



Test Laboratory: Neutron Engineering Inc.

**WF2190 802.11n mode HT40 ant A+B 5mm**

**DUT: WF2190-5mm; Type: Sample; Serial: 1307C140A**

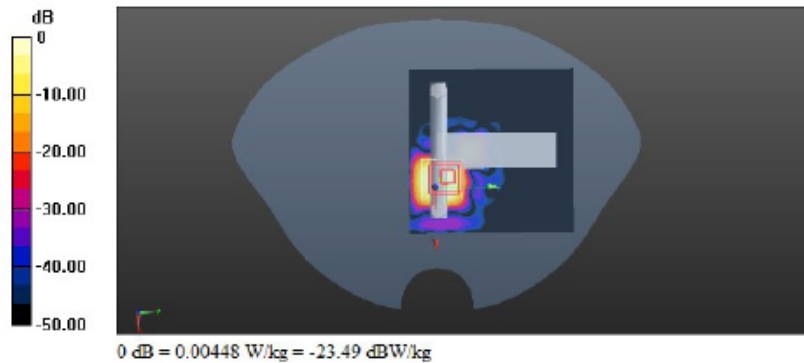
Communication System: UID 0, IEEE 802.11n(HT40,13.5Mbps,BPSK) (0); Frequency: 2422 MHz  
Medium parameters used (interpolated):  $f = 2422$  MHz;  $\sigma = 1.982$  S/m;  $\epsilon_r = 52.656$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section  
Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:**

- Probe: EX3DV4 - SN3932; ConvF(7.34, 7.34, 7.34); Calibrated: 09/16/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection),  $z = 1.0, 31.0$
- Electronics: DAE4 Sn1390; Calibrated: 09/10/2013
- Phantom: SAM 1; Type: SAM; Serial: 1784
- DASYS2 52.8.7(1137); SEMCAD X 14.6.10(7164)

**802.11n HT40 CH3 ant A+B 5mm/802.11n HT40 CH3 ant A+B 5mm/Area Scan (81x81x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm  
Reference Value = 0.772 V/m; Power Drift = 0.06 dB  
Fast SAR: SAR(1 g) = 0.006 W/kg; SAR(10 g) = 0.00262 W/kg  
Maximum value of SAR (interpolated) = 0.0163 W/kg

**802.11n HT40 CH3 ant A+B 5mm/802.11n HT40 CH3 ant A+B 5mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm  
Reference Value = 0.772 V/m; Power Drift = 0.06 dB  
Peak SAR (extrapolated) = 0.0230 W/kg  
SAR(1 g) = 0.00492 W/kg; SAR(10 g) = 0.00107 W/kg  
Maximum value of SAR (measured) = 0.00448 W/kg





Test Laboratory: Neutron Engineering Inc.

**WF2190 802.11n mode HT40 ant A+B 10mm**

**DUT: WF2190-10mm; Type: Sample; Serial: 1307C140A**

Communication System: UID 0, IEEE 802.11n(HT40,13.5Mbps,BPSK) (0); Frequency: 2422 MHz

Medium parameters used (interpolated):  $f = 2422$  MHz;  $\sigma = 1.982$  S/m;  $\epsilon_r = 52.656$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:**

- Probe: EX3DV4 - SN3932; ConvF(7.34, 7.34, 7.34); Calibrated: 09/16/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection),  $z = 1.0, 31.0$
- Electronics: DAE4 Sn1390; Calibrated: 09/10/2013
- Phantom: SAM 1; Type: SAM; Serial: 1784
- DASYS2 52.8.7(1137); SEMCAD X 14.6.10(7164)

**802.11n HT40 CH3 ant A+B 5mm/802.11n HT40 CH3 ant A+B 10mm/Area Scan (91x131x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Reference Value = 0.572 V/m; Power Drift = 0.11 dB

