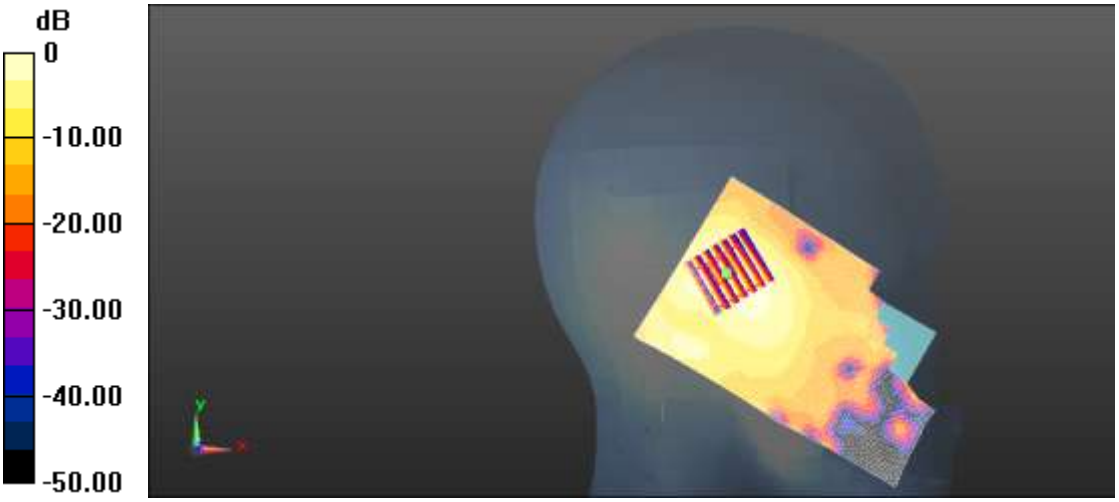
Wi-Fi 802.11b Date Rate：1Mbps left tilt mid

Date/Time: 5/11/2012 21:50:29
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.776 mho/m; ε_r = 37.832; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/tilt mid/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0817 mW/g

left/tilt mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.276 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.135 mW/g
SAR(1 g) = 0.072 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.0789 mW/g



0 dB = 0.0817 mW/g = -21.76 dB mW/g

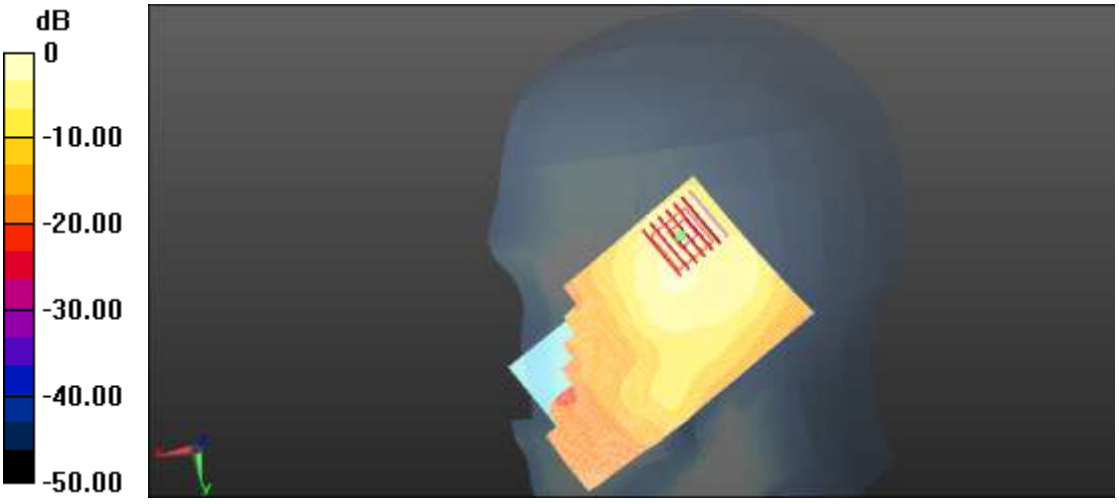
Wi-Fi 802.11b Date Rate：1Mbps touch mid

Date/Time: 5/11/2012 22:29:48
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.776 mho/m; ε_r = 37.832; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch mid/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.165 mW/g

right/touch mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.134 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.386 mW/g
SAR(1 g) = 0.145 mW/g; SAR(10 g) = 0.062 mW/g
Maximum value of SAR (measured) = 0.168 mW/g



0 dB = 0.165 mW/g = -15.63 dB mW/g

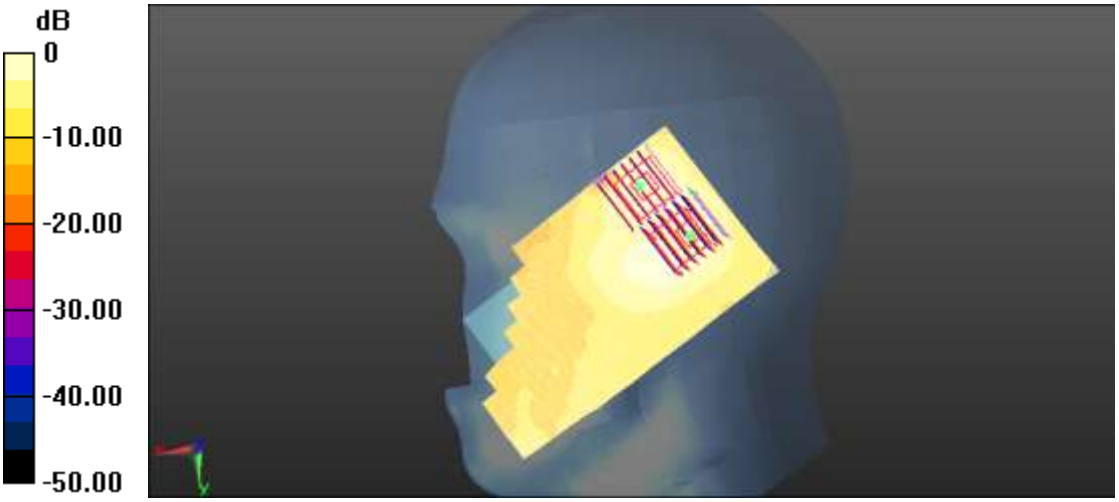
Wi-Fi 802.11b Date Rate：1Mbps right tilt mid

Date/Time: 6/11/2012 8:38:21
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.776 mho/m; ε_r = 37.832; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/tilt mid/Area Scan (91x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0739 mW/g
right/tilt mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.165 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.157 mW/g
SAR(1 g) = 0.060 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.0677 mW/g

right/tilt mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.165 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.119 mW/g
SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.0607 mW/g



0 dB = 0.0739 mW/g = -22.63 dB mW/g

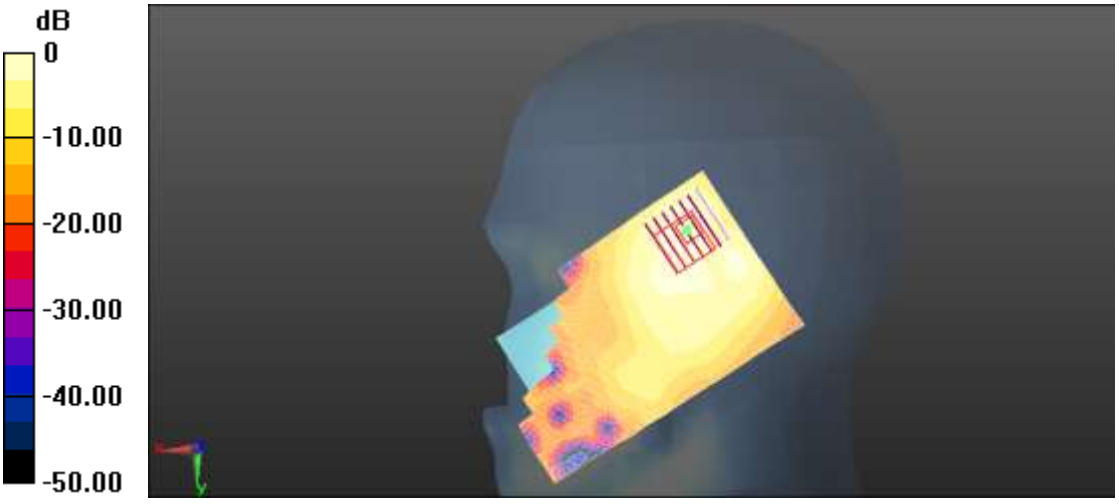
Wi-Fi 802.11b Date Rate：1Mbps right touch low

Date/Time: 6/11/2012 9:29:14
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2412 MHz; σ = 1.74 mho/m; ε_r = 37.907; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch low/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.138 mW/g

right/touch low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.469 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.299 mW/g
SAR(1 g) = 0.120 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.134 mW/g



0 dB = 0.138 mW/g = -17.22 dB mW/g

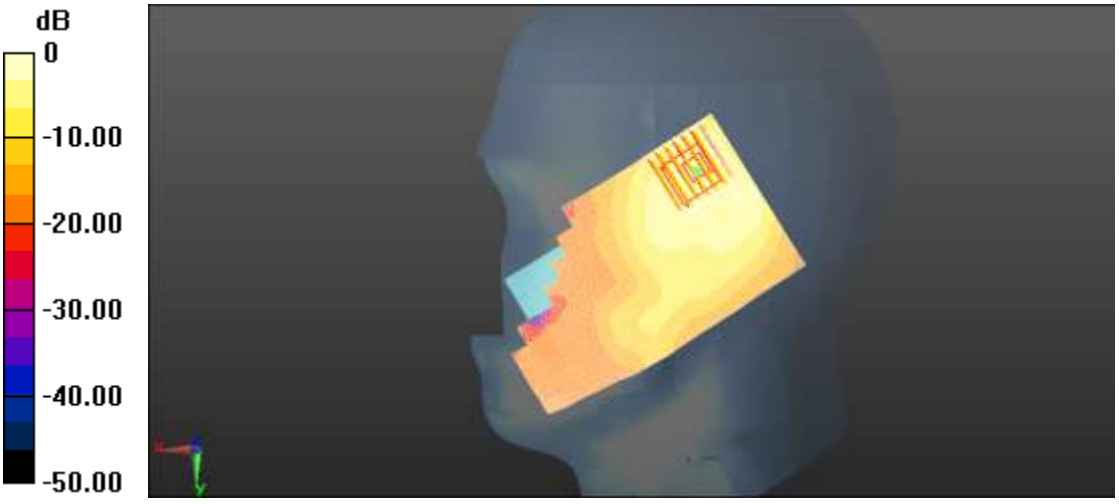
Wi-Fi 802.11b Date Rate：1Mbps right touch high

Date/Time: 6/11/2012 10:01:06
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.789 mho/m; ε_r = 37.883; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

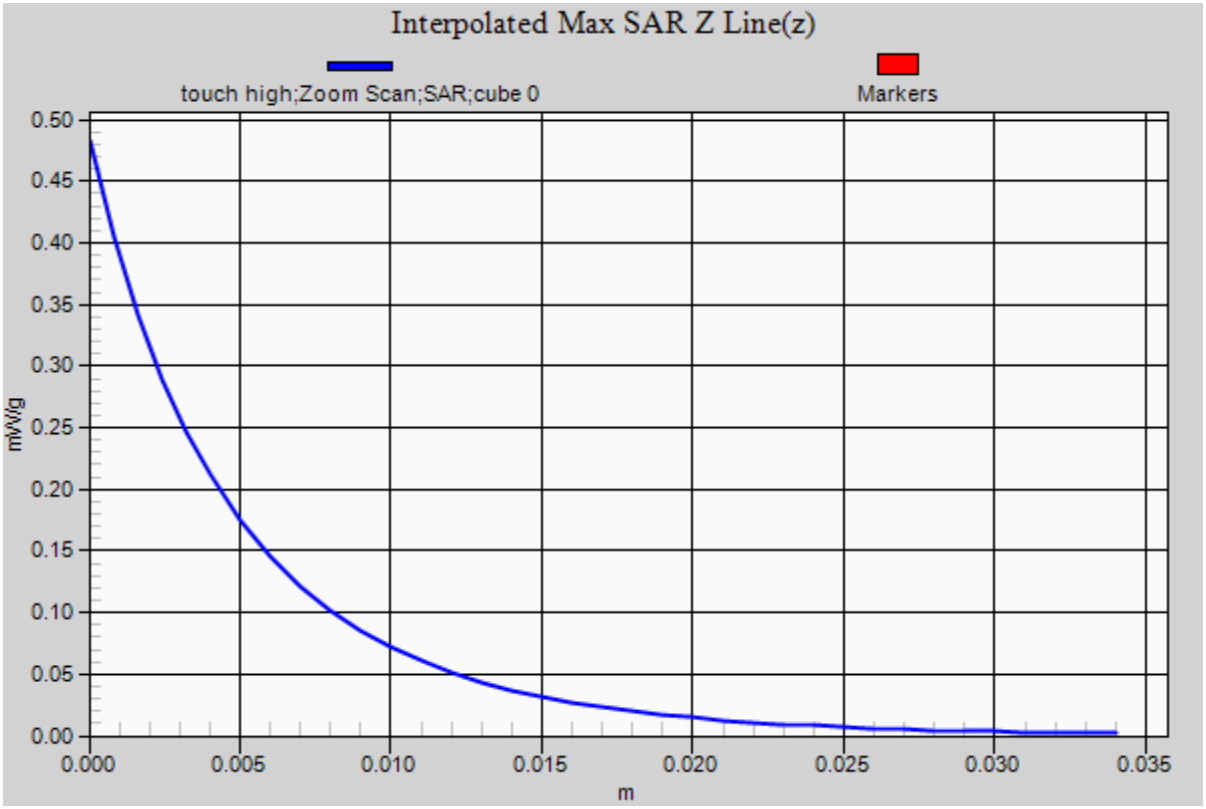
- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch high/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.218 mW/g

right/touch high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.002 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.483 mW/g
SAR(1 g) = 0.186 mW/g; SAR(10 g) = 0.082 mW/g
Maximum value of SAR (measured) = 0.214 mW/g



