Date/Time: 03/01/04 21:28:02

Test Laboratory: SPORTON

DELL NB BTM Touch CH 661

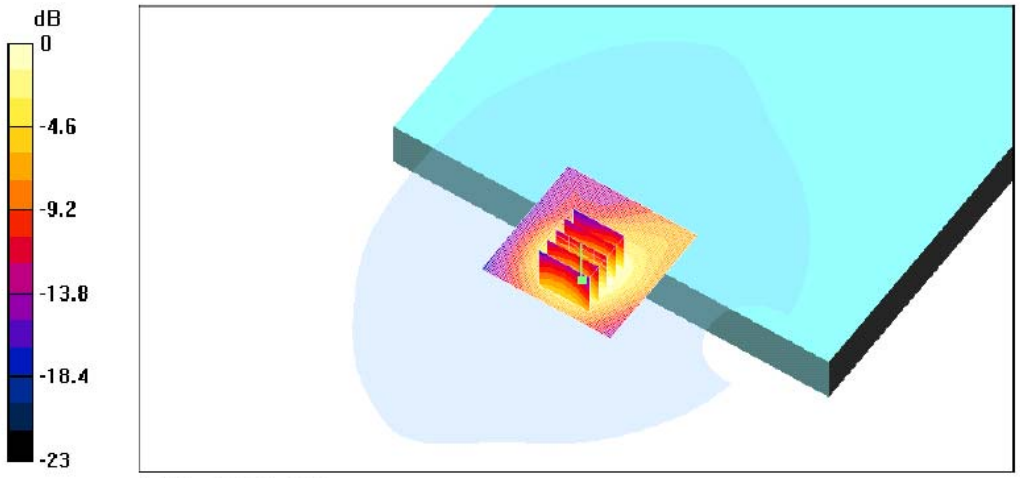
DUT: BenQ; Type: 56W11
Program Name: NB BTM Touch

Communication System: DCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: MSL1900 (σ = 1.58222 mho/m, ε_r = 52.5119, ρ = 1000 kg/m^3)
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1788; ConvF(5, 5, 5); Calibrated: 8/29/2003
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 11/21/2003
- Phantom: SAM 12; Type: QD 000 P40 C; Serial: TP-1150
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

CH 661 1880.0MHz-Middle/Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm
Reference Value = 12.6 V/m
Power Drift = -0.08 dB
Maximum value of SAR = 0.51 mW/g

CH 661 1880.0MHz-Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 0.731 W/kg
SAR(1 g) = 0.484 mW/g; SAR(10 g) = 0.285 mW/g
Reference Value = 12.6 V/m
Power Drift = -0.08 dB
Maximum value of SAR = 0.529 mW/g



0 dB = 0.529mW/g

Date/Time: 03/01/04 22:01:40

Test Laboratory: SPORTON

DELL NB BTM with 1.5cm GAP CH 661

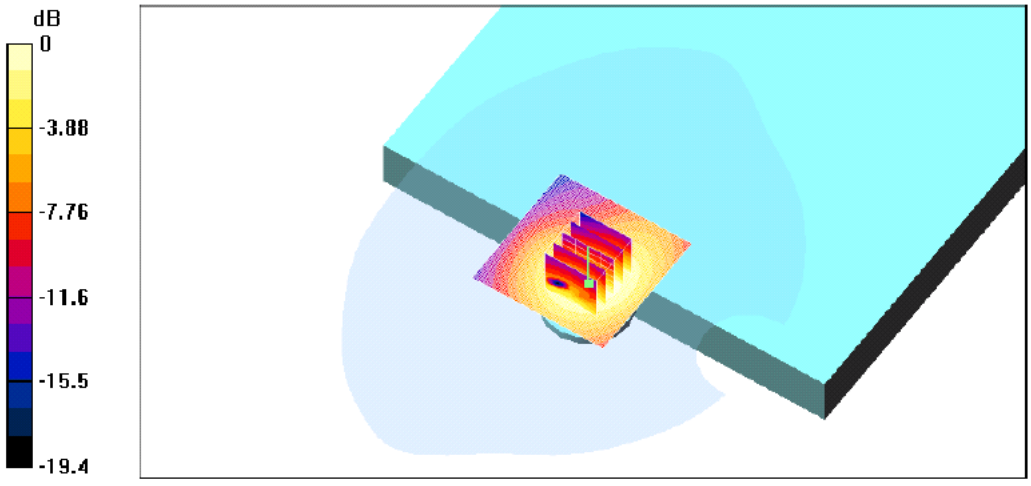
DUT: BenQ; Type: 56W11
Program Name: NB BTM with 1.5cm GAP

Communication System: DCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: MSL1900 (σ = 1.58222 mho/m, ε_r = 52.5119, ρ = 1000 kg/m^3)
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1788; ConvF(5, 5, 5); Calibrated: 8/29/2003
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 11/21/2003
- Phantom: SAM 12; Type: QD 000 P40 C; Serial: TP-1150
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

