TEST REPORT

Your Ref:

Date: 20 Sept 2002

Our Ref: 56S020339/01_CORR01

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FORMAL REPORT ON TESTING IN ACCORDANCE WITH SAR (SPECIFIC ABSORPTION RATE) REQUIREMENTS

Supplement C (Edition 01-01) to FCC OET Bulletin 65 (Edition 97-01)

OF

22 Channel 2 ways GMRS (with 467MHz FRS channels)
[Models: Musical GMRS1100B and Eddie Bauer EBC-700]

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JOB NUMBER 56S020339

TEST PERIOD 13 Sept 2002 – 19 Sept 2002

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The product was tested in accordance with the following standards.

Test Results Summary

Test Standards	Description	Pass / Fail
• Supplement C (Edition 01-01) to FCC OET Bulletin 65 (Edition 97-01) • ANSI/IEEE Standard C95.1-1993	SAR Measurement (450MHz Head Tissue)	Pass *
	SAR Measurement (450MHz Body Tissue)	Pass *

NOTE :

1. The worst-case SAR value was found to be **1.200W/kg** which is lower than the maximum limit of 1.60 W/kg, over 1g of tissue.

* Based on spatial peak uncontrolled exposure / general population level:
  Head: 1.60 W/kg, over 1g of tissue.
  Body: 1.60 W/kg, over 1g of tissue.

Customer's Declaration

The client declared that the EUT Model: GMRS1100B [i.e. trade name: Musical (original basic model)] and Model: EBC-700 [i.e. trade name: Eddie Bauer (FCC multiple listing additional model)] are identical in electrical, mechanical and physical design, including software/firmware except brand name, model number and some cosmetics.

Modifications

No modifications were made.

DEVICE DESCRIPTION

Description	The Equipment Under Test (EUT) is a **22 Channel 2 ways GMRS (with 467MHz FRS channels).**
Device Category	Portable Device
Exposure Environment	General Population
Test Device Type	Prototype
Trade Name	Musical (i.e. for EUT Model: GMRS1100B, original basic model) Eddie Bauer (i.e. for EUT Model: EBC-700, FCC multiple listing additional model)
Serial Numbers	Nil
FCC ID	AUIGMRS1100B

DEVICE OPERATING CONFIGURATION

Operating Frequencies	462.5500MHz – 462.7250MHz (Channels 1 to 7, Channels 15 to 22) 467.5625MHz – 467.7125MHz (Channels 8 to 14)
Operating Temperature Tolerance	-20 to +50 Degree Celsius
Operating Voltage Tolerance	4.5 to 6 Volt DC
Continuous Transmission Tolerance	The EUT shall cause no problem after transmitting for 1 hour.
Rated Output Power	2W Maximum (Channels 1 to 7, Channels 15 to 21) 0.5W Maximum (Channels 8 to 14)
Antenna Type	Integrated Antenna
Duty Cycle	50%
Input Power	Battery 6V DC
Accessories	1) Belt-Clip 2) Option - Headset

MANUFACTURER

Manufacturer Address	Musical Electronics Ltd, (Buji) 1-6 Floor, Industrial Bldg, Fruit and Vegetable, I/E Station, Buji, Shenzhen China

DEVICE OPERATING CONDITION

The EUT was put into operation by forcing the push to talk button to “on” position. Communication between the EUT and the supporting walkie talkie unit was established and monitored during SAR measurement. For every SAR measurement, the EUT was set to maximum output power level using fully charged battery.

DASY3 system measures power drift during SAR test by comparing E-field in the same location at the beginning and end of measurement. These records were used to monitor the stability of the device output power.

TEMPERATURE AND HUMIDITY

Ambient Temperature:	24 ± 1^0 C
Tissue Temperature:	24 ± 1^0 C
Humidity:	45% to 48%

Measurement Uncertainty

All test measurement carried out are traceable to national standards. The uncertainty of measurement at a confidence level of 95%, with a coverage of 2, is ± 27.1%.

Error Description	**Uncertainty Value ± %**	**Probability Distribution**	**Standard Uncertainty**
Measurement System			
Probe Calibration	± 4.4	normal	± 4.4%
Axial isotropy of the probe	± 4.7	rectangular	± 1.9%
Sph. Isotropy of the probe	± 9.6	rectangular	± 3.9%
Spatial resolution	± 0.0	rectangular	± 0.0%
Boundary effects	± 5.5	rectangular	± 3.2%
Probe linearity	± 4.7	rectangular	± 2.7%
Detection limit	± 1.0	rectangular	± 0.6%
Readout electronics	± 1.0	normal	± 1.0%
Response time	± 0.8	rectangular	± 0.5%
Integration time	± 1.4	rectangular	± 0.8%
RF ambient conditions	± 3.0	rectangular	± 1.7%
Mech. Constrains of robot	± 0.4	rectangular	± 0.2%
Probe positioning	± 2.9	rectangular	± 1.7%
Extrap. And integration	± 3.9	rectangular	± 2.3%
Test Sample Related			
Device positioning	± 6.0	normal	± 6.7%
Device holder uncertainty	± 5.0	normal	± 5.9%
Power drift	± 5.0	rectangular	± 2.9%
Phantom and Setup			
Phantom uncertainty	± 4.0	rectangular	± 2.3%
Liquid conductivity (target)	± 5.0	rectangular	± 1.7%
Liquid conductivity (meas)	± 10.0	rectangular	± 3.5%
Liquid permittivity (target)	± 5.0	rectangular	± 1.7%
Liquid permittivity (meas)	± 5.0	rectangular	± 1.7%
Combined Standard Uncertainty			± 13.6%
Extended Standard Uncertainty (k=2)			± 27.1%

The measurement results were obtained with the EUT tested in the conditions described in this report (Annex A).

Table 1 - SAR Test Results (450MHz Head Tissue)

Phantom Configuration	Device Test Positions	Antenna Position	SAR (W/kg), over 1g Tissue Device Test Channel & Frequency		
			Channel : 15 462.5500MHz	Channel : 4 462.6375MHz	Channel : 21 462.7250MHz
Flat Phantom	Face Hand Held	fixed	0.900	0.743	0.804
Output Power (dBm) Before Test			32.4	32.4	32.5
Output Power (dBm) After Test			29.4	29.3	29.3

Table 2 - SAR Test Results (450MHz Head Tissue)

Phantom Configuration	Device Test Positions	Antenna Position	SAR (W/kg), over 1g Tissue Device Test Channel & Frequency		
			Channel : 8 467.5625MHz	Channel : 11 467.6375MHz	Channel : 14 467.7125MHz
Flat Phantom	Face Hand Held	fixed	0.149	0.135	0.119
Output Power (dBm) Before Test			26.8	26.7	26.8
Output Power (dBm) After Test			21.4	21.4	21.3

Table 3 - SAR Test Results (450MHz Body Tissue, Device with belt clip)

Phantom Configuration	Device Test Positions	Antenna Position	SAR (W/kg), over 1g Tissue Device Test Channel & Frequency		
			Channel : 15 462.5500MHz	Channel : 4 462.6375MHz	Channel : 21 462.7250MHz
Flat Phantom	Waist	fixed	1.040	1.200	1.050
Output Power (dBm) Before Test			32.4	32.4	32.5
Output Power (dBm) After Test			29.4	29.3	29.3

Table 4 - SAR Test Results (450MHz Body Tissue, Device with belt clip)

Phantom Configuration	Device Test Positions	Antenna Position	SAR (W/kg), over 1g Tissue Device Test Channel & Frequency		
			Channel : 8 467.5625MHz	Channel : 11 467.6375MHz	Channel : 14 467.7125MHz
Flat Phantom	Waist	fixed	0.259	0.337	0.206
Output Power (dBm) Before Test			26.8	26.7	26.8
Output Power (dBm) After Test			21.4	21.4	21.3

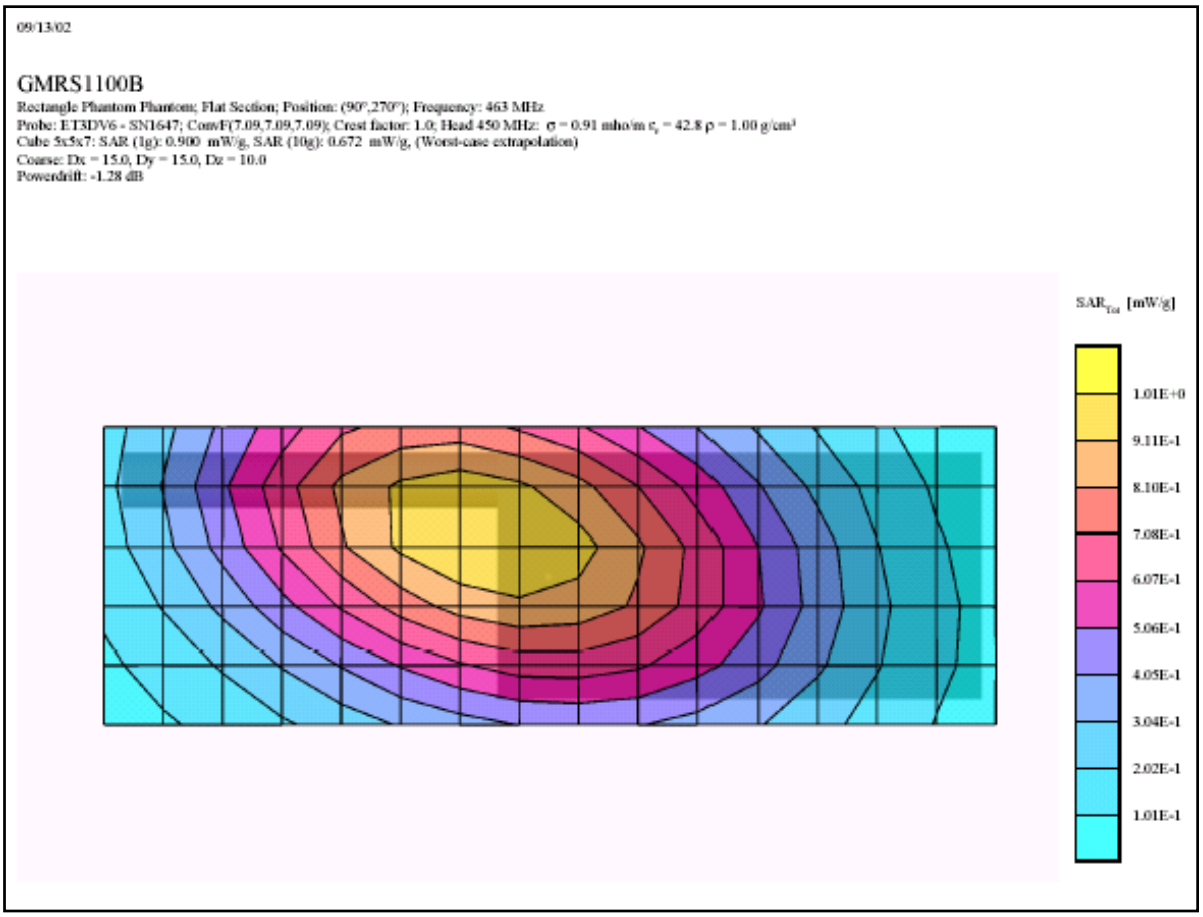
Remarks:

