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Test Laboratory: Compliance Certification Services Inc.

Date: 10/31/2017

WiFi 802.11 b-Body Edge 1 CH6 Chain0 HongLin Antenna**DUT: Notebook Computer; Type: Lenovo N24; Serial: N/A**

Communication System: UID 0, IEEE 802.11b (0); Communication System Band: ISM 2.4GHz Band;

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.937$ S/m; $\epsilon_r = 51.701$; $\rho = 1000$ kg/m³

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.32, 7.32, 7.32); Calibrated: 7/26/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/IEEE802.11b Body Edge 1 CH6 Chain0/Area Scan (10x13x1): Measurement grid:

dx=12mm, dy=12mm

Maximum value of SAR (measured) = 1.33 W/kg

WiFi 2.4GHz/IEEE802.11b Body Edge 1 CH6 Chain0/Zoom Scan (7x7x5)/Cube 0: Measurement grid:

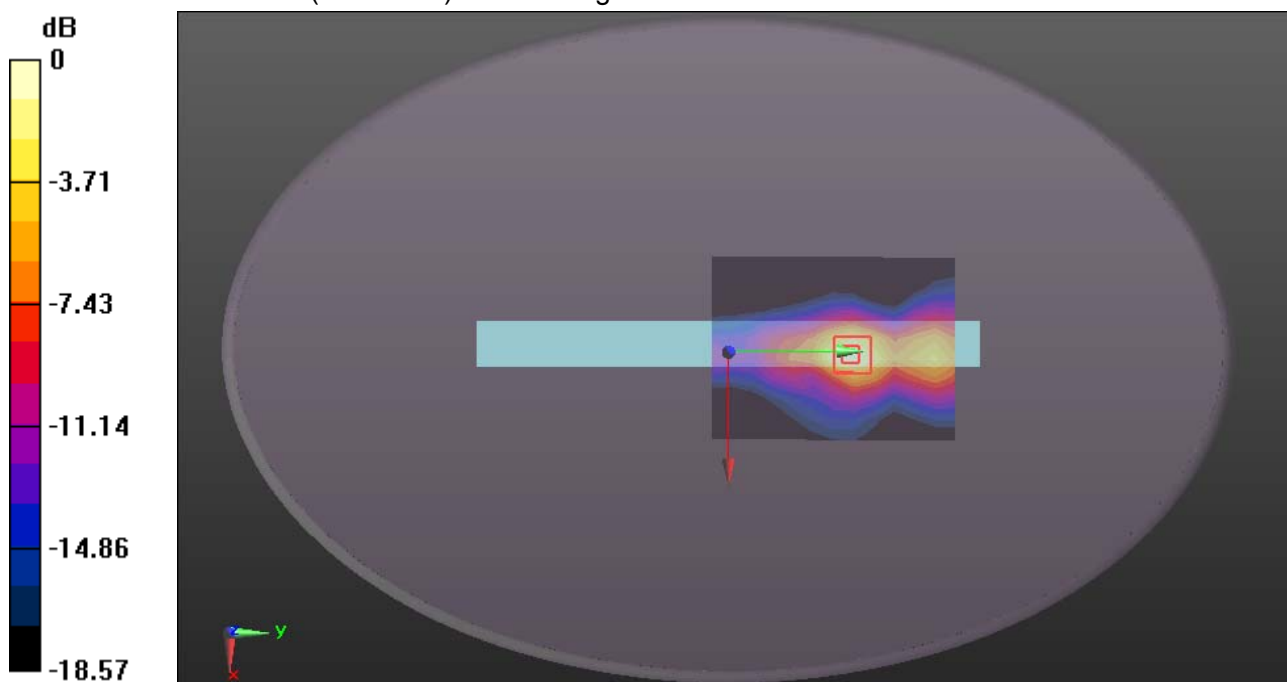
dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.739 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 1.59 W/kg

SAR(1 g) = 0.641 W/kg; SAR(10 g) = 0.308 W/kg

Maximum value of SAR (measured) = 1.23 W/kg



0 dB = 1.23 W/kg = 0.90 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 10/31/2017

