NO.: RZA2009-0587FCC

OET 65

TEST REPORT

Test name	Electromagnetic Field (Specific Absorption Rate)
Product	HSPA USB Stick
Model	K3715
FCC ID	QISK3715
Client	HUAWEI Technologies Co., Ltd.

TA Technology (Shanghai) Co., Ltd.

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GENERAL SUMMARY

Product	HSPA USB Stick	**Model**	K3715
Client	HUAWEI Technologies Co., Ltd.	**Type of test**	Entrusted
Manufacturer	HUAWEI Technologies Co., Ltd.	**Arrival Date of sample**	May 15th, 2009
Place of sampling	(Blank)	**Carrier of the samples**	Ting Zhang
Quantity of the samples	One	**Date of product**	(Blank)
Base of the samples	(Blank)	**Items of test**	SAR
IMEI/Series number	353435020041308		
Standard(s)	**ANSI/IEEE C95.1-1999:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. **OET Bulletin 65 supplement C, published June 2001 including DA 02-1438, published June 2002:** Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits. Transition Period for the Phantom Requirements of Supplement C to OET Bulletin 65. **IEC 62209-2:2008(106/162/CDV):** Human exposure to radio frequency fields from handheld and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 2: Procedure to determine the Specific Absorption Rate (SAR)for wireless communication devices used in close proximity to the human body .(frequency rang of 30MHz to 6GHz)		
Conclusion	Localized Specific Absorption Rate (SAR) of this portable wireless equipment has been measured in all cases requested by the relevant standards cited in Clause 7.2 of this test report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 7.1 of this test report. General Judgment: **Pass** (Stamp) **Date of issue: June 22th, 2009**		
Comment	The test result only responds to the measured sample.		

Approved by Weizhong Yang **Revised by** Minbao Ling **Performed by** Jinchang Li

TABLE OF CONTENT

1. COMPETENCE AND WARRANTIES

TA Technology (Shanghai) Co., Ltd. is a test laboratory competent to carry out the tests described in this test report.

TA Technology (Shanghai) Co., Ltd. guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

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3. DESCRIPTION OF EUT

3.1. Addressing Information Related to EUT

Table 1: Applicant (The Client)

Name or Company	HUAWEI Technologies Co., Ltd.
Address/Post	Bantian, Longgang District
City	Shenzhen
Postal Code	518129
Country	P.R. China
Telephone	0755-28780808
Fax	0755-28780808

Table 2: Manufacturer

Name or Company	HUAWEI Technologies Co., Ltd.
Address/Post	Bantian, Longgang District
City	Shenzhen
Postal Code	518129
Country	P.R. China
Telephone	0755-28780808
Fax	0755-28780808

3.2. Constituents of EUT

Table 3: Constituents of Samples

Description	Model	IMEI/Series number	Manufacturer
HSPA USB Stick	K3715	353435020041308	HUAWEI Technologies Co., Ltd.

Note:

The EUT appearances see ANNEX H.

3.3. Test item

Table 4: Test item

device type :	portable device	
exposure category:	uncontrolled environment / general population	
device operating configurations :		
operating mode(s):	GSM850; （tested） GSM1900; （tested）	
Test Modulation:	GMSK	
GPRS mobile station class :	B	
GPRS multislot class :	12	
EGPRS multislot class:	12	
Maximum no. of timeslots in uplink:	4	
operating frequency range(s)	transmitter frequency range	receiver frequency range
GSM850: (tested)	824.2 MHz ~ 848.8 MHz	869.2 MHz ~ 893.8 MHz
GSM1900: (tested)	1850.2 MHz ~ 1909.8 MHz	1930.2 MHz ~ 1989.8 MHz
Power class	GSM 850: 4, tested with power level 5	
	GSM 1900: 1, tested with power level 0	
Test channel (Low –Middle –High)	128 -190 - 251 (GSM850) (tested) 512 - 661 - 810 (GSM1900) (tested)	
hardware version:	CD82TCPU	
software version:	11.104.25.01.00	
antenna type:	integrated antenna	
Used host products:	IBM T61 BenQ Joybook R55V	

3.4. General Description

Equipment Under Test (EUT) is a HSPA USB Stick with internal antenna. During SAR test of the EUT, it was connected to a portable computer. SAR is tested for the EUT respectively for GSM 850, GSM1900, The EUT has GPRS (class 12) and EGPRS (class 12) functions.

Since the EUT only has the data transfer function, but does not have the voice transfer function, the tests in the band of GSM 850 and GSM 1900 are performed in the mode of GPRS and EGPRS, The measurements were performed in combination with two host product (IBM T61, BenQ Joybook R55V). IBM T61 laptop has horizontal USB slot and vertical USB slot, and BenQ Joybook R55V laptop has horizontal USB slot.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

4. OPERATIONAL CONDITIONS DURING TEST

4.1. General description of test procedures

Connection to the EUT is established via air interface with E5515C, and the EUT is set to maximum output power by E5515C. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30 dB.

The device that connected to host computers must be tested with the device position for all applicable orientations. The measurements were performed in combination with two host products (IBM T61, BenQ Joybook R55V).

4.2. GSM Test Configuration

For the body SAR tests for GSM 850, GSM 1900, a communication link is set up with a System Simulator (SS) by air link. The EUT is commanded to operate at maximum transmitting power. Since the EUT only has the data transfer function, but does not have the speech transfer function.

The tests in the band of GSM 850, GSM 1900 are performed in the mode of GPRS and EGPRS. The GPRS class is 12 for this EUT; it has at most 4 timeslots in uplink. The EGPRS class is 12 for this EUT; it has at most 4 timeslots in uplink. According to specification 3GPP TS 51.010, the maximum power of the GSM can do the power reduction for the multi-slot. The allowed power reduction in the multi-slot configuration is as following:

Table 5：The allowed power reduction in the multi-slot configuration

Number of timeslots in uplink assignment	Permissible nominal reduction of maximum output power,(dB)
1	0
2	0 to 3,0
3	1,8 to 4,8
4	3,0 to 6,0

For this EUT, the tests for GSM 850 GPRS and GSM 1900 GPRS band will be performed under the following 4 setups at one same test position:

1) using 1 timeslot in uplink with the power of maximum power
2) using 2 timeslots in uplink with the power reduced 2dB
3) using 3 timeslots in uplink with the power reduced 4dB
4) using 4 timeslots in uplink with the power reduced 6dB

After drawn the worst case, the tests will be continued to perform with the same EUT setup for the Whole tests for GSM850 GPRS and GSM1900 GPRS.

4.3. Position of module in Portable devices

The measurements were performed in combination with two host product (IBMT61, BenQ Joybook R55V). IBM T61 laptop has horizontal USB slot and vertical USB slot, and BenQ Joybook R55V laptop has horizontal USB slot.

A test distance of 5mm or less, according to KDB 447498, should be considered for the orientation that can satisfy such requirements.

For each channel, the EUT is tested at the following 5 test positions:

- Test Position 1: The EUT is connected to the portable computer with horizontal USB slot. The back side of the EUT towards the bottom of the flat phantom. (ANNEX H Picture 7-a）
- Test Position 2: The EUT is connected to the portable computer with horizontal USB slot. The top side of the EUT towards the bottom of the flat phantom.（ANNEX H Picture 7-b）
- Test Position 3: The EUT is connected to the portable computer with vertical USB slot. The left side of the EUT towards the bottom of the flat phantom. (ANNEX H Picture 7-c）
- Test Position 4: The EUT is connected to the portable computer with vertical USB slot. The right side of the EUT towards the bottom of the flat phantom.（ANNEX H Picture 7-d）
- Test Position 5: The EUT is connected to the portable computer with horizontal USB slot. The front side of the EUT towards the bottom of the flat phantom. (ANNEX H Picture 7-e）

4.4. Picture of host product

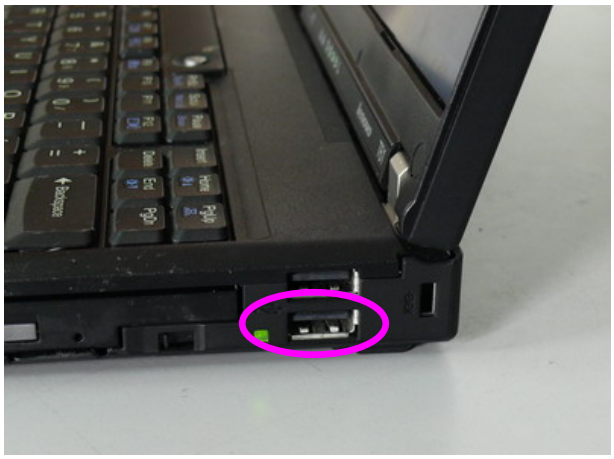
During the test, IBM T61 and BenQ Joybook R55V laptop was used as an assistant to help to setup communication. (See Picture 1)

Picture 1-a: IBM T61 Close

Picture 1-b: IBM T61 Open

Picture 1-c: BenQ Joybook R55V Close

Picture 1-d: BenQ Joybook R55V Open



Picture 1-e: IBM T61 with horizontal USB slot

Picture 1-f: IBM T61 with Vertical USB slot

Picture 1-g: BenQ Joy book R55V with horizontal USB slot

Picture 1: Computer as a test assistant

5. SAR MEASUREMENTS SYSTEM CONFIGURATION

5.1. SAR Measurement Set-up

The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- A unit to operate the optical surface detector which is connected to the EOC.
- The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY4 measurement server.
- The DASY4 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003
- DASY4 software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

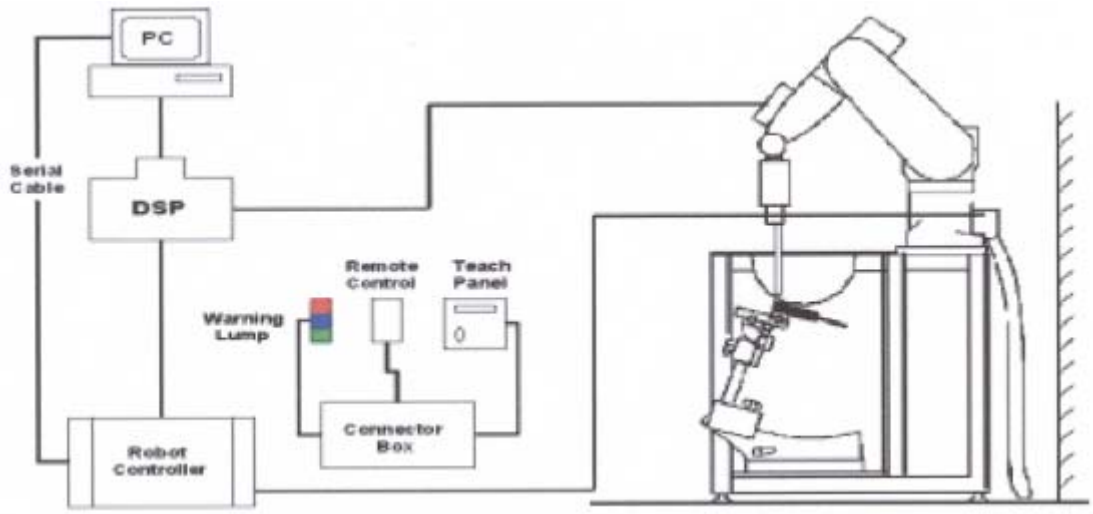


Figure 1. SAR Lab Test Measurement Set-up

5.2. Dasy4 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

5.2.1. EX3DV4 Probe Specification

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 upon request
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: ± 0.2dB (noise: typically < 1 μW/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

Figure 2.EX3DV4 E-field Probe

Figure 3. EX3DV4 E-field probe

5.2.2. E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.
E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C\frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
ΔT = Temperature increase due to RF exposure.
Or

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

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m3).

5.3. Other Test Equipment

5.3.1. Device Holder for Transmitters

The DASY device holder is designed to cope with the die rent positions given in the standard.
It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the inference of the clamp on the test results could thus be lowered.

Figure 4.Device Holder

5.3.2. Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden Figure. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness	2±0.1 mm
Filling Volume	Approx. 20 liters
Dimensions	810 x l000 x 500 mm (H x L x W)
Aailable	Special

Figure 5.Generic Twin Phantom

5.4. Scanning procedure

The DASY4 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The ”reference“ and ”drift“ measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max. ± 5 %.

- The ”surface check“ measurement tests the optical surface detection system of the DASY4 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)

- Area Scan

  The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains

unchanged.
After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

- Zoom Scan
  Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan.

- Spatial Peak Detection
  The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY4 system allows evaluations that combine measured data and robot positions, such as:
  • maximum search
  • extrapolation
  • boundary correction
  • peak search for averaged SAR
  During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.
  Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.
- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

5.5. Data Storage and Evaluation

5.5.1. Data Storage

The DASY4 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

5.5.2. Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, ai_0, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	Dcp_i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY4 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With V_i = compensated signal of channel i (i = x, y, z)

U_i = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes: $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$

With V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i (i = x, y, z)
[mV/(V/m)^2] for E-field Probes

$ConvF$ = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot}^2 \cdot \ .) / (\quad \cdot 1000)$$

with $\boldsymbol{SAR}$ = local specific absorption rate in mW/g

$\boldsymbol{E_{tot}}$ = total field strength in V/m

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm^3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \quad \text{or} \quad \boldsymbol{P_{pwe} = H_{tot}^2 \cdot 37.7}$$

with P_{pwe} = equivalent power density of a plane wave in mW/cm^2

$\boldsymbol{E_{tot}}$ = total electric field strength in V/m

$\boldsymbol{H_{tot}}$ = total magnetic field strength in A/m

5.6. System check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. A system check measurement was made following the determination of the dielectric parameters of the simulant, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the table 10.

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system (±10 %).

System check is performed regularly on all frequency bands where tests are performed with the DASY 4 system.

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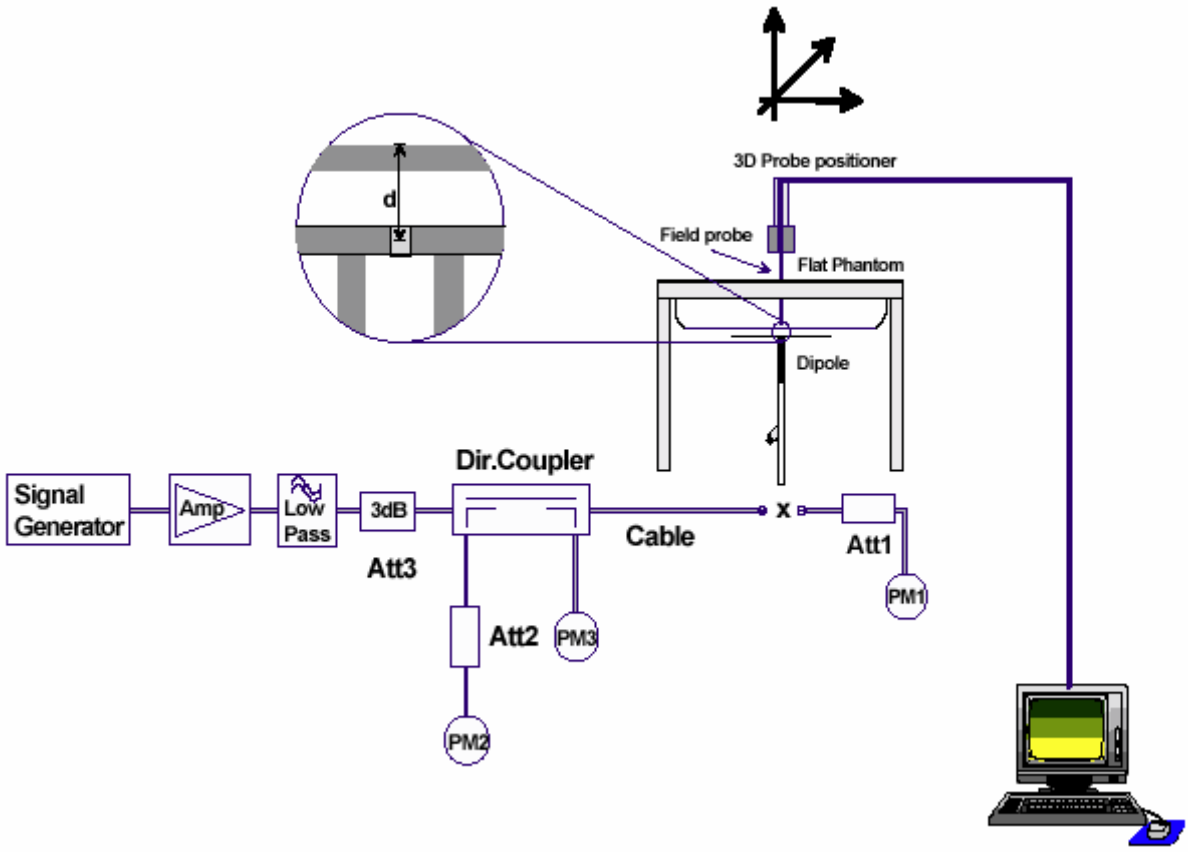


Figure 6. System Check Set-up

5.7. Equivalent Tissues

The liquid is consisted of water, sugar, salt, Glycol monobutyl, Preventol and Cellulose. The liquid has previously been proven to be suited for worst-case. The Table 6 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by OET 65.

Table 6: Composition of the Body Tissue Equivalent Matter

MIXTURE%	FREQUENCY(Body)835MHz
Water	52.5
Sugar	45
Salt	1.4
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz ε=55.2 σ=0.97

MIXTURE%	FREQUENCY (Body) 1900MHz
Water	69.91
Glycol monobutyl	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1900MHz ε=53.3 σ=1.52

6. LABORATORY ENVIRONMENT

Table 7: The Ambient Conditions during Test

Temperature	Min. = 20°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

7. CHARACTERISTICS OF THE TEST

7.1. Applicable Limit Regulations

ANSI/IEEE C95.1-1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

7.2. Applicable Measurement Standards

OET Bulletin 65 supplement C, published June 2001 including DA 02-1438, published June 2002: Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits. Transition Period for the Phantom Requirements of Supplement C to OET Bulletin 65.

IEC 62209-2:2008(106/162/CDV): Human exposure to radio frequency fields from handheld and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 2: Procedure to determine the Specific Absorption Rate (SAR)for wireless communication devices used in close proximity to the human body .(frequency rang of 30MHz to 6GHz).

8. CONDUCTED OUTPUT POWER MEASUREMENT

8.1. Summary

The DUT is tested using an E5515C communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted peak power. Conducted output power was measured using an integrated RF connector and attached RF cable. This result contains conducted output power for the EUT.

8.2. Conducted Power Results

Table 8: Conducted Power Measurement Results

Conducted Power Measurement Results

GSM 850+GPRS		Conducted Power		
		Channel 128	Channel 190	Channel 251
1TS	Before Test (dBm)	31.67	31.45	31.49
	After Test (dBm)	31.66	31.44	31.48
2TS	Before Test (dBm)	28.79	28.84	28.80
	After Test (dBm)	28.78	28.83	28.81
3TS	Before Test (dBm)	27.77	27.81	27.86
	After Test (dBm)	27.76	27.80	27.85
4TS	Before Test (dBm)	23.70	23.68	23.71
	After Test (dBm)	23.71	23.67	23.72
GSM 1900+GPRS		**Conducted Power**		
		Channel 512	Channel 661	Channel 810
1TS	Before Test (dBm)	26.62	26.79	26.75
	After Test (dBm)	26.61	26.78	26.74
2TS	Before Test (dBm)	24.89	24.82	24.95
	After Test (dBm)	24.88	24.81	24.94
3TS	Before Test (dBm)	22.79	22.71	22.74
	After Test (dBm)	22.78	22.70	22.73
4TS	Before Test (dBm)	19.80	19.77	19.85
	After Test (dBm)	19.81	19.76	19.84

9. TEST RESULTS

9.1. Dielectric Performance

Table 9: Dielectric Performance of Body Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp
		ε_r	σ(s/m)	℃
835MHz (body)	Target value ±5% window	55.20 52.44 — 57.96	0.97 0.92 — 1.02	/
	Measurement value 2009-6-11	55.17	1.01	21.5
1900MHz (body)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	/
	Measurement value 2009-6-18	52.65	1.55	21.7

9.2. System check

Table 10: System Check for body tissue stimulant

Frequency	Description	SAR(W/kg)		Dielectric Parameters		Temp
		10g	1g	ε_r	σ(s/m)	℃
835MHz	Recommended result ±10% window	1.59 1.43—1.75	2.41 2.17 — 2.65	53.60	1.00	/
	Measurement value 2009-6-11	1.58	2.40	55.17	1.01	21.9
1900 MHz	Recommended result ±10% window	5.36 4.82—5.90	10.2 9.18 — 11.22	52.40	1.59	/
	Measurement value 2009-6-18	5.14	10.0	52.65	1.55	21.7

Note：1. The graph results see ANNEX B.

2. Target Values used derive from the calibration certificate and 250 mW is used as feeding power to the Calibrated dipole.

9.3. Summary of Measurement Results

9.3.1. GSM850 (GPRS/EGPRS)

Table 11: SAR Values [GSM850 (GPRS/EGPRS)]

Limit of SAR (W/kg)			10 g Average	1g Average	Power Drift(dB)	Graph Results
			2.0	1.6	± 0.21	
Test Case Of Body			Measurement Result (W/kg)		Power Drift(dB)	
Different Test Position	Different Timeslots	Channel	10 g Average	1 g Average		
IBM T61						
Test Position 1	4 timeslots	Middle	0.342 (max.cube)	0.526 (max.cube)	0.044	Figure 11
	3 timeslots	High	0.620 (max.cube)	0.976 (max.cube)	-0.132	Figure 13
		Middle	0.652	1.020	-0.104	Figure 15
		Low	0.621	0.958	-0.068	Figure 17
	2 timeslots	High	0.556 (max.cube)	0.862 (max.cube)	0.029	Figure 19
		Middle	0.586	0.903	-0.052	Figure 21
		Low	0.572 (max.cube)	0.872 (max.cube)	-0.042	Figure 23
	1 timeslot	High	0.588	0.905	0.138	Figure 25
		Middle	0.624 (max.cube)	0.961 (max.cube)	0.029	Figure 27
		Low	0.631	0.967	-0.075	Figure 29
Test Position 2	3 timeslots	Middle	0.041	0.102	-0.099	Figure 31
Test Position 3	3 timeslots	Middle	0.375	0.581	-0.065	Figure 33
Test Position 4	3 timeslots	Middle	0.387	0.610	0.064	Figure 35
BenQ Joybook R55V						
Test Position 5	3 timeslots	Middle	0.371	0.552	-0.028	Figure 37
Worst case position of GPRS with EGPRS						
Test Position 1	3 timeslots	Middle	0.575	0.875	-0.136	Figure 39

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB (< 0.8W/kg) lower than the SAR limit, testing at the high and low channels is optional.
3. Upper and lower frequencies were measured at the worst case.
4. The (max.cube) labeling indicates that during the grid scanning an additional peak was found

which was within 2.0dB of the highest peak. The value of the highest cube is given in the table above; the value from the second assessed cube is given in the SAR distribution plots (See ANNEX C).

Table 12: SAR Values (GSM850, enhanced energy coupling at increased separation distances)

Different Test Position	Distance of EUT to Phantom	Channel	Measurement Result (W/kg)	50% of initial position SAR (W/kg)	125% of initial position SAR (W/kg)
Test Position 1	initial position	Middle	1.176	0.588	1.470
	5mm	Middle	0.638		
	10mm	Middle	0.454		

Note: 1. The probe tip location is fixed at the distance of one half the probe tip diameter from the phantom surface.
2. When the device position with the highest point SAR is > 25% of that measured at the initial position, a complete 1-g SAR evaluation is required for this configuration.
3. A single point SAR is measured for each of these device positions until the SAR is less than 50% of that measured at the initial position.

9.3.2. GSM1900 (GPRS/EGPRS)

Table 13: SAR Values [GSM1900 (GPRS/EGPRS)]

Limit of SAR (W/kg)			10 g Average	1g Average	Power Drift(dB)	Graph Results
			2.0	1.6	± 0.21	
Test Case Of Body			Measurement Result (W/kg)		Power Drift(dB)	
Different Test Position	Different Timeslots	Channel	10 g Average	1 g Average		
IBM T61						
Test Position 1	4 timeslots	Middle	0.360	0.688	-0.187	Figure 41
	3 timeslots	Middle	0.266	0.514	0.049	Figure 43
	2 timeslots	Middle	0.288	0.547	0.063	Figure 45
	1 timeslot	Middle	0.282	0.532	0.062	Figure 47
Test Position 2	4 timeslots	Middle	0.103	0.199	0.174	Figure 49
Test Position 3	4 timeslots	Middle	0.200	0.378	-0.162	Figure 51
Test Position 4	4 timeslots	Middle	0.185	0.341	0.008	Figure 53
BenQ Joybook R55V						
Test Position 5	4 timeslots	High	0.603	1.180	0.026	Figure 55
		Middle	0.553	1.080	-0.167	Figure 57
		Low	0.435	0.842	-0.146	Figure 59
Worst case position of GPRS with EGPRS						
Test Position 5	4 timeslots	High	0.570	1.110	-0.131	Figure 61

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB (< 0.8W/kg) lower than the SAR limit, testing at the high and low channels is optional.
3. Upper and lower frequencies were measured at the worst case.

Table 14: SAR Values (GSM1900, enhanced energy coupling at increased separation distances)

Different Test Position	Distance of EUT to Phantom	Channel	Measurement Result (W/kg)	50% of initial position SAR (W/kg)	125% of initial position SAR (W/kg)
Test Position 5	initial position	High	1.487	0.744	1.859
	5mm	High	0.783		
	10mm	High	0.416		

Note: 1. The probe tip location is fixed at the distance of one half the probe tip diameter from the phantom surface.
2. when the device position with the highest point SAR is > 25% of that measured at the initial position, a complete 1-g SAR evaluation is required for this configuration.
3. A single point SAR is measured for each of these device positions until the SAR is less than 50% of that measured at the initial position.

9.4. Conclusion

Localized Specific Absorption Rate (SAR) of this portable wireless device has been measured in all cases requested by the relevant standards cited in Clause 7.2 of this report. Maximum localized SAR_{1g} is 1.18w/kg that is below exposure limits specified in the relevant standards cited in Clause 7.1 of this test report.

