

**Test of: WorldScout Corporation
LT100**

To: OET Bulletin 65 Supplement C: (2001-01)

Appendix 2. Measurement Methods

A.2.1. Evaluation Procedure

The Specific Absorption Rate (SAR) evaluation was performed in the following manner:

- a) (i) The evaluation was performed in an applicable area of the phantom depending on the type of device being tested. For devices worn about the ear during normal operation, both the left and right ear positions were evaluated at the centre frequency of the band at maximum power. The side, which produced the greatest SAR, determined which side of the phantom would be used for the entire evaluation. The positioning of the head worn device relative to the phantom was dictated by the test specification identified in section 3.1 of this report.
(ii) For body worn devices or devices which can be operated within 20 cm of the body, the flat section of the SAM phantom was used were the size of the device(s) is normal. for bigger devices and base station the 2mm Oval phantom is used for evaluation. The type of device being evaluated dictated the distance of the EUT to the outer surface of the phantom flat section.
- b) The SAR was determined by a pre-defined procedure within the DASY4 software. The exposed region of the phantom was scanned near the inner surface with a grid spacing of 20mm x 20mm or appropriate resolution.
- c) A 5x5x7 matrix was performed around the greatest spatial SAR distribution found during the area scan of the applicable exposed region. SAR values were then calculated using a 3-D spline interpolation algorithm and averaged over spatial volumes of 1 and 10 grams.
- d) If the EUT had any appreciable drift over the course of the evaluation, then the EUT was re-evaluated. Any unusual anomalies over the course of the test also warranted a re-evaluation.

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A.2.2. Specific Absorption Rate (SAR) Measurements to OET Bulletin 65 Supplement C: (2001-01)

Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields

SAR measurements were performed in accordance with Appendix D of the standard FCC OET Bulletin 65 Supplement C: 2001, against appropriate limits for each measurement position in accordance with the standard.

The test was performed in a shielded enclosure with the temperature controlled to remain between +18.0°C and +25.0°C. The tissue equivalent material fluid temperature was controlled to give a maximum variation of $\pm 2.0^{\circ}\text{C}$.

Prior to any SAR measurements on the EUT, system validation and material dielectric property measurements were conducted. In the absence of a detailed procedure within the specification, system validation and material dielectric property measurements were performed in accordance with Appendix C and Appendix D of FCC OET Bulletin 65 Supplement C: 2001.

Following the successful system validation and material dielectric property measurements, a SAR versus time sweep shall be performed within 10 mm of the phantom inner surface. If the EUT power output is stable after three minutes then the measurement probe will perform a coarse surface level scan at each test position in order to ascertain the location of the maximum local SAR level. Once this area had been established, a 5x5x7 cube of 343 points (5 mm spacing in each axis $\approx 27\text{g}$) will be centred at the area of concern. Extrapolation and interpolation will then be carried out on the 27g of tissue and the highest averaged SAR over a 10g cube determined.

Once the maximum interpolated SAR measurement is complete; the coarse scan is visually assessed to check for secondary peaks within 50% of the maximum SAR level. If there are any further SAR measurements required, extra 5x5x7 cubes shall be centred on each of these extra local SAR maxima.

At the end of each position test case a second time sweep shall be performed to check whether the EUT has remained stable throughout the test.

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Appendix 3. SAR Distribution Scans

This appendix contains SAR distribution scans which are not included in the total number of pages for this report.

Scan Reference Number	Title
SCN/72272JD02/001	Front Of EUT Facing Phantom GPRS850 CH189
SCN/72272JD02/002	Rear Of EUT Facing Phantom GPRS850 CH189
SCN/72272JD02/003	Front Of EUT Facing Phantom GPRS1900 CH660
SCN/72272JD02/004	Rear Of EUT Facing Phantom GPRS1900 CH660
SCN/72272JD02/005	System Performance Check 1900MHz Body 29 10 07
SCN/72272JD02/006	System Performance Check 900MHz Body 29 10 07