**Fast SAR: SAR(1 g) = 0.067 W/kg; SAR(10 g) = 0.030 W/kg**

Maximum value of SAR (interpolated) = 0.103 W/kg

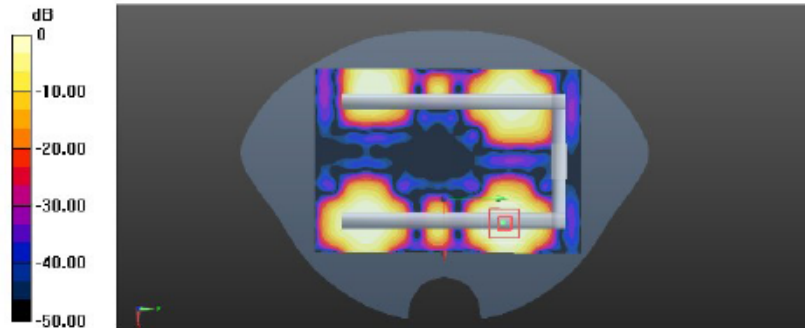
**802.11n HT40 CH3 ant A+B 5mm/802.11n HT40 CH3 ant A+B 10mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 0.572 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.0860 W/kg

**SAR(1 g) = 0.047 W/kg; SAR(10 g) = 0.022 W/kg**

Maximum value of SAR (measured) = 0.0533 W/kg





Test Laboratory: Neutron Engineering Inc.

**WF2190 802.11a mode ant B 5200MHz 5mm**

**DUT: WF2190-5mm; Type: Sample; Serial: 1307C140A**

Communication System: UID 0, IEEE 802.11a WiFi 5G(OFDM, 6 Mbps.) (0); Frequency: 5200 MHz

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.38$  S/m;  $\epsilon_r = 49.4$ ;  $\rho = 996$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:**

- Probe: EX3DV4 - SN3932; ConvF(4.69, 4.69, 4.69); Calibrated: 09/16/2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection),  $z = 1.0, 31.0$
- Electronics: DAE4 Sn1390; Calibrated: 09/10/2013
- Phantom: SAM 1; Type: SAM; Serial: 1784
- DASYS2 52.8.7(1137); SEMCAD X 14.6.10(7164)

**5200MHz 5mm/WF2190 802.11a antB 5200MHz 5mm/Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 1.781 V/m; Power Drift = 0.14 dB

**Fast SAR: SAR(1 g) = 0.096 W/kg; SAR(10 g) = 0.036 W/kg**

Maximum value of SAR (interpolated) = 0.218 W/kg

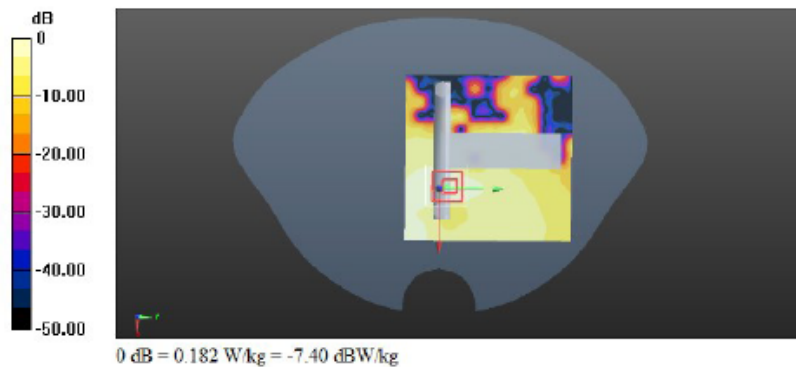
**5200MHz 5mm/WF2190 802.11a antB 5200MHz 5mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.781 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.464 W/kg

**SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.028 W/kg**

Maximum value of SAR (measured) = 0.182 W/kg





Test Laboratory: Neutron Engineering Inc.