1. All modes of operations were investigated and the worst-case SAR levels are reported.
2. A fully charged Battery was used for each mode of operation.
3. For **450MHz Head Tissue**, the worst-case SAR value was found to be **0.900W/kg** (over a 1g tissue) at **Channel 15** which is lower than the maximum limit of 1.60 W/kg, please refer to Table 1.
4. For **450MHz Body Tissue (Device with belt clip)**, the worst-case SAR value was found to be **1.200W/kg** (over a 1g tissue) at **Channel 4** which is lower than the maximum limit of 1.60 W/kg, please refer to Table 3.
5. The SAR limit of 1.60W/kg (Spatial Peak level for Uncontrolled Exposure / General Population) is based on the Test Standards:
   a) Supplement C (Edition 01-01) to FCC OET Bulletin 65 (Edition 97-01)
   b) ANSI/IEEE Standard C95.1-1993

Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 45 %

Figure 1: SAR Test Distribution Plot (450MHz Head Tissue)

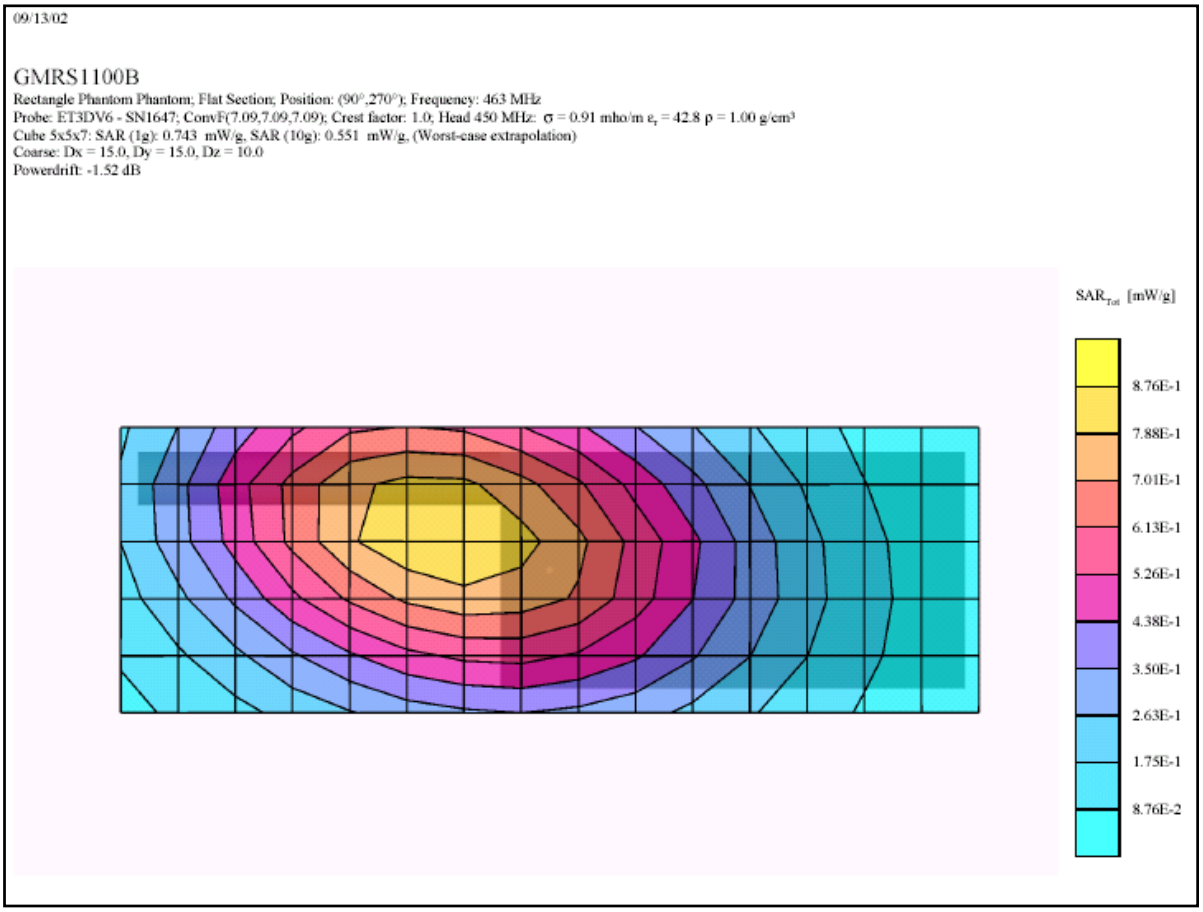
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Face Held Hand	Fixed	Channel : 15 462.5500MHz	0.900



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 45 %

Figure 2: SAR Test Distribution Plot (450MHz Head Tissue)

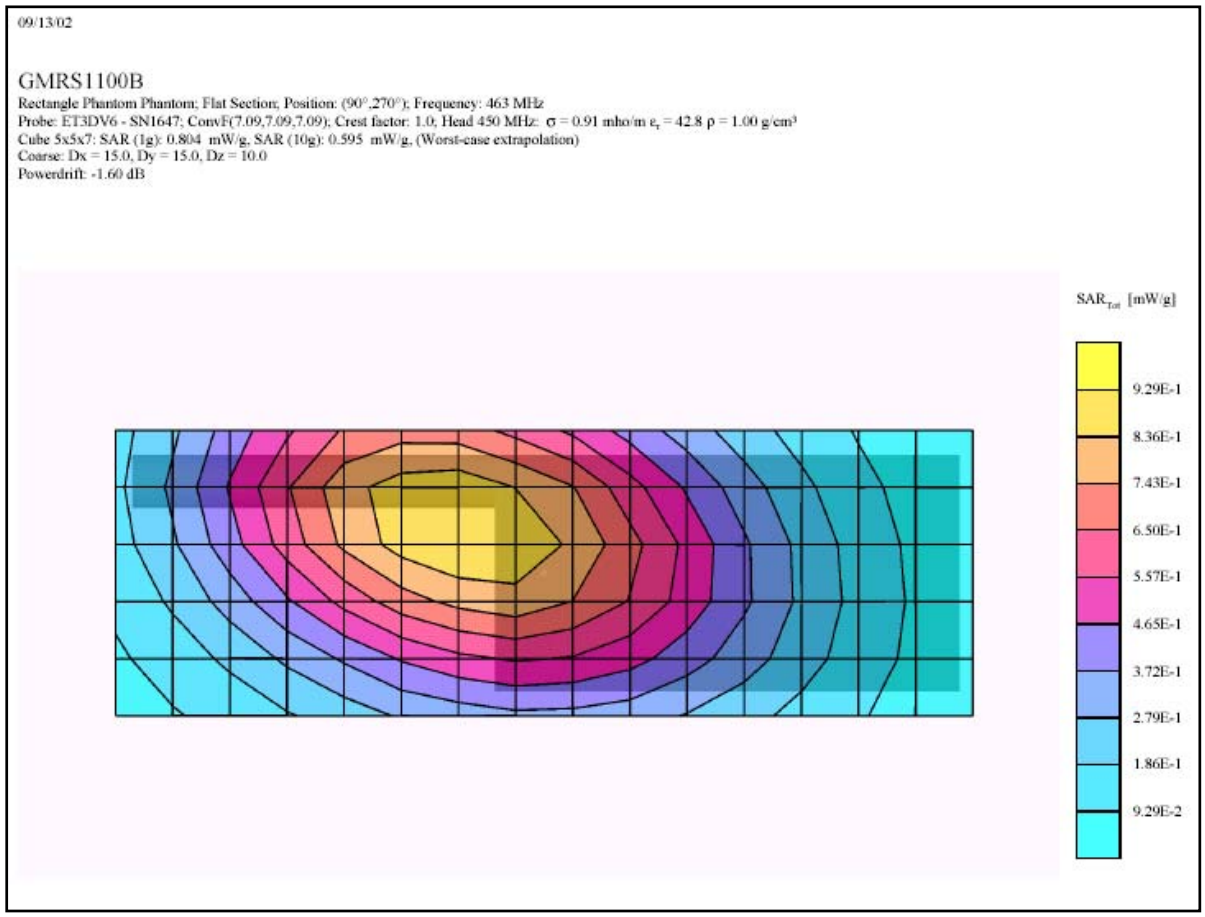
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Face Held Hand	Fixed	Channel : 4 462.6375MHz	0.743



Ambient Temperature: **24 ^{0}C**
Tissue Temperature: **24 ^{0}C**
Humidity: **45 %**

Figure 3: SAR Test Distribution Plot (450MHz Head Tissue)