WiFi 802.11 b-Body Edge 1 CH6 Chain1 HongLin Antenna**DUT: Notebook Computer; Type: Lenovo N24; Serial: N/A**

Communication System: UID 0, IEEE 802.11b (0); Communication System Band: ISM 2.4GHz Band;

Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.937$ S/m; $\epsilon_r = 51.701$; $\rho = 1000$ kg/m³

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.32, 7.32, 7.32); Calibrated: 7/26/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASYS 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/IEEE802.11b Body Edge 1 CH6 Chain1/Area Scan (10x13x1): Measurement grid:

dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.582 W/kg

WiFi 2.4GHz/IEEE802.11b Body Edge 1 CH6 Chain1/Zoom Scan (7x7x5)/Cube 0: Measurement grid:

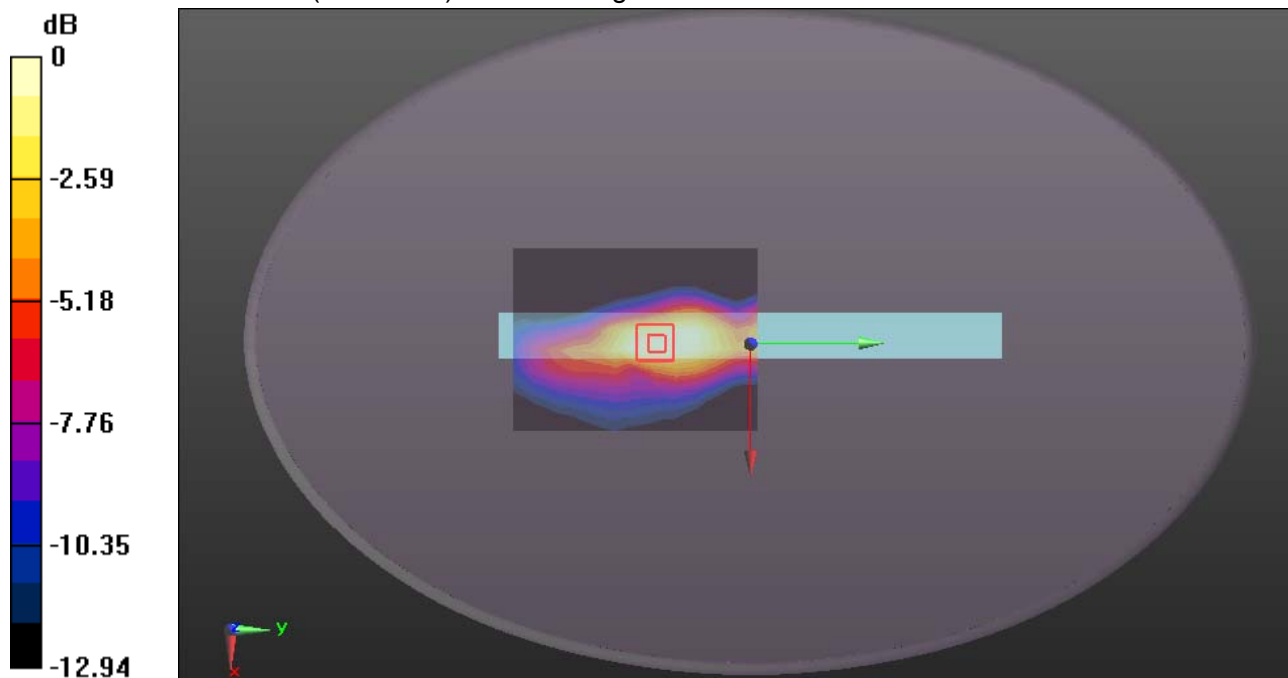
dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.12 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.693 W/kg

SAR(1 g) = 0.373 W/kg; SAR(10 g) = 0.199 W/kg

Maximum value of SAR (measured) = 0.529 W/kg



0 dB = 0.529 W/kg = -2.77 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 10/31/2017

