

Test Laboratory: Compliance Certification Services

Lap Held Position

DUT: Apple MacBook Pro; Type: Laptop; Serial: N/A

Communication System: 802.11bgn; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
- Phantom: SAM 1; Type: SAM 1; Serial: 1185
- Measurement SW: DASY4, V4.7 Build 21; Postprocessing SW: SEMCAD, V1.8 Build 170

b mode L ch/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.331 mW/g

b mode L ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 13.6 V/m; Power Drift = -0.111 dB

Peak SAR (extrapolated) = 0.545 W/kg

SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.139 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.308 mW/g

b mode L ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

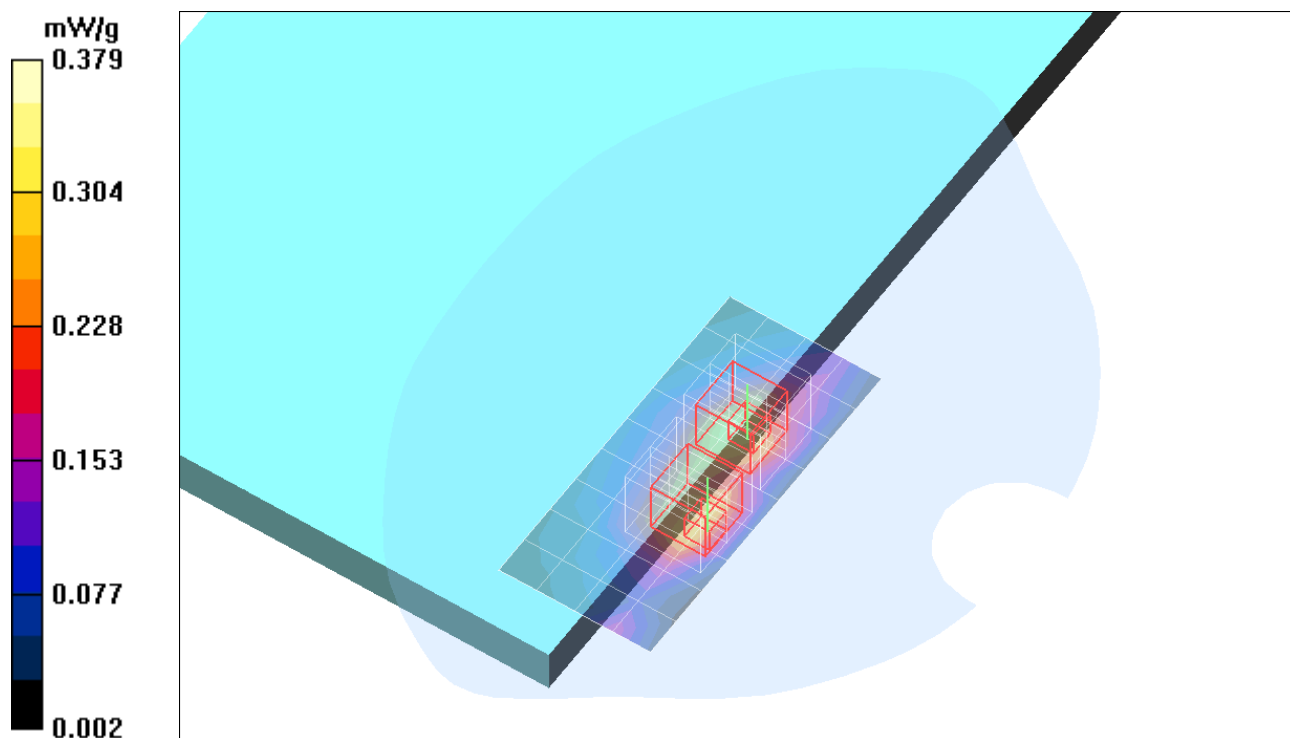
Reference Value = 13.6 V/m; Power Drift = -0.111 dB

Peak SAR (extrapolated) = 0.855 W/kg

SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.176 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.379 mW/g



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Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.98$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
- Phantom: SAM 1; Type: SAM 1; Serial: 1185
- Measurement SW: DASY4, V4.7 Build 21; Postprocessing SW: SEMCAD, V1.8 Build 170

b mode M ch/Area Scan (5x19x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.03 mW/g

b mode M ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 19.6 V/m; Power Drift = -0.139 dB