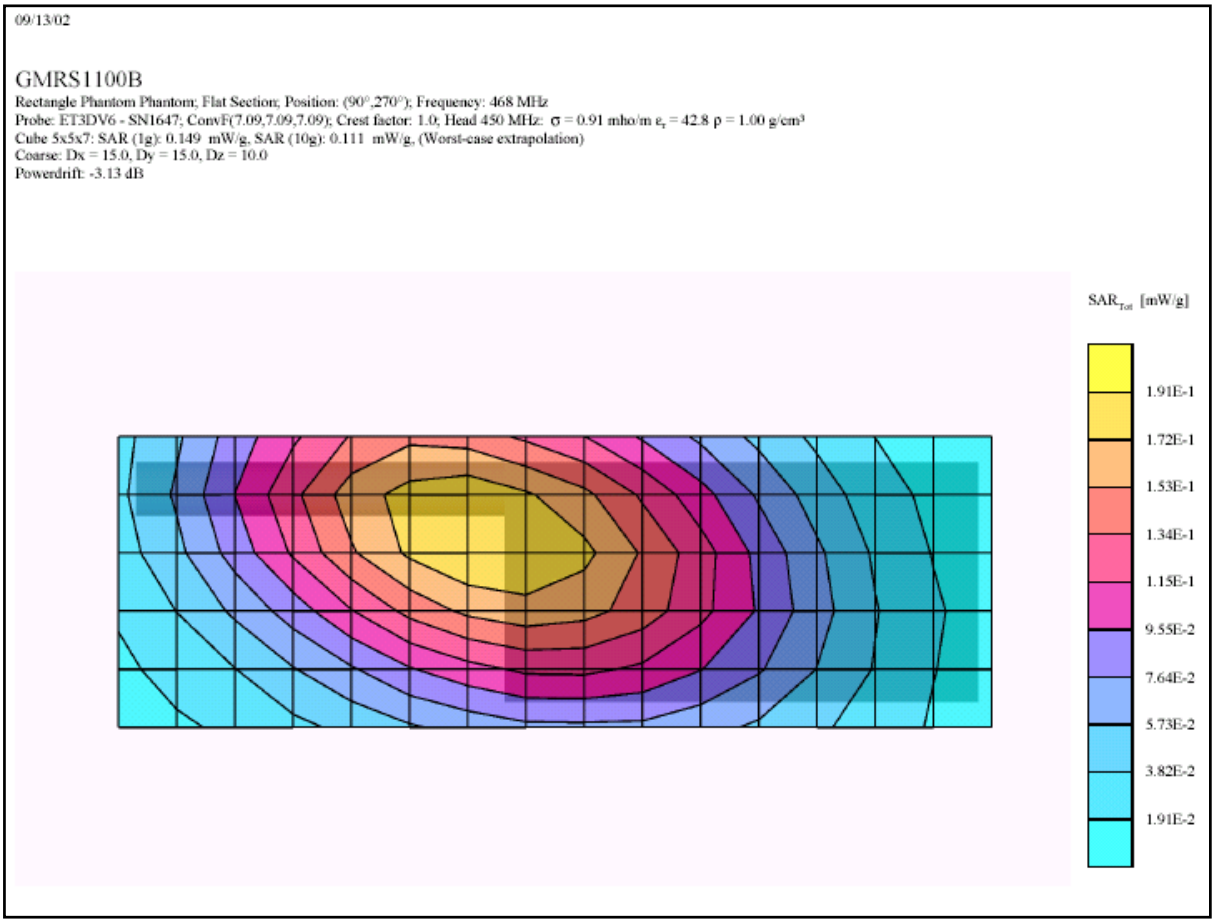
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Face Held Hand	Fixed	Channel : 21 462.7250MHz	0.804



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 45 %

Figure 4: SAR Test Distribution Plot (450MHz Head Tissue)

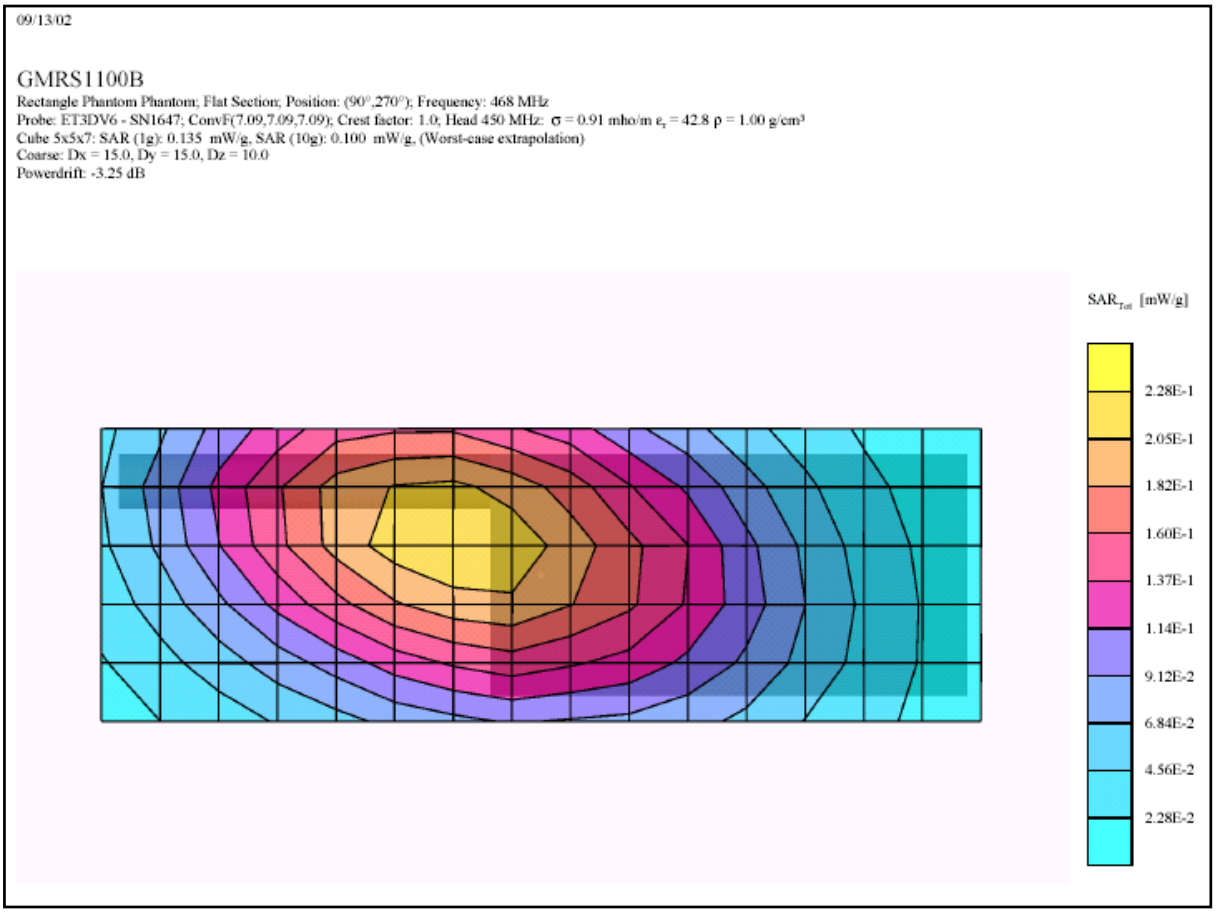
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Face Held Hand	Fixed	Channel : 8 467.5625MHz	0.149



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 45 %

Figure 5: SAR Test Distribution Plot (450MHz Head Tissue)

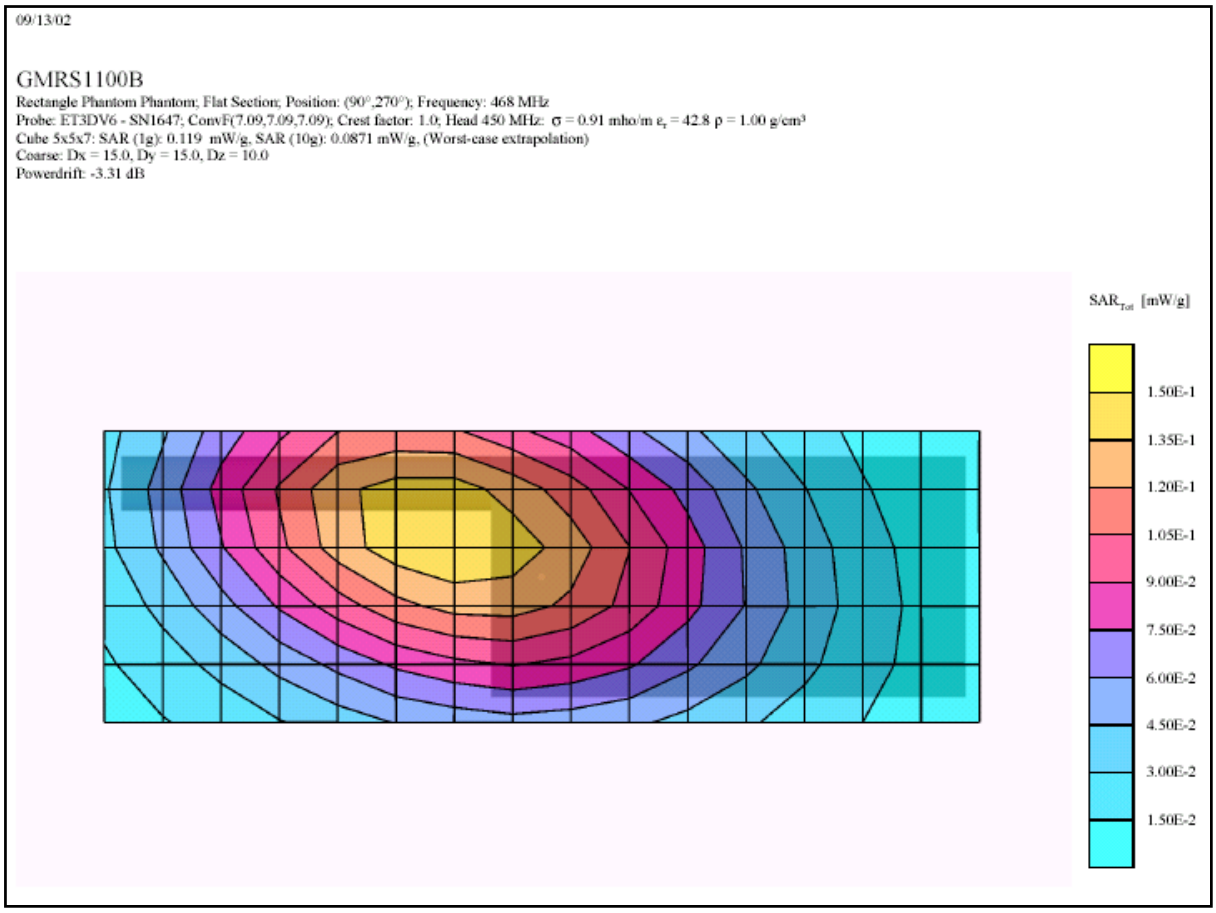
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Face Held Hand	Fixed	Channel : 11 467.6375MHz	0.135



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 45 %

Figure 6: SAR Test Distribution Plot (450MHz Head Tissue)