10. MEASUREMENT UNCERTAINTY

No.	source	Type	Uncertainty Value (%)	Probability Distribution	k	c_i	Standard ncertainty $u_i^{'}$ (%)	Degree of freedom V_{eff} or v_i
1	System repetivity	A	0.5	N	1	1	0.5	9
Measurement system								
2	probe calibration	B	5.9	N	1	1	5.9	∞
3	axial isotropy of the probe	B	4.7	R	$\sqrt{3}$	$\sqrt{0.5}$	1.9	∞
4	Hemispherical isotropy of the probe	B	9.4	R	$\sqrt{3}$	$\sqrt{0.5}$	3.9	∞
6	boundary effect	B	1.9	R	$\sqrt{3}$	1	1.1	∞
7	probe linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
8	System detection limits	B	1.0	R	$\sqrt{3}$	1	0.6	∞
9	readout Electronics	B	1.0	N	1	1	1.0	∞
10	response time	B	0	R	$\sqrt{3}$	1	0	∞
11	integration time	B	4.32	R	$\sqrt{3}$	1	2.5	∞
12	noise	B	0	R	$\sqrt{3}$	1	0	∞
13	RF Ambient Conditions	B	3	R	$\sqrt{3}$	1	1.73	∞
14	Probe Positioner Mechanical Tolerance	B	0.4	R	$\sqrt{3}$	1	0.2	∞
15	Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	∞
16	Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	1	2.3	∞
Test sample Related								
17	-Test Sample Positioning	A	2.9	N	1	1	2.9	5
18	-Device Holder Uncertainty	A	4.1	N	1	1	4.1	5
19	-Output Power Variation - SAR drift measurement	B	5.0	R	$\sqrt{3}$	1	2.9	∞
Physical parameter								

20	-phantom	B	4.0	R	$\sqrt{3}$	1	2.3	∞
21	-liquid conductivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.64	1.8	∞
22	-liquid conductivity (measurement uncertainty)	B	5.0	N	1	0.64	3.2	∞
23	-liquid permittivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.6	1.7	∞
24	-liquid permittivity (measurement uncertainty)	B	5.0	N	1	0.6	3.0	∞
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					12.0	
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$		N		k=2	24.0	

11. MAIN TEST INSTRUMENTS

Table 15: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent 8753E	US37390326	September 14, 2008	One year
02	Dielectric Probe Kit	Agilent 85070E	US44020115	No Calibration Requested	
03	Power meter	Agilent E4417A	GB41291714	March 14, 2009	One year
04	Power sensor	Agilent 8481H	MY41091316	March 14, 2009	One year
05	Signal Generator	HP 8341B	2730A00804	September 14, 2008	One year
06	Amplifier	IXA-020	0401	No Calibration Requested	
07	Validation Kit 835MHz	D835V2	4d020	July 21, 2008	One year
08	Validation Kit 1900MHz	D1900V2	5d060	July 22, 2008	One year
09	BTS	E5515C	GB46490218	September 14, 2008	One year
10	E-field Probe	EX3DV4	3660	September 3, 2008	One year
11	DAE	DAE4	452	November 18, 2008	One year

12. TEST PERIOD

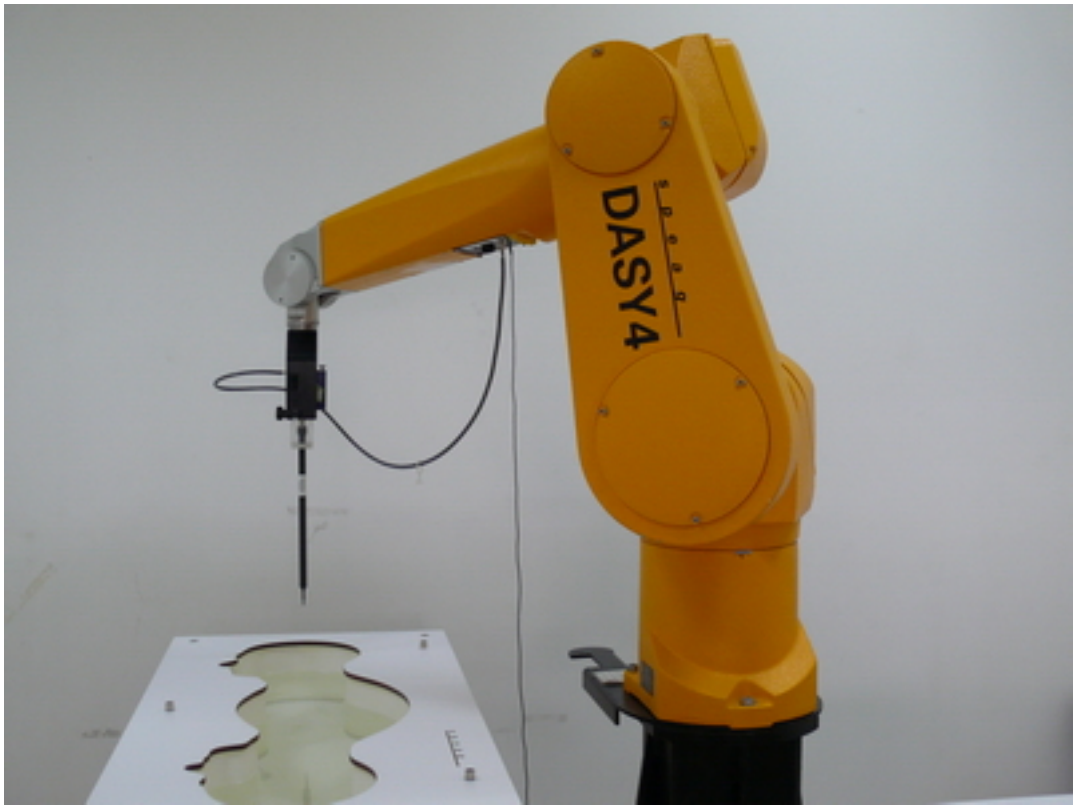
The test is performed in June 11, 2009 and June 18, 2009.

13. TEST LOCATION

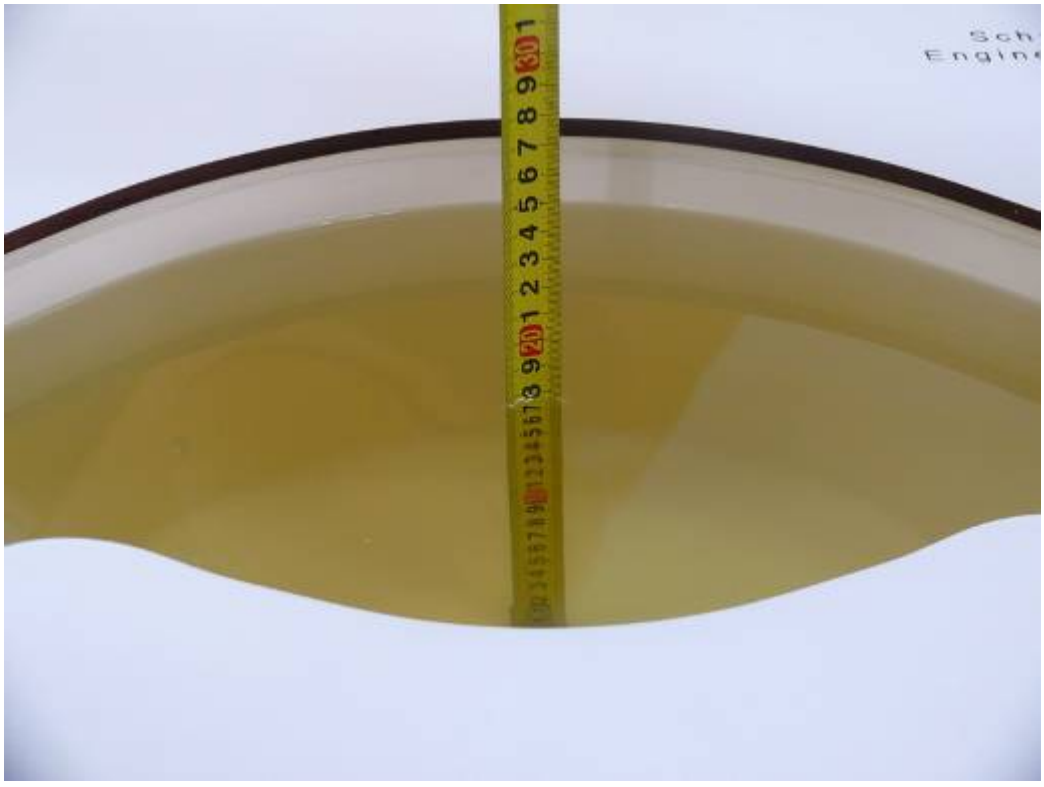
The test is performed at TA Technology (Shanghai) Co., Ltd.

*****END OF REPORT BODY*****

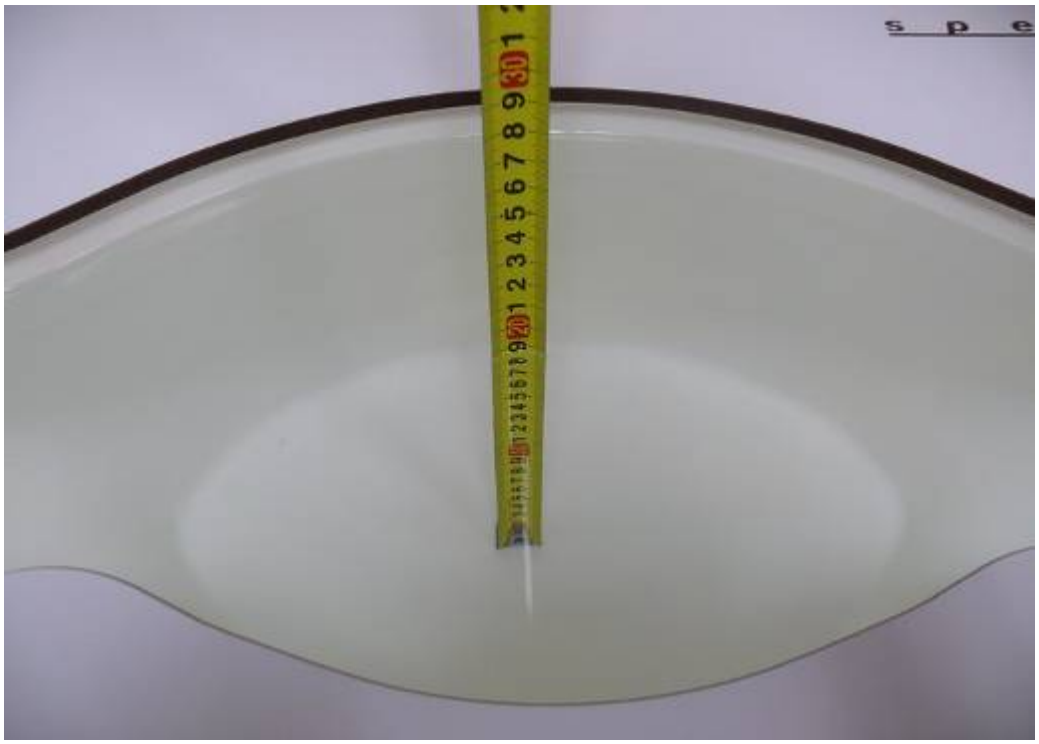
ANNEX A: TEST LAYOUT



Picture 2 Specific Absorption Rate Test Layout



Picture 3 Liquid depth in the Flat Phantom (835 MHz)



Picture 4 Liquid depth in the Flat Phantom (1900 MHz)

ANNEX B: SYSTEM CHECK RESULTS

System Performance Check at 835 MHz

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d020

Date/Time: 6/11/2009 0:59:31 AM

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

Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 55.17; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008

Electronics: DAE4 Sn452;

d=15mm, Pin=250mW/Area Scan (101x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.93 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.7 V/m; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 3.59 W/kg

SAR(1 g) = 2.4 mW/g; SAR(10 g) = 1.58 mW/g

Maximum value of SAR (measured) = 2.92 mW/g

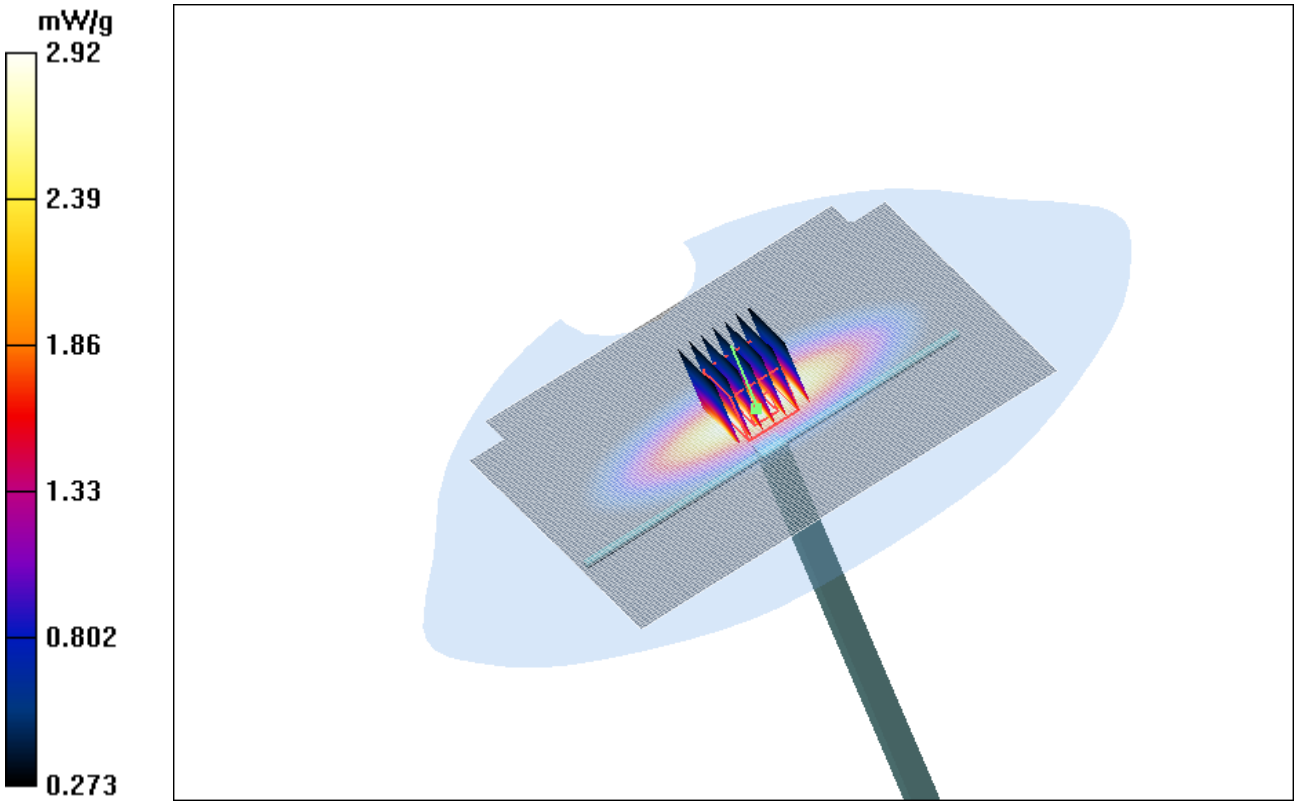


Figure 7 System Performance Check 835MHz 250mW

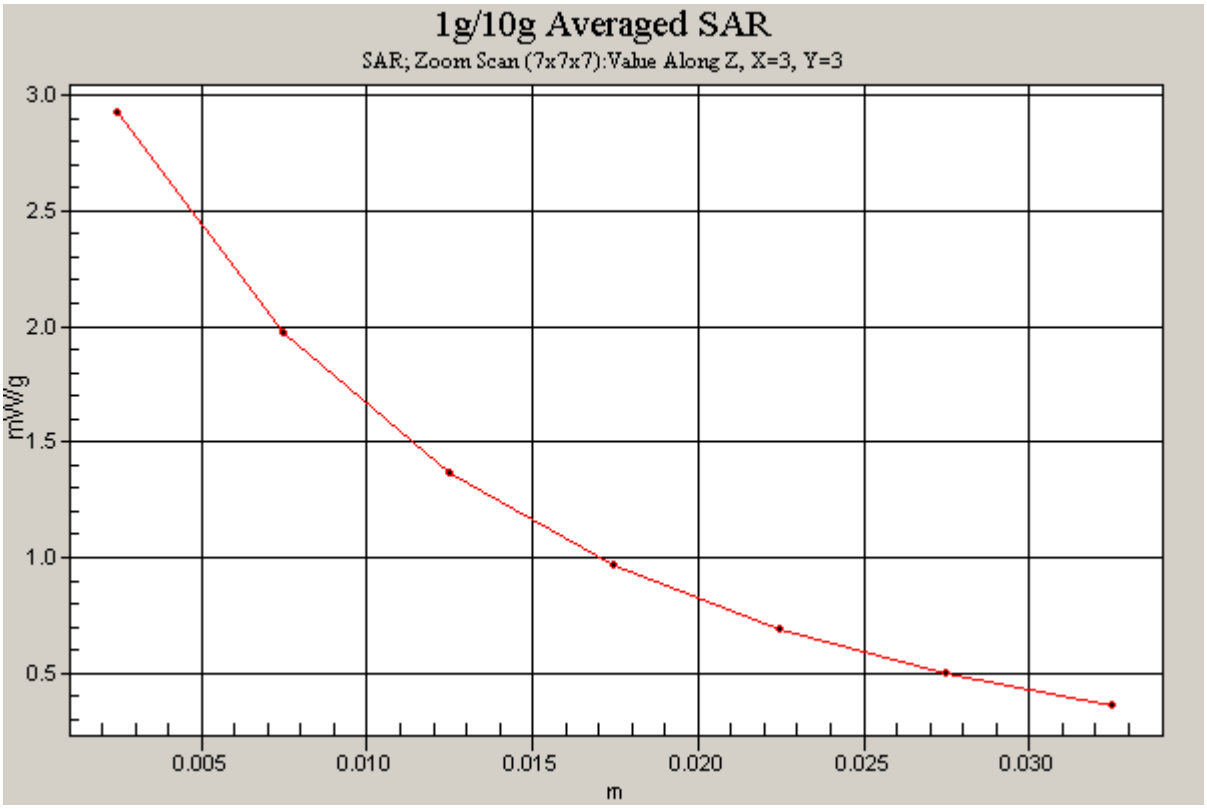


Figure 8 Z-Scan at power reference point (system Check at 835 MHz dipole)

System Performance Check at 1900 MHz

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d060

Date/Time: 6/18/2009 08:49:18 AM

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

Medium parameters used: f = 1900 MHz; σ = 1.55 mho/m; ε_r = 52.65; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008

Electronics: DAE4 Sn452;

d=10mm, Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.9 mW/g

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

Reference Value = 86.0 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10 mW/g; SAR(10 g) = 5.14 mW/g

Maximum value of SAR (measured) = 11.3 mW/g

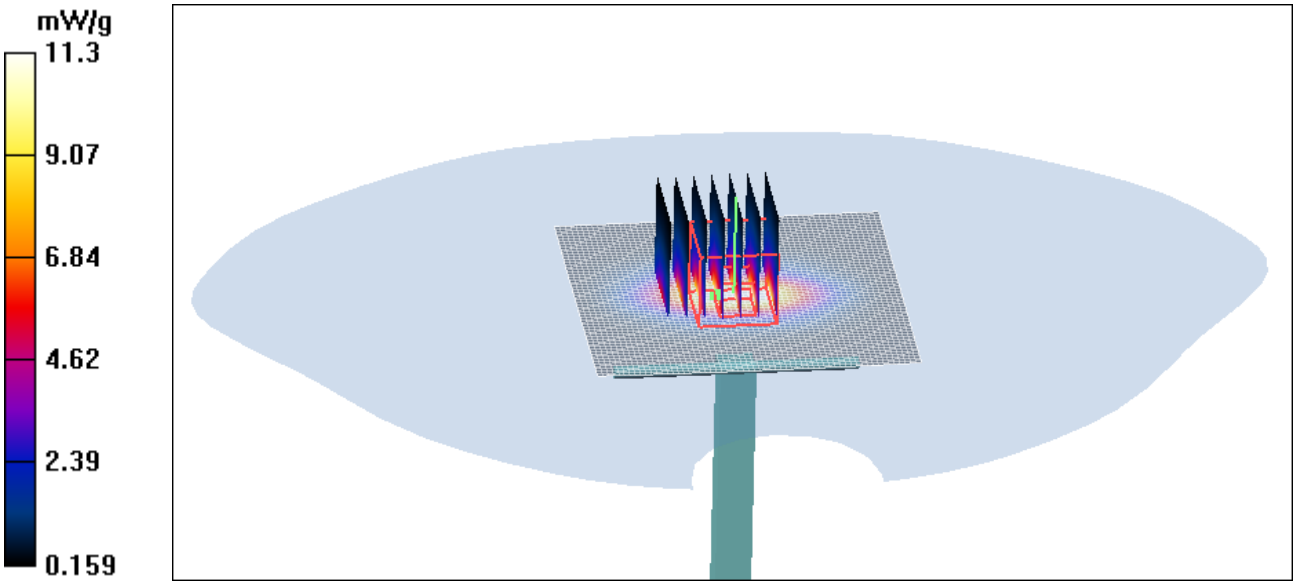


Figure 9 System Performance Check 1900MHz 250mW

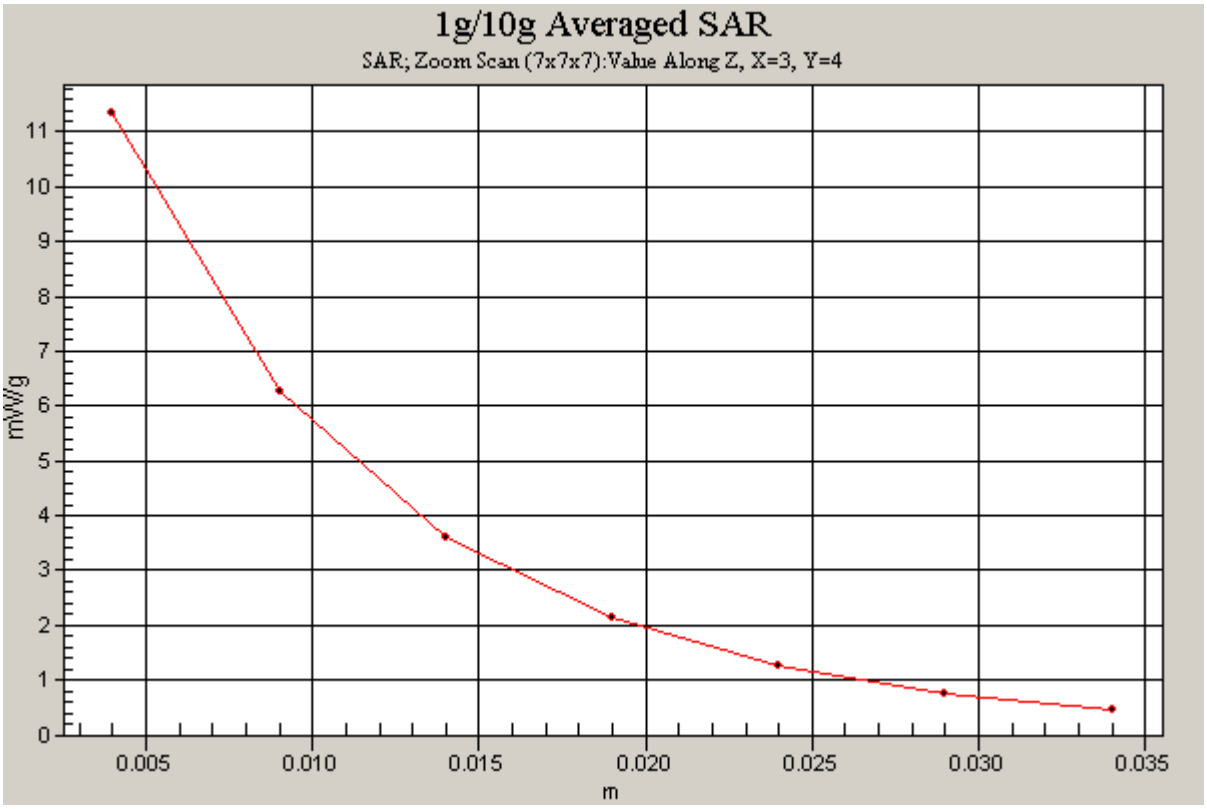


Figure 10 Z-Scan at power reference point (system Check at 1900 MHz dipole)

ANNEX C: GRAPH RESULTS

GSM 850 GPRS (4 timeslots in uplink) with IBM T61 Test Position 1 Middle Frequency

Date/Time: 6/11/2009 3:47:36 AM
Communication System: GSM850 + GPRS(4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.643 mW/g
Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.0 V/m; Power Drift = 0.044 dB
Peak SAR (extrapolated) = 0.798 W/kg
SAR(1 g) = 0.526 mW/g; SAR(10 g) = 0.342 mW/g
Maximum value of SAR (measured) = 0.642 mW/g
Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.0 V/m; Power Drift = 0.044 dB
Peak SAR (extrapolated) = 0.626 W/kg
SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.240 mW/g
Maximum value of SAR (measured) = 0.520 mW/g

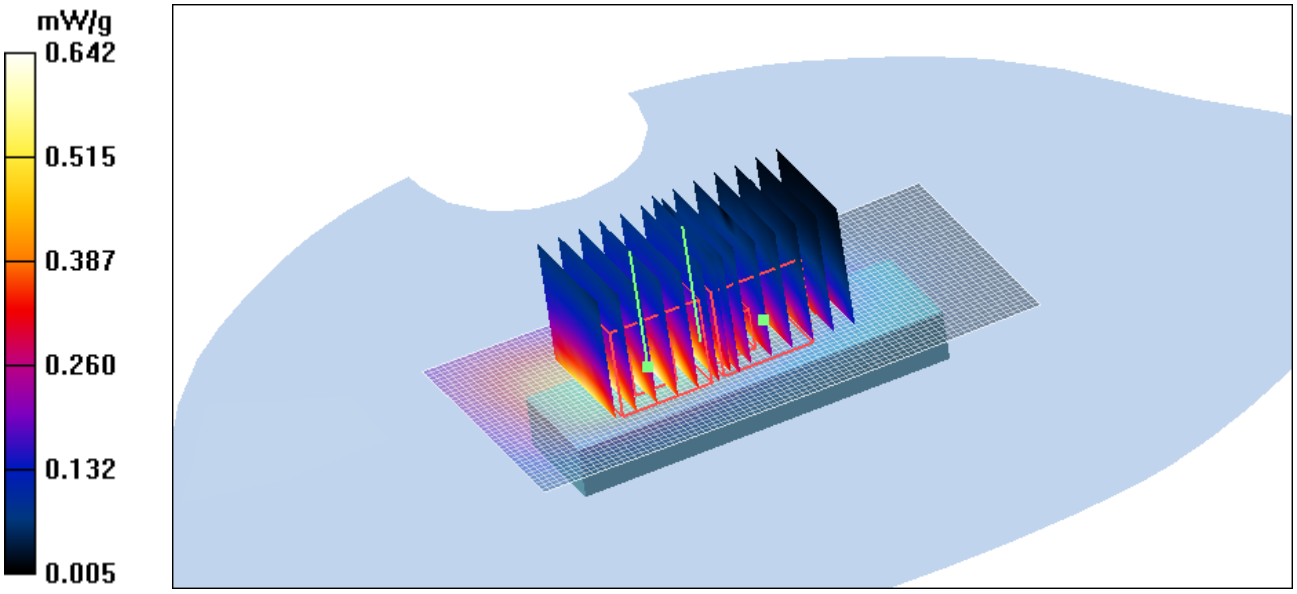
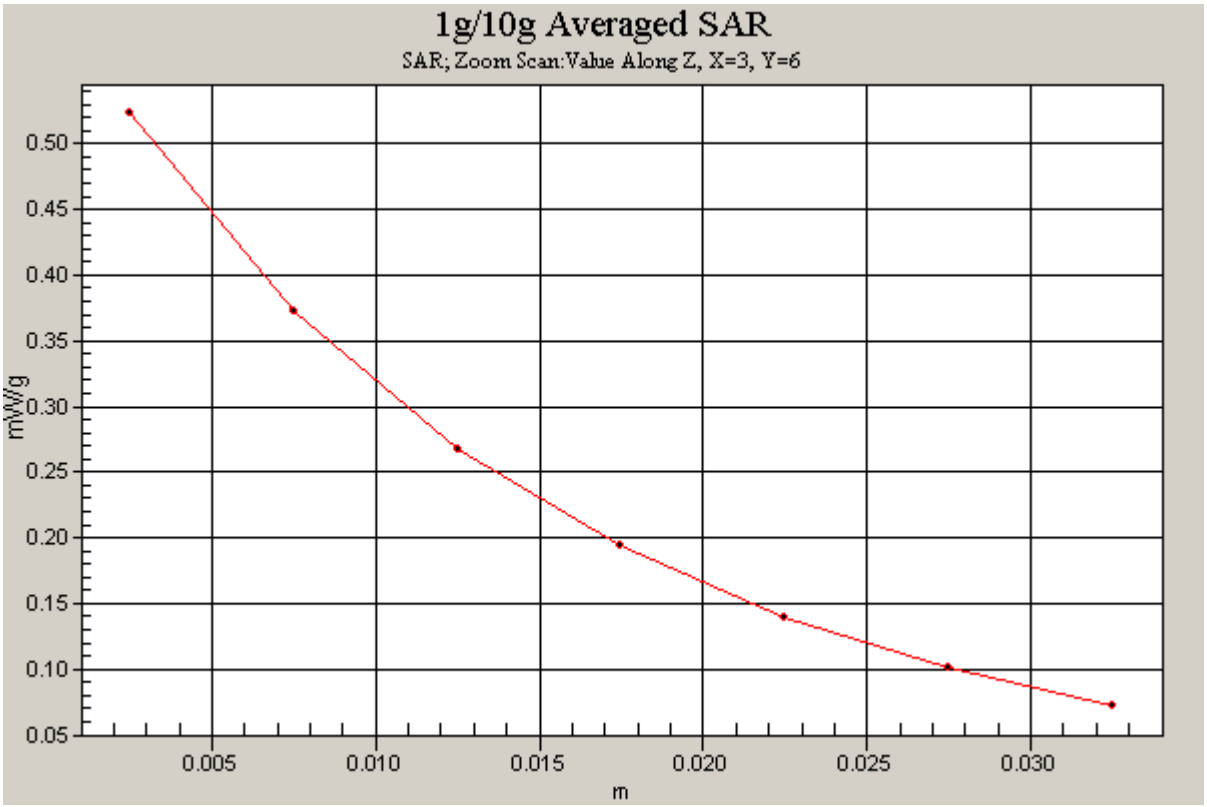


Figure 11 GSM 850 GPRS (4 timeslots in uplink) with IBM T61 Test Position 1Channel 190



