#96 802.11a_Right Tilted_Ch48_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium: HSL_5G_110502 Medium parameters used : f = 5240 MHz; σ = 4.84 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3

Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(4.83, 4.83, 4.83); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch48/Area Scan (101x201x1): Measurement grid: dx=10mm, dy=10mm
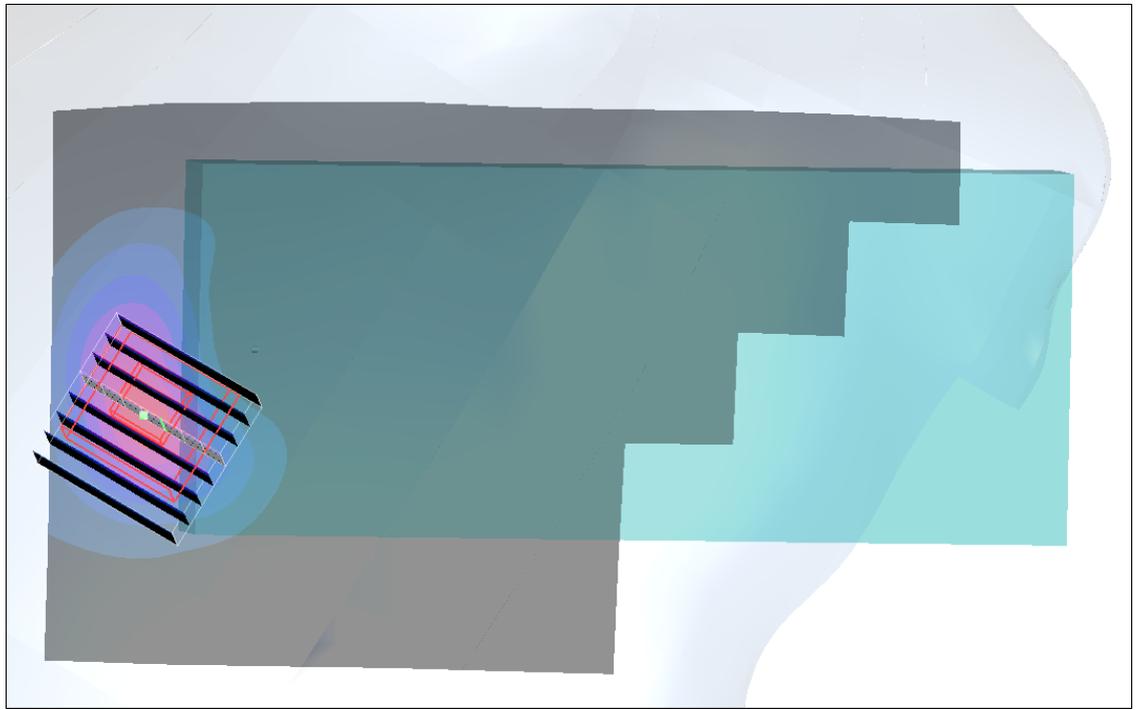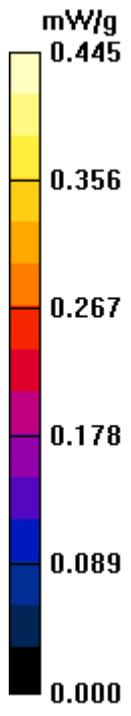Maximum value of SAR (interpolated) = 0.239 mW/g

Ch48/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 1.52 V/m; Power Drift = -0.176 dB
Peak SAR (extrapolated) = 0.813 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.091 mW/g
Maximum value of SAR (measured) = 0.445 mW/g

#97 802.11a_Right Tilted_Ch52_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium: HSL_5G_110502 Medium parameters used : f = 5260 MHz; σ = 4.86 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(4.46, 4.46, 4.46); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch52/Area Scan (101x201x1): Measurement grid: dx=10mm, dy=10mm
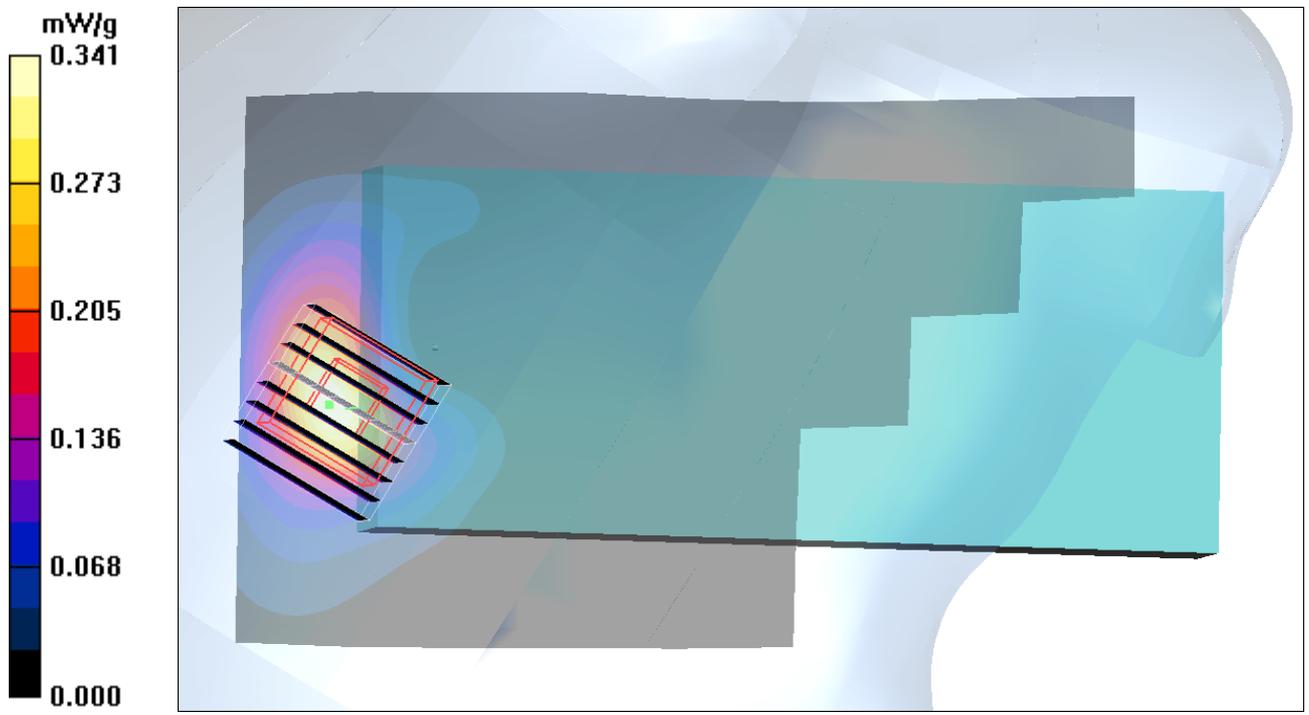Maximum value of SAR (interpolated) = 0.341 mW/g

Ch52/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 1.73 V/m; Power Drift = 0.166 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.328 mW/g; SAR(10 g) = 0.124 mW/g
Maximum value of SAR (measured) = 0.602 mW/g

#98 802.11a_Right Tilted_Ch64_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium: HSL_5G_110502 Medium parameters used : f = 5320 MHz; σ = 4.92
mho/m; ε_r = 35.3; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(4.46, 4.46, 4.46); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch64/Area Scan (101x201x1): Measurement grid: dx=10mm, dy=10mm
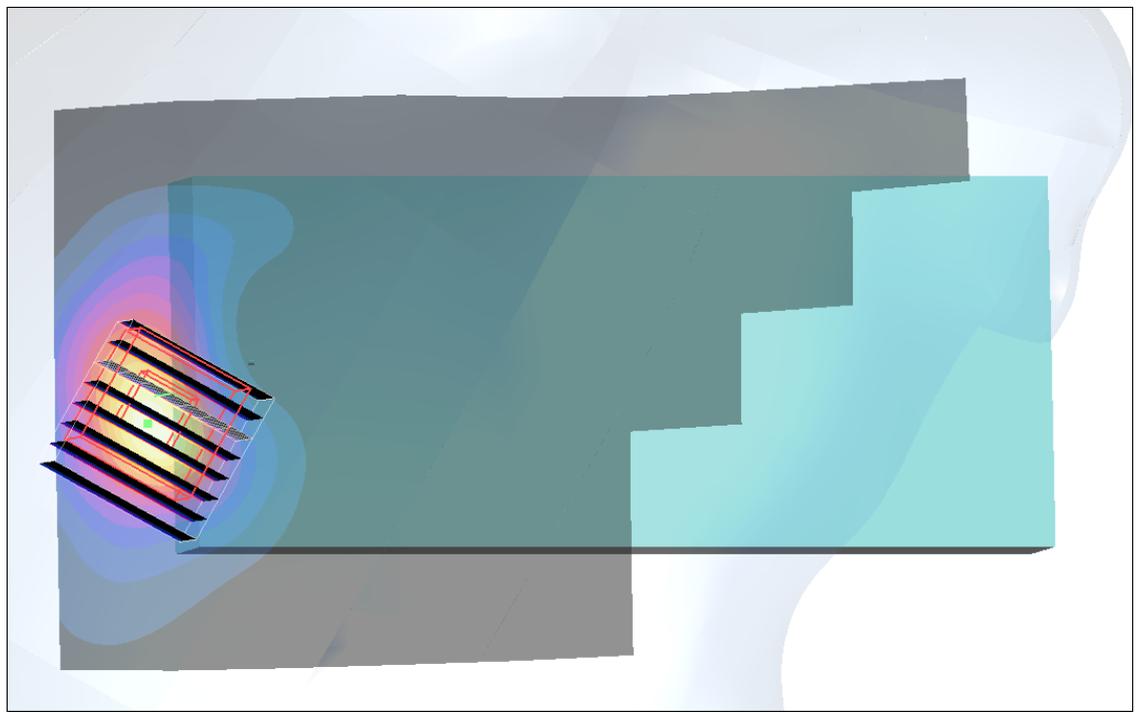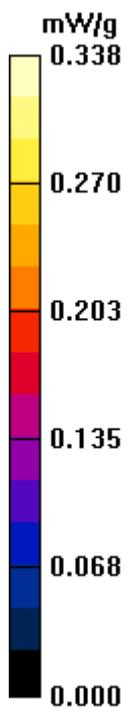Maximum value of SAR (interpolated) = 0.338 mW/g

Ch64/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm,
dz=2.5mm
Reference Value = 1.83 V/m; Power Drift = 0.122 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.369 mW/g; SAR(10 g) = 0.136 mW/g
Maximum value of SAR (measured) = 0.670 mW/g

#99 802.11a_Right Tilted_Ch116_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium: HSL_5G_110502 Medium parameters used : f = 5580 MHz; σ = 5.18
mho/m; ε_r = 34.8; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(4.07, 4.07, 4.07); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch116/Area Scan (101x201x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.425 mW/g

Ch116/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 2.21 V/m; Power Drift = -0.166 dB
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.380 mW/g; SAR(10 g) = 0.138 mW/g
Maximum value of SAR (measured) = 0.698 mW/g
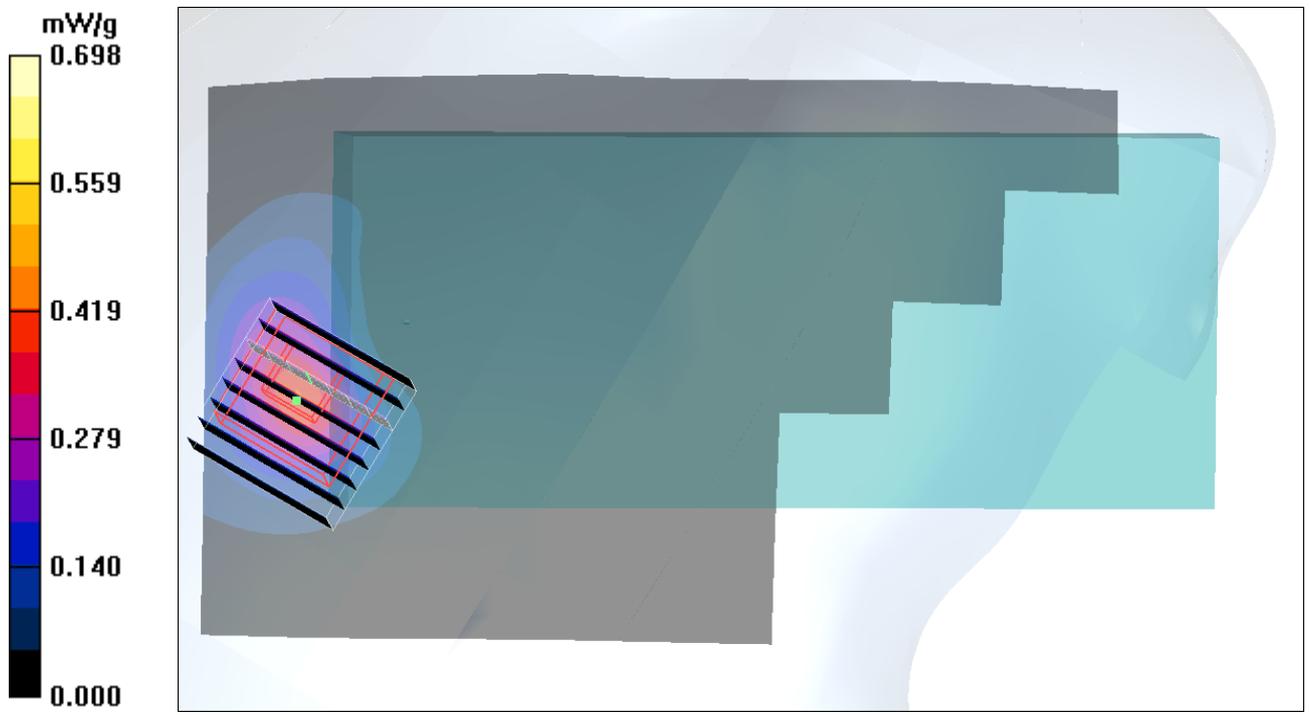
#101 802.11a_Right Tilted_Ch136_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5680 MHz;Duty Cycle: 1:1
Medium: HSL_5G_110502 Medium parameters used : f = 5680 MHz; σ = 5.29 mho/m; ε_r = 34.6; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(4.07, 4.07, 4.07); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch136/Area Scan (101x201x1): Measurement grid: dx=10mm, dy=10mm
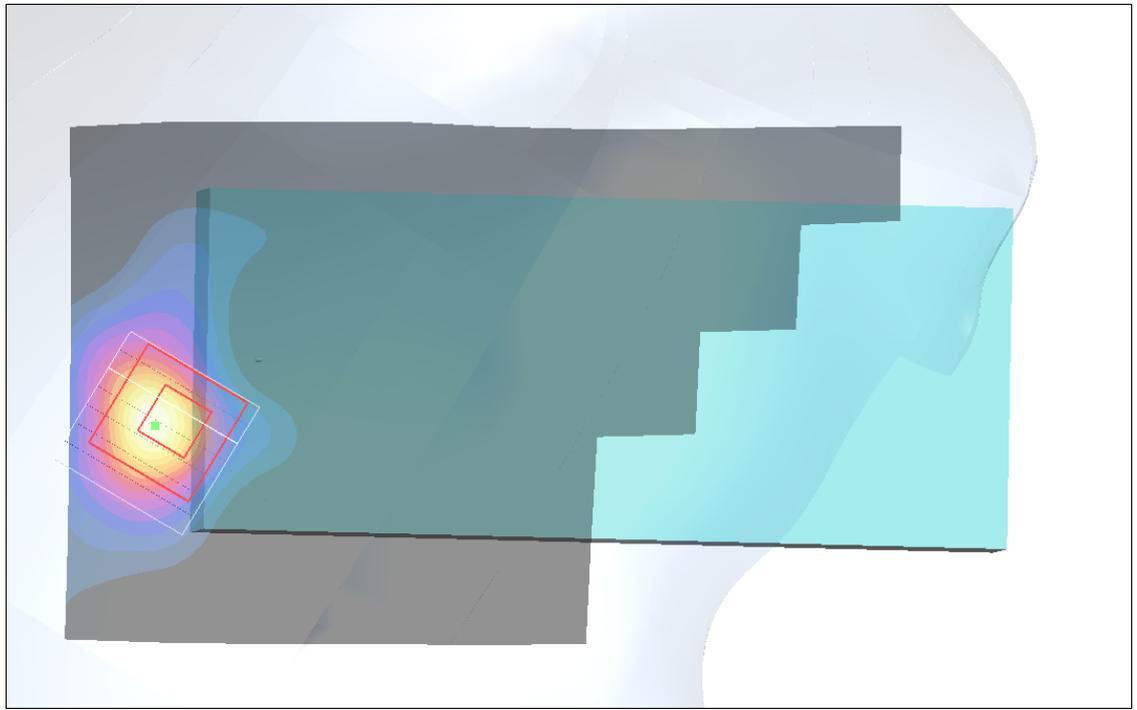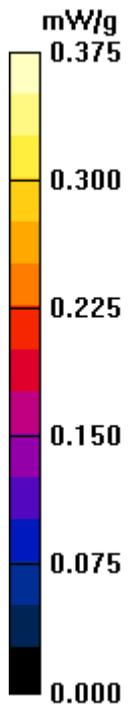Maximum value of SAR (interpolated) = 0.375 mW/g

Ch136/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 1.72 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 0.991 W/kg
SAR(1 g) = 0.293 mW/g; SAR(10 g) = 0.107 mW/g
Maximum value of SAR (measured) = 0.543 mW/g

#102 802.11a_Right Tilted_Ch149_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: HSL_5G_110502 Medium parameters used : f = 5745 MHz; σ = 5.36 mho/m; ε_r = 34.6; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(4.22, 4.22, 4.22); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch149/Area Scan (101x201x1): Measurement grid: dx=10mm, dy=10mm
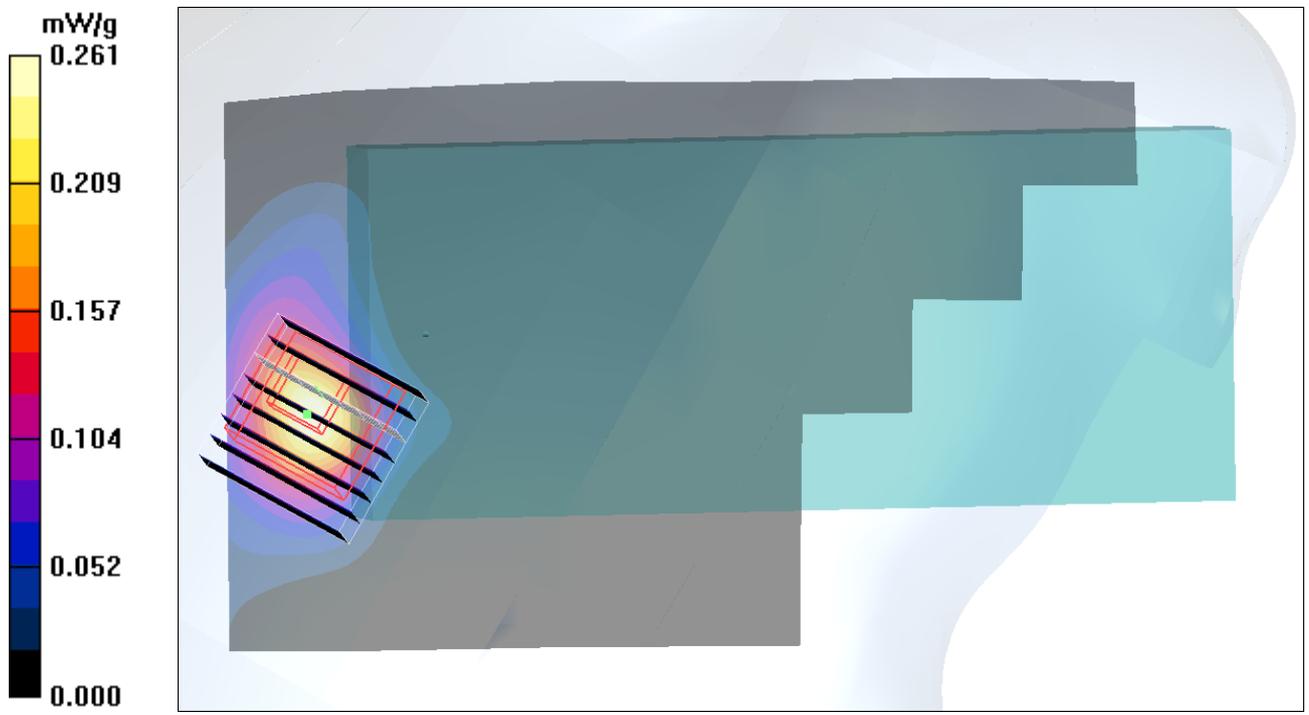Maximum value of SAR (interpolated) = 0.261 mW/g

