1900 Body Towards Ground Middle with GPRS

Date/Time: 2011-5-6 14:03:50

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used: f = 1880 MHz; σ = 1.48 mho/m; εr = 52.1; ρ = 1000 kg/m^3

Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:2

Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.469 mW/g

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

Reference Value = 11.7 V/m; Power Drift = 0.159 dB

Peak SAR (extrapolated) = 0.745 W/kg

SAR(1 g) = 0.443 mW/g; SAR(10 g) = 0.256 mW/g
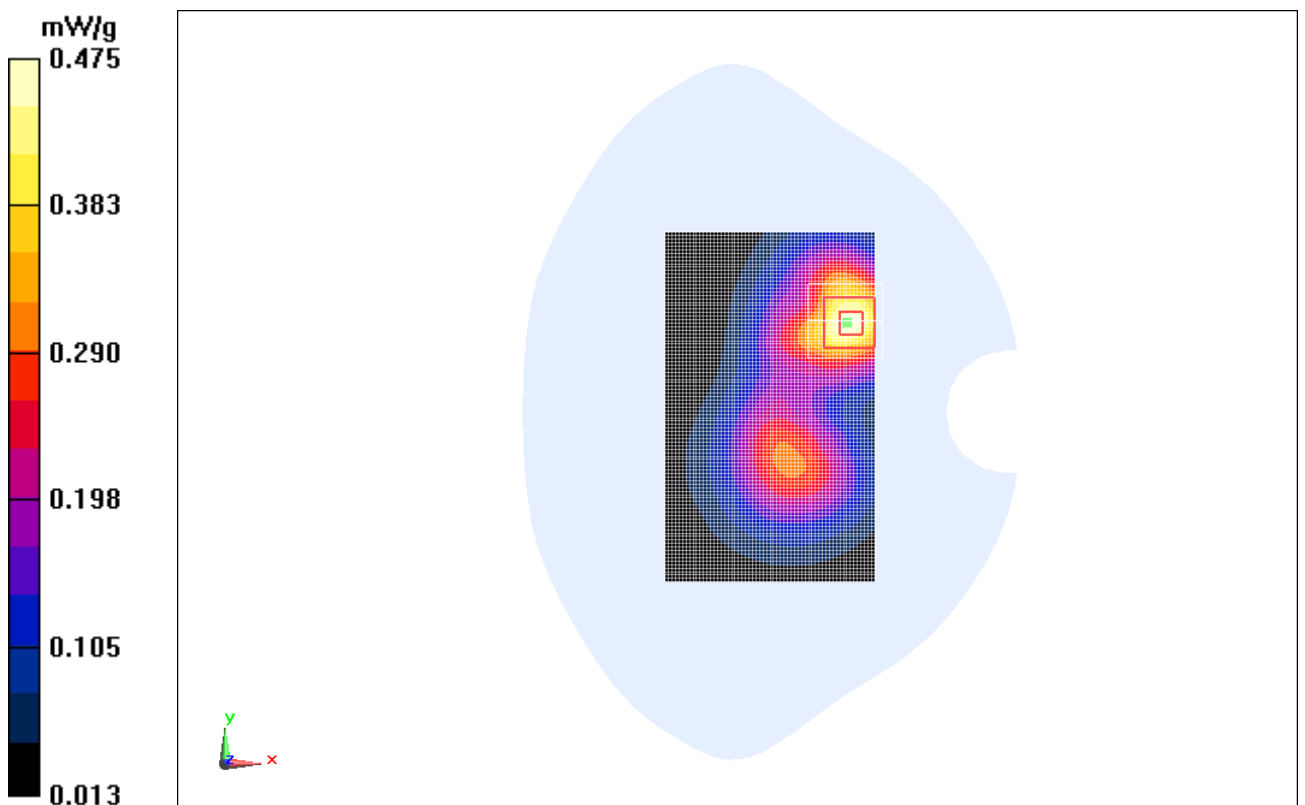
Maximum value of SAR (measured) = 0.475 mW/g

Fig. 36 1900 MHz CH661

1900 Body Towards Ground Low with GPRS

Date/Time: 2011-5-6 14:17:29

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.46 mho/m; εr = 52.1; ρ = 1000 kg/m^3

Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: GSM 1900MHz GPRS Frequency: 1850.2 MHz Duty Cycle: 1:2

Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.534 mW/g

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

Reference Value = 12.8 V/m; Power Drift = 0.070 dB

Peak SAR (extrapolated) = 0.853 W/kg

SAR(1 g) = 0.512 mW/g; SAR(10 g) = 0.297 mW/g
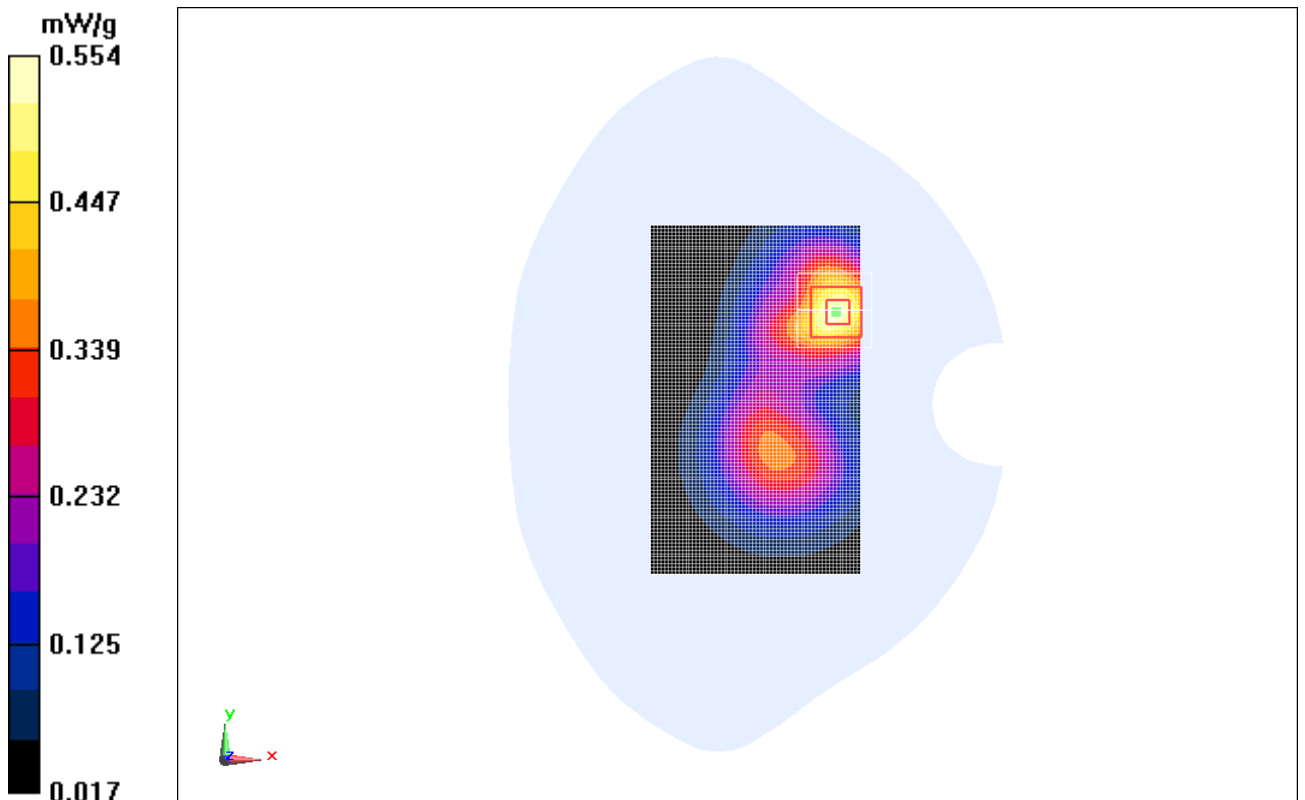
Maximum value of SAR (measured) = 0.554 mW/g
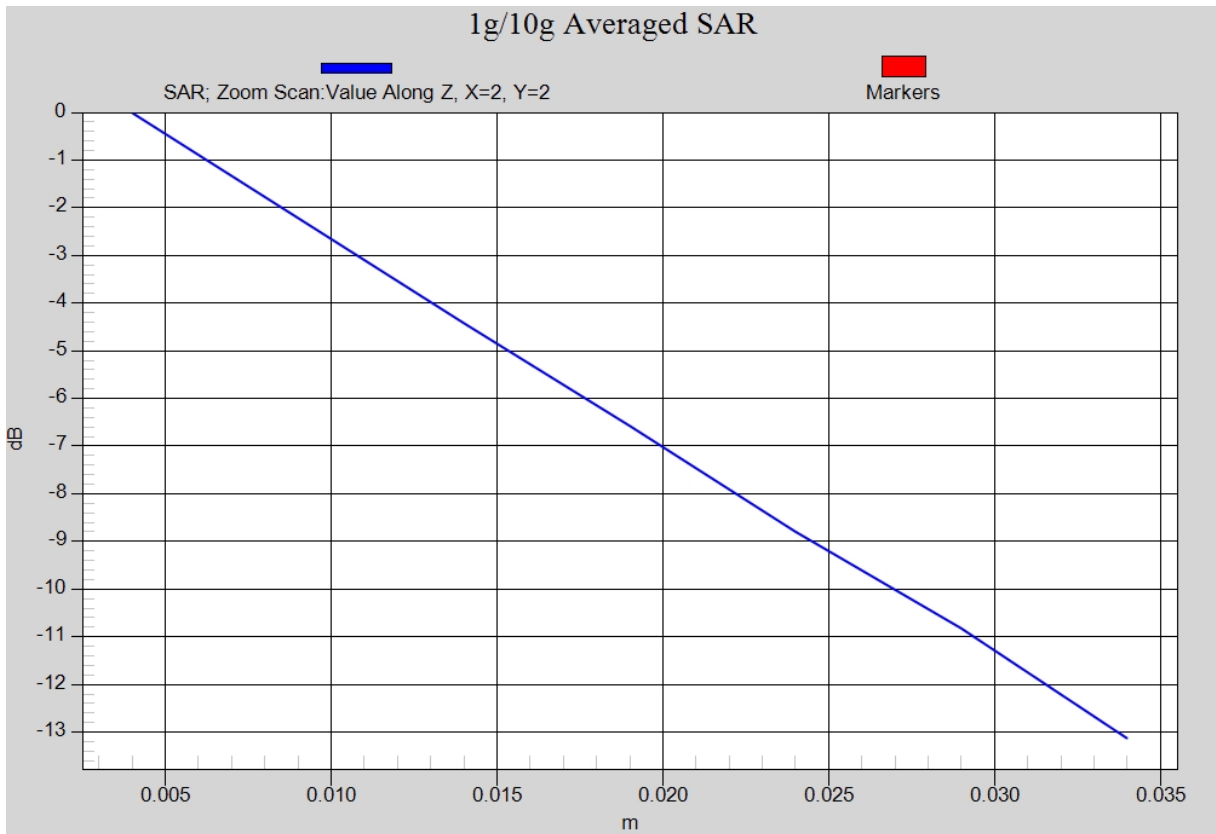

Fig. 37 1900 MHz CH512

Fig. 37-1 Z-Scan at power reference point (1900 MHz CH512)

1900 Body Towards Phantom High with GPRS

Date/Time: 2011-5-6 14:33:02

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used: f = 1910 MHz; σ = 1.51 mho/m; εr = 52.0; ρ = 1000 kg/m^3

Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: GSM 1900MHz GPRS Frequency: 1909.8 MHz Duty Cycle: 1:2

Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Phantom High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.421 mW/g