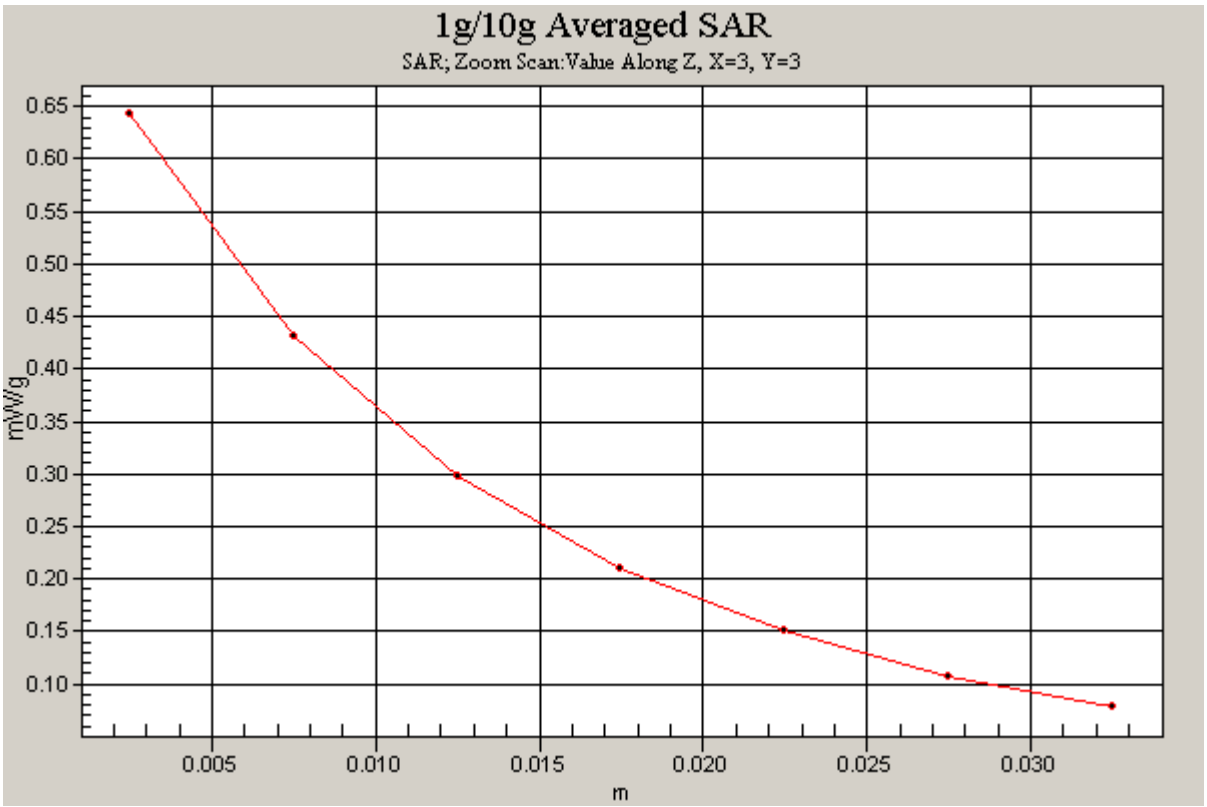


Figure 12 Z-Scan at power reference point [GSM 850 GPRS (4 timeslots in uplink) with IBM T61 Test Position 1Channel 190]

GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1 High Frequency

Date/Time: 6/11/2009 3:19:11 AM
Communication System: GSM850 + GPRS(3Up); Frequency: 848.8 MHz;Duty Cycle: 1:2.67
Medium parameters used: f = 849 MHz; σ = 1.02 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186
Test Position 1 High/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.21 mW/g
Test Position 1 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.8 V/m; Power Drift = -0.132 dB
Peak SAR (extrapolated) = 3.98 W/kg
SAR(1 g) = 0.976 mW/g; SAR(10 g) = 0.620 mW/g
Maximum value of SAR (measured) = 1.19 mW/g
Test Position 1 High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.8 V/m; Power Drift = -0.132 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.697 mW/g; SAR(10 g) = 0.419 mW/g
Maximum value of SAR (measured) = 0.967 mW/g

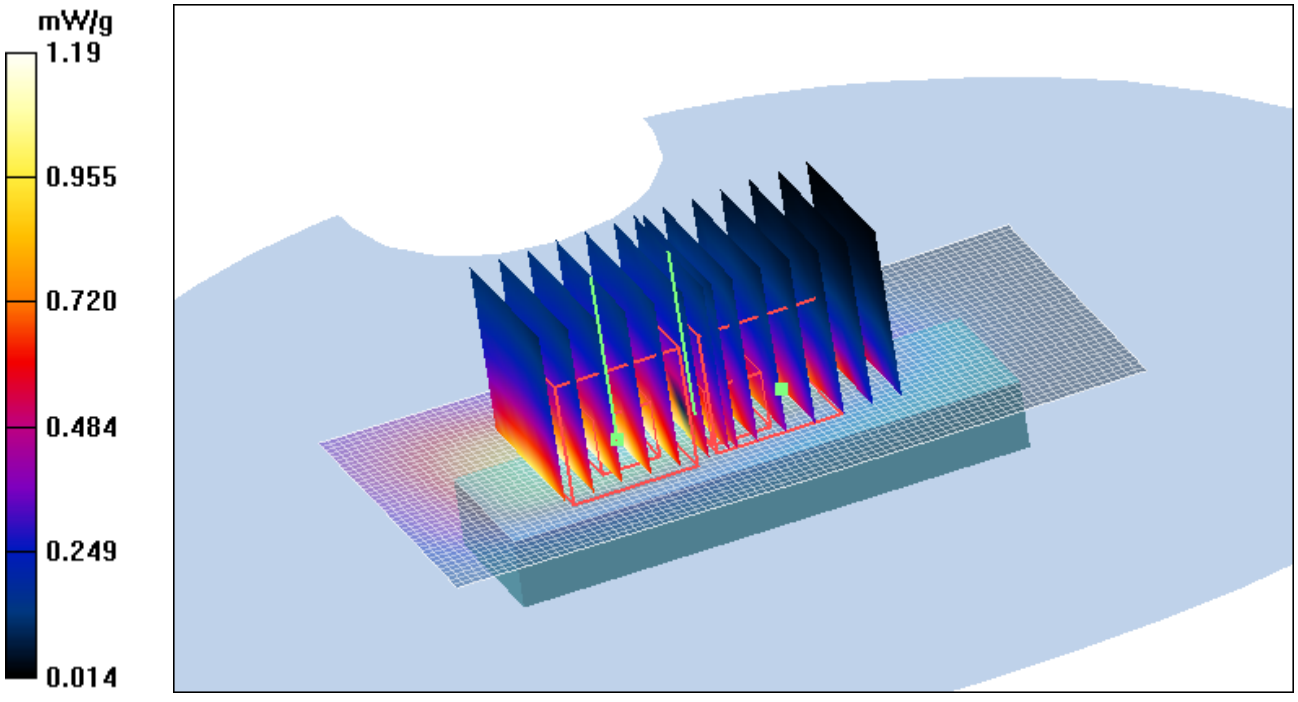
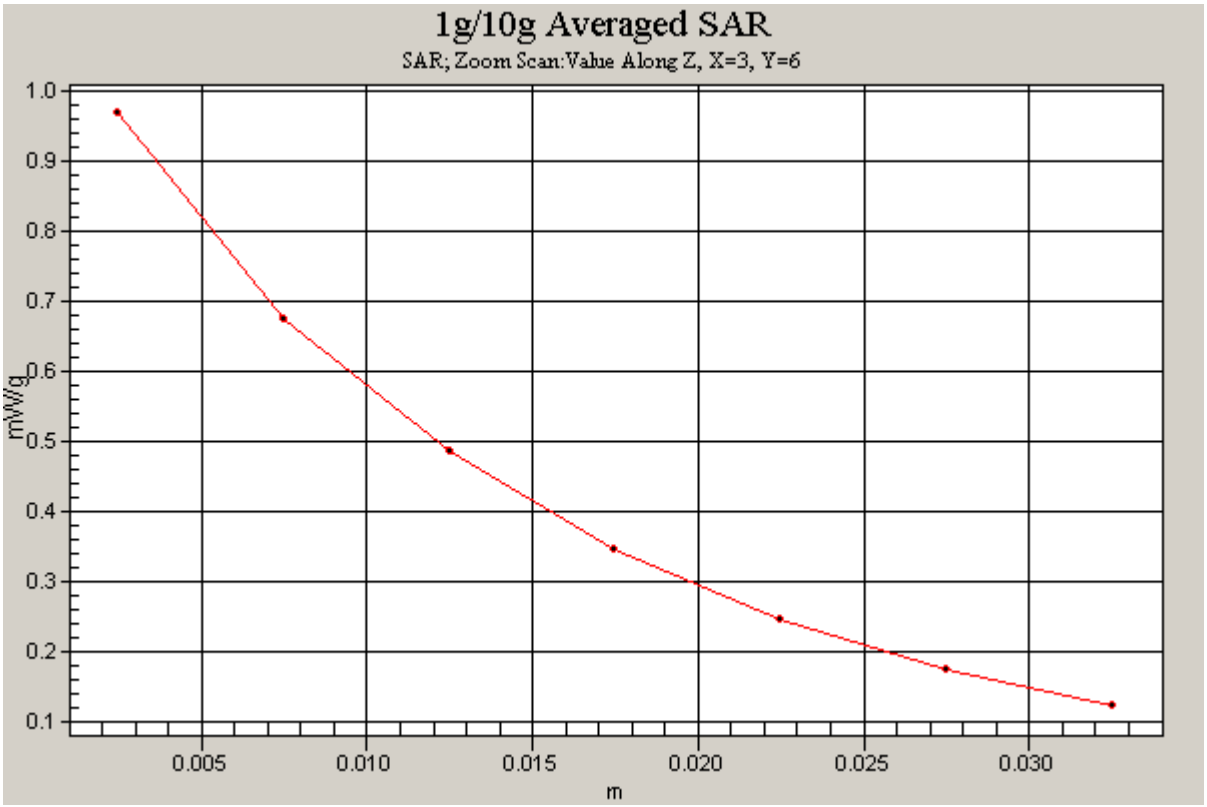


Figure 13 GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1Channel 251



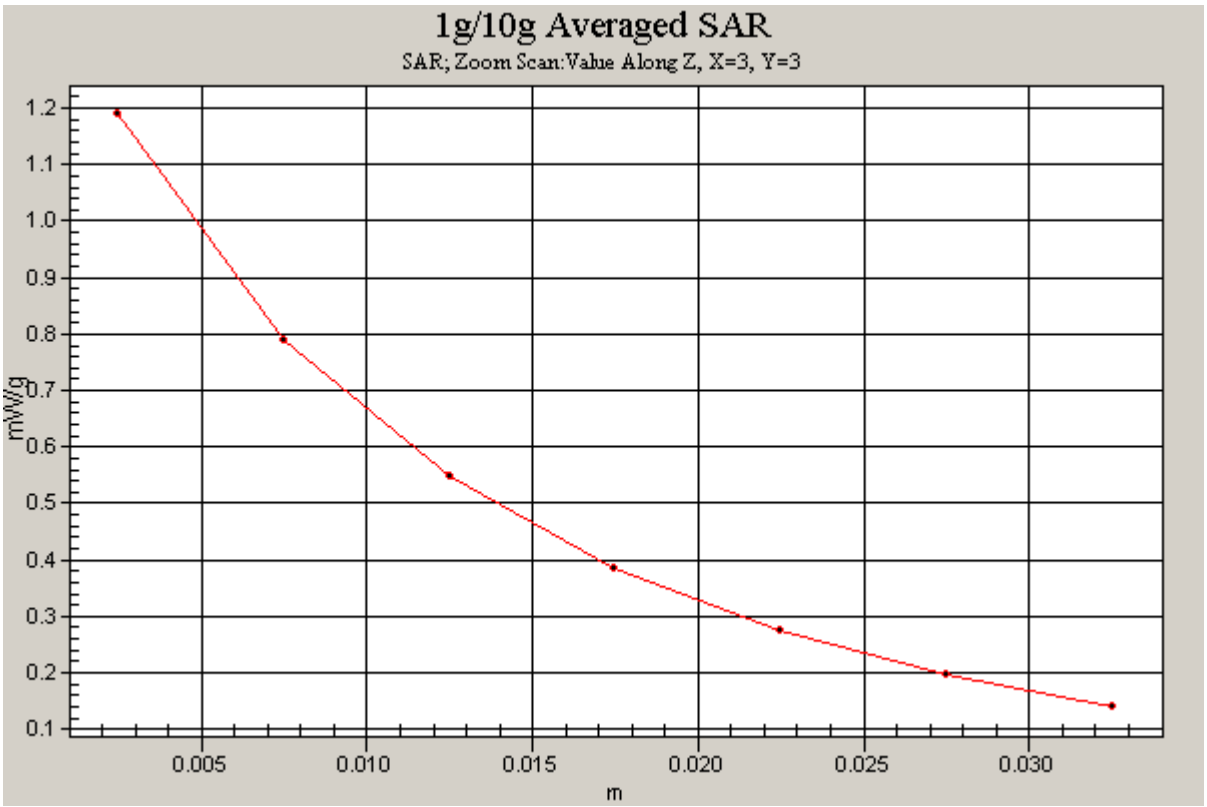


Figure 14 Z-Scan at power reference point [GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1Channel 251]

GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1 Middle Frequency

Date/Time: 6/11/2009 10:37:31 AM
Communication System: GSM850 + GPRS(3Up); Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.24 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.7 V/m; Power Drift = -0.104 dB
Peak SAR (extrapolated) = 1.56 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.652 mW/g
Maximum value of SAR (measured) = 1.25 mW/g

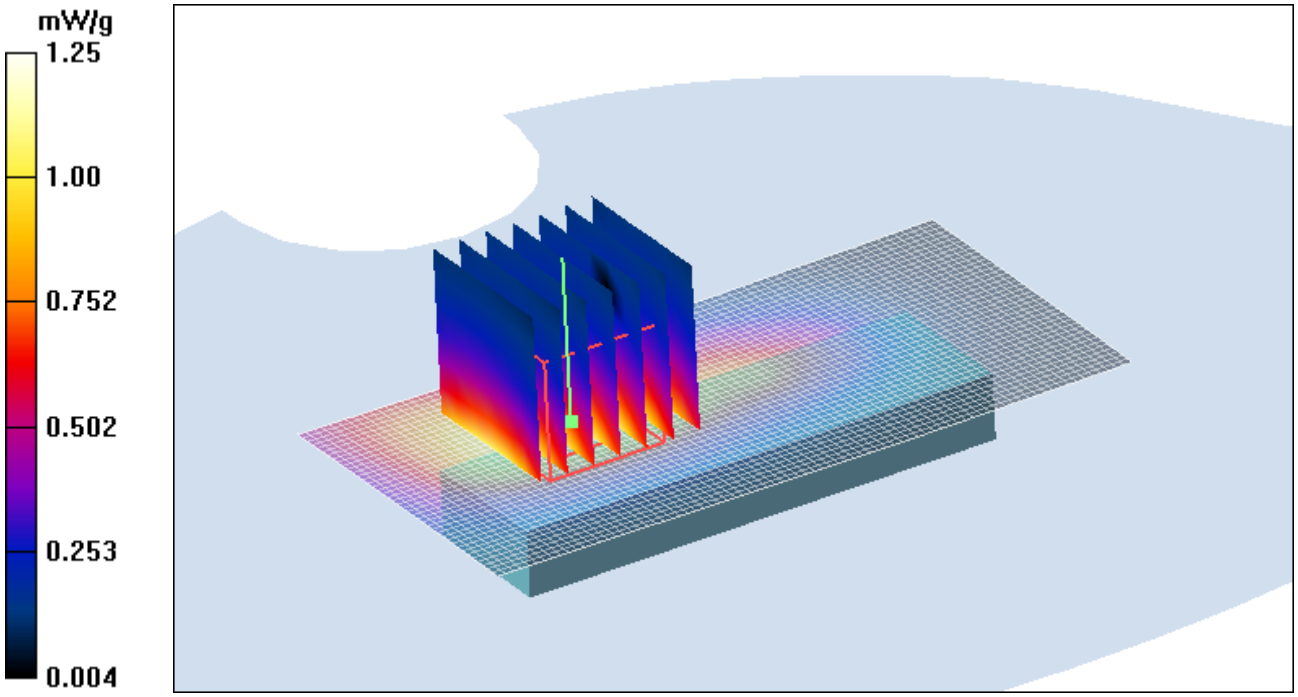


Figure 15 GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1Channel 190

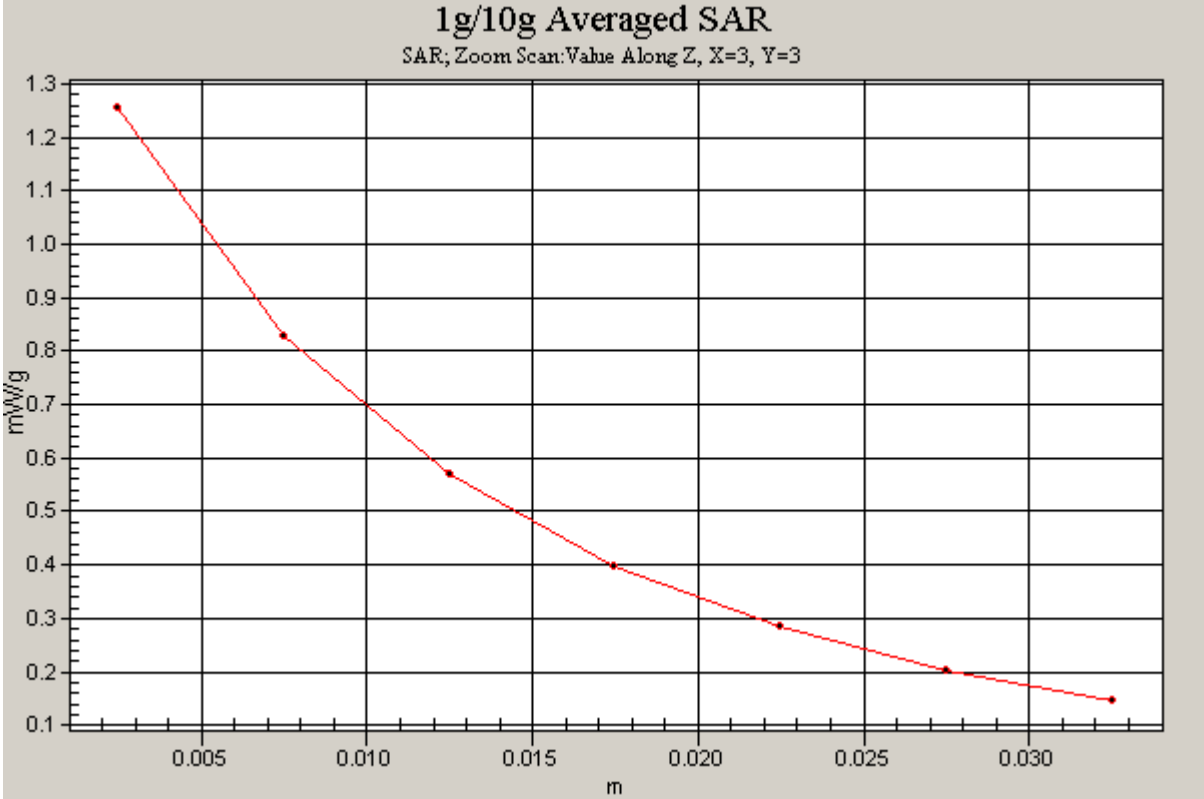


Figure 16 Z-Scan at power reference point [GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1Channel 190]

GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1 Low Frequency

Date/Time: 6/11/2009 10:54:16 AM
Communication System: GSM850 + GPRS(3Up); Frequency: 824.2 MHz;Duty Cycle: 1:2.67
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.18 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.1 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 1.75 W/kg
SAR(1 g) = 0.958 mW/g; SAR(10 g) = 0.621 mW/g
Maximum value of SAR (measured) = 1.18 mW/g

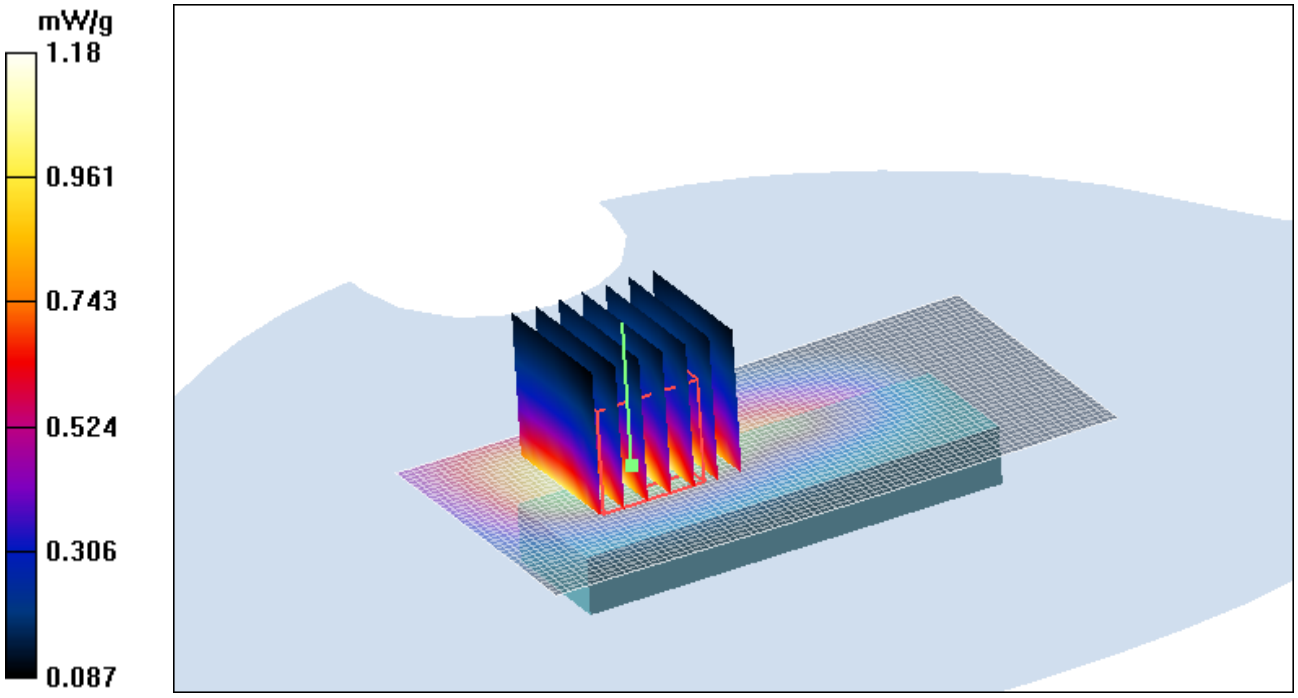


Figure 17 GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1Channel 128

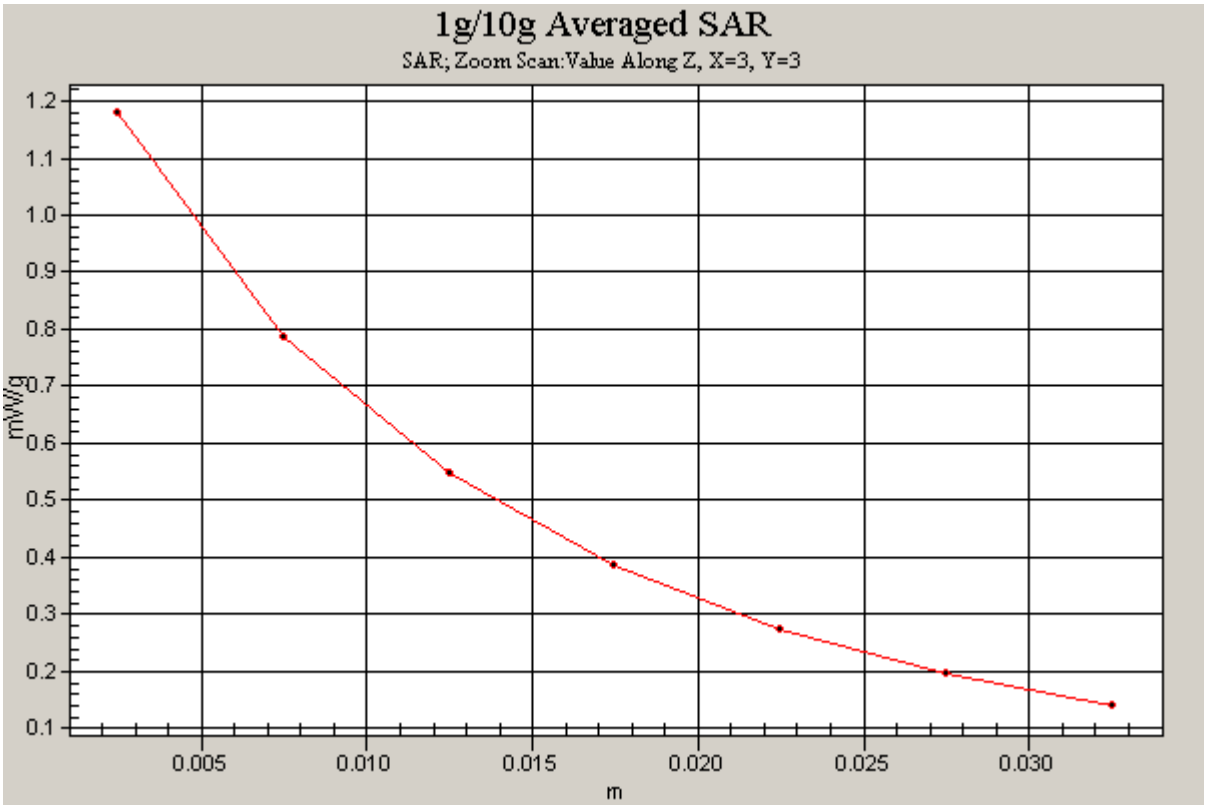


Figure 18 Z-Scan at power reference point [GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1Channel 128]

GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1 High Frequency

Date/Time: 6/11/2009 2:48:37 AM
Communication System: GSM850 + GPRS(2Up); Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium parameters used: f = 849 MHz; σ = 1.02 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 High/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.10 mW/g
Test Position 1 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.8 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.862 mW/g; SAR(10 g) = 0.556 mW/g
Maximum value of SAR (measured) = 1.06 mW/g
Test Position 1 High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.8 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.626 mW/g; SAR(10 g) = 0.377 mW/g
Maximum value of SAR (measured) = 0.854 mW/g

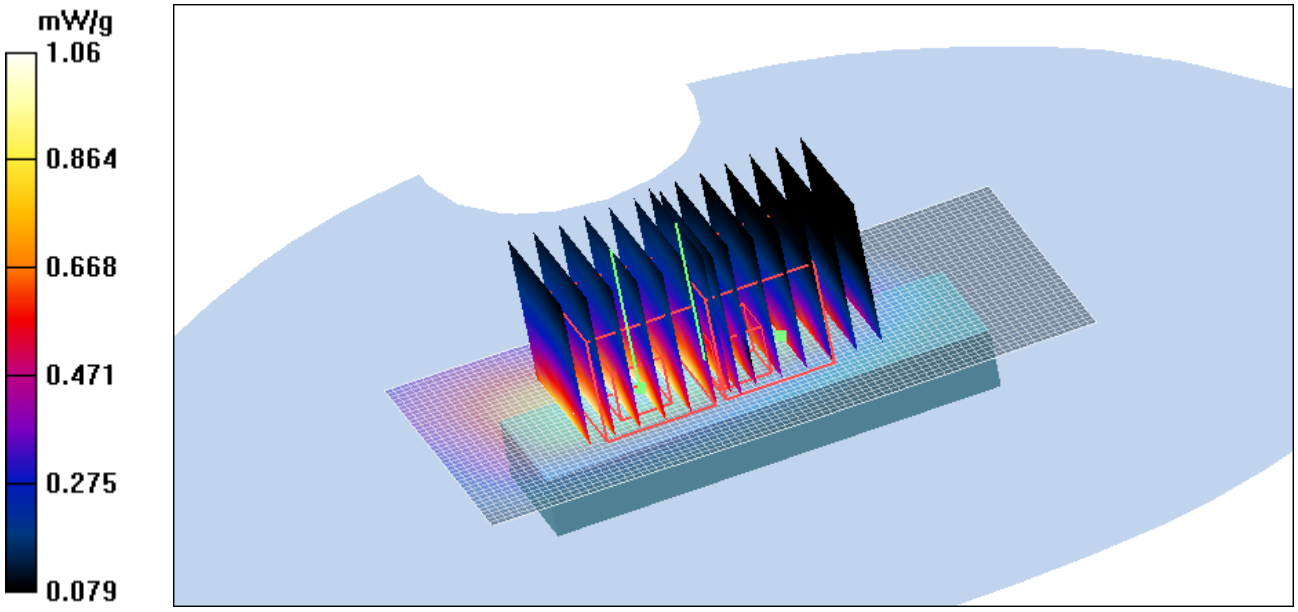
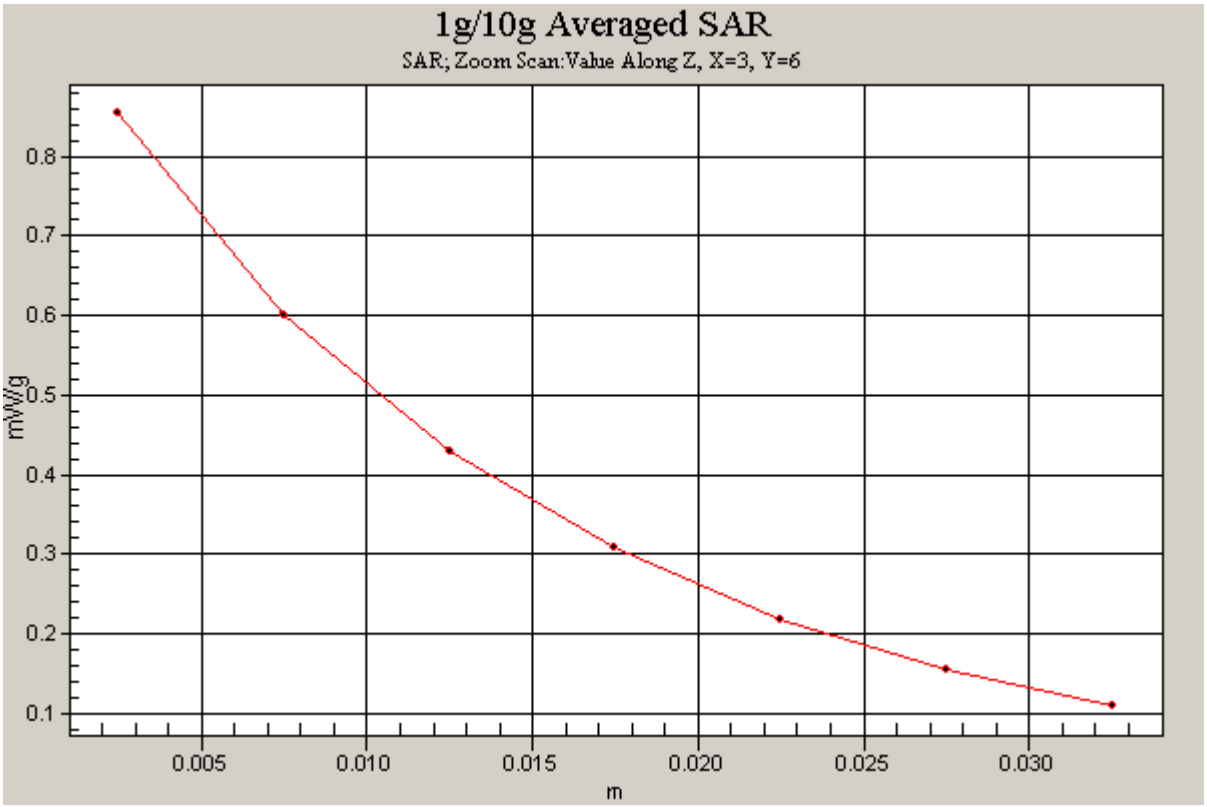