Ch149/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.395 V/m; Power Drift = -0.0999 dB
Peak SAR (extrapolated) = 0.772 W/kg
SAR(1 g) = 0.223 mW/g; SAR(10 g) = 0.079 mW/g
Maximum value of SAR (measured) = 0.423 mW/g

#103 802.11a_Right Tilted_Ch157_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: HSL_5G_110502 Medium parameters used : f = 5785 MHz; σ = 5.39 mho/m; ε_r = 34.5; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(4.22, 4.22, 4.22); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch157/Area Scan (101x201x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.231 mW/g

Ch157/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.000 V/m; Power Drift = 0.129 dB
Peak SAR (extrapolated) = 0.816 W/kg
SAR(1 g) = 0.232 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.445 mW/g
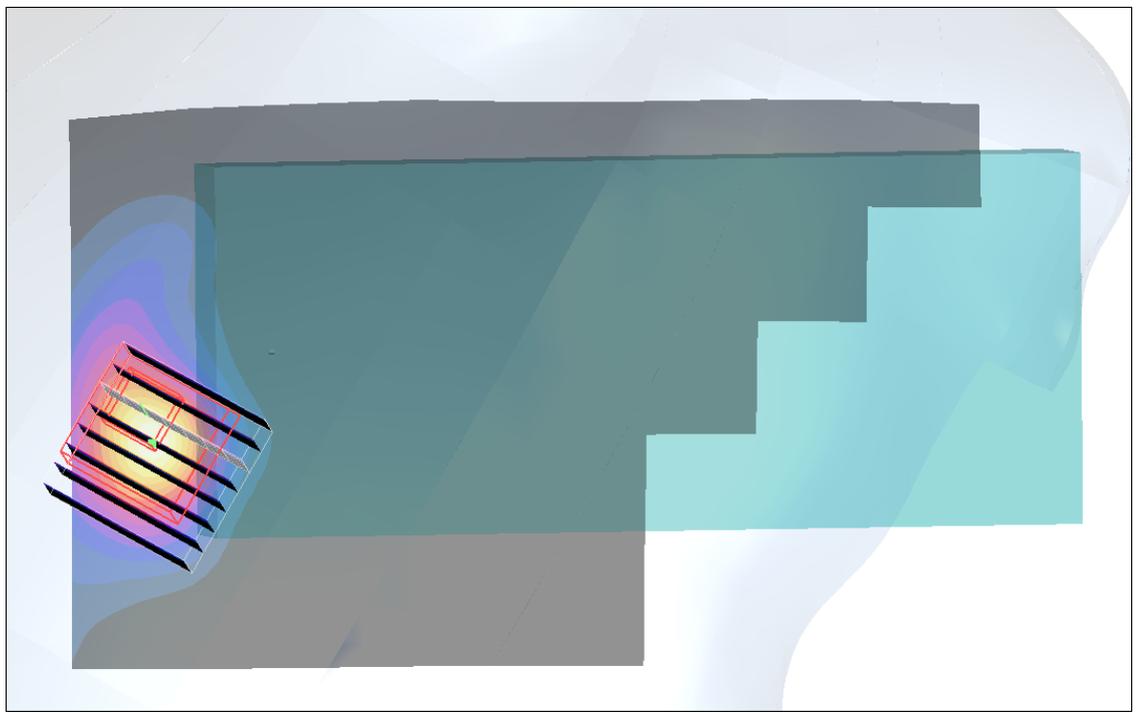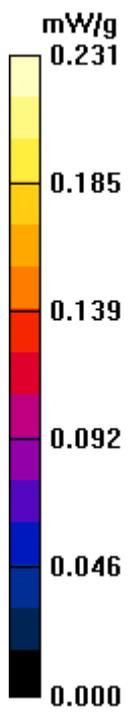
#104 802.11a_Right Tilted_Ch161_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium: HSL_5G_110502 Medium parameters used : f = 5805 MHz; σ = 5.4

mho/m; ε_r = 34.4; ρ = 1000 kg/m^3

Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(4.22, 4.22, 4.22); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch161/Area Scan (101x201x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.346 mW/g

Ch161/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.832 V/m; Power Drift = 0.137 dB
Peak SAR (extrapolated) = 0.898 W/kg
SAR(1 g) = 0.264 mW/g; SAR(10 g) = 0.098 mW/g
Maximum value of SAR (measured) = 0.489 mW/g
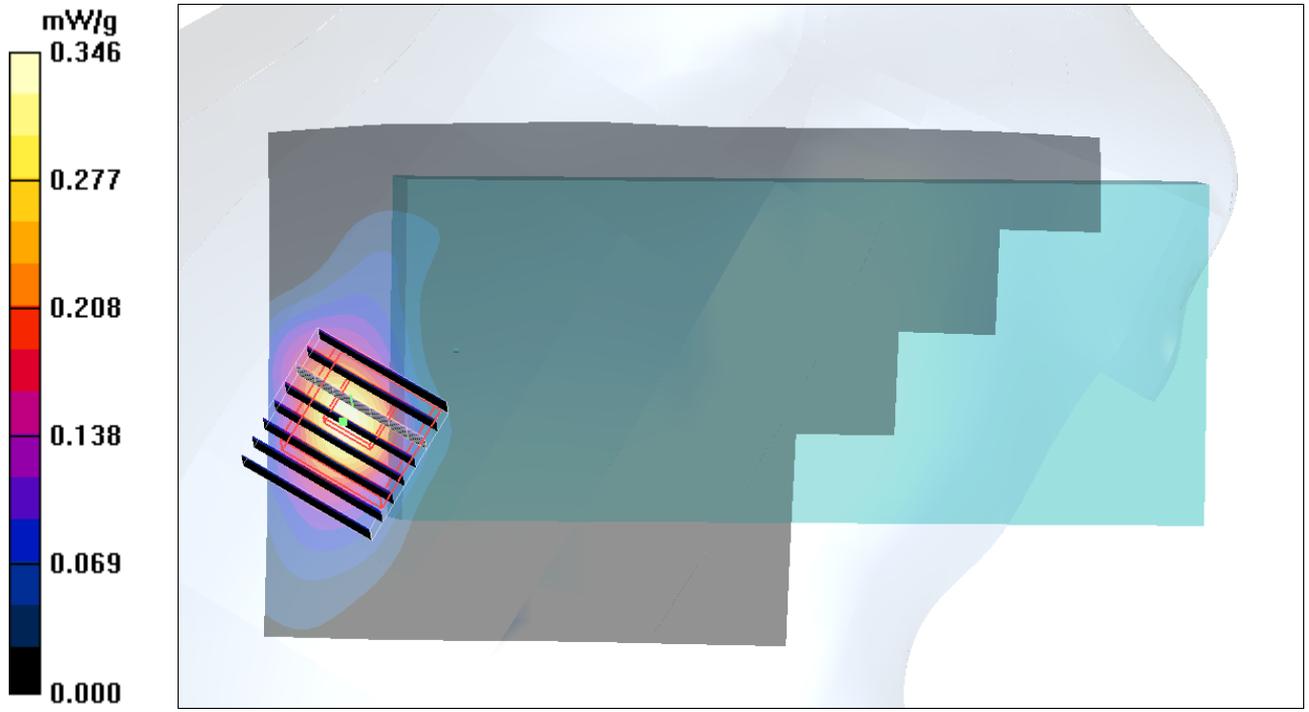
#105 802.11a_Right Tilted_Ch165_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium: HSL_5G_110502 Medium parameters used : f = 5825 MHz; σ = 5.42

mho/m; ε_r = 34.3; ρ = 1000 kg/m^3

Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(4.22, 4.22, 4.22); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch165/Area Scan (101x201x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.354 mW/g

Ch165/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.731 V/m; Power Drift = -0.163 dB
Peak SAR (extrapolated) = 0.816 W/kg
SAR(1 g) = 0.231 mW/g; SAR(10 g) = 0.084 mW/g
Maximum value of SAR (measured) = 0.435 mW/g
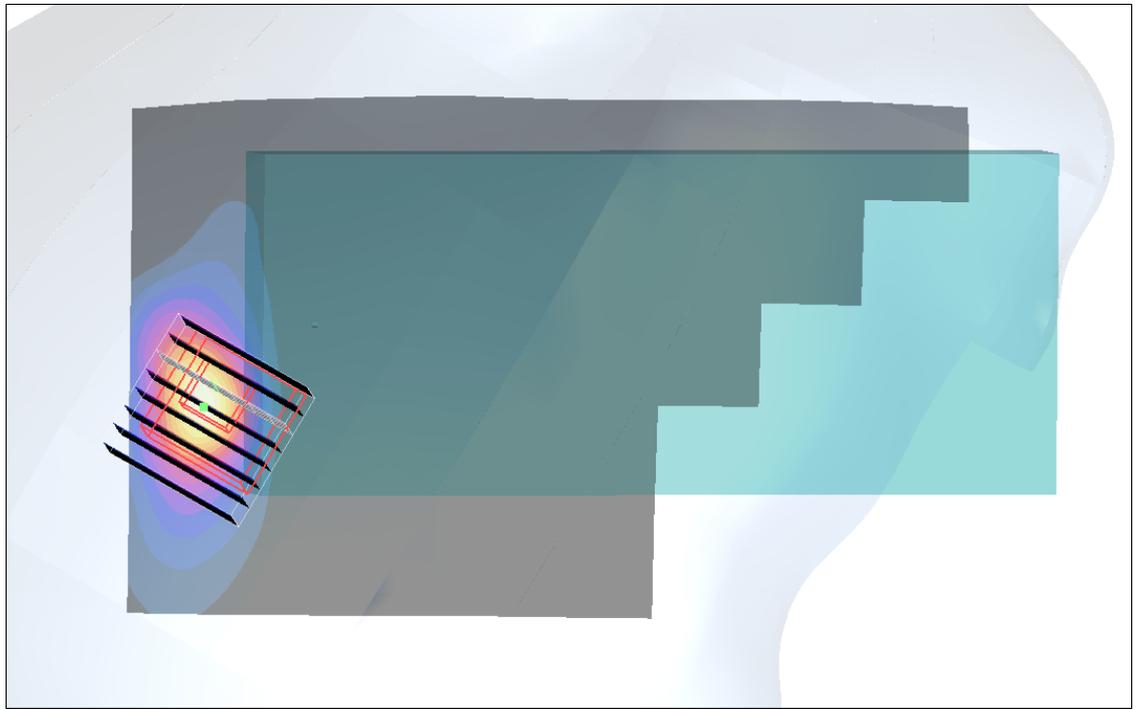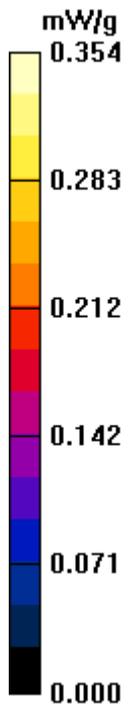
#117 802.11b_Face_1cm_Ch1_Slide Off_Battery1

DUT: 130815

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_110503 Medium parameters used: f = 2412 MHz; σ = 1.88
mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃；Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(7.02, 7.02, 7.02); Calibrated: 2010/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch1/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.021 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm,
dz=5mm
Reference Value = 1.88 V/m; Power Drift = 0.191 dB
Peak SAR (extrapolated) = 0.035 W/kg
SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.010 mW/g
Maximum value of SAR (measured) = 0.019 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm,
dz=5mm
Reference Value = 1.88 V/m; Power Drift = 0.191 dB
Peak SAR (extrapolated) = 0.033 W/kg
SAR(1 g) = 0.017 mW/g; SAR(10 g) = 0.010 mW/g
Maximum value of SAR (measured) = 0.018 mW/g

#118 802.11b_Bottom_1cm_Ch1_Slide Off_Battery1

DUT: 130815

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_110503 Medium parameters used: f = 2412 MHz; σ = 1.88
mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃；Liquid Temperature：21.5 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(7.02, 7.02, 7.02); Calibrated: 2010/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch1/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.114 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm,
dz=5mm
Reference Value = 3.40 V/m; Power Drift = 0.164 dB
Peak SAR (extrapolated) = 0.230 W/kg
SAR(1 g) = 0.115 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.125 mW/g
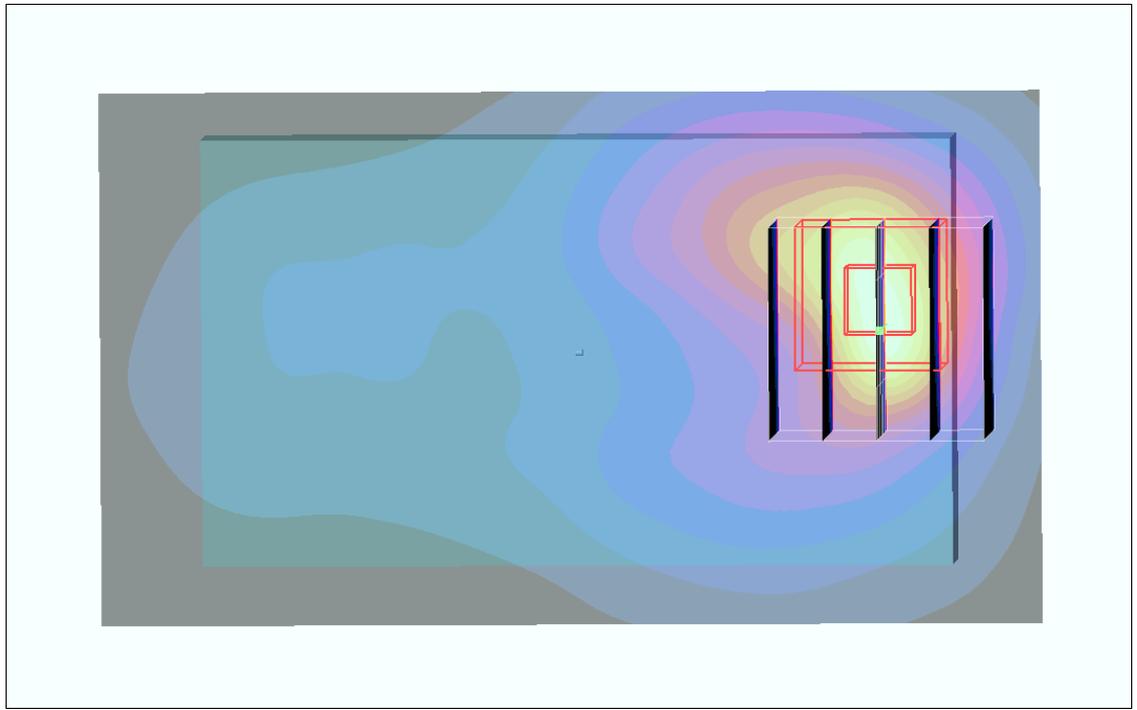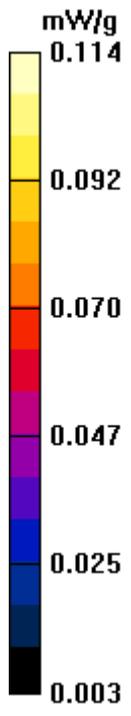
#119 802.11b_Left Side_1cm_Ch1_Slide Off_Battery1

DUT: 130815

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_110503 Medium parameters used: f = 2412 MHz; σ = 1.88
mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃；Liquid Temperature：21.5 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(7.02, 7.02, 7.02); Calibrated: 2010/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch1/Area Scan (31x71x1): Measurement grid: dx=20mm, dy=20mm
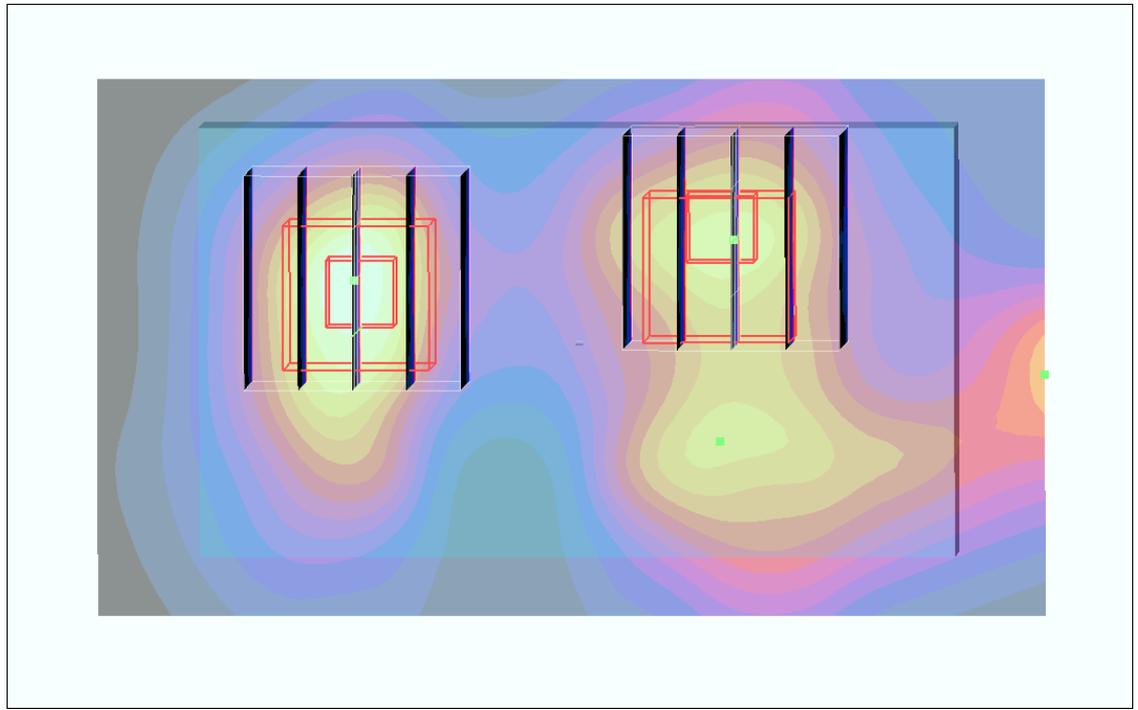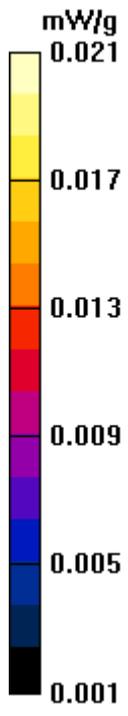Maximum value of SAR (interpolated) = 0.023 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.52 V/m; Power Drift = 0.165 dB
Peak SAR (extrapolated) = 0.045 W/kg
SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.012 mW/g
Maximum value of SAR (measured) = 0.024 mW/g
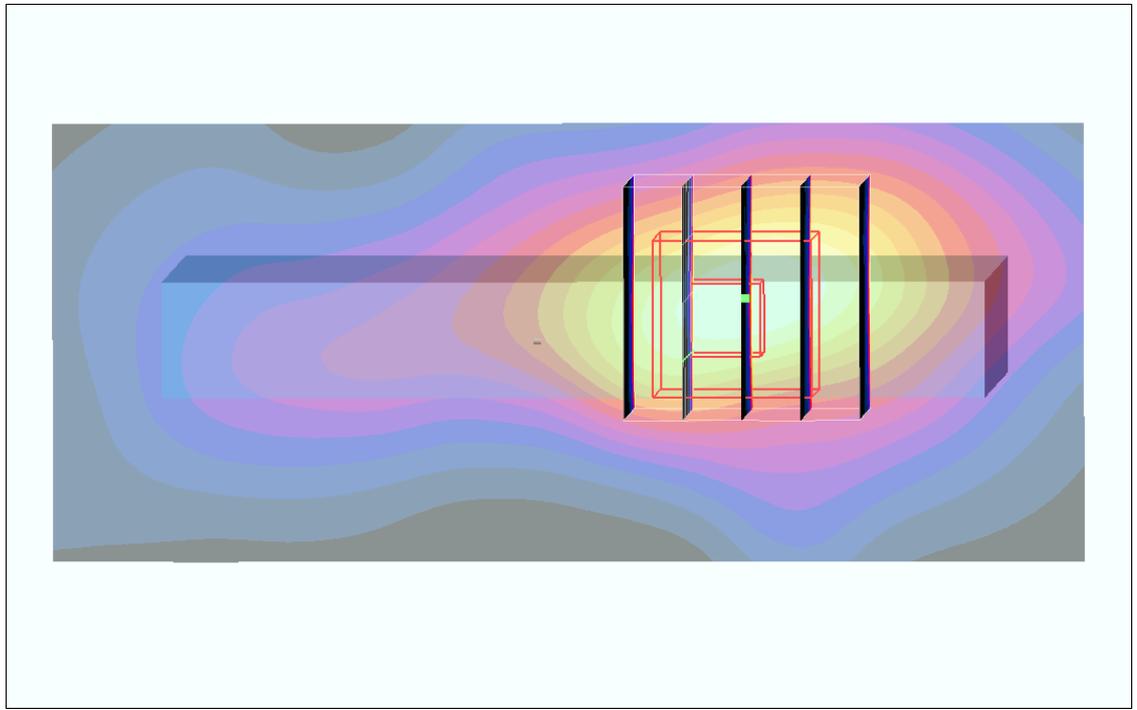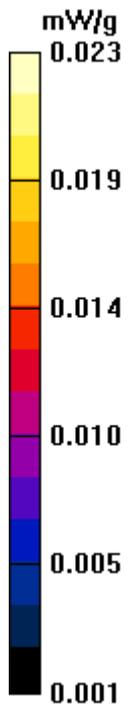
#120 802.11b_Right Side_1cm_Ch1_Slide Off_Battery1