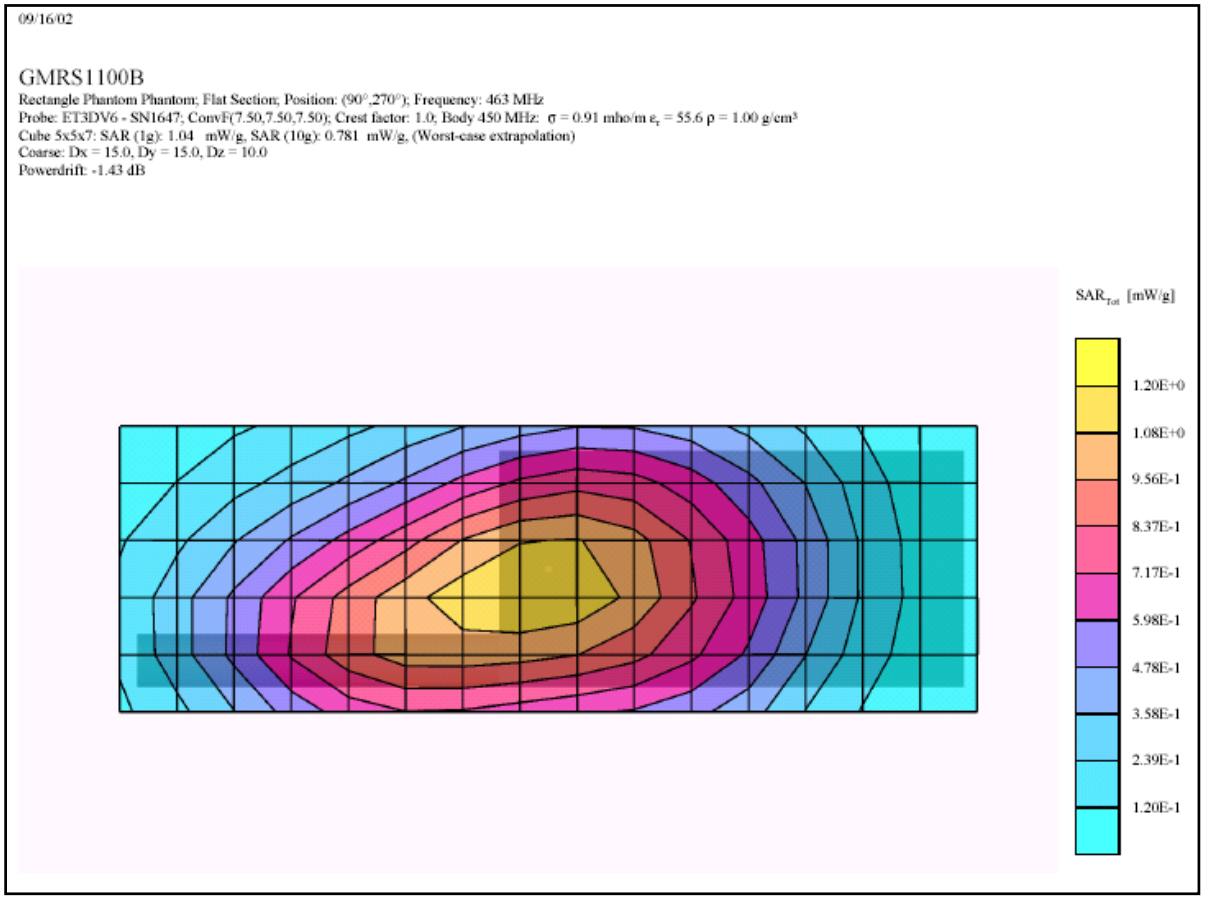
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Face Held Hand	Fixed	Channel : 14 467.7125MHz	0.119



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 48 %

Figure 7: SAR Test Distribution Plot (450MHz Body Tissue, Device with belt clip)

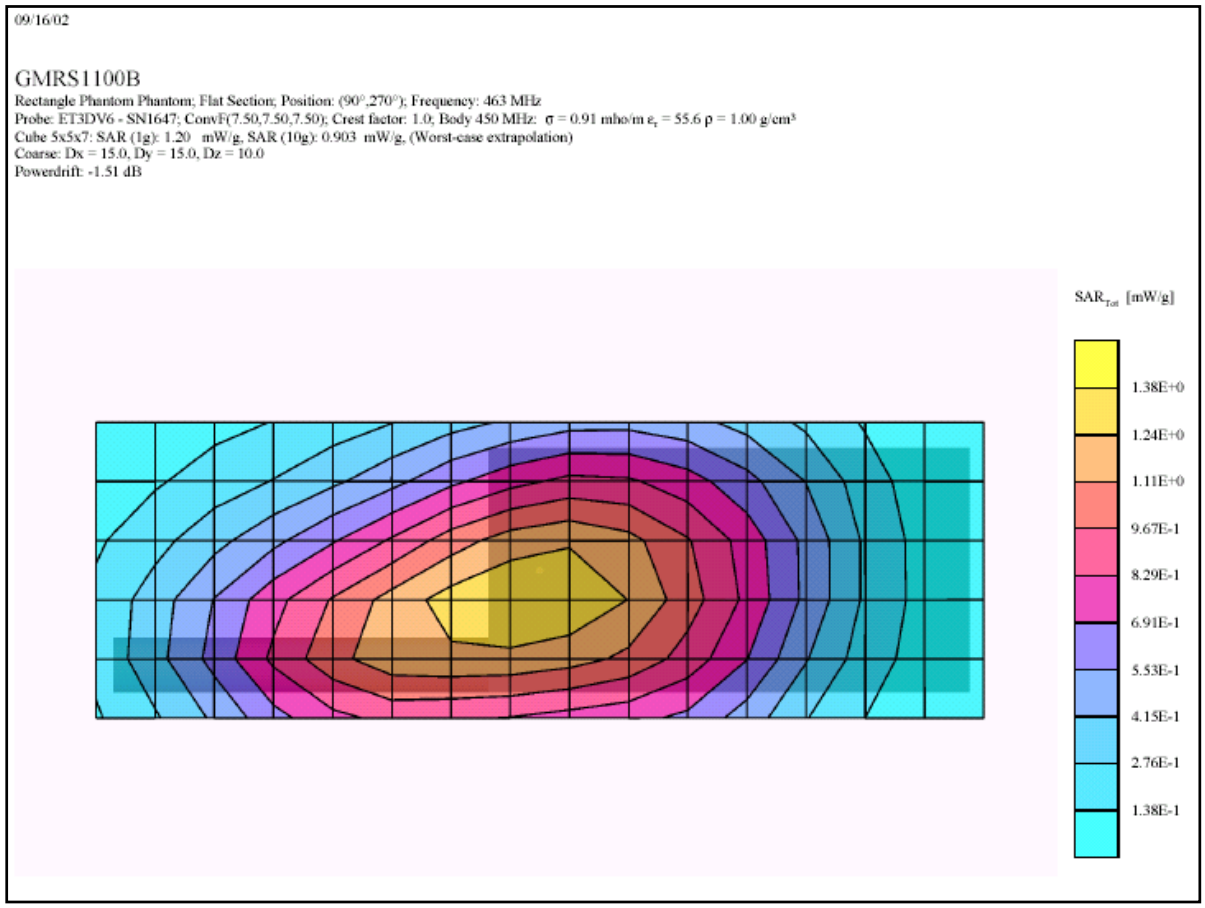
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Waist	Fixed	Channel : 15 462.5500MHz	1.040



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 48 %

Figure 8: SAR Test Distribution Plot (450MHz Body Tissue, Device with belt clip)

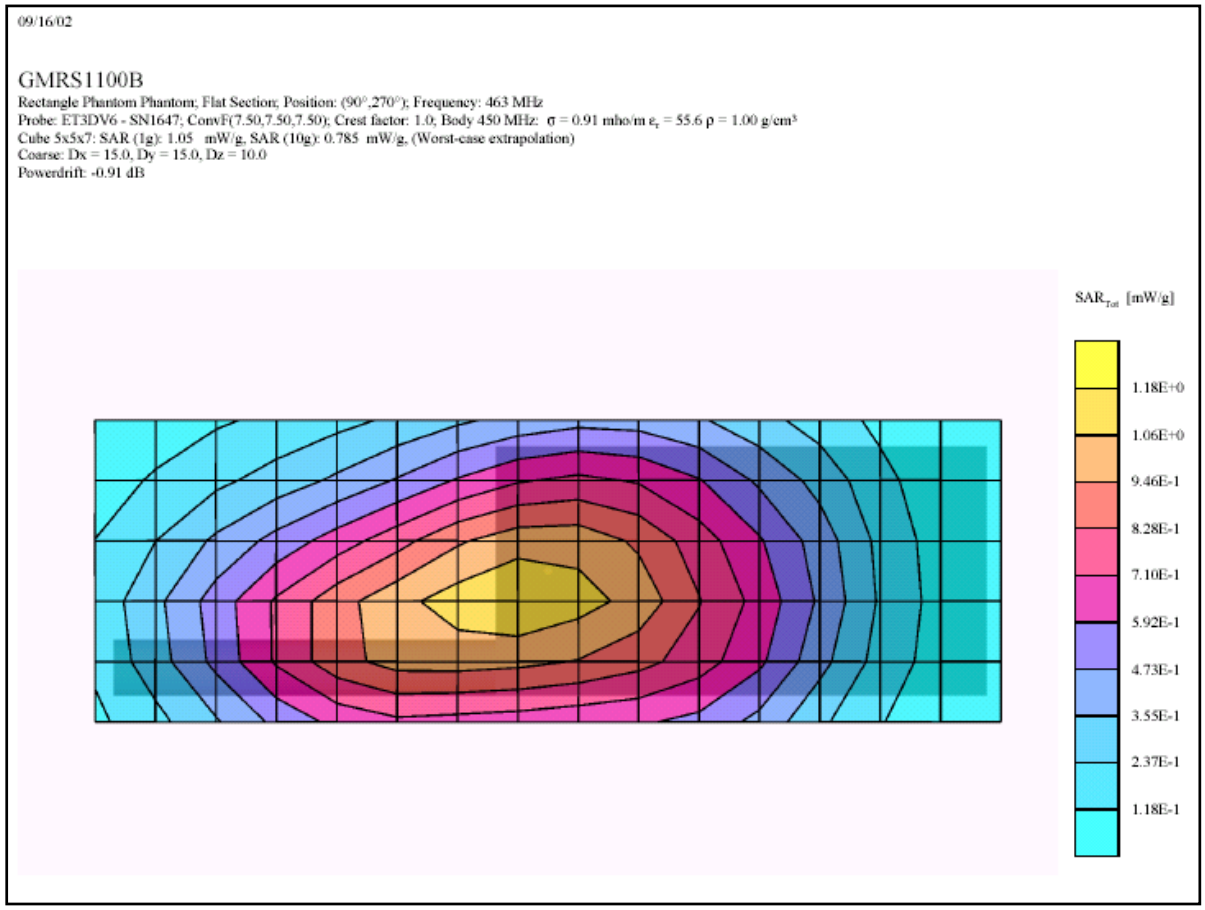
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Waist	Fixed	Channel : 4 462.6375MHz	1.200



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 48 %

Figure 9: SAR Test Distribution Plot (450MHz Body Tissue, Device with belt clip)