CH 661 1880.0MHz-Middle/Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm
Reference Value = 9.18 V/m
Power Drift = 0.01 dB
Maximum value of SAR = 0.179 mW/g

CH 661 1880.0MHz-Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 0.238 W/kg
SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.103 mW/g
Reference Value = 9.18 V/m
Power Drift = 0.01 dB
Maximum value of SAR = 0.178 mW/g



0 dB = 0.178mW/g

Date/Time: 03/01/04 15:56:44

Test Laboratory: SPORTON

SPECTEC NB BTM Touch CH 661

DUT: BenQ; Type: 56W11
Program Name: NB BTM Touch

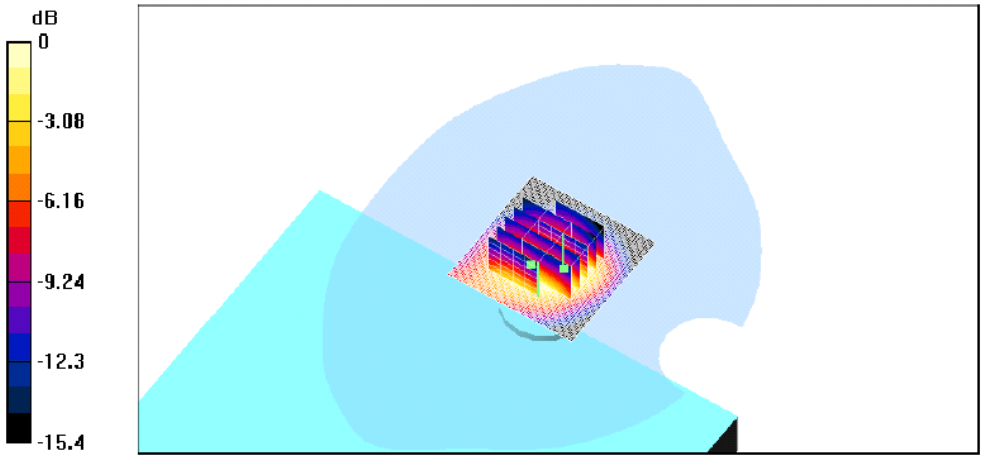
Communication System: DCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: MSL1900 (σ = 1.58222 mho/m, ε_r = 52.5119, ρ = 1000 kg/m^3)
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1788; ConvF(5, 5, 5); Calibrated: 8/29/2003
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 11/21/2003
- Phantom: SAM 12; Type: QD 000 P40 C; Serial: TP-1150
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

CH 661 1880.0MHz-Middle/Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm
Reference Value = 23.2 V/m
Power Drift = -0.01 dB
Maximum value of SAR = 0.934 mW/g

CH 661 1880.0MHz-Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.827 mW/g; SAR(10 g) = 0.486 mW/g
Reference Value = 23.2 V/m
Power Drift = -0.01 dB
Maximum value of SAR = 0.874 mW/g

CH 661 1880.0MHz-Middle/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.743 mW/g; SAR(10 g) = 0.469 mW/g
Reference Value = 23.2 V/m
Power Drift = -0.01 dB
Maximum value of SAR = 0.879 mW/g



0 dB = 0.874mW/g

Date/Time: 03/10/04 19:01:22

Test Laboratory: SPORTON

DELL NB BTM Touch CH 251

DUT: BenQ; Type: 56W11
Program Name: NB BTM Touch

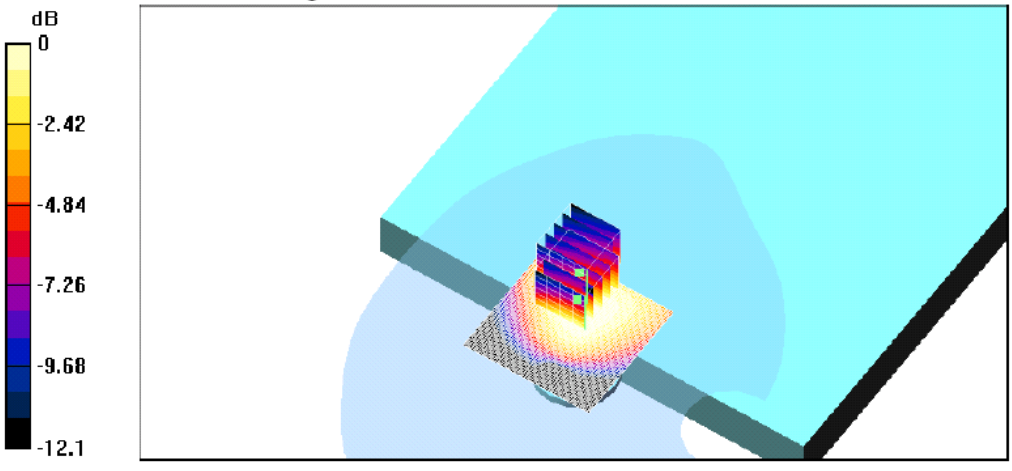
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium: MSL850 (σ = 1.00001 mho/m, ε_r = 56.841, ρ = 1000 kg/m^3)
Phantom section: Flat Section;Ambient Temp=21~23C; Liquid Temp=21.5C; Liquid height=15.2cm