DUT: 130815

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_110503 Medium parameters used: f = 2412 MHz; σ = 1.88
mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃；Liquid Temperature：21.5 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(7.02, 7.02, 7.02); Calibrated: 2010/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch1/Area Scan (31x71x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.022 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.79 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 0.038 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.012 mW/g
Maximum value of SAR (measured) = 0.022 mW/g
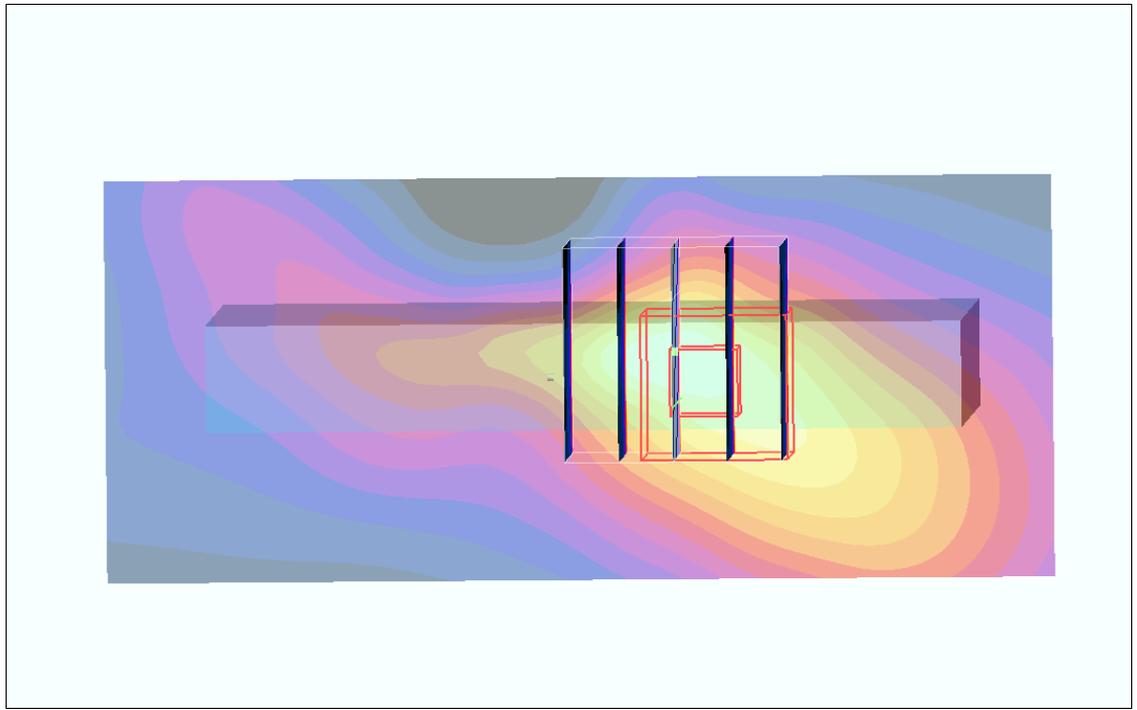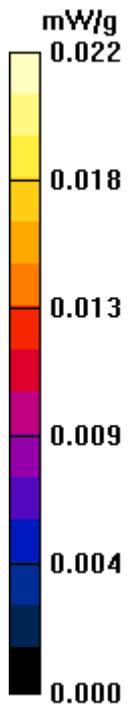
#121 802.11b_Top Side_1cm_Ch1_Slide Off_Battery1

DUT: 130815

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_110503 Medium parameters used: f = 2412 MHz; σ = 1.88
mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃；Liquid Temperature：21.5 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(7.02, 7.02, 7.02); Calibrated: 2010/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch1/Area Scan (31x71x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.096 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm,
dz=5mm
Reference Value = 6.39 V/m; Power Drift = 0.100 dB
Peak SAR (extrapolated) = 0.223 W/kg
SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.049 mW/g
Maximum value of SAR (measured) = 0.117 mW/g
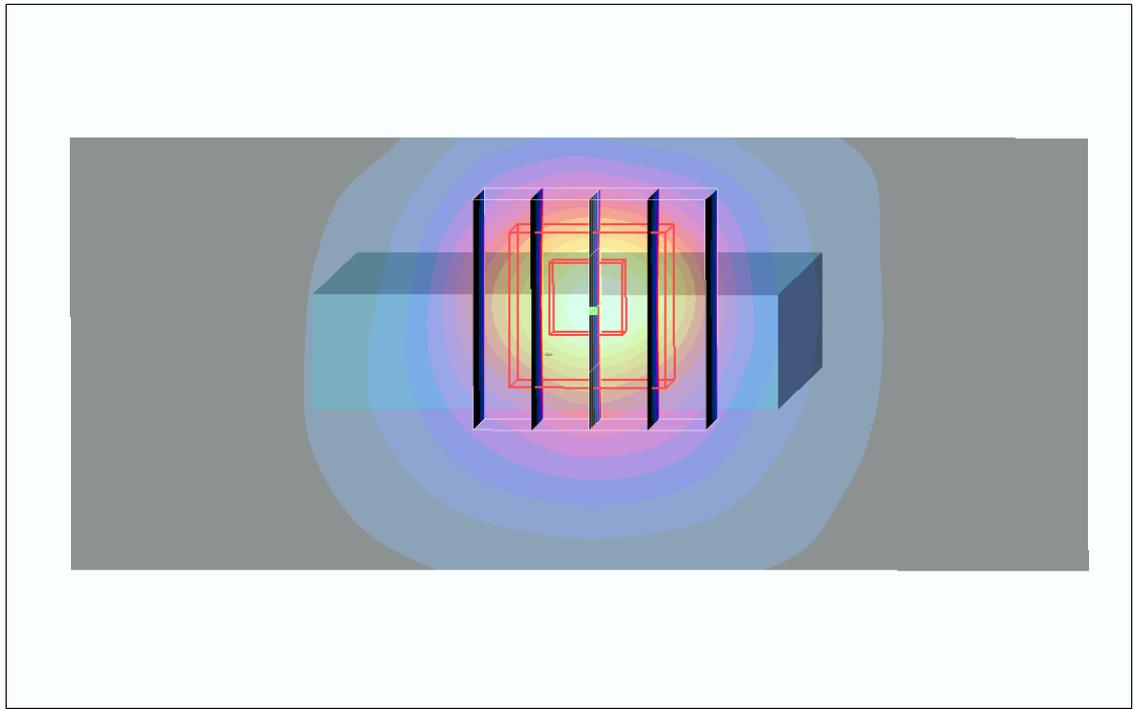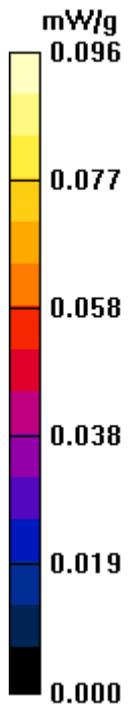
#122 802.11b_Down Side_1cm_Ch1_Slide Off_Battery1

DUT: 130815

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_110503 Medium parameters used: f = 2412 MHz; σ = 1.88 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃；Liquid Temperature：21.5 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(7.02, 7.02, 7.02); Calibrated: 2010/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (31x71x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.009 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.978 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.016 W/kg
SAR(1 g) = 0.00736 mW/g; SAR(10 g) = 0.00435 mW/g
Maximum value of SAR (measured) = 0.008 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.978 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.014 W/kg
SAR(1 g) = 0.00622 mW/g; SAR(10 g) = 0.00383 mW/g
Maximum value of SAR (measured) = 0.007 mW/g
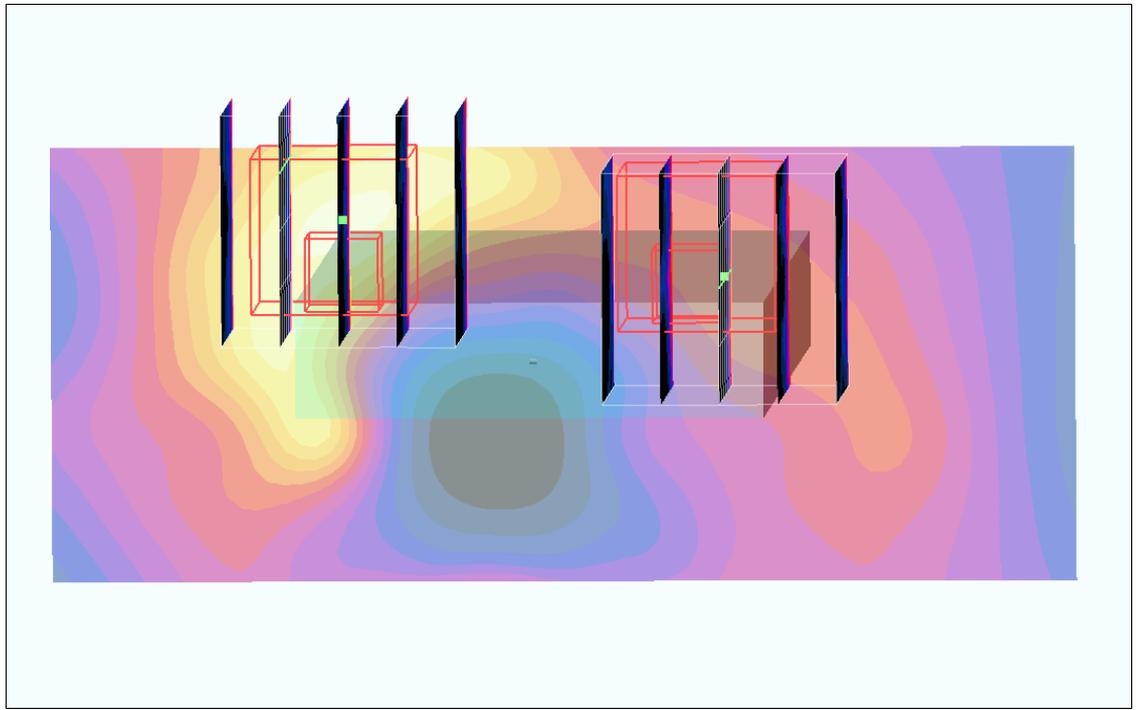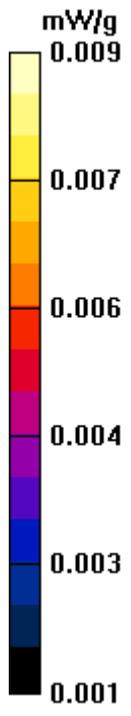
#123 802.11b_Bottom_1cm_Ch1_Slide Off_Battery2

DUT: 130815

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_110503 Medium parameters used: f = 2412 MHz; σ = 1.88

mho/m; ε_r = 53.7; ρ = 1000 kg/m^3

Ambient Temperature：22.5 ℃；Liquid Temperature：21.5 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(7.02, 7.02, 7.02); Calibrated: 2010/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.098 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.19 V/m; Power Drift = 0.106 dB
Peak SAR (extrapolated) = 0.186 W/kg
SAR(1 g) = 0.098 mW/g; SAR(10 g) = 0.050 mW/g
Maximum value of SAR (measured) = 0.107 mW/g
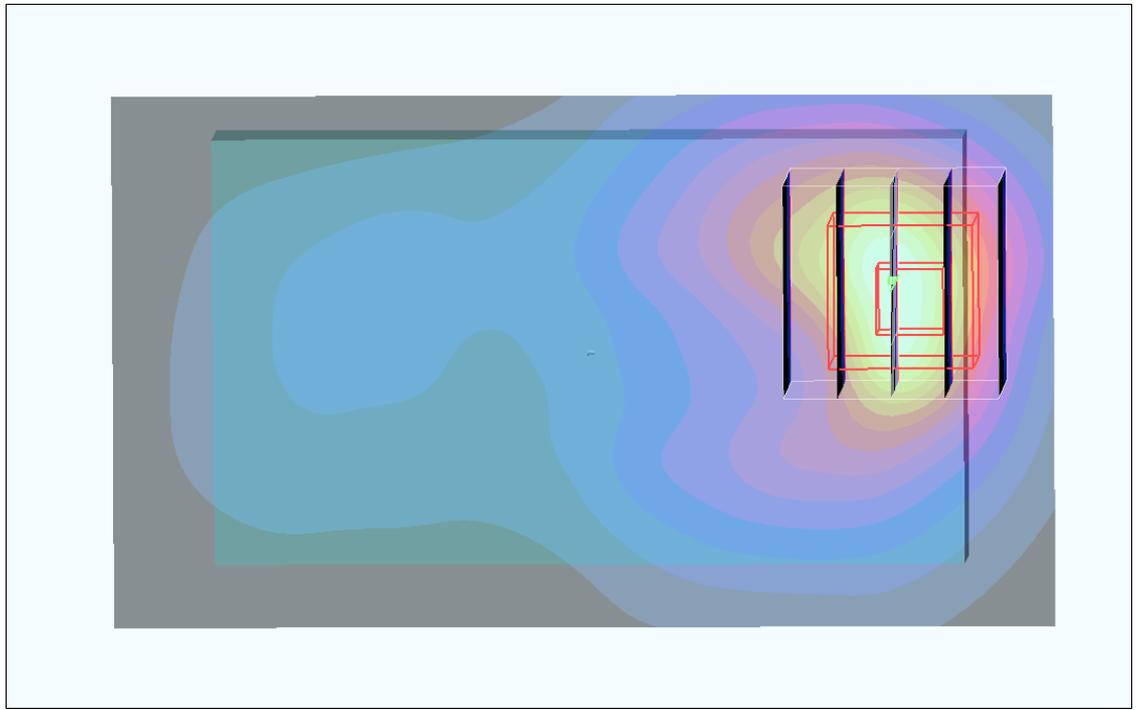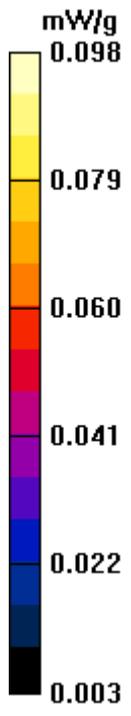
#124 802.11b_Bottom_1cm_Ch1_Slide Off_Battery1_Earphone

DUT: 130815

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_110503 Medium parameters used: f = 2412 MHz; σ = 1.88 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃；Liquid Temperature：21.5 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(7.02, 7.02, 7.02); Calibrated: 2010/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.159 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.41 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 0.308 W/kg
SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.162 mW/g

#124 802.11b_Bottom_1cm_Ch1_Slide Off_Battery1_Earphone_2D

DUT: 130815

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_110503 Medium parameters used: f = 2412 MHz; σ = 1.88 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃；Liquid Temperature：21.5 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3697; ConvF(7.02, 7.02, 7.02); Calibrated: 2010/11/23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.159 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.41 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 0.308 W/kg
SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.162 mW/g

1g/10g Averaged SAR

SAR; Zoom Scan:Value Along Z, X=2, Y=2

#69 802.11a_Bottom_1.5cm_Ch104_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5520 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5520 MHz; σ = 5.55
mho/m; ε_r = 47; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.44, 3.44, 3.44); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch104/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.35 mW/g

