NO.: RZA2009-0504

TESTING
No. L2264

OET 65

TEST REPORT

Test name	Electromagnetic Field (Specific Absorption Rate)
Product	HSUPA USB MODEM
Model	MF633+
FCC ID	Q78-ZTEMF633PLUS
Client	ZTE CORPORATION

TA Technology (Shanghai) Co., Ltd.

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GENERAL SUMMARY

Product	HSUPA USB MODEM	**Model**	MF633+
Client	ZTE CORPORATION	**Type of test**	Entrusted
Manufacturer	ZTE CORPORATION	**Arrival Date of sample**	April 28th, 2009
Place of sampling	(Blank)	**Carrier of the samples**	Zhang Min
Quantity of the samples	One	**Date of product**	(Blank)
Base of the samples	(Blank)	**Items of test**	SAR
IMEI/Series number	309MF633+N07		
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: July 10th, 2009**		
Comment	The test result only responds to the measured sample.		

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

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	ZTE CORPORATION
Address/Post	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park,Nanshan District,Shenzhen, Guangdong, 518057, P.R.China
City	Shenzhen
Postal Code	518057
Country	P.R.China
Telephone	021-68897541
Fax	021-50801070

Table 2: Manufacturer

Name or Company	ZTE CORPORATION
Address/Post	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park,Nanshan District,Shenzhen, Guangdong, 518057, P.R.China
City	Shenzhen
Postal Code	518057
Country	P.R.China
Telephone	021-68897541
Fax	021-50801070

3.2. Constituents of EUT

Table 3: Constituents of Samples

Description	Model	IMEI/Series number	Manufacturer
HSUPA USB MODEM	MF633+	309MF633+N07	ZTE CORPORATION

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） WCDMA Band II; (tested) WCDMA Band V; (tested)	
Test modulation:	GMSK, QPSK	
GPRS mobile station class :	B	
GPRS multislot class :	10	
EGPRS multislot class:	12	
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
WCDMA Band II; (tested)	1852.4 MHz ~ 1907.6 MHz	1932.4 MHz ~ 1987.6 MHz
WCDMA Band V; (tested)	826.4 MHz ~ 846.6 MHz	871.4 MHz ~ 891.6MHz
Power class	GSM 850: 4, tested with power level 5	
	GSM 1900: 1, tested with power level 0	
	WCDMA Band II: 3, tested with maximum output power	
	WCDMA Band V: 3, tested with maximum output power	
Test channel (Low –Middle –High)	128 -190 - 251 (GSM850) (tested) 512 - 661 - 810 (GSM1900) (tested) 9262 - 9400 - 9538 (WCDMA Band II) (tested) 4132 - 4183 - 4233 (WCDMA Band V) (tested)	
Hardware version:	1.0.0	
Software version:	BD_P673C3V1.0.0B02	
Antenna type:	integrated antenna	
Used host products:	IBM T61 BenQ Joybook R55V	

3.4. General Description

Equipment Under Test (EUT) is a HSUPA USB Modem 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, WCDMA Band II and WCDMA Band V. The EUT have GPRS (class 10), EGPRS (class 12) and WCDMA 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 tests in the band of WCDMA Band II and WCDMA Band V are performed in the mode of WCDMA . The measurements were performed in combination with two host product (IBM T61, BenQ Joybook R55V). IBM T61 laptop has 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 only performed in the mode of GPRS and EGPRS. The GPRS class is 10 for this EUT; it has at most 2 timeslots in uplink. The EGPRS class is 12 for this EUT; it has at most 4 timeslots in uplink.

4.3. WCDMA Test Configuration

As the SAR body tests for WCDMA Band II and WCDMA Band V, we established the radio link through call processing. The maximum output power were verified on high, middle and low channels for each test band according to 3GPP TS 34.121 with the following configuration:

1) 12.2kbps RMC, 64,144,384 kbps RMC with TPC set to all ''all '1's"
2) Test loop Mode 1

For the output power, the configurations for the DPCCH and $DPDCH_1$ are as followed (EUT do not support the $DPDCH_{2-n}$)

Table 5: The configurations for the DPCCH and $DPDCH_1$

	Channel Bit Rate(kbps)	Channel Symbol Rate(ksps)	Spreading Factor	Spreading Code Number	Bits/Slot
DPCCH	15	15	256	0	10
$DPDCH_1$	15	15	256	64	10
	30	30	128	32	20
	60	60	64	16	40
	120	120	32	8	80
	240	240	16	4	160
	480	480	8	2	320
	960	960	4	1	640

SAR is tested with 12.2kps RMC and not required for other spreading codes (64,144, and 384 kbps RMC) and multiple $DPDCH_n$, because the maximum output power for each of these other configurations<0.25dB higher than 12.2kbps RMC and the multiple $DPDCH_n$ is not applicable for the EUT.

4.4. Position of module in Portable devices

The measurements were performed in combination with two host product (IBMT61, BenQ Joybook R55V). IBM T61 laptop has 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 front 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 back 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 horizontal USB slot. The top 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 left 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 vertical USB slot. The right side of the EUT towards the bottom of the flat phantom.（ANNEX H Picture 7-e）

4.5. 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: BenQ Joy book R55V with horizontal USB slot

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

Picture 1-g: IBM T61 with Vertical 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.

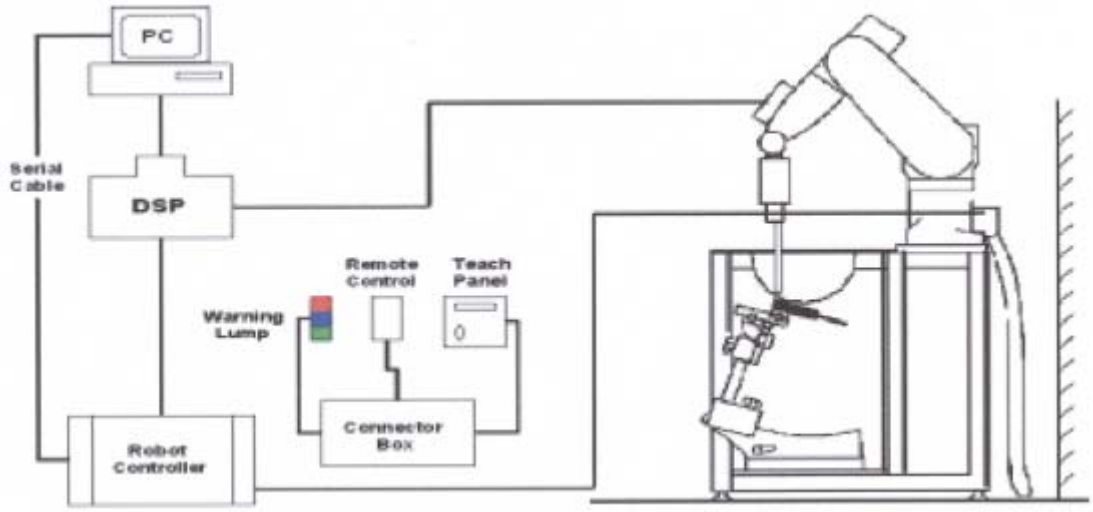

Figure 1. SAR Lab Test Measurement Set-up

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

Figure 4.Device Holder

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.

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)
Special	Aailable

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.

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

with ***SAR*** = local specific absorption rate in mW/g

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

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

= 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.

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

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

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

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 15.

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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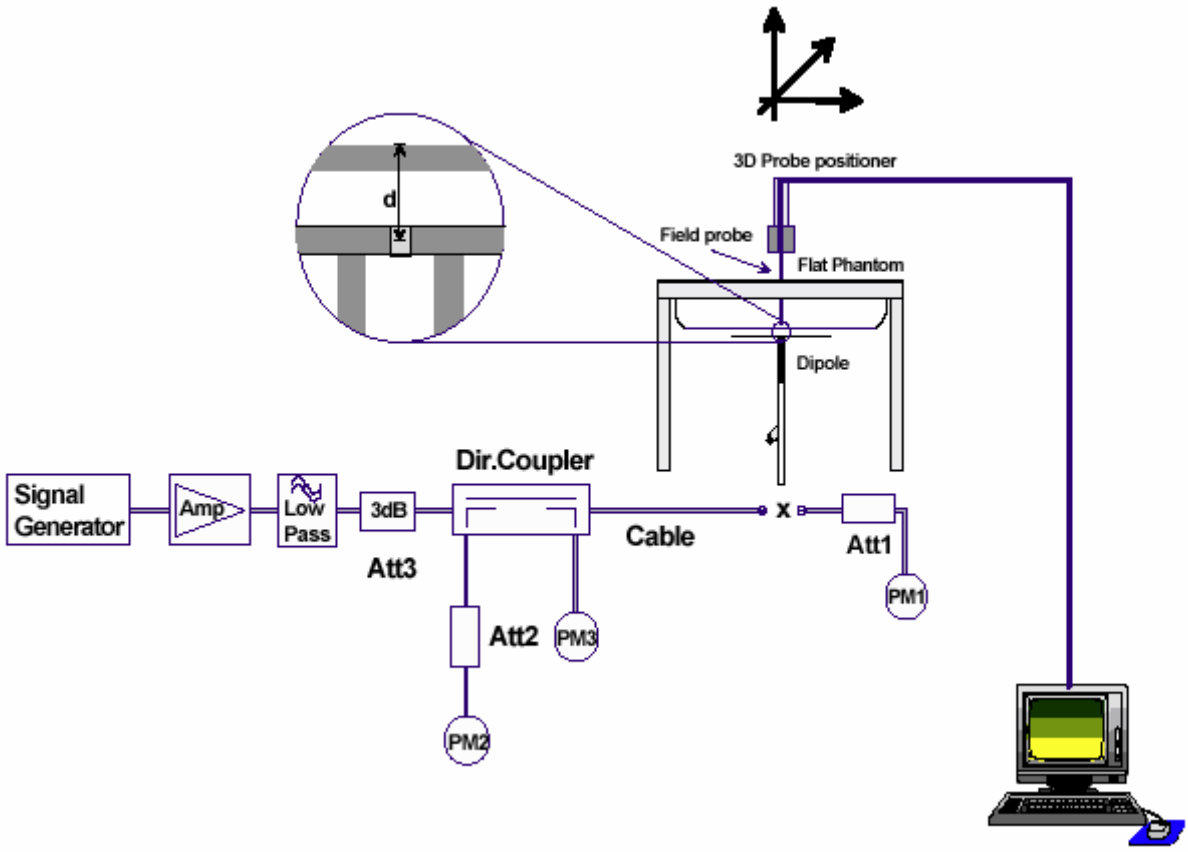


Figure 6. System Check Set-up

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 11 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

GSM 850+GPRS		**Conducted Power**		
		Channel 128	Channel 190	Channel 251
1TS	Before Test (dBm)	31.61	31.76	31.99
	After Test (dBm)	31.62	31.77	31.98
2TS	Before Test (dBm)	29.99	30.17	30.37
	After Test (dBm)	29.98	30.16	30.36
GSM 850+EGPRS		**Conducted Power**		
1TS	Before Test (dBm)	28.65	28.82	29.02
	After Test (dBm)	28.64	28.81	29.01
2TS	Before Test (dBm)	26.10	26.29	26.45
	After Test (dBm)	26.11	26.29	26.46
3TS	Before Test (dBm)	24.29	24.36	24.52
	After Test (dBm)	24.29	24.37	24.51
4TS	Before Test (dBm)	23.10	23.12	23.34
	After Test (dBm)	23.11	23.11	23.32
GSM 1900+GPRS		**Conducted Power**		
		Channel 512	Channel 661	Channel 810
1TS	Before Test (dBm)	28.41	28.38	28.00
	After Test (dBm)	28.42	28.37	28.01
2TS	Before Test (dBm)	26.94	26.99	26.42
	After Test (dBm)	26.93	26.98	26.43
GSM 1900+EGPRS		**Conducted Power**		
1TS	Before Test (dBm)	28.44	28.42	27.31
	After Test (dBm)	28.43	28.41	27.32
2TS	Before Test (dBm)	25.35	25.32	24.72
	After Test (dBm)	25.34	25.31	24.71
3TS	Before Test (dBm)	23.35	23.48	22.99
	After Test (dBm)	23.34	23.47	22.98
4TS	Before Test (dBm)	22.42	22.38	21.91
	After Test (dBm)	22.41	22.37	21.92

WCDMA Band II (12.2kbps RMC)	Conducted Power		
	Channel 9262	Channel 9400	Channel 9538
Test Result (dBm)	20.67	20.93	20.85
After Test (dBm)	20.66	20.92	20.84
WCDMA Band II+HSUPA (Sub - Test 1)	**Conducted Power**		
	Channel 9262	Channel 9400	Channel 9538
Test Result (dBm)	20.12	20.30	19.70
After Test (dBm)	20.13	20.31	19.71
WCDMA Band II+HSUPA (Sub - Test 2)	**Conducted Power**		
	Channel 9262	Channel 9400	Channel 9538
Test Result (dBm)	18.37	18.88	19.09
After Test (dBm)	18.36	18.87	19.08
WCDMA Band II+HSUPA (Sub - Test 3)	**Conducted Power**		
	Channel 9262	Channel 9400	Channel 9538
Test Result (dBm)	19.07	19.42	19.40
After Test (dBm)	19.06	19.41	19.41
WCDMA Band II+HSUPA (Sub - Test 4)	**Conducted Power**		
	Channel 9262	Channel 9400	Channel 9538
Test Result (dBm)	18.75	19.26	19.08
After Test (dBm)	18.74	19.25	19.09
WCDMA Band II+HSUPA (Sub - Test 5)	**Conducted Power**		
	Channel 9262	Channel 9400	Channel 9538
Test Result (dBm)	19.79	19.95	20.61
After Test (dBm)	19.78	19.94	20.60
WCDMA Band V (12.2kbps RMC)	**Conducted Power**		
	Channel 4132	Channel 4183	Channel 4233
Test Result (dBm)	21.74	21.72	21.55
After Test (dBm)	21.73	21.71	21.54
WCDMA Band V+HSUPA (Sub - Test 1)	**Conducted Power**		
	Channel 4132	Channel 4183	Channel 4233
Test Result (dBm)	21.28	21.08	20.66
After Test (dBm)	21.27	21.07	20.65
WCDMA Band V+ HSUPA (Sub - Test 2)	**Conducted Power**		
	Channel 4132	Channel 4183	Channel 4233
Test Result (dBm)	19.35	19.71	19.61
After Test (dBm)	19.34	19.70	19.60
WCDMA Band V+ HSUPA (Sub - Test 3)	**Conducted Power**		
	Channel 4132	Channel 4183	Channel 4233
Test Result (dBm)	20.31	20.06	20.15
After Test (dBm)	20.30	20.05	20.14
WCDMA Band V+ HSUPA	**Conducted Power**		

(Sub - Test 4)	Channel 4132	Channel 4183	Channel 4233
Test Result (dBm)	19.90	19.73	19.73
After Test (dBm)	19.91	19.74	19.74
WCDMA Band V+ HSUPA (Sub - Test 5)	**Conducted Power**		
	Channel 4132	Channel 4183	Channel 4233
Test Result (dBm)	21.24	20.37	20.92
After Test (dBm)	21.23	20.36	20.91

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 2009-6-28	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 2009-6-27	52.65	1.56	21.7

9.2. System check

Table 10: System check

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 2009-6-28	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 2009-6-27	5.14	10.0	52.65	1.56	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		
BenQ Joybook R55V(180 degree)						
Test Position 1	2 timeslots	High	0.478	0.782	0.022	Figure 11
		Middle	0.481	0.784	0.031	Figure 13
		Low	0.486	0.788	0.066	Figure 15
	1 timeslot	Middle	0.356	0.579	0.160	Figure 17
Test Position 2	2 timeslots	Middle	0.500	0.753	-0.104	Figure 19
Test Position 3	2 timeslots	Middle	0.165	0.394	-0.032	Figure 21
IBM T61(180 degree)						
Test Position 4	2 timeslots	Middle	0.504	0.782	-0.181	Figure 23
Test Position 5	2 timeslots	Middle	0.395	0.609	0.031	Figure 25
Worst case position of 180 degree with 90 degree						
Test Position 2	2 timeslots	Low	0.547	0.819	-0.159	Figure 27
Worst case position of 180 degree with 270 degree						
Test Position 1	2 timeslots	Low	0.615	0.973	0.003	Figure 29
Worst case position of GPRS with EGPRS						
Test Position 1	4 timeslots	Low	0.555	0.881	0.145	Figure 31
	3 timeslots	Low	0.530	0.850	0.020	Figure 33
	2 timeslots	Low	0.581	0.929	-0.021	Figure 35
	1 timeslot	Low	0.424	0.674	0.039	Figure 37

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 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	Low	1.410	0.705	1.763
	5mm	Low	0.830		
	10mm	Low	0.433		

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		
BenQ Joybook R55V(180 degree)						
Test Position 1	2 timeslots	High	0.384	0.695	-0.026	Figure 39
		Middle	0.506	0.918	0.055	Figure 41
		Low	0.556	1.010	0.028	Figure 43
	1 timeslot	Middle	0.372	0.666	0.099	Figure 45
Test Position 2	2 timeslots	High	0.277(max.cube)	0.530(max.cube)	-0.042	Figure 47
		Middle	0.348(max.cube)	0.655(max.cube)	-0.007	Figure 49
		Low	0.385(max.cube)	0.717(max.cube)	-0.035	Figure 51
Test Position 3	2 timeslots	Middle	0.107	0.182	0.092	Figure 53
IBM T61(180 degree)						
Test Position 4	2 timeslots	Middle	0.396	0.705	-0.033	Figure 55
Test Position 5	2 timeslots	Middle	0.264	0.463	0.188	Figure 57
Worst case position of 180 degree with 90 degree						
Test Position 2	2 timeslots	Low	0.494(max.cube)	0.833(max.cube)	0.110	Figure 59
Worst case position of 180 degree with 270 degree						
Test Position 1	2 timeslots	Low	0.616(max.cube)	1.060(max.cube)	-0.124	Figure 61
Worst case position of GPRS with EGPRS						
Test Position 1	4 timeslots	Low	0.532(max.cube)	0.917(max.cube)	-0.070	Figure 63
	3 timeslots	Low	0.541(max.cube)	0.916(max.cube)	-0.128	Figure 65
	2 timeslots	Low	0.569(max.cube)	0.961(max.cube)	0.081	Figure 67
	1 timeslot	Low	0.427(max.cube)	0.720(max.cube)	0.107	Figure 69

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 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 1	initial position	Low	1.380	0.690	1.725
	5mm	Low	0.685		

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.

9.3.3. WCDMA Band II (WCDMA)

Table 15: SAR Values [WCDMA Band II (WCDMA)]

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	Channel	10 g Average	1 g Average		
BenQ Joybook R55V(180 degree)					
Test Position 1	High	0.544	0.989	-0.170	Figure 71
	Middle	0.567	1.040	0.021	Figure 73
	Low	0.619	1.130	-0.105	Figure 75
Test Position 2	High	0.445(max.cube)	0.735(max.cube)	0.108	Figure 77
	Middle	0.478(max.cube)	0.787(max.cube)	-0.179	Figure 79
	Low	0.524(max.cube)	0.877(max.cube)	-0.140	Figure 81
Test Position 3	Middle	0.126	0.215	-0.057	Figure 83
IBM T61(180 degree)					
Test Position 4	Middle	0.398	0.706	-0.174	Figure 85
Test Position 5	Middle	0.313	0.555	0.070	Figure 87
Worst case position of 180 degree with 90 degree					
Test Position 2	Low	0.616(max.cube)	1.040(max.cube)	-0.155	Figure 89
Worst case position of 180 degree with 270 degree					
Test Position 1	Low	0.688(max.cube)	1.160(max.cube)	-0.081	Figure 91

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 16: SAR Values (WCDMA Band II, 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	Low	1.503	0.752	1.879
	5mm	Low	0.642		

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.

9.3.4. WCDMA Band V (WCDMA)

Table 17: SAR Values [WCDMA Band V (WCDMA)]

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	Channel	10 g Average	1 g Average		
BenQ Joybook R55V(180 degree)					
Test Position 1	High	0.395	0.643	0.000	Figure 93
	Middle	0.391	0.638	0.003	Figure 95
	Low	0.391	0.636	0.062	Figure 97
Test Position 2	Middle	0.388	0.584	-0.043	Figure 99
Test Position 3	Middle	0.130	0.307	-0.146	Figure 101
IBM T61(180 degree)					
Test Position 4	Middle	0.378	0.597	-0.106	Figure 103
Test Position 5	Middle	0.308	0.466	0.095	Figure 105
Worst case position of 180 degree with 90 degree					
Test Position 2	High	0.443	0.667	0.167	Figure 107
Worst case position of 180 degree with 270 degree					
Test Position 1	High	0.522	0.852	-0.062	Figure 109

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 18: SAR Values (WCDMA Band V, 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	High	0.971	0.486	1.214
	5mm	High	0.565		
	10mm	High	0.292		

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 1.16w/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 19: 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

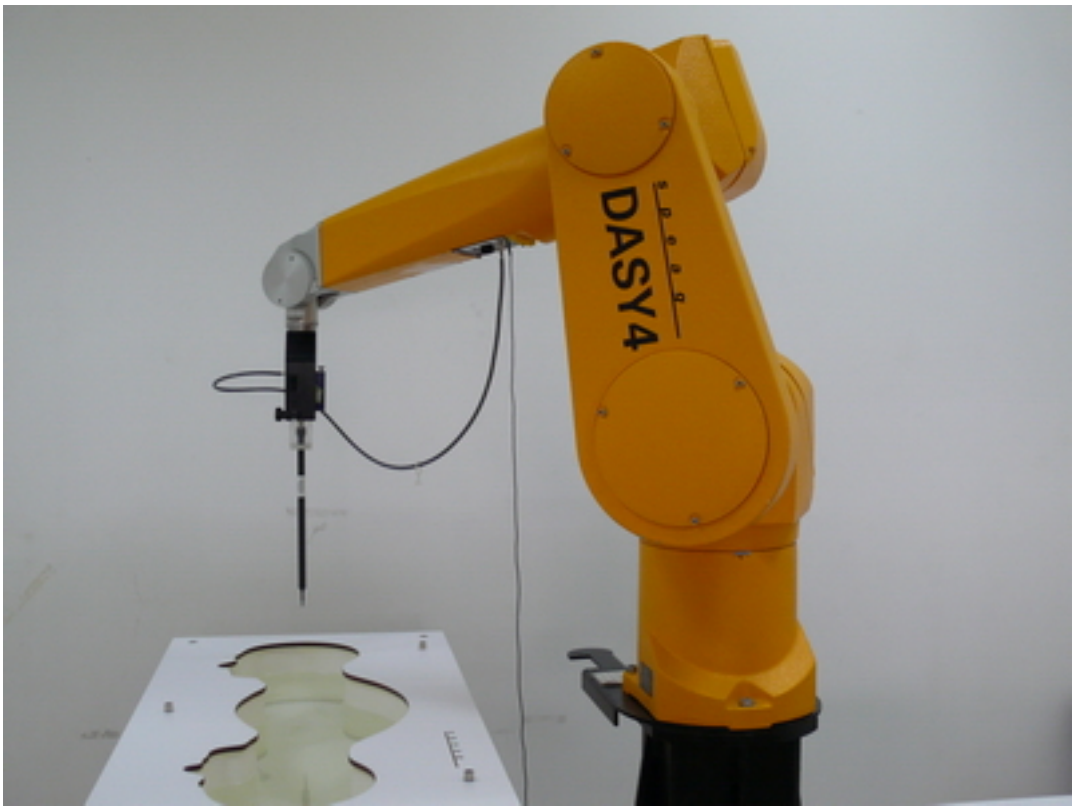
The test is performed from June 27, 2009 to June 29, 2009.

13. TEST LOCATION

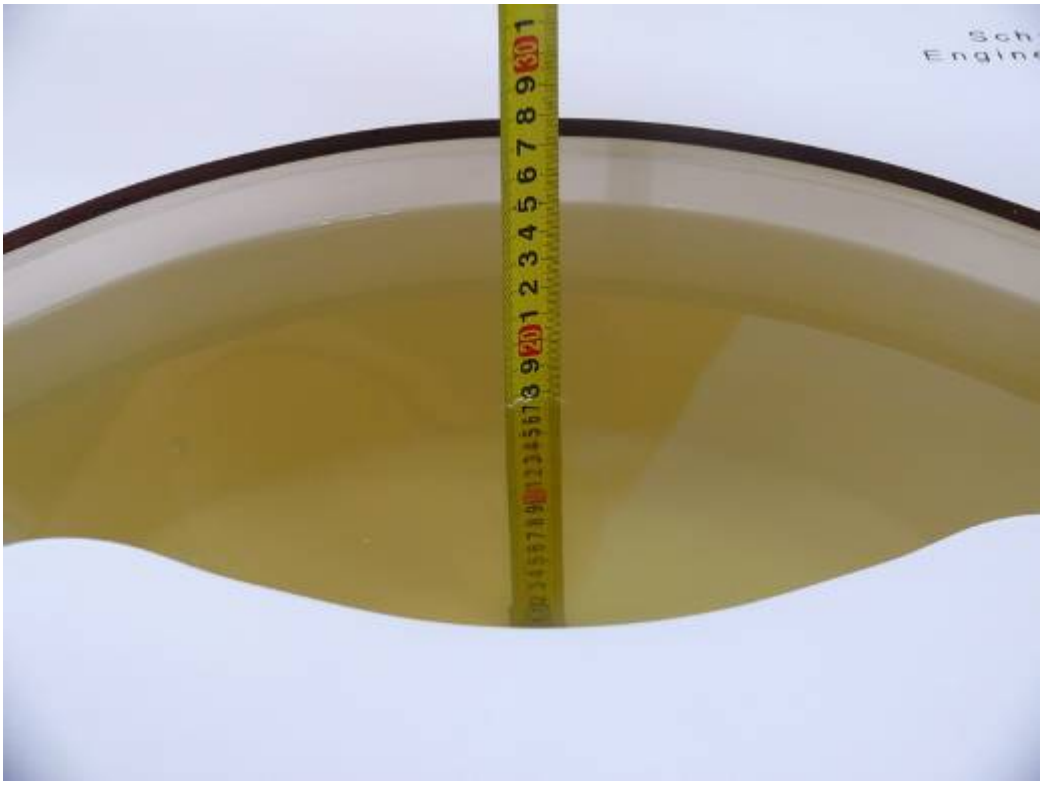
The test is performed at TA Technology (Shanghai) Co., Ltd.

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

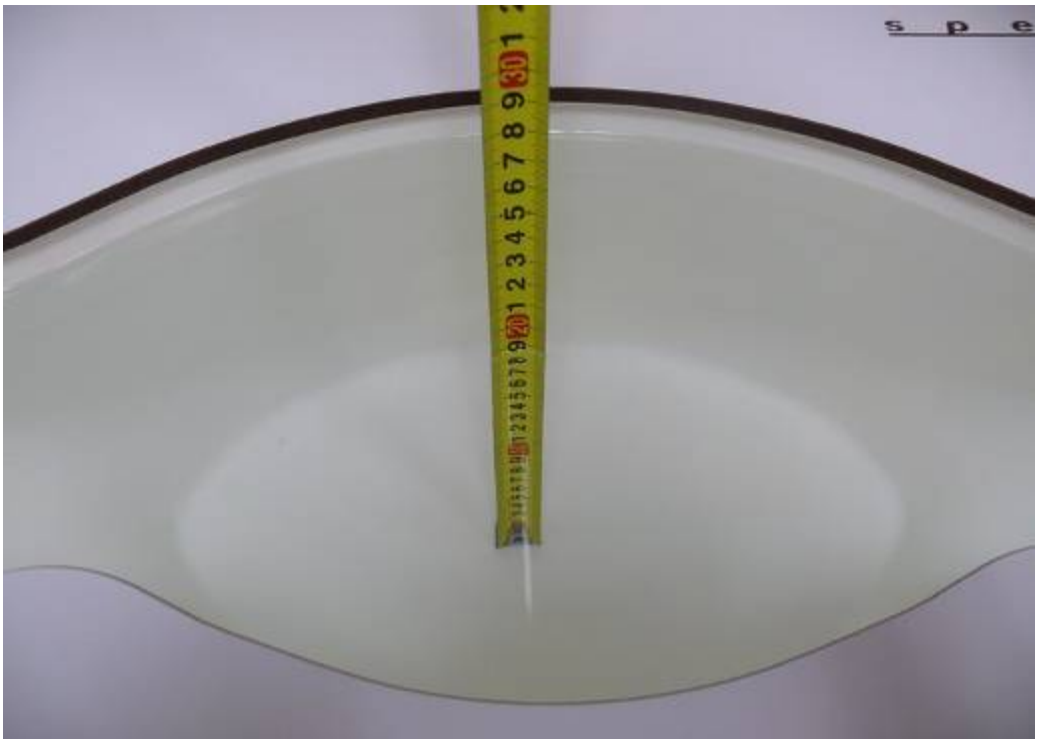
ANNEX A: TEST LAYOUT



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: 6/28/2009 4:49:31 PM

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

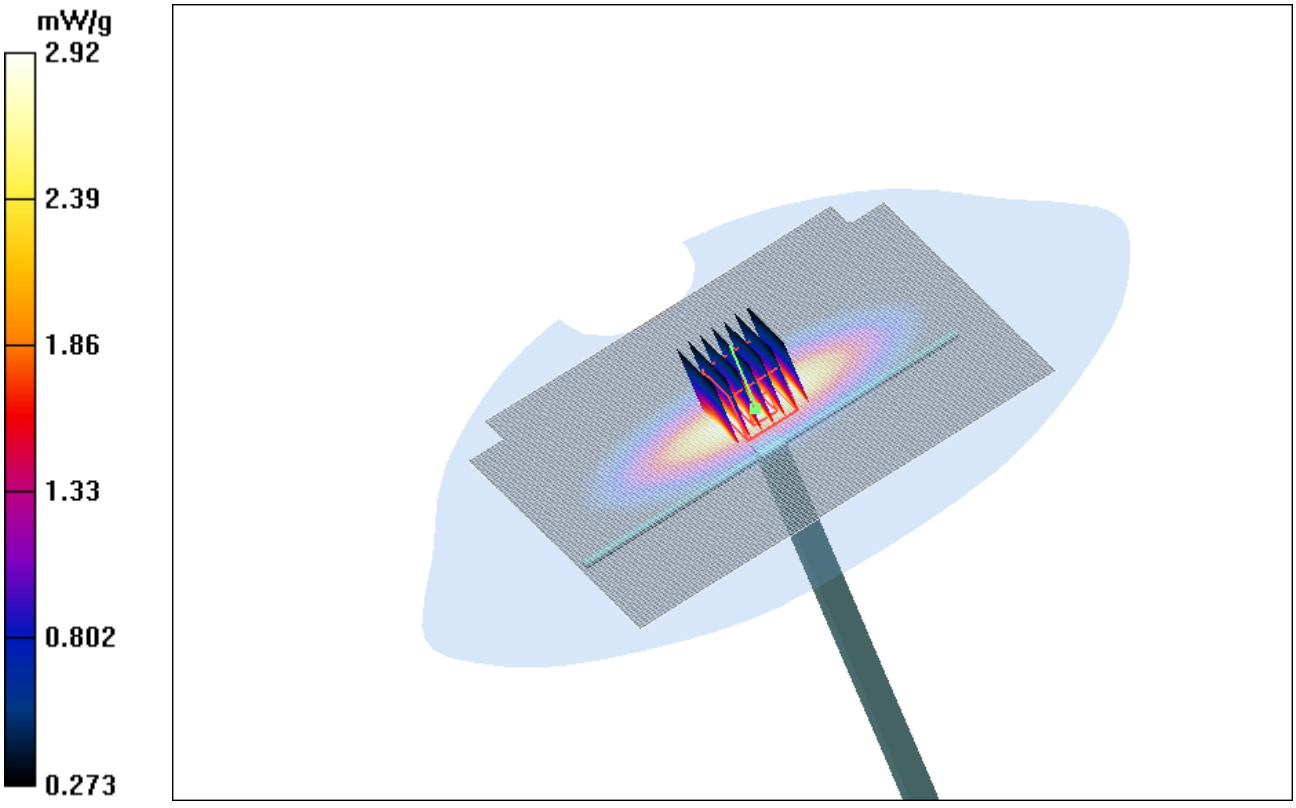


Figure 7 System Performance Check 835MHz 250mW

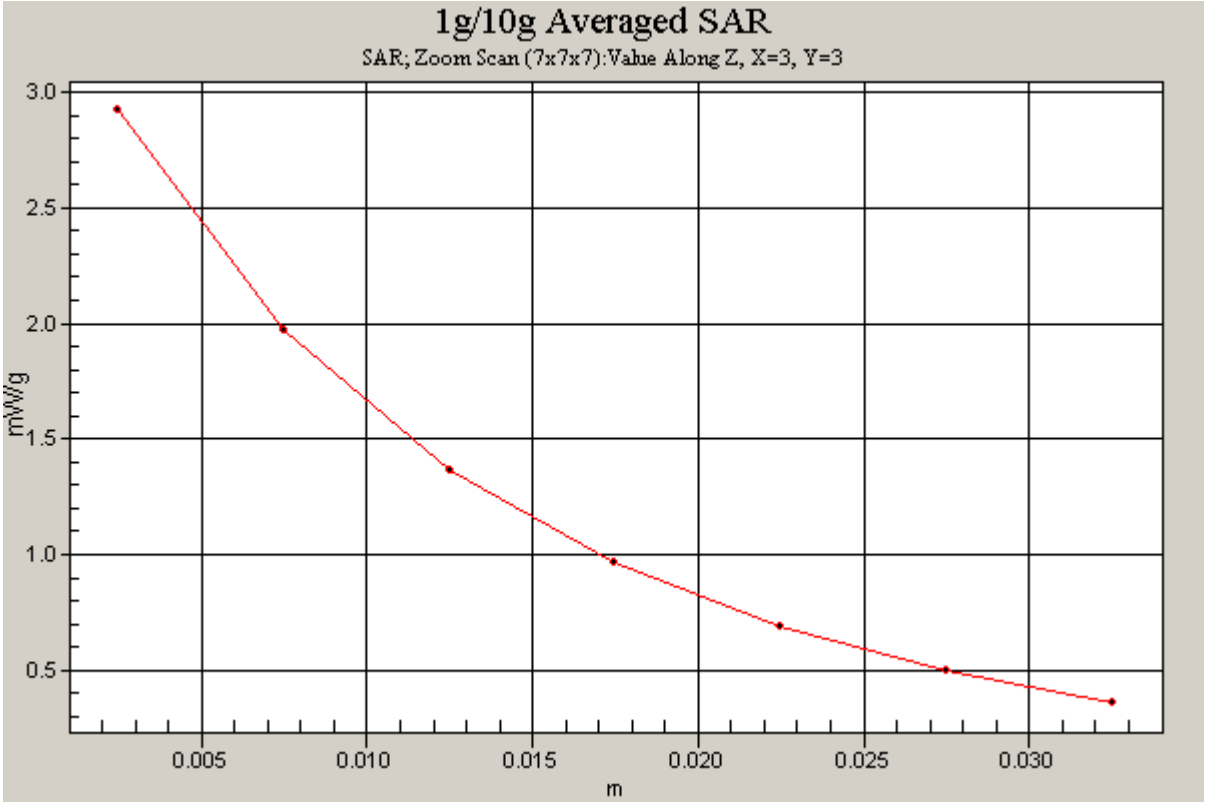


Figure 8 Z-Scan at power reference point (system Check at 835 MHz dipole)

System Performance Check at 1900 MHz

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

Date/Time: 6/27/2009 10:39:18 AM

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

Medium parameters used: f = 1900 MHz; σ = 1.56 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

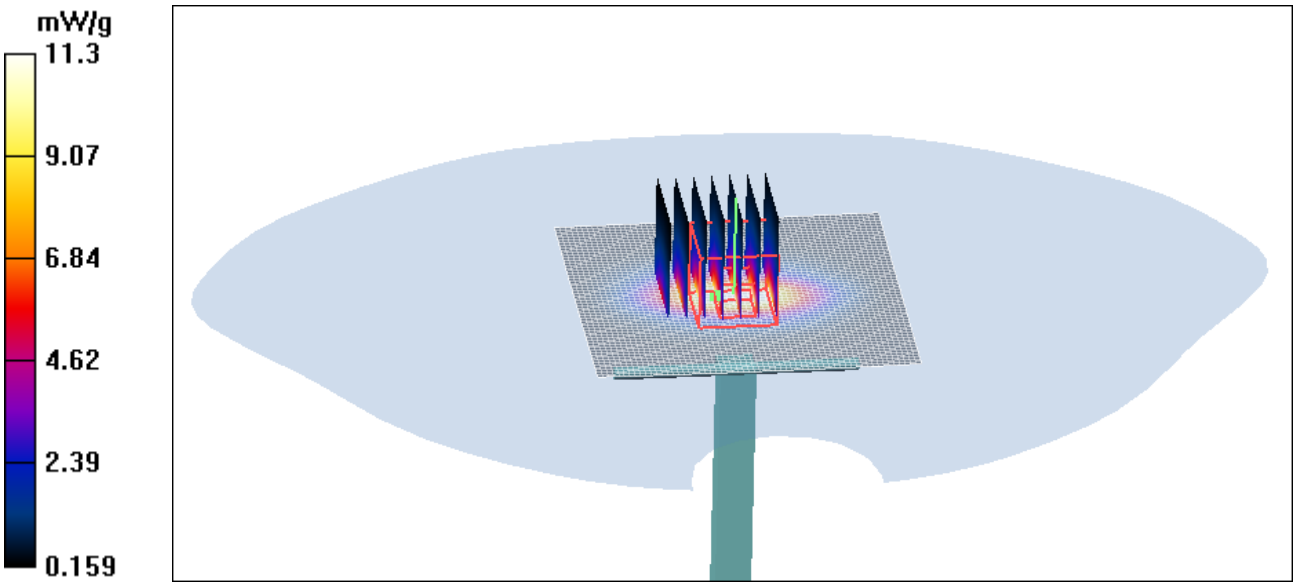


Figure 9 System Performance Check 1900MHz 250mW

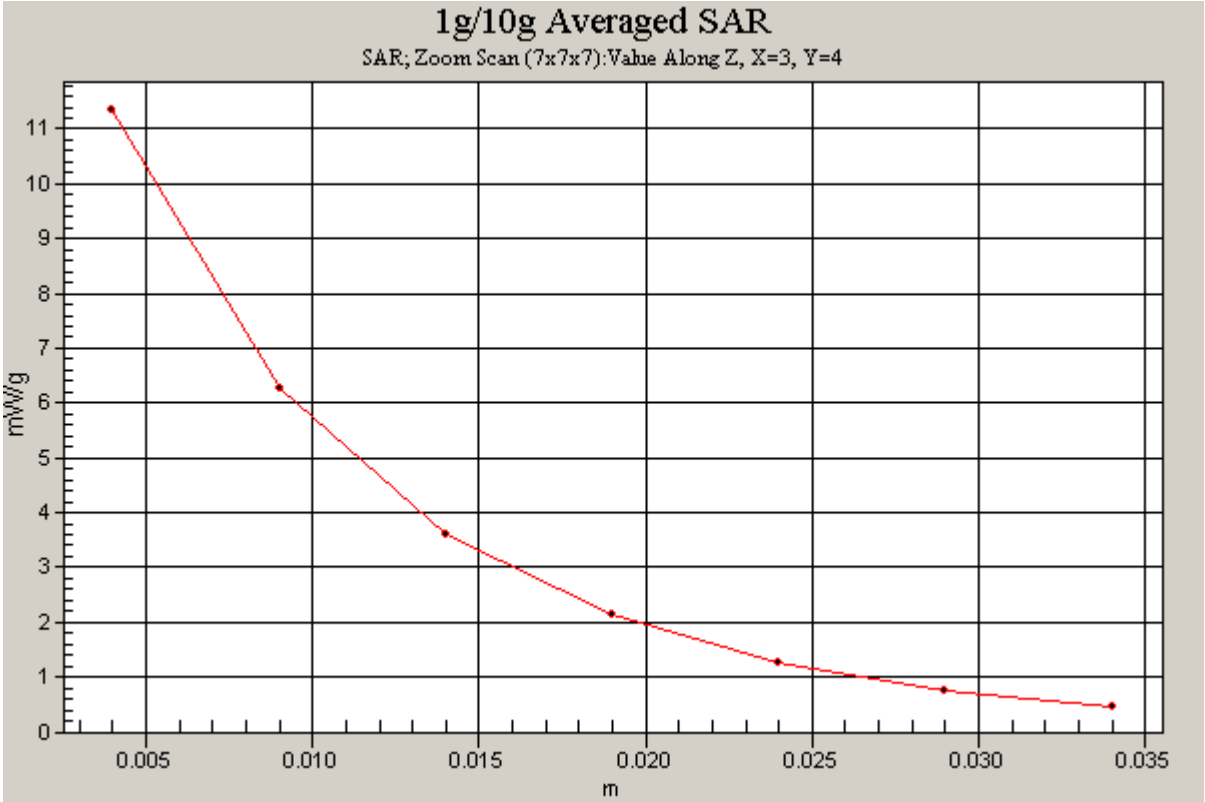


Figure 10 Z-Scan at power reference point (system Check at 1900 MHz dipole)

ANNEX C: GRAPH RESULTS

GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree High Frequency

Date/Time: 6/28/2009 7:02:34 PM
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) = 1.19 mW/g

Test Position 1 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.4 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.782 mW/g; SAR(10 g) = 0.478 mW/g
Maximum value of SAR (measured) = 0.980 mW/g

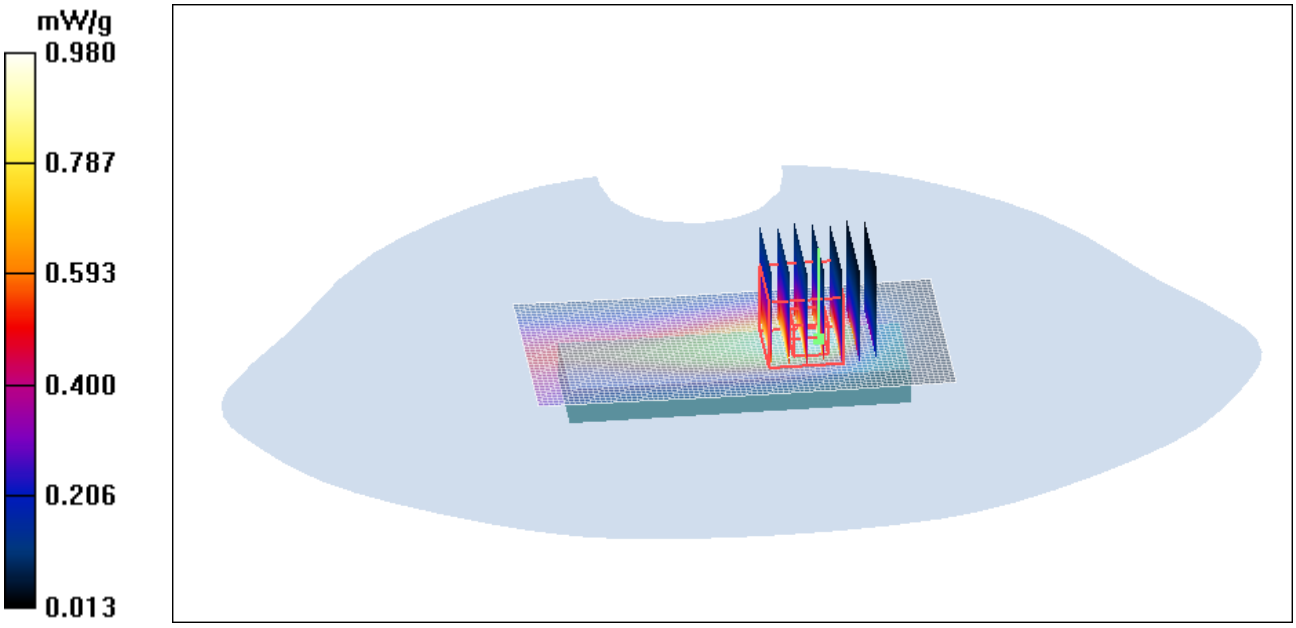


Figure 11 GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 251

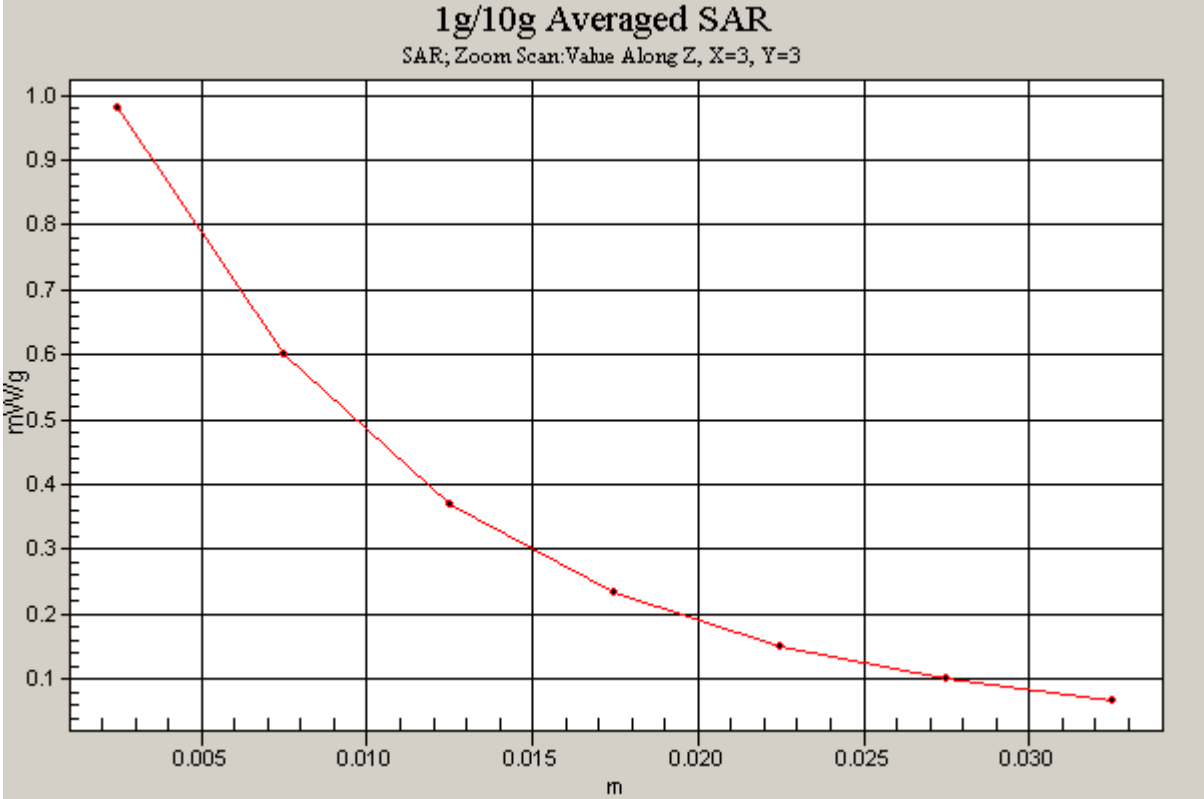


Figure 12 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 251]

GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Middle Frequency

Date/Time: 6/28/2009 7:19:00 PM
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) = 1.18 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.6 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.784 mW/g; SAR(10 g) = 0.481 mW/g
Maximum value of SAR (measured) = 0.981 mW/g

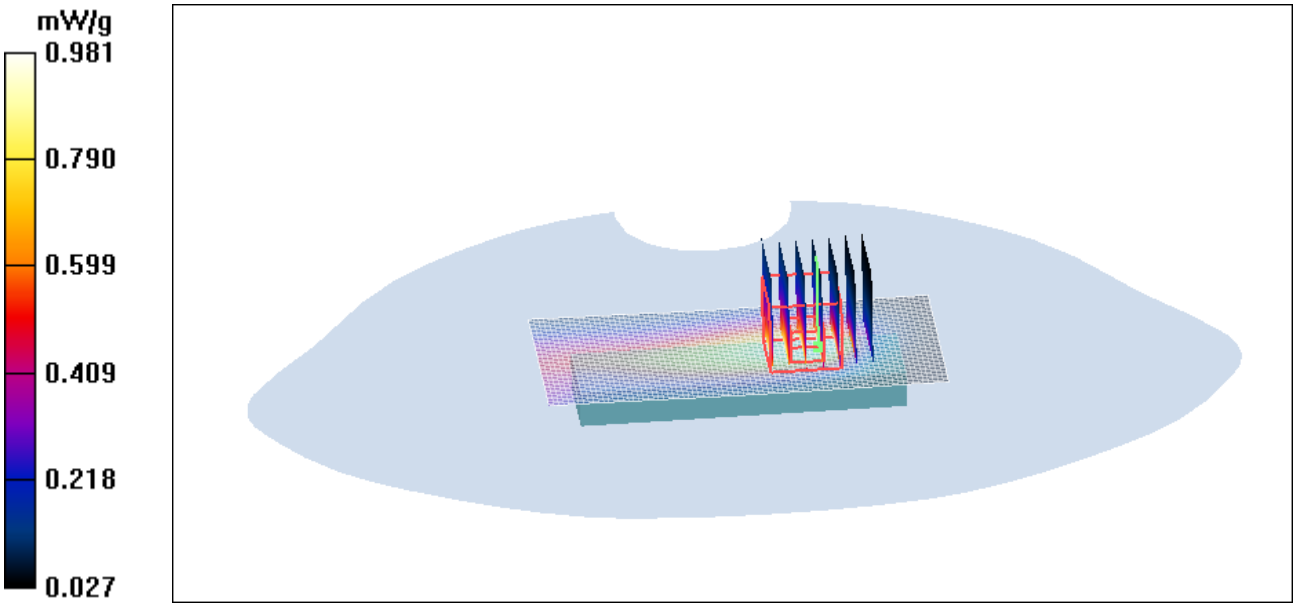


Figure 13 GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degreeChannel 190

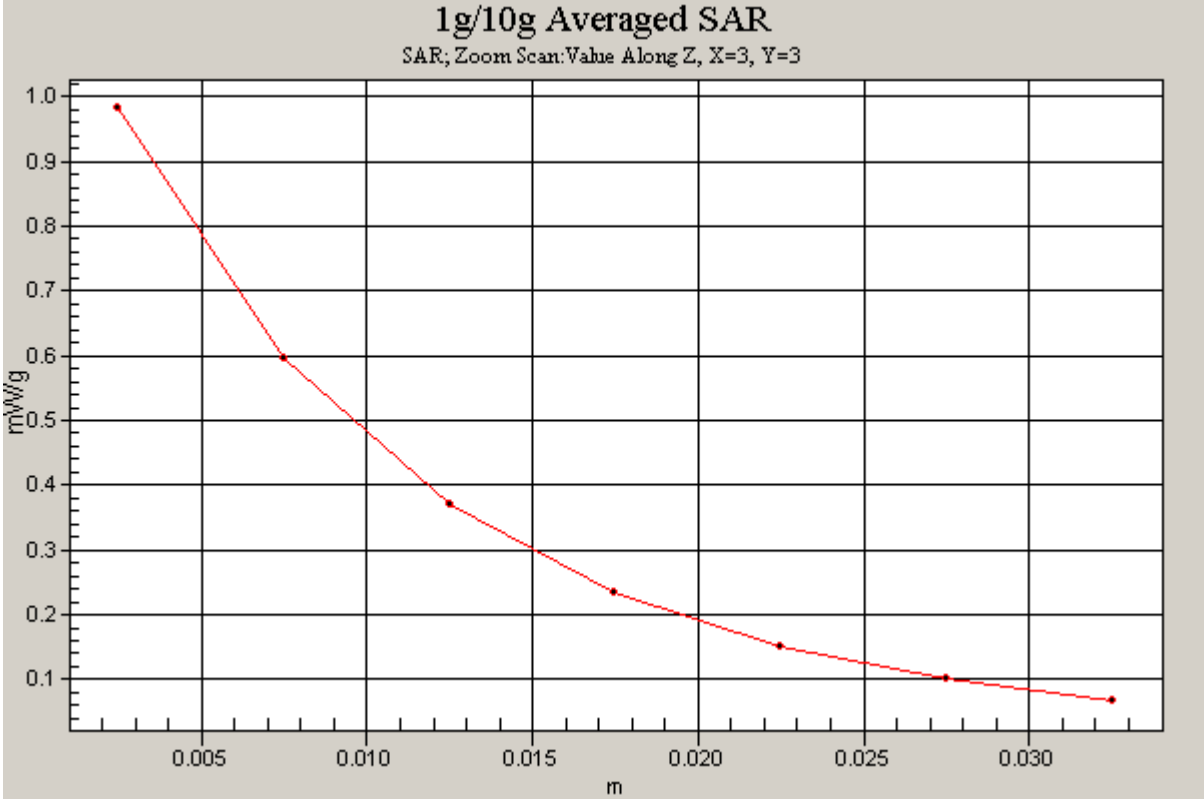


Figure 14 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 190]

GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Low Frequency

Date/Time: 6/28/2009 6:46:29 PM

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) = 1.18 mW/g

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

Reference Value = 29.2 V/m; Power Drift = 0.066 dB

Peak SAR (extrapolated) = 1.40 W/kg

SAR(1 g) = 0.788 mW/g; SAR(10 g) = 0.486 mW/g

Maximum value of SAR (measured) = 0.991 mW/g

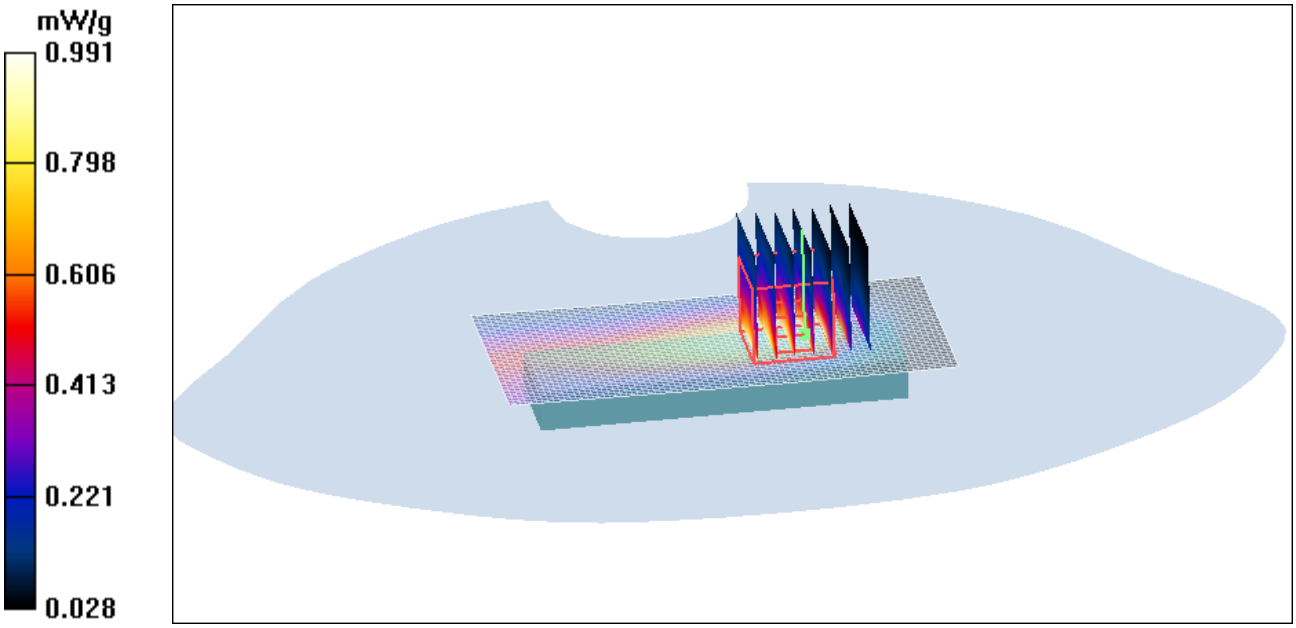


Figure 15 GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degreeChannel 128