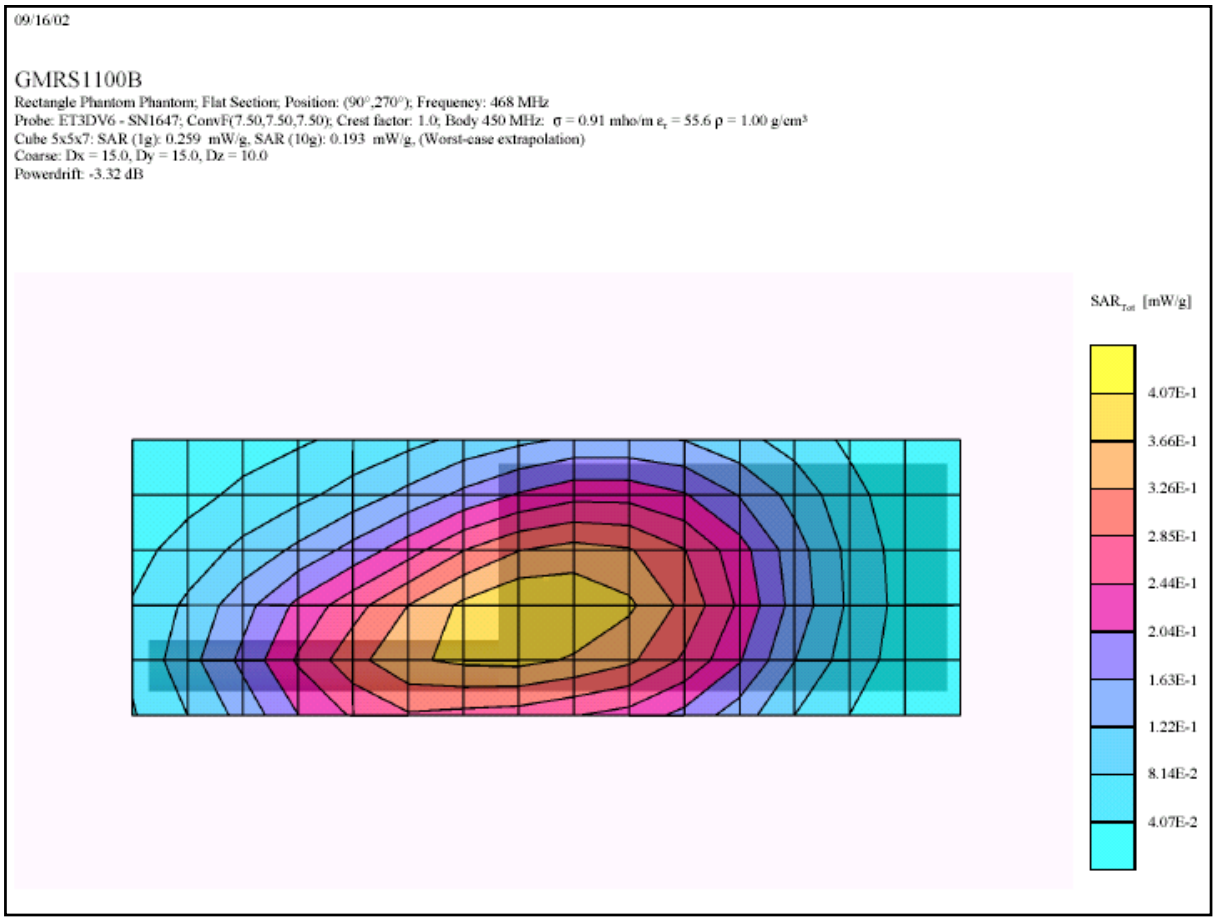
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Waist	Fixed	Channel : 21 462.7250MHz	1.050



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 48 %

Figure 10: SAR Test Distribution Plot (450MHz Body Tissue, Device with belt clip)

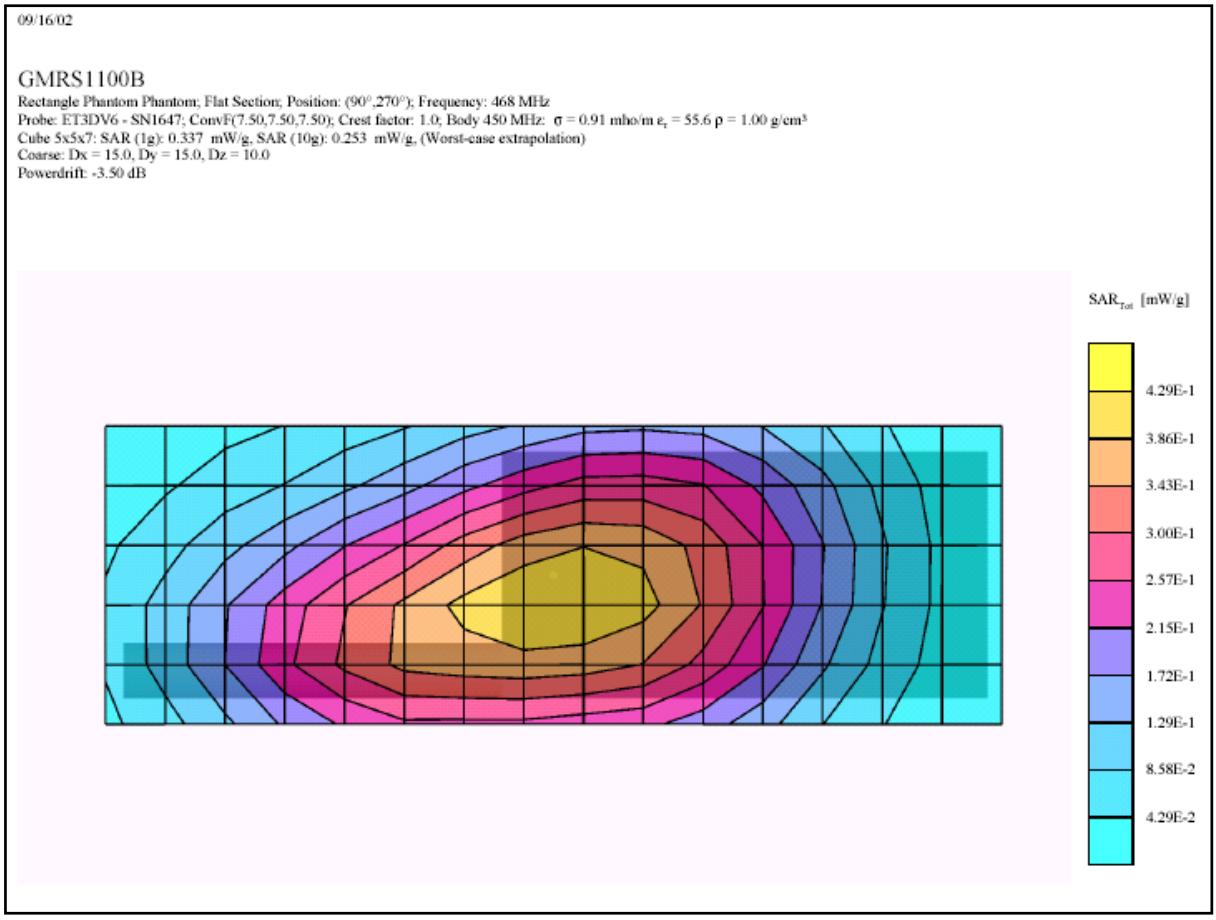
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Waist	Fixed	Channel : 8 467.5625MHz	0.259



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 48 %

Figure 11: SAR Test Distribution Plot (450MHz Body Tissue, Device with belt clip)

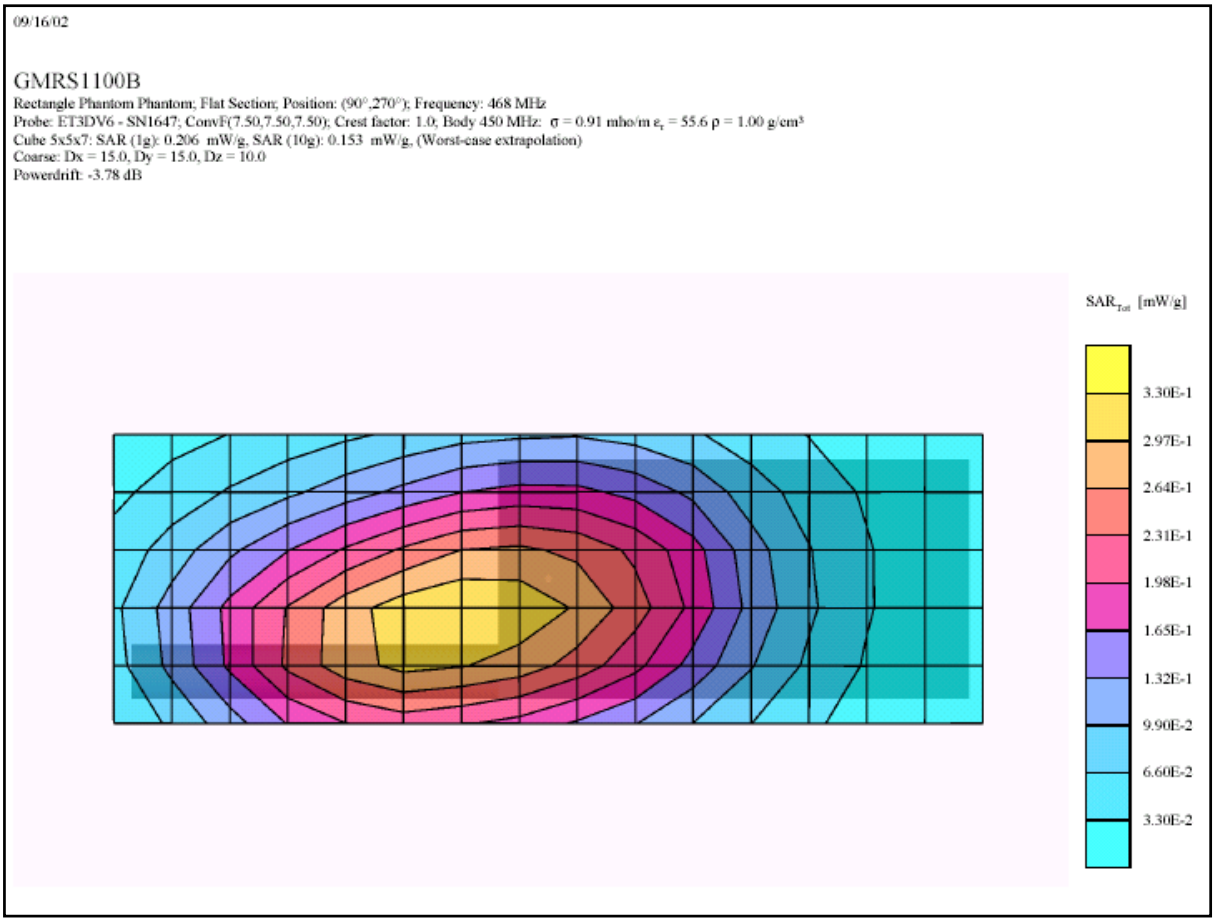
Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Waist	Fixed	Channel : 11 467.6375MHz	0.337