Ch104/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.997 V/m; Power Drift = -0.180 dB
Peak SAR (extrapolated) = 2.53 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.521 mW/g
Maximum value of SAR (measured) = 1.88 mW/g
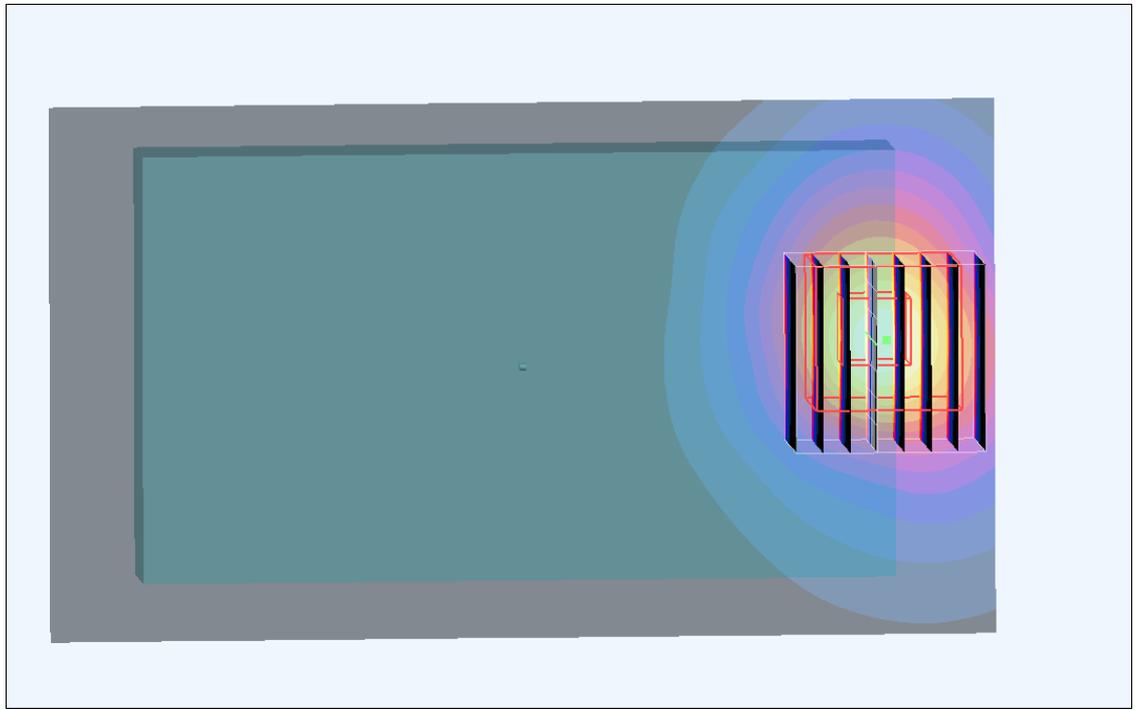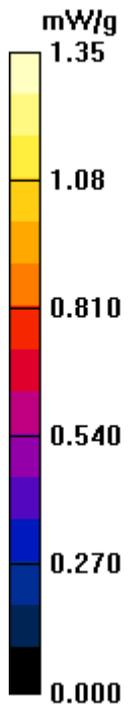
#70 802.11a_Face_1.5cm_Ch104_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5520 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5520 MHz; σ = 5.55 mho/m; ε_r = 47; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.44, 3.44, 3.44); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch104/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.080 mW/g

Ch104/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.549 V/m; Power Drift = -1.03 dB
Peak SAR (extrapolated) = 0.111 W/kg
SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.080 mW/g
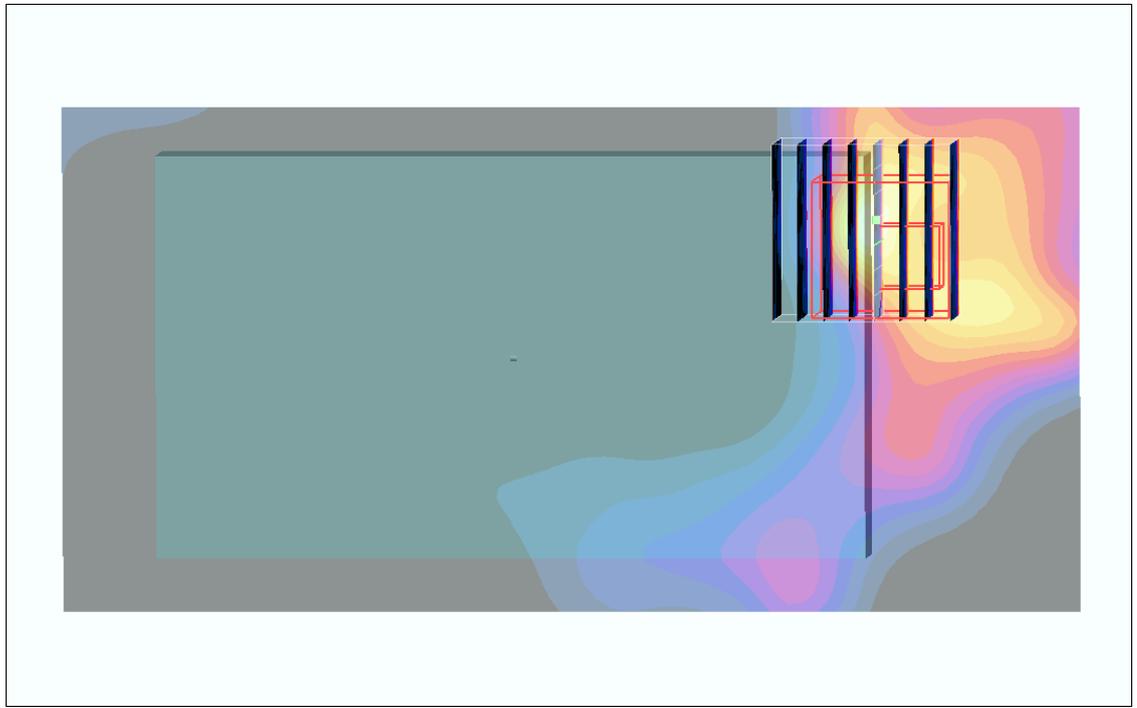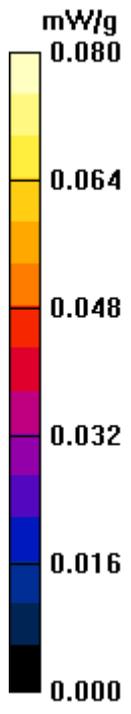
#71 802.11n_20M_Bottom_1.5cm_Ch64_Slide Off_Battery1

DUT: 132125

Communication System: 802.11n; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5320 MHz; σ = 5.28
mho/m; ε_r = 47.2; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.63, 3.63, 3.63); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch64/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
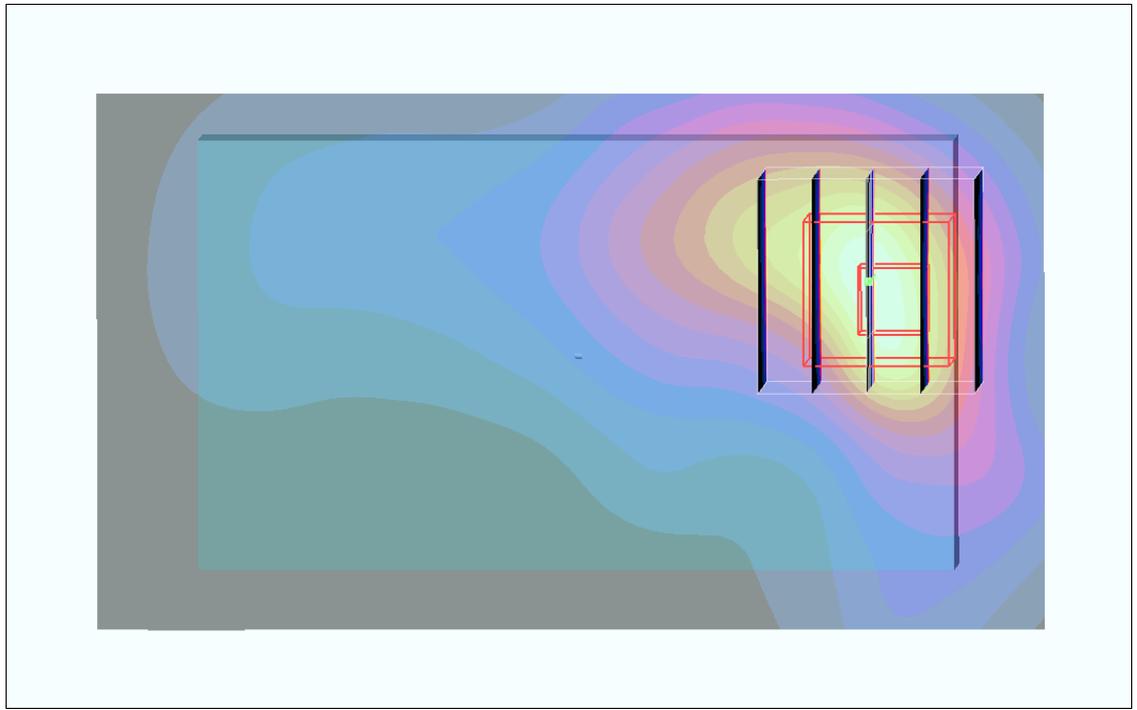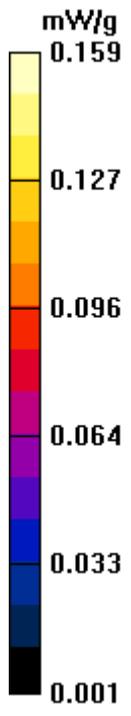Maximum value of SAR (interpolated) = 0.972 mW/g

Ch64/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 3.68 V/m; Power Drift = -1.06 dB
Peak SAR (extrapolated) = 1.72 W/kg
SAR(1 g) = 0.866 mW/g; SAR(10 g) = 0.402 mW/g
Maximum value of SAR (measured) = 1.31 mW/g
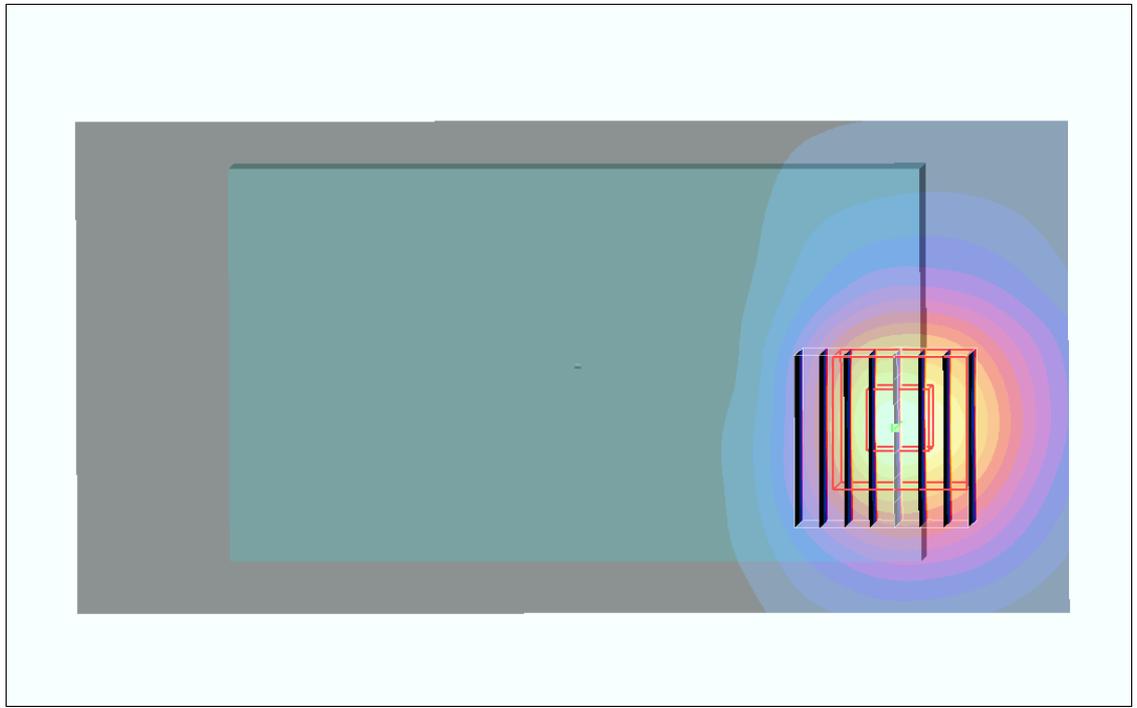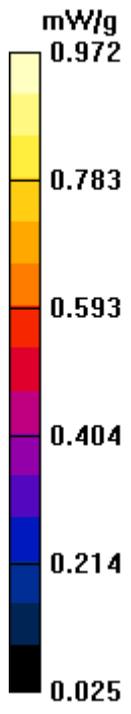
#72 802.11n_40M_Bottom_1.5cm_Ch134_Slide Off_Battery1

DUT: 132125

Communication System: 802.11n; Frequency: 5670 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5670 MHz; σ = 5.78
mho/m; ε_r = 46.7; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.2, 3.2, 3.2); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch134/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.842 mW/g

Ch134/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.834 V/m; Power Drift = -1.04 dB
Peak SAR (extrapolated) = 1.82 W/kg
SAR(1 g) = 0.876 mW/g; SAR(10 g) = 0.388 mW/g
Maximum value of SAR (measured) = 1.39 mW/g
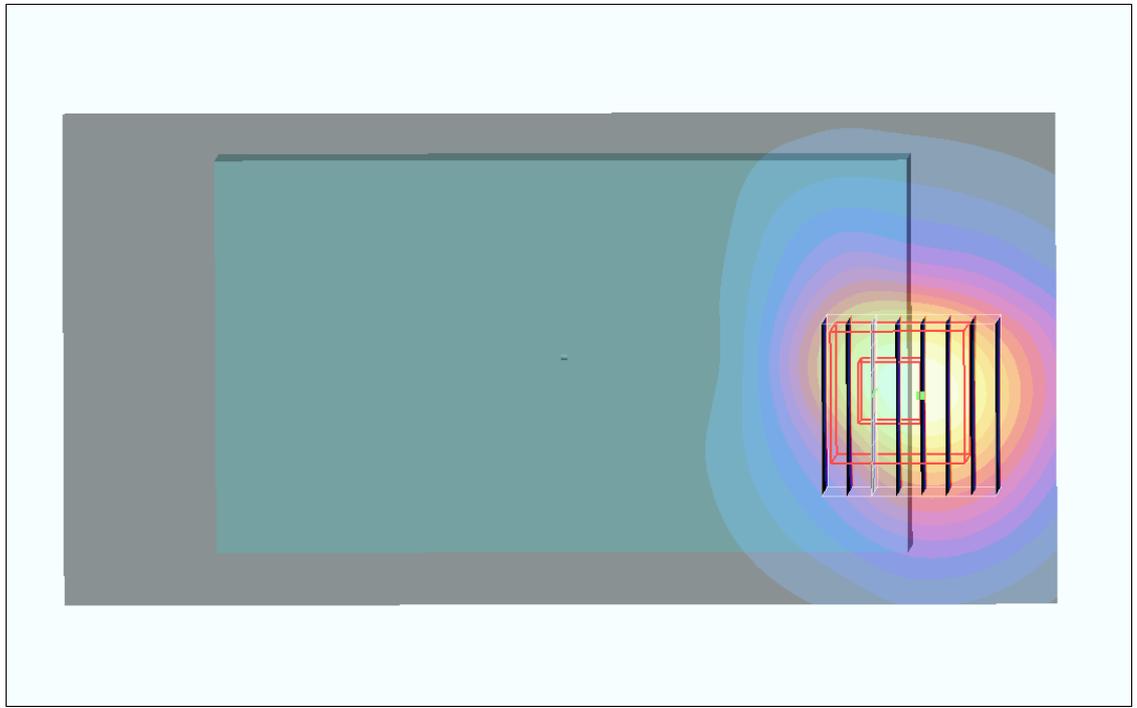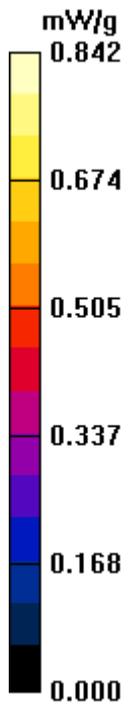
#73 802.11a_Bottom_1.5cm_Ch36_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5180 MHz; σ = 5.1 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3

Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.87, 3.87, 3.87); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch36/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm.
Maximum value of SAR (interpolated) = 0.567 mW/g

Ch36/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
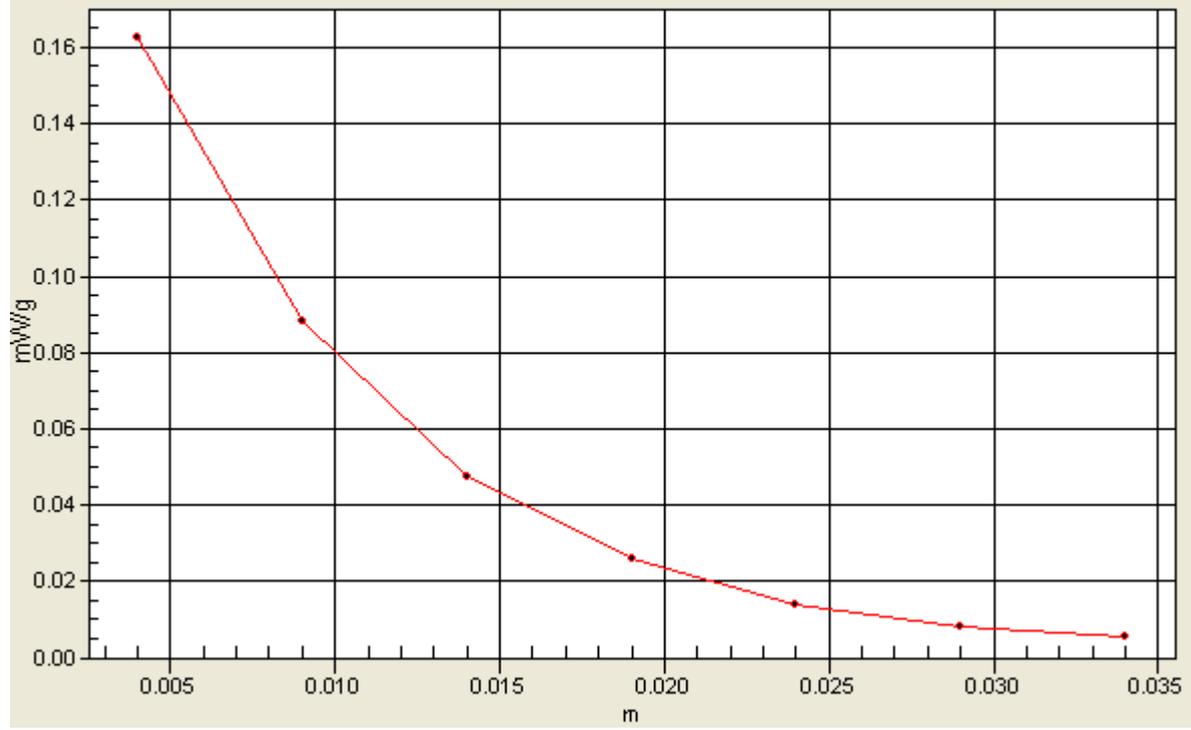Reference Value = 0.838 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.856 W/kg
SAR(1 g) = 0.463 mW/g; SAR(10 g) = 0.210 mW/g
Maximum value of SAR (measured) = 0.682 mW/g
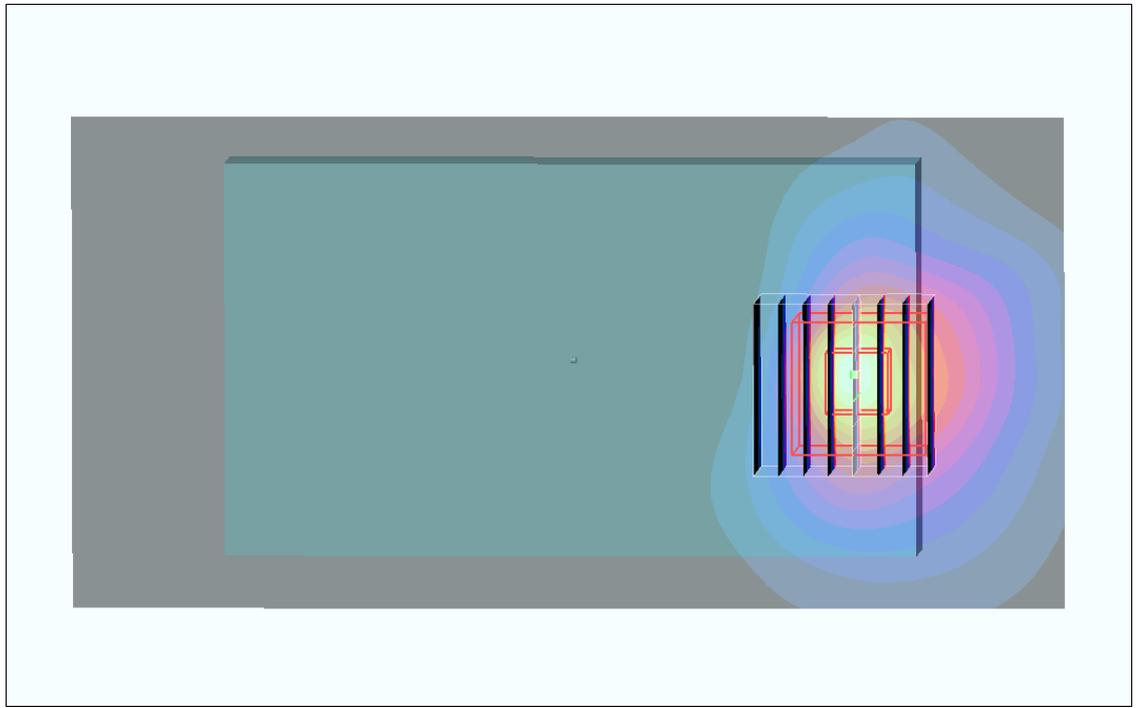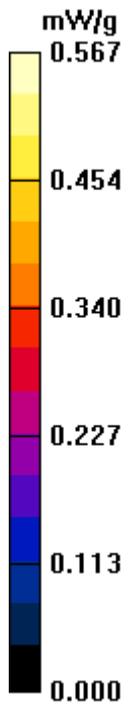
#74 802.11a_Bottom_1.5cm_Ch48_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5240 MHz; σ = 5.17
mho/m; ε_r = 47.4; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.87, 3.87, 3.87); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch48/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.933 mW/g