Figure 19 GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1Channel 251



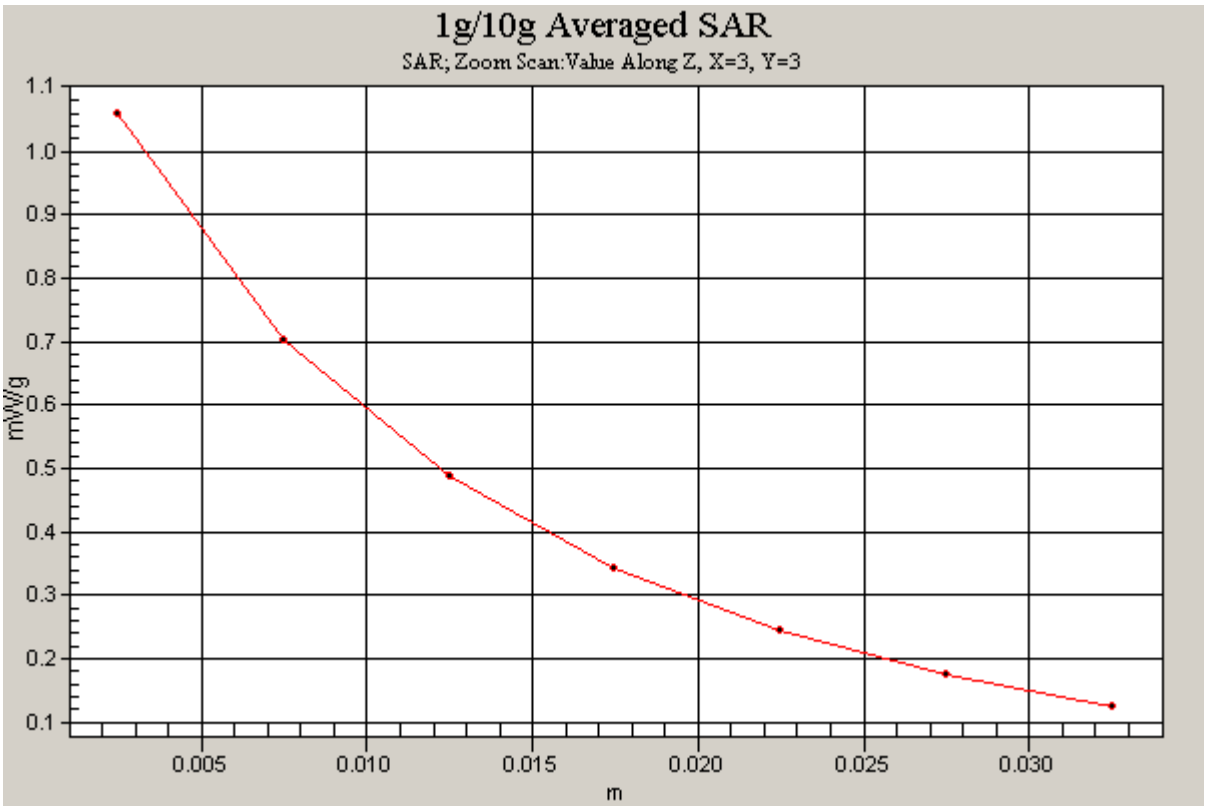


Figure 20 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1Channel 251]

GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1 Middle Frequency

Date/Time: 6/11/2009 10:23:00 AM
Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.21 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.2 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.903 mW/g; SAR(10 g) = 0.586 mW/g
Maximum value of SAR (measured) = 1.10 mW/g

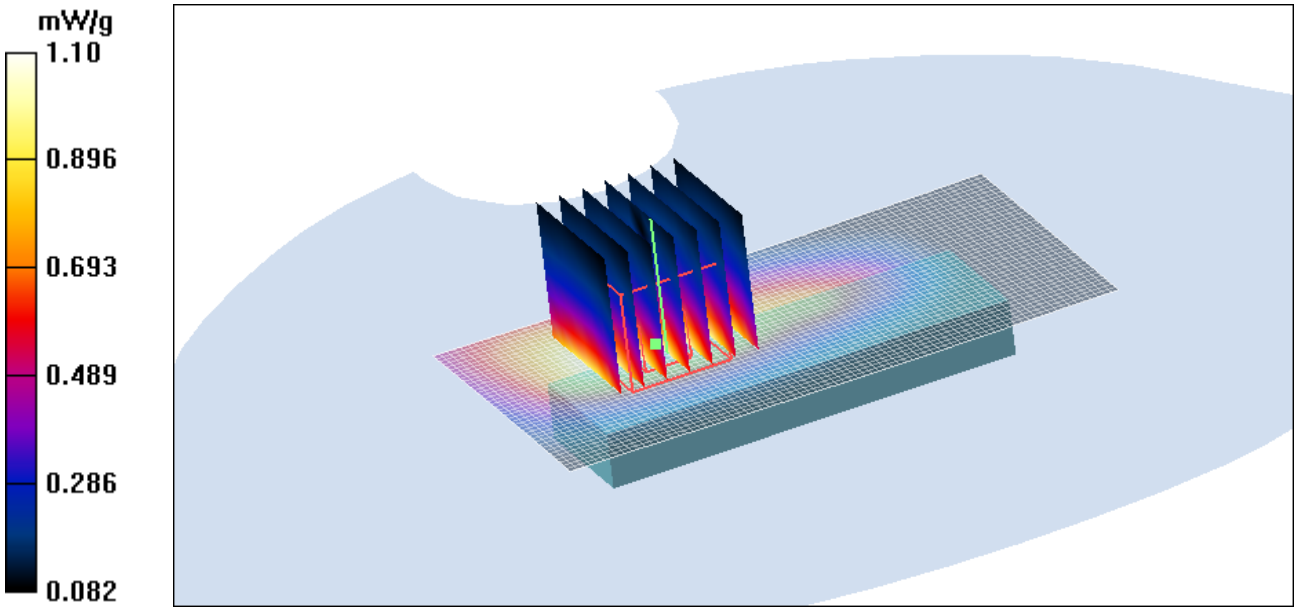


Figure 21 GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1Channel 190

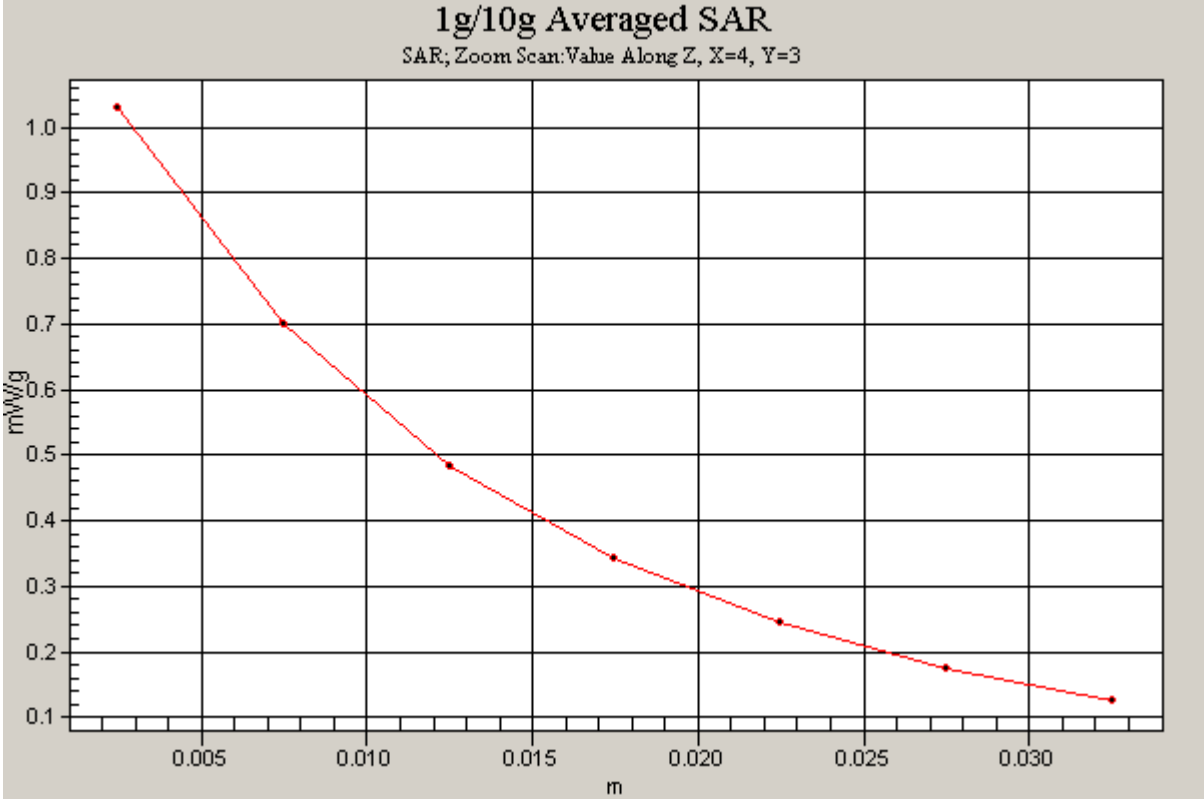


Figure 22 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1Channel 190]

GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1 Low Frequency

Date/Time: 6/11/2009 2:09:06 AM
Communication System: GSM850 + GPRS(2Up); Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.13 mW/g
Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.4 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.872 mW/g; SAR(10 g) = 0.572 mW/g
Maximum value of SAR (measured) = 1.06 mW/g
Test Position 1 Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.4 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.655 mW/g; SAR(10 g) = 0.400 mW/g
Maximum value of SAR (measured) = 0.878 mW/g

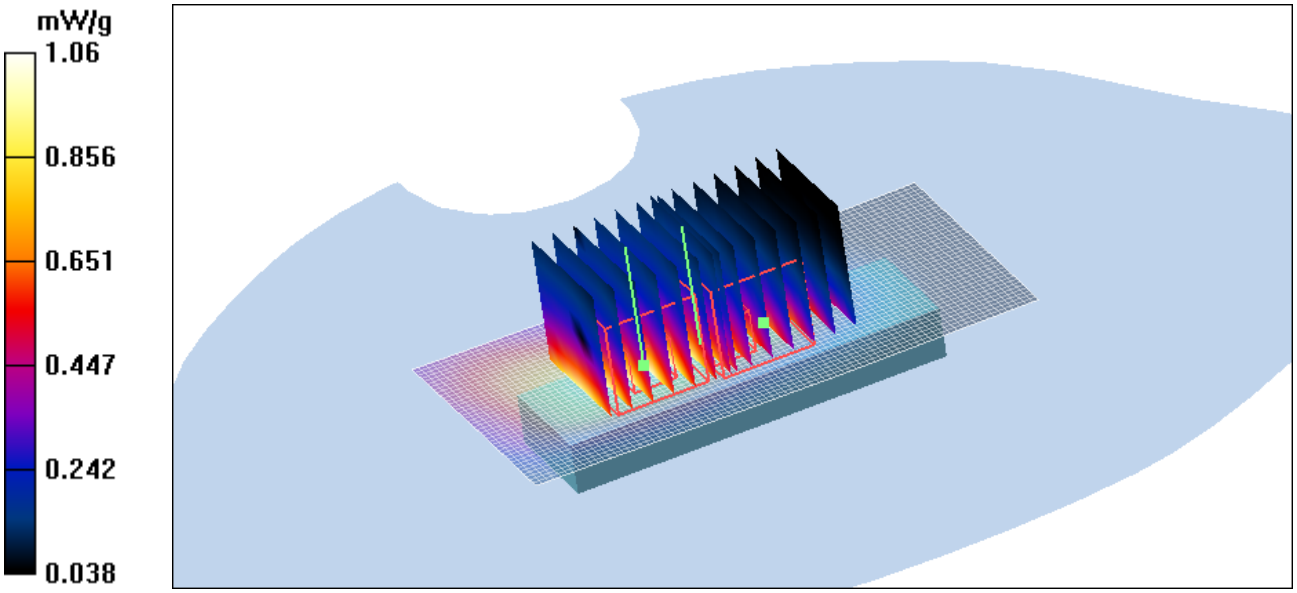
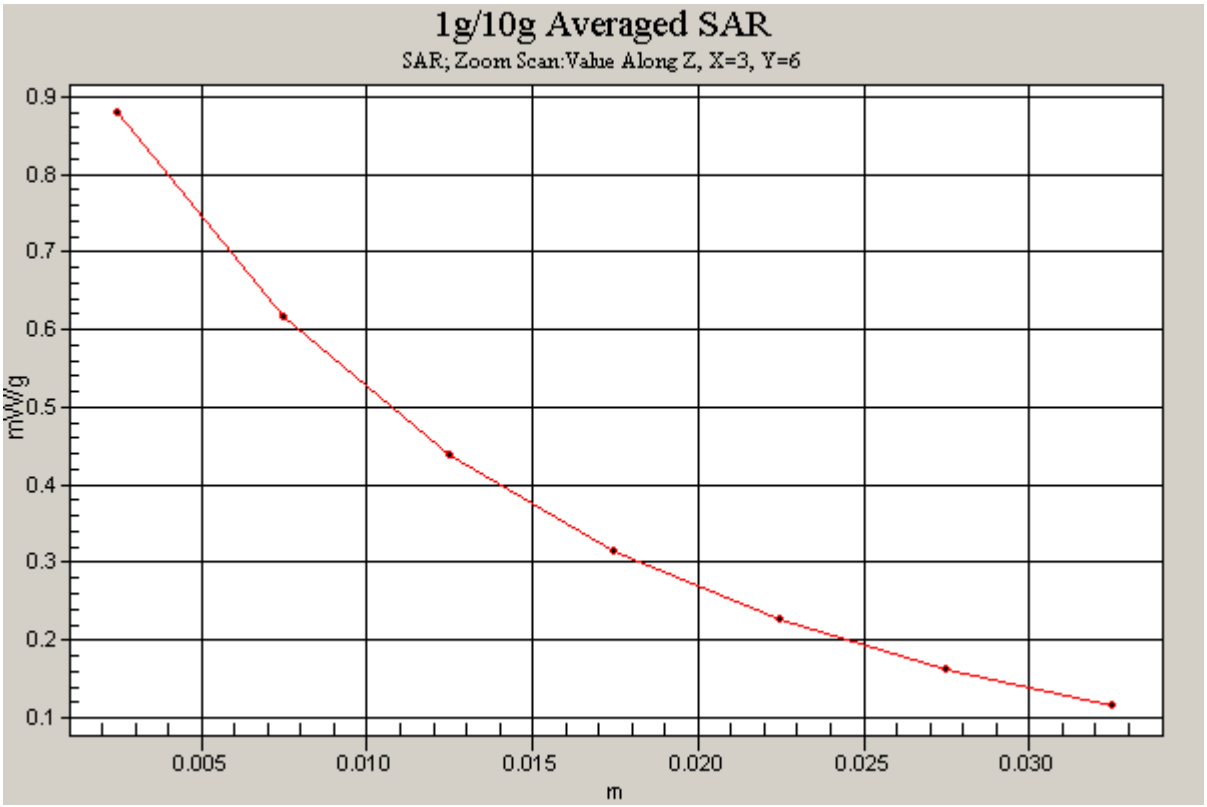


Figure 23 GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1Channel 128



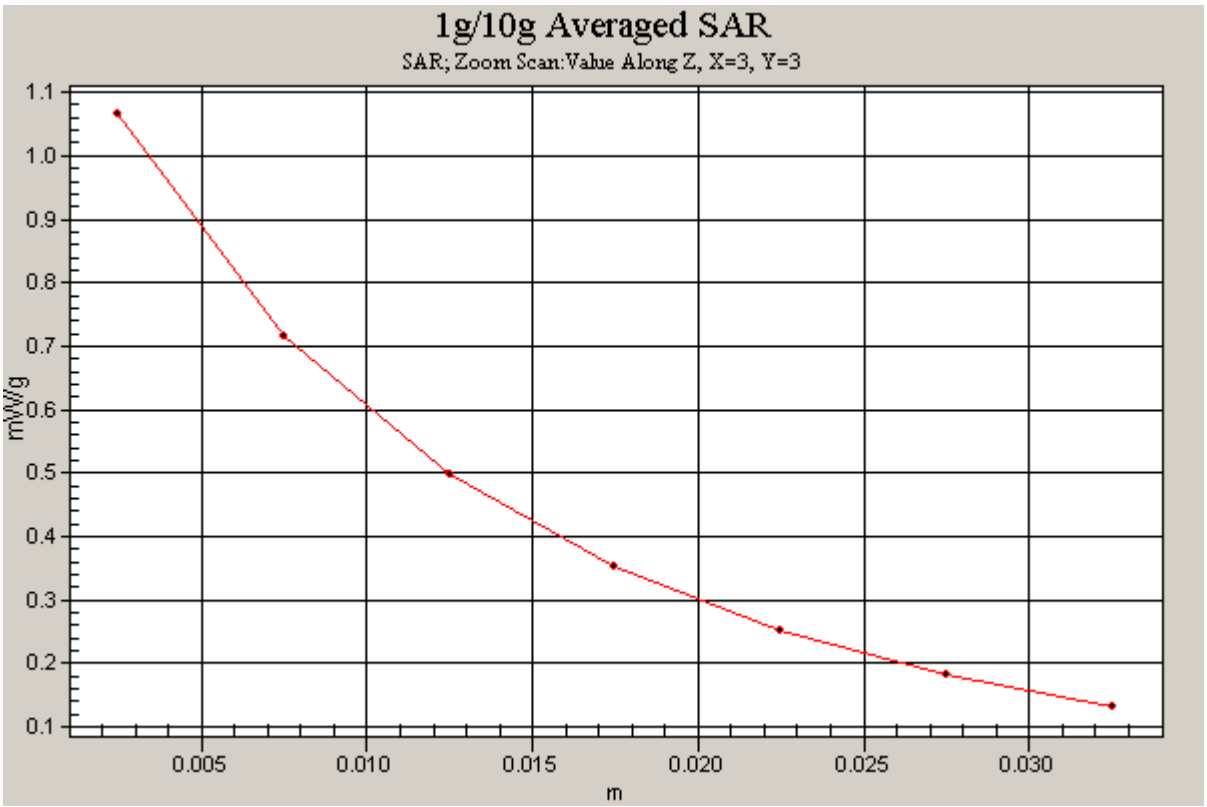


Figure 24 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1Channel 128]

GSM 850 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1 High Frequency

Date/Time: 6/11/2009 5:17:22 AM
Communication System: GSM850 + GPRS(1Up); Frequency: 848.8 MHz;Duty Cycle: 1:8
Medium parameters used: f = 849 MHz; σ = 1.02 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 High/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.13 mW/g

Test Position 1 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.6 V/m; Power Drift = 0.138 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.905 mW/g; SAR(10 g) = 0.588 mW/g
Maximum value of SAR (measured) = 1.11 mW/g

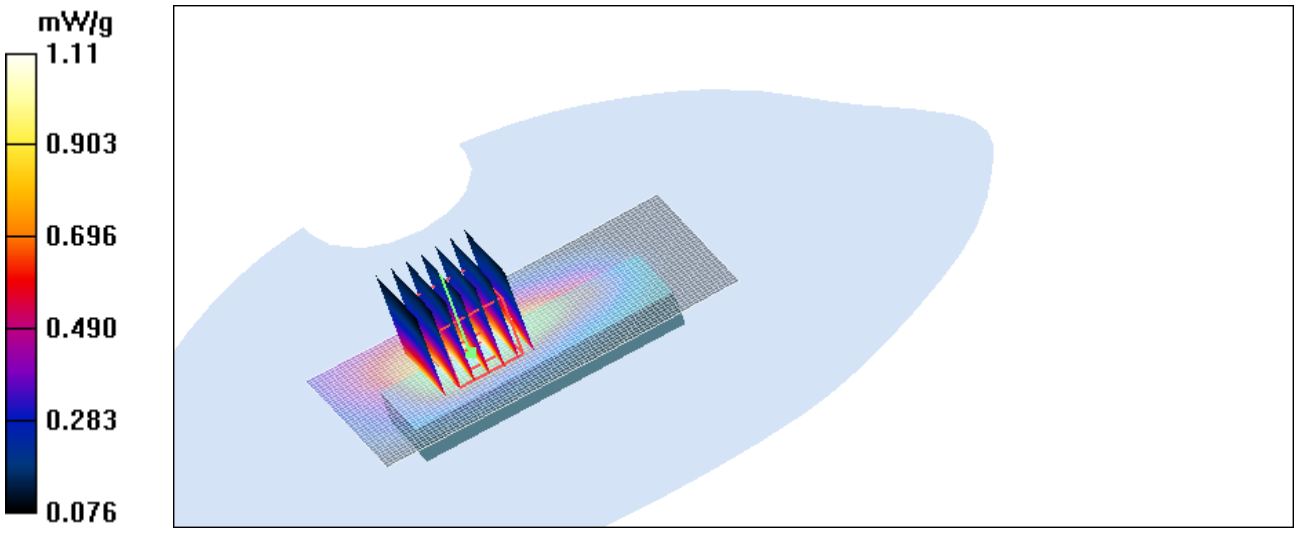


Figure 25 GSM 850 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1Channel 251

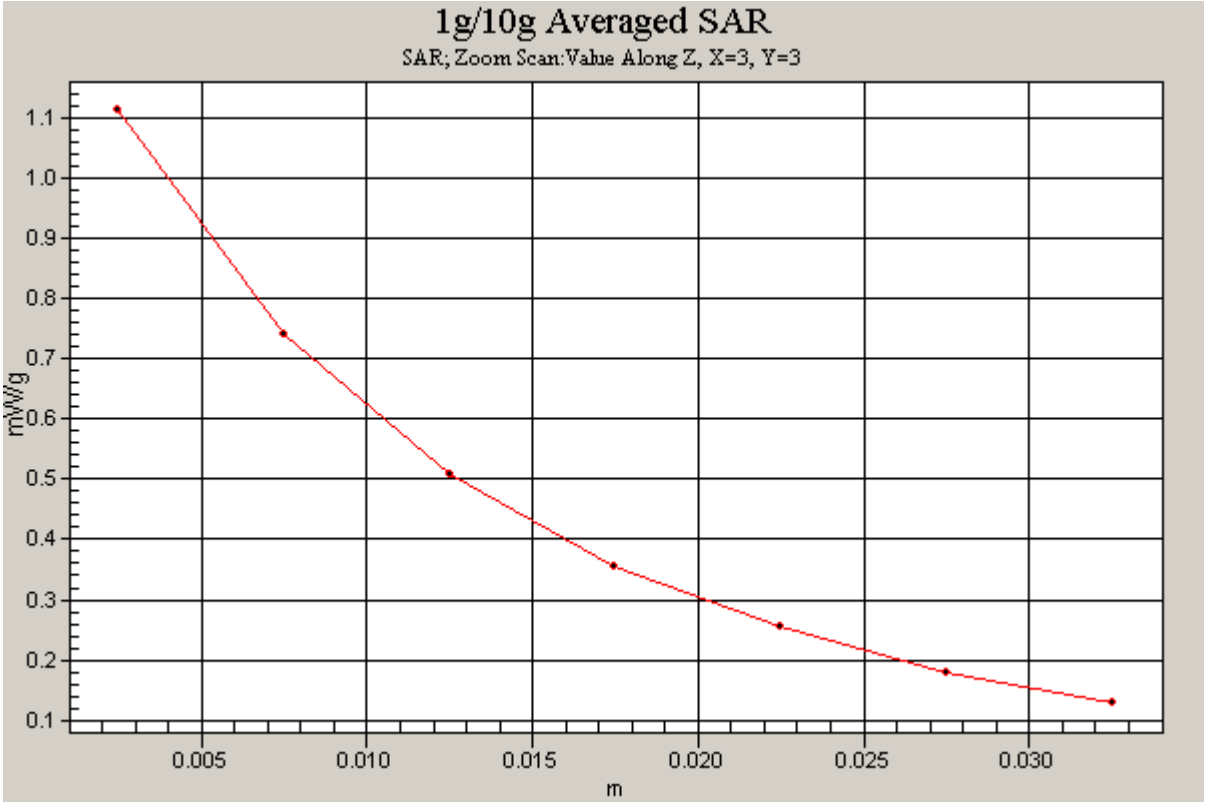


Figure 26 Z-Scan at power reference point [GSM 850 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1Channel 251]

GSM 850 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1 Middle Frequency

Date/Time: 6/11/2009 4:17:05 AM
Communication System: GSM850 + GPRS(1Up); Frequency: 836.6 MHz;Duty Cycle: 1:8
Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.15 mW/g
Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.7 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.961 mW/g; SAR(10 g) = 0.624 mW/g
Maximum value of SAR (measured) = 1.17 mW/g
Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.7 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.723 mW/g; SAR(10 g) = 0.442 mW/g
Maximum value of SAR (measured) = 0.960 mW/g