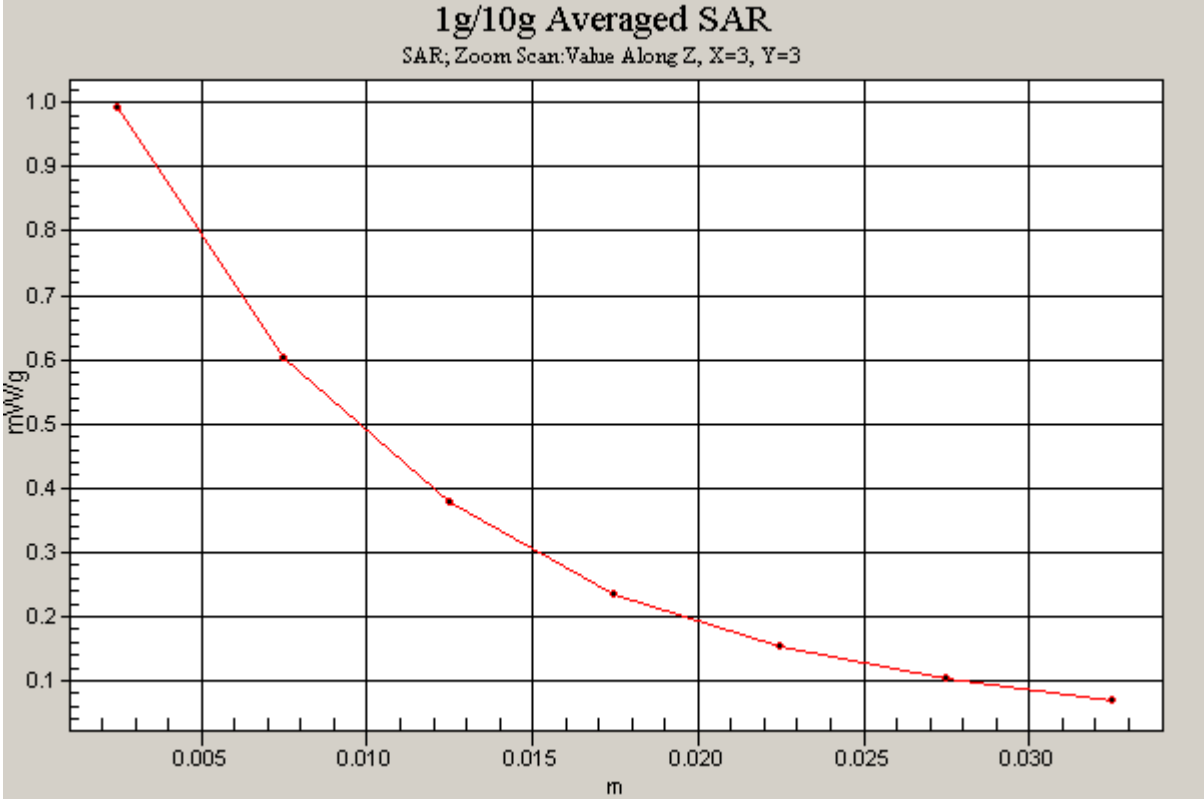


Figure 16 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 128]

GSM 850 GPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Middle Frequency

Date/Time: 6/28/2009 7:35:23 PM
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) = 0.854 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.3 V/m; Power Drift = 0.160 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.579 mW/g; SAR(10 g) = 0.356 mW/g
Maximum value of SAR (measured) = 0.733 mW/g

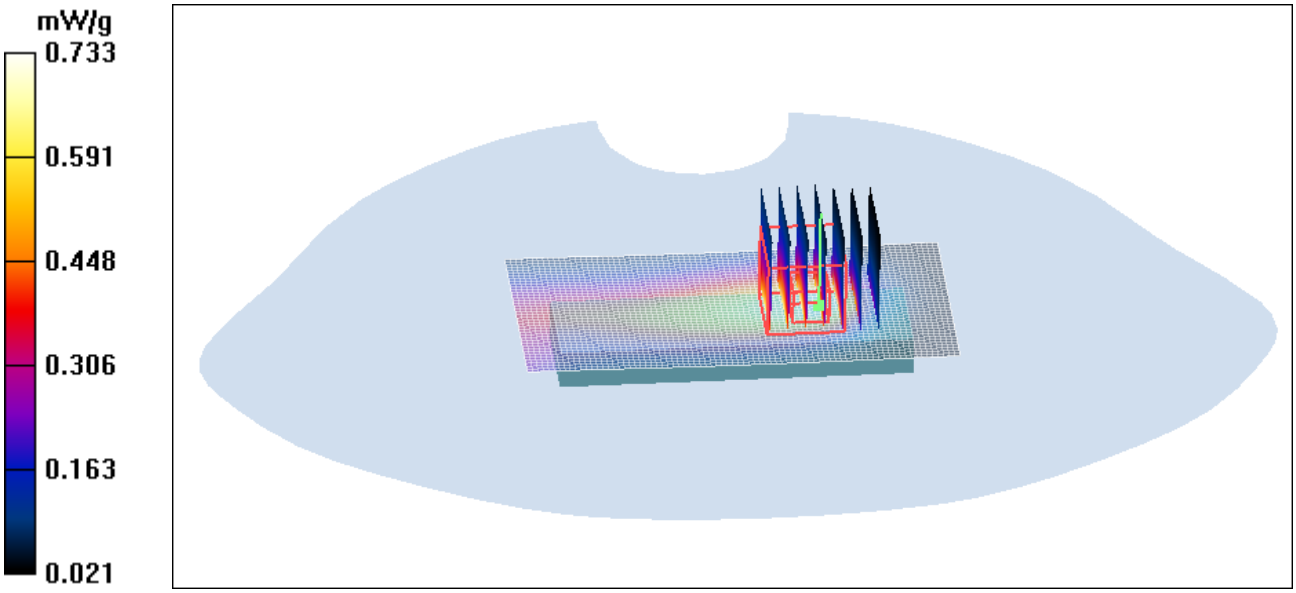


Figure 17 GSM 850 GPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 190

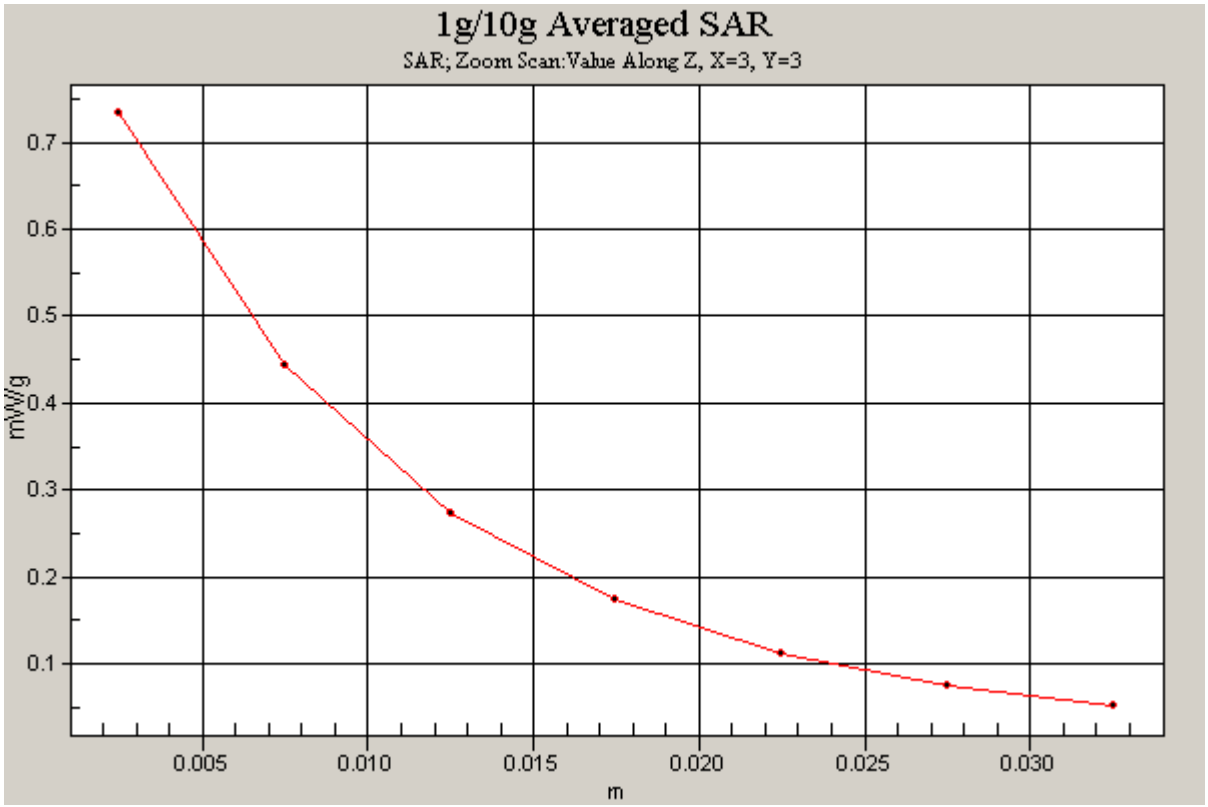


Figure 18 Z-Scan at power reference point [GSM 850 GPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 190]

GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 Middle Frequency

Date/Time: 6/29/2009 2:06:06 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 2 Middle/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.902 mW/g

Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.6 V/m; Power Drift = -0.104 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.753 mW/g; SAR(10 g) = 0.500 mW/g
Maximum value of SAR (measured) = 0.915 mW/g

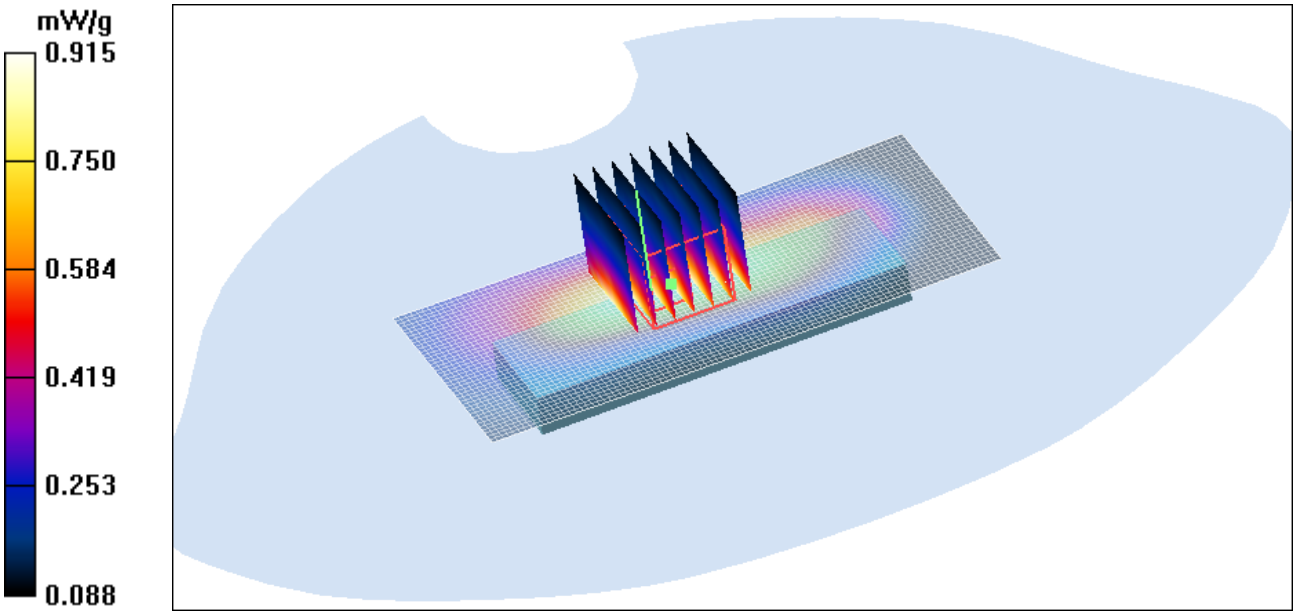


Figure 19 GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 Channel 190

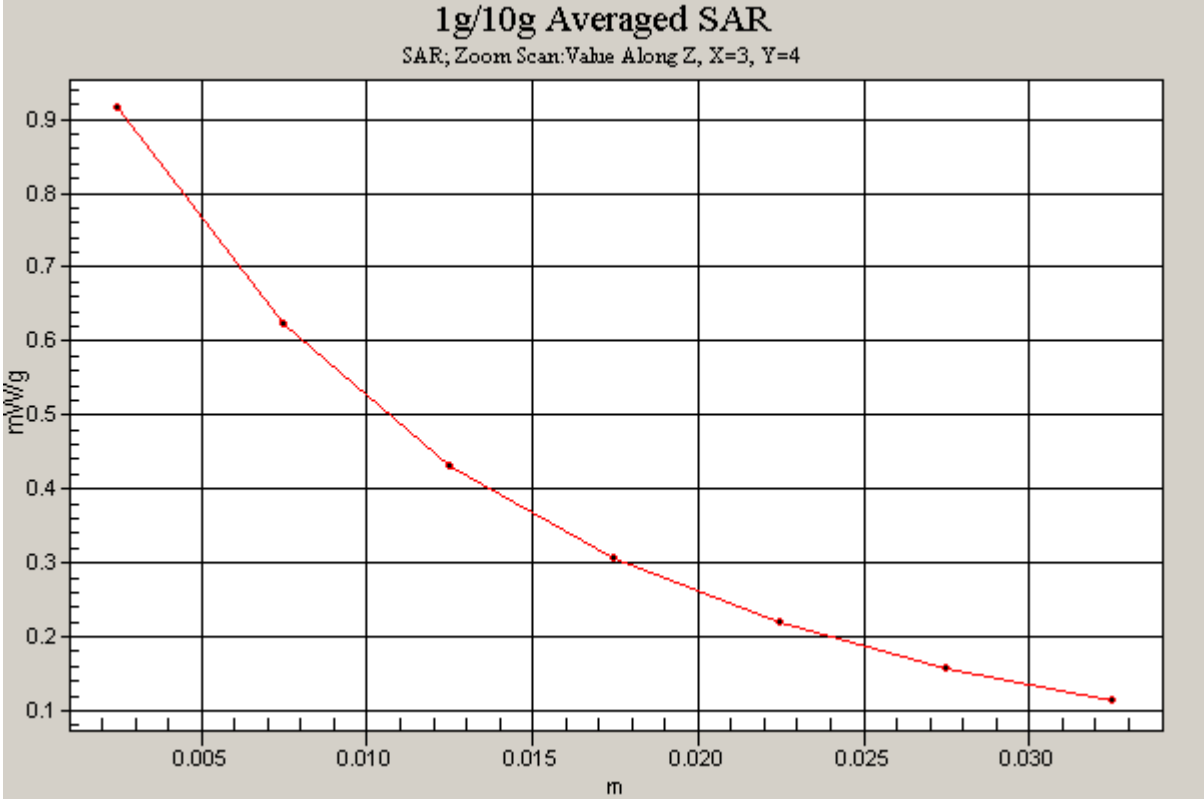


Figure 20 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 Channel 190]

GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 3 at 180 degree Middle Frequency

Date/Time: 6/29/2009 3:38:55 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 3 Middle/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.459 mW/g

Test Position 3 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.3 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 1.31 W/kg
SAR(1 g) = 0.394 mW/g; SAR(10 g) = 0.165 mW/g
Maximum value of SAR (measured) = 0.625 mW/g

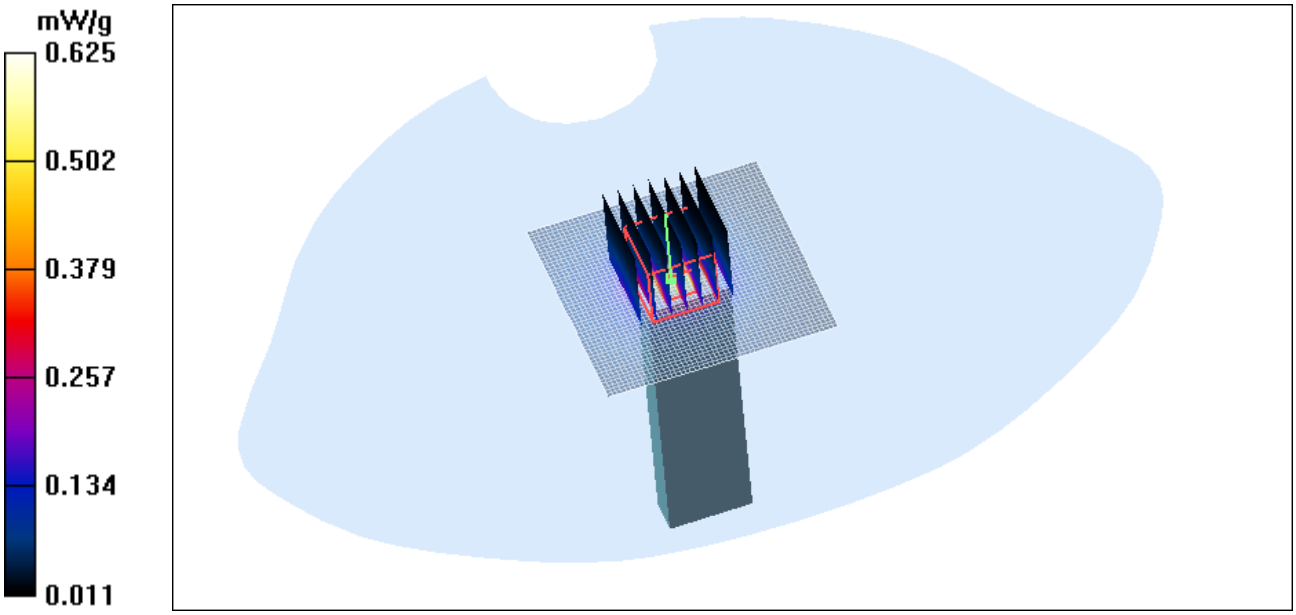


Figure 21 GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 3 at 180 degree Channel 190

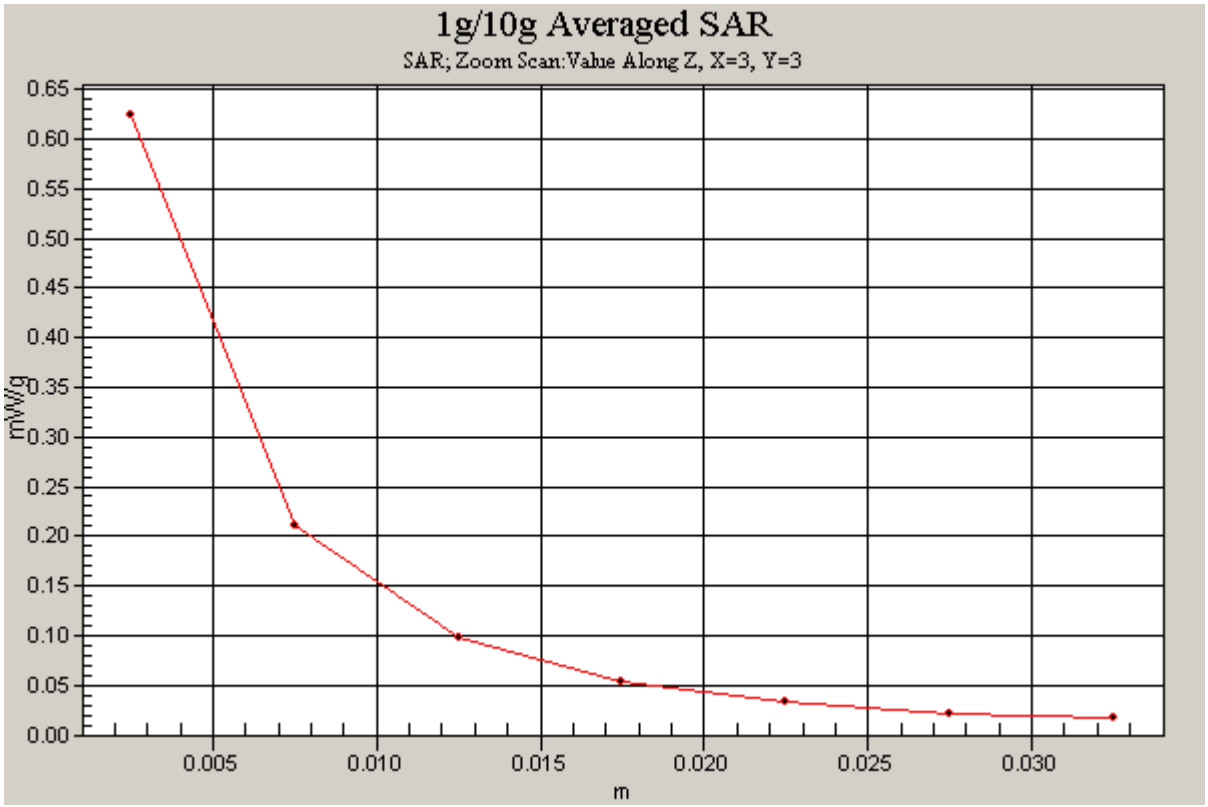


Figure 22 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 3 at 180 degree Channel 190]

GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 4 at 180 degree Middle Frequency

Date/Time: 6/29/2009 1:29:38 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 4 Middle/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.1 V/m; Power Drift = -0.181 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.782 mW/g; SAR(10 g) = 0.504 mW/g
Maximum value of SAR (measured) = 0.967 mW/g

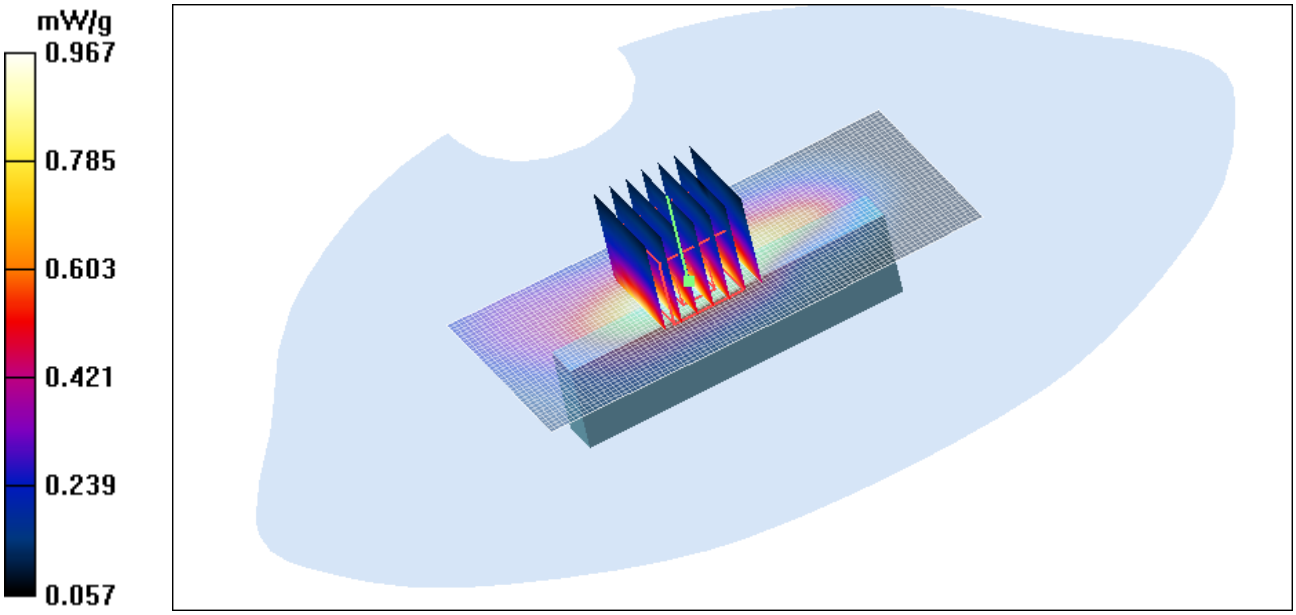


Figure 23 GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 4 at 180 degree Channel 190

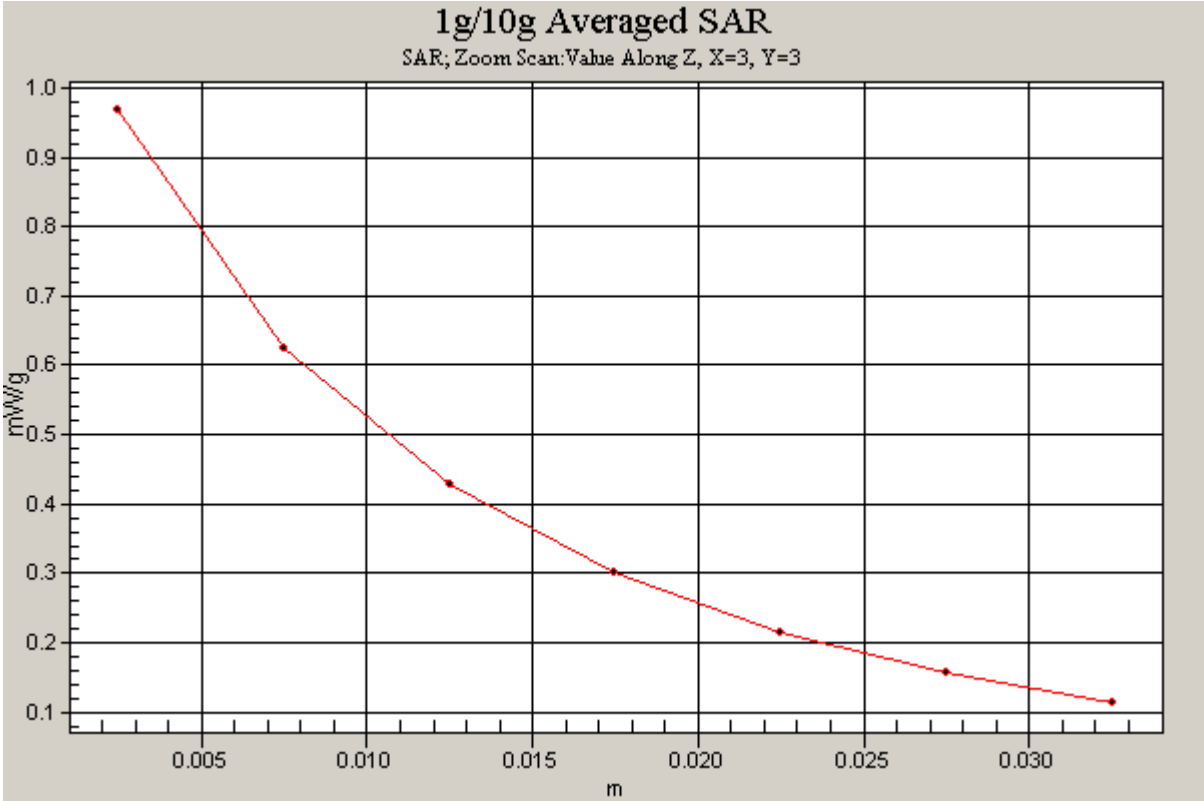


Figure 24 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 4 at 180 degreeChannel 190]

GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 5 at 180 degree Middle Frequency

Date/Time: 6/29/2009 1:07:44 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 5 Middle/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.722 mW/g

Test Position 5 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.6 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 0.609 mW/g; SAR(10 g) = 0.395 mW/g
Maximum value of SAR (measured) = 0.743 mW/g

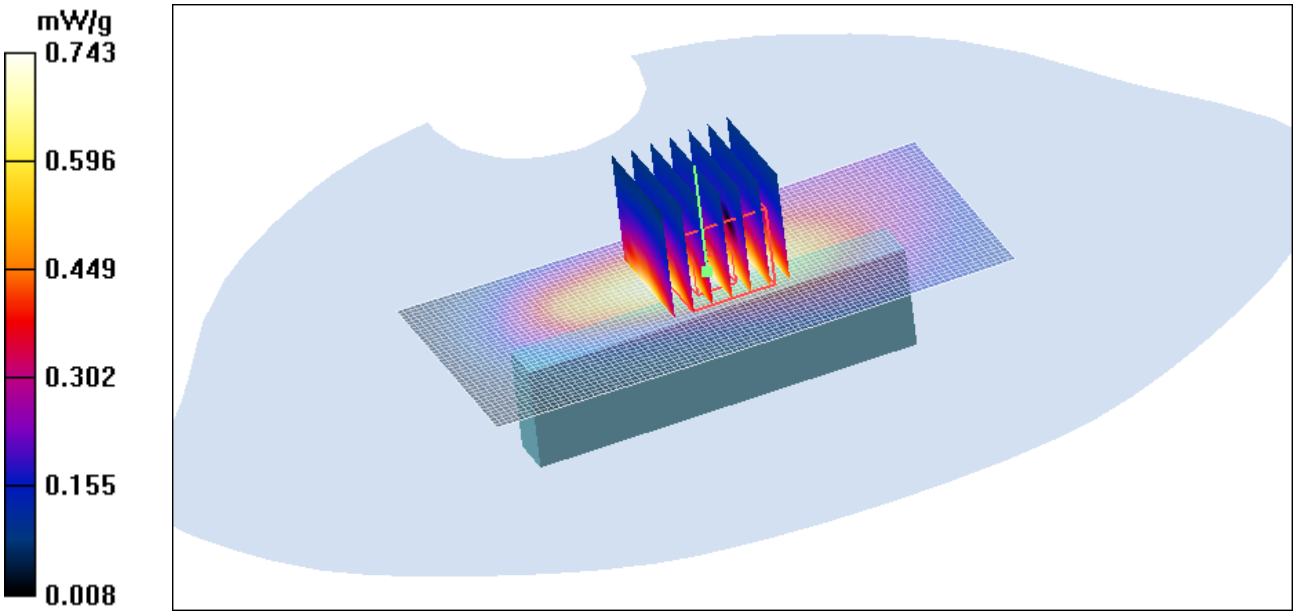


Figure 25 GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 5 at 180 degree Channel 190

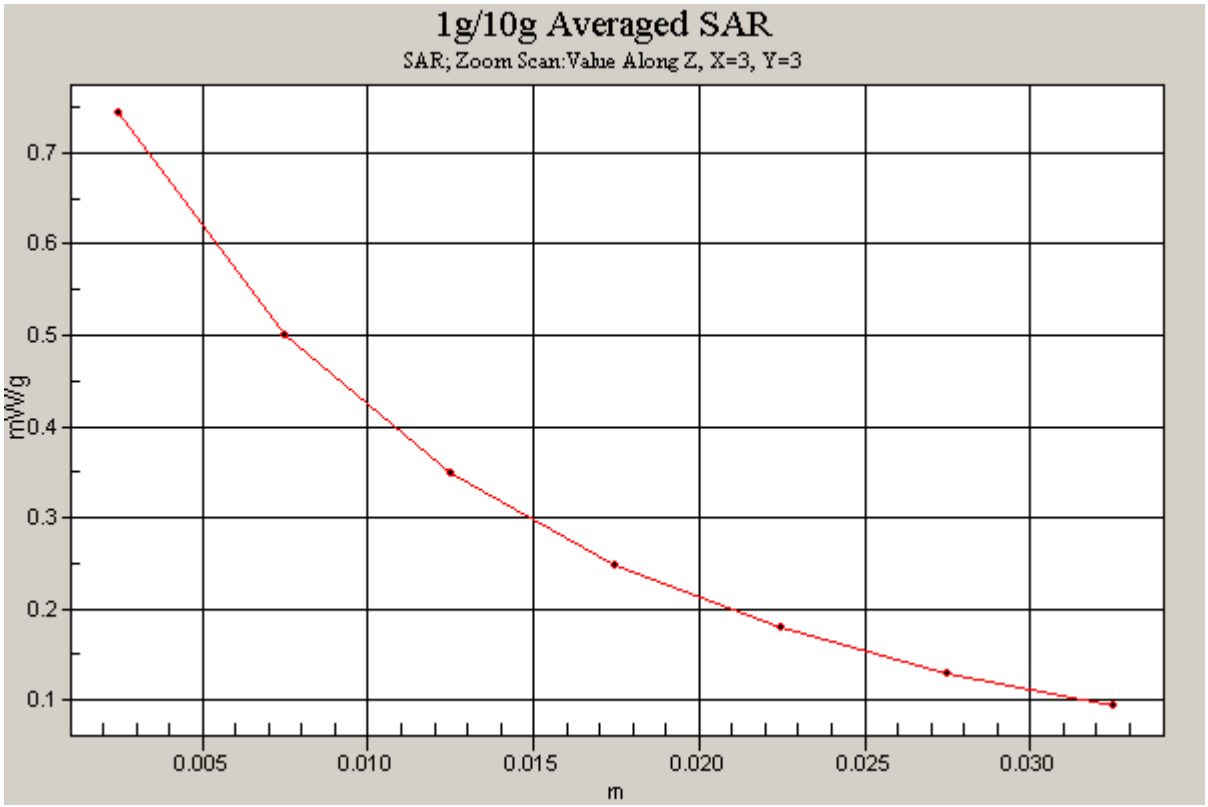


Figure 26 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with IBM T61 Test Position 5 at 180 degree Channel 190]

GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 90 degree Low Frequency

Date/Time: 6/29/2009 3:16:51 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 2 Low/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Test Position 2 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.9 V/m; Power Drift = -0.159 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.819 mW/g; SAR(10 g) = 0.547 mW/g
Maximum value of SAR (measured) = 0.989 mW/g

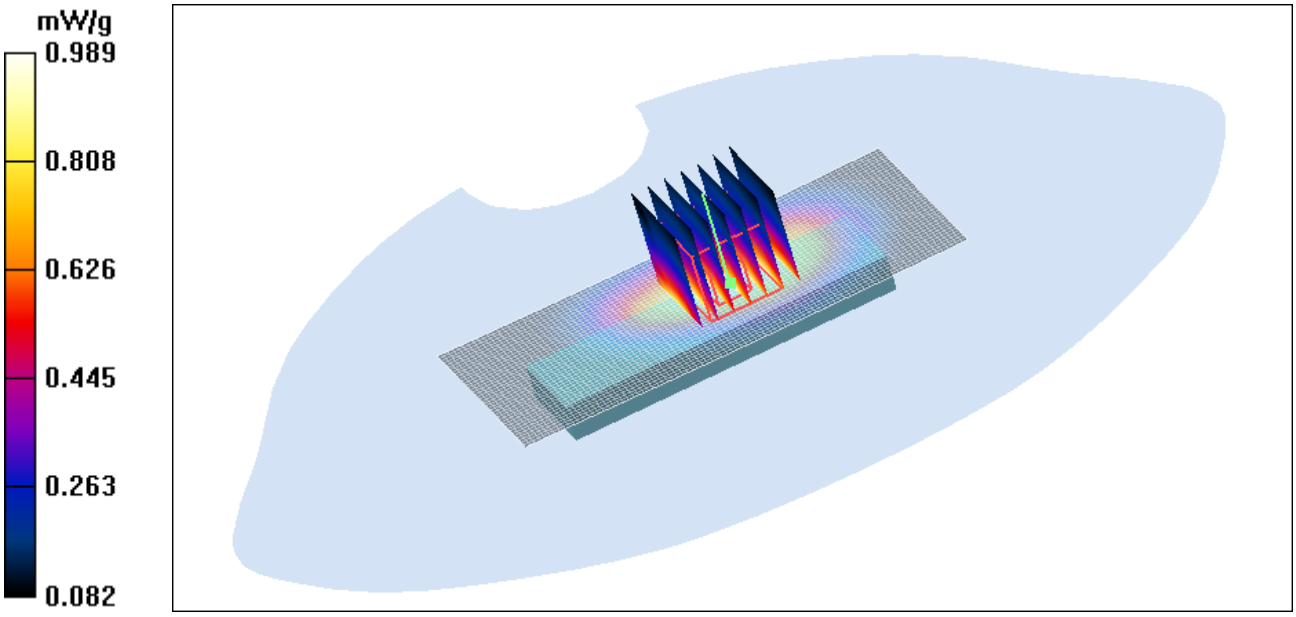


Figure 27 GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 90 degree Channel 128

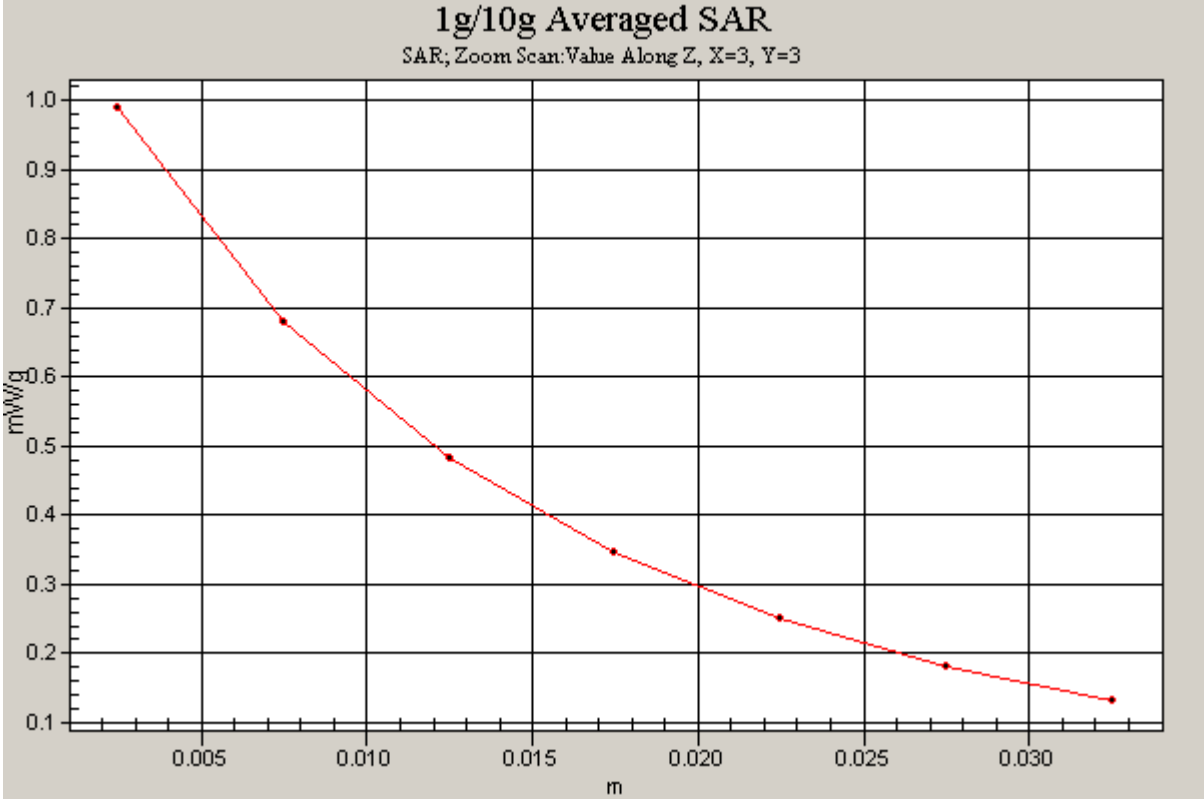


Figure 28 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 90 degree Channel 128]

GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 9:04:05 PM

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) = 1.36 mW/g

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

Reference Value = 32.6 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 1.51 W/kg

SAR(1 g) = 0.973 mW/g; SAR(10 g) = 0.615 mW/g

Maximum value of SAR (measured) = 1.17 mW/g

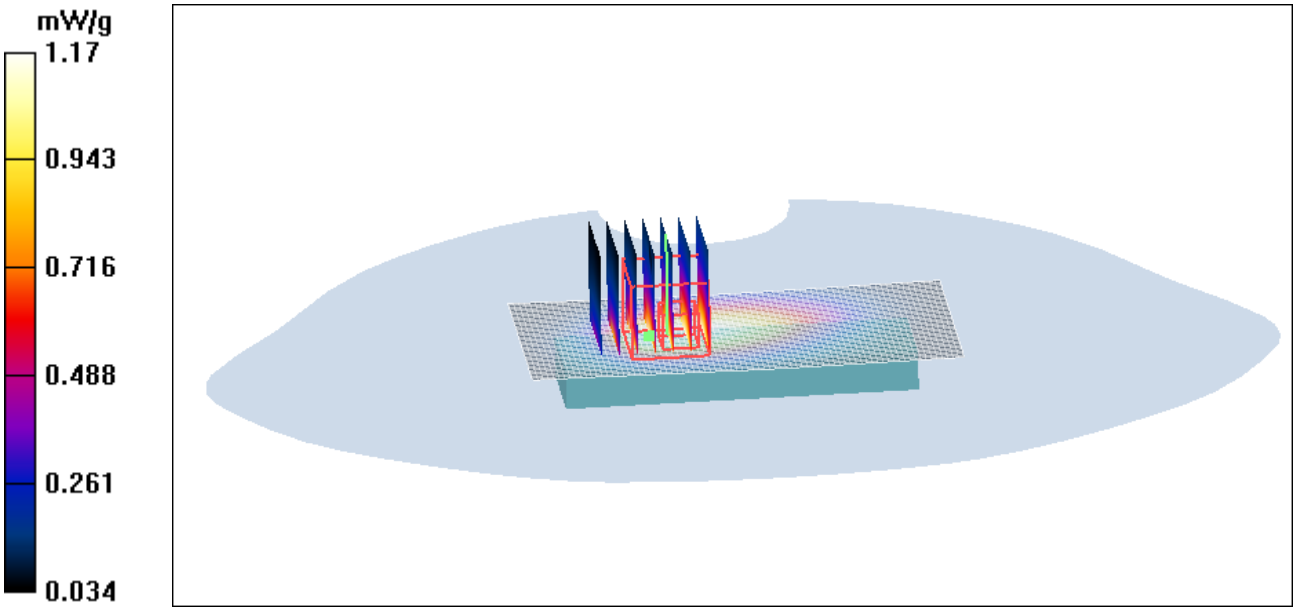


Figure 29 GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128

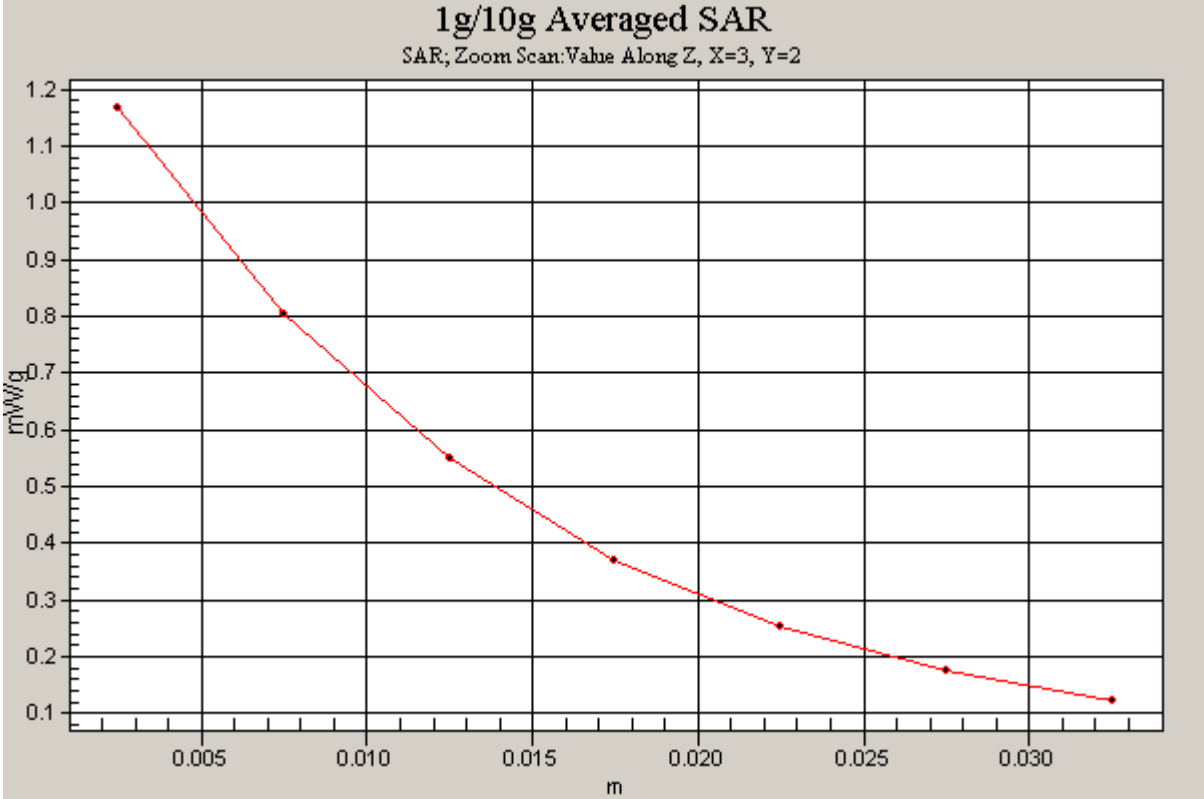


Figure 30 Z-Scan at power reference point [GSM 850 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128]

GSM 850 EGPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 9:41:28 PM
Communication System: GSM 850+EGPRS(4Up); Frequency: 824.2 MHz;Duty Cycle: 1:2
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) = 1.25 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.7 V/m; Power Drift = 0.145 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.881 mW/g; SAR(10 g) = 0.555 mW/g
Maximum value of SAR (measured) = 1.05 mW/g

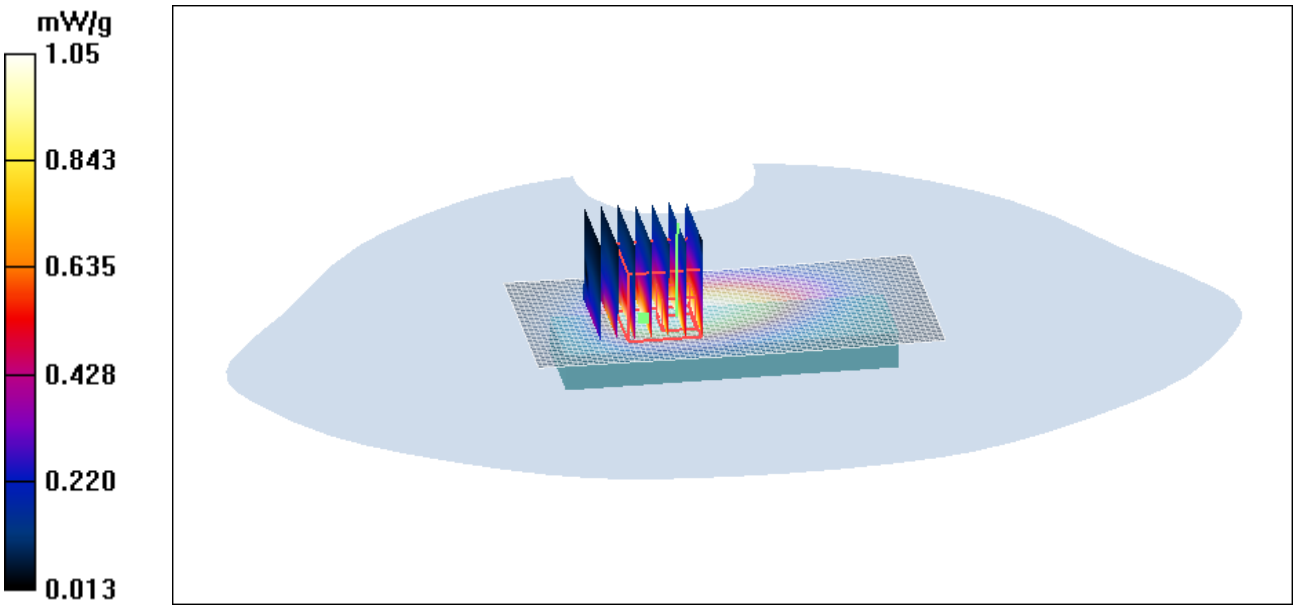


Figure 31 GSM 850 EGPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128

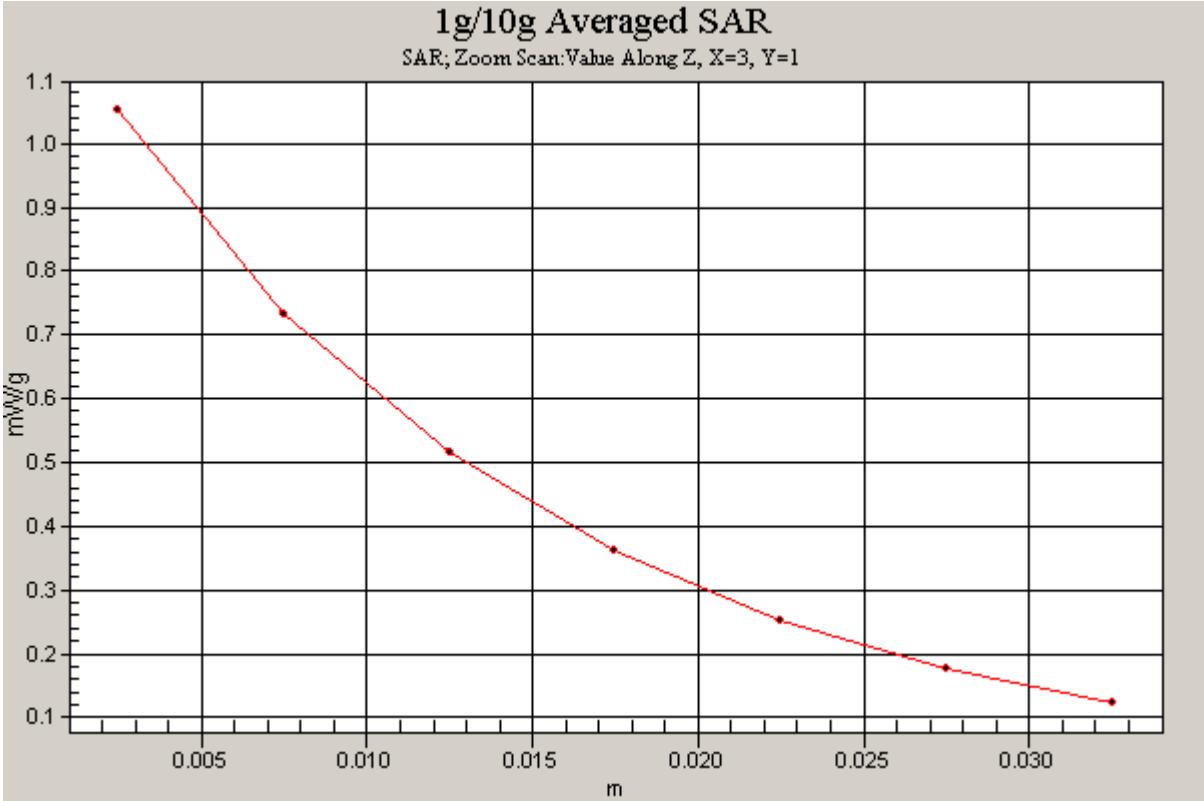


Figure 32 Z-Scan at power reference point [GSM 850 EGPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128]

GSM 850 EGPRS (3 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 9:58:08 PM
Communication System: GSM850 + EGPRS(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 = 30.5 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 1.44 W/kg
SAR(1 g) = 0.850 mW/g; SAR(10 g) = 0.530 mW/g
Maximum value of SAR (measured) = 1.02 mW/g

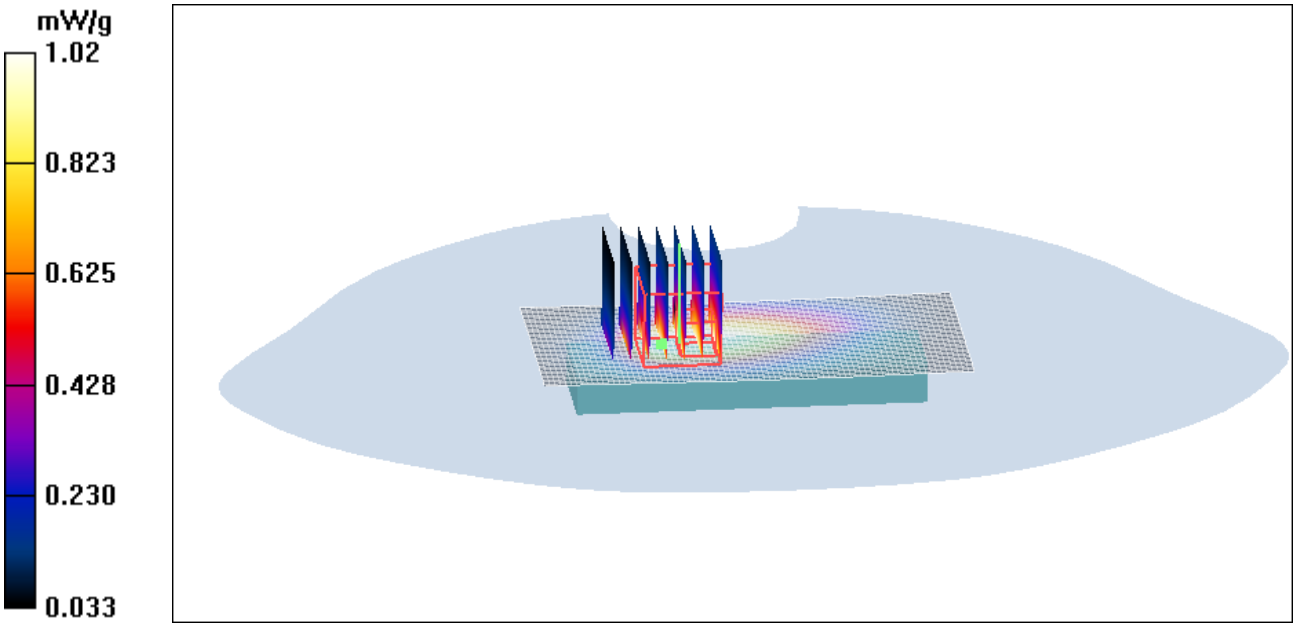


Figure 33 GSM 850 EGPRS (3 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128