0 dB = 0.218 mW/g = -13.23 dB mW/g


Interpolated Max SAR Z Line(z)
touch high;Zoom Scan;SAR;cube 0
Markers
mW/g
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

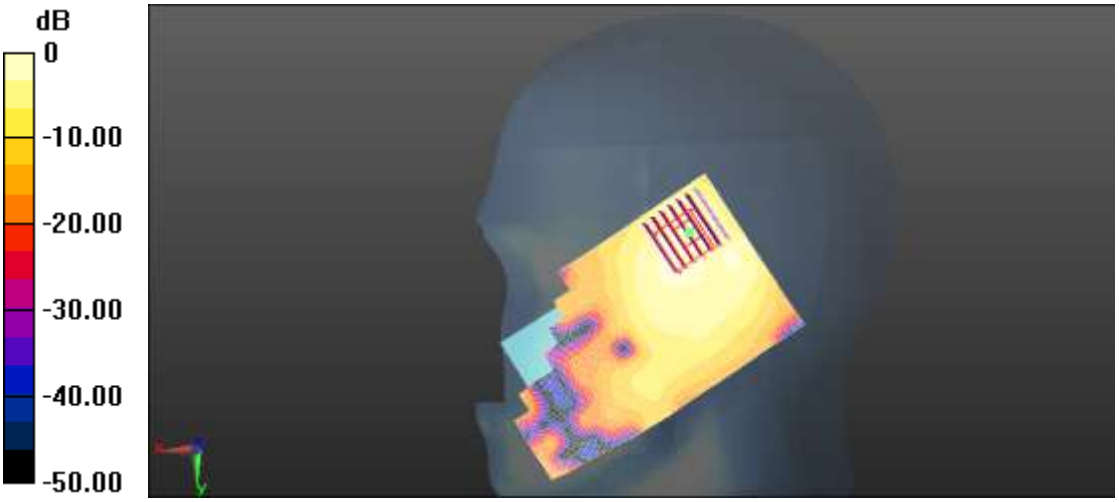
Wi-Fi 802.11g Date Rate：6Mbps right touch high

Date/Time: 6/11/2012 10:42:39
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.789 mho/m; ε_r = 37.883; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch high with g/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.114 mW/g

right/touch high with g/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.586 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.254 mW/g
SAR(1 g) = 0.100 mW/g; SAR(10 g) = 0.045 mW/g
Maximum value of SAR (measured) = 0.115 mW/g



0 dB = 0.114 mW/g = -18.89 dB mW/g

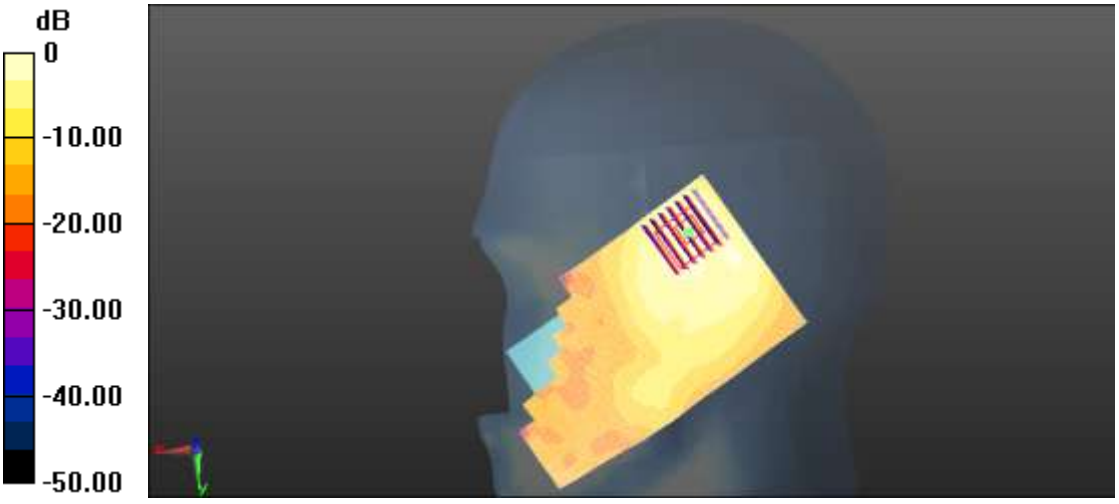
Wi-Fi 802.11n(20MHz) Date Rate：6.5Mbps right touch high

Date/Time: 6/11/2012 11:13:06
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.789 mho/m; ε_r = 37.883; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch high with n/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.118 mW/g

right/touch high with n/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.473 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.277 mW/g
SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.047 mW/g
Maximum value of SAR (measured) = 0.120 mW/g



0 dB = 0.118 mW/g = -18.56 dB mW/g

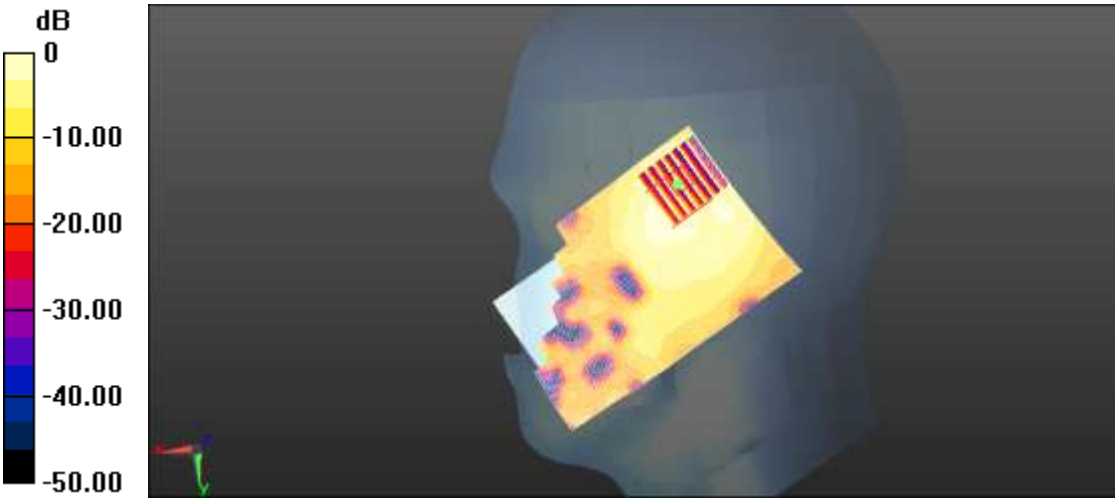
Wi-Fi 802.11n(40MHz) Date Rate：13Mbps right touch

Date/Time: 6/11/2012 11:43:24
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.789 mho/m; ε_r = 37.883; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(4.59, 4.59, 4.59); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM2; Type: SAM; Serial: TP-1575
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch high with n 40MHz/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0579 mW/g

right/touch high with n 40MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.962 V/m; Power Drift = 0.38 dB
Peak SAR (extrapolated) = 0.125 mW/g
SAR(1 g) = 0.051 mW/g; SAR(10 g) = 0.025 mW/g
Maximum value of SAR (measured) = 0.0587 mW/g



0 dB = 0.0579 mW/g = -24.75 dB mW/g

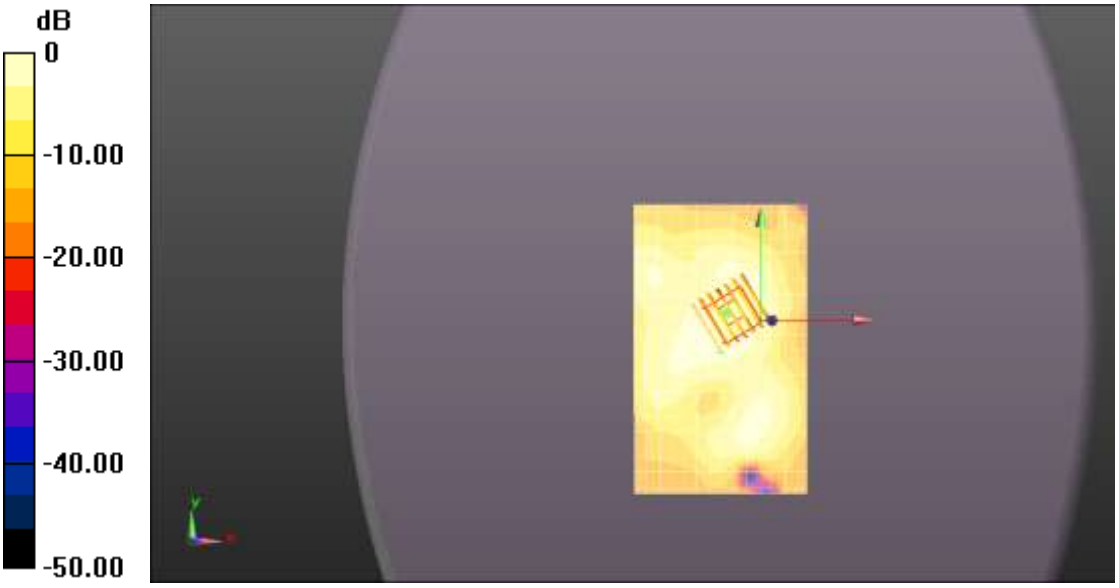
Wi-Fi 802.11b Date Rate：1Mbps towards phantom mid

Date/Time: 05/11/2012 10:31:16
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom mid/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0430 mW/g

body/towards phantom mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.284 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.072 mW/g
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.022 mW/g
Maximum value of SAR (measured) = 0.0418 mW/g



0 dB = 0.0430 mW/g = -27.34 dB mW/g

Wi-Fi 802.11b Date Rate：1Mbps towards ground mid

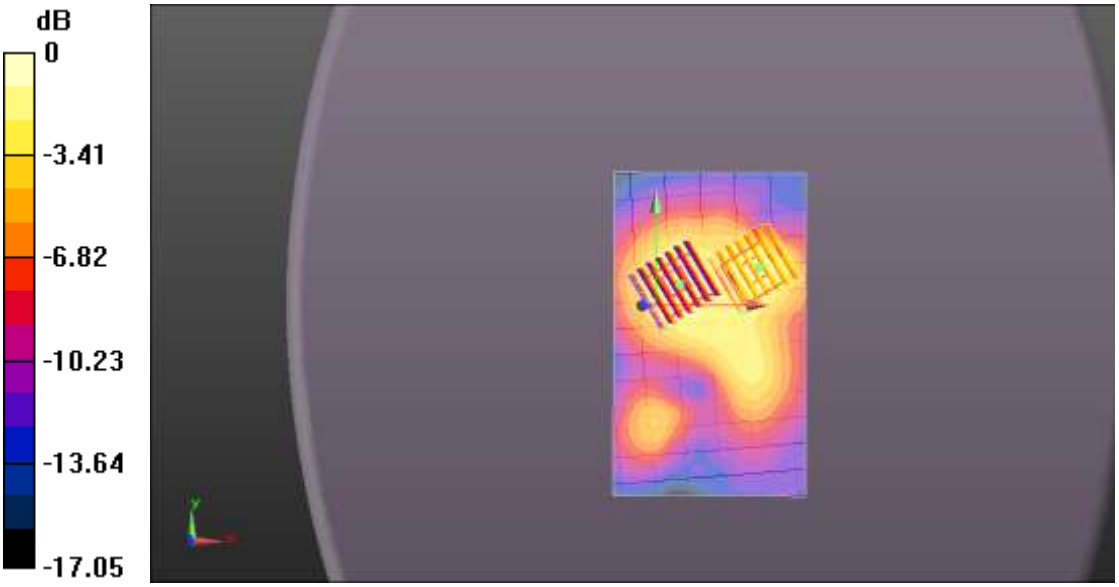
Date/Time: 05/11/2012 11:08:03
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground mid/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0710 mW/g

body/towards ground mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.813 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.120 mW/g
SAR(1 g) = 0.057 mW/g; SAR(10 g) = 0.027 mW/g
Maximum value of SAR (measured) = 0.0640 mW/g

body/towards ground mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.813 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.082 mW/g
SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.0483 mW/g



