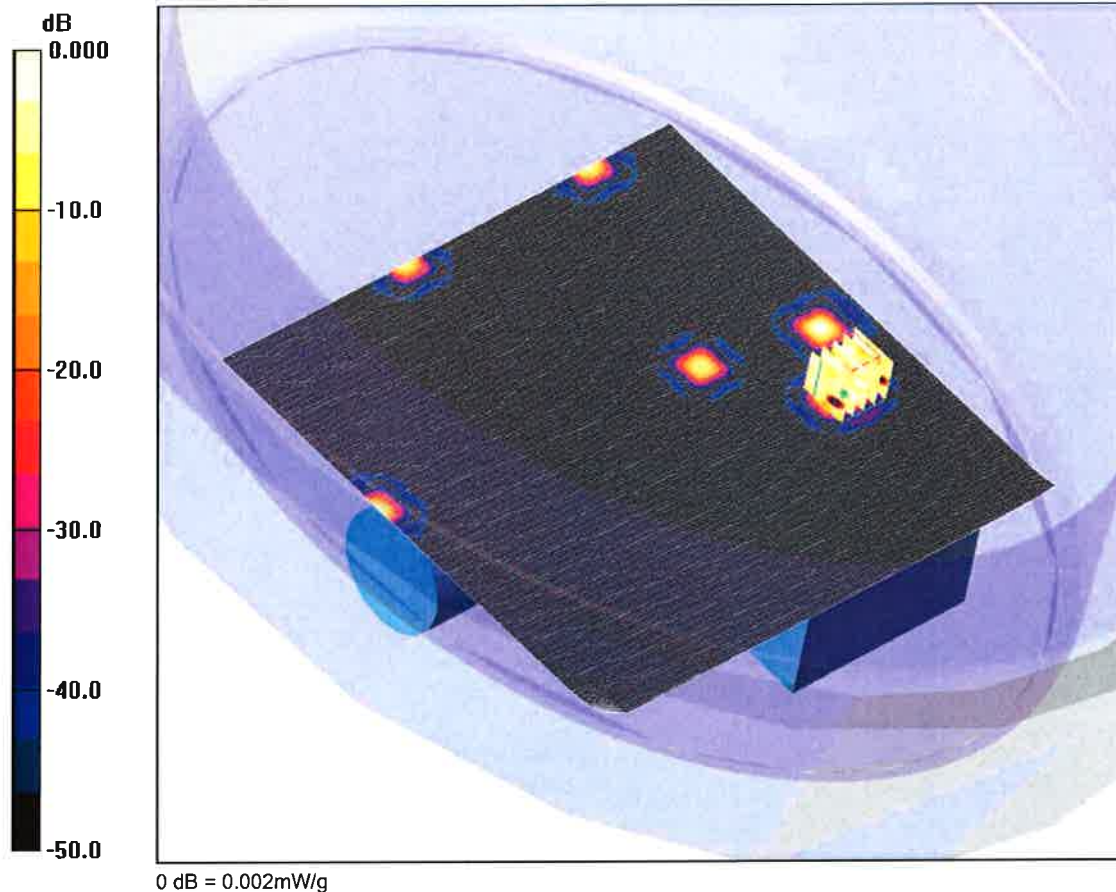


SCN/87793JD02/001: Left Hand Side of EUT Facing Phantom WiFi 802.11b 1 Mbps CH6
Date 08/05/2012
DUT: Oxford Instruments Nanoanalysis; Type: X-MET 7500 XDXRF Analyser; Serial: 750024; Model: XMD52726



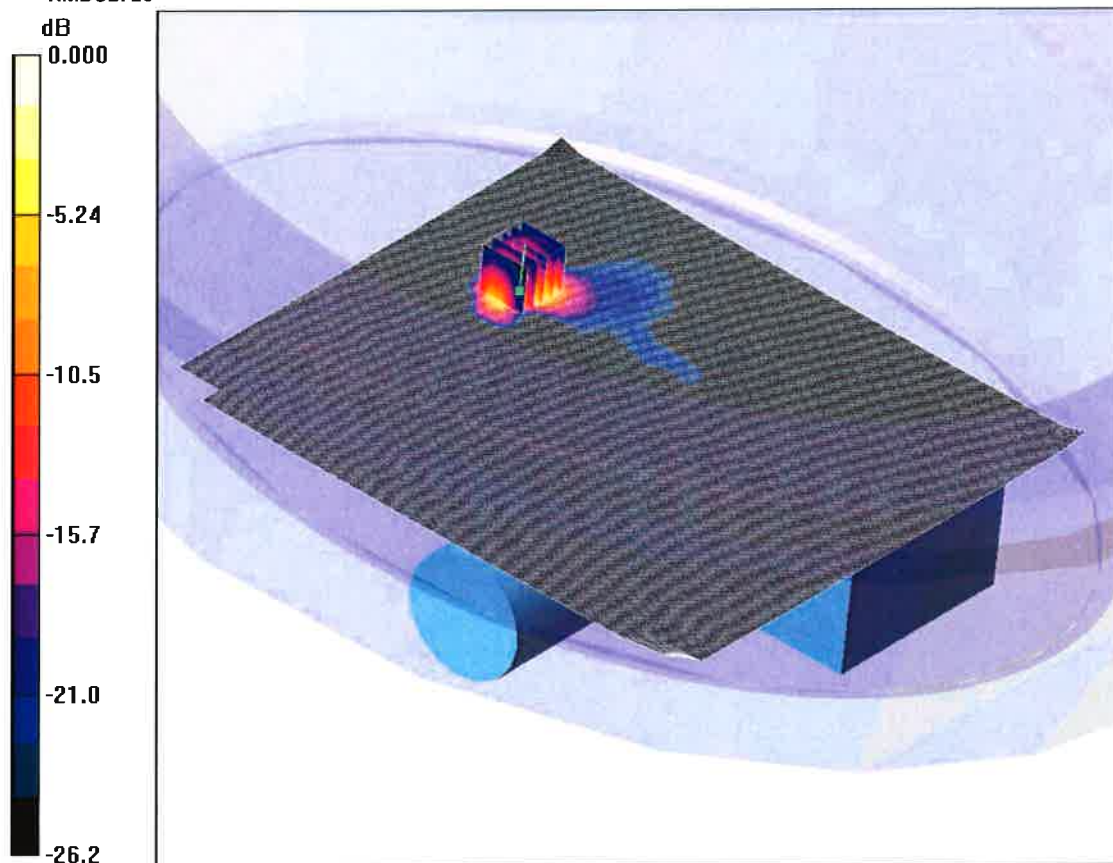
Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³
Phantom section: basin Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: basin 3mm; Type: 3mm; Serial: **Not Specified**
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
Left Hand Side of EUT Facing Phantom - Middle/Area Scan 2 (221x221x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.002 mW/g
Left Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.588 V/m; Power Drift = 0.112 dB
Peak SAR (extrapolated) = 0.003 W/kg
SAR(1 g) = 0.000649 mW/g; SAR(10 g) = 0.000105 mW/g
Maximum value of SAR (measured) = 0.002 mW/g

Note: SAR level measured is very low as equivalent to noise flow.

