼ helical whip antenna (M/N: FA-S30U), 405 MHz; #06

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S30U_Head_405MHz(Mf)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

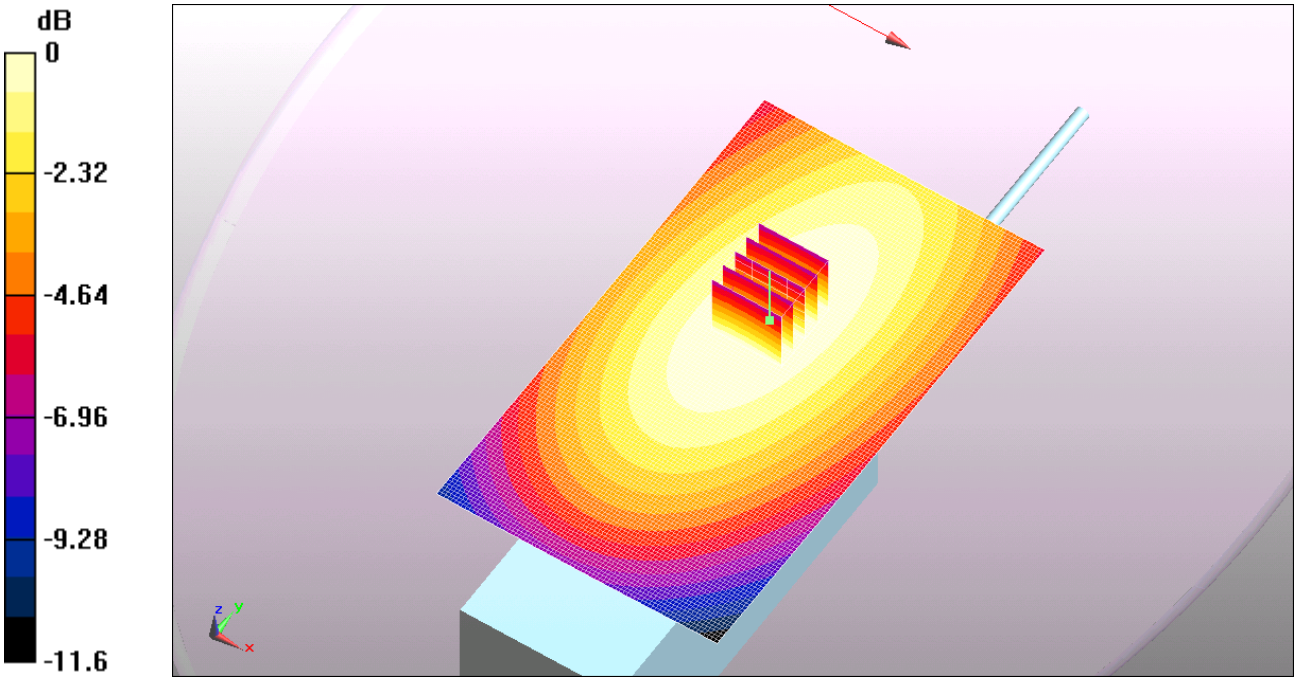
Communication System: CW; Frequency: 405 MHz
Medium parameters used: f = 405 MHz; σ = 0.828 mho/m; ε_r = 43.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

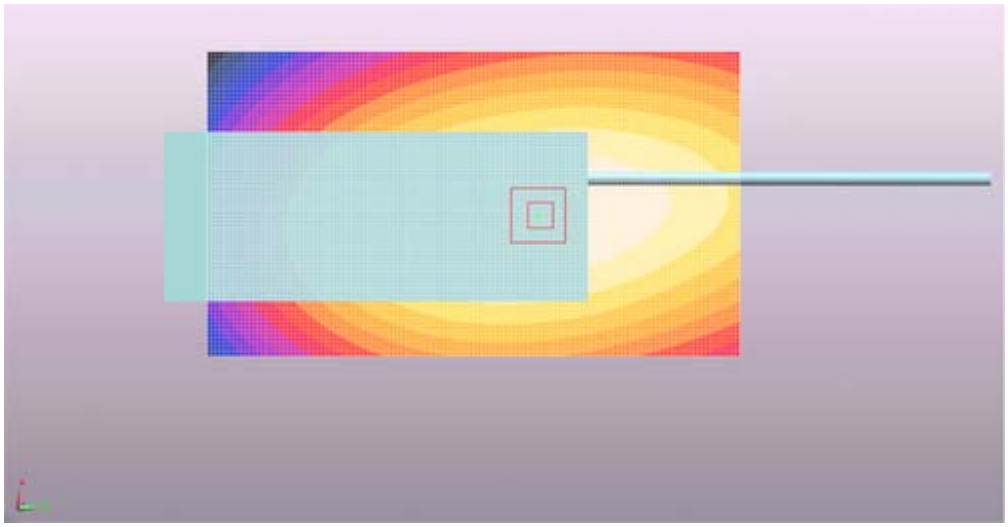
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

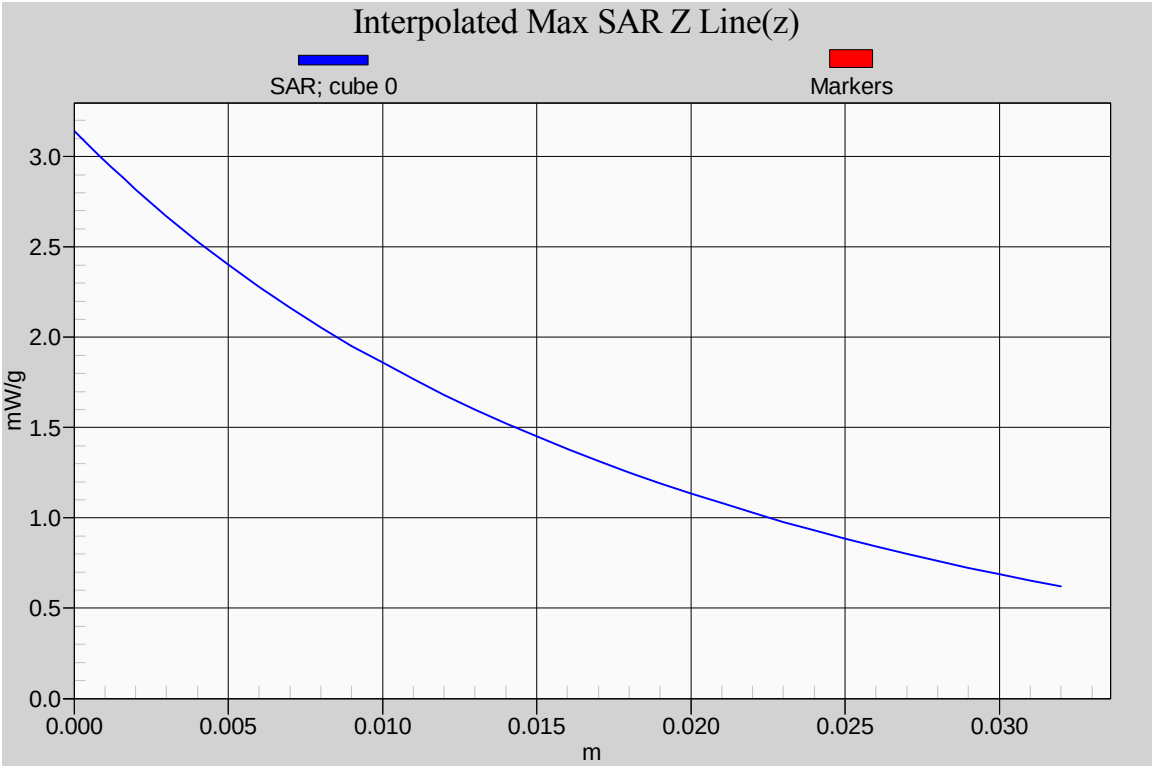
Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 59.4 V/m; Power Drift = -0.141 dB
Peak SAR (extrapolated) = 3.14 W/kg
SAR(1 g) = 2.52 mW/g; SAR(10 g) = 1.92 mW/g
Maximum value of SAR (measured) = 2.82 mW/g

Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.82 mW/g



0 dB = 2.82mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
3.0
2.5
2.0
1.5
1.0
0.5
0.0
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.3.4. ¼ helical whip antenna (M/N: FA-S30U), 417.5 MHz; #07

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S30U_Head_417.5MHz(H1f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

Communication System: CW; Frequency: 417.5 MHz
Medium parameters used (interpolated): f = 417.5 MHz; σ = 0.839 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

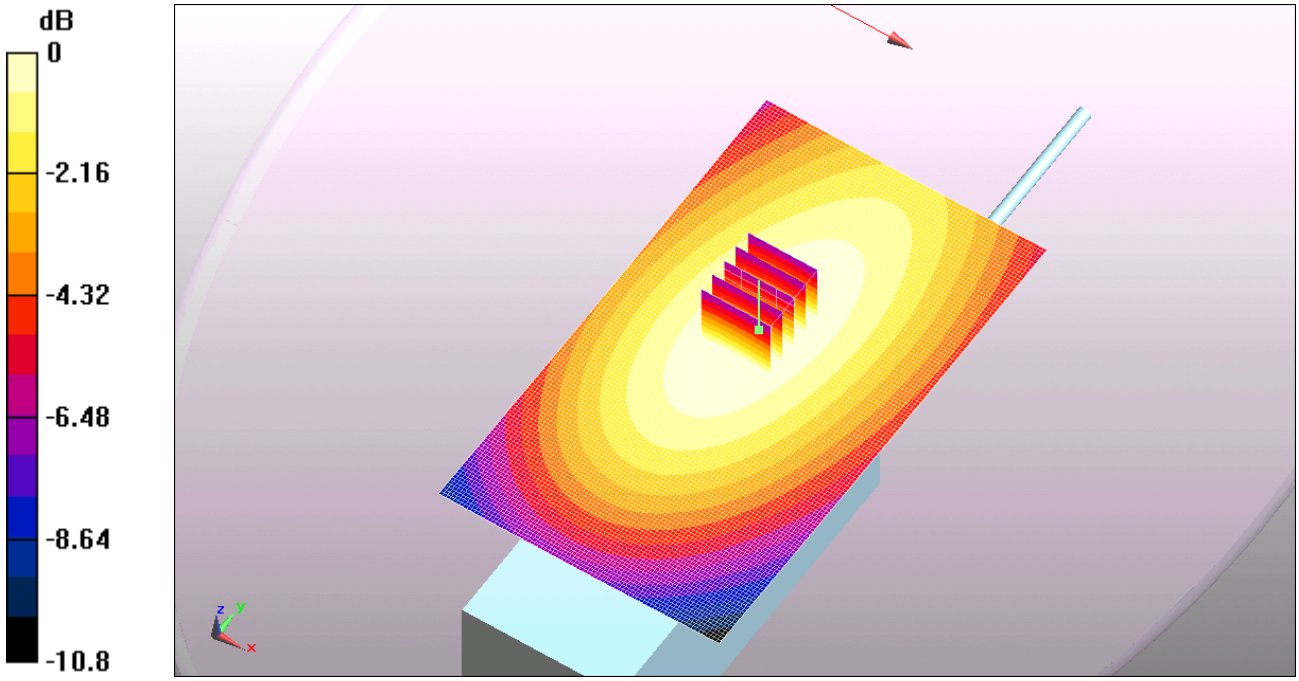
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 45 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 1.86 W/kg
SAR(1 g) = 1.46 mW/g; SAR(10 g) = 1.11 mW/g

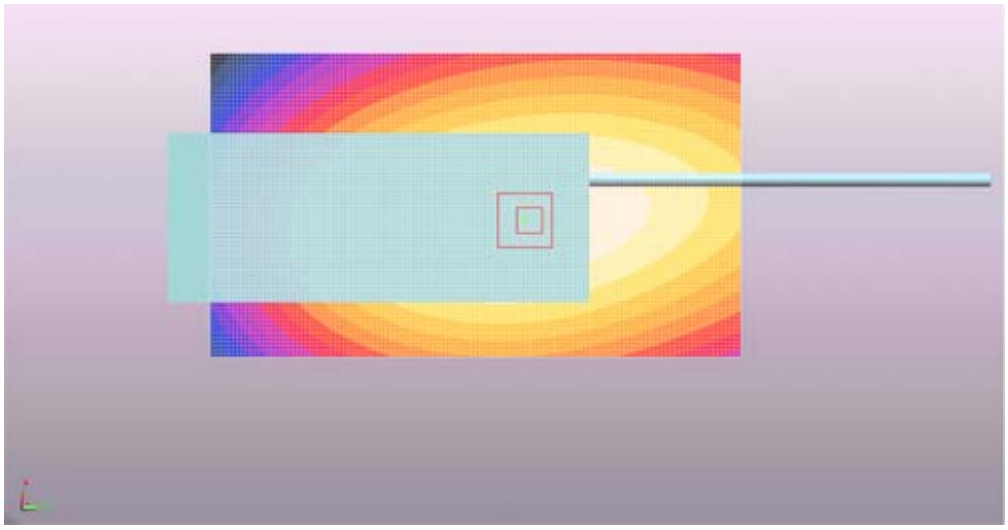
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.66 mW/g

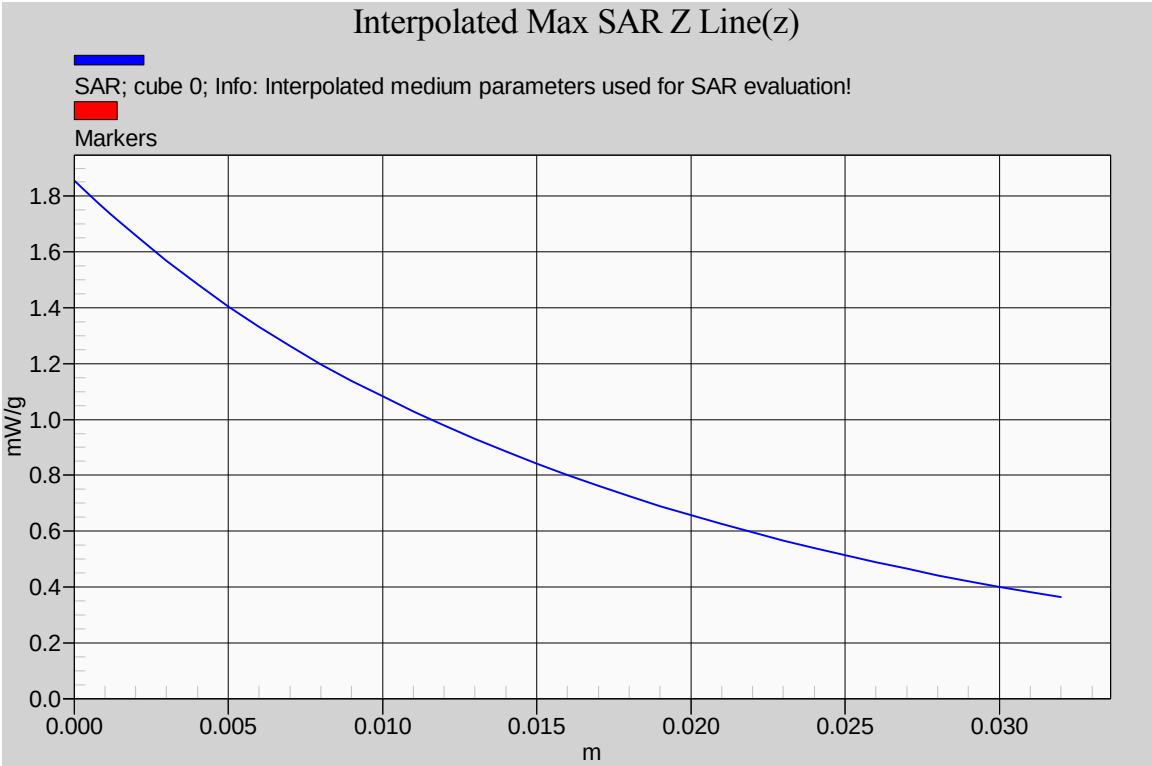
Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.66 mW/g



0 dB = 1.66mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0; Info: Interpolated medium parameters used for SAR evaluation!
Markers
mW/g
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.3.5. ¼ helical whip antenna (M/N: FA-S58U), 430 MHz; #08

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S30U_Head_430MHz(H2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

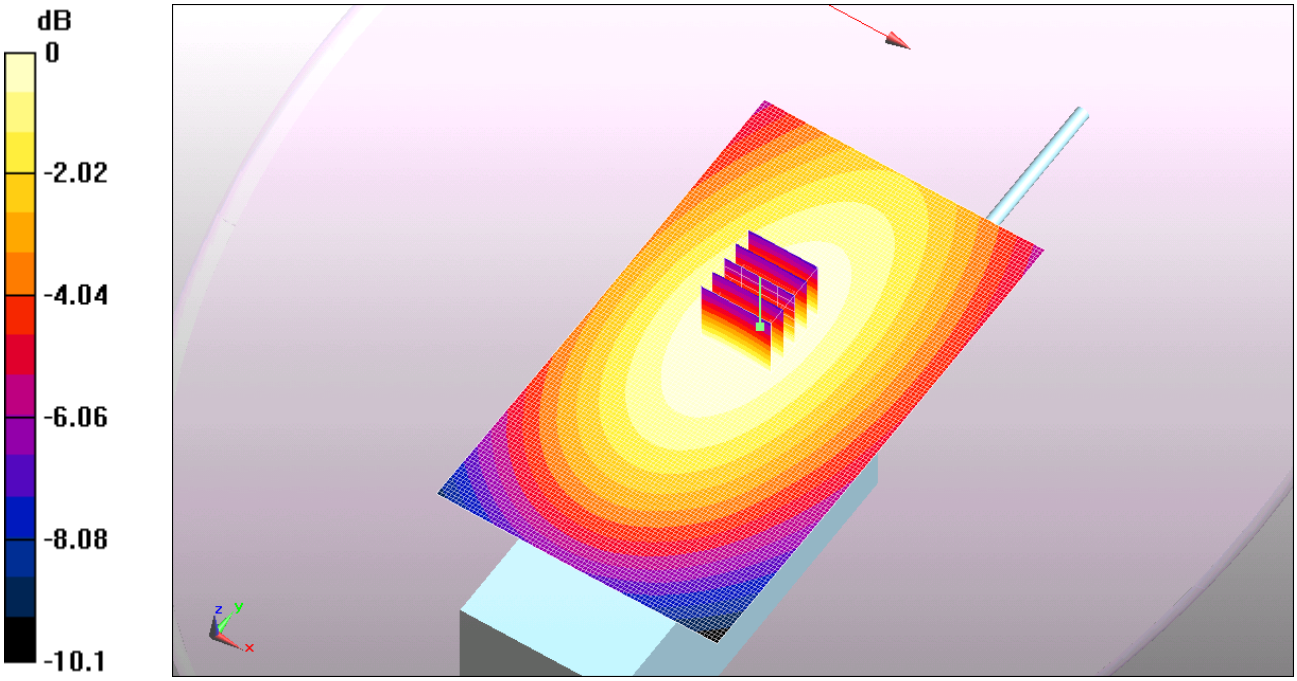
Communication System: CW; Frequency: 430 MHz
Medium parameters used: f = 430 MHz; σ = 0.849 mho/m; ε_r = 42.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

