

Test Laboratory: Compliance Certification Services

## Lap-held 5.2 GHz

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

Communication System: 802.11a; Frequency: 5220 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5220$  MHz;  $\sigma = 5.55$  mho/m;  $\epsilon_r = 47.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 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 - SN3554; ConvF(3.77, 3.77, 3.77); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a Main Ant - M ch/Area Scan (9x13x1):** Measurement grid: dx=10mm, dy=10mm

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

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

**802.11a Main Ant - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

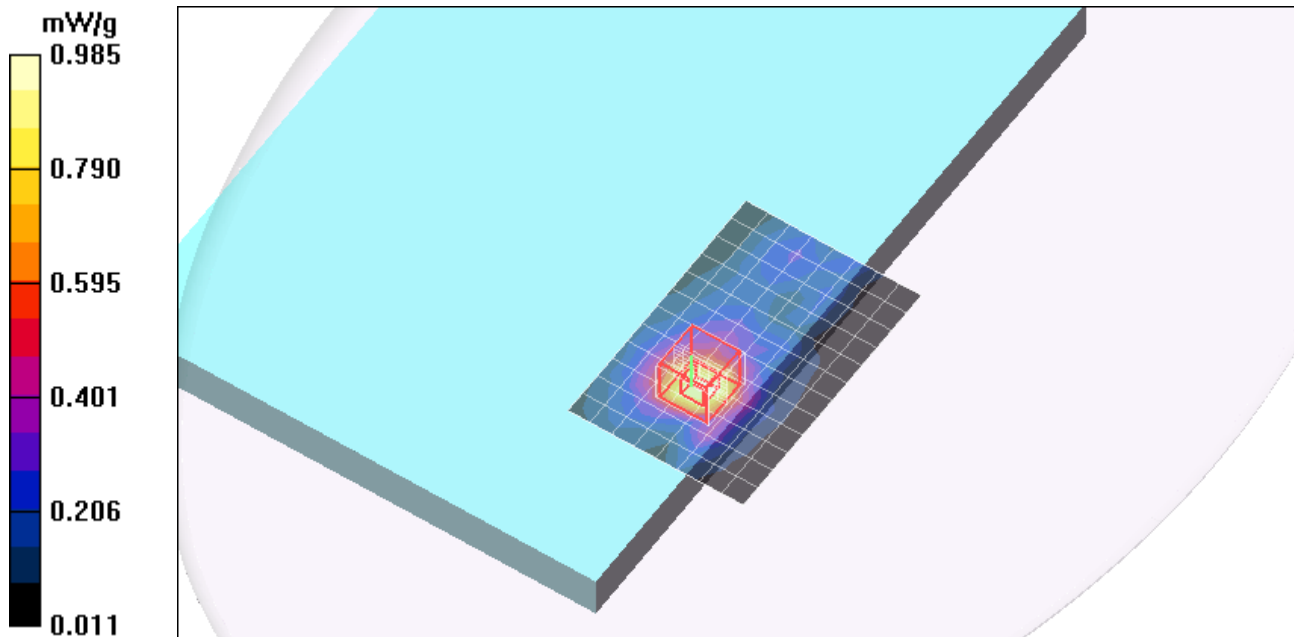
Reference Value = 14.1 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 1.81 W/kg

**SAR(1 g) = 0.536 mW/g; SAR(10 g) = 0.229 mW/g**

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

Maximum value of SAR (measured) = 0.989 mW/g



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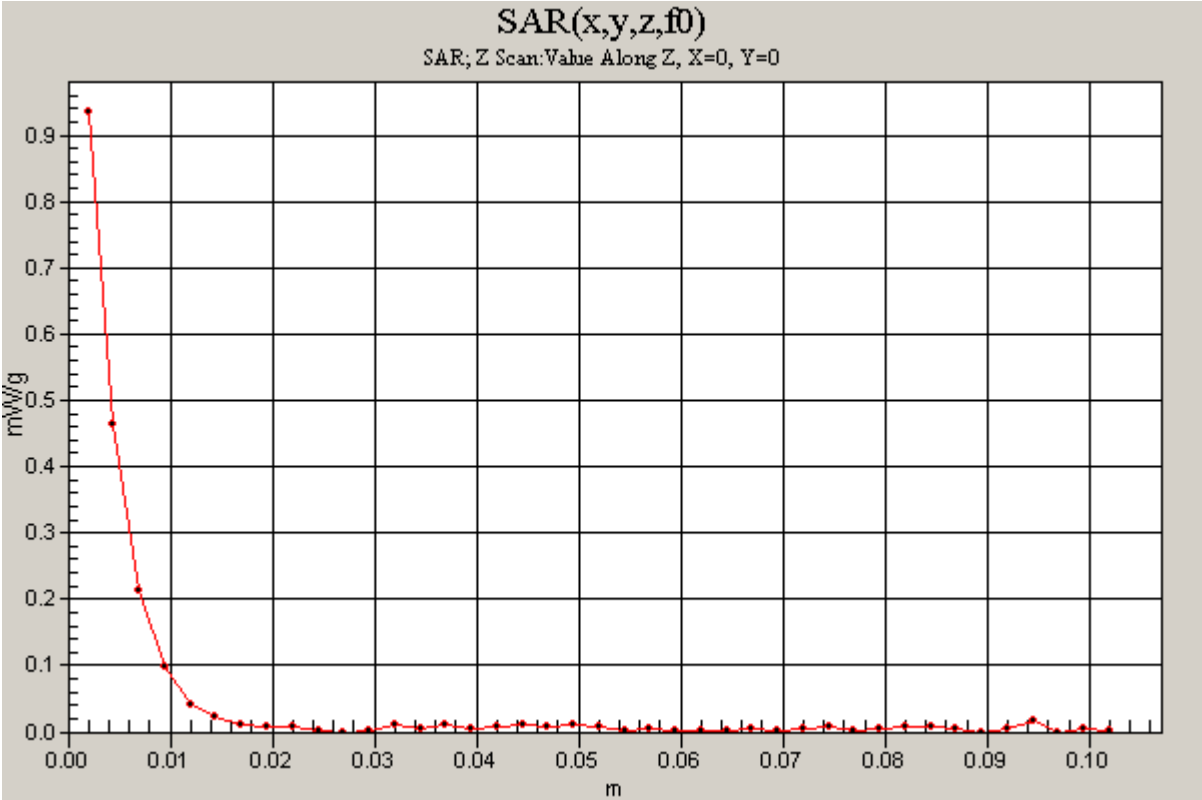
DUT: Apple; Type: Laptop; Serial: N/A

Communication System: 802.11agn; Frequency: 5220 MHz;Duty Cycle: 1:1.09

**802.11a Main Ant - 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) = 0.935 mW/g



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## Lap-held 5.2 GHz

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

Communication System: 802.11a; Frequency: 5220 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5220$  MHz;  $\sigma = 5.55$  mho/m;  $\epsilon_r = 47.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.77, 3.77, 3.77); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a Main Ant - M ch (Co-Tx)/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 0.914 mW/g

**802.11a Main Ant - M ch (Co-Tx)/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

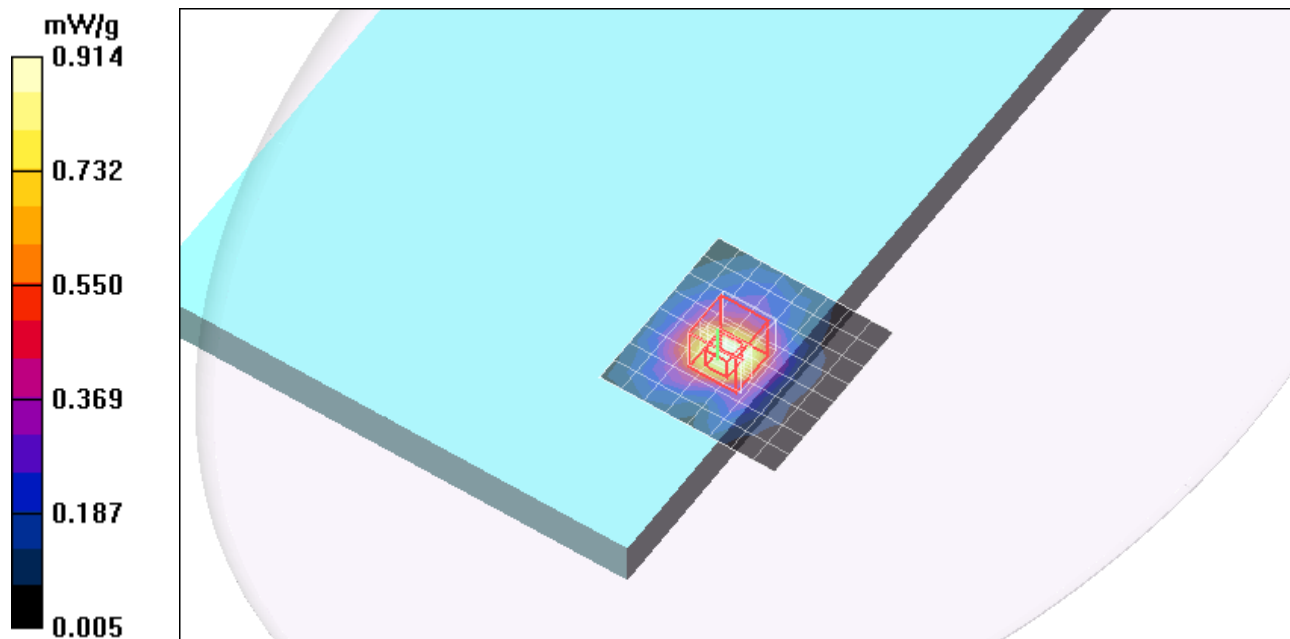
Reference Value = 1.66 V/m; Power Drift = -0.108 dB