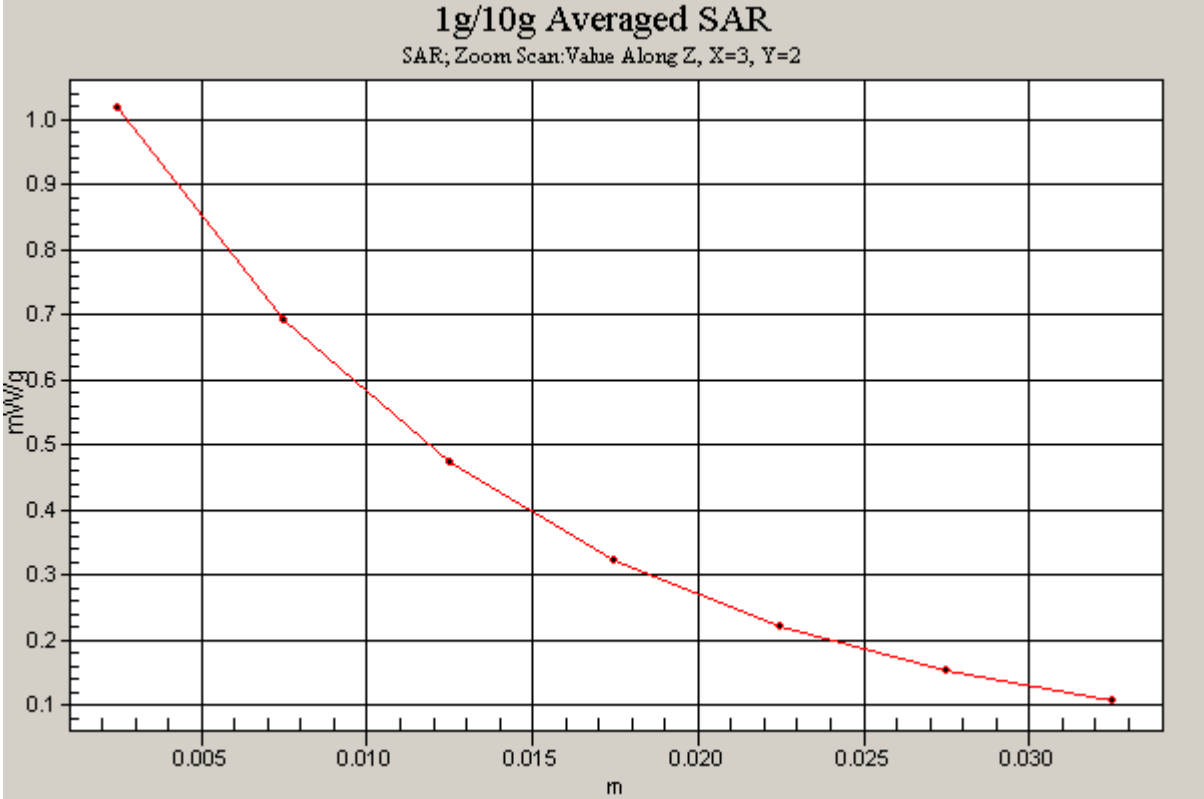


Figure 34 Z-Scan at power reference point [GSM 850 EGPRS (3 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128]

GSM 850 EGPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 9:24:51 PM
Communication System: GSM850 + EGPRS(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) = 1.29 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.0 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.929 mW/g; SAR(10 g) = 0.581 mW/g
Maximum value of SAR (measured) = 1.11 mW/g

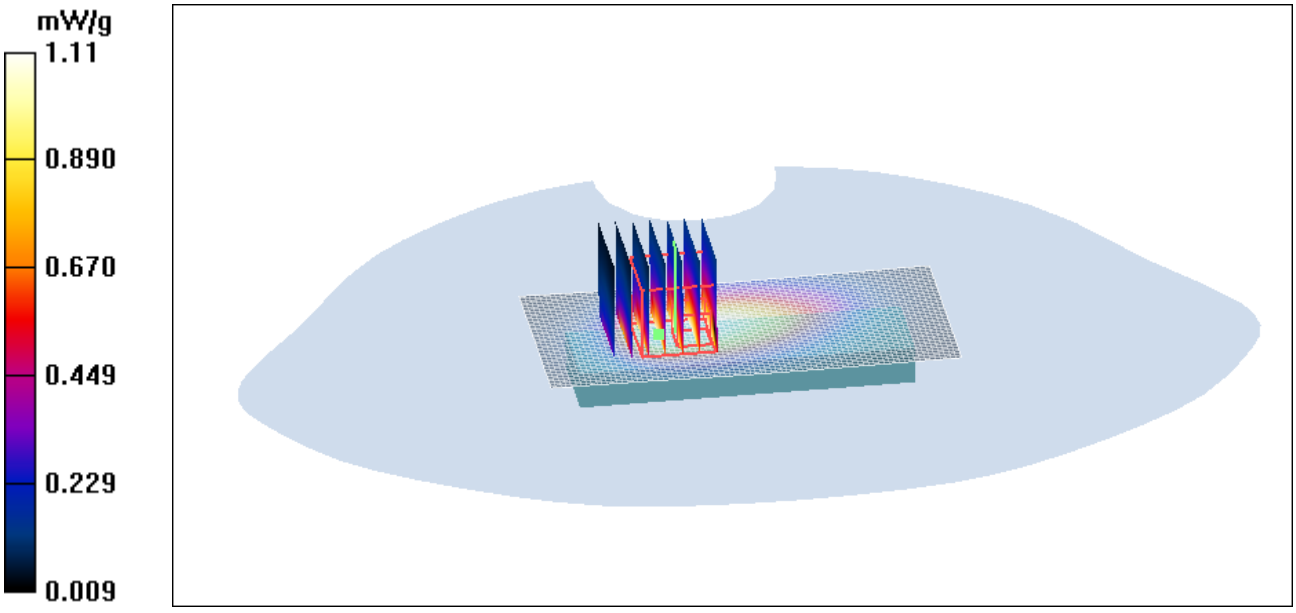


Figure 35 GSM 850 EGPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128

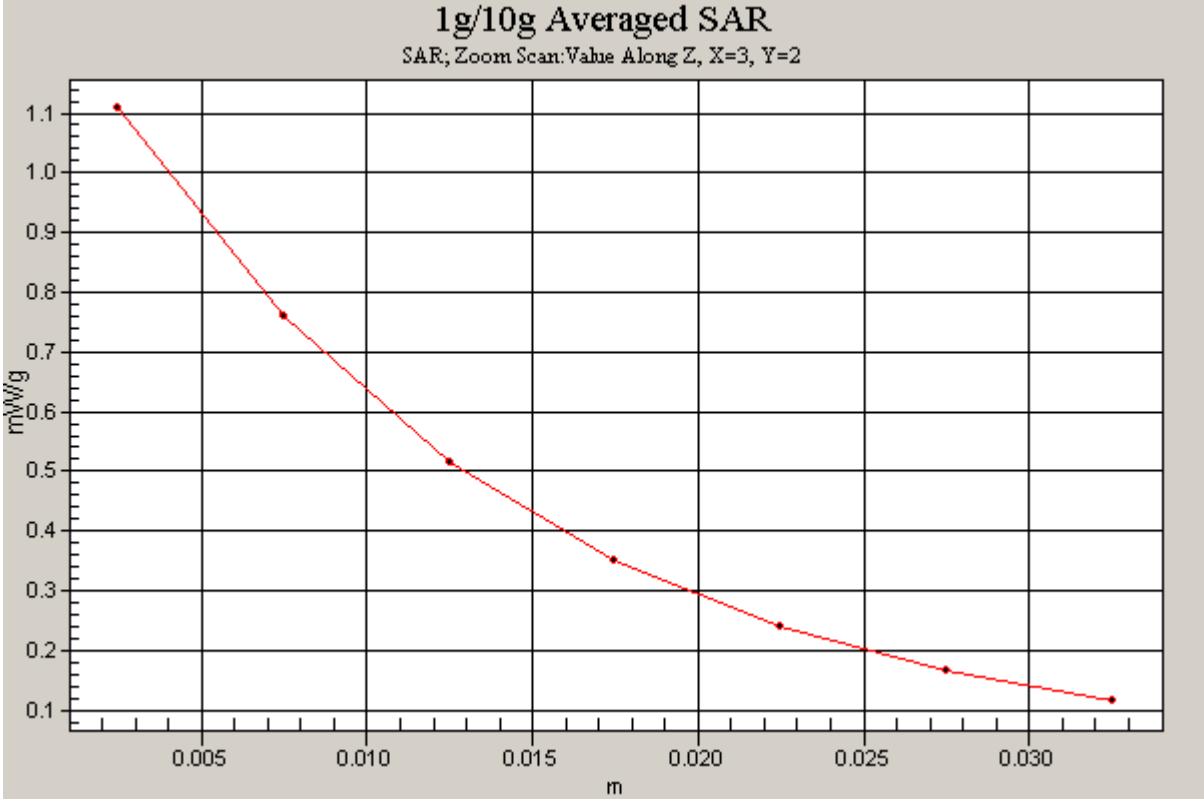


Figure 36 Z-Scan at power reference point [GSM 850 EGPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128]

GSM 850 EGPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 10:14:15 PM
Communication System: GSM850 + EGPRS(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) = 0.887 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.1 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.674 mW/g; SAR(10 g) = 0.424 mW/g
Maximum value of SAR (measured) = 0.802 mW/g

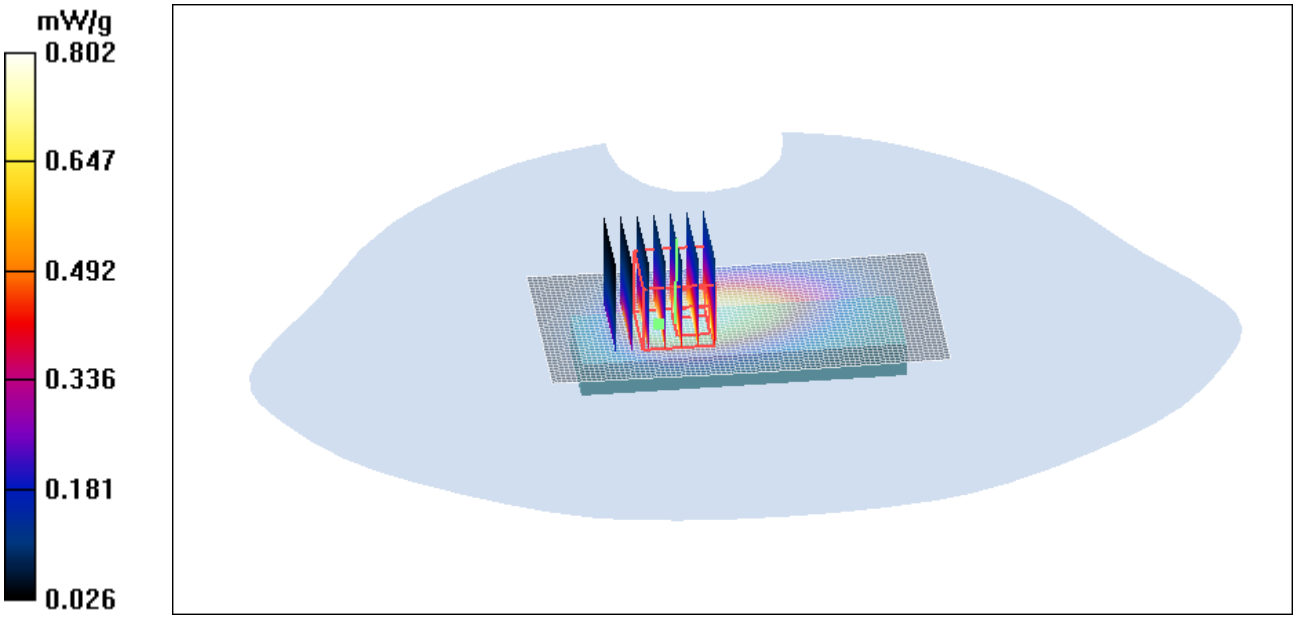


Figure 37 GSM 850 EGPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128

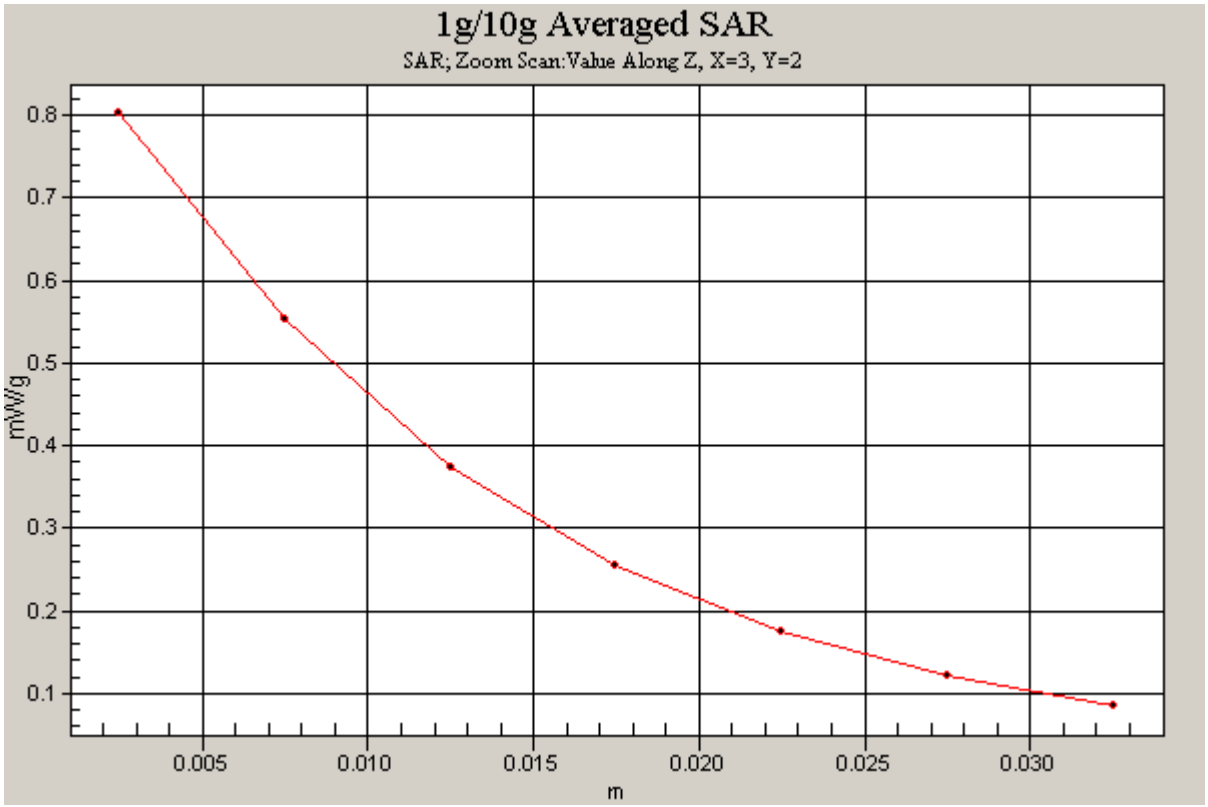


Figure 38 Z-Scan at power reference point [GSM 850 EGPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 128]

GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree High Frequency

Date/Time: 6/27/2009 4:22:45 PM
Communication System: PCS 1900+GPRS(2Up); Frequency: 1909.8 MHz;Duty Cycle: 1:4
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 1 High/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.06 mW/g

Test Position 1 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.9 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.695 mW/g; SAR(10 g) = 0.384 mW/g
Maximum value of SAR (measured) = 0.945 mW/g

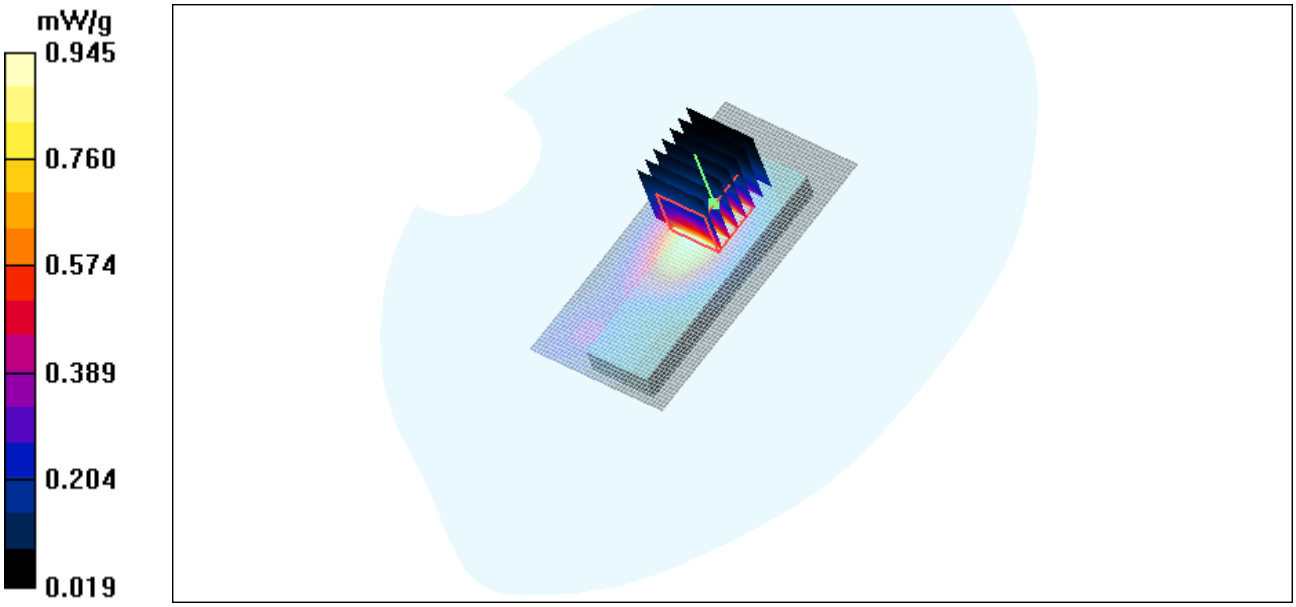


Figure 39 GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 810

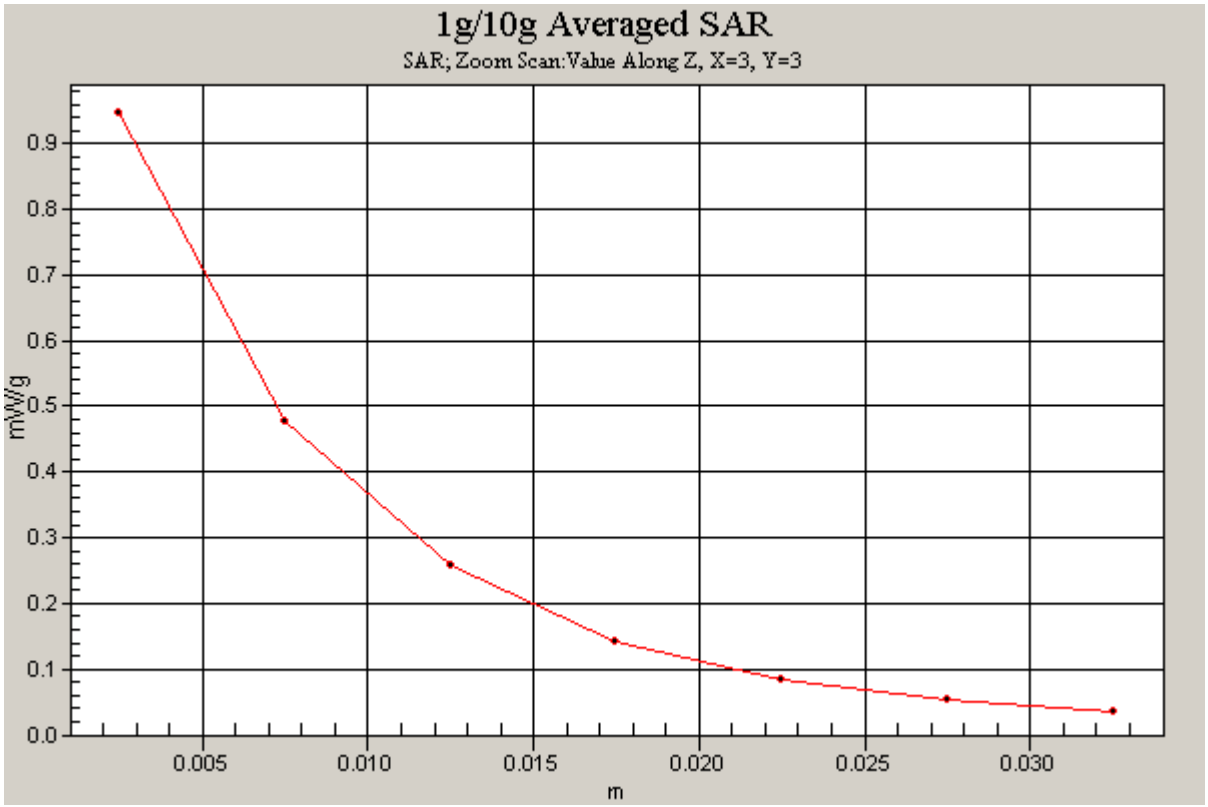


Figure 40 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 810]

GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Middle Frequency

Date/Time: 6/27/2009 3:47:33 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) = 1.39 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.4 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 0.918 mW/g; SAR(10 g) = 0.506 mW/g
Maximum value of SAR (measured) = 1.25 mW/g

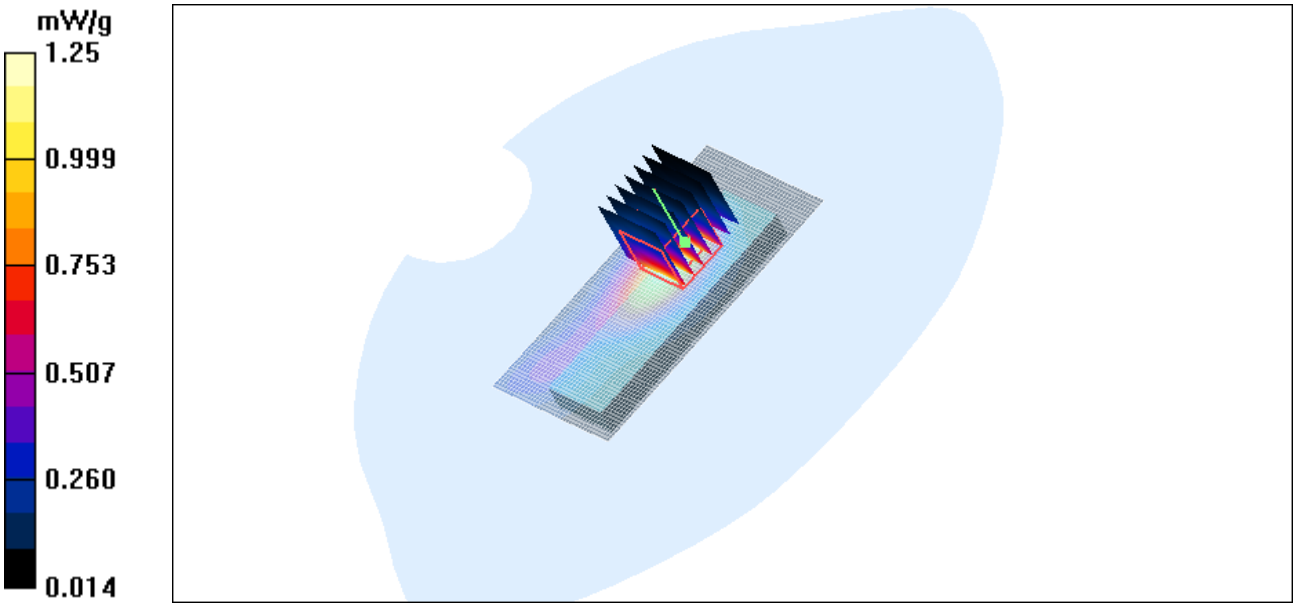


Figure 41 GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 661

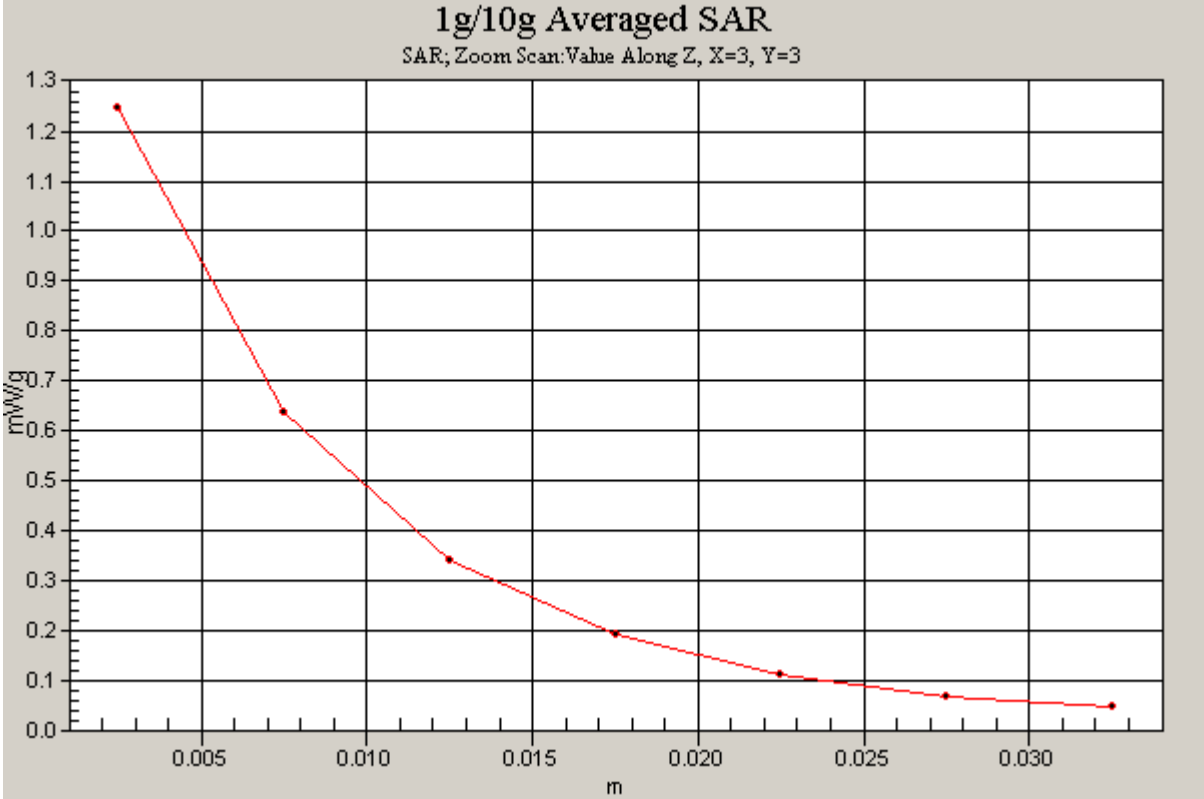


Figure 42 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 661]

GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Low Frequency

Date/Time: 6/27/2009 4:04:09 PM

Communication System: PCS 1900+GPRS(2Up); Frequency: 1850.2 MHz;Duty Cycle: 1:4

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

Maximum value of SAR (interpolated) = 1.68 mW/g

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

Reference Value = 24.9 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 2.05 W/kg

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.556 mW/g

Maximum value of SAR (measured) = 1.37 mW/g

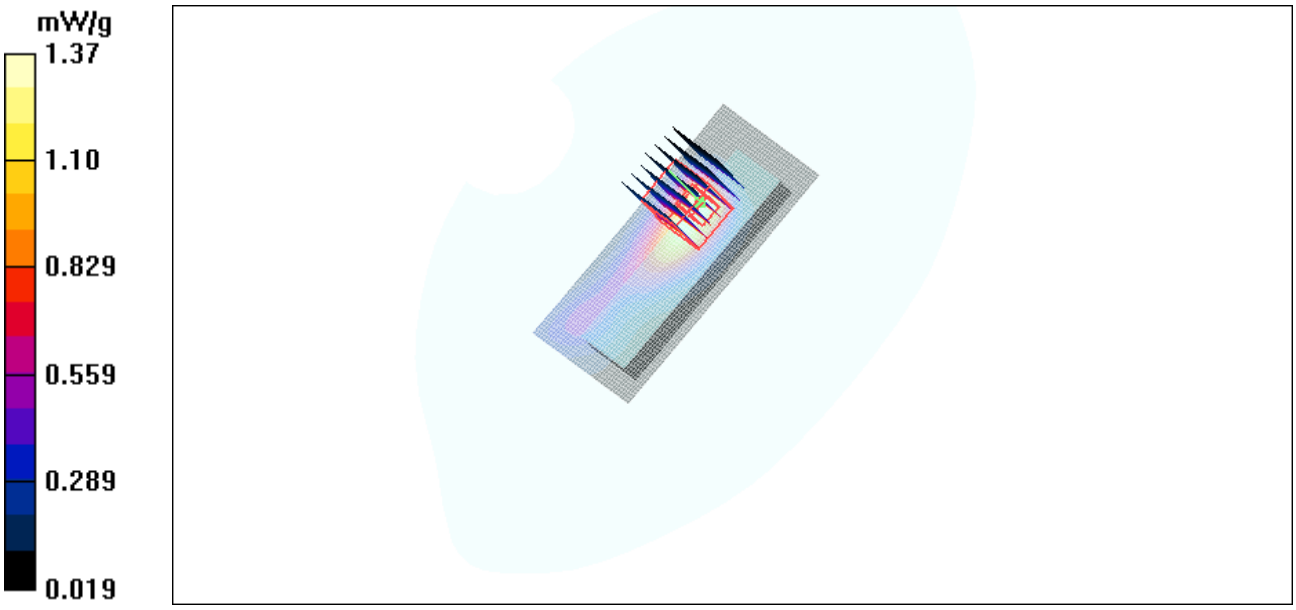


Figure 43 GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 512

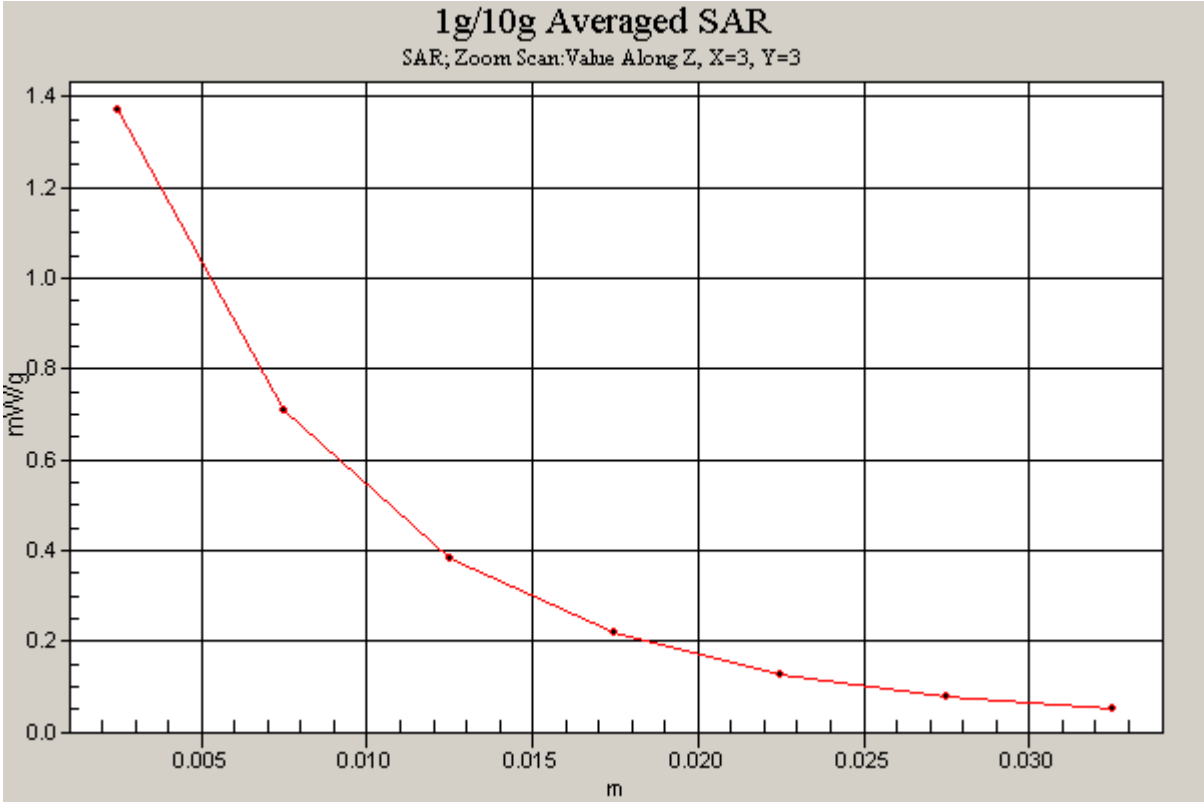


Figure 44 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 512]

GSM 1900 GPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Middle Frequency

Date/Time: 6/27/2009 4:48:19 PM
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 1 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.6 V/m; Power Drift = 0.099 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.666 mW/g; SAR(10 g) = 0.372 mW/g
Maximum value of SAR (measured) = 0.884 mW/g

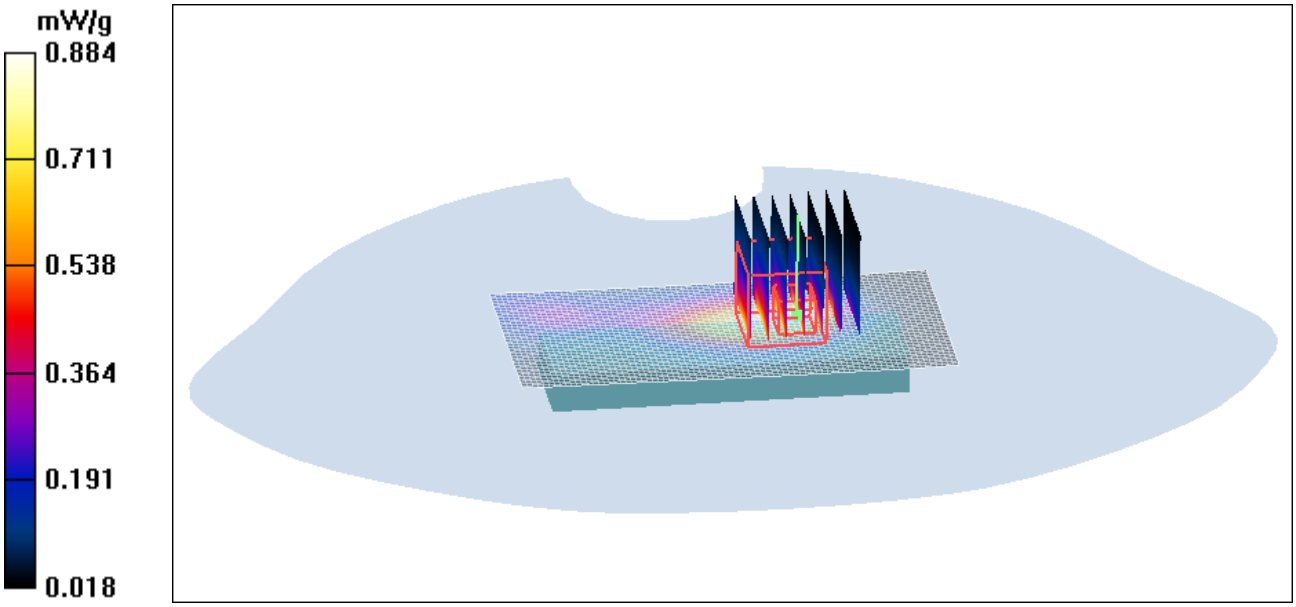


Figure 45 GSM 1900 GPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 661

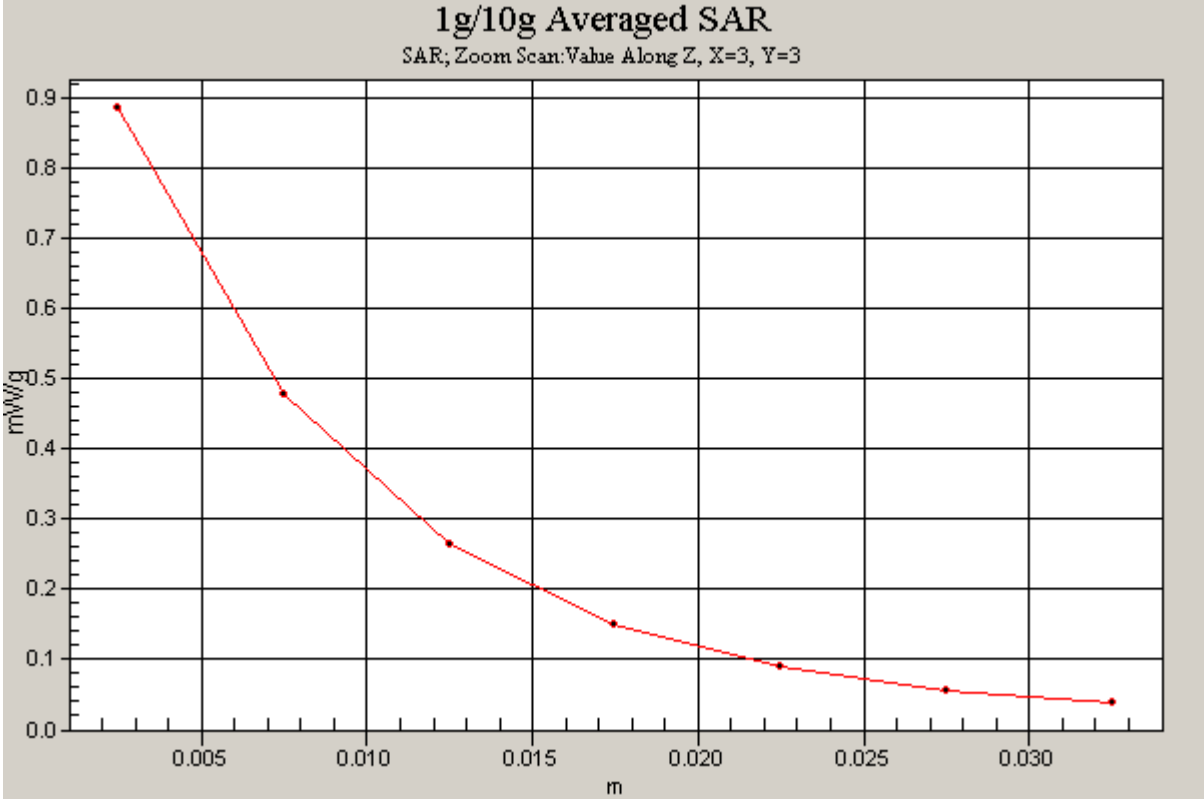


Figure 46 Z-Scan at power reference point [GSM 1900 GPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 180 degree Channel 661]

GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 180 degree High Frequency

Date/Time: 6/27/2009 9:40:32 PM
Communication System: PCS 1900+GPRS(2Up); Frequency: 1909.8 MHz;Duty Cycle: 1:4
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 2 High/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.753 mW/g
Test Position 2 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 0.863 W/kg
SAR(1 g) = 0.523 mW/g; SAR(10 g) = 0.318 mW/g
Maximum value of SAR (measured) = 0.675 mW/g
Test Position 2 High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 0.955 W/kg
SAR(1 g) = 0.530 mW/g; SAR(10 g) = 0.277 mW/g
Maximum value of SAR (measured) = 0.705 mW/g

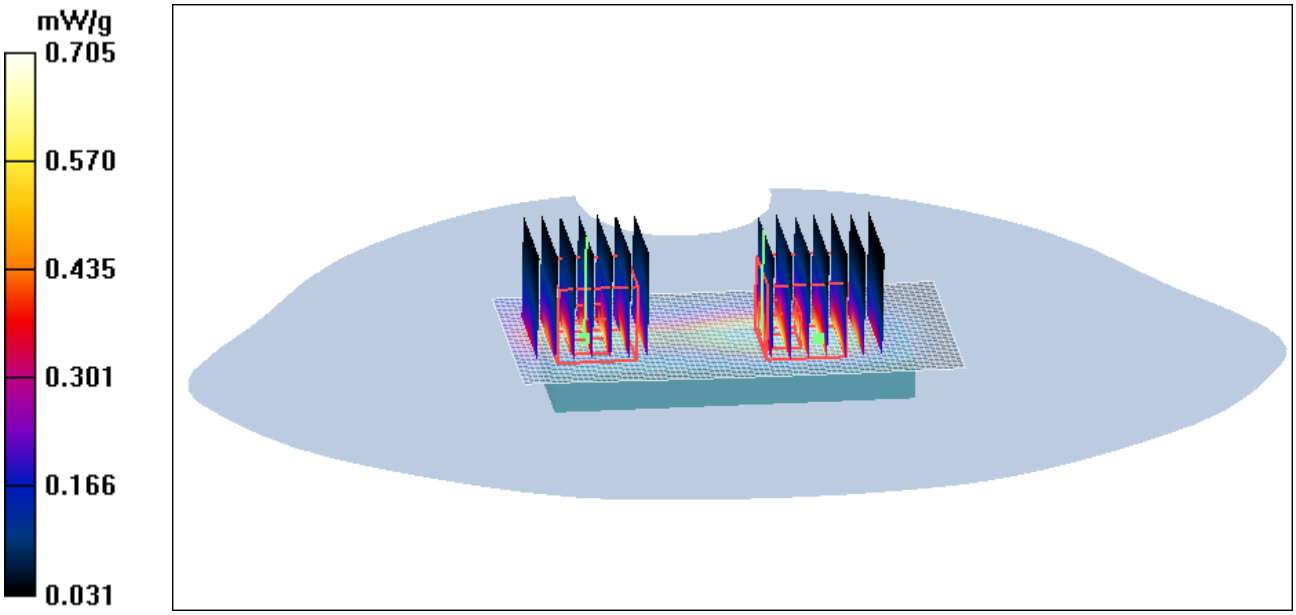
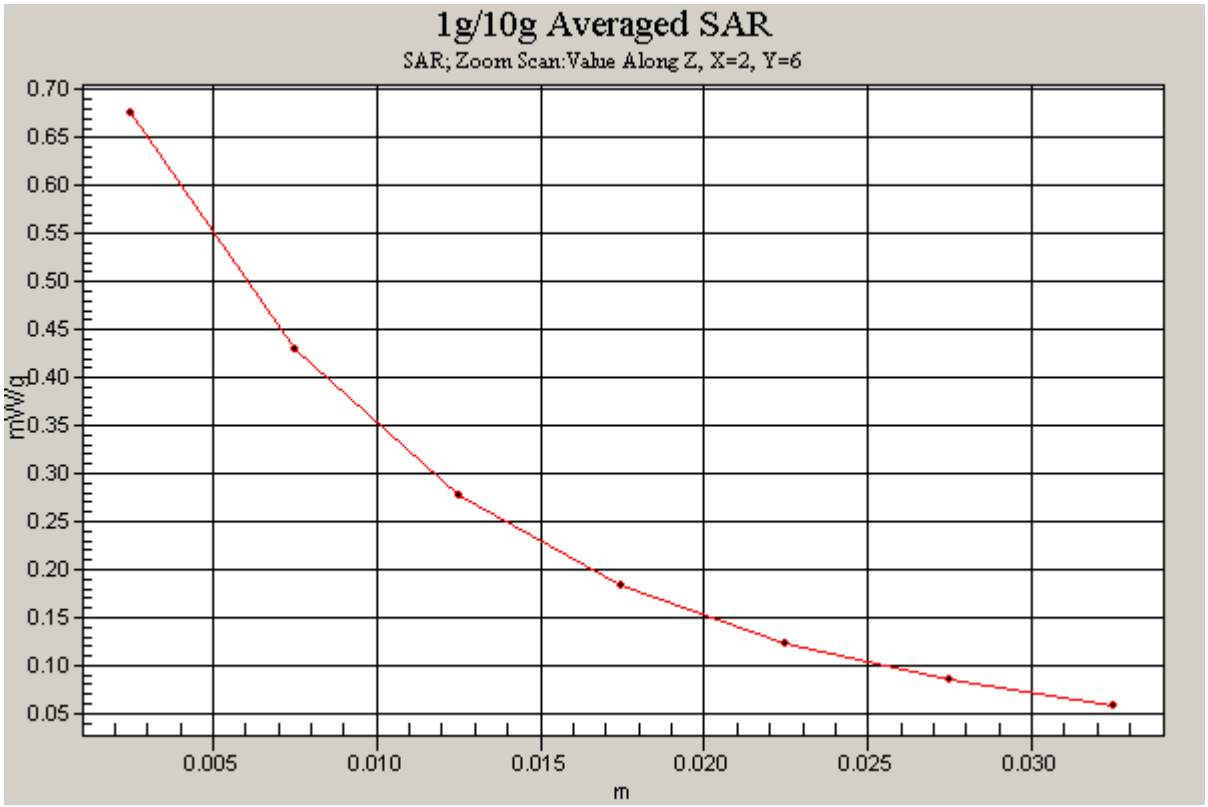


Figure 47 GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 180 degree Channel 810



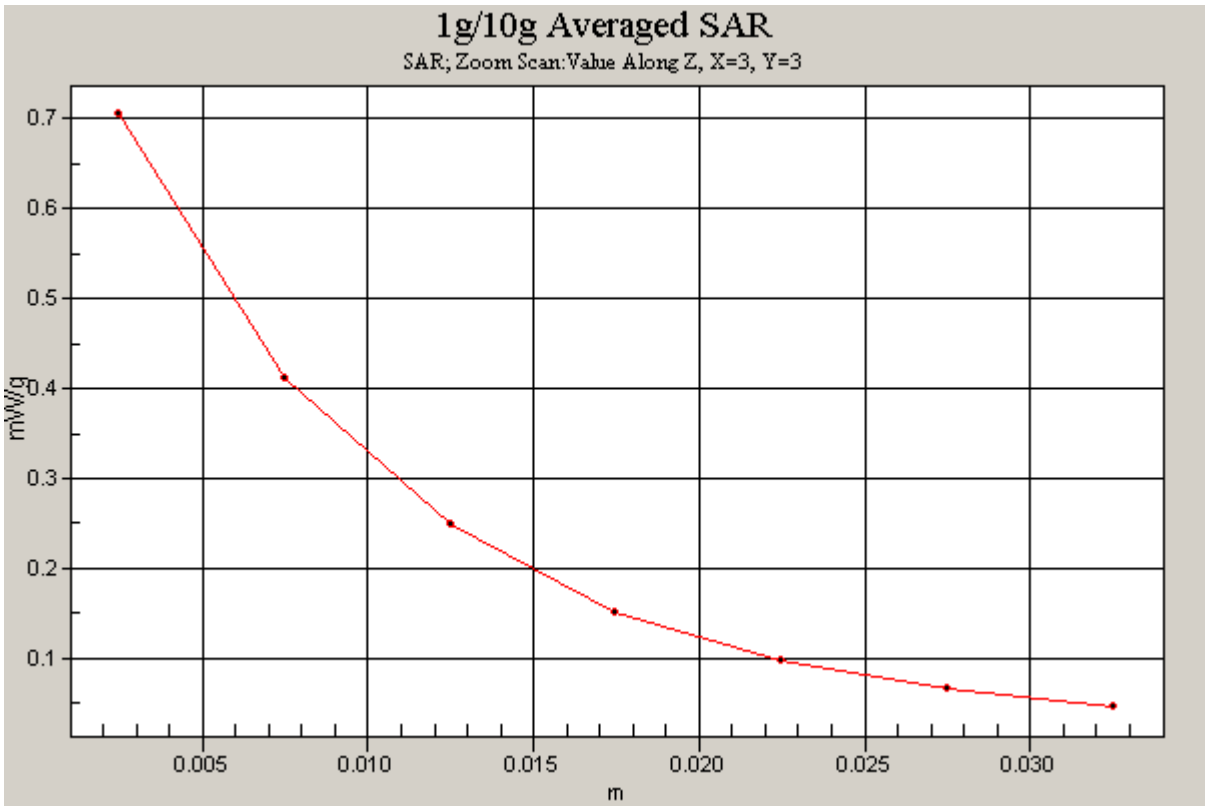


Figure 48 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 180 degree Channel 810]

GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 180 degree Middle Frequency

Date/Time: 6/27/2009 9:12:29 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 2 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.922 mW/g
Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.4 V/m; Power Drift = -0.007 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.647 mW/g; SAR(10 g) = 0.393 mW/g
Maximum value of SAR (measured) = 0.862 mW/g
Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.4 V/m; Power Drift = -0.007 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.655 mW/g; SAR(10 g) = 0.348 mW/g
Maximum value of SAR (measured) = 0.869 mW/g

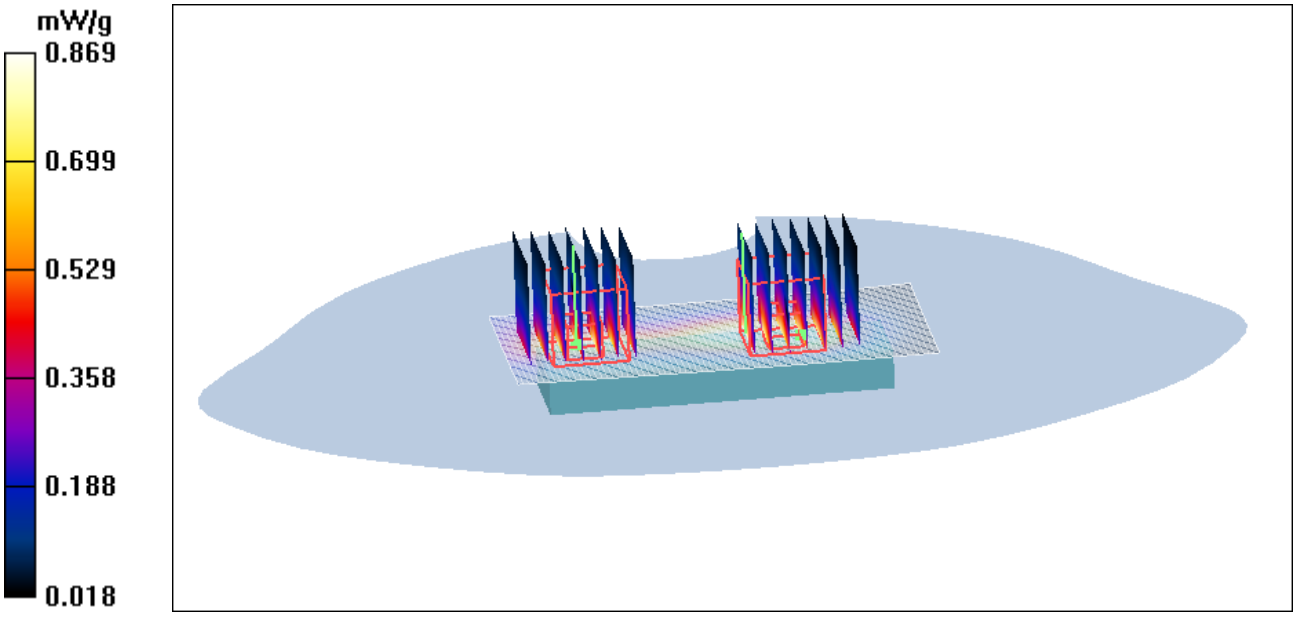
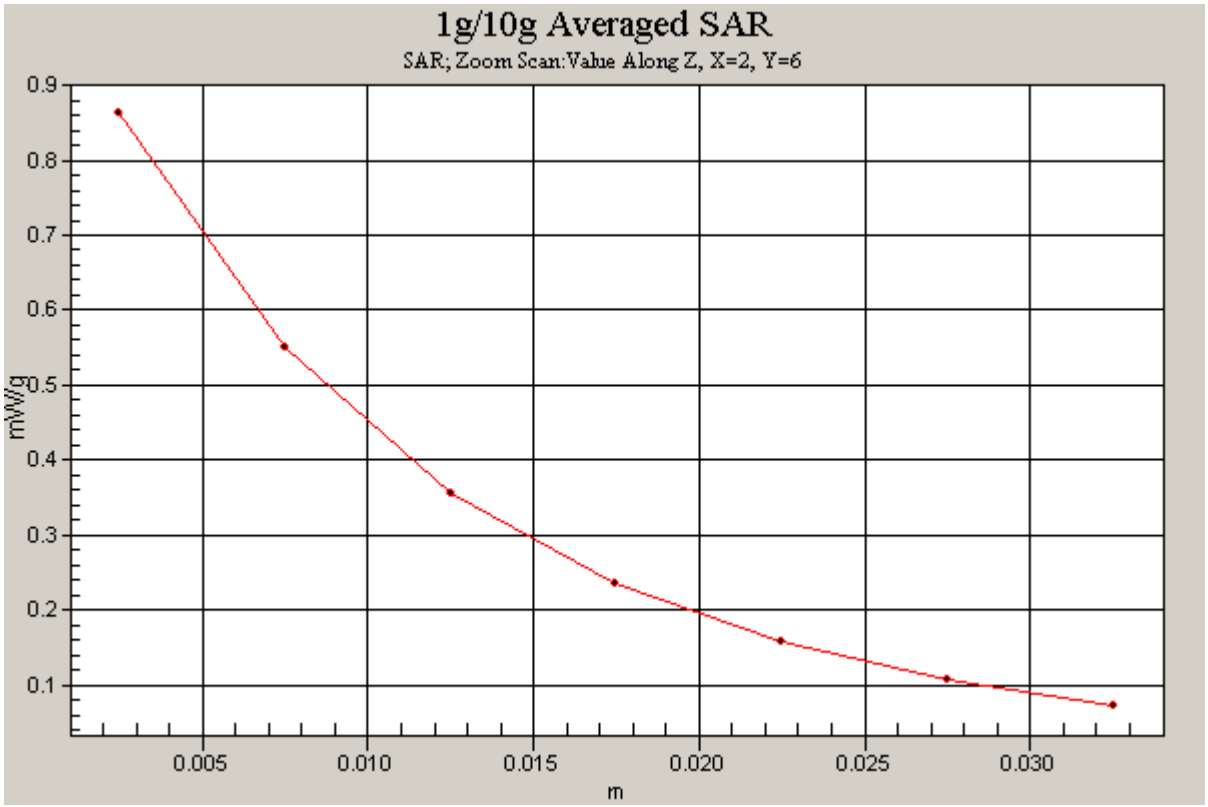


Figure 49 GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 180 degree Channel 661



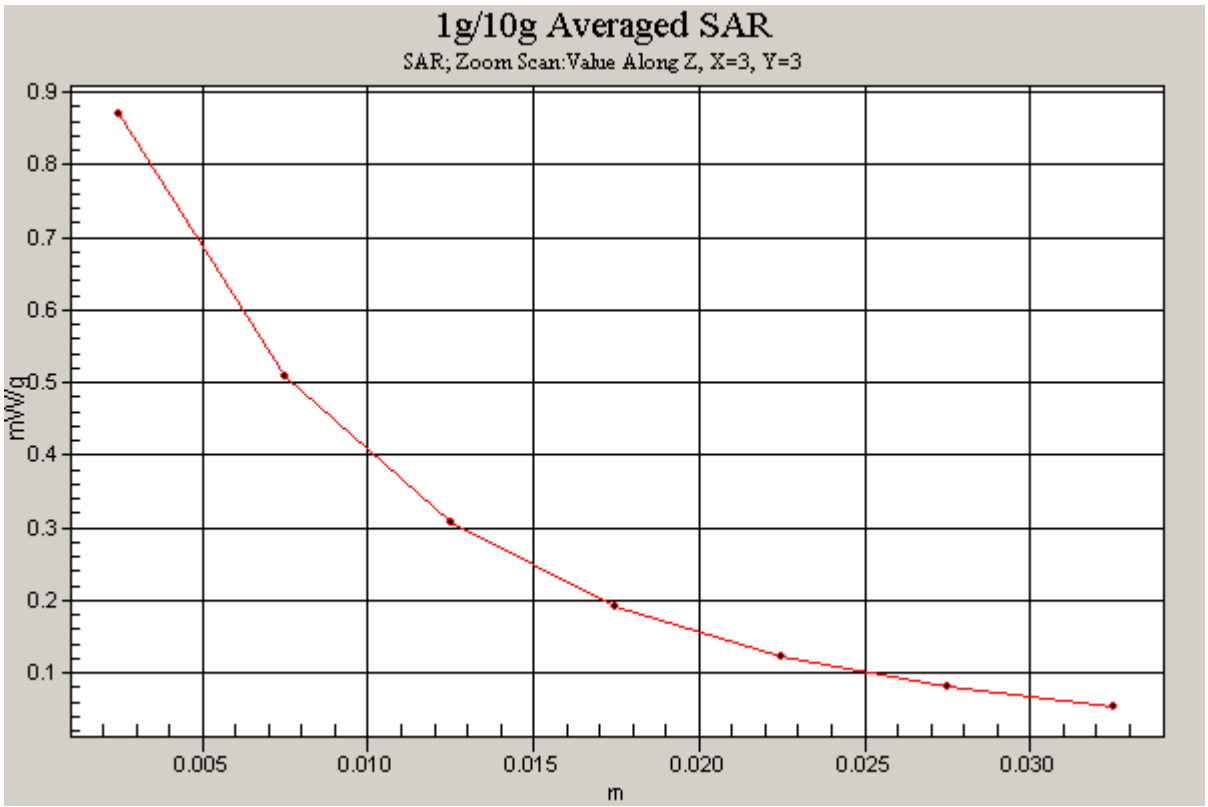


Figure 50 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 180 degree Channel 661]

GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 180 degree Low Frequency

Date/Time: 6/27/2009 10:08:36 PM

Communication System: PCS 1900+GPRS(2Up); Frequency: 1850.2 MHz;Duty Cycle: 1:4

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

Maximum value of SAR (interpolated) = 0.999 mW/g

Test Position 2 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.1 V/m; Power Drift = -0.035 dB

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.430 mW/g

Maximum value of SAR (measured) = 0.904 mW/g

Test Position 2 Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.1 V/m; Power Drift = -0.035 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.717 mW/g; SAR(10 g) = 0.385 mW/g

Maximum value of SAR (measured) = 0.950 mW/g

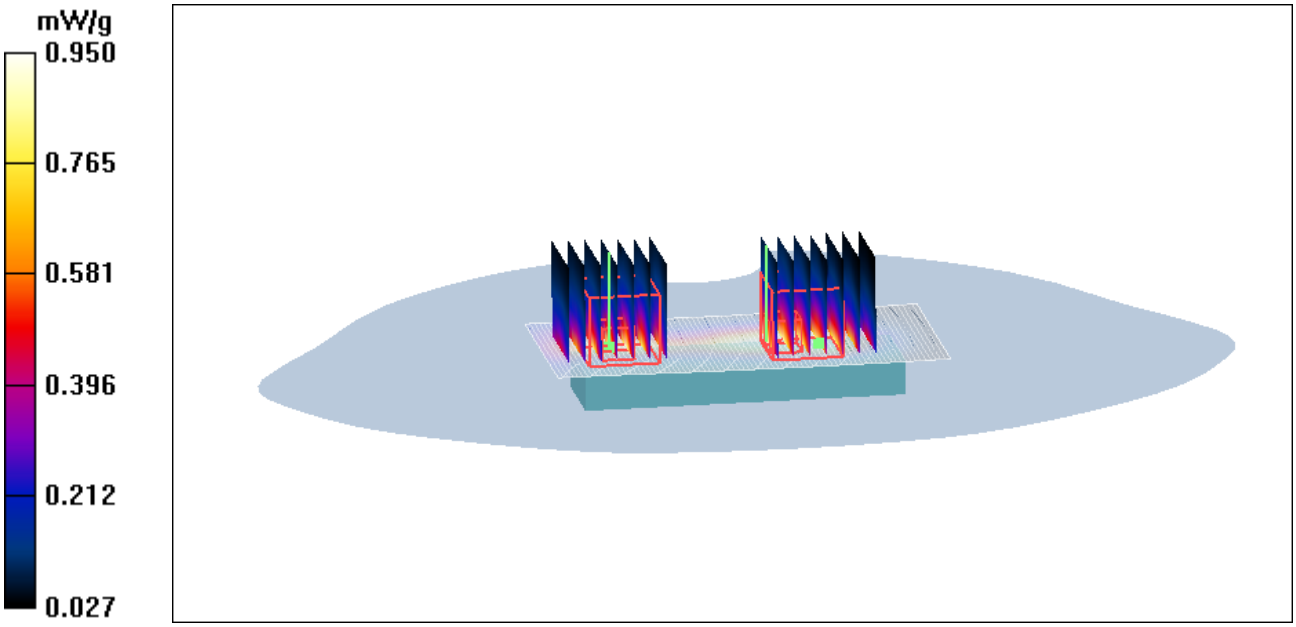
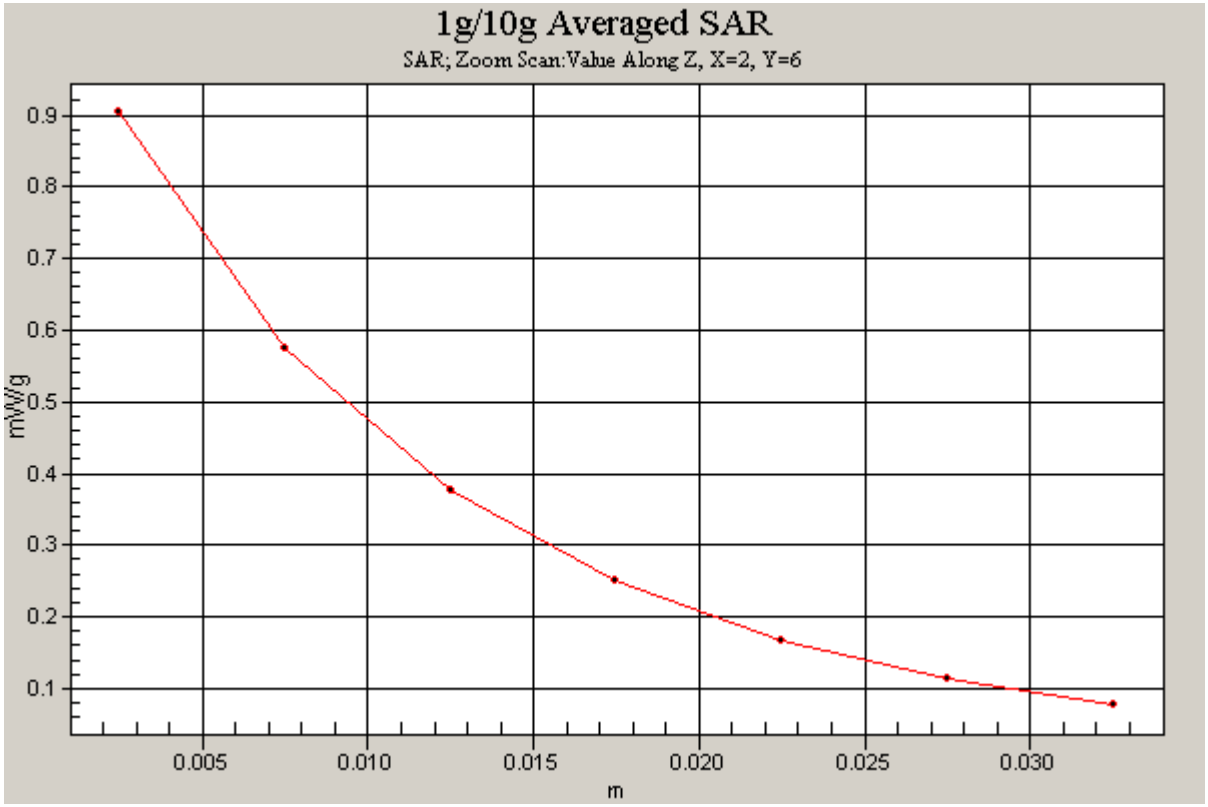


Figure 51 GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 180 degree Channel 512



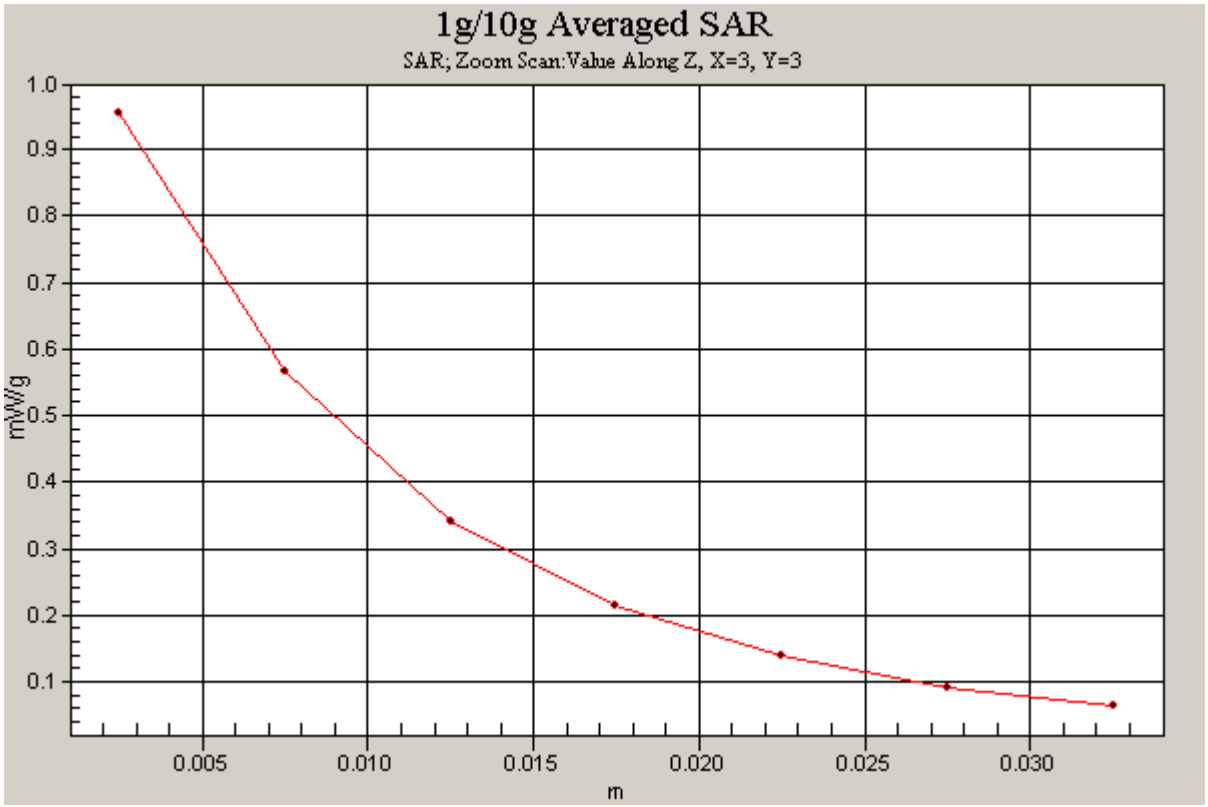


Figure 52 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 180 degree Channel 512]

GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 3 at 180 degree Middle Frequency

Date/Time: 6/28/2009 12:44:33 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 3 Middle/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.205 mW/g

Test Position 3 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.7 V/m; Power Drift = 0.092 dB
Peak SAR (extrapolated) = 0.345 W/kg
SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.107 mW/g
Maximum value of SAR (measured) = 0.245 mW/g

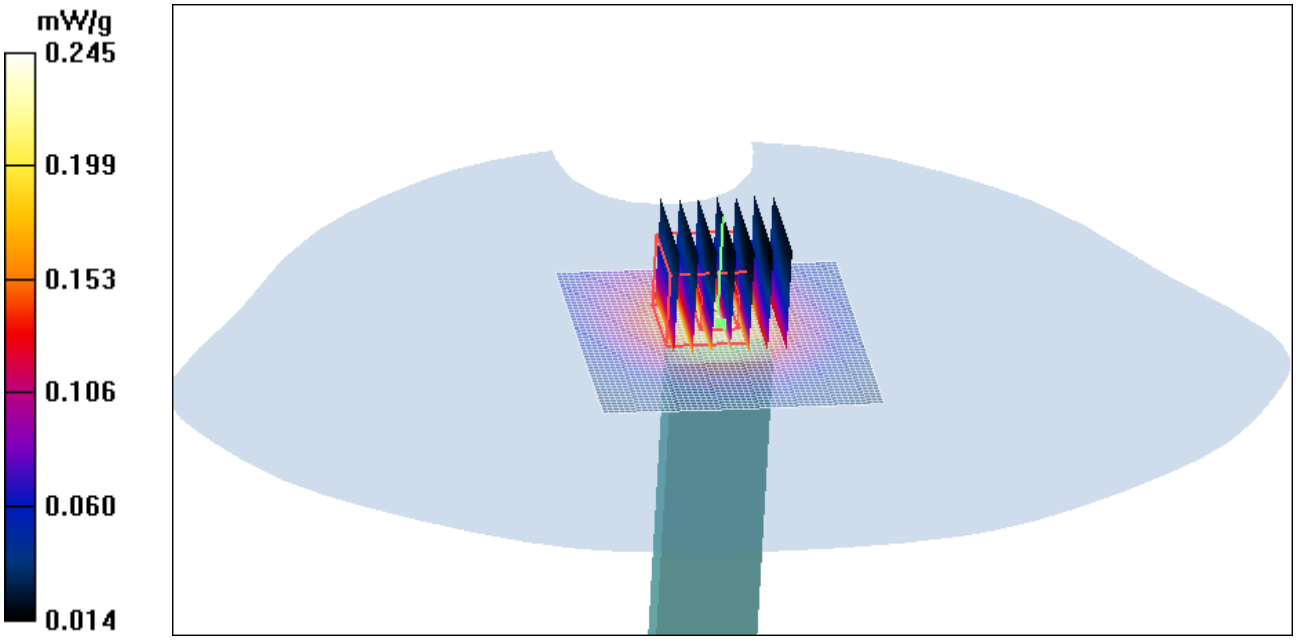


Figure 53 GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 3 at 180 degree Channel 661

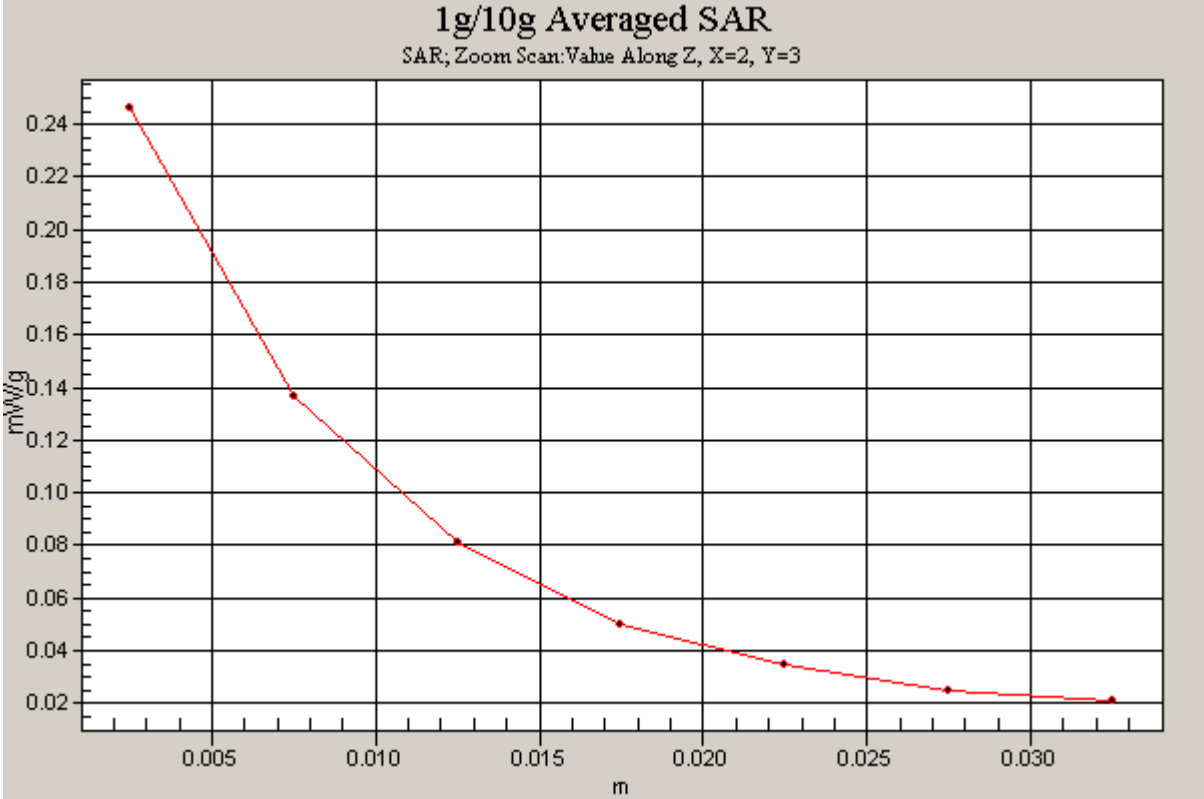


Figure 54 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 3 at 180 degree Channel 661]

GSM 1900 GPRS (2 timeslots in uplink) with IBM T61 Test Position 4 at 180 degree Middle Frequency

Date/Time: 6/27/2009 1:15:22 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 4 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.939 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.0 V/m; Power Drift = -0.033 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.705 mW/g; SAR(10 g) = 0.396 mW/g
Maximum value of SAR (measured) = 0.920 mW/g

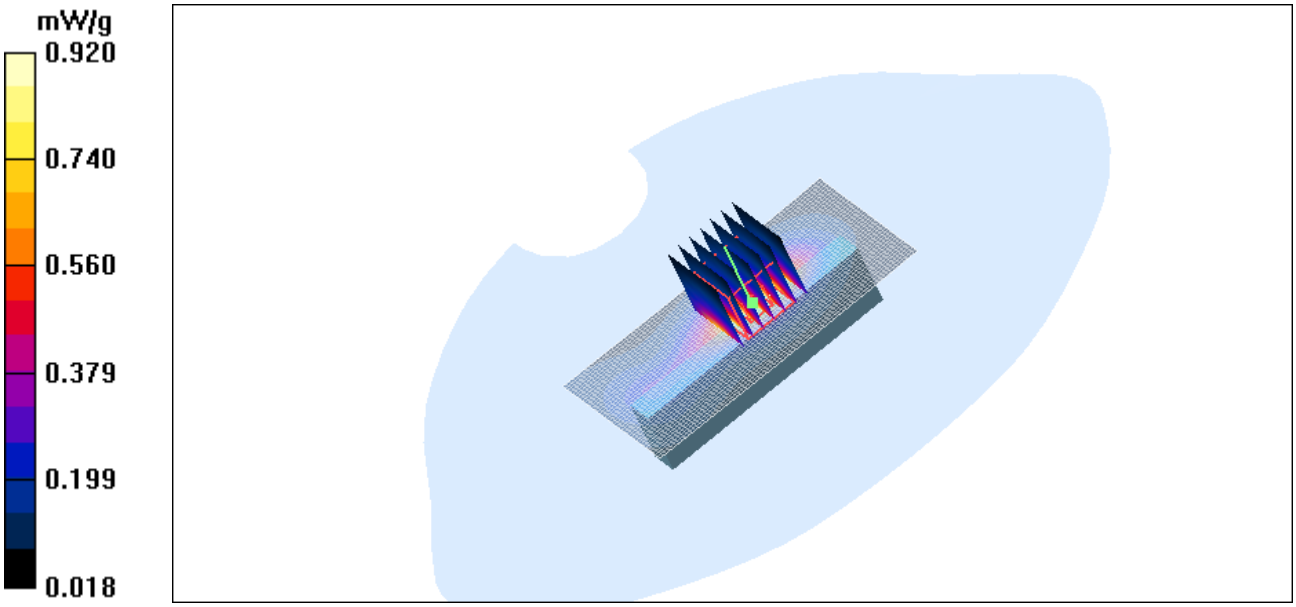


Figure 55 GSM 1900 GPRS (2 timeslots in uplink) with IBM T61 Test Position 4 at 180 degree Channel 661

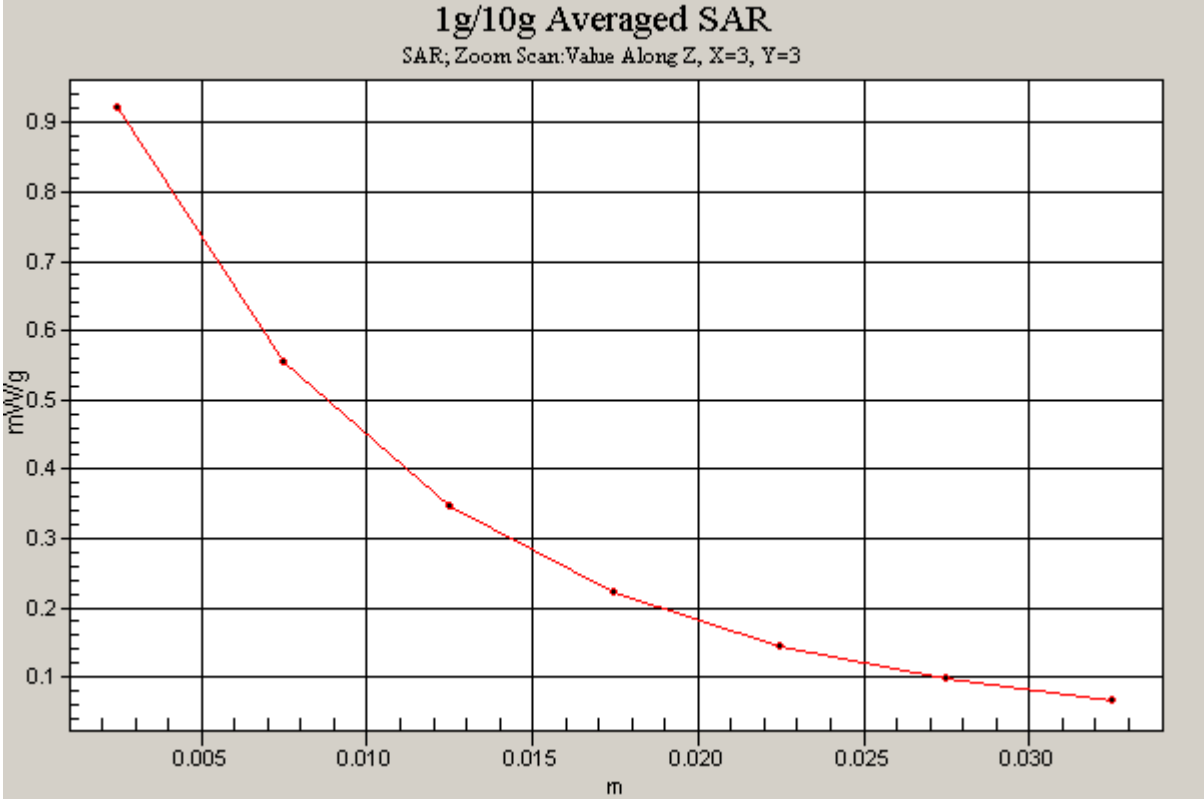


Figure 56 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with IBM T61 Test Position 4 at 180 degree Channel 661]

GSM 1900 GPRS (2 timeslots in uplink) with IBM T61 Test Position 5 at 180 degree Middle Frequency

Date/Time: 6/27/2009 12:55:52 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 5 Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.575 mW/g

Test Position 5 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.7 V/m; Power Drift = 0.188 dB
Peak SAR (extrapolated) = 0.778 W/kg
SAR(1 g) = 0.463 mW/g; SAR(10 g) = 0.264 mW/g
Maximum value of SAR (measured) = 0.600 mW/g

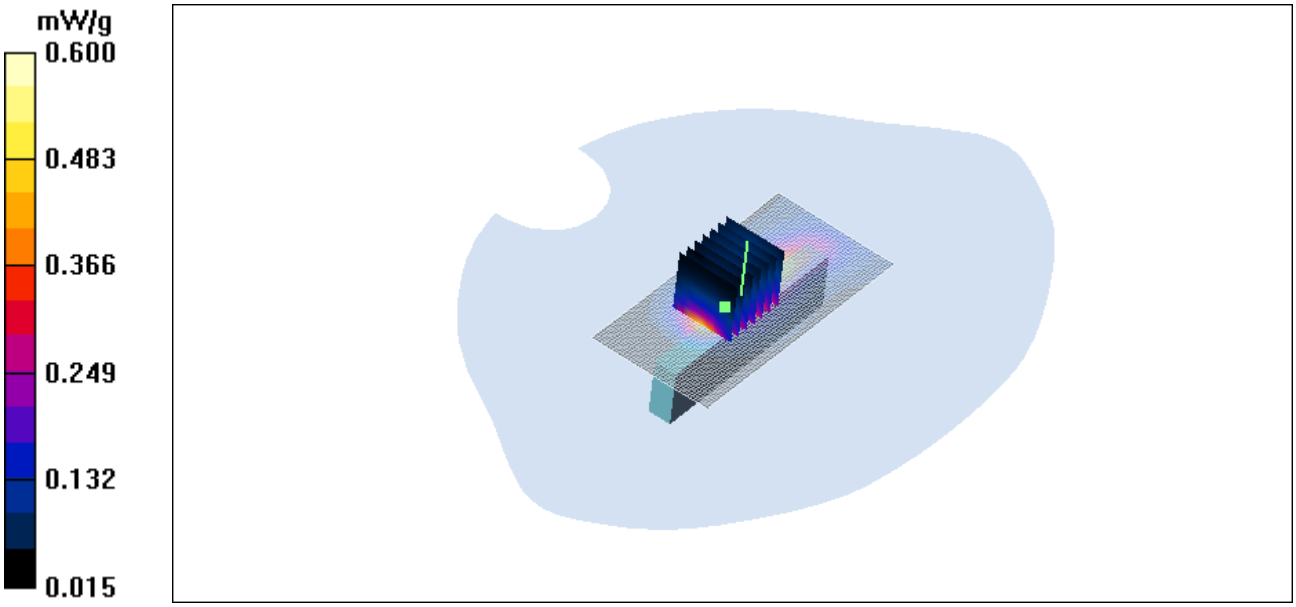


Figure 57 GSM 1900 GPRS (2 timeslots in uplink) with IBM T61 Test Position 5 at 180 degree Channel 661

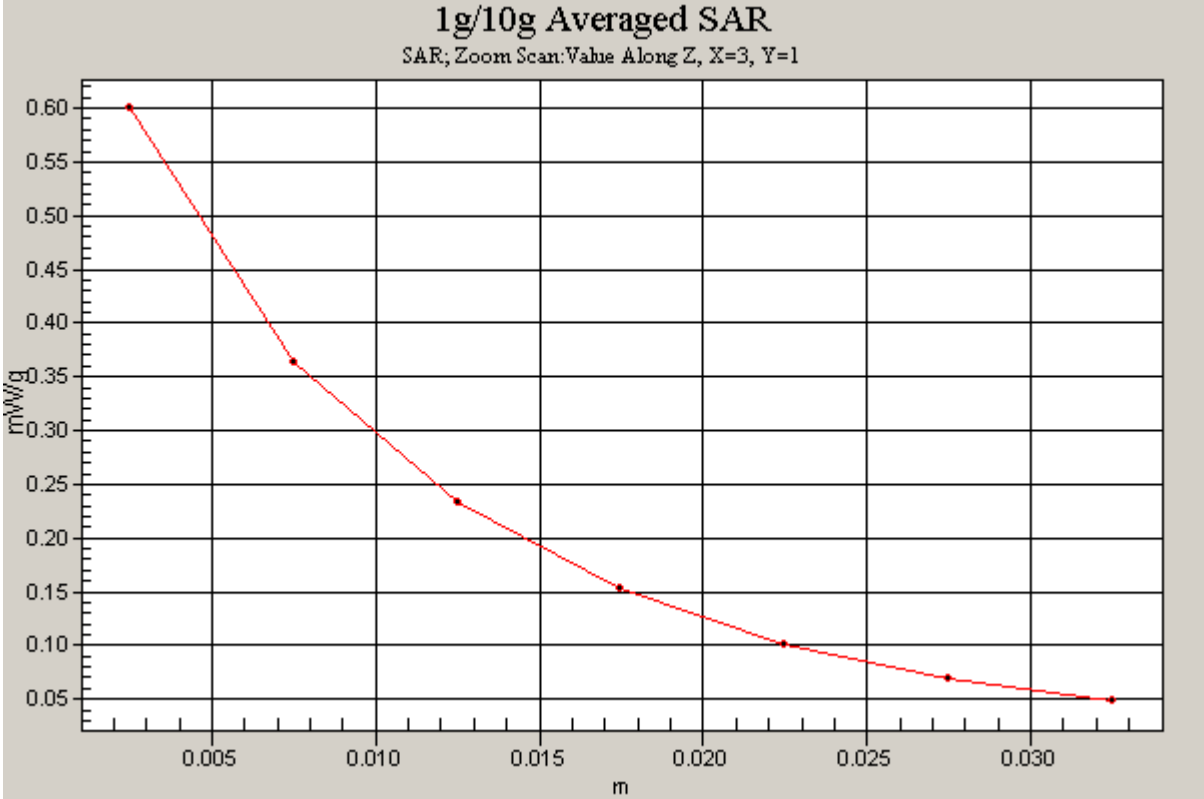


Figure 58 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with IBM T61 Test Position 5 at 180 degree Channel 661]

GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 90 degree Low Frequency

Date/Time: 6/28/2009 1:35:55 AM

Communication System: PCS 1900+GPRS(2Up); Frequency: 1850.2 MHz;Duty Cycle: 1:4

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

Maximum value of SAR (interpolated) = 1.05 mW/g

Test Position 2 Low /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.5 V/m; Power Drift = 0.110 dB

Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.833 mW/g; SAR(10 g) = 0.494 mW/g

Maximum value of SAR (measured) = 1.05 mW/g

Test Position 2 Low /Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.5 V/m; Power Drift = 0.110 dB

Peak SAR (extrapolated) = 0.985 W/kg

SAR(1 g) = 0.556 mW/g; SAR(10 g) = 0.328 mW/g

Maximum value of SAR (measured) = 0.713 mW/g

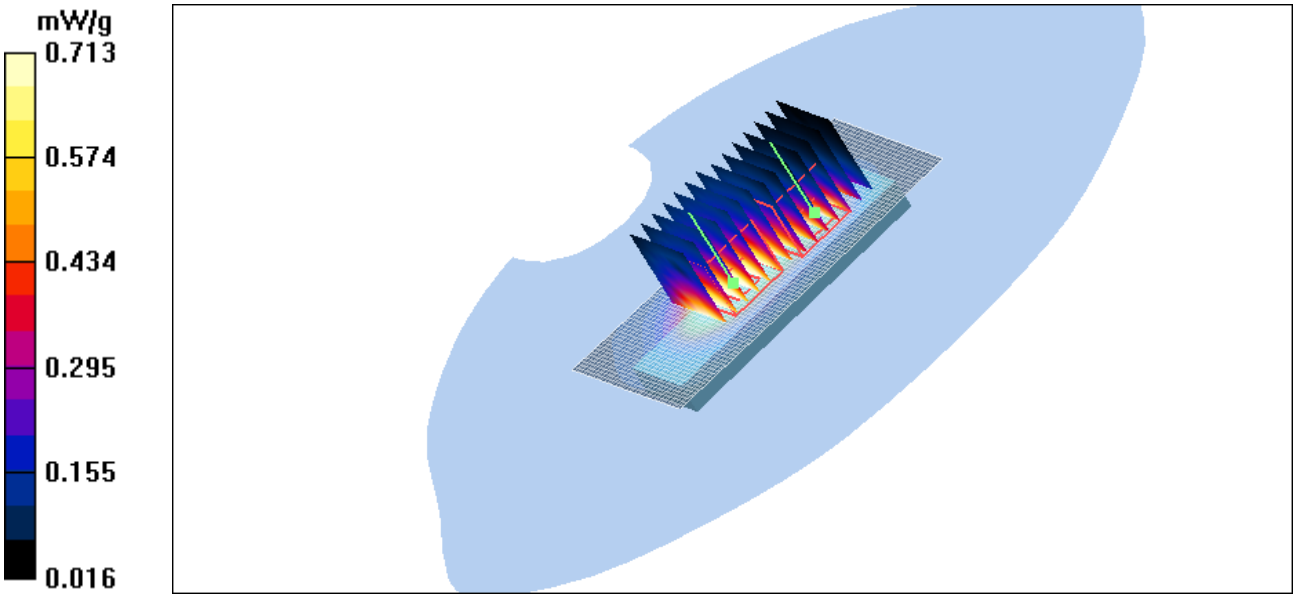
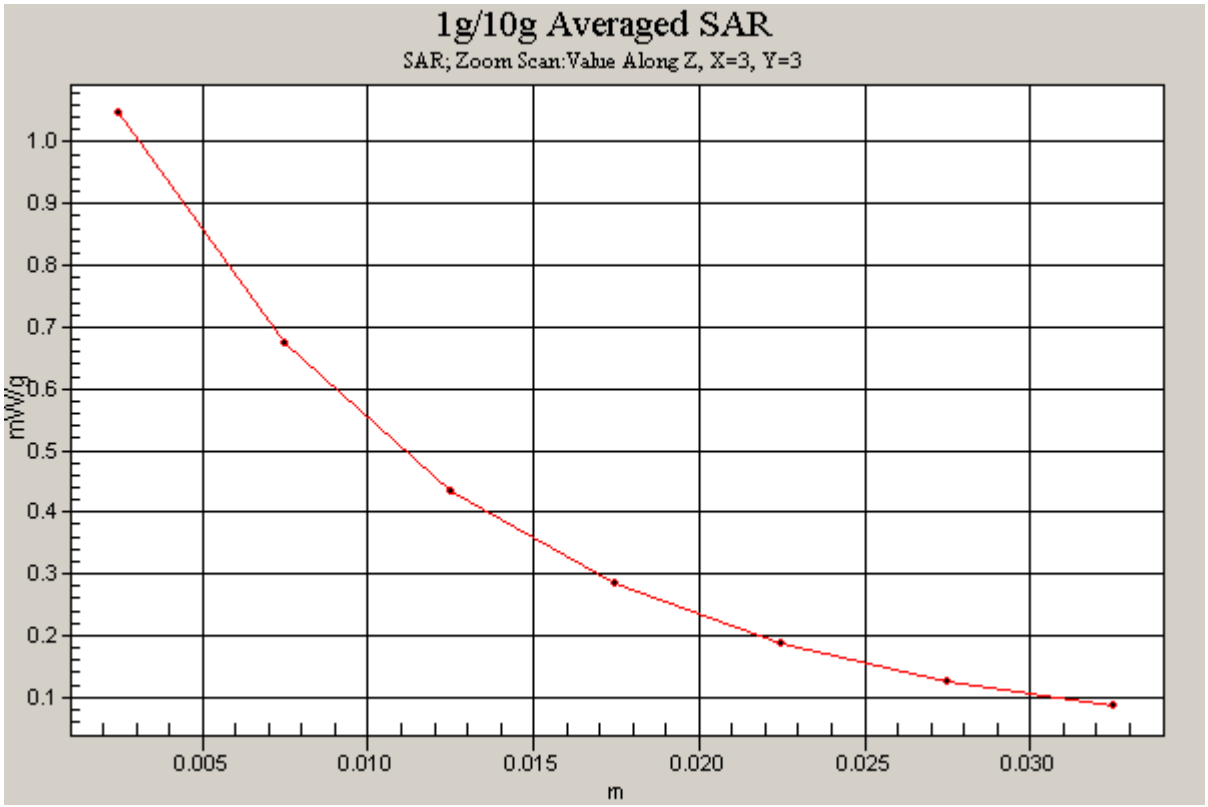


Figure 59 GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 90 degree Channel 512



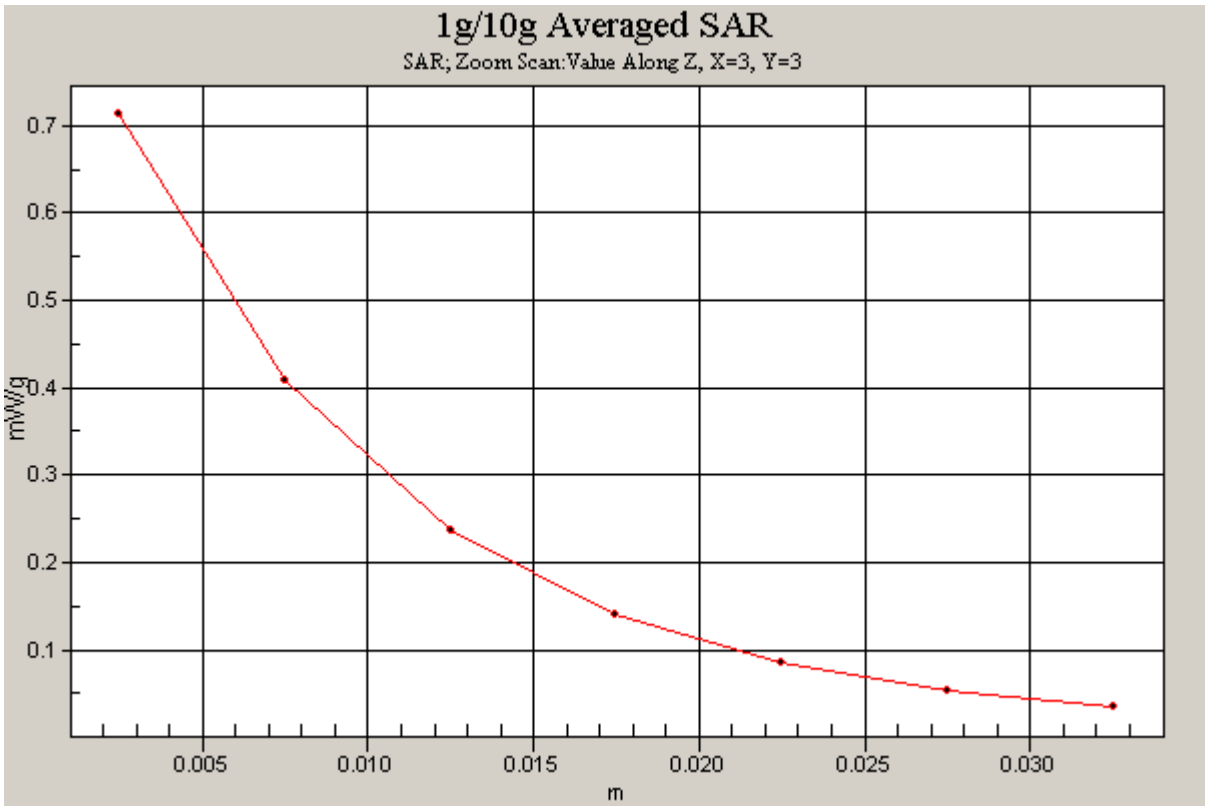


Figure 60 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 2 at 90 degree Channel 512]

GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/27/2009 11:00:47 PM

Communication System: PCS 1900+GPRS(2Up); Frequency: 1850.2 MHz;Duty Cycle: 1:4

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

Maximum value of SAR (interpolated) = 1.38 mW/g

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

Reference Value = 24.2 V/m; Power Drift = -0.124 dB

Peak SAR (extrapolated) = 1.63 W/kg

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.616 mW/g

Maximum value of SAR (measured) = 1.31 mW/g

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

Reference Value = 24.2 V/m; Power Drift = -0.124 dB

Peak SAR (extrapolated) = 1.64 W/kg

SAR(1 g) = 0.745 mW/g; SAR(10 g) = 0.355 mW/g

Maximum value of SAR (measured) = 1.07 mW/g

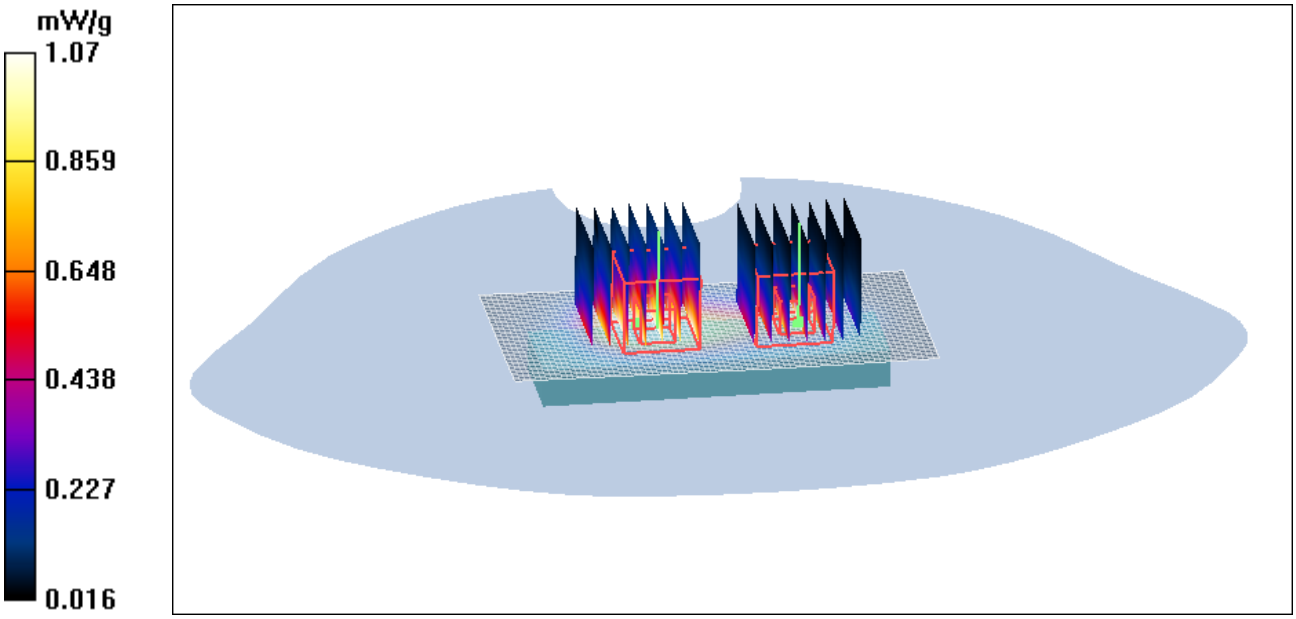
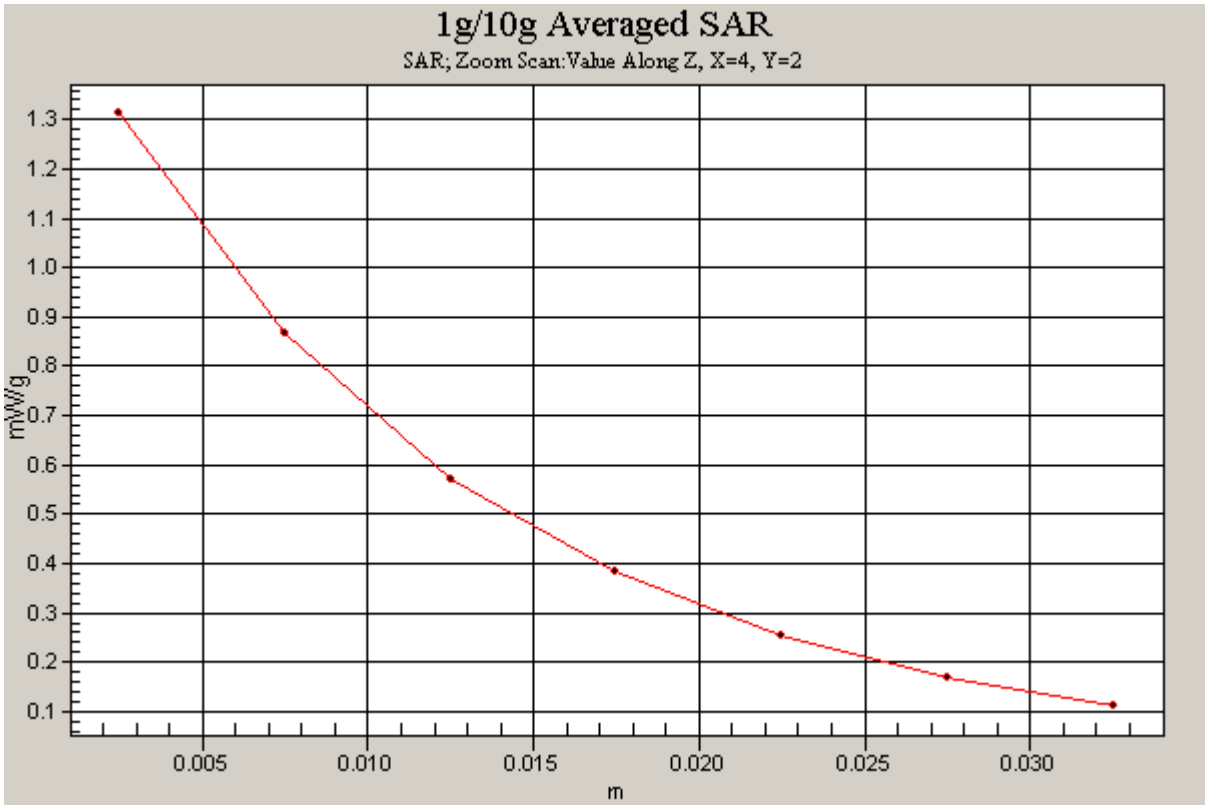


Figure 61 GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512



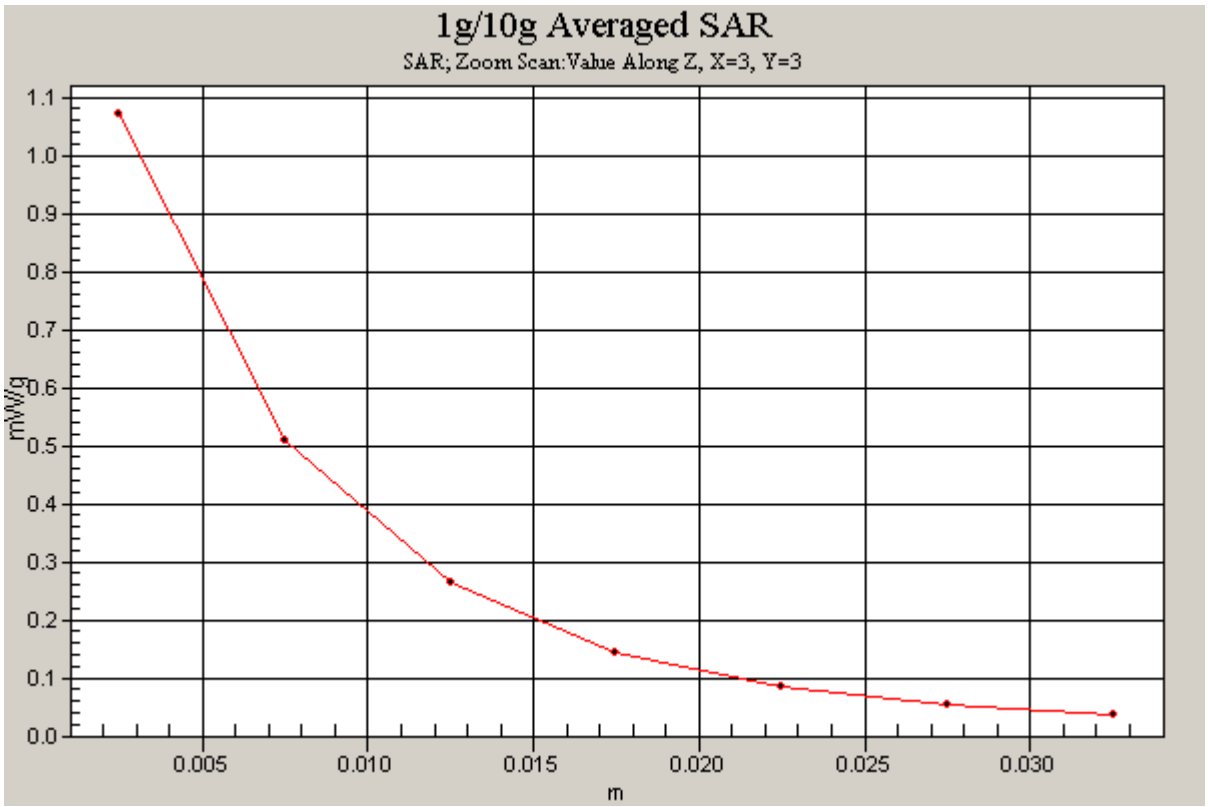


Figure 62 Z-Scan at power reference point [GSM 1900 GPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512]

GSM 1900 EGPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 4:02:08 AM

Communication System: PCS 1900+EGPRS(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 1 Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.45 mW/g

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

Reference Value = 26.4 V/m; Power Drift = -0.070 dB

Peak SAR (extrapolated) = 1.37 W/kg

SAR(1 g) = 0.917 mW/g; SAR(10 g) = 0.532 mW/g

Maximum value of SAR (measured) = 1.15 mW/g

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

Reference Value = 26.4 V/m; Power Drift = -0.070 dB

Peak SAR (extrapolated) = 1.69 W/kg

SAR(1 g) = 0.756 mW/g; SAR(10 g) = 0.370 mW/g

Maximum value of SAR (measured) = 1.09 mW/g

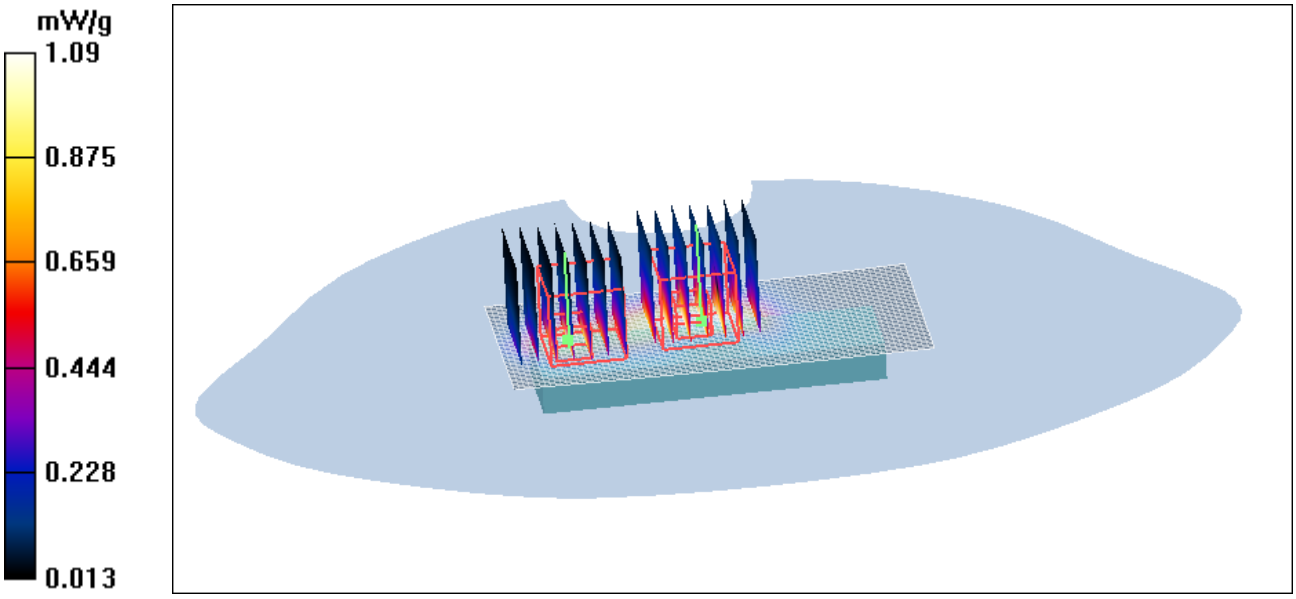
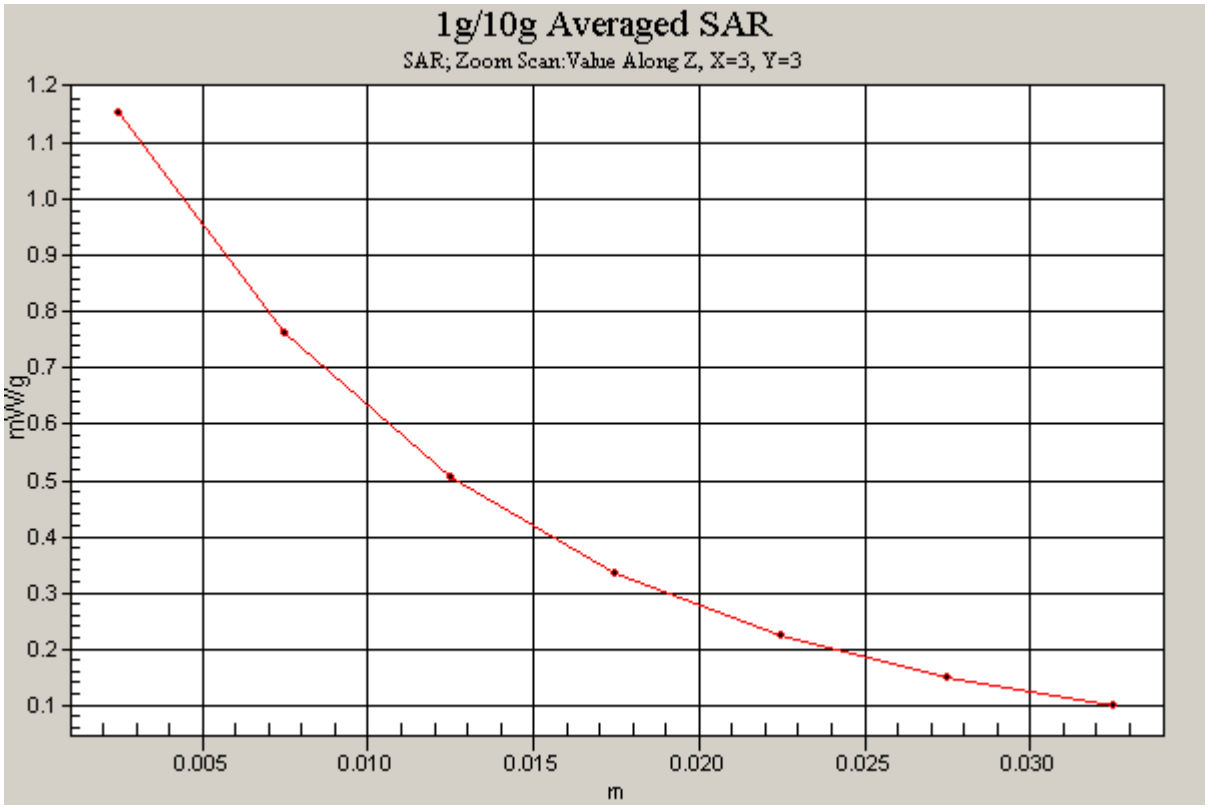


