

Test report No. : 26FE0204-HO-C  
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Issued date : June 21, 2006  
FCC ID : T87SS22BXXXM

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**APPENDIX 3 : SAR Measurement data**

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MF060a (01.06.05)

## 1. Evaluation procedure

The evaluation was performed with the following procedure:

**Step 1:** Measurement of the E-field at a fixed location above the ear point or central position of flat phantom was used as a reference value for assessing the power drop.

**Step 2:** The SAR distribution at the exposed side of head or body position was measured at a distance of each device from the inner surface of the shell. The area covered the entire dimension of the antenna of EUT and the horizontal grid spacing was 20 mm x 20 mm . Based on these data, the area of the maximum absorption was determined by spline interpolation.

**Step 3:** Around this point found in the Step 2 (area scan) , a volume of 32mm x 32mm x 30mm was assessed by measuring 5 x 5 x 7 points. And for any secondary peaks found in the Step2 which are within 2dB of maximum peak and not with this Step3 (Zoom scan) is repeated. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

(1). The data at the surface were extrapolated, since the center of the dipoles is 1mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm [4]. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

(2). The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the "Not a knot"-condition (in x, y and z-directions) [4], [5]. The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

(3). All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

**Step 4:** Re-measurement of the E-field at the same location as in Step 1.

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**2. Measurement data / Body**

**ATC-BICF / Body / Front / 2437MHz / 11b 11Mbps**

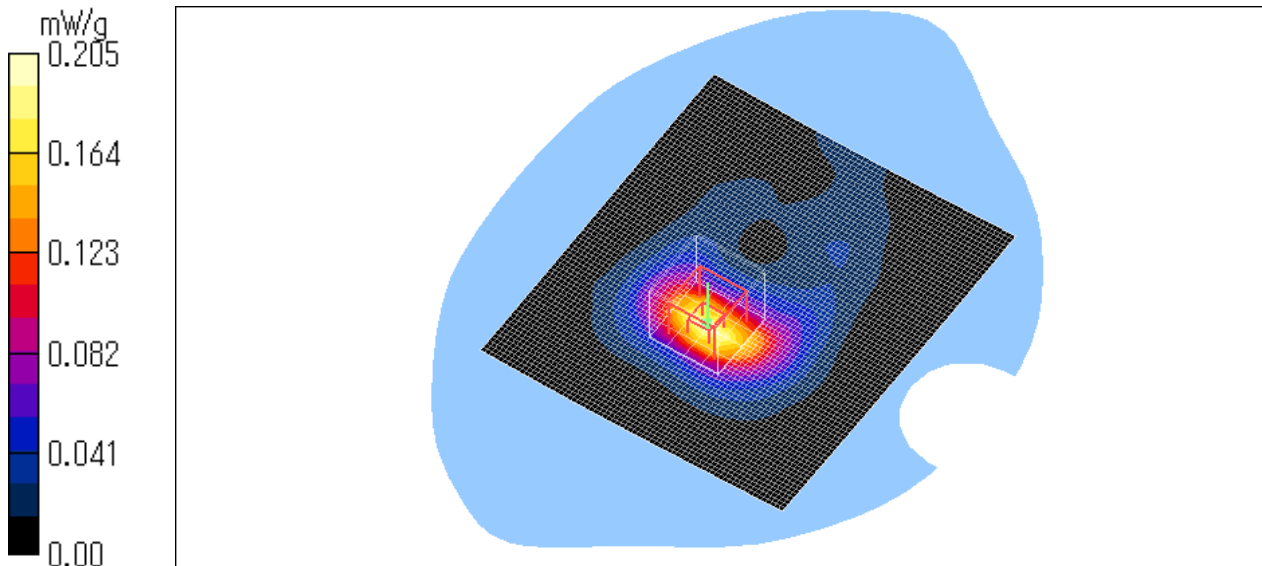
Crest factor: 1  
Medium parameters used:  $f = 2450 \text{ MHz}$ ;  $\sigma = 1.86 \text{ mho/m}$ ;  $\epsilon_r = 50.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section  
Measurement Standard: DAS4 (High Precision Assessment)  
DAS4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DAS4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid:  $dx=20\text{mm}$ ,  $dy=20\text{mm}$   
Maximum value of SAR (interpolated) = 0.217 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 5.01 V/m; Power Drift = -0.145 dB  
Peak SAR (extrapolated) = 0.252 W/kg

**SAR(1 g) = 0.148 mW/g; SAR(10 g) = 0.080 mW/g**  
Maximum value of SAR (measured) = 0.205 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.7 degree C. , After 23.7 degree C.