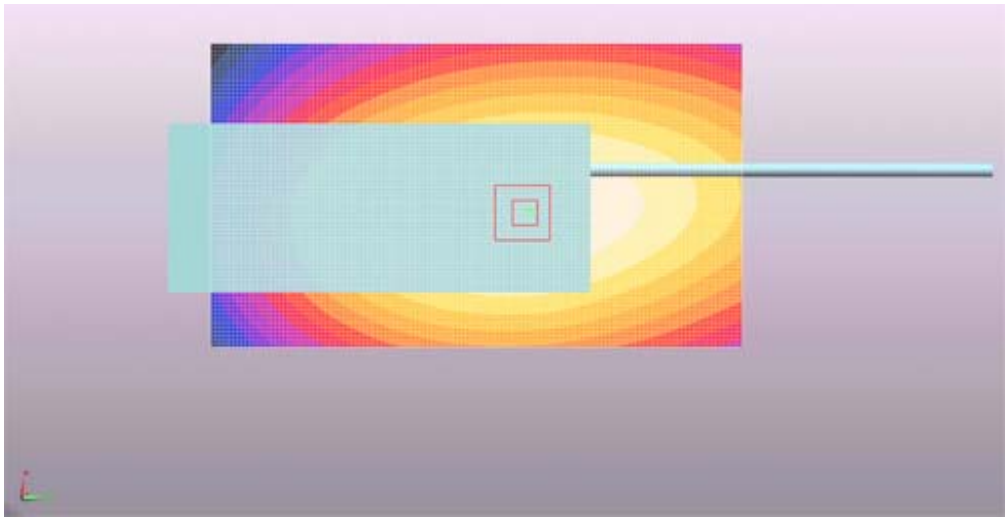
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

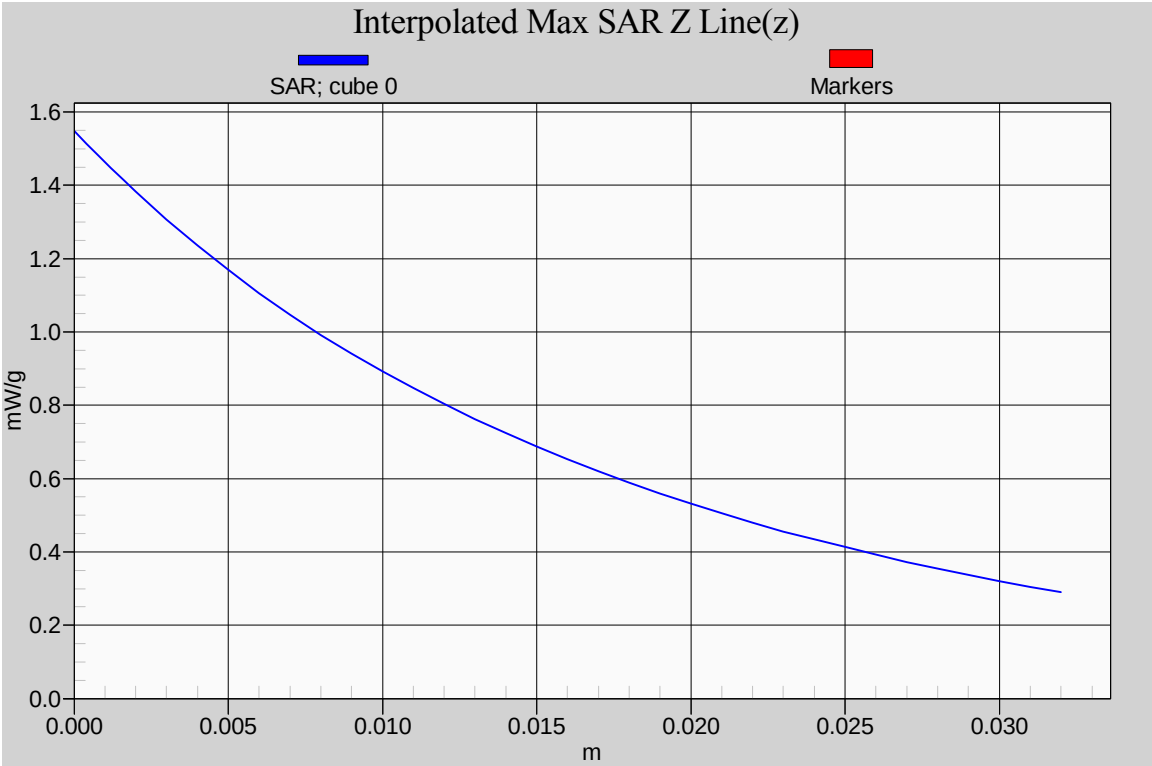
Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 41.3 V/m; Power Drift = -0.190 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.908 mW/g
Maximum value of SAR (measured) = 1.38 mW/g

Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.39 mW/g



0 dB = 1.39mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4. Head Configuration Results of Part 3: FA-S76UC Cutting Antenna*

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	Occupational/Controlled Exposure Category Limit					8.0
09	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=175mm	FIX	380	Low-1		2.11
10		FIX	398	Low-2		---
11		FIX	416	Middle-1		0.52
12		FIX	434	Middle-2		0.47
13		FIX	452	High-1		---
14		FIX	470	High-2		0.46
15	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=165mm	FIX	380	Low-1		2.44
16		FIX	400	Low-2		1.51
17		FIX	416	Middle-1		---
18		FIX	434	Middle-2		0.62
19		FIX	452	High-1		---
20		FIX	470	High-2		0.57
21	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=156mm	FIX	380	Low-1		1.84
22		FIX	398	Low-2		---
23		FIX	420	Middle-1		1.03
24		FIX	434	Middle-2		0.89
25		FIX	452	High-1		---
26		FIX	470	High-2		0.74

* If the SAR results measured at the low-1 channel and middle-1 channel (or: low-2 channel and middle-2 channel) are below 50% limit, test at the low-2 channel (or: middle-1 channel) is skipped; if the SAR results measured at the high-2 channel and middle-2 channel are below 50% limit, test at the high-1 channel is skipped.

#	Configuration	Antenna Position	Frequency [MHz]	Channel		MAX SAR_{1g} [W/Kg]
*	**Occupational/Controlled Exposure Category Limit**					**8.0**
27	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=148mm	FIX	380	Low-1		1.25
28		FIX	398	Low-2		---
29		FIX	416	Middle-1		1.37
30		FIX	440	Middle-2		1.04
31		FIX	452	High-1		---
32		FIX	470	High-2		0.88
33	¼ helical whip cut antenna (M/N: FA-S76UC, 380~520 MHz, white ring) 50% duty cycle for PTT Antenna Length=142mm	FIX	380	Low-1		0.93
34		FIX	398	Low-2		---
35		FIX	416	Middle-1		1.60
36		FIX	434	Middle-2		1.18
37		FIX	452	High-1		---
38		FIX	460	High-2		1.16

6.4.4.1. ¼ helical whip cut antenna (M/N: FA-S76UC), length=175mm; 380 MHz; #09

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=175mm_Head_380MHz(L1f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

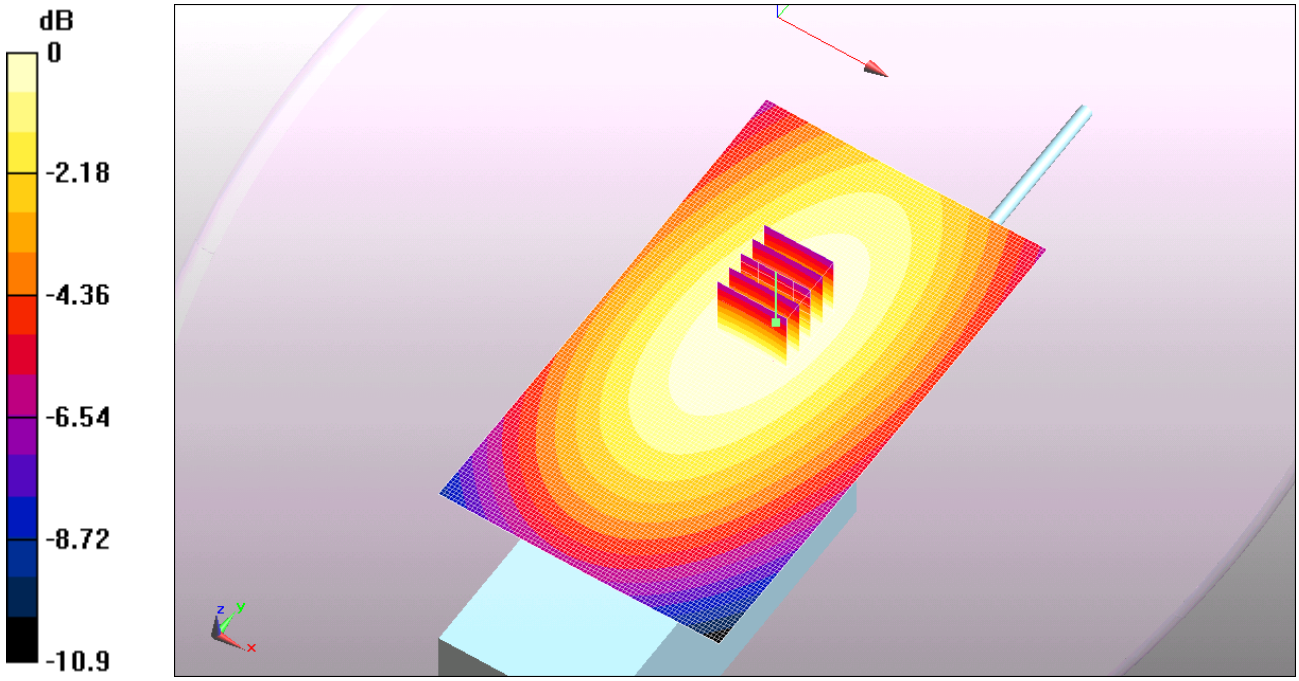
Communication System: CW; Frequency: 380 MHz
Medium parameters used: f = 380 MHz; σ = 0.806 mho/m; ε_r = 44.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

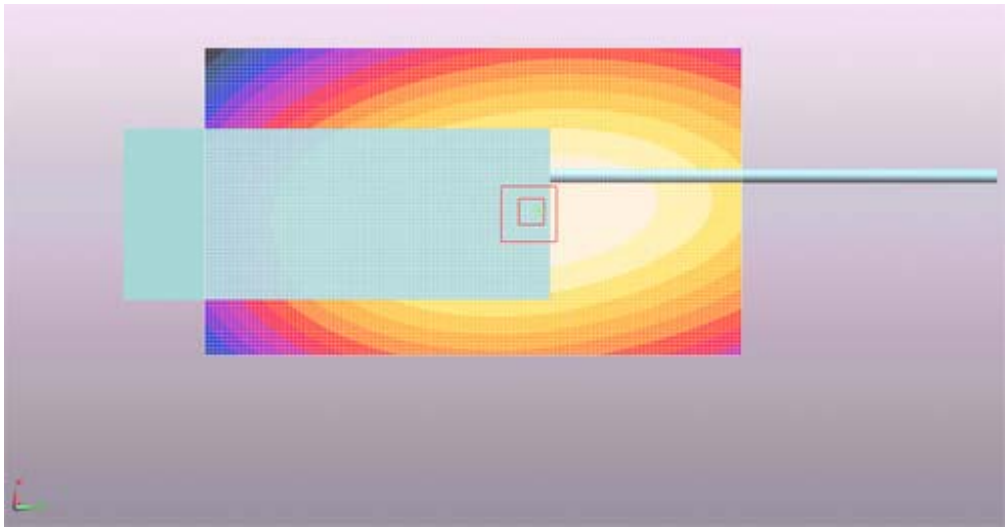
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

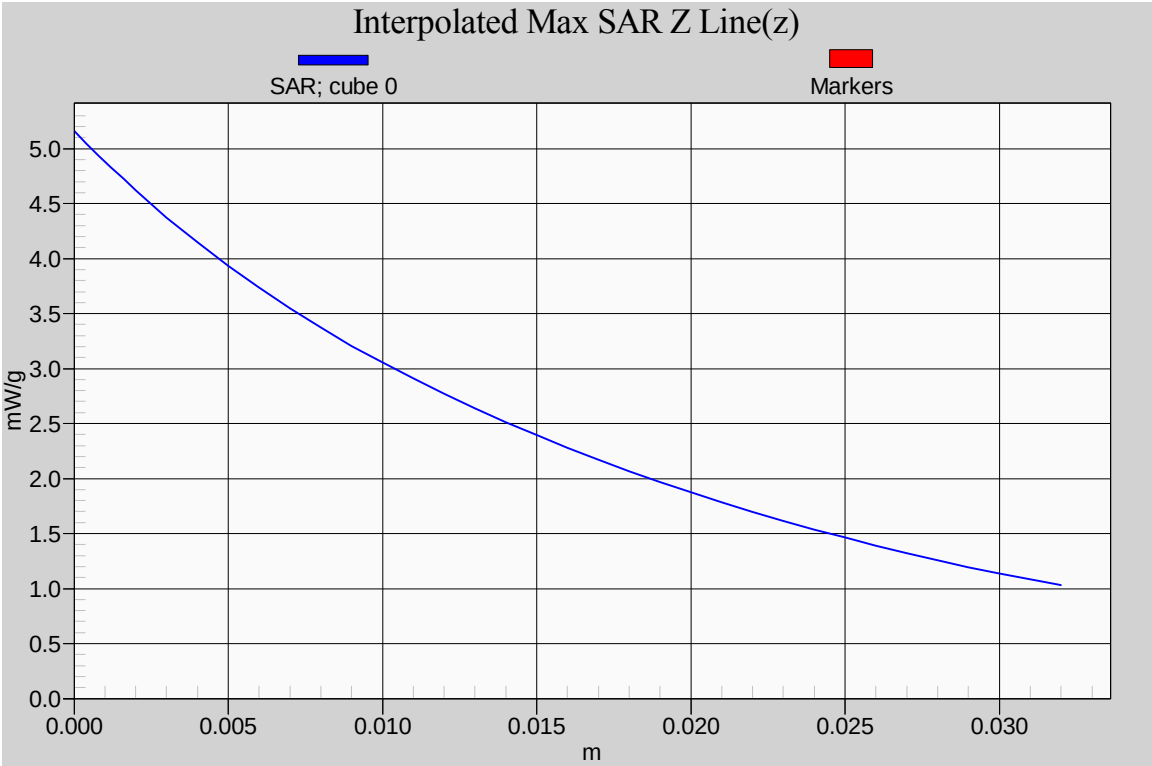
FA-S76UC=175mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 76.1 V/m; Power Drift = 0.00157 dB
Peak SAR (extrapolated) = 5.16 W/kg
SAR(1 g) = 4.21 mW/g; SAR(10 g) = 3.21 mW/g
Maximum value of SAR (measured) = 4.62 mW/g

FA-S76UC=175mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.61 mW/g



0 dB = 4.61mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.2. ¼ helical whip cut antenna (M/N: FA-S76UC), length=175mm; 416 MHz; #11

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=175mm_Head_416MHz(M1f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

Communication System: CW; Frequency: 416 MHz
Medium parameters used (interpolated): f = 416 MHz; σ = 0.838 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

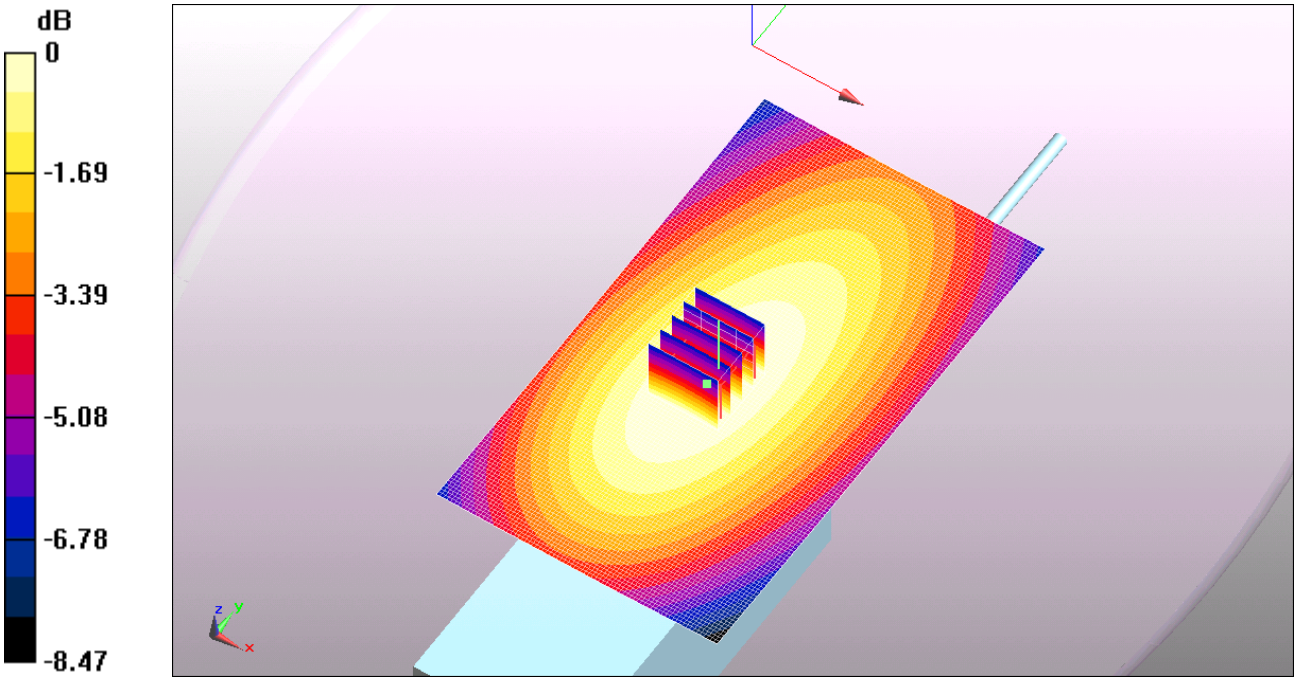
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