Ambient Temperature: 24 ^{0}C
Tissue Temperature: 24 ^{0}C
Humidity: 48 %

Figure 12: SAR Test Distribution Plot (450MHz Body Tissue, Device with belt clip)

Phantom Configuration	Device Test Positions	Antenna Position	Channel	SAR (W/kg), over 1g Tissue
Flat Phantom	Waist	Fixed	Channel : 14 467.7125MHz	0.206



ANNEX A

TEST INSTRUMENTATION
&
GENERAL PROCEDURE

A.1 General Test Procedure

In the SAR measurement, the positioning of the probes must be performed with sufficient accuracy to obtain repeatable measurements in the presence of rapid spatial attenuation phenomena. The accurate positioning of the E-field probe is accomplished by using a high precision robot. The robot can be taught to position the probe sensor following a specific pattern of points. In a first sweep, the sensor is positioned as close as possible to the interface, with the sensor enclosure touching the inside of the fiberglass shell. The SAR is measured on a grid of points, which covers the curved surface of the phantom in an area larger than the size of the DUT. After the initial scan, a high- resolution grid is used to locate the absolute maximum measured energy point. At this location, attenuation versus depth scan will be accomplished by the measurement system to calculate the SAR value.

A.2 SAR Test Instrumentation

SAR Measurement System

- **Positioning Equipment**
  Type: High Precision Industrial Robot, RX90.
  Precision: High precision (repeatability 0.02mm)
  Reliability: High reliability (industrial design)

- **Dell Computer**
  Type: 1GHz Pentium III
  Memory: 128MB SDRAM
  Operating System: Windows NT Service Pack
  Dell Monitor: 17” LCD

- **Dosimetric E-Field Probe**
  Type: ET3DV6
  Isotropy Error (∅): ±0.25dB
  Dynamic Range: 0.01 – 100 W/kg

- **Phantom & Tissue**
  Phantom: Shell phantom
  Tissue: Simulated Tissue with electrical characteristics similar to those of the human at normal body temperature (23 ± 1°C)
  Shell: Fiberglass shell phantom with 4mm thickness
  Dimension: (80x70x20)cm (L x W x H)

A.3 Test Setup

Phantom

The fiberglass shell phantom was manufactured by Eurofibre Engineering with 4mm shell thickness. It has only one measurement areas:

- Flat phantom

The phantom table comes in the sizes: (80x70x20)cm (LxWxH) table for use with free standing robots.
The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions.

Simulated tissue

Simulated Tissue: Suggested in a paper by George Hartsgrove and colleagues in University of Ottawa Ref.: Bioelectromagnetics 8:29-36 (1987)

This simulated tissue is mainly composed of water, sugar and salt. At higher frequencies, in order to achieve the proper conductivity, the solution does not contain salt. Also, at these frequencies, D.I. water and alcohol is preferred.
Tissue Density : Approximately 1.25 g/cm^3

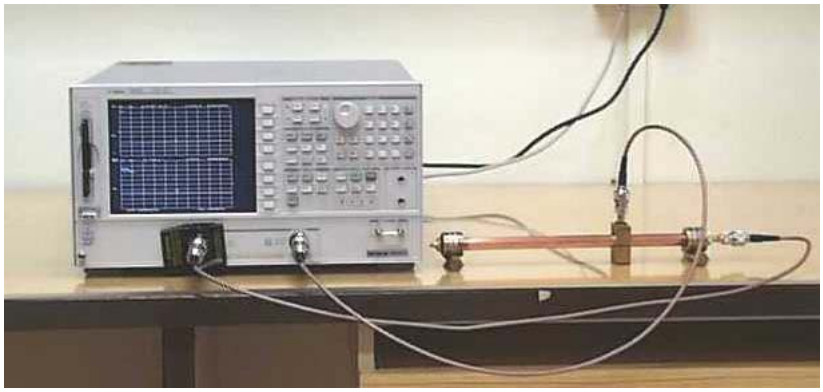
- **Preparation**
  The ingredients (i.e. water, sugar, salt, etc) required to prepare the simulated tissue are carefully weighed and poured into a clean container for mixing. A stirring paddle, that is attached to a hand drill is used to stir the solution for a duration of about 30 minutes or more. When the ingredients are completely dissolved, the solution is left in the container for the air bubbles to disappear.

- **Measurement of Electrical Characteristics of Simulated Tissue**
  1) S-PARAMETER Network Analyzer, Agilent 8753ES (30kHz – 6GHz)
  2) Slotted Coaxial Waveguide

- **Description of the slotted coaxial waveguide**
  The cylindrical waveguide is constructed with copper tube of about 30 to 40 cm of length, generally 12.5 mm diameter, with connectors at both ends. Inside of this tube, a conductive rod about 6.3 mm is coaxial supported by the two ends connectors (radiator). A slot 3 mm wide start at the beginning of the tube to almost the two third of the tube length. The outer edge of the slotted tube is marked in centimeters. For frequency below 1GHz, 1 centimeter per step. For higher frequency above 1 GHz, 0.5 centimeter per step. A saddle piece containing the sampling probe is inserted in the slot so the tip of the probe is close but not in contact with the inner conductor (radiator).

  To measure the electrical characteristics of the liquid simulated tissue, which fill the coaxial waveguide, select CW frequency and measure amplitude and phase with the Network Analyzer for every point in the slot (typically 11). An effort is made to keep the results dielectric constant and conductivity within 5 % of published data.

ELECTRICAL CHARACTERISTIC MEASUREMENT SETUP



Determining Relative Dielectric Constant and Effective Conductivity

$$c = 3 \cdot 10^8 (m/s) \qquad A = \frac{\Delta A}{20} \cdot \ln(10) \qquad \theta = \frac{\Delta\theta \cdot 2 \cdot \pi}{360}$$

$$\lambda = \frac{c}{f} \cdot \frac{100}{2.54} (inches) \qquad \varepsilon_{re} = \left(A^2 + \theta^2\right) \cdot \frac{\lambda^2}{(4 \cdot \pi)^2}$$

$$\theta = \left(|A| \cdot \frac{\lambda}{4 \cdot \pi \cdot \sqrt{\varepsilon_{re}}} \right) \qquad S = \tan\left(2 \cdot \theta^2\right)$$

Where:

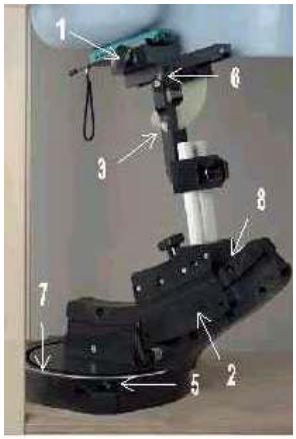
ΔA is the amplitude attenuation in dB
Δt is the phase change in degrees for 5 cm of wave propagation in the slotted line
f is the frequency of interest in Hz
ε_{re} is the real part of the complex dielectric constant

$$\varepsilon_r = \frac{\varepsilon_{re}}{\sqrt{1 + S^2}}$$

$$\sigma = S \cdot 2 \cdot \pi \cdot f \cdot 8.854 \cdot 10^{-12} \cdot \varepsilon_r (S/m)$$

The results: ε_r is the relative dielectric constant and σ is the conductivity in S/m.

Positioning of EUT



The DASY3 holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65º. The intended use position in the CENELEC document is has a rotation angle of 65º and an inclination angle of 80º. The rotation centers for both scales is the ear opening. Thus the device needs no repositioning when changing the angles. The device rotation around the device axis is not changed in the holder. In the CENELEC standard it is always 0º. If the standard changes, a support will be provided with the new angle.

1. **"Cheek/Touch Position"** – the device is brought toward the mouth of the head phantom by pivoting against the "ear reference point" or along the "N-F" line for the SCC-34/SC-2 head phantom. This test position is established:

i) When any point on the display, keypad or mouthpiece portions of the handset is in contact with the phantom.

ii) (Or) When any portion of a foldout, sliding or similar keypad cover opened to its intended self-adjusting normal use position is in contact with the cheek or mouth of the phantom.

For existing head phantoms – when the handset loses contact with the phantom at the pivotingpoint, rotation should continue until the device touches the cheek of the phantom or breaks its last contact from the ear spacer.

2. **"Ear/Tilt Position"** – With the handset aligned in the "Cheek/Touch Position":

i) If the earpiece of the handset is not in full contact with the phantom's ear spacer (in the "Cheek/Touch position") and the peak SAR location for the "Cheek/Touch" position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the "initial ear position" by rotating it away from the mouth until the earpiece is in full contact with the ear spacer.

ii) (Otherwise) The handset should be moved (translated) away from the cheek perpendicular to the line passes through both "ear reference points" (note: one of these ear reference points may not physically exist on a split head model) for approximate 2-3 cm. While it is in this position, the handset is tilted away from the mouth with respect to the "test device reference point" by 15°. After the tilt, it is then moved (translated) back toward the head perpendicular to the line passes through both "ear reference points" until the device touches the phantom or the ear spacer. If the antenna touches the head first, the positioning process should be repeated with a tilt angle less than 15° so that the device and its antenna would touch the phantom simultaneously. This test position may require a device holder or positioner to achieve the translation and tilting with acceptable positioning repeatability.

3. **Body Worn Configuration**

All body worn accessories are tested for the FCC RF exposure compliance. The phone is positioned into carrying case (if available) and placed below of the flat phantom. Headset or ear piece (if available) is connected during measurements.