Peak SAR (extrapolated) = 2.42 W/kg

**SAR(1 g) = 0.573 mW/g; SAR(10 g) = 0.234 mW/g**

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

Maximum value of SAR (measured) = 1.11 mW/g



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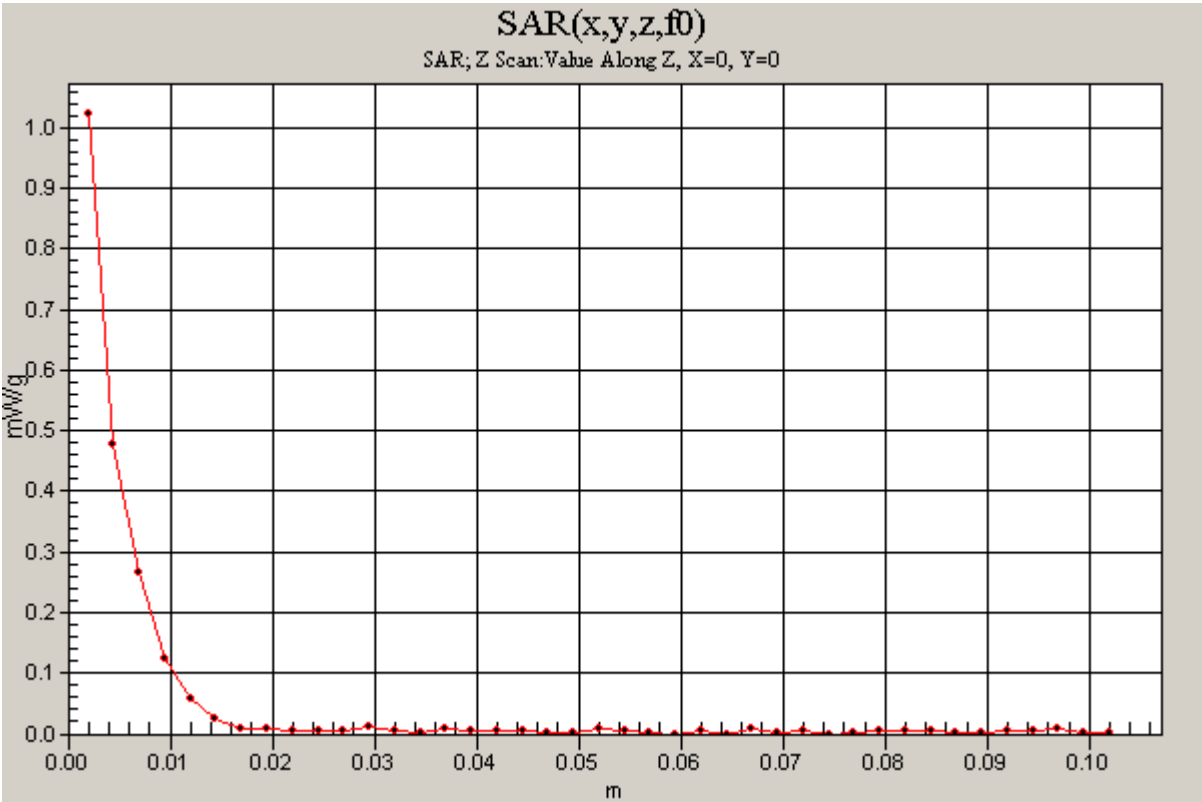
DUT: Apple; Type: Laptop; Serial: N/A

Communication System: 802.11agn; Frequency: 5220 MHz;Duty Cycle: 1:1.09

**802.11a Main Ant - M ch (Co-Tx)/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) = 1.02 mW/g



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## Lap-held 5.2 GHz

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

Communication System: 802.11a; Frequency: 5220 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5220$  MHz;  $\sigma = 5.55$  mho/m;  $\epsilon_r = 47.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.77, 3.77, 3.77); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a Aux Ant - M ch/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

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

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

**802.11a Aux Ant - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

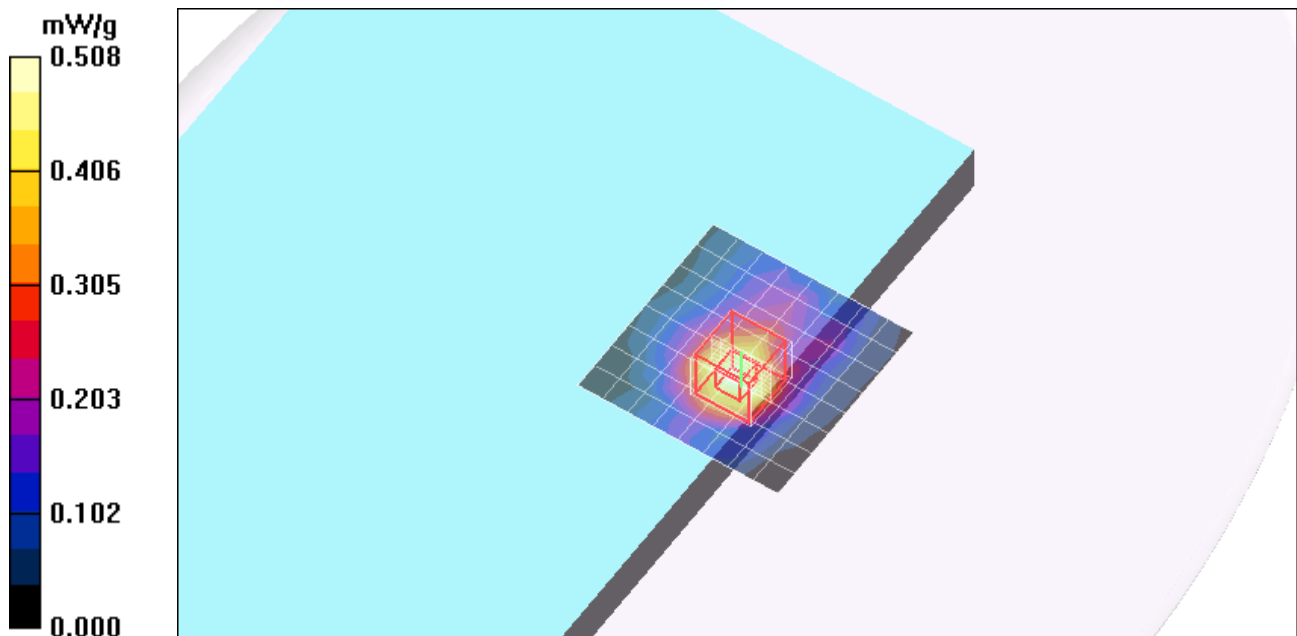
Reference Value = 2.97 V/m; Power Drift = 0.051 dB

Peak SAR (extrapolated) = 0.909 W/kg

**SAR(1 g) = 0.285 mW/g; SAR(10 g) = 0.114 mW/g**

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

Maximum value of SAR (measured) = 0.518 mW/g



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## Lap-held 5.2 GHz

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

Communication System: 802.11a; Frequency: 5230 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5230$  MHz;  $\sigma = 5.57$  mho/m;  $\epsilon_r = 47.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.77, 3.77, 3.77); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a 40MHz SISO - M ch/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 0.642 mW/g

**802.11a 40MHz SISO - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm,

dz=2.5mm

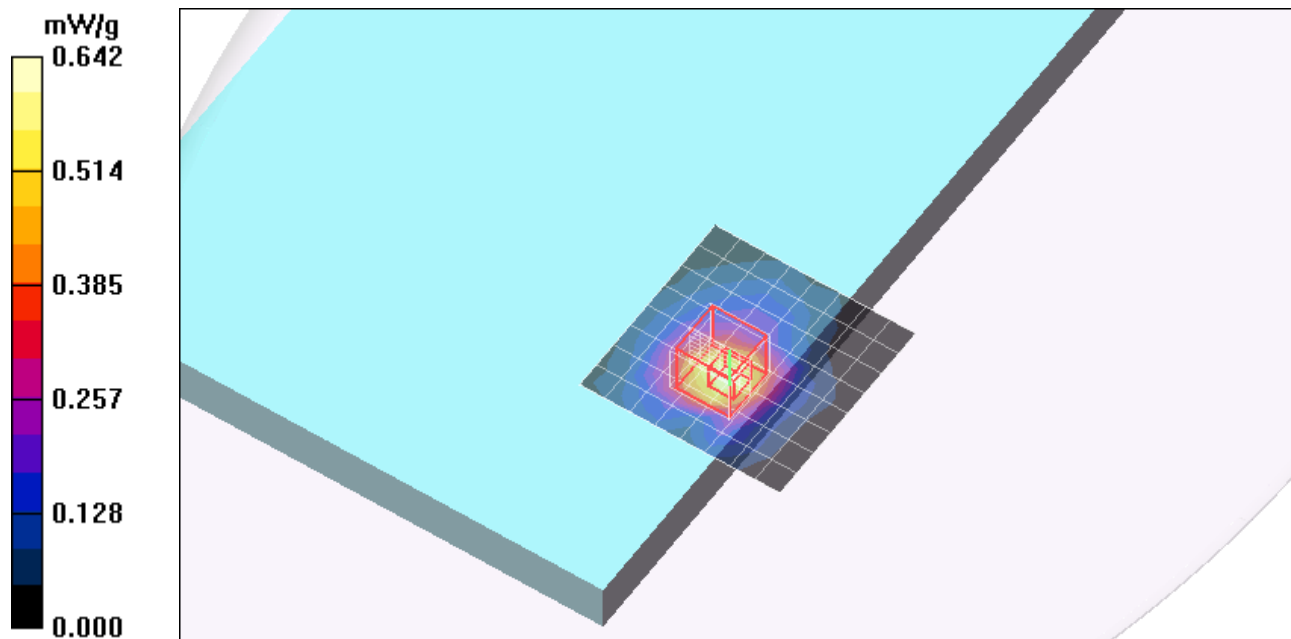
Reference Value = 11.0 V/m; Power Drift = -0.135 dB

Peak SAR (extrapolated) = 1.17 W/kg

**SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.145 mW/g**

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

Maximum value of SAR (measured) = 0.607 mW/g



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## Lap-held 5.2 GHz

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

Communication System: 802.11a; Frequency: 5230 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5230$  MHz;  $\sigma = 5.57$  mho/m;  $\epsilon_r = 47.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.77, 3.77, 3.77); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a 40MHz MIMO - M ch/Area Scan (9x19x1):** Measurement grid: dx=10mm, dy=10mm[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.679 mW/g

**802.11a 40MHz MIMO - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 11.9 V/m; Power Drift = 0.109 dB

Peak SAR (extrapolated) = 1.43 W/kg

**SAR(1 g) = 0.396 mW/g; SAR(10 g) = 0.168 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.717 mW/g

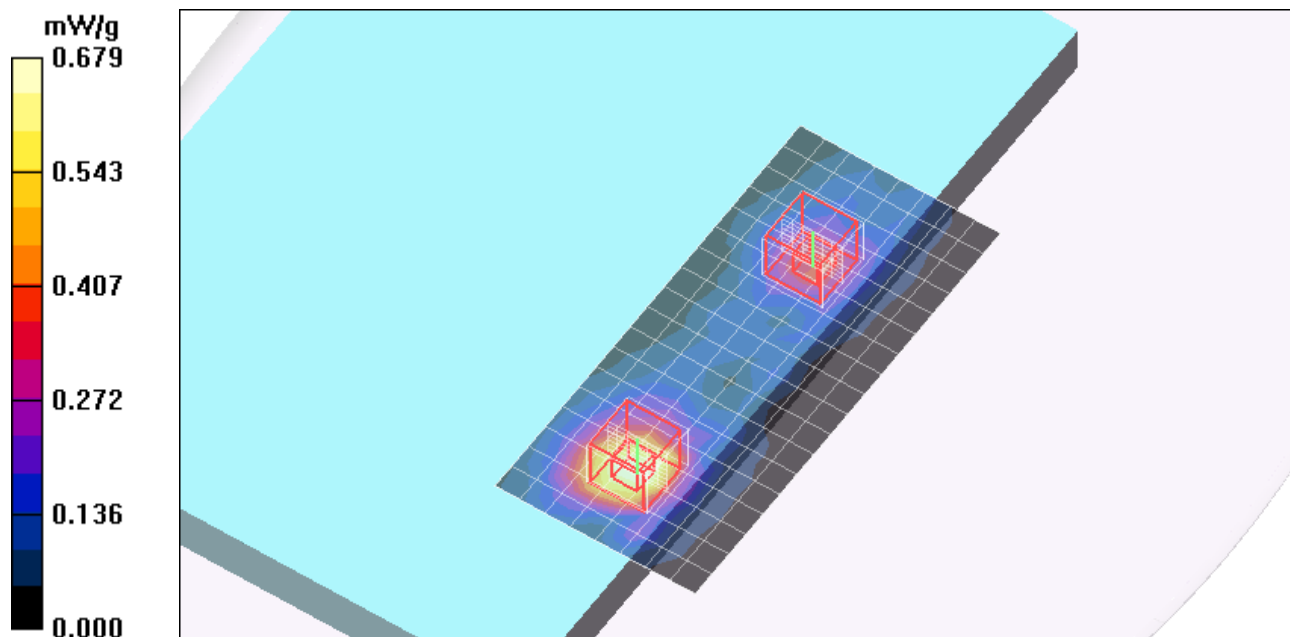
**802.11a 40MHz MIMO - M ch/Zoom Scan (7x7x9)/Cube 1:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 11.9 V/m; Power Drift = 0.109 dB