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

Reference Value = 6.69 V/m; Power Drift = 0.00232 dB

Peak SAR (extrapolated) = 0.633 W/kg

SAR(1 g) = 0.378 mW/g; SAR(10 g) = 0.219 mW/g

Maximum value of SAR (measured) = 0.409 mW/g

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

Reference Value = 6.69 V/m; Power Drift = 0.00232 dB

Peak SAR (extrapolated) = 0.641 W/kg

SAR(1 g) = 0.346 mW/g; SAR(10 g) = 0.189 mW/g
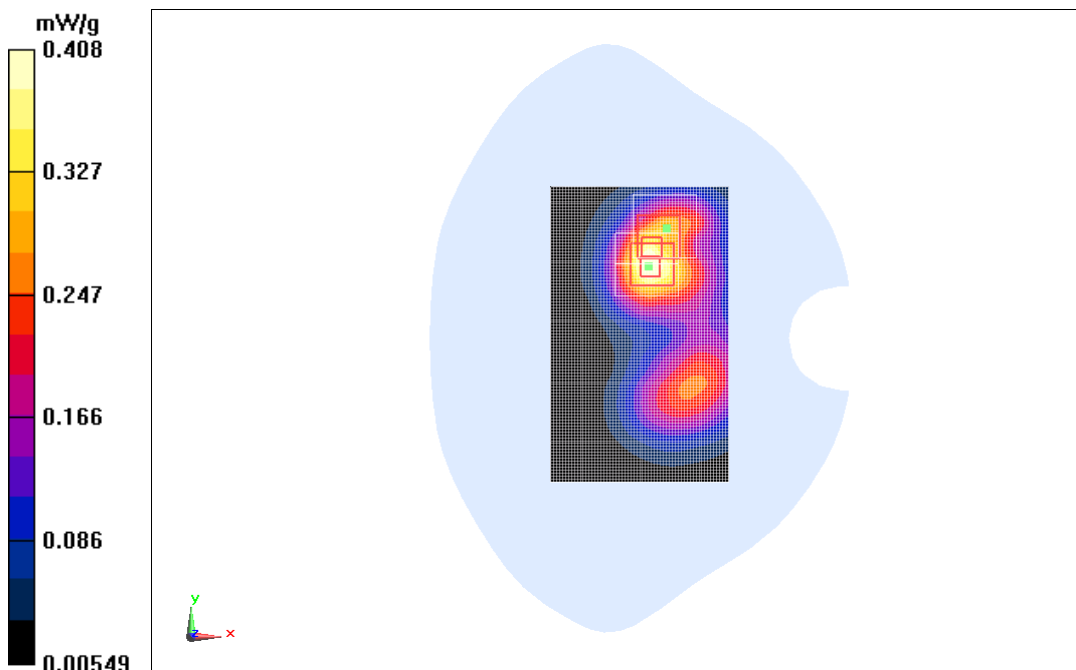
Maximum value of SAR (measured) = 0.408 mW/g

Fig. 38 1900 MHz CH810

1900 Body Towards Phantom Middle with GPRS

Date/Time: 2011-5-6 14:48:31

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used: f = 1880 MHz; σ = 1.48 mho/m; εr = 52.1; ρ = 1000 kg/m³

Ambient Temperature:23.0°C   Liquid Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:2

Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Phantom Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.434 mW/g

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

Reference Value = 6.21 V/m; Power Drift = 0.147 dB

Peak SAR (extrapolated) = 0.661 W/kg

SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.227 mW/g

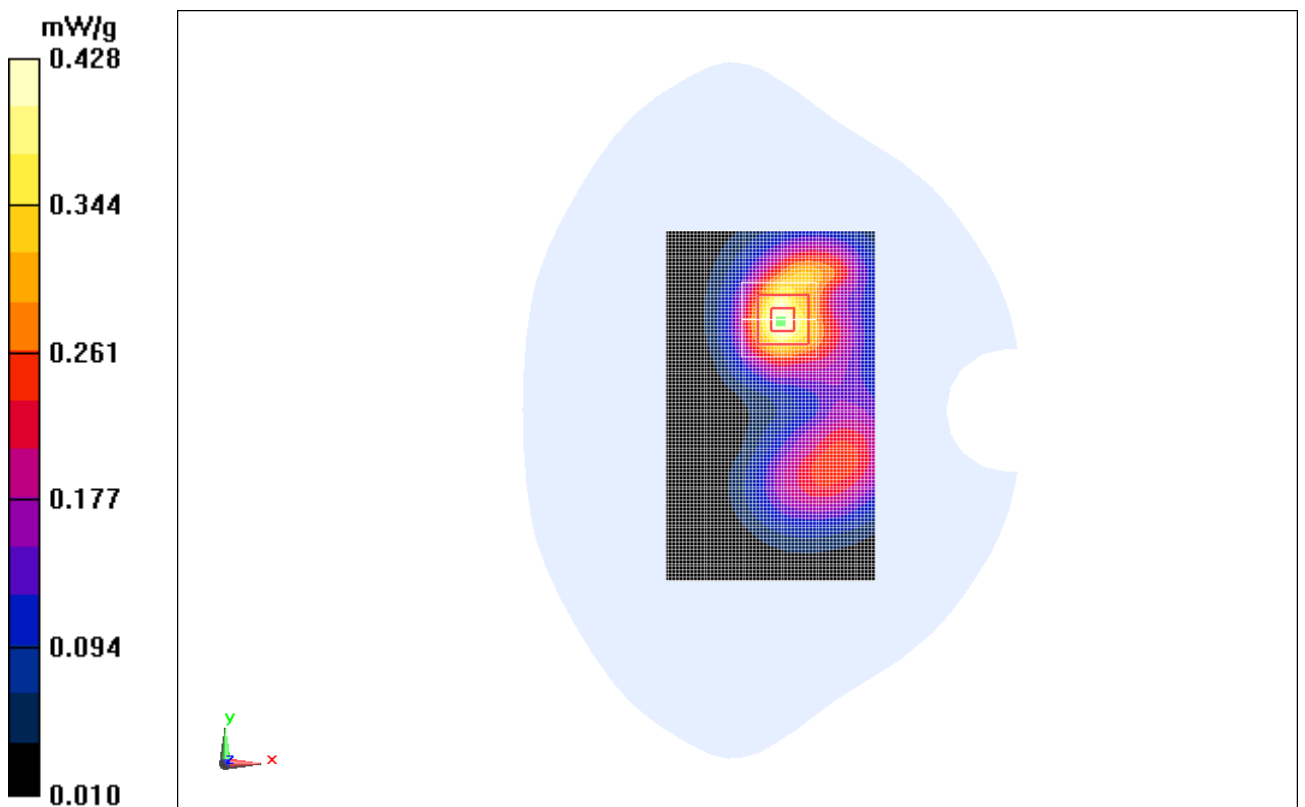Maximum value of SAR (measured) = 0.428 mW/g

Fig. 39 1900 MHz CH661

1900 Body Towards Phantom Low with GPRS

Date/Time: 2011-5-6 15:04:00

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.46 mho/m; εr = 52.1; ρ = 1000 kg/m^3

Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: GSM 1900MHz GPRS Frequency: 1850.2 MHz Duty Cycle: 1:2

Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Phantom Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.487 mW/g

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

Reference Value = 6.96 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 0.739 W/kg

SAR(1 g) = 0.441 mW/g; SAR(10 g) = 0.258 mW/g
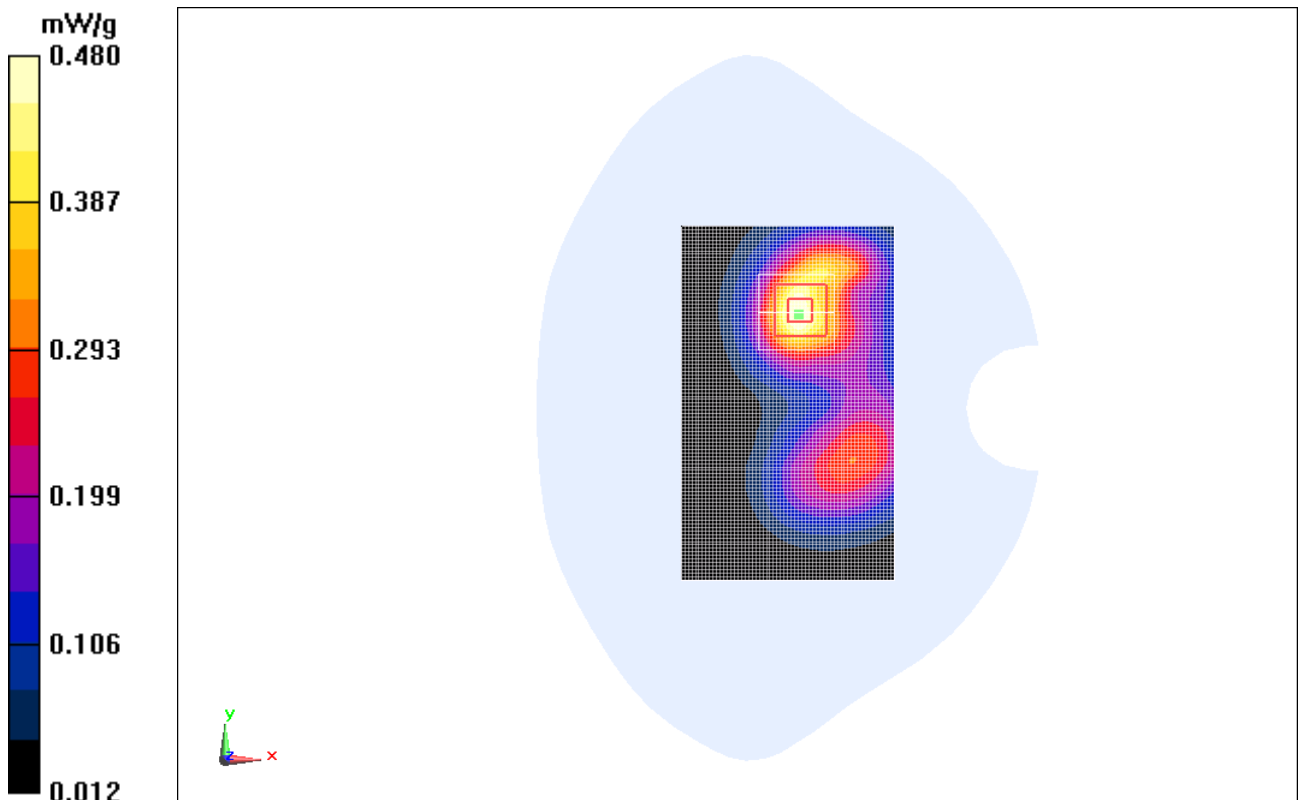
Maximum value of SAR (measured) = 0.480 mW/g

Fig. 40 1900 MHz CH512

1900 Body Towards Ground Low with EGPRS

Date/Time: 2011-5-6 15:20:52

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.46 mho/m; εr = 52.1; ρ = 1000 kg/m^3

Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: GSM 1900MHz GPRS Frequency: 1850.2 MHz Duty Cycle: 1:2

Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground Low EGPRS/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
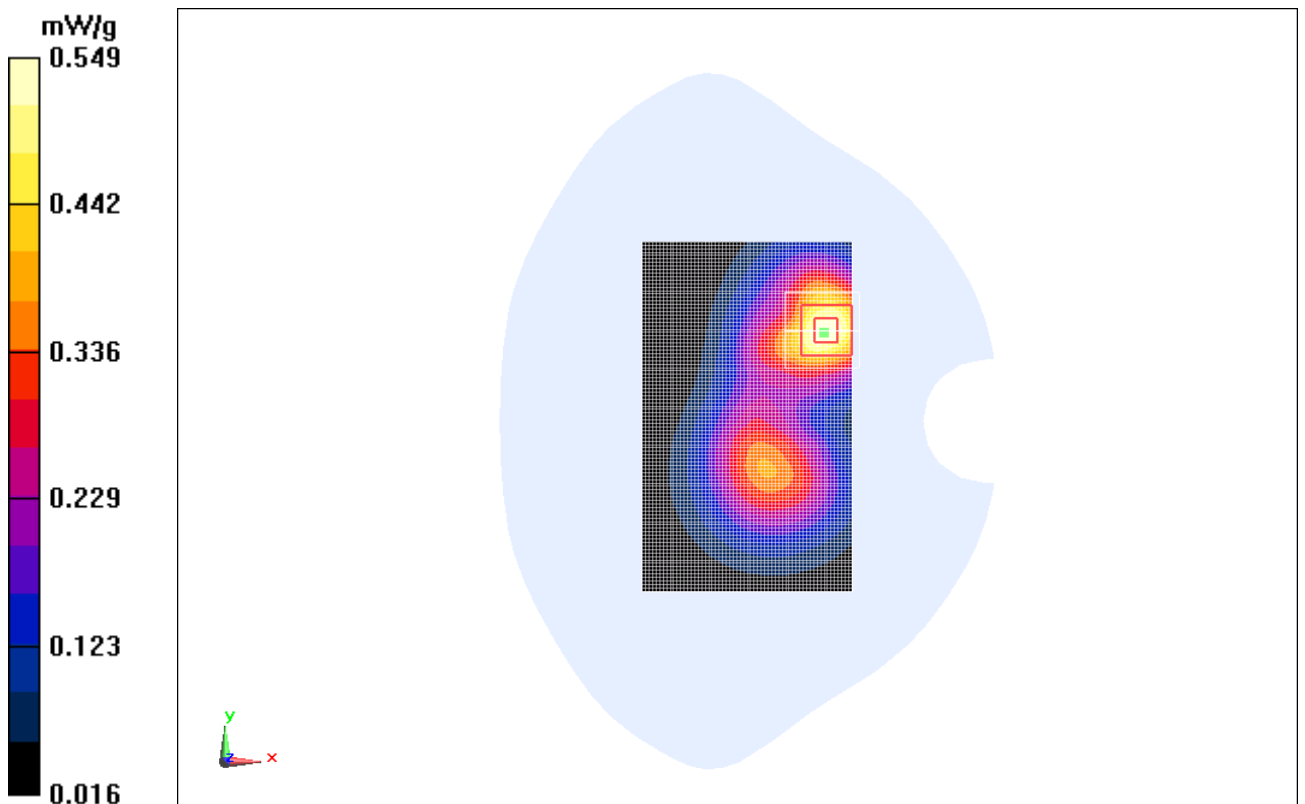
Maximum value of SAR (interpolated) = 0.551 mW/g

Toward Ground Low EGPRS/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.5 V/m; Power Drift = 0.149 dB

Peak SAR (extrapolated) = 0.836 W/kg

SAR(1 g) = 0.508 mW/g; SAR(10 g) = 0.294 mW/g

Maximum value of SAR (measured) = 0.549 mW/g

Fig. 41 1900 MHz CH512

1900 Body Towards Ground Low with Headset__CCB3160A10C2

Date/Time: 2011-5-6 15:37:28

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.46 mho/m; εr = 52.1; ρ = 1000 kg/m³

Ambient Temperature:23.0°C   Liquid Temperature: 22.5°C

Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3

Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
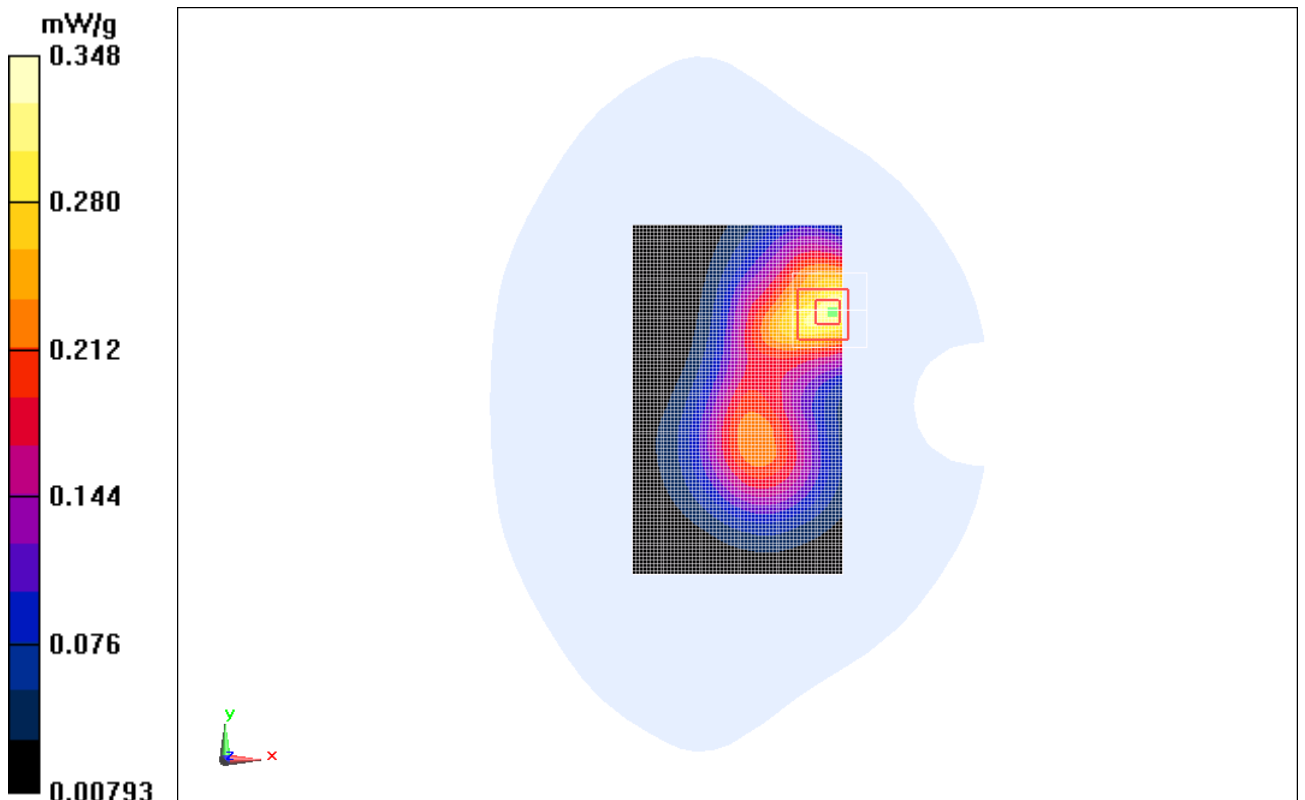
Maximum value of SAR (interpolated) = 0.321 mW/g

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

Reference Value = 11.1 V/m; Power Drift = -0.089 dB

Peak SAR (extrapolated) = 0.543 W/kg

SAR(1 g) = 0.319 mW/g; SAR(10 g) = 0.187 mW/g

Maximum value of SAR (measured) = 0.348 mW/g

Fig. 42 1900 MHz CH512

1900 Body Towards Ground Low with Headset__CCB3160B10C1

Date/Time: 2011-5-6 15:54:49

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.46 mho/m; εr = 52.1; ρ = 1000 kg/m^3

Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3

Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
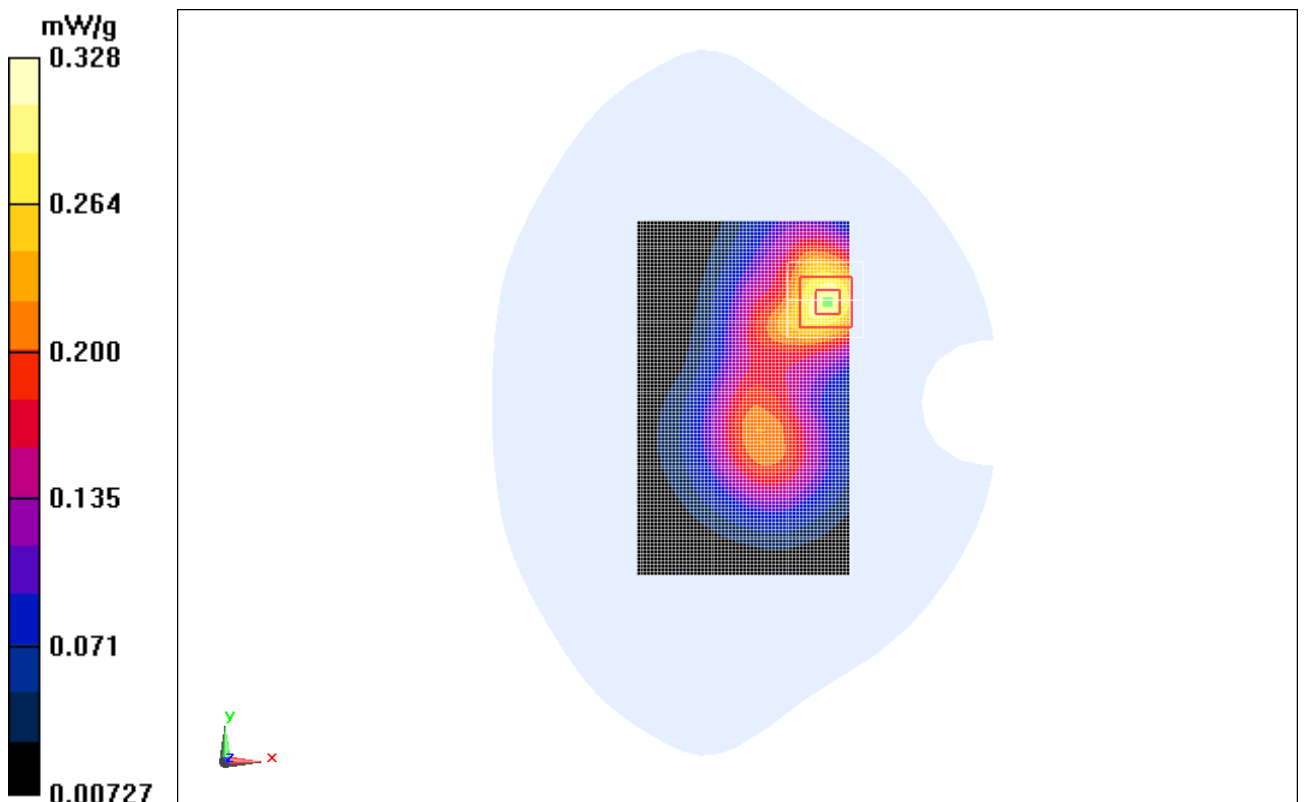
Maximum value of SAR (interpolated) = 0.303 mW/g

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

Reference Value = 11 V/m; Power Drift = 0.021 dB

Peak SAR (extrapolated) = 0.504 W/kg

SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.173 mW/g

Maximum value of SAR (measured) = 0.328 mW/g

Fig. 43 1900 MHz CH512

850 Body Towards Ground High with GPRS with battery CAB31L0000C2

Date/Time: 2011-5-5 16:03:47

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.96 mho/m; εr = 56.3; ρ = 1000 kg/m^3

Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:4

Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.4 mW/g

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

Reference Value = 32.1 V/m; Power Drift = 0.126 dB

Peak SAR (extrapolated) = 1.77 W/kg

SAR(1 g) = 1.34 mW/g; SAR(10 g) = 0.958 mW/g

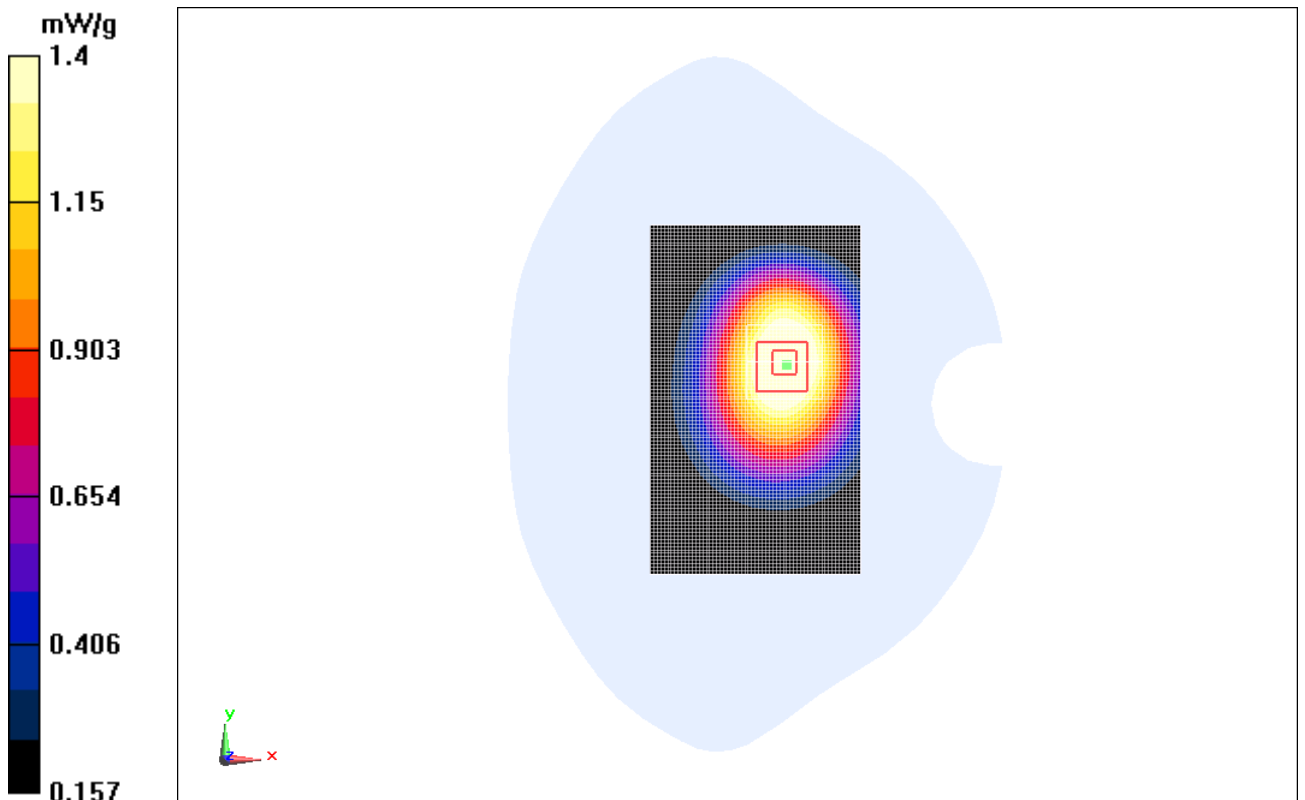Maximum value of SAR (measured) = 1.39 mW/g

Fig. 44   850 MHz CH251

WiFi 802.11b 1Mbps Left Cheek Channel 11

Date/Time: 2011-5-2 17:55:24

Electronics: DAE4 Sn771

Medium: Head 2450 MHz

Medium parameters used (interpolated): f = 2462 MHz; σ = 1.84 mho/m; εr = 39.4; ρ = 1000 kg/m^3

Ambient Temperature:23.0 ^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Cheek High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.111 mW/g

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

Reference Value = 4.47 V/m; Power Drift = 0.178 dB

Peak SAR (extrapolated) = 0.122 W/kg

SAR(1 g) = 0.078 mW/g; SAR(10 g) = 0.037 mW/g

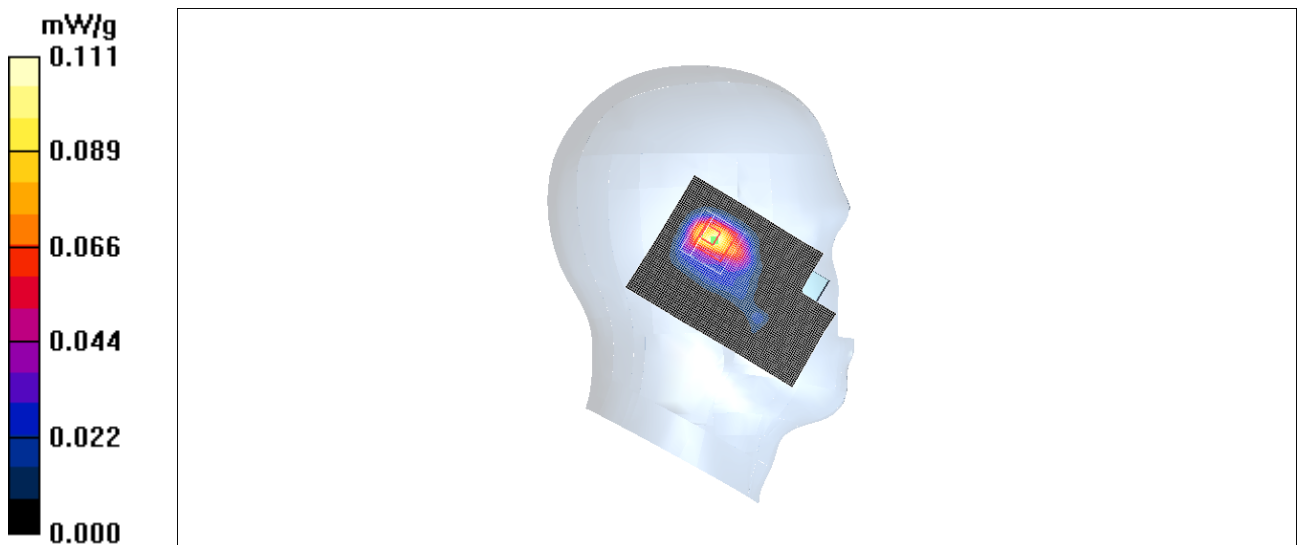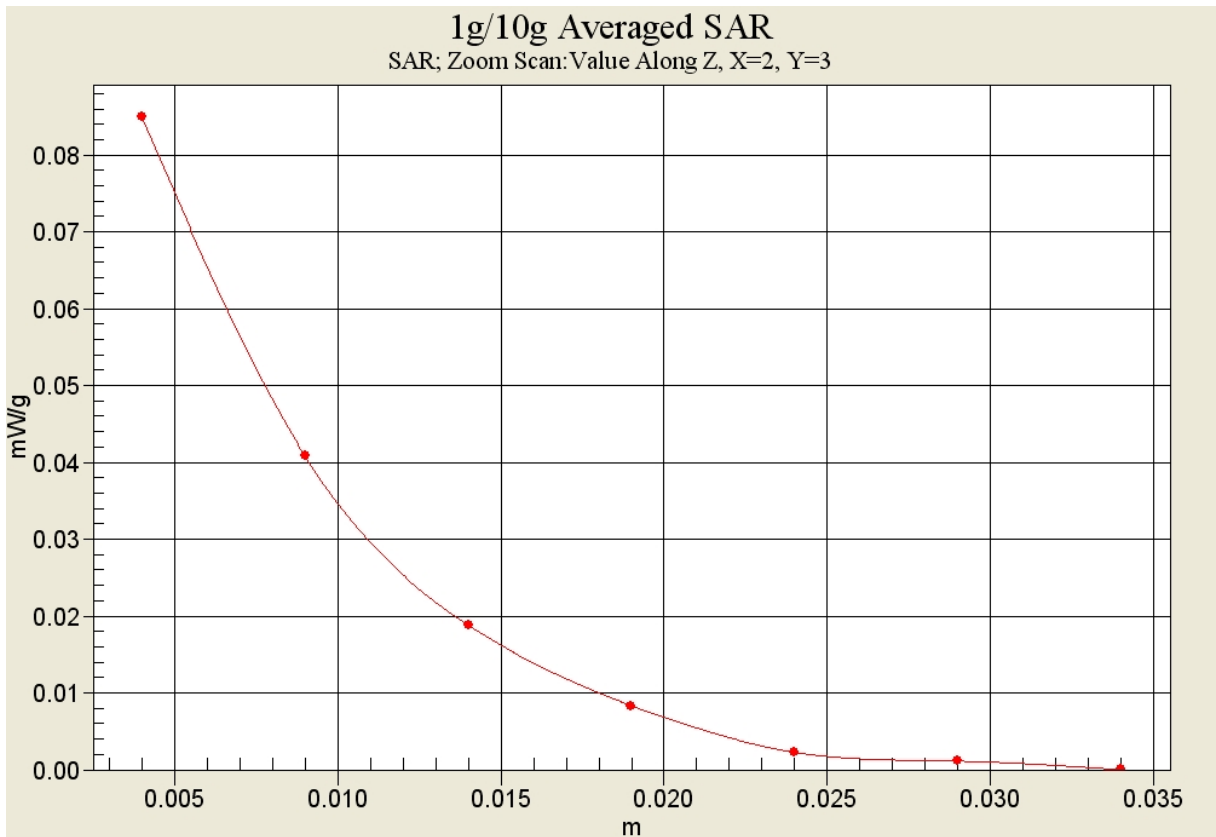Maximum value of SAR (measured) = 0.085 mW/g

Fig.45   802.11b 1Mbps CH11

Fig. 45-1 Z-Scan at power reference point (2462 MHz CH11)

WiFi 802.11b 1Mbps Left Tilt Channel 11

Date/Time: 2011-5-2 18:09:48

Electronics: DAE4 Sn771

Medium: Head 2450 MHz

Medium parameters used (interpolated): f = 2462 MHz; σ = 1.84 mho/m; εr = 39.4; ρ = 1000 kg/m^3

Ambient Temperature:23.0 ^{o}C   Liquid Temperature: 22.5 ^{o}C

Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Tilt High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.083 mW/g

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

Reference Value = 3.53 V/m; Power Drift = -0.183 dB

Peak SAR (extrapolated) = 0.077 W/kg

SAR(1 g) = 0.040 mW/g; SAR(10 g) = 0.017 mW/g

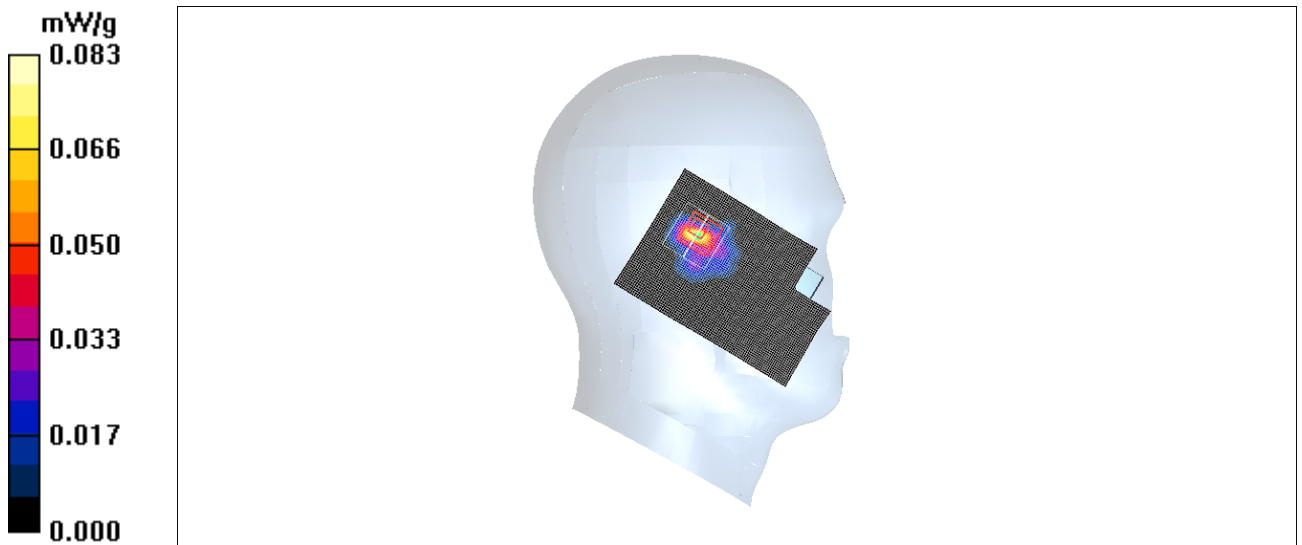Maximum value of SAR (measured) = 0.048 mW/g