Peak SAR (extrapolated) = 2.64 W/kg

SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.507 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.16 mW/g

b mode M ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

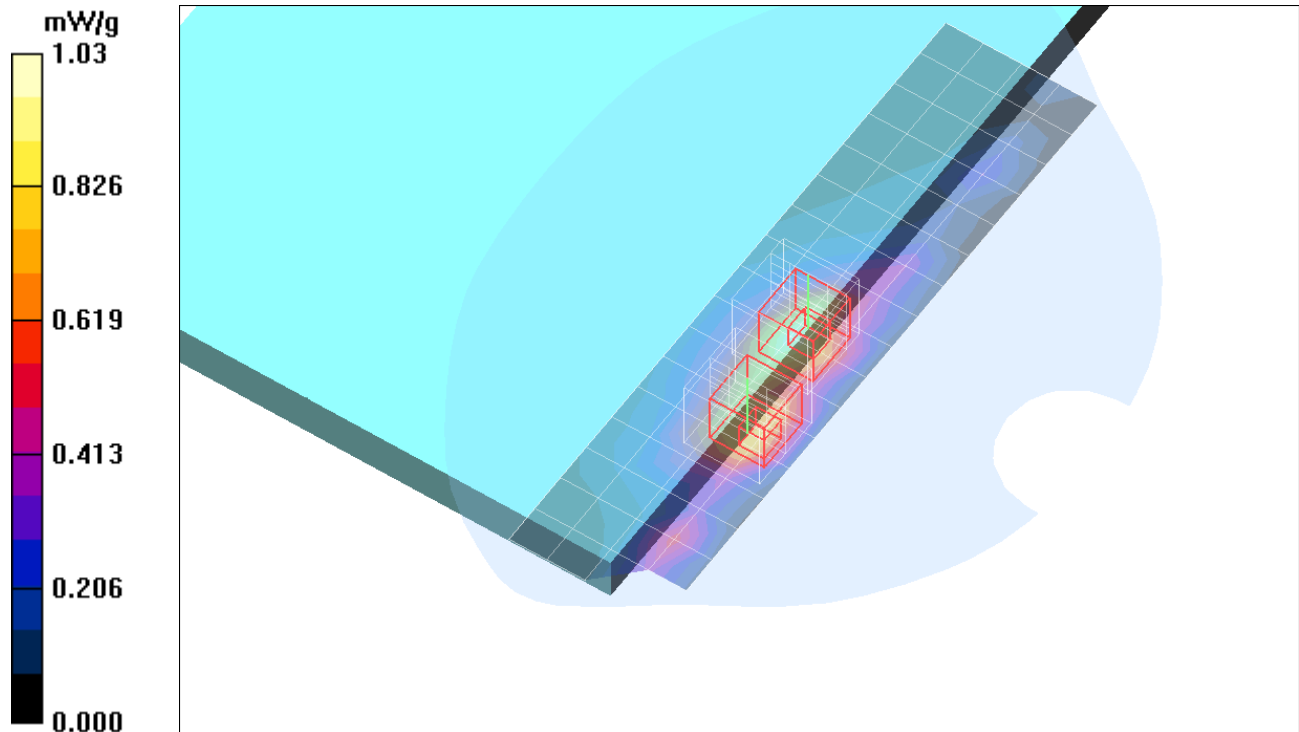
Reference Value = 19.6 V/m; Power Drift = -0.139 dB

Peak SAR (extrapolated) = 2.09 W/kg

SAR(1 g) = 0.829 mW/g; SAR(10 g) = 0.407 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.836 mW/g



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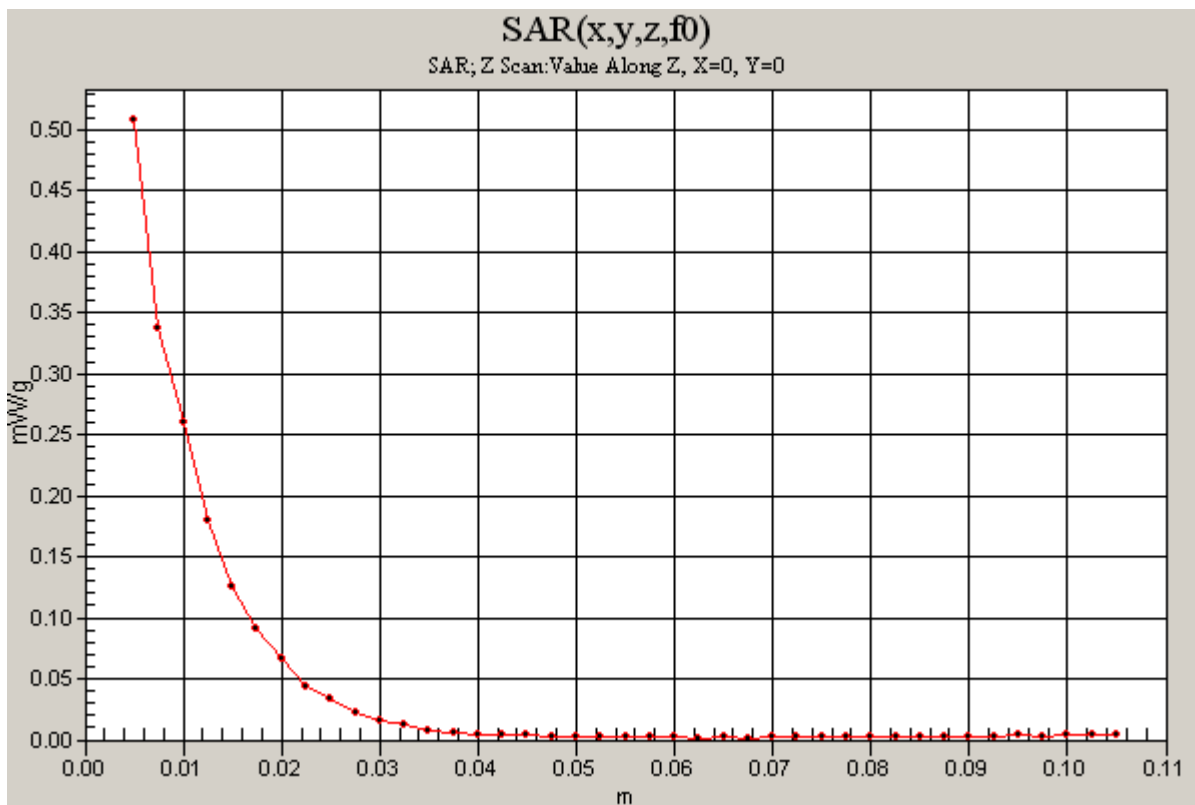
DUT: Apple MacBook Pro; Type: Laptop; Serial: N/A