Peak SAR (extrapolated) = 0.803 W/kg

**SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.097 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.424 mW/g



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## Lap-held 5.3 GHz

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

Communication System: 802.11agn; Frequency: 5300 MHz; Duty Cycle: 1:1.09  
Medium parameters used:  $f = 5300$  MHz;  $\sigma = 5.6$  mho/m;  $\epsilon_r = 46.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

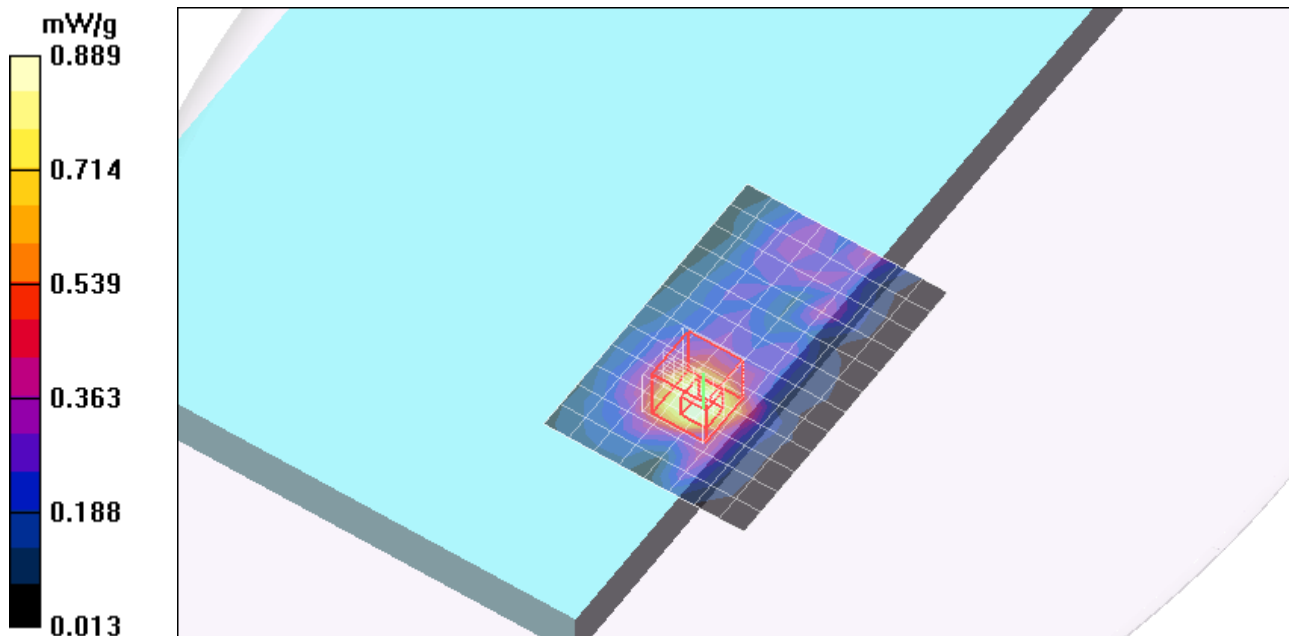
Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.68, 3.68, 3.68); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a Main Ant - M ch/Area Scan (9x13x1):** Measurement grid: dx=10mm, dy=10mm  
Maximum value of SAR (measured) = 0.889 mW/g

**802.11a Main Ant - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm  
Reference Value = 12.4 V/m; Power Drift = 0.062 dB  
Peak SAR (extrapolated) = 2.08 W/kg  
**SAR(1 g) = 0.497 mW/g; SAR(10 g) = 0.203 mW/g**  
Maximum value of SAR (measured) = 0.921 mW/g





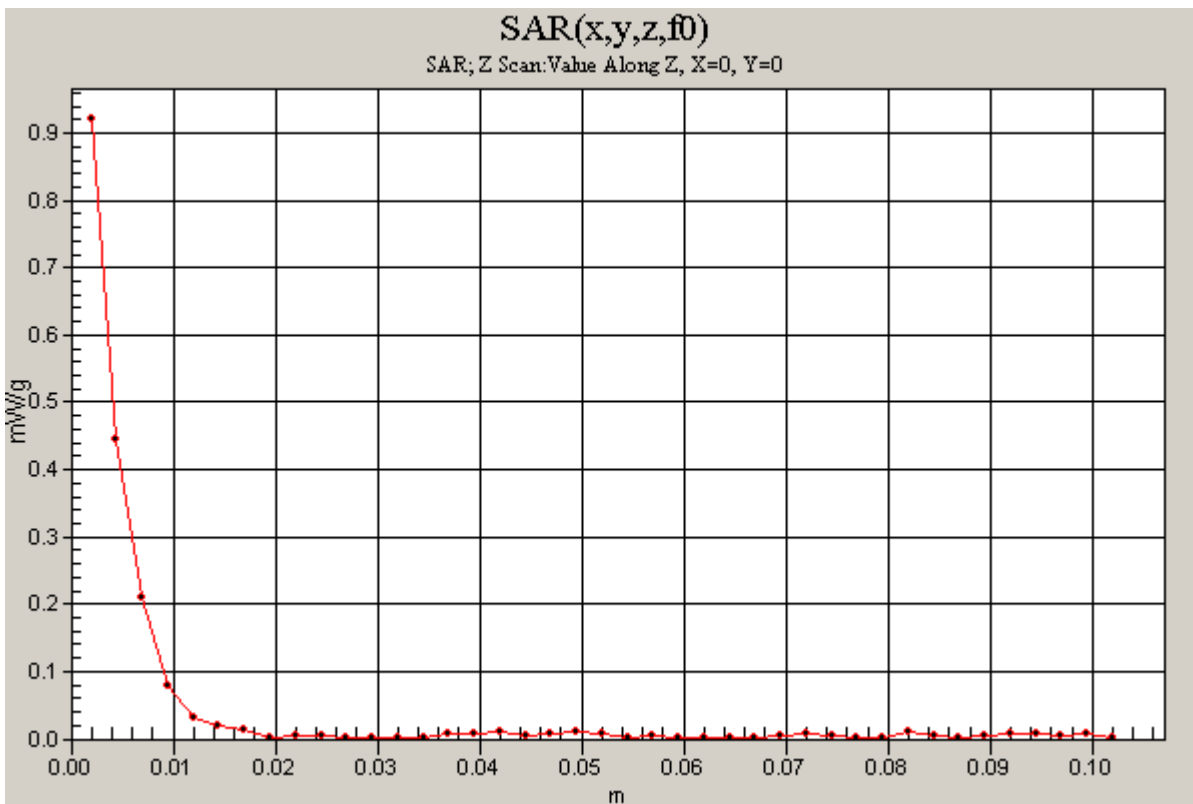
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### Lap-held 5.3 GHz

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

Communication System: 802.11agn; Frequency: 5300 MHz;Duty Cycle: 1:1.09

**802.11a Main Ant - M ch/Z Scan (1x1x41):** Measurement grid: dx=20mm, dy=20mm, dz=2.5mm  
Maximum value of SAR (measured) = 0.921 mW/g



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## Lap-held 5.3 GHz

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

Communication System: 802.11agn; Frequency: 5300 MHz; Duty Cycle: 1:1.09  
Medium parameters used:  $f = 5300$  MHz;  $\sigma = 5.6$  mho/m;  $\epsilon_r = 46.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

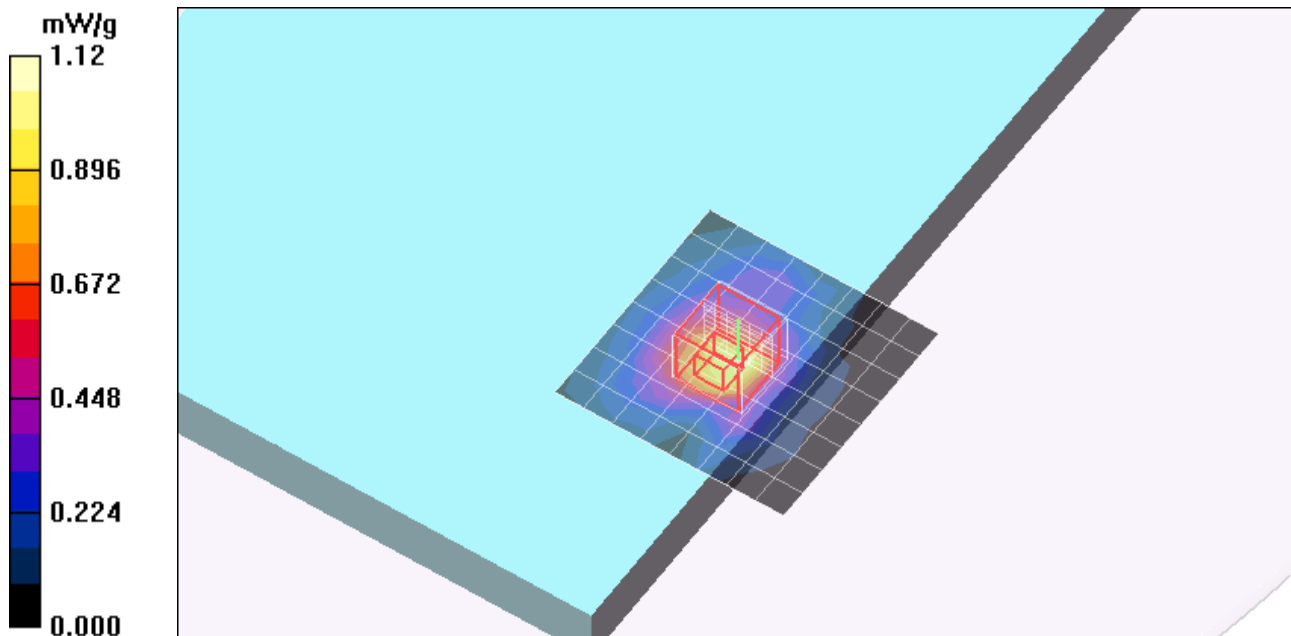
Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.68, 3.68, 3.68); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a Main Ant - M ch (Co-Tx)/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm  
Maximum value of SAR (measured) = 1.03 mW/g

**802.11a Main Ant - M ch (Co-Tx)/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm  
Reference Value = 2.68 V/m; Power Drift = 0.046 dB  
Peak SAR (extrapolated) = 2.27 W/kg  
**SAR(1 g) = 0.565 mW/g; SAR(10 g) = 0.234 mW/g**  
Maximum value of SAR (measured) = 1.12 mW/g