Fig.46   802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Right Cheek Channel 11
Date/Time: 2011-5-2 18:24:10
Electronics: DAE4 Sn771
Medium: Head 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.84 mho/m; εr = 39.4; ρ = 1000 kg/m³
Ambient Temperature:23.0 ^{o}C   Liquid Temperature: 22.5^{o}C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Cheek High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.072 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.17 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 0.074 W/kg
SAR(1 g) = 0.040 mW/g; SAR(10 g) = 0.020 mW/g
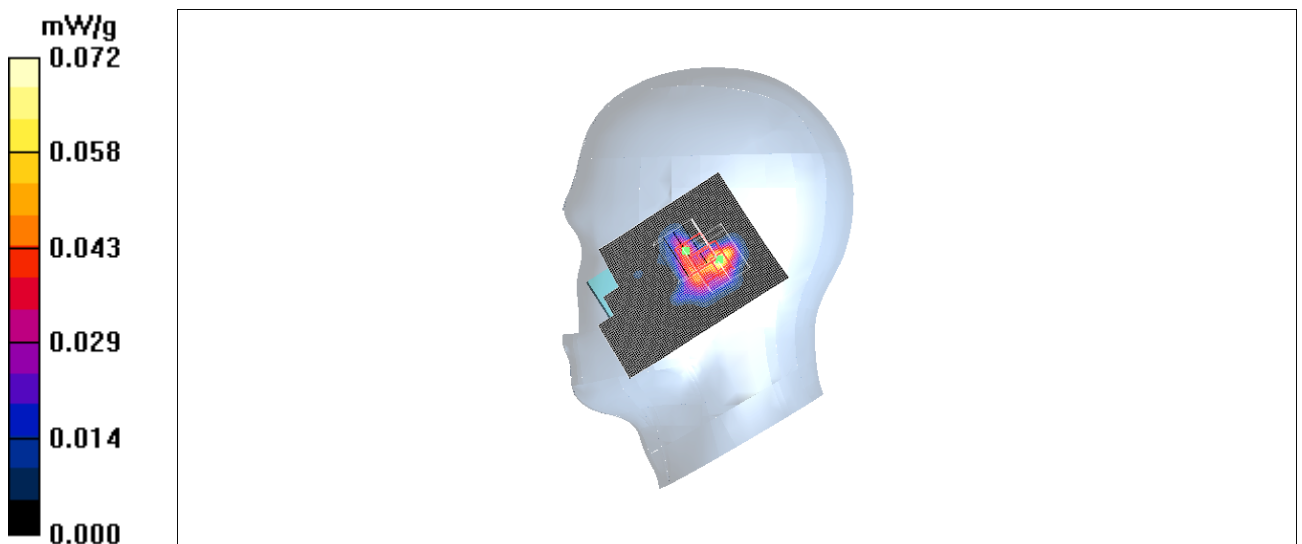Maximum value of SAR (measured) = 0.046 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.17 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 0.075 W/kg
SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.044 mW/g

Fig.47   802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Right Tilt Channel 11

Date/Time: 2011-5-2 18:38:29

Electronics: DAE4 Sn771

Medium: Head 2450 MHz

Medium parameters used (interpolated): f = 2462 MHz; σ = 1.84 mho/m; εr = 39.4; ρ = 1000 kg/m^3

Ambient Temperature:23.0 ^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Tilt High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.097 mW/g

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

Reference Value = 3.69 V/m; Power Drift = 0.111 dB

Peak SAR (extrapolated) = 0.046 W/kg

SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.013 mW/g

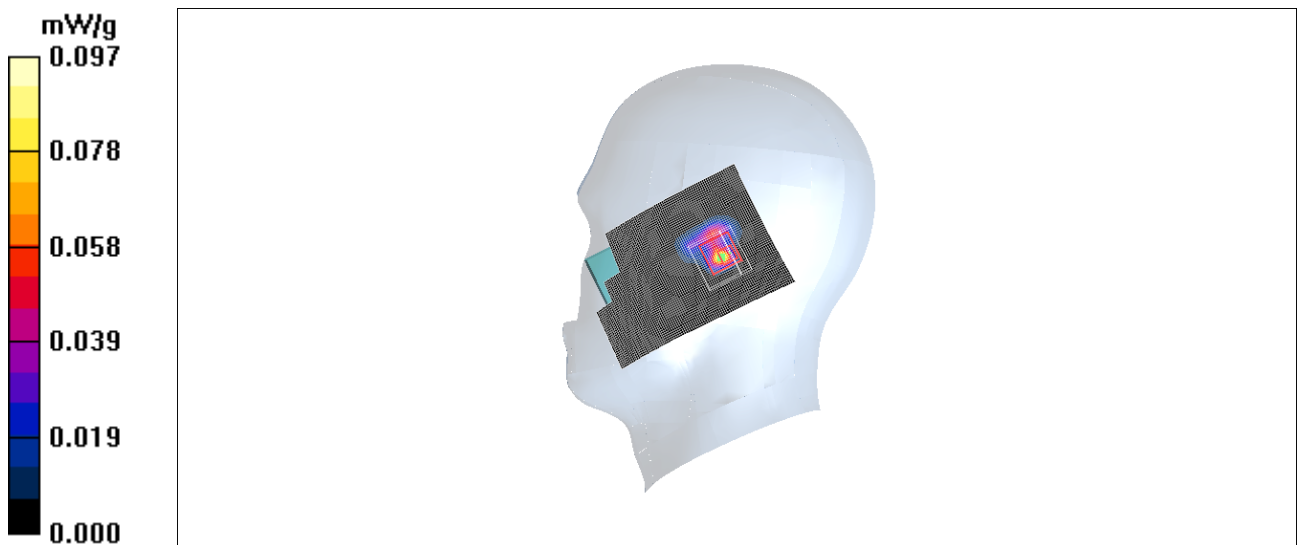Maximum value of SAR (measured) = 0.031 mW/g

Fig.48   802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Toward Ground Channel 11

Date/Time: 2011-5-2 19:39:15

Electronics: DAE4 Sn771

Medium: Body 2450 MHz

Medium parameters used (interpolated): f = 2462 MHz; σ = 1.98 mho/m; εr = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:23.0 ^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN3617 ConvF(6.88, 6.88, 6.88)

Toward Ground High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

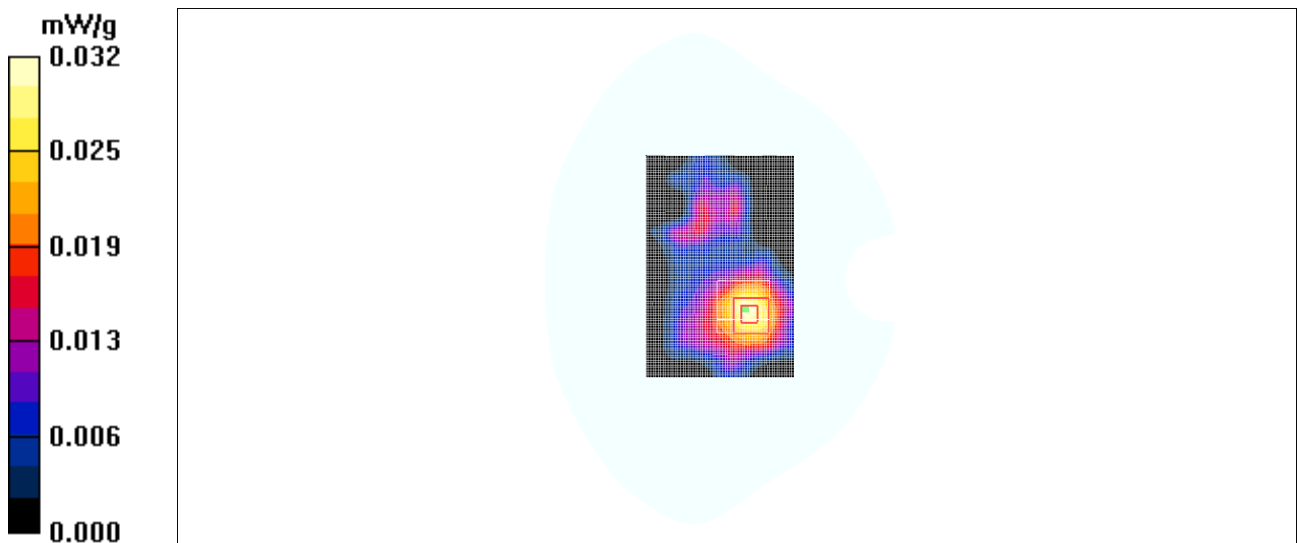Maximum value of SAR (interpolated) = 0.032 mW/g

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

Reference Value = 2.28 V/m; Power Drift = 0.139 dB

Peak SAR (extrapolated) = 0.053 W/kg

SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.015 mW/g

Maximum value of SAR (measured) = 0.029 mW/g

Fig.49   802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Toward Phantom Channel 11

Date/Time: 2011-5-2 19:55:31

Electronics: DAE4 Sn771

Medium: Body 2450 MHz

Medium parameters used (interpolated): f = 2462 MHz; σ = 1.98 mho/m; εr = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:23.0 ^{o}C   Liquid Temperature: 22.5^{o}C

Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN3617 ConvF(6.88, 6.88, 6.88)

Toward Phantom High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.037 mW/g

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

Reference Value = 3.06 V/m; Power Drift = -0.124 dB

Peak SAR (extrapolated) = 0.067 W/kg

SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.020 mW/g
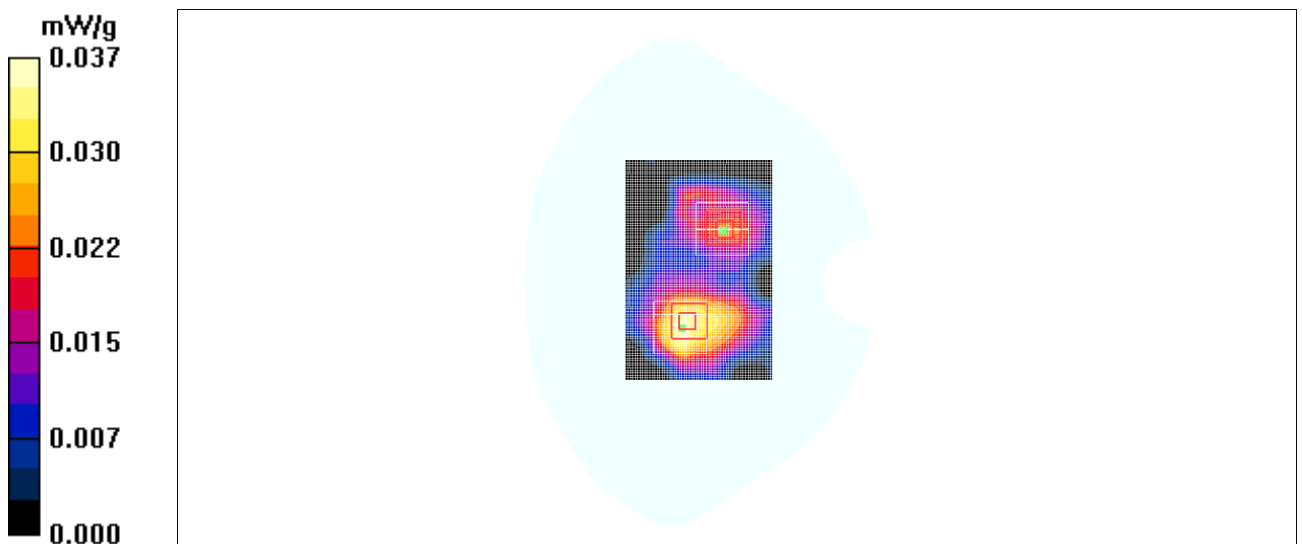
Maximum value of SAR (measured) = 0.036 mW/g