2.4GHz-Body Edge 1 CH78 Chain1 HongLin Antenna**DUT: Notebook Computer; Type: Lenovo N24; Serial: N/A**

Communication System: UID 0, Bluetooth (0); Communication System Band: ISM 2.4Ghz Band;

Frequency: 2480 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2480 \text{ MHz}$; $\sigma = 1.976 \text{ S/m}$; $\epsilon_r = 51.595$; $\rho = 1000 \text{ kg/m}^3$

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(7.32, 7.32, 7.32); Calibrated: 7/26/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/2.4GHz Body Edge 1 CH78 Chain1/Area Scan (10x13x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.0120 W/kg

WiFi 2.4GHz/2.4GHz Body Edge 1 CH78 Chain1/Zoom Scan (7x7x5)/Cube 0: Measurement grid:

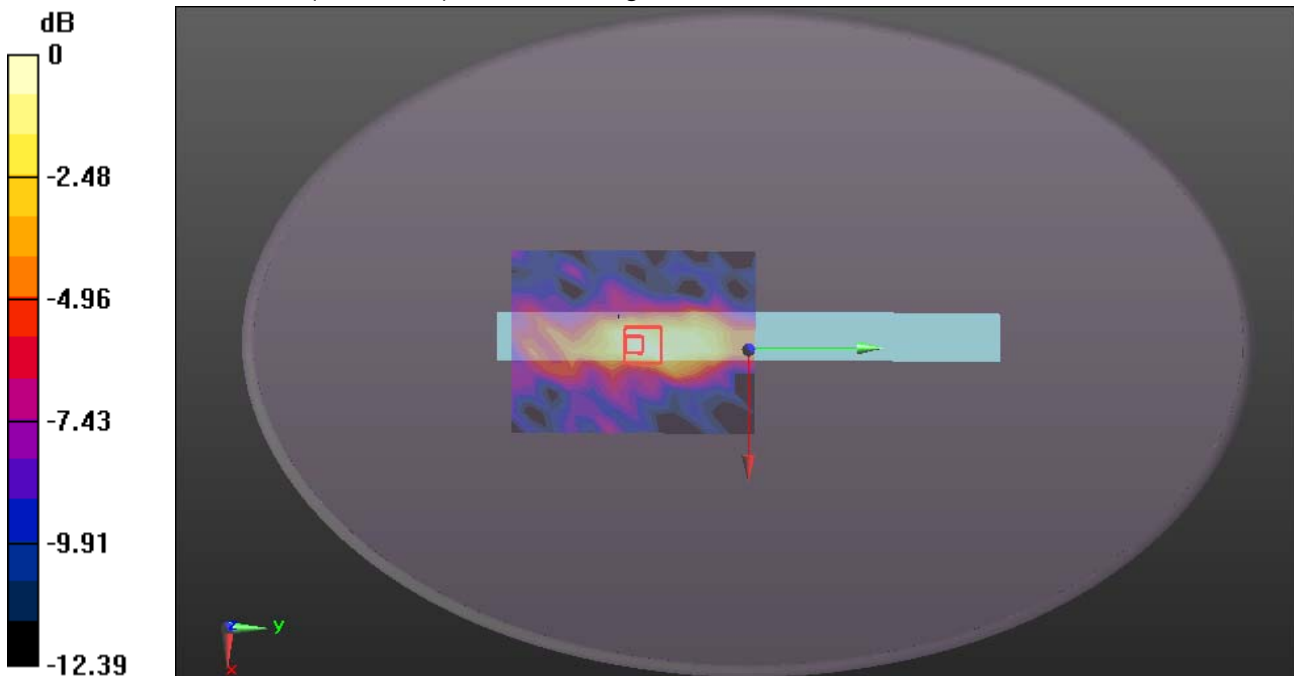
dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.105 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.0240 W/kg

SAR(1 g) = 0.00836 W/kg; SAR(10 g) = 0.00469 W/kg

Maximum value of SAR (measured) = 0.0125 W/kg



0 dB = 0.0125 W/kg = -19.03 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 11/1/2017