**ATC-BICF / Body / Back / 2437MHz / 11b 11Mbps**

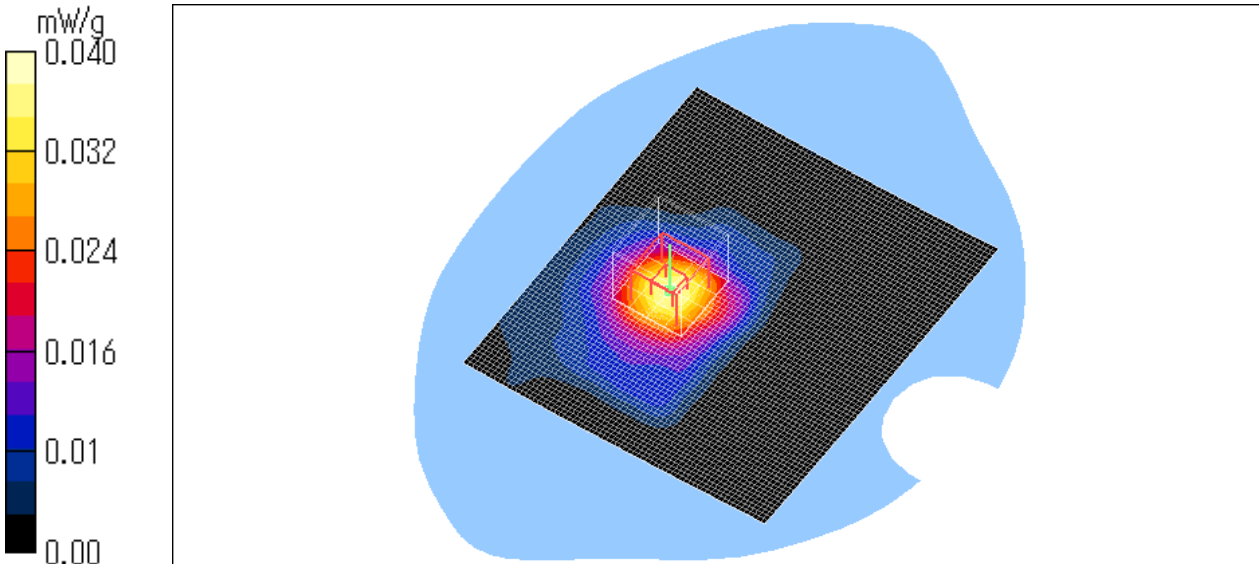
Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DASYS4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DASYS4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.042 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 3.11 V/m; Power Drift = 0.064 dB  
Peak SAR (extrapolated) = 0.048 W/kg

**SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.017 mW/g**  
Maximum value of SAR (measured) = 0.040 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.7 degree C. , After 23.7 degree C.



**ATC-BICF / Body / Left side / 2437MHz / 11b 11Mbps**

Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DASY4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.042 mW/g

