Appendix A. Plots of System Performance Check

The plots are shown as follows.

System Check_Head_835MHz_110425

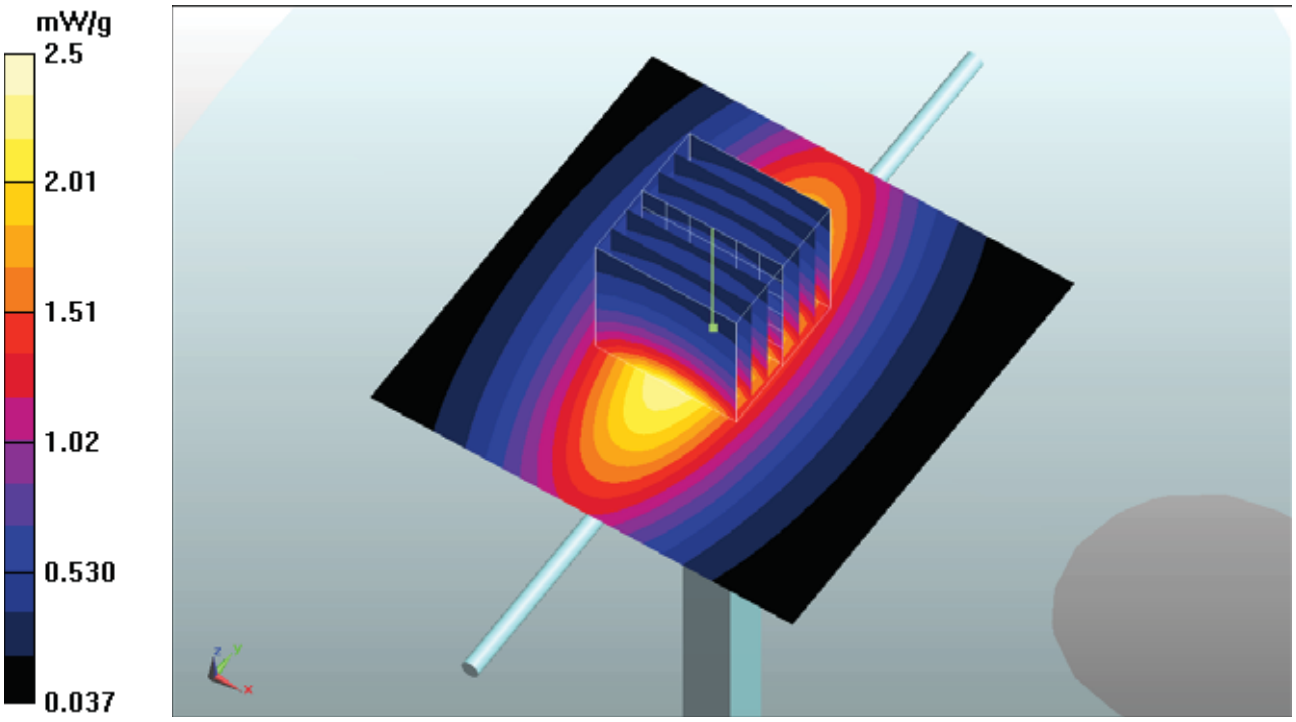
DUT: Dipole 835 MHz

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL_835_110425 Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.81, 5.81, 5.81); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.5 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.4 V/m; Power Drift = 0.0034 dB
Peak SAR (extrapolated) = 3.48 W/kg
SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.52 mW/g
Maximum value of SAR (measured) = 2.51 mW/g


mW/g
2.5
2.01
1.51
1.02
0.530
0.037

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2011-4-25

System Check_Body_835MHz_110425

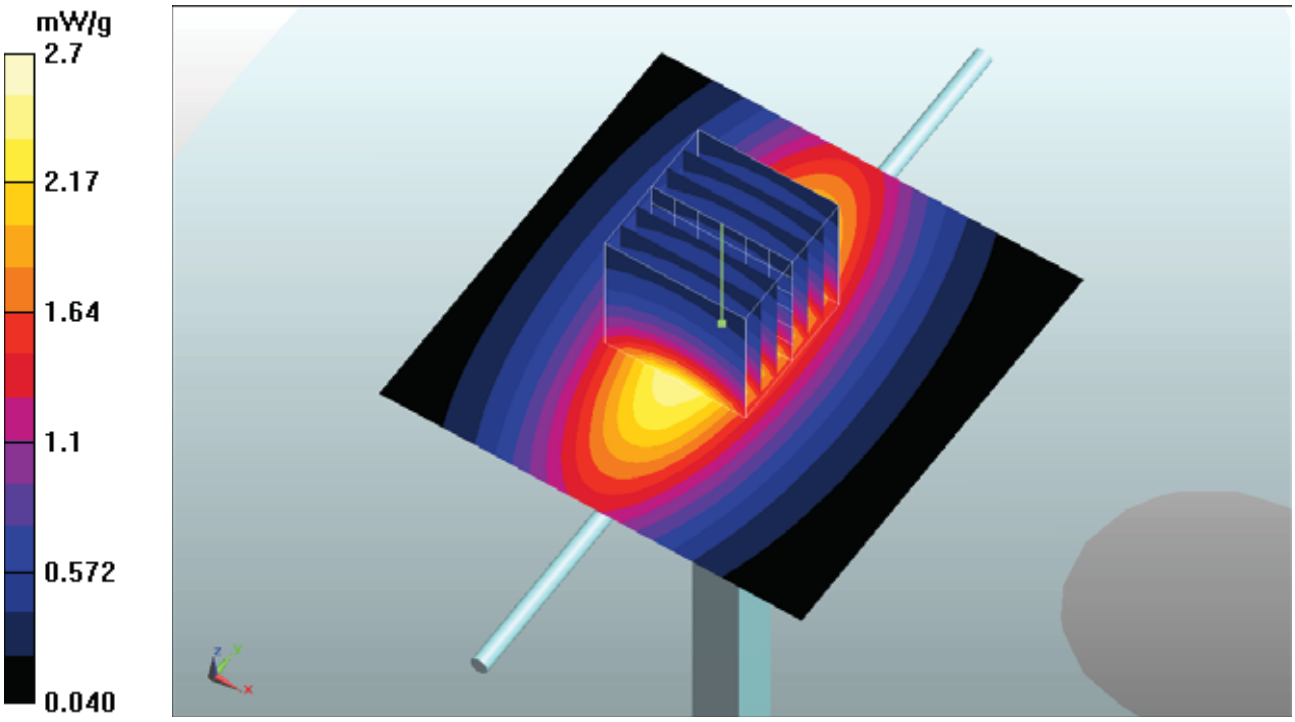
DUT: Dipole 835 MHz

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL_835_110425 Medium parameters used: f = 835 MHz; σ = 0.977 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.79, 5.79, 5.79); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.7 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.7 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 3.7 W/kg
SAR(1 g) = 2.5 mW/g; SAR(10 g) = 1.64 mW/g
Maximum value of SAR (measured) = 2.7 mW/g


mW/g
2.7
2.17
1.64
1.1
0.572
0.040

System Check_Head_1800MHz_110425

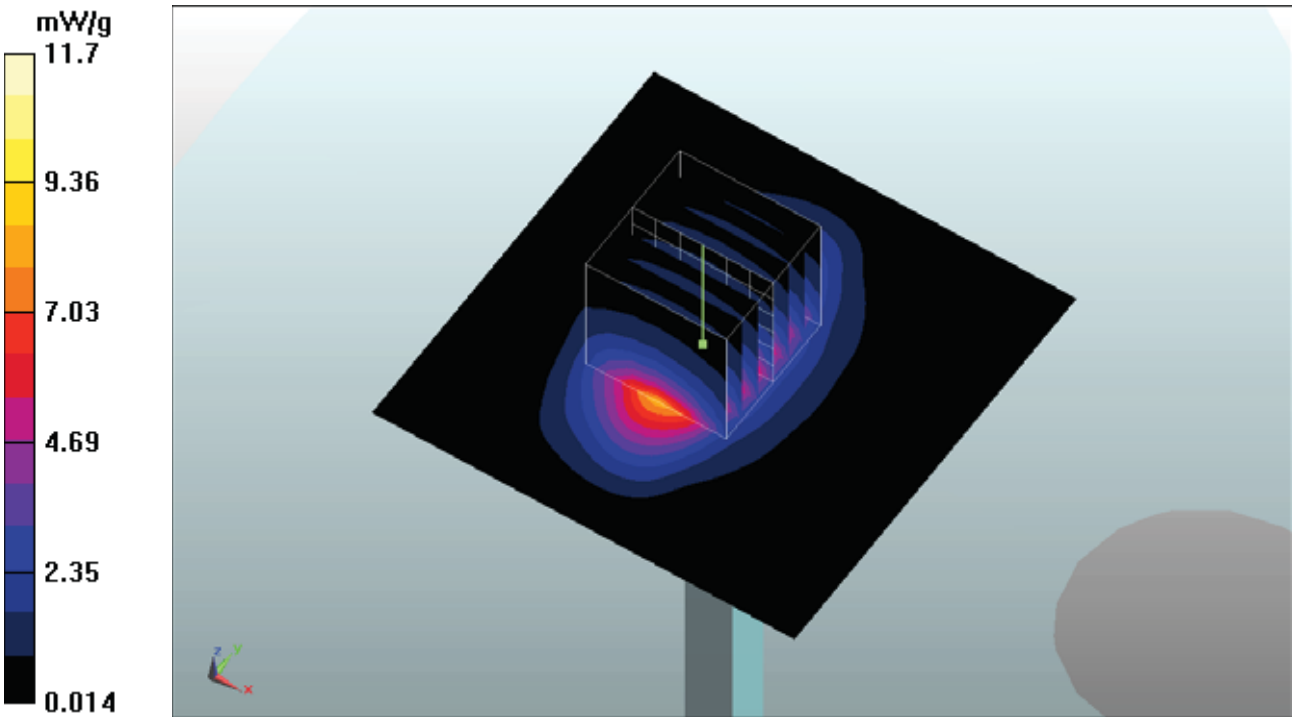
DUT: Dipole 1800 MHz

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium: HSL_1800_110425 Medium parameters used: f = 1800 MHz; σ = 1.44 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.94, 4.94, 4.94); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.7 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.4 V/m; Power Drift = 0.084 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.42 mW/g
Maximum value of SAR (measured) = 11.6 mW/g


mW/g
11.7
9.36
7.03
4.69
2.35
0.014

System Check_Body_1800MHz_110425

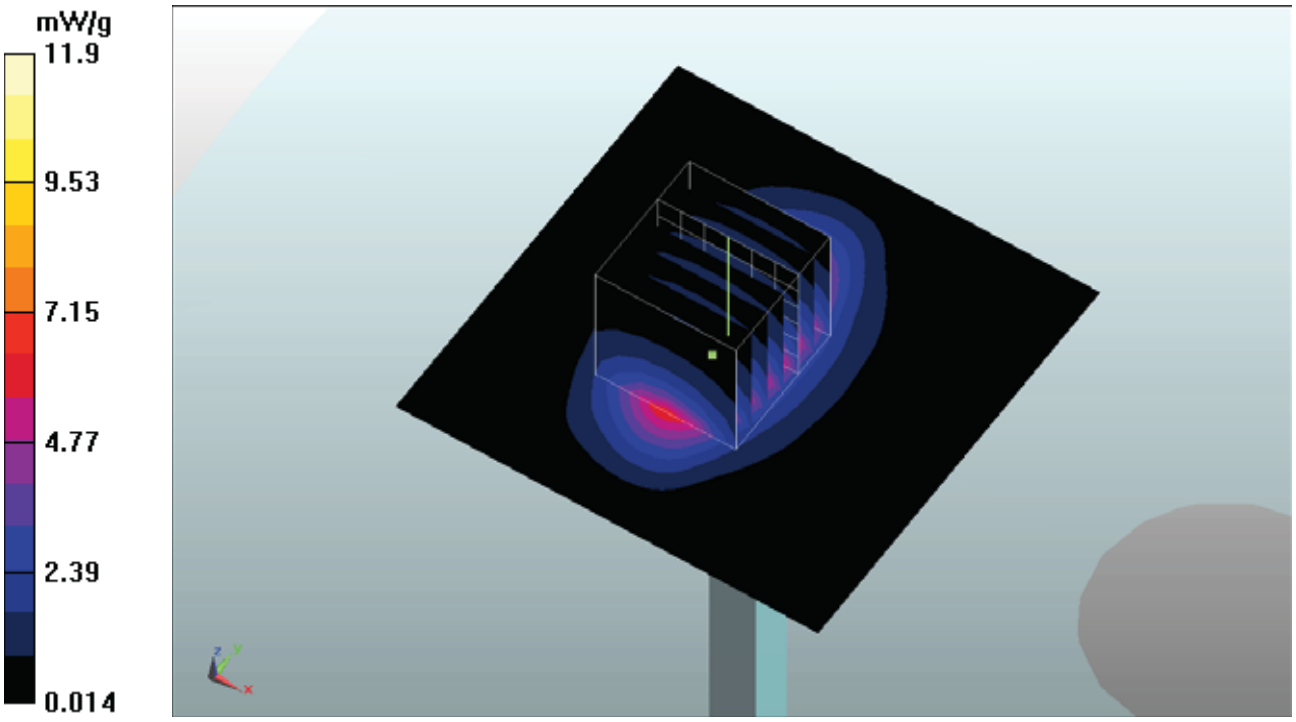
DUT: Dipole 1800 MHz

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium: MSL_1800_110425 Medium parameters used: f = 1800 MHz; σ = 1.55 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.9 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 81.8 V/m; Power Drift = 0.00273 dB
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 9.89 mW/g; SAR(10 g) = 5.24 mW/g
Maximum value of SAR (measured) = 11.2 mW/g


mW/g
11.9
9.53
7.15
4.77
2.39
0.014

System Check_Head_1900MHz_110425

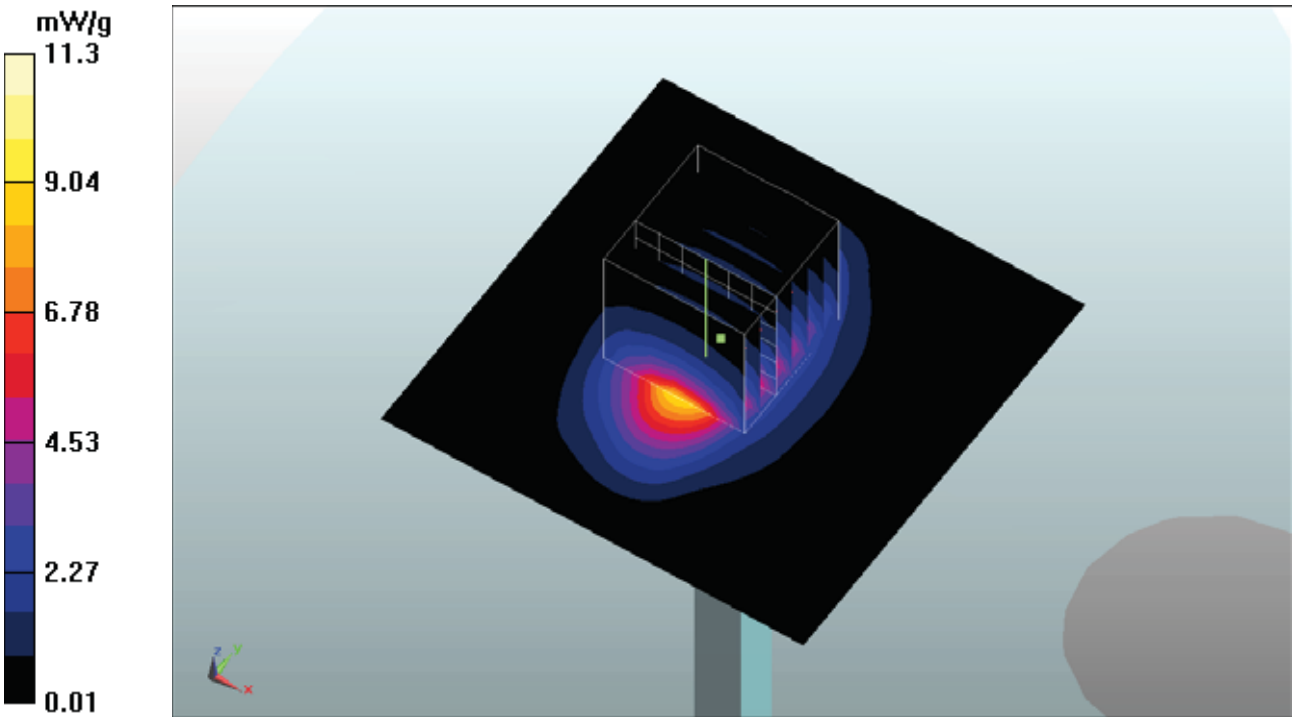
DUT: Dipole 1900 MHz

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL_1900_110425 Medium parameters used: f = 1900 MHz; σ = 1.42 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.73, 4.73, 4.73); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.3 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 84.9 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 18 W/kg
SAR(1 g) = 9.61 mW/g; SAR(10 g) = 4.96 mW/g
Maximum value of SAR (measured) = 10.8 mW/g


mW/g
11.3
9.04
6.78
4.53
2.27
0.01

System Check_Body_1900MHz_110425

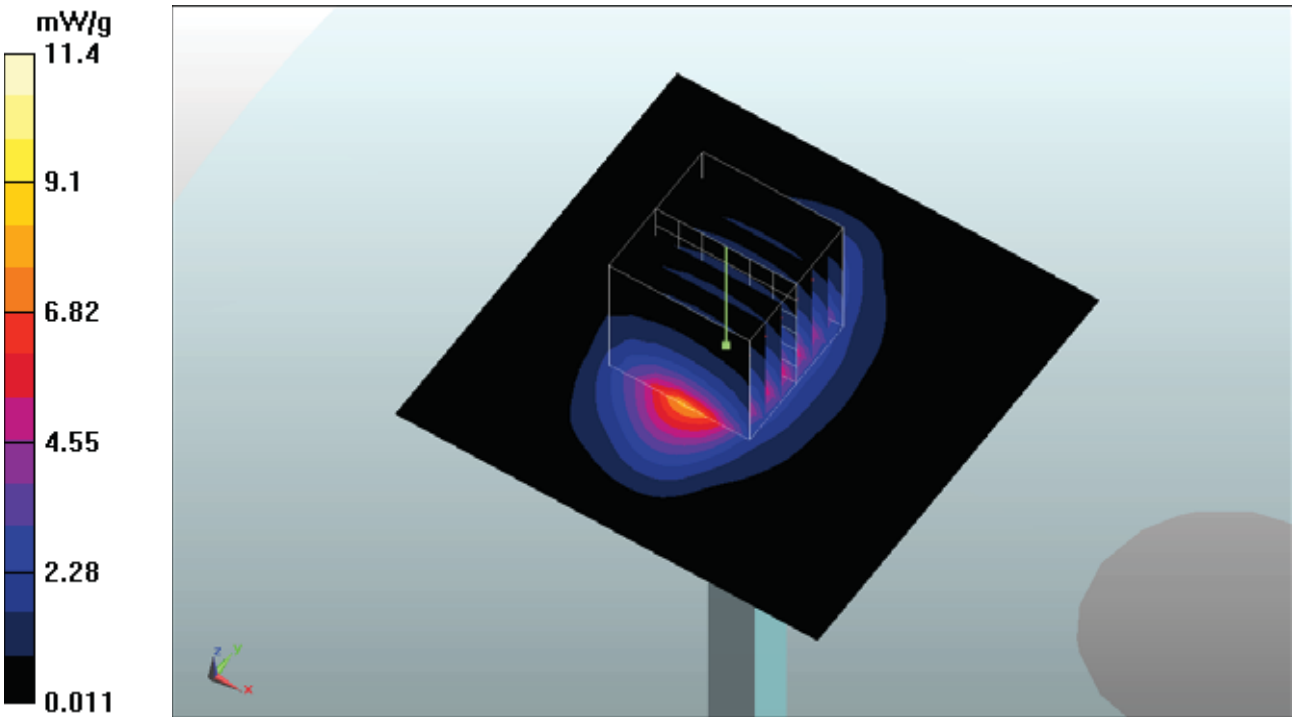
DUT: Dipole 1900 MHz

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL_1900_110425 Medium parameters used: f = 1900 MHz; σ = 1.51 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.3, 4.3, 4.3); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.4 mW/g

Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 84.8 V/m; Power Drift = 0.00563 dB
Peak SAR (extrapolated) = 17.8 W/kg
SAR(1 g) = 9.94 mW/g; SAR(10 g) = 5.18 mW/g
Maximum value of SAR (measured) = 11.3 mW/g


mW/g
11.4
9.1
6.82
4.55
2.28
0.011

Appendix B. Plots of SAR Measurement

The plots are shown as follows.