WIFI 802.11 a-Body Edge 1 CH52 Chain0 HongLin Antenna**DUT: Notebook Computer; Type: Lenovo N24; Serial: N/A**

Communication System: UID 0, IEEE 802.11 a (0); Communication System Band: 5G Band II; Frequency: 5260 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5260$ MHz; $\sigma = 5.509$ S/m; $\epsilon_r = 48.783$; $\rho = 1000$ kg/m³

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(4.67, 4.67, 4.67); Calibrated: 7/26/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASYS 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WIFI/IEEE802.11a Body Edge 1 CH52 Chain0/Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.37 W/kg

WIFI/IEEE802.11a Body Edge 1 CH52 Chain0/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

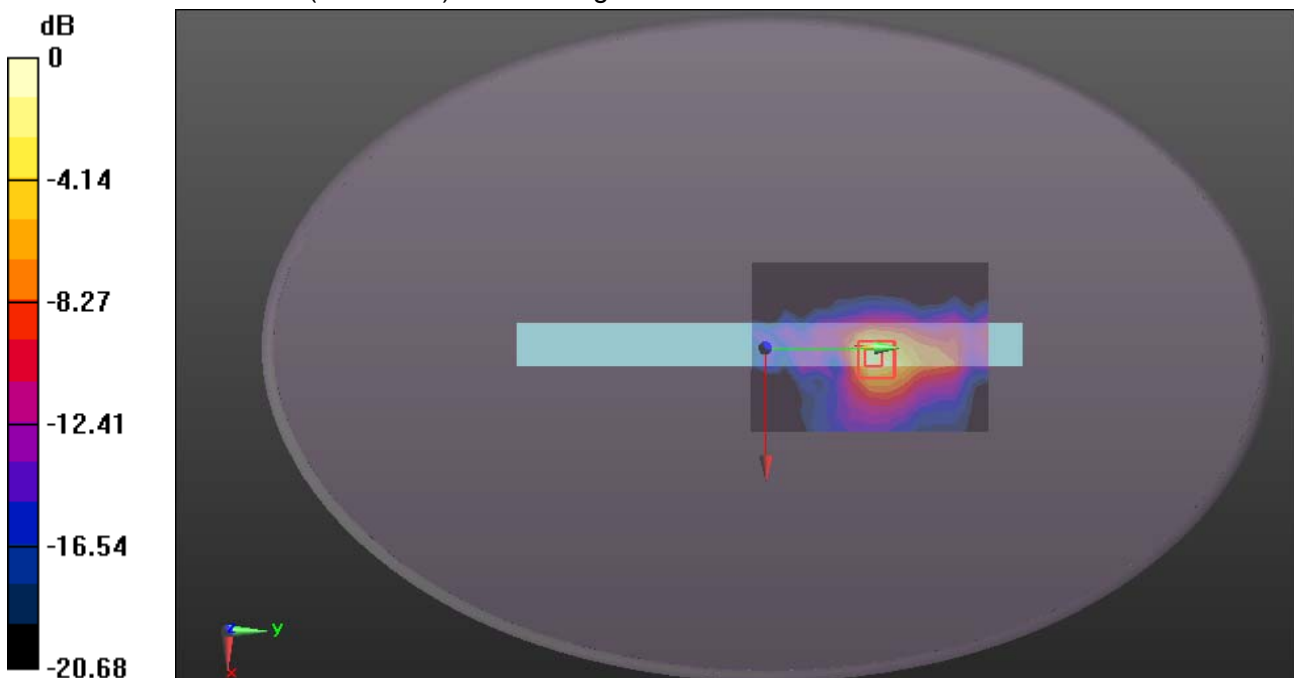
dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 6.844 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.13 W/kg

SAR(1 g) = 0.710 W/kg; SAR(10 g) = 0.224 W/kg

Maximum value of SAR (measured) = 1.75 W/kg



0 dB = 1.75 W/kg = 2.43 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 11/1/2017

WIFI 802.11 a-Body Edge 1 CH116 Chain0 HongLin Antenna**DUT: Notebook Computer; Type: Lenovo N24; Serial: N/A**