DASY4 Configuration:
- Probe: ET3DV6 - SN1788; ConvF(6.5, 6.5, 6.5); Calibrated: 8/29/2003
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 11/21/2003
- Phantom: SAM 12; Type: QD 000 P40 C; Serial: TP-1150
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

CH 251 848.8MHz/Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm
Reference Value = 30.9 V/m
Power Drift = -0.1 dB
Maximum value of SAR = 1.32 mW/g

CH 251 848.8MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.716 mW/g
Reference Value = 30.9 V/m
Power Drift = -0.1 dB
Maximum value of SAR = 1.09 mW/g

CH 251 848.8MHz/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.966 mW/g; SAR(10 g) = 0.598 mW/g
Reference Value = 30.9 V/m
Power Drift = -0.1 dB
Maximum value of SAR = 1.1 mW/g



0 dB = 1.1mW/g

Date/Time: 03/10/04 23:11:38

Test Laboratory: SPORTON

ASUS NB BTM Touch CH 661

DUT: BenQ; Type: 56W11

Program Name: NB BTM Touch

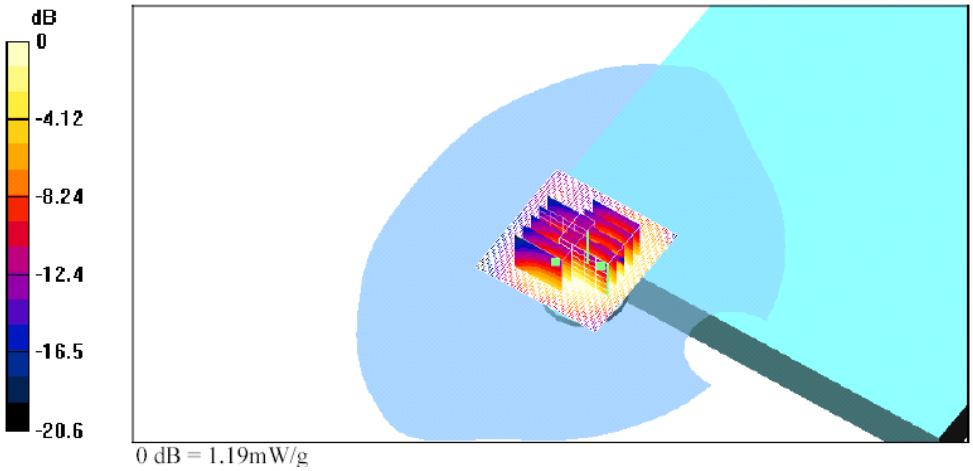
Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:4
Medium: MSL1900 (σ = 1.5133 mho/m, ε_r = 52.0311, ρ = 1000 kg/m^3)
Phantom section: Flat Section;Ambient Temp=21~23C; Liquid Temp=21.5C; Liquid height=15.2cm

DASY4 Configuration:
- Probe: ET3DV6 - SN1788; ConvF(5, 5, 5); Calibrated: 8/29/2003
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 11/21/2003
- Phantom: SAM 12; Type: QD 000 P40 C; Serial: TP-1150
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 116

CH 661 1880.0MHz /Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm
Reference Value = 27.9 V/m
Power Drift = -0.07 dB
Maximum value of SAR = 1.32 mW/g

CH 661 1880.0MHz /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.663 mW/g
Reference Value = 27.9 V/m
Power Drift = -0.07 dB
Maximum value of SAR = 1.32 mW/g

CH 661 1880.0MHz /Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 1.84 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.595 mW/g
Reference Value = 27.9 V/m
Power Drift = -0.07 dB
Maximum value of SAR = 1.19 mW/g



0 dB = 1.19mW/g

Appendix C – Calibration Data

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

Client Auden

CALIBRATION CERTIFICATE

Object(s) D900V2 - SN:172

Calibration procedure(s) QA CAL-05.v2
Calibration procedure for dipole validation kits

Calibration date: January 13, 2004

Condition of the calibrated item In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E442	GB37480704	6-Nov-03 (METAS, No. 252-0254)	Nov-04
Power sensor HP 8481A	US37292783	6-Nov-03 (METAS, No. 252-0254)	Nov-04
Power sensor HP 8481A	MY41092317	18-Oct-02 (Agilent, No. 20021018)	Oct-04
RF generator R&S SML-03	100698	27-Mar-2002 (R&S, No. 20-92389)	In house check: Mar-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-03)	In house check: Oct 05

	Name	Function	Signature
Calibrated by:	Judith Mueller	Technician	
Approved by:	Katja Pokovic	Laboratory Director	

Date issued: January 19, 2004

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

880-KP0301061-A Page 1 (1)

Schmid & Partner Engineering AG
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Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

DASY

Dipole Validation Kit

Type: D900V2

Serial: 172

Manufactured: September 23, 2002
Calibrated: January 13, 2004

1. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with **head simulating solution** of the following electrical parameters at 900 MHz:

Relative Dielectricity	**40.3**	± 5%
Conductivity	**0.94 mho/m**	± 5%

The DASY4 System with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 6.6 at 900 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15mm from dipole center to the solution surface. The included distance spacer was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 15mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration.
The dipole input power (forward power) was 250mW ± 3 %. The results are normalized to 1W input power.