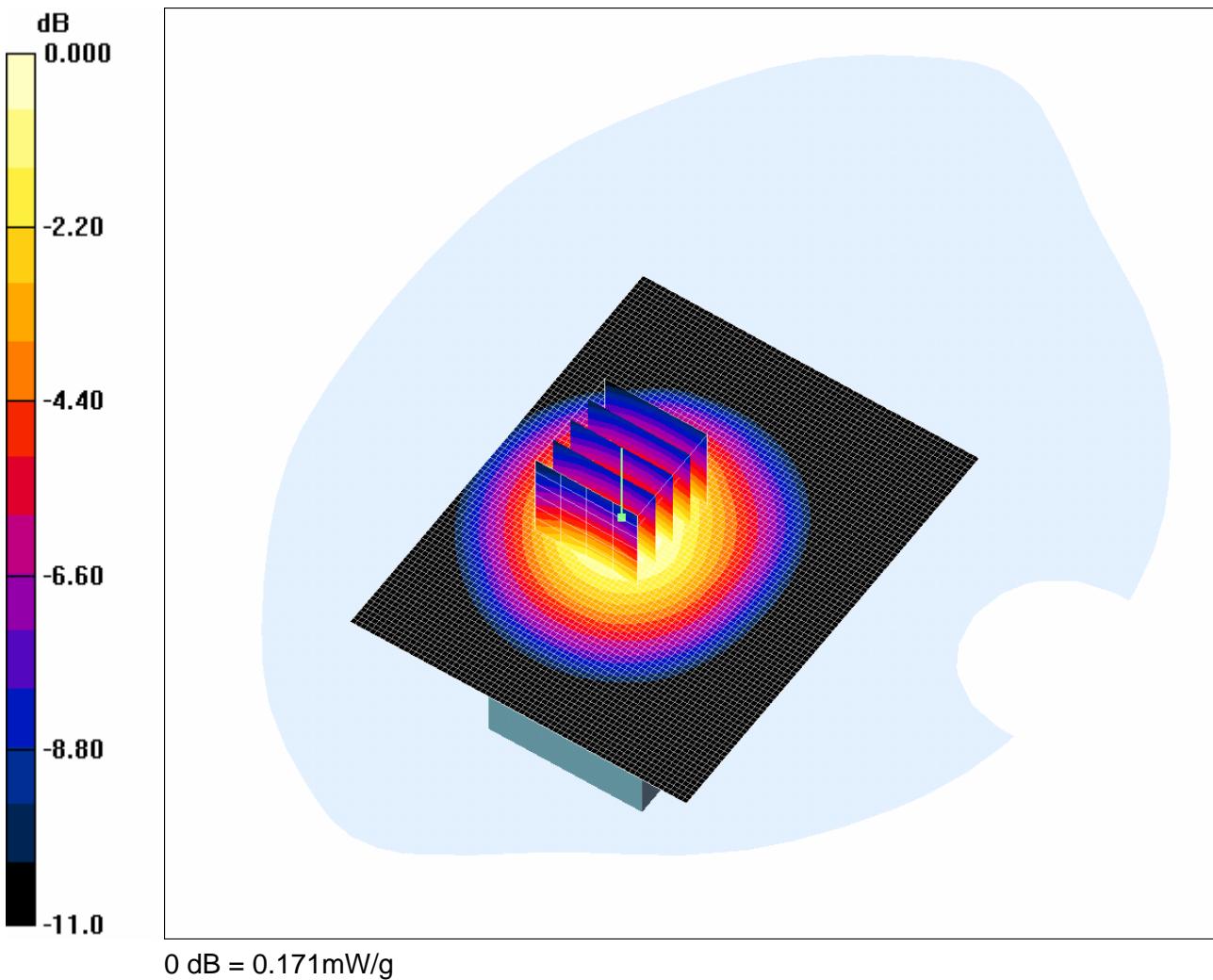
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To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72272JD02/001: Front Of EUT Facing Phantom GPRS850 CH189