Communication System: UID 0, IEEE 802.11 a (0); Communication System Band: 5G Band III;

Frequency: 5580 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5580$ MHz; $\sigma = 5.898$ S/m; $\epsilon_r = 48.101$; $\rho = 1000$ kg/m³

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(4.18, 4.18, 4.18); Calibrated: 7/26/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WIFI/IEEE802.11a Body Edge 1 CH116 Chain0/Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.82 W/kg

WIFI/IEEE802.11a Body Edge 1 CH116 Chain0/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

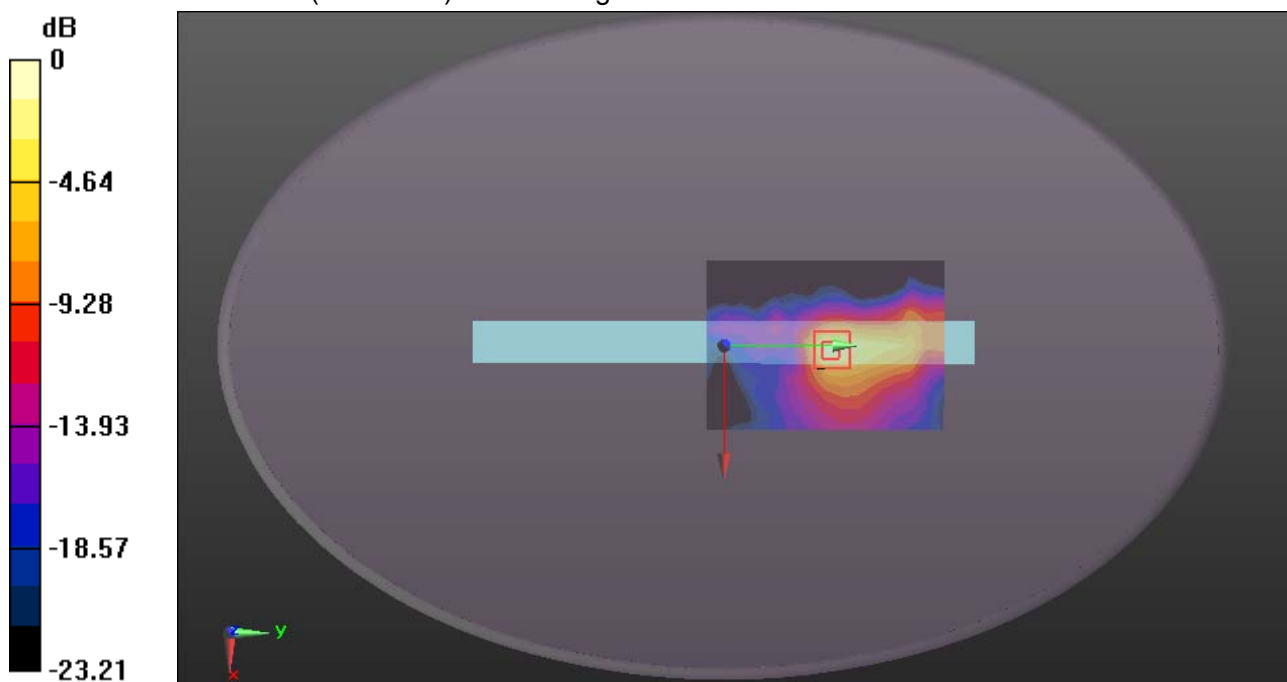
dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 7.271 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 4.02 W/kg

SAR(1 g) = 0.643 W/kg; SAR(10 g) = 0.264 W/kg

Maximum value of SAR (measured) = 2.18 W/kg



0 dB = 2.18 W/kg = 3.38 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 11/1/2017

WIFI 802.11 a-Body Edge 1 CH157 Chain0 HongLin Antenna**DUT: Notebook Computer; Type: Lenovo N24; Serial: N/A**

Communication System: UID 0, IEEE 802.11 a (0); Communication System Band: 5G Band IV;

Frequency: 5785 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5785$ MHz; $\sigma = 6.136$ S/m; $\epsilon_r = 47.647$; $\rho = 1000$ kg/m³