SCN/87793JD02/002: Right Hand Side of EUT Facing Phantom WiFi 802.11b 1Mbps CH6

Date 08/05/2012

DUT: Oxford Instruments Nanoanalysis; Type: X-MET 7500 XDXRF Analyser; Serial: 750024; Model: XMDS2726



0 dB = 0.703mW/g

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: 2450 MHz MSL Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: basin Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 26/01/2012

- Phantom: basin 3mm; Type: 3mm; Serial: **Not Specified**

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom - Middle/Area Scan (221x251x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.653 mW/g

Right Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid:

dx=8mm, dy=8mm, dz=5mm

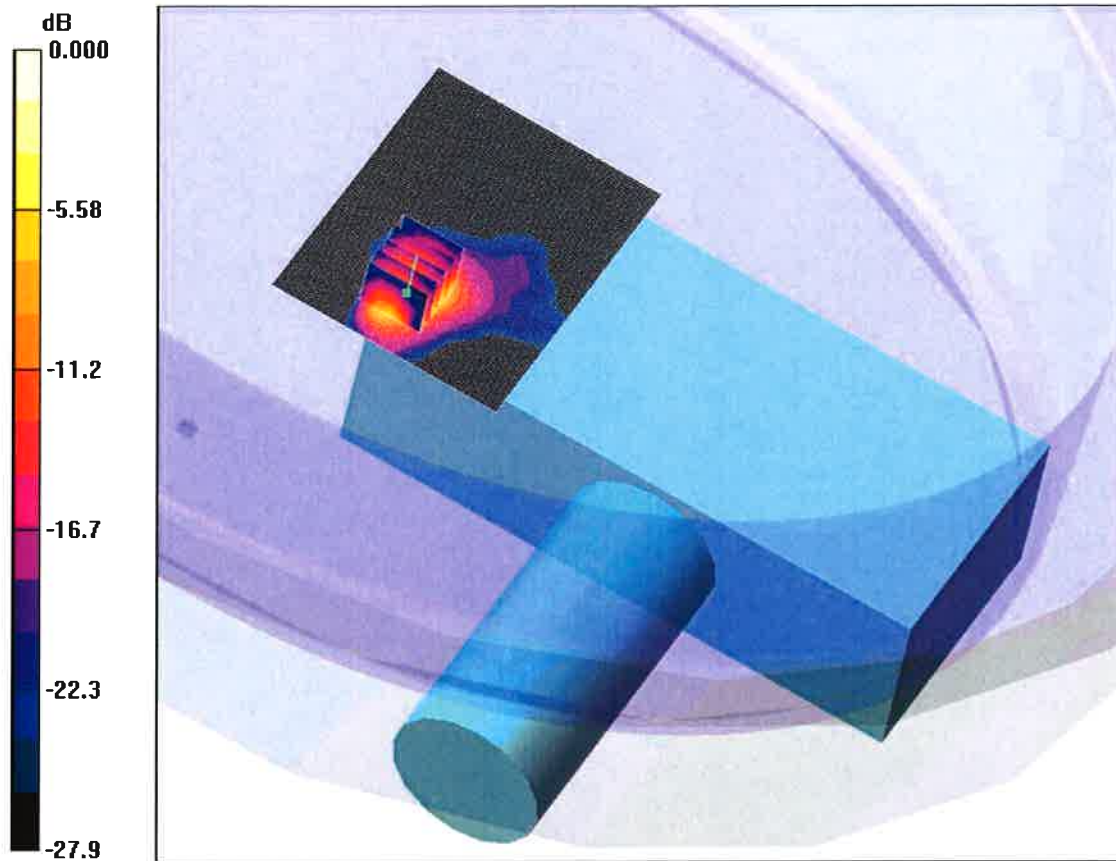
Reference Value = 2.22 V/m; Power Drift = -0.153 dB

Peak SAR (extrapolated) = 1.34 W/kg

SAR(1 g) = 0.572 mW/g; SAR(10 g) = 0.220 mW/g

Maximum value of SAR (measured) = 0.703 mW/g

SCN/87793JD02/003: Right Hand Side of EUT Facing Phantom WiFi 802.11b 1Mbps CH1
Date 08/05/2012
DUT: Oxford Instruments Nanoanalysis; Type: X-MET 7500 XDXRF Analyser; Serial: 750024; Model: XMDS2726



0 dB = 0.568mW/g

Communication System: WLAN; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.93$ mho/m; $\epsilon_r = 51.9$; $\rho = 1000$ kg/m³

Phantom section: basin Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011

- Sensor-Surface: 2.5mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 26/01/2012

- Phantom: basin 3mm; Type: 3mm; Serial: **Not Specified**

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom - Low/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.503 mW/g

Right Hand Side of EUT Facing Phantom - Low/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid:

dx=8mm, dy=8mm, dz=5mm

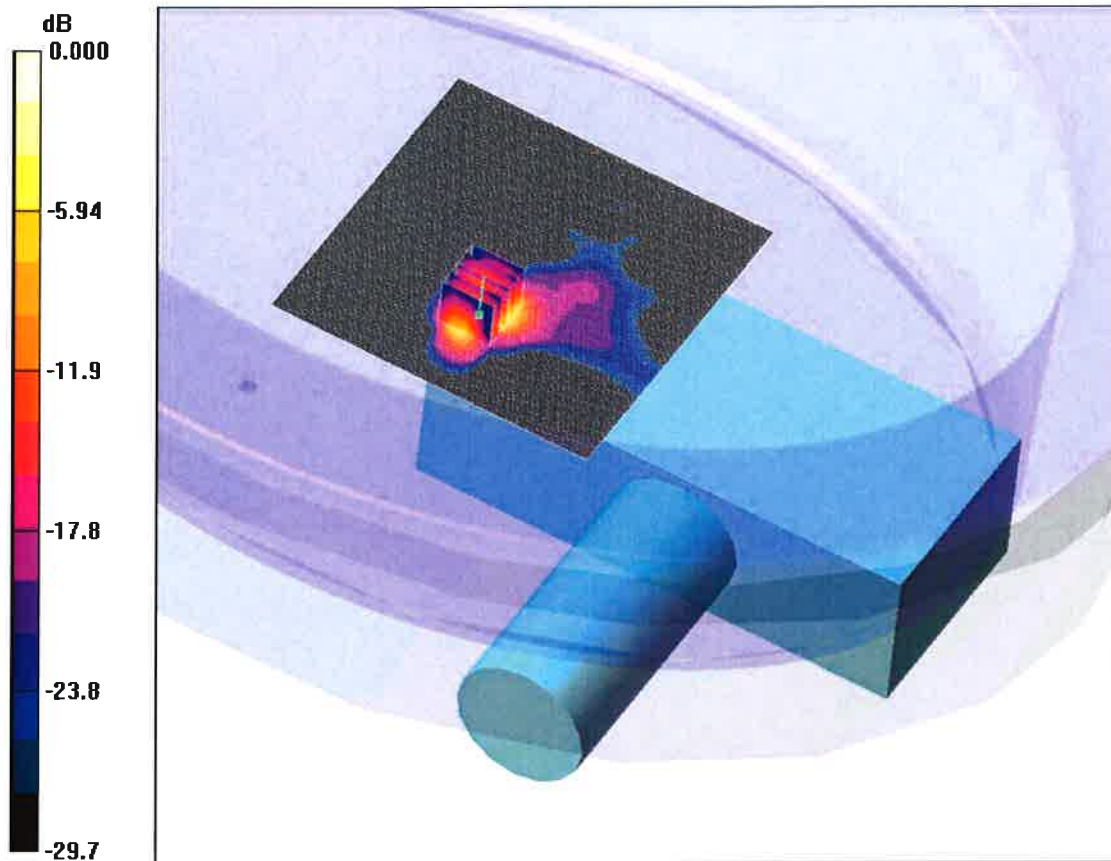
Reference Value = 13.0 V/m; Power Drift = -0.026 dB