2. SAR Measurement with DASY4 System

Standard SAR-measurements were performed according to the measurement conditions described in section 1. The results (see figure supplied) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values measured with the dosimetric probe ET3DV6 SN:1507 and applying the advanced extrapolation are:

averaged over 1 cm^3 (1 g) of tissue:	**10.3 mW/g** ± 16.8 % (k=2)[1]
averaged over 10 cm^3 (10 g) of tissue:	**6.68 mW/g** ± 16.2 % (k=2)[1]

3. Dipole Impedance and Return Loss

The impedance was measured at the SMA-connector with a network analyzer and numerically transformed to the dipole feedpoint. The transformation parameters from the SMA-connector to the dipole feedpoint are:

Electrical delay:	**1.399 ns**	(one direction)
Transmission factor:	**0.987**	(voltage transmission, one direction)

The dipole was positioned at the flat phantom sections according to section 1 and the distance spacer was in place during impedance measurements.

Feedpoint impedance at 900 MHz:	Re{Z} = **51.0 Ω**
	Im {Z} = **-4.3 Ω**
Return Loss at 900 MHz	**-27.1 dB**

4. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with **body simulating solution** of the following electrical parameters at 900 MHz:

Relative Dielectricity	**54.4**	± 5%
Conductivity	**1.04 mho/m**	± 5%

The DASY4 System with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 6.3 at 900 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15mm from dipole center to the solution surface. The included distance spacer was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 15mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration.
The dipole input power (forward power) was 250mW ± 3 %. The results are normalized to 1W input

5. SAR Measurement with DASY4 System

Standard SAR-measurements were performed according to the measurement conditions described in section 4. The results (see figure supplied) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values measured with the dosimetric probe ET3DV6 SN:1507 and applying the advanced extrapolation are:

averaged over 1 cm^3 (1 g) of tissue:	**10.8 mW/g** ± 16.8 % $(k=2)^2$
averaged over 10 cm^3 (10 g) of tissue:	**7.00 mW/g** ± 16.2 % $(k=2)^2$

6. Dipole Impedance and Return Loss

The dipole was positioned at the flat phantom sections according to section 4 and the distance spacer was in place during impedance measurements.

Feedpoint impedance at 900 MHz:	Re{Z} = **46.1 Ω**
	Im {Z} = **-6.4 Ω**
Return Loss at 900 MHz	**-22.2 dB**

7. Handling

Do not apply excessive force to the dipole arms, because they might bend. Bending of the dipole arms stresses the soldered connections near the feedpoint leading to a damage of the dipole.

8. Design

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.

9. Power Test

Date/Time: 01/13/04 15:34:21

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN172

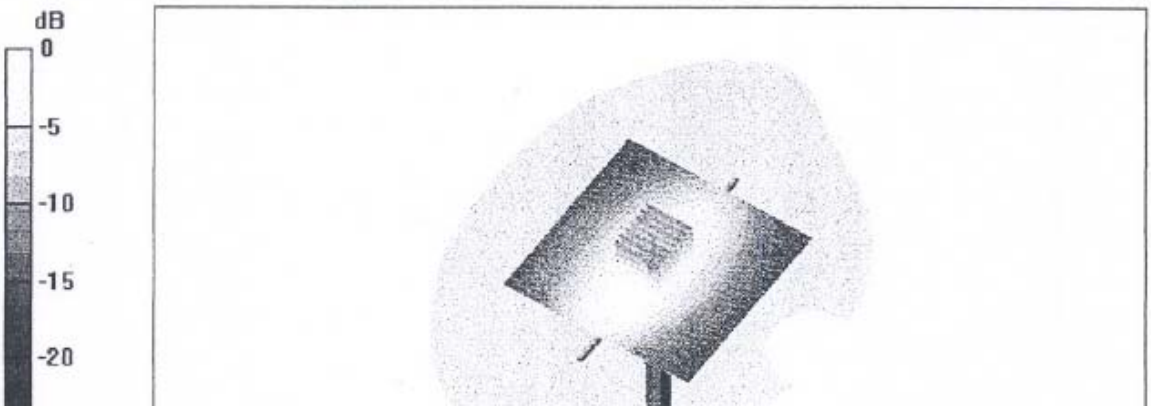
Communication System: CW-900; Frequency: 900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 900 MHz; σ = 0.94 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