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(4.45, 4.45, 4.45); Calibrated: 7/26/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WIFI/IEEE802.11a Body Edge 1 CH157 Chain0/Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.927 W/kg

WIFI/IEEE802.11a Body Edge 1 CH157 Chain0/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

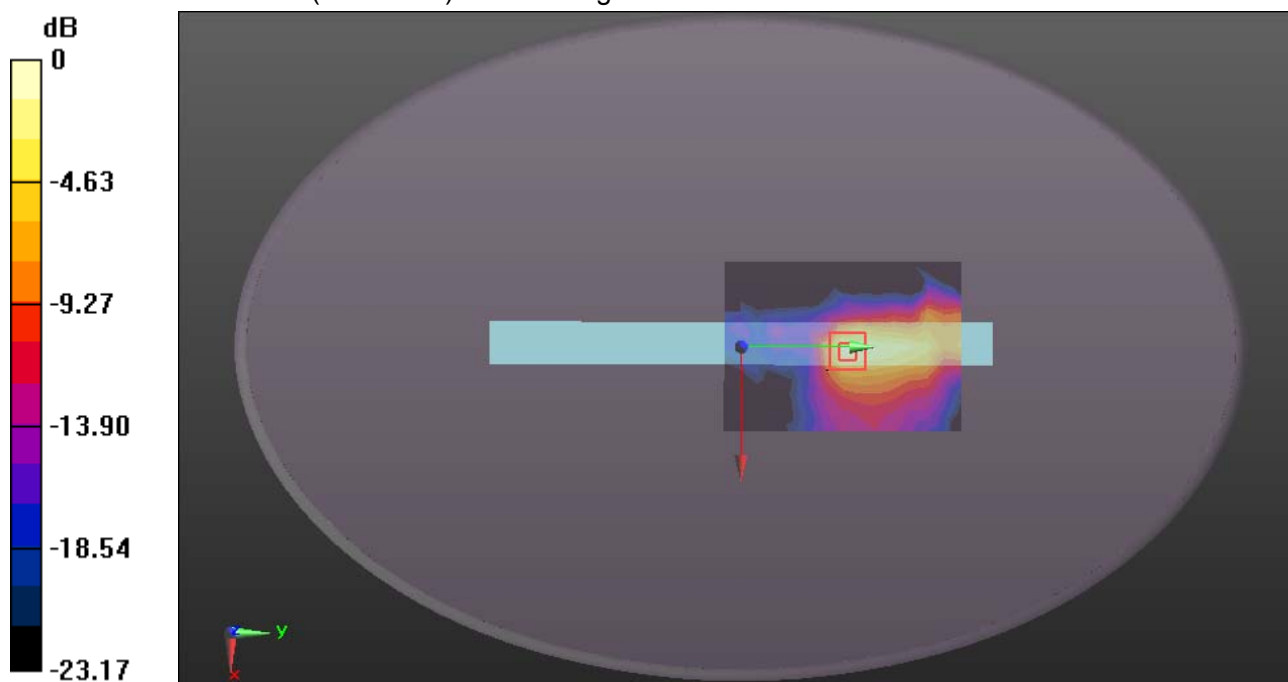
dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 5.9280 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 2.08 W/kg

SAR(1 g) = 0.406 W/kg; SAR(10 g) = 0.126 W/kg

Maximum value of SAR (measured) = 1.07 W/kg



0 dB = 1.07 W/kg = 0.29 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 11/1/2017

WIFI 802.11 a-Body Edge 1 CH52 Chain1 HongLin Antenna**DUT: Notebook Computer; Type: Lenovo N24; Serial: N/A**

Communication System: UID 0, IEEE 802.11 a (0); Communication System Band: 5G Band II; Frequency: 5260 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5260$ MHz; $\sigma = 5.509$ S/m; $\epsilon_r = 48.783$; $\rho = 1000$ kg/m³

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(4.67, 4.67, 4.67); Calibrated: 7/26/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WIFI/IEEE802.11a Body Edge 1 CH52 Chain1/Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.00 W/kg