FA-S76UC=175mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 37.5 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 1.31 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.790 mW/g

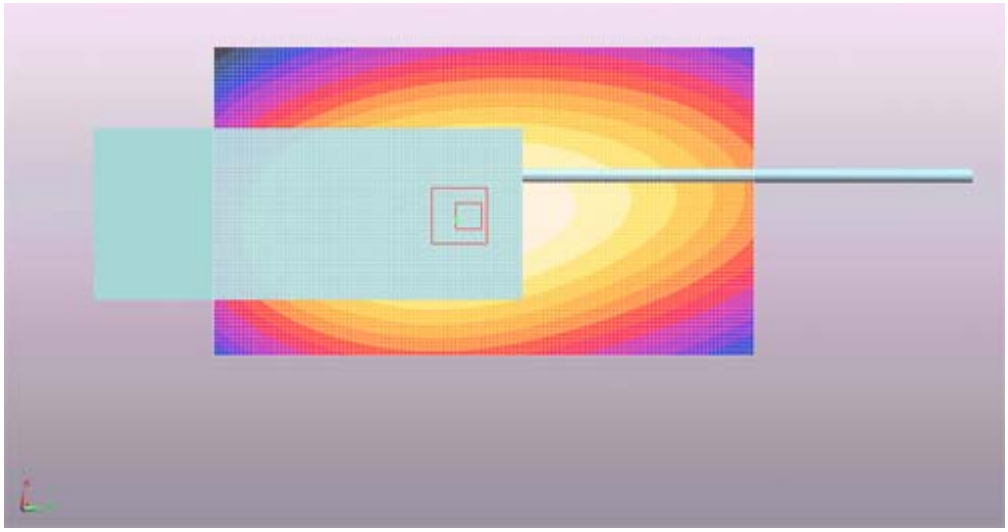
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.17 mW/g

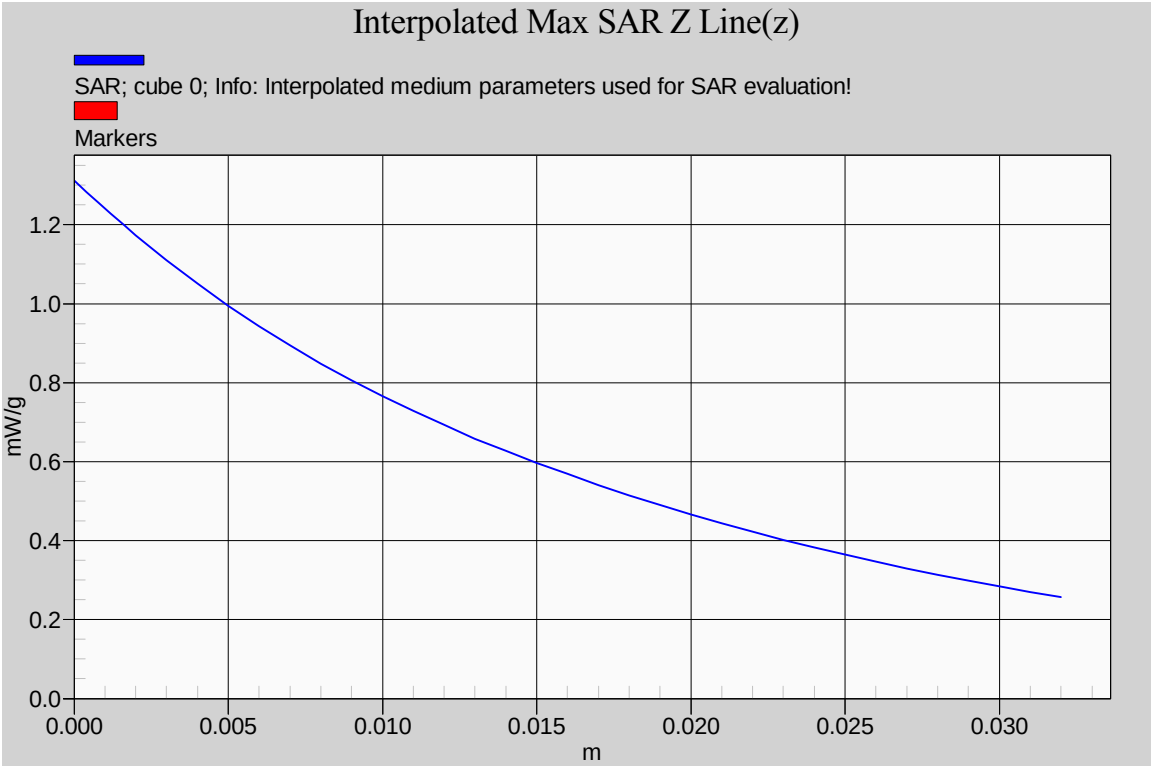
FA-S76UC=175mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.17 mW/g



0 dB = 1.17mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0; Info: Interpolated medium parameters used for SAR evaluation!
Markers
mW/g
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.3. ¼ helical whip cut antenna (M/N: FA-S76UC), length=175mm; 434 MHz; #12

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=175mm_Head_434MHz(M2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

Communication System: CW; Frequency: 434 MHz
Medium parameters used (interpolated): f = 434 MHz; σ = 0.853 mho/m; ε_r = 42.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

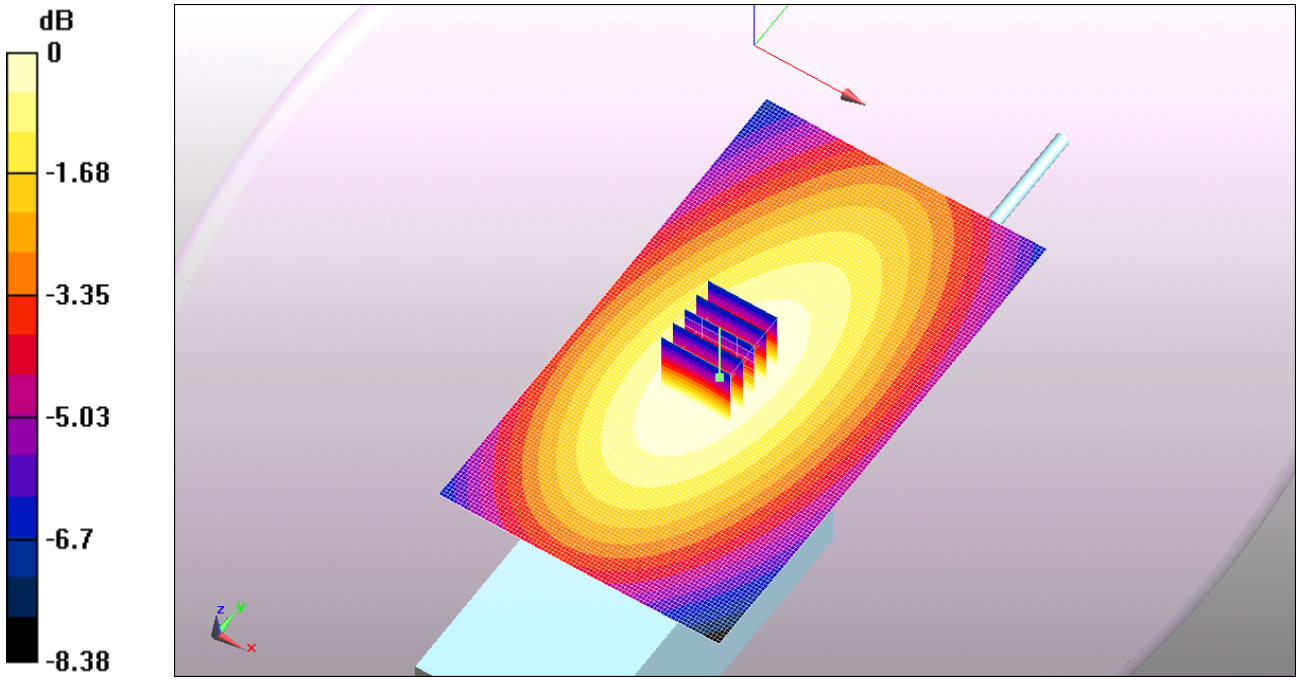
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

FA-S76UC=175mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 36 V/m; Power Drift = -0.093 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.932 mW/g; SAR(10 g) = 0.705 mW/g

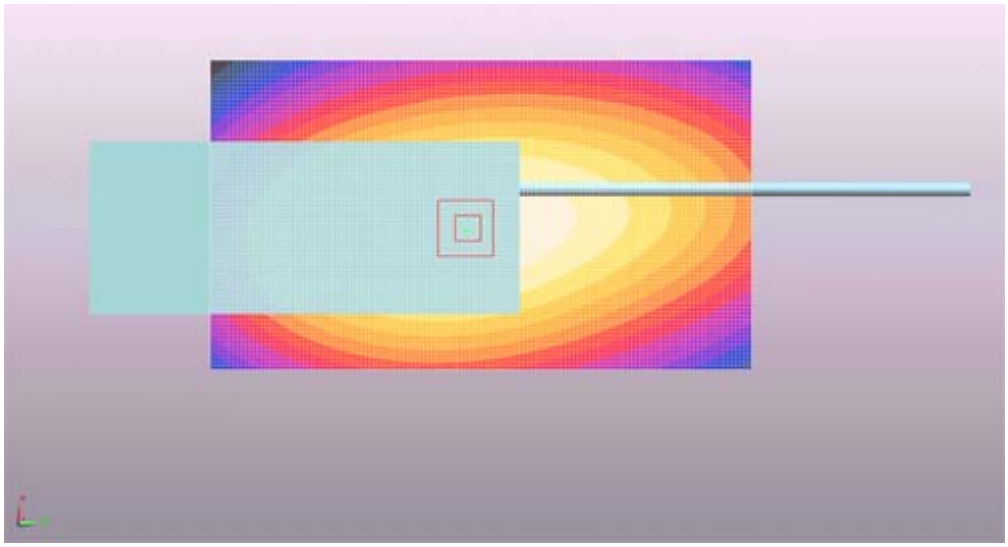
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.08 mW/g

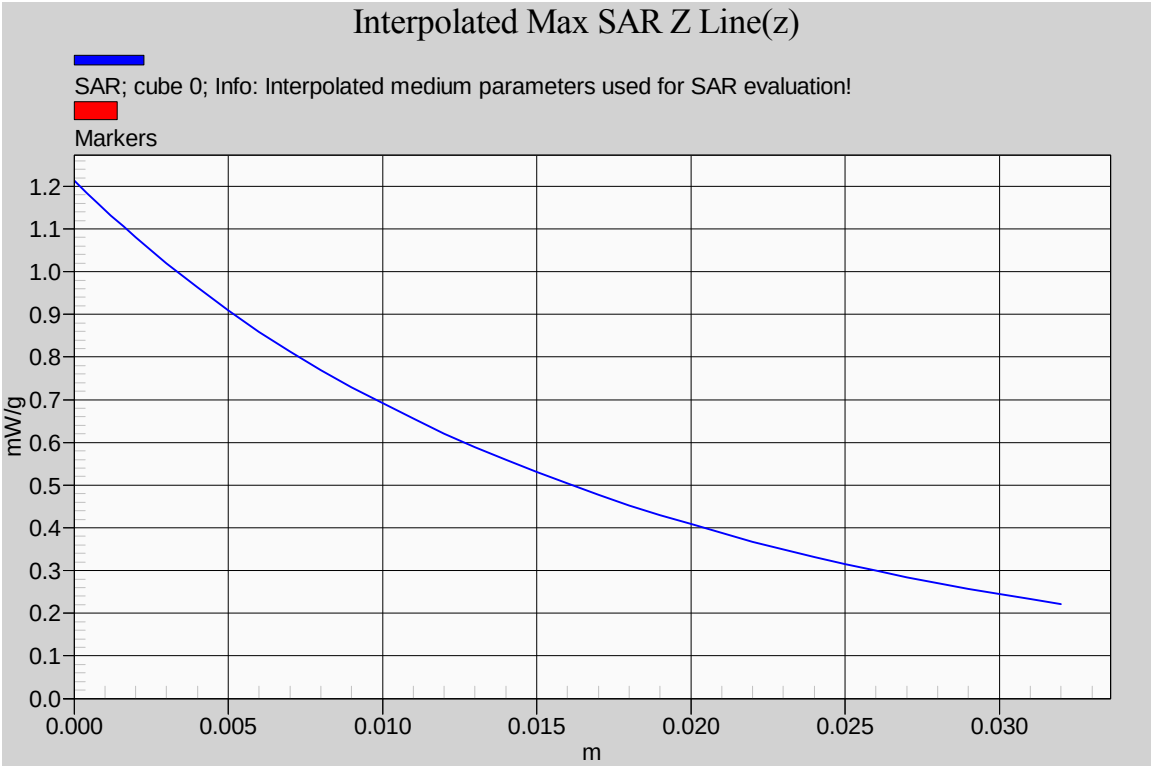
FA-S76UC=175mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.08 mW/g



0 dB = 1.08mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0; Info: Interpolated medium parameters used for SAR evaluation!
Markers
mW/g
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.4. ¼ helical whip cut antenna (M/N: FA-S76UC), length=175mm; 470 MHz; #14

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=175mm_Head_470MHz(H2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

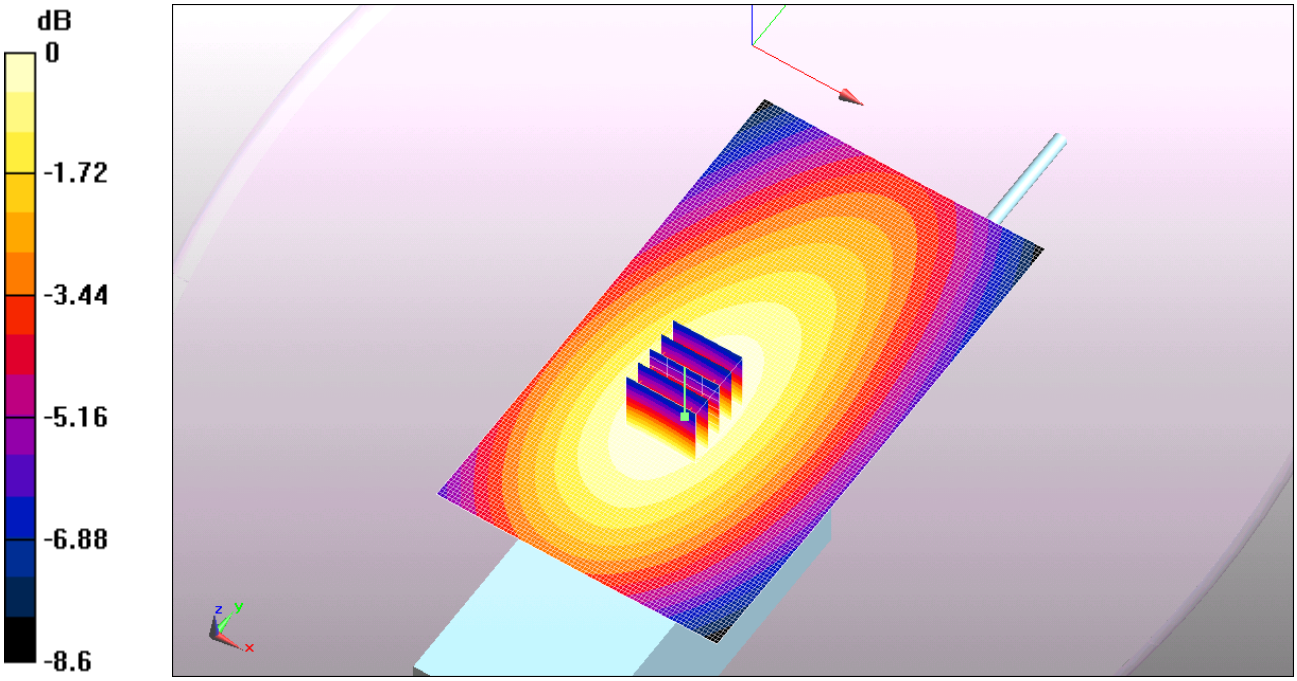
Communication System: CW; Frequency: 470 MHz
Medium parameters used: f = 470 MHz; σ = 0.887 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

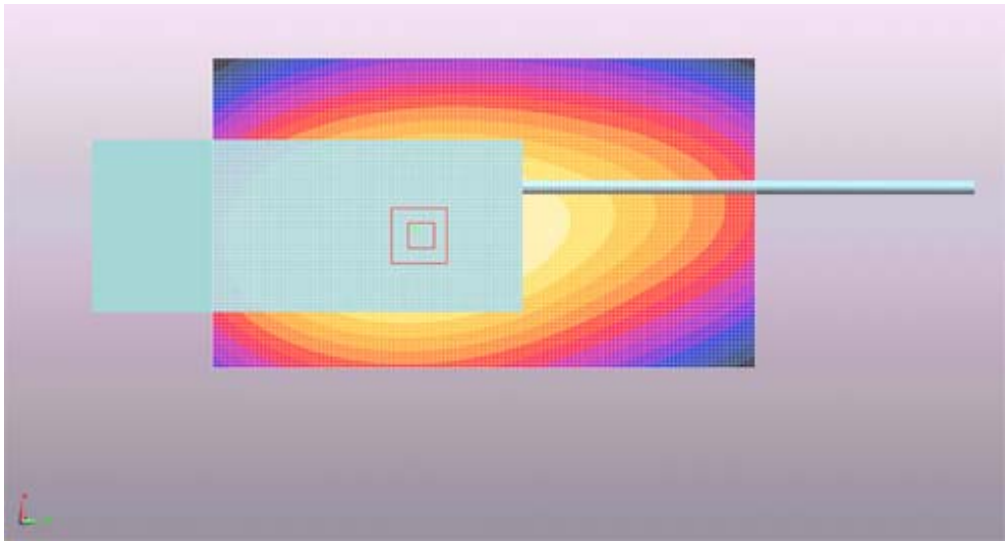
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