Ch48/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.983 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 0.828 mW/g; SAR(10 g) = 0.375 mW/g
Maximum value of SAR (measured) = 1.28 mW/g
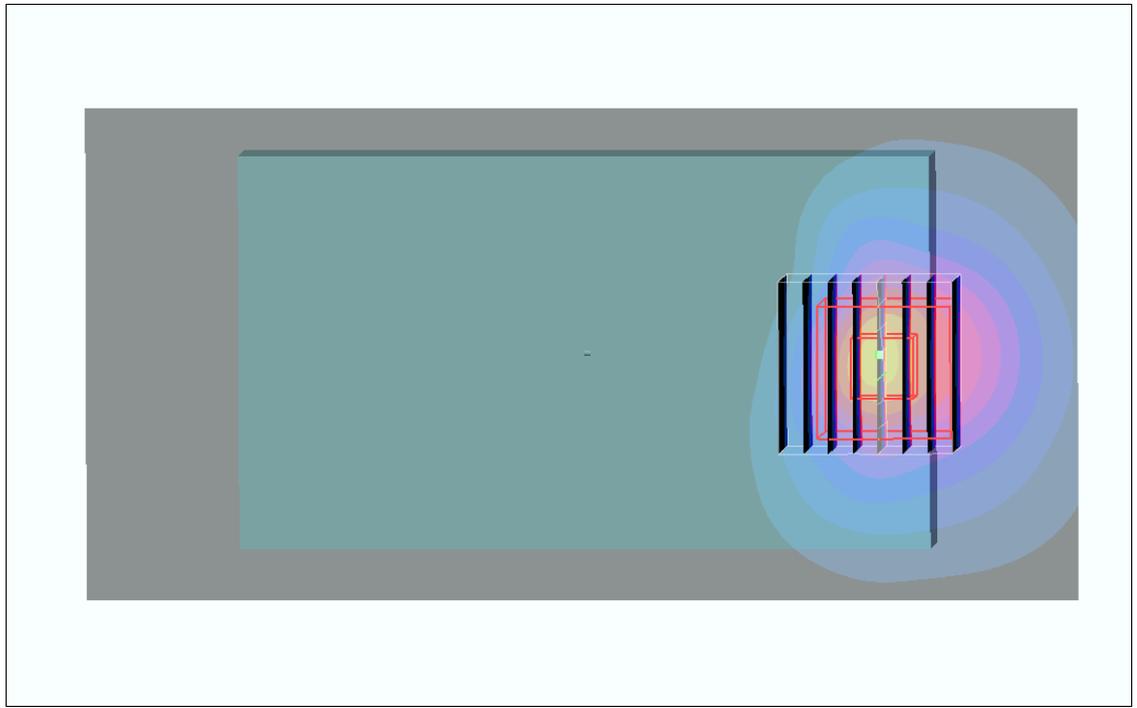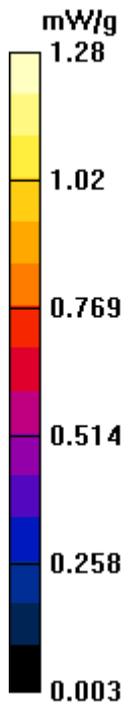
#75 802.11a_Bottom_1.5cm_Ch52_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5260 MHz; σ = 5.19
mho/m; ε_r = 47.3; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.63, 3.63, 3.63); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch52/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.27 mW/g

Ch52/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.000 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 1.95 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.471 mW/g
Maximum value of SAR (measured) = 1.55 mW/g

#76 802.11a_Bottom_1.5cm_Ch64_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5320 MHz; σ = 5.28
mho/m; ε_r = 47.2; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.63, 3.63, 3.63); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch64/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.28 mW/g

Ch64/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.000 V/m; Power Drift = 0.123 dB
Peak SAR (extrapolated) = 2.22 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.531 mW/g
Maximum value of SAR (measured) = 1.77 mW/g
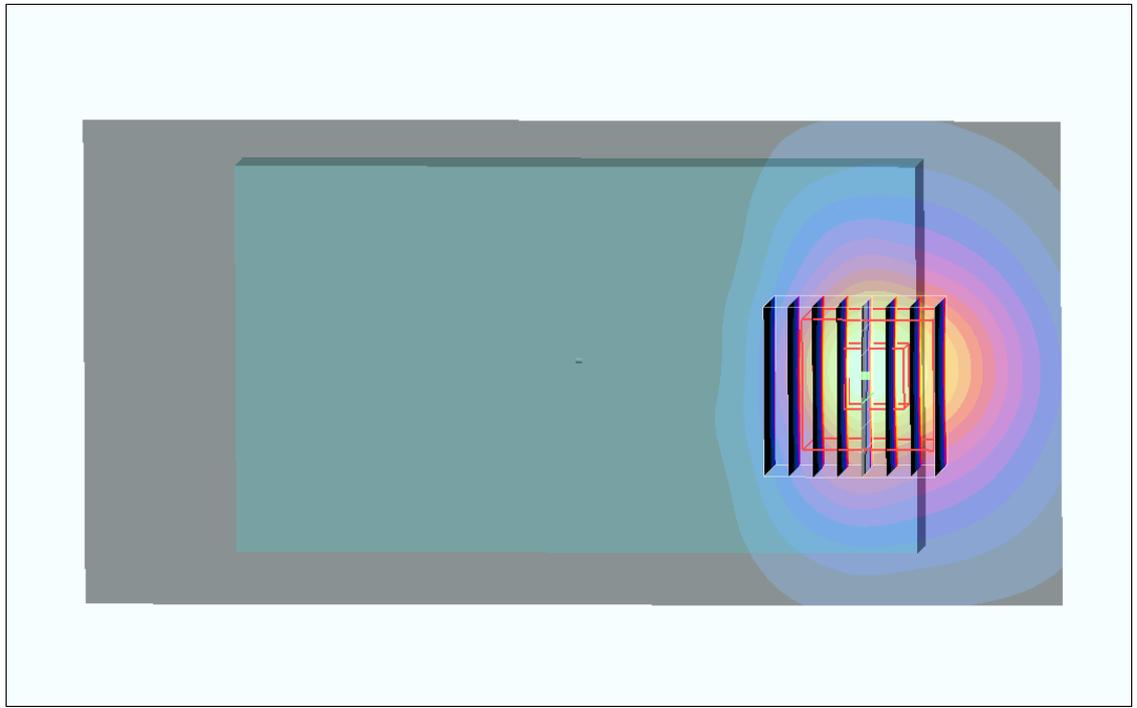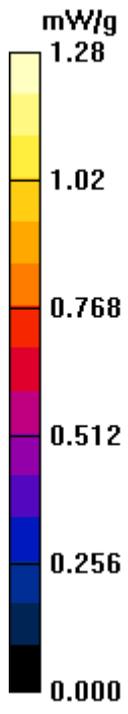
#76 802.11a_Bottom_1.5cm_Ch64_Slide Off_Battery1_2D

DUT: 132125

Communication System: 802.11a; Frequency: 5320 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5320

MHz; σ = 5.28 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3

Ambient Temperature：22.6 ℃; Liquid Temperature：21.5 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.63, 3.63, 3.63); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch64/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.28 mW/g

Ch64/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.000 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 2.22 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.531 mW/g
Maximum value of SAR (measured) = 1.77 mW/g

1g/10g Averaged SAR

SAR; Zoom Scan:Value Along Z, X=3, Y=4
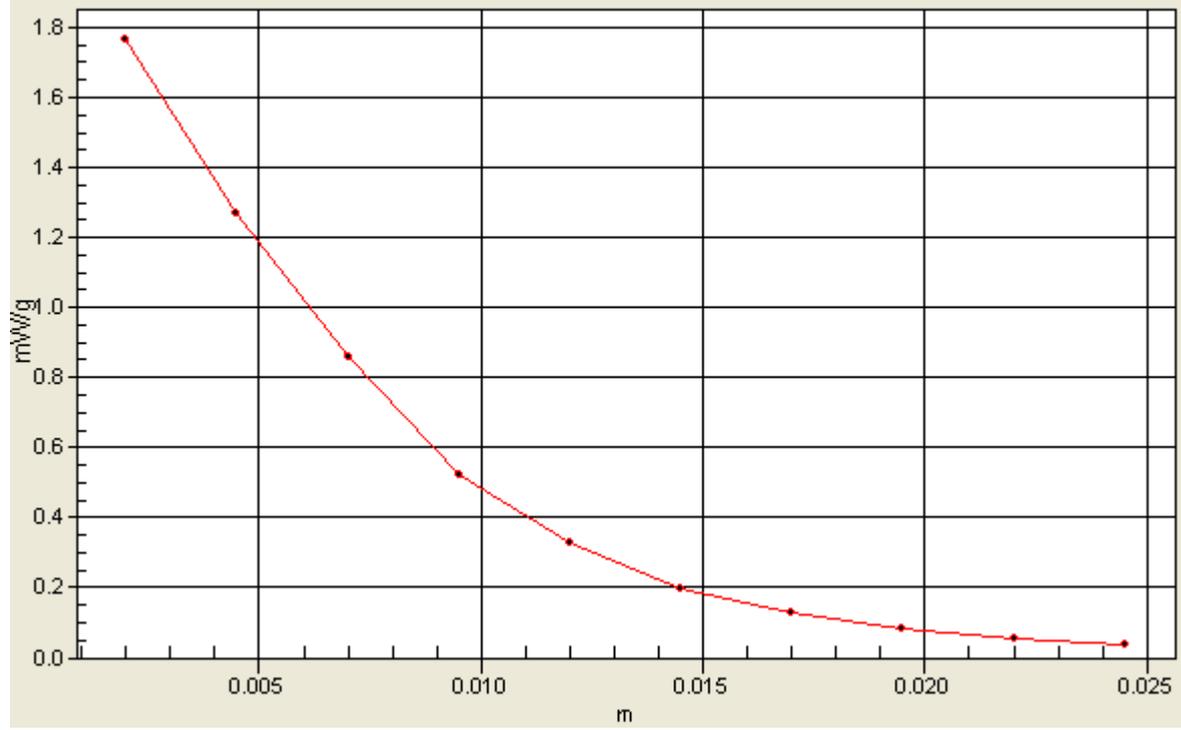
#77 802.11a_Bottom_1.5cm_Ch116_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5580 MHz; Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used: f = 5580 MHz; σ = 5.63 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃; Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.2, 3.2, 3.2); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch116/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.22 mW/g

Ch116/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 1.51 V/m; Power Drift = -0.115 dB
Peak SAR (extrapolated) = 2.07 W/kg
SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.481 mW/g
Maximum value of SAR (measured) = 1.65 mW/g
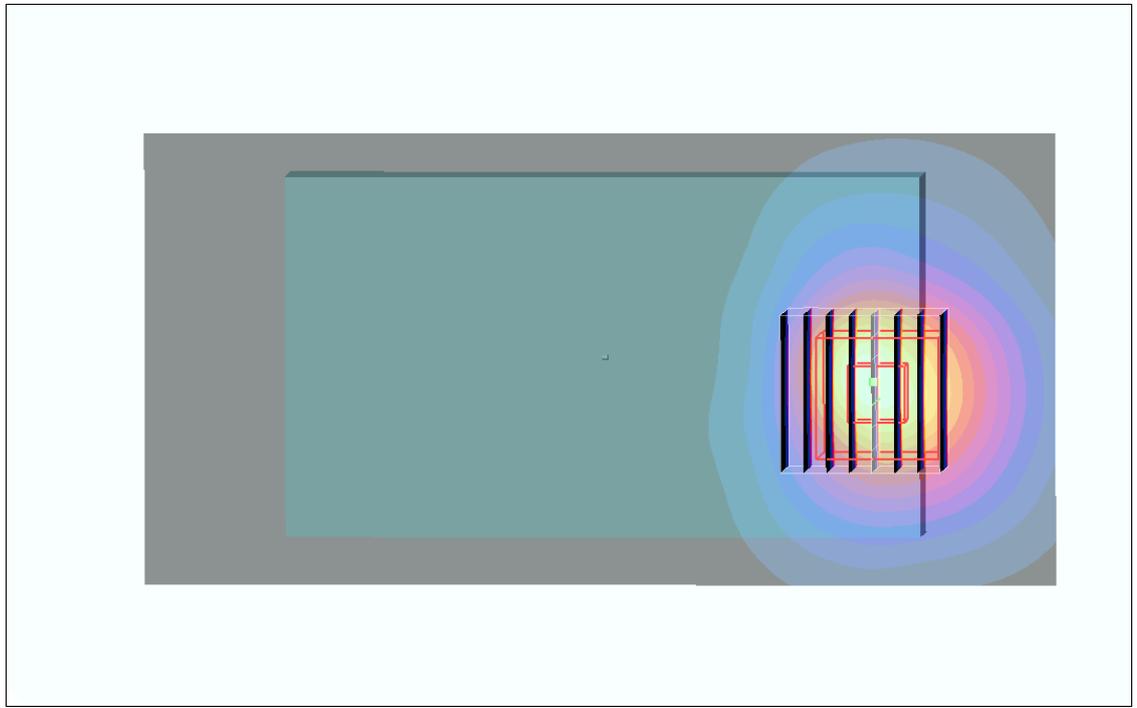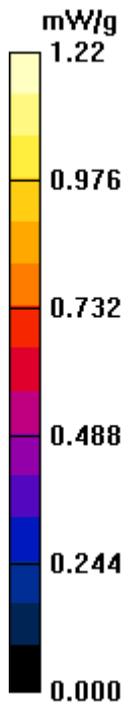
#79 802.11a_Bottom_1.5cm_Ch136_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5680 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5680 MHz; σ = 5.79
mho/m; ε_r = 46.7; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.2, 3.2, 3.2); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch136/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.12 mW/g

Ch136/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm,
dz=2.5mm
Reference Value = 1.16 V/m; Power Drift = -0.187 dB
Peak SAR (extrapolated) = 2.11 W/kg
SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.460 mW/g
Maximum value of SAR (measured) = 1.64 mW/g
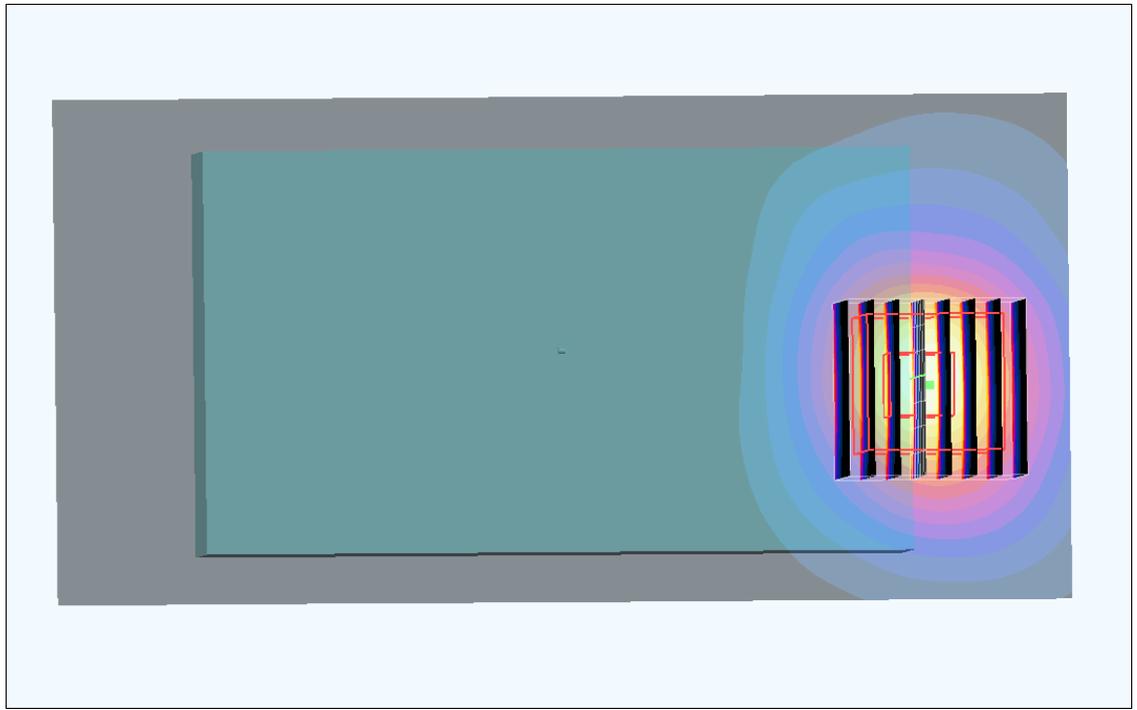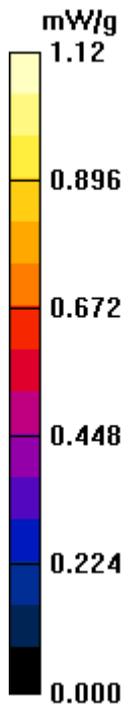
#80 802.11a_Bottom_1.5cm_Ch149_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5745 MHz; σ = 5.94
mho/m; ε_r = 46.7; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.55, 3.55, 3.55); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch149/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.01 mW/g