**WF2190 802.11a mode ant B 5200MHz 10mm**

**DUT: WF2190-10mm; Type: Sample; Serial: 1307C140A**

Communication System: UID 0, IEEE 802.11a WiFi 5G(OFDMA, 6 Mbps.) (0); Frequency: 5200 MHz

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.38$  S/m;  $\epsilon_r = 49.4$ ;  $\rho = 996$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:**

- Probe: EX3DV4 - SN3932; ConvF(4.69, 4.69, 4.69); Calibrated: 09/16/2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection),  $z = 1.0, 31.0$
- Electronics: DAE4 Sn1390; Calibrated: 09/10/2013
- Phantom: SAM 1; Type: SAM; Serial: 1784
- DASYS2 52.8.7(1137); SEMCAD X 14.6.10(7164)

**5200MHz 10mm/WF2190 802.11a antB 5200MHz 10mm/Area Scan (91x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm**

Reference Value = 1.532 V/m; Power Drift = 0.079dB

**Fast SAR: SAR(1 g) = 0.180 W/kg; SAR(10 g) = 0.075 W/kg**

Maximum value of SAR (interpolated) = 0.403 W/kg

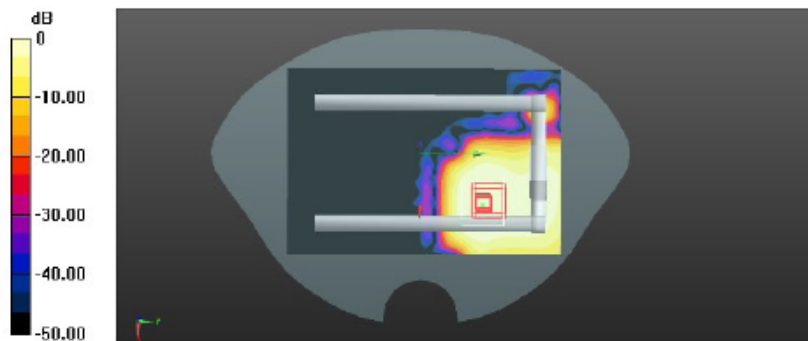
**5200MHz 10mm/WF2190 802.11a antB 5200MHz 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 1.532 V/m; Power Drift = 0.079 dB

Peak SAR (extrapolated) = 0.410 W/kg

**SAR(1 g) = 0.135 W/kg; SAR(10 g) = 0.056 W/kg**

Maximum value of SAR (measured) = 0.146 W/kg





Test Laboratory: Neutron Engineering Inc.

**WF2190 802.11a mode ant B 5785MHz 5mm**

**DUT: WF2190-5mm; Type: Sample; Serial: 1307C140A**

Communication System: UID 0, IEEE 802.11a WiFi 5G(OFDM, 6 Mbps.); Frequency: 5785 MHz

Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 6.199$  S/m;  $\epsilon_r = 48.33$ ;  $\rho = 996$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:**

- Probe: EX3DV4 - SN3932; ConvF(4.19, 4.19, 4.19); Calibrated: 09/16/2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection),  $z = 1.0, 31.0$
- Electronics: DAE4 Sn1390; Calibrated: 09/10/2013
- Phantom: SAM 1; Type: SAM; Serial: 1784
- DASYS2 52.8.7(1137); SEMCAD X 14.6.10(7164)

**5200MHz 5mm/WF2190 802.11a antB 5785MHz 5mm/Area Scan (121x121x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Reference Value = 1.492 V/m; Power Drift = 0.06 dB

Fast SAR: SAR(1 g) = 0.039 W/kg; SAR(10 g) = 0.013 W/kg

Maximum value of SAR (interpolated) = 0.106 W/kg

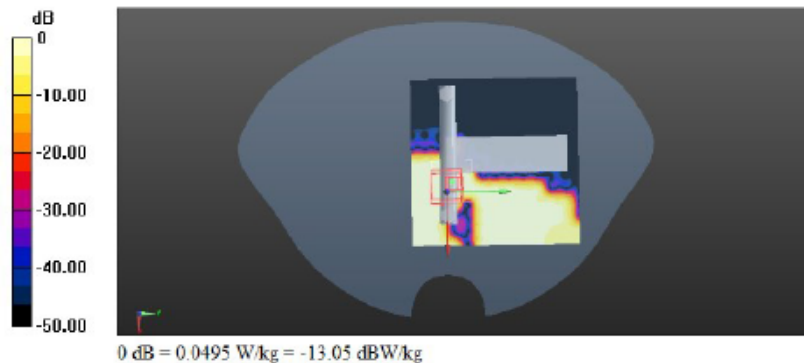
**5200MHz 5mm/WF2190 802.11a antB 5785MHz 5mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 1.492 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.135 W/kg

SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.00683 W/kg

Maximum value of SAR (measured) = 0.0495 W/kg







Test Laboratory: Neutron Engineering Inc.