DUT: Worldscout LT200; Type: LT200; Serial: 353268002691166

Date: 29/10/2007



Communication System: GPRS 850 MHz; Frequency: 836.4 MHz; Duty Cycle: 1:4

Medium: 900 MHz MSL Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(6.19, 6.19, 6.19); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom Antenna Extended - Middle/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.171 mW/g

Front Of EUT Facing Phantom Antenna Extended - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.72 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.219 W/kg

SAR(1 g) = 0.159 mW/g; SAR(10 g) = 0.108 mW/g

Maximum value of SAR (measured) = 0.171 mW/g

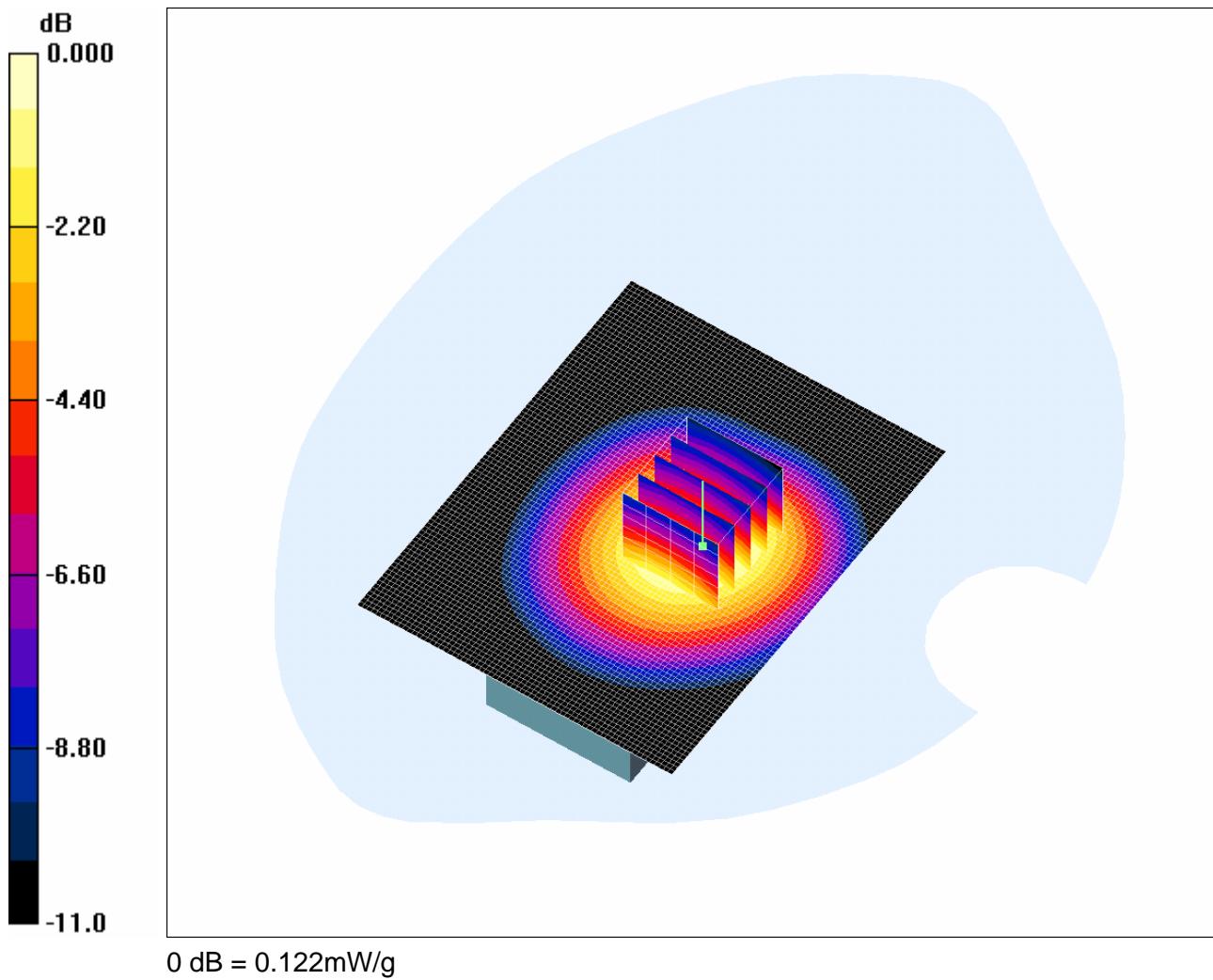
Test of: WorldScout Corporation
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To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72272JD02/002: Rear Of EUT Facing Phantom GPRS850 CH189