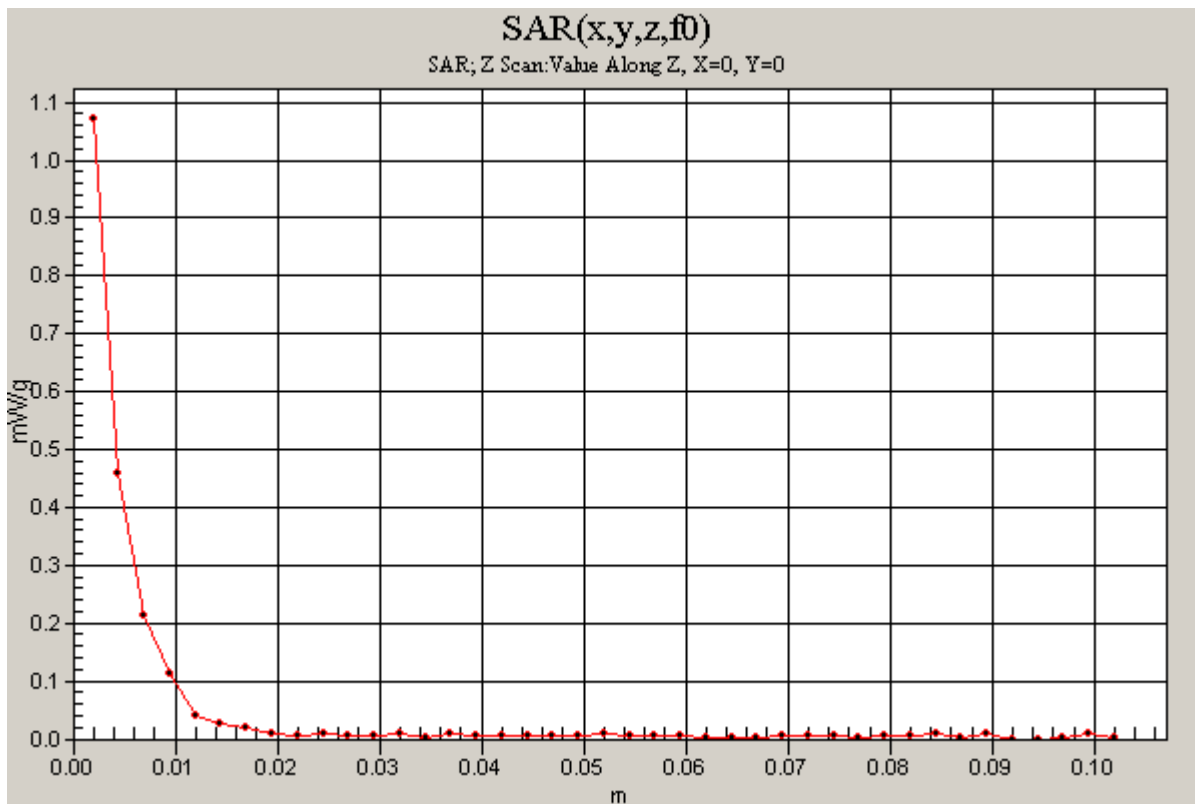
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### Lap-held 5.3 GHz

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

Communication System: 802.11agn; Frequency: 5300 MHz;Duty Cycle: 1:1.09

**802.11a Main Ant - M ch (Co-Tx)/Z Scan (1x1x41):** Measurement grid: dx=20mm, dy=20mm, dz=2.5mm  
Maximum value of SAR (measured) = 1.07 mW/g



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## Lap-held 5.3 GHz

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

Communication System: 802.11a; Frequency: 5270 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5270$  MHz;  $\sigma = 5.61$  mho/m;  $\epsilon_r = 47.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.68, 3.68, 3.68); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11n 40MHz SISO - M ch/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 0.601 mW/g

**802.11n 40MHz SISO - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

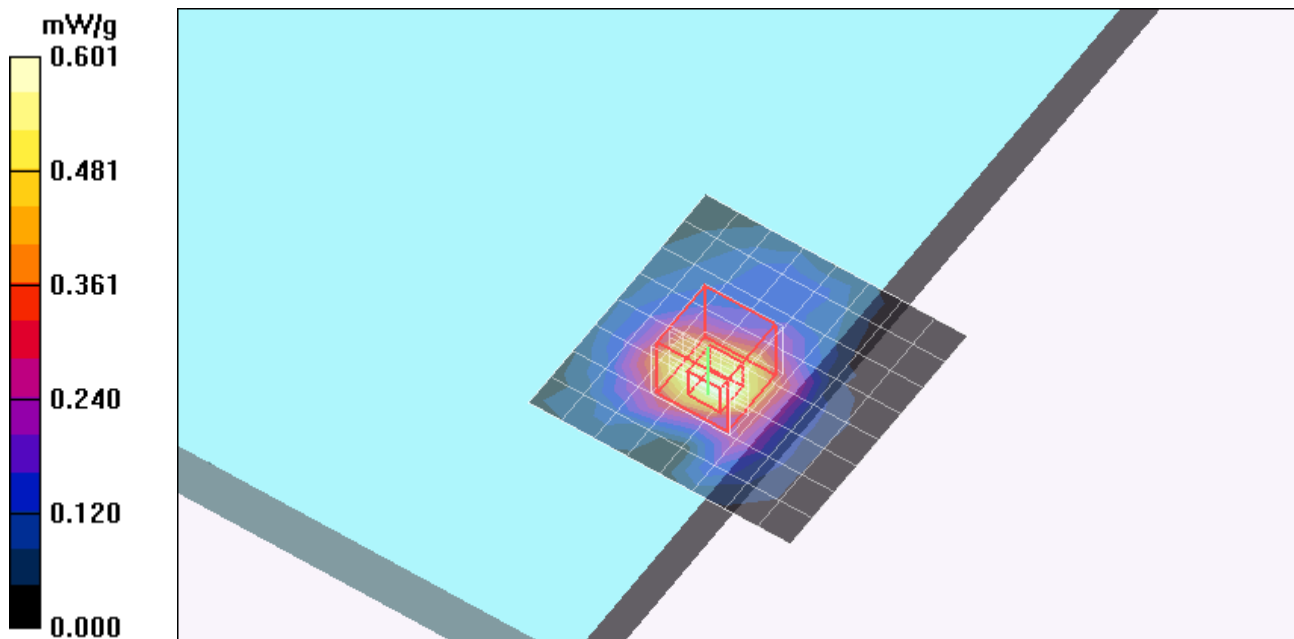
Reference Value = 10.1 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 1.23 W/kg

**SAR(1 g) = 0.337 mW/g; SAR(10 g) = 0.139 mW/g**

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

Maximum value of SAR (measured) = 0.613 mW/g



Test Laboratory: Compliance Certification Services

## Lap-held 5.3 GHz

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

Communication System: 802.11a; Frequency: 5300 MHz; Duty Cycle: 1:1.09  
 Medium parameters used:  $f = 5300$  MHz;  $\sigma = 5.6$  mho/m;  $\epsilon_r = 46.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

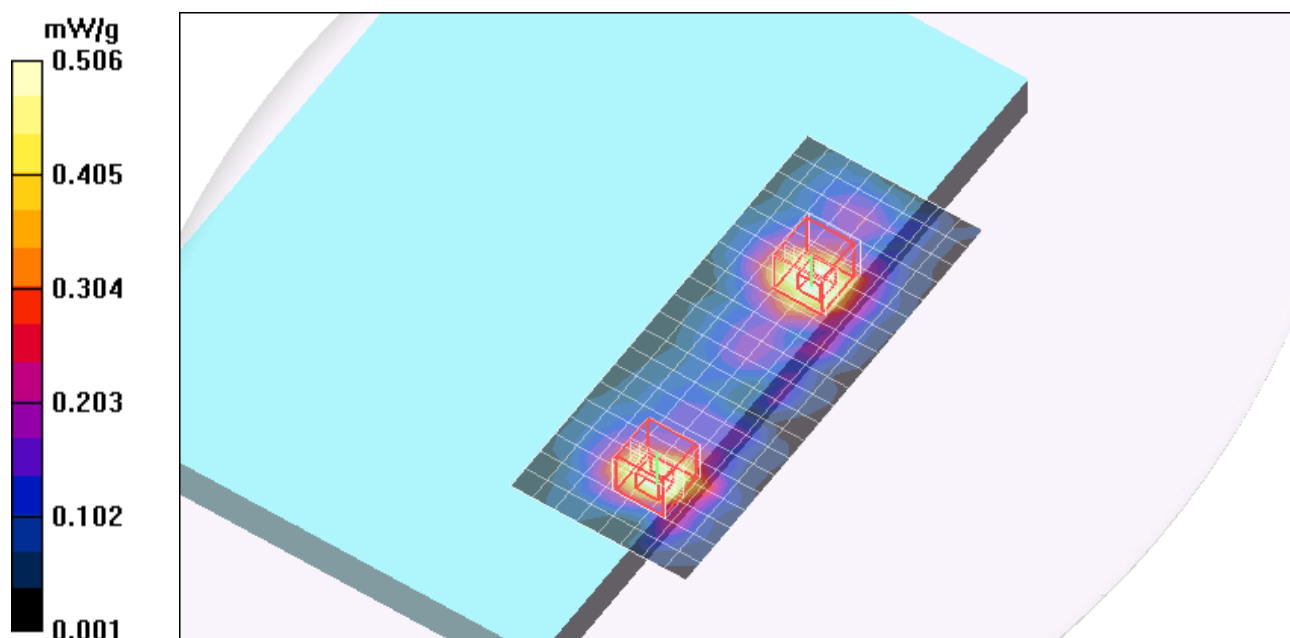
DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.68, 3.68, 3.68); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a 20MHz MIMO Mode - M ch/Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (measured) = 0.506 mW/g

**802.11a 20MHz MIMO Mode - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm  
 Reference Value = 8.97 V/m; Power Drift = 0.135 dB  
 Peak SAR (extrapolated) = 1.01 W/kg  
**SAR(1 g) = 0.283 mW/g; SAR(10 g) = 0.118 mW/g**  
 Maximum value of SAR (measured) = 0.512 mW/g

**802.11a 20MHz MIMO Mode - M ch/Zoom Scan (7x7x9)/Cube 1:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm  
 Reference Value = 8.97 V/m; Power Drift = 0.135 dB  
 Peak SAR (extrapolated) = 1.07 W/kg  
**SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.130 mW/g**  
 Maximum value of SAR (measured) = 0.542 mW/g



Test Laboratory: Compliance Certification Services

## Lap-held 5.5 GHz

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

Communication System: 802.11a; Frequency: 5600 MHz; Duty Cycle: 1:1.09  
 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 6.13$  mho/m;  $\epsilon_r = 46.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.8, 3.8, 3.8); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a Main Ant - M ch/Area Scan (9x13x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (measured) = 1.29 mW/g