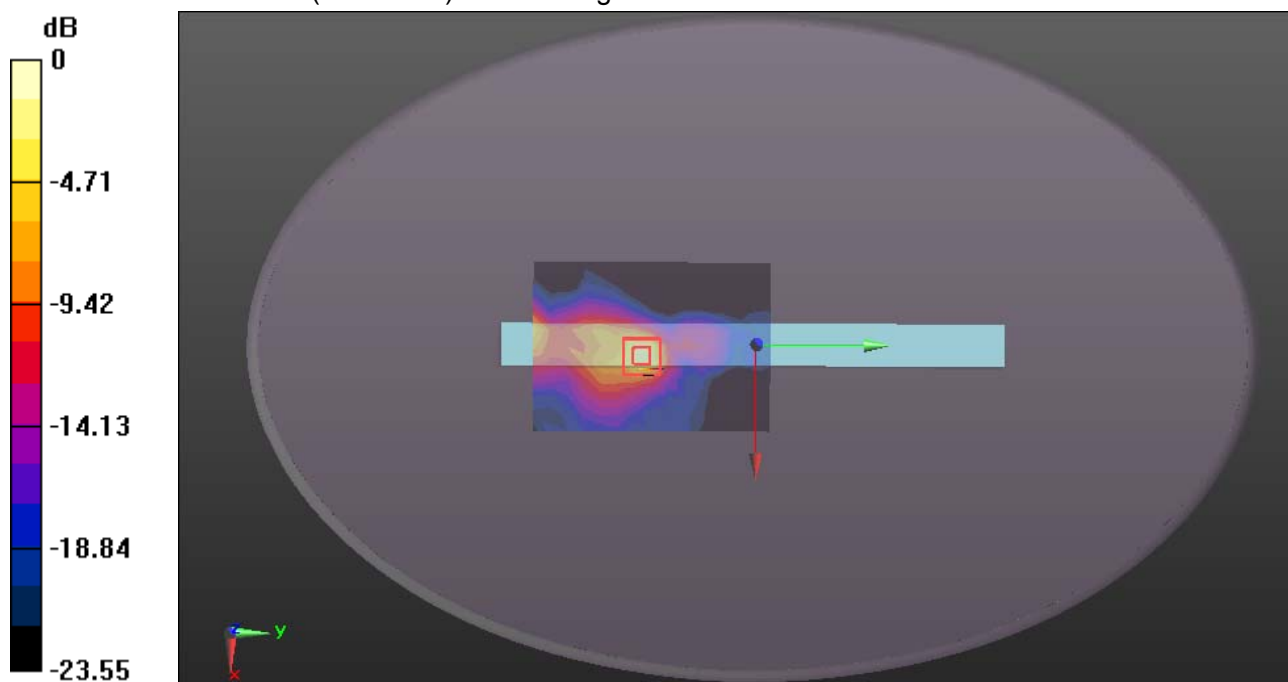
WIFI/IEEE802.11a Body Edge 1 CH52 Chain1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 7.643 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 2.95 W/kg

SAR(1 g) = 0.635 W/kg; SAR(10 g) = 0.180 W/kg

Maximum value of SAR (measured) = 1.65 W/kg



0 dB = 1.65 W/kg = 2.17 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 11/1/2017

WIFI 802.11 a-Body Edge 1 CH116 Chain1 HongLin Antenna**DUT: Notebook Computer; Type: Lenovo N24; Serial: N/A**

Communication System: UID 0, IEEE 802.11 a (0); Communication System Band: 5G Band III;

Frequency: 5580 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5580$ MHz; $\sigma = 5.898$ S/m; $\epsilon_r = 48.101$; $\rho = 1000$ kg/m³

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(4.18, 4.18, 4.18); Calibrated: 7/26/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASYS 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WIFI/IEEE802.11a Body Edge 1 CH116 Chain1/Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.09 W/kg

WIFI/IEEE802.11a Body Edge 1 CH116 Chain1/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