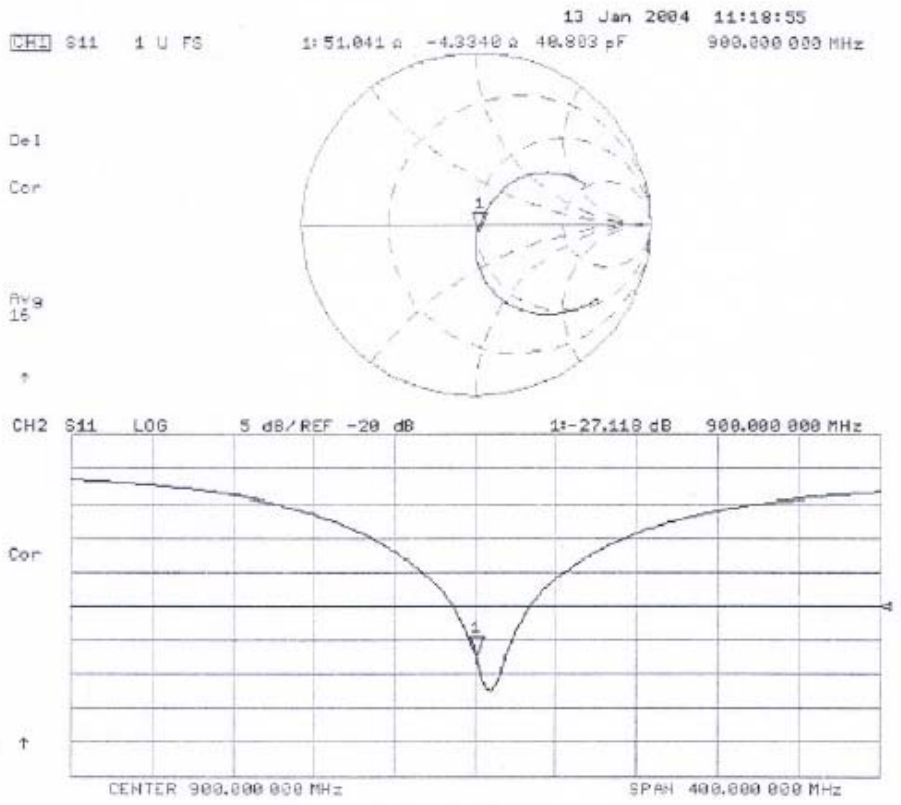
- Probe: ET3DV6 - SN1507; ConvF(6.6, 6.6, 6.6); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- Measurement SW: DASY4, V4.2 Build 12; Postprocessing SW: SEMCAD, V1.8 Build 93

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 56.5 V/m
Power Drift = 0.002 dB
Maximum value of SAR = 2.8 mW/g

Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 3.86 W/kg
SAR(1 g) = 2.58 mW/g; SAR(10 g) = 1.67 mW/g
Reference Value = 56.5 V/m
Power Drift = 0.002 dB
Maximum value of SAR = 2.79 mW/g



172



Date/Time: 01/12/04 15:05:23

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN172

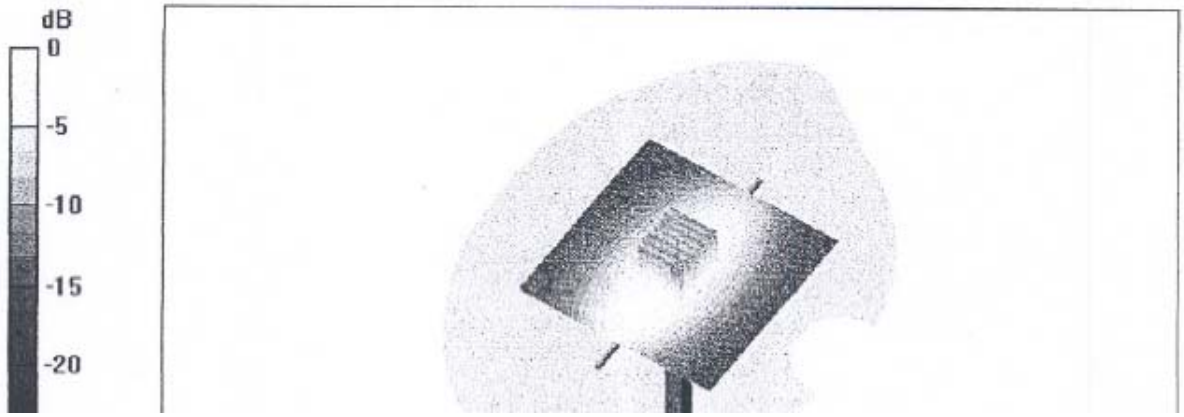
Communication System: CW-900; Frequency: 900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 900 MHz; σ = 1.04 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