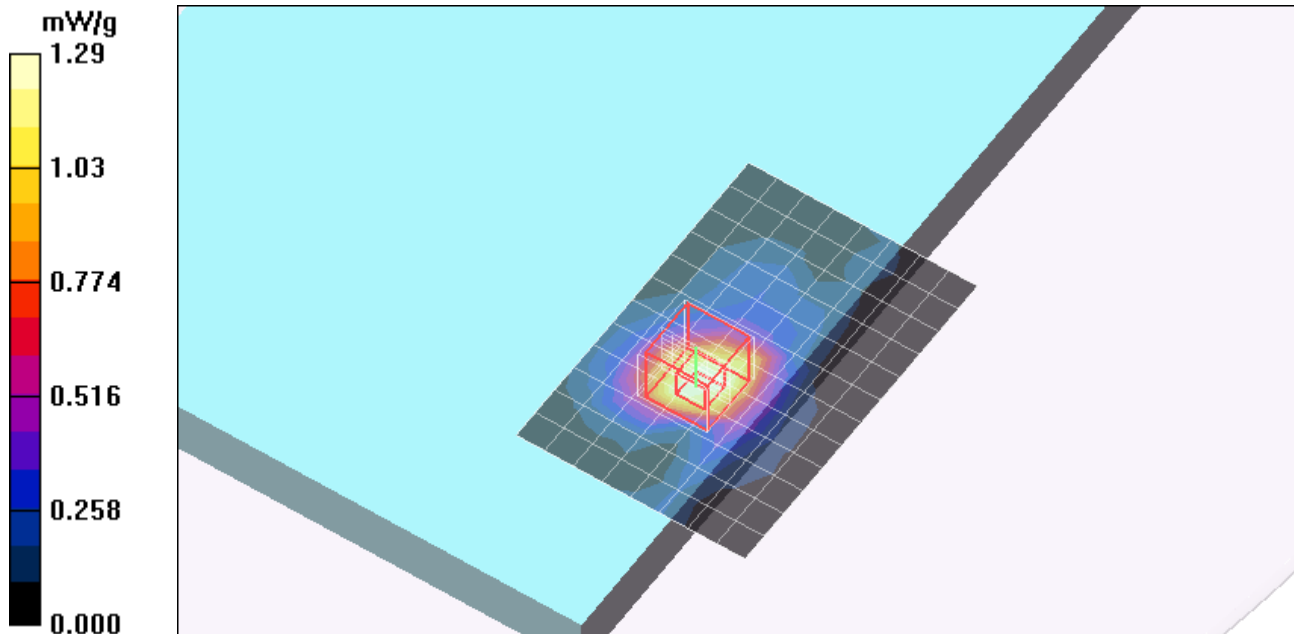
**802.11a Main Ant - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 2.32 V/m; Power Drift = 0.166 dB

Peak SAR (extrapolated) = 2.80 W/kg

**SAR(1 g) = 0.680 mW/g; SAR(10 g) = 0.273 mW/g**

Maximum value of SAR (measured) = 1.30 mW/g



Test Laboratory: Compliance Certification Services

## Lap-held 5.5 GHz

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

Communication System: 802.11a; Frequency: 5600 MHz; Duty Cycle: 1:1.09  
 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 6.13$  mho/m;  $\epsilon_r = 46.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

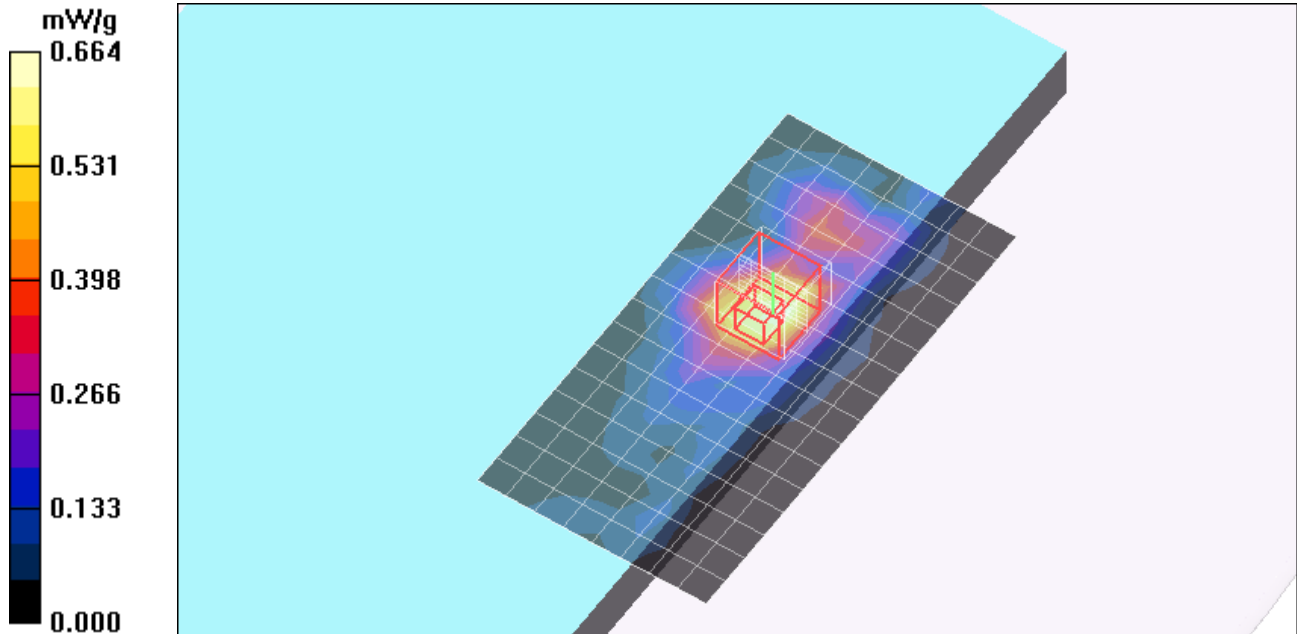
Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.8, 3.8, 3.8); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a Aux Ant - M ch/Area Scan (9x17x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (measured) = 0.664 mW/g

**802.11a Aux Ant - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm  
 Reference Value = 4.02 V/m; Power Drift = 0.19 dB  
 Peak SAR (extrapolated) = 1.90 W/kg  
**SAR(1 g) = 0.443 mW/g; SAR(10 g) = 0.174 mW/g**  
 Maximum value of SAR (measured) = 0.913 mW/g



Test Laboratory: Compliance Certification Services

# Lap-held 5.5 GHz

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

Communication System: 802.11agn; Frequency: 5590 MHz; Duty Cycle: 1:1.09  
Medium parameters used (interpolated):  $f = 5590$  MHz;  $\sigma = 6.11$  mho/m;  $\epsilon_r = 45.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

Room Ambient Temperature: 25.0deg. C; Liquid Temperature: 24.0 deg. C

- DASY4 Configuration:
- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
  - Probe: EX3DV4 - SN3554; ConvF(3.8, 3.8, 3.8); Calibrated: 4/24/2007
  - Sensor-Surface: 2mm (Mechanical Surface Detection)
  - Electronics: DAE3 Sn500; Calibrated: 11/16/2007
  - Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
  - Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

## 802.11n SISO 40MHz - M ch/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 0.824 mW/g

## 802.11n SISO 40MHz - M ch/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

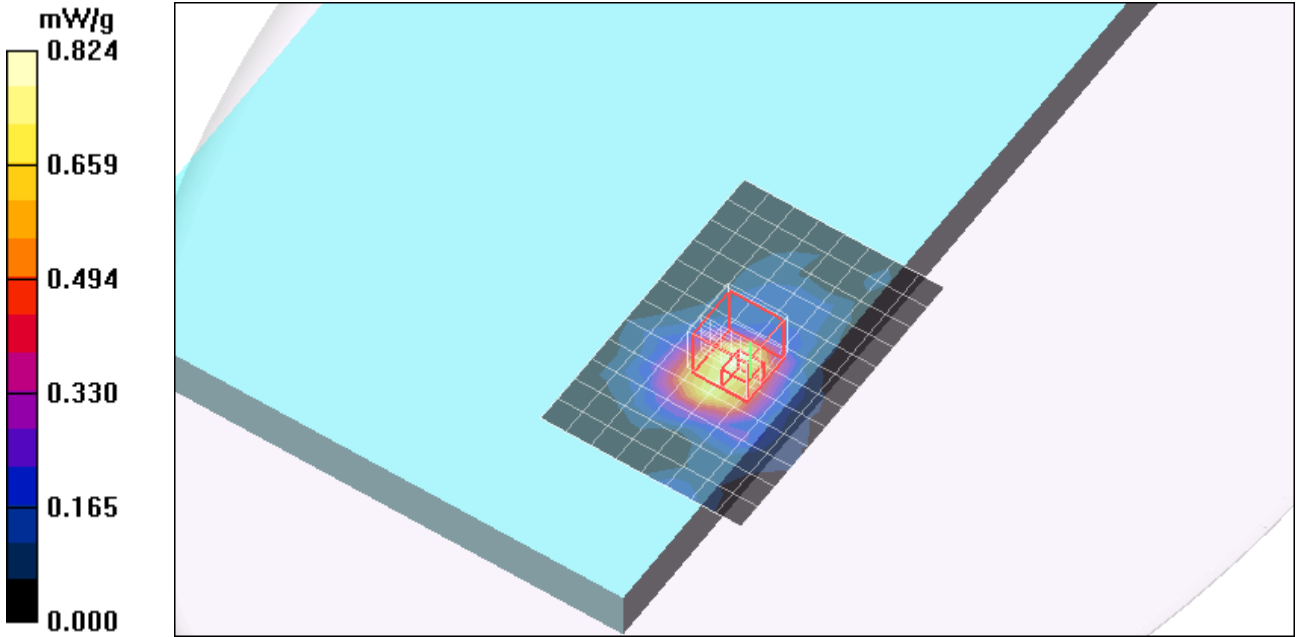
Reference Value = 12.3 V/m; Power Drift = 0.059 dB

Peak SAR (extrapolated) = 2.44 W/kg

**SAR(1 g) = 0.418 mW/g; SAR(10 g) = 0.157 mW/g**

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

Maximum value of SAR (measured) = 0.935 mW/g





Test Laboratory: Compliance Certification Services

## Lap-held 5.5 GHz

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

Communication System: 802.11a/g; Frequency: 5590 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5590$  MHz;  $\sigma = 6.11$  mho/m;  $\epsilon_r = 45.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.8, 3.8, 3.8); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11n MIMO 40MHz - M ch/Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 1.14 mW/g

**802.11n MIMO 40MHz - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 13.4 V/m; Power Drift = 0.072 dB

Peak SAR (extrapolated) = 2.98 W/kg

**SAR(1 g) = 0.761 mW/g; SAR(10 g) = 0.289 mW/g**

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

Maximum value of SAR (measured) = 1.46 mW/g

**802.11n MIMO 40MHz - M ch/Zoom Scan (7x7x9)/Cube 1:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

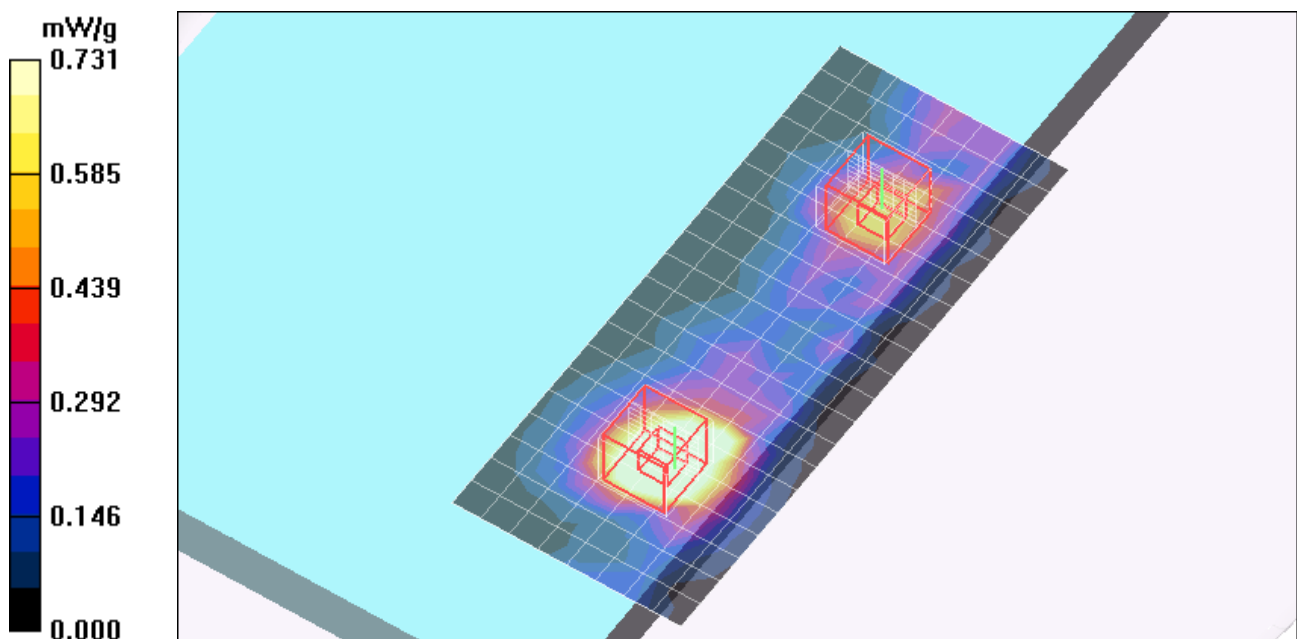
Reference Value = 13.4 V/m; Power Drift = 0.072 dB