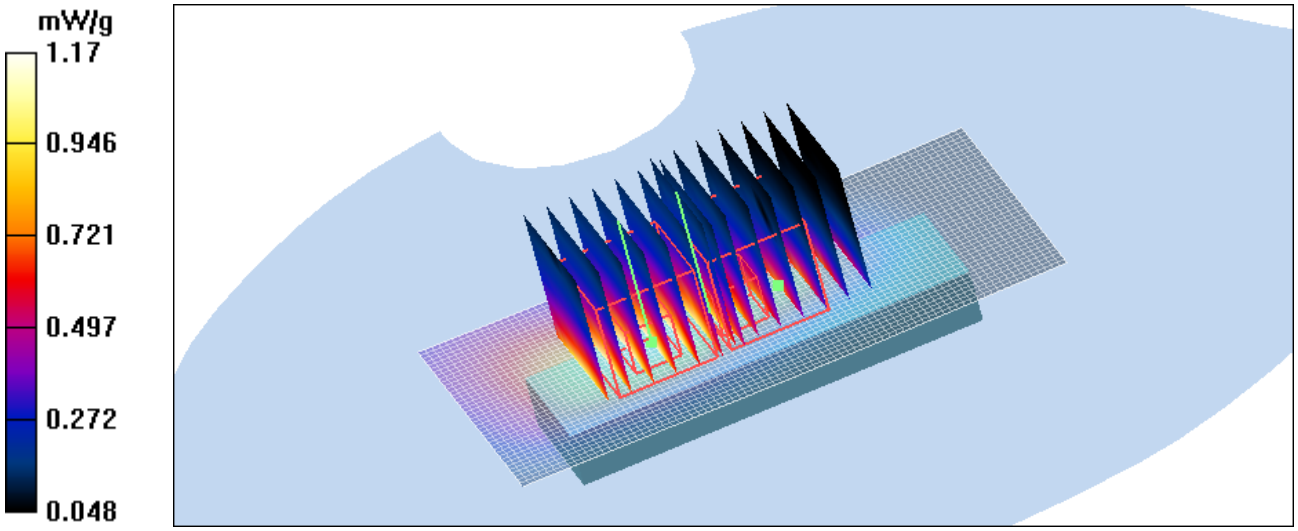
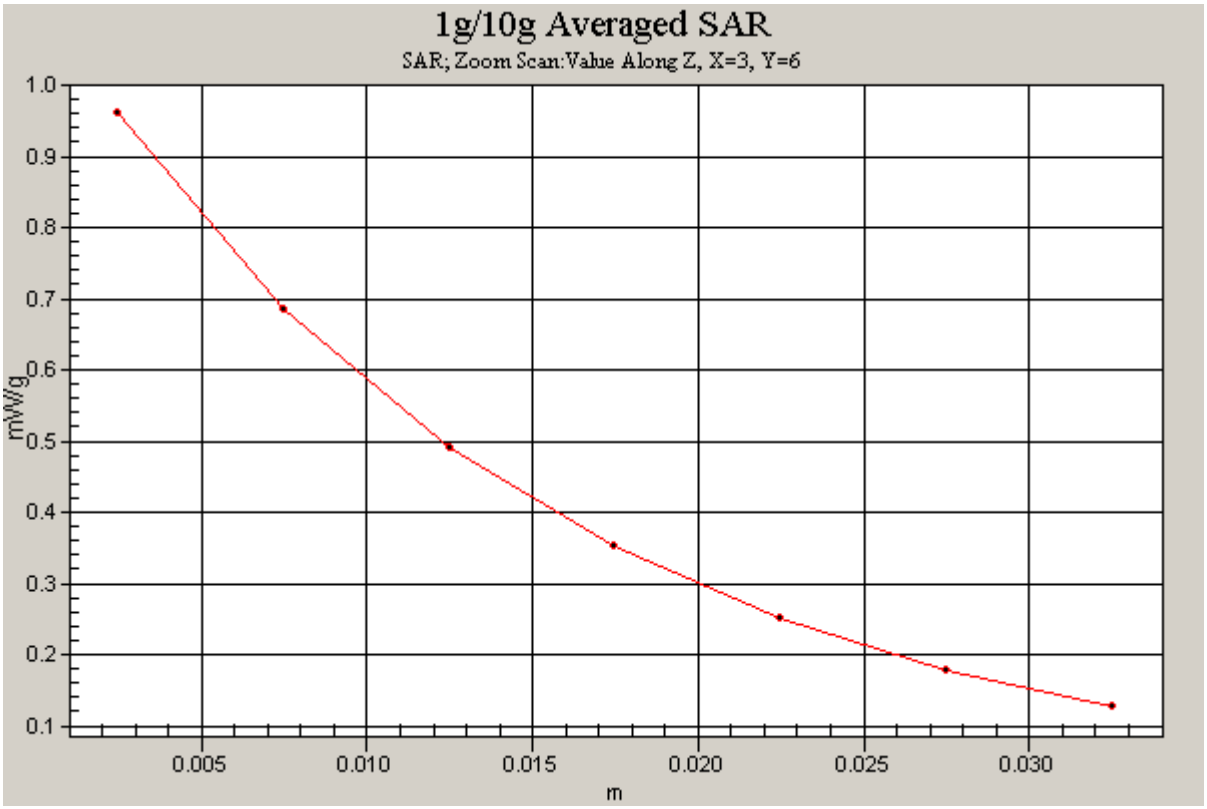


Figure 27 GSM 850 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1Channel 190



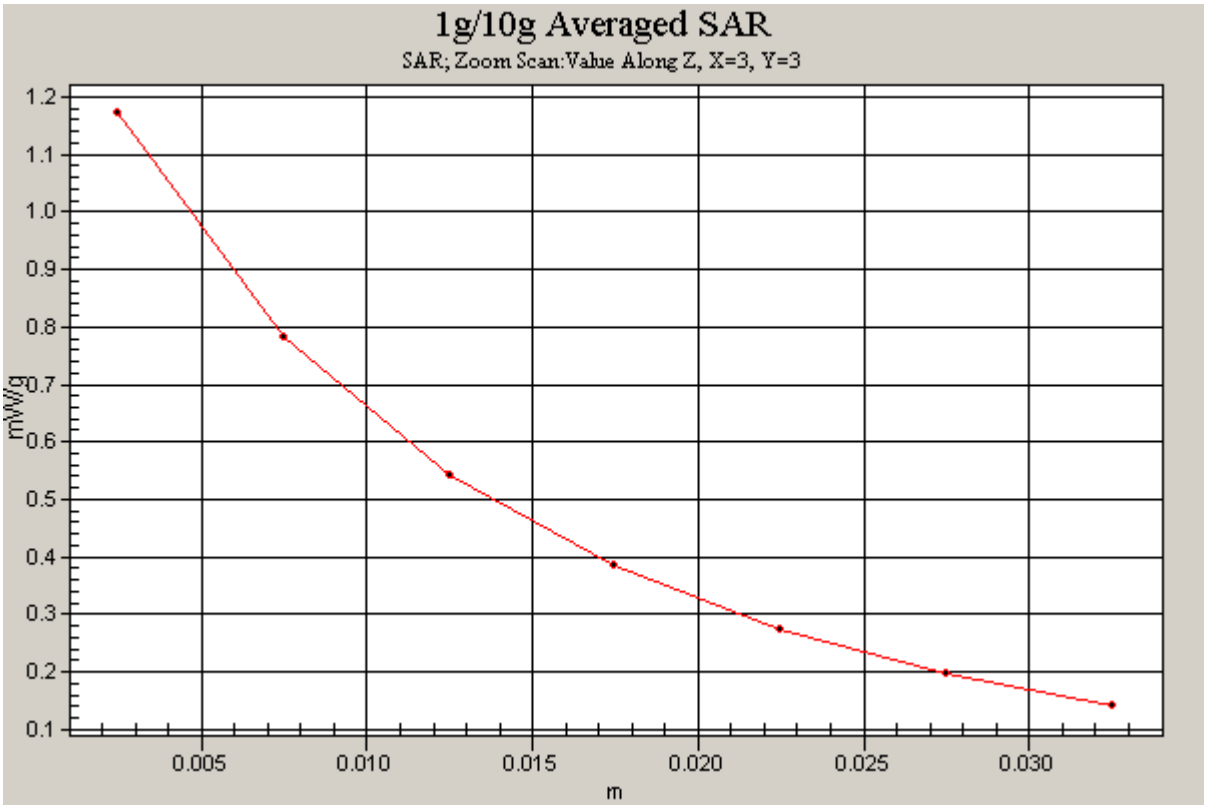


Figure 28 Z-Scan at power reference point [GSM 850 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1Channel 190]

GSM 850 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1 Low Frequency

Date/Time: 6/11/2009 5:34:00 AM

Communication System: GSM850 + GPRS(1Up); Frequency: 824.2 MHz;Duty Cycle: 1:8

Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008

Electronics: DAE4 Sn452; Calibrated: 11/18/2008

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.18 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.1 V/m; Power Drift = -0.075 dB

Peak SAR (extrapolated) = 1.46 W/kg

SAR(1 g) = 0.967 mW/g; SAR(10 g) = 0.631 mW/g

Maximum value of SAR (measured) = 1.18 mW/g

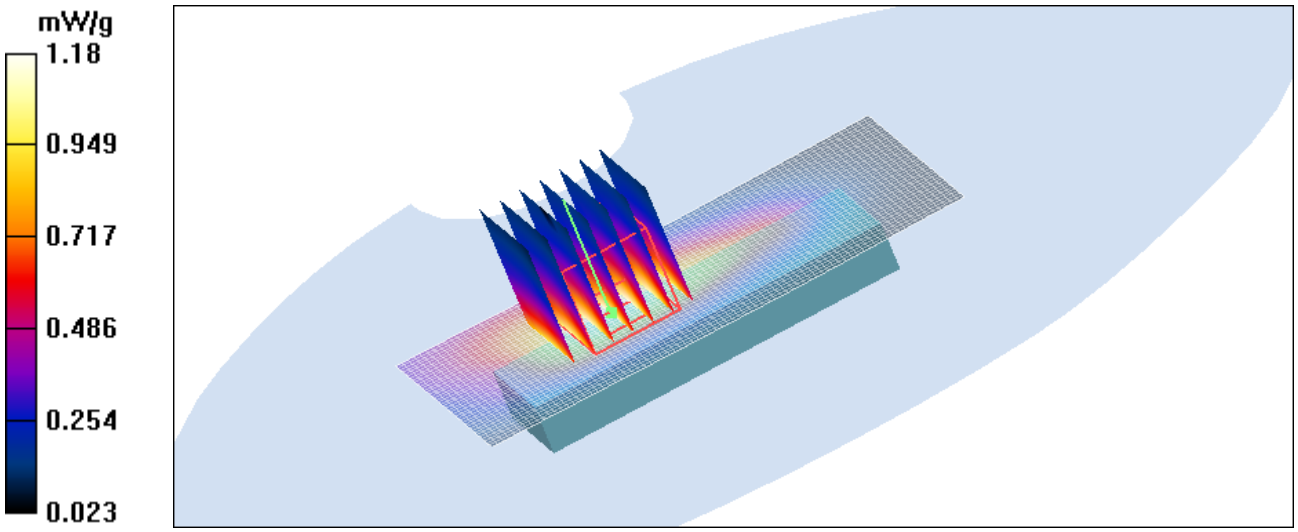


Figure 29 GSM 850 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1Channel 128

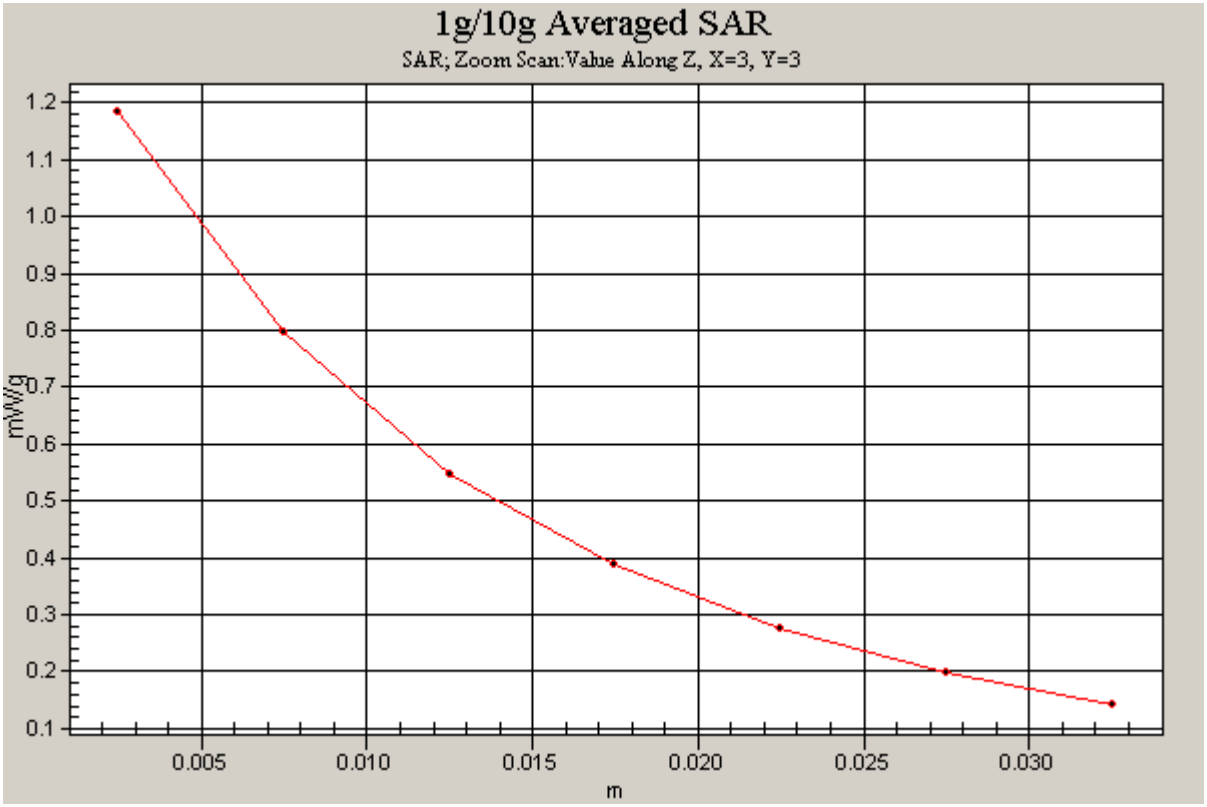


Figure 30 Z-Scan at power reference point [GSM 850 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1Channel 128]

GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 2 Middle Frequency

Date/Time: 6/11/2009 10:37:17 PM
Communication System: GSM850 + GPRS(3Up); Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 2 Middle/Area Scan (41x41x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.142 mW/g

Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 0.377 W/kg
SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.041 mW/g
Maximum value of SAR (measured) = 0.156 mW/g

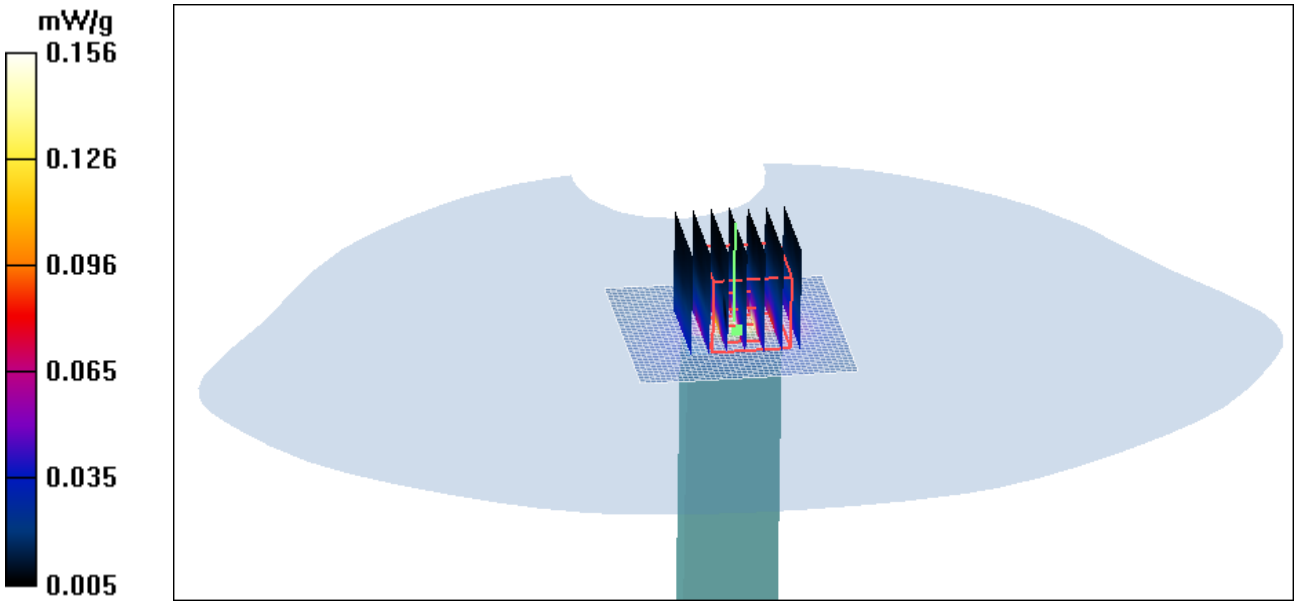


Figure 31 GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 2 Channel 190

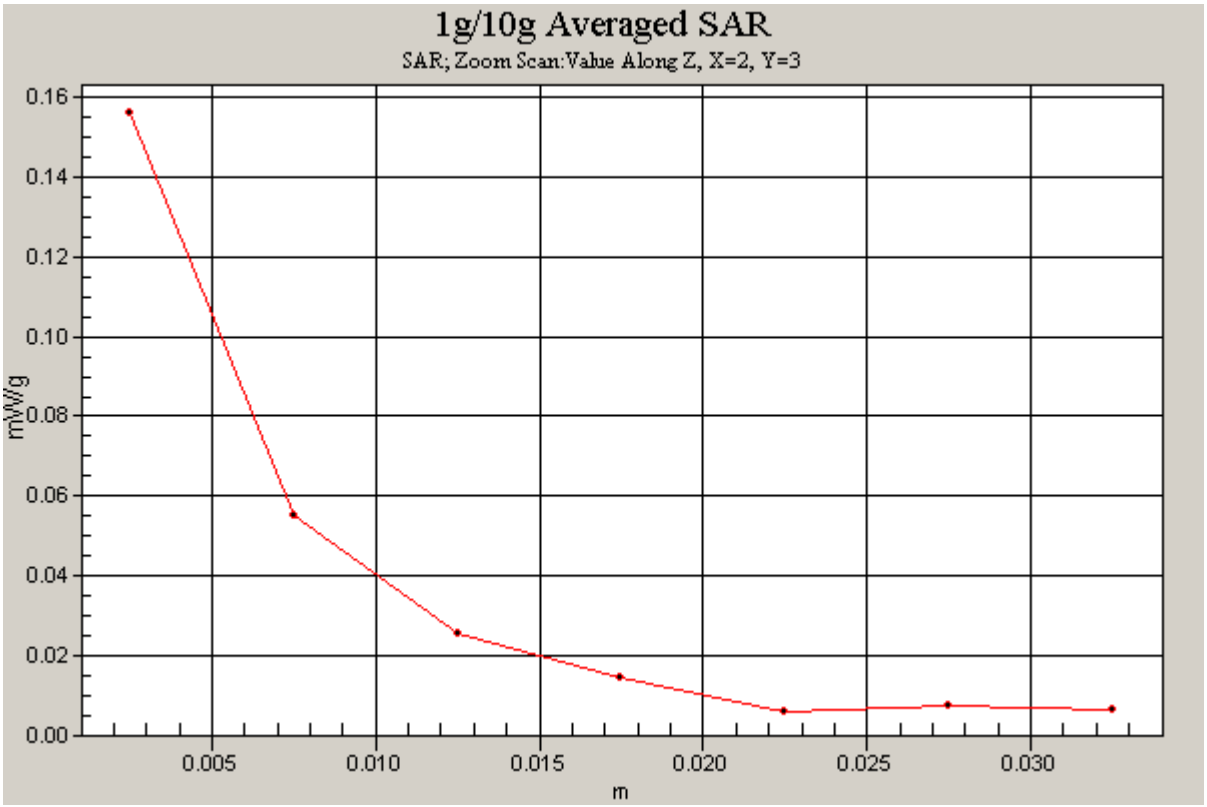


Figure 32 Z-Scan at power reference point [GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 2 Channel 190]

GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 3 Middle Frequency

Date/Time: 6/11/2009 9:46:20 PM
Communication System: GSM850 + GPRS(3Up); Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 3 Middle/Area Scan (31x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.685 mW/g

Test Position 3 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.8 V/m; Power Drift = -0.065 dB
Peak SAR (extrapolated) = 0.888 W/kg
SAR(1 g) = 0.581 mW/g; SAR(10 g) = 0.375 mW/g
Maximum value of SAR (measured) = 0.712 mW/g

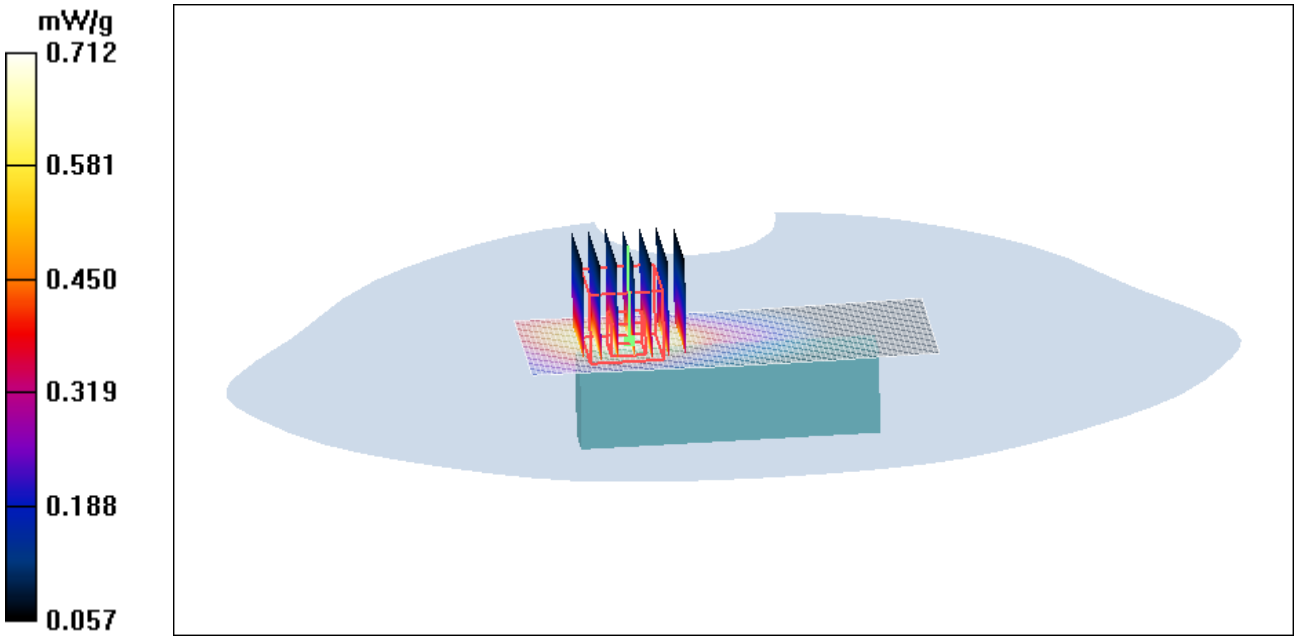


Figure 33 GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 3 Channel 190

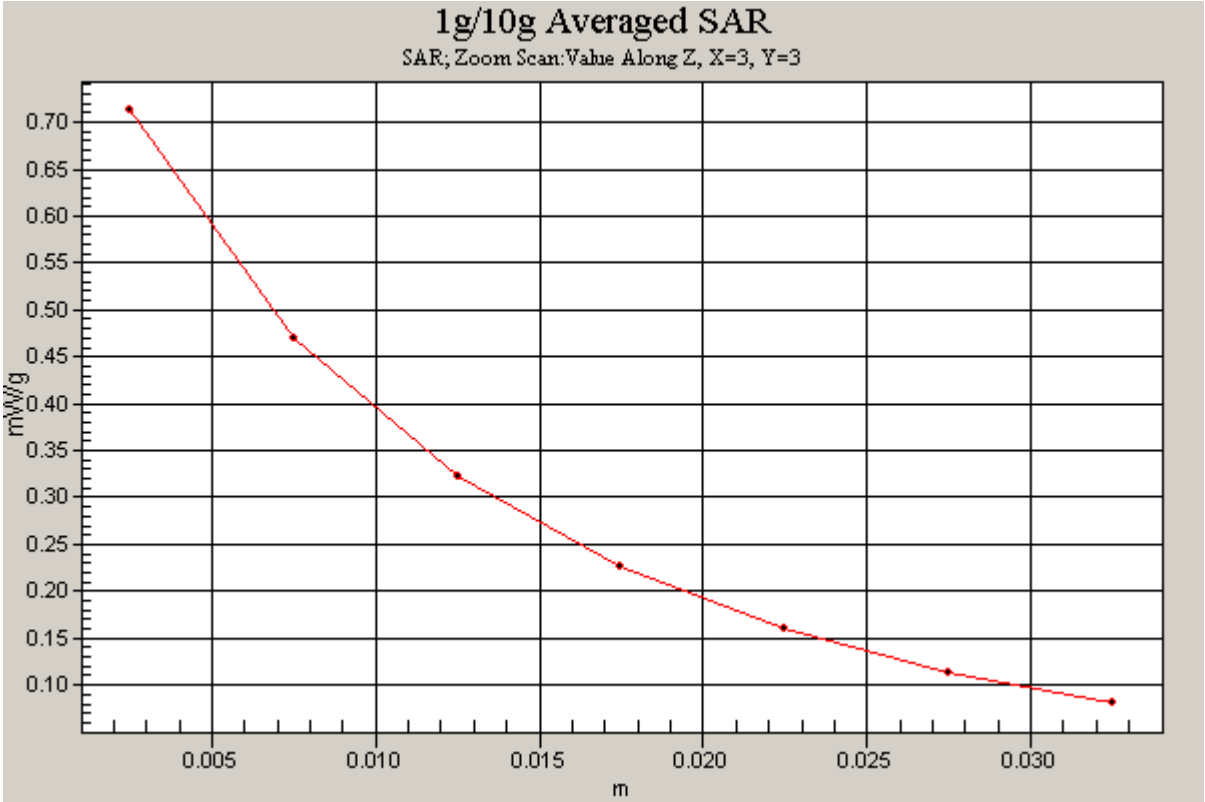


Figure 34 Z-Scan at power reference point [GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 3 Channel 190]

GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 4 Middle Frequency

Date/Time: 6/11/2009 9:25:50 PM
Communication System: GSM850 + GPRS(3Up); Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 4 Middle/Area Scan (31x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.760 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.0 V/m; Power Drift = 0.064 dB
Peak SAR (extrapolated) = 0.963 W/kg
SAR(1 g) = 0.610 mW/g; SAR(10 g) = 0.387 mW/g
Maximum value of SAR (measured) = 0.751 mW/g

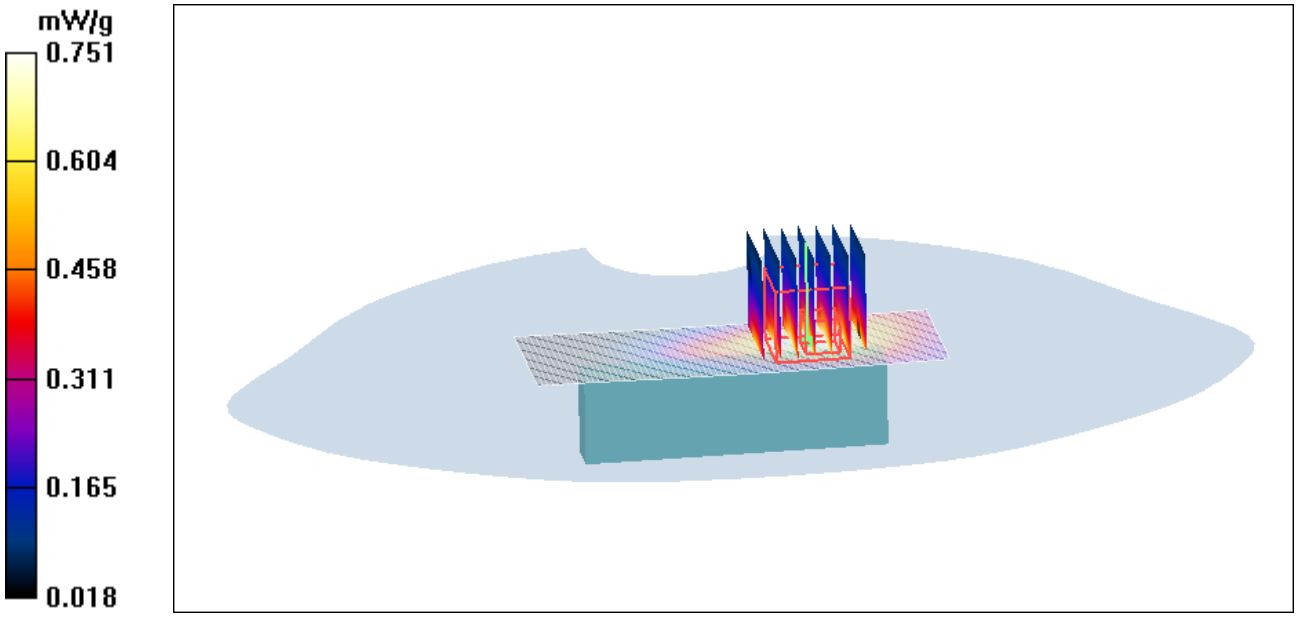


Figure 35 GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 4 Channel 190

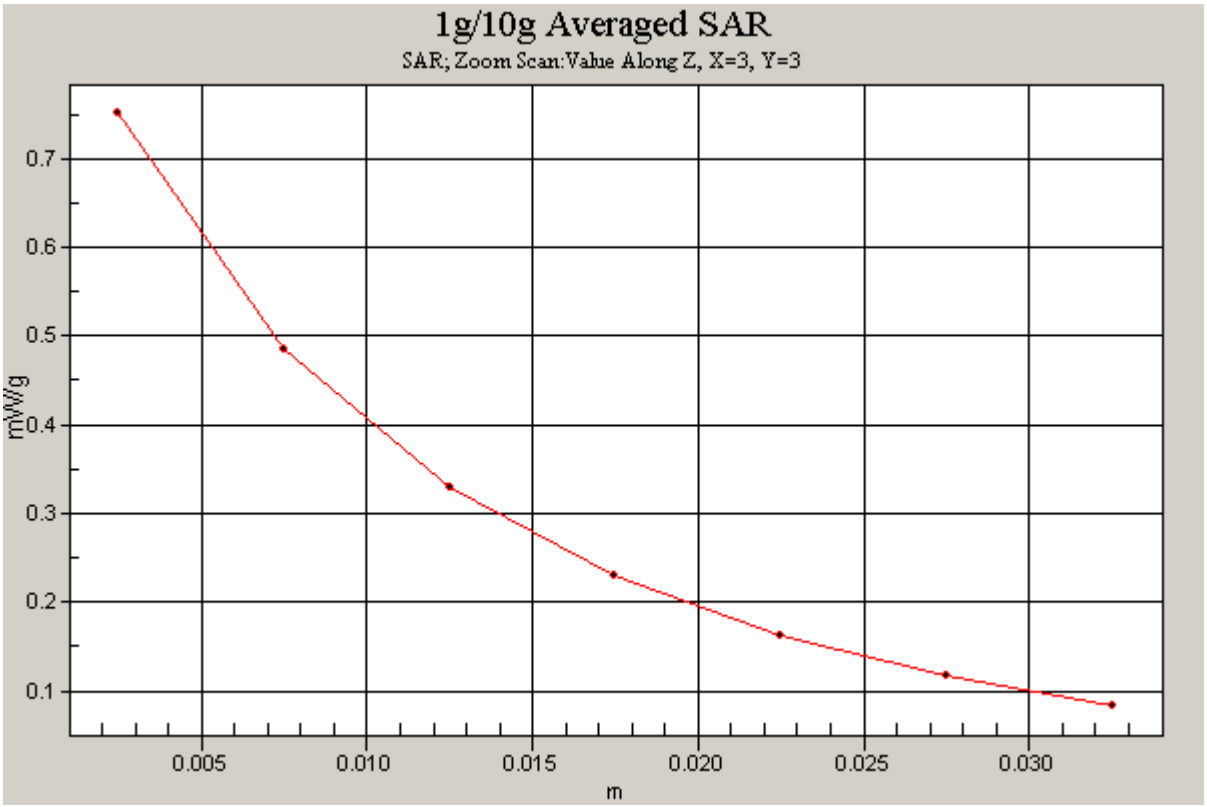


Figure 36 Z-Scan at power reference point [GSM 850 GPRS (3 timeslots in uplink) with IBM T61 Test Position 4Channel 190]