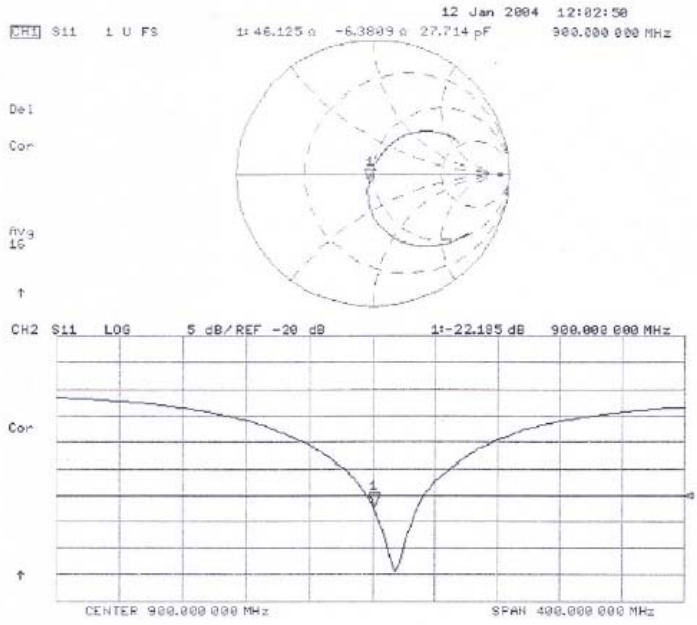
- Probe: ET3DV6 - SN1507; ConvF(6.3, 6.3, 6.3); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- Measurement SW: DASY4, V4.2 Build 12; Postprocessing SW: SEMCAD, V1.8 Build 93

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 55 V/m
Power Drift = 0.0 dB
Maximum value of SAR = 2.89 mW/g

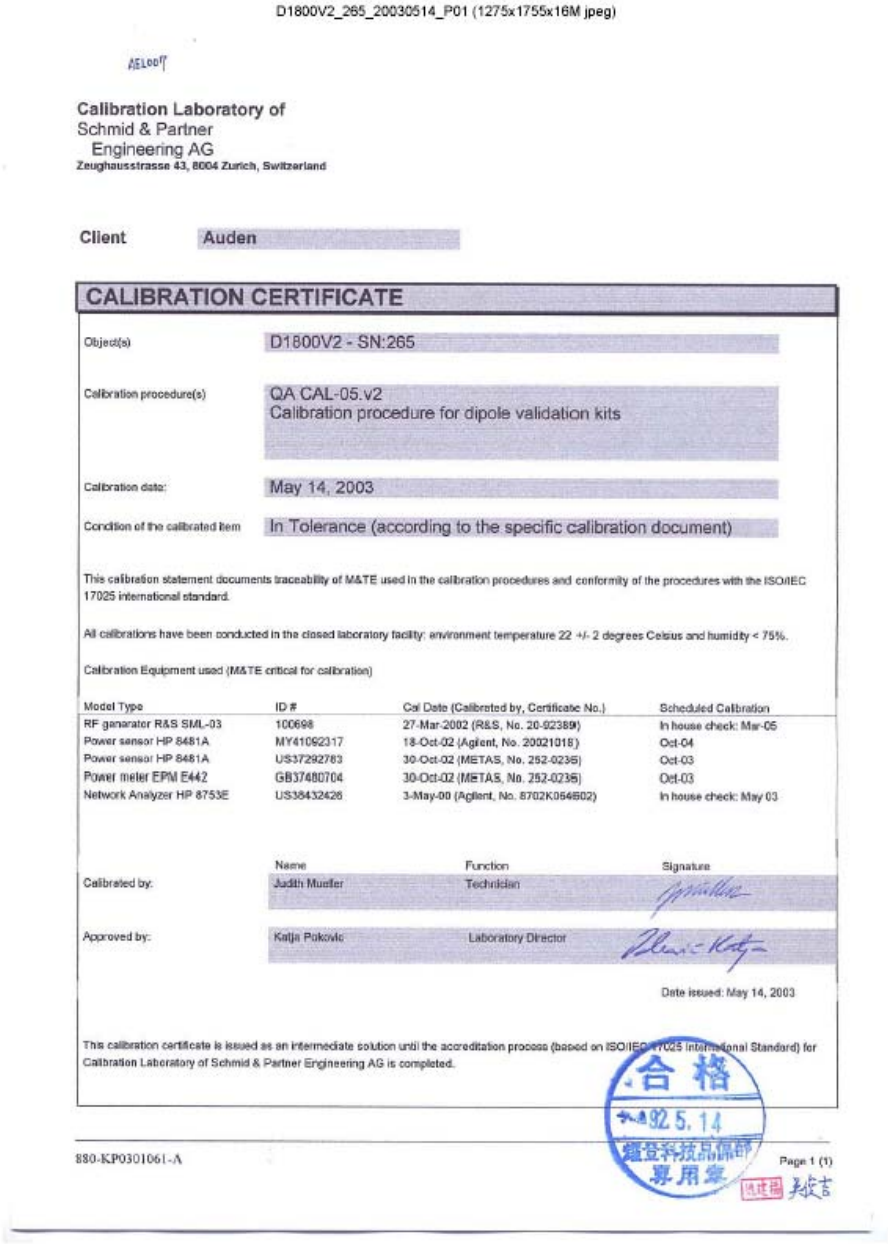
Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 4.01 W/kg
SAR(1 g) = 2.7 mW/g; SAR(10 g) = 1.75 mW/g
Reference Value = 55 V/m
Power Drift = 0.0 dB
Maximum value of SAR = 2.93 mW/g