#19 CDMA2000 BC0_RC3 SO55_Right Cheek_Ch384

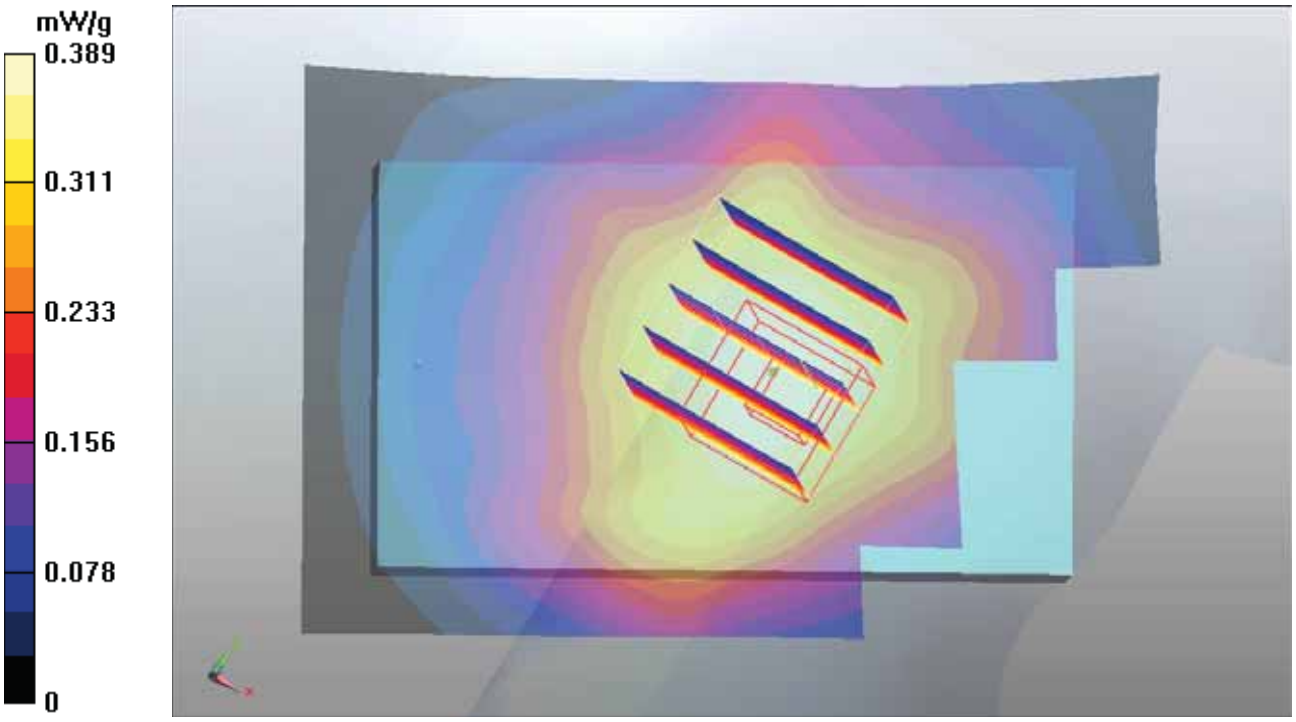
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: HSL_835_110425 Medium parameters used: f = 837 MHz; σ = 0.912 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.81, 5.81, 5.81); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.389 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.74 V/m; Power Drift = -0.077 dB
Peak SAR (extrapolated) = 0.461 W/kg
SAR(1 g) = 0.370 mW/g; SAR(10 g) = 0.283 mW/g
Maximum value of SAR (measured) = 0.384 mW/g


mW/g
0.389
0.311
0.233
0.156
0.078
0

#20 CDMA2000 BC0_RC3 SO55_Right Tilted_Ch384

DUT: 0N0601-02

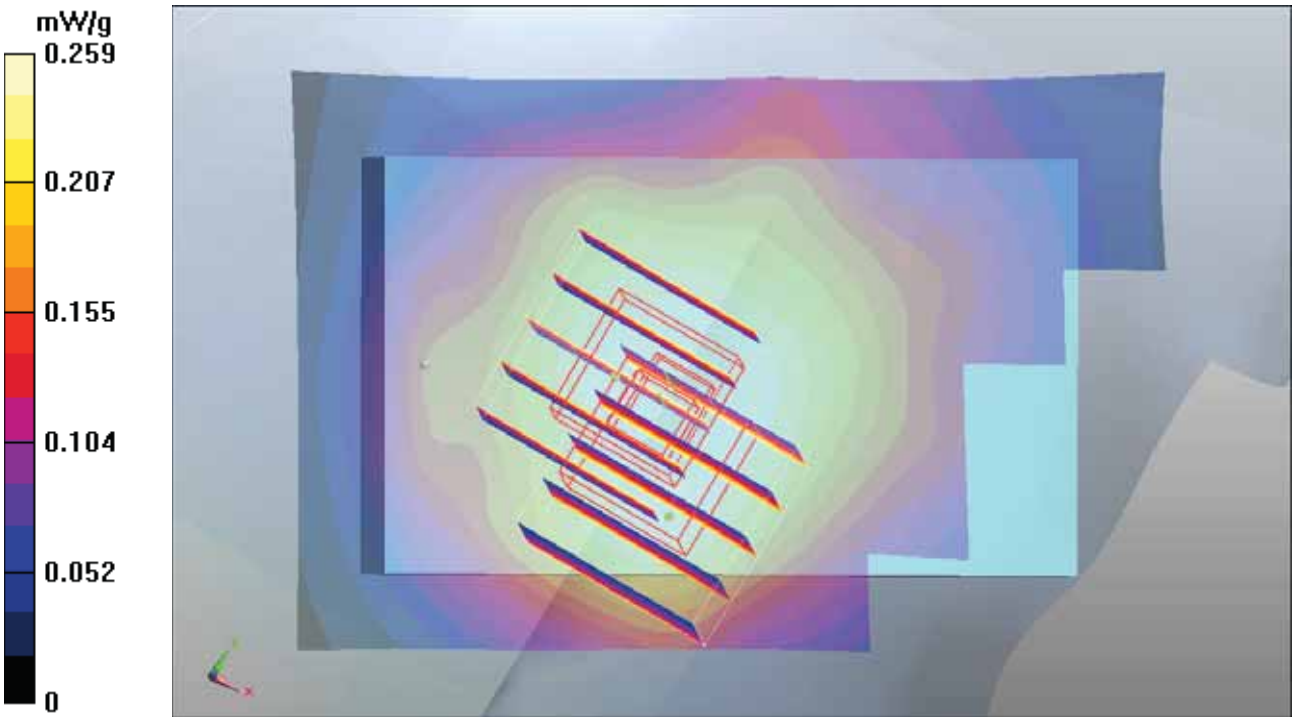
Communication System: CDMA2000; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: HSL_835_110425 Medium parameters used: f = 837 MHz; σ = 0.912 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.81, 5.81, 5.81); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.259 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.323 W/kg
SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.194 mW/g
Maximum value of SAR (measured) = 0.271 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.309 W/kg
SAR(1 g) = 0.254 mW/g; SAR(10 g) = 0.195 mW/g
Maximum value of SAR (measured) = 0.265 mW/g


mW/g
0.259
0.207
0.155
0.104
0.052
0

#21 CDMA2000 BC0_RC3 SO55_Left Cheek_Ch384

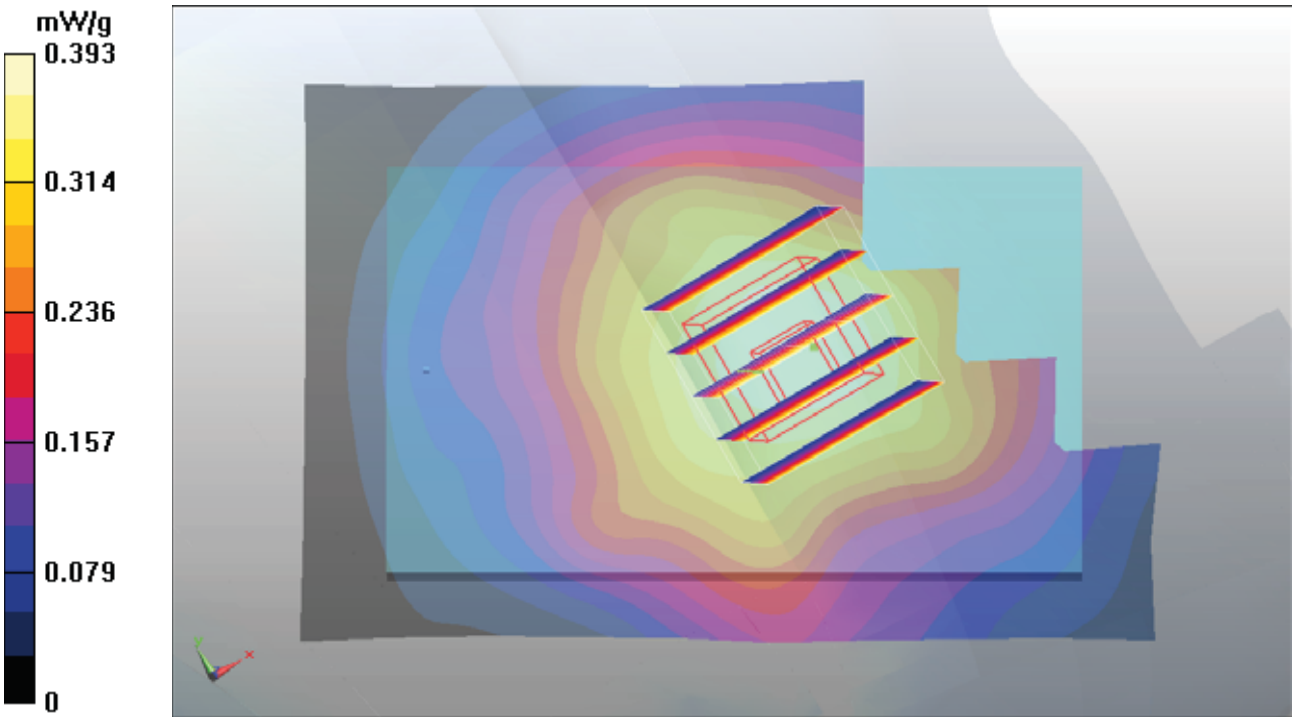
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: HSL_835_110425 Medium parameters used: f = 837 MHz; σ = 0.912 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.81, 5.81, 5.81); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.393 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.3 V/m; Power Drift = 0.089 dB
Peak SAR (extrapolated) = 0.460 W/kg
SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.384 mW/g


mW/g
0.393
0.314
0.236
0.157
0.079
0

#21 CDMA2000 BC0_RC3 SO55_Left Cheek_Ch384_2D

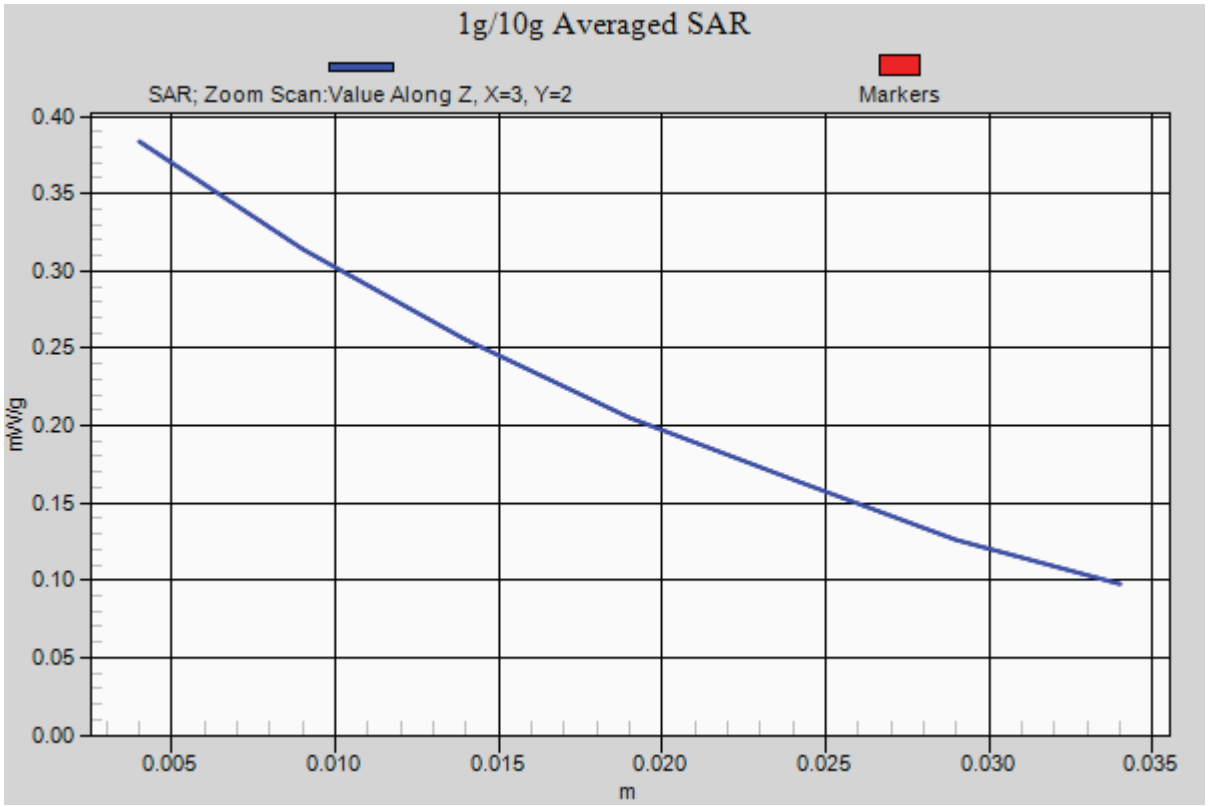
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: HSL_835_110425 Medium parameters used: f = 837 MHz; σ = 0.912 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.81, 5.81, 5.81); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.393 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.3 V/m; Power Drift = 0.089 dB
Peak SAR (extrapolated) = 0.460 W/kg
SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.384 mW/g


1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=3, Y=2
Markers
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
mW/g
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

#22 CDMA2000 BC0_RC3 SO55_Left Tilted_Ch384

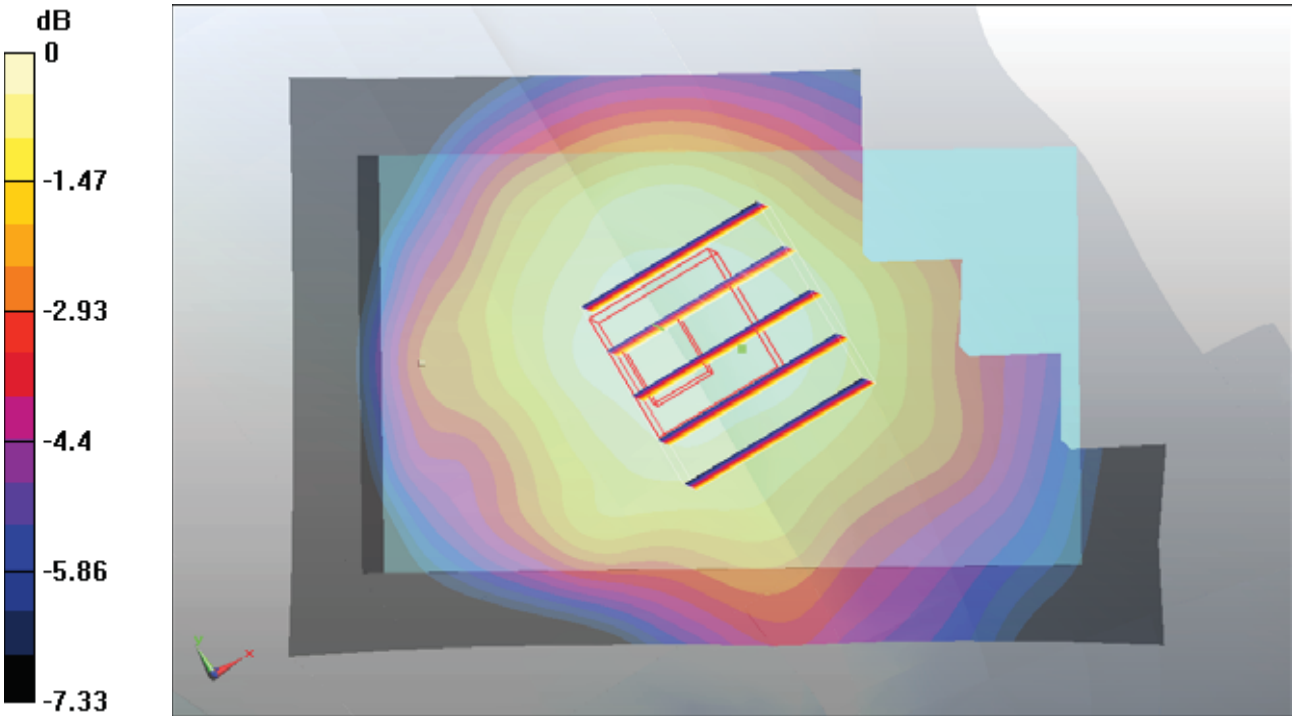
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: HSL_835_110425 Medium parameters used: f = 837 MHz; σ = 0.912 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.3 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.81, 5.81, 5.81); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.279 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12 V/m; Power Drift = 0.0031 dB
Peak SAR (extrapolated) = 0.331 W/kg
SAR(1 g) = 0.264 mW/g; SAR(10 g) = 0.202 mW/g
Maximum value of SAR (measured) = 0.274 mW/g



0 dB = 0.274mW/g

#13 CDMA2000 BC15_RC3 SO55_Right Cheek_Ch25

DUT: 0N0601-02

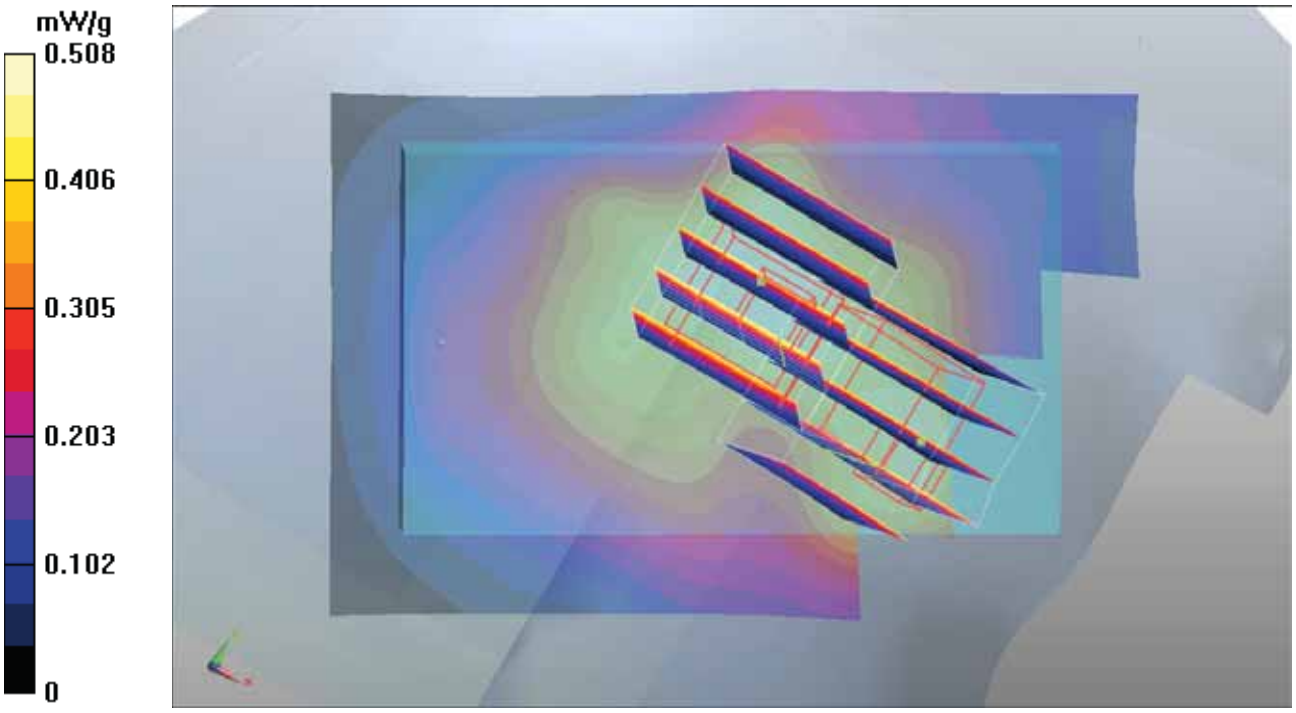
Communication System: CDMA2000; Frequency: 1711.25 MHz;Duty Cycle: 1:1
Medium: HSL_1800_110425 Medium parameters used: f = 1711.25 MHz; σ = 1.34 mho/m; ε_r = 41.6; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.94, 4.94, 4.94); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.508 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 0.672 W/kg
SAR(1 g) = 0.477 mW/g; SAR(10 g) = 0.331 mW/g
Maximum value of SAR (measured) = 0.500 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 0.616 W/kg
SAR(1 g) = 0.427 mW/g; SAR(10 g) = 0.300 mW/g
Maximum value of SAR (measured) = 0.456 mW/g