DUT: Worldscout LT200; Type: LT200; Serial: 353268002691166

Date: 29/10/2007



Communication System: GPRS 850 MHz; Frequency: 836.4 MHz; Duty Cycle: 1:4

Medium: 900 MHz MSL Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(6.19, 6.19, 6.19); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Rear Of EUT Facing Phantom Antenna Extended - Middle/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.124 mW/g

Rear Of EUT Facing Phantom Antenna Extended - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.97 V/m; Power Drift = -0.079 dB

Peak SAR (extrapolated) = 0.153 W/kg

SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.078 mW/g

Maximum value of SAR (measured) = 0.122 mW/g

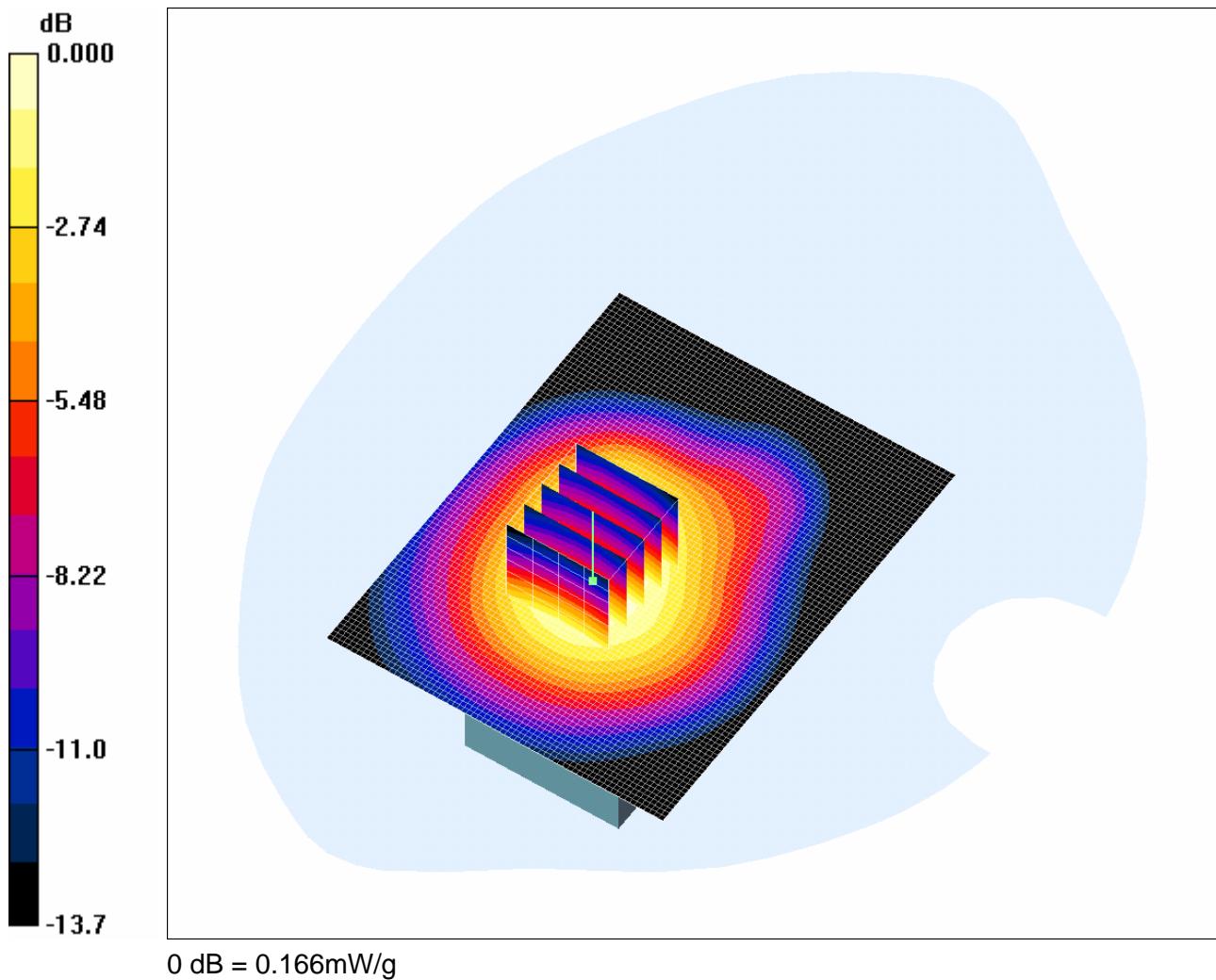
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To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72272JD02/003: Front Of EUT Facing Phantom GPRS1900 CH660