172
Body



D1800V2_265_20030514_P01 (1275x1755x16M jpeg)



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

Client Auden

CALIBRATION CERTIFICATE

Object(s)	D1800V2 - SN:265
Calibration procedure(s)	QA CAL-05.v2 Calibration procedure for dipole validation kits
Calibration date:	May 14, 2003
Condition of the calibrated item	In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
RF generator R&S SML-03	100698	27-Mar-2002 (R&S, No. 20-92389)	In house check: Mar-05
Power sensor HP 8481A	MY41092317	18-Oct-02 (Agilent, No. 20021018)	Oct-04
Power sensor HP 8481A	US37292783	30-Oct-02 (METAS, No. 252-0236)	Oct-03
Power meter EPM E442	GB37480704	30-Oct-02 (METAS, No. 252-0236)	Oct-03
Network Analyzer HP 8753E	US38432426	3-May-00 (Agilent, No. 8702K0646502)	In house check: May 03

	Name	Function	Signature
Calibrated by:	Judith Mueller	Technician	
Approved by:	Katja Pokovic	Laboratory Director	

Date issued: May 14, 2003

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

合格 92.5.14 鑑定科技股份有限公司 專用章

880-KP0301061-A Page 1 (1)

D1800V2_265_20030514_P02 (1275x1755x16M jpeg)

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Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

DASY

Dipole Validation Kit

Type: D1800V2

Serial: 265

Manufactured: March 5, 2000
Calibrated: May 14, 2003

D1800V2_265_20030514_P03 (1275x1755x16M jpeg)

1. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with head simulating solution of the following electrical parameters at 1800 MHz:

Relative Dielectricity	**39.2**	± 5%
Conductivity	**1.36 mho/m**	± 5%

The DASY4 System with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 5.3 at 1800 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from dipole center to the solution surface. The included distance holder was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 15mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration.
The dipole input power (forward power) was 250 mW ± 3 %. The results are normalized to 1W input power.

2. SAR Measurement with DASY4 System

Standard SAR-measurements were performed according to the measurement conditions described in section 1. The results (see figure supplied) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values measured with the dosimetric probe ET3DV6 SN:1507 and applying the advanced extrapolation are:

averaged over 1 cm^3 (1 g) of tissue:	**38.2 mW/g** ± 16.8 % (k=2)[1]
averaged over 10 cm^3 (10 g) of tissue:	**20.2 mW/g** ± 16.2 % (k=2)[1]

[1] validation uncertainty

D1800V2_265_20030514_P04 (1275x1755x16M jpeg)

3. Dipole Impedance and Return Loss

The impedance was measured at the SMA-connector with a network analyzer and numerically transformed to the dipole feedpoint. The transformation parameters from the SMA-connector to the dipole feedpoint are:

Electrical delay:	**1.165 ns**	(one direction)
Transmission factor:	**0.998**	(voltage transmission, one direction)

The dipole was positioned at the flat phantom sections according to section 1 and the distance holder was in place during impedance measurements.

Feedpoint impedance at 1800 MHz:	Re{Z} = **48.3 Ω**
	Im {Z} = **-5.6 Ω**
Return Loss at 1800 MHz	**-24.5 dB**

4. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with body simulating glycol solution of the following electrical parameters at 1800 MHz:

Relative Dielectricity	**51.6**	± 5%
Conductivity	**1.49 mho/m**	± 5%

The DASY4 System with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 5.0 at 1800 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from dipole center to the solution surface. The included distance holder was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 15mm was aligned with the dipole. The 7x7x7 fine cube was chosen for cube integration.
The dipole input power (forward power) was 250 mW ± 3 %. The results are normalized to 1W input power.

D1800V2_265_20030514_P05 (1275x1755x16M jpeg)

5. SAR Measurement with DASY4 System

Standard SAR-measurements were performed according to the measurement conditions described in section 4. The results (see figure supplied) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values measured with the dosimetric probe ET3DV6 SN:1507 and applying the advanced extrapolation are:

averaged over 1 cm^3 (1 g) of tissue:	**37.6 mW/g** ± 16.8 % (k=2)[2]
averaged over 10 cm^3 (10 g) of tissue:	**20.0 mW/g** ± 16.2 % (k=2)[2]

6. Dipole Impedance and Return Loss

The dipole was positioned at the flat phantom sections according to section 4 and the distance holder was in place during impedance measurements.