Communication System: 802.11bgn; Frequency: 2437 MHz;Duty Cycle: 1:1

b mode M ch/Z Scan (1x1x41): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.508 mW/g



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DUT: Apple MacBook Pro; Type: Laptop; Serial: N/A

Communication System: 802.11bgn; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
- Phantom: SAM 1; Type: SAM 1; Serial: 1185
- Measurement SW: DASY4, V4.7 Build 21; Postprocessing SW: SEMCAD, V1.8 Build 170

b mode H ch/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.504 mW/g

b mode H ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 16.2 V/m; Power Drift = -0.189 dB

Peak SAR (extrapolated) = 0.930 W/kg

SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.205 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.444 mW/g

b mode H ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

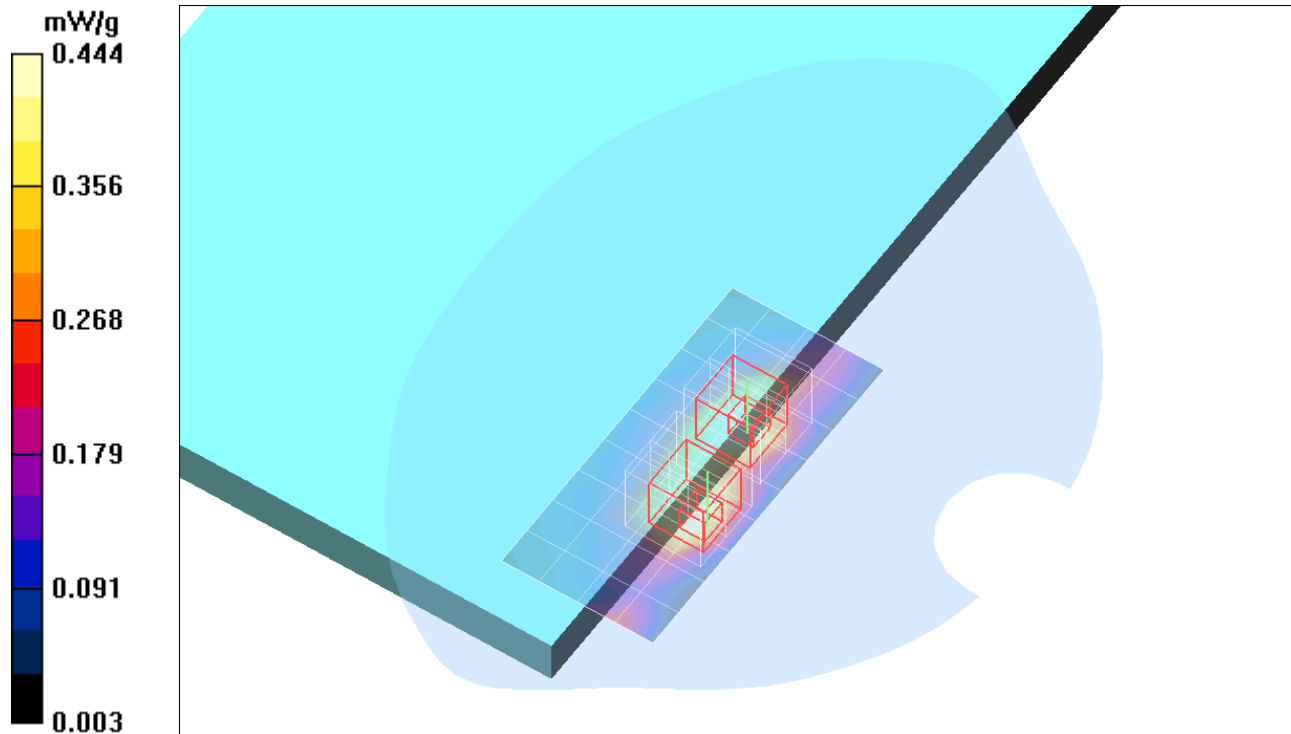
Reference Value = 16.2 V/m; Power Drift = -0.189 dB

Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.502 mW/g; SAR(10 g) = 0.248 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.543 mW/g



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Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
- Phantom: SAM 1; Type: SAM 1; Serial: 1185
- Measurement SW: DASY4, V4.7 Build 21; Postprocessing SW: SEMCAD, V1.8 Build 170

g mode L ch/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.218 mW/g

g mode L ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 11.6 V/m; Power Drift = -0.163 dB

Peak SAR (extrapolated) = 0.487 W/kg

SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.114 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.249 mW/g

g mode L ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

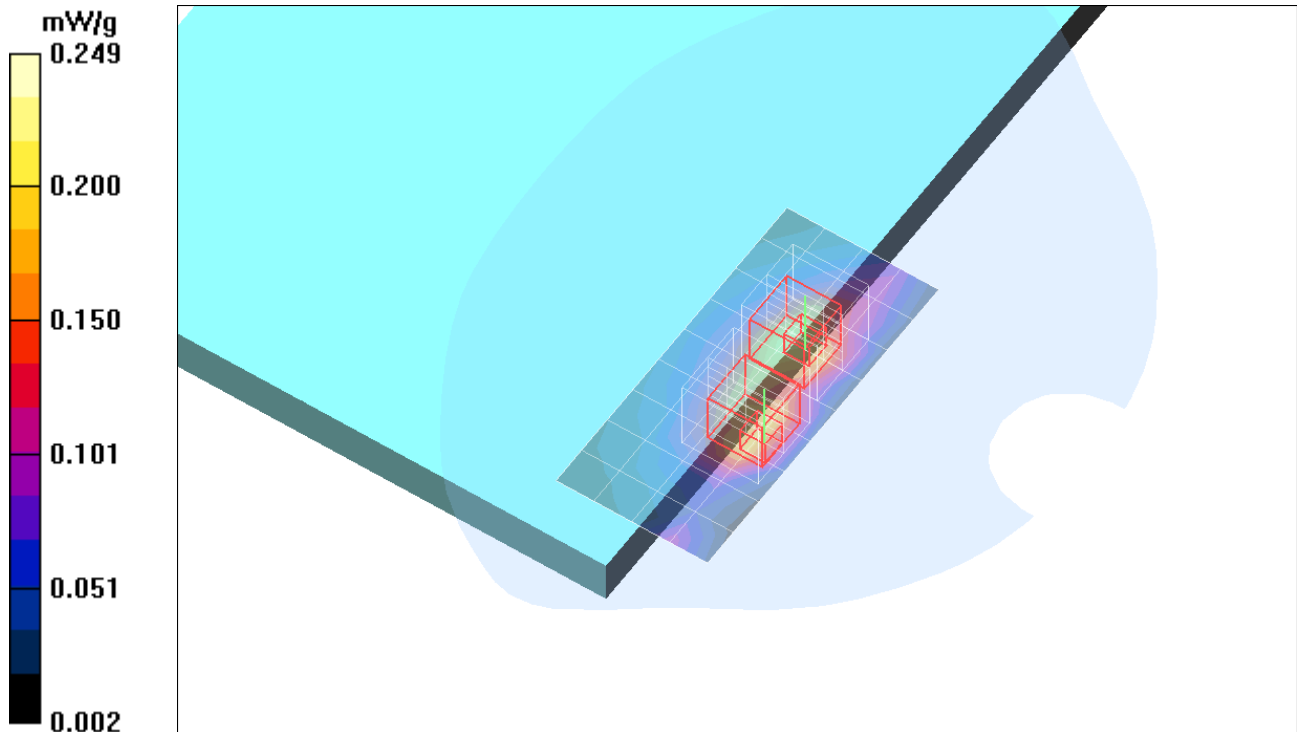
Reference Value = 11.6 V/m; Power Drift = -0.163 dB

Peak SAR (extrapolated) = 0.365 W/kg

SAR(1 g) = 0.176 mW/g; SAR(10 g) = 0.092 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.203 mW/g



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Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
- Phantom: SAM 1; Type: SAM 1; Serial: 1185
- Measurement SW: DASY4, V4.7 Build 21; Postprocessing SW: SEMCAD, V1.8 Build 170

g mode M ch/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.891 mW/g

g mode M ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 22.2 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 1.55 W/kg