Peak SAR (extrapolated) = 1.54 W/kg

**SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.160 mW/g**

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

Maximum value of SAR (measured) = 0.731 mW/g



Test Laboratory: Compliance Certification Services

### Lap-held 5.5 GHz

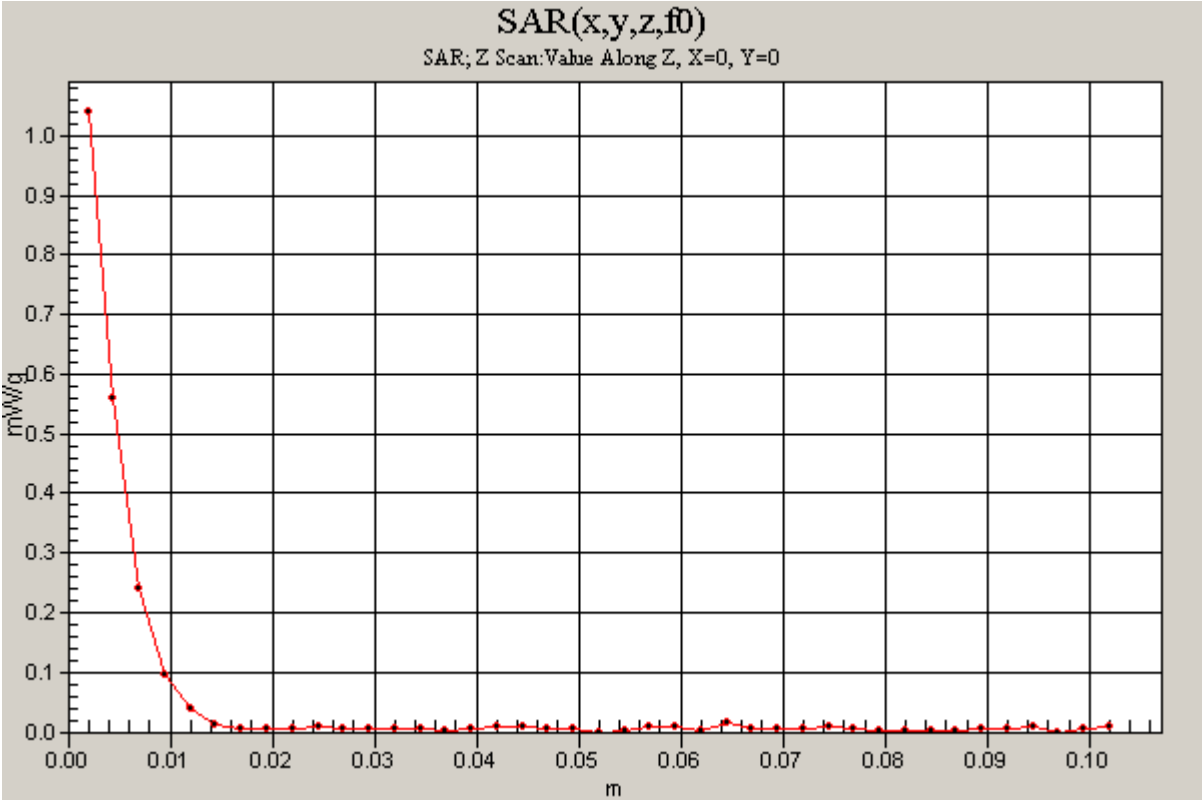
DUT: Apple; Type: Laptop; Serial: N/A

Communication System: 802.11agn; Frequency: 5590 MHz;Duty Cycle: 1:1.09

**802.11n MIMO 40MHz - 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) = 1.04 mW/g



Test Laboratory: Compliance Certification Services

## Lap-held 5.5 GHz

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

Communication System: 802.11a; Frequency: 5590 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5590$  MHz;  $\sigma = 6.11$  mho/m;  $\epsilon_r = 45.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 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 - SN3554; ConvF(3.8, 3.8, 3.8); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11n MIMO 40MHz - M ch (Co-Tx)/Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 1.31 mW/g

**802.11n MIMO 40MHz - M ch (Co-Tx)/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm,

dy=4mm, dz=2.5mm

Reference Value = 14.1 V/m; Power Drift = 0.131 dB

Peak SAR (extrapolated) = 2.98 W/kg

**SAR(1 g) = 0.764 mW/g; SAR(10 g) = 0.296 mW/g**

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

Maximum value of SAR (measured) = 1.48 mW/g

**802.11n MIMO 40MHz - M ch (Co-Tx)/Zoom Scan 2 (7x7x9)/Cube 0:** Measurement grid: dx=4mm,

dy=4mm, dz=2.5mm

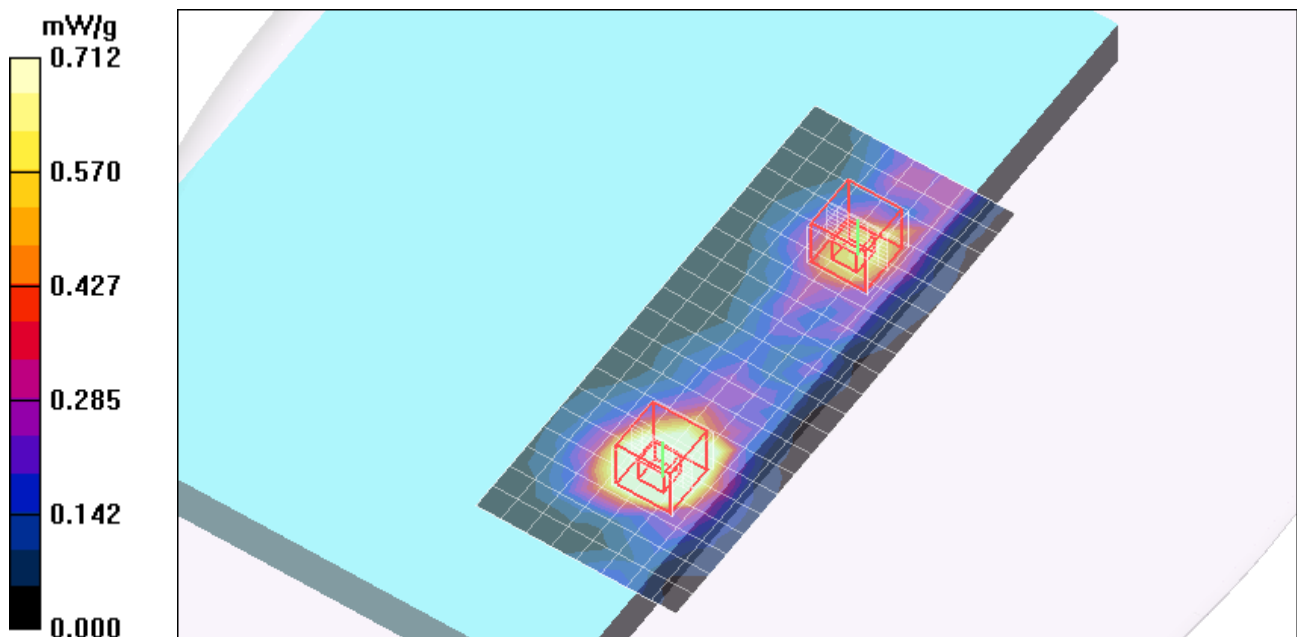
Reference Value = 14.1 V/m; Power Drift = 0.131 dB

Peak SAR (extrapolated) = 1.72 W/kg

**SAR(1 g) = 0.376 mW/g; SAR(10 g) = 0.154 mW/g**

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

Maximum value of SAR (measured) = 0.712 mW/g



Test Laboratory: Compliance Certification Services

### Lap-held 5.5 GHz

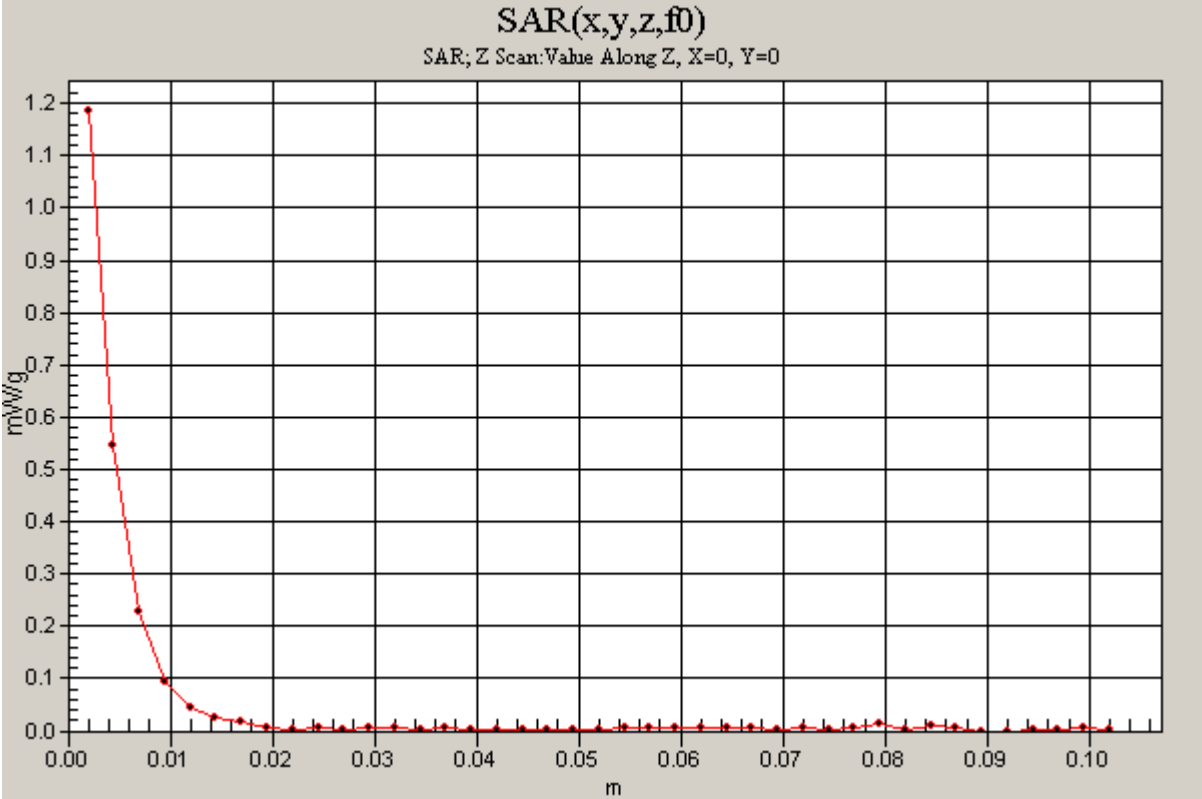
DUT: Apple; Type: Laptop; Serial: N/A

Communication System: 802.11agn; Frequency: 5590 MHz;Duty Cycle: 1:1.09

**802.11n MIMO 40MHz - M ch (Co-Tx)/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) = 1.19 mW/g



Test Laboratory: Compliance Certification Services

## Lap-held 5.8 GHz

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

Communication System: 802.11a; Frequency: 5785 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 6.22$  mho/m;  $\epsilon_r = 46$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.83, 3.83, 3.83); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a Main Ant - M ch/Area Scan (9x11x1):** Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 1.07 mW/g