GSM 850 GPRS (3 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Middle Frequency

Date/Time: 6/11/2009 6:43:52 AM
Communication System: GSM850 + GPRS(3Up); Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 5 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.730 mW/g

Test Position 5 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.7 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 0.939 W/kg
SAR(1 g) = 0.552 mW/g; SAR(10 g) = 0.371 mW/g
Maximum value of SAR (measured) = 0.668 mW/g

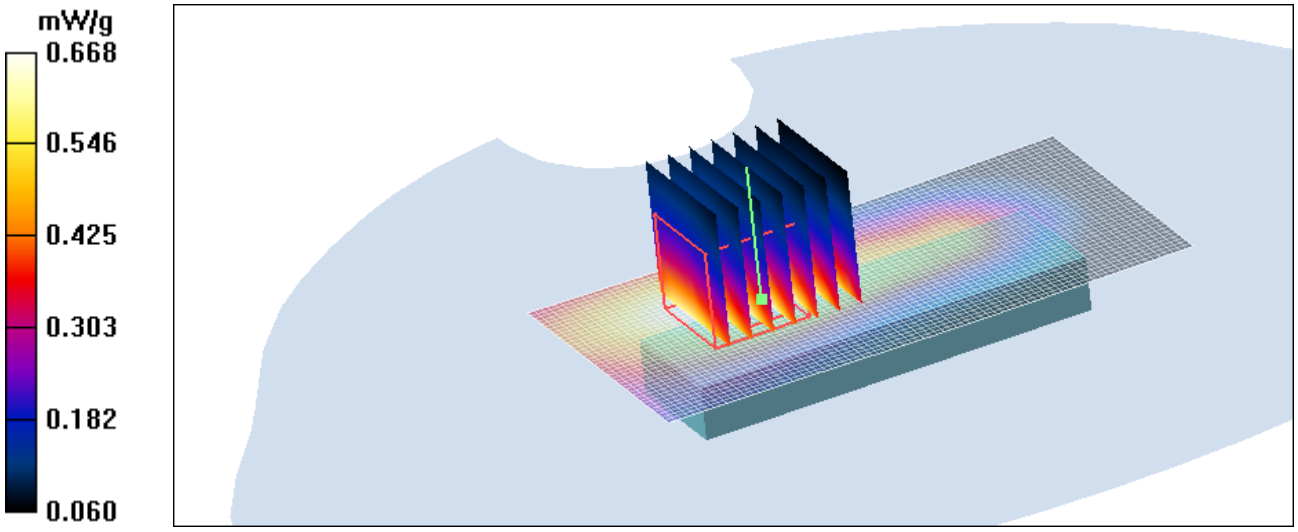


Figure 37 GSM 850 GPRS (3 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel 190

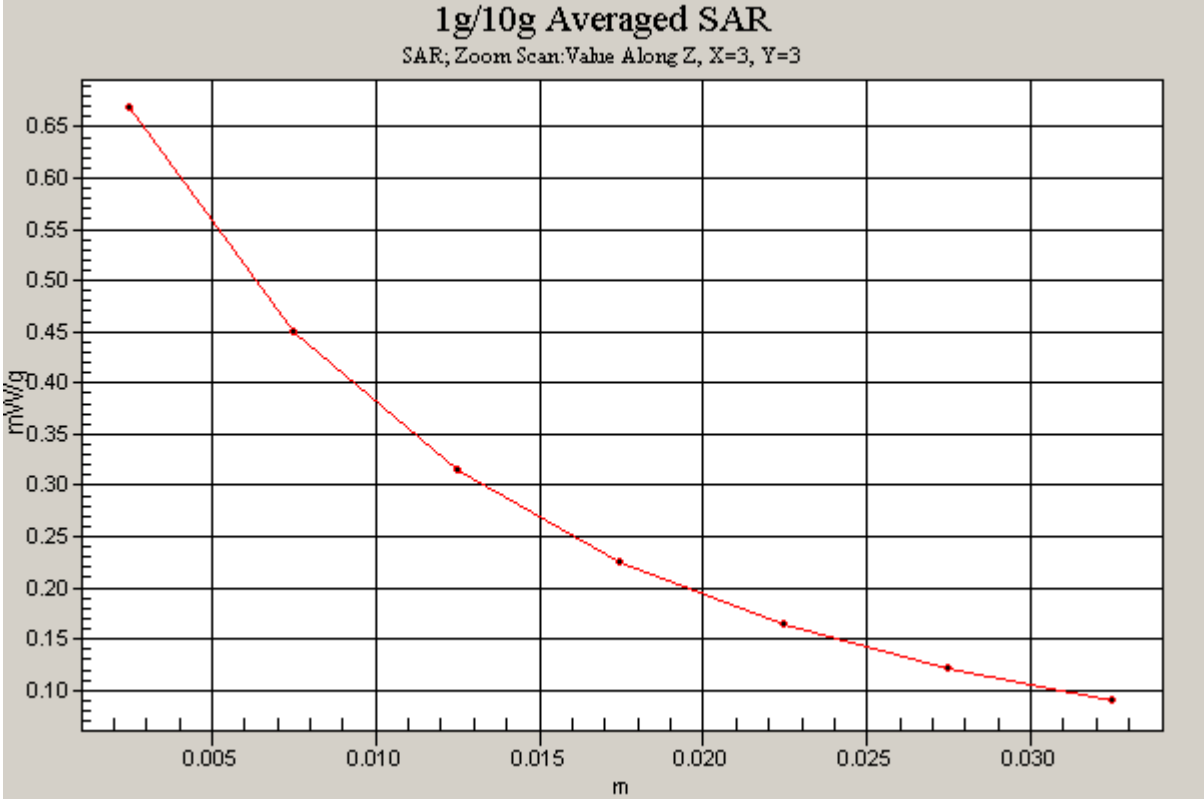


Figure 38 Z-Scan at power reference point [GSM 850 GPRS (3 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel 190]

GSM 850 EGPRS (3 timeslots in uplink) with IBM T61 Test Position 1 Middle Frequency

Date/Time: 6/11/2009 10:09:29 PM
Communication System: GSM850 + EGPRS(3Up); Frequency: 836.6 MHz;Duty Cycle: 1:2.67
Medium parameters used: f = 837 MHz; σ = 1.01 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.16 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.8 V/m; Power Drift = -0.136 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.875 mW/g; SAR(10 g) = 0.575 mW/g
Maximum value of SAR (measured) = 1.11 mW/g

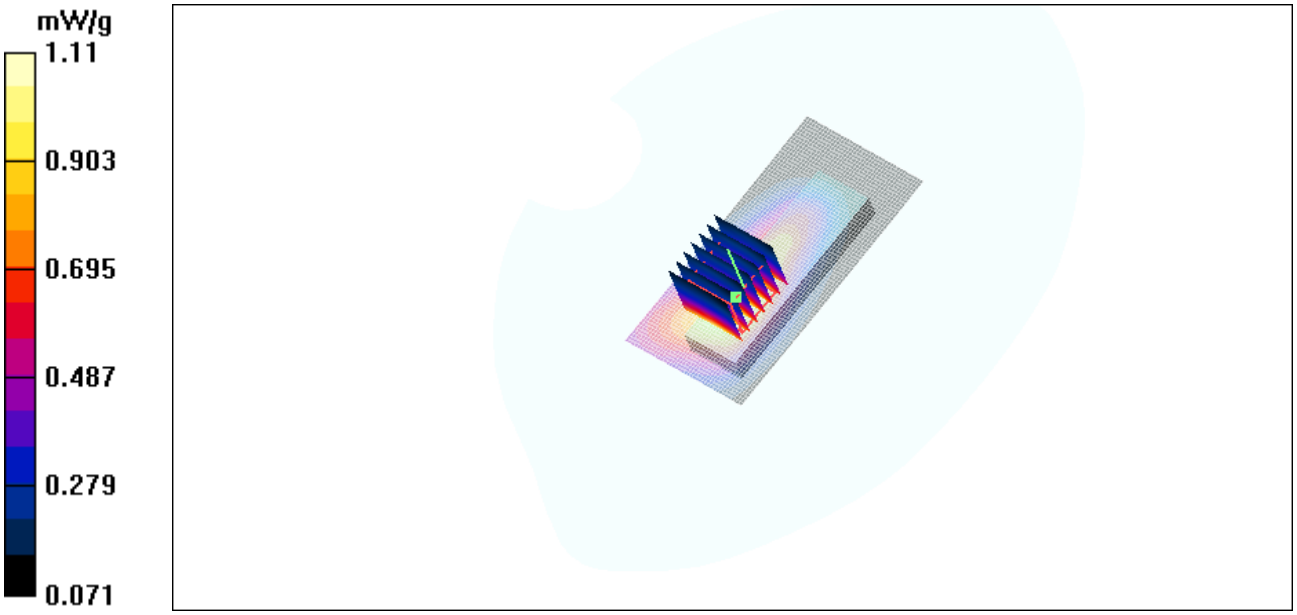


Figure 39 GSM 850 EGPRS (3 timeslots in uplink) with IBM T61 Test Position 1 Channel 190

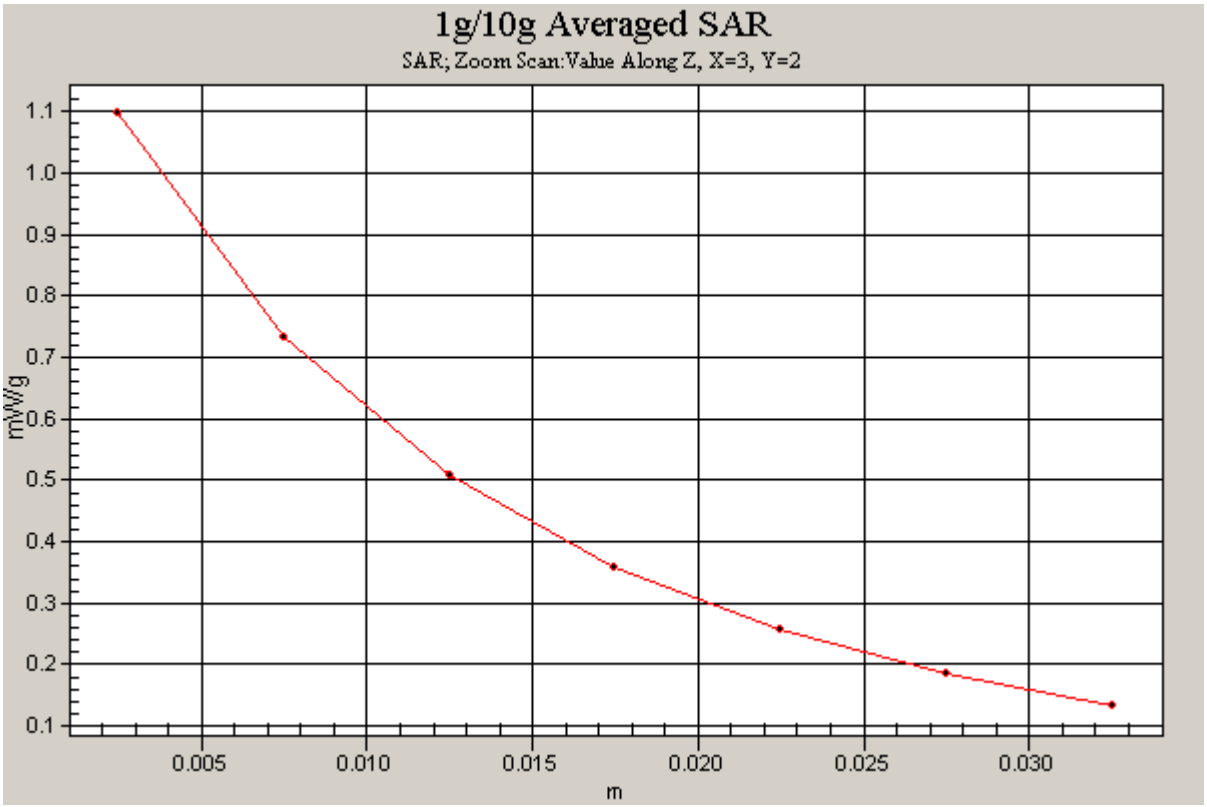


Figure 40 Z-Scan at power reference point [GSM 850 EGPRS (3 timeslots in uplink) with IBM T61 Test Position 1 Channel 190]

GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 1 Middle Frequency

Date/Time: 6/18/2009 7:23:24 PM
Communication System: PCS 1900+GPRS(4Up); Frequency: 1880 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.07 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = -0.187 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.688 mW/g; SAR(10 g) = 0.360 mW/g
Maximum value of SAR (measured) = 0.905 mW/g

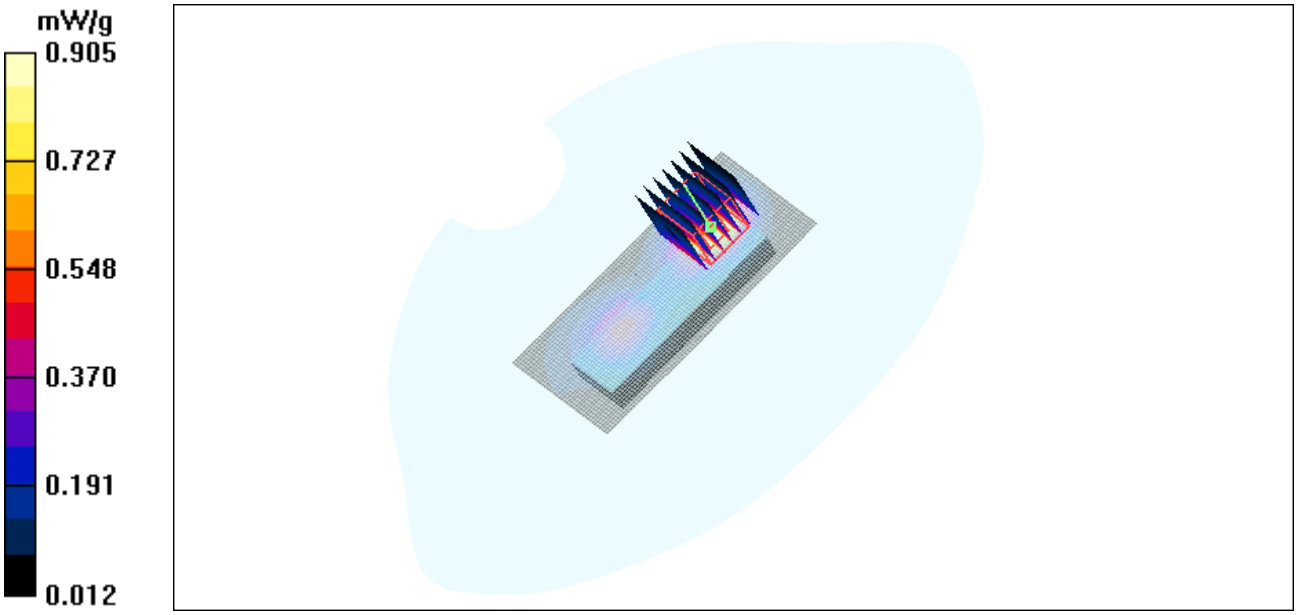


Figure 41 GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 1 Channel 661

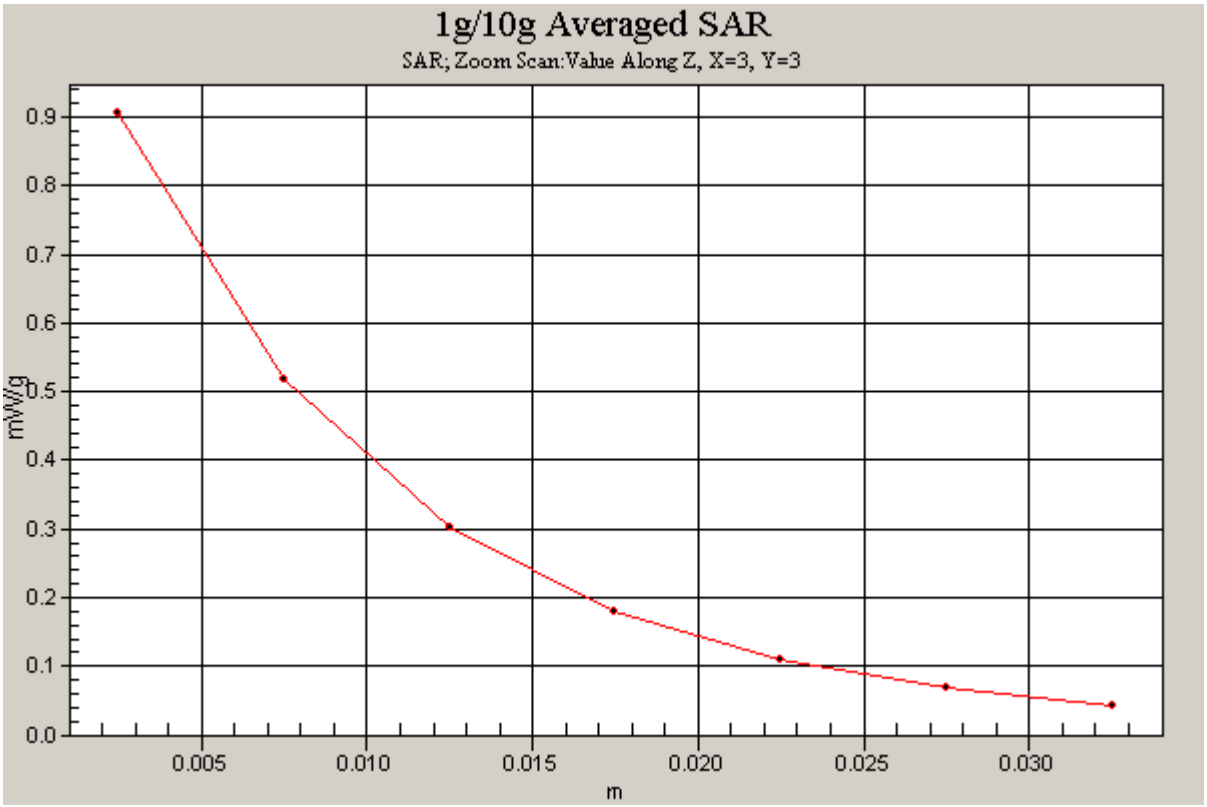


Figure 42 Z-Scan at power reference point [GSM 1900 GPRS (4 timeslots in uplink) with I IBM T61 Test Position 1 Channel 661]

GSM 1900 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1 Middle Frequency

Date/Time: 6/18/2009 7:41:03 PM
Communication System: PCS 1900+GPRS(3Up); Frequency: 1880 MHz;Duty Cycle: 1:2.67
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.810 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.72 V/m; Power Drift = 0.049 dB
Peak SAR (extrapolated) = 0.897 W/kg
SAR(1 g) = 0.514 mW/g; SAR(10 g) = 0.266 mW/g
Maximum value of SAR (measured) = 0.677 mW/g

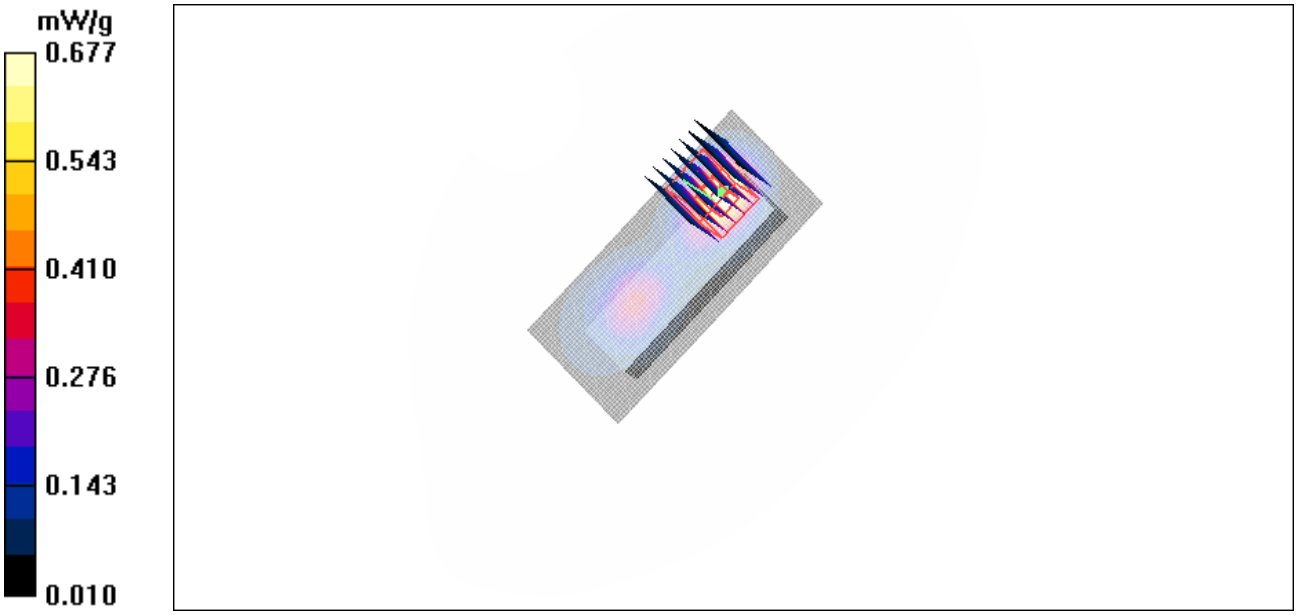


Figure 43 GSM 1900 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1 Channel 661

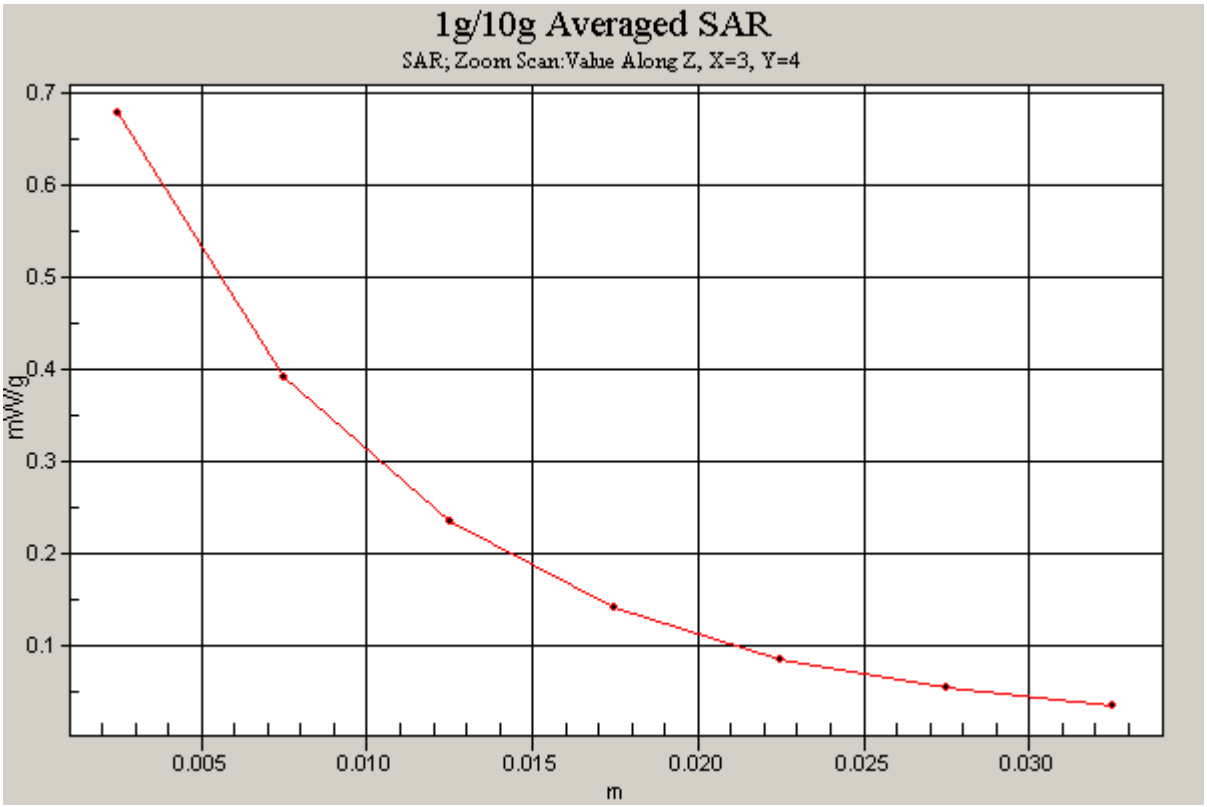


Figure 44 Z-Scan at power reference point [GSM 1900 GPRS (3 timeslots in uplink) with IBM T61 Test Position 1 Channel 661]

GSM 1900 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1 Middle Frequency

Date/Time: 6/18/2009 8:07:43 PM
Communication System: PCS 1900+GPRS(2Up); Frequency: 1880 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.851 mW/g

Test Position 1Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.0 V/m; Power Drift = 0.063 dB
Peak SAR (extrapolated) = 0.968 W/kg
SAR(1 g) = 0.547 mW/g; SAR(10 g) = 0.288 mW/g
Maximum value of SAR (measured) = 0.717 mW/g

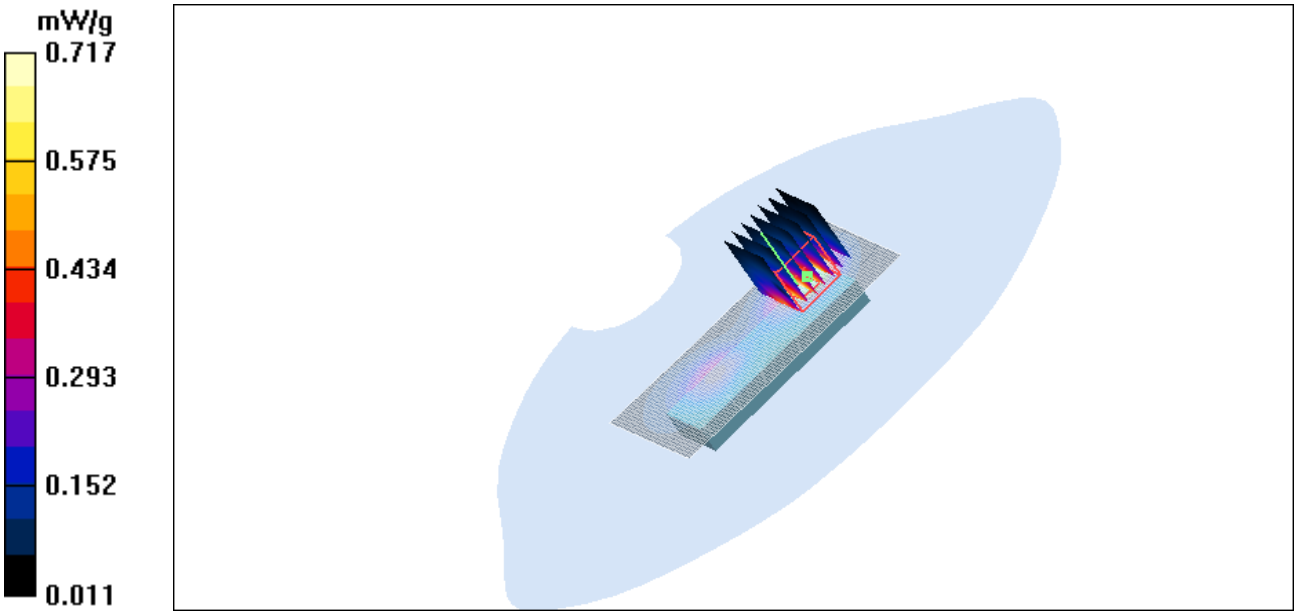


Figure 45 GSM 1900 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1 Channel 661