mW/g
0.508
0.406
0.305
0.203
0.102
0

#14 CDMA2000 BC15_RC3 SO55_Right Tilted_Ch25

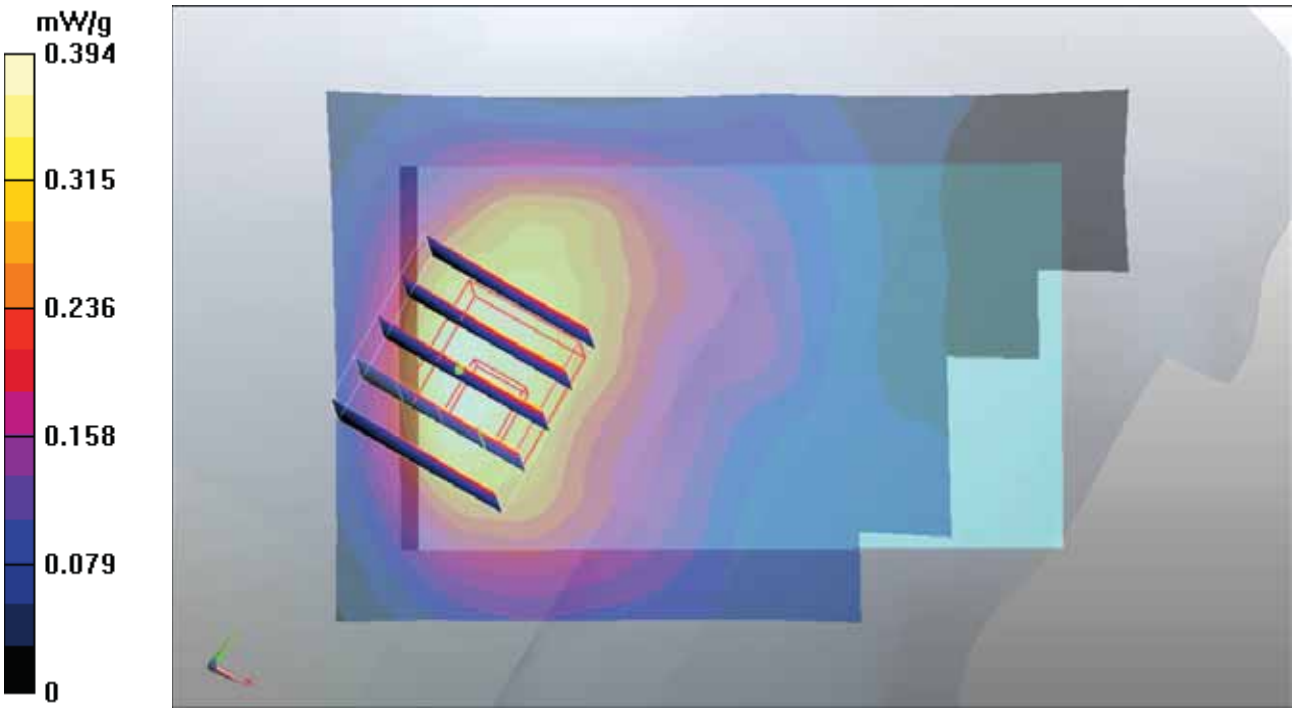
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1711.25 MHz;Duty Cycle: 1:1
Medium: HSL_1800_110425 Medium parameters used: f = 1711.25 MHz; σ = 1.34 mho/m; ε_r = 41.6; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.94, 4.94, 4.94); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.394 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.2 V/m; Power Drift = -0.097 dB
Peak SAR (extrapolated) = 0.524 W/kg
SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.232 mW/g
Maximum value of SAR (measured) = 0.386 mW/g


mW/g
0.394
0.315
0.236
0.158
0.079
0

#15 CDMA2000 BC15_RC3 SO55_Left Cheek_Ch25

DUT: 0N0601-02

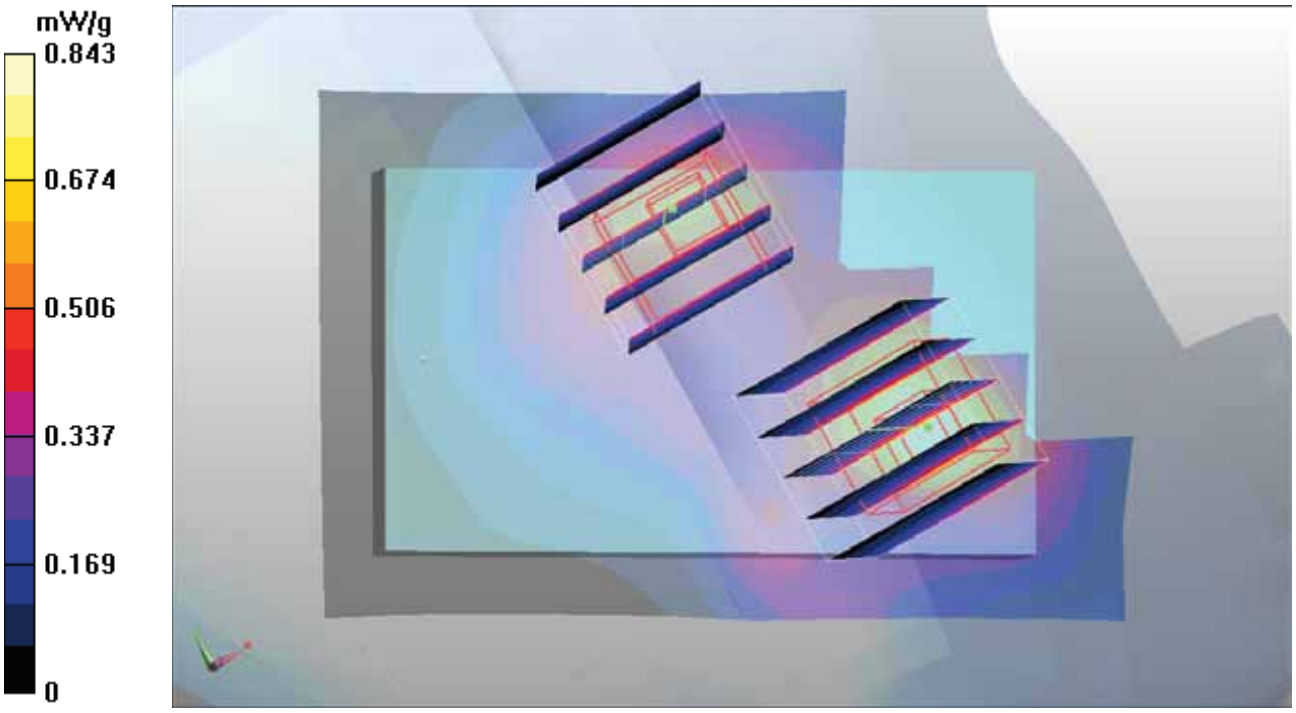
Communication System: CDMA2000; Frequency: 1711.25 MHz;Duty Cycle: 1:1
Medium: HSL_1800_110425 Medium parameters used: f = 1711.25 MHz; σ = 1.34 mho/m; ε_r = 41.6; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.94, 4.94, 4.94); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.843 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 0.945 W/kg
SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.379 mW/g
Maximum value of SAR (measured) = 0.692 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 0.755 W/kg
SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.340 mW/g
Maximum value of SAR (measured) = 0.547 mW/g


mW/g
0.843
0.674
0.506
0.337
0.169
0

#15 CDMA2000 BC15_RC3 SO55_Left Cheek_Ch25_2D

DUT: 0N0601-02

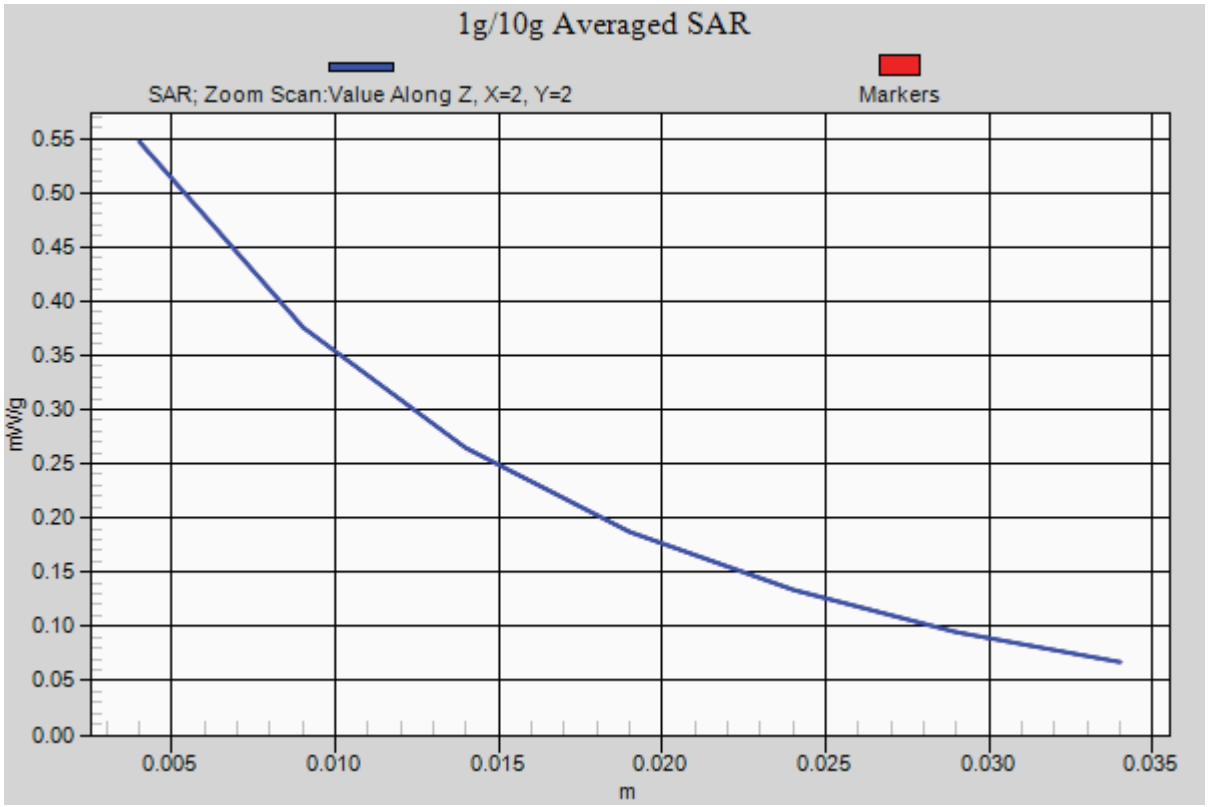
Communication System: CDMA2000; Frequency: 1711.25 MHz;Duty Cycle: 1:1
Medium: HSL_1800_110425 Medium parameters used: f = 1711.25 MHz; σ = 1.34 mho/m; ε_r = 41.6; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.94, 4.94, 4.94); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.843 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 0.945 W/kg
SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.379 mW/g
Maximum value of SAR (measured) = 0.692 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 0.755 W/kg
SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.340 mW/g
Maximum value of SAR (measured) = 0.547 mW/g


1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=2, Y=2
Markers
mW/g
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

#16 CDMA2000 BC15_RC3 SO55_Left Tilted_Ch25

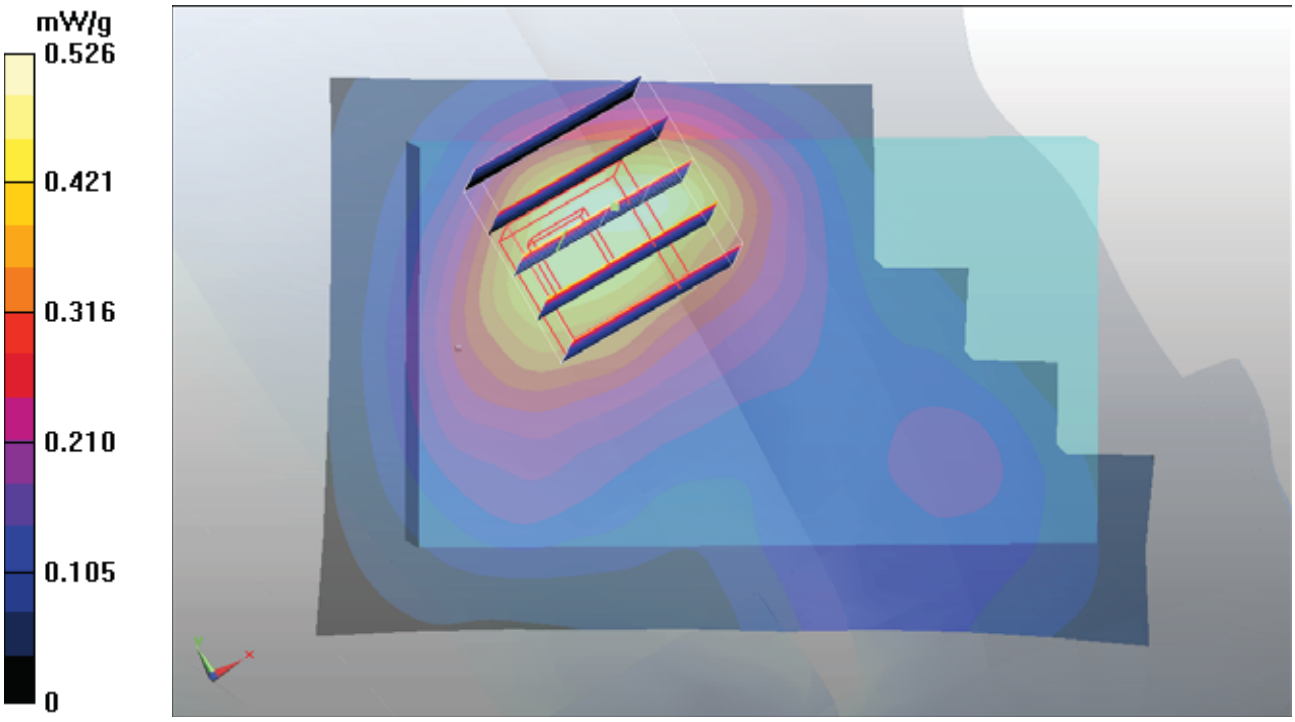
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1711.25 MHz;Duty Cycle: 1:1
Medium: HSL_1800_110425 Medium parameters used: f = 1711.25 MHz; σ = 1.34 mho/m; ε_r = 41.6; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.94, 4.94, 4.94); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.526 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.8 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 0.624 W/kg
SAR(1 g) = 0.437 mW/g; SAR(10 g) = 0.287 mW/g
Maximum value of SAR (measured) = 0.462 mW/g


mW/g
0.526
0.421
0.316
0.210
0.105
0

#01 CDMA2000 BC1_RC3 SO55_Right Cheek_Ch1175

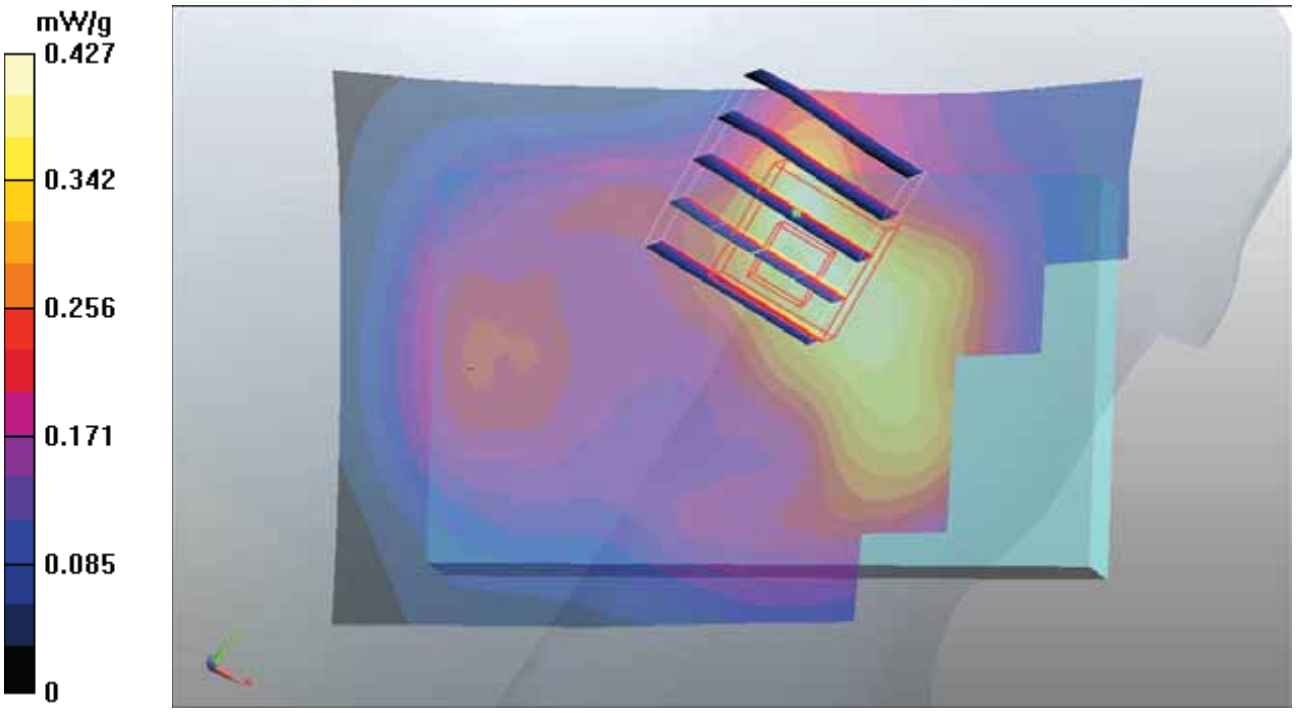
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium: HSL_1900_110425 Medium parameters used: f = 1909 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.73, 4.73, 4.73); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1175/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.427 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.574 W/kg
SAR(1 g) = 0.382 mW/g; SAR(10 g) = 0.249 mW/g
Maximum value of SAR (measured) = 0.409 mW/g


mW/g
0.427
0.342
0.256
0.171
0.085
0

#02 CDMA2000 BC1_RC3 SO55_Right Tilted_Ch1175

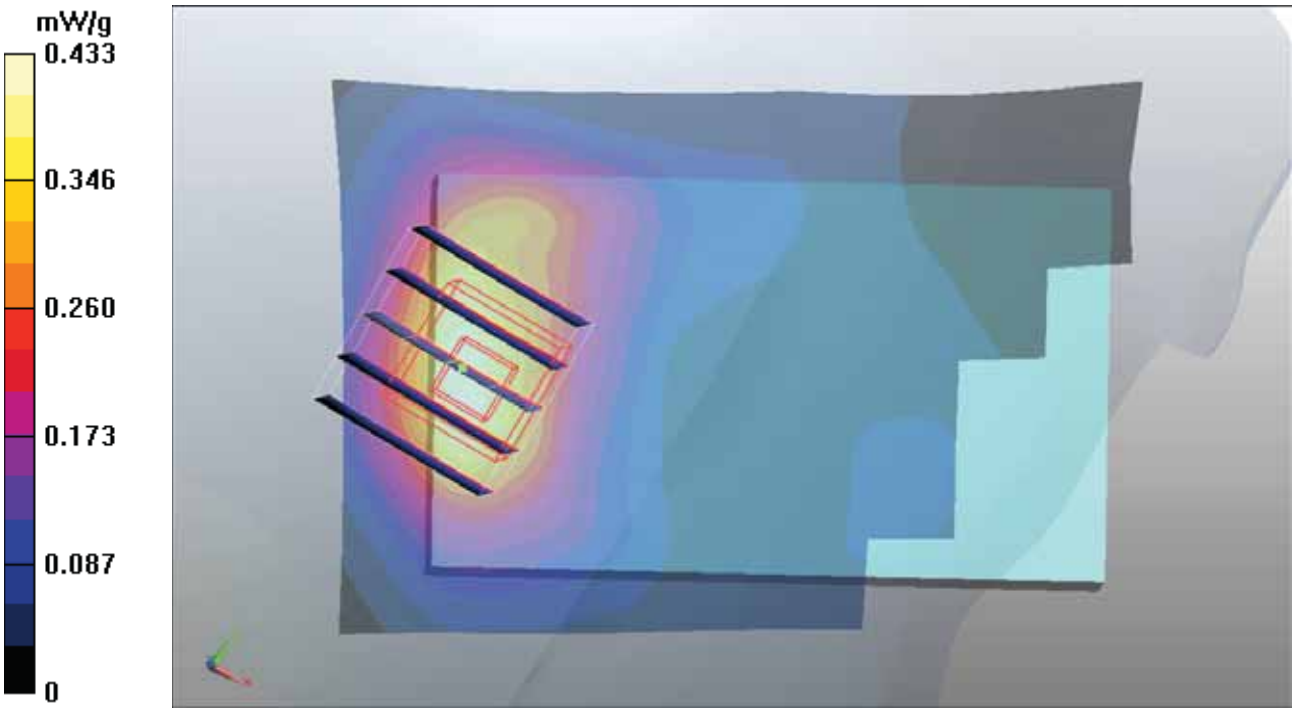
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium: HSL_1900_110425 Medium parameters used: f = 1909 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.73, 4.73, 4.73); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1175/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.433 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.3 V/m; Power Drift = -0.103 dB
Peak SAR (extrapolated) = 0.567 W/kg
SAR(1 g) = 0.370 mW/g; SAR(10 g) = 0.223 mW/g
Maximum value of SAR (measured) = 0.398 mW/g