0 dB = 0.0710 mW/g = -22.97 dB mW/g

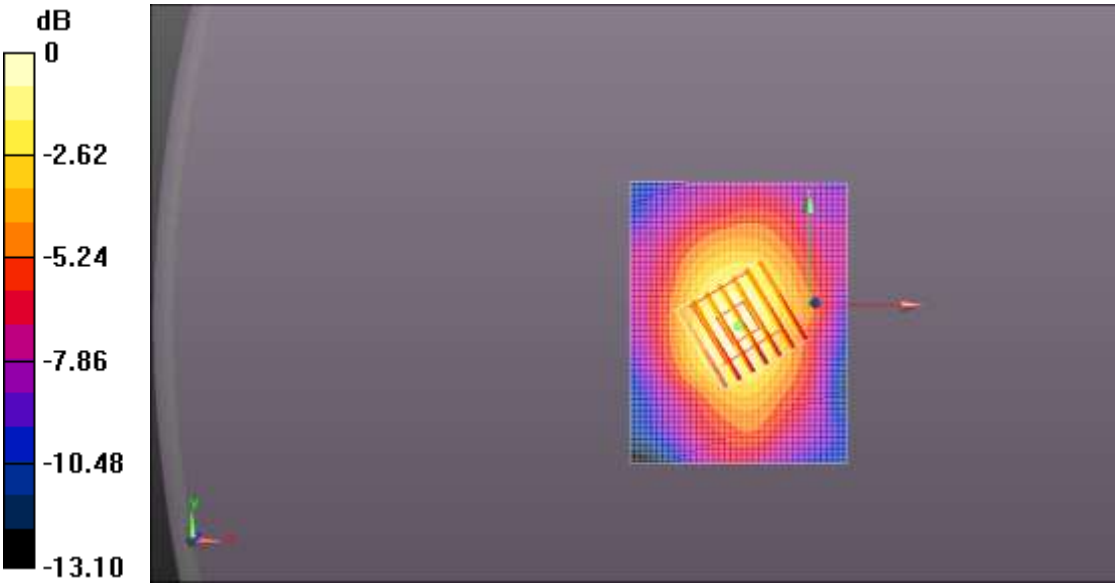
Wi-Fi 802.11b Date Rate：1Mbps back mid

Date/Time: 05/11/2012 13:48:18
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/back mid/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0323 mW/g

body/back mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.719 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.062 mW/g
SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.0341 mW/g



0 dB = 0.0323 mW/g = -29.82 dB mW/g

Wi-Fi 802.11b Date Rate：1Mbps left side mid

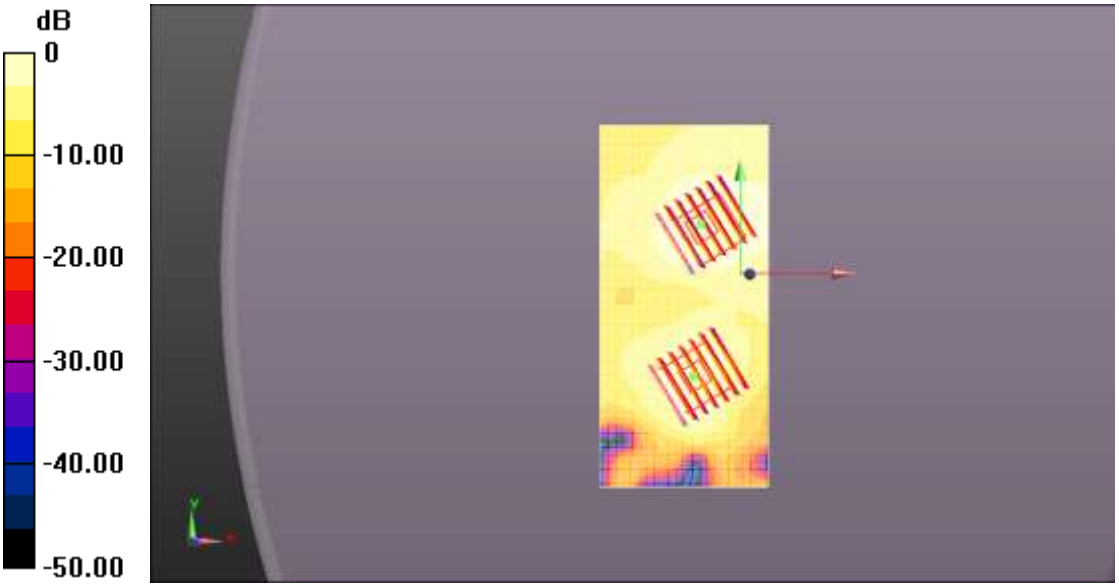
Date/Time: 05/11/2012 13:00:53
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/left side mid/Area Scan (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0273 mW/g

body2/left side mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.005 V/m; Power Drift = -0.35 dB
Peak SAR (extrapolated) = 0.047 mW/g
SAR(1 g) = 0.025 mW/g; SAR(10 g) = 0.014 mW/g
Maximum value of SAR (measured) = 0.0279 mW/g

body2/left side mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.005 V/m; Power Drift = -0.35 dB
Peak SAR (extrapolated) = 0.044 mW/g
SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.013 mW/g
Maximum value of SAR (measured) = 0.0243 mW/g



0 dB = 0.0273 mW/g = -31.27 dB mW/g

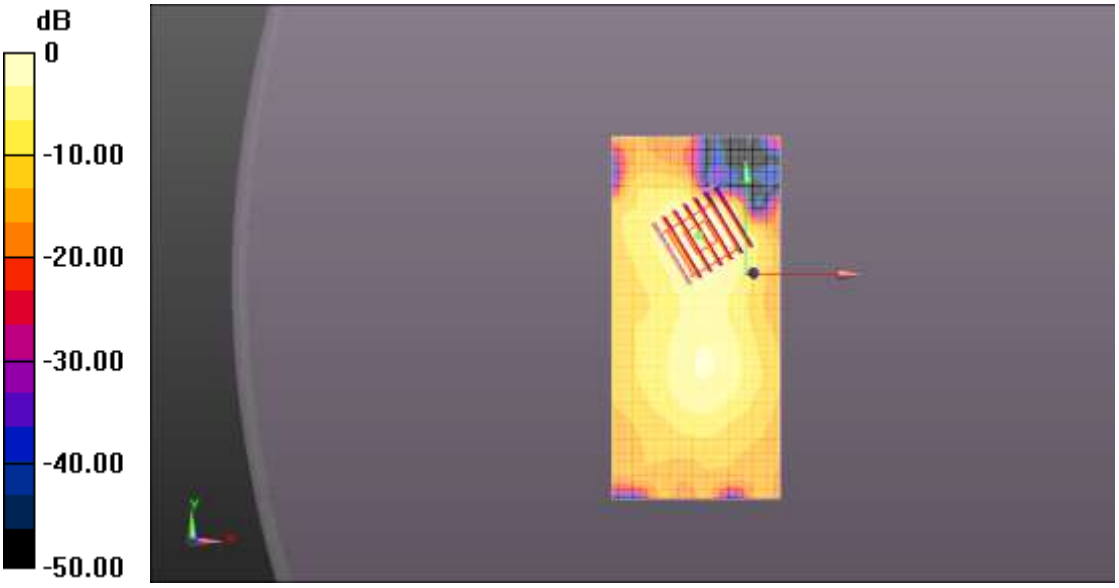
Wi-Fi 802.11b Date Rate：1Mbps right side mid

Date/Time: 05/11/2012 11:57:32
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side mid/Area Scan (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0755 mW/g

body2/right side mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.646 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.134 mW/g
SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.0711 mW/g



0 dB = 0.0755 mW/g = -22.44 dB mW/g

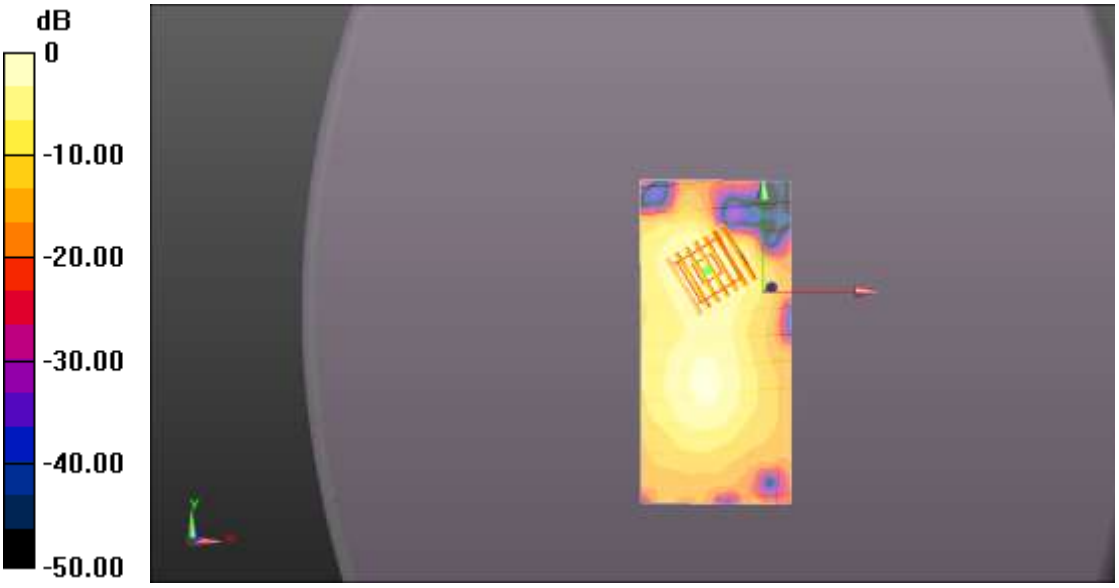
Wi-Fi 802.11b Date Rate：1Mbps right side low

Date/Time: 05/11/2012 14:20:02
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2412 MHz; σ = 1.874 mho/m; ε_r = 51.963; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side low/Area Scan (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0625 mW/g

body2/right side low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.758 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.113 mW/g
SAR(1 g) = 0.054 mW/g; SAR(10 g) = 0.025 mW/g
Maximum value of SAR (measured) = 0.0606 mW/g



0 dB = 0.0625 mW/g = -24.08 dB mW/g

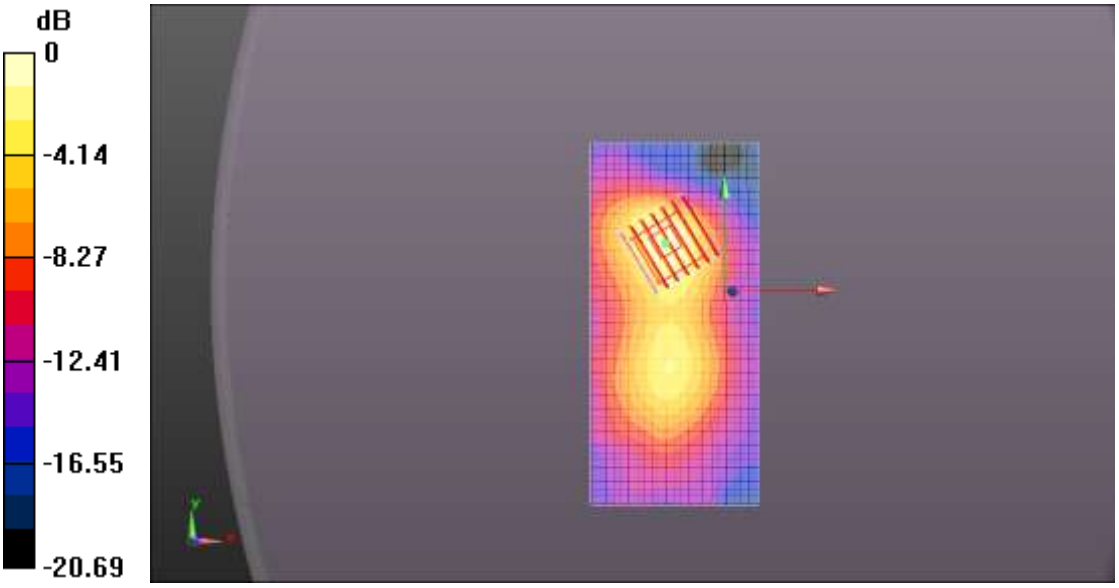
Wi-Fi 802.11b Date Rate：1Mbps right side high