Ch149/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm,
dz=2.5mm
Reference Value = 1.23 V/m; Power Drift = 0.112 dB
Peak SAR (extrapolated) = 2.12 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.448 mW/g
Maximum value of SAR (measured) = 1.64 mW/g
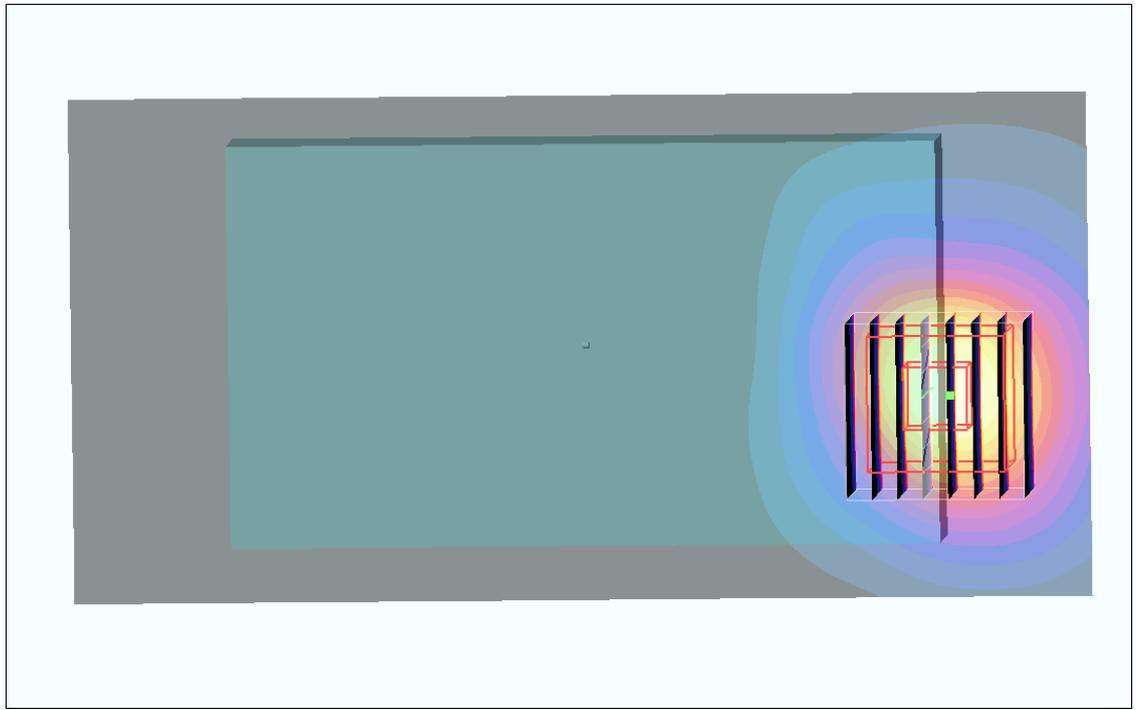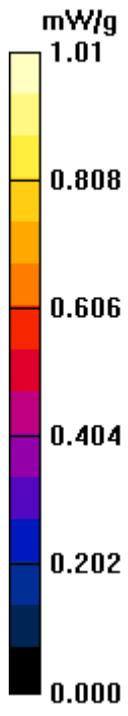
#81 802.11a_Bottom_1.5cm_Ch157_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5785 MHz; σ = 5.98
mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.55, 3.55, 3.55); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch157/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
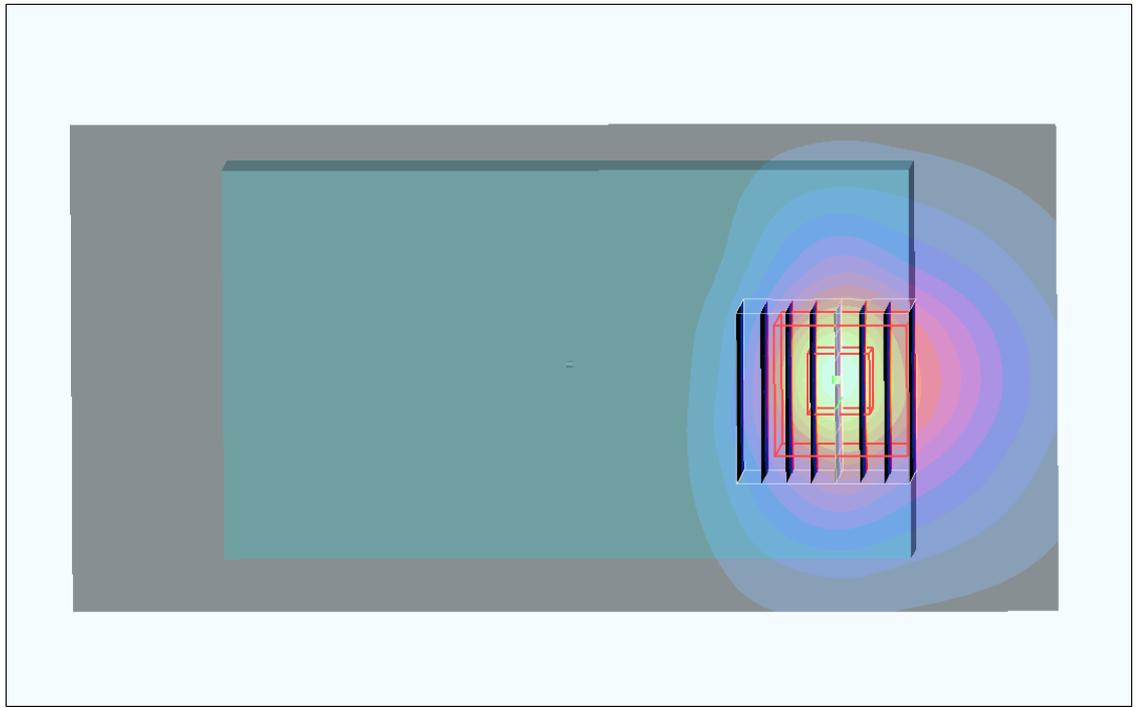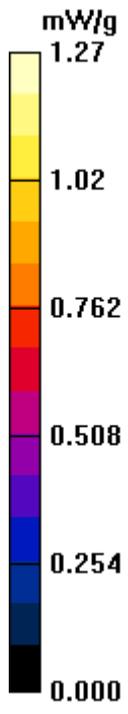Maximum value of SAR (interpolated) = 1.02 mW/g

Ch157/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 1.76 V/m; Power Drift = -0.198 dB
Peak SAR (extrapolated) = 1.96 W/kg
SAR(1 g) = 0.937 mW/g; SAR(10 g) = 0.398 mW/g
Maximum value of SAR (measured) = 1.49 mW/g
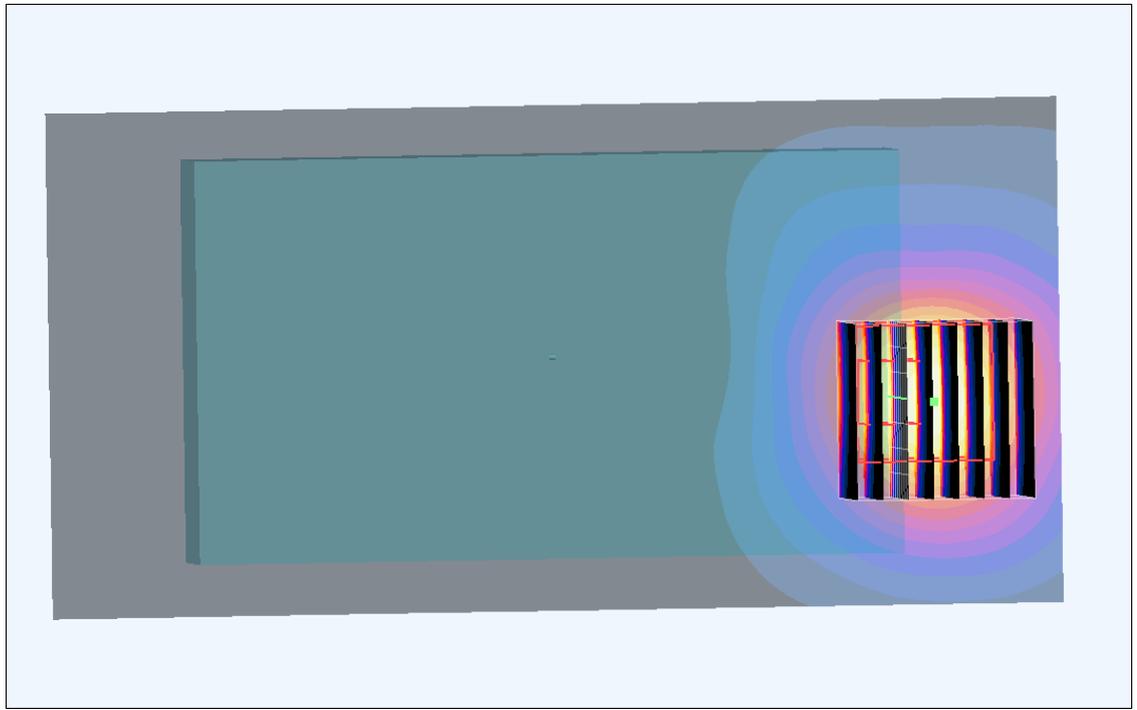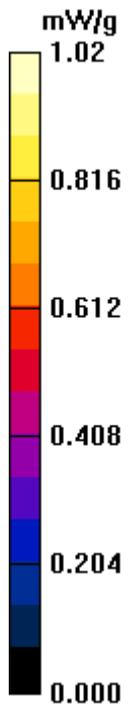
#82 802.11a_Bottom_1.5cm_Ch161_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5805 MHz; σ = 6 mho/m; ε_r = 46.5; ρ = 1000 kg/m^3

Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.55, 3.55, 3.55); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch161/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.904 mW/g

Ch161/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 1.23 V/m; Power Drift = -0.105 dB
Peak SAR (extrapolated) = 2.01 W/kg
SAR(1 g) = 0.951 mW/g; SAR(10 g) = 0.414 mW/g
Maximum value of SAR (measured) = 1.51 mW/g
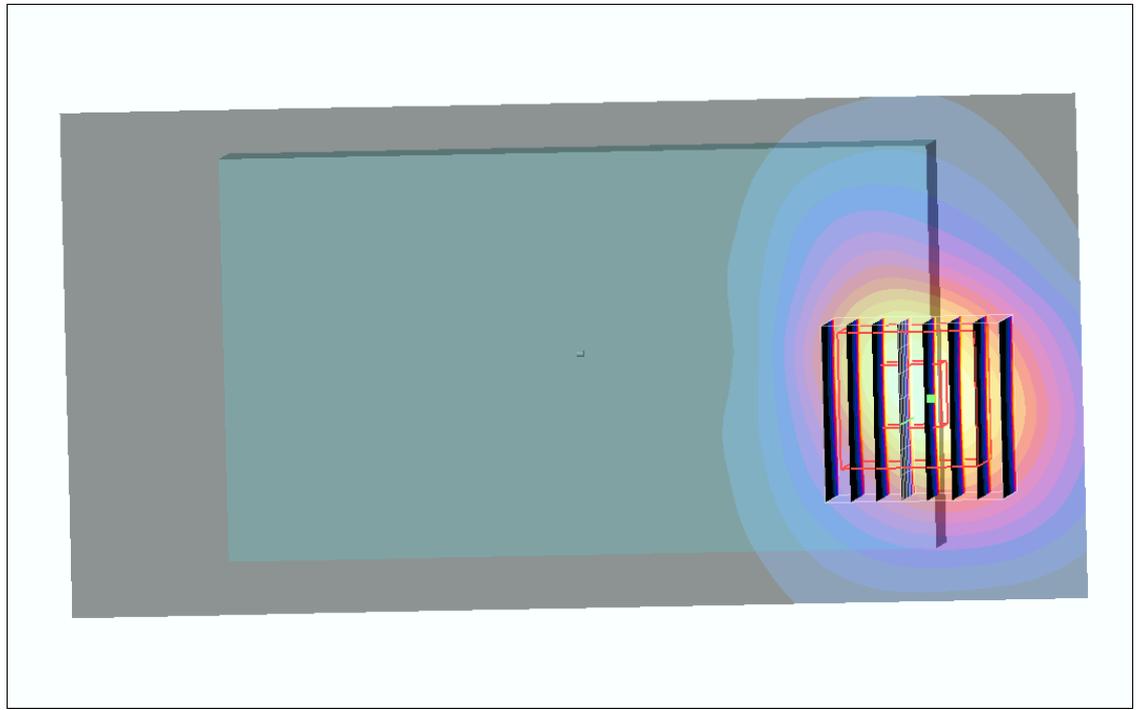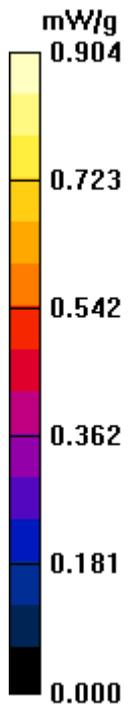
#83 802.11a_Bottom_1.5cm_Ch165_Slide Off_Battery1

DUT: 132125

Communication System: 802.11a; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5825 MHz; σ = 6.05
mho/m; ε_r = 46.5; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.55, 3.55, 3.55); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch165/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.957 mW/g

Ch165/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm,
dz=2.5mm
Reference Value = 1.48 V/m; Power Drift = -0.159 dB
Peak SAR (extrapolated) = 2.20 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.431 mW/g
Maximum value of SAR (measured) = 1.63 mW/g
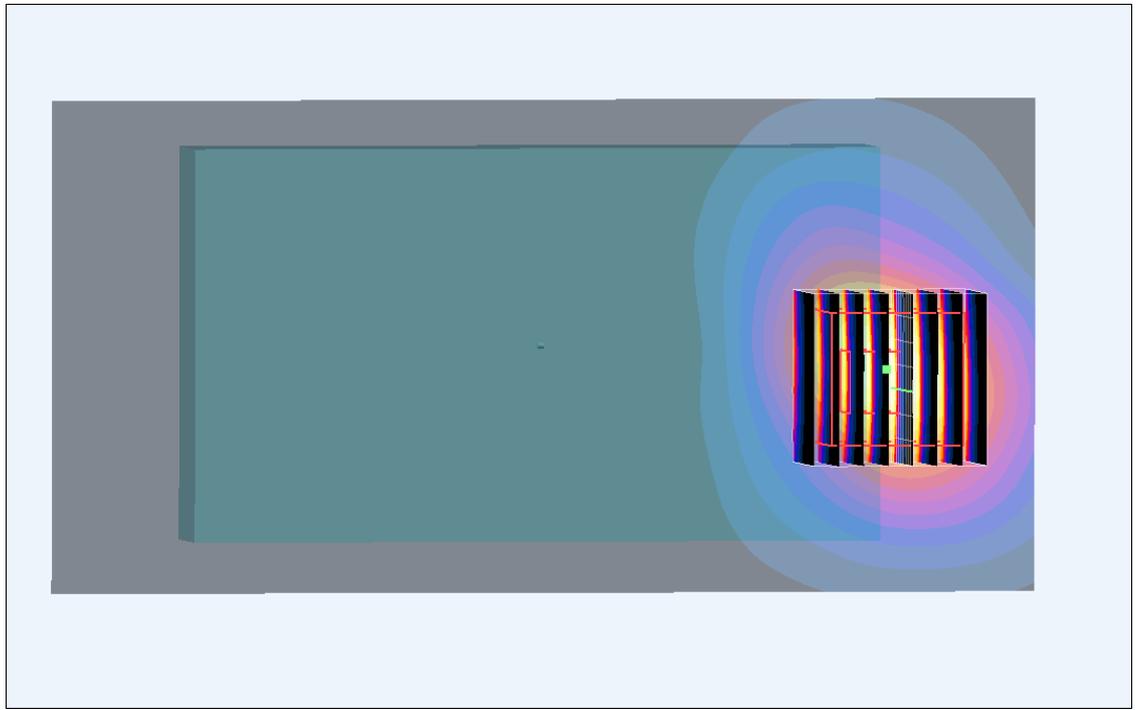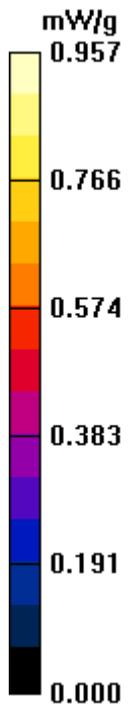
#84 802.11a_Bottom_1.5cm_Ch104_Slide Off_Battery2

DUT: 132125

Communication System: 802.11a; Frequency: 5520 MHz;Duty Cycle: 1:1
Medium: MSL_5G_110501 Medium parameters used : f = 5520 MHz; σ = 5.55
mho/m; ε_r = 47; ρ = 1000 kg/m^3
Ambient Temperature：22.8 ℃；Liquid Temperature：21.8 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3731; ConvF(3.44, 3.44, 3.44); Calibrated: 2010/9/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm
(Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 2010/10/5
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 186

Ch104/Area Scan (81x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.16 mW/g

Ch104/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 1.72 V/m; Power Drift = -0.144 dB
Peak SAR (extrapolated) = 2.27 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.507 mW/g
Maximum value of SAR (measured) = 1.77 mW/g

Appendix C.   *DASY Calibration Certificate*

The DASY calibration certificates are shown as follows.

SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-328-4978
FCC ID : B94HHF30CE

Page Number   : C1 of C1
Report Issued Date : May 24, 2011
Report Version   : Rev. 01

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

ilac-MRA

SWISS CALIBRATION

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
   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   **Auden**

Certificate No: **D2450V2-735_Jun10**

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 735
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	June 17, 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:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 21, 2010

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

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

ilac-MRA

SWISS CALIBRATION

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
   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	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.9 ± 6 %	1.78 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 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	13.0 mW / g
SAR normalized	normalized to 1W	52.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**52.2 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.10 mW / g
SAR normalized	normalized to 1W	24.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.4 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	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.7 ± 6 %	1.96 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	13.4 mW / g
SAR normalized	normalized to 1W	53.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**53.5 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.28 mW / g
SAR normalized	normalized to 1W	25.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**25.1 mW / g ± 16.5 % (k=2)**

SPORTON INTERNATIONAL INC.