Figure 63 GSM 1900 EGPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512



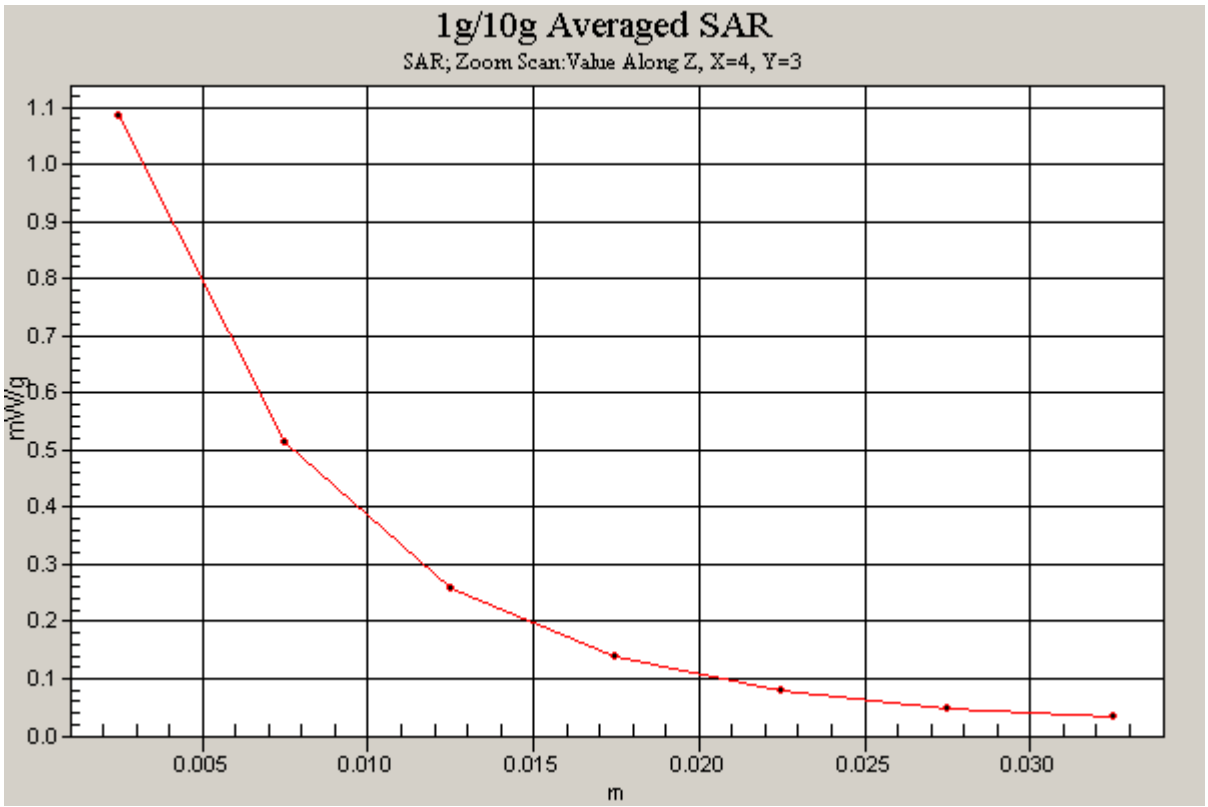


Figure 64 Z-Scan at power reference point [GSM 1900 EGPRS (4 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512]

GSM 1900 EGPRS (3 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 3:32:55 AM

Communication System: PCS 1900+EGPRS(3Up); Frequency: 1850.2 MHz;Duty Cycle: 1:2.67

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

Maximum value of SAR (interpolated) = 1.22 mW/g

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

Reference Value = 26.4 V/m; Power Drift = -0.128 dB

Peak SAR (extrapolated) = 1.43 W/kg

SAR(1 g) = 0.916 mW/g; SAR(10 g) = 0.541 mW/g

Maximum value of SAR (measured) = 1.15 mW/g

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

Reference Value = 26.4 V/m; Power Drift = -0.128 dB

Peak SAR (extrapolated) = 3.26 W/kg

SAR(1 g) = 0.747 mW/g; SAR(10 g) = 0.367 mW/g

Maximum value of SAR (measured) = 1.06 mW/g

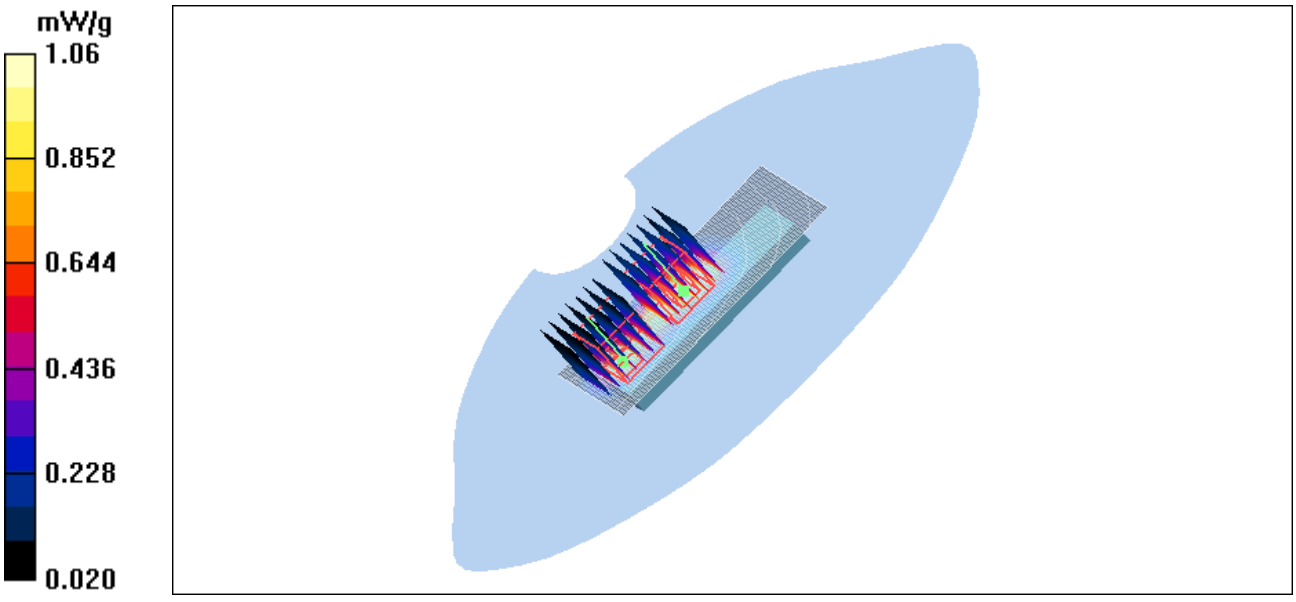
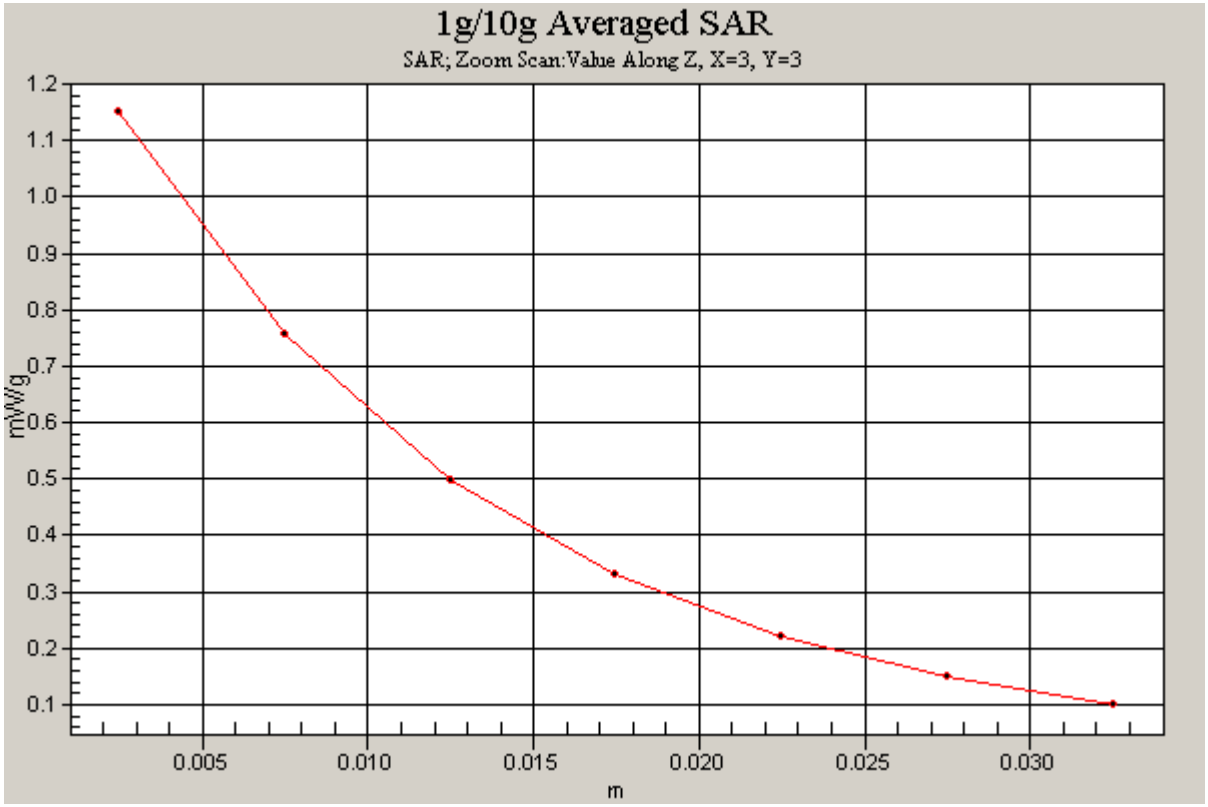


Figure 65 GSM 1900 EGPRS (3 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512



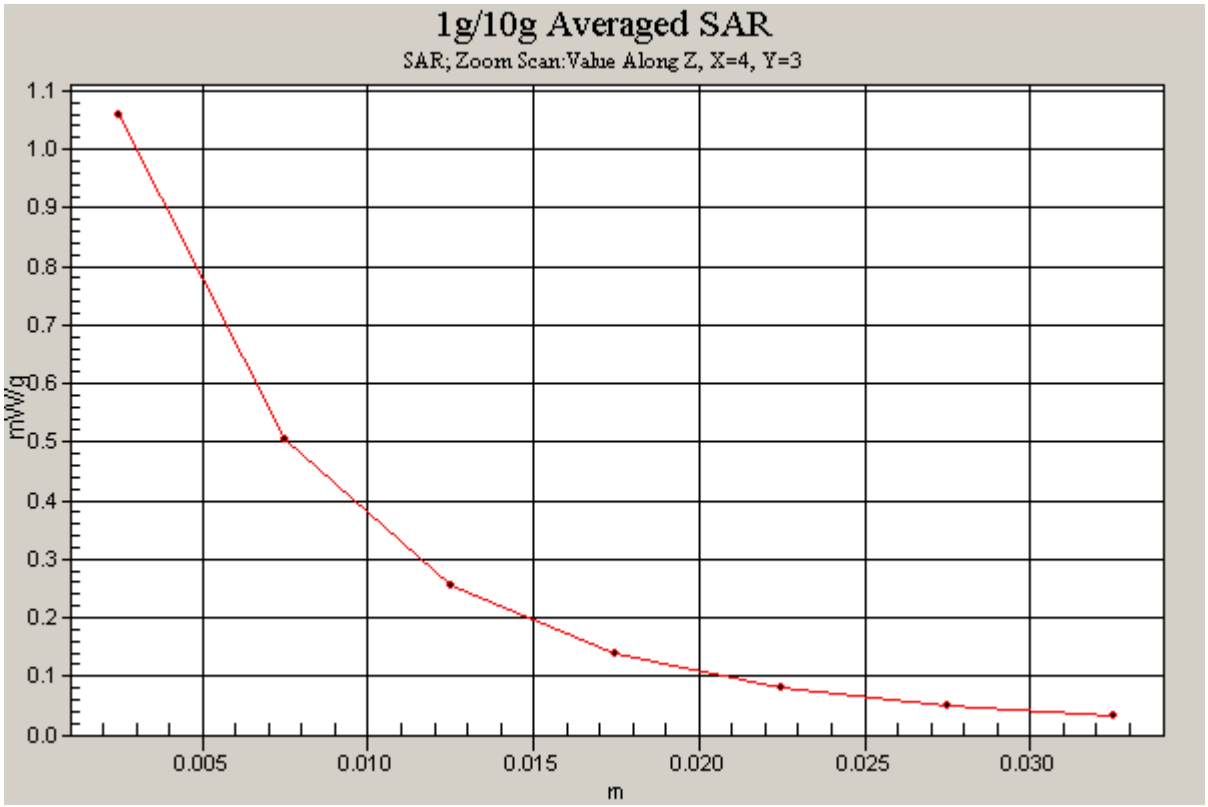


Figure 66 Z-Scan at power reference point [GSM 1900 EGPRS (3 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512]

GSM 1900 EGPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 3:02:08 AM

Communication System: PCS 1900+EGPRS(2Up); Frequency: 1850.2 MHz;Duty Cycle: 1:4

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

Maximum value of SAR (interpolated) = 1.29 mW/g

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

Reference Value = 27.2 V/m; Power Drift = 0.081 dB

Peak SAR (extrapolated) = 1.49 W/kg

SAR(1 g) = 0.961 mW/g; SAR(10 g) = 0.569 mW/g

Maximum value of SAR (measured) = 1.20 mW/g

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

Reference Value = 27.2 V/m; Power Drift = 0.081 dB

Peak SAR (extrapolated) = 2.80 W/kg

SAR(1 g) = 0.788 mW/g; SAR(10 g) = 0.384 mW/g

Maximum value of SAR (measured) = 1.10 mW/g

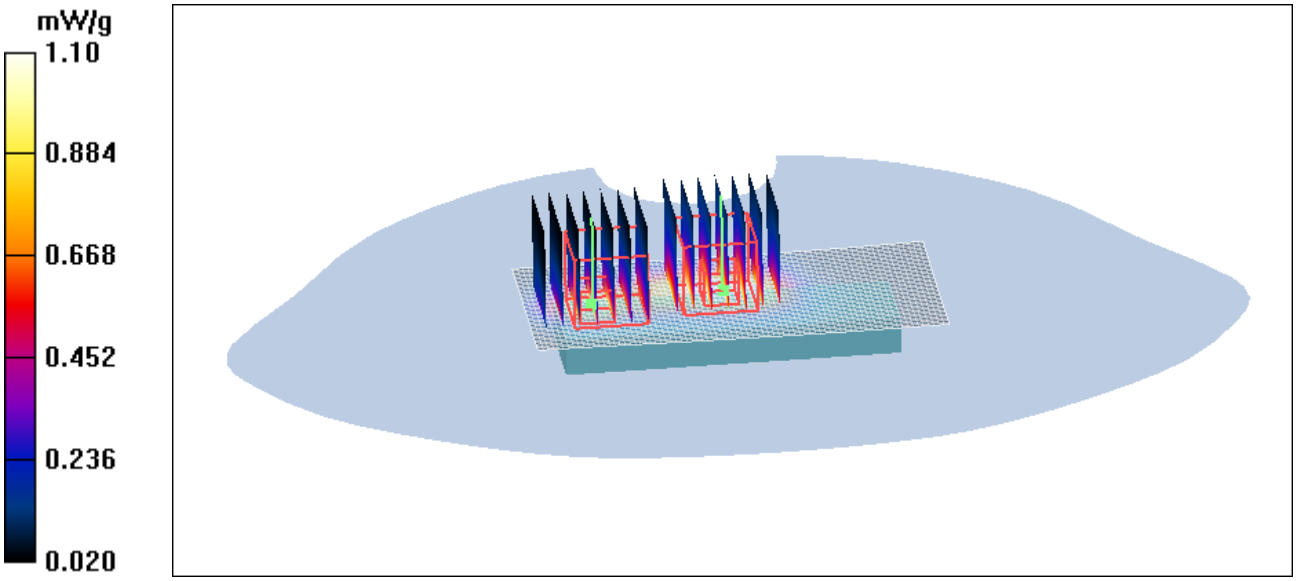
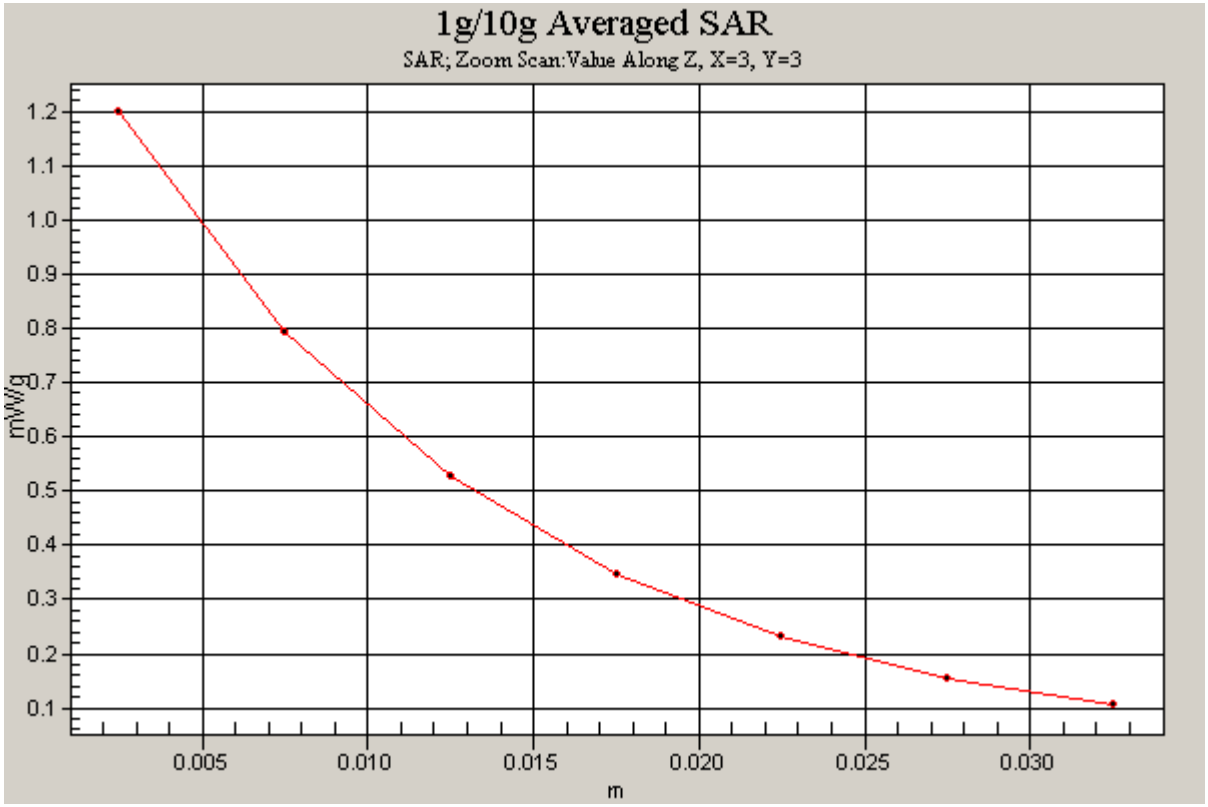


Figure 67 GSM 1900 EGPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512



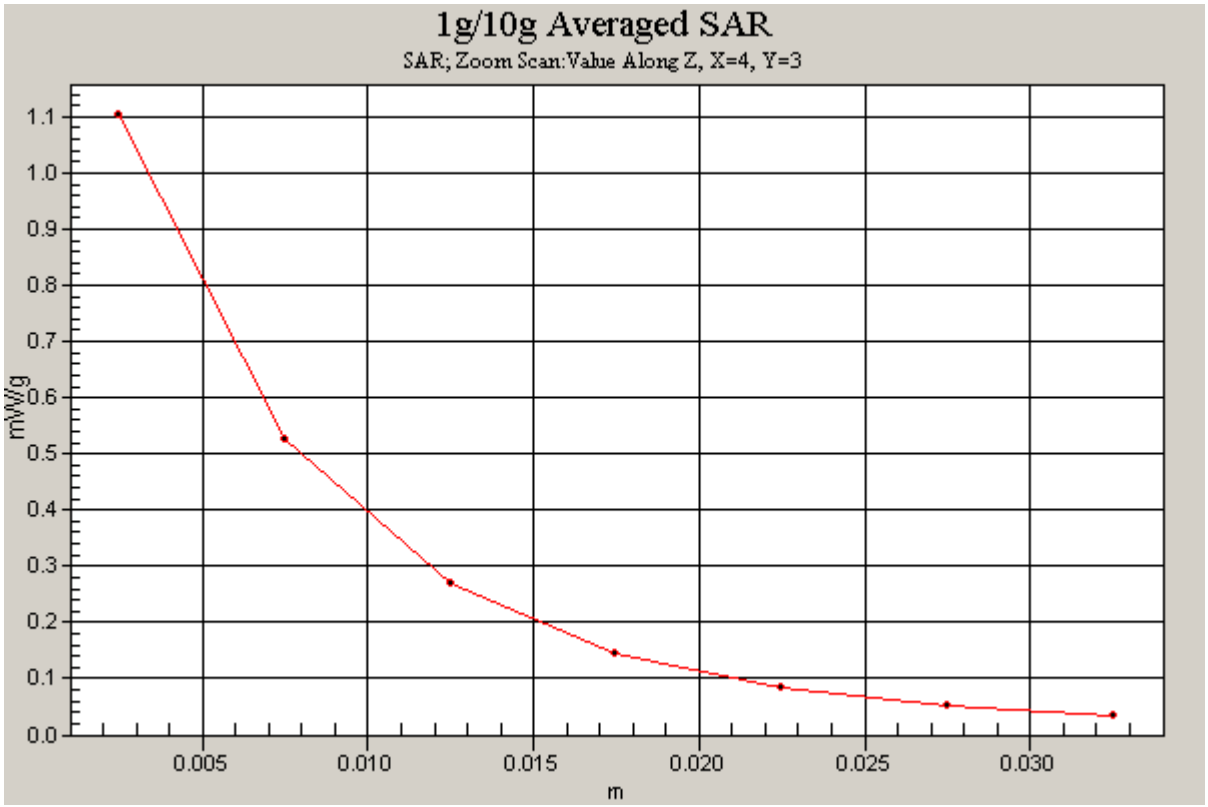


Figure 68 Z-Scan at power reference point [GSM 1900 EGPRS (2 timeslots in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512]

GSM 1900 EGPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 4:34:02 AM

Communication System: PCS 1900+EGPRS(1Up); Frequency: 1850.2 MHz;Duty Cycle: 1:8

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

Maximum value of SAR (interpolated) = 0.895 mW/g

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

Reference Value = 22.5 V/m; Power Drift = 0.107 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.720 mW/g; SAR(10 g) = 0.427 mW/g

Maximum value of SAR (measured) = 0.892 mW/g

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

Reference Value = 22.5 V/m; Power Drift = 0.107 dB

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.596 mW/g; SAR(10 g) = 0.294 mW/g

Maximum value of SAR (measured) = 0.843 mW/g

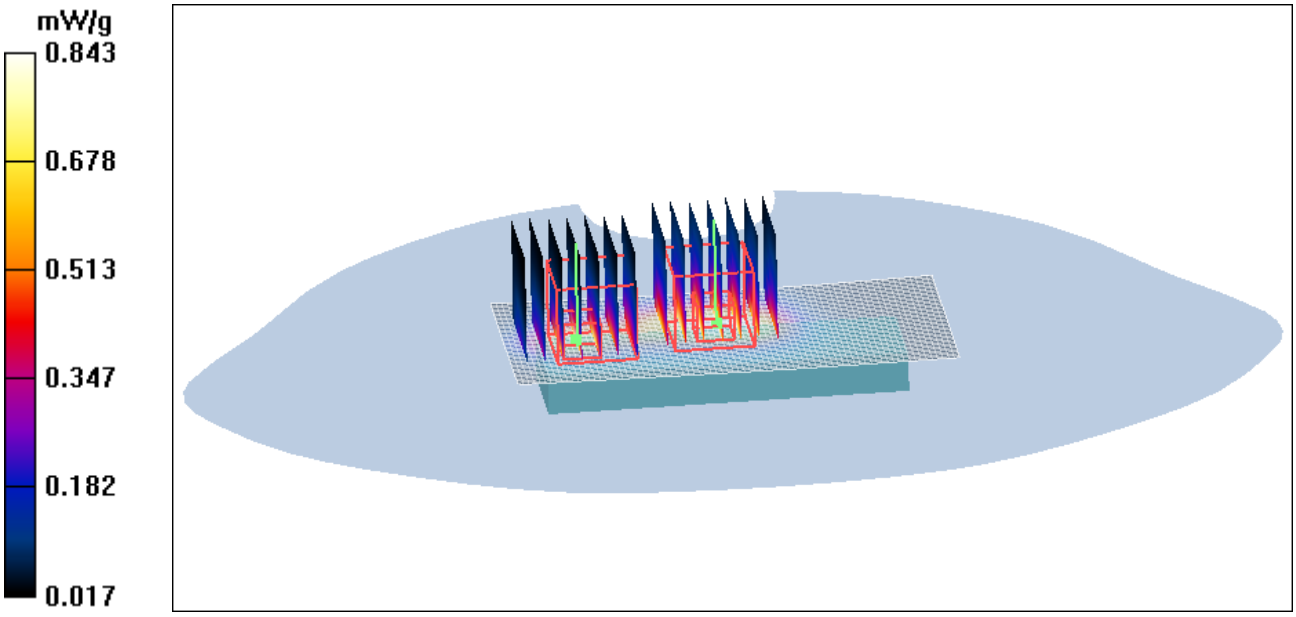
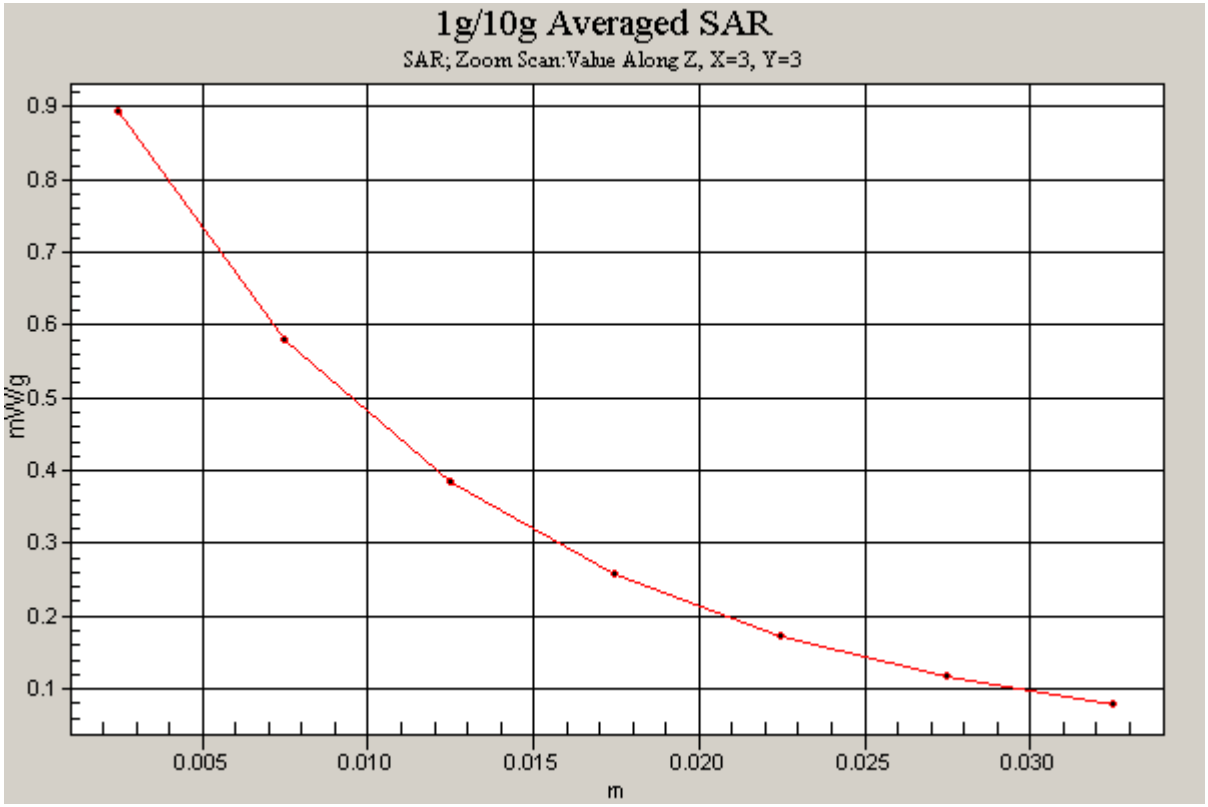


Figure 69 GSM 1900 EGPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512



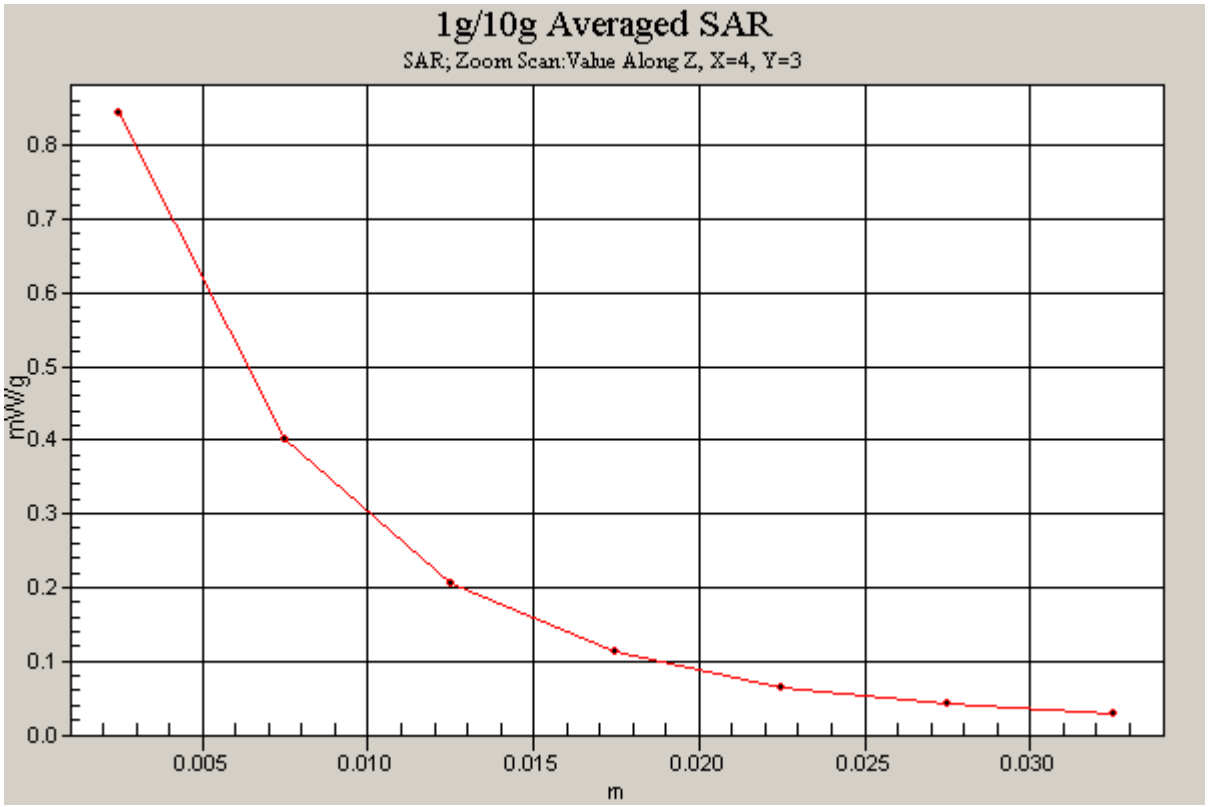


Figure 70 Z-Scan at power reference point [GSM 1900 EGPRS (1 timeslot in uplink) with BenQ Joybook R55V Test Position 1 at 270 degree Channel 512]

WCDMA Band II with BenQ Joybook R55V Test Position 1 at 180 degree High Frequency

Date/Time: 6/27/2009 3:15:23 PM

Communication System: WCDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1908 MHz; σ = 1.56 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 1 High/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.38 mW/g

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

Reference Value = 20.5 V/m; Power Drift = -0.170 dB

Peak SAR (extrapolated) = 1.98 W/kg

SAR(1 g) = 0.989 mW/g; SAR(10 g) = 0.544 mW/g

Maximum value of SAR (measured) = 1.35 mW/g

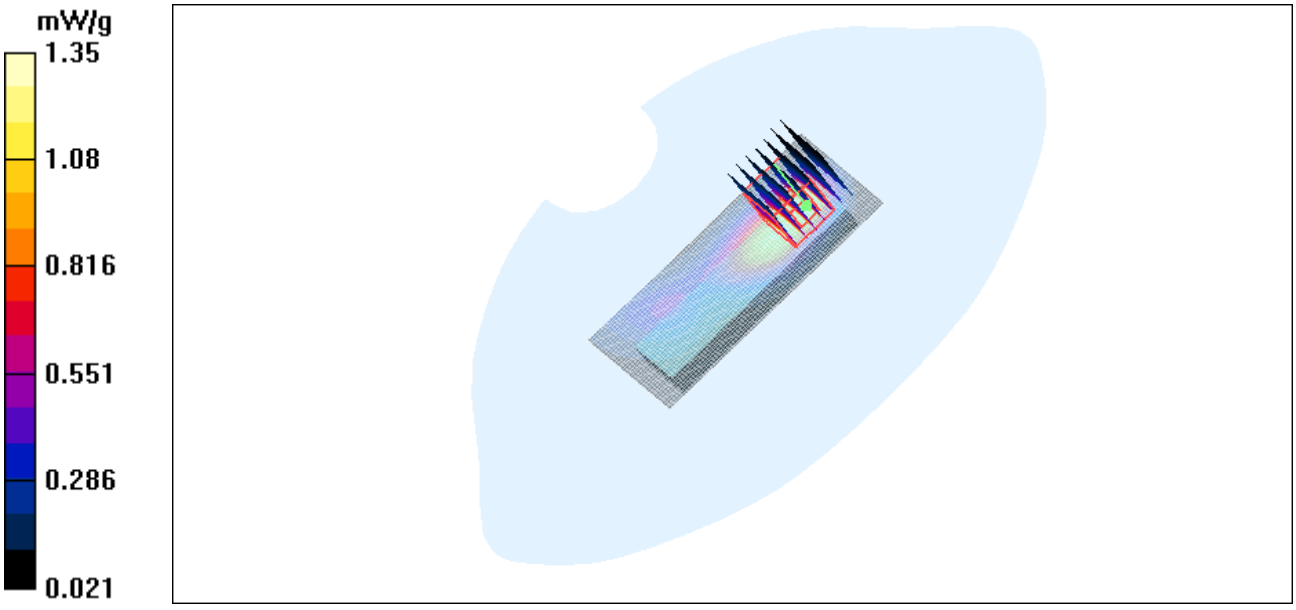


Figure 71 WCDMA Band II with BenQ Joybook R55V Test Position 1 at 180 degree Channel 9538

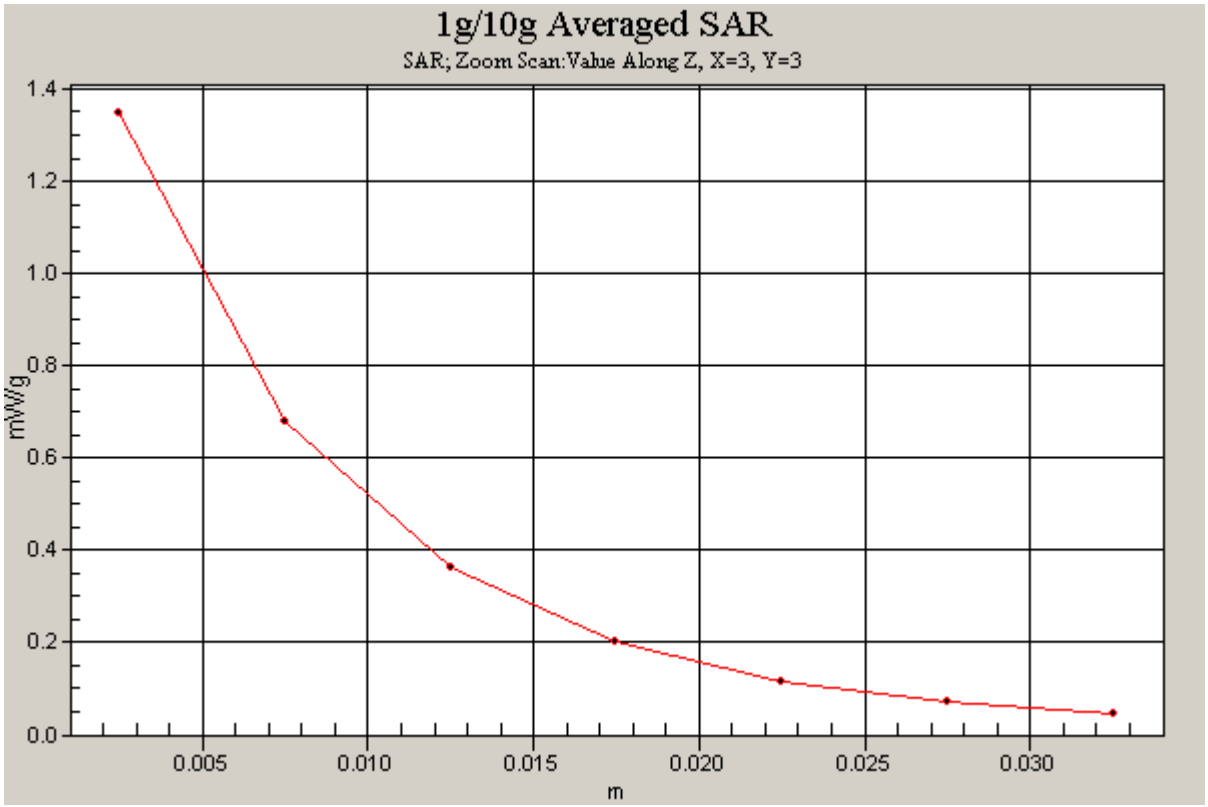


Figure 72 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test Position 1 at 180 degree Channel 9538]

WCDMA Band II with BenQ Joybook R55V Test Position 1 at 180 degree Middle Frequency

Date/Time: 6/27/2009 2:41:54 PM
Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
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) = 1.43 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.0 V/m; Power Drift = 0.021 dB
Peak SAR (extrapolated) = 2.07 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.567 mW/g
Maximum value of SAR (measured) = 1.41 mW/g

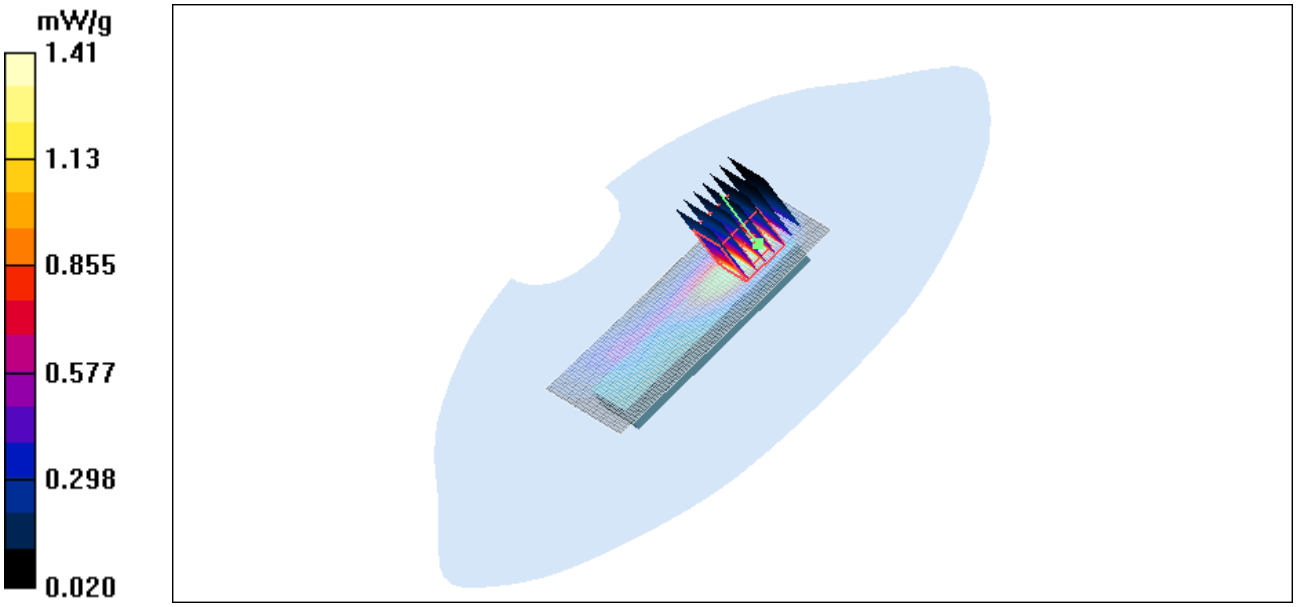


Figure 73 WCDMA Band II with BenQ Joybook R55V Test Position 1 at 180 degree Channel 9400

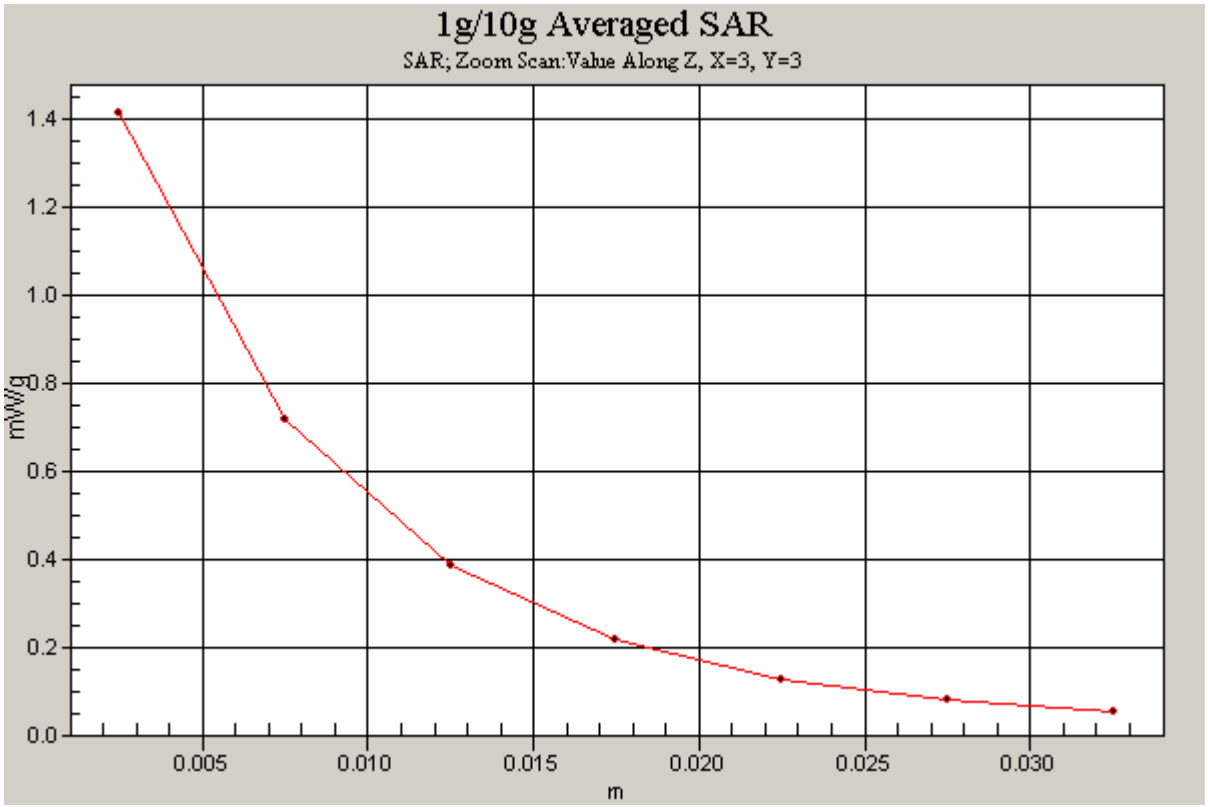


Figure 74 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test Position 1 at 180 degree Channel 9400]

WCDMA Band II with BenQ Joybook R55V Test Position 1 at 180 degree Low Frequency

Date/Time: 6/27/2009 2:58:29 PM

Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1852.4 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 1 Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.61 mW/g

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

Reference Value = 21.2 V/m; Power Drift = -0.105 dB

Peak SAR (extrapolated) = 2.25 W/kg

SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.619 mW/g

Maximum value of SAR (measured) = 1.55 mW/g

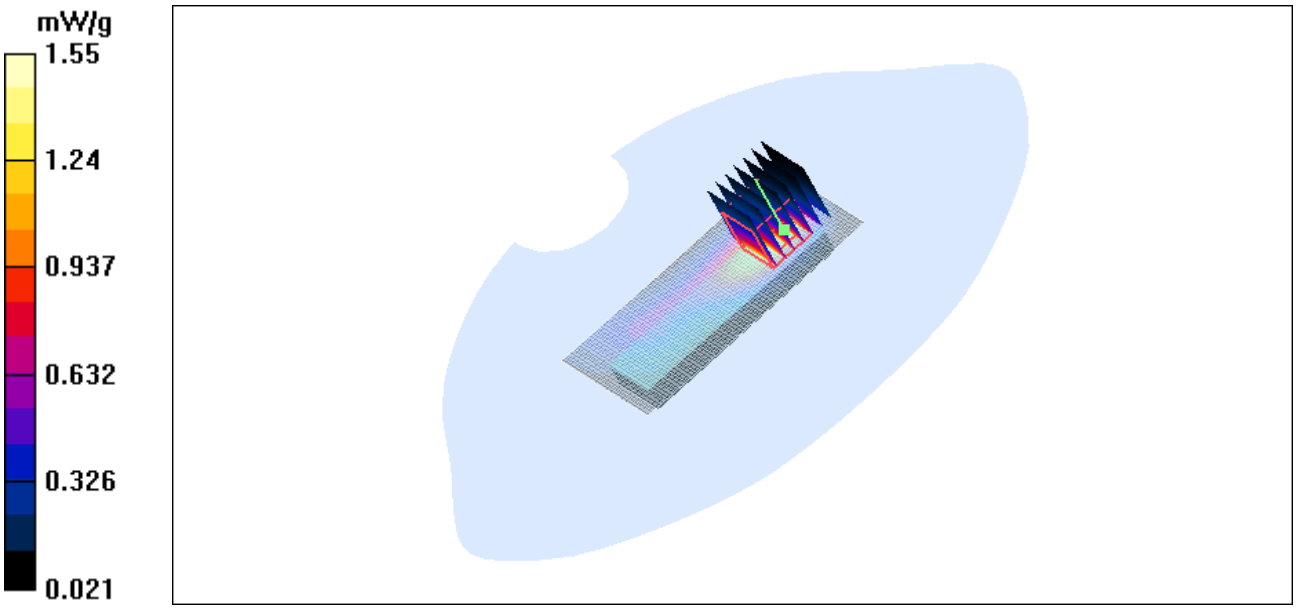


Figure 75 WCDMA Band II with BenQ Joybook R55V Test Position 1 at 180 degree Channel 9262

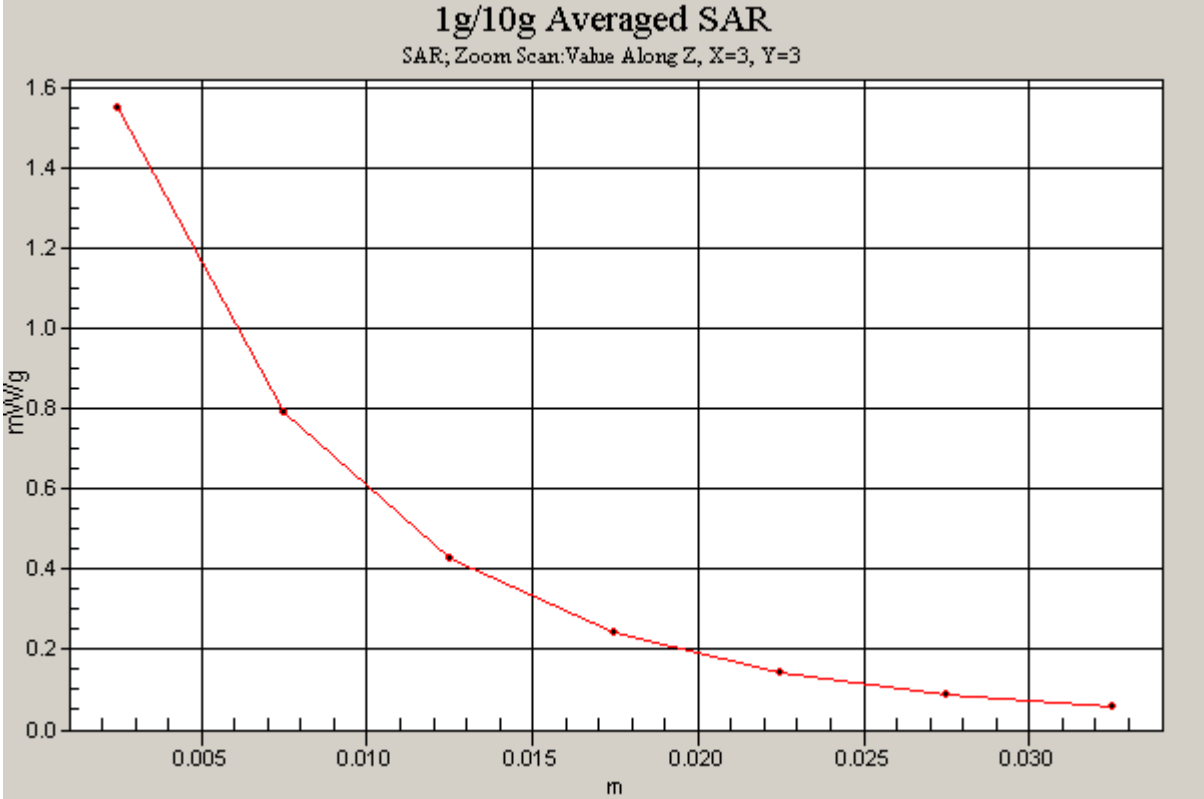


Figure 76 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test Position 1 at 180 degree Channel 9262]

WCDMA Band II with BenQ Joybook R55V Test Position 2 at 180 degree High Frequency

Date/Time: 6/27/2009 8:08:54 PM

Communication System: WCDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1908 MHz; σ = 1.56 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 2 High/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.07 mW/g

Test Position 2 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.8 V/m; Power Drift = 0.108 dB

Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.735 mW/g; SAR(10 g) = 0.445 mW/g

Maximum value of SAR (measured) = 0.945 mW/g

Test Position 2 High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.8 V/m; Power Drift = 0.108 dB

Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.722 mW/g; SAR(10 g) = 0.384 mW/g

Maximum value of SAR (measured) = 0.962 mW/g

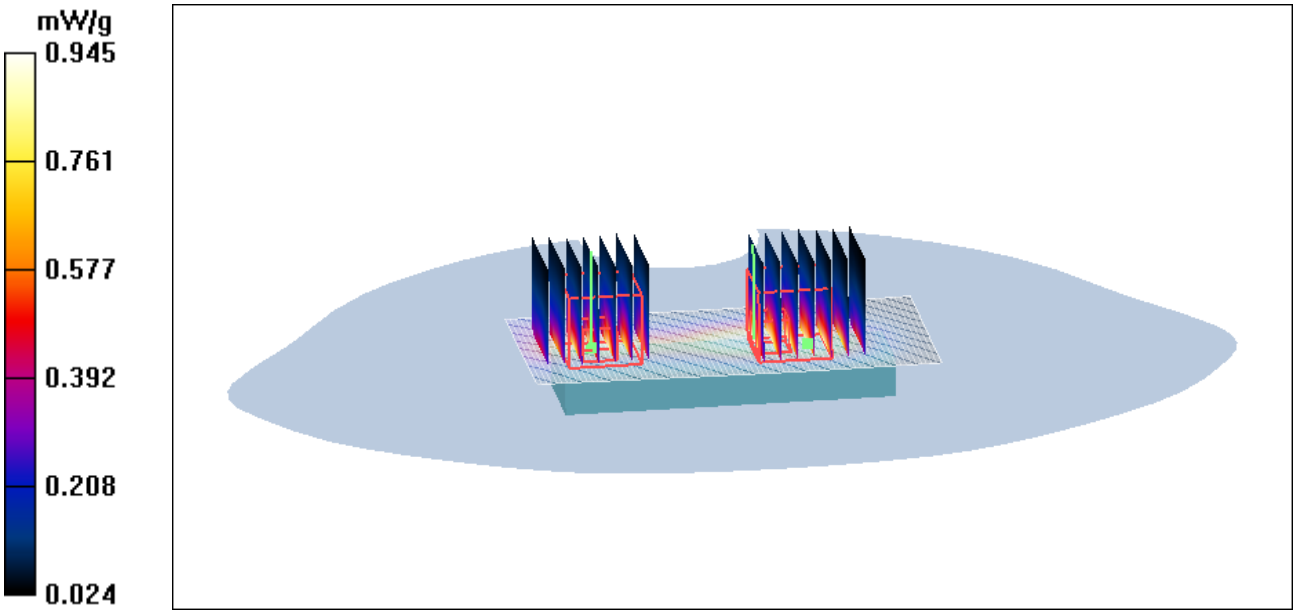
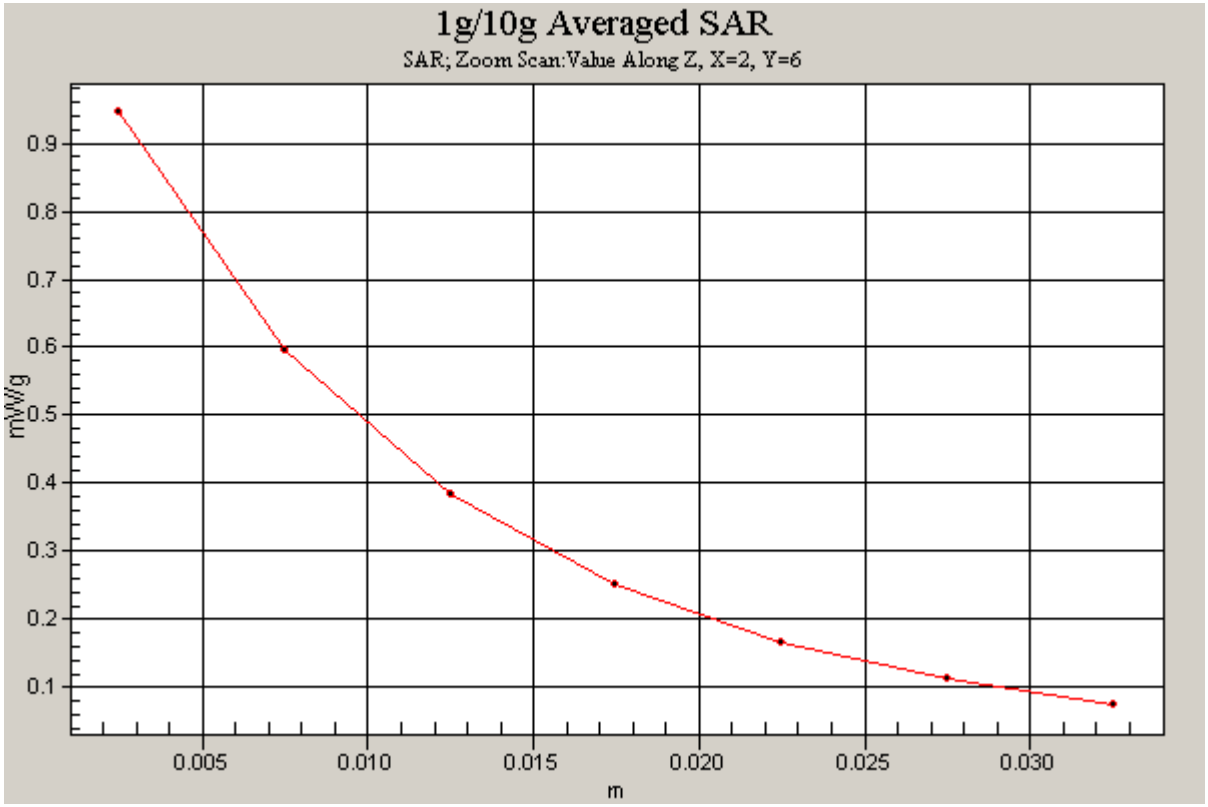