mW/g
0.433
0.346
0.260
0.173
0.087
0

#03 CDMA2000 BC1_RC3 SO55_Left Cheek_Ch1175

DUT: 0N0601-02

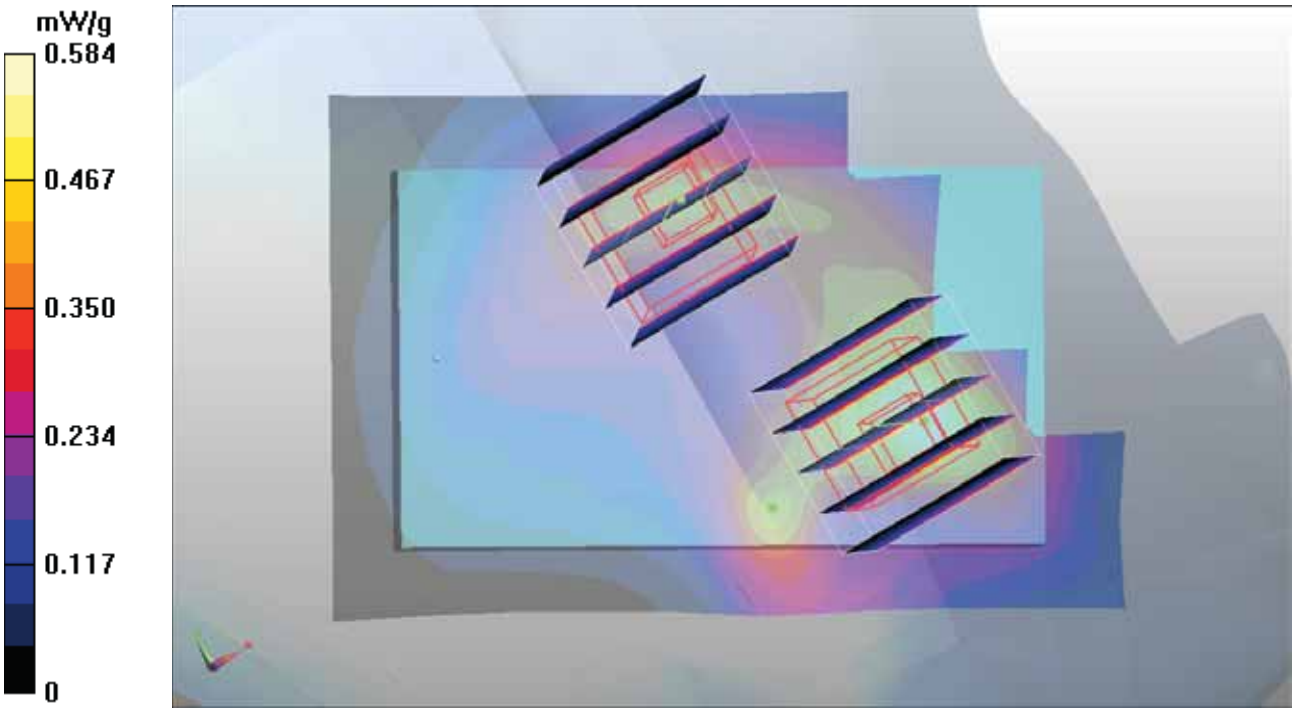
Communication System: CDMA2000; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium: HSL_1900_110425 Medium parameters used: f = 1909 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.73, 4.73, 4.73); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1175/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.584 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = 0.093 dB
Peak SAR (extrapolated) = 0.753 W/kg
SAR(1 g) = 0.480 mW/g; SAR(10 g) = 0.289 mW/g
Maximum value of SAR (measured) = 0.507 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = 0.093 dB
Peak SAR (extrapolated) = 0.569 W/kg
SAR(1 g) = 0.347 mW/g; SAR(10 g) = 0.216 mW/g
Maximum value of SAR (measured) = 0.394 mW/g


mW/g
0.584
0.467
0.350
0.234
0.117
0

#03 CDMA2000 BC1_RC3 SO55_Left Cheek_Ch1175_2D

DUT: 0N0601-02

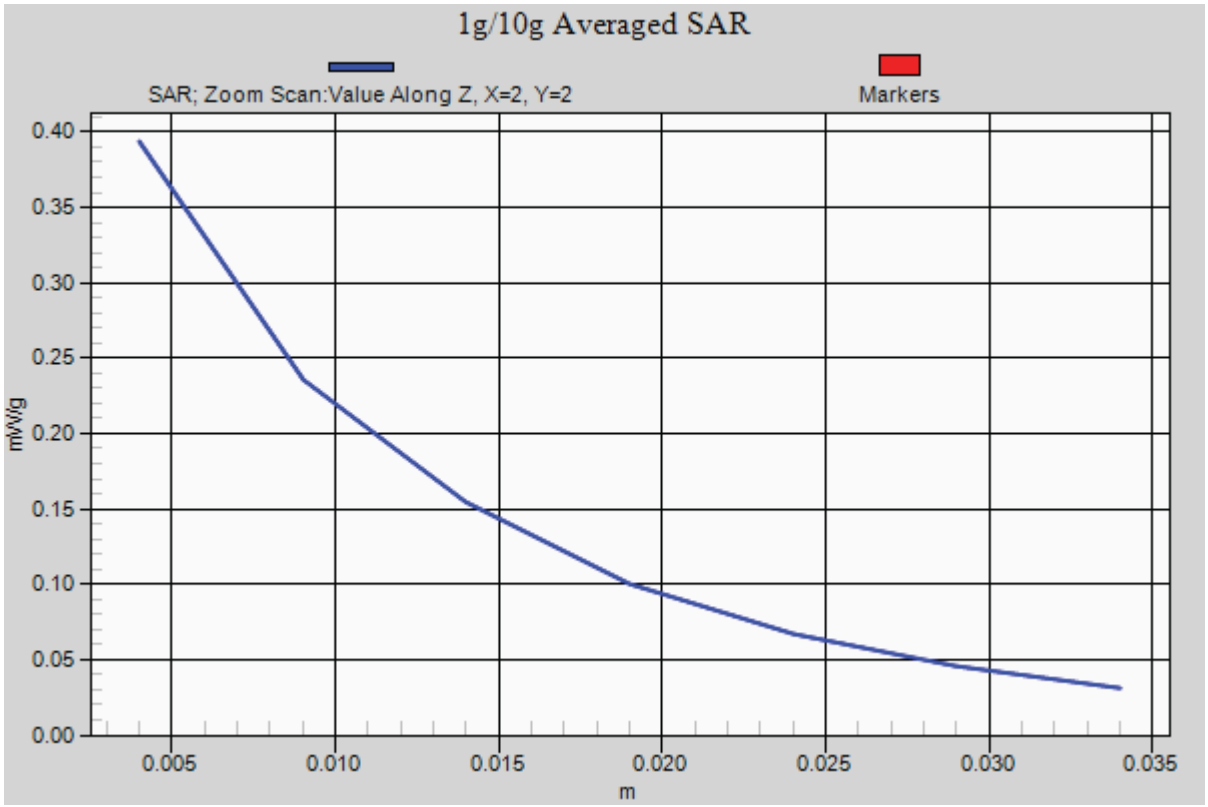
Communication System: CDMA2000; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium: HSL_1900_110425 Medium parameters used: f = 1909 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.73, 4.73, 4.73); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1175/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.584 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = 0.093 dB
Peak SAR (extrapolated) = 0.753 W/kg
SAR(1 g) = 0.480 mW/g; SAR(10 g) = 0.289 mW/g
Maximum value of SAR (measured) = 0.507 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = 0.093 dB
Peak SAR (extrapolated) = 0.569 W/kg
SAR(1 g) = 0.347 mW/g; SAR(10 g) = 0.216 mW/g
Maximum value of SAR (measured) = 0.394 mW/g


1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=2, Y=2
Markers
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
mW/g
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

#04 CDMA2000 BC1_RC3 SO55_Left Tilted_Ch1175

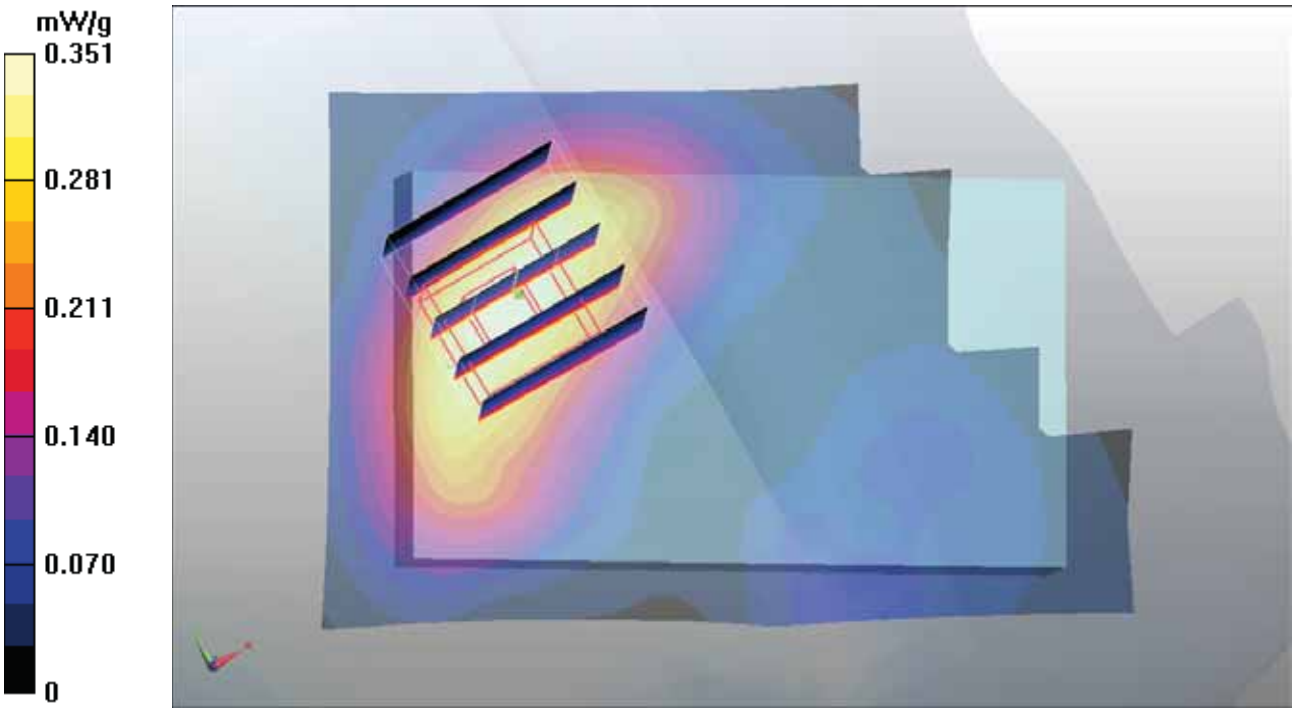
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium: HSL_1900_110425 Medium parameters used: f = 1909 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.73, 4.73, 4.73); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1175/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.351 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.8 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 0.458 W/kg
SAR(1 g) = 0.309 mW/g; SAR(10 g) = 0.196 mW/g
Maximum value of SAR (measured) = 0.335 mW/g


mW/g
0.351
0.281
0.211
0.140
0.070
0

#05 CDMA2000 BC14_RC3 SO55_Left Cheek_Ch1275

DUT: 0N0601-02

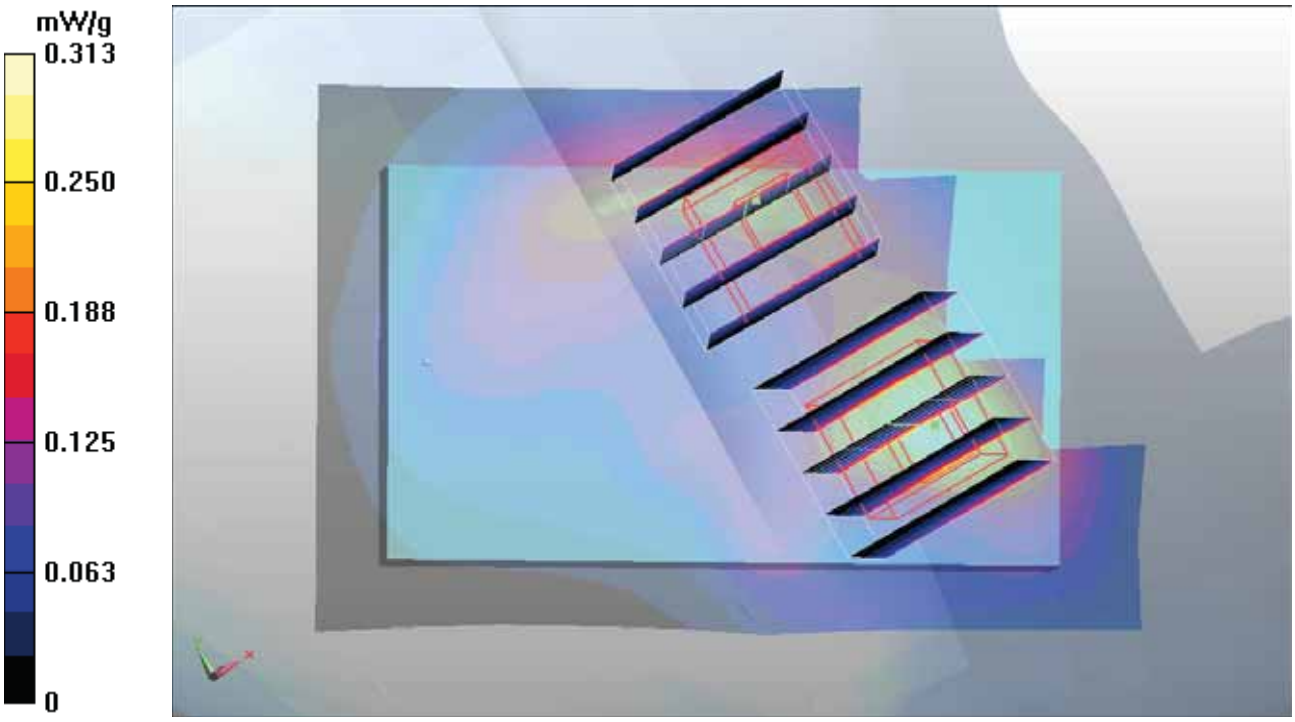
Communication System: CDMA2000; Frequency: 1913.75 MHz;Duty Cycle: 1:1
Medium: HSL_1900_110425 Medium parameters used: f = 1913.75 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.73, 4.73, 4.73); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1275/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.313 mW/g

Ch1275/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.63 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.451 W/kg
SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.154 mW/g
Maximum value of SAR (measured) = 0.295 mW/g

Ch1275/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.63 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.109 mW/g
Maximum value of SAR (measured) = 0.200 mW/g


mW/g
0.313
0.250
0.188
0.125
0.063
0

#05 CDMA2000 BC14_RC3 SO55_Left Cheek_Ch1275_2D

DUT: 0N0601-02

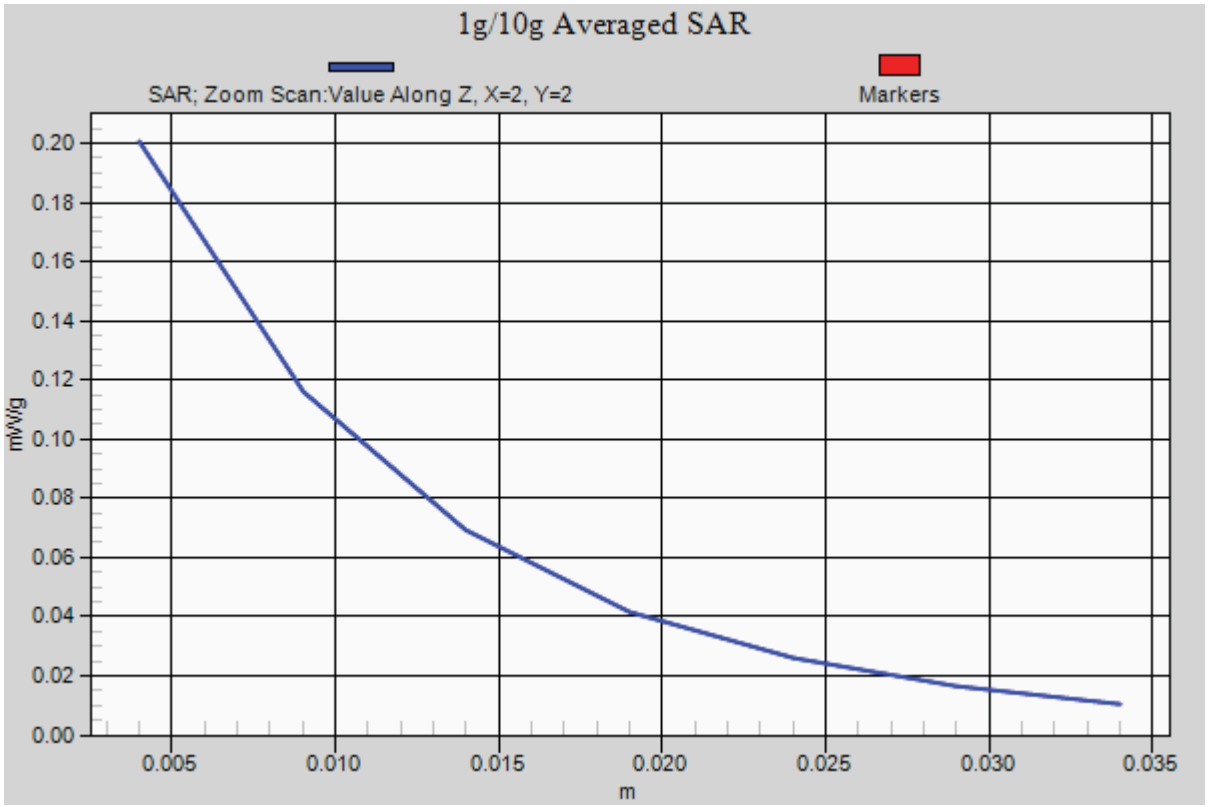
Communication System: CDMA2000; Frequency: 1913.75 MHz;Duty Cycle: 1:1
Medium: HSL_1900_110425 Medium parameters used: f = 1913.75 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.73, 4.73, 4.73); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1275/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.313 mW/g

Ch1275/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.63 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.451 W/kg
SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.154 mW/g
Maximum value of SAR (measured) = 0.295 mW/g

Ch1275/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.63 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.109 mW/g
Maximum value of SAR (measured) = 0.200 mW/g


1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=2, Y=2
Markers
mW/g
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