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

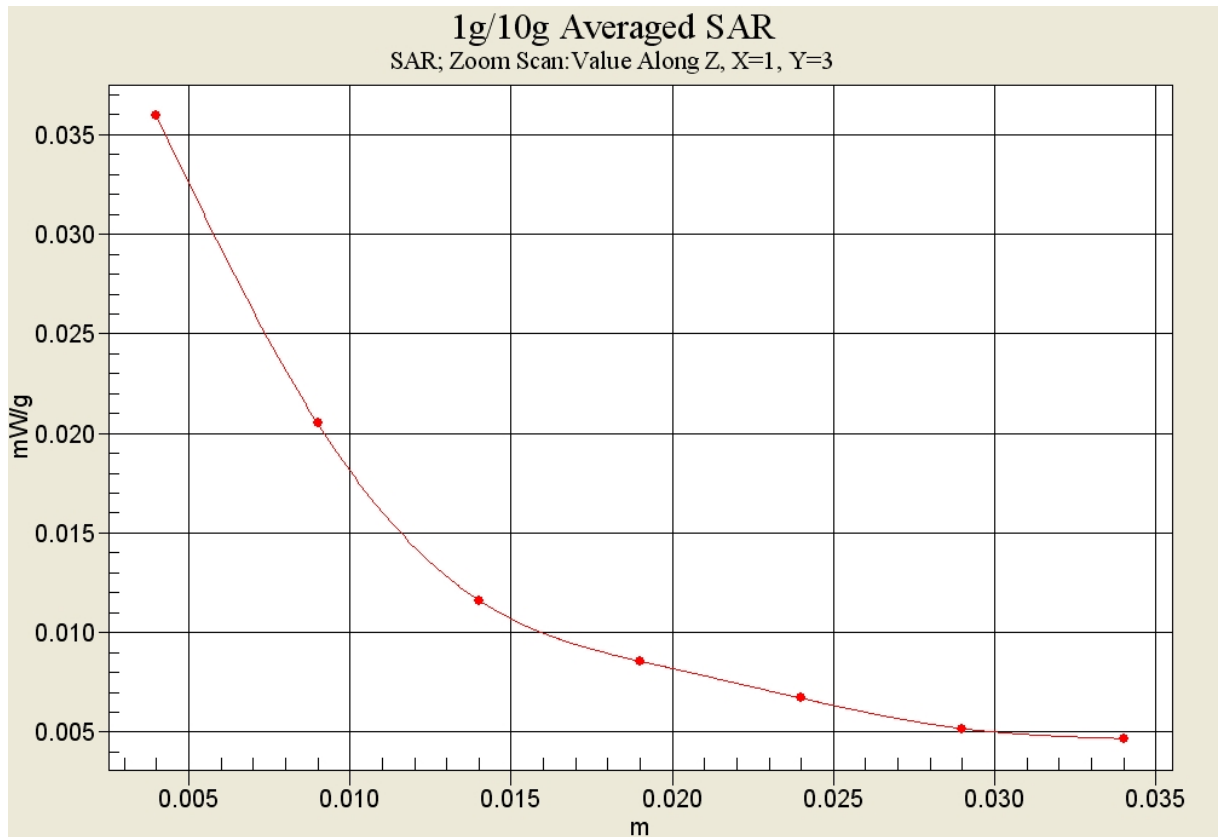Reference Value = 3.06 V/m; Power Drift = -0.124 dB

Peak SAR (extrapolated) = 0.041 W/kg

SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.011 mW/g

Maximum value of SAR (measured) = 0.022 mW/g

Fig.50   802.11b 1Mbps CH11

Fig. 50-1 Z-Scan at power reference point (2462 MHz CH11)

ANNEX D   SYSTEM VALIDATION RESULTS

835MHz

Date/Time: 2011-5-5 7:30:26
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

System Validation /Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.65 mW/g

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.7 V/m; Power Drift = 0.114 dB
Peak SAR (extrapolated) = 3.41 W/kg
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.49 mW/g
Maximum value of SAR (measured) = 2.54 mW/g
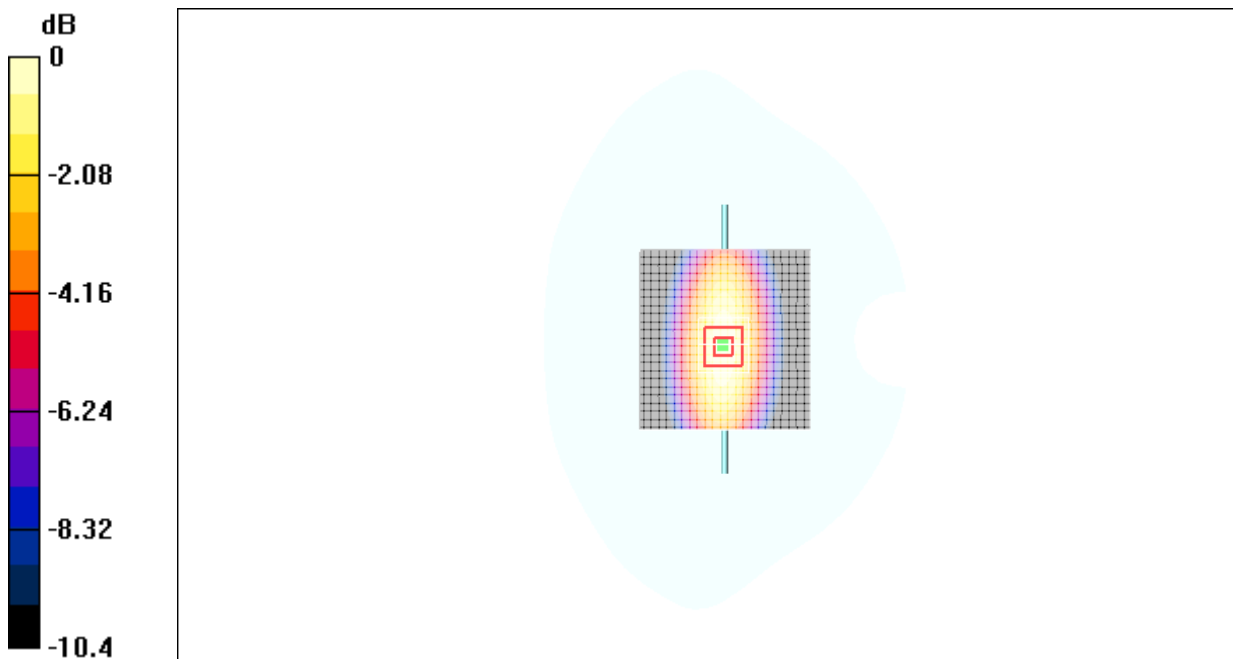
0 dB = 2.54mW/g

Fig.51 validation 835MHz 250mW

835MHz

Date/Time: 2011-5-5 13:16:44
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 835 MHz; σ = 0.96 mho/m; ε_r = 56.3; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

System Validation /Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.67 mW/g

**System Validation /Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.2 V/m; Power Drift = 0.083 dB
Peak SAR (extrapolated) = 3.43 W/kg
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.56 mW/g
Maximum value of SAR (measured) = 2.55 mW/g

0 dB = 2.55mW/g

Fig.52 validation 835MHz 250mW

1900MHz

Date/Time: 2011-5-6 7:32:43
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.40 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
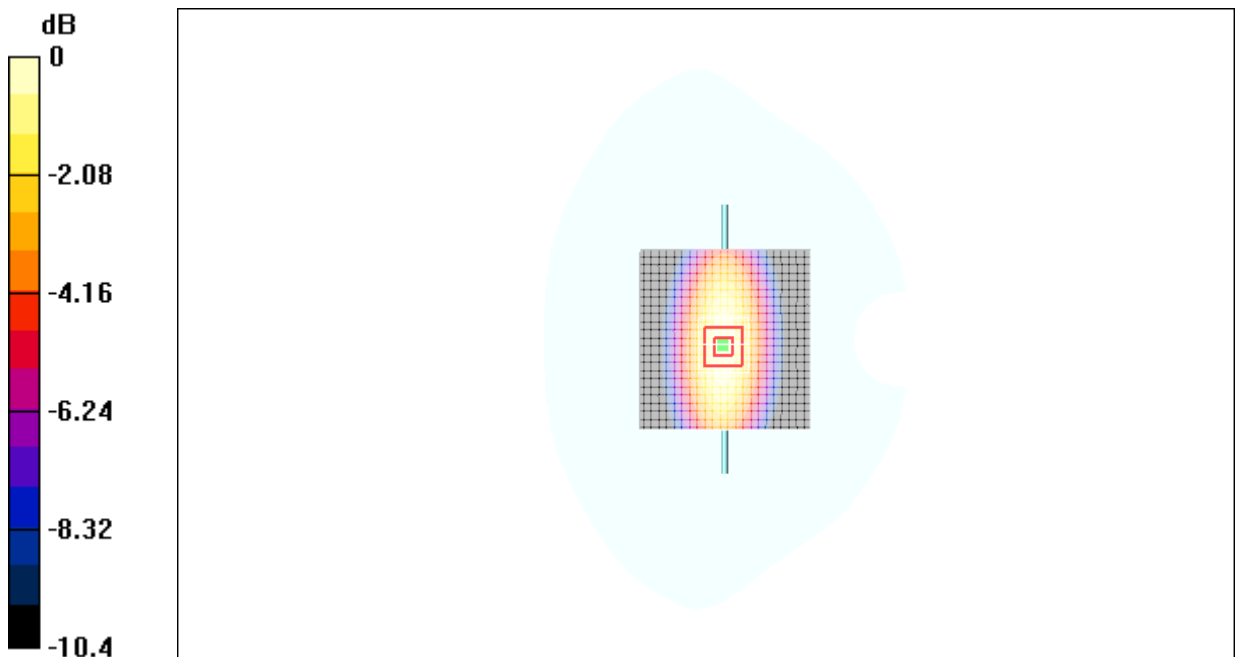Maximum value of SAR (interpolated) = 11.6 mW/g

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.9 V/m; Power Drift = -0.064 dB
Peak SAR (extrapolated) = 14.8 W/kg
SAR(1 g) = 9.90 mW/g; SAR(10 g) = 4.95 mW/g
Maximum value of SAR (measured) = 10.5 mW/g

0 dB = 10.5mW/g

Fig.53 validation 1900MHz 250mW

1900MHz

Date/Time: 2011-5-6 13:17:25
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.50 mho/m; ε_r = 52.0; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
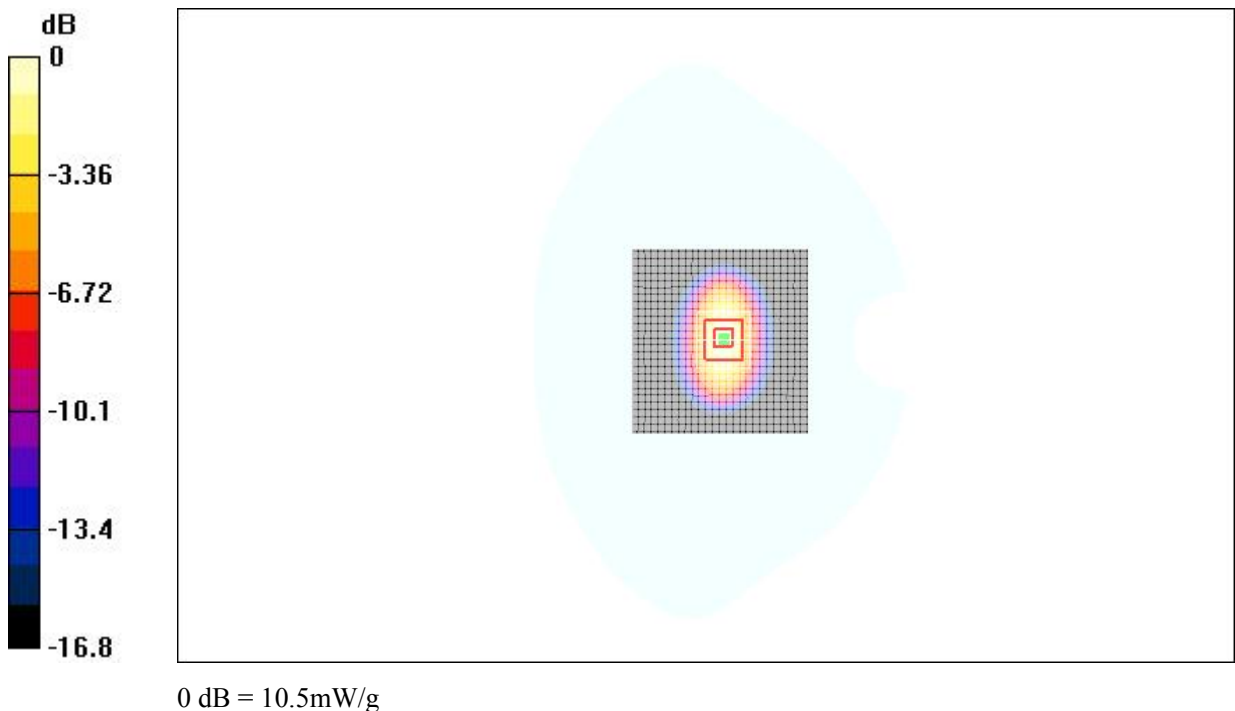Maximum value of SAR (interpolated) = 11.6 mW/g