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$53.8\ \Omega + 3.4\ j\Omega$
Return Loss	- 26.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$50.5\ \Omega + 3.7\ j\Omega$
Return Loss	- 28.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.154 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	May 07, 2003

DASY5 Validation Report for Head TSL

Date/Time: 16.06.2010 10:56:25

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:735

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 2450 MHz; σ = 1.78 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF (4.53, 4.53, 4.53); 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)
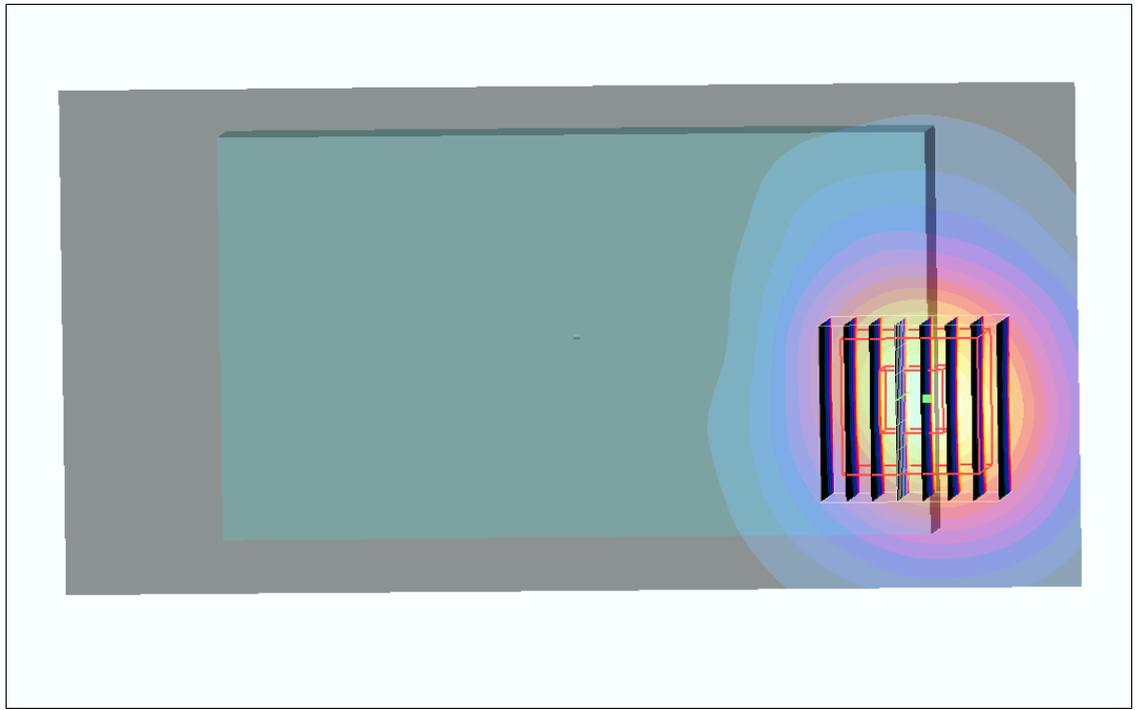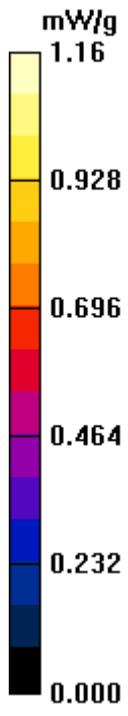
Head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.3 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 26.6 W/kg
SAR(1 g) = 13 mW/g; SAR(10 g) = 6.1 mW/g
Maximum value of SAR (measured) = 16.6 mW/g

0 dB = 16.6mW/g

Impedance Measurement Plot for Head TSL

16 Jun 2010 09:30:57

CH1 S11   1 U FS   1: 53.848 Ω   3.4219 Ω 222.29 pH   2 450.000 000 MHz

Del

Cor

Avg
16

↑

CH2 S11   LOG   5 dB/ REF −20 dB   1: −26.098 dB   2 450.000 000 MHz

Cor

Avg
16

↑

START 2 250.000 000 MHz   STOP 2 800.000 000 MHz

Certificate No: D2450V2-735_Jun10   Page 7 of 9
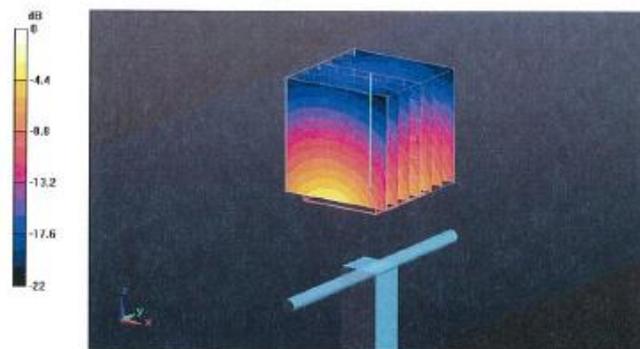
DASY5 Validation Report for Body

Date/Time: 17.06.2010 11:28:23

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:735

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U11 BB
Medium parameters used: f = 2450 MHz; σ = 1.96 mho/m; $ε_r$ = 52.7; ρ = 1000 kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); 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)

Body/d=10mm, Pin250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.8 V/m; Power Drift = 0.073 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6.28 mW/g
Maximum value of SAR (measured) = 16.7 mW/g

0 dB = 16.7mW/g

Impedance Measurement Plot for Body TSL
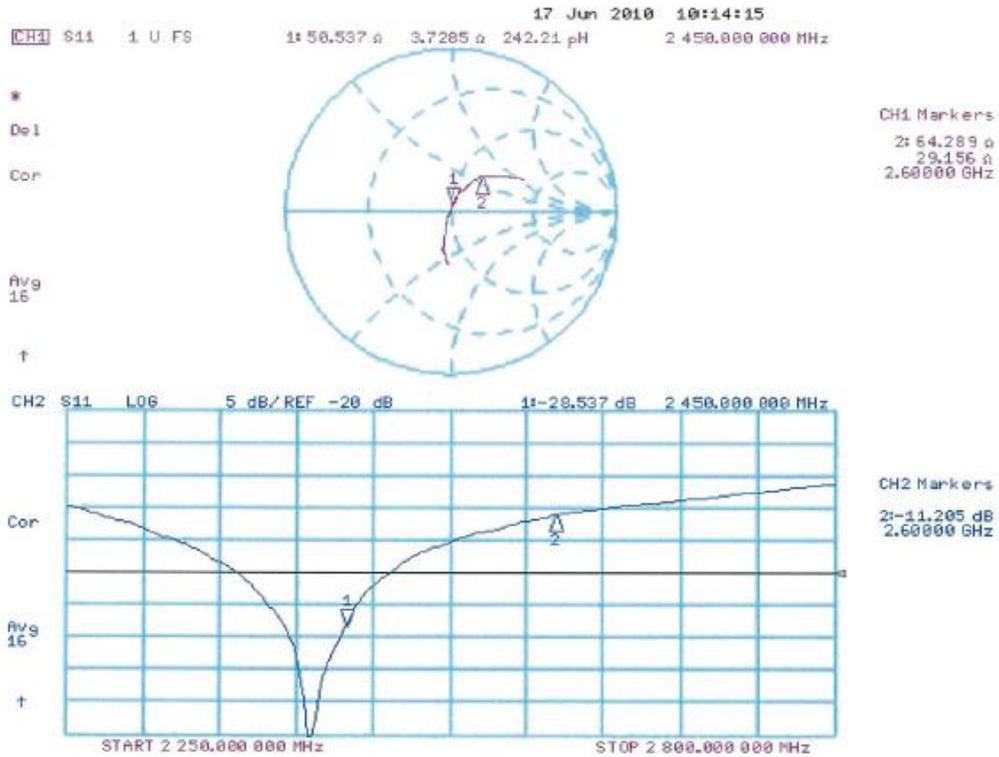
17 Jun 2010 10:14:15

CH1 S11 1 U FS 1: 50.537 Ω 3.7285 Ω 242.21 pH 2 450.000 000 MHz

CH1 Markers
2: 64.289 Ω
29.156 Ω
2.60000 GHz

Del

Cor

Avg
16

↑

CH2 S11 LOG 5 dB/ REF -20 dB 1:-28.537 dB 2 450.000 000 MHz

CH2 Markers
2:-11.205 dB
2.60000 GHz

Cor

Avg
16

↑

START 2 250.000 000 MHz STOP 2 800.000 000 MHz

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Accreditation No.: **SCS 108**

Client	**Sporton (Auden)**	Certificate No: **D5GHzV2-1006_Jan10/2**

CALIBRATION CERTIFICATE (Replacement of No:D5GHzV2-1006_Jan10)

Object	D5GHzV2 - SN: 1006
Calibration procedure(s)	QA CAL-22.v1 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	January 21, 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)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe EX3DV4	SN: 3503	11-Mar-09 (No. EX3-3503_Mar09)	Mar-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

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:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 21, 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) IEC Std 62209 Part 2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures"; Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", Draft Version 0.9, December 2004

b) 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:

c) 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	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Area Scan resolution	dx, dy = 10 mm	
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 2.5 mm	
Frequency	5200 MHz ± 1 MHz 5500 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.8 ± 6 %	4.58 mho/m ± 6 %
Head TSL temperature during test	(21.2 ± 0.2) °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	100 mW input power	8.28 mW / g
SAR normalized	normalized to 1W	82.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**82.2 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.35 mW / g
SAR normalized	normalized to 1W	23.5 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**23.3 mW / g ± 19.5 % (k=2)**

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.1 ± 6 %	4.86 mho/m ± 6 %
Head TSL temperature during test	(21.2 ± 0.2) °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	100 mW input power	8.96 mW / g
SAR normalized	normalized to 1W	89.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**88.8 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.53 mW / g
SAR normalized	normalized to 1W	25.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.0 mW / g ± 19.5 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.7 ± 6 %	5.13 mho/m ± 6 %
Head TSL temperature during test	(21.2 ± 0.2) °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	100 mW input power	7.90 mW / g
SAR normalized	normalized to 1W	79.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**78.2 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.23 mW / g
SAR normalized	normalized to 1W	22.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**22.3 mW / g ± 19.5 % (k=2)**

Body TSL parameters at 5200 MHz
The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.5 ± 6 %	5.52 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.95 mW / g
SAR normalized	normalized to 1W	79.5 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**79.0 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.21 mW / g
SAR normalized	normalized to 1W	22.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**22.0 mW / g ± 19.5 % (k=2)**

Body TSL parameters at 5500 MHz
The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.8 ± 6 %	5.89 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	8.60 mW / g
SAR normalized	normalized to 1W	86.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**85.4 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.36 mW / g
SAR normalized	normalized to 1W	23.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**23.5 mW / g ± 19.5 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.1 ± 6 %	6.26 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	-----	-----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.43 mW / g
SAR normalized	normalized to 1W	74.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**73.7 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.04 mW / g
SAR normalized	normalized to 1W	20.4 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.2 mW / g ± 19.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	53.4 Ω - 10.6 jΩ
Return Loss	-19.4 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	49.4 Ω - 2.4 jΩ
Return Loss	-32.1 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	58.2 Ω + 4.8 jΩ
Return Loss	-21.2 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	52.6 Ω - 11.1 jΩ
Return Loss	-19.1 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	47.1 Ω - 0.4 jΩ
Return Loss	-30.4 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	57.6 Ω + 7.8 jΩ
Return Loss	-19.9 dB

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General Antenna Parameters and Design

Electrical Delay (one direction)	1.179 ns

After long term use with 40 W 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	August 28, 2003

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DASY5 Validation Report for Head TSL

Date/Time: 21.01.2010 15:03:20

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN:1006

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: HSL 3-6 GHz
Medium parameters used: f = 5200 MHz; σ = 4.6 mho/m; ε_r = 34.7; ρ = 1000 kg/m^3
Medium parameters used: f = 5500 MHz; σ = 4.88 mho/m; ε_r = 34.1; ρ = 1000 kg/m^3
Medium parameters used: f = 5800 MHz; σ = 5.16 mho/m; ε_r = 33.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.36, 5.36, 5.36), ConvF(4.85, 4.85, 4.85), ConvF(4.74, 4.74, 4.74); Calibrated: 11.03.2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Configuration D5GHzV2 Dipole (Head)/d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 64.8 V/m; Power Drift = 0.063 dB
Peak SAR (extrapolated) = 31.6 W/kg
SAR(1 g) = 8.28 mW/g; SAR(10 g) = 2.35 mW/g
Maximum value of SAR (measured) = 16.1 mW/g

Configuration D5GHzV2 Dipole (Head)/d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 66.2 V/m; Power Drift = 0.090 dB
Peak SAR (extrapolated) = 35.9 W/kg
SAR(1 g) = 8.96 mW/g; SAR(10 g) = 2.53 mW/g
Maximum value of SAR (measured) = 17.6 mW/g

Configuration D5GHzV2 Dipole (Head)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 61.5 V/m; Power Drift = -0.078 dB
Peak SAR (extrapolated) = 33.7 W/kg
SAR(1 g) = 7.9 mW/g; SAR(10 g) = 2.23 mW/g
Maximum value of SAR (measured) = 15.7 mW/g

0 dB = 15.7mW/g

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Impedance Measurement Plot for Head TSL


```
                                          21 Jan 2010  11:04:56
[CH1] S11   1 U FS      1: 53.436 Ω  -10.619 Ω  2.8822 pF    5 200.000 000 MHz

 *                                                          CH1 Markers
Del                                                           2: 49.361 Ω
                                                              -2.3887 Ω
Cor                                                           5.50000 GHz

                                                              3: 56.160 Ω
                                                              4.7520 Ω
                                                              5.80000 GHz
Avg
16

 ↑

CH2  S11    LOG      5 dB/ REF -20 dB          1:-15.381 dB  5 200.000 000 MHz

                                                          CH2 Markers
Cor                                                        2:-32.004 dB
                                                           5.50000 GHz

                                                           3:-21.188 dB
Avg                                                         5.80000 GHz
16

 ↑

     START 5 000.000 000 MHz              STOP 6 000.000 000 MHz
```

DASY5 Validation Report for Body TSL

Date/Time: 20.01.2010 14:47:25

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN:1006

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: MSL 3-6 GHz
Medium parameters used: f = 5200 MHz; σ = 5.52 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Medium parameters used: f = 5500 MHz; σ = 5.89 mho/m; ε_r = 46.8; ρ = 1000 kg/m^3
Medium parameters used: f = 5800 MHz; σ = 6.26 mho/m; ε_r = 46.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.88, 4.88, 4.88), ConvF(4.37, 4.37, 4.37), ConvF(4.57, 4.57, 4.57); Calibrated: 11.03.2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Configuration D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5200 MHz 2/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 60.4 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 30.8 W/kg
SAR(1 g) = 7.95 mW/g; SAR(10 g) = 2.21 mW/g
Maximum value of SAR (measured) = 15.7 mW/g

Configuration D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 60.9 V/m; Power Drift = -0.030 dB
Peak SAR (extrapolated) = 35.7 W/kg
SAR(1 g) = 8.6 mW/g; SAR(10 g) = 2.36 mW/g
Maximum value of SAR (measured) = 17.3 mW/g

Configuration D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
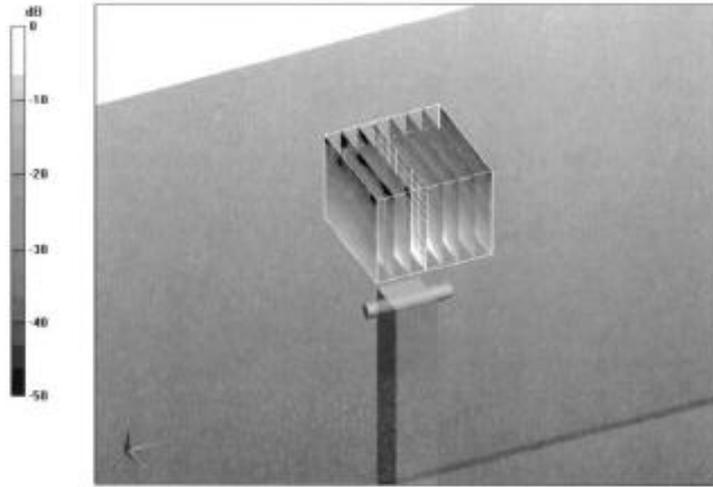Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 55.3 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 32.8 W/kg
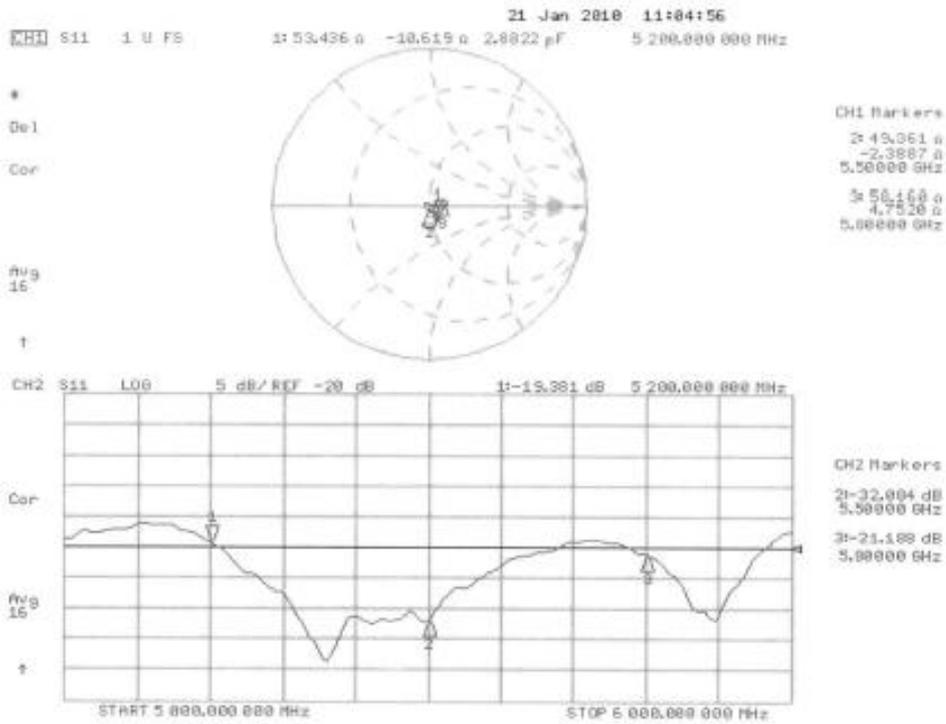**SAR(1 g) = 7.43 mW/g; SAR(10 g) = 2.04 mW/g**
Maximum value of SAR (measured) = 15.3 mW/g

0 dB = 15.3mW/g
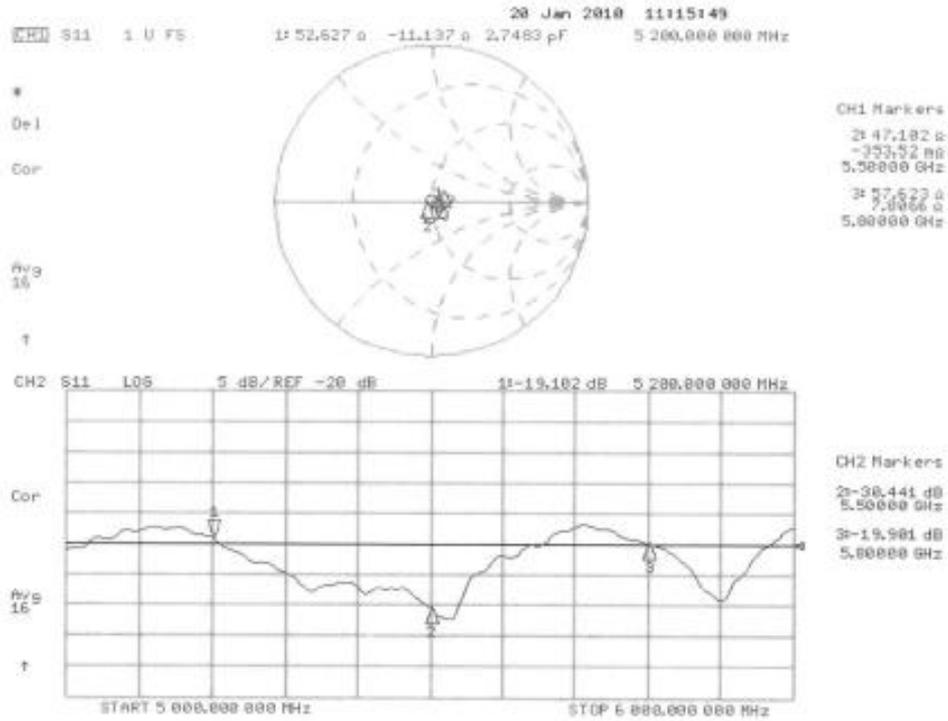
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Impedance Measurement Plot for Body TSL

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Accreditation No.: **SCS 108**

Client   **Auden**

Certificate No: **DAE4-905_Oct10**

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BK - SN: 905
Calibration procedure(s)	QA CAL-06.v22 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	October 5, 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:	Dominique Steffen	Technician	
Approved by:	Fin Bornholt	R&D Director	

Issued: October 5, 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.