#06 CDMA2000 BC0_RC3 SO32_Face_Ch384

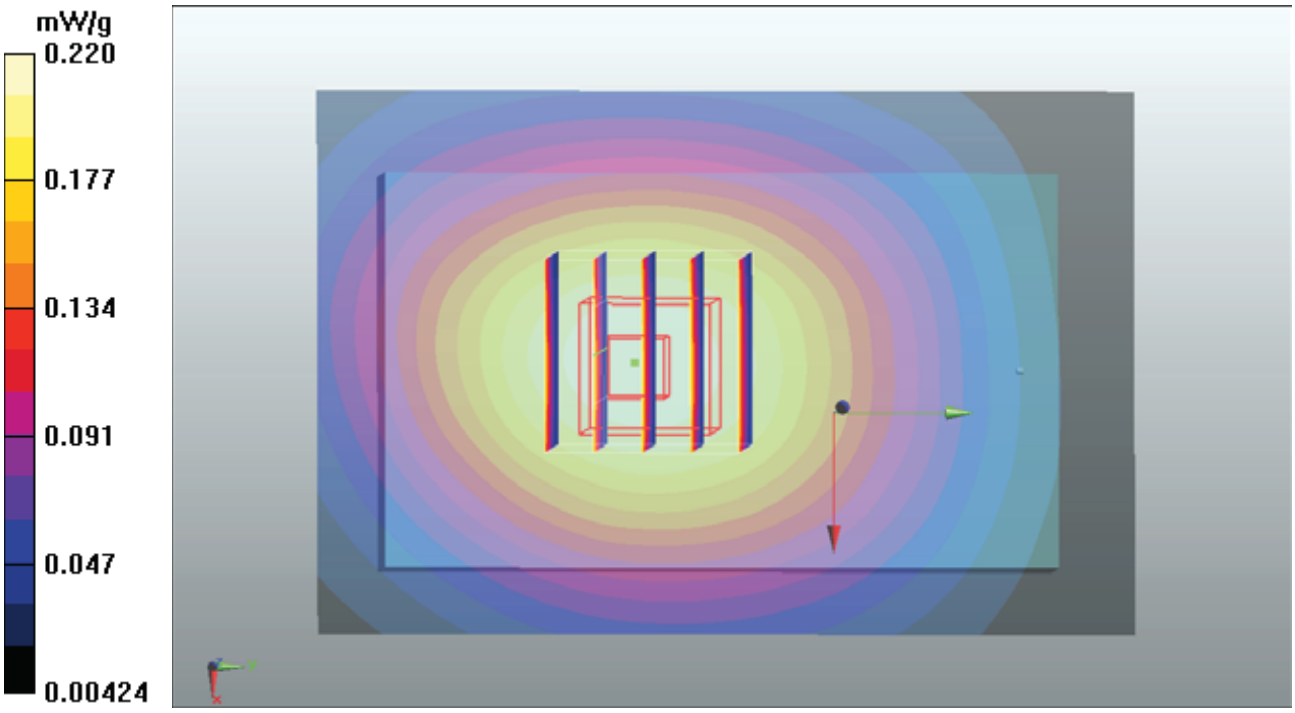
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: MSL_835_110425 Medium parameters used: f = 837 MHz; σ = 0.979 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.79, 5.79, 5.79); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.220 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 0.270 W/kg
SAR(1 g) = 0.208 mW/g; SAR(10 g) = 0.155 mW/g
Maximum value of SAR (measured) = 0.218 mW/g


mW/g
0.220
0.177
0.134
0.091
0.047
0.00424

#07 CDMA2000 BC0_RC3 SO32_Bottom_Ch384

DUT: 0N0601-02

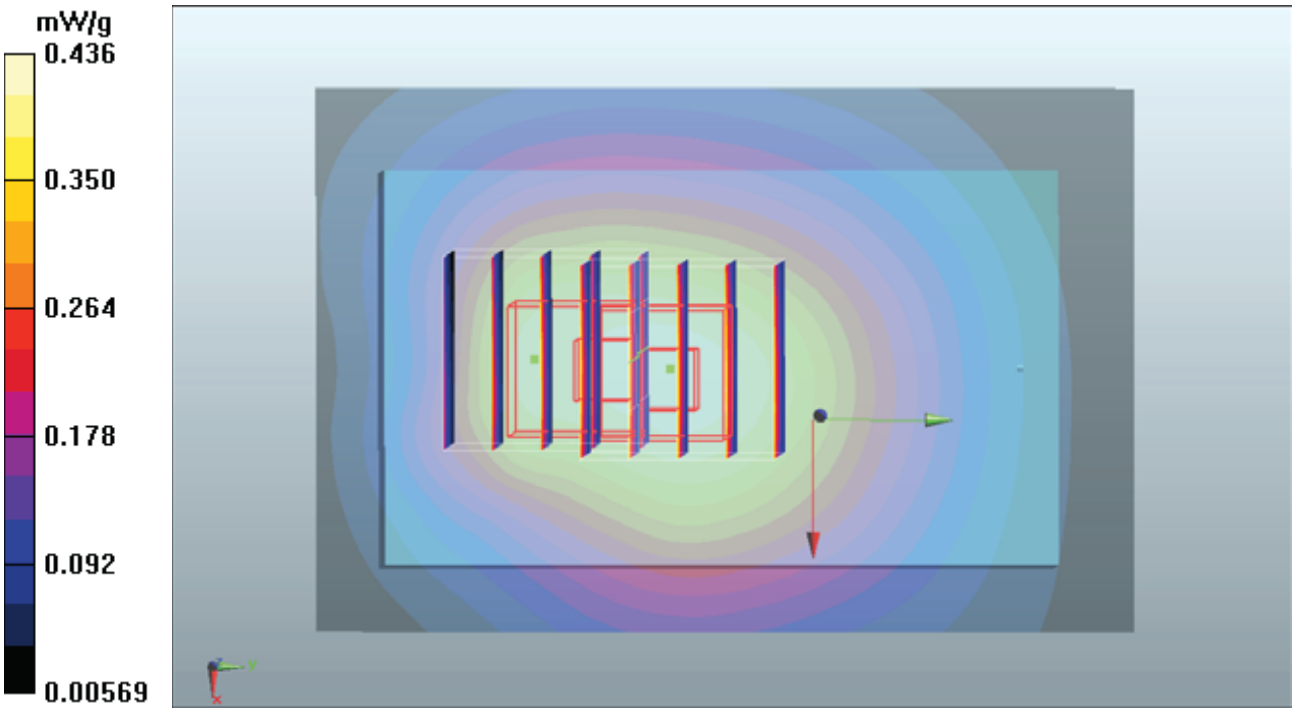
Communication System: CDMA2000; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: MSL_835_110425 Medium parameters used: f = 837 MHz; σ = 0.979 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.79, 5.79, 5.79); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.436 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.3 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 0.521 W/kg
SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.298 mW/g
Maximum value of SAR (measured) = 0.422 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.3 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 0.535 W/kg
SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.421 mW/g


mW/g
0.436
0.350
0.264
0.178
0.092
0.00569

#07 CDMA2000 BC0_RC3 SO32_Bottom_Ch384_2D

DUT: 0N0601-02

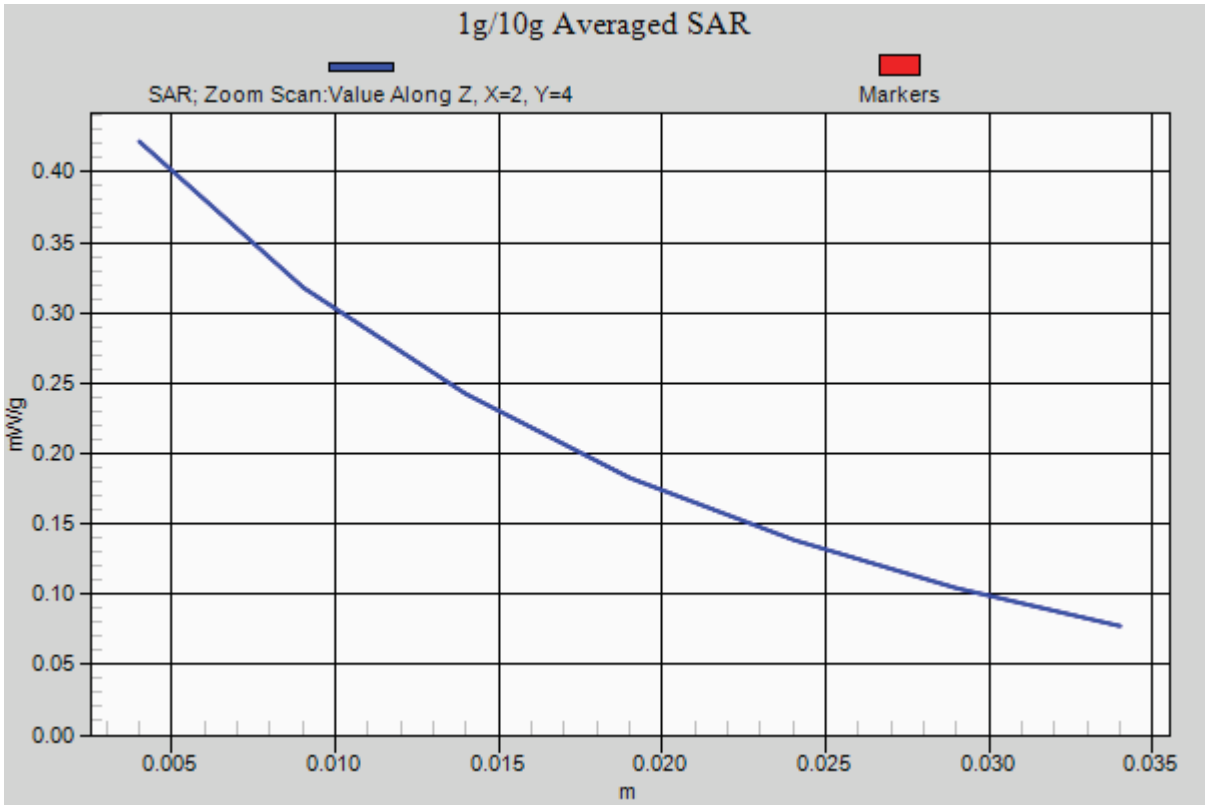
Communication System: CDMA2000; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: MSL_835_110425 Medium parameters used: f = 837 MHz; σ = 0.979 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Ambient Temperature：23.4 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(5.79, 5.79, 5.79); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM1; Type: SAM; Serial: TP-1479
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.436 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.3 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 0.521 W/kg
SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.298 mW/g
Maximum value of SAR (measured) = 0.422 mW/g

Ch384/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.3 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 0.535 W/kg
SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.421 mW/g


1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=2, Y=4
Markers
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
mW/g
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

#17 CDMA2000 BC15_RC3 SO32_Face_Ch25

DUT: 0N0601-02

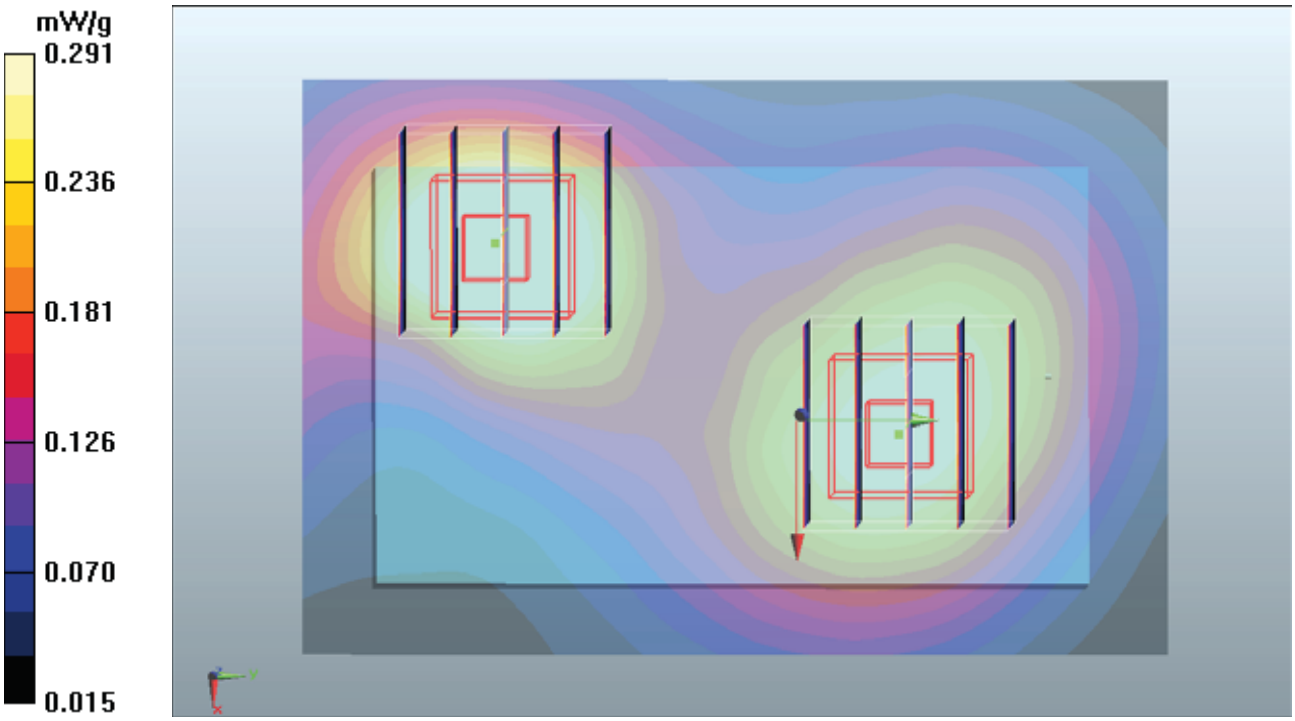
Communication System: CDMA2000; Frequency: 1711.25 MHz;Duty Cycle: 1:1
Medium: MSL_1800_110425 Medium parameters used: f = 1711.25 MHz; σ = 1.46 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.395 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11 V/m; Power Drift = 0.0075 dB
Peak SAR (extrapolated) = 0.549 W/kg
SAR(1 g) = 0.355 mW/g; SAR(10 g) = 0.218 mW/g
Maximum value of SAR (measured) = 0.378 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11 V/m; Power Drift = 0.0075 dB
Peak SAR (extrapolated) = 0.386 W/kg
SAR(1 g) = 0.274 mW/g; SAR(10 g) = 0.186 mW/g
Maximum value of SAR (measured) = 0.291 mW/g


mW/g
0.291
0.236
0.181
0.126
0.070
0.015

#18 CDMA2000 BC15_RC3 SO32_Bottom_Ch25

DUT: 0N0601-02

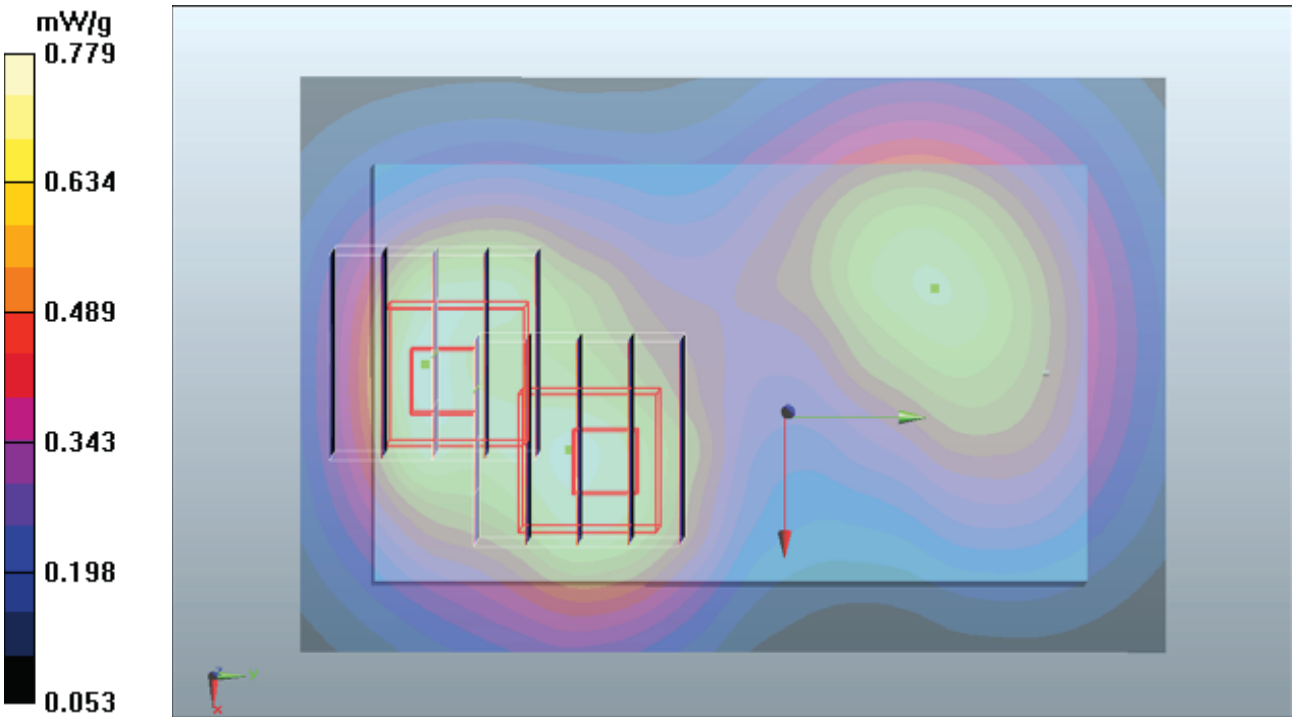
Communication System: CDMA2000; Frequency: 1711.25 MHz;Duty Cycle: 1:1
Medium: MSL_1800_110425 Medium parameters used: f = 1711.25 MHz; σ = 1.46 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.779 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = 0.0069 dB
Peak SAR (extrapolated) = 1.1 W/kg
SAR(1 g) = 0.754 mW/g; SAR(10 g) = 0.481 mW/g
Maximum value of SAR (measured) = 0.821 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = 0.0069 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.713 mW/g; SAR(10 g) = 0.441 mW/g
Maximum value of SAR (measured) = 0.792 mW/g


mW/g
0.779
0.634
0.489
0.343
0.198
0.053

#18 CDMA2000 BC15_RC3 SO32_Bottom_Ch25_2D

DUT: 0N0601-02

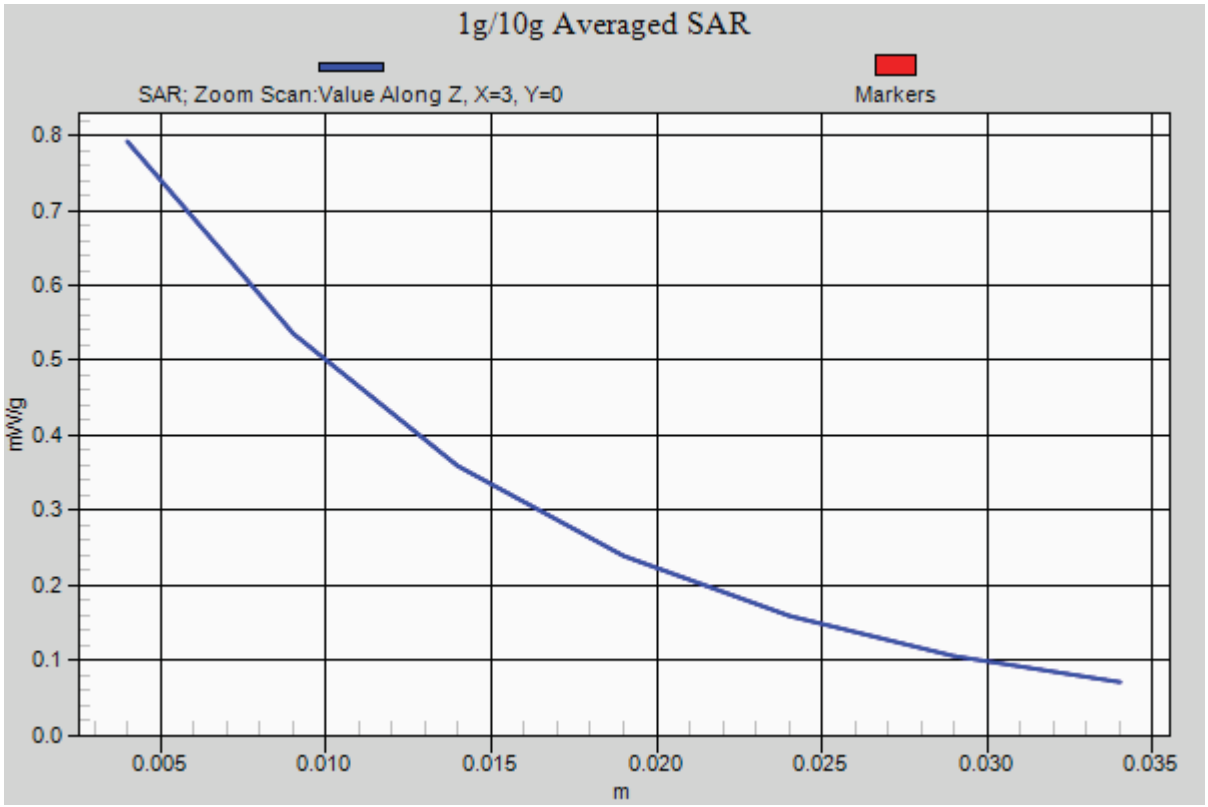
Communication System: CDMA2000; Frequency: 1711.25 MHz;Duty Cycle: 1:1
Medium: MSL_1800_110425 Medium parameters used: f = 1711.25 MHz; σ = 1.46 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Ambient Temperature：23.3 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.779 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = 0.0069 dB
Peak SAR (extrapolated) = 1.1 W/kg
SAR(1 g) = 0.754 mW/g; SAR(10 g) = 0.481 mW/g
Maximum value of SAR (measured) = 0.821 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = 0.0069 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.713 mW/g; SAR(10 g) = 0.441 mW/g
Maximum value of SAR (measured) = 0.792 mW/g


1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=3, Y=0
Markers
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
mW/g
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