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.0 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 15.4 W/kg
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.28 mW/g
Maximum value of SAR (measured) = 10.9 mW/g
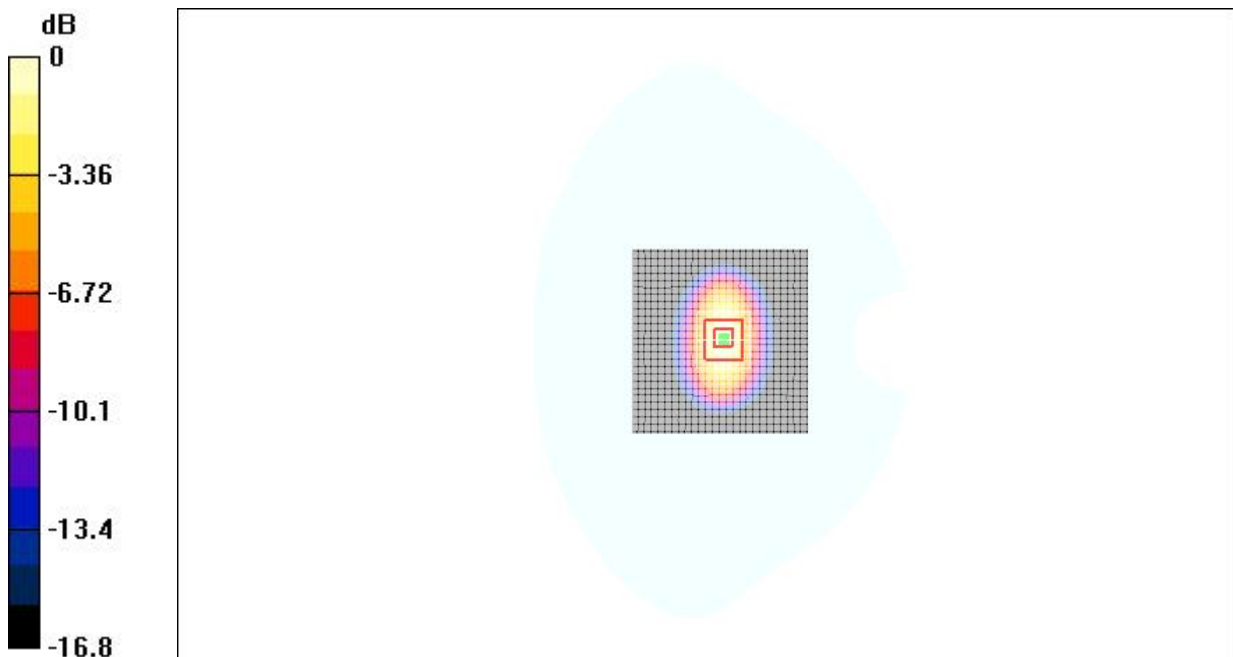
0 dB = 10.9mW/g

Fig.54 validation 1900MHz 250mW

2450MHz

Date/Time: 2011-5-2 13:07:18
Electronics: DAE4 Sn771
Medium: Head 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.82 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}C
Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 14.7 mW/g

**System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.3 V/m; Power Drift = 0.057 dB
Peak SAR (extrapolated) = 18.0 W/kg
SAR(1 g) = 12.8 mW/g; SAR(10 g) = 5.97 mW/g
Maximum value of SAR (measured) = 13.8 mW/g

0 dB = 13.8mW/g

Fig.55 validation 2450MHz 250mW

2450MHz

Date/Time: 2011-5-2 19:06:33
Electronics: DAE4 Sn771
Medium: Body 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.96 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0oC   Liquid Temperature: 22.5^{o}C
Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(6.88, 6.88, 6.88)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 15.8 mW/g

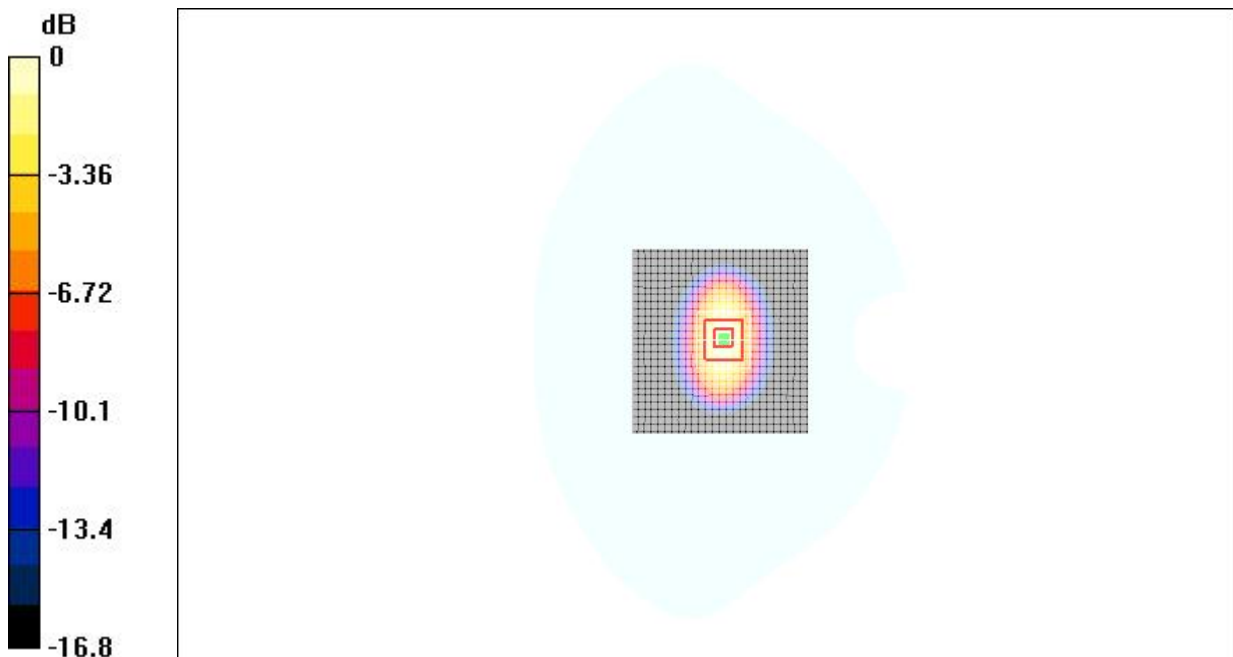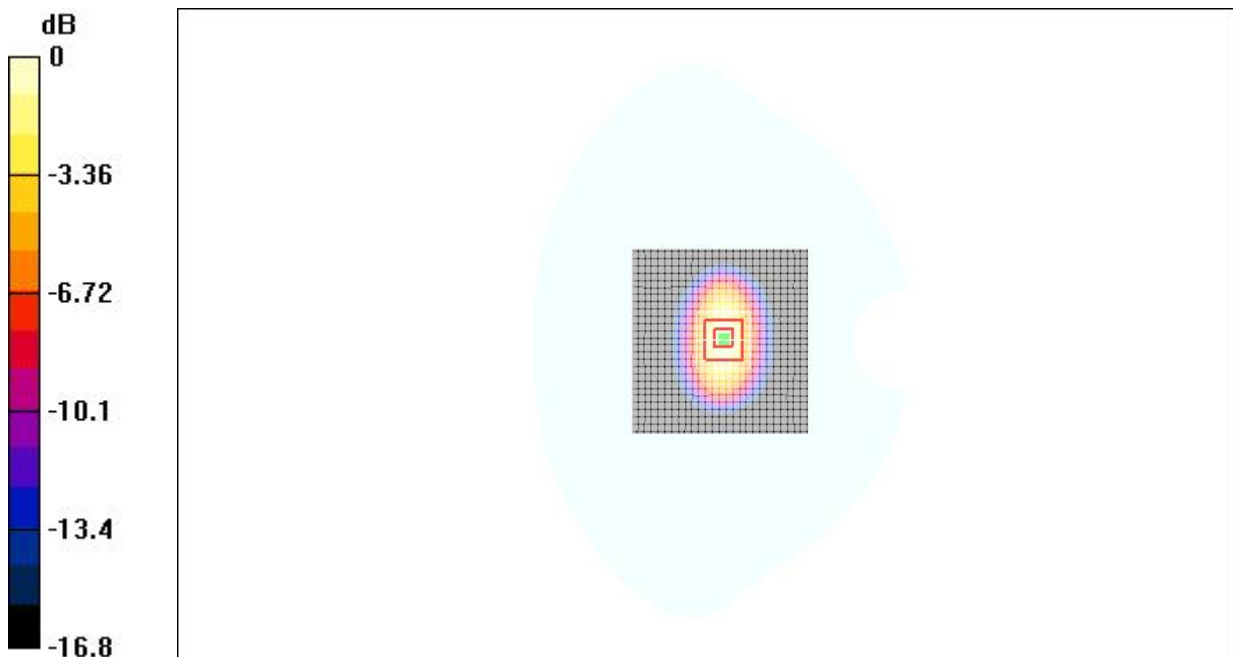**System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 82.8 V/m; Power Drift = -0.047 dB
Peak SAR (extrapolated) = 24.2 W/kg
SAR(1 g) = 13.0 mW/g; SAR(10 g) = 5.90 mW/g
Maximum value of SAR (measured) = 14.4 mW/g

0 dB = 14.4mW/g

Fig.56 validation 2450MHz 250mW

ANNEX E   PROBE CALIBRATION CERTIFICATE

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

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

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

Accreditation No.: **SCS 108**

Client	**TMC China**	Certificate No:	**ES3DV3-3149_Sep10**

CALIBRATION CERTIFICATE

Object	**ES3DV3-SN: 3149**

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

Calibration date:	**September 25, 2010**

Condition of the calibrated item	**In Tolerance**

This calibration certify 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 at an environment temperature $(22\pm3)^0$C and humidity<70%

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Data (Calibrated by, Certification NO.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-May-10 (METAS, NO. 251-00388)	May-11
Power sensor E4412A	MY41495277	5-May-10 (METAS, NO. 251-00388)	May-11
Reference 3 dB Attenuator	SN:S5054 (3c)	10-Aug-10 (METAS, NO. 251-00403)	Aug-11
Reference 20 dB Attenuator	SN:S5086 (20b)	3-May-10 (METAS, NO. 251-00389)	May-11
Reference 30 dB Attenuator	SN:S5129 (30b)	10-Aug-10 (METAS, NO. 251-00404)	Aug-11
DAE4	SN:617	10-Jun-10 (SPEAG, NO.DAE4-907_Jun10)	Jun-11
Reference Probe ES3DV2	SN: 3013	12-Jan-10 (SPEAG, NO. ES3-3013_Jan10)	Jan-11

Secondary Standards	ID#	Check Data (in house)	Scheduled Calibration
RF generator HP8648C	US3642U01700	4-Aug-99(SPEAG, in house check Oct-09)	In house check: Oct-10
Network Analyzer HP 8753E	US37390585	18-Oct-01(SPEAG, in house check Nov-09)	In house check: Nov-10

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: September 25, 2010

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

Certificate No: ES3DV3-3149_Sep10   Page 1 of 9

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

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

Accreditation No.: **SCS 108**

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

Glossary:

TSL   tissue simulating liquid
NORMx,y,z   sensitivity in free space
ConF   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., $\vartheta = 0$ 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 $\vartheta = 0$ ($f \leq 900$ 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 *ConF*).