Date/Time: 05/11/2012 14:50:20
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.934 mho/m; ε_r = 51.886; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

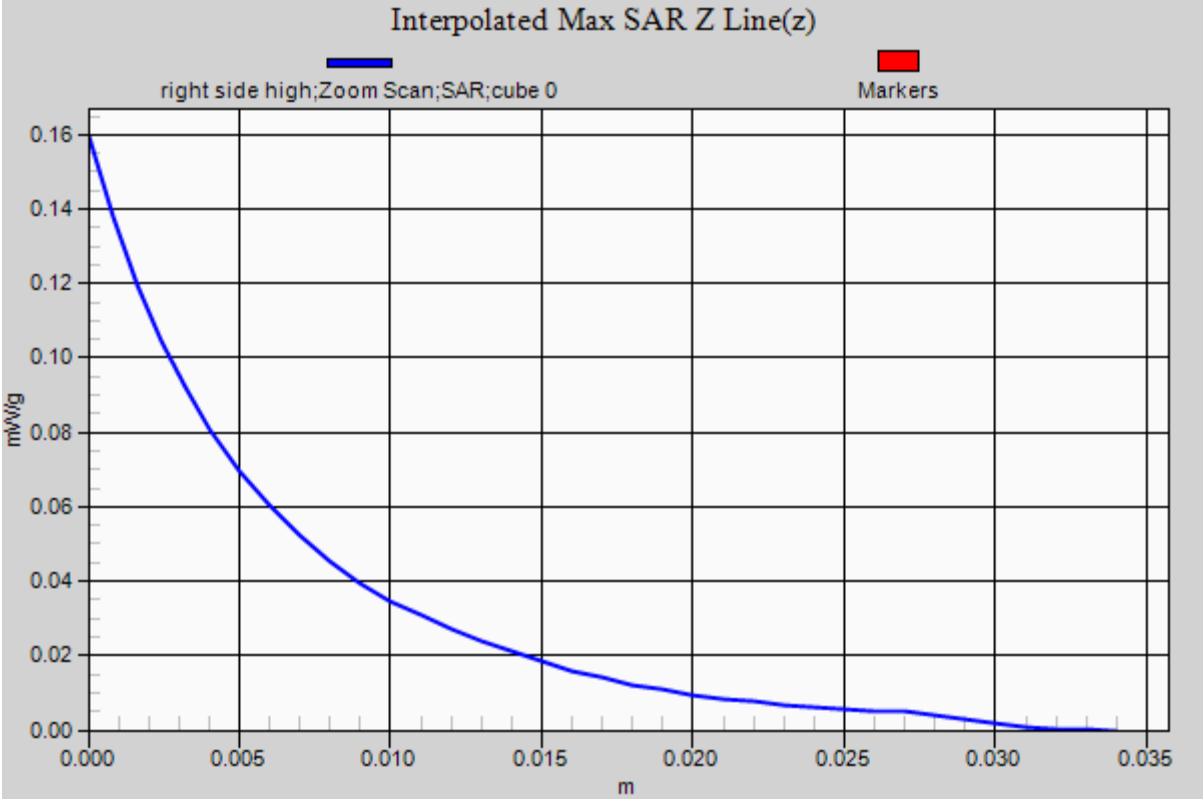
- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side high/Area Scan (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0874 mW/g

body2/right side high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.510 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.159 mW/g
SAR(1 g) = 0.073 mW/g; SAR(10 g) = 0.035 mW/g
Maximum value of SAR (measured) = 0.0808 mW/g



0 dB = 0.0874 mW/g = -21.17 dB mW/g


Interpolated Max SAR Z Line(z)
right side high;Zoom Scan;SAR;cube 0
Markers
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

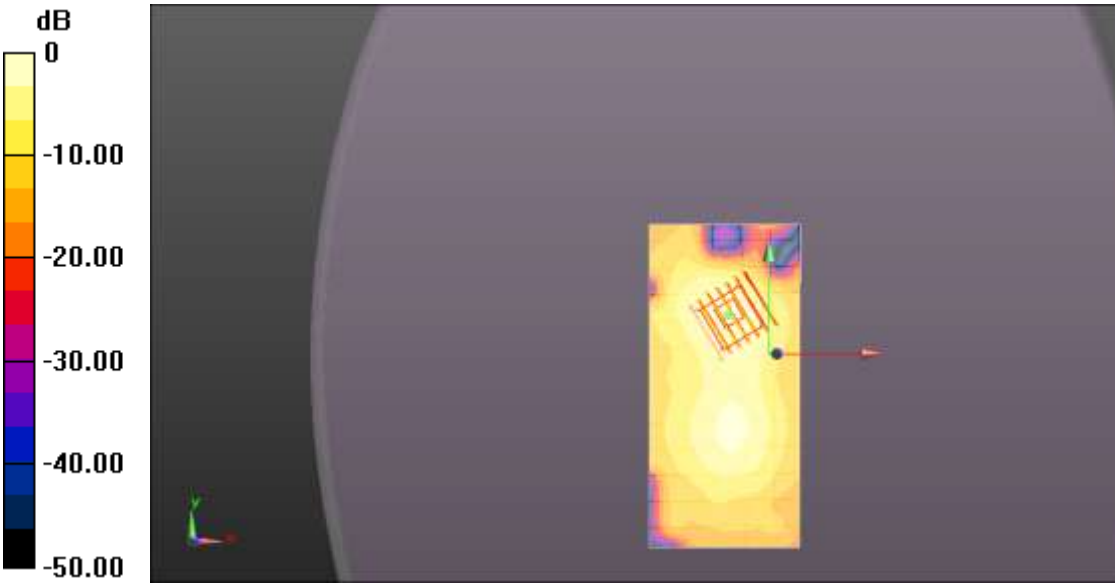
Wi-Fi 802.11g Date Rate：6Mbps right side high

Date/Time: 05/11/2012 15:24:01
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.934 mho/m; ε_r = 51.886; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side high with g/Area Scan (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0521 mW/g

body2/right side high with g/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.052 V/m; Power Drift = 0.26 dB
Peak SAR (extrapolated) = 0.101 mW/g
SAR(1 g) = 0.046 mW/g; SAR(10 g) = 0.021 mW/g
Maximum value of SAR (measured) = 0.0514 mW/g



0 dB = 0.0521 mW/g = -25.66 dB mW/g

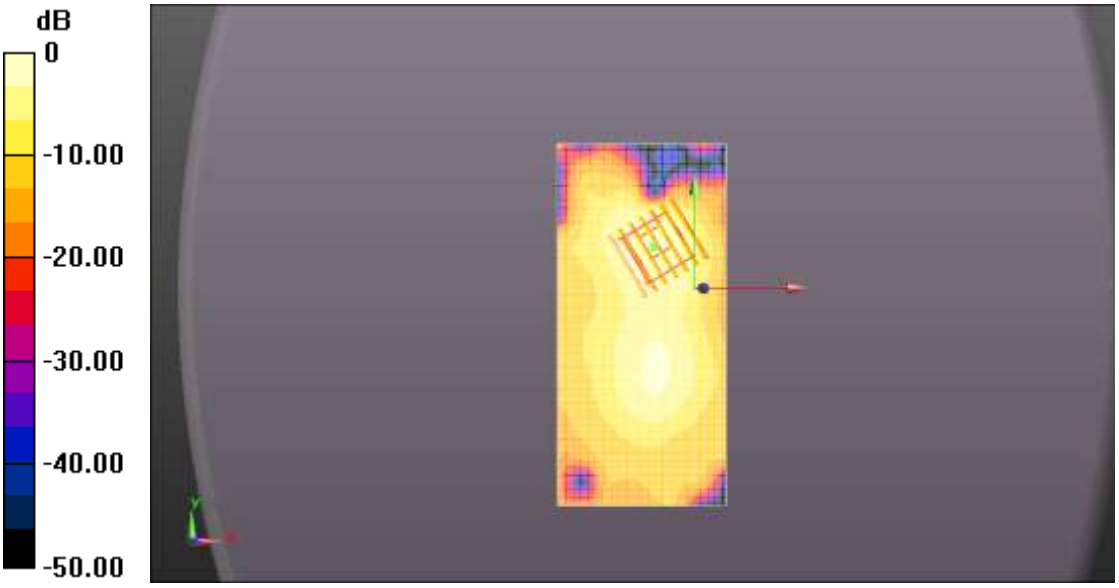
Wi-Fi 802.11n(20MHz) Date Rate：6.5Mbps right side high

Date/Time: 05/11/2012 15:56:00
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.934 mho/m; ε_r = 51.886; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side high with n/Area Scan (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0565 mW/g

body2/right side high with n/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.054 V/m; Power Drift = 0.24 dB
Peak SAR (extrapolated) = 0.106 mW/g
SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.0541 mW/g



0 dB = 0.0565 mW/g = -24.96 dB mW/g

Wi-Fi 802.11n(40MHz) Date Rate：13Mbps right side high

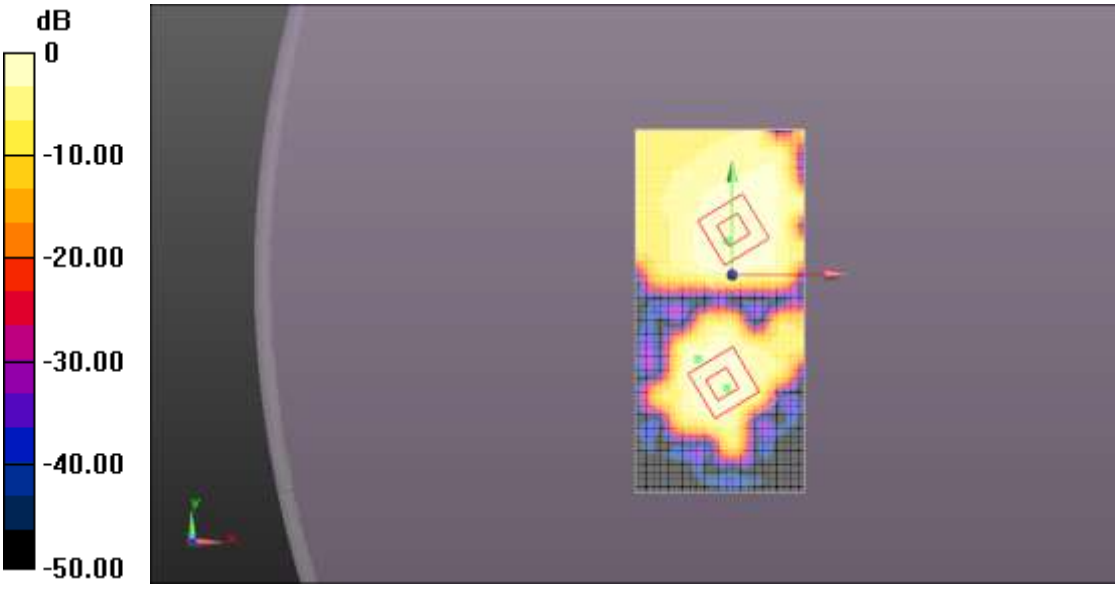
Date/Time: 05/11/2012 16:40:35
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.934 mho/m; ε_r = 51.886; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65C)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side high with n 40MHz/Area Scan (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0105 mW/g

body2/right side high with n 40MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.026 V/m; Power Drift = -0.29 dB
Peak SAR (extrapolated) = 0.019 mW/g
SAR(1 g) = 0.00982 mW/g; SAR(10 g) = 0.00514 mW/g
Maximum value of SAR (measured) = 0.0109 mW/g

body2/right side high with n 40MHz/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.026 V/m; Power Drift = -0.29 dB
Peak SAR (extrapolated) = 0.019 mW/g
SAR(1 g) = 0.00795 mW/g; SAR(10 g) = 0.00358 mW/g
Maximum value of SAR (measured) = 0.00949 mW/g



0 dB = 0.0105 mW/g = -39.57 dB mW/g

ANNEX C: Calibration Certificate

Annex C.1 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 Tejet (Auden)

Certificate No: ES3-3297_Apr12

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3297

Calibration procedure(s) QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: April 10, 2012

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	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: April 10, 2012

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) Accreditation No.: **SCS 108**
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
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
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 affect 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *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 ES3DV3

SN:3297

Manufactured: July 6, 2010
Calibrated: April 10, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.16	1.08	1.16	± 10.1 %
DCP (mV)[B]	103.8	109.8	104.8	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	109.5	±2.7 %
			Y	0.00	0.00	1.00	107.5	
			Z	0.00	0.00	1.00	111.6	