#08 CDMA2000 BC1_RC3 SO32_Face_Ch1175

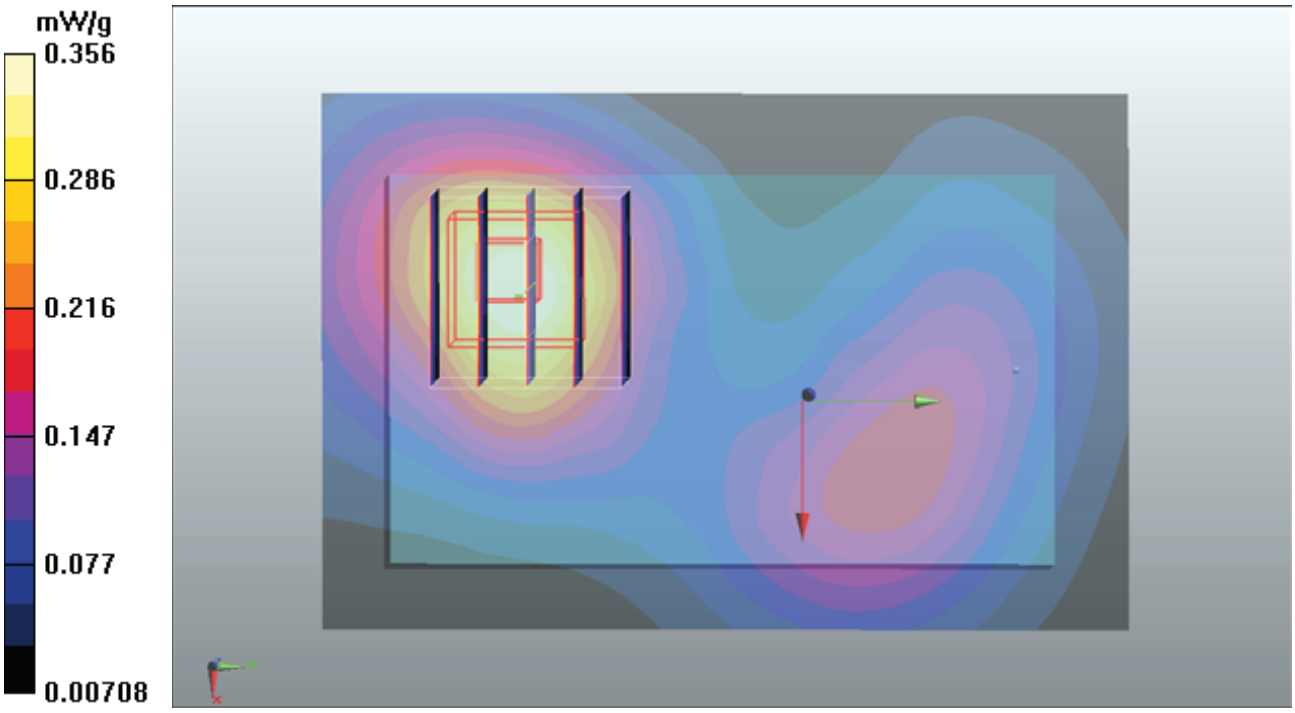
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium: MSL_1900_110425 Medium parameters used: f = 1909 MHz; σ = 1.52 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.3, 4.3, 4.3); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1175/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.356 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.4 V/m; Power Drift = 0.073 dB
Peak SAR (extrapolated) = 0.519 W/kg
SAR(1 g) = 0.348 mW/g; SAR(10 g) = 0.216 mW/g
Maximum value of SAR (measured) = 0.362 mW/g


mW/g
0.356
0.286
0.216
0.147
0.077
0.00708

#09 CDMA2000 BC1_RC3 SO32_Bottom_Ch1175

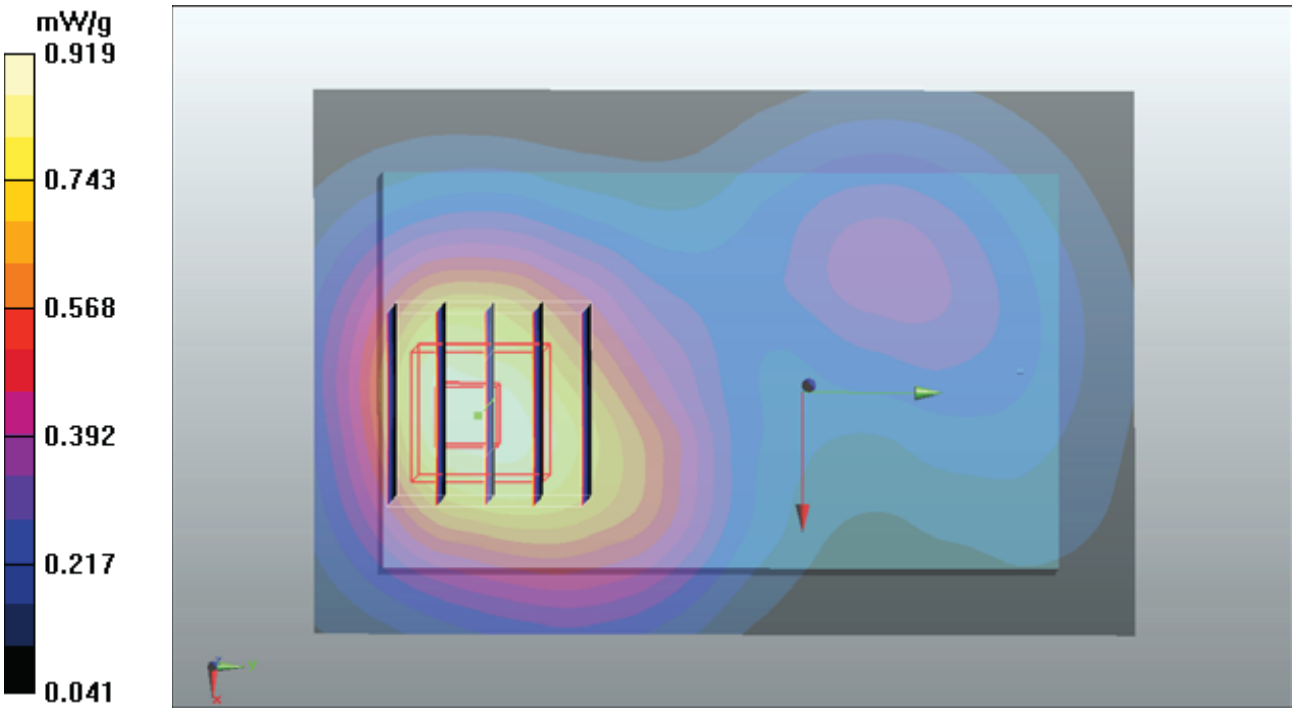
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium: MSL_1900_110425 Medium parameters used: f = 1909 MHz; σ = 1.52 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.3, 4.3, 4.3); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1175/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.919 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.3 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 1.3 W/kg
SAR(1 g) = 0.849 mW/g; SAR(10 g) = 0.528 mW/g
Maximum value of SAR (measured) = 0.914 mW/g


mW/g
0.919
0.743
0.568
0.392
0.217
0.041

#09 CDMA2000 BC1_RC3 SO32_Bottom_Ch1175_2D

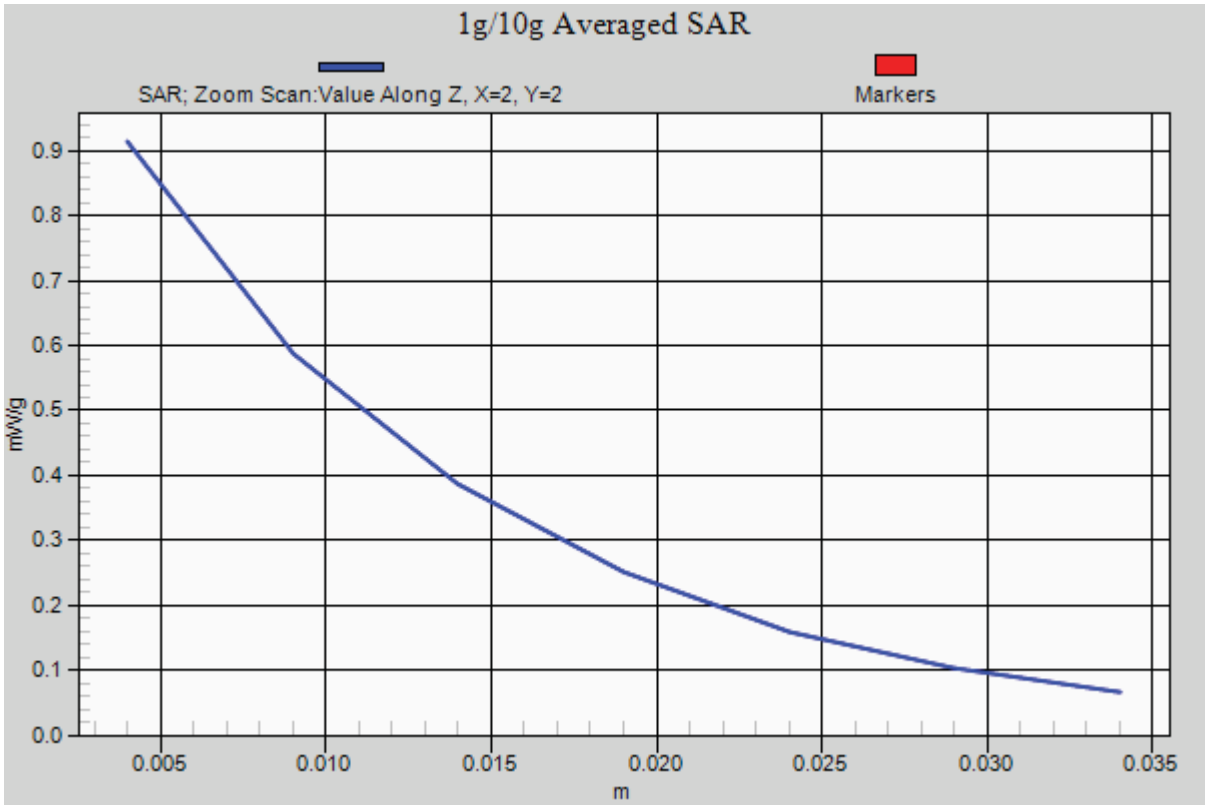
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium: MSL_1900_110425 Medium parameters used: f = 1909 MHz; σ = 1.52 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.3, 4.3, 4.3); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1175/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.919 mW/g

Ch1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.3 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 1.3 W/kg
SAR(1 g) = 0.849 mW/g; SAR(10 g) = 0.528 mW/g
Maximum value of SAR (measured) = 0.914 mW/g


1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=2, Y=2
Markers
mW/g
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

#10 CDMA2000 BC1_RC3 SO32_Face_Ch25

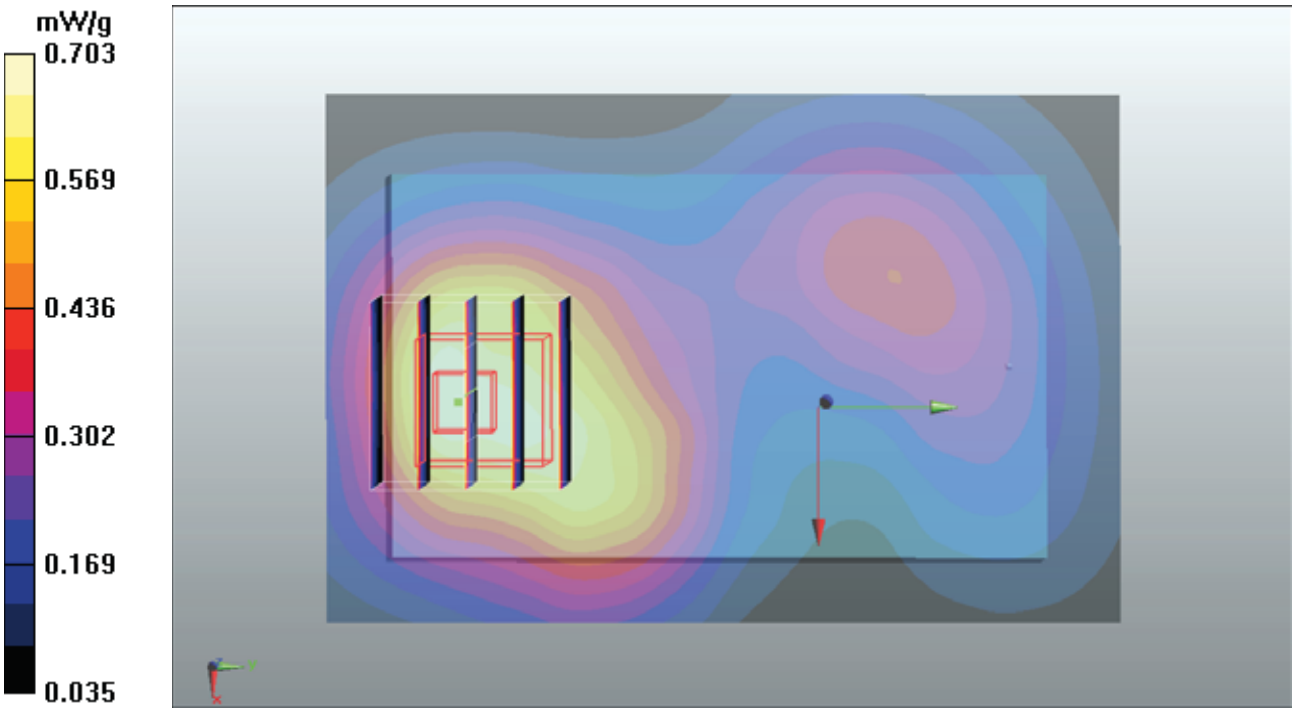
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1851.25 MHz;Duty Cycle: 1:1
Medium: MSL_1900_110425 Medium parameters used: f = 1851.25 MHz; σ = 1.46 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.3, 4.3, 4.3); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.703 mW/g

Ch25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.973 W/kg
SAR(1 g) = 0.659 mW/g; SAR(10 g) = 0.420 mW/g
Maximum value of SAR (measured) = 0.718 mW/g


mW/g
0.703
0.569
0.436
0.302
0.169
0.035

#11 CDMA2000 BC1_RC3 SO32_Bottom_Ch600

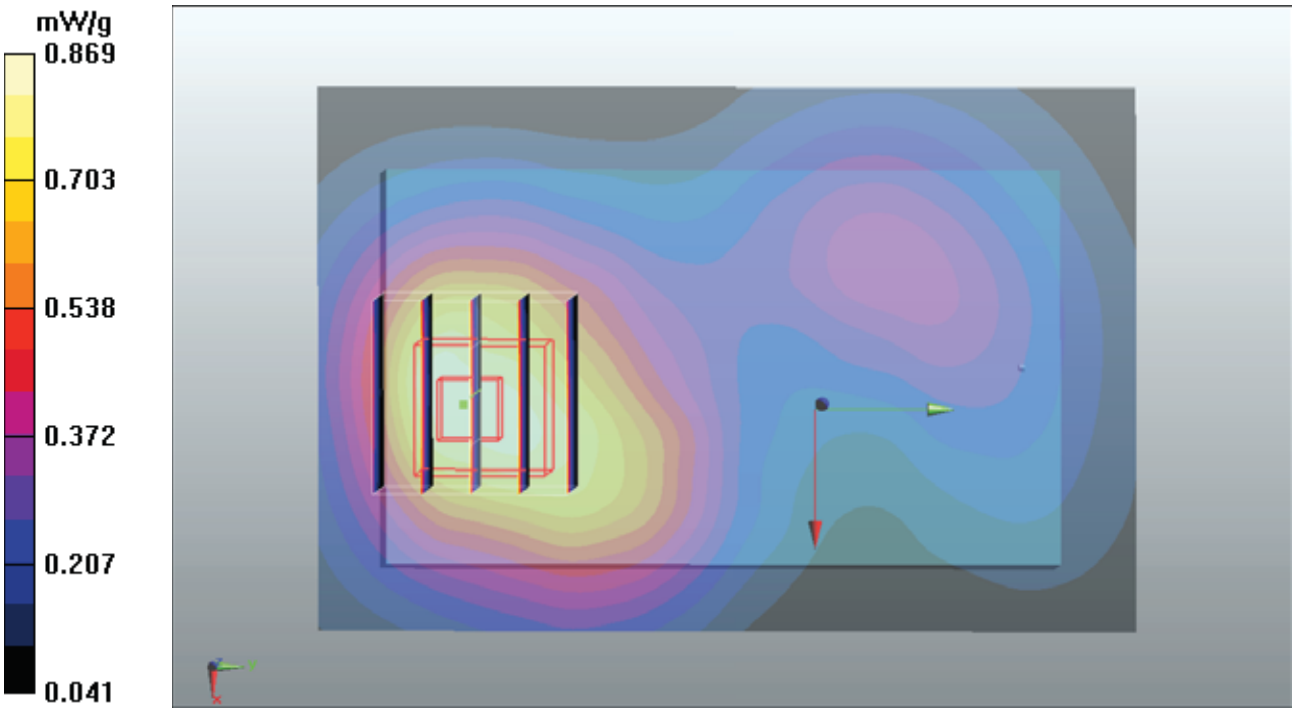
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: MSL_1900_110425 Medium parameters used: f = 1880 MHz; σ = 1.49 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.3, 4.3, 4.3); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch600/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.869 mW/g

Ch600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = 0.105 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.843 mW/g; SAR(10 g) = 0.533 mW/g
Maximum value of SAR (measured) = 0.913 mW/g


mW/g
0.869
0.703
0.538
0.372
0.207
0.041

#12 CDMA2000 BC14_RC3 SO32_Bottom_Ch1275

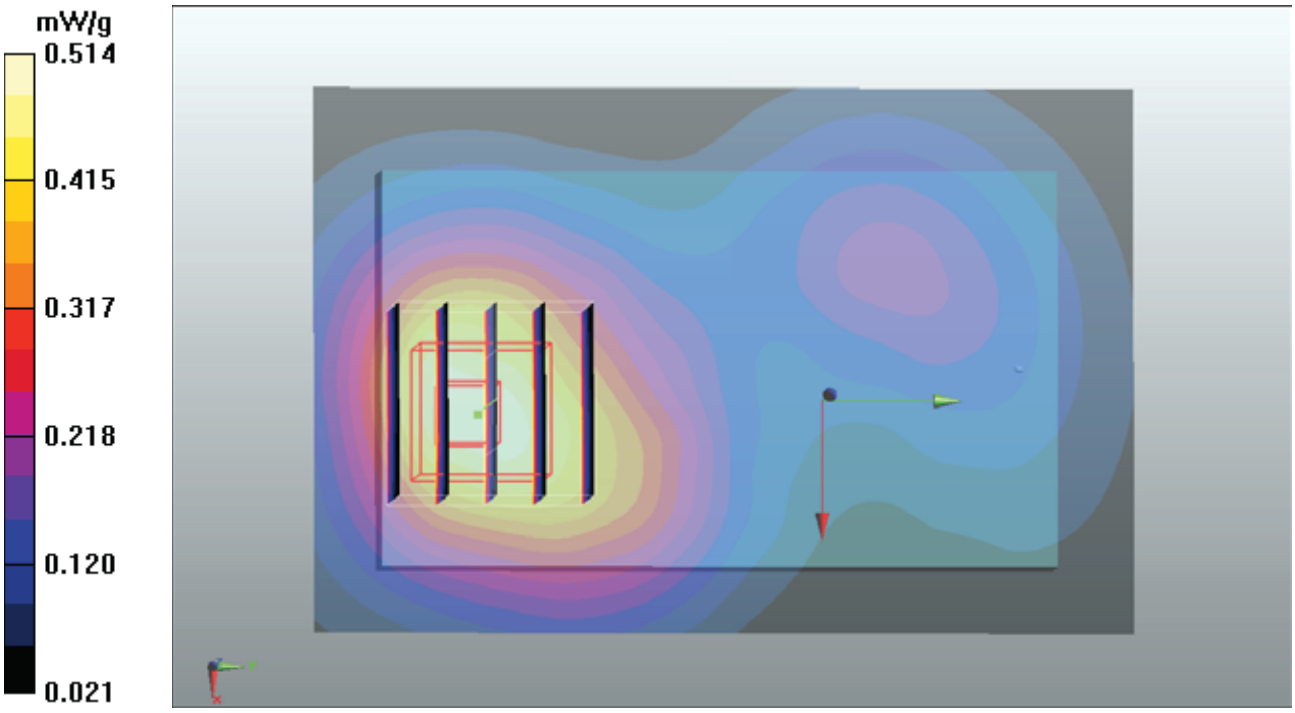
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1913.75 MHz;Duty Cycle: 1:1
Medium: MSL_1900_110425 Medium parameters used: f = 1913.75 MHz; σ = 1.53 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.3, 4.3, 4.3); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1275/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.514 mW/g