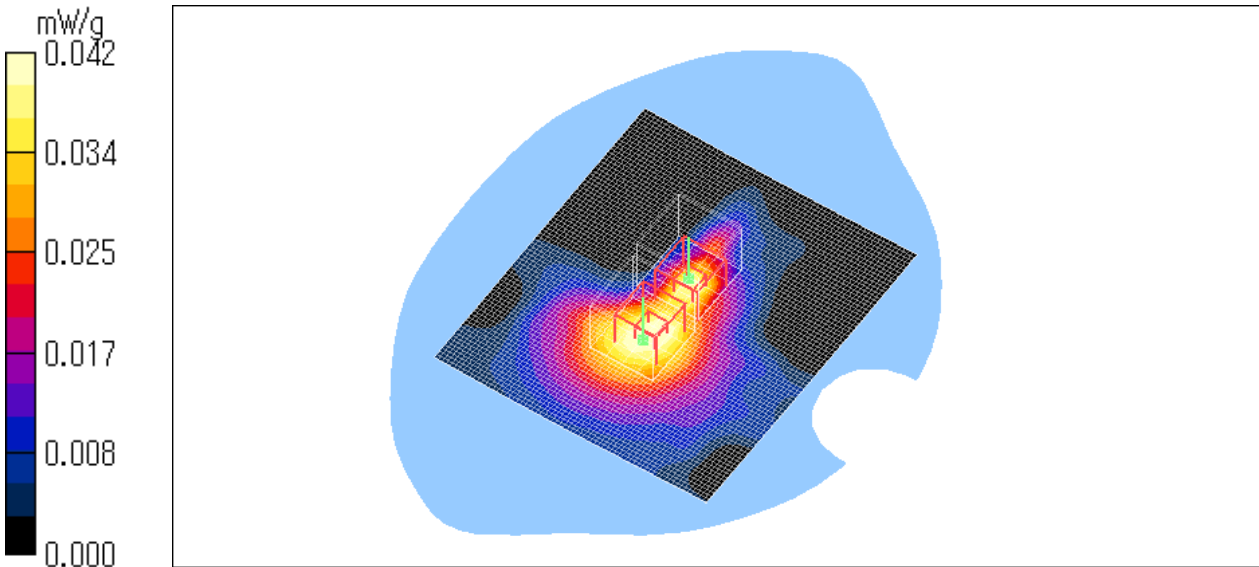
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.67 V/m; Power Drift = 0.170 dB  
Peak SAR (extrapolated) = 0.053 W/kg

**SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.019 mW/g**  
Maximum value of SAR (measured) = 0.043 mW/g

**Zoom Scan (5x5x7)/Cube 1:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.67 V/m; Power Drift = 0.170 dB  
Peak SAR (extrapolated) = 0.056 W/kg

**SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.017 mW/g**  
Maximum value of SAR (measured) = 0.042 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.5 degree C. , After 23.5 degree C.



**ATC-BICF / Body / Right side / 2437MHz / 11b 11Mbps**

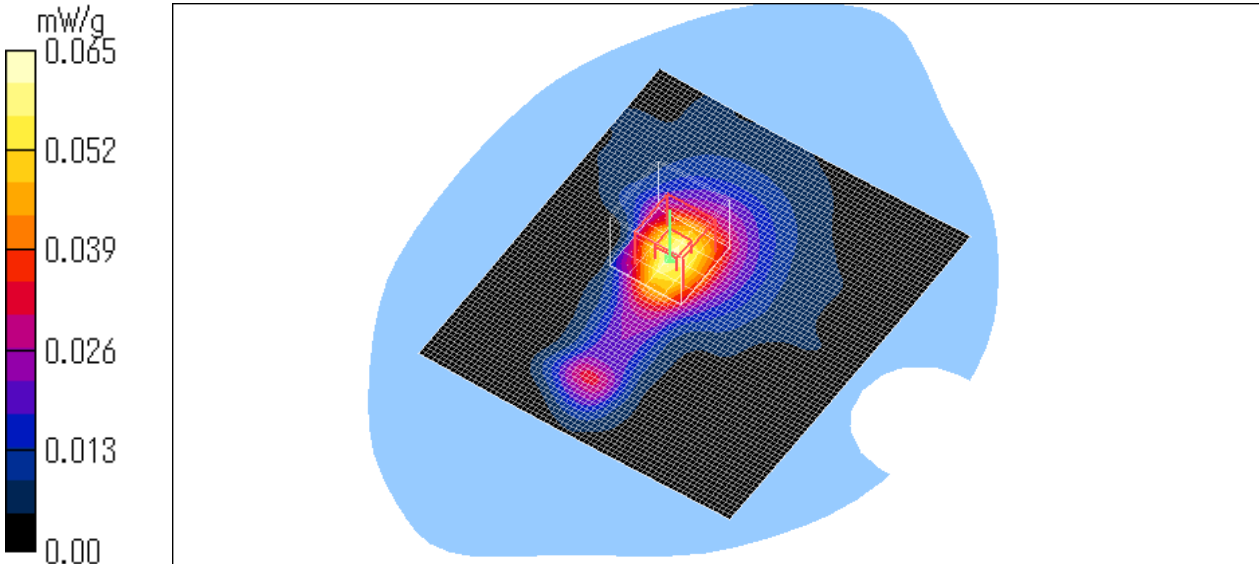
Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DAS4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DAS4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.070 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.25 V/m; Power Drift = 0.042 dB  
Peak SAR (extrapolated) = 0.081 W/kg

**SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.026 mW/g**  
Maximum value of SAR (measured) = 0.065 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.5 degree C. , After 23.5 degree C.