**WF2190 802.11a mode ant B 5785MHz 10mm**

**DUT: WF2190-10mm; Type: Sample; Serial: 1307C140A**

Communication System: UID 0, IEEE 802.11a WiFi 5G(OFDM, 6 Mbps.); Frequency: 5785 MHz

Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 6.199$  S/m;  $\epsilon_r = 48.33$ ;  $\rho = 996$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3932; ComF(4.19, 4.19, 4.19); Calibrated: 09/16/2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection),  $z = 1.0, 31.0$
- Electronics: DAE4 Sn1390, Calibrated: 09/10/2013
- Phantom: SAM 1; Type: SAM; Serial: 1784
- DASYS2 52.8.7(1137); SEMCAD X 14.6.10(7164)

**5200MHz 10mm/WF2190 802.11a antB 5785MHz 10mm/Area Scan (91x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm**

Reference Value = 1.138 V/m; Power Drift = 0.11 dB

**Fast SAR: SAR(1 g) = 0.145 W/kg; SAR(10 g) = 0.060 W/kg**

Maximum value of SAR (interpolated) = 0.340 W/kg

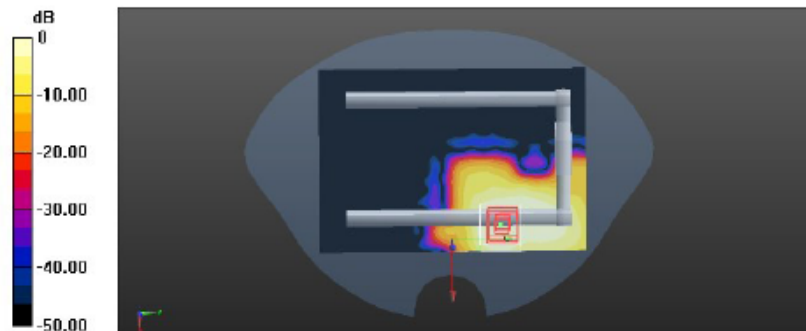
**5200MHz 10mm/WF2190 802.11a antB 5785MHz 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 1.138 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.420 W/kg

**SAR(1 g) = 0.114 W/kg; SAR(10 g) = 0.045 W/kg**

Maximum value of SAR (measured) = 0.231 W/kg



0 dB = 0.231 W/kg = -6.36 dBW/kg



Test Laboratory: Neutron Engineering Inc.

**WF2190 802.11AC mode HT80 ant A+B 5210MHz 5mm**

**DUT: WF2190-5mm; Type: Sample; Serial: 1307C140A**

Communication System: UID 0, IEEE 802.11AC HT80 WiFi 5G(OFDM, 6 Mbps.) ; Frequency: 5210 MHz

Medium parameters used (interpolated):  $f = 5210$  MHz;  $\sigma = 5.394$  S/m;  $\epsilon_r = 49.38$ ;  $\rho = 996$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:**

- Probe: EX3DV4 - SN3932; ConvF(4.69, 4.69, 4.69); Calibrated: 09/16/2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection),  $z = -9.0, 31.0$
- Electronics: DAE4 Sn1390; Calibrated: 09/10/2013
- Phantom: SAM 1; Type: SAM; Serial: 1784
- DASYS2 52.8.7(1137); SEMCAD X 14.6.10(7164)

**802.11AC HT80 10mm/WF2190 802.11AC HT80 antA+B 5210MHz 5mm/Area Scan (81x81x1); Interpolated grid: dx=1.500 mm, dy=1.500 mm**