Figure 77 WCDMA Band II with BenQ Joybook R55V Test Position 2 at 180 degree Channel 9538



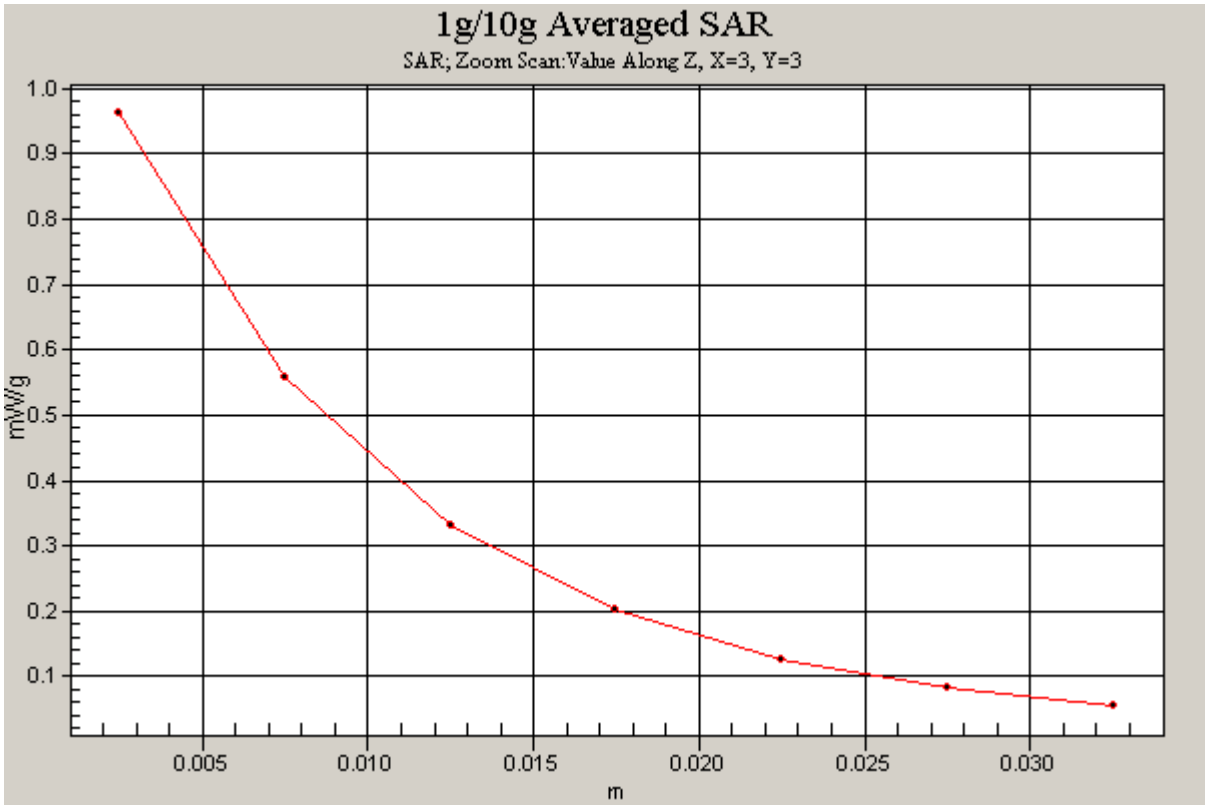


Figure 78 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test at 180 degree Position 2 Channel 9538]

WCDMA Band II with BenQ Joybook R55V Test Position 2 at 180 degree Middle Frequency

Date/Time: 6/27/2009 7:40:59 PM
Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
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) = 1.17 mW/g
Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.9 V/m; Power Drift = -0.179 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.787 mW/g; SAR(10 g) = 0.478 mW/g
Maximum value of SAR (measured) = 1.01 mW/g
Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.9 V/m; Power Drift = -0.179 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.730 mW/g; SAR(10 g) = 0.391 mW/g
Maximum value of SAR (measured) = 0.963 mW/g

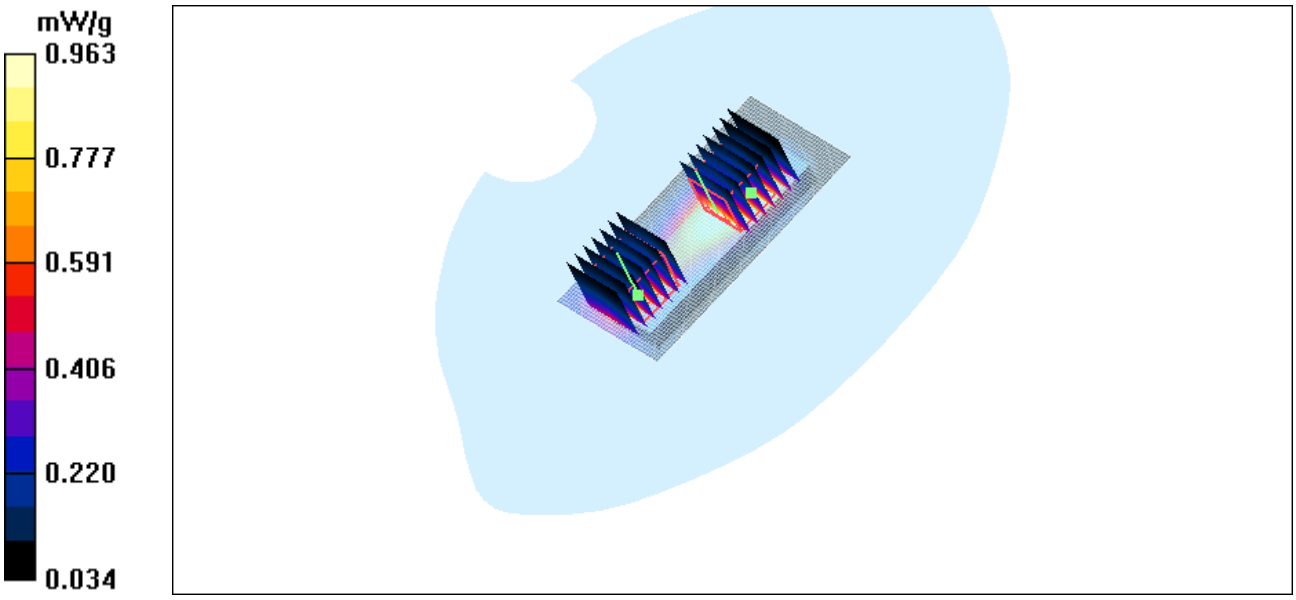
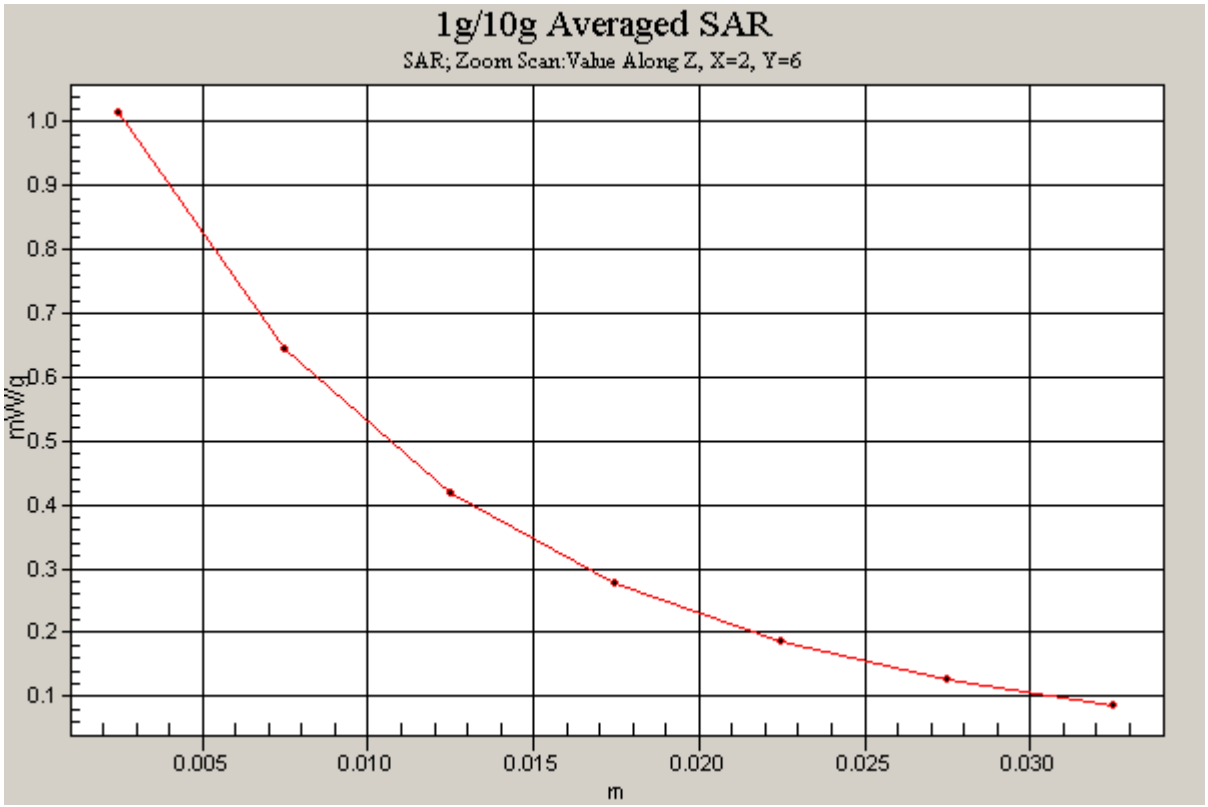


Figure 79 WCDMA Band II with BenQ Joybook R55V Test Position 2 at 180 degree Channel 9400



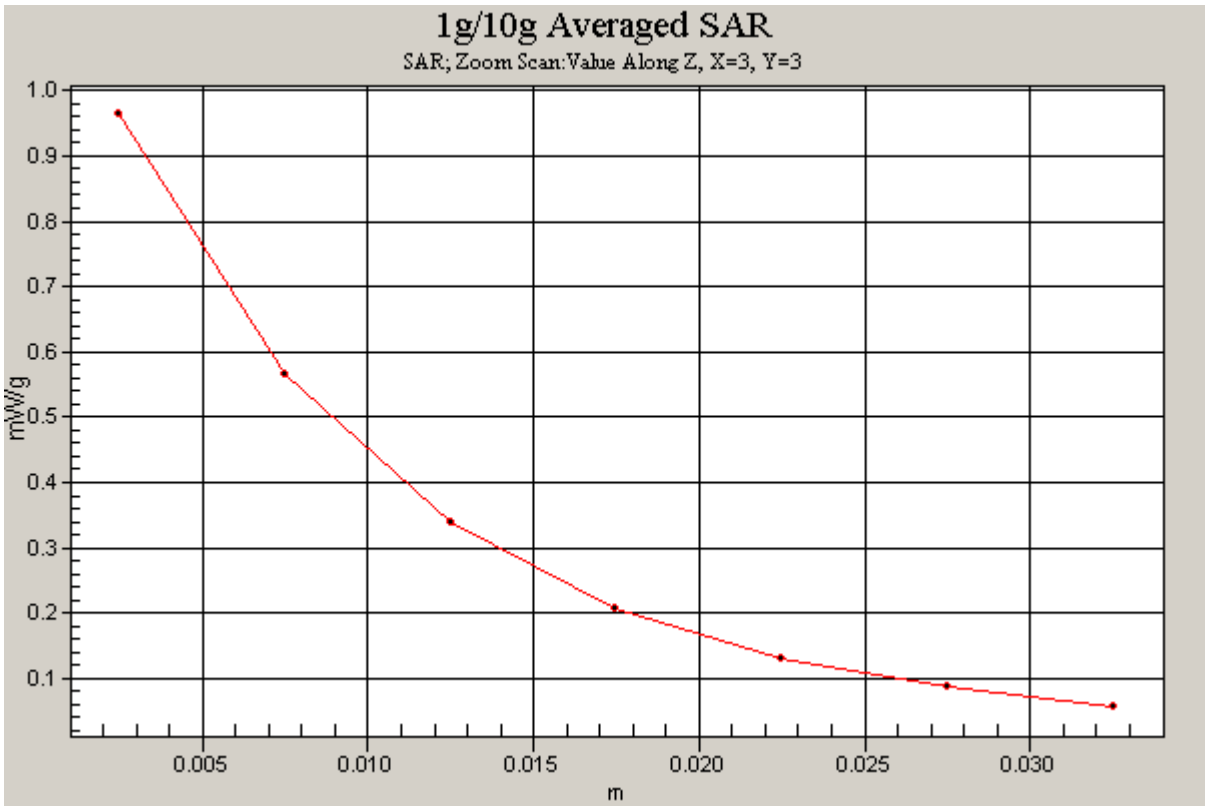


Figure 80 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test Position 2 at 180 degree Channel 9400]

WCDMA Band II with BenQ Joybook R55V Test Position 2 at 180 degree Low Frequency

Date/Time: 6/27/2009 8:37:07 PM

Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1852.4 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 2 Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.24 mW/g

Test Position 2 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.7 V/m; Power Drift = -0.140 dB

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 0.877 mW/g; SAR(10 g) = 0.524 mW/g

Maximum value of SAR (measured) = 1.12 mW/g

Test Position 2 Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.7 V/m; Power Drift = -0.140 dB

Peak SAR (extrapolated) = 1.45 W/kg

SAR(1 g) = 0.816 mW/g; SAR(10 g) = 0.434 mW/g

Maximum value of SAR (measured) = 1.10 mW/g

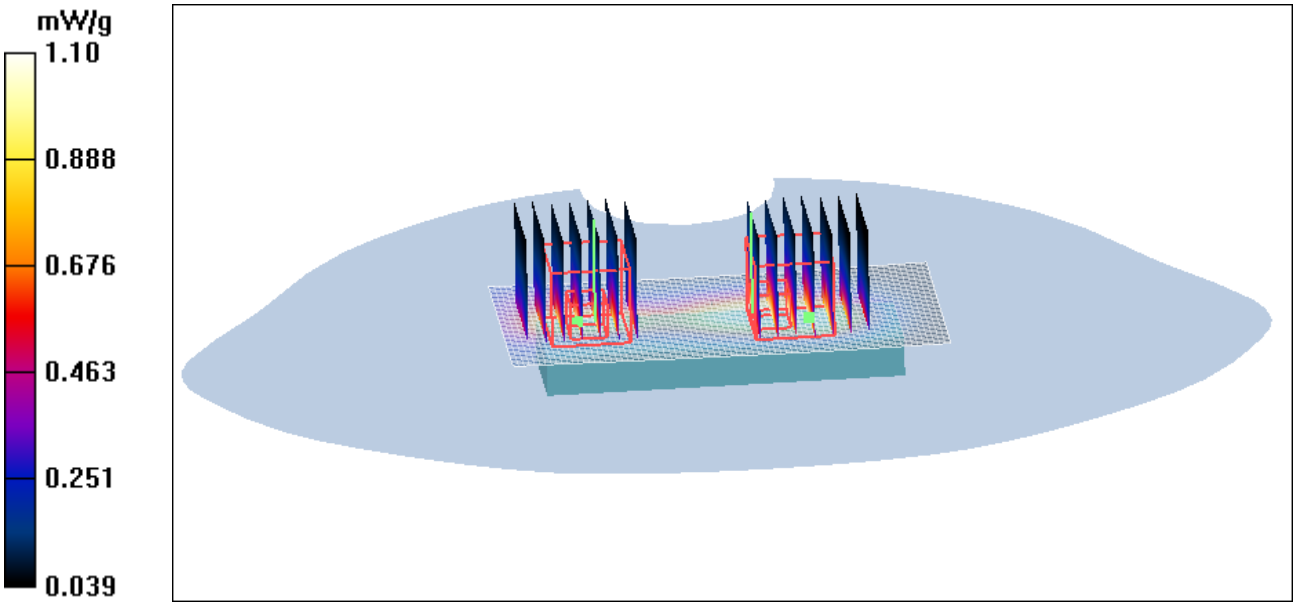
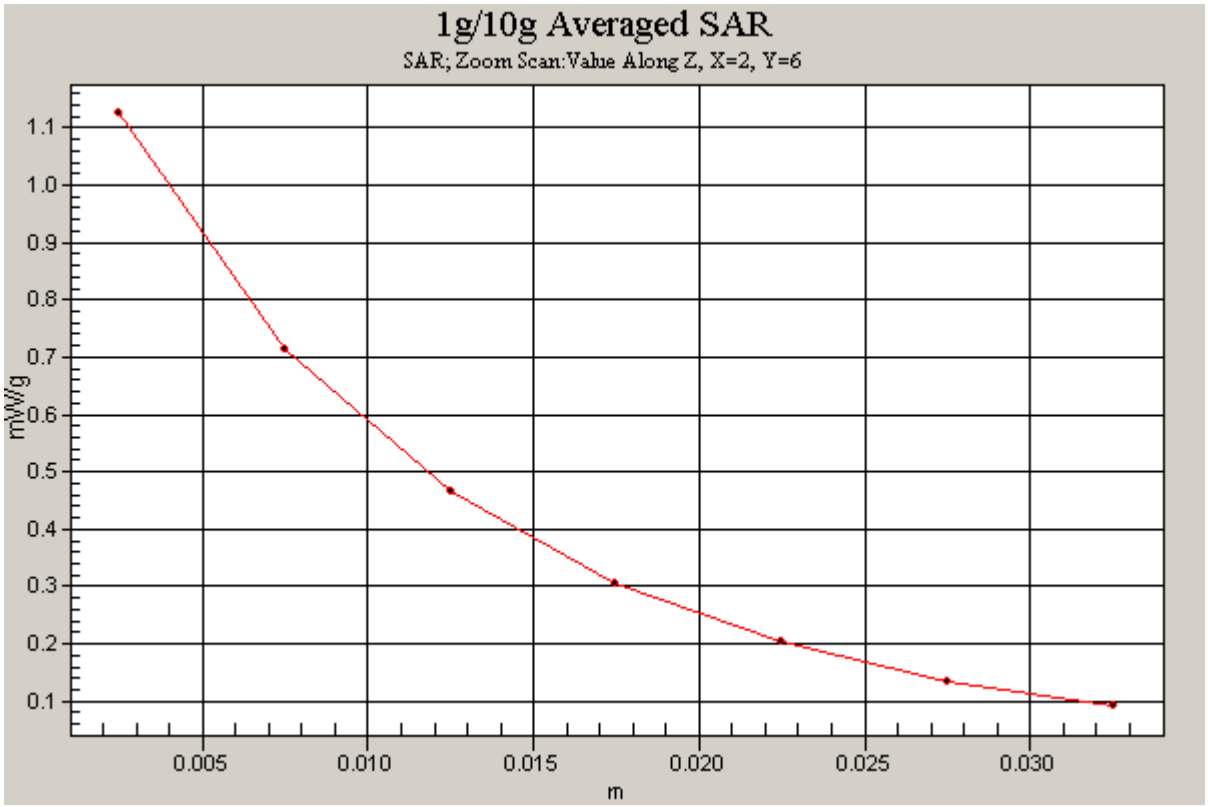


Figure 81 WCDMA Band II with BenQ Joybook R55V Test Position 2 at 180 degree Channel 9262



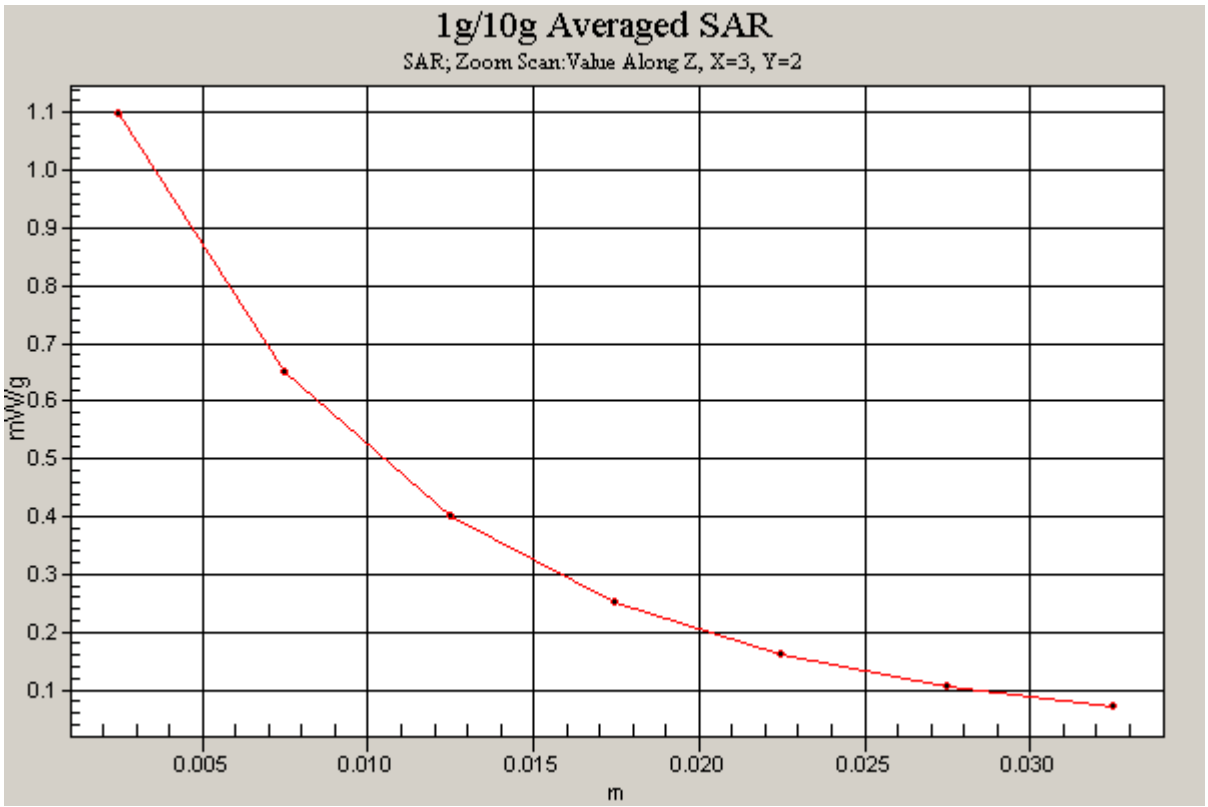


Figure 82 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test Position 2 at 180 degree Channel 9262]

WCDMA Band II with BenQ Joybook R55V Test Position 3 at 180 degree Middle Frequency

Date/Time: 6/28/2009 12:26:40 AM
Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
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 3 Middle/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.285 mW/g

Test Position 3 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.8 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 0.407 W/kg
SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.126 mW/g
Maximum value of SAR (measured) = 0.293 mW/g

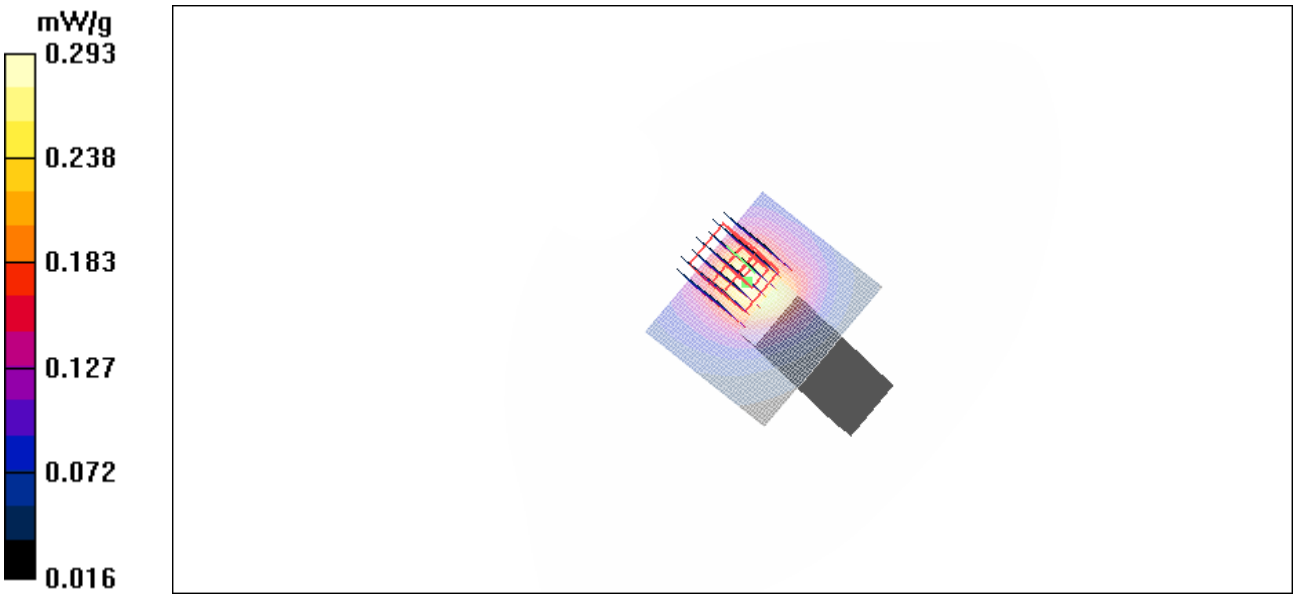


Figure 83 WCDMA Band II with BenQ Joybook R55V Test Position 3 at 180 degree Channel 9400

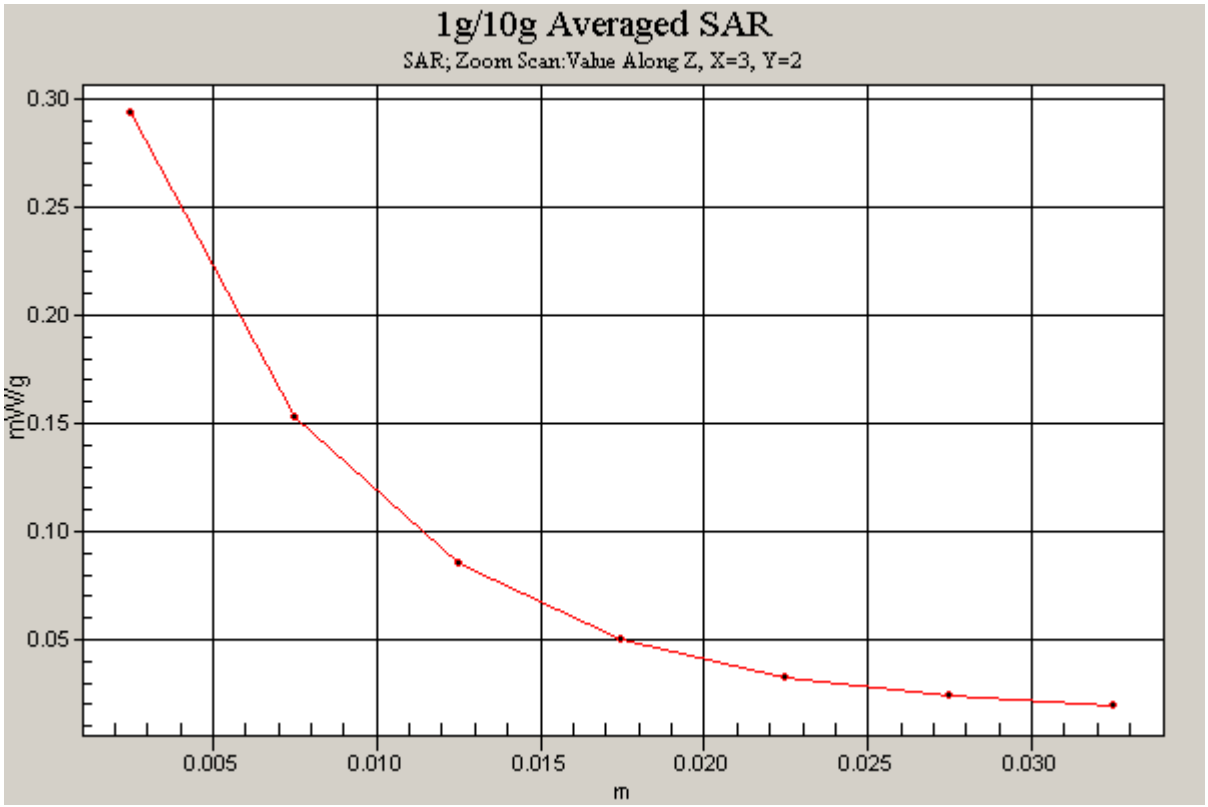


Figure 84 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test Position 3 at 180 degree Channel 9400]

WCDMA Band II with IBM T61 Test Position 4 at 180 degree Middle Frequency

Date/Time: 6/27/2009 1:32:59 PM
Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
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 (31x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.928 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.3 V/m; Power Drift = -0.174 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.706 mW/g; SAR(10 g) = 0.398 mW/g
Maximum value of SAR (measured) = 0.919 mW/g

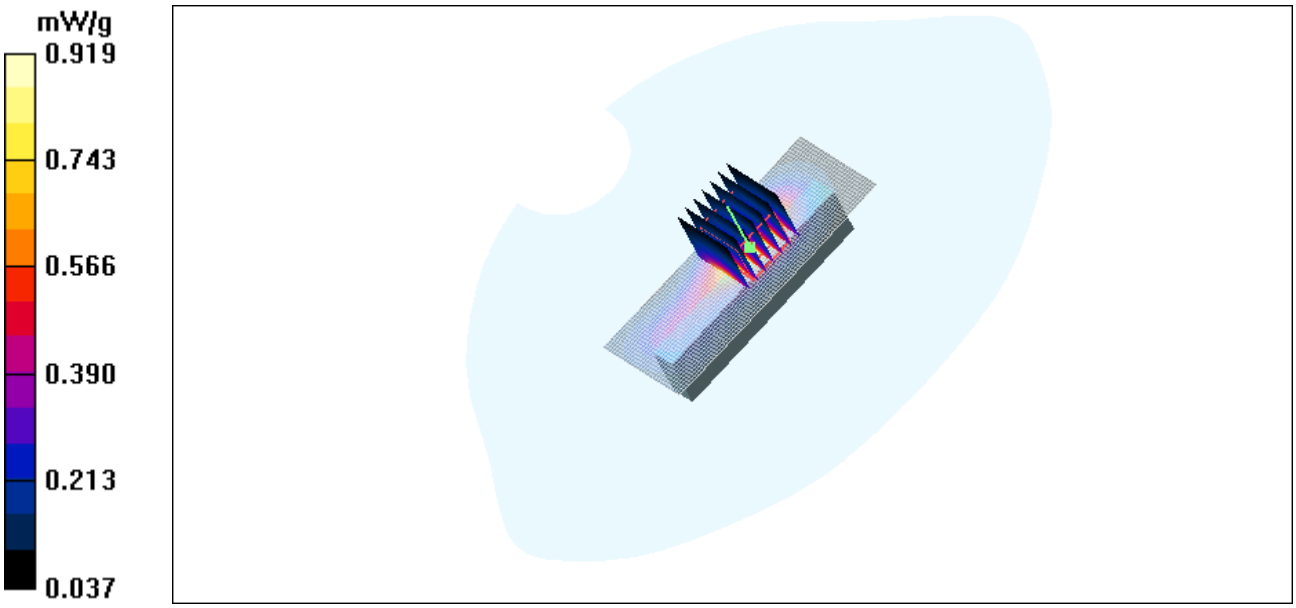


Figure 85 WCDMA Band II with IBM T61 Test Position 4 at 180 degree Channel 9400

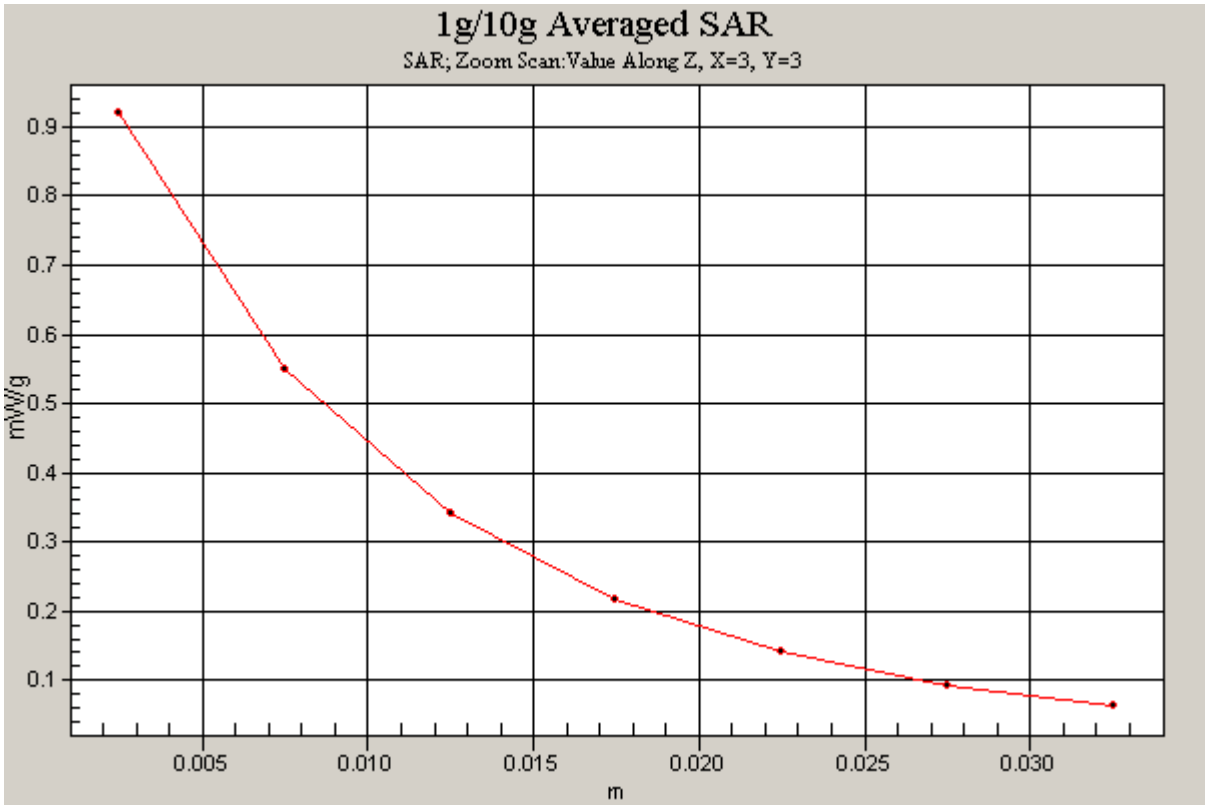


Figure 86 Z-Scan at power reference point [WCDMA Band II with I IBM T61 Test Position 4 at 180 degree Channel 9400]

WCDMA Band II with IBM T61 Test Position 5 at 180 degree Middle Frequency

Date/Time: 6/27/2009 12:33:39 PM

Communication System: WCDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1

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 (31x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.709 mW/g

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

Reference Value = 20.4 V/m; Power Drift = 0.070 dB

Peak SAR (extrapolated) = 0.936 W/kg

SAR(1 g) = 0.555 mW/g; SAR(10 g) = 0.313 mW/g

Maximum value of SAR (measured) = 0.719 mW/g

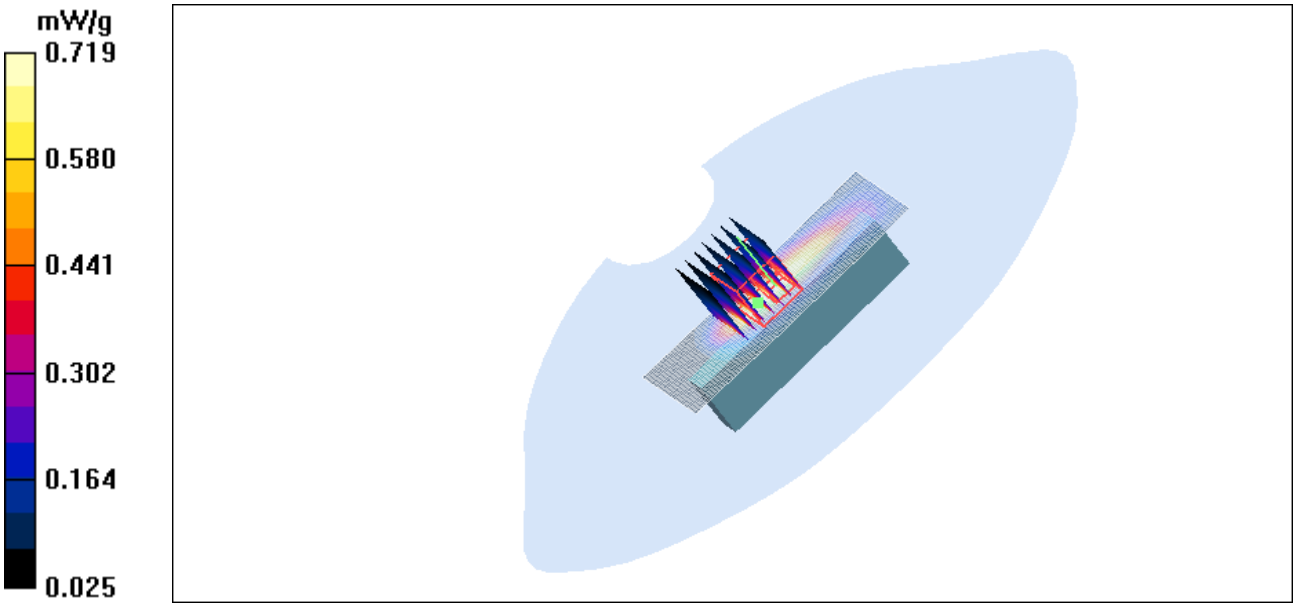


Figure 87 WCDMA Band II with IBM T61 Test Position 5 at 180 degree Channel 9400

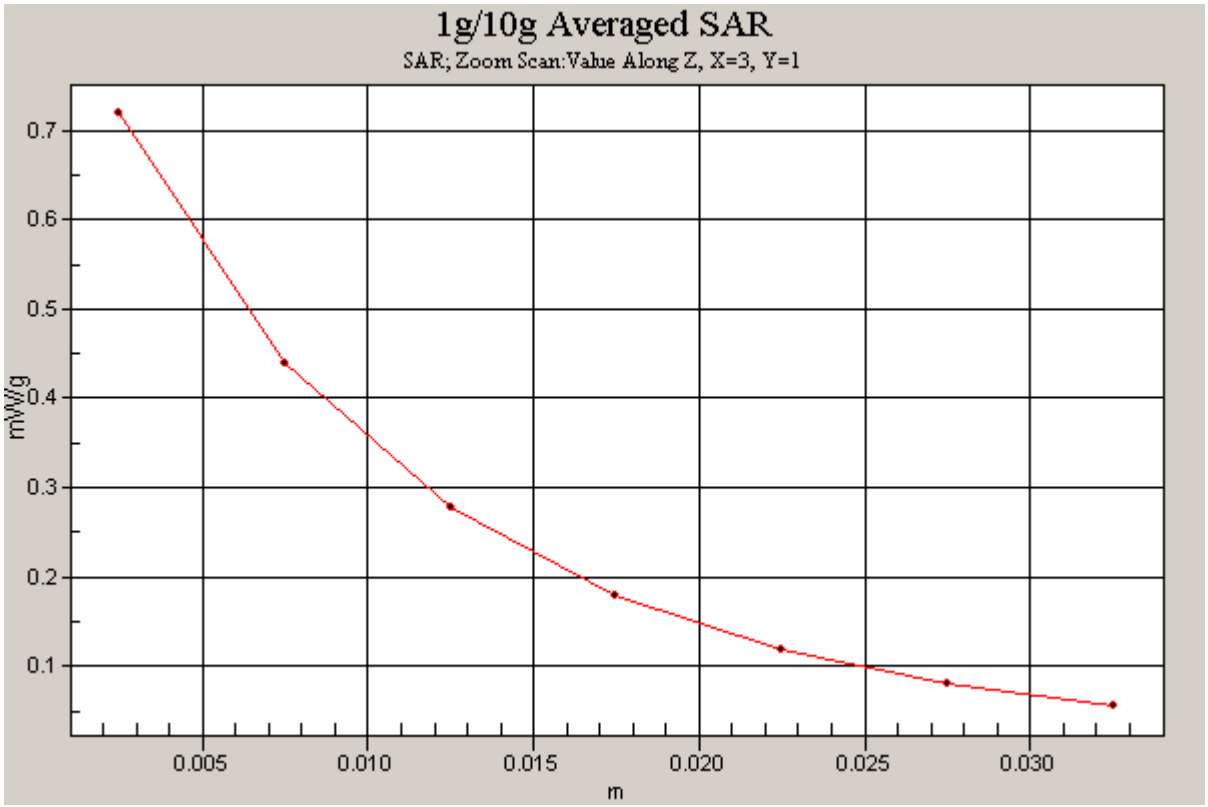


Figure 88 Z-Scan at power reference point [WCDMA Band II with I IBM T61 Test Position 5 at 180 degree Channel 9400]

WCDMA Band II with BenQ Joybook R55V Test Position 2 at 90 degree Low Frequency

Date/Time: 6/28/2009 1:06:29 AM

Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1852.4 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 2 Low /Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.25 mW/g

Test Position 2 Low /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.5 V/m; Power Drift = -0.155 dB

Peak SAR (extrapolated) = 1.65 W/kg

SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.616 mW/g

Maximum value of SAR (measured) = 1.32 mW/g

Test Position 2 Low /Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.5 V/m; Power Drift = -0.155 dB

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.702 mW/g; SAR(10 g) = 0.409 mW/g

Maximum value of SAR (measured) = 0.911 mW/g

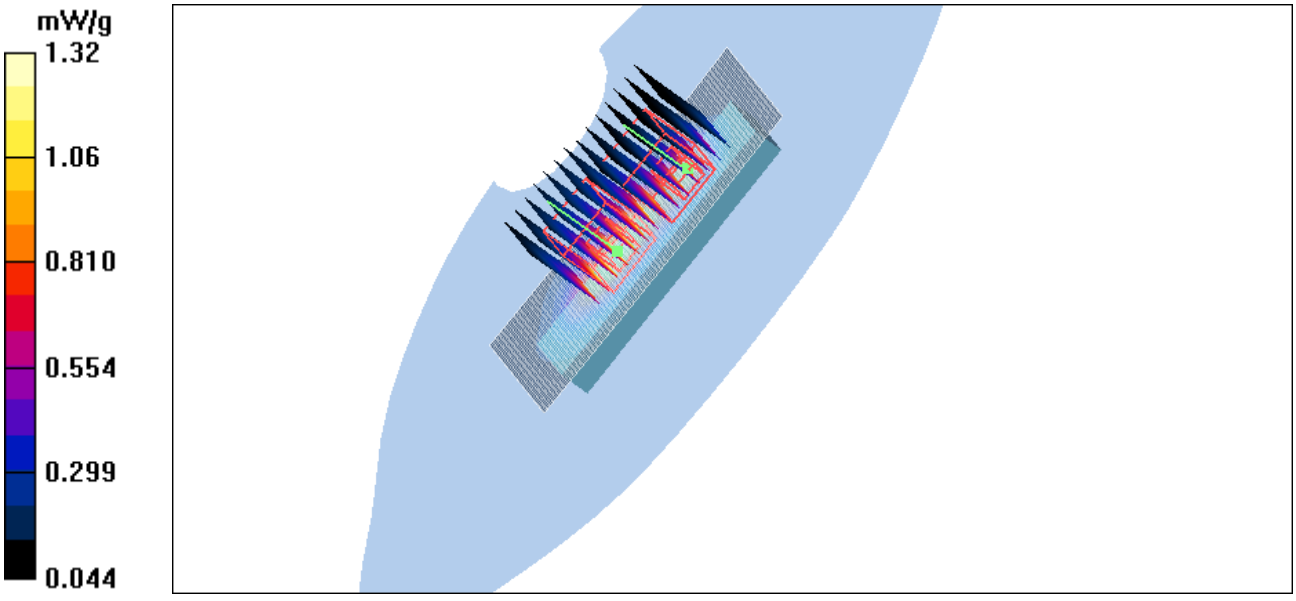
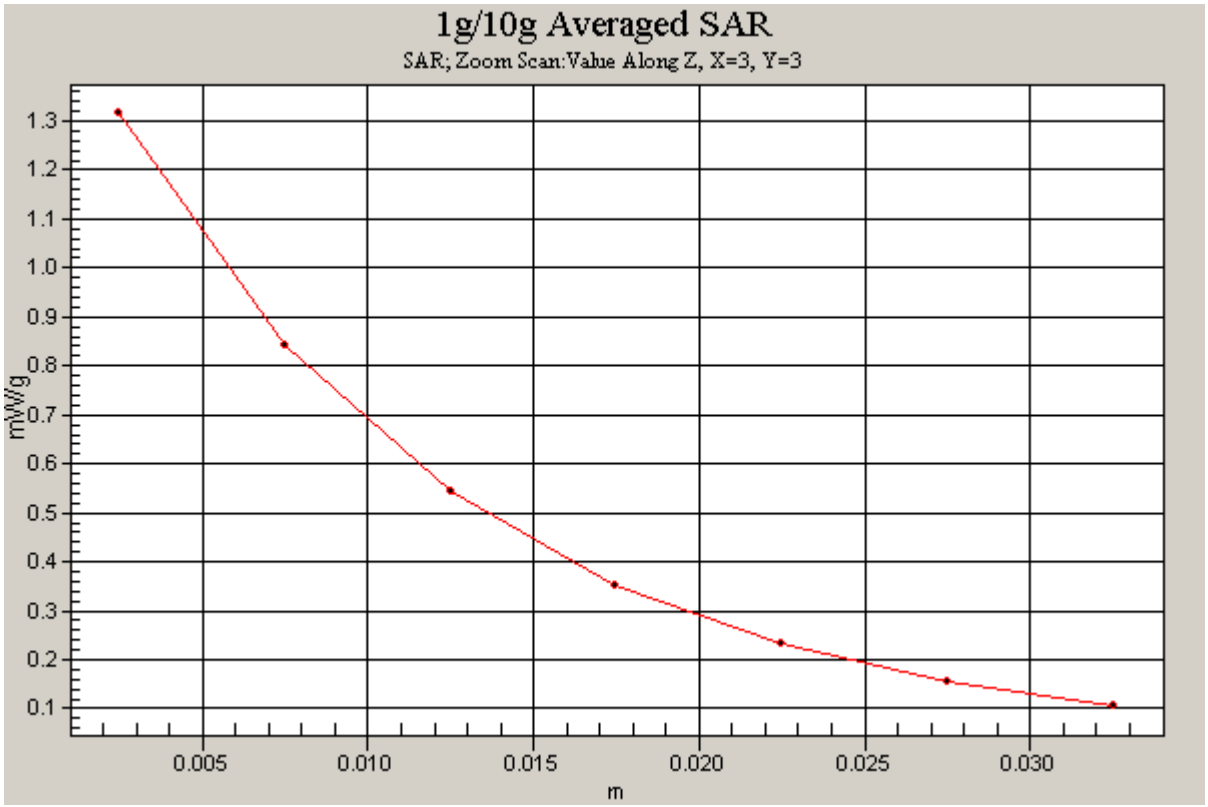


Figure 89 WCDMA Band II with BenQ Joybook R55V Test Position 2 at 90 degree Channel 9262



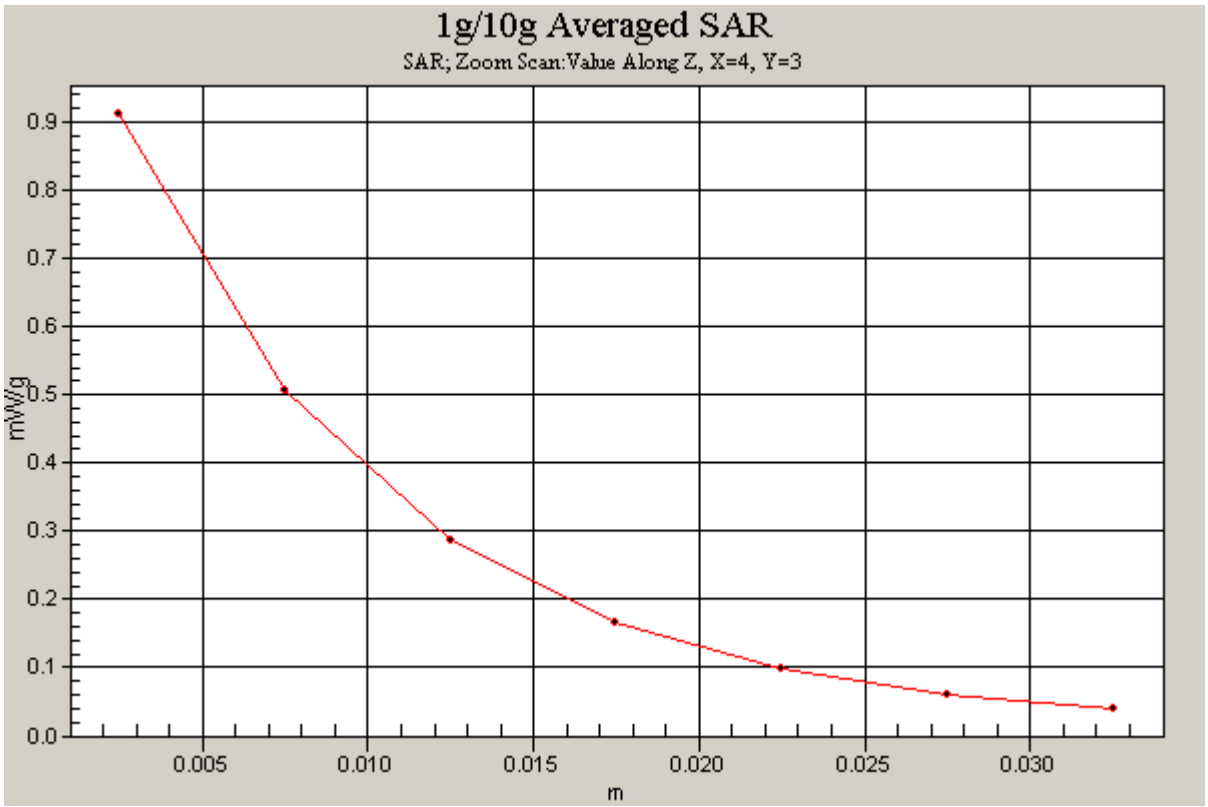


Figure 90 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test Position 2 at 90 degree Channel 9262]

WCDMA Band II with BenQ Joybook R55V Test Position 1 at 270 degree Low Frequency

Date/Time: 6/28/2009 10:06:08 AM

Communication System: WCDMA Band II; Frequency: 1852.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 1852.4 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 1 Low /Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.55 mW/g

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

Reference Value = 24.3 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 1.82 W/kg

SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.688 mW/g

Maximum value of SAR (measured) = 1.45 mW/g

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

Reference Value = 24.3 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 1.88 W/kg

SAR(1 g) = 0.846 mW/g; SAR(10 g) = 0.415 mW/g

Maximum value of SAR (measured) = 1.19 mW/g

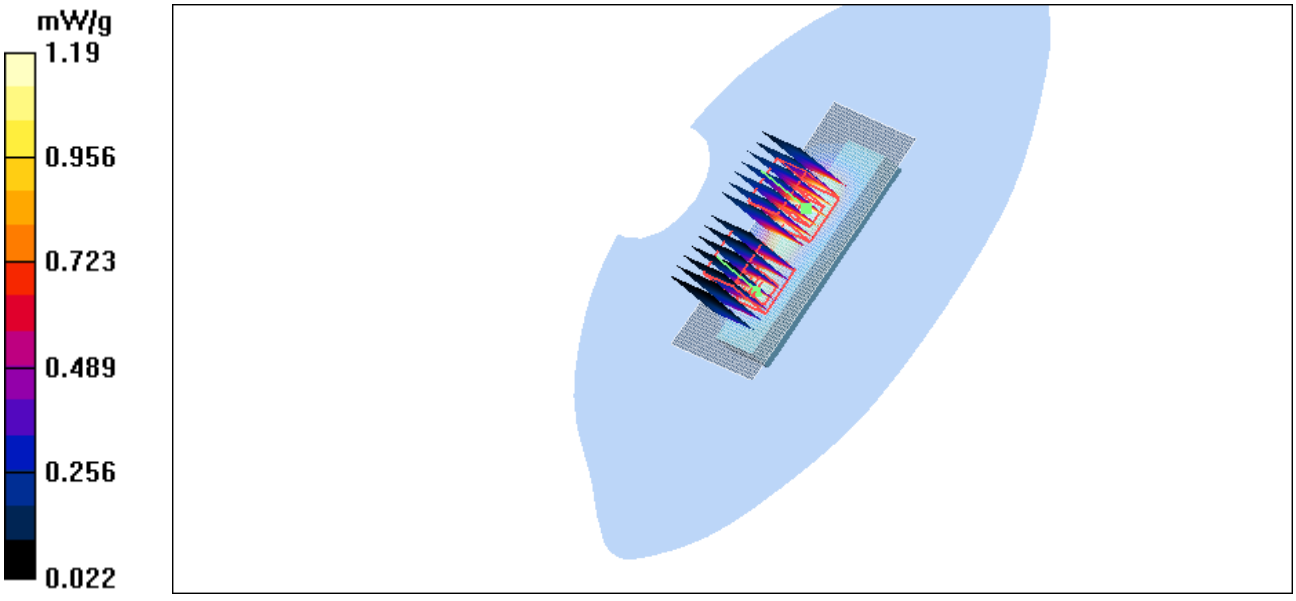
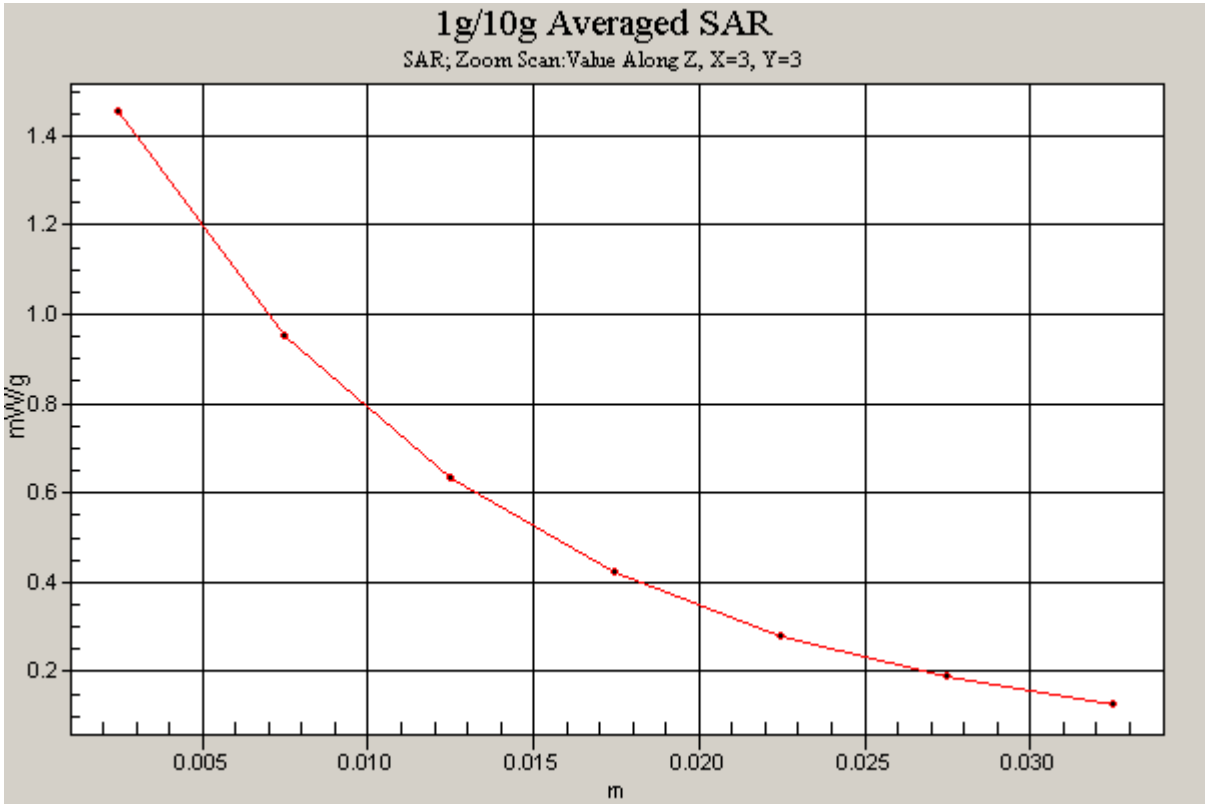