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 Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	6.62	6.62	6.62	0.80	1.12	± 12.0 %
835	41.5	0.90	6.36	6.36	6.36	0.31	1.83	± 12.0 %
900	41.5	0.97	6.24	6.24	6.24	0.35	1.75	± 12.0 %
1750	40.1	1.37	5.73	5.73	5.73	0.80	1.18	± 12.0 %
1950	40.0	1.40	5.10	5.10	5.10	0.80	1.22	± 12.0 %
2450	39.2	1.80	4.59	4.59	4.59	0.80	1.25	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	6.33	6.33	6.33	0.25	2.18	± 12.0 %
835	55.2	0.97	6.24	6.24	6.24	0.52	1.48	± 12.0 %
900	55.0	1.05	6.21	6.21	6.21	0.57	1.39	± 12.0 %
1750	53.4	1.49	5.02	5.02	5.02	0.47	1.71	± 12.0 %
1950	53.3	1.52	4.88	4.88	4.88	0.71	1.37	± 12.0 %
2450	52.7	1.95	4.34	4.34	4.34	0.80	1.03	± 12.0 %

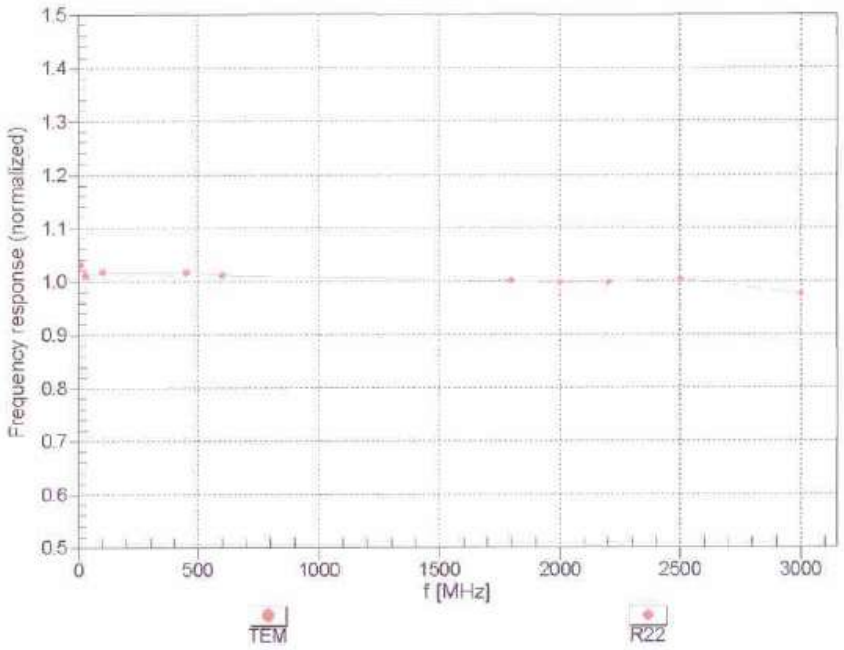
[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

ES3DV3– SN:3297

April 10, 2012

Frequency Response of E-Field

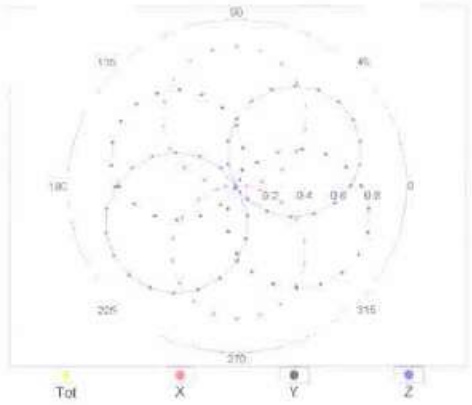
(TEM-Cell:ifi110 EXX, Waveguide: R22)



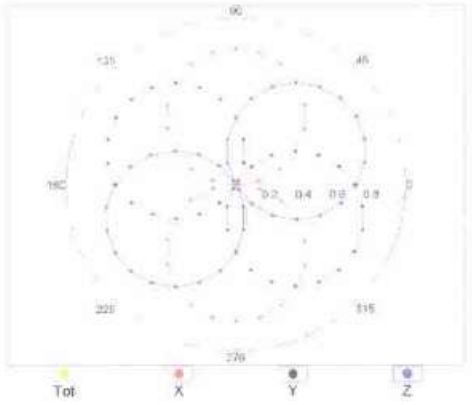
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

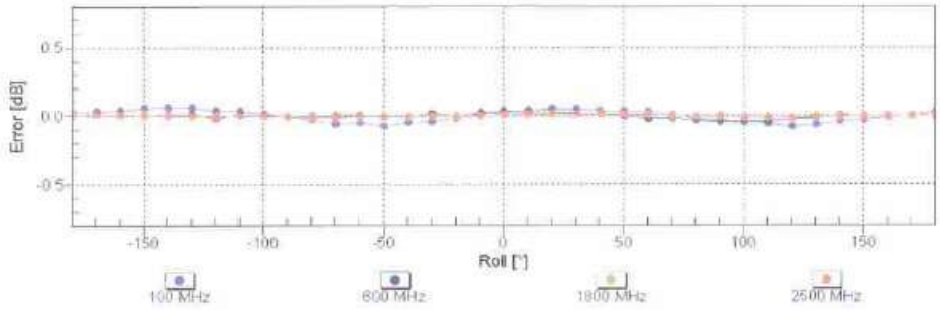
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

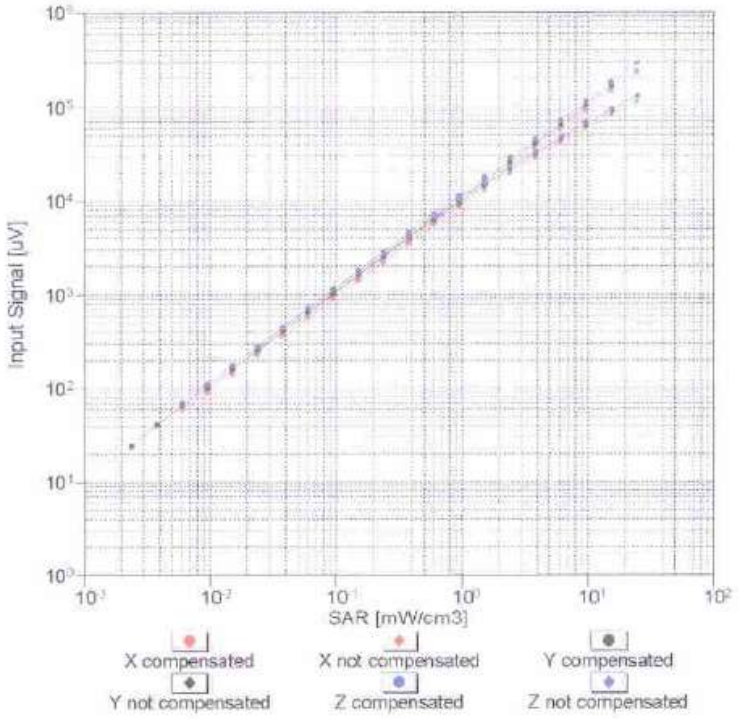


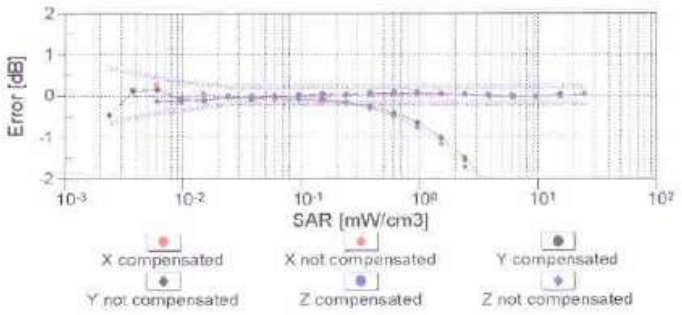


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ES3DV3– SN:3297 April 10, 2012

Dynamic Range f(SAR$_{head}$)
(TEM cell , f = 900 MHz)



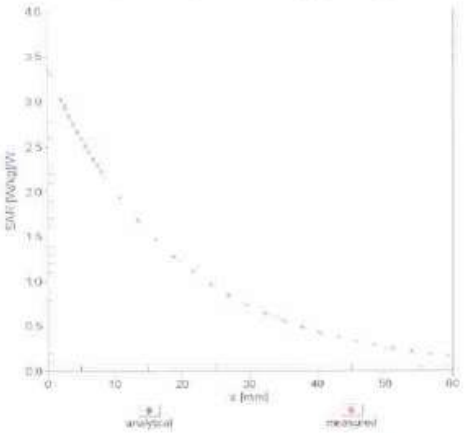


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

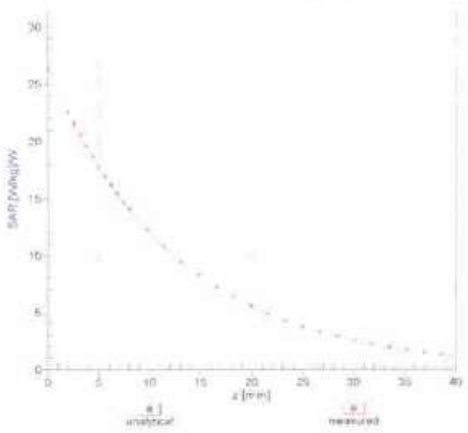
ES3DV3- SN:3297 April 10, 2012

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

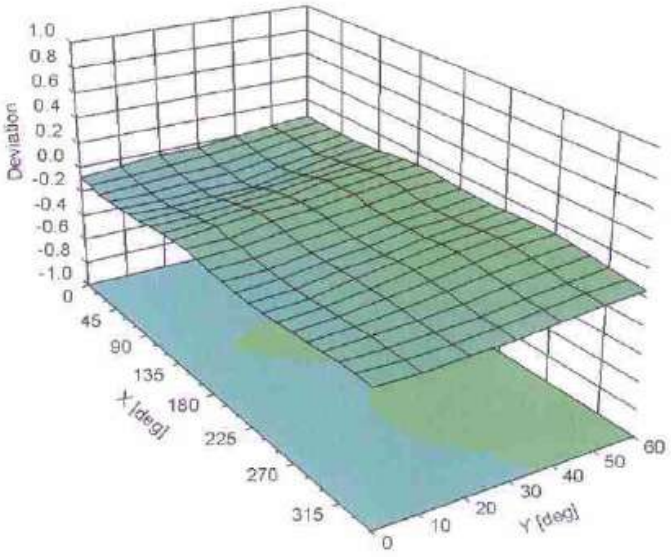


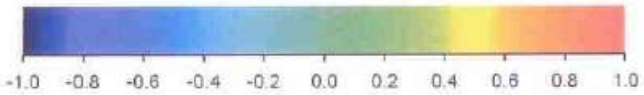
f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

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Accreditation No.: SCS 108

Client **Tejet-SH (Auden)** Certificate No: **ES3-3241_Aug12**

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3241

Calibration procedure(s) QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: August 31, 2012

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	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	20-Jun-12 (No. DAE4-660_Jun12)	Jun-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: September 3, 2012

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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
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
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 affect 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *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 ES3DV3

SN:3241

Manufactured: May 5, 2009
Calibrated: August 31, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.17	0.86	1.04	± 10.1 %
DCP (mV)[B]	103.8	105.4	104.3	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
0	CW	0.00	X	0.00	0.00	1.00	151.6	±3.3 %
			Y	0.00	0.00	1.00	128.8	
			Z	0.00	0.00	1.00	140.7	

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 Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	41.5	0.90	6.21	6.21	6.21	0.63	1.30	± 12.0 %
900	41.5	0.97	6.14	6.14	6.14	0.35	1.71	± 12.0 %
1750	40.1	1.37	5.33	5.33	5.33	0.49	1.44	± 12.0 %
1810	40.0	1.40	5.18	5.18	5.18	0.77	1.20	± 12.0 %
1900	40.0	1.40	5.12	5.12	5.12	0.64	1.27	± 12.0 %
2000	40.0	1.40	5.05	5.05	5.05	0.80	1.19	± 12.0 %
2450	39.2	1.80	4.45	4.45	4.45	0.65	1.39	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