SAR(1 g) = 0.747 mW/g; SAR(10 g) = 0.394 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.836 mW/g

g mode M ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

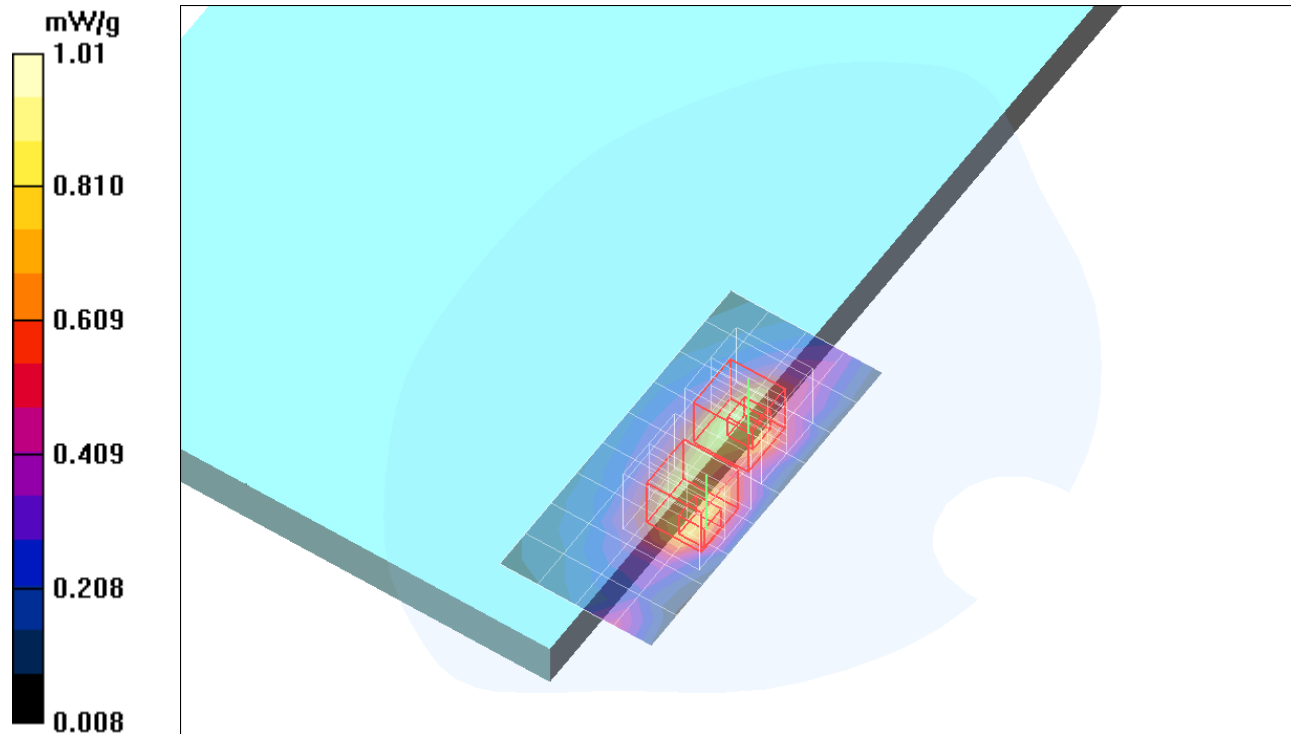
Reference Value = 22.2 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 2.00 W/kg

SAR(1 g) = 0.926 mW/g; SAR(10 g) = 0.458 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.01 mW/g



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Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
- Phantom: SAM 1; Type: SAM 1; Serial: 1185
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g mode H ch/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.196 mW/g

g mode H ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.3 V/m; Power Drift = -0.106 dB

Peak SAR (extrapolated) = 0.344 W/kg

SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.087 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.184 mW/g