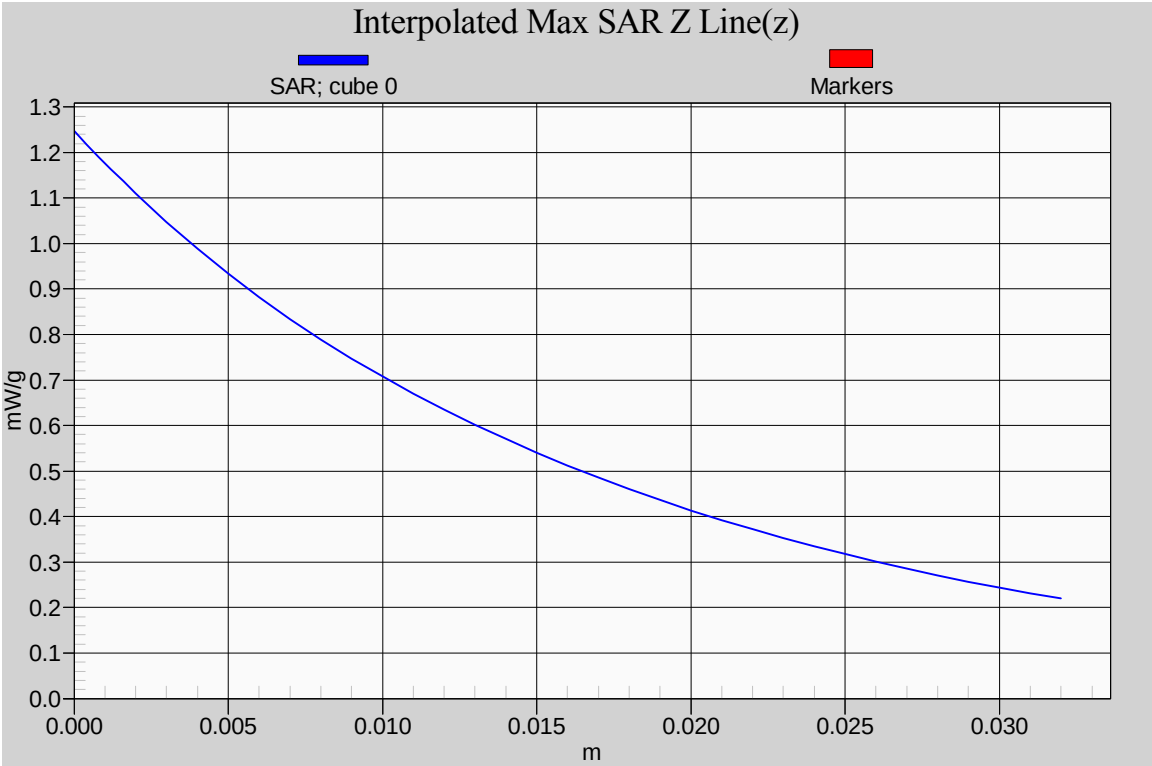
FA-S76UC=175mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 36.3 V/m; Power Drift = -0.121 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.924 mW/g; SAR(10 g) = 0.698 mW/g
Maximum value of SAR (measured) = 1.11 mW/g

FA-S76UC=175mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.12 mW/g



0 dB = 1.12mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.5. ¼ helical whip cut antenna (M/N: FA-S76UC), length=165mm; 380 MHz; #15

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=165mm_Head_380MHz(L1f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

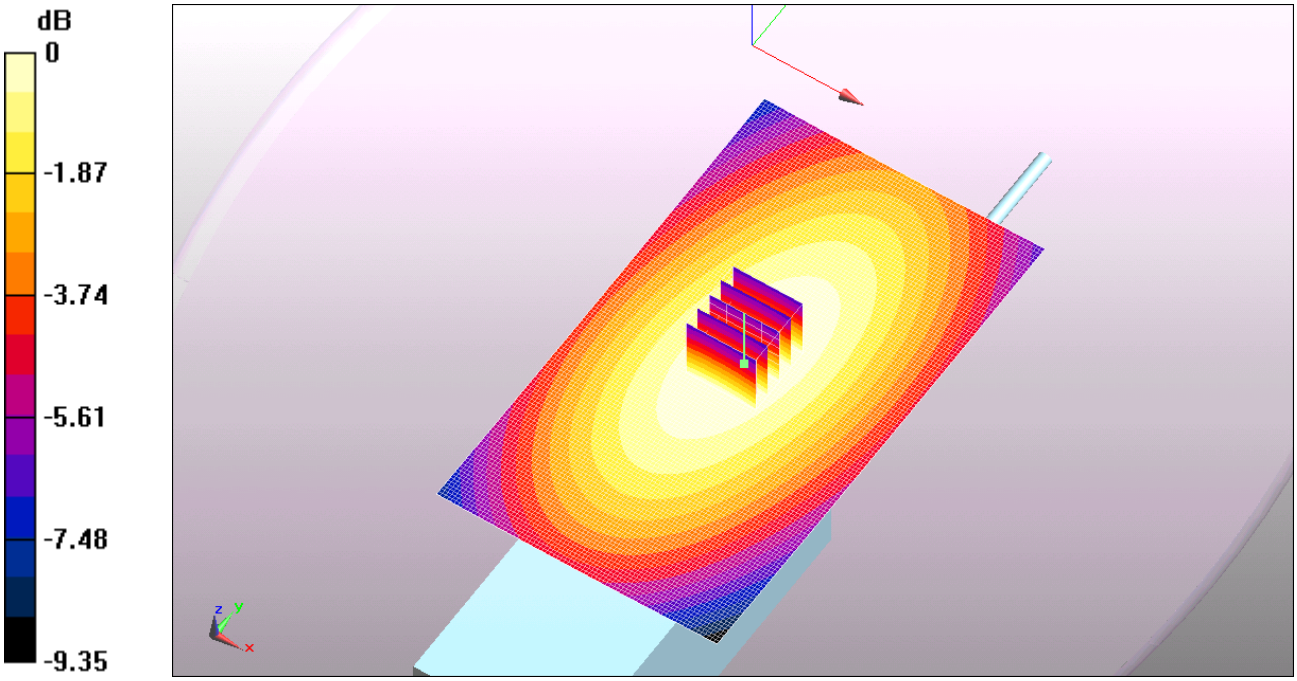
Communication System: CW; Frequency: 380 MHz
Medium parameters used: f = 380 MHz; σ = 0.806 mho/m; ε_r = 44.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

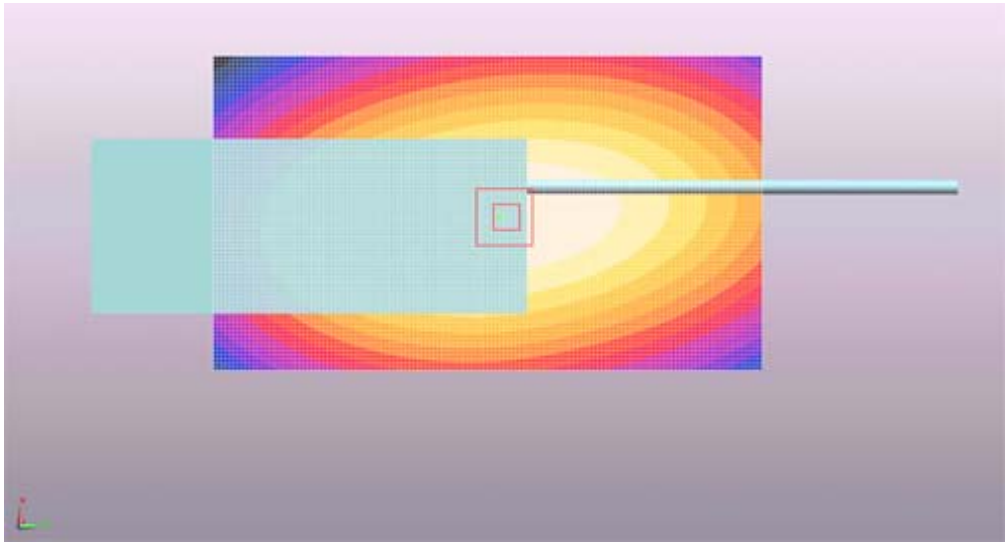
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

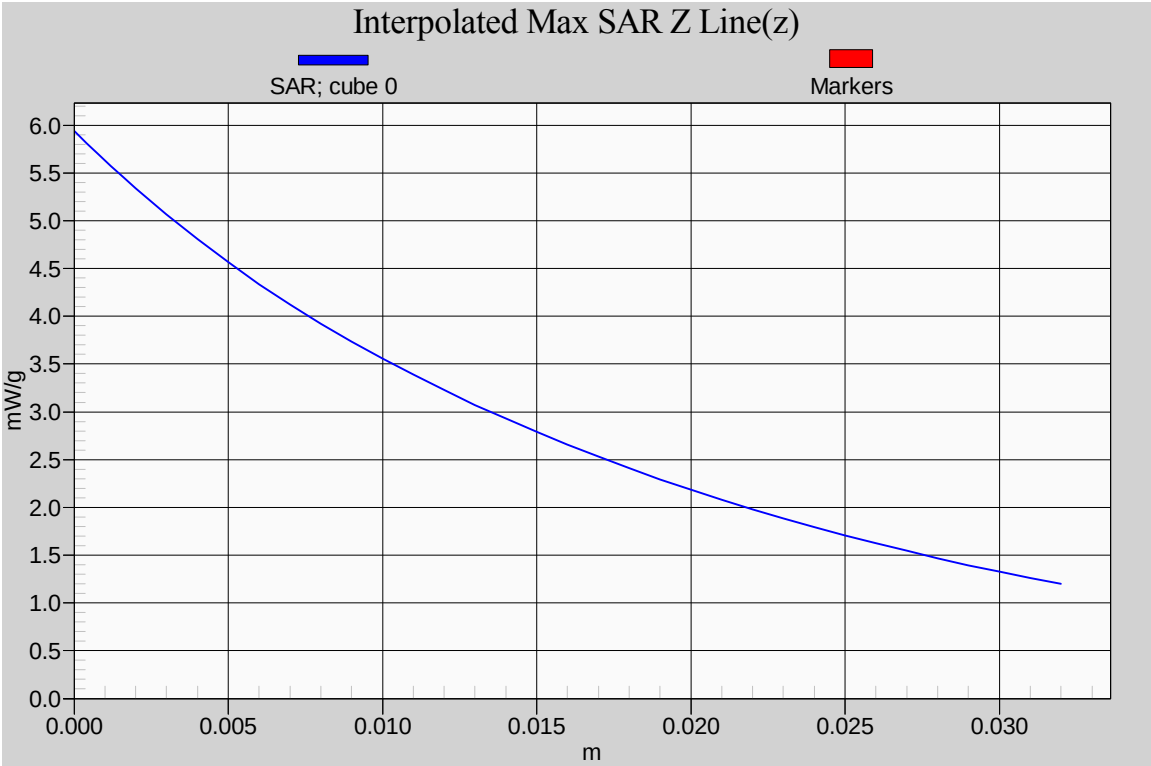
FA-S76UC=165mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 83.2 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 5.94 W/kg
SAR(1 g) = 4.87 mW/g; SAR(10 g) = 3.73 mW/g
Maximum value of SAR (measured) = 5.34 mW/g

FA-S76UC=165mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 5.36 mW/g



0 dB = 5.36mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.6. ¼ helical whip cut antenna (M/N: FA-S76UC), length=165mm; 400 MHz; #16

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=165mm_Head_400MHz(L2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

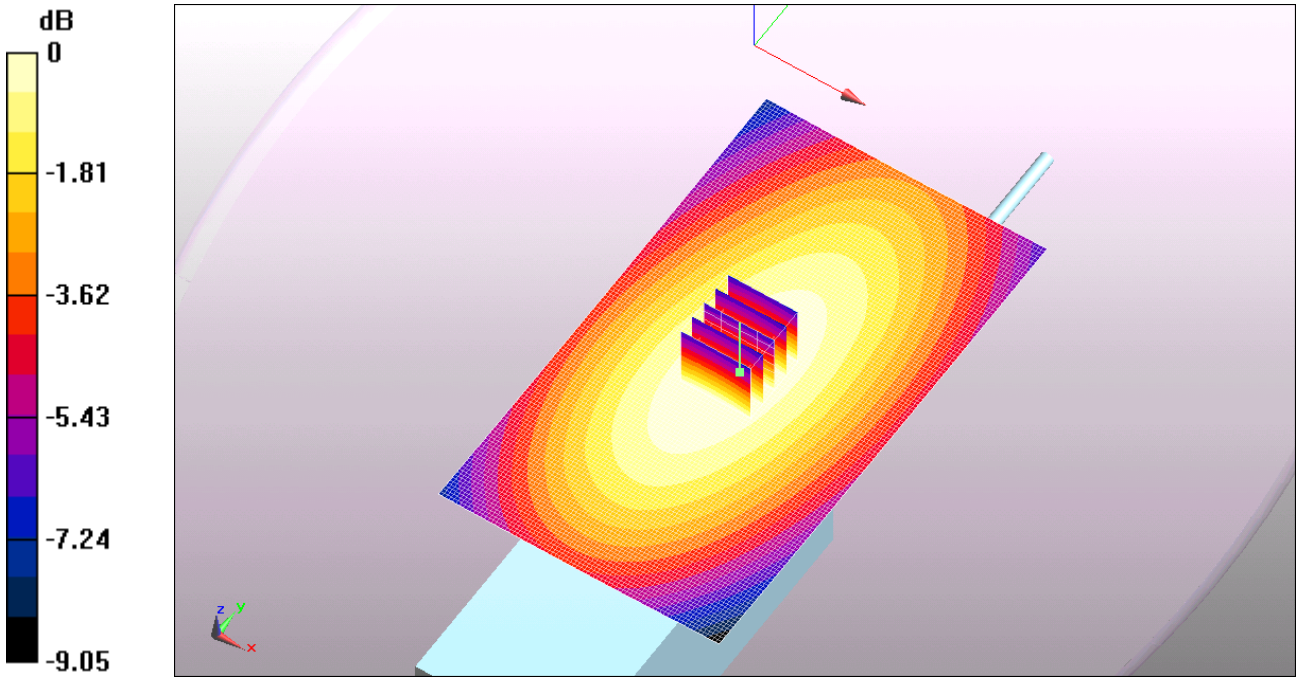
Communication System: CW; Frequency: 400 MHz
Medium parameters used: f = 400 MHz; σ = 0.821 mho/m; ε_r = 43.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

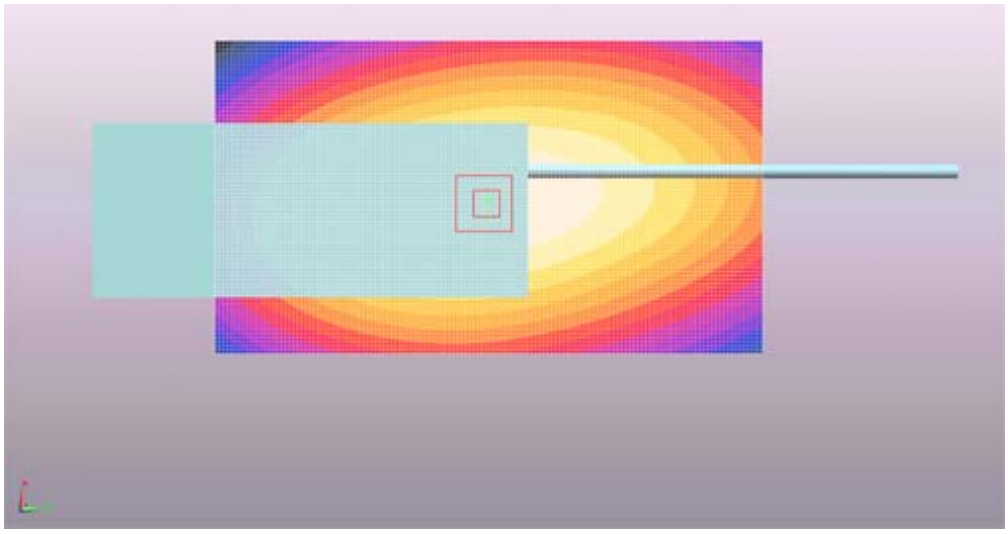
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

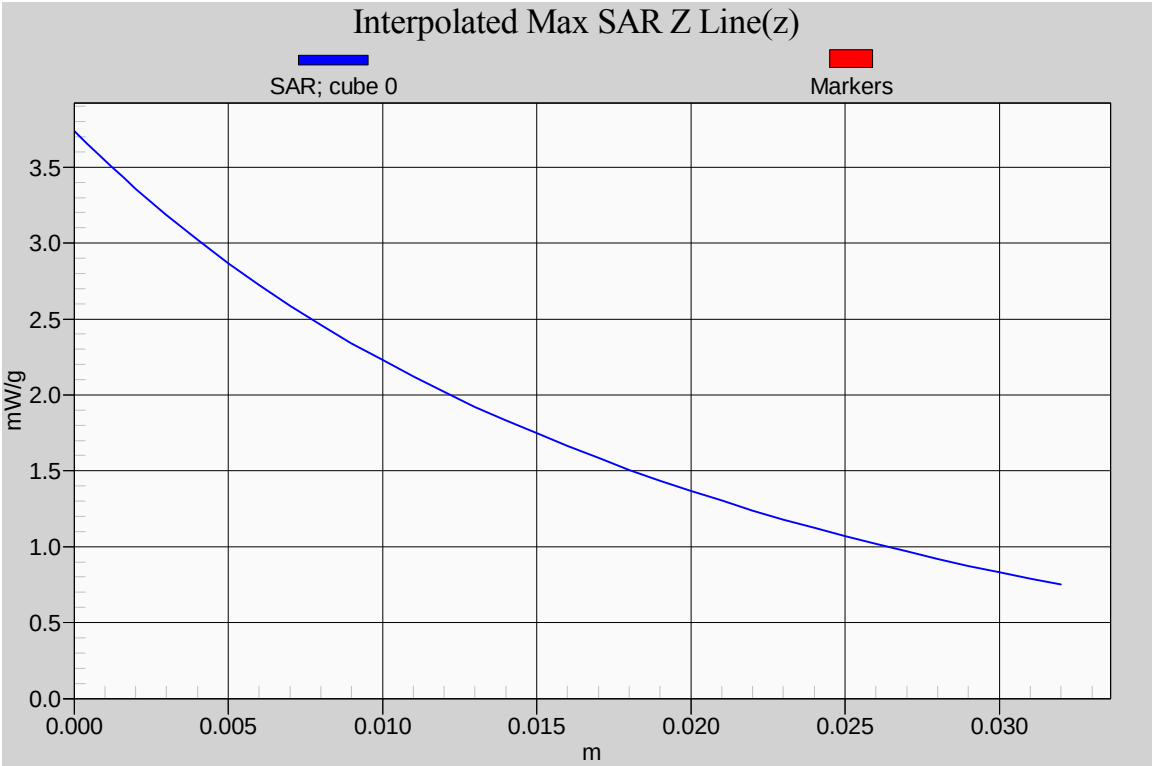
FA-S76UC=165mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 64.9 V/m; Power Drift = -0.038 dB
Peak SAR (extrapolated) = 3.74 W/kg
SAR(1 g) = 3.02 mW/g; SAR(10 g) = 2.31 mW/g
Maximum value of SAR (measured) = 3.36 mW/g