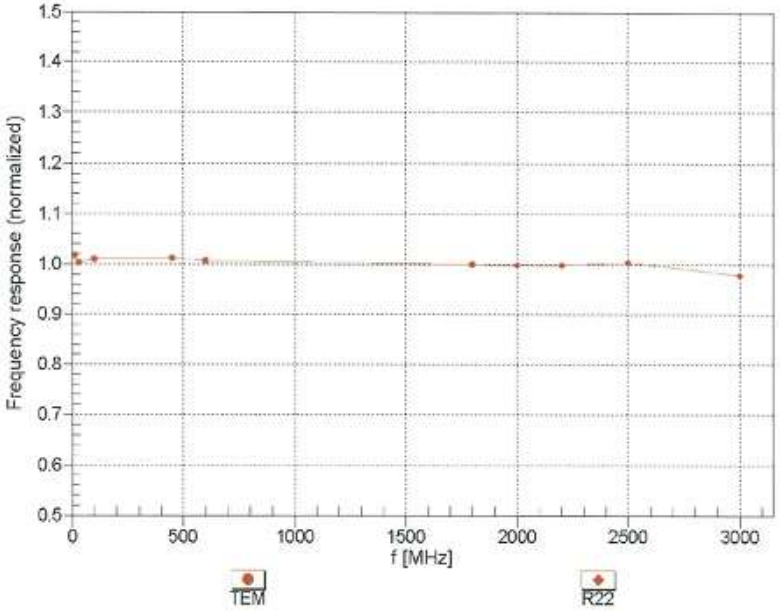
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	6.25	6.25	6.25	0.44	1.54	± 12.0 %
900	55.0	1.05	6.19	6.19	6.19	0.80	1.13	± 12.0 %
1750	53.4	1.49	5.05	5.05	5.05	0.48	1.69	± 12.0 %
1810	53.3	1.52	4.86	4.86	4.86	0.64	1.42	± 12.0 %
1900	53.3	1.52	4.66	4.66	4.66	0.51	1.66	± 12.0 %
2000	53.3	1.52	4.70	4.70	4.70	0.51	1.66	± 12.0 %
2450	52.7	1.95	4.20	4.20	4.20	0.74	1.06	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

ES3DV3– SN:3241 August 31, 2012

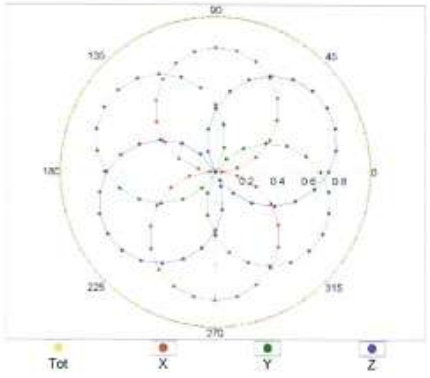
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



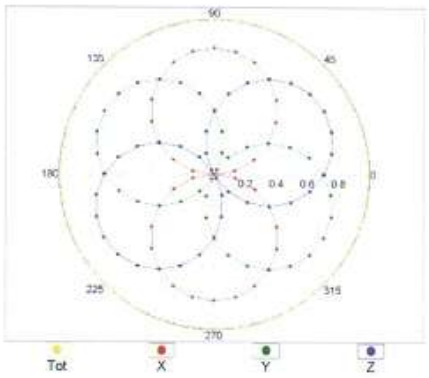
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

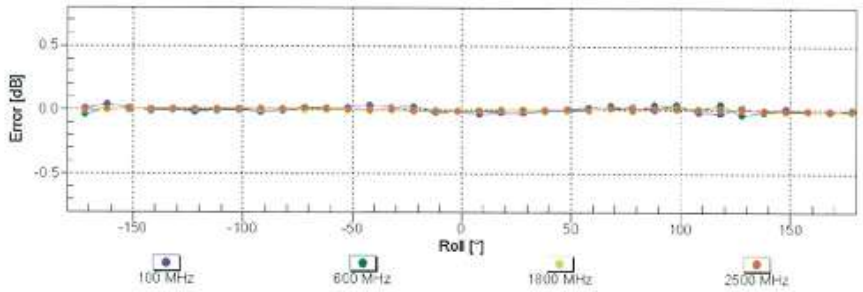
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



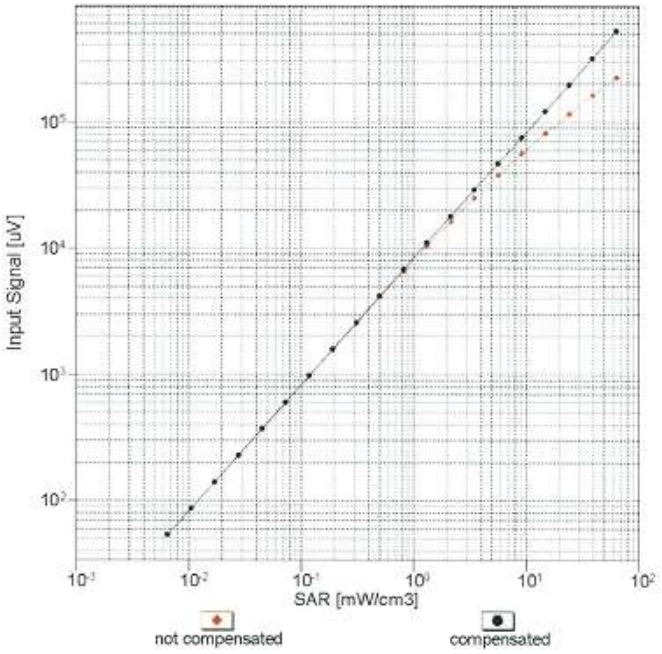
f=1800 MHz,R22

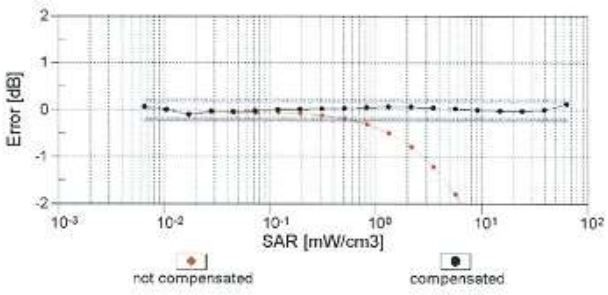




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f = 900 MHz)



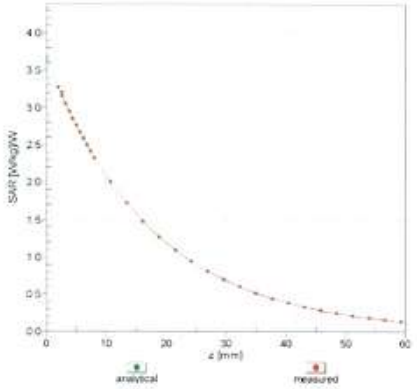


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

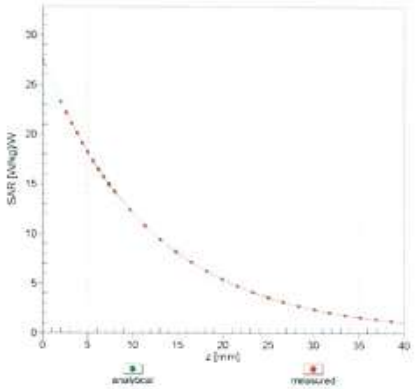
ES3DV3– SN:3241 August 31, 2012

Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

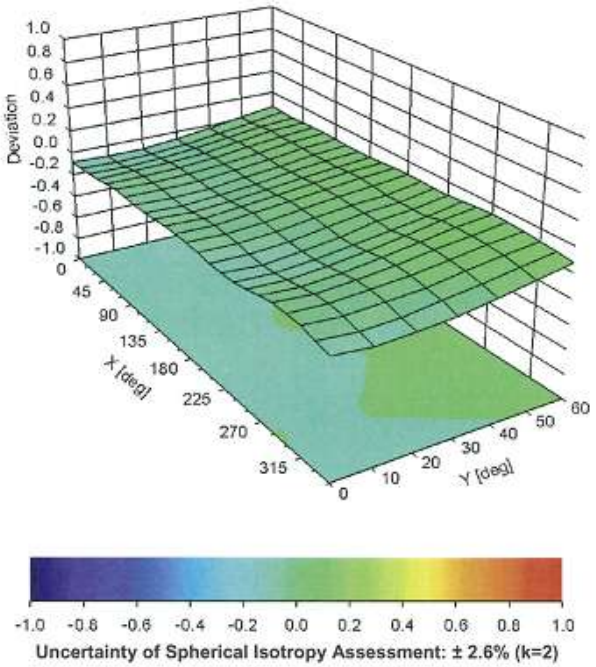


f = 1810 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	148.1
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Annex C.2 DAE4 Calibration Certificate

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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client: Tejet (Auden)

Certificate No: DAE4-1327_Apr12

CALIBRATION CERTIFICATE

Object: DAE4 - SD 000 D04 BJ - SN: 1327

Calibration procedure(s): QA CAL-06.v24
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: April 11, 2012

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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

	Name	Function	Signature
Calibrated by:	Andrea Guntli	Technician	
Approved by:	Fin Bomholt	R&D Director	i.V.

Issued: April 11, 2012

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Zeughausstrasse 43, 8004 Zurich, Switzerland

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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:* Typical value for information: 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	404.849 ± 0.1% (k=2)	404.696 ± 0.1% (k=2)	404.897 ± 0.1% (k=2)
Low Range	3.99410 ± 0.7% (k=2)	3.99326 ± 0.7% (k=2)	3.99970 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	186.5 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199996.73	2.35	0.00
Channel X	+ Input	20001.32	1.56	0.01
Channel X	- Input	-19998.20	2.53	-0.01
Channel Y	+ Input	199998.58	3.98	0.00
Channel Y	+ Input	19997.38	-2.07	-0.01
Channel Y	- Input	-20001.91	-0.93	0.00
Channel Z	+ Input	199993.82	-0.25	-0.00
Channel Z	+ Input	19998.97	-0.56	-0.00
Channel Z	- Input	-20001.68	-0.52	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.53	1.29	0.06
Channel X	+ Input	199.90	-0.79	-0.39
Channel X	- Input	-199.12	-0.00	0.00
Channel Y	+ Input	2002.17	2.03	0.10
Channel Y	+ Input	201.07	0.47	0.23
Channel Y	- Input	-200.44	-1.22	0.61
Channel Z	+ Input	2000.26	0.05	0.00
Channel Z	+ Input	199.53	-1.09	-0.54
Channel Z	- Input	-199.89	-0.77	0.39

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	-1.44	-3.17
	- 200	5.42	3.57
Channel Y	200	14.80	14.53
	- 200	-16.24	-16.38
Channel Z	200	-10.48	-10.35
	- 200	8.13	7.97

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	-	-4.80	-1.45
Channel Y	200	8.78	-	-3.61
Channel Z	200	9.48	8.95	-

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	16013	15974
Channel Y	16276	15957
Channel Z	15628	16228

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	0.76	-0.80	2.17	0.57
Channel Y	1.11	-0.19	2.66	0.57
Channel Z	-0.96	-2.45	0.94	0.71

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

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

9. Power Consumption (Typical values for information)

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

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Accreditation No.: SCS 108

Client Tejet - SH (Auden)

Certificate No: DAE4-1226_Sep12

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 1226
Calibration procedure(s)	QA CAL-06.v25 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	September 03, 2012

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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

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

Issued: September 3, 2012

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

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:* Typical value for information: 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	404.563 ± 0.1% (k=2)	404.323 ± 0.1% (k=2)	404.060 ± 0.1% (k=2)
Low Range	3.97790 ± 0.7% (k=2)	4.00200 ± 0.7% (k=2)	3.98452 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	112.5 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199994.13	-3.29	-0.00
Channel X	+ Input	20002.22	1.79	0.01
Channel X	- Input	-20000.19	0.57	-0.00
Channel Y	+ Input	199999.11	1.45	0.00
Channel Y	+ Input	19999.27	-1.16	-0.01
Channel Y	- Input	-20000.21	0.66	-0.00
Channel Z	+ Input	199996.04	-1.66	-0.00
Channel Z	+ Input	20000.92	0.53	0.00
Channel Z	- Input	-20003.29	-2.46	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.97	0.21	0.01
Channel X	+ Input	200.76	-0.56	-0.28
Channel X	- Input	-198.41	0.28	-0.14
Channel Y	+ Input	2000.82	0.08	0.00
Channel Y	+ Input	200.79	-0.40	-0.20
Channel Y	- Input	-199.07	-0.35	0.18
Channel Z	+ Input	2000.85	0.25	0.01
Channel Z	+ Input	200.61	-0.52	-0.26
Channel Z	- Input	-200.16	-1.36	0.69

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	4.31	2.87
	- 200	-2.40	-4.30
Channel Y	200	-9.84	-9.31
	- 200	8.85	8.15
Channel Z	200	-7.59	-7.99
	- 200	5.93	6.05

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	-	2.88	-3.94
Channel Y	200	7.98	-	4.29
Channel Z	200	9.60	6.52	-

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	16070	16317
Channel Y	15890	16765
Channel Z	15996	15080

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	0.65	-1.14	2.07	0.52
Channel Y	-0.27	-2.18	0.71	0.45
Channel Z	-0.49	-1.86	0.44	0.42

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

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

9. Power Consumption (Typical values for information)

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

Annex C.3 D835V2 Calibration Certificate

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

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Accreditation No.: SCS 108

Client Tejet-SH (Auden)