Peak SAR (extrapolated) = 0.860 W/kg

SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.144 mW/g

Maximum value of SAR (measured) = 0.568 mW/g

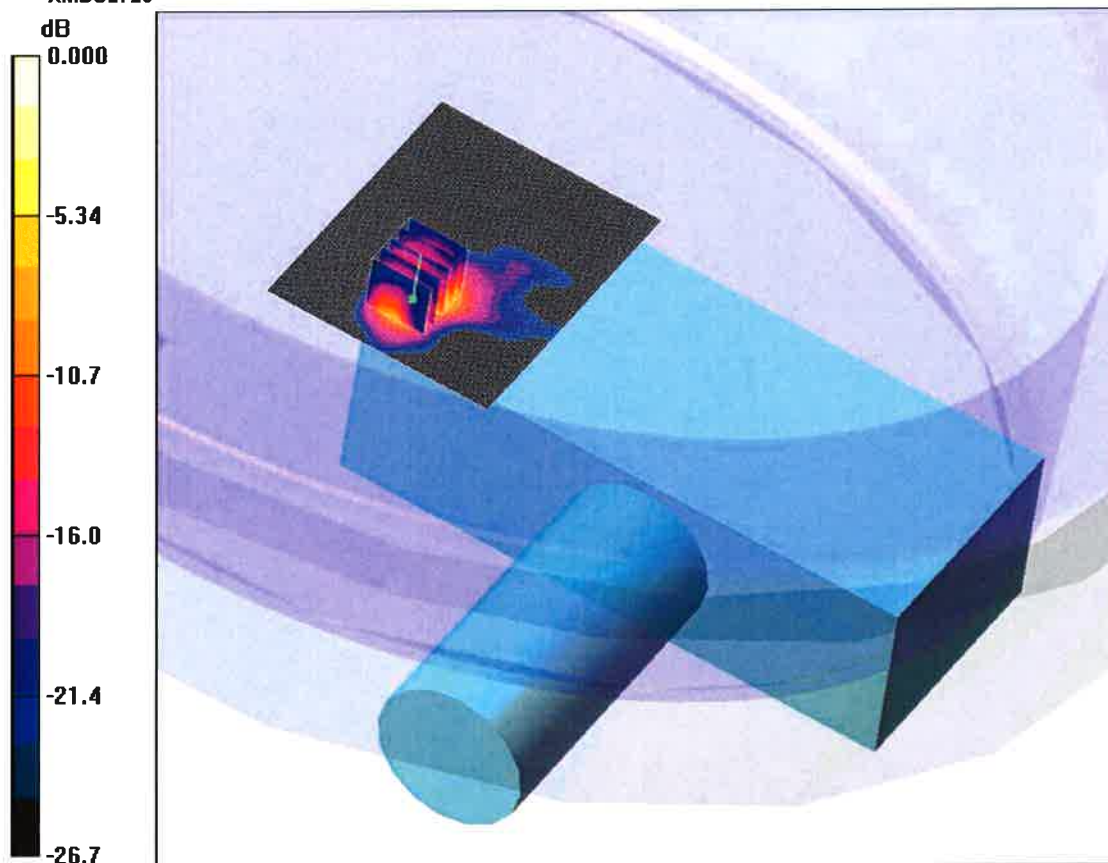
SCN/87793JD02/004: Right Hand Side of EUT Facing Phantom WiFi 802.11b 1Mbps CH11
Date 08/05/2012
DUT: Oxford Instruments Nanoanalysis; Type: X-MET 7500 XDXRF Analyser; Serial: 750024; Model: XMDS2726



0 dB = 0.932mW/g

Communication System: WLAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.98$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³
Phantom section: basin Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: basin 3mm; Type: 3mm; Serial: **Not Specified**
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
Right Hand Side of EUT Facing Phantom - High/Area Scan (131x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.686 mW/g
Right Hand Side of EUT Facing Phantom - High/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.2 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.606 mW/g; SAR(10 g) = 0.235 mW/g
Maximum value of SAR (measured) = 0.932 mW/g

SCN/87793JD02/005: Right Hand Side of EUT Facing Phantom Wi-Fi 802.11g 6Mbps CH6
Date 08/05/2012
DUT: Oxford Instruments Nanoanalysis; Type: X-MET 7500 XDXRF Analyser; Serial: 750024; Model: XMDS2726



0 dB = 0.367mW/g

Communication System: WLAN; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: 2450 MHz MSL Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: basin Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011

- Sensor-Surface: 2.5mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 26/01/2012

- Phantom: basin 3mm; Type: 3mm; Serial: **Not Specified**

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom - Middle/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm

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

Right Hand Side of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.4 V/m; Power Drift = -0.095 dB

Peak SAR (extrapolated) = 0.538 W/kg

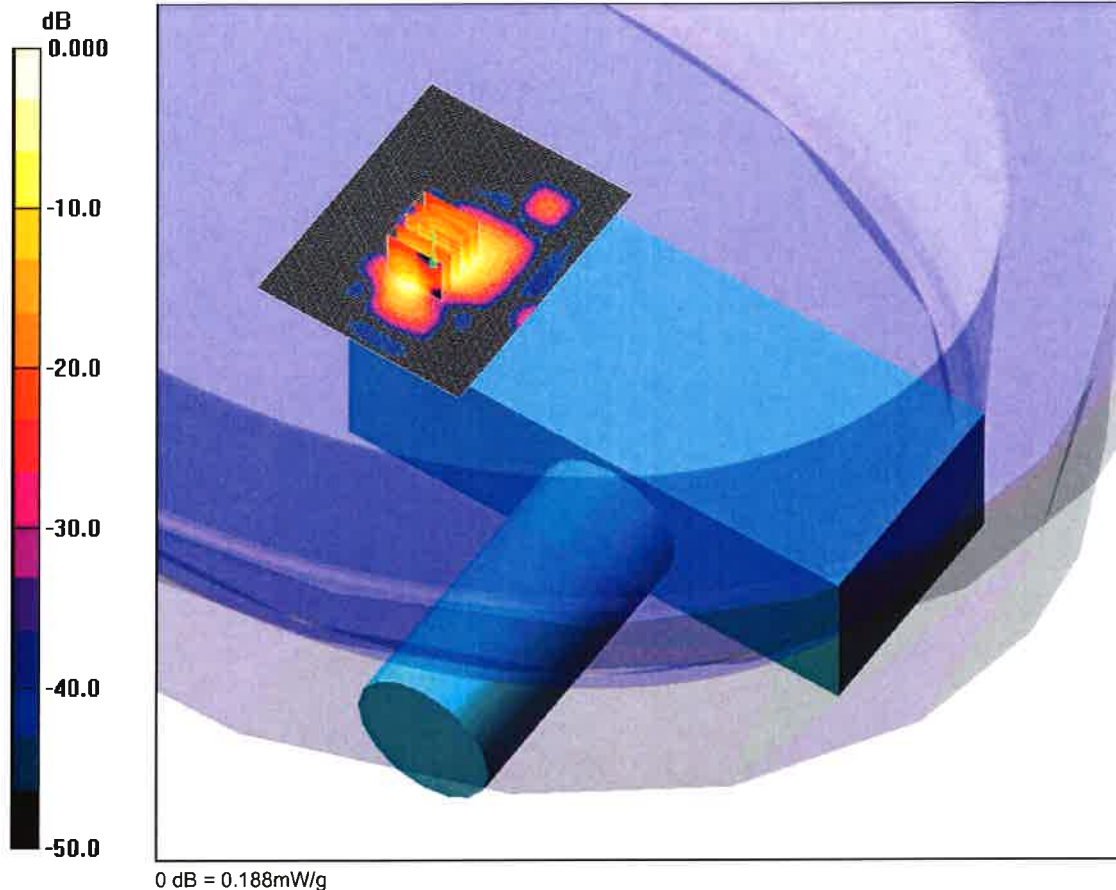
SAR(1 g) = 0.231 mW/g; SAR(10 g) = 0.088 mW/g

Maximum value of SAR (measured) = 0.367 mW/g

SCN/87793JD02/006: Right Hand Side of EUT Facing Phantom Wi-Fi 802.11g 6Mbps CH1

Date: 09/05/2012

DUT: Oxford Instruments Nanoanalysis; Type: X-MET 7500 XDXRF Analyser; Serial: 750024; Model: XMD52726



0 dB = 0.188mW/g

Communication System: WLAN; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: 2450 MHz MSL Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.93$ mho/m; $\epsilon_r = 51.9$; $\rho = 1000$ kg/m³

Phantom section: basin Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011

- Sensor-Surface: 2.5mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 26/01/2012

- Phantom: basin 3mm; Type: 3mm; Serial: **Not Specified**

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom - Low 2/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.200 mW/g

Right Hand Side of EUT Facing Phantom - Low 2/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid:

dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.97 V/m; Power Drift = 0.084 dB