DUT: Worldscout LT200; Type: LT200; Serial: 353268002691166

Date: 29/10/2007



Communication System: GPRS 1900; Frequency: 1879.8 MHz; Duty Cycle: 1:4

Medium: 1900 MHz MSL Medium parameters used (interpolated): $f = 1879.8$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Front Of EUT Facing Phantom - Middle/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.166 mW/g

Front Of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.87 V/m; Power Drift = -0.059 dB

Peak SAR (extrapolated) = 0.231 W/kg

SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.101 mW/g

Maximum value of SAR (measured) = 0.166 mW/g

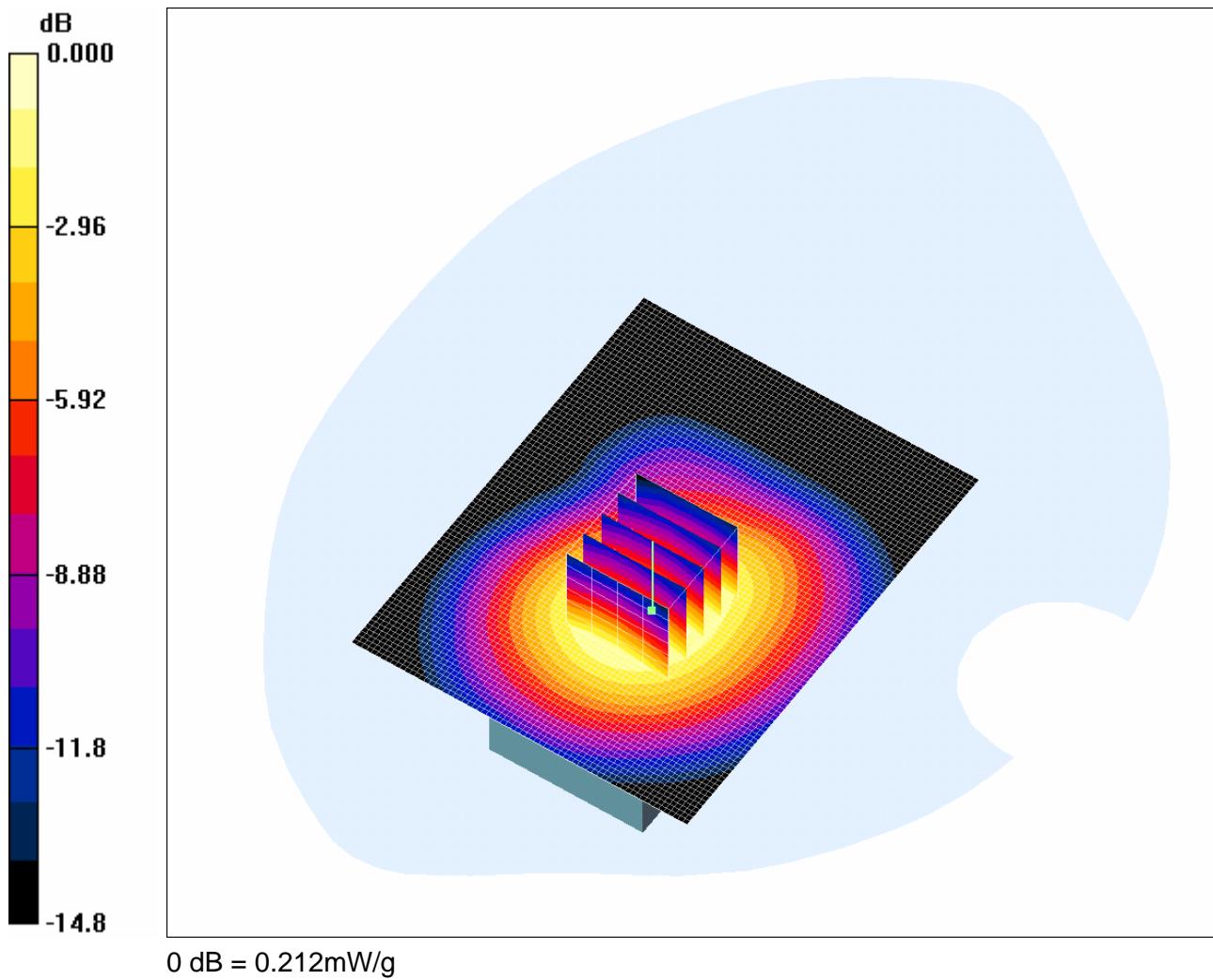
Test of: WorldScout Corporation
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To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72272JD02/004: Rear Of EUT Facing Phantom GPRS1900 CH660