g mode H ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

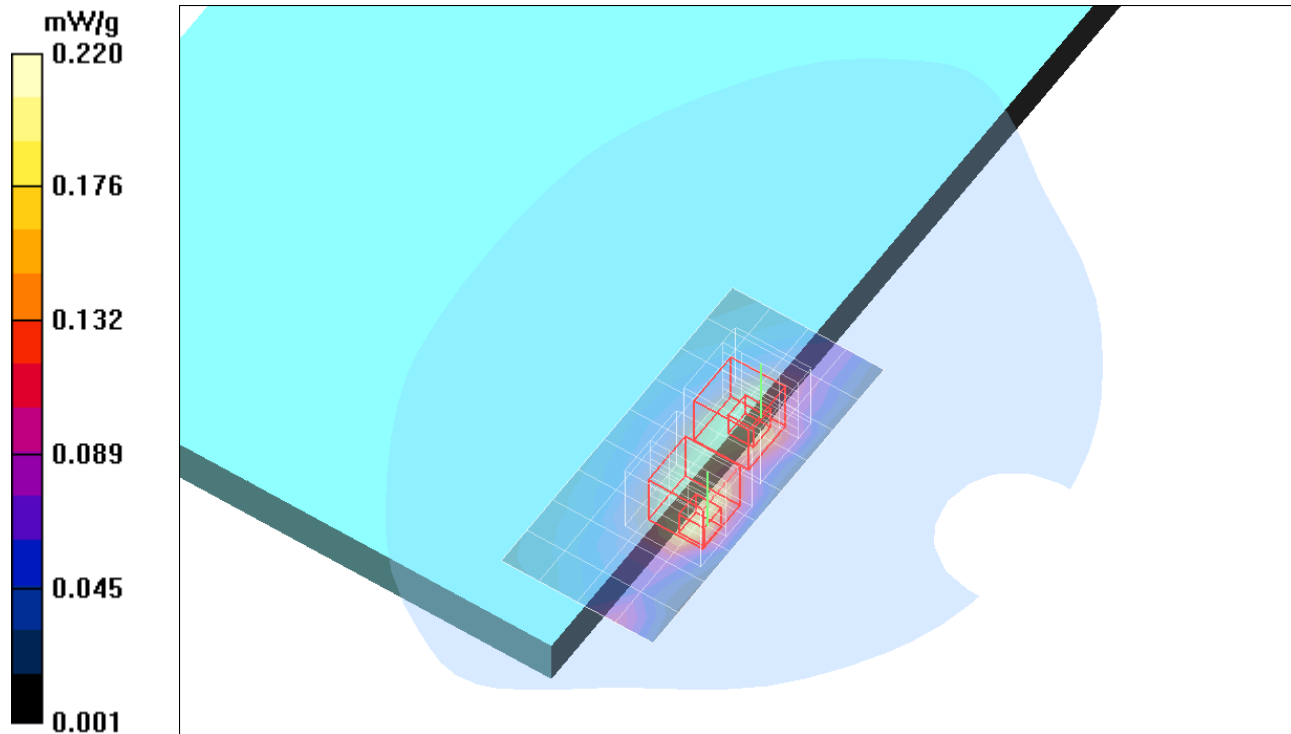
Reference Value = 10.3 V/m; Power Drift = -0.106 dB

Peak SAR (extrapolated) = 0.443 W/kg

SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.100 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.220 mW/g



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Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
- Phantom: SAM 1; Type: SAM 1; Serial: 1185
- Measurement SW: DASY4, V4.7 Build 21; Postprocessing SW: SEMCAD, V1.8 Build 170

802.11n HT20 L ch/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.232 mW/g

802.11n HT20 L ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.2 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.474 W/kg

SAR(1 g) = 0.227 mW/g; SAR(10 g) = 0.114 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.248 mW/g

802.11n HT20 L ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

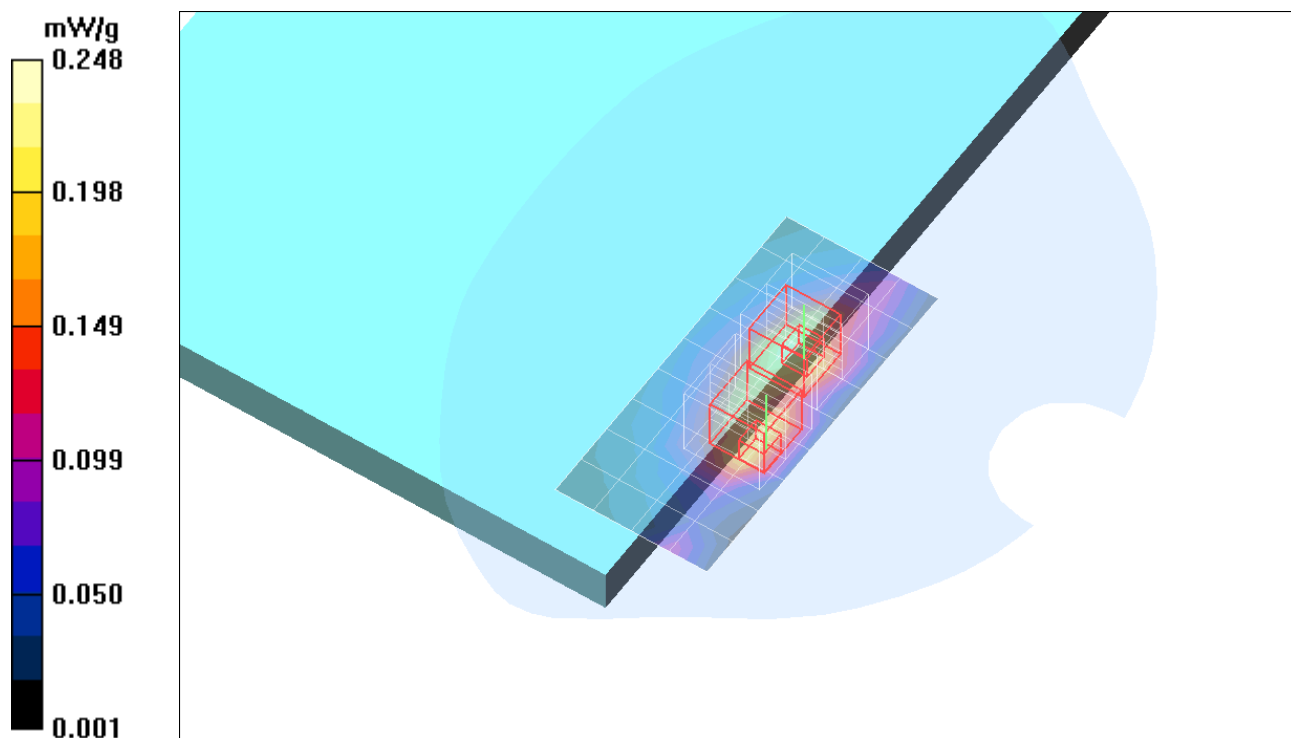
Reference Value = 10.2 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.346 W/kg

SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.089 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.197 mW/g



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Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
- Phantom: SAM 1; Type: SAM 1; Serial: 1185
- Measurement SW: DASY4, V4.7 Build 21; Postprocessing SW: SEMCAD, V1.8 Build 170

802.11n HT20 M ch/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.878 mW/g

802.11n HT20 M ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 22.2 V/m; Power Drift = -0.183 dB

Peak SAR (extrapolated) = 1.54 W/kg

SAR(1 g) = 0.736 mW/g; SAR(10 g) = 0.388 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.819 mW/g

802.11n HT20 M ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

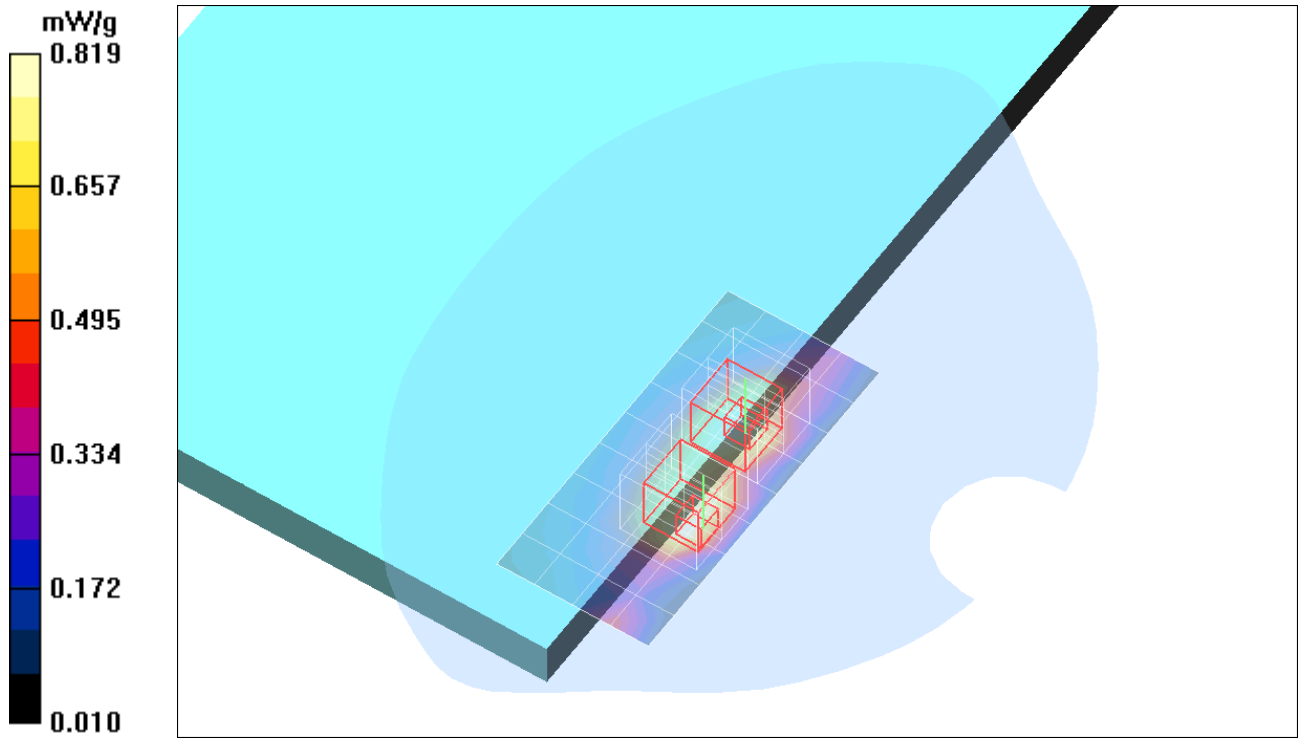
Reference Value = 22.2 V/m; Power Drift = -0.183 dB