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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	404.818 ± 0.1% (k=2)	405.369 ± 0.1% (k=2)	404.941 ± 0.1% (k=2)
Low Range	3.98222 ± 0.7% (k=2)	3.99983 ± 0.7% (k=2)	3.99807 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	223.5 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200006.0	-1.48	-0.00
Channel X	+ Input	19999.30	-0.00	-0.00
Channel X	- Input	-19997.12	2.48	-0.01
Channel Y	+ Input	199995.6	-1.07	-0.00
Channel Y	+ Input	19998.23	-1.87	-0.01
Channel Y	- Input	-19999.33	0.37	-0.00
Channel Z	+ Input	199995.4	-0.96	-0.00
Channel Z	+ Input	19998.39	-1.51	-0.01
Channel Z	- Input	-19998.16	1.44	-0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.2	0.16	0.01
Channel X	+ Input	200.32	0.32	0.16
Channel X	- Input	-199.51	0.59	-0.29
Channel Y	+ Input	2000.1	0.33	0.02
Channel Y	+ Input	199.68	-0.32	-0.16
Channel Y	- Input	-200.45	-0.45	0.23
Channel Z	+ Input	2000.3	0.34	0.02
Channel Z	+ Input	199.12	-0.78	-0.39
Channel Z	- Input	-200.15	-0.25	0.13

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	10.31	8.32
	- 200	-6.79	-8.52
Channel Y	200	8.21	8.40
	- 200	-9.79	-9.57
Channel Z	200	2.02	1.85
	- 200	-3.24	-3.43

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	-	3.08	0.69
Channel Y	200	2.26	-	5.91
Channel Z	200	2.53	-0.47	-

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	15898	16449
Channel Y	16145	16907
Channel Z	16385	17331

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	0.46	-0.31	1.72	0.27
Channel Y	-0.34	-0.86	0.68	0.27
Channel Z	-0.93	-2.24	0.80	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 **Sporton CN (Auden)**

Certificate No: **EX3-3697_Nov10**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3697
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:	November 23, 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-10)	In house check: Oct-11

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

Issued: November 23, 2010

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Accreditation No.: **SCS 108**

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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 EX3DV4

SN:3697

Manufactured:	April 22, 2009
Last calibrated:	November 23, 2009
Recalibrated:	November 23, 2010

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

EX3DV4 SN:3697

November 23, 2010

DASY/EASY - Parameters of Probe: EX3DV4 SN:3697

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (μV/(V/m)^2)^A	0.42	0.45	0.47	± 10.1%
DCP (mV)^B	92.3	94.5	94.0	

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	120.0	± 3.4 %
			Y	0.00	0.00	1.00	140.0	
			Z	0.00	0.00	1.00	110.0	

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

DASY/EASY - Parameters of Probe: EX3DV4 SN:3697

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%	8.67	8.67	8.67	0.71	0.62 ± 11.0%
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	8.51	8.51	8.51	0.60	0.69 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	7.47	7.47	7.47	0.38	0.81 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	7.39	7.39	7.39	0.68	0.59 ± 11.0%
2300	± 50 / ± 100	39.5 ± 5%	1.67 ± 5%	7.06	7.06	7.06	0.56	0.66 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	6.77	6.77	6.77	0.38	0.82 ± 11.0%
2600	± 50 / ± 100	39.0 ± 5%	1.96 ± 5%	6.72	6.72	6.72	0.25	1.12 ± 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.

EX3DV4 SN:3697

November 23, 2010

DASY/EASY - Parameters of Probe: EX3DV4 SN:3697

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%	8.65	8.65	8.65	0.58	0.71 ± 11.0%
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	8.54	8.54	8.54	0.40	0.86 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	7.41	7.41	7.41	0.54	0.77 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	7.26	7.26	7.26	0.41	0.84 ± 11.0%
2300	± 50 / ± 100	52.8 ± 5%	1.85 ± 5%	7.13	7.13	7.13	0.27	0.89 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	7.02	7.02	7.02	0.45	0.76 ± 11.0%
2600	± 50 / ± 100	52.5 ± 5%	2.16 ± 5%	6.93	6.93	6.93	0.32	1.02 ± 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.
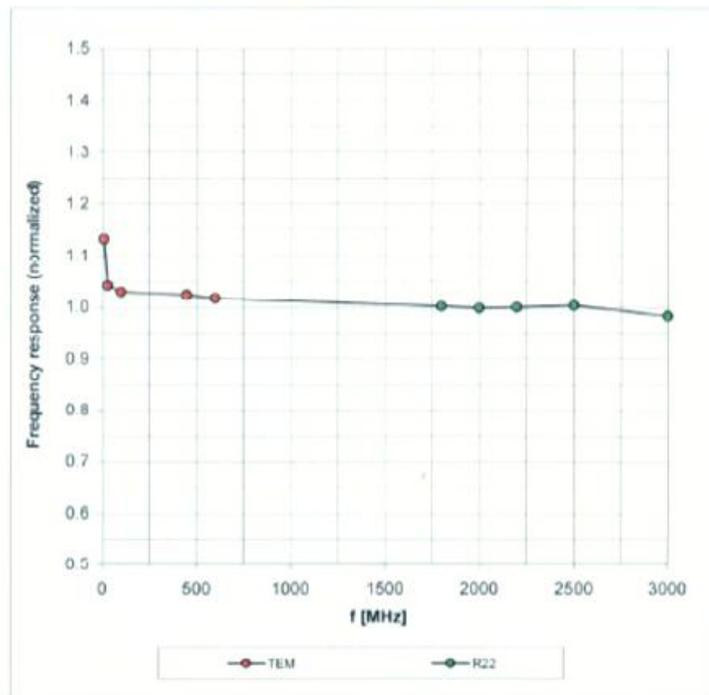
Frequency Response of E-Field

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

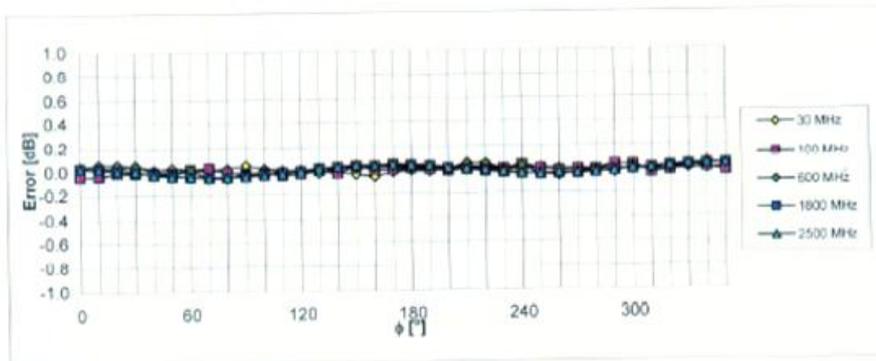Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Calibration Certificate of DASY

Receiving Pattern (φ), ϑ = 0°

f = 600 MHz, TEM ifi110EXX

f = 1800 MHz, WG R22

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

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Dynamic Range f(SAR$_{head}$)
(Waveguide R22, f = 1800 MHz)

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

![SPORTON LAB. logo] *Calibration Certificate of DASY*

Conversion Factor Assessment

f = 900 MHz, WGLS R9 (head)

f = 1750 MHz, WGLS R22 (head)

Deviation from Isotropy in HSL

Error (φ, ϑ), f = 900 MHz

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

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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	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client	**Sporton (Auden)**	Certificate No: **EX3-3731_Sep10**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3731
Calibration procedure(s)	QA CAL-01.v6, QA CAL-14.v3, QA CAL-23.v3 and QA CAL-25.v2 Calibration procedure for dosimetric E-field probes
Calibration date:	September 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 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:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: September 22, 2010

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Accreditation No.: **SCS 108**

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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., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ (f $\leq$ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *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 $\leq$ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * 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 $\pm$ 50 MHz to $\pm$ 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 EX3DV4

SN:3731

Manufactured:	October 19, 2009
Last calibrated:	July 16, 2010
Repaired:	September 8, 2010
Recalibrated:	September 20, 2010

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: EX3DV4 SN:3731

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)^A$	0.51	0.53	0.56	± 10.1%
DCP (mV)^B	87.1	87.4	87.7	

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	± 1.5%
			Y	0.00	0.00	1.00	300	
			Z	0.00	0.00	1.00	300	

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.

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EX3DV4 SN:3731

September 20, 2010

DASY/EASY - Parameters of Probe: EX3DV4 SN:3731

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%	8.85	8.85	8.85	0.60	0.69 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	7.46	7.46	7.46	0.75	0.60 ± 11.0%
2300	± 50 / ± 100	39.5 ± 5%	1.67 ± 5%	7.16	7.16	7.16	0.47	0.71 ± 11.0%
2600	± 50 / ± 100	39.0 ± 5%	1.96 ± 5%	6.88	6.88	6.88	0.31	0.95 ± 11.0%
3500	± 50 / ± 100	37.9 ± 5%	2.91 ± 5%	6.60	6.60	6.60	0.20	1.50 ± 13.1%
5200	± 50 / ± 100	36.0 ± 5%	4.66 ± 5%	4.83	4.83	4.83	0.35	1.90 ± 13.1%
5300	± 50 / ± 100	35.9 ± 5%	4.76 ± 5%	4.46	4.46	4.46	0.38	1.90 ± 13.1%
5500	± 50 / ± 100	35.6 ± 5%	4.96 ± 5%	4.46	4.46	4.46	0.42	1.90 ± 13.1%
5600	± 50 / ± 100	35.5 ± 5%	5.07 ± 5%	4.07	4.07	4.07	0.48	1.90 ± 13.1%
5800	± 50 / ± 100	35.3 ± 5%	5.27 ± 5%	4.22	4.22	4.22	0.50	1.90 ± 13.1%

^{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.

DASY/EASY - Parameters of Probe: EX3DV4 SN:3731

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%	8.84	8.84	8.84	0.49	0.79 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	7.13	7.13	7.13	0.65	0.66 ± 11.0%
2300	± 50 / ± 100	52.8 ± 5%	1.85 ± 5%	7.12	7.12	7.12	0.37	0.88 ± 11.0%
2600	± 50 / ± 100	52.5 ± 5%	2.16 ± 5%	6.85	6.85	6.85	0.32	0.97 ± 11.0%
3500	± 50 / ± 100	51.3 ± 5%	3.31 ± 5%	6.02	6.02	6.02	0.30	1.43 ± 13.1%
5200	± 50 / ± 100	49.0 ± 5%	5.30 ± 5%	3.87	3.87	3.87	0.60	1.95 ± 13.1%
5300	± 50 / ± 100	48.9 ± 5%	5.42 ± 5%	3.63	3.63	3.63	0.60	1.95 ± 13.1%
5500	± 50 / ± 100	48.6 ± 5%	5.65 ± 5%	3.44	3.44	3.44	0.63	1.95 ± 13.1%
5600	± 50 / ± 100	48.5 ± 5%	5.77 ± 5%	3.20	3.20	3.20	0.65	1.95 ± 13.1%
5800	± 50 / ± 100	48.2 ± 5%	6.00 ± 5%	3.55	3.55	3.55	0.60	1.95 ± 13.1%

^{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.
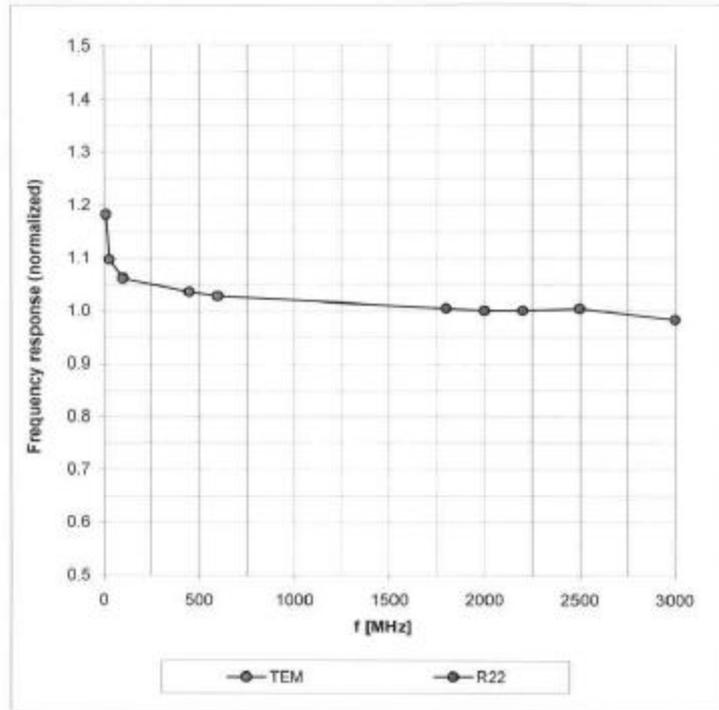
Frequency Response of E-Field

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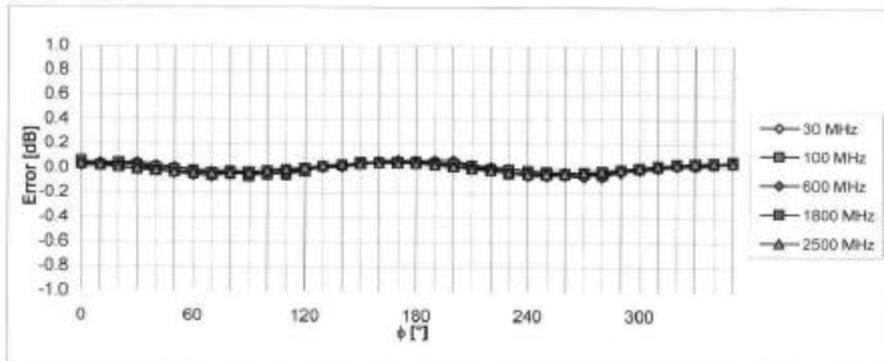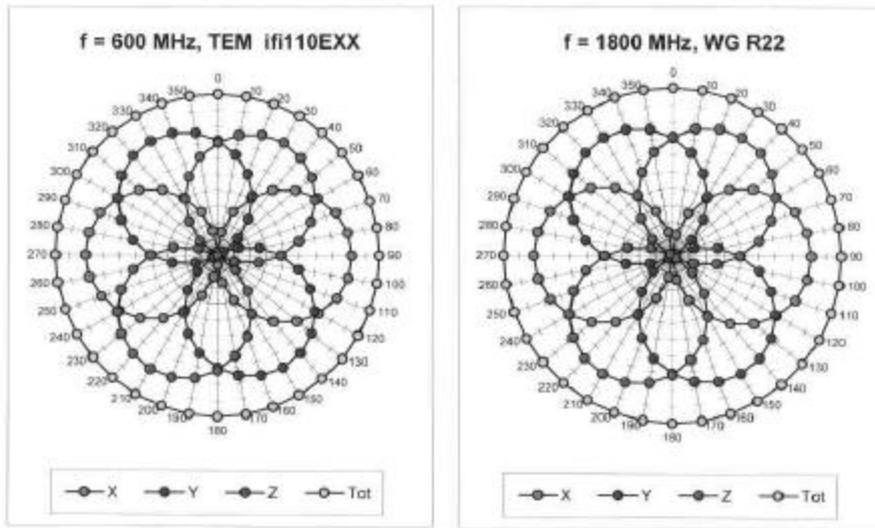

Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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Receiving Pattern (φ), θ = 0°

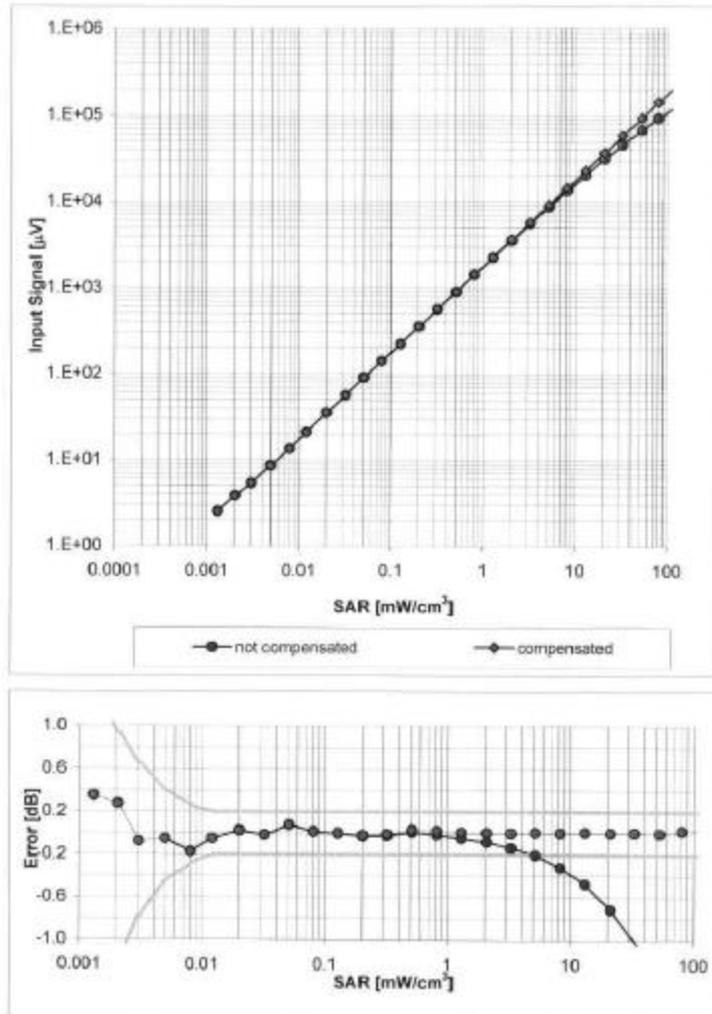f = 600 MHz, TEM ifi110EXX

f = 1800 MHz, WG R22

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

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Dynamic Range f(SAR$_{head}$)
(Waveguide R22, f = 1800 MHz)

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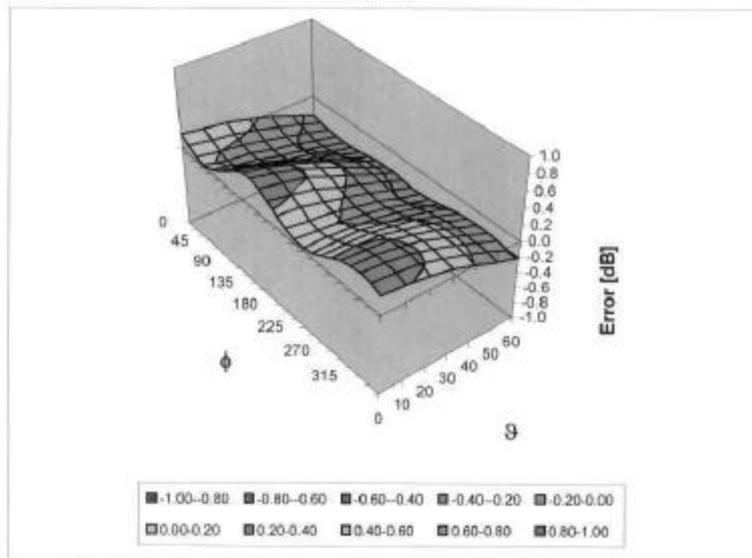
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Calibration Certificate of DASY

Conversion Factor Assessment

Deviation from Isotropy in HSL
Error (φ, ϑ), f = 900 MHz

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

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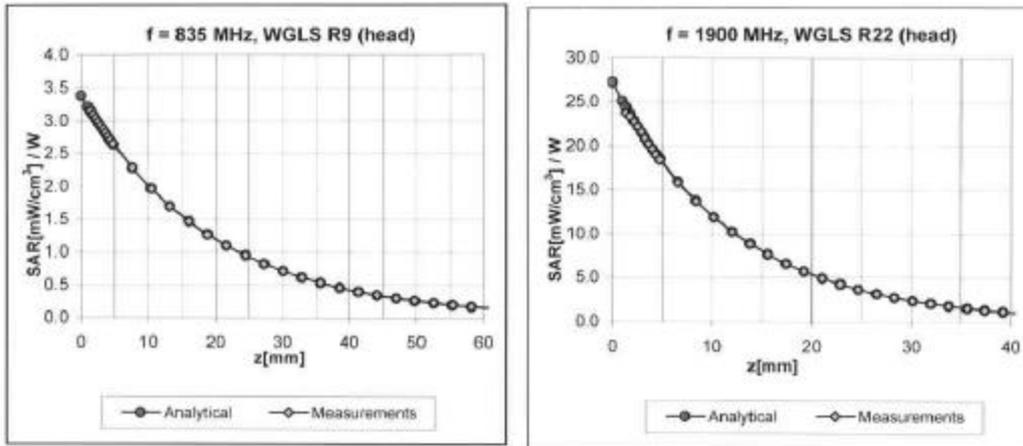
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Other Probe Parameters

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	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

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