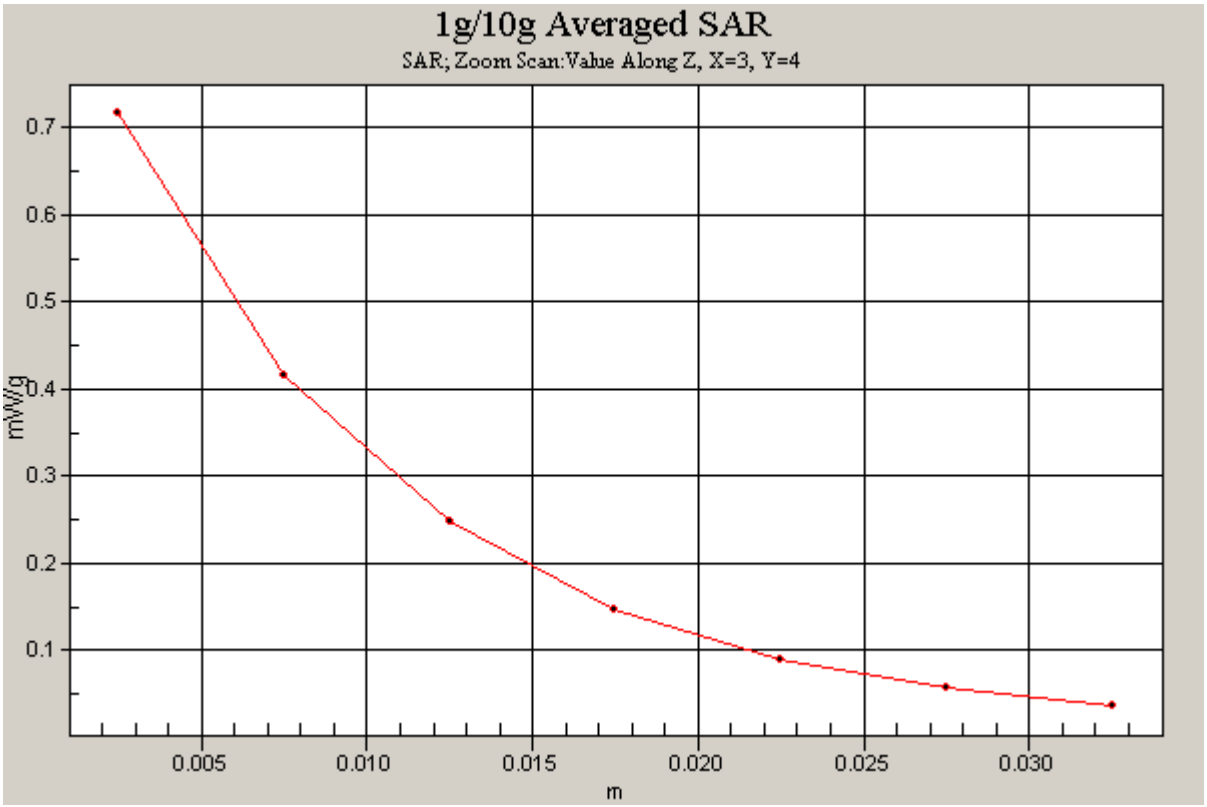


Figure 46 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with IBM T61 Test Position 1 Channel 661]

GSM 1900 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1 Middle Frequency

Date/Time: 6/11/2009 9:44:14 AM
Communication System: PCS 1900+GPRS(1Up); Frequency: 1880 MHz;Duty Cycle: 1:8
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 1Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.823 mW/g

Test Position 1Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.99 V/m; Power Drift = 0.062 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.282 mW/g
Maximum value of SAR (measured) = 0.698 mW/g

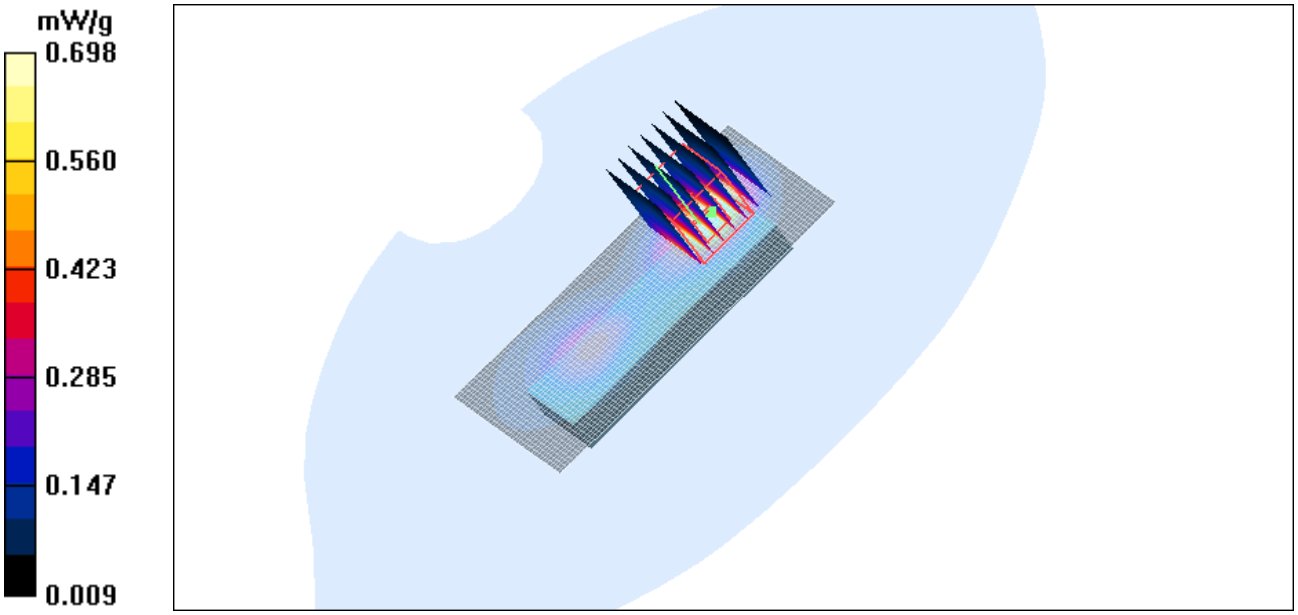


Figure 47 GSM 1900 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1 Channel 661

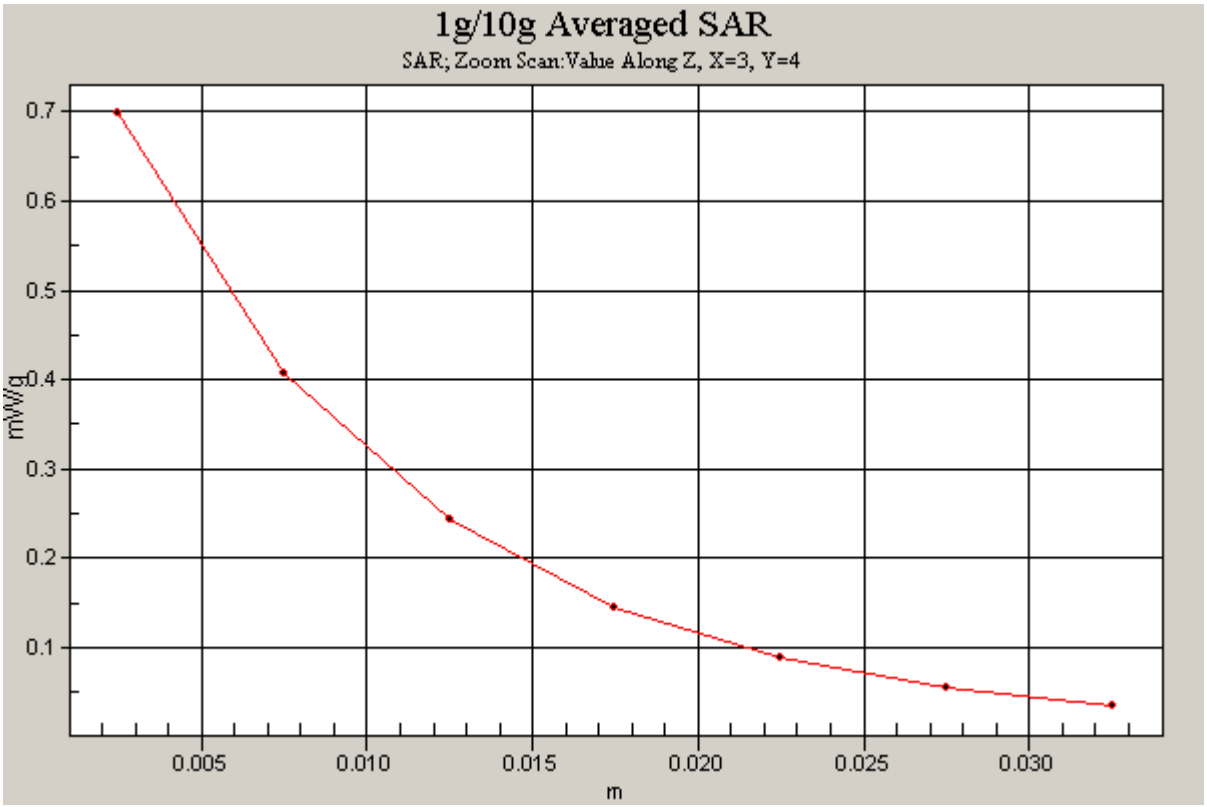


Figure 48 Z-Scan at power reference point [GSM 1900 GPRS (1 timeslot in uplink) with IBM T61 Test Position 1 Channel 661]

GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 2 Middle Frequency

Date/Time: 6/18/2009 11:19:30 PM
Communication System: PCS 1900+GPRS(4Up); Frequency: 1880 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 2 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.313 mW/g

Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = 0.174 dB
Peak SAR (extrapolated) = 0.477 W/kg
SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.103 mW/g
Maximum value of SAR (measured) = 0.301 mW/g

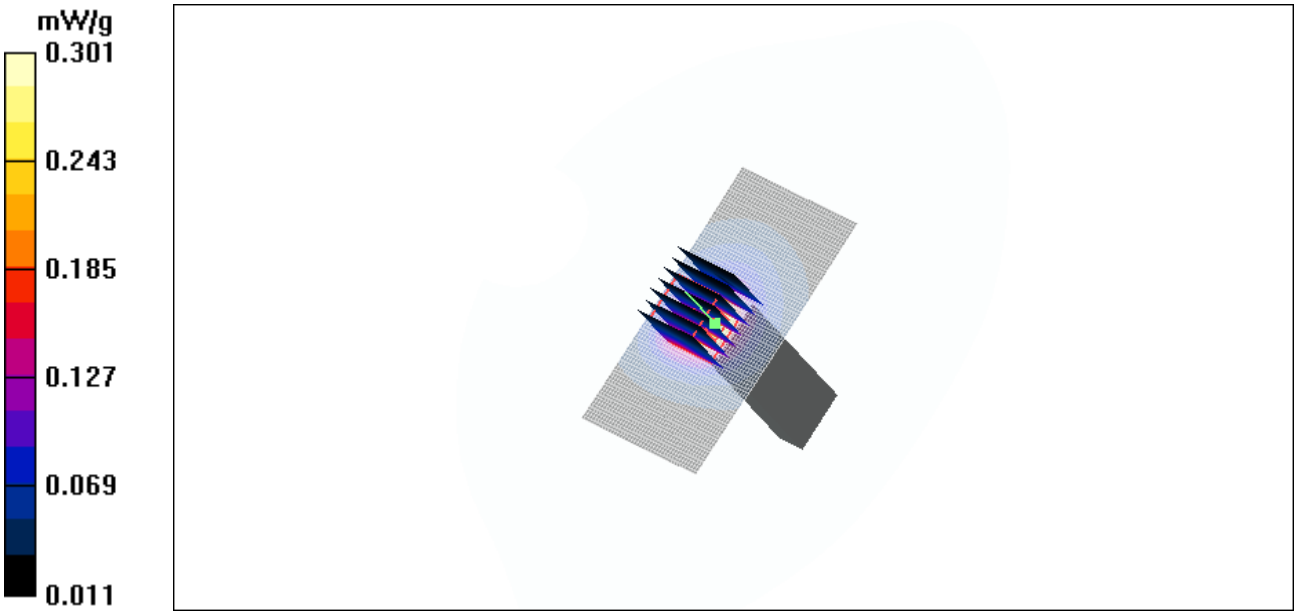


Figure 49 GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 2 Channel 661

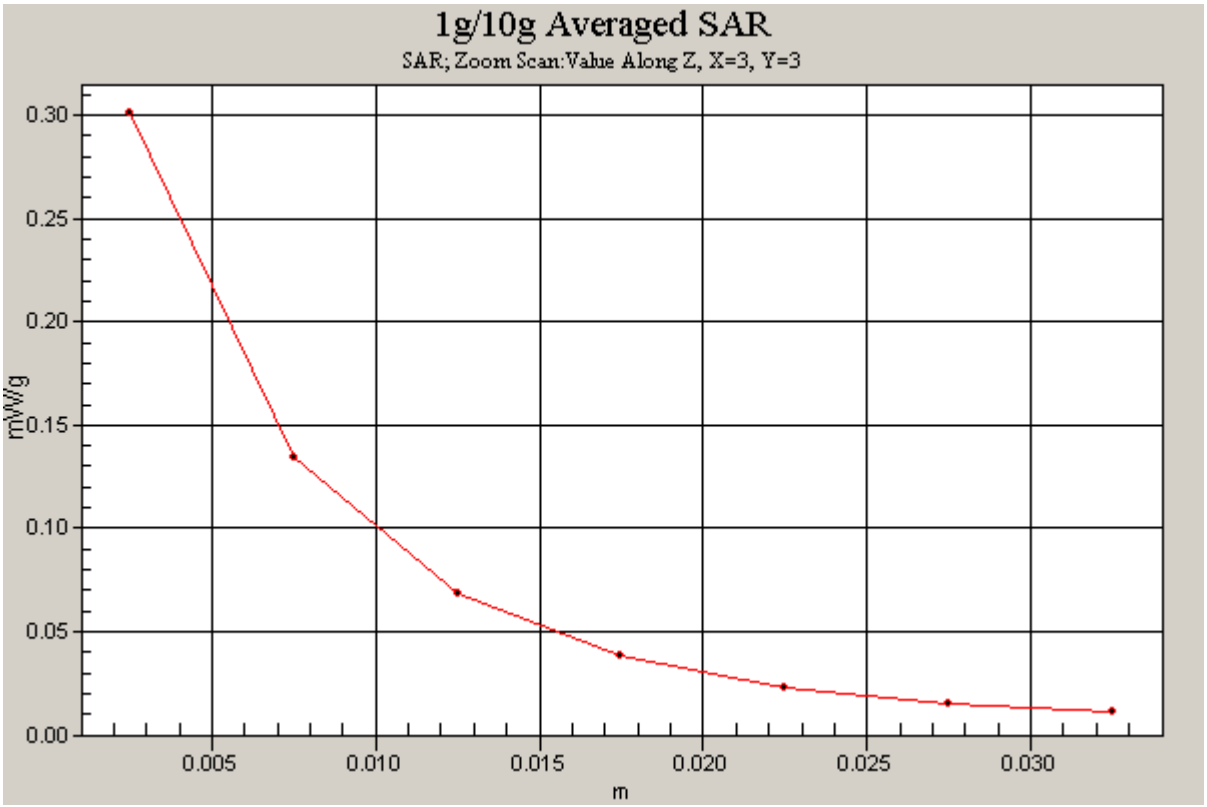


Figure 50 Z-Scan at power reference point [GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 2 Channel 661]

GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 3 Middle Frequency

Date/Time: 6/18/2009 10:36:52 PM
Communication System: PCS 1900+GPRS(4Up); Frequency: 1880 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Position 3 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.530 mW/g

Position 3 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.684 W/kg
SAR(1 g) = 0.378 mW/g; SAR(10 g) = 0.200 mW/g
Maximum value of SAR (measured) = 0.497 mW/g

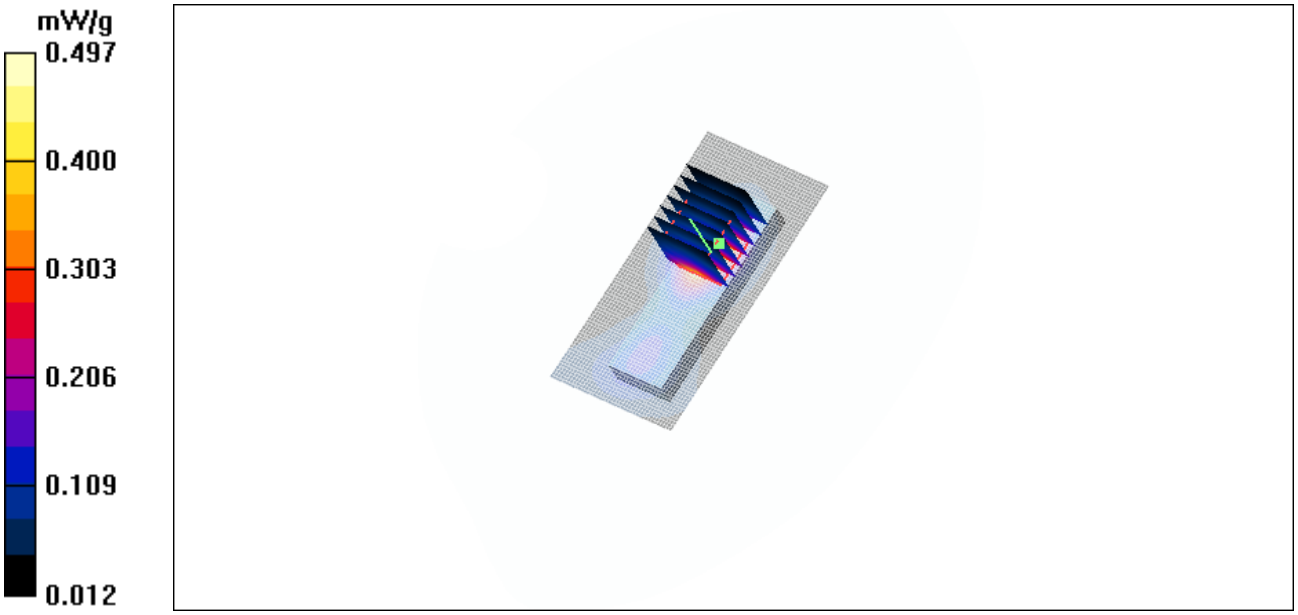


Figure 51 GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 3 Channel 661

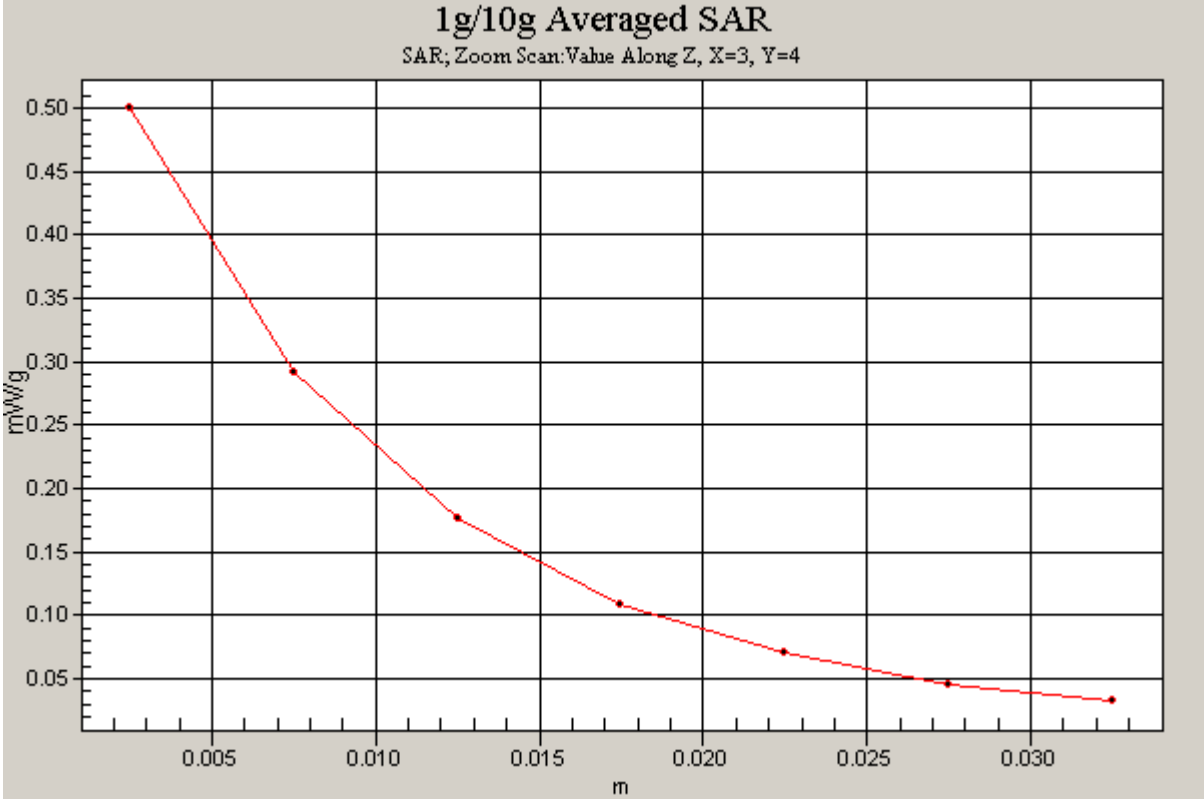


Figure 52 Z-Scan at power reference point [GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 3 Channel 661]

GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 4 Middle Frequency

Date/Time: 6/18/2009 10:57:08 PM
Communication System: PCS 1900+GPRS(4Up); Frequency: 1880 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 4 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.472 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.8 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.952 W/kg
SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.185 mW/g
Maximum value of SAR (measured) = 0.441 mW/g

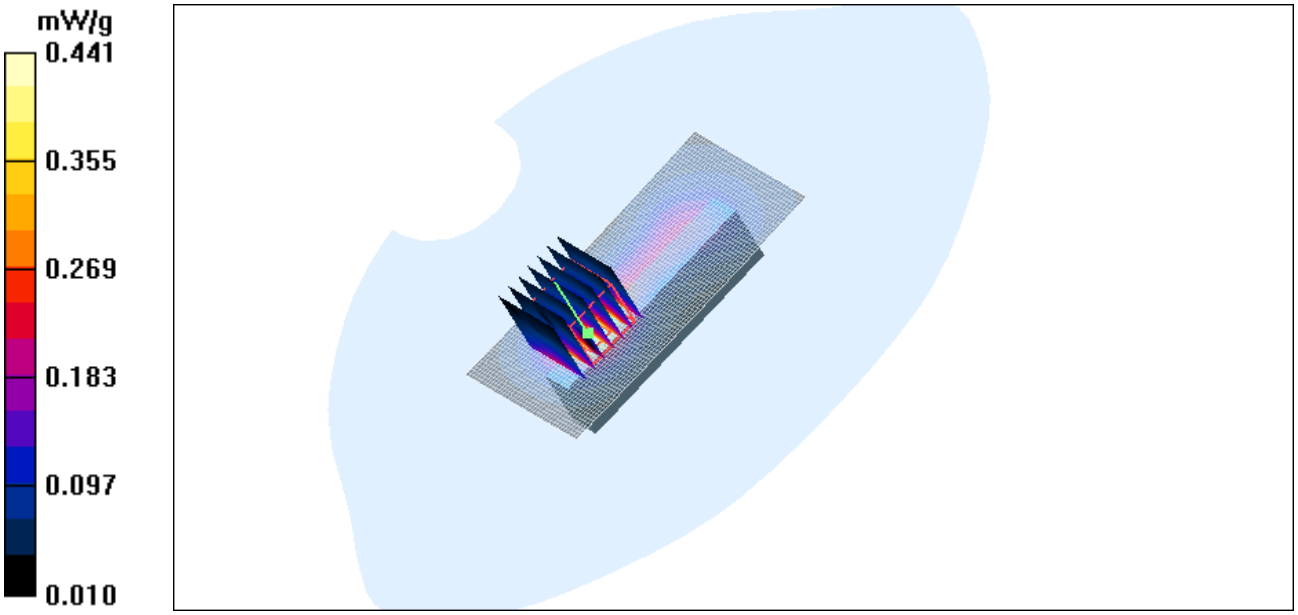


Figure 53 GSM 1900 GPRS (4 timeslots in uplink) with IBM T61 Test Position 4 Channel 661

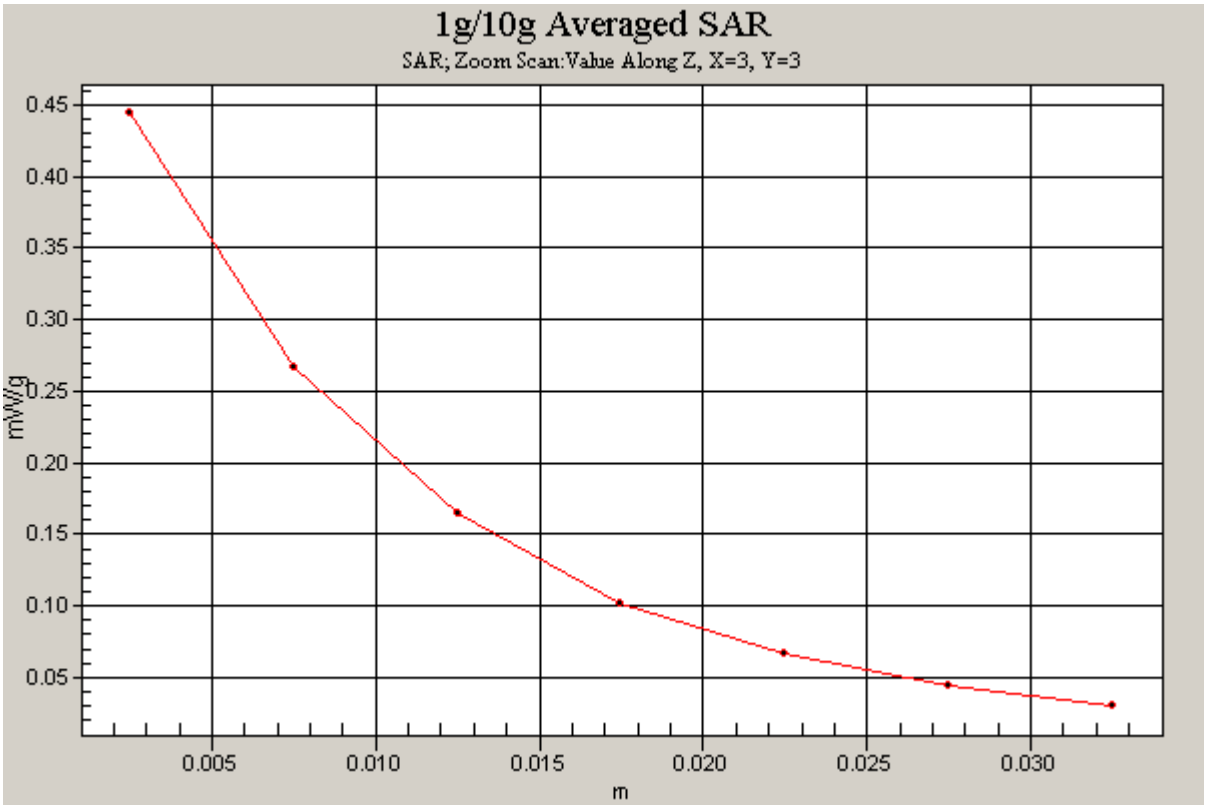


Figure 54 Z-Scan at power reference point [GSM 1900 GPRS (4 timeslots in uplink) with IBM T61Test Position 4 Channel 661]

GSM 1900 GPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 High Frequency

Date/Time: 6/18/2009 12:29:10 PM
Communication System: PCS 1900+GPRS(4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.57 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 5 High /Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.63 mW/g

Test Position 5 High /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.1 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 2.26 W/kg
SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.603 mW/g
Maximum value of SAR (measured) = 1.56 mW/g