Peak SAR (extrapolated) = 1.95 W/kg

SAR(1 g) = 0.907 mW/g; SAR(10 g) = 0.451 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.985 mW/g



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Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
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802.11n HT20 H ch/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.155 mW/g

802.11n HT20 H ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.48 V/m; Power Drift = 0.163 dB

Peak SAR (extrapolated) = 0.274 W/kg

SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.068 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.146 mW/g

802.11n HT20 H ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

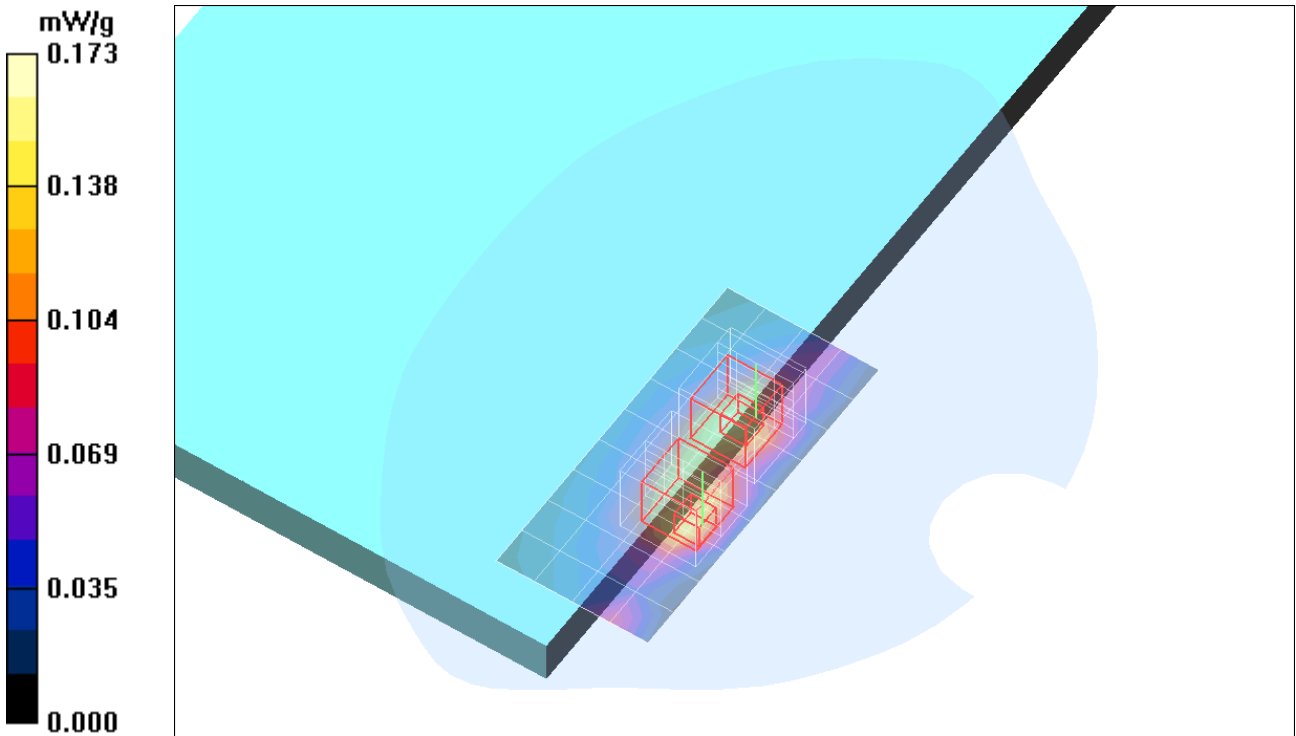
Reference Value = 8.48 V/m; Power Drift = 0.163 dB

Peak SAR (extrapolated) = 0.347 W/kg

SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.079 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.173 mW/g



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Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.98$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Room Ambient Temperature: 23.0deg. C; Liquid Temperature: 22.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with a peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3552; ConvF(7.08, 7.08, 7.08); Calibrated: 5/30/2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 SN558; Calibrated: 1/20/2006
- Phantom: SAM 1; Type: SAM 1; Serial: 1185
- Measurement SW: DASY4, V4.7 Build 21; Postprocessing SW: SEMCAD, V1.8 Build 170

802.11n HT40 M ch/Area Scan (5x10x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.614 mW/g

802.11n HT40 M ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 17.0 V/m; Power Drift = 0.129 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.517 mW/g; SAR(10 g) = 0.281 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.566 mW/g

802.11n HT40 M ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 17.0 V/m; Power Drift = 0.129 dB

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 0.674 mW/g; SAR(10 g) = 0.337 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.729 mW/g