Peak SAR (extrapolated) = 0.295 W/kg

SAR(1 g) = 0.127 mW/g; SAR(10 g) = 0.049 mW/g

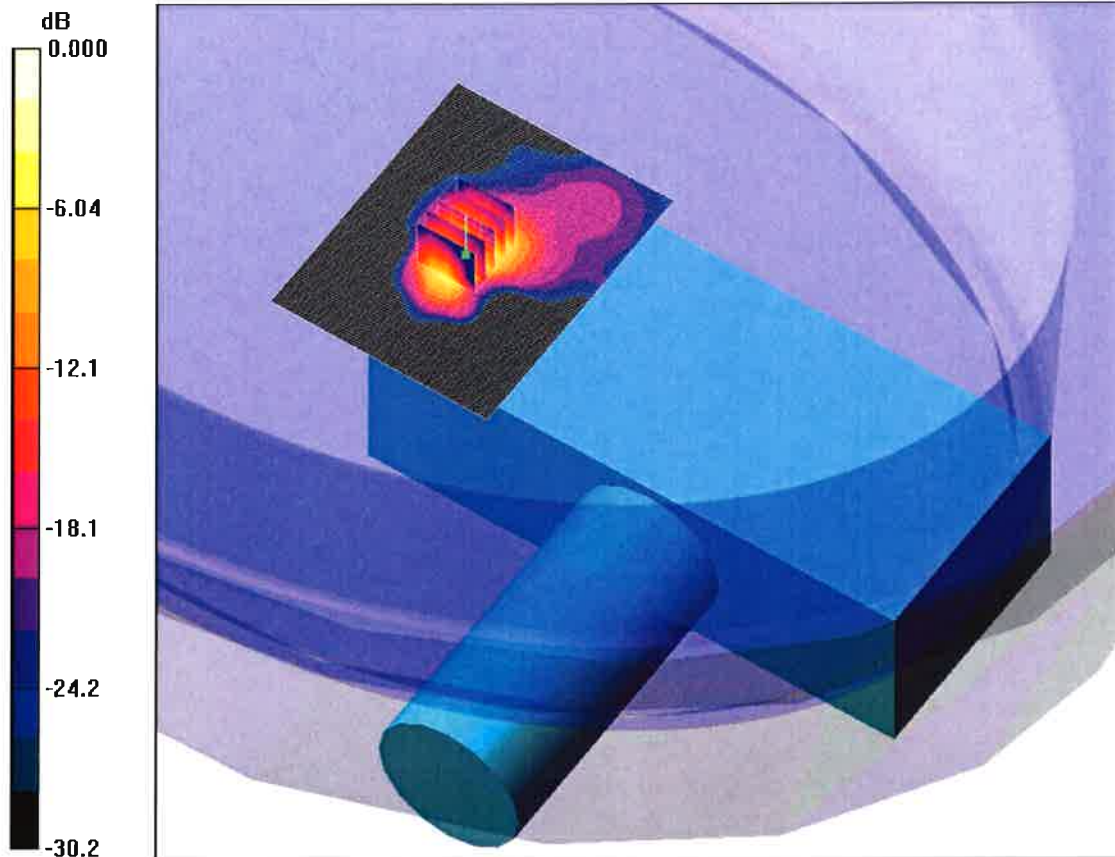
Maximum value of SAR (measured) = 0.188 mW/g

SCN/87793JD02/007: Right Hand Side of EUT Facing Phantom Wi-Fi 802.11g 6Mbps CH11
Date: 09/05/2012
DUT: Oxford Instruments Nanoanalysis; Type: X-MET 7500 XDXRF Analyser; Serial: 750024; Model: XMDS2726



Communication System: WLAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.98$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³
Phantom section: basin Section
DASY4 Configuration:
- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: basin 3mm; Type: 3mm; Serial: **Not Specified**
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176
Right Hand Side of EUT Facing Phantom - High/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.348 mW/g
Right Hand Side of EUT Facing Phantom - High/Zoom Scan (5x5x7) 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.07 V/m; Power Drift = 0.090 dB
Peak SAR (extrapolated) = 0.567 W/kg
SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.093 mW/g
Maximum value of SAR (measured) = 0.382 mW/g

SCN/87793JD02/008: Right Hand Side of EUT Facing Phantom with holster and belt Wi-Fi 802.11b 1Mbps
CH11
Date: 09/05/2012
DUT: Oxford Instruments Nanoanalysis; Type: X-MET 7500 XDXRF Analyser; Serial: 750024; Model:
XMDS2726



0 dB = 0.637mW/g

Communication System: WLAN; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 MHz MSL Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.98$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Phantom section: basin Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 26/01/2012
- Phantom: basin 3mm; Type: 3mm; Serial: **Not Specified**
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Right Hand Side of EUT Facing Phantom with Holster and belt - High 2/Area Scan (101x81x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.600 mW/g

Right Hand Side of EUT Facing Phantom with Holster and belt - High 2/Zoom Scan (5x5x7) 2 (5x5x7)/Cube

0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.62 V/m; Power Drift = -0.103 dB

Peak SAR (extrapolated) = 0.943 W/kg

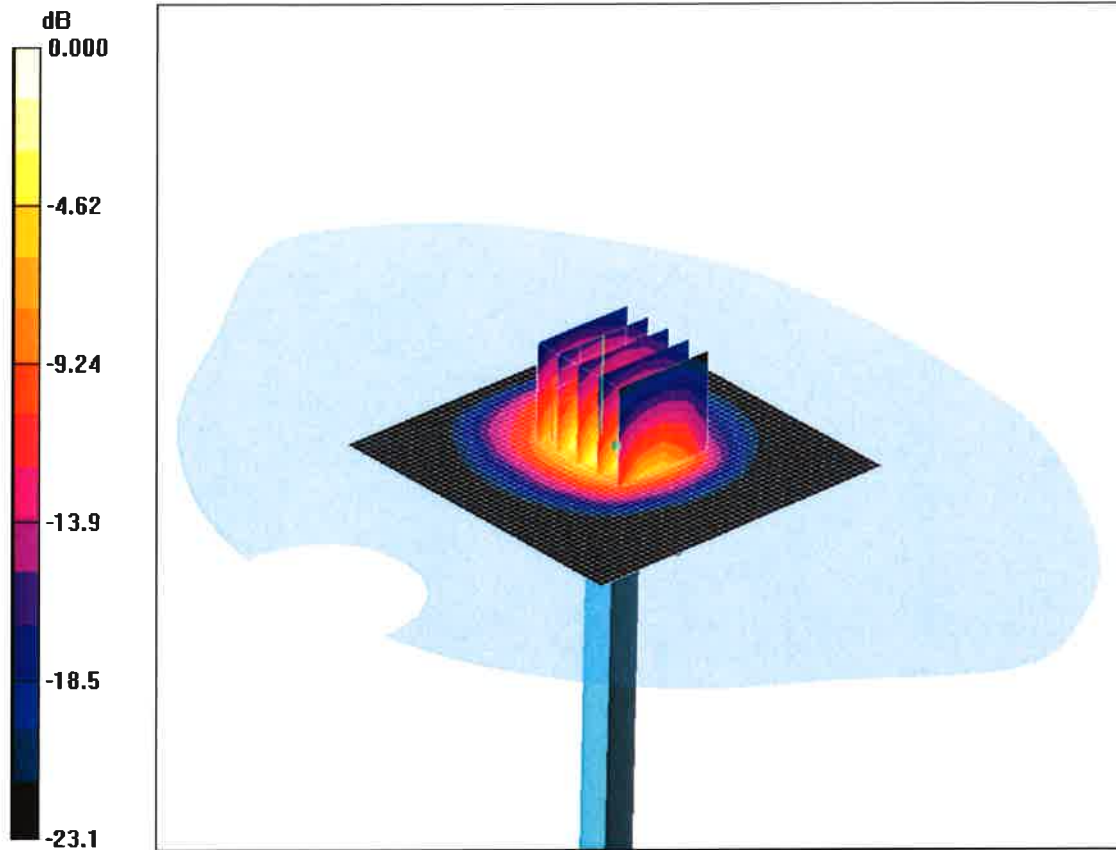
SAR(1 g) = 0.421 mW/g; SAR(10 g) = 0.169 mW/g