Certificate No: D835V2-4d100_Aug12

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d100
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 28, 2012

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	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 28, 2012

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

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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

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
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	41.3 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.33 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.31 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.53 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.12 mW /g ± 16.5 % (k=2)**

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	53.2 ± 6 %	1.00 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.46 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.54 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.62 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.33 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.0 Ω - 1.9 jΩ
Return Loss	- 29.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.6 Ω - 2.7 jΩ
Return Loss	- 31.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.392 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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	September 15, 2009

DASY5 Validation Report for Head TSL

Date: 28.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

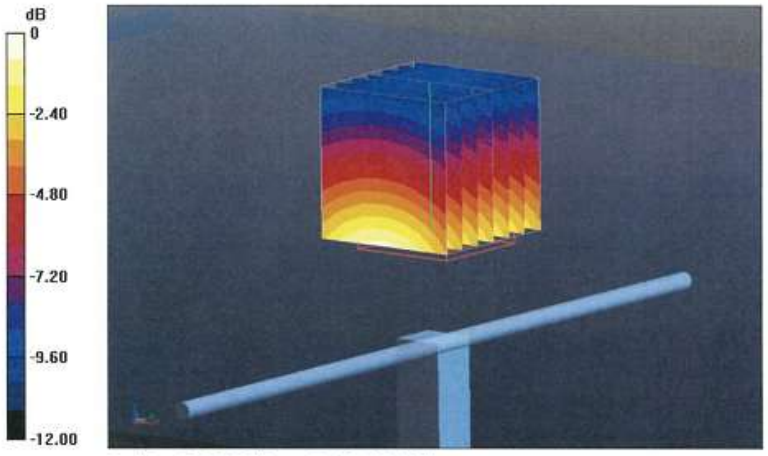
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d100

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

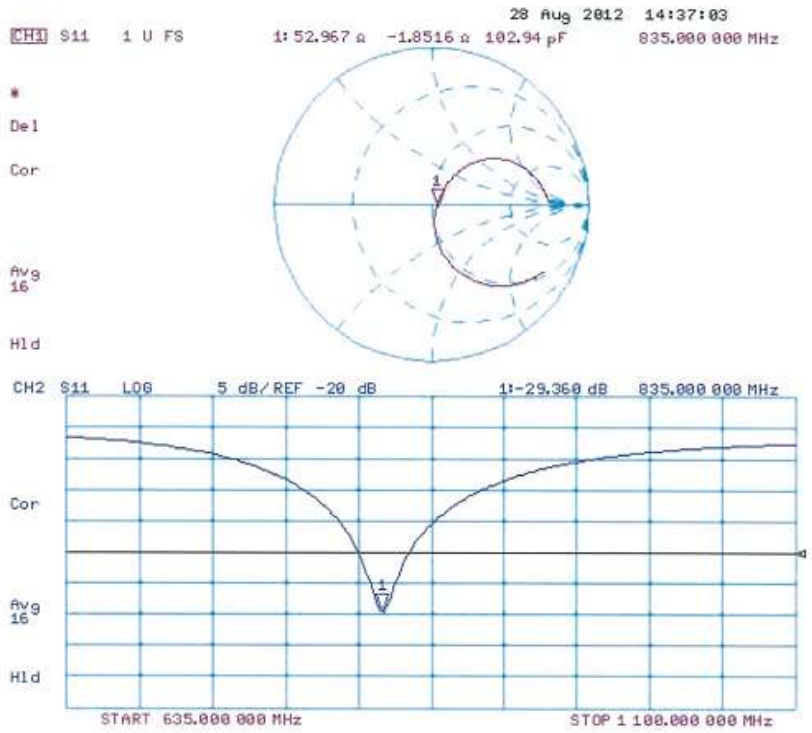
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm 2/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.666 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.441 mW/g
SAR(1 g) = 2.33 mW/g; SAR(10 g) = 1.53 mW/g
Maximum value of SAR (measured) = 2.71 W/kg



0 dB = 2.71 W/kg = 8.66 dB W/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 28.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

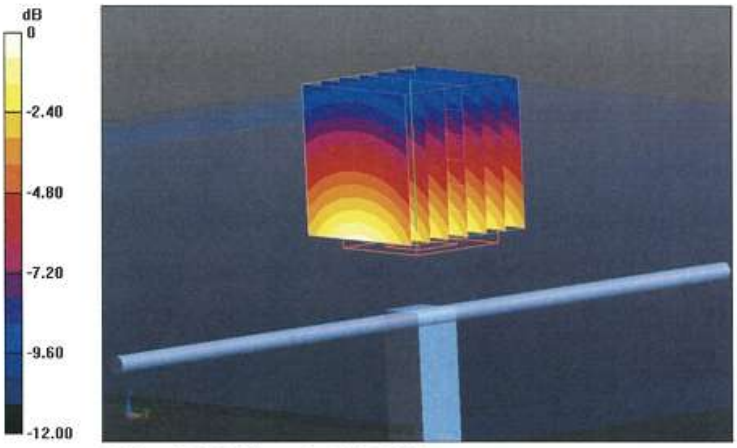
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d100

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

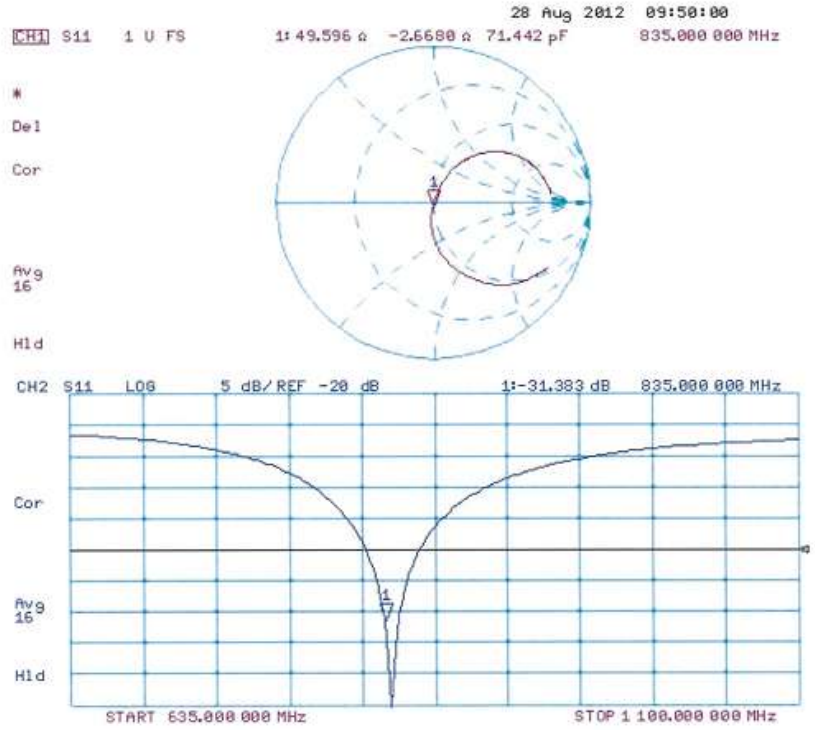
- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.606 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.576 mW/g
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.87 W/kg



0 dB = 2.87 W/kg = 9.16 dB W/kg

Impedance Measurement Plot for Body TSL



Annex C.4 D1900V2 Calibration Certificate

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

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Accreditation No.: SCS 108

Client: Tejet (Auden)

Certificate No: D1900V2-5d155_Apr12

CALIBRATION CERTIFICATE

Object: D1900V2 - SN: 5d155

Calibration procedure(s): QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: April 03, 2012

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	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: April 12, 2012

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

Certificate No: D1900V2-5d155_Apr12 Page 1 of 8

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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
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

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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
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	40.8 ± 6 %	1.37 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.65 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.3 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.09 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.6 mW /g ± 16.5 % (k=2)**

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	53.3 ± 6 %	1.51 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.2 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.3 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.3 Ω + 5.4 jΩ
Return Loss	- 24.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.7 Ω + 6.0 jΩ
Return Loss	- 24.2 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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	December 20, 2011

DASY5 Validation Report for Head TSL

Date: 03.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

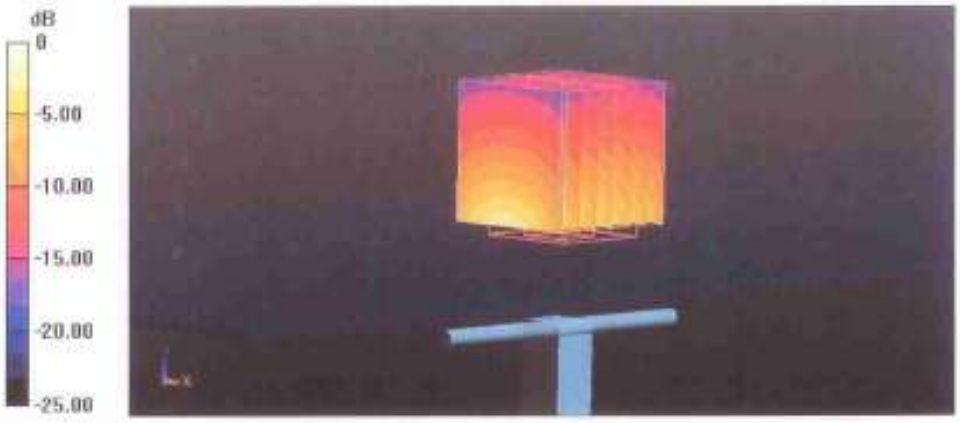
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d155

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.37 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

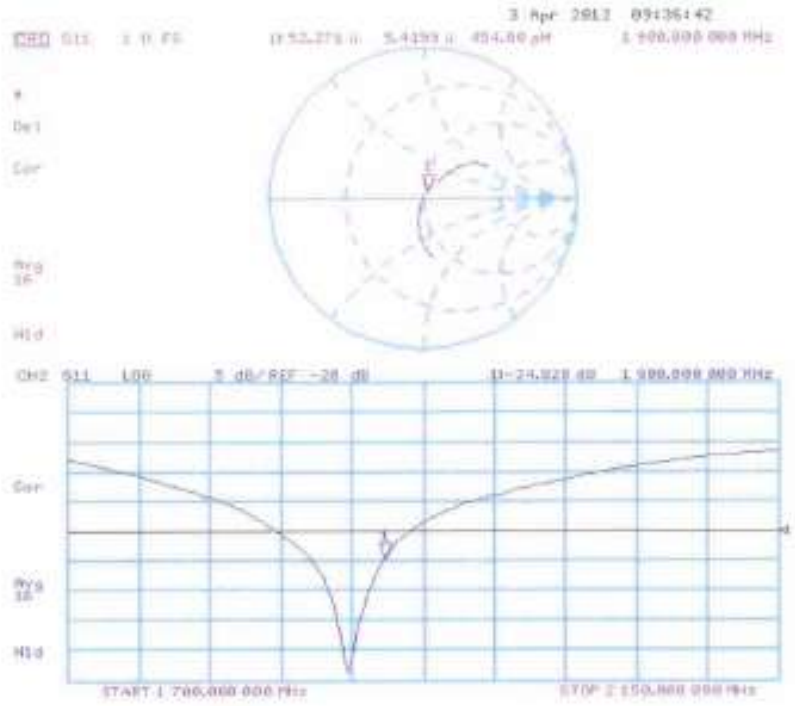
- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.442 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 17.1390
SAR(1 g) = 9.65 mW/g; SAR(10 g) = 5.09 mW/g
Maximum value of SAR (measured) = 12.105 mW/g



0 dB = 12.110mW/g = 21.66 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 03.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d155

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.51 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

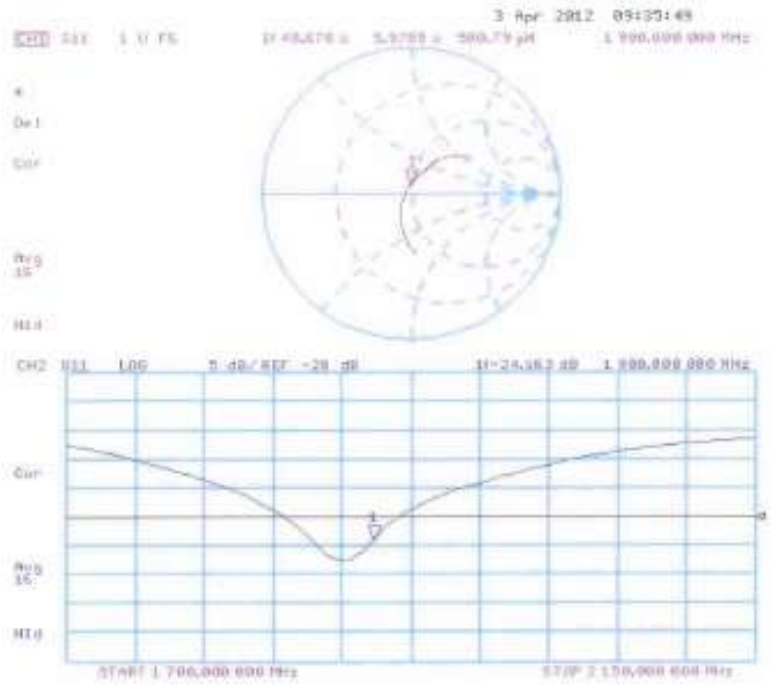
DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.405 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.4140
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.3 mW/g
Maximum value of SAR (measured) = 12.631 mW/g

0 dB = 12.630mW/g = 22.03 dB mW/g

Impedance Measurement Plot for Body TSL



Annex C.5 D2450V2 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: Tejet-SH (Auden)

Certificate No: D2450V2-845_Aug12

CALIBRATION CERTIFICATE

Object: D2450V2 - SN: 845

Calibration procedure(s): QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: August 27, 2012

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	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 28, 2012

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

Certificate No: D2450V2-845_Aug12 Page 1 of 8

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

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S Swiss Calibration Service

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

Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
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

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.