**ATC-BICF / Body / Top / 2437MHz / 11b 11Mbps**

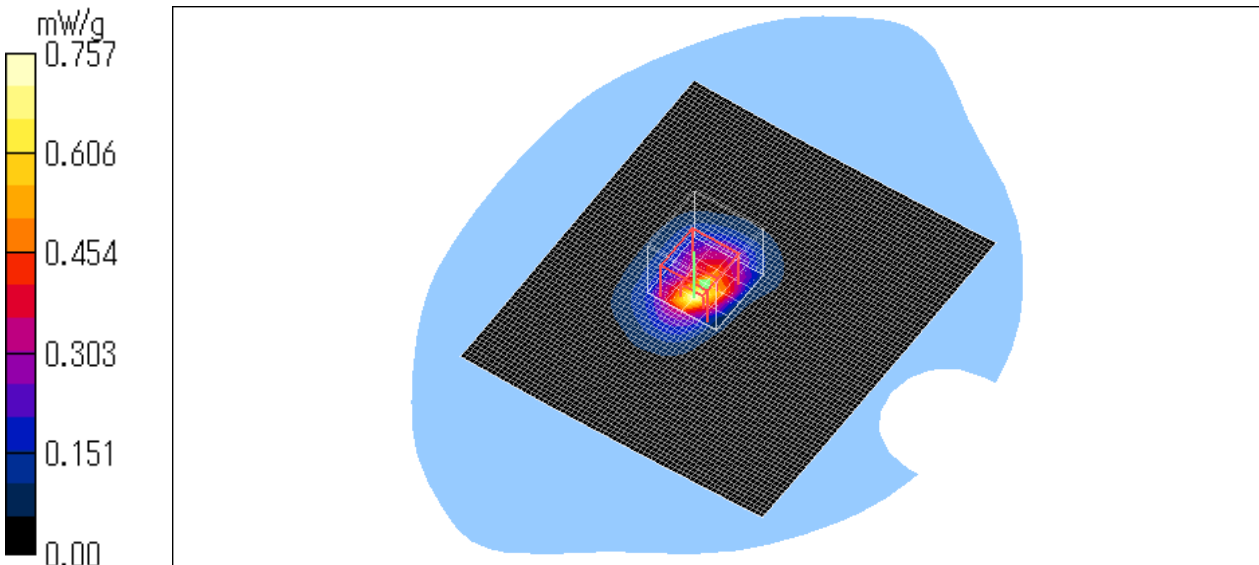
Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DASY4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.787 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 11.9 V/m; Power Drift = -0.160 dB  
Peak SAR (extrapolated) = 0.950 W/kg

**SAR(1 g) = 0.490 mW/g; SAR(10 g) = 0.226 mW/g**  
Maximum value of SAR (measured) = 0.757 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.4 degree C. , After 23.4 degree C.