FA-S76UC=165mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.38 mW/g



0 dB = 3.38mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.7. ¼ helical whip cut antenna (M/N: FA-S76UC), length=165mm; 434 MHz; #18

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=165mm_Head_434MHz(M2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

Communication System: CW; Frequency: 434 MHz
Medium parameters used (interpolated): f = 434 MHz; σ = 0.853 mho/m; ε_r = 42.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

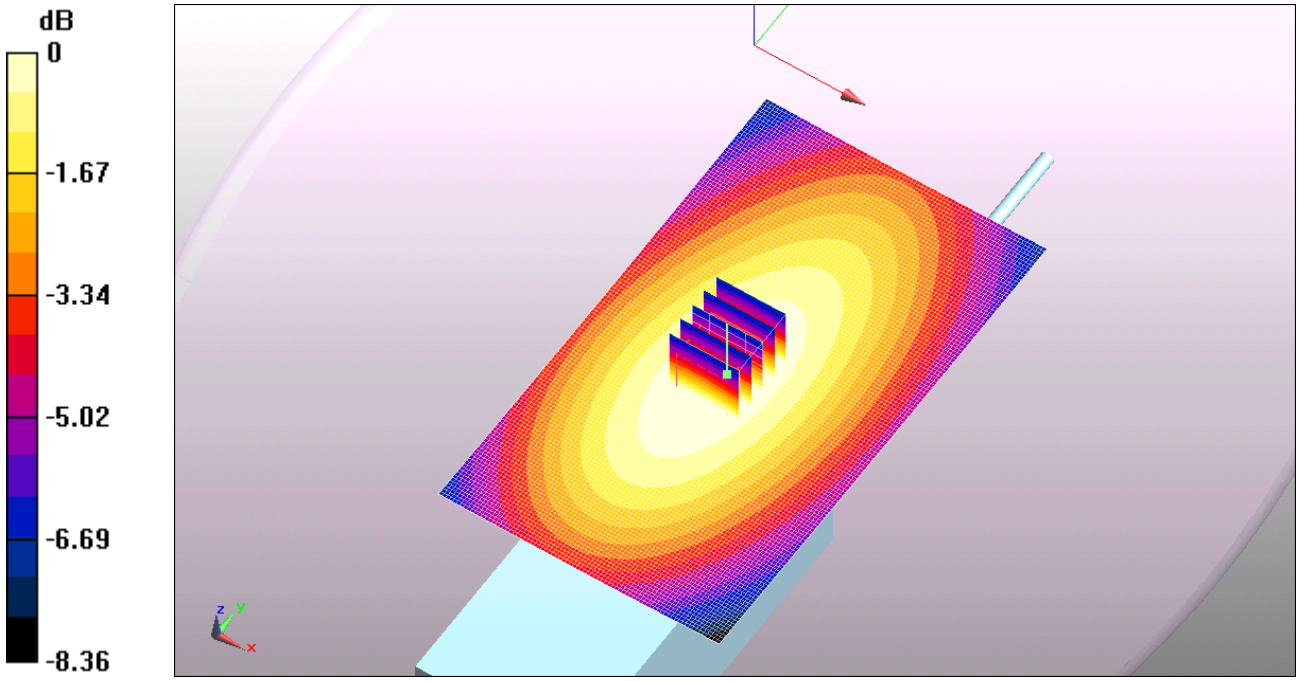
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

FA-S76UC=165mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 41 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 1.6 W/kg
SAR(1 g) = 1.24 mW/g; SAR(10 g) = 0.938 mW/g

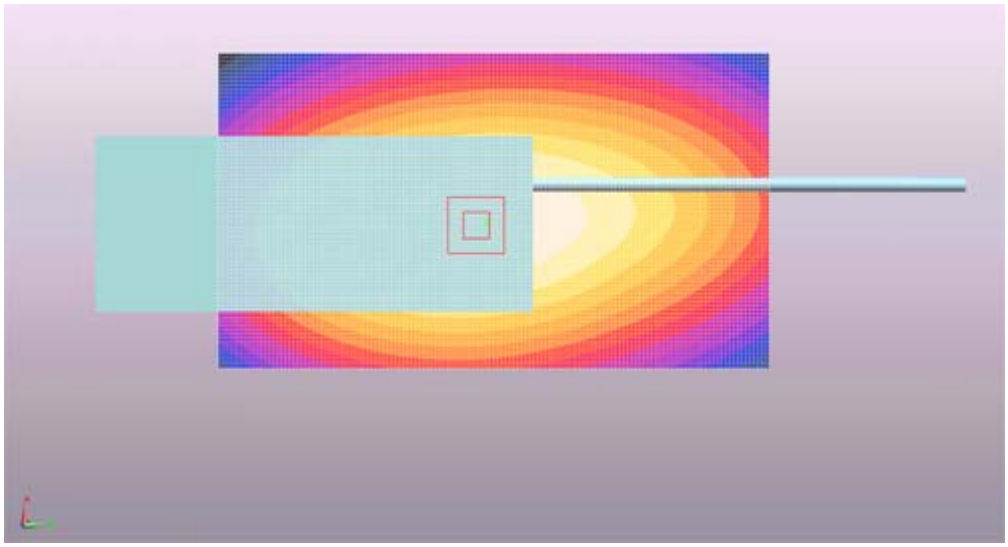
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.43 mW/g

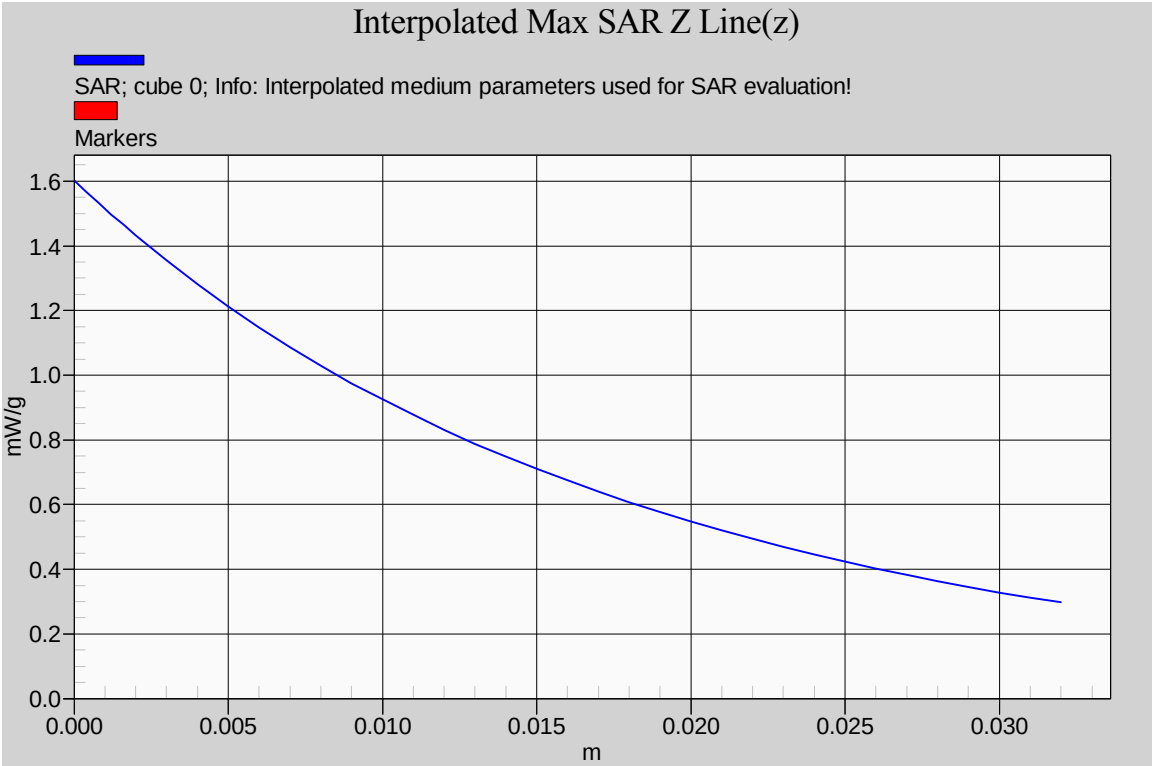
FA-S76UC=165mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.43 mW/g



0 dB = 1.43mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0; Info: Interpolated medium parameters used for SAR evaluation!
Markers
mW/g
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.8. ¼ helical whip cut antenna (M/N: FA-S76UC), length=165mm; 470 MHz; #20

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=165mm_Head_470MHz(H2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

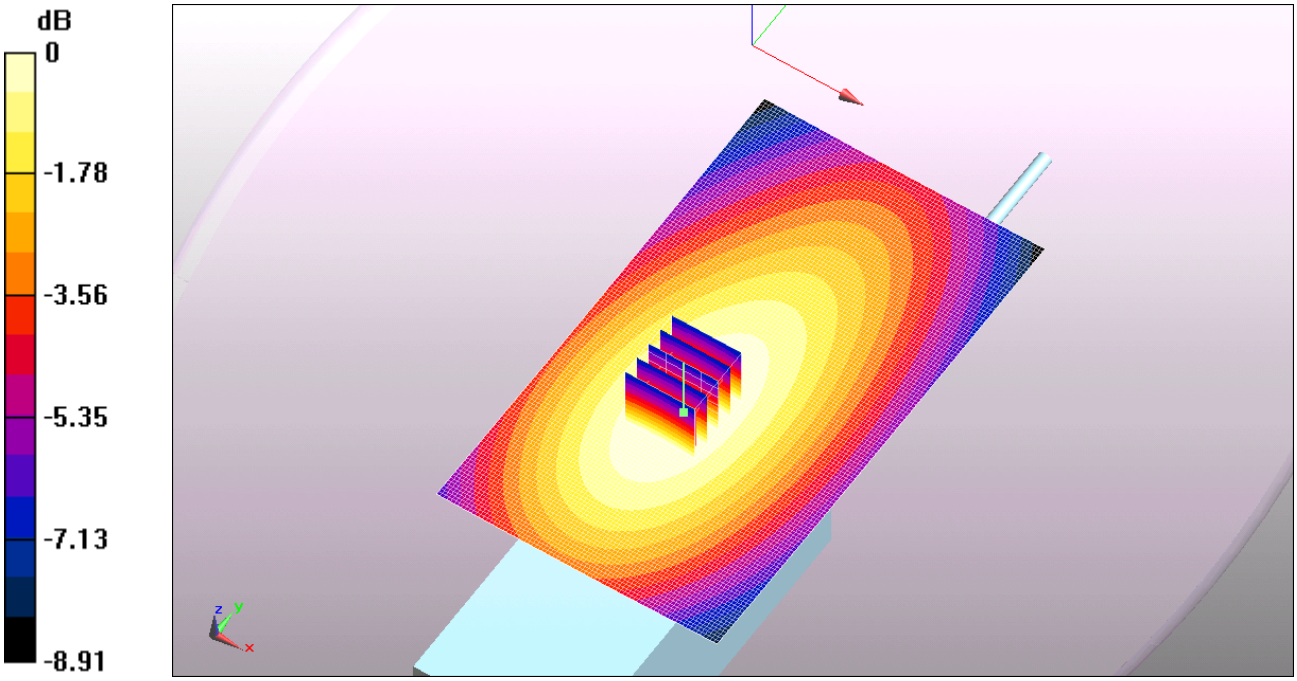
Communication System: CW; Frequency: 470 MHz
Medium parameters used: f = 470 MHz; σ = 0.887 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

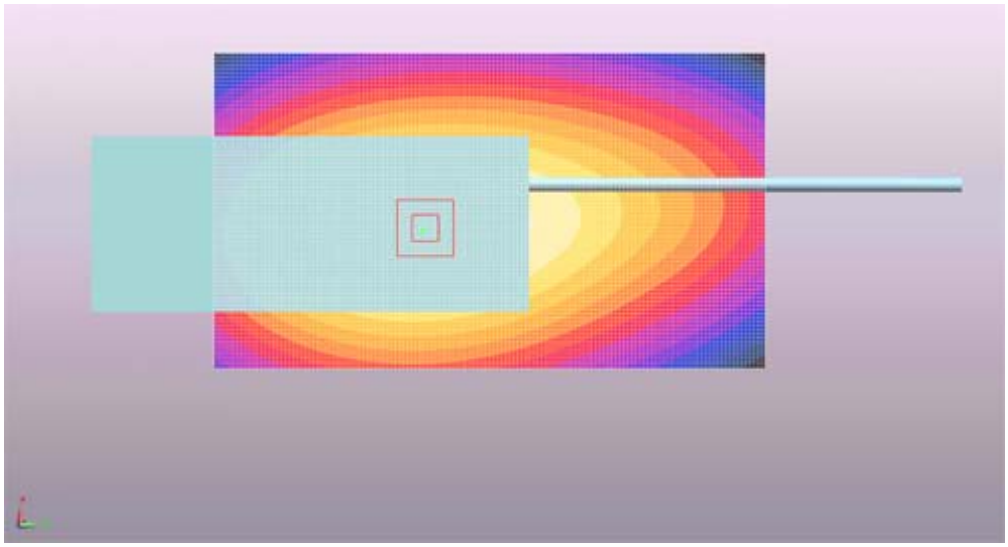
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

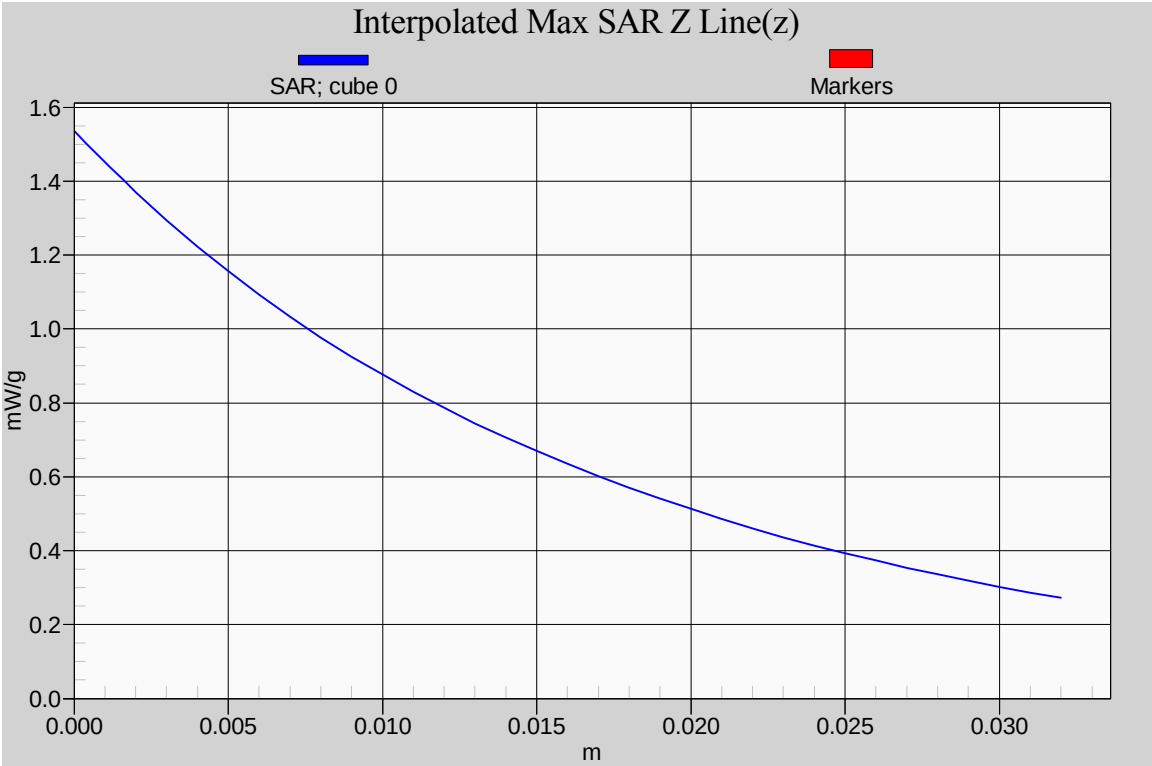
FA-S76UC=165mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 40.2 V/m; Power Drift = -0.137 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.862 mW/g
Maximum value of SAR (measured) = 1.37 mW/g

FA-S76UC=165mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.37 mW/g



0 dB = 1.37mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.9. ¼ helical whip cut antenna (M/N: FA-S76UC), length=156mm; 380 MHz; #21

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=156mm_Head_380MHz(L1f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

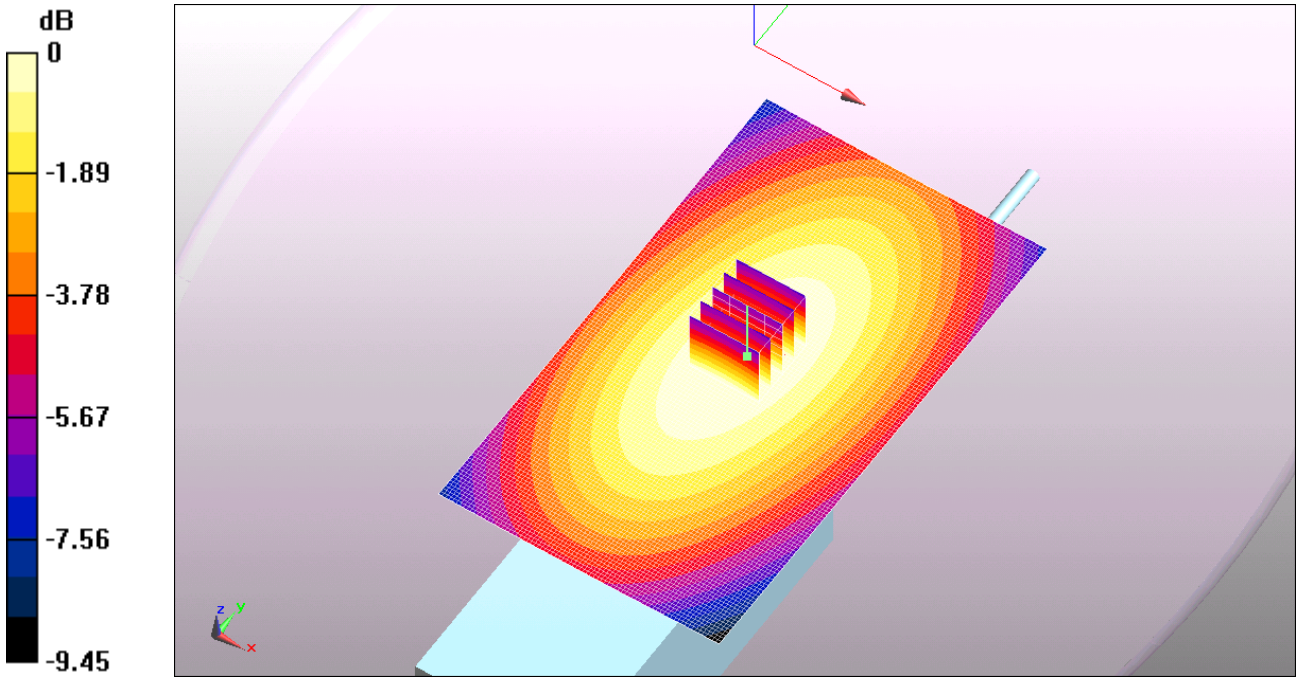
Communication System: CW; Frequency: 380 MHz
Medium parameters used: f = 380 MHz; σ = 0.806 mho/m; ε_r = 44.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