Ch1275/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.32 V/m; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 0.754 W/kg
SAR(1 g) = 0.500 mW/g; SAR(10 g) = 0.311 mW/g
Maximum value of SAR (measured) = 0.532 mW/g


mW/g
0.514
0.415
0.317
0.218
0.120
0.021

#12 CDMA2000 BC14_RC3 SO32_Bottom_Ch1275_2D

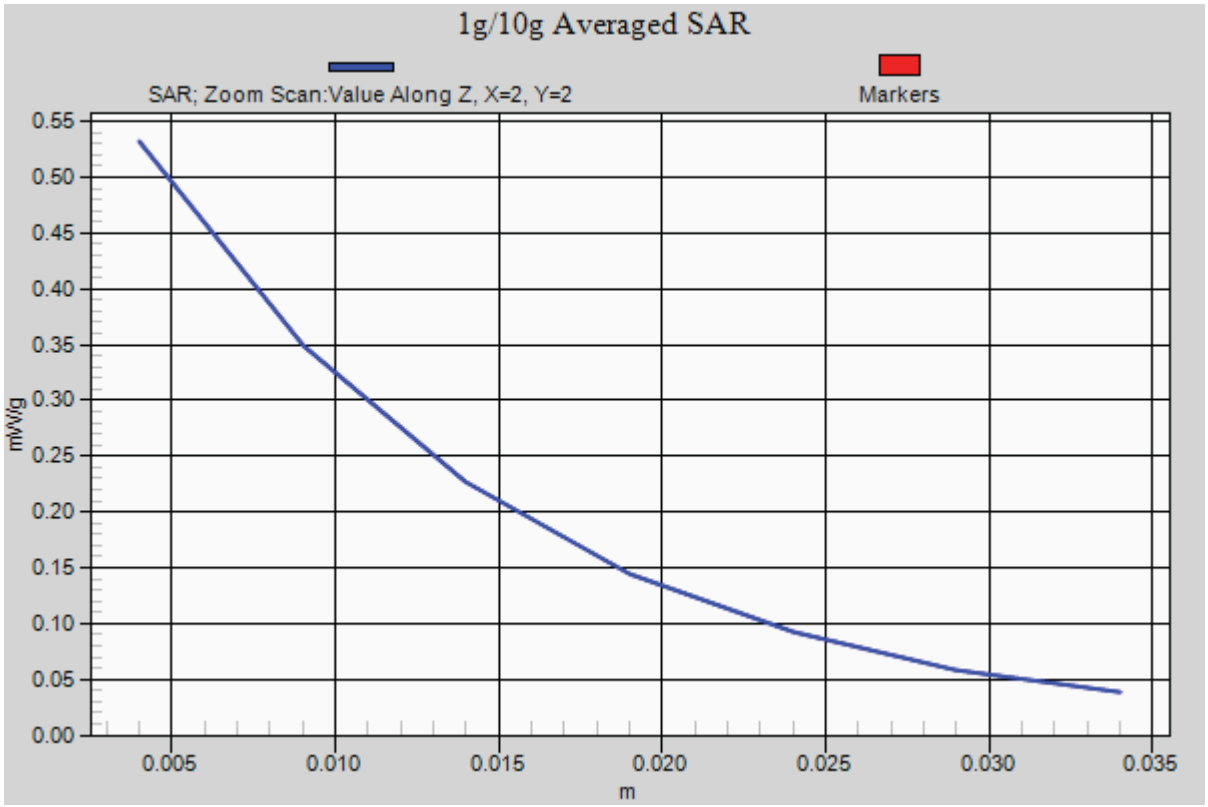
DUT: 0N0601-02

Communication System: CDMA2000; Frequency: 1913.75 MHz;Duty Cycle: 1:1
Medium: MSL_1900_110425 Medium parameters used: f = 1913.75 MHz; σ = 1.53 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Ambient Temperature：23.5 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: ES3DV3 - SN3071; ConvF(4.3, 4.3, 4.3); Calibrated: 2010-6-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2010-11-18
- Phantom: SAM3; Type: SAM; Serial: TP-1477
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Ch1275/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.514 mW/g

Ch1275/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.32 V/m; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 0.754 W/kg
SAR(1 g) = 0.500 mW/g; SAR(10 g) = 0.311 mW/g
Maximum value of SAR (measured) = 0.532 mW/g


1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=2, Y=2
Markers
0.55
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
mW/g
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Appendix C. DASY Calibration Certificate

The DASY calibration certificates are shown as follows.

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 ATL (Auden)

Certificate No. D835V2-4d082_Jul10

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d082
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	July 20, 2010

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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 20, 2010

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**

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.

Measurement Conditions

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

DASY Version	DASY5	V52.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	42.0 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature during test	(23.1 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.40 mW / g
SAR normalized	normalized to 1W	9.60 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.65 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.56 mW / g
SAR normalized	normalized to 1W	6.24 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.26 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	55.0 ± 6 %	1.01 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.58 mW / g
SAR normalized	normalized to 1W	10.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**10.0 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.69 mW / g
SAR normalized	normalized to 1W	6.76 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.60 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.7 Ω - 3.2 jΩ
Return Loss	- 29.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.3 Ω - 4.6 jΩ
Return Loss	- 26.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.389ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	October 17, 2008

DASY5 Validation Report for Head TSL

Date/Time: 20.07.2010 15:48:57

Test Laboratory: SPEAG, Zurich, Switzerland

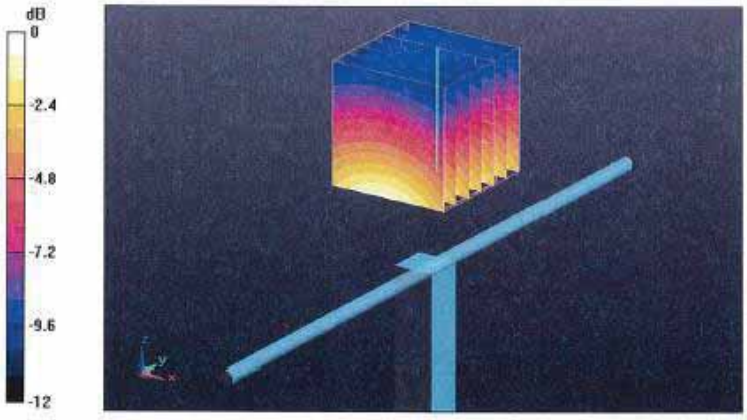
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d082

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

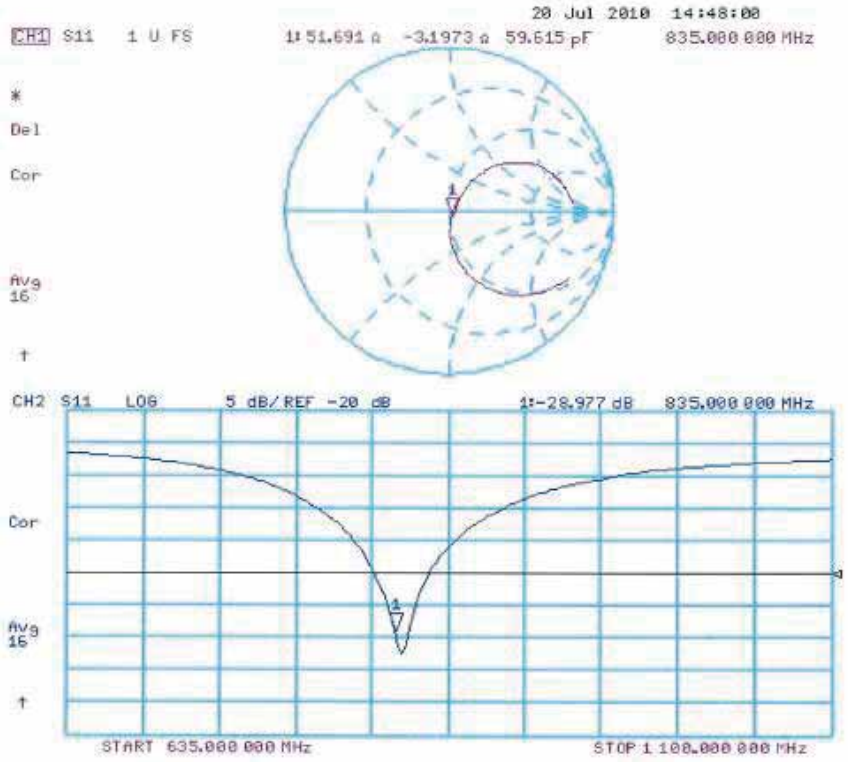
- Probe: ES3DV3 - SN3205; ConvF(6.03, 6.03, 6.03); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.1 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 3.63 W/kg
SAR(1 g) = 2.4 mW/g; SAR(10 g) = 1.56 mW/g
Maximum value of SAR (measured) = 2.8 mW/g



0 dB = 2.8mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 20.07.2010 12:03:13

Test Laboratory: SPEAG, Zurich, Switzerland

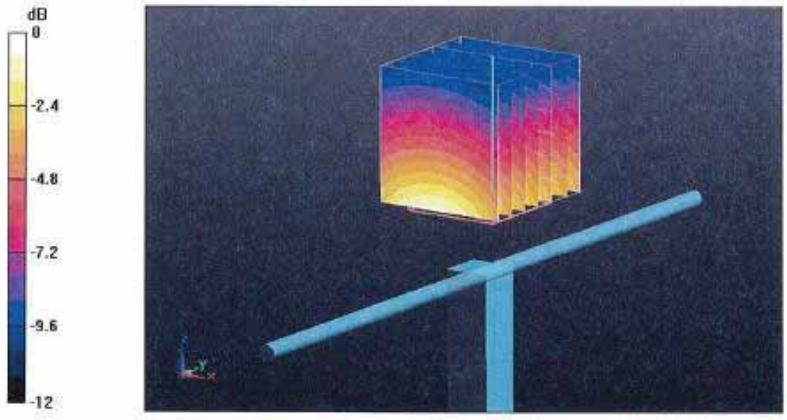
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d082

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

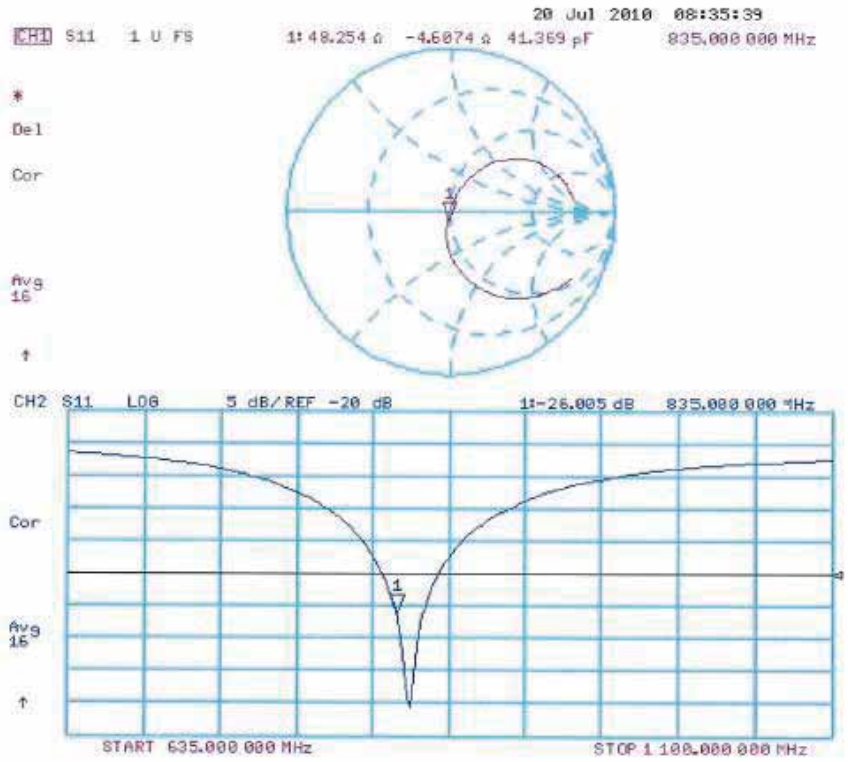
- Probe: ES3DV3 - SN3205; ConvF(5.86, 5.86, 5.86); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.1 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 3.81 W/kg
SAR(1 g) = 2.58 mW/g; SAR(10 g) = 1.69 mW/g
Maximum value of SAR (measured) = 2.98 mW/g



0 dB = 2.98mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 108**

Client **Auden**

Certificate No: **D1800V2-2d052_Jun10**

CALIBRATION CERTIFICATE

Object	D1800V2 - SN: 2d052
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	June 15, 2010

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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	D. Iliev
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 16, 2010

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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.

Measurement Conditions

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

DASY Version	DASY5	V52.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 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	39.8 ± 6 %	1.38 mho/m ± 6 %
Head TSL temperature during test	(22.5 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.64 mW / g
SAR normalized	normalized to 1W	38.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**38.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.08 mW / g
SAR normalized	normalized to 1W	20.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.4 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	53.5 ± 6 %	1.48 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.56 mW / g
SAR normalized	normalized to 1W	38.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**38.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.17 mW / g
SAR normalized	normalized to 1W	20.7 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.9 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	46.5 Ω - 4.9 jΩ
Return Loss	- 24.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	43.5 Ω - 5.0 jΩ
Return Loss	- 21.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.215 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 05, 2002

DASY5 Validation Report for Head TSL

Date/Time: 15.06.2010 09:54:47

Test Laboratory: SPEAG, Zurich, Switzerland

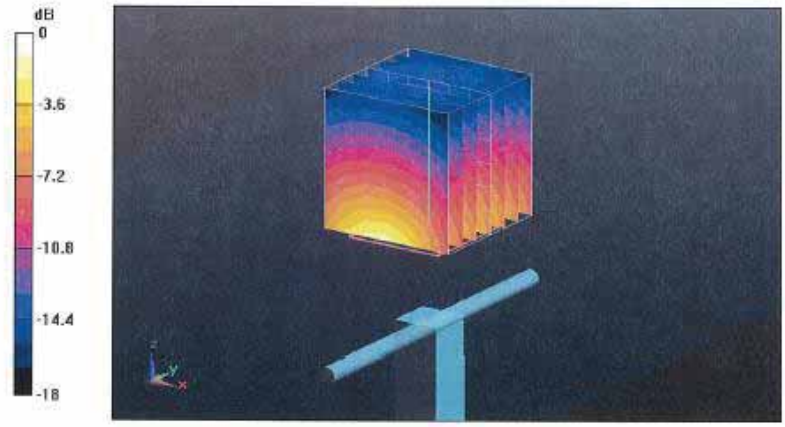
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d052

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 1800 MHz; σ = 1.38 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

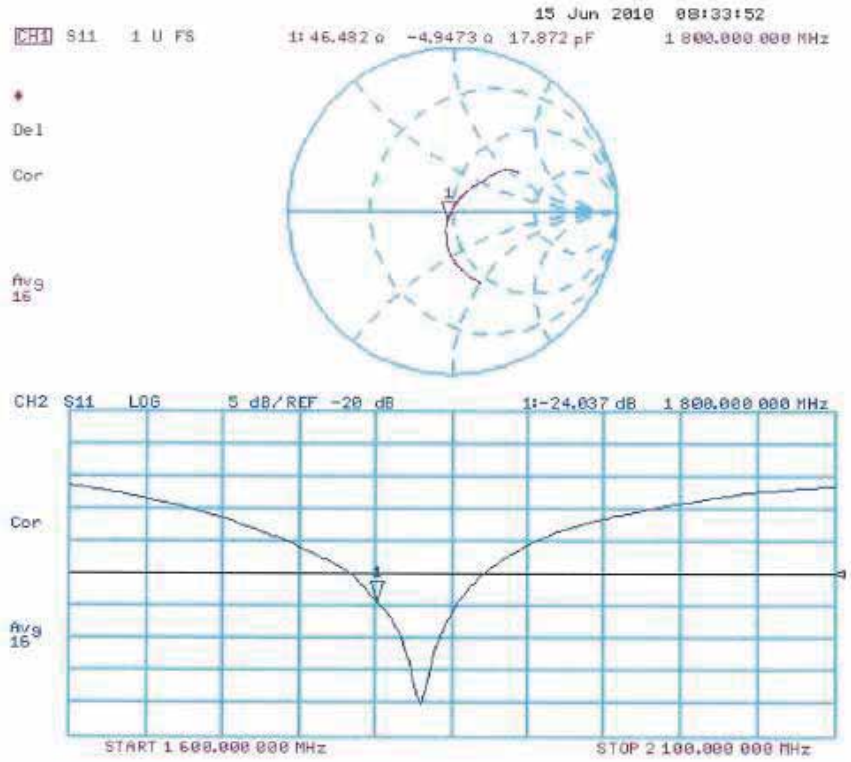
- Probe: ES3DV3 - SN3205; ConvF(5.05, 5.05, 5.05); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe) /Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.8 V/m; Power Drift = 0.016 dB
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 9.64 mW/g; SAR(10 g) = 5.08 mW/g
Maximum value of SAR (measured) = 12 mW/g



0 dB = 12mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 15.06.2010 12:04:36

Test Laboratory: SPEAG, Zurich, Switzerland

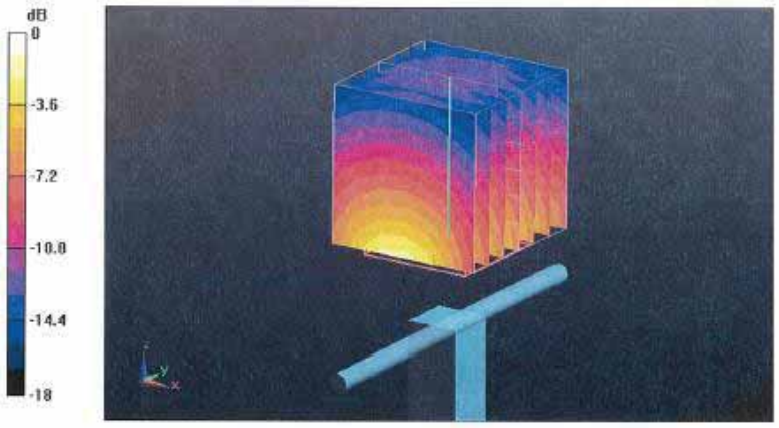
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d052

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: MSL U11 BB
Medium parameters used: f = 1800 MHz; σ = 1.48 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

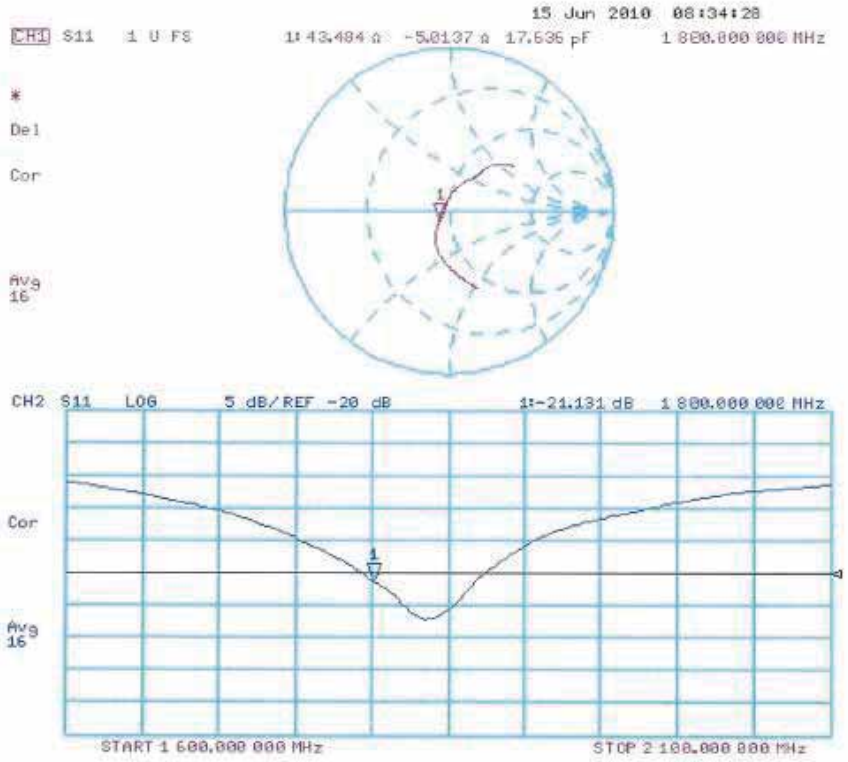
- Probe: ES3DV3 - SN3205; ConvF(4.74, 4.74, 4.74); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.1 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 16.1 W/kg
SAR(1 g) = 9.56 mW/g; SAR(10 g) = 5.17 mW/g
Maximum value of SAR (measured) = 11.8 mW/g



0 dB = 11.8mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 108**

Client **Auden**

Certificate No: **D1900V2-5d018_Jun10**

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d018
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	June 15, 2010

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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 17, 2010

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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.