**ATC-BICF / Body / Bottom / 2437MHz / 11b 11Mbps**

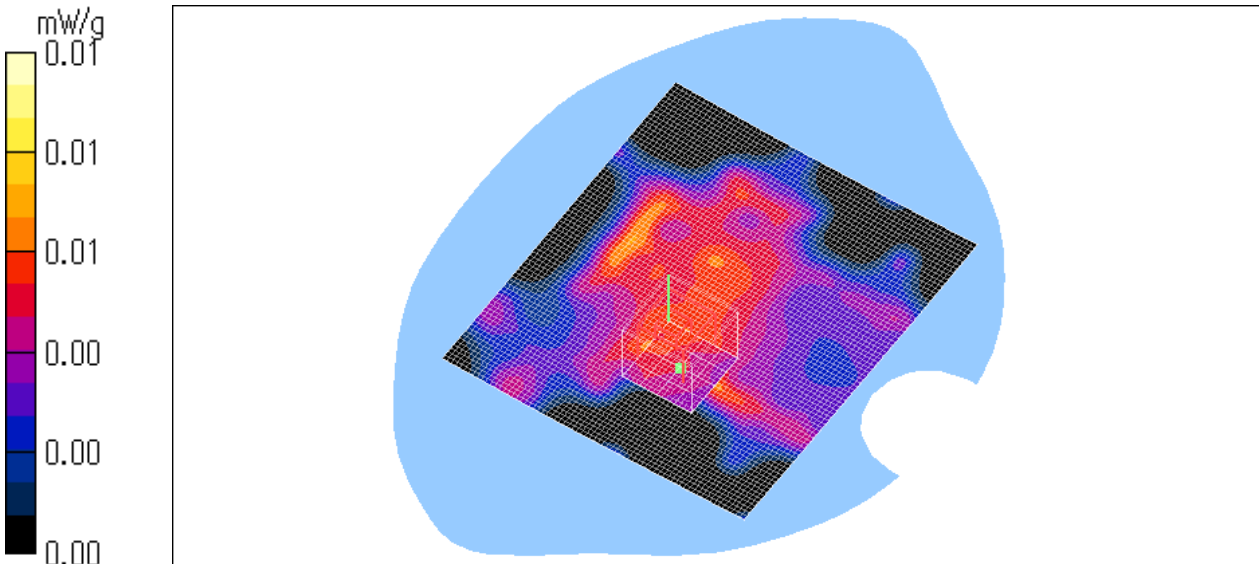
Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DASY4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.01 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 1.89 V/m; Power Drift = 0.202 dB  
Peak SAR (extrapolated) = 0.01 W/kg

**SAR(1 g) = 0.00464 mW/g; SAR(10 g) = 0.00286 mW/g**  
Maximum value of SAR (measured) = 0.01 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.4 degree C. , After 23.4 degree C.





**ATC-BICF / Body / Top / 2412MHz / 11b 11Mbps**

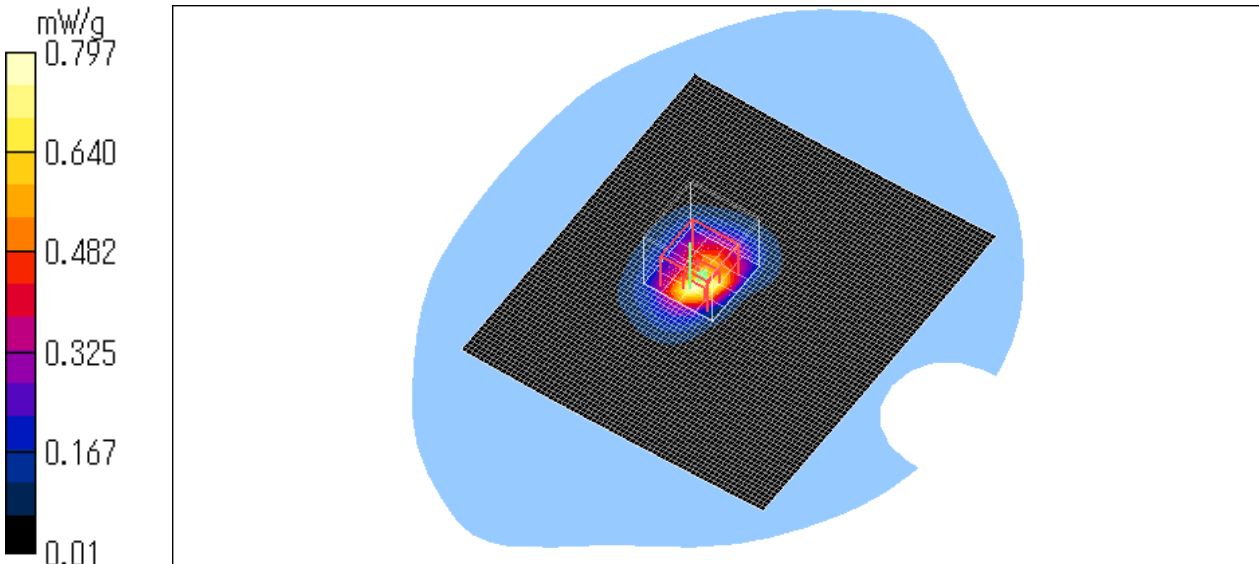
Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DAS4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DAS4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.935 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 12.4 V/m; Power Drift = -0.201 dB  
Peak SAR (extrapolated) = 1.06 W/kg

**SAR(1 g) = 0.564 mW/g; SAR(10 g) = 0.268 mW/g**  
Maximum value of SAR (measured) = 0.797 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.5 degree C. , After 23.5 degree C.