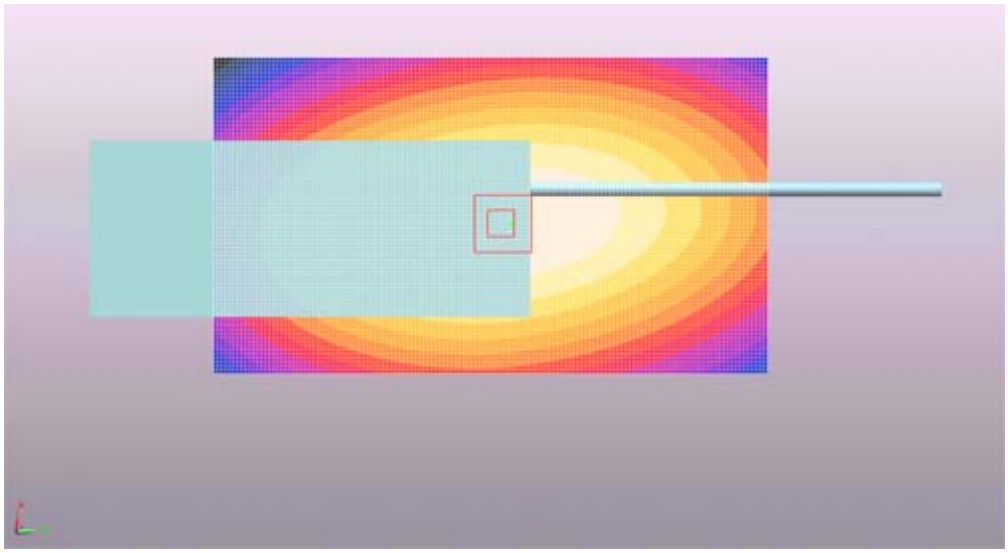
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

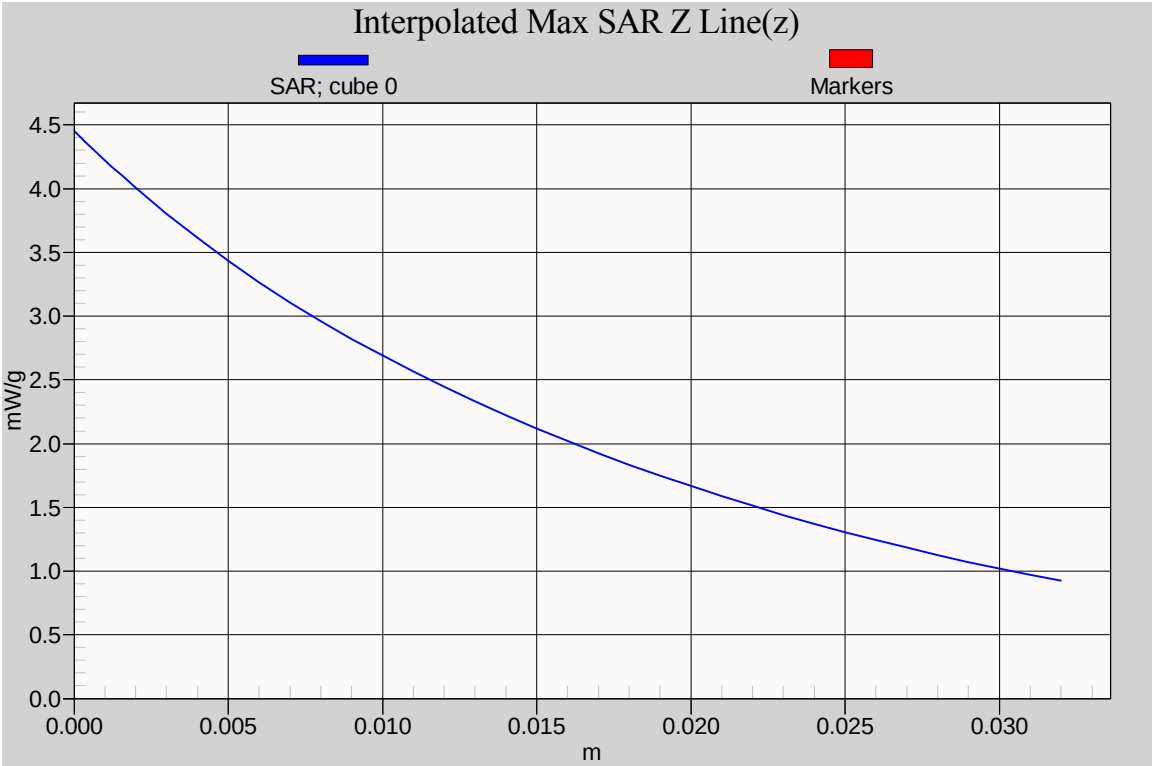
FA-S76UC=156mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 71.5 V/m; Power Drift = -0.050 dB
Peak SAR (extrapolated) = 4.45 W/kg
SAR(1 g) = 3.67 mW/g; SAR(10 g) = 2.82 mW/g
Maximum value of SAR (measured) = 4 mW/g

FA-S76UC=156mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.99 mW/g



0 dB = 3.99mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.10. ¼ helical whip cut antenna (M/N: FA-S76UC), length=156mm; 420 MHz; #23

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=156mm_Head_420MHz(M1f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

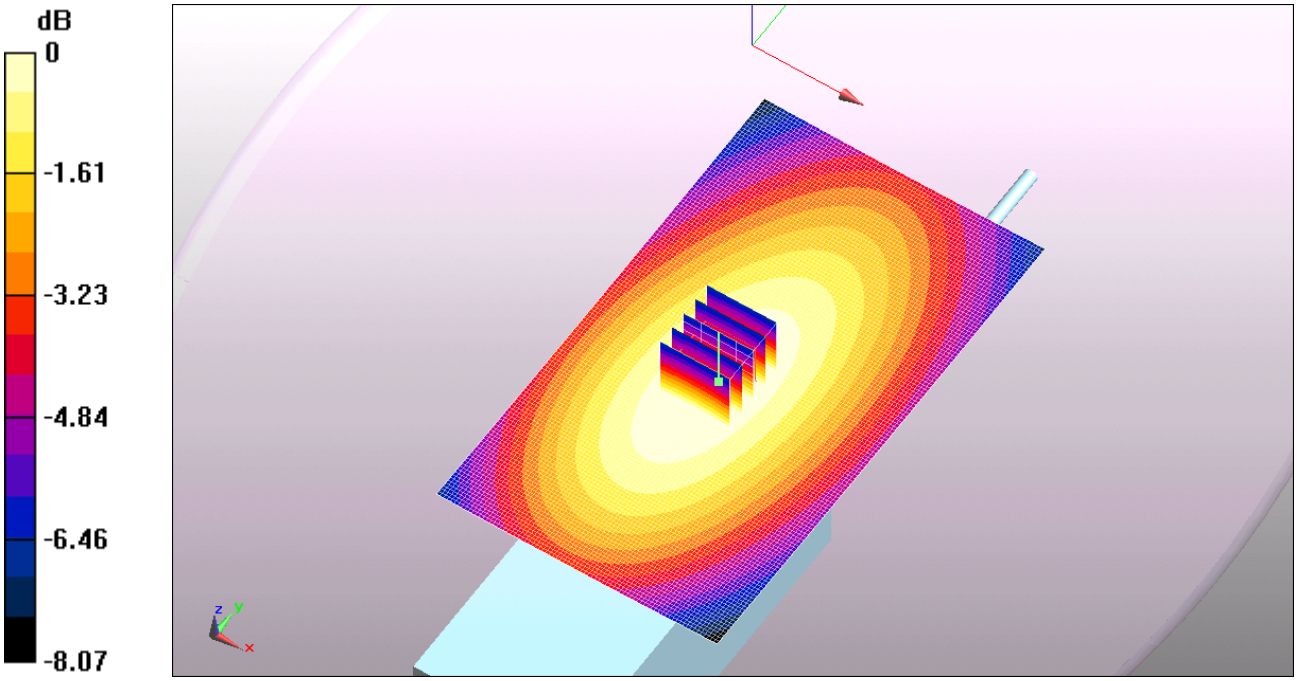
Communication System: CW; Frequency: 420 MHz
Medium parameters used: f = 420 MHz; σ = 0.841 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

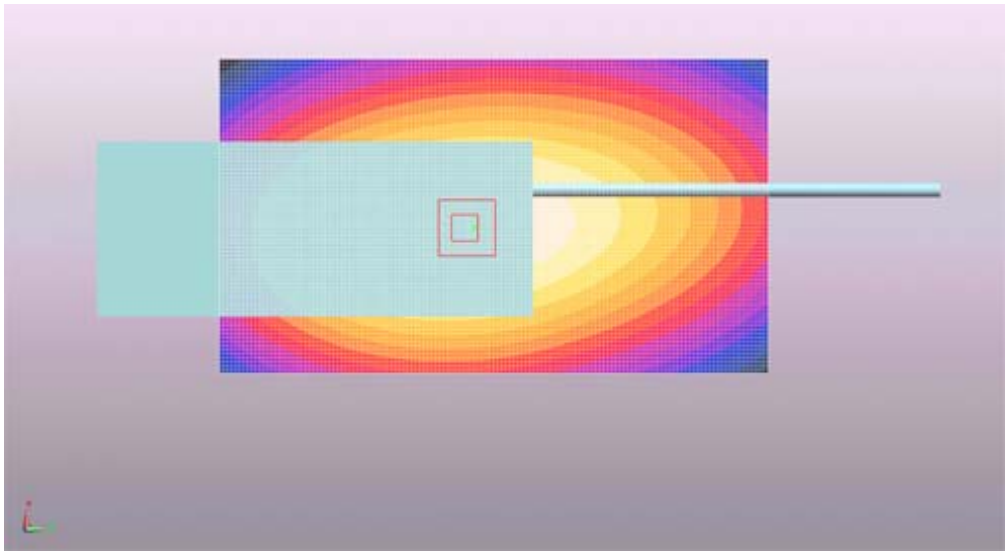
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

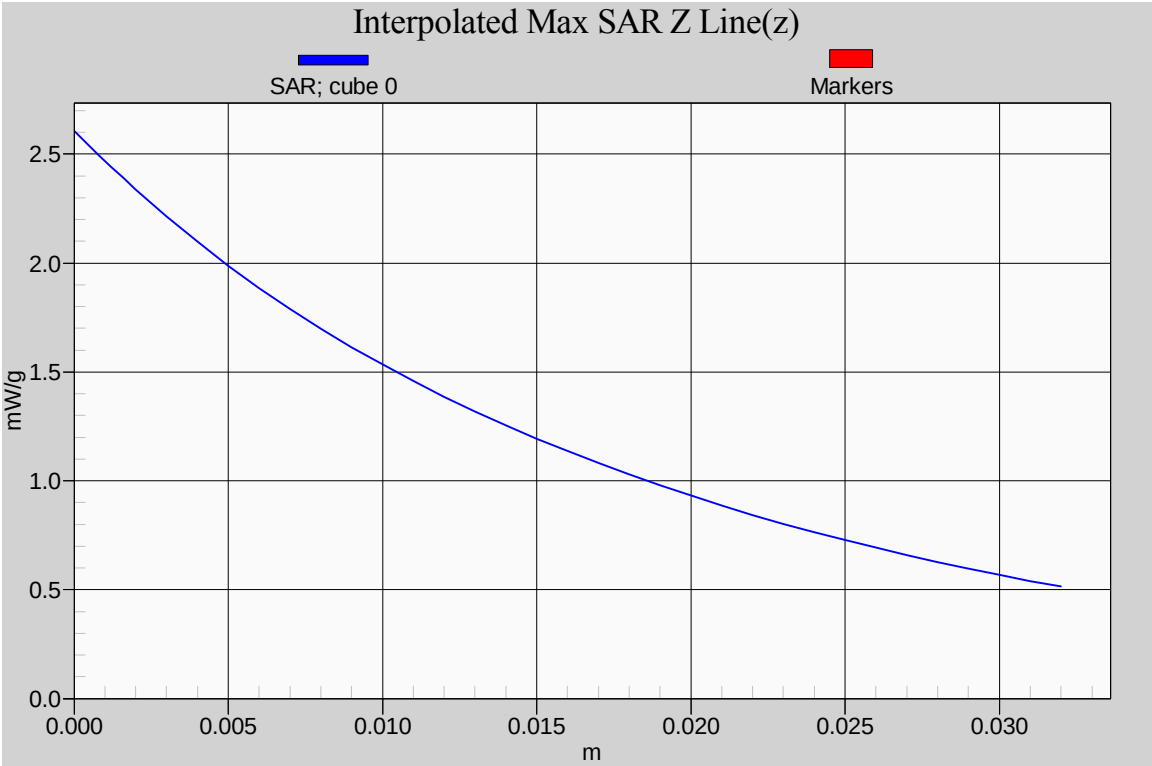
FA-S76UC=156mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 53.7 V/m; Power Drift = -0.110 dB
Peak SAR (extrapolated) = 2.61 W/kg
SAR(1 g) = 2.06 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.33 mW/g

FA-S76UC=156mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.34 mW/g



0 dB = 2.34mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.11. ¼ helical whip cut antenna (M/N: FA-S76UC), length=156mm; 434 MHz; #24

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=156mm_Head_434MHz(M2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

Communication System: CW; Frequency: 434 MHz
Medium parameters used (interpolated): f = 434 MHz; σ = 0.853 mho/m; ε_r = 42.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

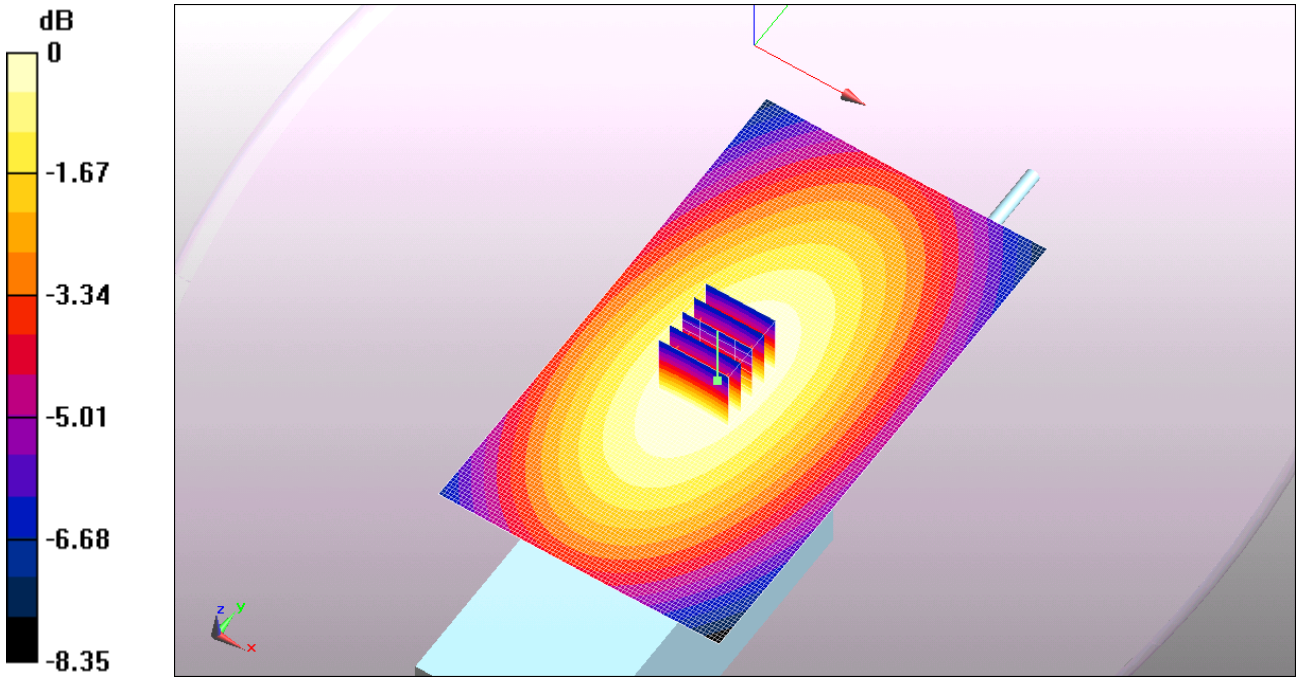
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

FA-S76UC=156mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 49.6 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 2.29 W/kg
SAR(1 g) = 1.77 mW/g; SAR(10 g) = 1.34 mW/g

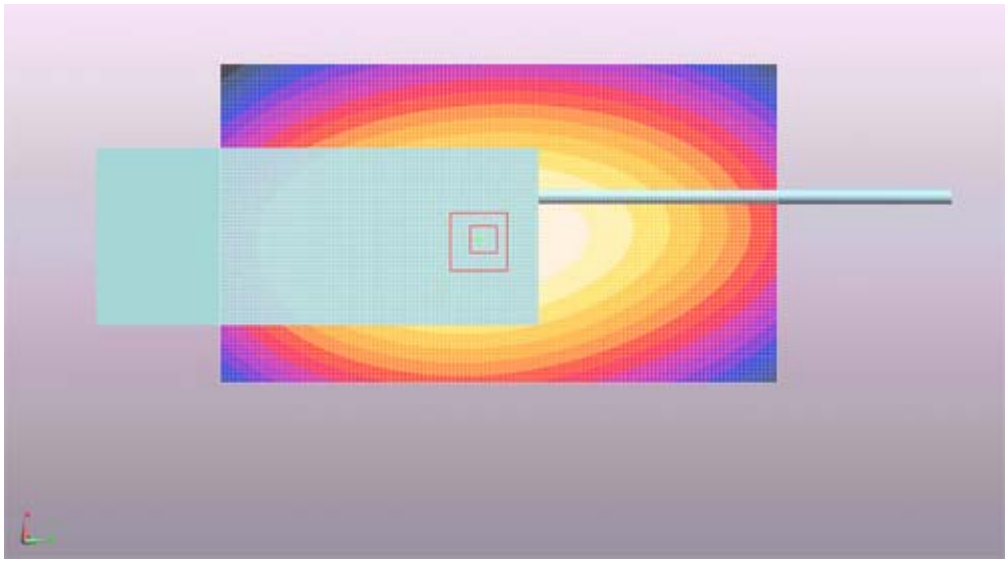
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.05 mW/g