**802.11a Main Ant - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm,

dz=2.5mm

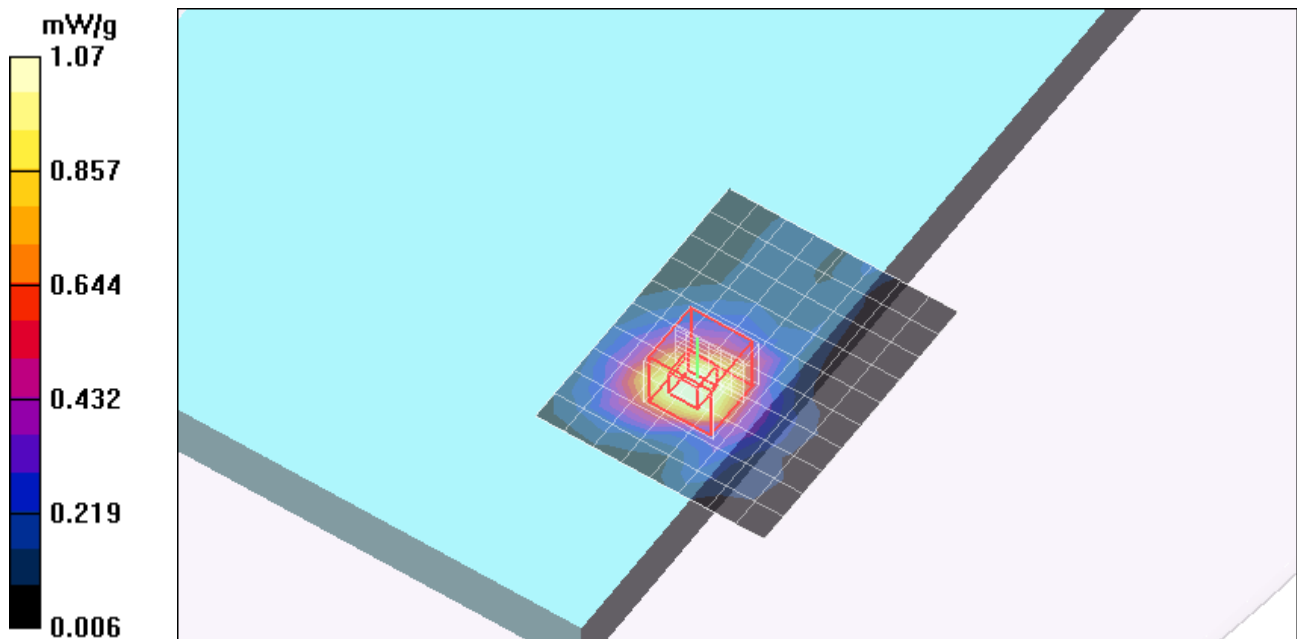
Reference Value = 3.96 V/m; Power Drift = 0.076 dB

Peak SAR (extrapolated) = 3.87 W/kg

**SAR(1 g) = 0.654 mW/g; SAR(10 g) = 0.258 mW/g**

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

Maximum value of SAR (measured) = 1.34 mW/g



Test Laboratory: Compliance Certification Services

## Lap-held 5.8 GHz

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

Communication System: 802.11a; Frequency: 5785 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 6.22$  mho/m;  $\epsilon_r = 46$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.83, 3.83, 3.83); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11a Aux Ant - M ch/Area Scan (9x13x1):** Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 0.724 mW/g

**802.11a Aux Ant - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

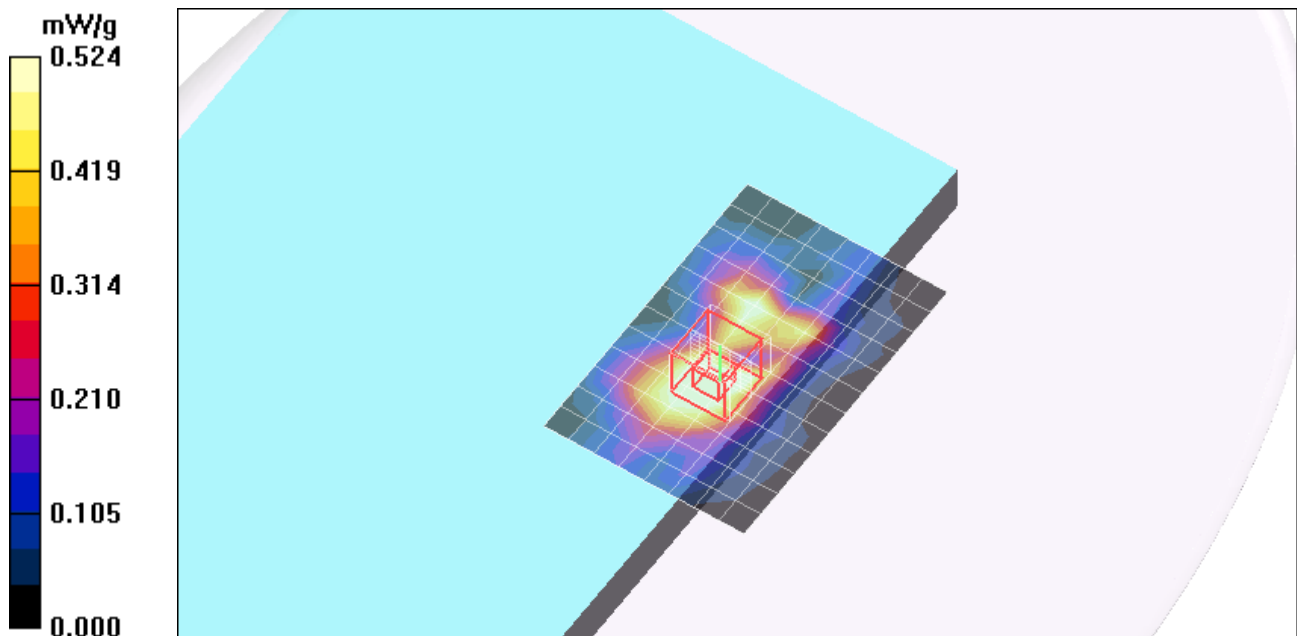
Reference Value = 4.31 V/m; Power Drift = 0.151 dB

Peak SAR (extrapolated) = 1.44 W/kg

**SAR(1 g) = 0.368 mW/g; SAR(10 g) = 0.147 mW/g**

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

Maximum value of SAR (measured) = 0.736 mW/g



Test Laboratory: Compliance Certification Services

## Lap-held 5.8 GHz

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

Communication System: 802.11a; Frequency: 5795 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5795$  MHz;  $\sigma = 6.26$  mho/m;  $\epsilon_r = 46$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.83, 3.83, 3.83); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11n SISO 40MHz - M ch/Area Scan (9x11x1):** Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 0.914 mW/g

**802.11n SISO 40MHz - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm,

dz=2.5mm

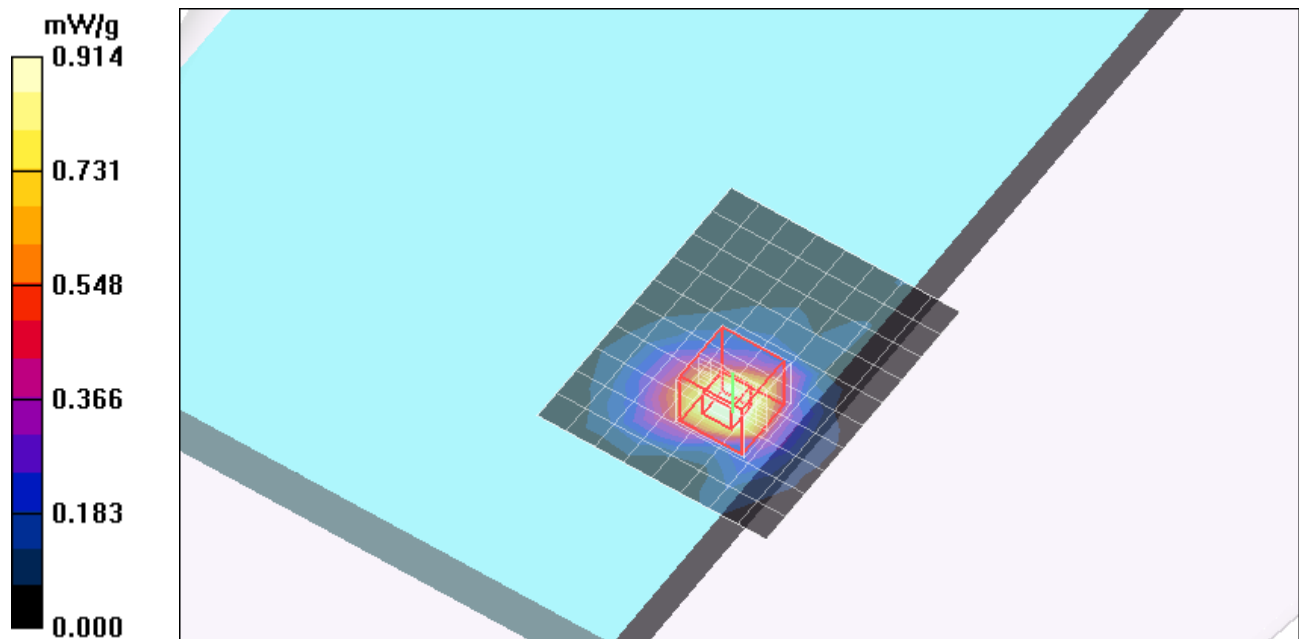
Reference Value = 12.8 V/m; Power Drift = 0.164 dB

Peak SAR (extrapolated) = 2.44 W/kg

**SAR(1 g) = 0.588 mW/g; SAR(10 g) = 0.221 mW/g**

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

Maximum value of SAR (measured) = 1.17 mW/g



Test Laboratory: Compliance Certification Services

## Lap-held 5.8 GHz

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

Communication System: 802.11a; Frequency: 5795 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5795$  MHz;  $\sigma = 6.26$  mho/m;  $\epsilon_r = 46$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.83, 3.83, 3.83); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

**802.11n MIMO 40MHz - M ch/Area Scan (9x23x1):** Measurement grid: dx=10mm, dy=10mm

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

Maximum value of SAR (measured) = 1.77 mW/g

**802.11n MIMO 40MHz - M ch/Zoom Scan (7x7x9)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 12.9 V/m; Power Drift = 0.132 dB