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### Z-axis scan at max SAR location

ATC-BICF / Body / Top / 2412MHz / 11b 11Mbps

Crest factor: 1

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASy4 (High Precision Assessment)

DASy4 Configuration:

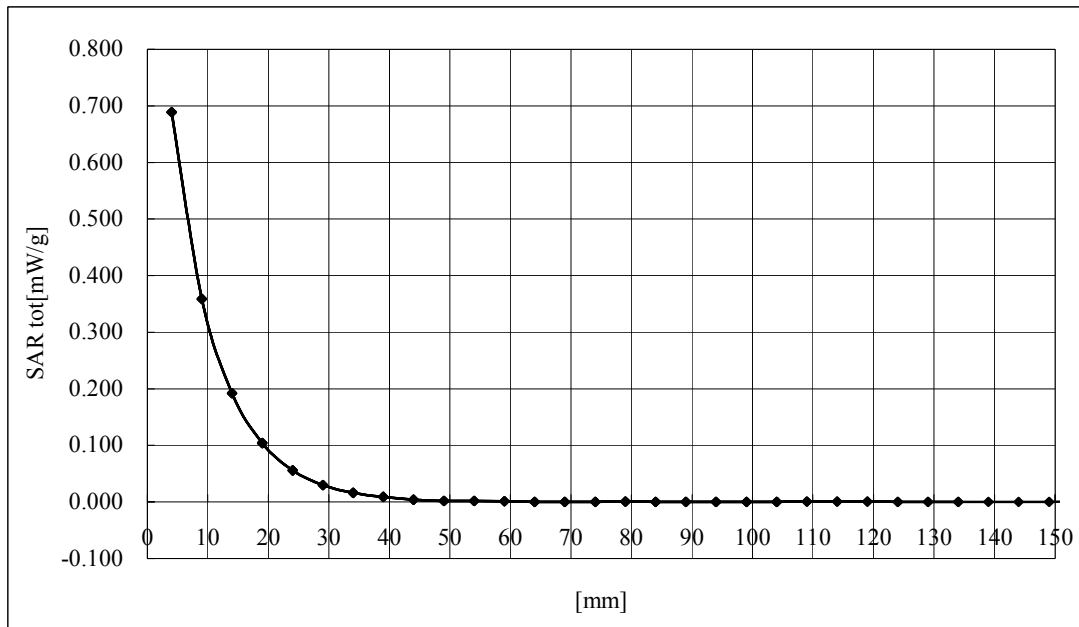
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE3 Sn509; Calibrated: 2005/05/26

Phantom: SAM 1196

Measurement SW: DASy4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145



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**ATC-BICF / Body / Top / 2462MHz / 11b 11Mbps**