- *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 *ConF*.

- *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.

- *ConF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ 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 * ConF whereby the uncertainty corresponds to that given for *ConF*. A frequency dependent *ConF* 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.

ES3DV3 SN: 3149

September 25, 2010

Probe ES3DV3

SN: 3149

Manufactured:	June 12, 2007
Calibrated:	September 25, 2010

Calibrated for DASY4 System

ES3DV3 SN: 3149 September 25, 2010

DASY – Parameters of Probe: ES3DV3 SN:3149

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

NormX	1.14±10.1%	$\mu V/(V/m)^2$	DCP X	94mV
NormY	1.23±10.1%	$\mu V/(V/m)^2$	DCP Y	95mV
NormZ	1.29±10.1%	$\mu V/(V/m)^2$	DCP Z	91mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)
Please see Page 8

Boundary Effect

TSL   900MHz   Typical SAR gradient: 5% per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SARbe[%]	Without Correction Algorithm	3.8	1.6
SARbe[%]	With Correction Algorithm	0.8	0.7

TSL   1810MHz   Typical SAR gradient: 10% per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SARbe[%]	Without Correction Algorithm	6.8	3.6
SARbe[%]	With Correction Algorithm	0.4	0.2

Sensor Offset

Probe Tip to Sensor Center   2.0 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 distributio
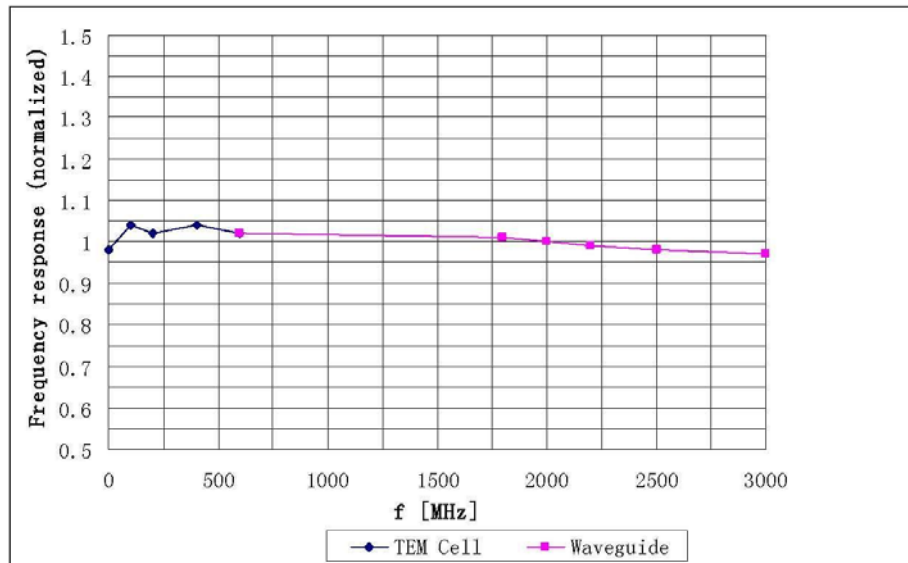> Corresponds to a coverage probability of approximately 95%.

[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.

Certificate No: ES3DV3-3149_ Sep10   Page 4 of 9

ES3DV3 SN: 3149   September 25, 2010
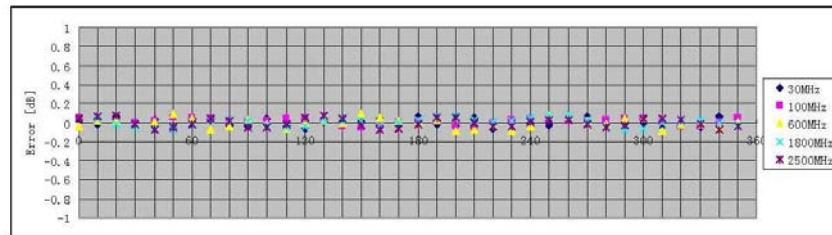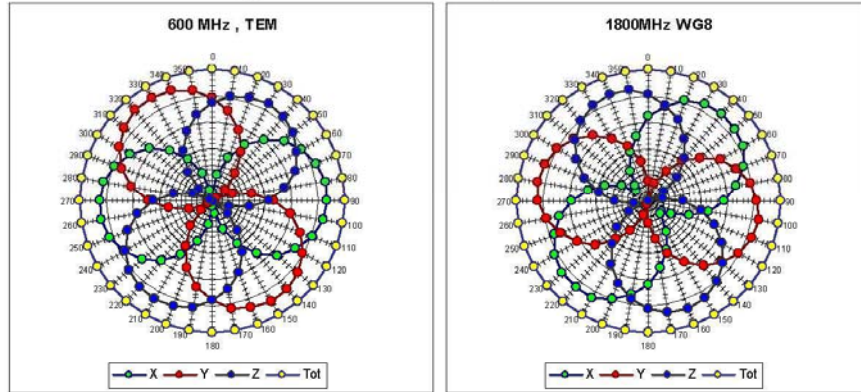
Frequency Response of E-Field

Uncertainty of Frequency Response of E-field: ±5.0% (k=2)

ES3DV3 SN: 3149   **September 25, 2010**

Receiving Pattern (φ), θ =0°
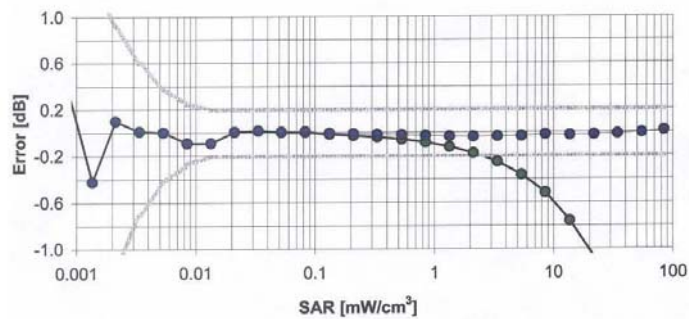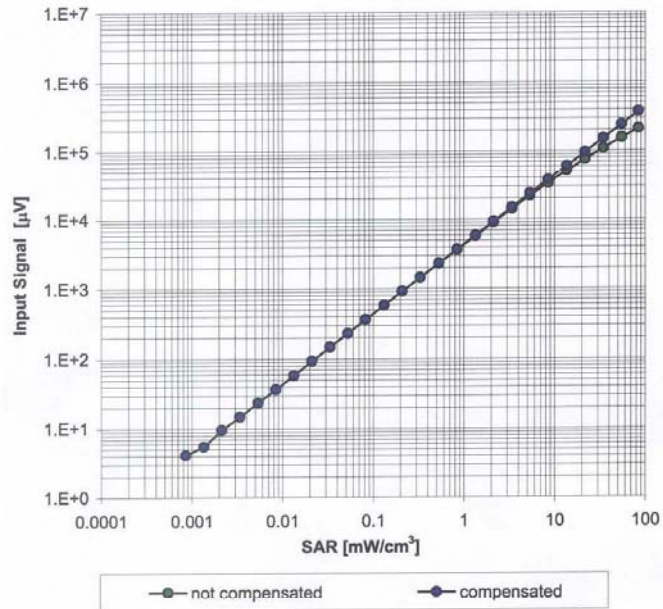

Uncertainty of Axial Isotropy Assessment: ±0.5% (k=2)

ES3DV3 SN: 3149   **September 25, 2010**

Dynamic Range f(SAR$_{head}$)
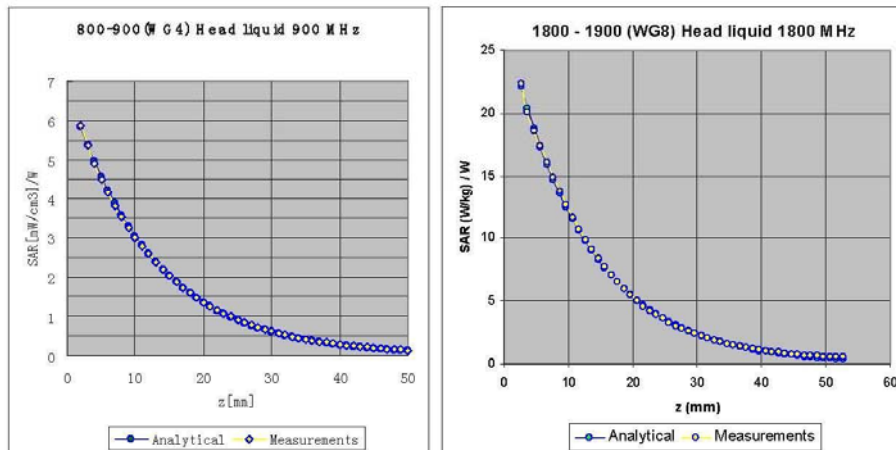## (Waveguide: WG8, f = 1800 MHz)

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

ES3DV3 SN: 3149   September 25, 2010

Conversion Factor Assessment

f[MHz]	Validity[MHz]^C	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
850	±50 /±100	Head	41.5±5%	0.90±5%	0.91	1.13	6.56	±11.0% (k=2)
900	±50 /±100	Head	41.5±5%	0.97±5%	0.83	1.26	6.34	±11.0% (k=2)
1800	±50 /±100	Head	40.0±5%	1.40±5%	0.69	1.47	5.18	±11.0% (k=2)
1900	±50 /±100	Head	40.0±5%	1.40±5%	0.72	1.38	5.03	±11.0% (k=2)
2100	±50 /±100	Head	39.8±5%	1.49±5%	0.66	1.34	4.58	±11.0% (k=2)
850	±50 /±100	Body	55.2±5%	0.97±5%	0.76	1.26	6.22	±11.0% (k=2)
900	±50 /±100	Body	55.0±5%	1.05±5%	0.99	1.06	6.02	±11.0% (k=2)
1800	±50 /±100	Body	53.3±5%	1.52±5%	0.75	1.34	4.97	±11.0% (k=2)
1900	±50 /±100	Body	53.3±5%	1.52±5%	0.62	1.33	4.68	±11.0% (k=2)
2100	±50 /±100	Body	53.5±5%	1.57±5%	0.68	1.34	4.35	±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.
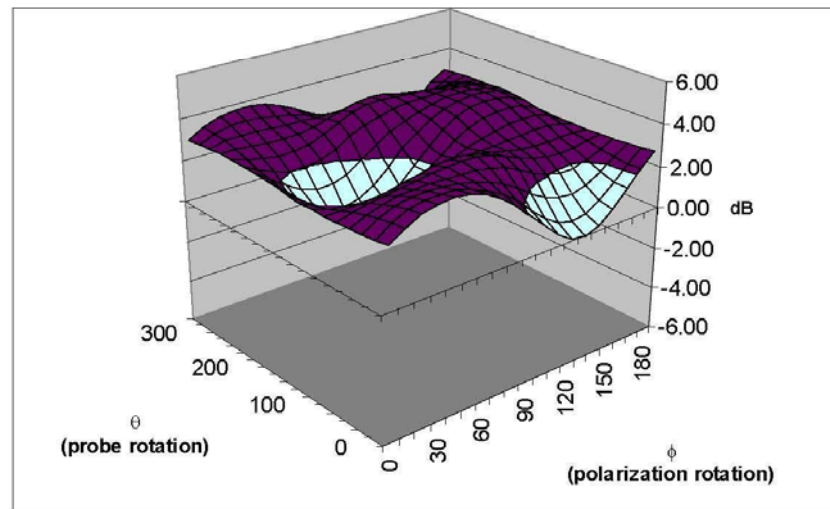
ES3DV3 SN: 3149

September 25, 2010

Deviation from Isotropy
Error (Φ , θ), f = 900 MHz

Uncertainty of Spherical Isotropy Assessment: ±2.5% (k=2)