TEST INSTRUMENTATION & GENERAL PROCEDURES ANNEX A

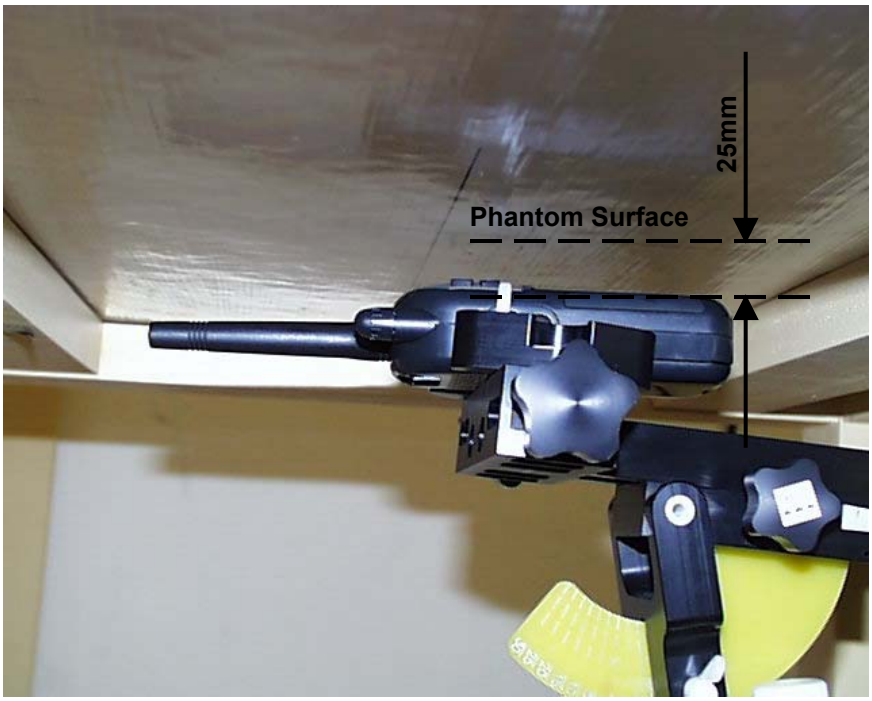
Instrument	Model	S/No	Cal Due Date	
Boonton RF Power Meter (Dual Channel)	4532	72901	31 Aug 2003	×
Boonton Peak Power Sensor	56218-S/1	1417	31 Aug 2003	×
Boonton Power Sensor	51075	32079	31 Aug 2003	×
Boonton Power Sensor	51075	51075	31 Aug 2003	×
Agilent Spectrum Analyzer (30Hz – 40GHz)	8564E	3846A09953	4 Aug 2003	×
S-Parameter Network Analyzer (30kHz – 3GHz)	HP8753E	US37390533	26 Apr 2003	×
Anritsu RF Signal Generator (10MHz – 20GHz)	68347C	04306	22 Apr 2003	×
Amplifier Research Power Amplifier (1MHz – 1000MHz)	25W1000B	27225	-	×
Amplifier Research Power Amplifier (800MHz – 4.2GHz)	25S1G4A	29346	-	
Agilent Dual Directional Coupler	HP778D	18289	-	×
Radio Test Set	2967	296501/331	21 Nov 2002	
R&S Universal Radio Communication Tester	CMU-200	837587/068	18 Sep 2003	
450MHz System Validation Dipole	D450V2	1004	4 Apr 2003	×
835MHz System Validation Dipole	D835V2	447	11 Nov 2002	
900MHz System Validation Dipole	D900V2	134	11 Nov 2002	
1800MHz System Validation Dipole	D1800V2	2d019	11 Nov 2002	
1900MHz System Validation Dipole	D1900V2	546	25 Nov 2002	
Data Acquisition Electronics (DAE)	DAE3V1	475	4 Oct 2002	×
Dosimetric E-field Probe	ET3DV6	1645	25 Nov 2002	
Dosimetric E-field Probe	ET3DV6	1646	25 Nov 2002	
Dosimetric E-field Probe	ET3DV6	1647	25 Nov 2002	×
Isotropic H-field Probe	H3DV6	6115	6 Mar 2003	

ANNEX B

TEST SETUP PHOTOGRAPHS

SAR Test Setup Photographs

SAR Test Setup (Handheld Position) – Far View



SAR Test Setup (Handheld Position) – Closer View

SAR Test Setup Photographs

SAR Test Setup (Waist Position) – Far View

SAR Test Setup (Waist Position) – Closer View

EUT PHOTOGRAPHS / DIAGRAMS ANNEX B

Conducted Emission Test Setup

Conducted Emission Test Setup

EUT PHOTOGRAPHS / DIAGRAMS ANNEX B

EUT PHOTOGRAPHS

Front of EUT

Rear of EUT

EUT PHOTOGRAPHS / DIAGRAMS ANNEX B

EUT PHOTOGRAPHS

EUT with Accessories

ANNEX C

TISSUE SIMULANT DATA SHEETS

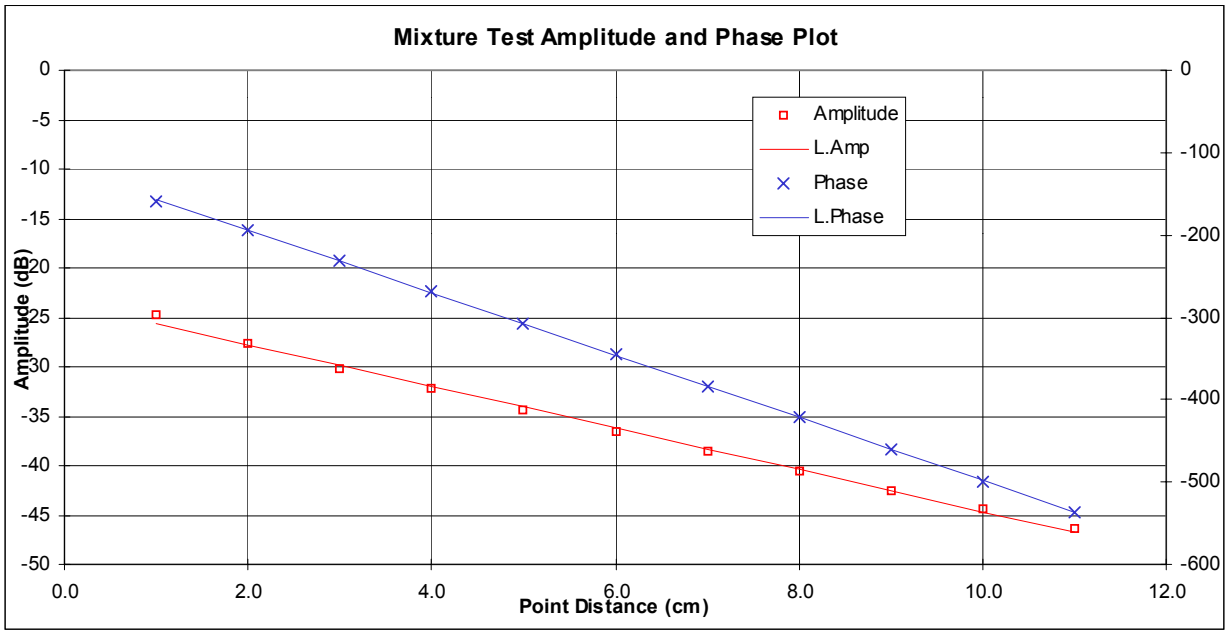
Type of Tissue	Head	Body
Target Frequency (MHz)	450 MHz	450 MHz
Target Dielectric Constant	43.5	56.7
Target Conductivity (S/m)	0.87	0.94
Composition (by weight)	Water (38.27%) Ethanol (0.0%) Sugar (58.55%) Salt (3.16%) HEC (0.0%) Bactericide (0.01%)	Water (53.31%) Ethanol (0.0%) Sugar (45.32%) Salt (1.33%) HEC (0.0%) Bactericide (0.04%)
Measured Dielectric Constant	42.8	55.6
Measured Conductivity (S/m)	0.91	0.91
Probe Name	Dosimetric E-field Probe ET3DV6	Dosimetric E-field Probe ET3DV6
Probe Serial Number	1647	1647
Sensor Offset (mm)	2.7	2.7
Conversion Factor	7.09	7.5
Calibration Date (MM/DD/YY)	26 Nov 2001	26 Nov 2001

Head Tissue at 450MHz

Tested By:	Gary Ng Ah Chye					**Date:**	13th Sept 2002	
Frequency:	450	MHz	Composition					
			Tap Water	DI Water	Sugar	Salt	HEC	Bactericide
			52245.00 g	0.00 g	79935.00 g	4320.00 g	0.00 g	20.00 g
Mixture:	Head Tissue		38.27 %	0.00 %	58.55 %	3.16 %	0.00 %	0.01 %
# of Points:	11		**Point Dist:**	1.0	cm	**Temperature:**	24	°C

Point	**Amplitude**	**Phase**			**-49.9**			
1	-24.80	-159.00			**-51.6**	-2.111818182		
2	-27.70	166.00			**-53.5**	-23.52		
3	-30.10	129.00			**-55.3**	-37.99636364		
4	-32.20	91.00			**-56.9**	-118.0127273		
5	-34.40	53.00						
6	-36.60	15.00			**Omega:**	2827433388	rad/sec	
7	-38.60	-23.00			**Epsilon 0:**	8.85E-14	F/m	
8	-40.50	-61.00			**mu:**	1.26E-08	H/m	
9	-42.50	-101.00			**alpha avg:**	-0.243132053	Np/cm	
10	-44.40	-138.90			**beta avg:**	-0.663161649	rad/cm	
11	-46.30	-177.00						

Results:		**Target**	**Low Limit**	**High Limit**	**% Off Target**			
D. Const:	**42.80**	43.50	41.325	45.675	-1.63			
Cond:	**0.91**	0.87	0.83	0.91	4.23			