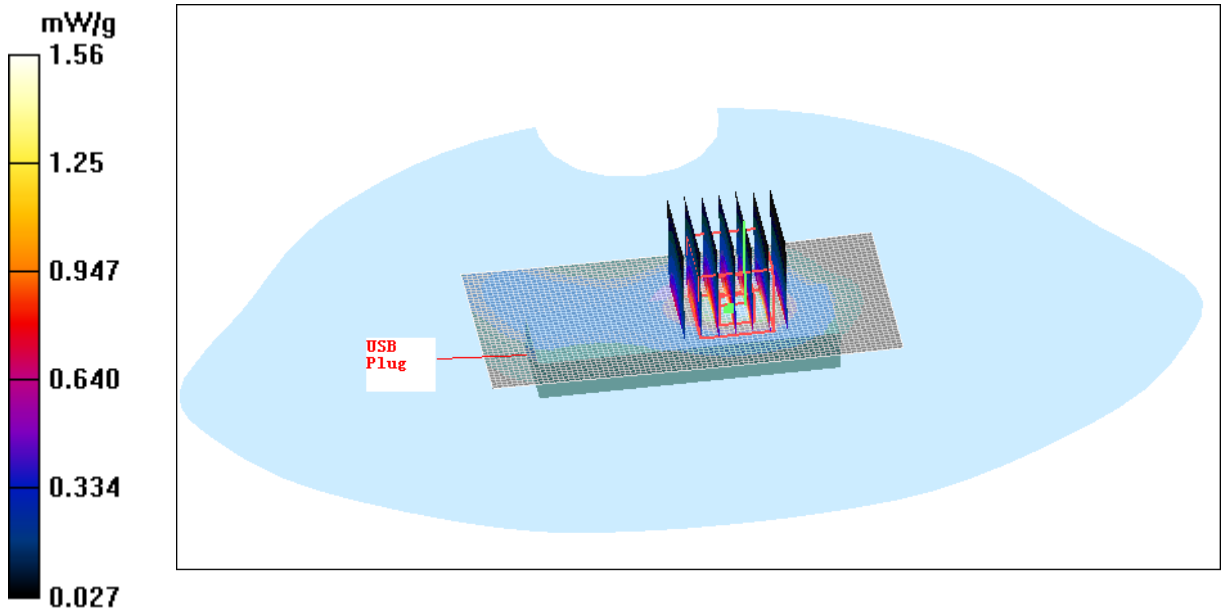


Figure 55 GSM 1900 GPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel 810

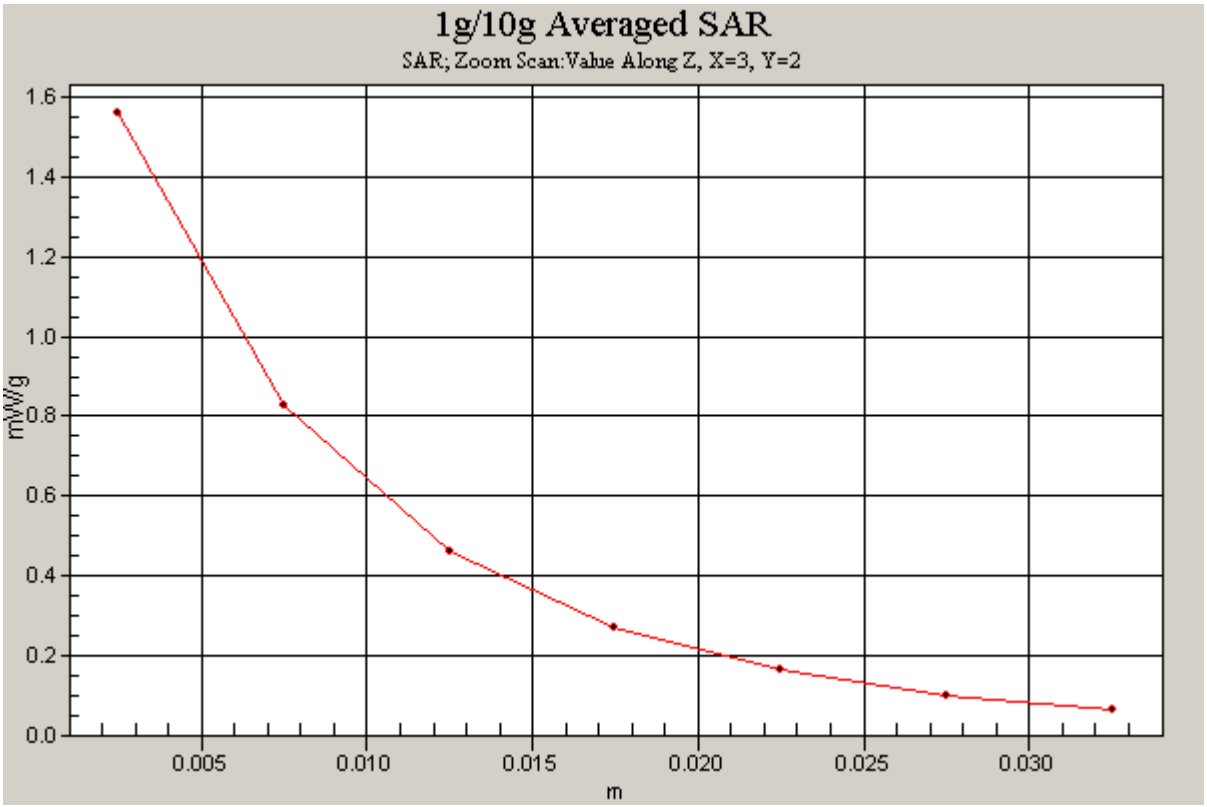


Figure 56 Z-Scan at power reference point [GSM 1900 GPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel810]

GSM 1900 GPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Middle Frequency

Date/Time: 6/18/2009 12:12:10 PM
Communication System: PCS 1900+GPRS(4Up); Frequency: 1880 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 5 Middle /Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.49 mW/g

Test Position 5 Middle /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.7 V/m; Power Drift = -0.167 dB
Peak SAR (extrapolated) = 2.07 W/kg
SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.553 mW/g
Maximum value of SAR (measured) = 1.48 mW/g

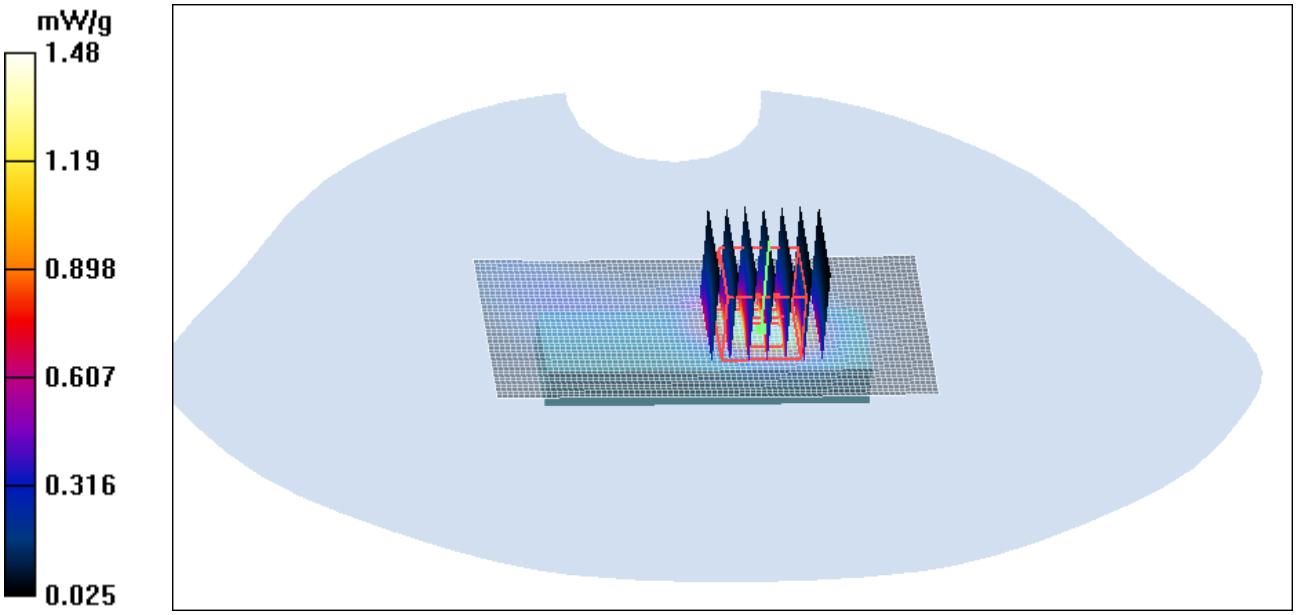


Figure 57 GSM 1900 GPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel 661

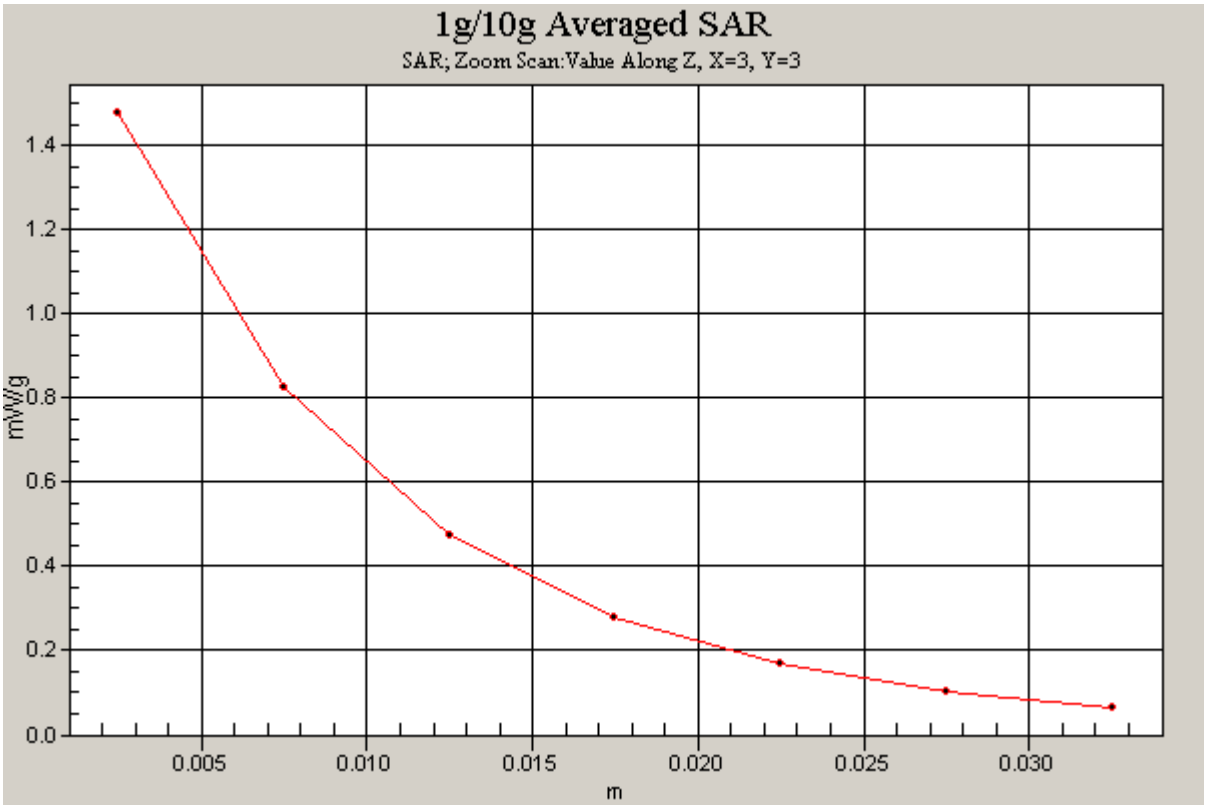


Figure 58 Z-Scan at power reference point [GSM 1900 GPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel 661]

GSM 1900 GPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Low Frequency

Date/Time: 6/18/2009 10:30:03 AM
Communication System: PCS 1900+GPRS(4Up); Frequency: 1850.2 MHz;Duty Cycle: 1:2
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.5 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 5 Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.21 mW/g

Test Position 5 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.4 V/m; Power Drift = -0.146 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.842 mW/g; SAR(10 g) = 0.435 mW/g
Maximum value of SAR (measured) = 1.13 mW/g

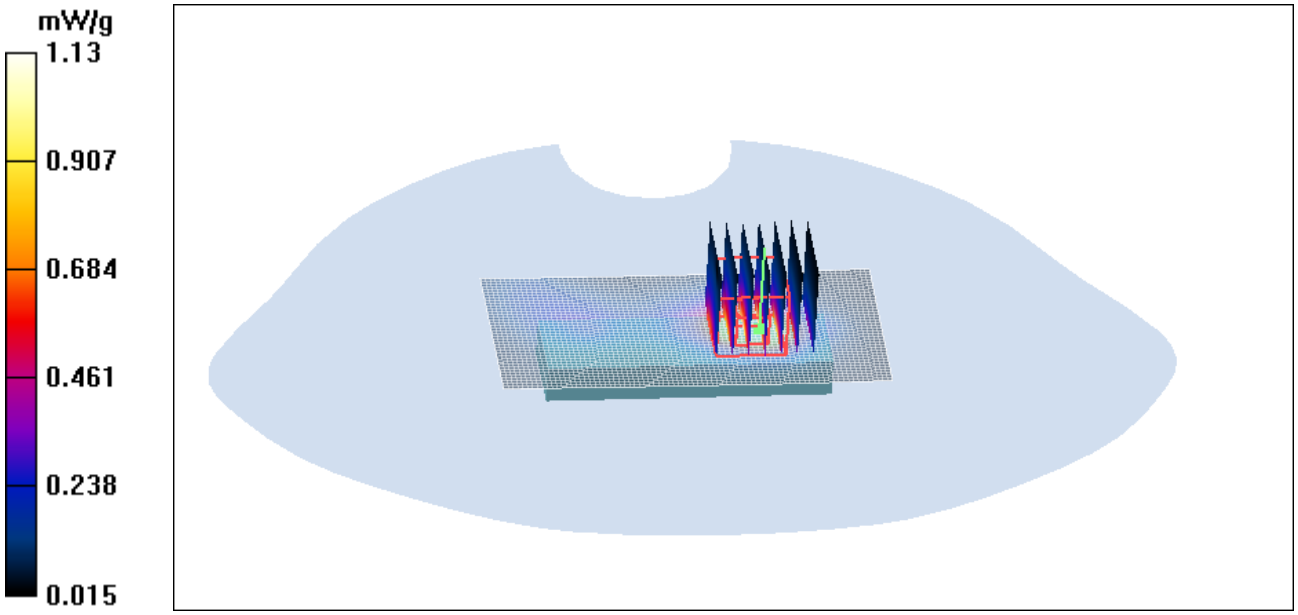


Figure 59 GSM 1900 GPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel 512

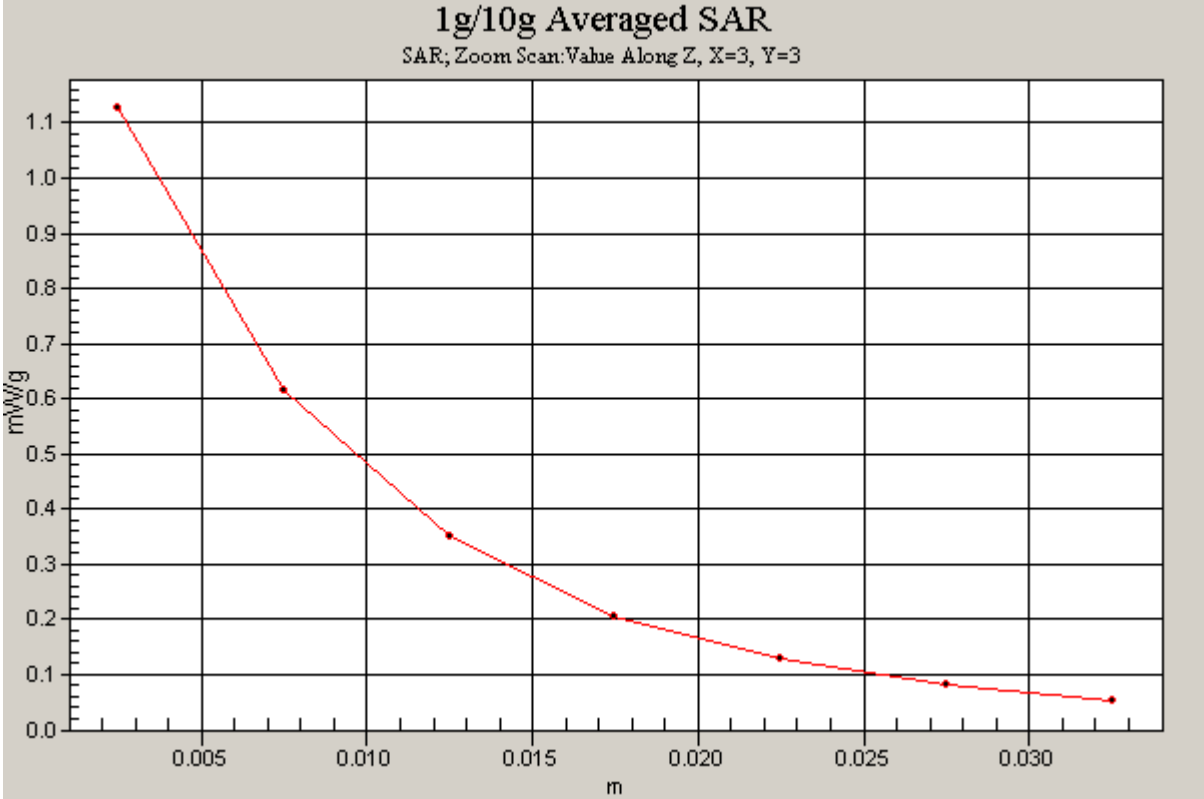


Figure 60 Z-Scan at power reference point [GSM 1900 GPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel 512]

GSM 1900 EGPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 High Frequency

Date/Time: 6/18/2009 1:19:57 PM
Communication System: PCS 1900+EGPRS(4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.57 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
Electronics: DAE4 Sn452; Calibrated: 11/18/2008
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Position 5 High /Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.50 mW/g
Test Position 5 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.2 V/m; Power Drift = -0.131 dB
Peak SAR (extrapolated) = 1.90 W/kg
SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.570 mW/g
Maximum value of SAR (measured) = 1.49 mW/g

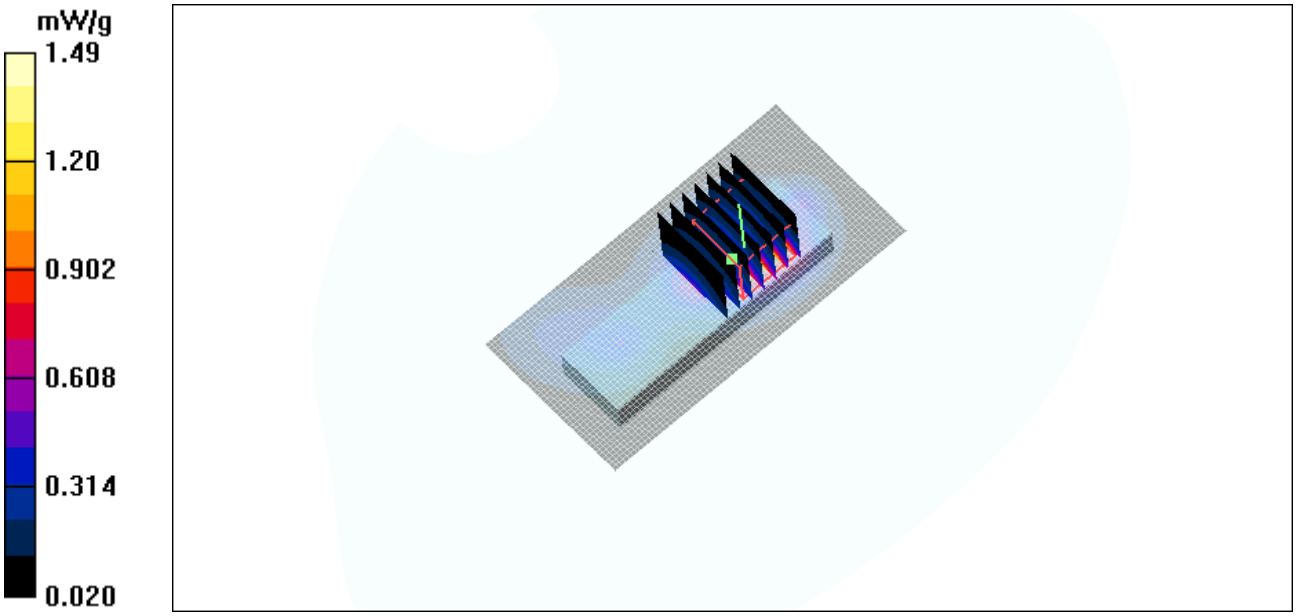


Figure 61 GSM 1900 EGPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel 810

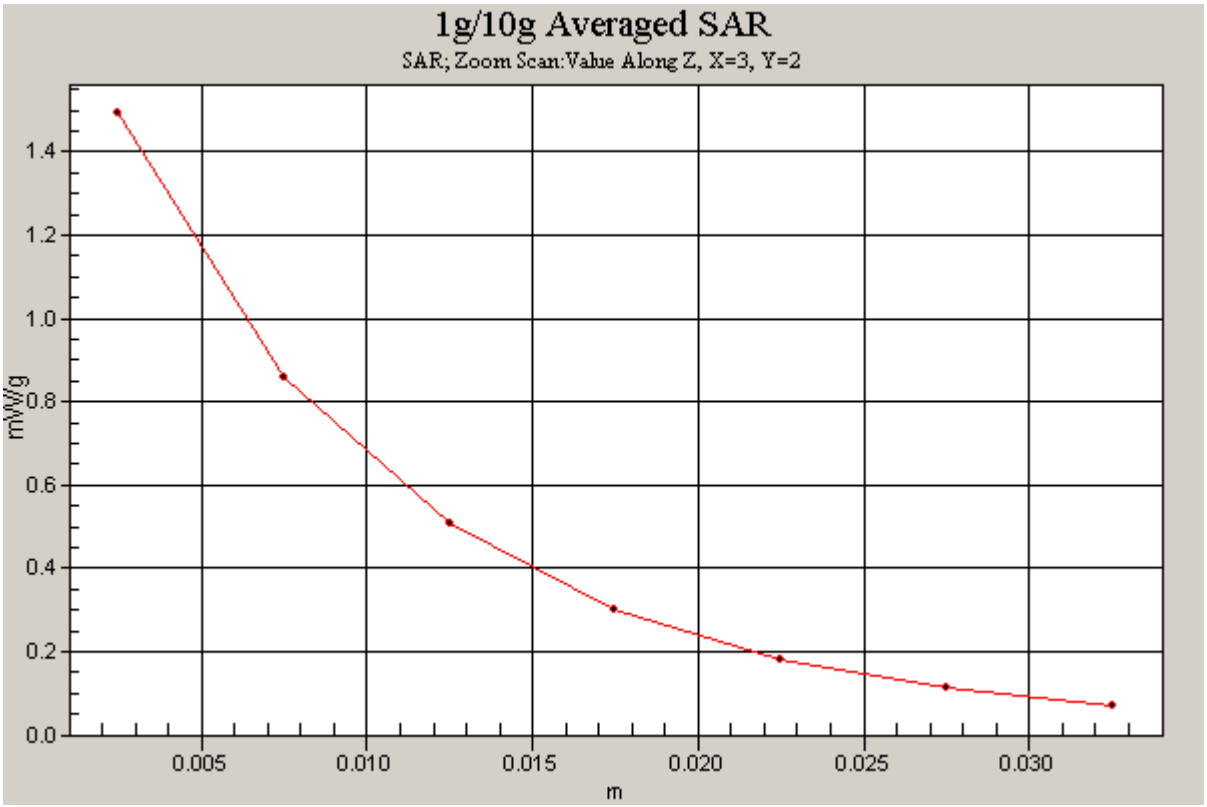


Figure 62 Z-Scan at power reference point [GSM 1900 EGPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 5 Channel 810]

ANNEX D: PROBE CALIBRATION CERTIFICATE

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **TA (Auden)** Certificate No: **EX3-3660_Sep08**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3660

Calibration procedure(s) QA CAL-01.v6 and QA CAL-23.v3
Calibration procedure for dosimetric E-field probes

Calibration date: September 3, 2008

Condition of the calibrated item In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	1-Jul-08 (No. 217-00665)	Jul-09
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	1-Jul-08 (No. 217-00666)	Jul-09
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 660	3-Sep-07 (No. DAE4-660_Sep07)	Sep-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: September 3, 2008

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

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

Probe EX3DV4

SN:3660

Manufactured: April 29, 2008
Calibrated: September 3, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

EX3DV4 SN:3660 **September 3, 2008**

DASY - Parameters of Probe: EX3DV4 SN:3660

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

NormX	**0.44** ± 10.1%	μV/(V/m)^2	DCP X	**88** mV
NormY	**0.42** ± 10.1%	μV/(V/m)^2	DCP Y	**85** mV
NormZ	**0.45** ± 10.1%	μV/(V/m)^2	DCP Z	**89** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

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

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	9.5	5.2
SAR_{be} [%]	With Correction Algorithm	0.4	0.1

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

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	7.6	3.8
SAR_{be} [%]	With Correction Algorithm	0.2	0.1

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

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

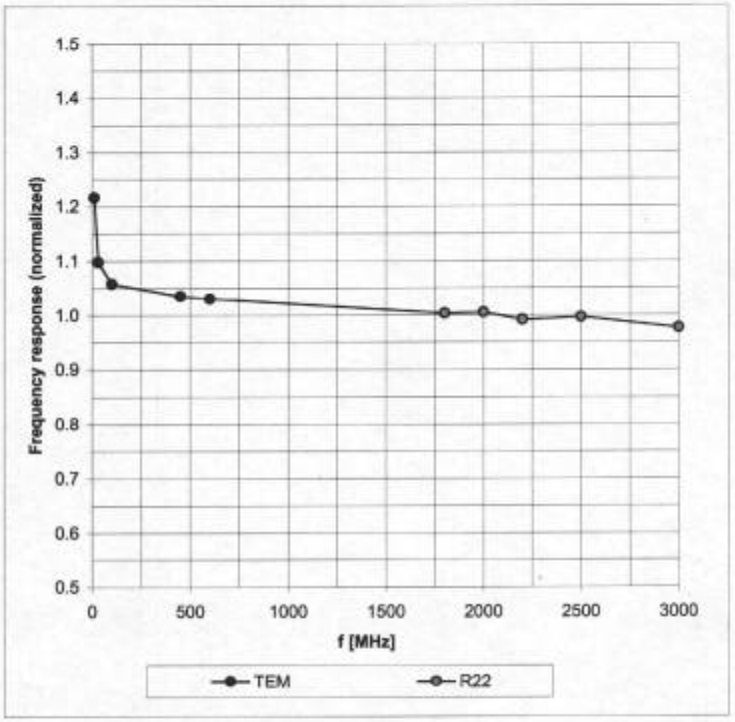
[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

EX3DV4 SN:3660 September 3, 2008

Frequency Response of E-Field

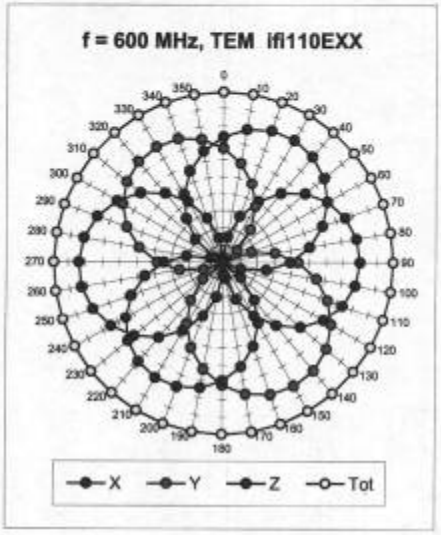
(TEM-Cell:ifi110 EXX, Waveguide: R22)

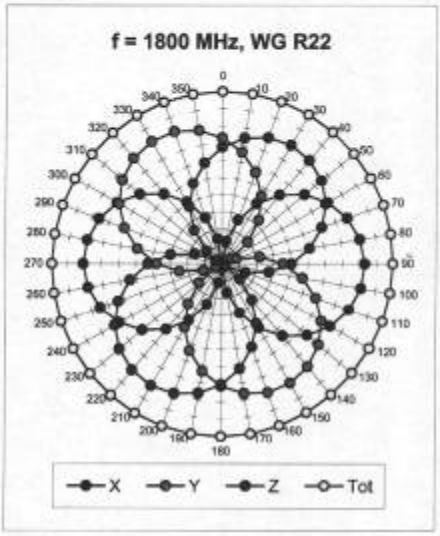


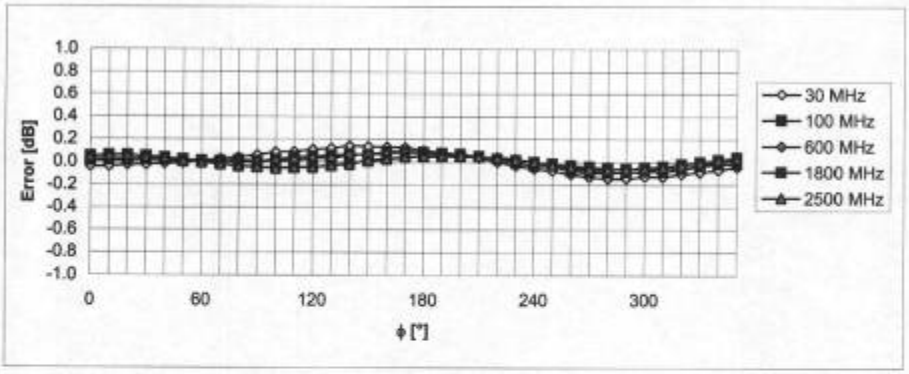
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

EX3DV4 SN:3660 September 3, 2008

Receiving Pattern (ϕ), ϑ = 0°







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