Feedpoint impedance at 1800 MHz:	Re{Z} = **44.4** Ω
	Im{Z} = **-5.9** Ω
Return Loss at 1800 MHz	**-21.3 dB**

7. Handling

Do not apply excessive force to the dipole arms, because they might bend. Bending of the dipole arms stresses the soldered connections near the feedpoint leading to a damage of the dipole.

8. Design

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.

9. Power Test

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

[2] validation uncertainty

D1800V2_265_20030514_P06 (1275x1755x16M jpeg)

Date/Time: 05/12/03 14:45:52

Test Laboratory: SPEAG, Zurich, Switzerland
File Name: SN265_SN1507_HSL1800_120503.da4

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN265
Program: Dipole Calibration

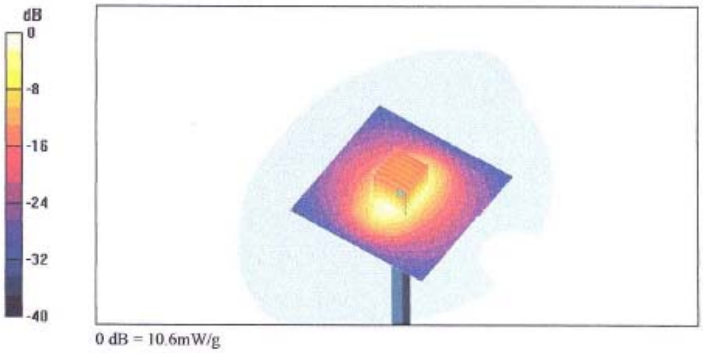
Communication System: CW-1800; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium: HSL 1800 MHz (σ = 1.36 mho/m, ε_r = 39.22, ρ = 1000 kg/m^3)
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(5.3, 5.3, 5.3); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 93.1 V/m
Power Drift = 0.05 dB
Maximum value of SAR = 10.5 mW/g

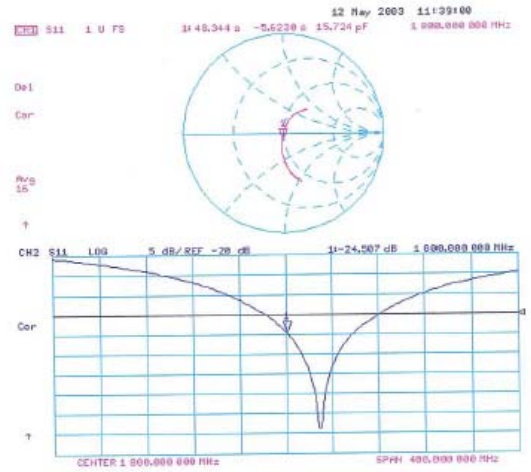
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 16.3 W/kg
SAR(1 g) = 9.55 mW/g; SAR(10 g) = 5.06 mW/g
Reference Value = 93.1 V/m
Power Drift = 0.05 dB
Maximum value of SAR = 10.6 mW/g



0 dB = 10.6mW/g

D1800V2_265_20030514_P07 (1275x1755x16M jpeg)

265



D1800V2_265_20030514_P08 (1275x1755x16M jpeg)

Date/Time: 05/14/03 12:24:50

Test Laboratory: SPEAG, Zurich, Switzerland
File Name: SN265_SN1507_M1800_140503da4.da4

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN265
Program: Dipole Calibration

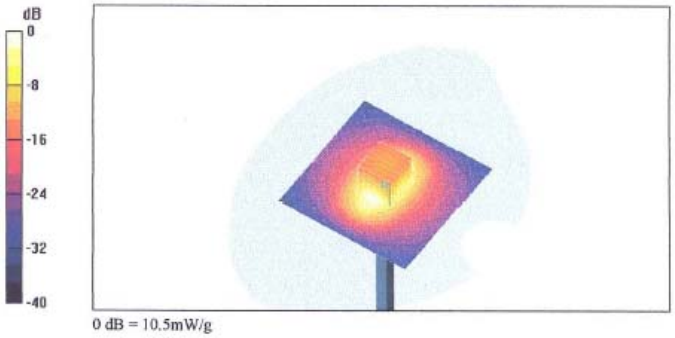
Communication System: CW-1800; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium: Muscle 1800 MHz (σ = 1.49 mho/m, ε_r = 51.55, ρ = 1000 kg/m^3)
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(5, 5, 5); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 89.7 V/m
Power Drift = 0.03 dB
Maximum value of SAR = 10.5 mW/g

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 15.5 W/kg
SAR(1 g) = 9.39 mW/g; SAR(10 g) = 5.01 mW/g
Reference Value = 89.7 V/m
Power Drift = 0.03 dB
Maximum value of SAR = 10.5 mW/g



0 dB = 10.5mW/g

D1800V2_265_20030514_P09 (1275x1755x16M jpeg)