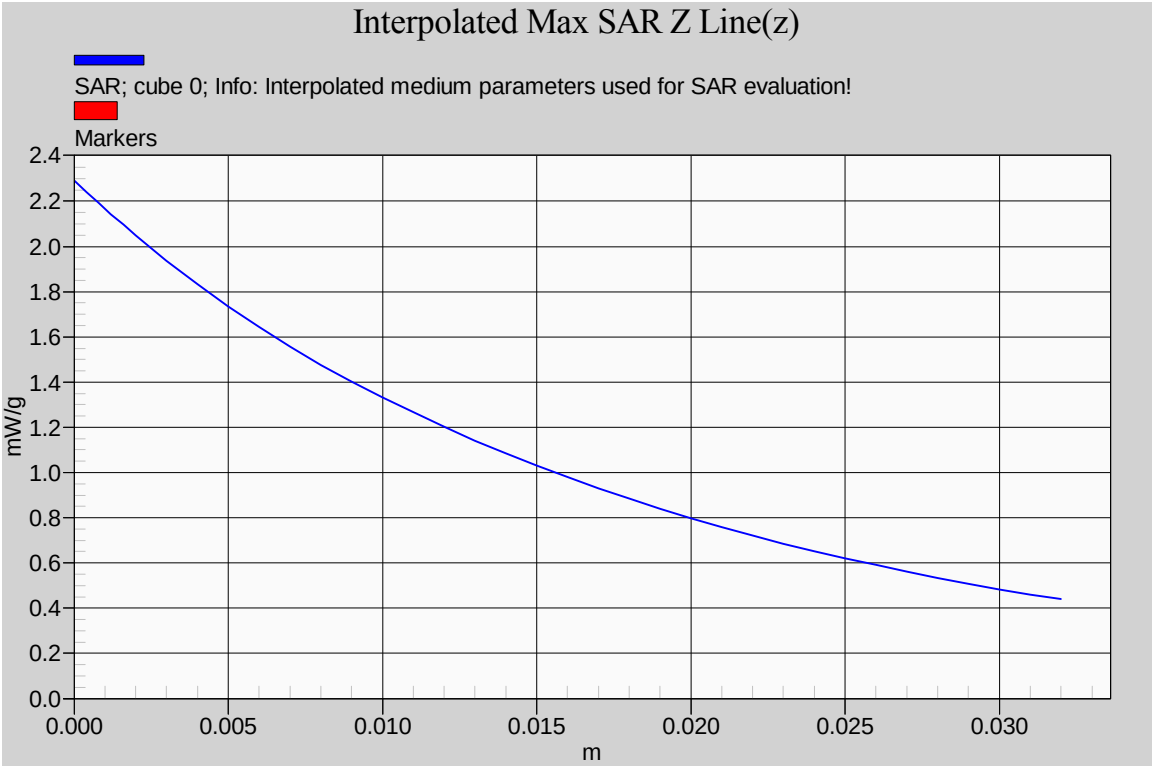
FA-S76UC=156mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 2.04 mW/g



0 dB = 2.04mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0; Info: Interpolated medium parameters used for SAR evaluation!
Markers
mW/g
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.12. ¼ helical whip cut antenna (M/N: FA-S76UC), length=156mm; 470 MHz; #26

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=156mm_Head_470MHz(H2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

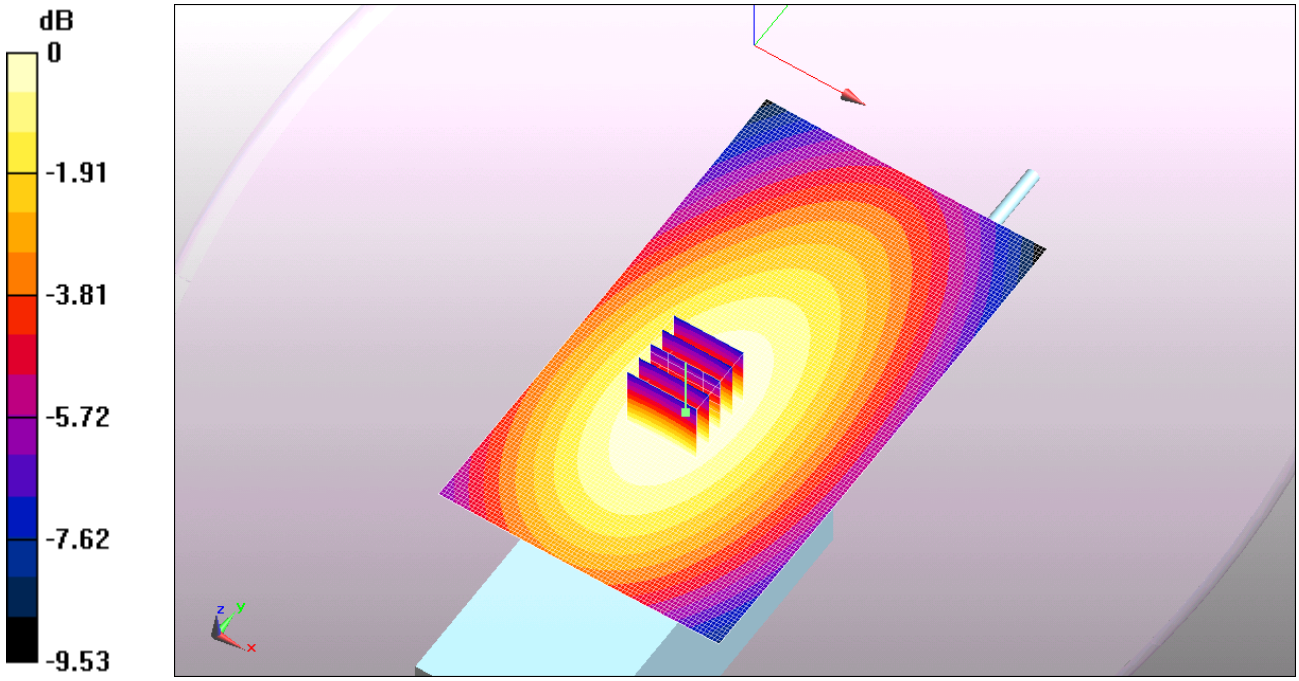
Communication System: CW; Frequency: 470 MHz
Medium parameters used: f = 470 MHz; σ = 0.887 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

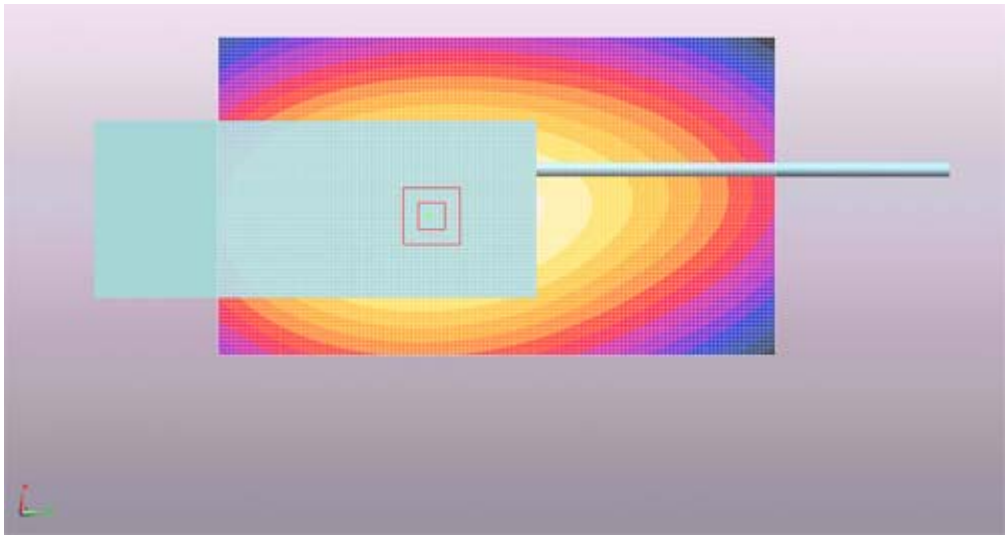
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

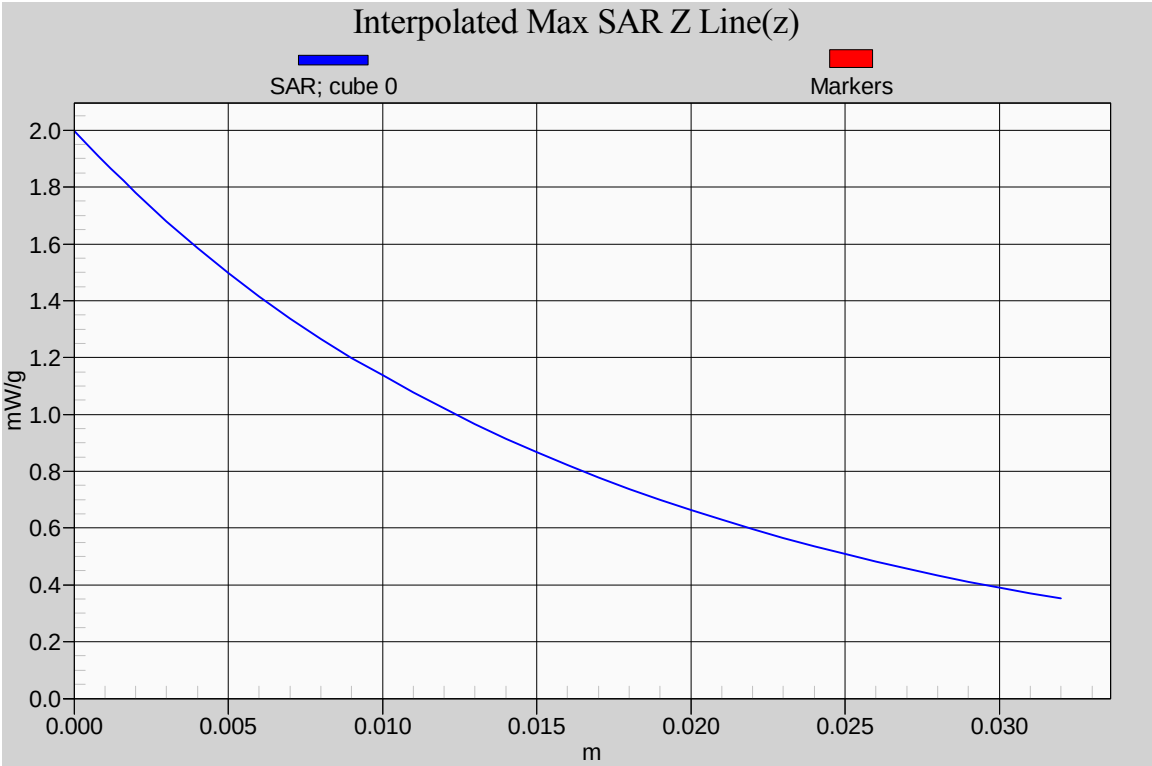
FA-S76UC=156mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 45.3 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 2 W/kg
SAR(1 g) = 1.48 mW/g; SAR(10 g) = 1.12 mW/g
Maximum value of SAR (measured) = 1.78 mW/g

FA-S76UC=156mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.77 mW/g



0 dB = 1.77mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.13. ¼ helical whip cut antenna (M/N: FA-S76UC), length=148mm; 380 MHz; #27

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=148mm_Head_380MHz(L1f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

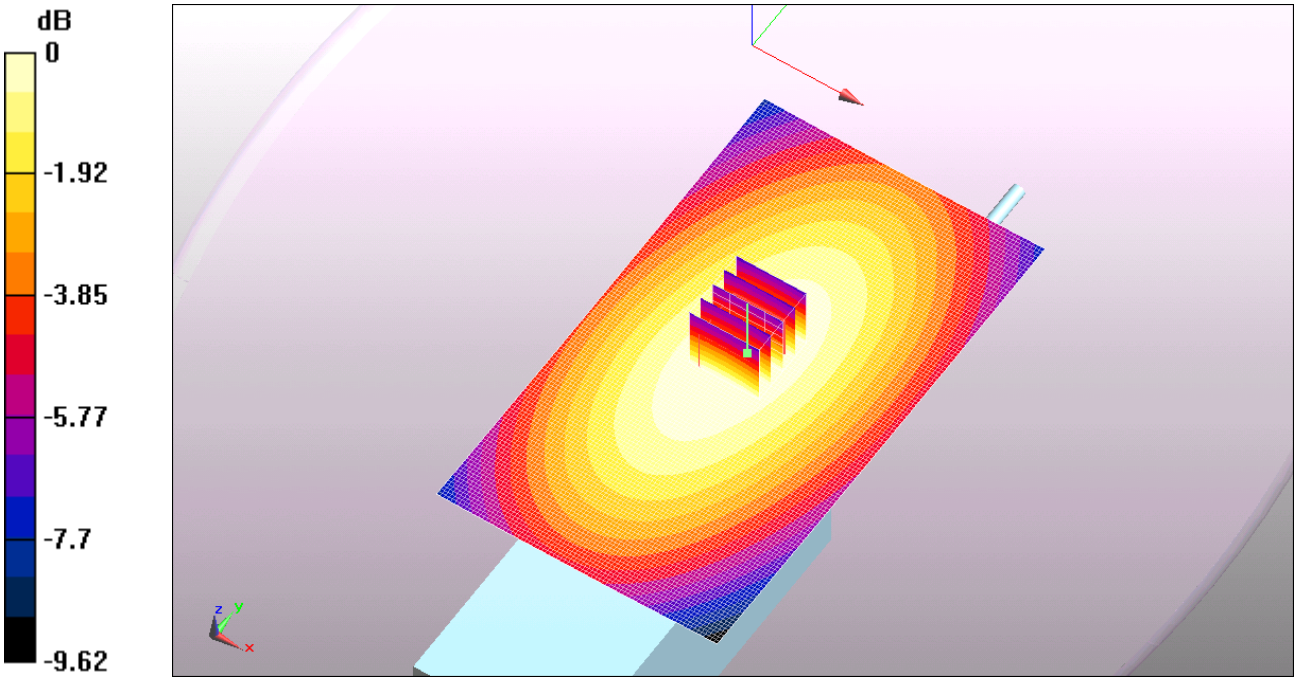
Communication System: CW; Frequency: 380 MHz
Medium parameters used: f = 380 MHz; σ = 0.806 mho/m; ε_r = 44.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

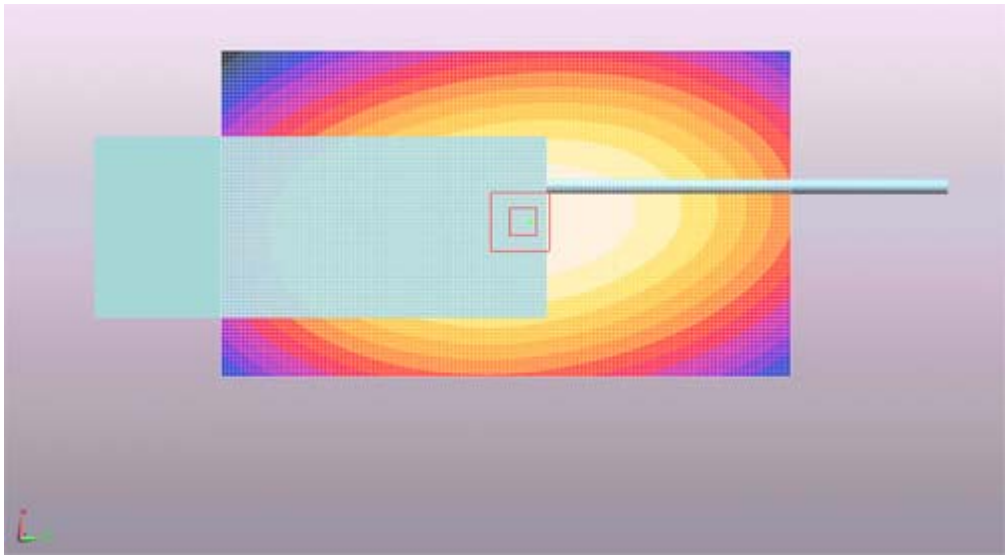
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

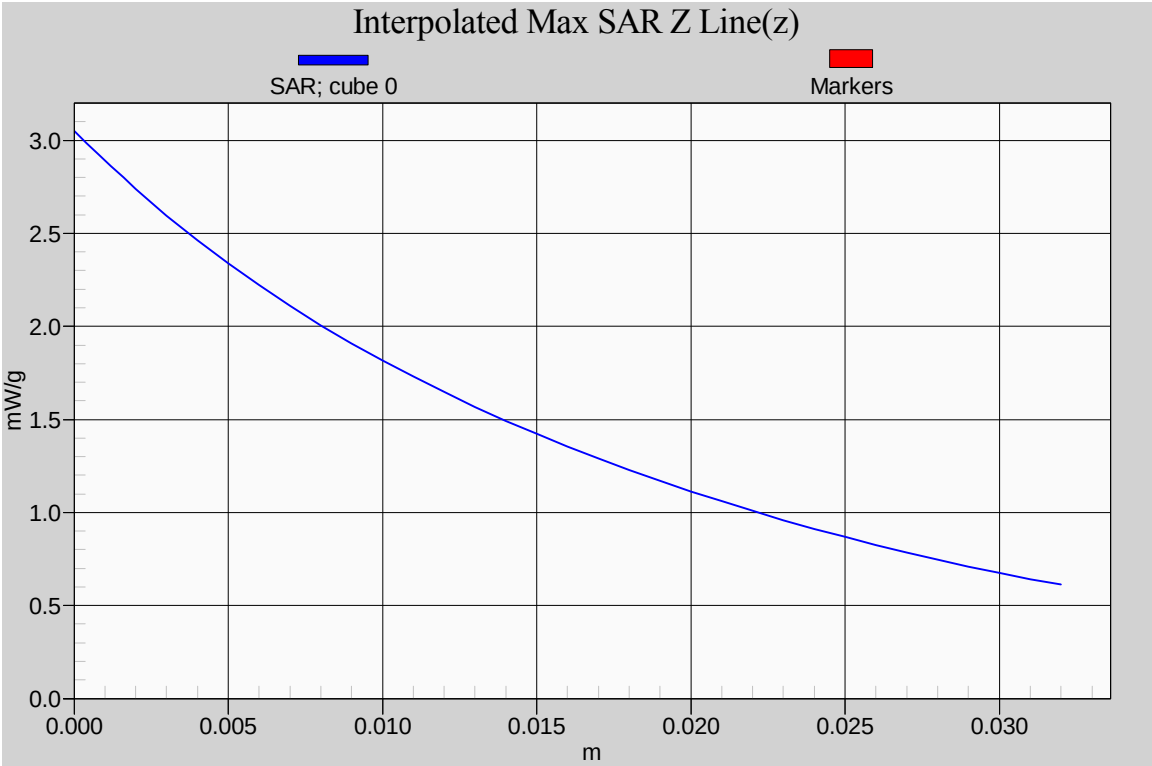
FA-S76UC=148mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 58.6 V/m; Power Drift = 0.030 dB
Peak SAR (extrapolated) = 3.05 W/kg
SAR(1 g) = 2.49 mW/g; SAR(10 g) = 1.91 mW/g
Maximum value of SAR (measured) = 2.74 mW/g