Peak SAR (extrapolated) = 4.67 W/kg

**SAR(1 g) = 0.714 mW/g; SAR(10 g) = 0.268 mW/g**

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

Maximum value of SAR (measured) = 1.62 mW/g

**802.11n MIMO 40MHz - M ch/Zoom Scan (7x7x9)/Cube 1:** Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

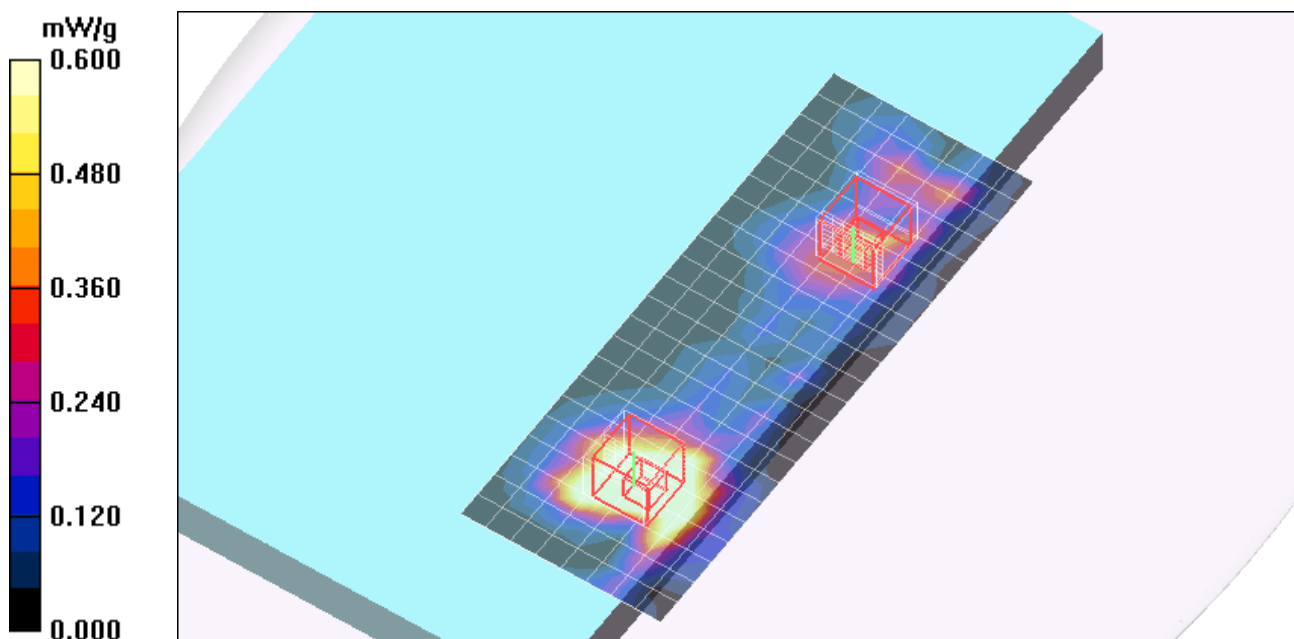
Reference Value = 12.9 V/m; Power Drift = 0.132 dB

Peak SAR (extrapolated) = 1.02 W/kg

**SAR(1 g) = 0.229 mW/g; SAR(10 g) = 0.090 mW/g**

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

Maximum value of SAR (measured) = 0.458 mW/g





Test Laboratory: Compliance Certification Services

### Lap-held 5.8 GHz

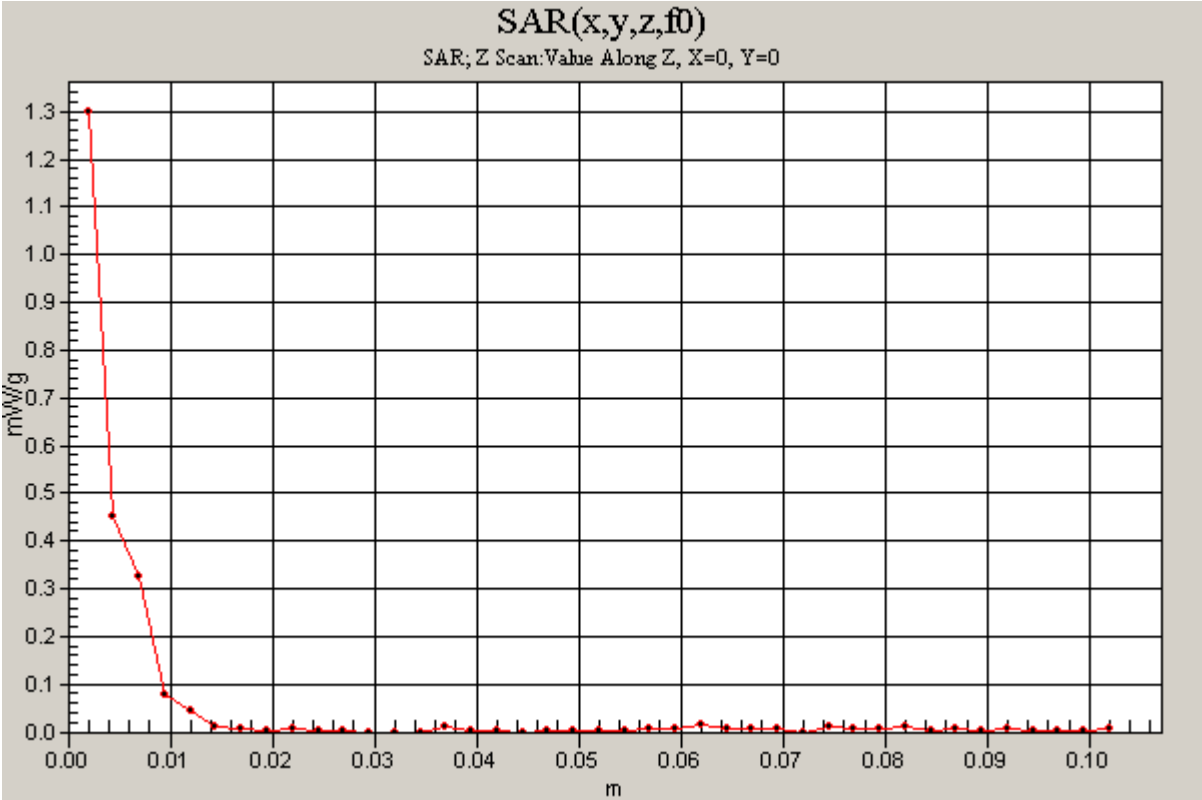
DUT: Apple; Type: Laptop; Serial: N/A

Communication System: 802.11agn; Frequency: 5795 MHz;Duty Cycle: 1:1.09

**802.11n MIMO 40MHz - 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) = 1.30 mW/g



Test Laboratory: Compliance Certification Services

## Lap-held 5.8 GHz

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

Communication System: 802.11a; Frequency: 5795 MHz; Duty Cycle: 1:1.09

Medium parameters used (interpolated):  $f = 5795$  MHz;  $\sigma = 6.26$  mho/m;  $\epsilon_r = 46$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Room Ambient Temperature: 25.0 deg. C; Liquid Temperature: 24.0 deg. C

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within: 2.0 dB and with peak SAR value greater than 0.0012W/kg
- Probe: EX3DV4 - SN3554; ConvF(3.83, 3.83, 3.83); Calibrated: 4/24/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn500; Calibrated: 11/16/2007
- Phantom: Flat Phantom ELI4.0; Type: QDOVA001BA; Serial: SN:1003
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

### 802.11n MIMO 40MHz - M ch (Co-Tx)/Area Scan (9x23x1):

Measurement grid: dx=10mm, dy=10mm  
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.21 mW/g

### 802.11n MIMO 40MHz - M ch (Co-Tx)/Zoom Scan (7x7x9)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 18.2 V/m; Power Drift = 0.183 dB

Peak SAR (extrapolated) = 4.92 W/kg

**SAR(1 g) = 0.791 mW/g; SAR(10 g) = 0.288 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.69 mW/g

### 802.11n MIMO 40MHz - M ch (Co-Tx)/Zoom Scan 2 (7x7x9)/Cube 0:

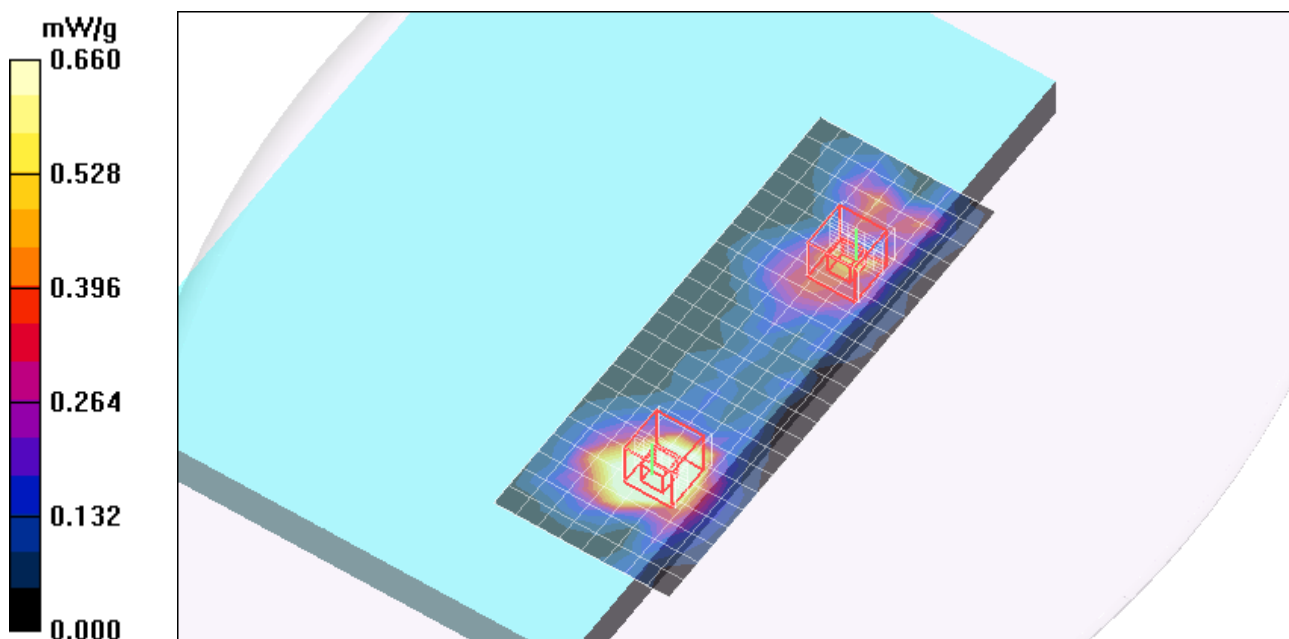
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm

Reference Value = 18.2 V/m; Power Drift = 0.183 dB

Peak SAR (extrapolated) = 1.78 W/kg

**SAR(1 g) = 0.350 mW/g; SAR(10 g) = 0.132 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.660 mW/g



Test Laboratory: Compliance Certification Services

### Lap-held 5.8 GHz

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

Communication System: 802.11agn; Frequency: 5795 MHz;Duty Cycle: 1:1.09

**802.11n MIMO 40MHz - M ch (Co-Tx)/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) = 1.34 mW/g