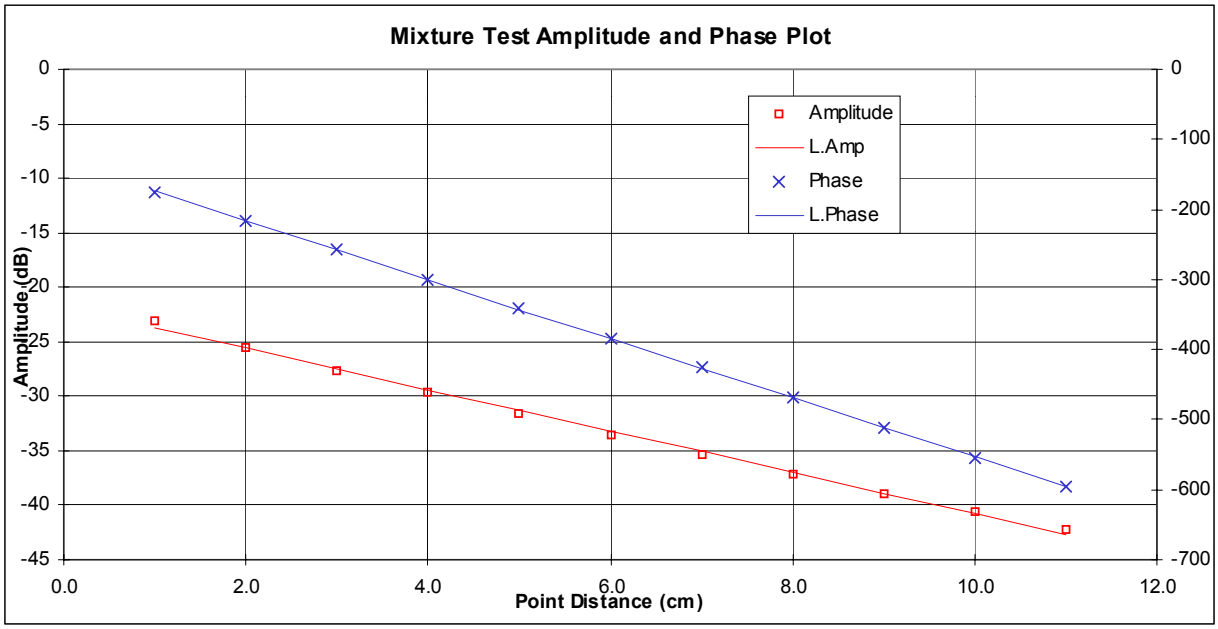


Body Tissue at 450MHz

Tested By:	Gary Ng Ah Chye					**Date:**	16th Sept 2002	
Frequency:	450	MHz	Composition					
			Tap Water	DI Water	Sugar	Salt	HEC	Bactericide
			55000.00 g	0.00 g	46750.00 g	1375.00 g	0.00 g	40.00 g
Mixture:	Body Tissue		53.31 %	0.00 %	45.32 %	1.33 %	0.00 %	0.04 %
# of Points:	11		**Point Dist:**	1.0	cm	**Temperature:**	24	°C

Point	**Amplitude**	**Phase**			**-49.9**			
1	-23.00	-176.40			**-51.6**	-1.905454545		
2	-25.50	144.30			**-53.5**	-21.75818182		
3	-27.60	102.70			**-55.3**	-42.19454545		
4	-29.60	60.80			**-56.9**	-131.4509091		
5	-31.60	18.60						
6	-33.50	-23.60			**Omega:**	2827433388	rad/sec	
7	-35.40	-66.10			**Epsilon 0:**	8.85E-14	F/m	
8	-37.10	-108.70			**mu:**	1.26E-08	H/m	
9	-38.90	-151.70			**alpha avg:**	-0.219373562	Np/cm	
10	-40.60	165.80			**beta avg:**	-0.736433745	rad/cm	
11	-42.30	123.50						

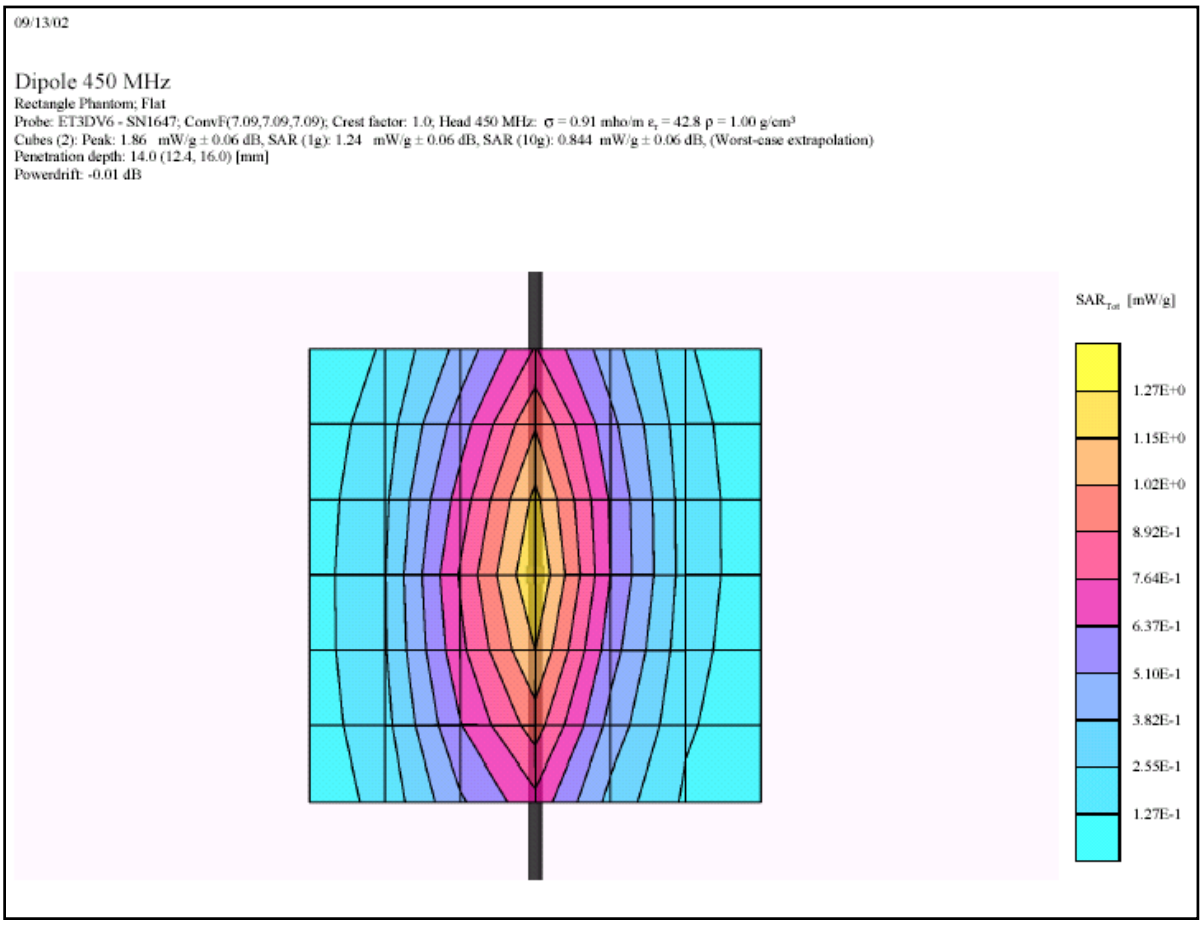
Results:		**Target**	**Low Limit**	**High Limit**	**% Off Target**
D. Const:	**55.56**	56.70	53.87	59.54	-2.02
Cond:	**0.91**	0.94	0.89	0.99	-3.31



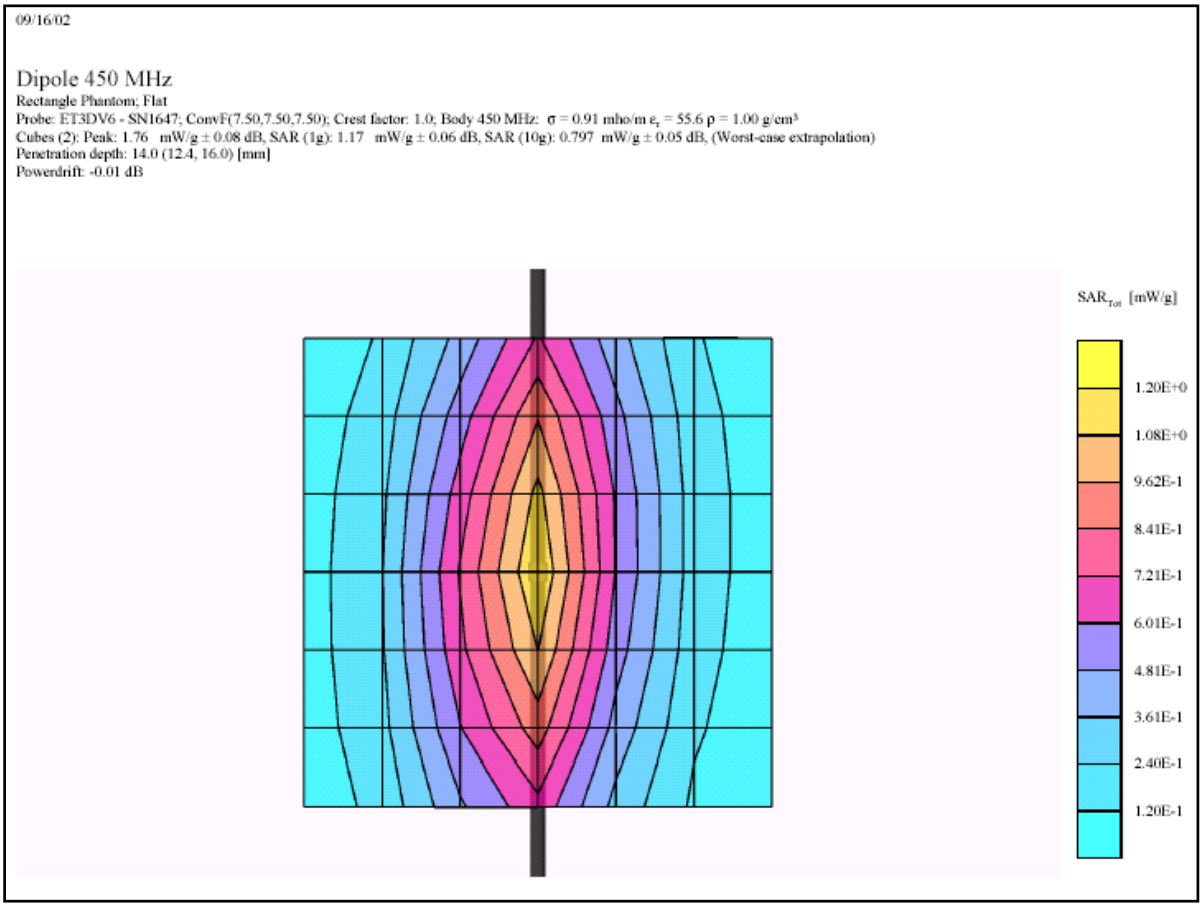
ANNEX D

SAR VALIDATION RESULTS

SAR Validation – Head Tissue at 450MHz



SAR Validation –Body Tissue at 450MHz



ANNEX E

REFERENCES

REFERENCES ANNEX E

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

Publications	Year	Title
Supplement C (Edition 01-01) to FCC OET Bulletin 65 (Edition 97-01)	2001	"Evaluating Compliance with FCC Guidelines for Human Exposure to radio Frequency Fields"
IEEE Standard 1528-200X	2000	"Product Performance Standards Relative to the safe Use of Electromagnetic Energy"
ANSI/IEEE C95.3	1992	"Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave"
ANSI/IEEE C95.1	1992	"Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300GHz"
ACA, Radio Communications (EMR Human Exposure)	2000 (No.2)	“Radiocommunication (Electromagnetic Radiation – Human Exposure)”
EN50360	2001	Product Standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300MHz – 3GHz)
EN50361	2001	Basic Standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phone (300MHz – 3GHz)