Maximum value of SAR (measured) = 0.637 mW/g

SCN/87793JD02/009: System Performance Check 2450MHz Body 08 05 12

Date: 08/05/2012

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:725



0 dB = 14.3mW/g

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz MSL Medium parameters used: $f = 2450$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 26/01/2012

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 14.7 mW/g

d=10mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 78.8 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 26.7 W/kg

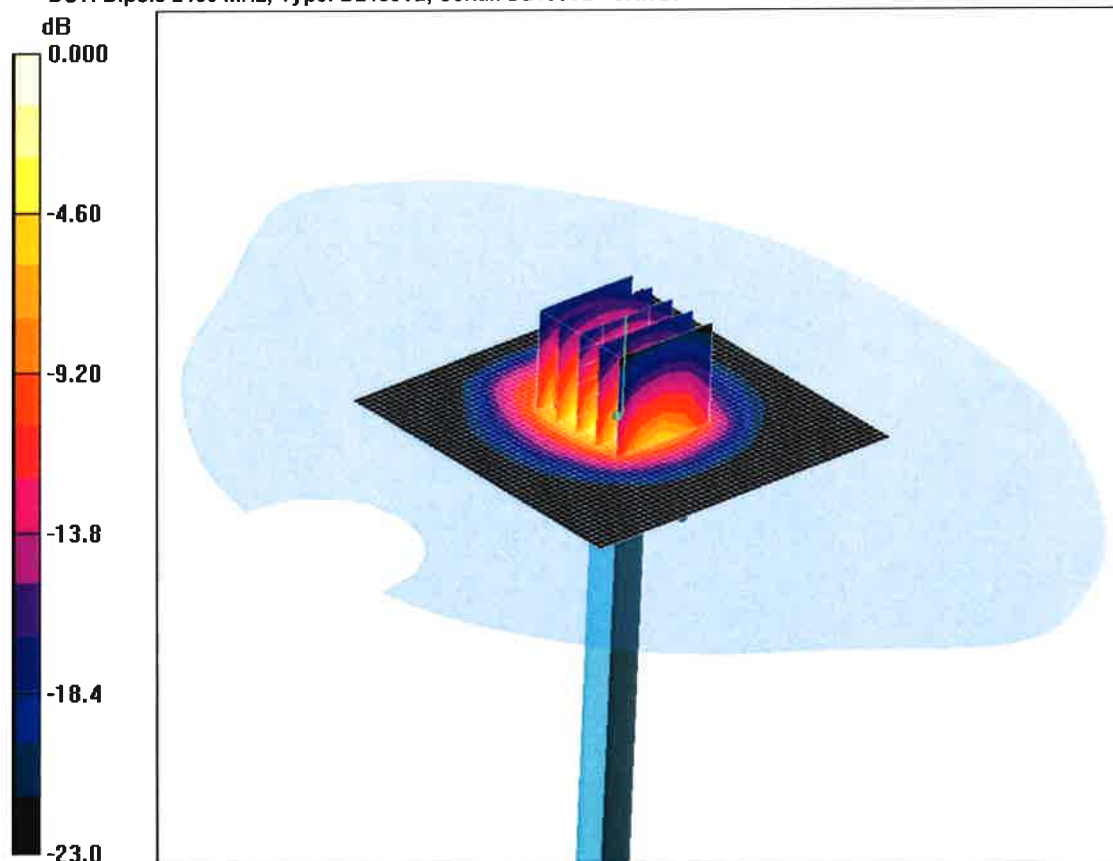
SAR(1 g) = 13.1 mW/g; SAR(10 g) = 6.09 mW/g

Maximum value of SAR (measured) = 14.3 mW/g

SCN/87793JD02/010: System Performance Check 2450MHz Body 09 05 12

Date: 09/05/2012

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:725



0 dB = 14.1mW/g

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 MHz MSL Medium parameters used: $f = 2450$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3814; ConvF(7.15, 7.15, 7.15); Calibrated: 22/09/2011

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn394; Calibrated: 26/01/2012

- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1207

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=10mm, Pin=250mW/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 16.8 mW/g

d=10mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 83.7 V/m; Power Drift = 0.039 dB

Peak SAR (extrapolated) = 26.3 W/kg

SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.83 mW/g

Maximum value of SAR (measured) = 14.1 mW/g

Appendix 4. Photographs

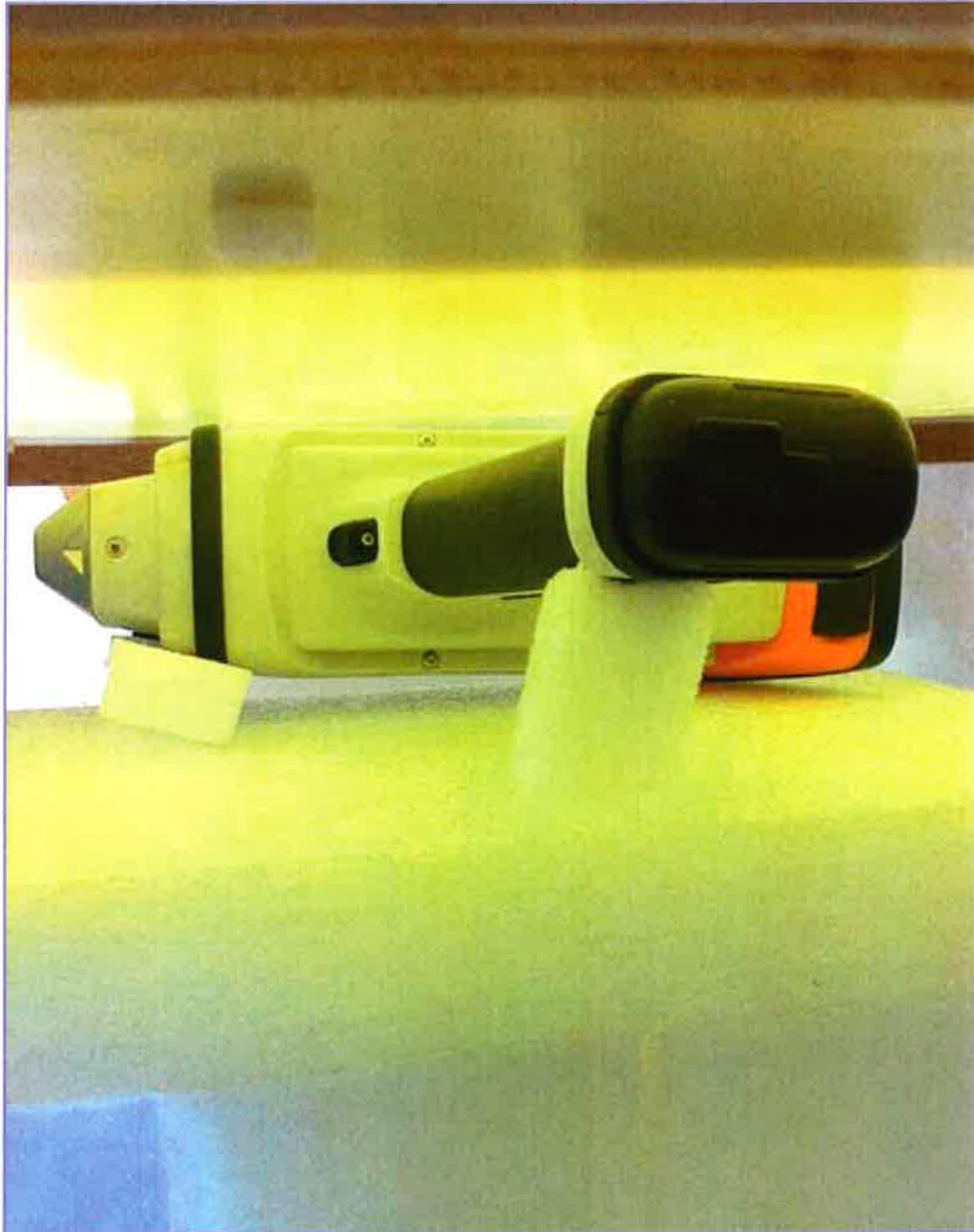
This appendix contains the following photographs:

| Photo Reference Number | Title |
|------------------------|--------------------------------------------------------------------------|
| PHT/87793JD02/001 | Test configuration for the measurement of Specific Absorption Rate (SAR) |
| PHT/87793JD02/002 | Left Hand Side of the EUT Facing Phantom |
| PHT/87793JD02/003 | Right Hand Side of the EUT Facing Phantom |
| PHT/87793JD02/004 | Right Hand Side of the EUT Facing Phantom with Holster & Belt |
| PHT/87793JD02/005 | Left Hand Side View of the EUT |
| PHT/87793JD02/006 | Right Hand Side View of the EUT |
| PHT/87793JD02/007 | Top View of EUT |
| PHT/87793JD02/008 | Bottom View of EUT |
| PHT/87793JD02/009 | Monitor View of EUT |
| PHT/87793JD02/010 | Rear View of EUT |
| PHT/87793JD02/011 | Internal View of EUT |
| PHT/87793JD02/012 | Left Hand Side View of EUT with Holster & Belt |
| PHT/87793JD02/013 | Right Hand Side View of EUT with Holster & Belt |
| PHT/87793JD02/014 | Rear View of Battery #1 |
| PHT/87793JD02/015 | Rear View of Battery #2 |
| PHT/87793JD02/016 | Front View of Battery |
| PHT/87793JD02/017 | Holster & Belt View |
| PHT/87793JD02/018 | Left Hand Side View of Holster |
| PHT/87793JD02/019 | Right Hand Side View of Holster |
| PHT/87793JD02/020 | Belt View |
| PHT/87793JD02/021 | 2450 MHz Body Fluid Level |

PHT/87793JD02/001: Test configuration for the measurement of Specific Absorption Rate (SAR)



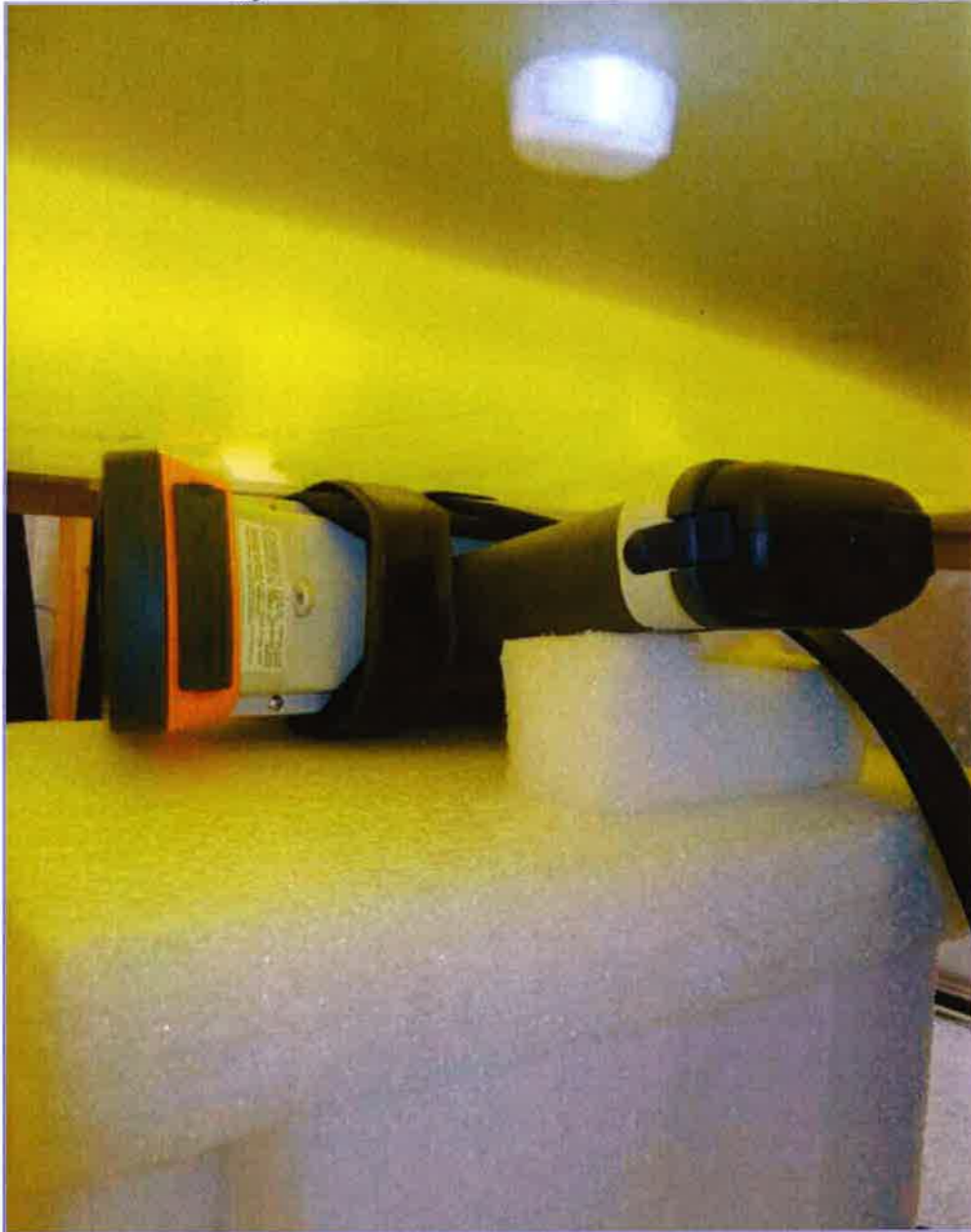
PHT/87793JD02/002: Left Hand Side of the EUT Facing Phantom