FA-S76UC=148mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.71 mW/g



0 dB = 2.71mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
3.0
2.5
2.0
1.5
1.0
0.5
0.0
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.14. ¼ helical whip cut antenna (M/N: FA-S76UC), length=148mm; 416 MHz; #29

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=148mm_Head_416MHz(M1f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

Communication System: CW; Frequency: 416 MHz
Medium parameters used (interpolated): f = 416 MHz; σ = 0.838 mho/m; ε_r = 43.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

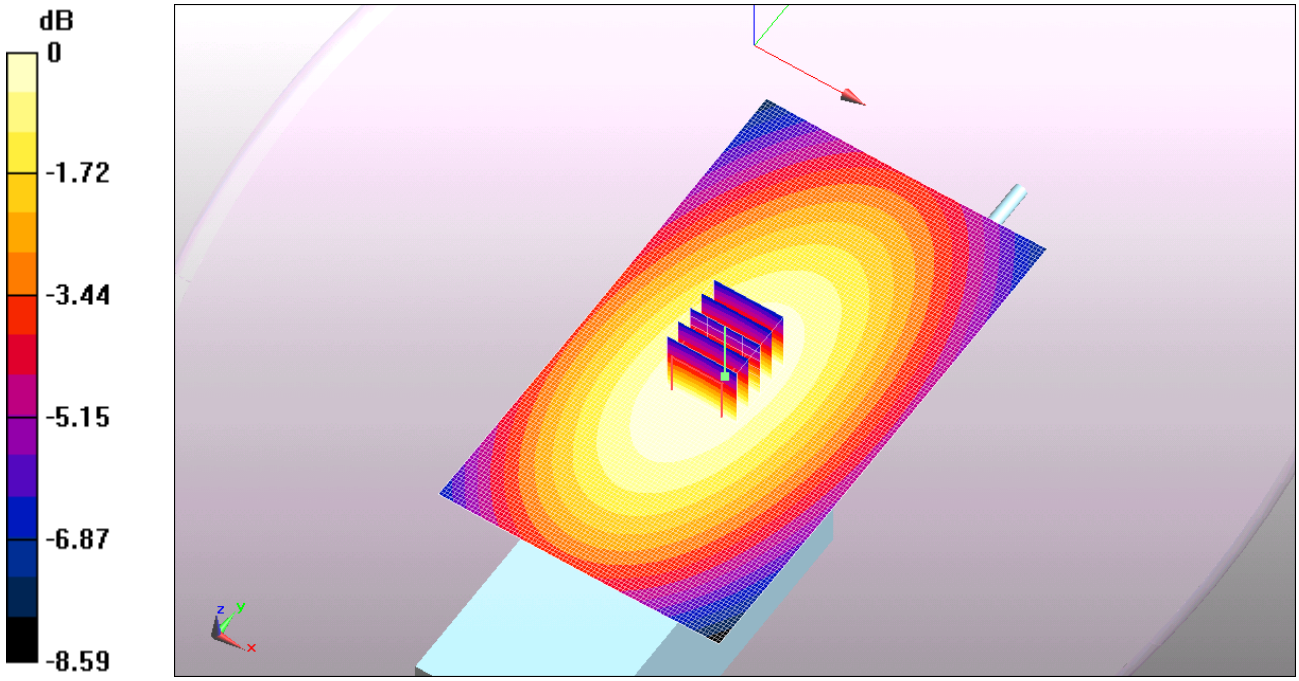
FA-S76UC=148mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 60.6 V/m; Power Drift = 0.060 dB
Peak SAR (extrapolated) = 3.44 W/kg
SAR(1 g) = 2.73 mW/g; SAR(10 g) = 2.08 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

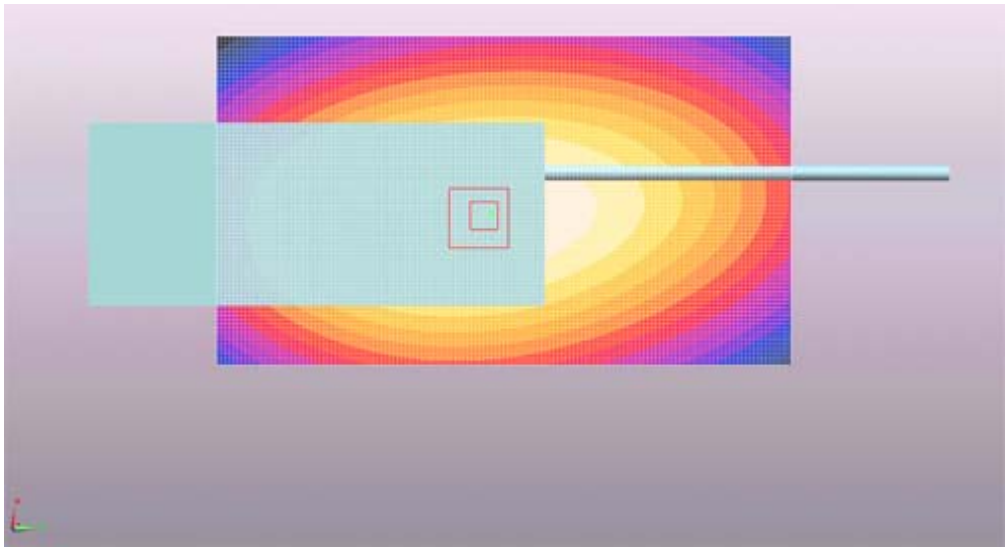
Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.
Maximum value of SAR (measured) = 3.08 mW/g

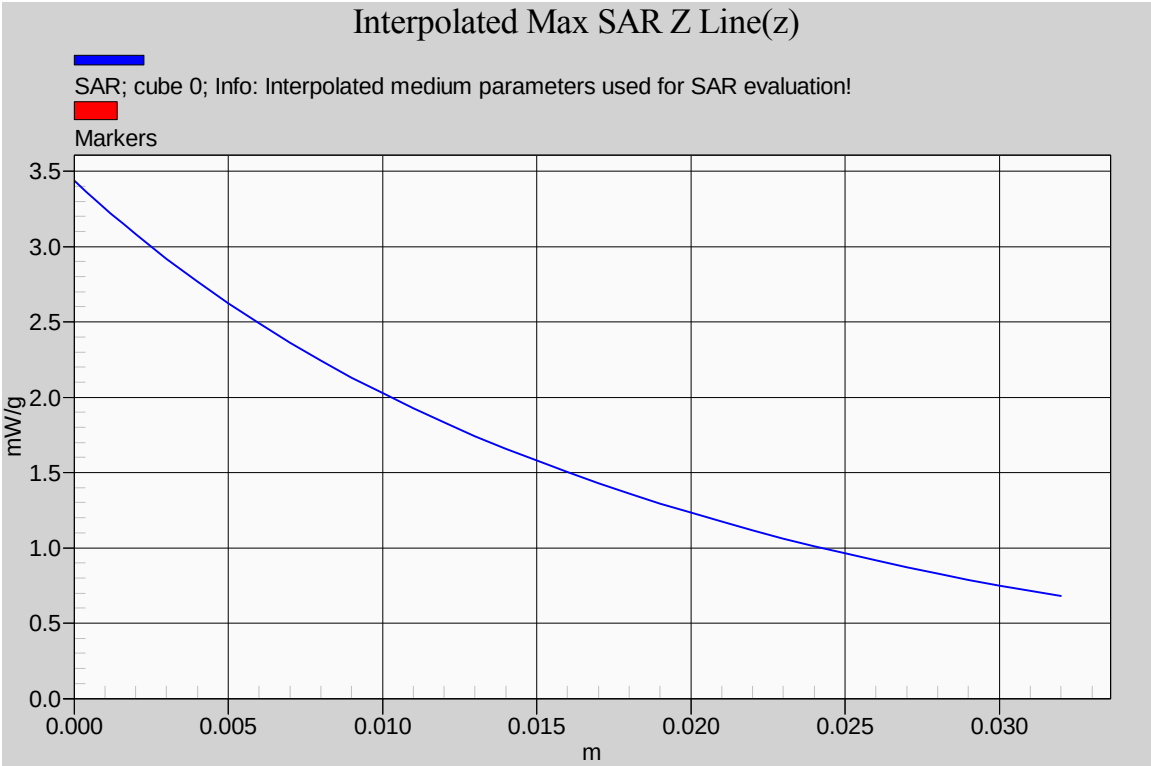
FA-S76UC=148mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 3.07 mW/g



0 dB = 3.07mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0; Info: Interpolated medium parameters used for SAR evaluation!
Markers
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

6.4.4.15. ¼ helical whip cut antenna (M/N: FA-S76UC), length=148mm; 440 MHz; #30

Test Laboratory: UltraTech Group of Labs.

ICOM-233Q_FA-S76UC=148mm_Head_440MHz(M2f)

DUT: ICOM UHF Transceiver; Type: IC-F9021T; Serial: 5000006

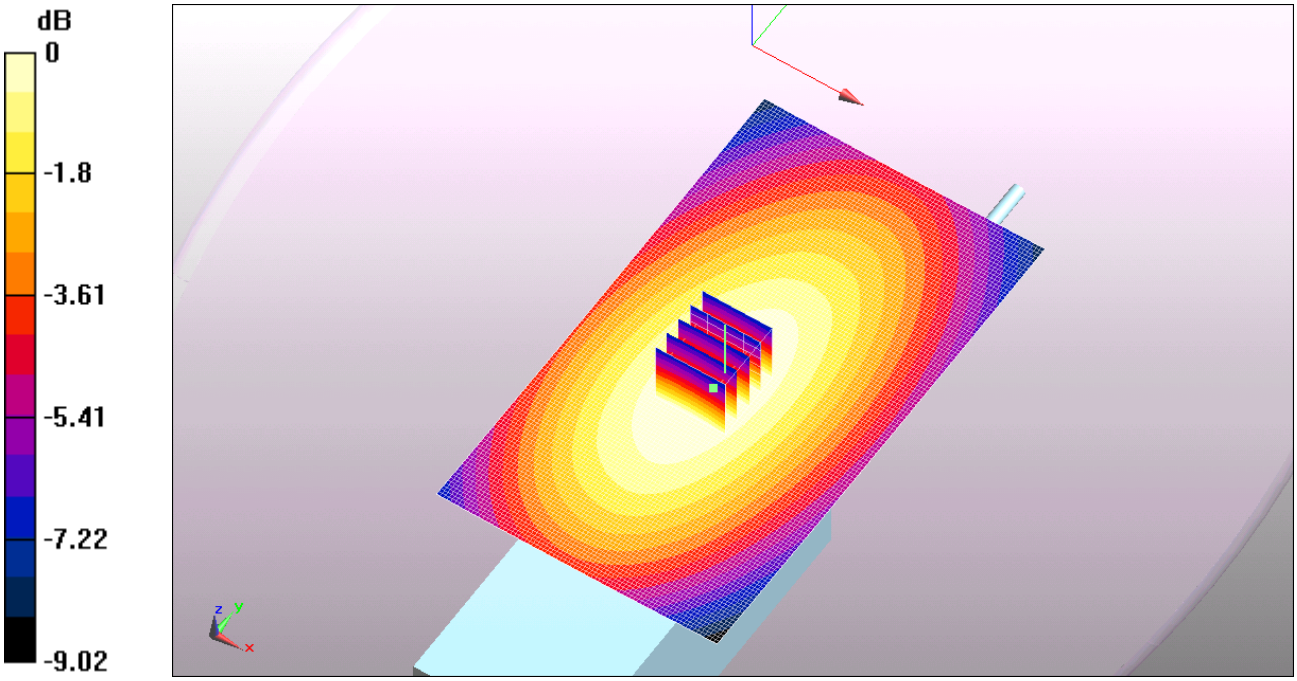
Communication System: CW; Frequency: 440 MHz
Medium parameters used: f = 440 MHz; σ = 0.86 mho/m; ε_r = 42.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

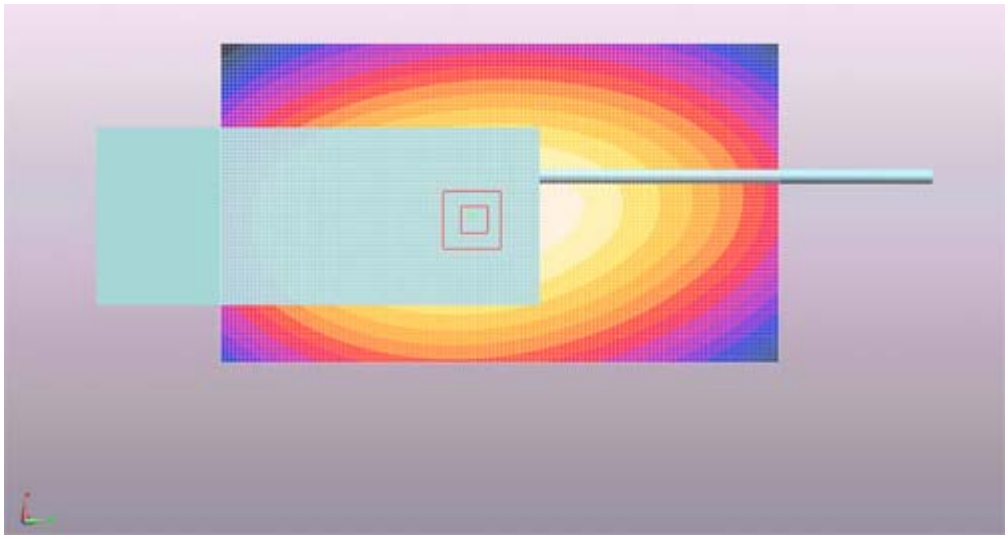
- Probe: EX3DV4 - SN3673; ConvF(9.2, 9.2, 9.2); Calibrated: 2/23/2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn874; Calibrated: 2/17/2009
- Phantom: ELI 4.0; Type: QD OVA 001 BB; Serial: 1057
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

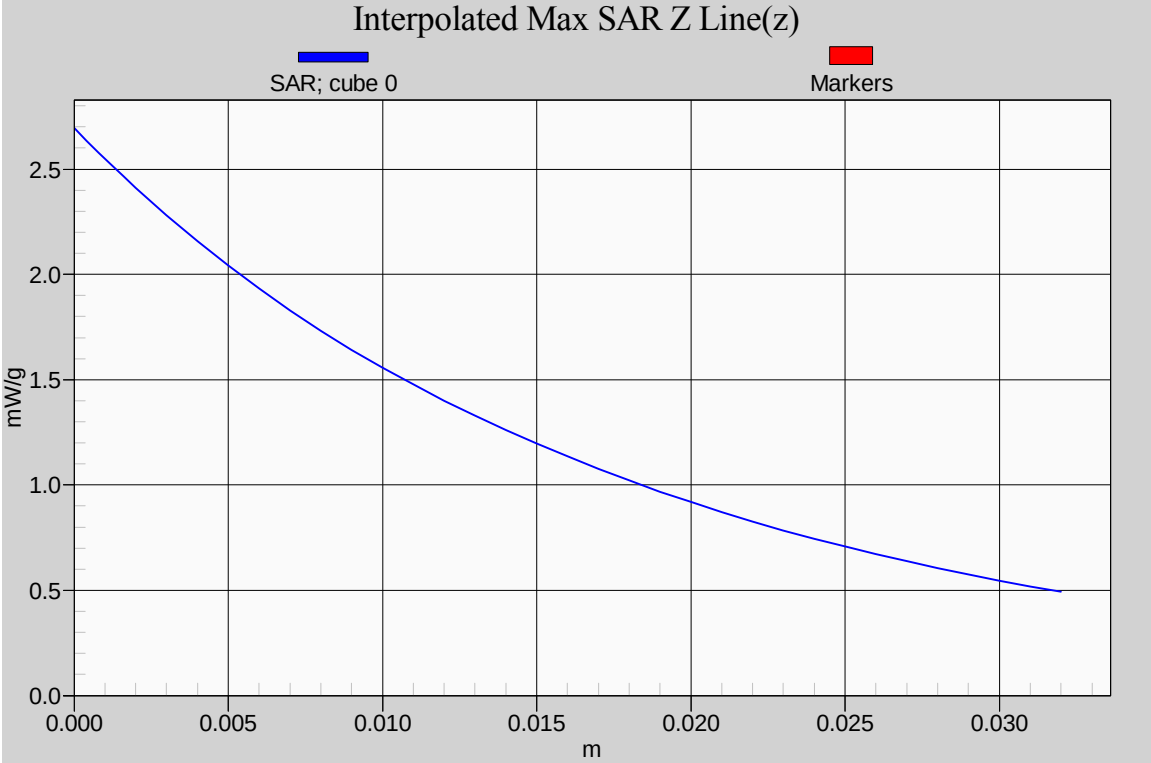
FA-S76UC=148mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Zoom Scan (5x5x7) (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 53.5 V/m; Power Drift = -0.095 dB
Peak SAR (extrapolated) = 2.69 W/kg
SAR(1 g) = 2.07 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.41 mW/g

FA-S76UC=148mm, Head Configuration/Front Face, d=25mm, Pin=5W(EX-Probe)/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.45 mW/g



0 dB = 2.45mW/g




Interpolated Max SAR Z Line(z)
SAR; cube 0
Markers
mW/g
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m