DUT: Worldscout LT200; Type: LT200; Serial: 353268002691166

Date: 29/10/2007



Communication System: GPRS 1900; Frequency: 1879.8 MHz; Duty Cycle: 1:4

Medium: 1900 MHz MSL Medium parameters used (interpolated): $f = 1879.8$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Rear Of EUT Facing Phantom - Middle/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.211 mW/g

Rear Of EUT Facing Phantom - Middle/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.71 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 0.306 W/kg

SAR(1 g) = 0.197 mW/g; SAR(10 g) = 0.126 mW/g

Maximum value of SAR (measured) = 0.212 mW/g

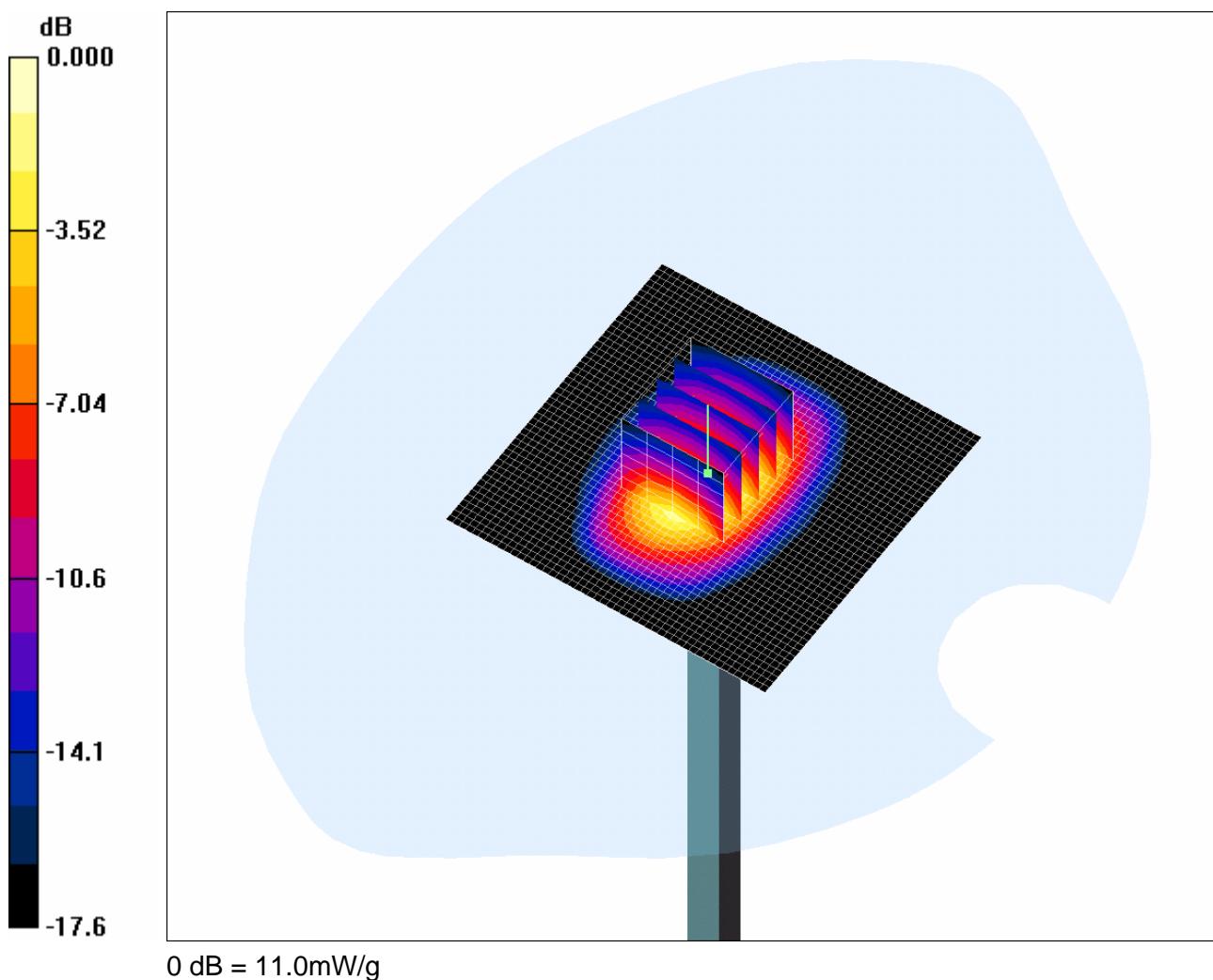
Test of: WorldScout Corporation
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To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72272JD02/005: System Performance Check 1900MHz Body 29 10 07

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN540

Date: 29/10/2007



Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 MHz MSL Medium parameters used: $f = 1900$ MHz; $\sigma = 1.6$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(4.57, 4.57, 4.57); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

$d=15$ mm, Pin=250mW/Area Scan (51x51x1); Measurement grid: $dx=20$ mm, $dy=20$ mm

Maximum value of SAR (interpolated) = 15.1 mW/g

$d=15$ mm, Pin=250mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 87.5 V/m; Power Drift = 0.041 dB

Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 9.83 mW/g; SAR(10 g) = 5.11 mW/g