PHT/87793JD02/003: Right Hand Side of the EUT Facing Phantom



PHT/87793JD02/004: Right Hand Side of the EUT Facing Phantom with Holster & Belt



PHT/87793JD02/005: Left Hand Side View of the EUT



PHT/87793JD02/006: Right Hand Side View of the EUT



PHT/87793JD02/007: Top View of EUT



PHT/87793JD02/008: Bottom View of EUT



PHT/87793JD02/009: Monitor View of EUT



PHT/87793JD02/010: Rear View of EUT



PHT/87793JD02/011: Internal View of EUT



PHT/87793JD02/012: Left Hand Side View of EUT with Holster & Belt



PHT/87793JD02/013: Right Hand Side View of EUT with Holster & Belt



PHT/87793JD02/014: Rear View of Battery #1



PHT/87793JD02/015: Rear View of Battery #2



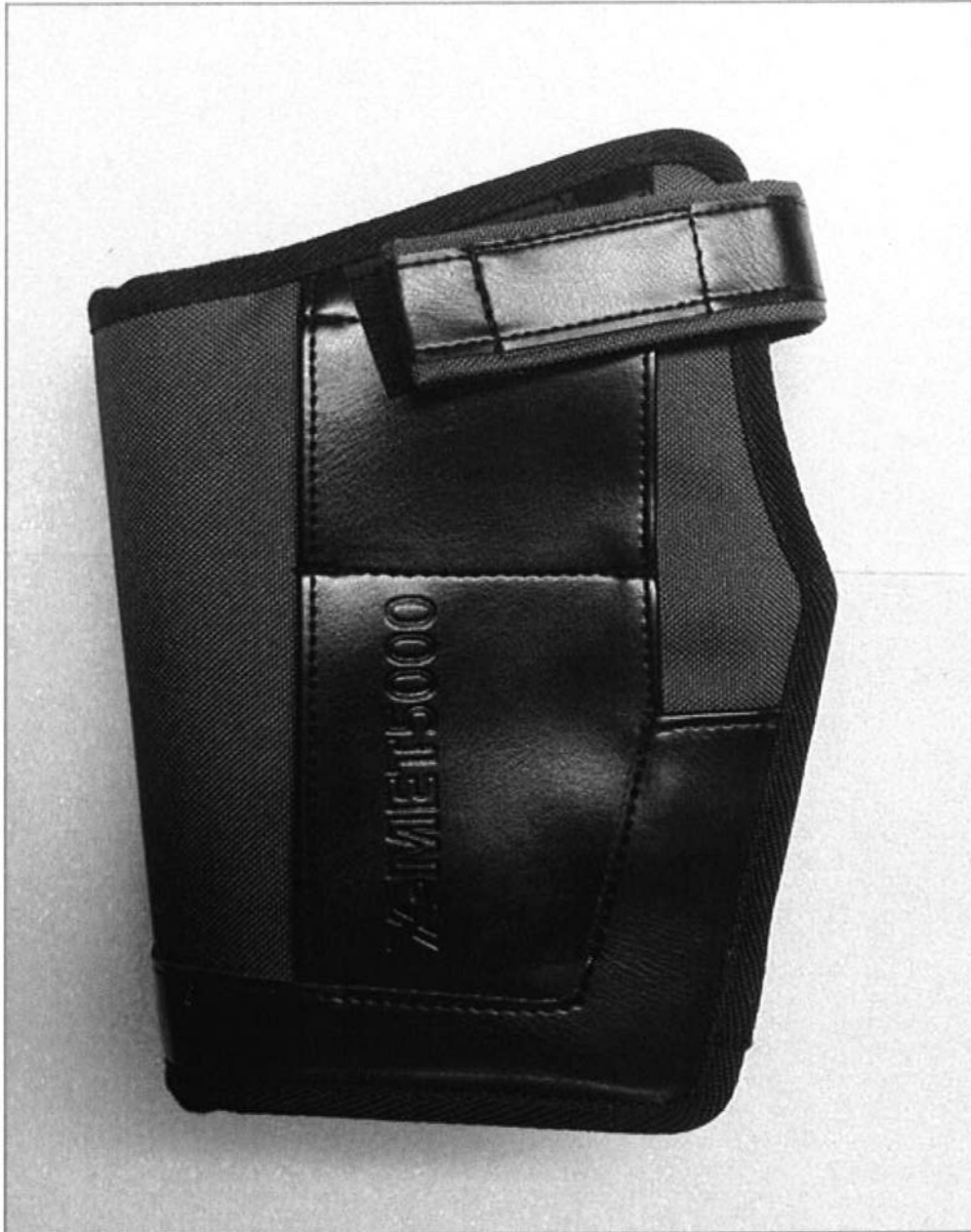
PHT/87793JD02/016: Front View of Battery



PHT/87793JD02/017: Holster & Belt View



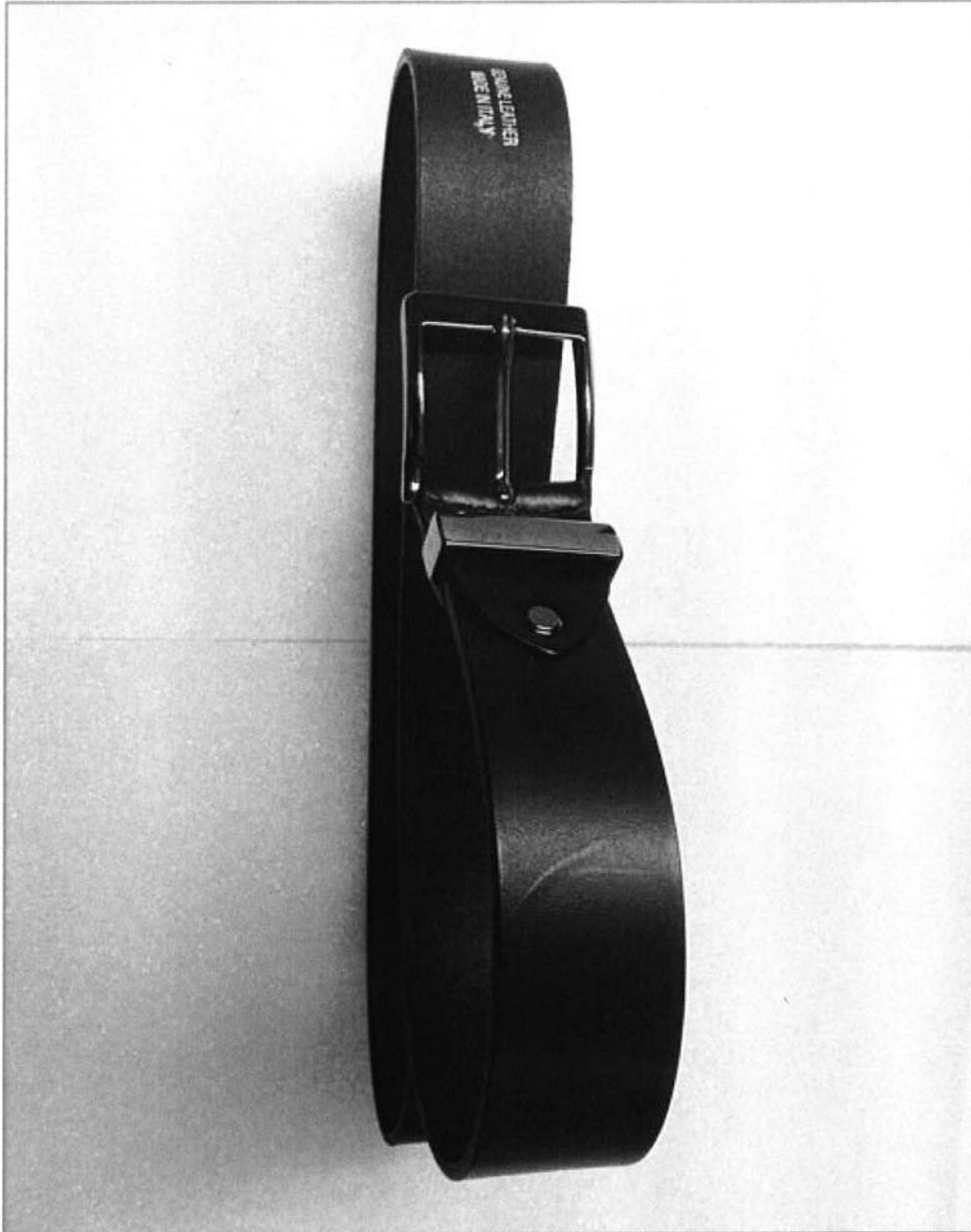
PHT/87793JD02/018: Left Hand Side View of Holster