Figure 91 WCDMA Band II with BenQ Joybook R55V Test Position 1 at 270 degree Channel 9262



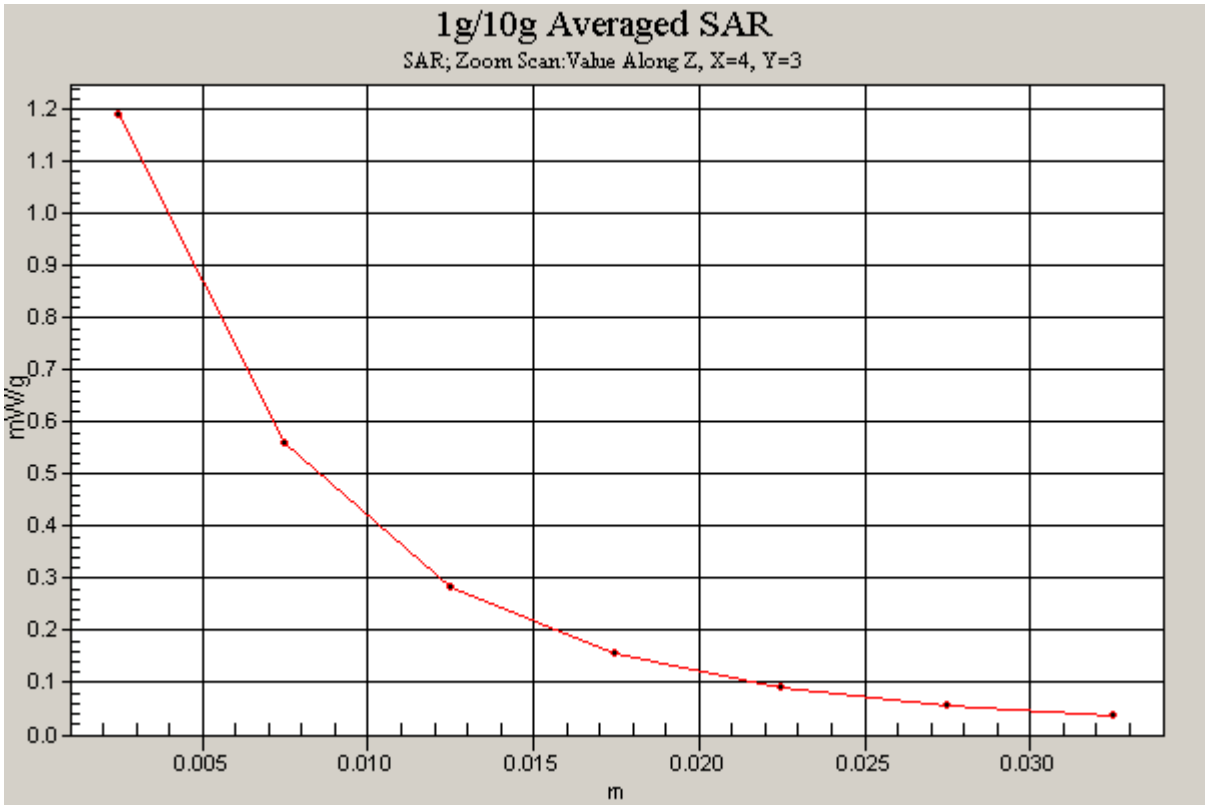


Figure 92 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test Position 1 at 270 degree Channel 9262]

WCDMA Band V with BenQ Joybook R55V Test Position 1 at 180 degree High Frequency

Date/Time: 6/28/2009 8:18:54 PM
Communication System: WCDMA Band V; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 847 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) = 0.986 mW/g

Test Position 1 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.0 V/m; Power Drift = 0.000 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.643 mW/g; SAR(10 g) = 0.395 mW/g
Maximum value of SAR (measured) = 0.806 mW/g

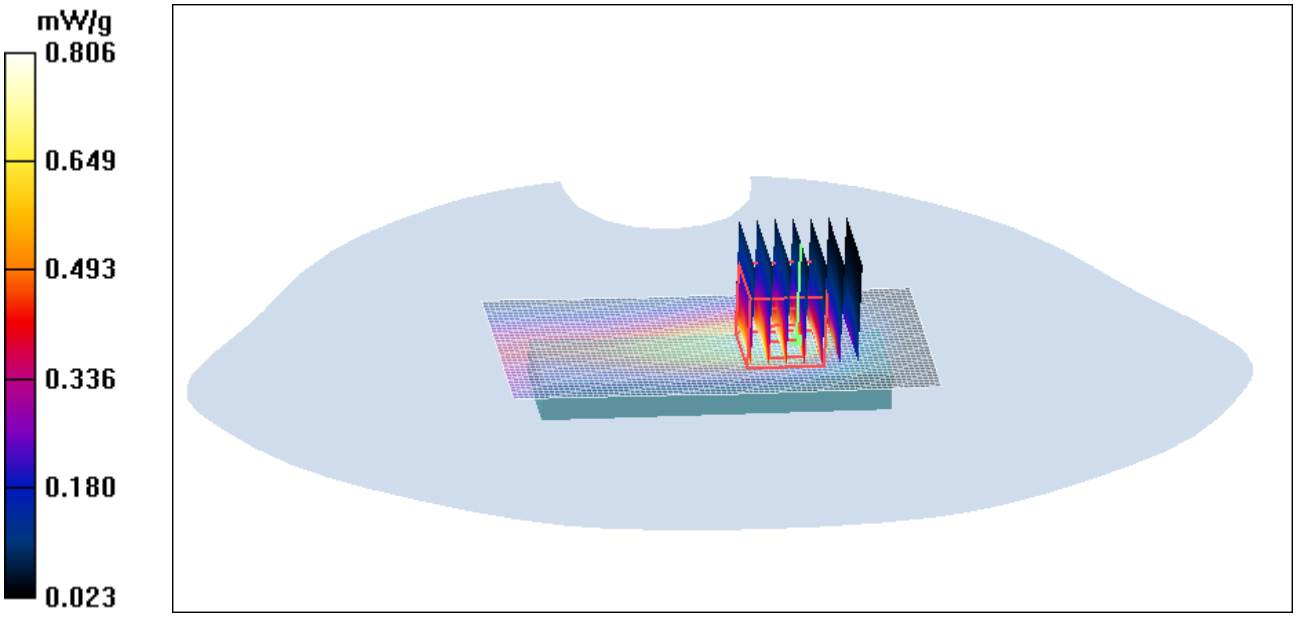


Figure 93 WCDMA Band V with BenQ Joybook R55V Test Position 1 at 180 degree Channel 4233

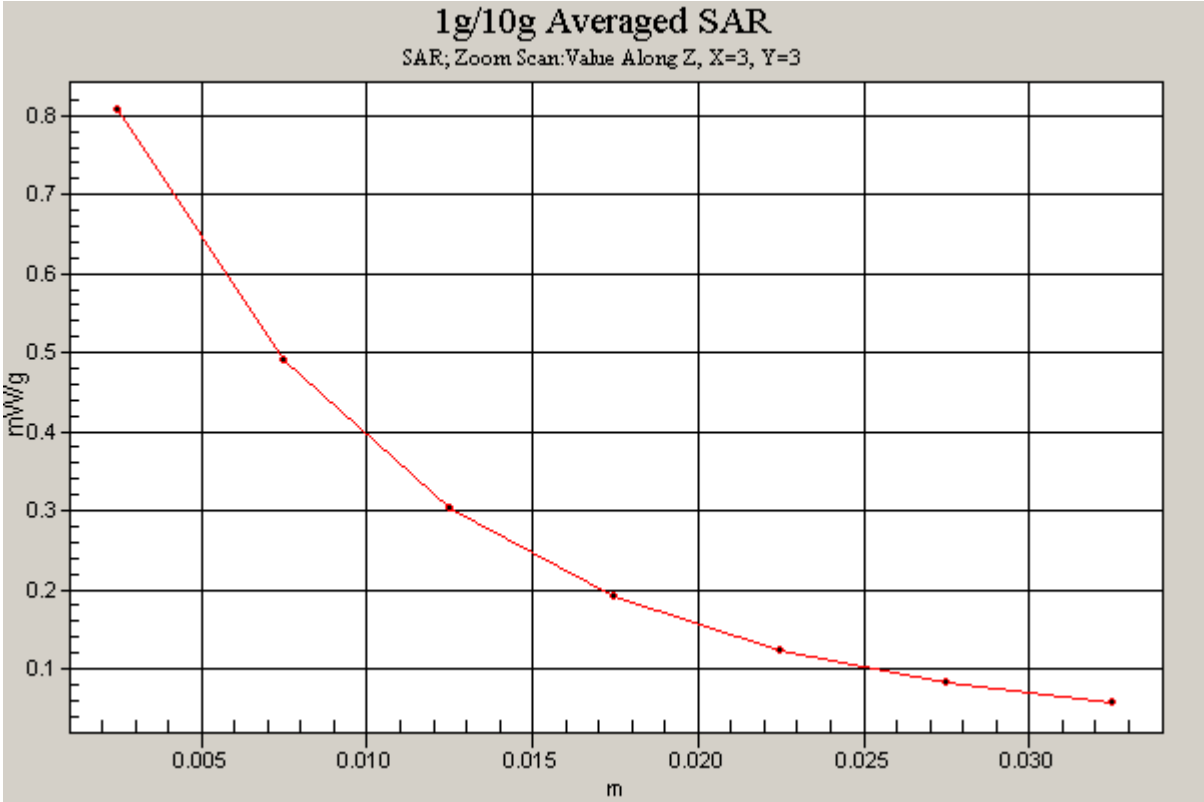


Figure 94 Z-Scan at power reference point [WCDMA Band V with I BenQ Joybook R55V Test Position 1 at 180 degree Channel 4233]

WCDMA Band V with BenQ Joybook R55V Test Position 1 at 180 degree Middle Frequency

Date/Time: 6/28/2009 8:02:44 PM
Communication System: WCDMA Band V; Frequency: 836.6 MHz;Duty Cycle: 1:1
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) = 0.976 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.1 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.391 mW/g
Maximum value of SAR (measured) = 0.806 mW/g

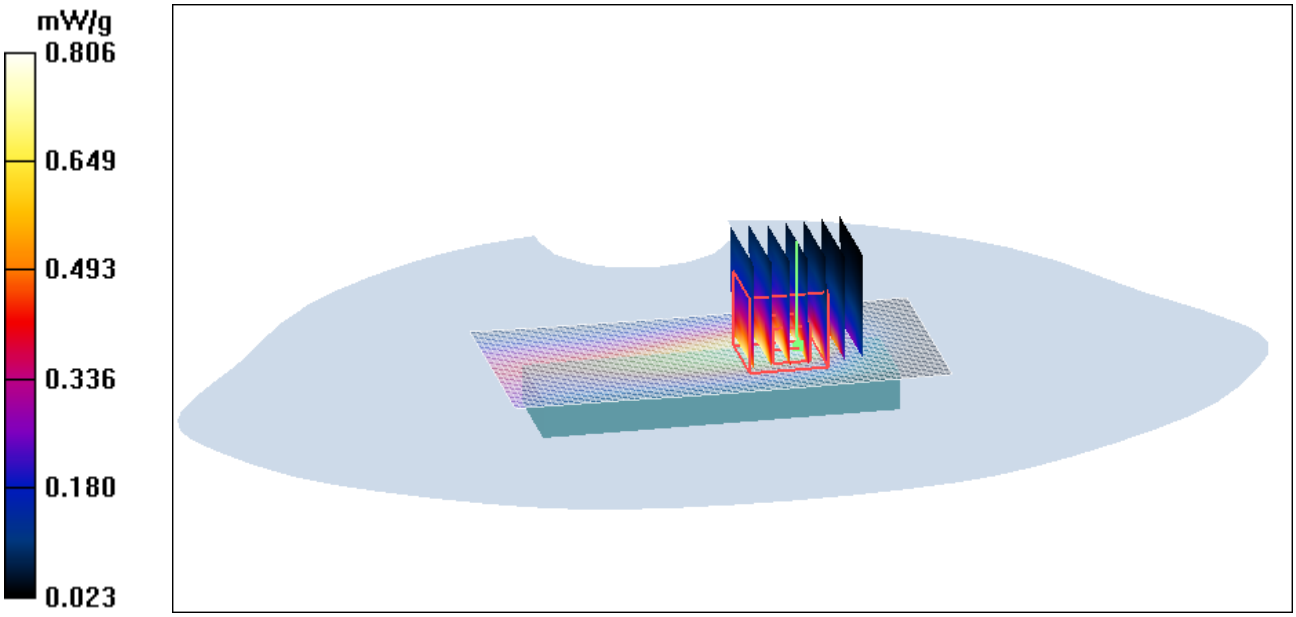


Figure 95 WCDMA Band V with BenQ Joybook R55V Test Position 1 at 180 degree Channel 4183

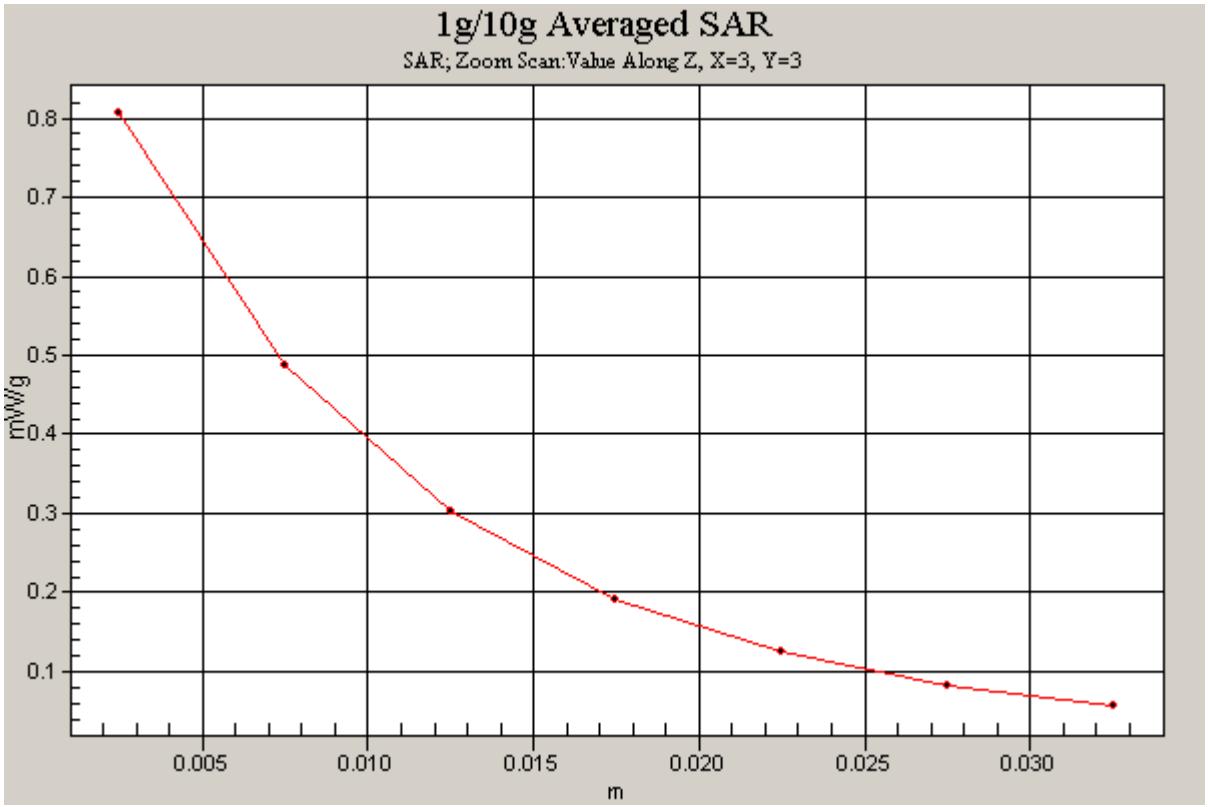


Figure 96 Z-Scan at power reference point [WCDMA Band V with I BenQ Joybook R55V Test Position 1 at 180 degree Channel 4183]

WCDMA Band V with BenQ Joybook R55V Test Position 1 at 180 degree Low Frequency

Date/Time: 6/28/2009 8:35:05 PM
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 1 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 Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.946 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.1 V/m; Power Drift = 0.062 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.636 mW/g; SAR(10 g) = 0.391 mW/g
Maximum value of SAR (measured) = 0.797 mW/g

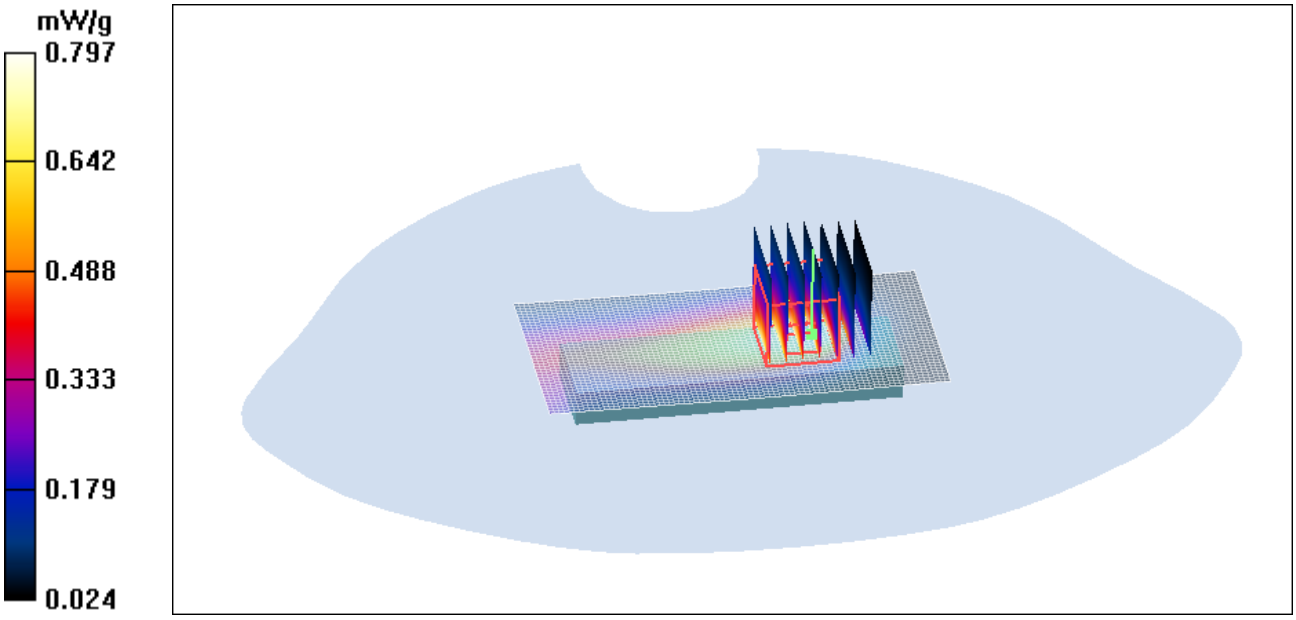


Figure 97 WCDMA Band V with BenQ Joybook R55V Test Position 1 at 180 degree Channel 4132

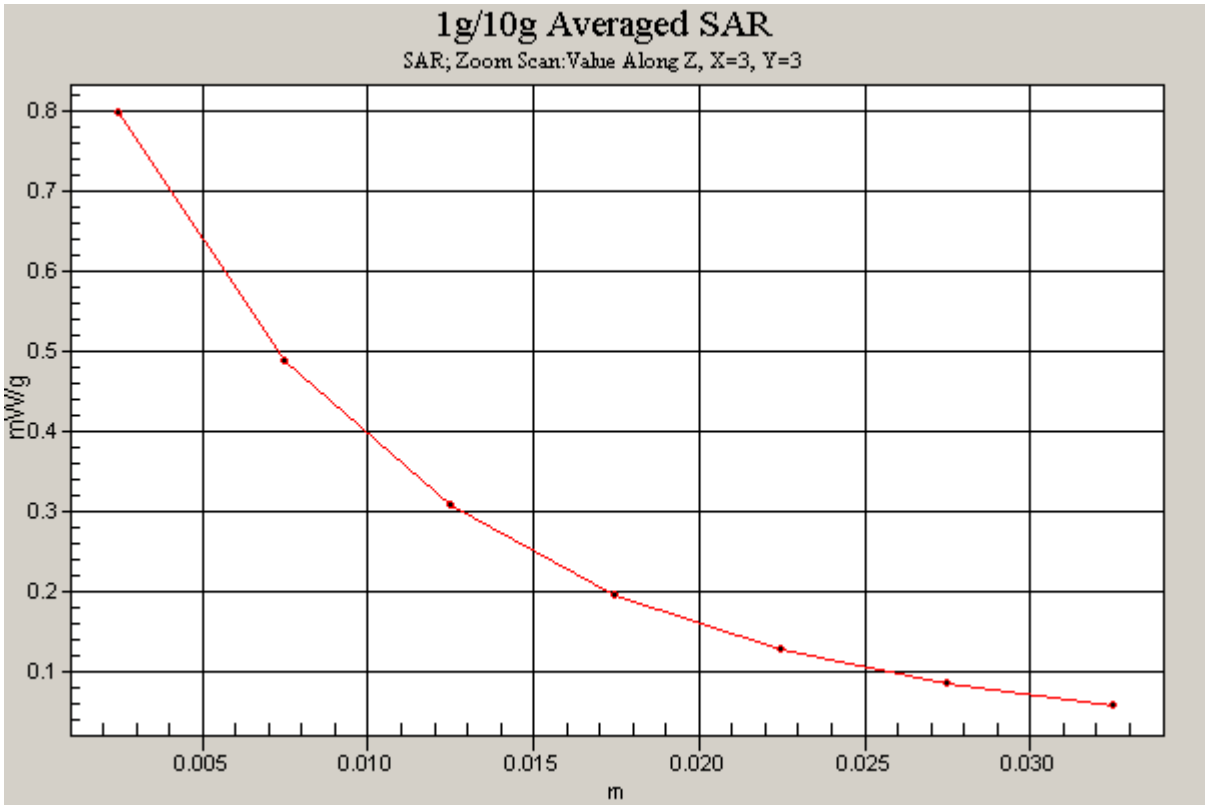


Figure 98 Z-Scan at power reference point [WCDMA Band V with I BenQ Joybook R55V Test Position 1 at 180 degree Channel 4132]

WCDMA Band V with BenQ Joybook R55V Test Position 2 at 180 degree Middle Frequency

Date/Time: 6/29/2009 2:33:54 AM
Communication System: WCDMA Band V.cf4; Frequency: 836.6 MHz;Duty Cycle: 1:1
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 (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.730 mW/g

Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.8 V/m; Power Drift = -0.043 dB
Peak SAR (extrapolated) = 0.856 W/kg
SAR(1 g) = 0.584 mW/g; SAR(10 g) = 0.388 mW/g
Maximum value of SAR (measured) = 0.706 mW/g

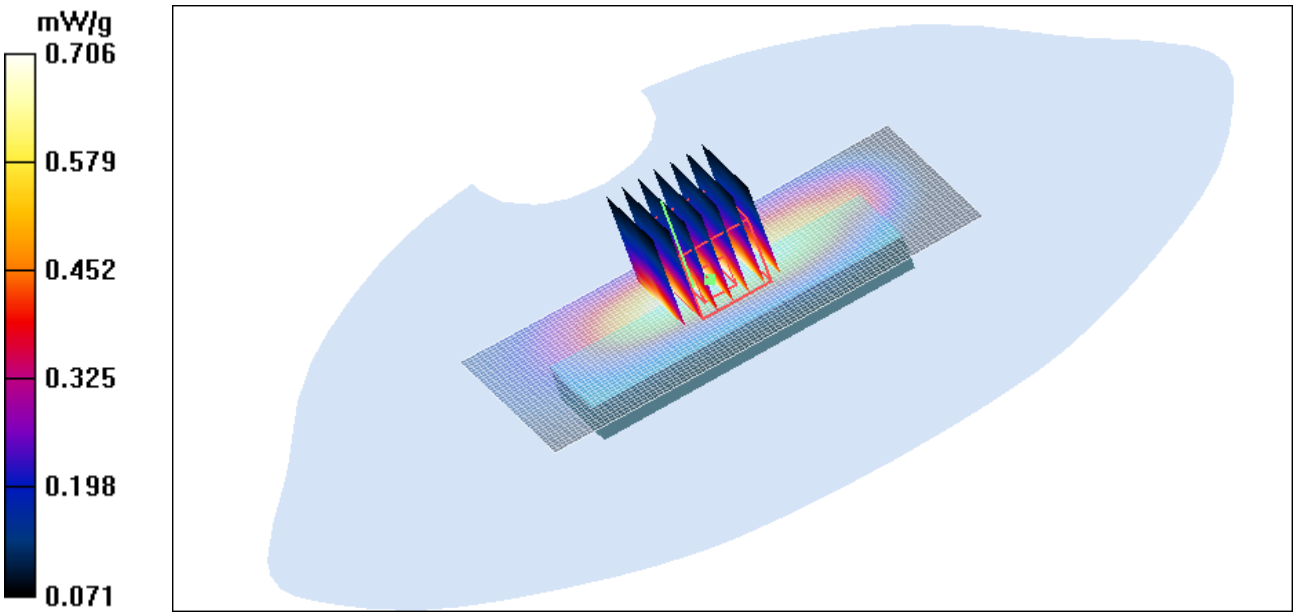


Figure 99 WCDMA Band V with BenQ Joybook R55V Test Position 2 at 180 degree Channel 4183

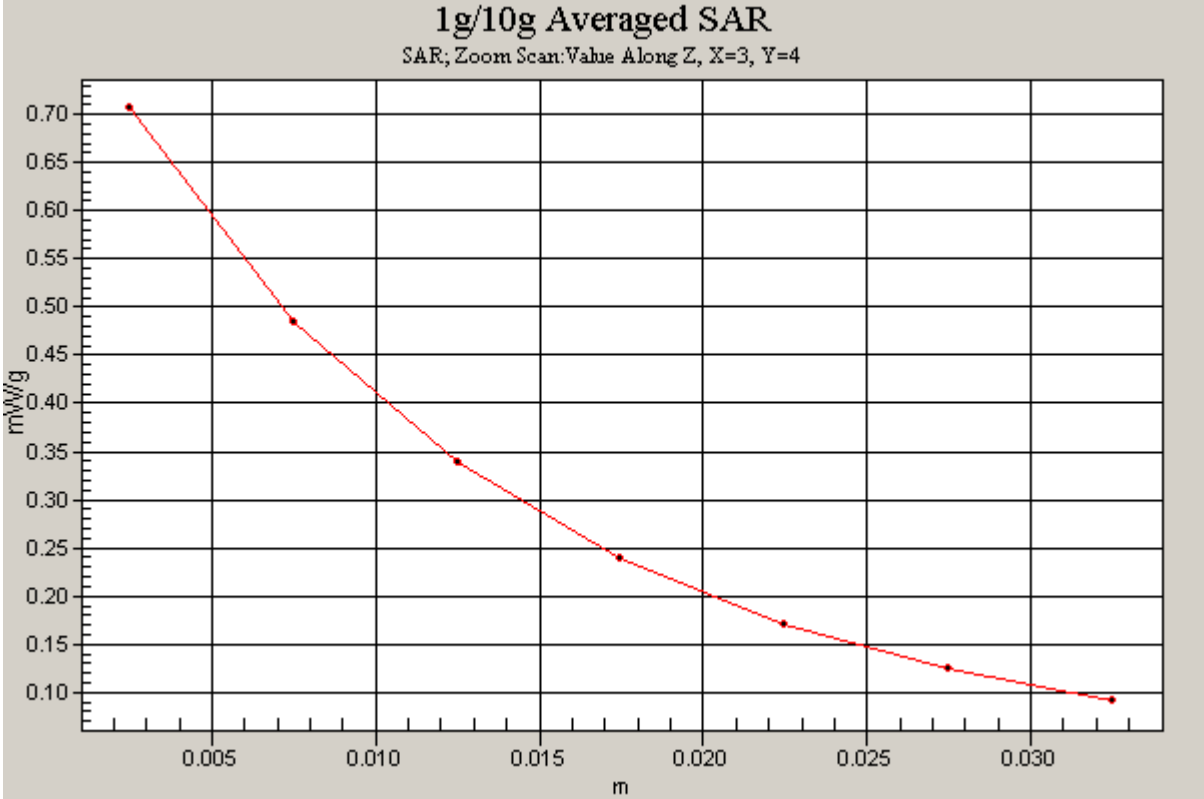


Figure 100 Z-Scan at power reference point [WCDMA Band v with I BenQ Joybook R55V Test Position 2 at 180 degree Channel 4183]

WCDMA Band V with BenQ Joybook R55V Test Position 3 at 180 degree Middle Frequency

Date/Time: 6/29/2009 4:01:28 AM
Communication System: WCDMA Band V.cf4; Frequency: 836.6 MHz;Duty Cycle: 1:1
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 (51x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.341 mW/g

Test Position 3 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.0 V/m; Power Drift = -0.146 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.307 mW/g; SAR(10 g) = 0.130 mW/g
Maximum value of SAR (measured) = 0.468 mW/g

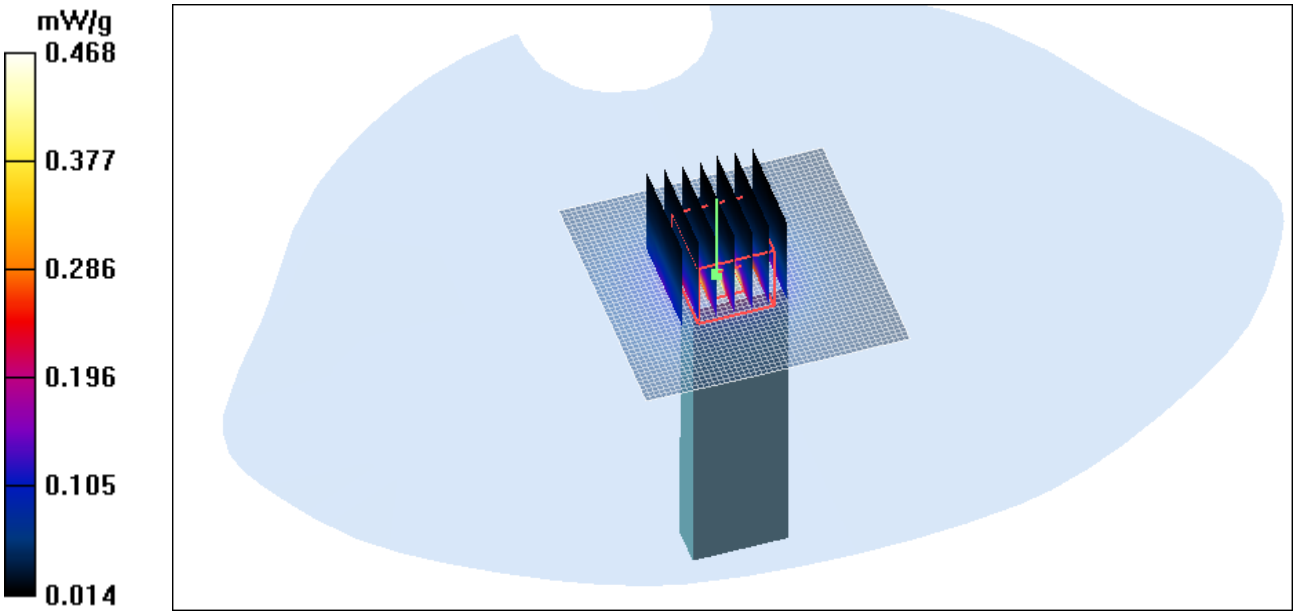


Figure 101 WCDMA Band V with BenQ Joybook R55V Test Position 3 at 180 degree Channel 4183

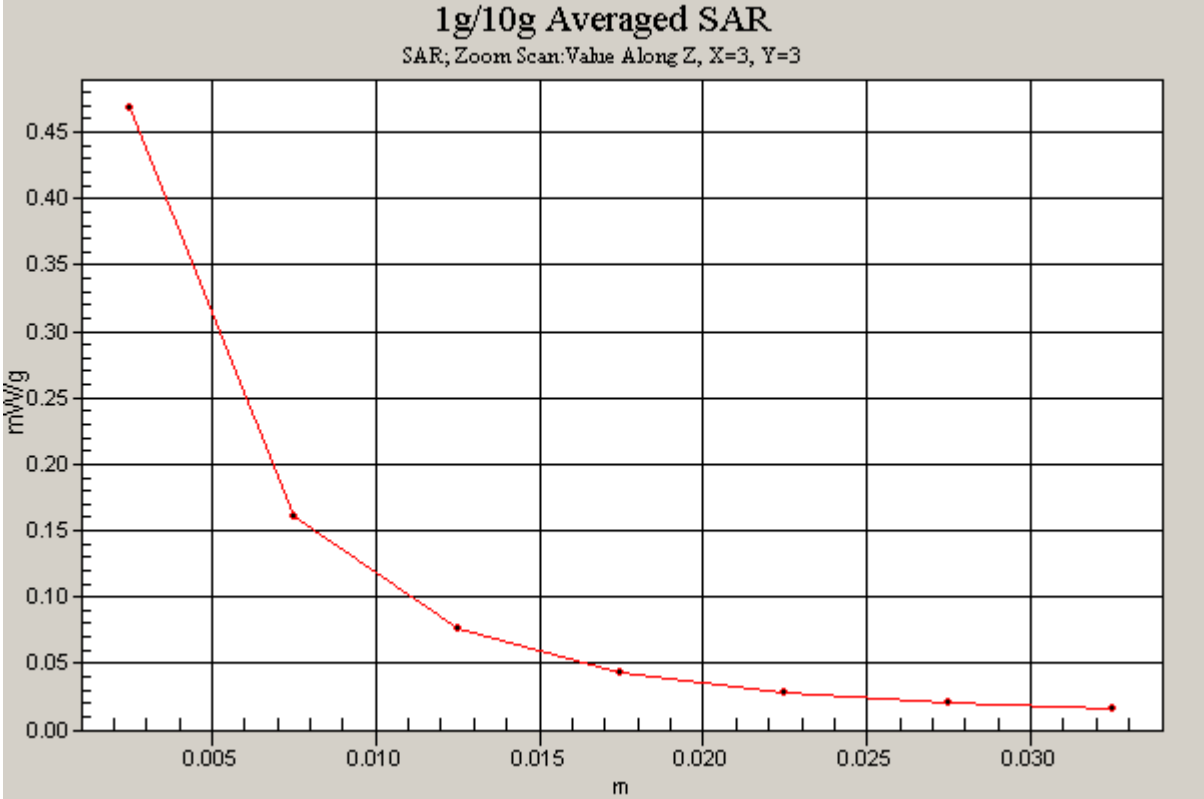


Figure 102 Z-Scan at power reference point [WCDMA Band II with I BenQ Joybook R55V Test Position 3 at 180 degree Channel 4183]

WCDMA Band V with IBM T61 Test Position 4 at 180 degree Middle Frequency

Date/Time: 6/29/2009 12:27:31 AM

Communication System: WCDMA Band V.cf4; Frequency: 836.6 MHz;Duty Cycle: 1:1

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 (41x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.737 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 27.0 V/m; Power Drift = -0.106 dB

Peak SAR (extrapolated) = 0.946 W/kg

SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.378 mW/g

Maximum value of SAR (measured) = 0.745 mW/g

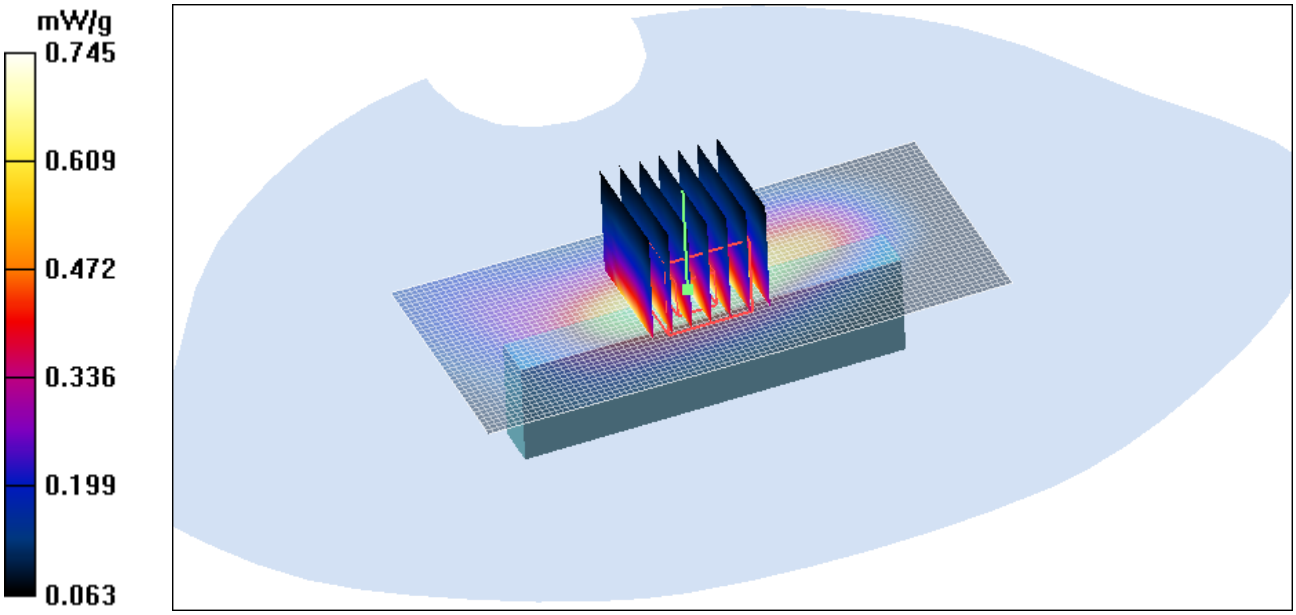


Figure 103 WCDMA Band V with IBM T61 Test Position 4 at 180 degree Channel 4183

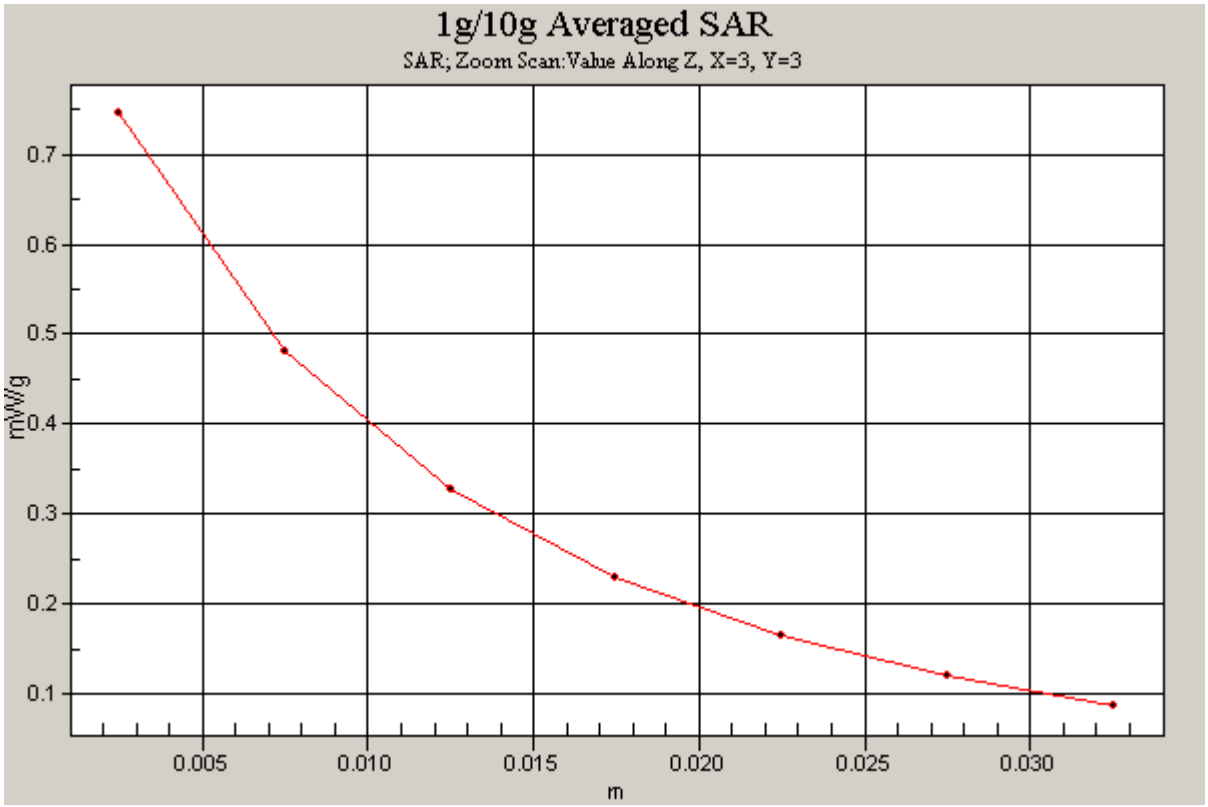


Figure 104 Z-Scan at power reference point [WCDMA Band V with I IBM T61 Test Position 4 at 180 degree Channel 4183]

WCDMA Band V with IBM T61 Test Position 5 at 180 degree Middle Frequency

Date/Time: 6/29/2009 12:46:17 AM

Communication System: WCDMA Band V.cf4; Frequency: 836.6 MHz;Duty Cycle: 1:1

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 (41x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.547 mW/g

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

Reference Value = 23.0 V/m; Power Drift = 0.095 dB

Peak SAR (extrapolated) = 0.716 W/kg

SAR(1 g) = 0.466 mW/g; SAR(10 g) = 0.308 mW/g

Maximum value of SAR (measured) = 0.576 mW/g

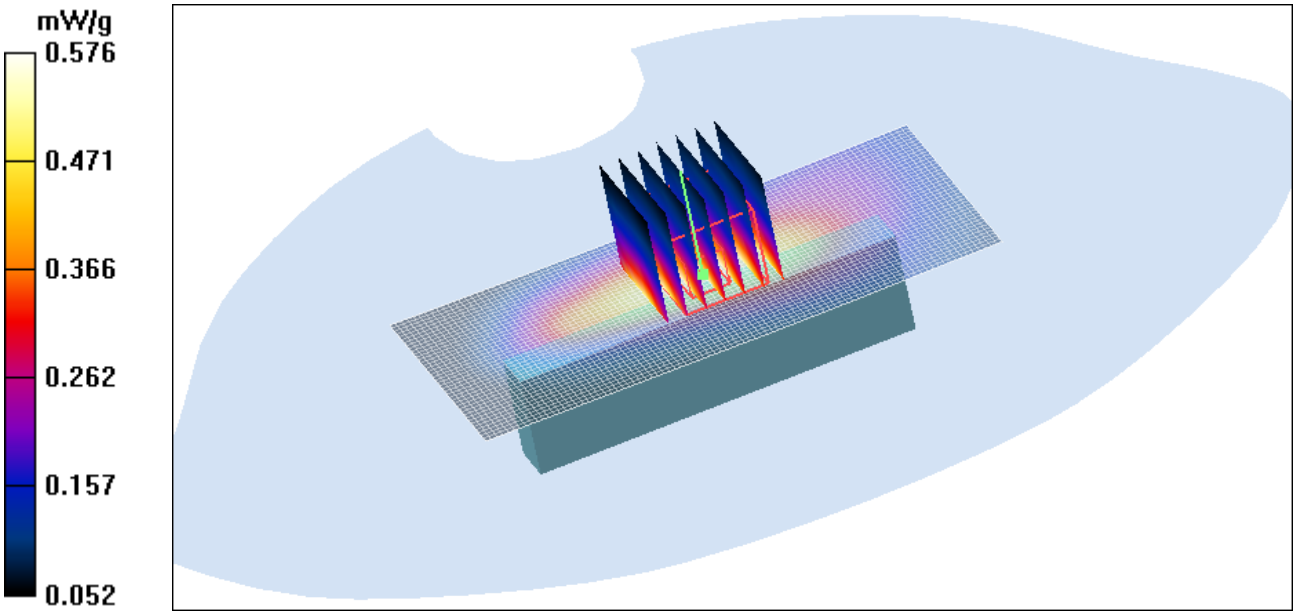


Figure 105 WCDMA Band II with IBM T61 Test Position 5 at 180 degree Channel 4183

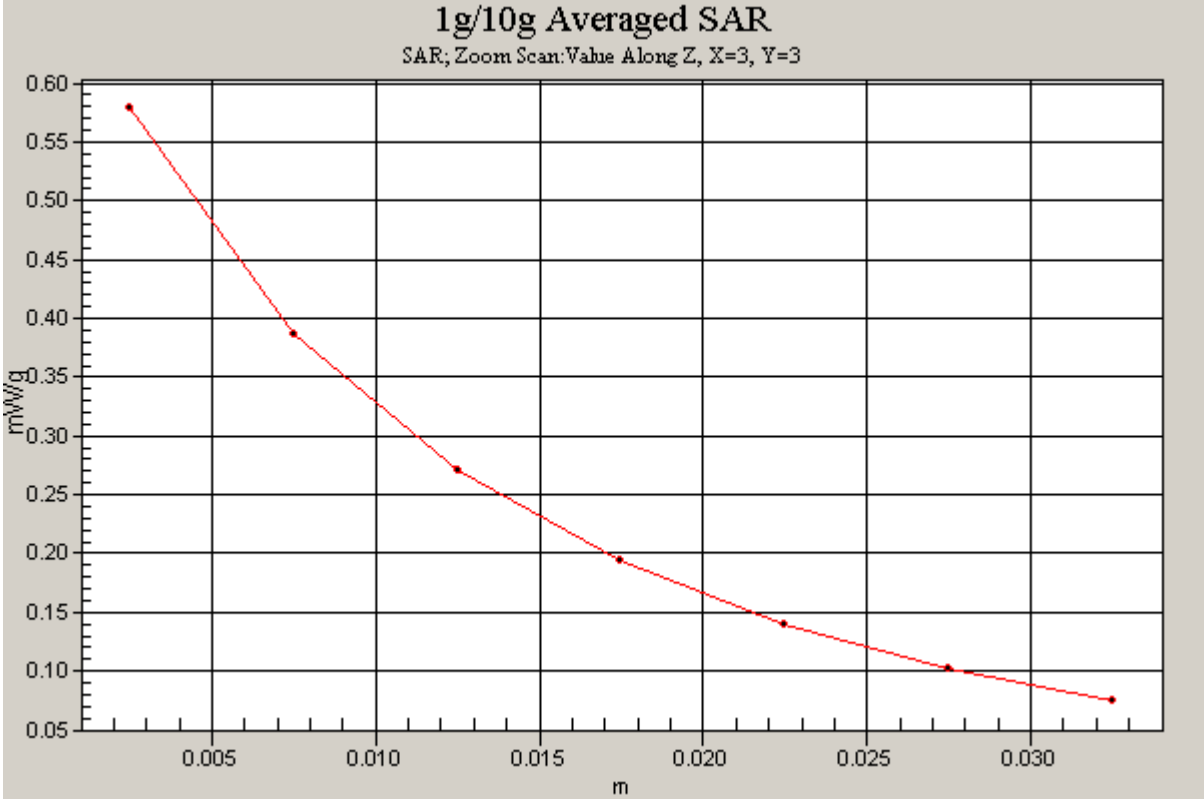


Figure 106 Z-Scan at power reference point [WCDMA Band V with I IBM T61 Test Position 5 at 180 degree Channel 4183

WCDMA Band V with BenQ Joybook R55V Test Position 2 at 90 degree High Frequency

Date/Time: 6/29/2009 2:55:32 AM
Communication System: WCDMA Band V.cf4; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 847 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 2 High/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.826 mW/g

Test Position 2 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.4 V/m; Power Drift = 0.167 dB
Peak SAR (extrapolated) = 0.982 W/kg
SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.443 mW/g
Maximum value of SAR (measured) = 0.807 mW/g

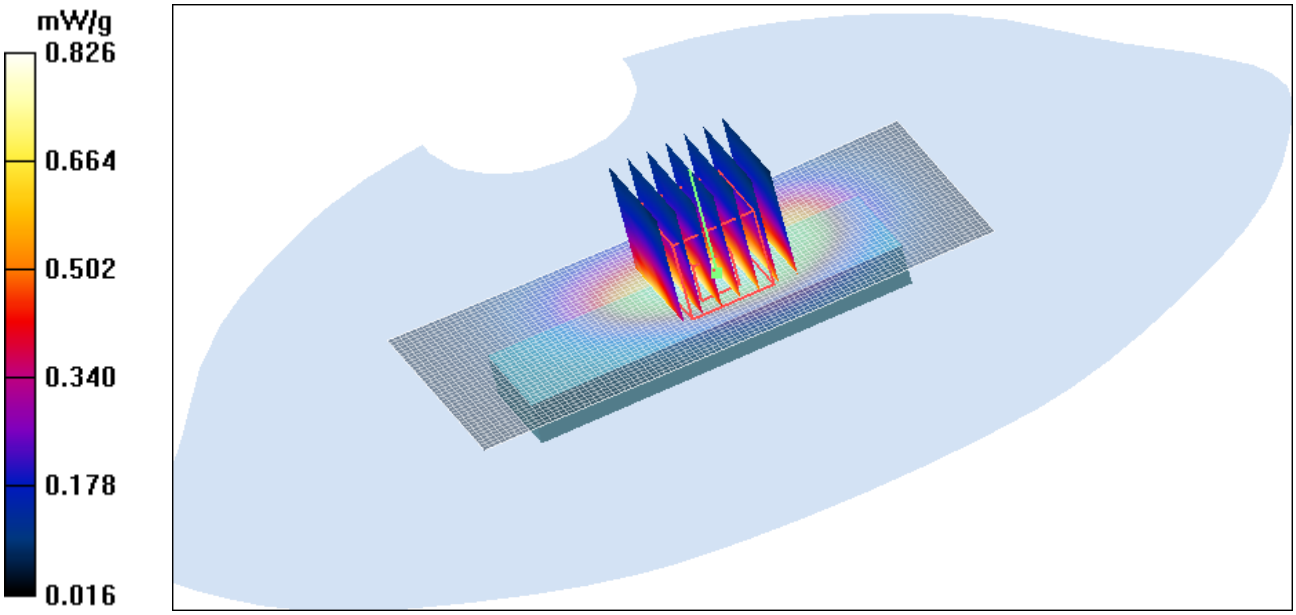


Figure 107 WCDMA Band V with BenQ Joybook R55V Test Position 2 at 90 degree Channel 4233

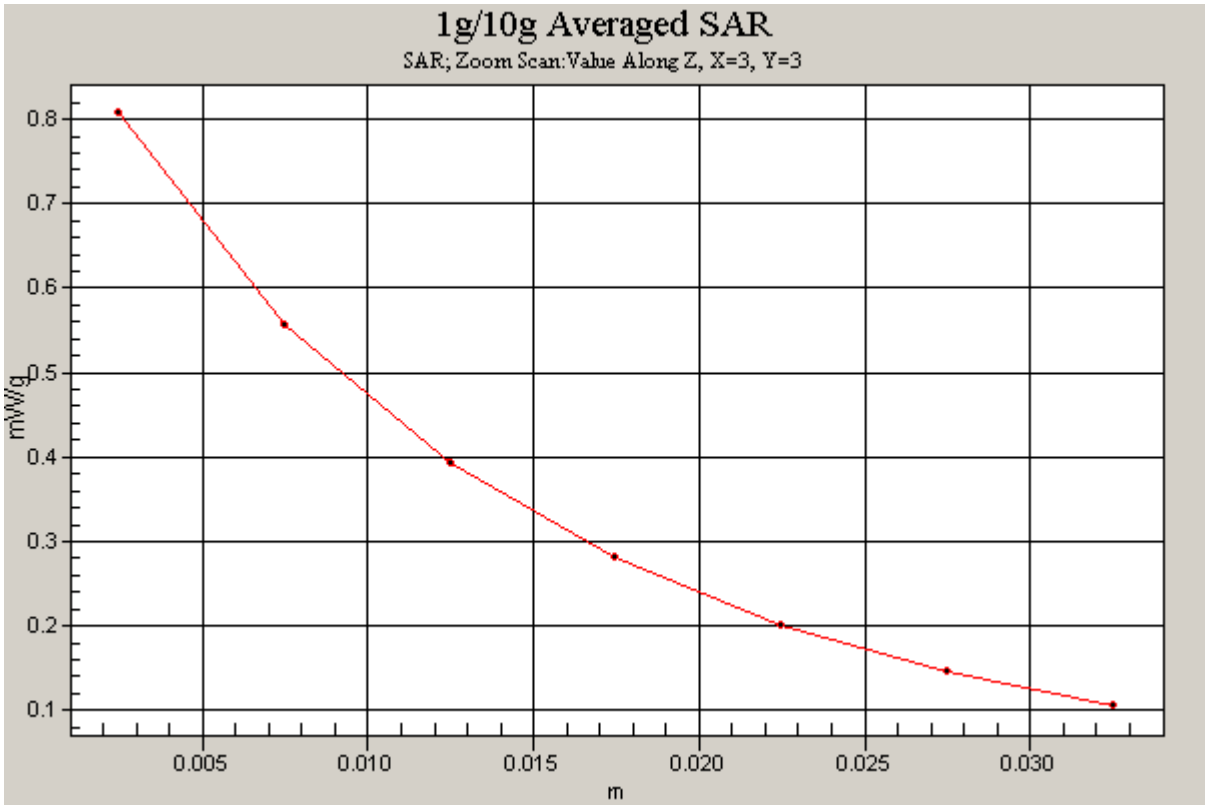


Figure 108 Z-Scan at power reference point [WCDMA Band V with BenQ Joybook R55V Test Position 2 at 90 degree Channel 4233

WCDMA Band V with BenQ Joybook R55V Test Position 1 at 270 degree High Frequency

Date/Time: 6/28/2009 10:43:03 PM
Communication System: WCDMA Band V; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 847 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 = 30.1 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.852 mW/g; SAR(10 g) = 0.522 mW/g
Maximum value of SAR (measured) = 1.02 mW/g

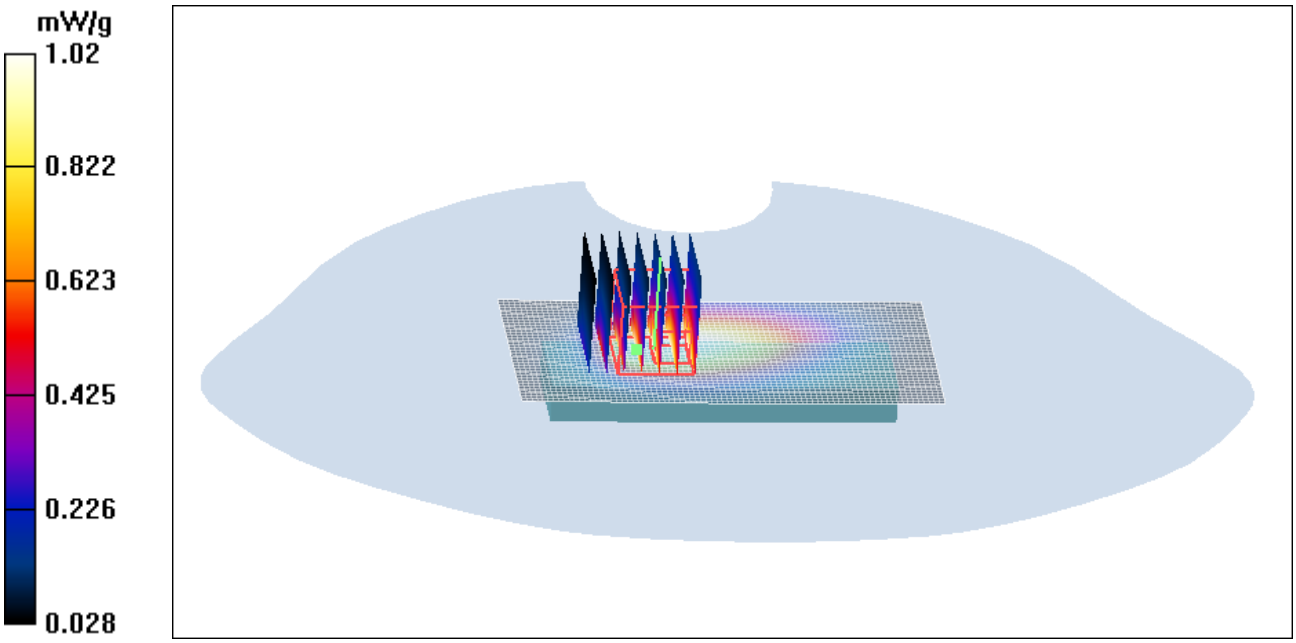


Figure 109 WCDMA Band V with BenQ Joybook R55V Test Position 1 at 270 degree Channel 4233

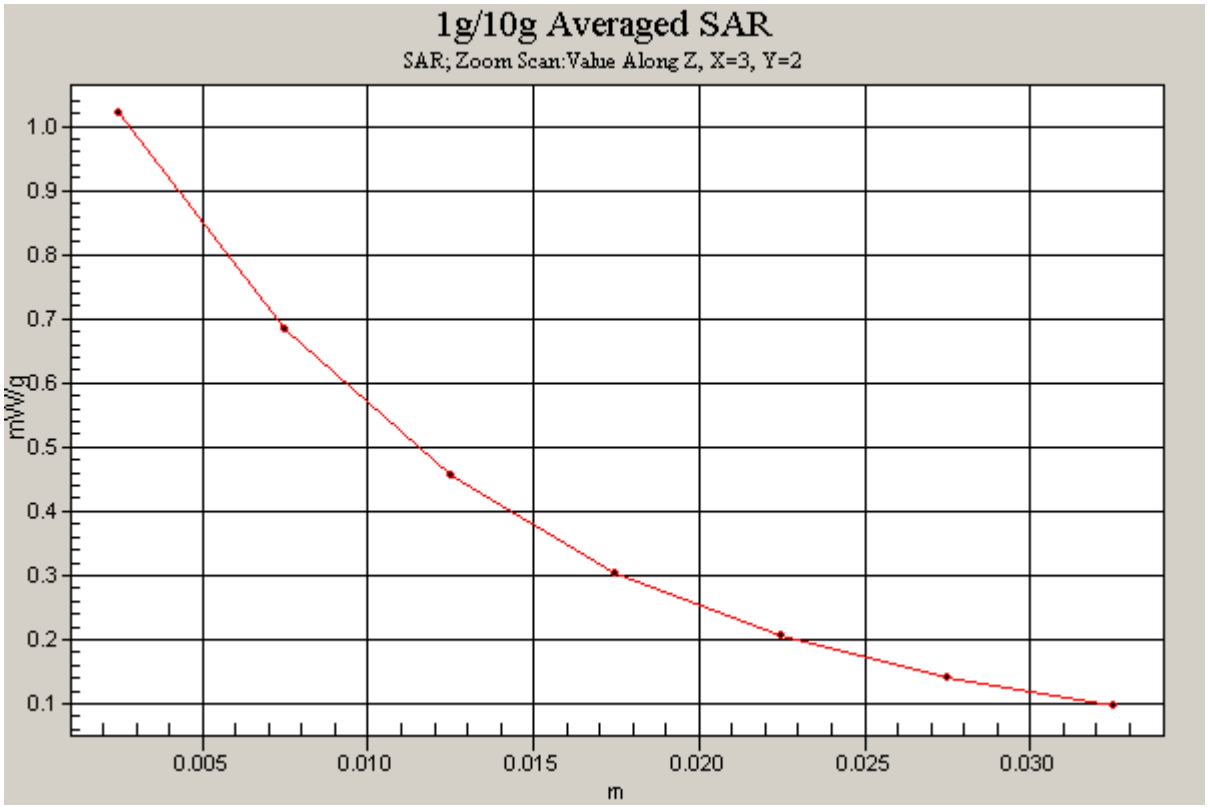


Figure 110 Z-Scan at power reference point [WCDMA Band V with BenQ Joybook R55V Test Position 1 at 270 degree Channel 4233

ANNEX D: PROBE CALIBRATION CERTIFICATE

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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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

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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%	$\mu V/(V/m)^2$	DCP X	**88** mV
NormY	**0.42** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**85** mV
NormZ	**0.45** ± 10.1%	$\mu V/(V/m)^2$	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%.