Maximum value of SAR (measured) = 11.0 mW/g

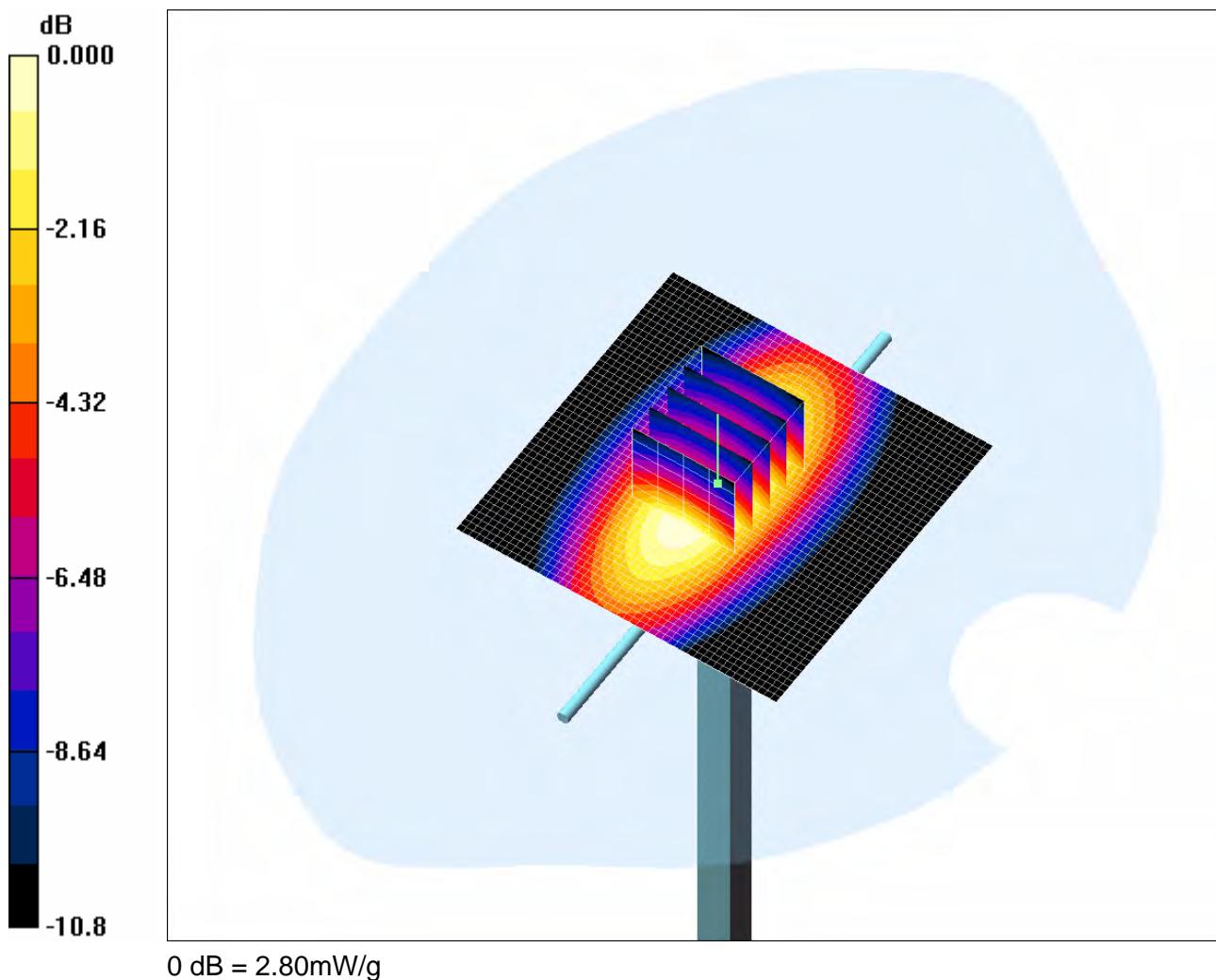
Test of: WorldScout Corporation
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To: OET Bulletin 65 Supplement C: (2001-01)

SCN/72272JD02/006: System Performance Check 900MHz Body 29 10 07

DUT: Dipole 900 MHz ; Type: D900V2; Serial: SN185

Date: 29/10/2007



Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: 900 MHz MSL Medium parameters used: $f = 900$ MHz; $\sigma = 1.03$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1528; ConvF(5.9, 5.9, 5.9); Calibrated: 06/07/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn394; Calibrated: 24/05/2007
- Phantom: SAM 12a; Type: SAM 4.0; Serial: TP:1193
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

$d=15$ mm, $Pin=250$ mW/Area Scan (51x51x1): Measurement grid: $dx=20$ mm, $dy=20$ mm

Maximum value of SAR (interpolated) = 2.92 mW/g

$d=15$ mm, $Pin=250$ mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 53.8 V/m; Power Drift = 0.023 dB

Peak SAR (extrapolated) = 3.73 W/kg

SAR(1 g) = 2.58 mW/g; SAR(10 g) = 1.68 mW/g

Maximum value of SAR (measured) = 2.80 mW/g