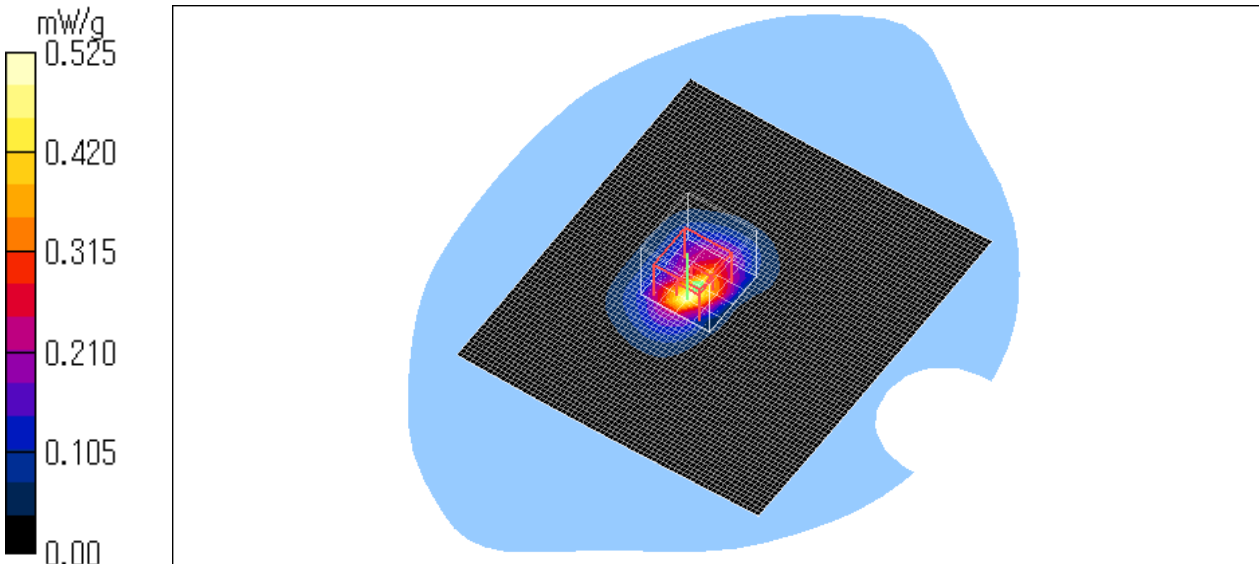
Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DAS4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DAS4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.557 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 9.48 V/m; Power Drift = -0.013 dB  
Peak SAR (extrapolated) = 0.680 W/kg

**SAR(1 g) = 0.352 mW/g; SAR(10 g) = 0.161 mW/g**  
Maximum value of SAR (measured) = 0.525 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.5 degree C. , After 23.5 degree C.



**ATC-BICF / Body / Top / 2412MHz / 11b 11Mbps / Separation 5mm**

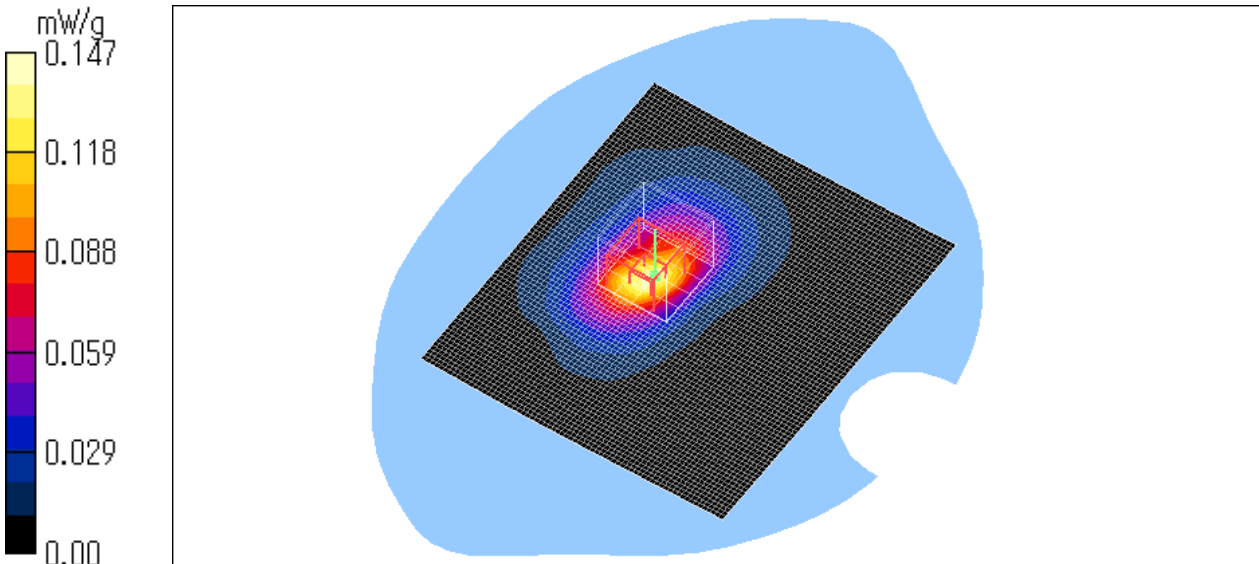
Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DASY4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.139 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.87 V/m; Power Drift = -0.169 dB  
Peak SAR (extrapolated) = 0.184 W/kg

**SAR(1 g) = 0.107 mW/g; SAR(10 g) = 0.056 mW/g**  
Maximum value of SAR (measured) = 0.147 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.5 degree C. , After 23.5 degree C.