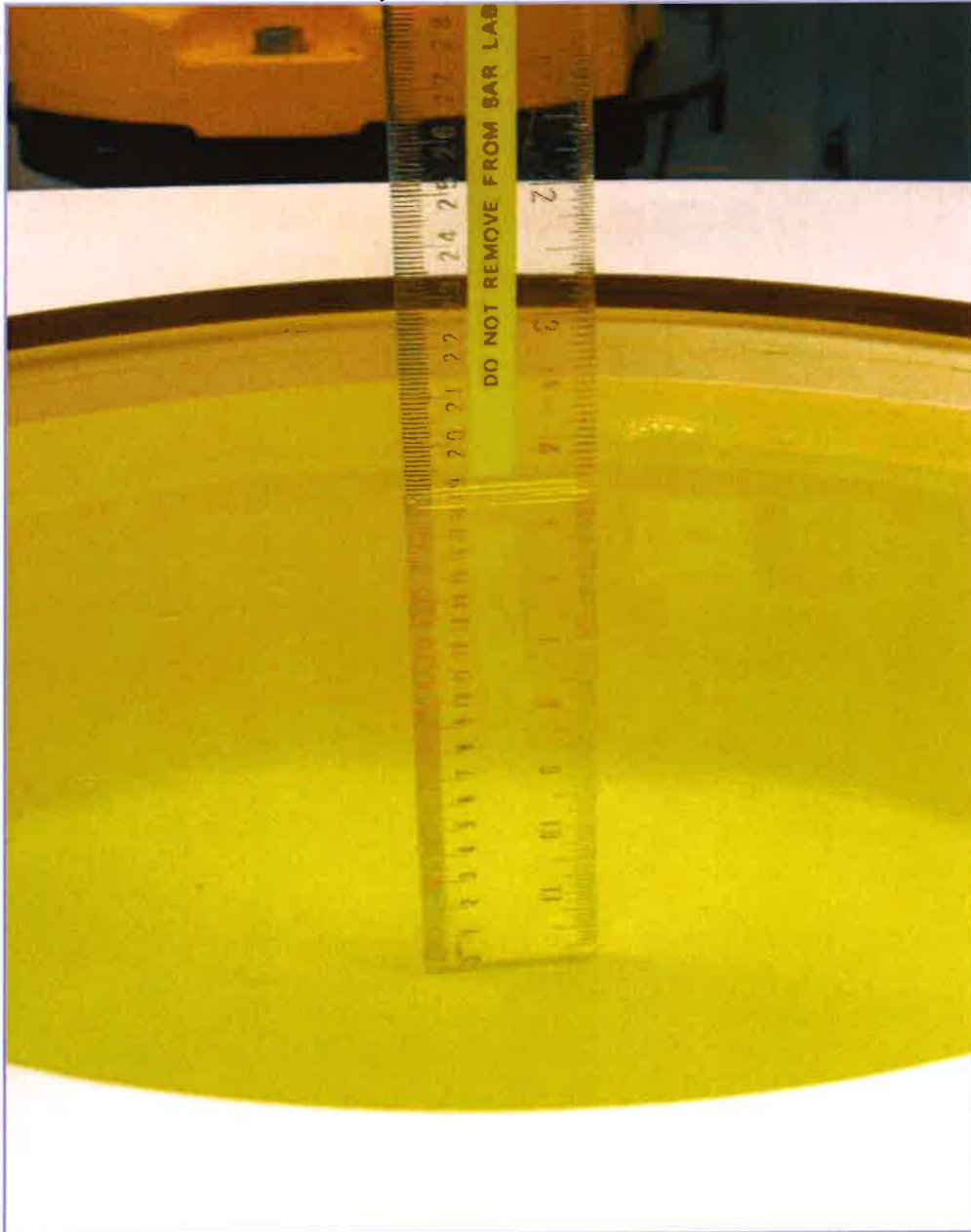
PHT/87793JD02/019: Right Hand Side View of Holster



PHT/87793JD02/020: Belt View



PHT/87793JD02/021: 2450 MHz Body Fluid Level



Appendix 5. Validation of System

Prior to the assessment, the system was verified in the flat region of the phantom. A 2450 MHz dipole was used. A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of $\pm 5\%$ for the 2450 MHz dipole.

The applicable verification normalised to 1 Watt.

Date: 08/05/2012

Validation Dipole and Serial Number: D2450V2; SN: 725

| Simulant | Frequency (MHz) | Room Temp | Liquid Temp | Parameters | Target Value | Measured Value | Deviation (%) | Limit (%) |
|----------|-----------------|-----------|-------------|--------------|--------------|----------------|---------------|-----------|
| Body | 2450 | 24.0 °C | 23.2 °C | ϵ_r | 52.70 | 51.79 | -1.73 | 5.00 |
| | | | | σ | 1.95 | 1.97 | 0.82 | 5.00 |
| | | | | 1g SAR | 51.90 | 52.40 | 0.96 | 5.00 |
| | | | | 10g SAR | 24.10 | 24.36 | 1.08 | 5.00 |

Dielectrics for Frequencies Tested

| Channel Number | Channel Description | Frequency (MHz) | Parameters | |
|----------------|---------------------|-----------------|--------------|-------|
| 1 | Low | 2412 | ϵ_r | 51.90 |
| | | | σ | 1.93 |
| 6 | Middle | 2437 | ϵ_r | 51.80 |
| | | | σ | 1.95 |
| 11 | High | 2462 | ϵ_r | 51.70 |
| | | | σ | 1.98 |

Date: 09/05/2012

Validation Dipole and Serial Number: D2450V2; SN: 725

| Simulant | Frequency (MHz) | Room Temp | Liquid Temp | Parameters | Target Value | Measured Value | Deviation (%) | Limit (%) |
|----------|-----------------|-----------|-------------|--------------|--------------|----------------|---------------|-----------|
| Body | 2450 | 24.0 °C | 23.2 °C | ϵ_r | 52.70 | 51.79 | -1.73 | 5.00 |
| | | | | σ | 1.95 | 1.97 | 0.82 | 5.00 |
| | | | | 1g SAR | 51.90 | 50.80 | -2.12 | 5.00 |
| | | | | 10g SAR | 24.10 | 23.32 | -3.24 | 5.00 |

Dielectrics for Frequencies Tested

| Channel Number | Channel Description | Frequency (MHz) | Parameters | |
|----------------|---------------------|-----------------|--------------|-------|
| 1 | Low | 2412 | ϵ_r | 51.90 |
| | | | σ | 1.93 |
| 6 | Middle | 2437 | ϵ_r | 51.80 |
| | | | σ | 1.95 |
| 11 | High | 2462 | ϵ_r | 51.70 |
| | | | σ | 1.98 |

Appendix 6. Simulated Tissues

The body mixture consists of water, Polysorbate 20 and salt. Visual inspection is made to ensure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

| Ingredient | Frequency |
|---------------------------|------------------|
| | 2450 MHz Body |
| De-Ionized Water | 71.70 |
| Polysorbate 20 (Tween 20) | 28.00 |
| Salt | 0.30 |

Appendix 7. DASY4 System Details

A.7.1. DASY4 SAR Measurement System

RFI Global Services Ltd, SAR measurement facility utilises the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 system is comprised of the robot controller, computer, near-field probe, probe alignment sensor, and the SAM phantom containing brain or muscle equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller; teach pendant (Joystick), and remote control. This is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. The data acquisition electronics (DAE) performs signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection etc. The DAE is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE3 utilises a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

A.7.2. DASY4 SAR System Specifications

| | |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Robot System | |
| Positioner: | Stäubli Unimation Corp. Robot Model: RX90L |
| Repeatability: | 0.025 mm |
| No. of Axis: | 6 |
| Serial Number: | F00/SD89A1/A/01 |
| Reach: | 1185 mm |
| Payload: | 3.5 kg |
| Control Unit: | CS7 |
| Programming Language: | V+ |
| Data Acquisition Electronic (DAE) System | |
| Serial Number: | DAE3 SN:394 |
| PC Controller | |
| PC: | Dell Precision 340 |
| Operating System: | Windows 2000 |
| Data Card: | DASY4 Measurement Server |
| Serial Number: | 1080 |
| Data Converter | |
| Features: | Signal Amplifier, multiplexer, A/D converted and control logic. |
| Software: | DASY4 Software |
| Connecting Lines: | Optical downlink for data and status info. Optical uplink for commands and clock. |
| PC Interface Card | |
| Function: | 24 bit (64 MHz) DSP for real time processing Link to DAE3 16 bit A/D converter for surface detection system serial link to robot direct emergency stop output for robot. |

| DASY4 SAR System Specifications (Continued) | |
|---------------------------------------------|---------------------------|
| E-Field Probe | |
| Model: | EX3DV4 |
| Serial No: | 3814 |
| Construction: | Triangular core |
| Frequency: | 10 MHz to >6 GHz |
| Linearity: | ±0.2 dB (30 MHz to 6 GHz) |
| Probe Length (mm): | 330 |
| Probe Diameter (mm): | 12 |
| Tip Length (mm): | 20 |
| Tip Diameter (mm): | 2.5 |
| Sensor X Offset (mm): | 1 |
| Sensor Y Offset (mm): | 1 |
| Sensor Z Offset (mm): | 1 |
| Phantom | |
| Phantom: | SAM Phantom |
| Shell Material: | Fibreglass |
| Thickness: | 2.0 ±0.1 mm |