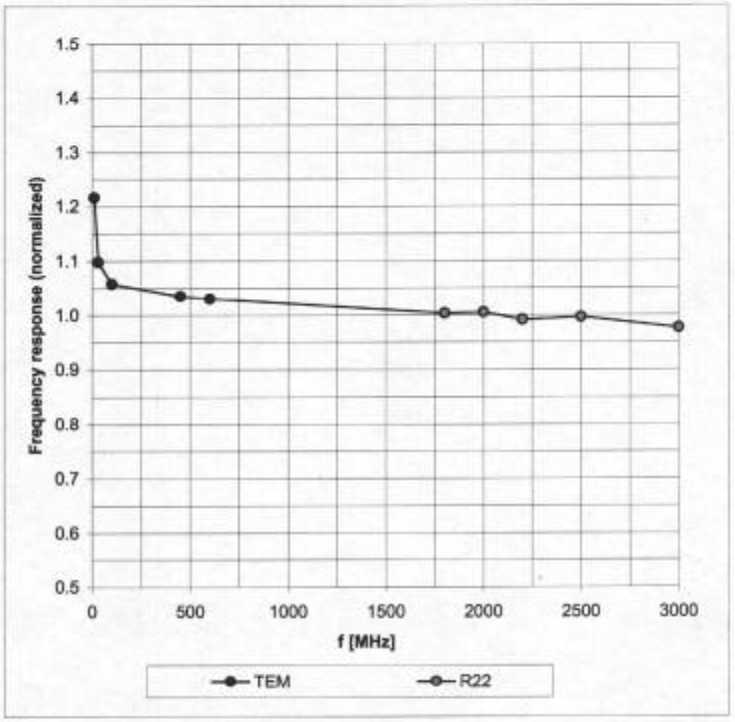
[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

EX3DV4 SN:3660 September 3, 2008

Frequency Response of E-Field

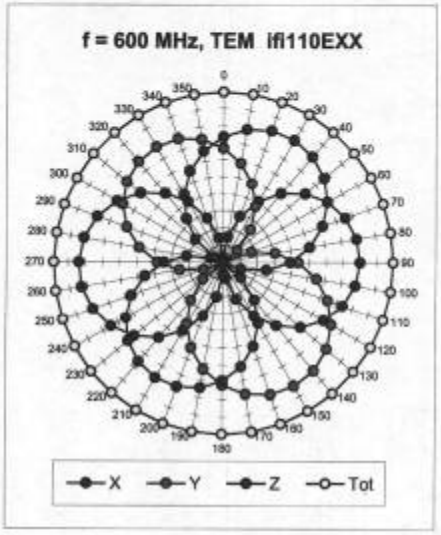
(TEM-Cell:ifi110 EXX, Waveguide: R22)

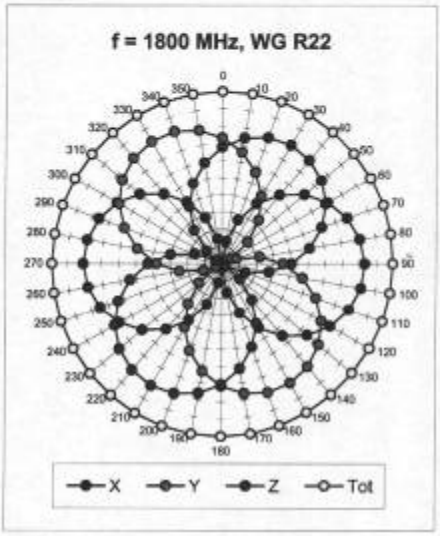


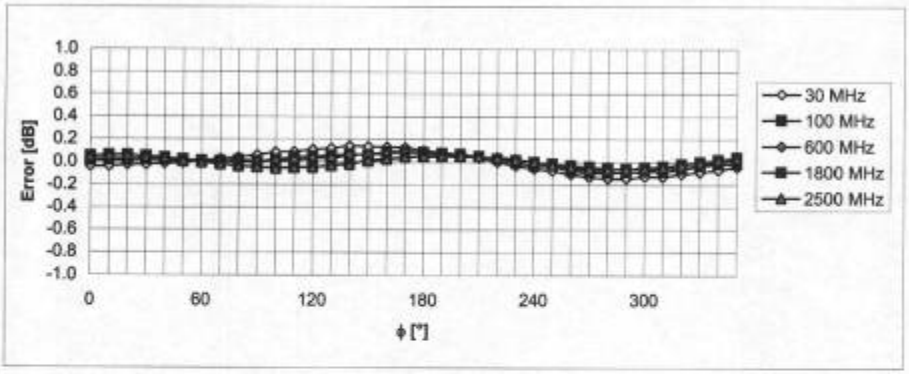
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

EX3DV4 SN:3660 September 3, 2008

Receiving Pattern (ϕ), ϑ = 0°





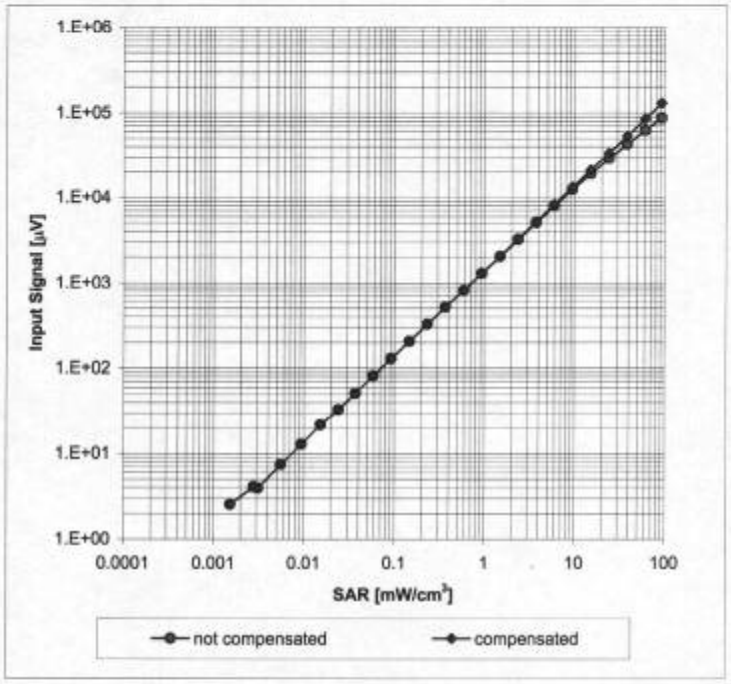


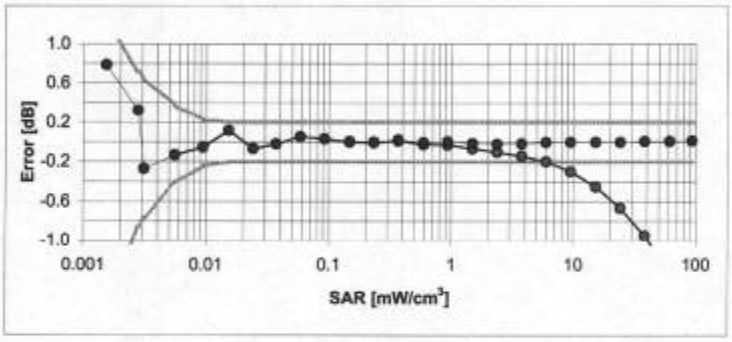
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

EX3DV4 SN:3660 September 3, 2008

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)

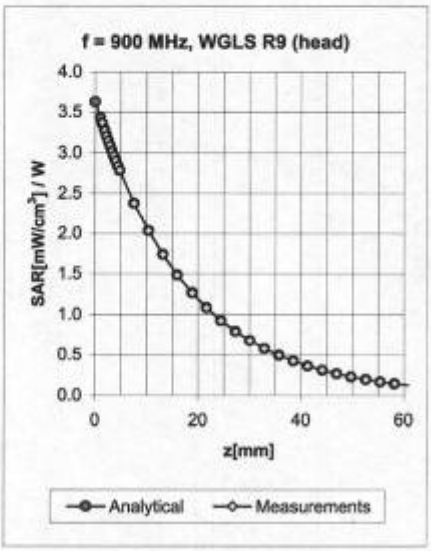


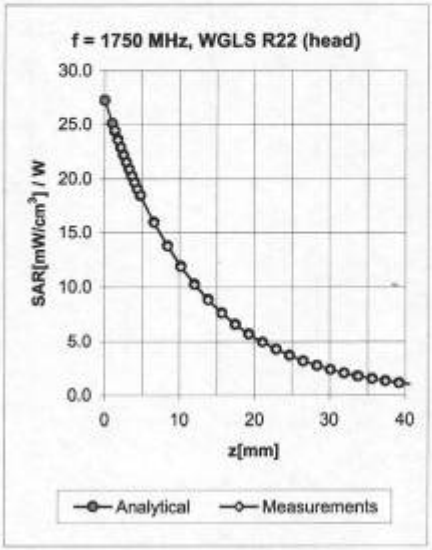


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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

Conversion Factor Assessment





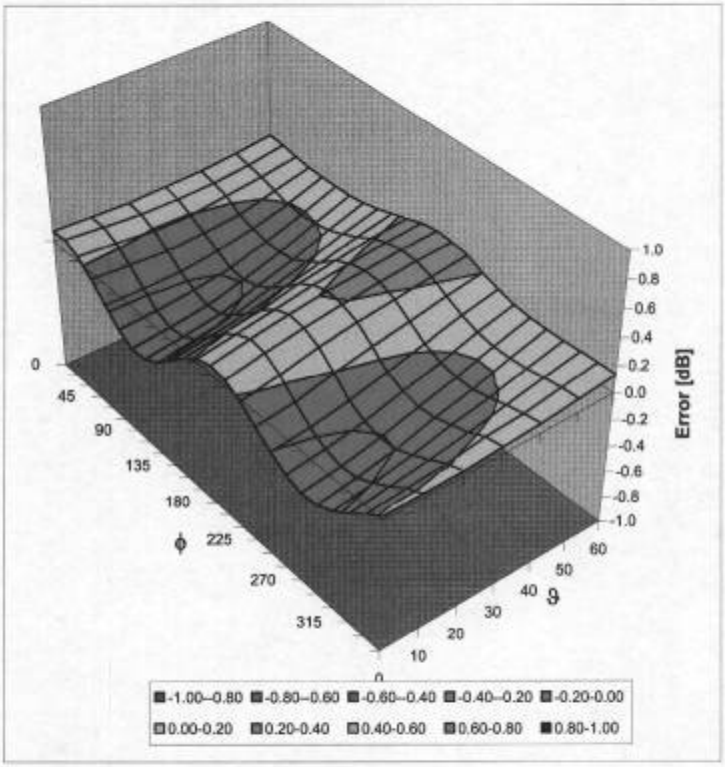
f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.49	0.76	9.19 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.43	0.83	8.84 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.68	0.63	7.79 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.31	0.80	7.35 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.32	0.85	6.94 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.63	0.71	9.10 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.30	1.08	8.76 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.34	0.86	7.55 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.60	0.67	7.45 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.30	1.15	6.75 ± 11.0% (k=2)

[C] The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

EX3DV4 SN:3660 September 3, 2008

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

ANNEX E: D835V2 DIPOLE CALIBRATION CERTIFICATE

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

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S Servizio svizzero di taratura
S Swiss Calibration Service

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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 Auden

Certificate No: D835V2-4d020_Jul08

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d020
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	July 21, 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 EPM-442A	GB37480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 21, 2008

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

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Swiss Calibration Service

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65
d) EN 50361, "Basic standard for the measurement of specific absorption rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz)", July 2001

Additional Documentation:

e) DASY4 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.0 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature during test	(21.6 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.30 mW / g
SAR normalized	normalized to 1W	9.20 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**9.20 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.52 mW / g
SAR normalized	normalized to 1W	6.08 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**6.07 mW / g ± 16.5 % (k=2)**

[1] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.6 ± 6 %	1.0 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.41 mW / g
SAR normalized	normalized to 1W	9.64 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**9.28 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.59 mW / g
SAR normalized	normalized to 1W	6.36 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**6.19 mW / g ± 16.5 % (k=2)**

[2] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.7 Ω -3.7 jΩ
Return Loss	- 25.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.4 Ω -5.1 jΩ
Return Loss	- 25.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.390 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	April 22, 2004

DASY4 Validation Report for Head TSL

Date/Time: 21.07.2008 10:08:05

Test Laboratory: SPEAG, Zurich, Switzerland

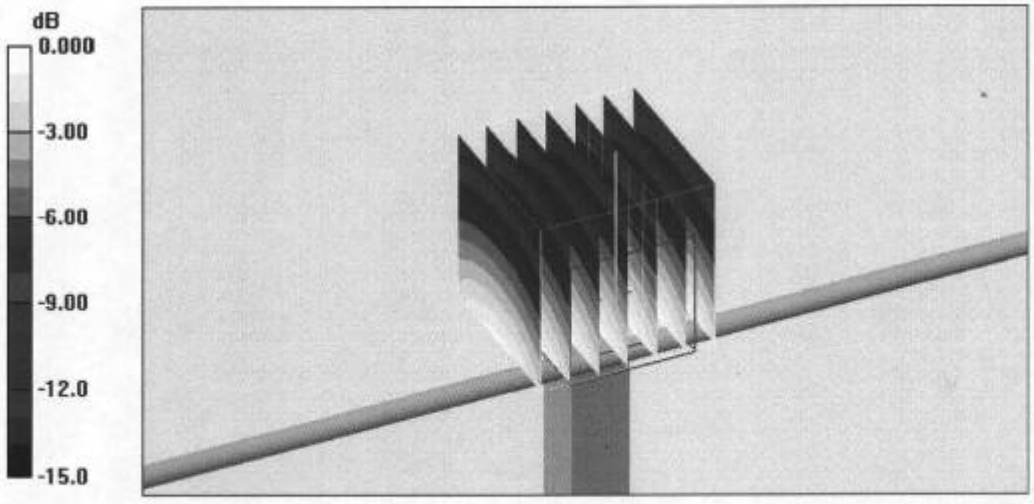
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d020

Communication System: CW-835; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL 900 MHz;
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

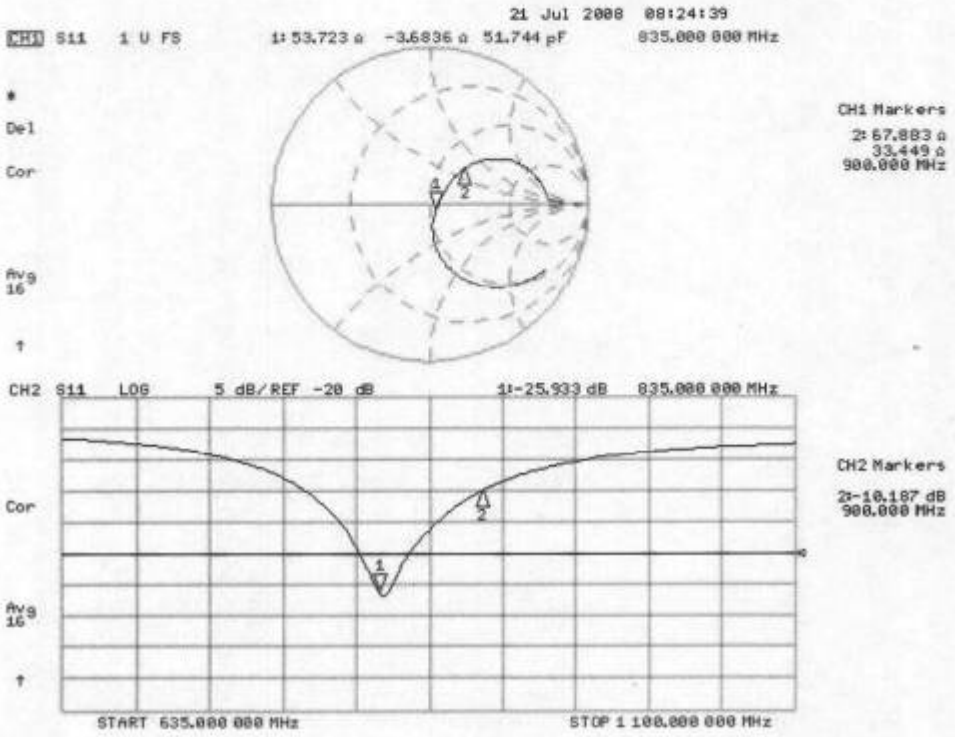
- Probe: ES3DV2 - SN3025; ConvF(5.97, 5.97, 5.97); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.4 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 3.36 W/kg
SAR(1 g) = 2.3 mW/g; SAR(10 g) = 1.52 mW/g
Maximum value of SAR (measured) = 2.61 mW/g



0 dB = 2.61mW/g

Impedance Measurement Plot for Head TSL



DASY4 Validation Report for Body TSL

Date/Time: 14.07.2008 09:46:38

Test Laboratory: SPEAG, Zurich, Switzerland

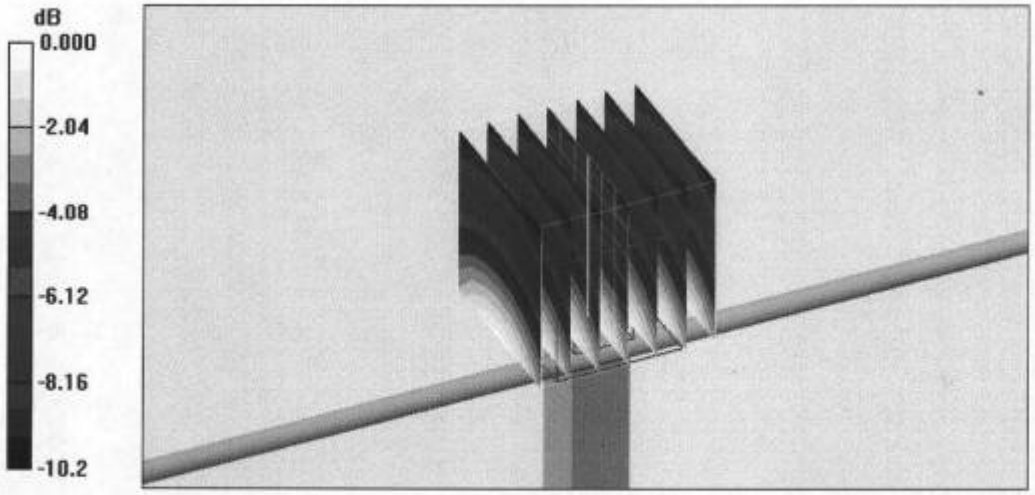
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d020

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL900;
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

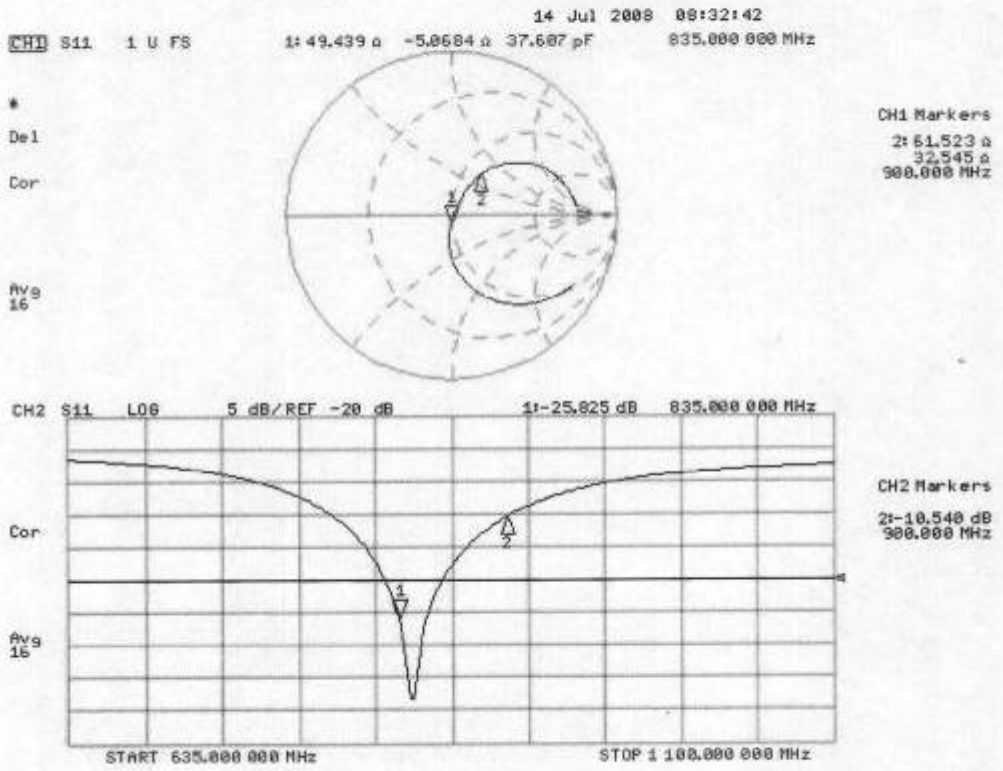
- Probe: ES3DV2 - SN3025; ConvF(5.9, 5.9, 5.9); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.3 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 3.49 W/kg
SAR(1 g) = 2.41 mW/g; SAR(10 g) = 1.59 mW/g
Maximum value of SAR (measured) = 2.73 mW/g



0 dB = 2.73mW/g

Impedance Measurement Plot for Body TSL



ANNEX F: D1900V2 DIPOLE CALIBRATION CERTIFICATE

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

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Accreditation No.: SCS 108

Client Auden

Certificate No: D1900V2-5d060-Jul08

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d060
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	July 22, 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 (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 22, 2008

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Engineering AG
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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.8 ± 6 %	1.47 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	9.84 mW / g
SAR normalized	normalized to 1W	39.4 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**37.8 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.06 mW / g
SAR normalized	normalized to 1W	20.2 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**19.8 mW / g ± 16.5 % (k=2)**

[1] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.4 ± 6 %	1.59 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.20 mW / g
SAR normalized	normalized to 1W	40.8 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**39.4 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.36 mW / g
SAR normalized	normalized to 1W	21.4 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**21.0 mW / g ± 16.5 % (k=2)**

[2] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.6 Ω + 5.8 jΩ
Return Loss	- 23.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.6 Ω + 7.0 jΩ
Return Loss	- 22.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.202 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	Dezember 10, 2004

DASY4 Validation Report for Head TSL

Date/Time: 22.07.2008 10:51:12

Test Laboratory: SPEAG, Zurich, Switzerland

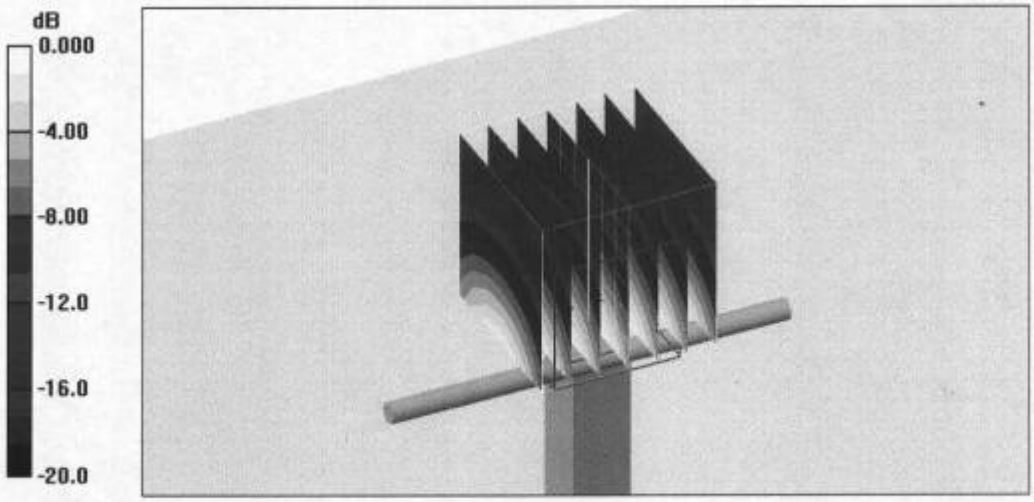
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d060

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.47 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

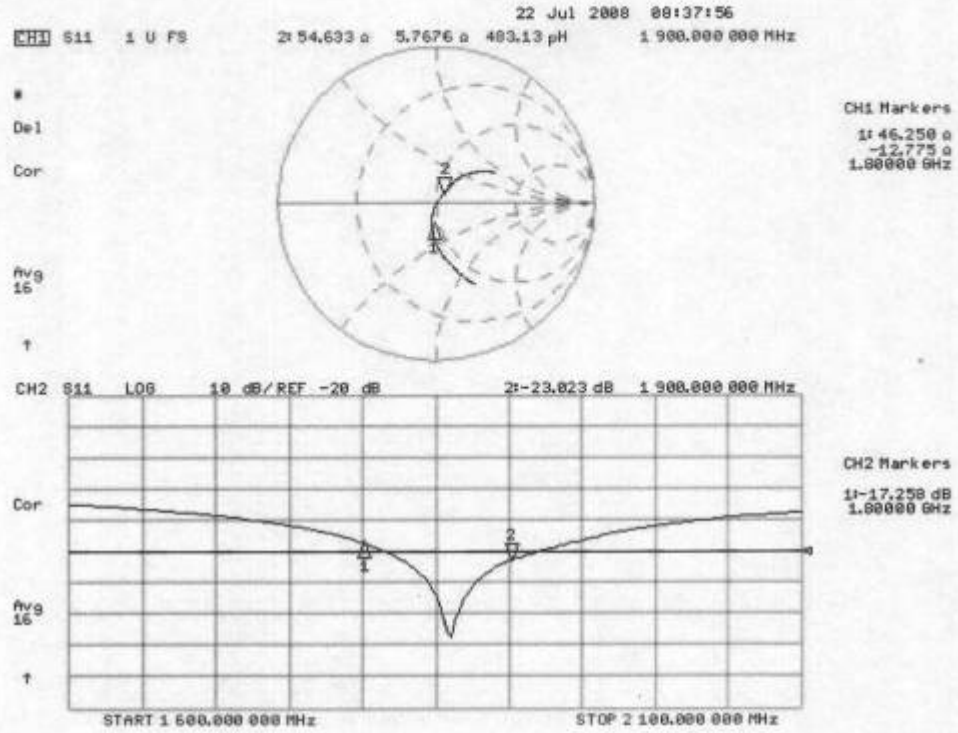
- Probe: ES3DV2 - SN3025; ConvF(4.9, 4.9, 4.9); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Pin = 250 mW; dip = 10 mm, scan at 3.4mm/Zoom Scan (dist=3.4mm, probe 0deg) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.9 V/m; Power Drift = 0.053 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 9.84 mW/g; SAR(10 g) = 5.06 mW/g
Maximum value of SAR (measured) = 11.9 mW/g



0 dB = 11.9mW/g

Impedance Measurement Plot for Head TSL



DASY4 Validation Report for Body TSL

Date/Time: 14.07.2008 13:49:34

Test Laboratory: SPEAG, Zurich, Switzerland

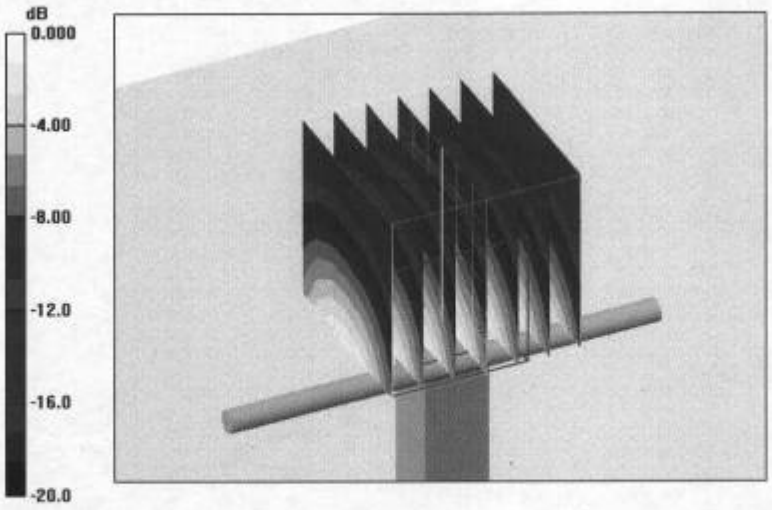
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d060

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.59 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

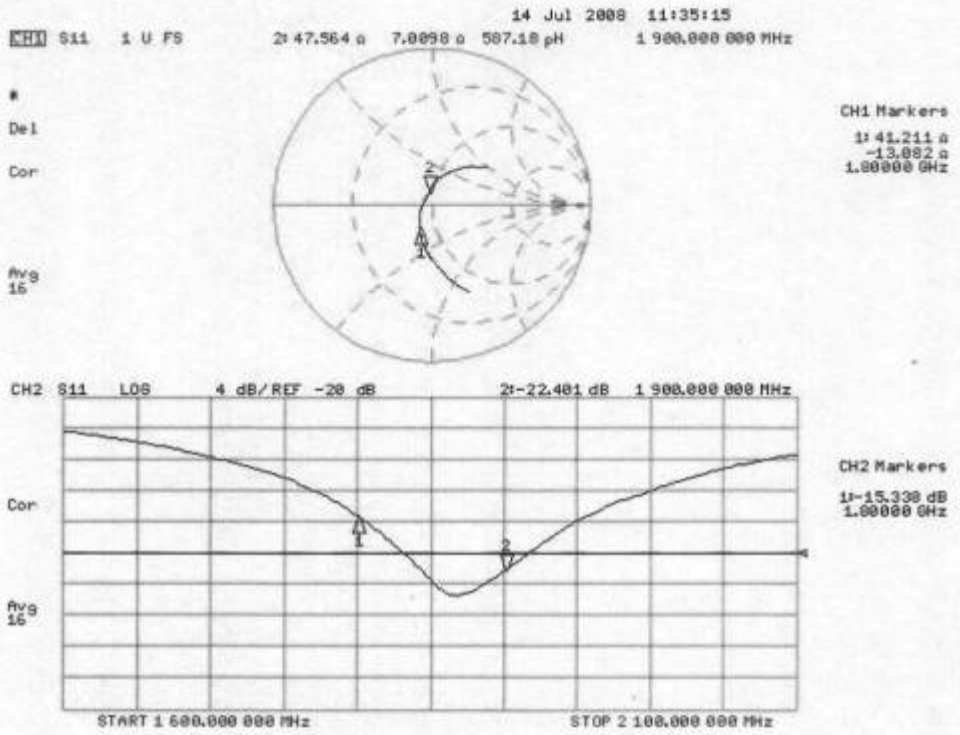
- Probe: ES3DV2 - SN3025; ConvF(4.5, 4.5, 4.5); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
-

Pin = 250 mW; dip = 10 mm, scan at 3.4mm/Zoom Scan (dist=3.4mm, probe 0deg) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.3 V/m; Power Drift = -0.001 dB
Peak SAR (extrapolated) = 18.1 W/kg
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.36 mW/g
Maximum value of SAR (measured) = 12.3 mW/g



0 dB = 12.3mW/g

Impedance Measurement Plot for Body TSL



ANNEX G: DAE4 CALIBRATION CERTIFICATE

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client Auden

Certificate No: DAE4-452_Nov08

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 452
Calibration procedure(s)	QA CAL-06.v12 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	November 18, 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
Fluke Process Calibrator Type 702	SN: 6295803	30-Sep-08 (No: 7673)	Sep-09
Keithley Multimeter Type 2001	SN: 0810278	30-Sep-08 (No: 7670)	Sep-09
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	06-Jun-08 (in house check)	In house check: Jun-09

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: November 18, 2008

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

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Accreditation No.: SCS 108

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.585 ± 0.1% (k=2)	404.416 ± 0.1% (k=2)	404.565 ± 0.1% (k=2)
Low Range	3.97854 ± 0.7% (k=2)	3.95135 ± 0.7% (k=2)	3.98063 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	148 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	200000	200000	0.00
Channel X	+ Input	20000	20006.89	0.03
Channel X	- Input	20000	-20003.71	0.02
Channel Y	+ Input	200000	200000.5	0.00
Channel Y	+ Input	20000	20008.05	0.04
Channel Y	- Input	20000	-20006.61	0.03
Channel Z	+ Input	200000	199999.6	0.00
Channel Z	+ Input	20000	20006.84	0.03
Channel Z	- Input	20000	-20004.66	0.02

Low Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	2000	2000	0.00
Channel X	+ Input	200	200.19	0.09
Channel X	- Input	200	-199.99	0.00
Channel Y	+ Input	2000	2000	0.00
Channel Y	+ Input	200	199.38	-0.31
Channel Y	- Input	200	-200.73	0.36
Channel Z	+ Input	2000	2000.1	0.00
Channel Z	+ Input	200	199.25	-0.38
Channel Z	- Input	200	-201.52	0.76

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	2.99	1.90
	- 200	-1.54	-1.85
Channel Y	200	-8.82	-8.73
	- 200	6.90	6.96
Channel Z	200	9.94	10.21
	- 200	-13.53	-13.21

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	1.31	-0.98
Channel Y	200	1.52	-	2.97
Channel Z	200	-1.16	0.18	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16123	16646
Channel Y	15886	16452
Channel Z	16175	16346

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.53	-0.80	1.64	0.33
Channel Y	-1.51	-2.67	-0.89	0.35
Channel Z	-1.99	-3.07	-1.43	0.29

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance

	Zeroing (MOhm)	Measuring (MOhm)
Channel X	0.1999	198.3
Channel Y	0.1999	200.1
Channel Z	0.1999	199.3

8. Low Battery Alarm Voltage (verified during pre test)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (verified during pre test)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.0	+6	+14
Supply (- Vcc)	-0.01	-8	-9

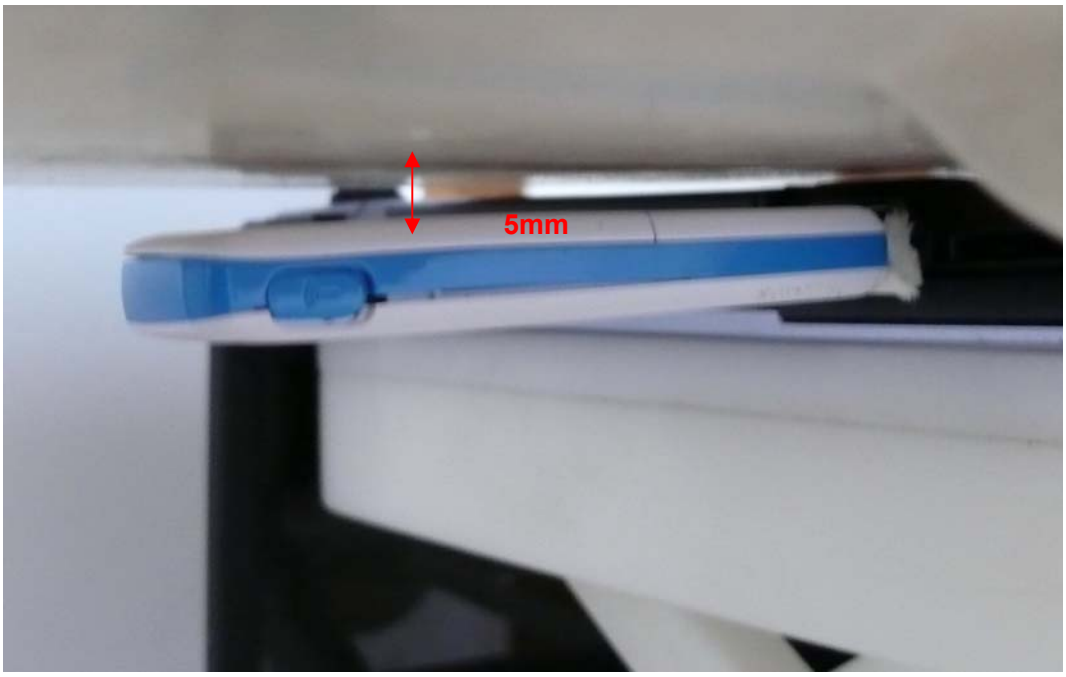
ANNEX H: THE EUT APPEARANCES AND TEST CONFIGURATION

a:180 degree

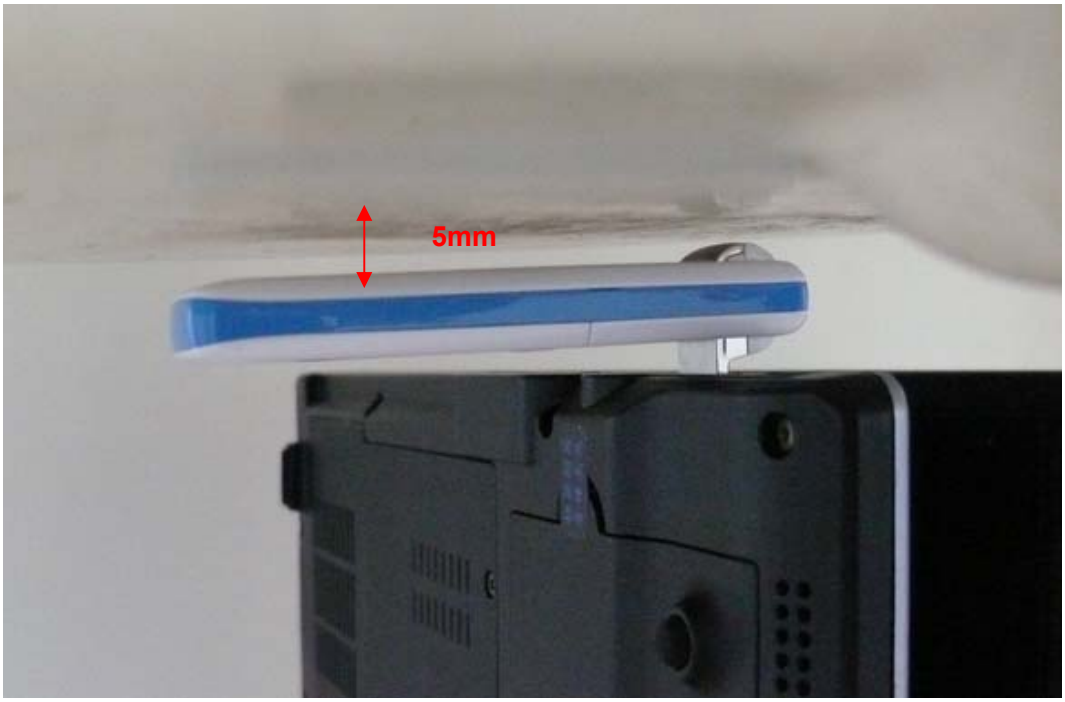
b:270 degree

c:90 degree

Picture 6: Constituents of the EUT

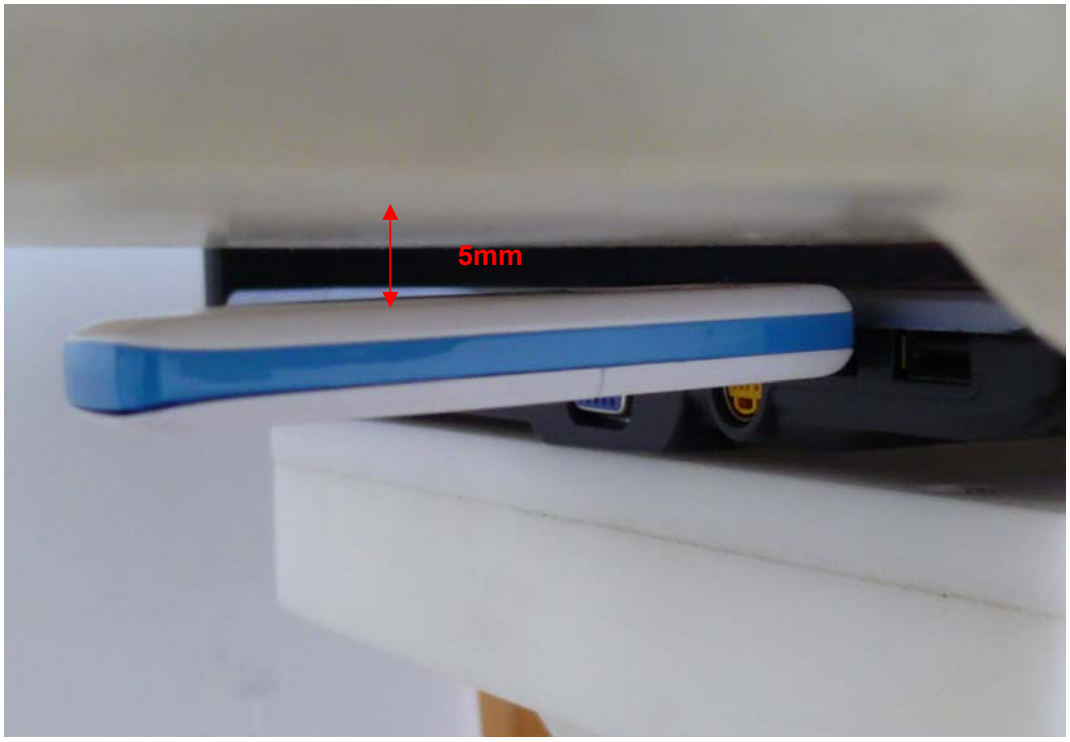


Test Position 1 at 180 degree

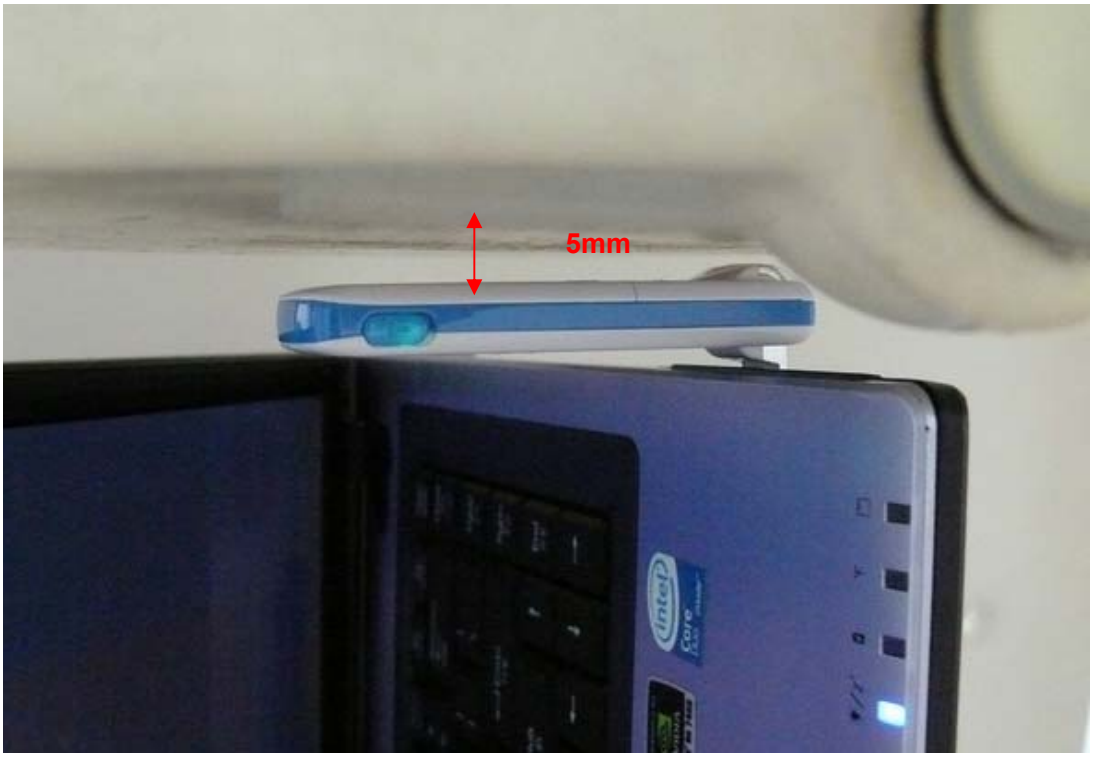


Test Position 1 at 270 degree

7-a: Test Position 1



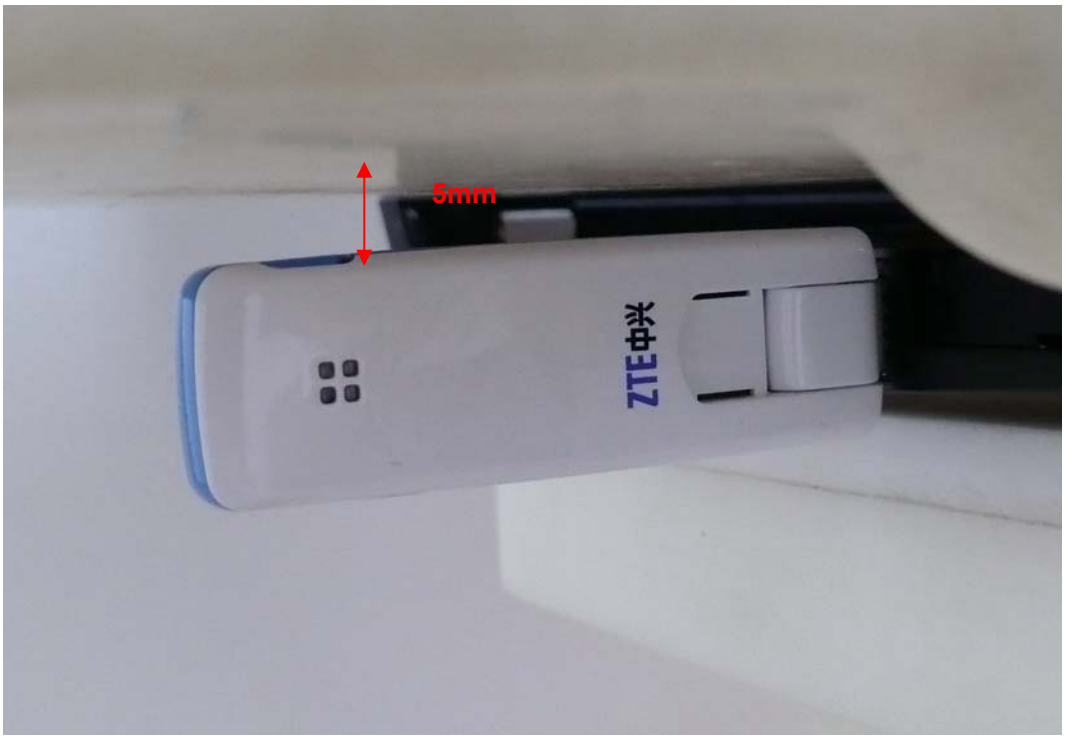
Test Position 2 at 180 degree



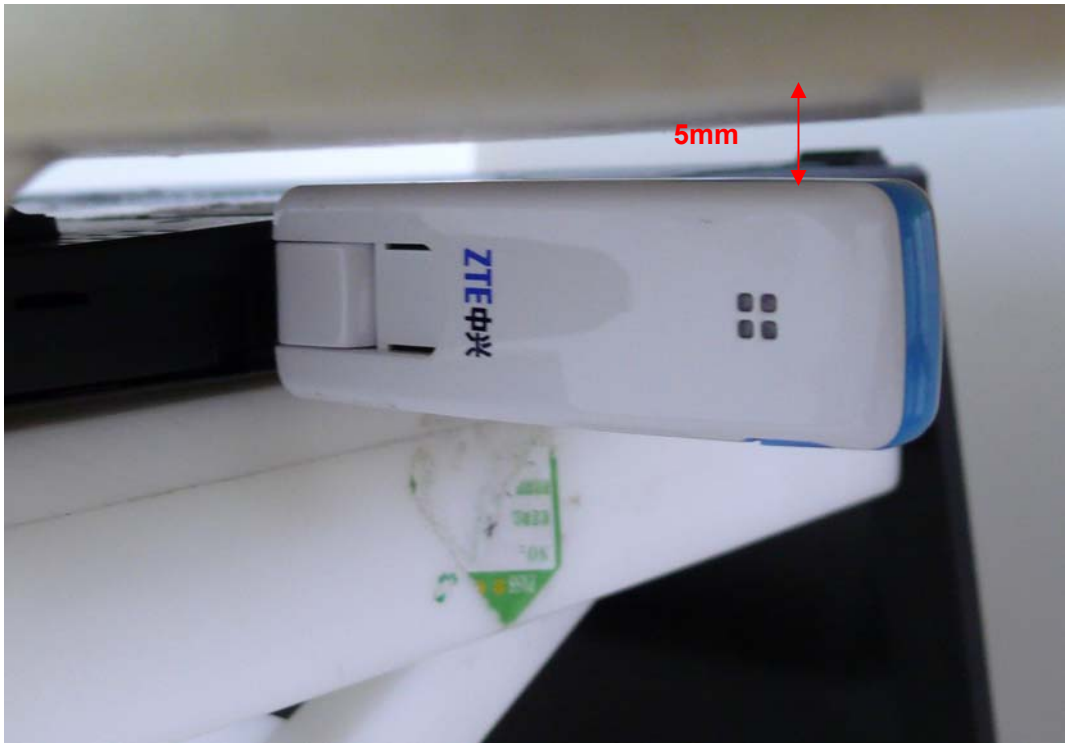
Test Position 2 at 90 degree

7-b: Test Position 2

7-c: Test position 3



7-d: Test position 4



7-e: Test position 5

Picture 7: Test positions of EUT