**ATC-BICF / Body / Top / 2412MHz / 11b 11Mbps / Separation 10mm**

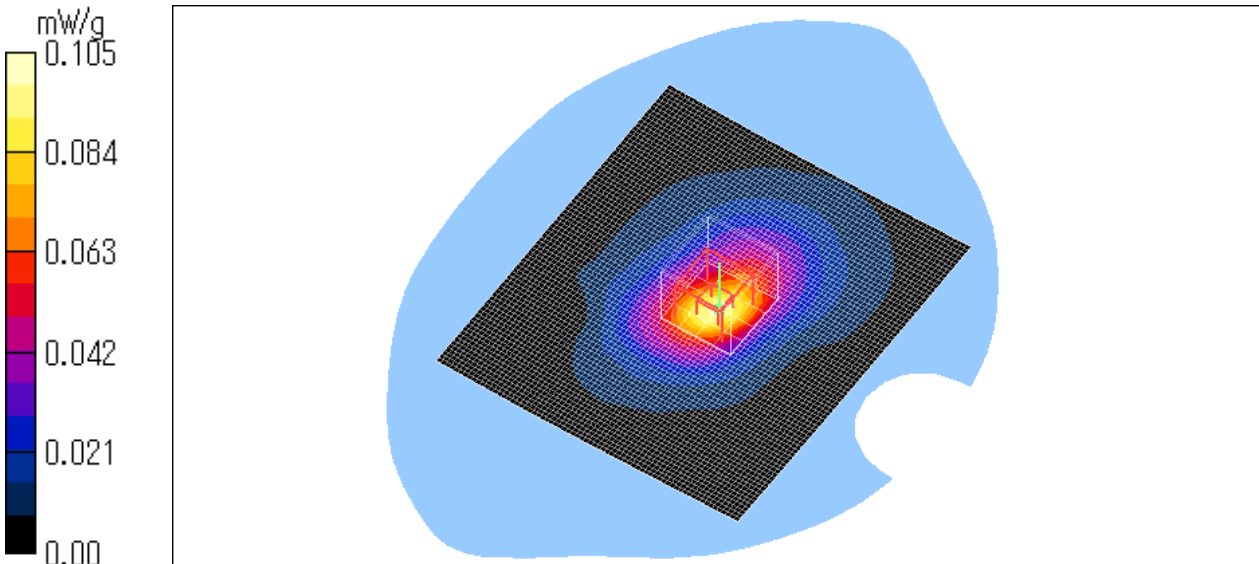
Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DAS4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DAS4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.103 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.48 V/m; Power Drift = 0.170 dB  
Peak SAR (extrapolated) = 0.130 W/kg

**SAR(1 g) = 0.077 mW/g; SAR(10 g) = 0.042 mW/g**  
Maximum value of SAR (measured) = 0.105 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.5 degree C. , After 23.5 degree C.



**ATC-BICF / Body / Top / 2412MHz / 11b 11Mbps / Separation 15mm**

Crest factor: 1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.86$  mho/m;  $\epsilon_r = 50.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DASY4 (High Precision Assessment)  
DASY4 Configuration:  
Probe: EX3DV3 - SN3507; ConvF(7.72, 7.72, 7.72); Calibrated: 2005/04/12  
Sensor-Surface: 2mm (Mechanical Surface Detection)  
Electronics: DAE3 Sn509; Calibrated: 2005/05/26  
Phantom: SAM 1196  
Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 145

**Area Scan (71x81x1):** Measurement grid: dx=20mm, dy=20mm  
Maximum value of SAR (interpolated) = 0.041 mW/g

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 4.39 V/m; Power Drift = -0.00 dB  
Peak SAR (extrapolated) = 0.051 W/kg

**SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.018 mW/g**  
Maximum value of SAR (measured) = 0.041 mW/g

Test Date = 02/28/06  
Ambient Temperature = 25.0degree C.  
Liquid Temperature = Before 23.5 degree C. , After 23.5 degree C.