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%.

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.3 Ω + 2.6 jΩ
Return Loss	- 29.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.2 Ω + 4.6 jΩ
Return Loss	- 26.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.160 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
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	November 10, 2009

DASY5 Validation Report for Head TSL

Date: 27.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

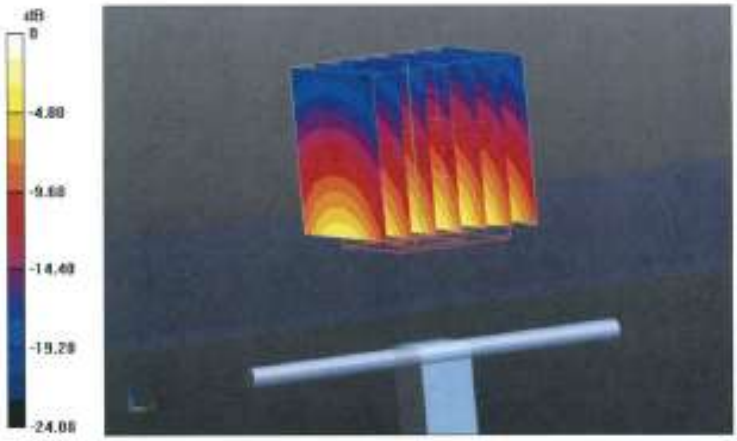
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 845

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.81 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

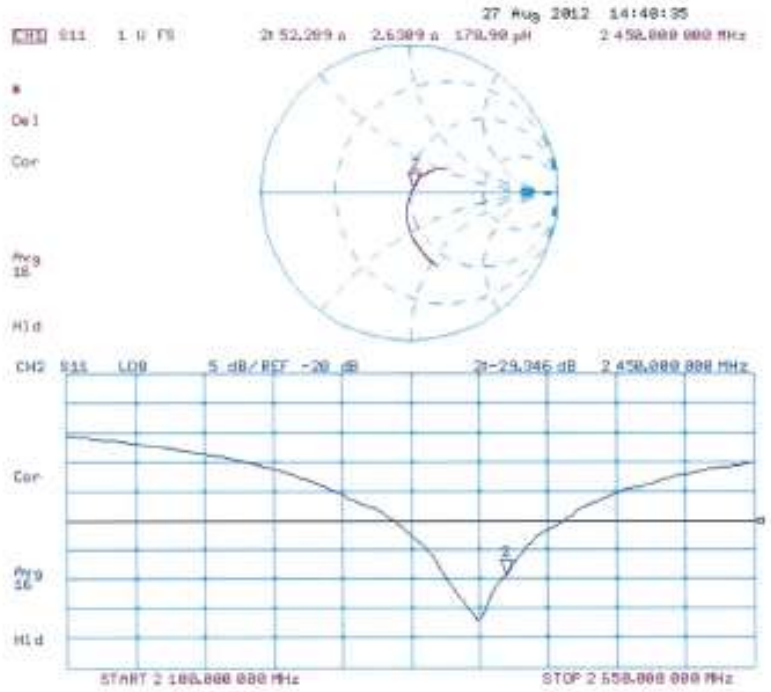
- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.5 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 27.145 mW/g
SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.24 mW/g
Maximum value of SAR (measured) = 16.9 W/kg



0 dB = 16.9 W/kg = 24.56 dB W/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 27.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

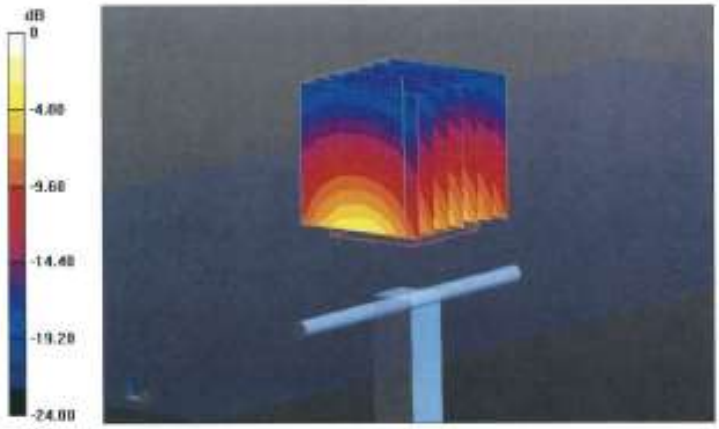
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 845

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.99 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

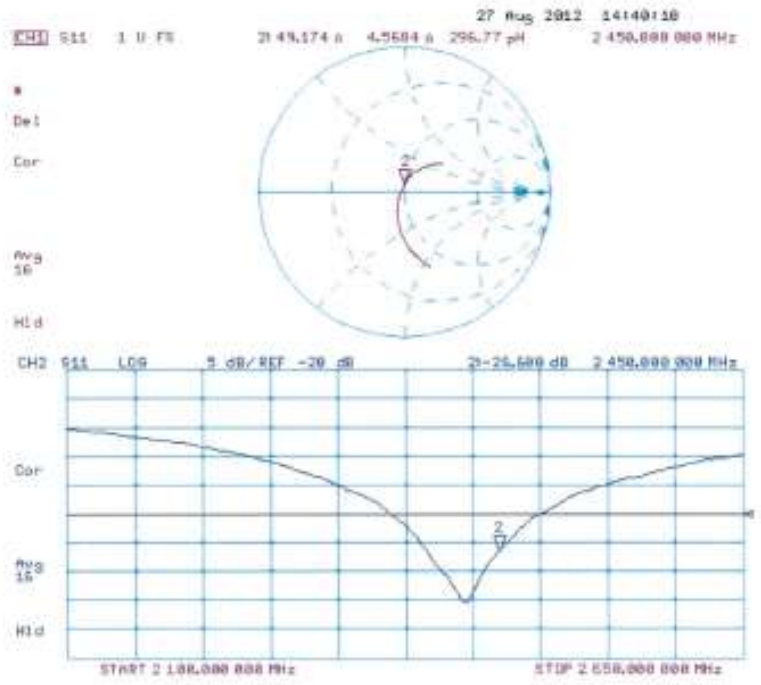
- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.080 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 26.716 mW/g
SAR(1 g) = 13.1 mW/g; SAR(10 g) = 6.11 mW/g
Maximum value of SAR (measured) = 17.1 W/kg



0 dB = 17.1 W/kg = 24.66 dB W/kg

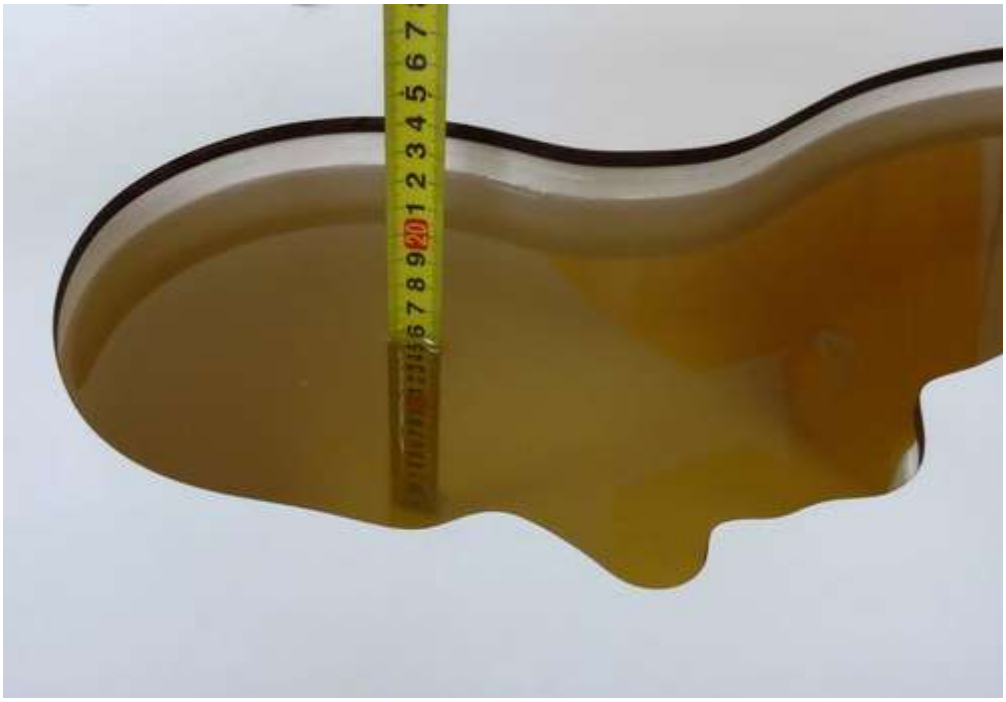
Impedance Measurement Plot for Body TSL



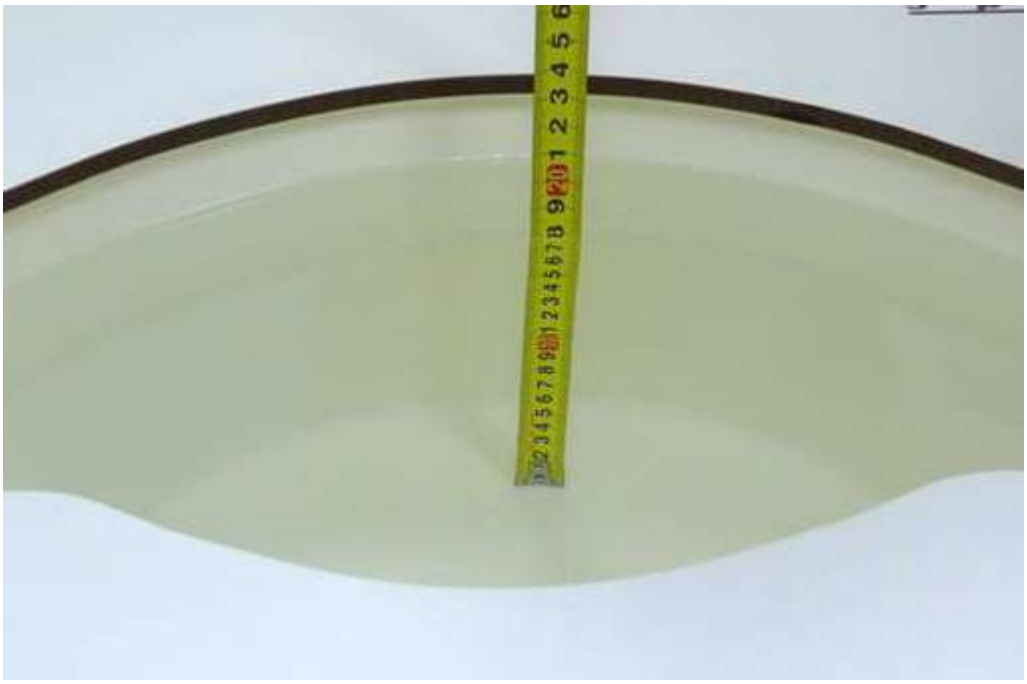
ANNEX D: Test Layout

Picture D.1: Specific Absorption Rate Test Layout

Picture D.2: Liquid depth in the flat Phantom (835MHz) (17.5cm deep)



Picture D.3: Liquid depth in the head Phantom (835MHz) (16cm deep)



Picture D.4: Liquid depth in the flat Phantom (1900 MHz) (16cm deep)

Picture D.5: liquid depth in the head Phantom (1900 MHz) (15.2cm deep)

Picture D.6: Liquid depth in the flat Phantom (2450 MHz) (18.6cm deep)

Picture D.7: liquid depth in the head Phantom (2450 MHz) (15.2cm deep)

----------END OF REPORT----------