Measurement Conditions

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

DASY Version	DASY5	V52.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.6 ± 6 %	1.44 mho/m ± 6 %
Head TSL temperature during test	(22.5 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.0 mW / g
SAR normalized	normalized to 1W	40.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.2 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.22 mW / g
SAR normalized	normalized to 1W	20.9 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.7 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	53.4 ± 6 %	1.54 mho/m ± 6 %
Body TSL temperature during test	(21.7 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.3 mW / g
SAR normalized	normalized to 1W	41.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.52 mW / g
SAR normalized	normalized to 1W	22.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**22.0 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.1 Ω + 2.6 jΩ
Return Loss	- 29.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.4 Ω + 3.2 jΩ
Return Loss	- 27.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.194 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	June 04, 2002

DASY5 Validation Report for Head TSL

Date/Time: 15.06.2010 10:40:45

Test Laboratory: SPEAG, Zurich, Switzerland

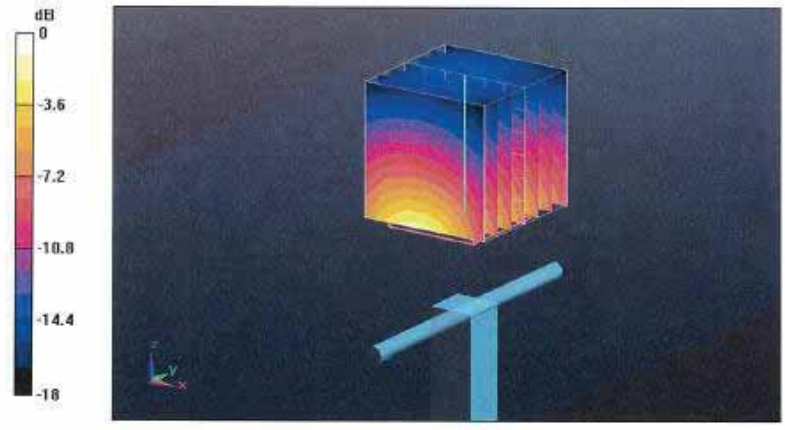
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d018

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 1900 MHz; σ = 1.44 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

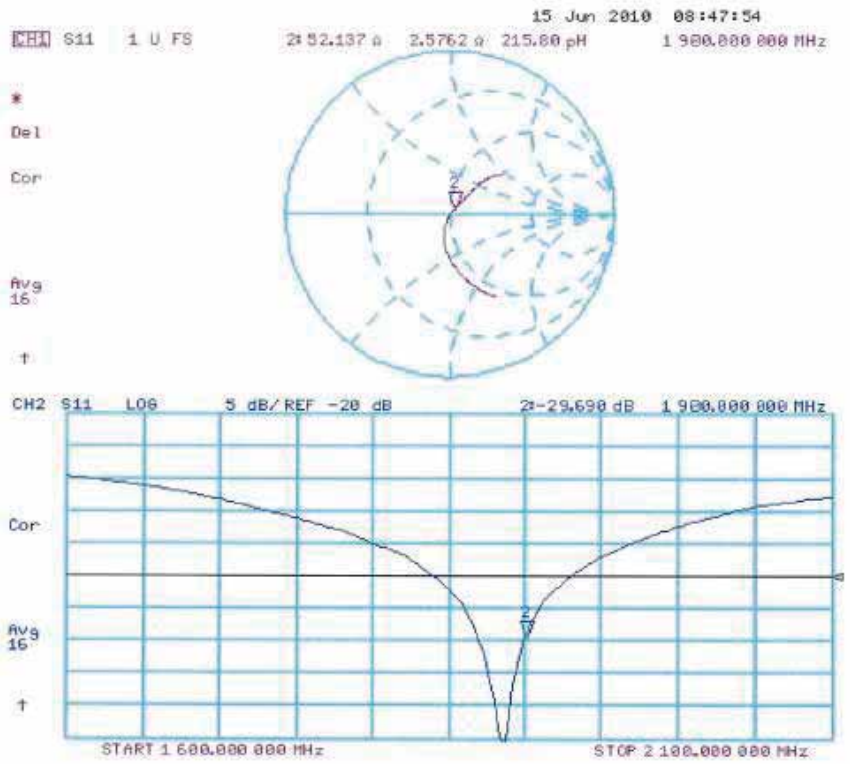
- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.7 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.22 mW/g
Maximum value of SAR (measured) = 12.6 mW/g



0 dB = 12.6mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 15.06.2010 14:14:27

Test Laboratory: SPEAG, Zurich, Switzerland

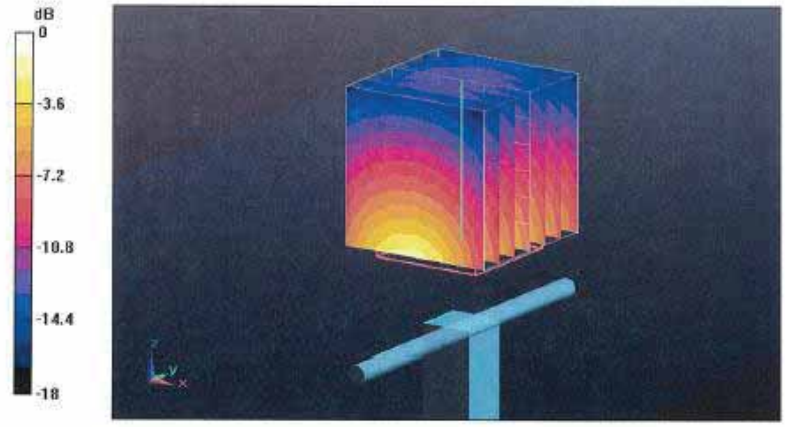
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d018

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U11 BB
Medium parameters used: f = 1900 MHz; σ = 1.54 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

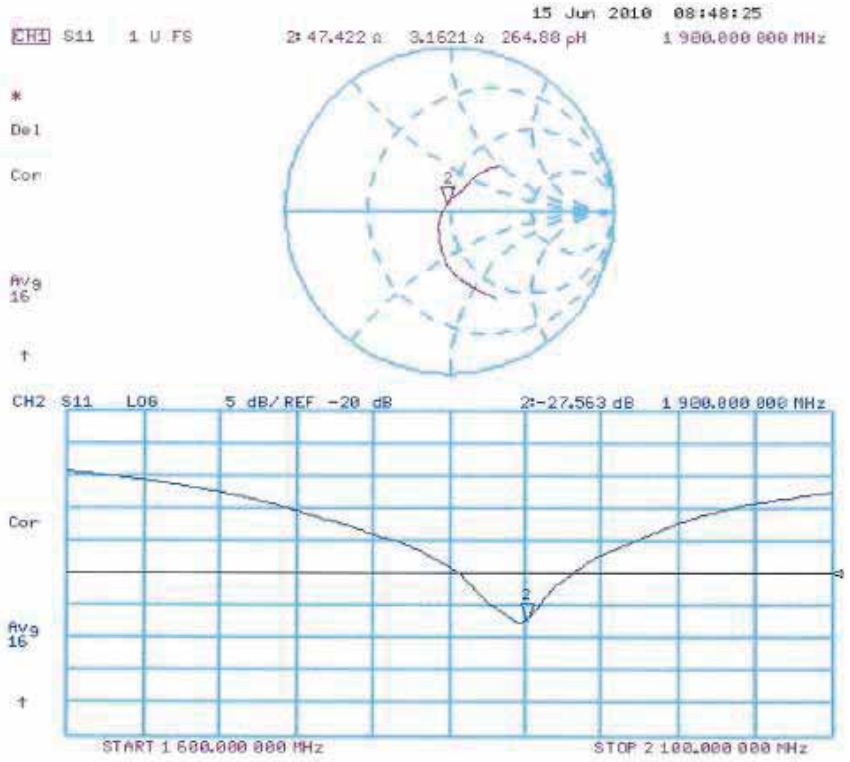
- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.1 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 17.3 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.52 mW/g
Maximum value of SAR (measured) = 12.8 mW/g



0 dB = 12.8mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client **Sporton (Auden)**

Certificate No: DAE4-1210_Nov10

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 1210
Calibration procedure(s)	QA CAL-06.v22 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	November 18, 2010

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-10 (No:10376)	Sep-11
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	07-Jun-10 (in house check)	In house check: Jun-11

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

Issued: November 18, 2010

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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	404.092 ± 0.1% (k=2)	404.921 ± 0.1% (k=2)	405.027 ± 0.1% (k=2)
Low Range	3.99932 ± 0.7% (k=2)	3.98397 ± 0.7% (k=2)	3.99953 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	68.0 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200001.5	-1.32	0.00
Channel X	+ Input	20000.95	0.95	0.00
Channel X	- Input	-19998.31	1.39	-0.01
Channel Y	+ Input	200000.7	-1.08	-0.00
Channel Y	+ Input	20000.03	0.23	0.00
Channel Y	- Input	-19999.95	-0.35	0.00
Channel Z	+ Input	200010.3	-0.33	-0.00
Channel Z	+ Input	19997.81	-2.89	-0.01
Channel Z	- Input	-20001.02	-1.32	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	1999.6	-0.26	-0.01
Channel X	+ Input	199.98	-0.02	-0.01
Channel X	- Input	-200.01	-0.01	0.00
Channel Y	+ Input	2000.6	0.54	0.03
Channel Y	+ Input	199.17	-1.03	-0.51
Channel Y	- Input	-200.54	-0.84	0.42
Channel Z	+ Input	1999.9	-0.05	-0.00
Channel Z	+ Input	199.17	-0.93	-0.47
Channel Z	- Input	-201.25	-1.15	0.58

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	-6.04	-7.77
	- 200	8.97	7.28
Channel Y	200	-8.99	-8.75
	- 200	7.60	7.00
Channel Z	200	12.34	11.86
	- 200	-14.01	-14.18

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	-	3.24	0.60
Channel Y	200	1.78	-	3.29
Channel Z	200	1.92	-0.13	-

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	15945	17239
Channel Y	15959	16297
Channel Z	15874	17186

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	0.14	-1.10	1.73	0.40
Channel Y	-0.64	-1.49	0.23	0.33
Channel Z	-1.30	-2.71	0.16	0.44

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 **Auden**

Certificate No: ES3-3071_Jun10

CALIBRATION CERTIFICATE

Object	ES3DV3 - SN:3071
Calibration procedure(s)	QA CAL-01.v6, QA CAL-23.v3 and QA CAL-25.v2 Calibration procedure for dosimetric E-field probes
Calibration date:	June 22, 2010

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct10

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

Issued: June 22, 2010

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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 effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *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:3071

Manufactured:	December 14, 2004
Last calibrated:	June 22, 2009
Recalibrated:	June 22, 2010

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

ES3DV3 SN:3071 June 22, 2010

DASY/EASY - Parameters of Probe: ES3DV3 SN:3071

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.24	1.22	0.97	± 10.1%
DCP (mV)[B]	96.6	92.2	92.6	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	300.0	± 1.5%
			Y	0.00	0.00	1.00	300.0	
			Z	0.00	0.00	1.00	300.0	

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 maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

ES3DV3 SN:3071 June 22, 2010

DASY/EASY - Parameters of Probe: ES3DV3 SN:3071

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	5.81	5.81	5.81	0.98	1.02 ± 11.0%
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	5.67	5.67	5.67	0.75	1.15 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	4.94	4.94	4.94	0.35	1.77 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.73	4.73	4.73	0.57	1.35 ± 11.0%
2000	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.67	4.67	4.67	0.56	1.35 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	4.20	4.20	4.20	0.38	1.93 ± 11.0%

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

ES3DV3 SN:3071 June 22, 2010

DASY/EASY - Parameters of Probe: ES3DV3 SN:3071

Calibration Parameter Determined in Body Tissue Simulating Media

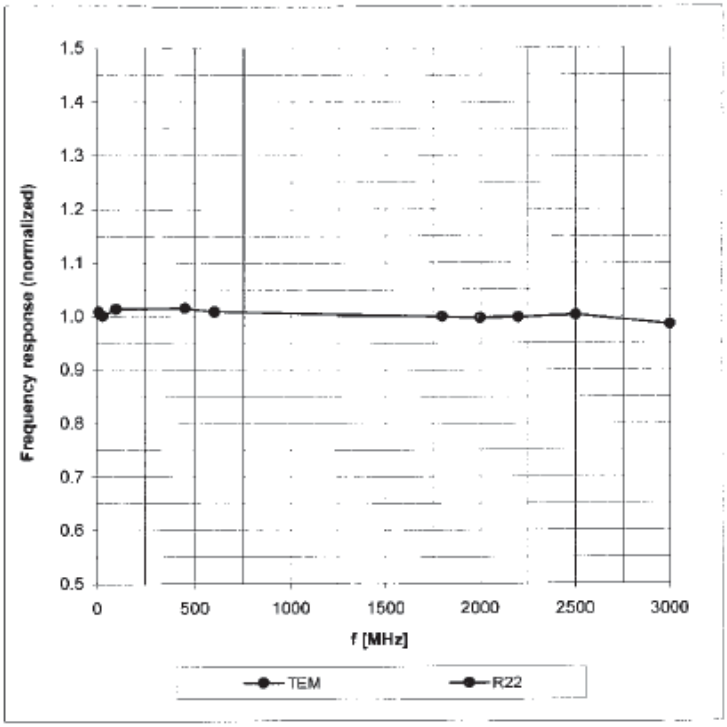
f [MHz]	Validity [MHz][c]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	5.79	5.79	5.79	0.73	1.17 ± 11.0%
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	5.71	5.71	5.71	0.85	1.14 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	4.52	4.52	4.52	0.40	1.79 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.30	4.30	4.30	0.38	2.04 ± 11.0%
2000	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.36	4.36	4.36	0.42	1.91 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	4.00	4.00	4.00	0.80	1.25 ± 11.0%

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

ES3DV3 SN:3071 June 22, 2010

Frequency Response of E-Field

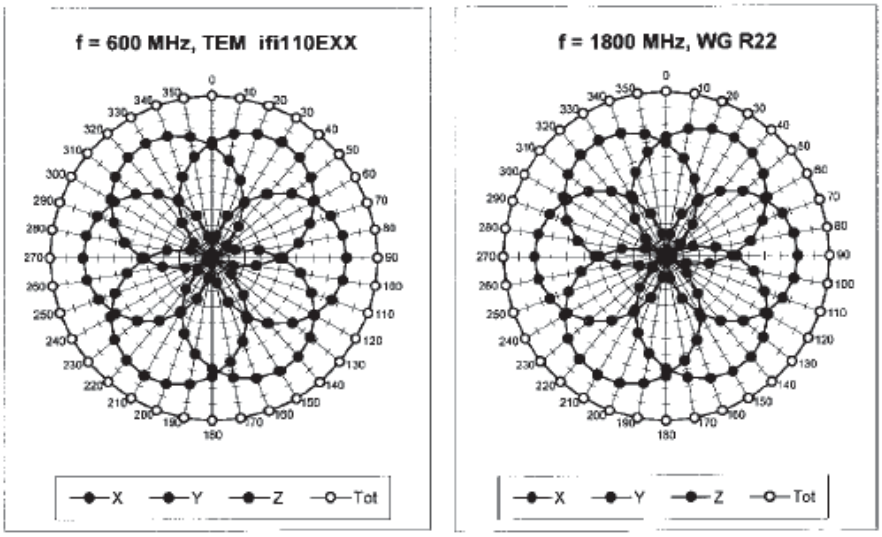
(TEM-Cell:ifi110 EXX, Waveguide: R22)

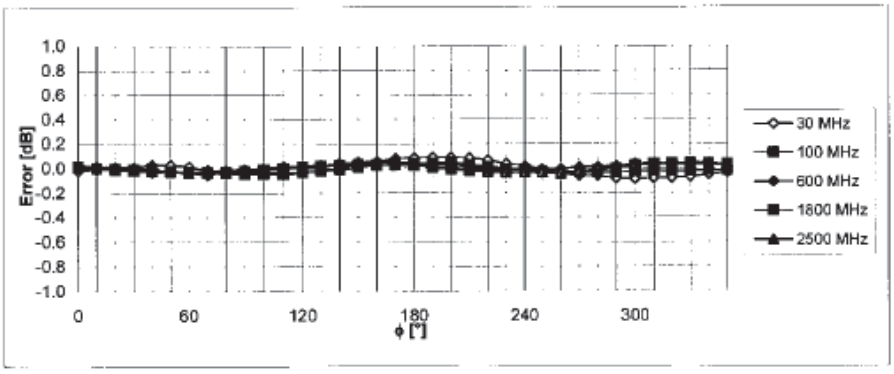


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ES3DV3 SN:3071 June 22, 2010

Receiving Pattern (ϕ), ϑ = 0°



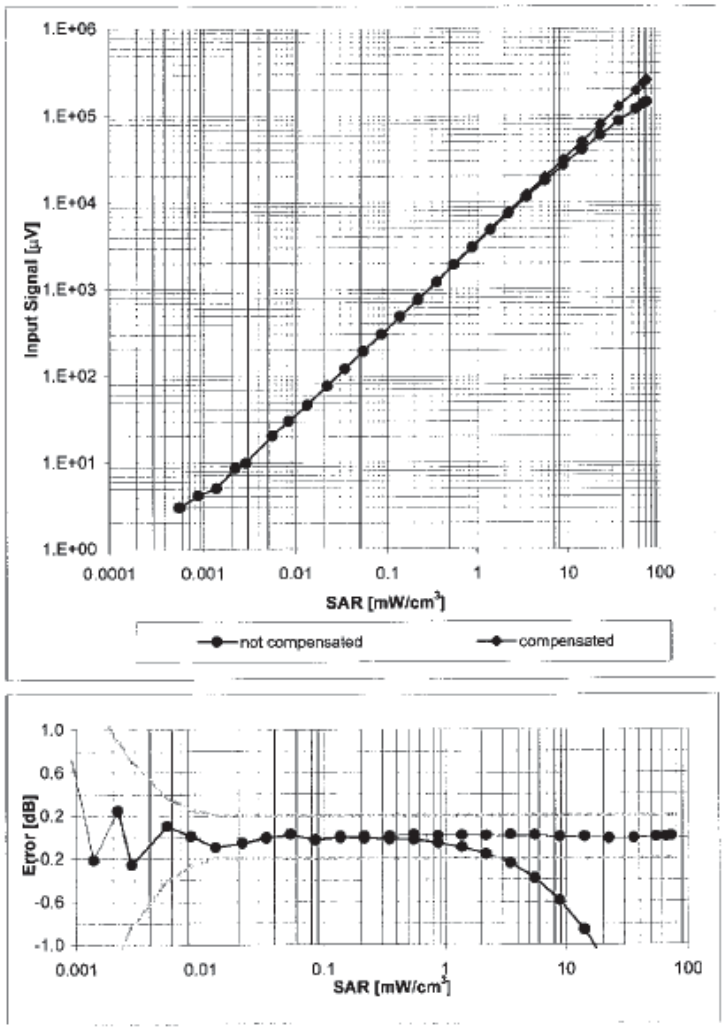


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ES3DV3 SN:3071 June 22, 2010

Dynamic Range f(SAR_{head})

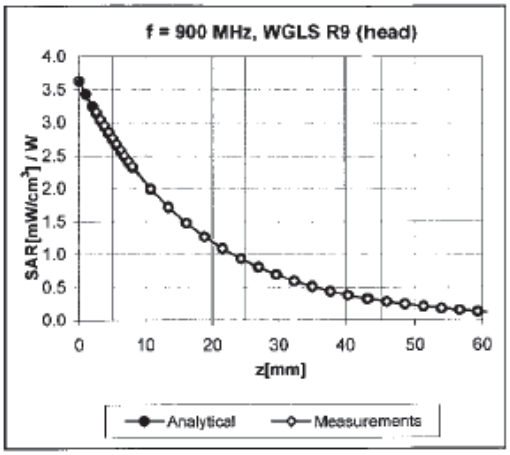
(Waveguide R22, f = 1800 MHz)

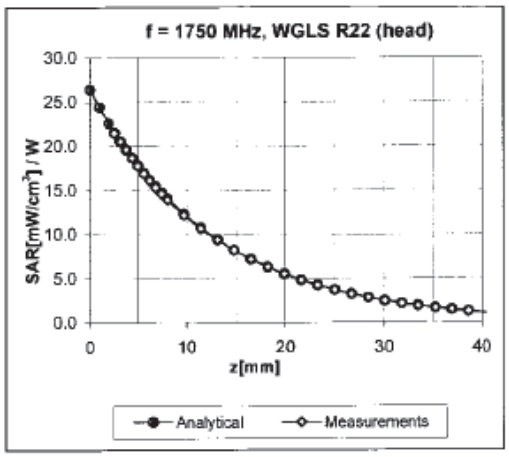


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

ES3DV3 SN:3071 June 22, 2010

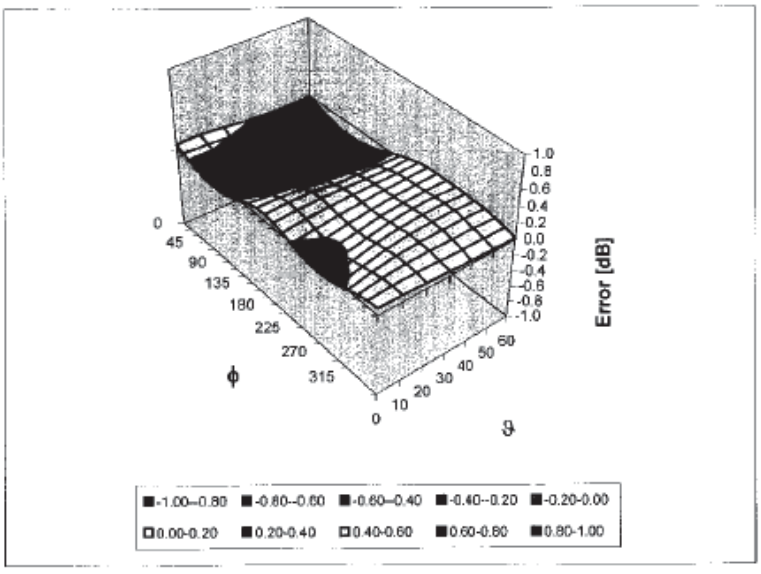
Conversion Factor Assessment





Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

ES3DV3 SN:3071 June 22, 2010

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	4.0 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