Reference Value = 1.673 V/m; Power Drift = 0.12 dB

**Fast SAR: SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.013 W/kg**

Maximum value of SAR (interpolated) = 0.111 W/kg

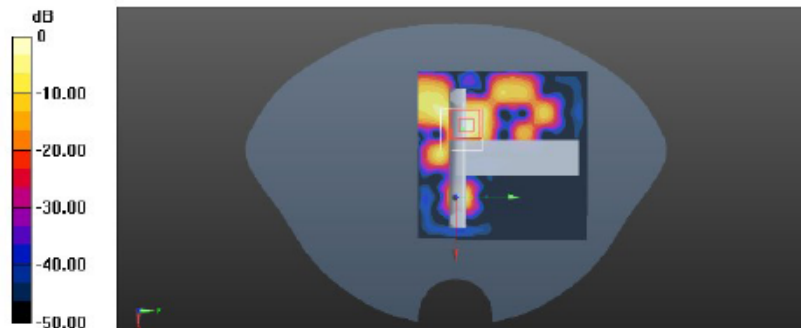
**802.11AC HT80 10mm/WF2190 802.11AC HT80 antA+B 5210MHz 5mm/Zoom Scan (7x7x7)/Cube 0; Measurement grid: dx=5mm, dy=5mm, dz=5mm**

Reference Value = 1.673 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.298 W/kg

**SAR(1 g) = 0.042 W/kg; SAR(10 g) = 0.011 W/kg**

Maximum value of SAR (measured) = 0.141 W/kg



0 dB = 0.141 W/kg = -8.51 dBW/kg



Test Laboratory: Neutron Engineering Inc.

WF2190 802.11AC mode HT80 ant A+B 5210MHz 10mm

DUT: WF2190-10mm; Type: Sample; Serial: 1307C140A

Communication System: UID 0, IEEE 802.11AC HT80 WiFi 5G(OFDm, 6 Mbps.) ; Frequency: 5210 MHz

Medium parameters used (interpolated): f = 5210 MHz;  $\sigma = 5.394 \text{ S/m}$ ;  $\epsilon_r = 49.38$ ;  $\rho = 996 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3932; ConvF(4.69, 4.69, 4.69); Calibrated: 09/16/2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1390; Calibrated: 09/10/2013
- Phantom: SAM I, Type: SAM, Serial: 1784
- DASY52 52.8.7(1137); SEMCAD X 14.6.10(7164)

802.11AC HT80 10mm/WF2190 802.11AC HT80 antA+B 5210MHz 10mm/Area Scan (91x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 0.904 V/m; Power Drift = 0.089

Fast SAR: SAR(1 g) = 0.018 W/kg; SAR(10 g) = 0.00706 W/kg

Maximum value of SAR (interpolated) = 0.0422 W/kg

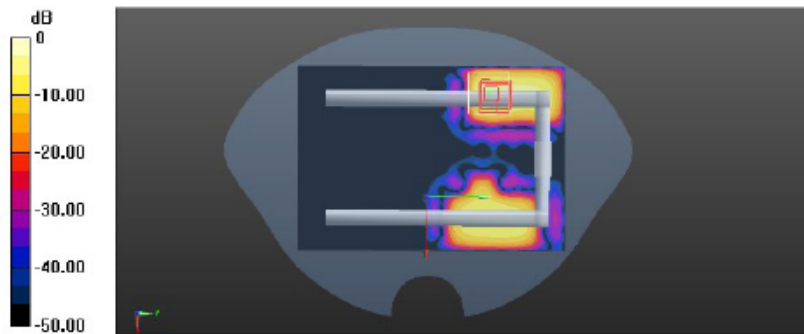
802.11AC HT80 10mm/WF2190 802.11AC HT80 antA+B 5210MHz 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.904 V/m; Power Drift = 0.089

Peak SAR (extrapolated) = 0.169 W/kg

SAR(1 g) = 0.043 W/kg; SAR(10 g) = 0.018 W/kg

Maximum value of SAR (measured) = 0.117 W/kg



0 dB = 0.117 W/kg = -9.32 dBW/kg