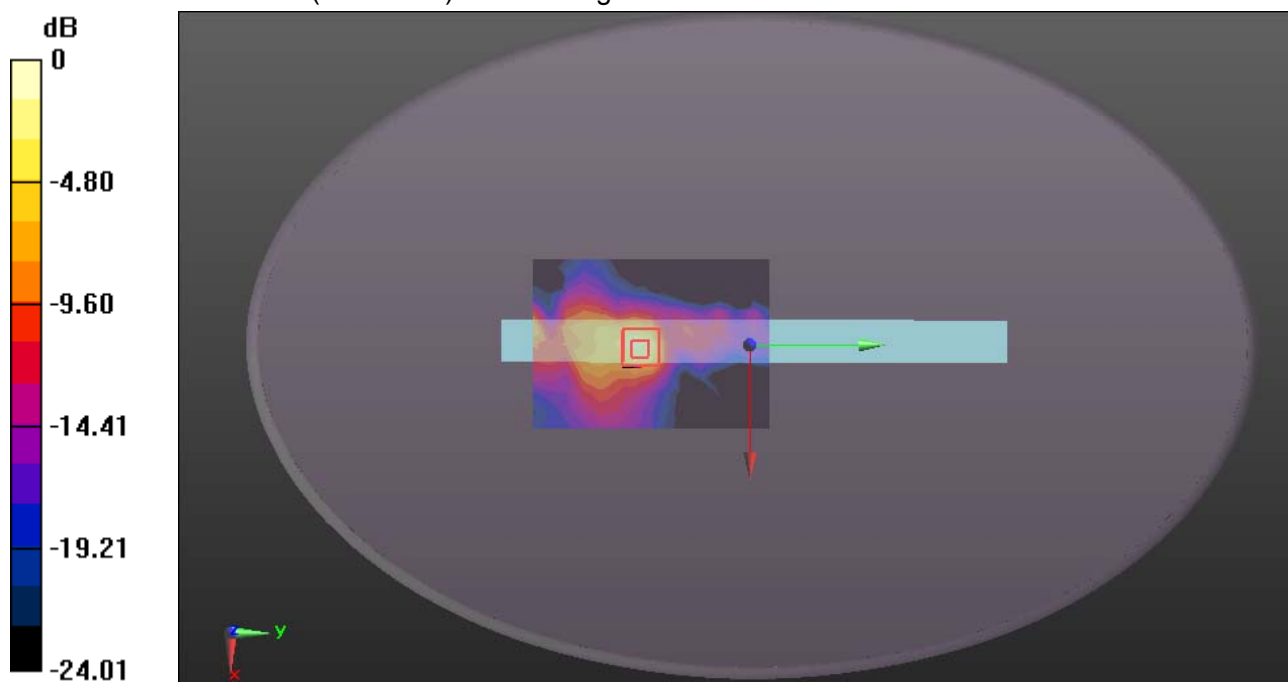
dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 7.186 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 2.53 W/kg

SAR(1 g) = 0.527 W/kg; SAR(10 g) = 0.159 W/kg

Maximum value of SAR (measured) = 1.34 W/kg



0 dB = 1.34 W/kg = 1.27 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 11/1/2017

WIFI 802.11 a-Body Edge 1 CH157 Chain1 HongLin Antenna**DUT: Notebook Computer; Type: Lenovo N24; Serial: N/A**

Communication System: UID 0, IEEE 802.11 a (0); Communication System Band: 5G Band IV;

Frequency: 5785 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5785$ MHz; $\sigma = 6.236$ S/m; $\epsilon_r = 47.647$; $\rho = 1000$ kg/m³

Room Ambient Temperature: 22°C; Liquid Temperature: 21.5°C

Phantom section: Flat Section

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

DASY Configuration:

- Probe: EX3DV4 - SN3798; ConvF(4.45, 4.45, 4.45); Calibrated: 7/26/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1245; Calibrated: 7/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASYS 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WIFI/IEEE802.11a Body Edge 1 CH157 Chain1/Area Scan (11x15x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.950 W/kg

WIFI/IEEE802.11a Body Edge 1 CH157 Chain1/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

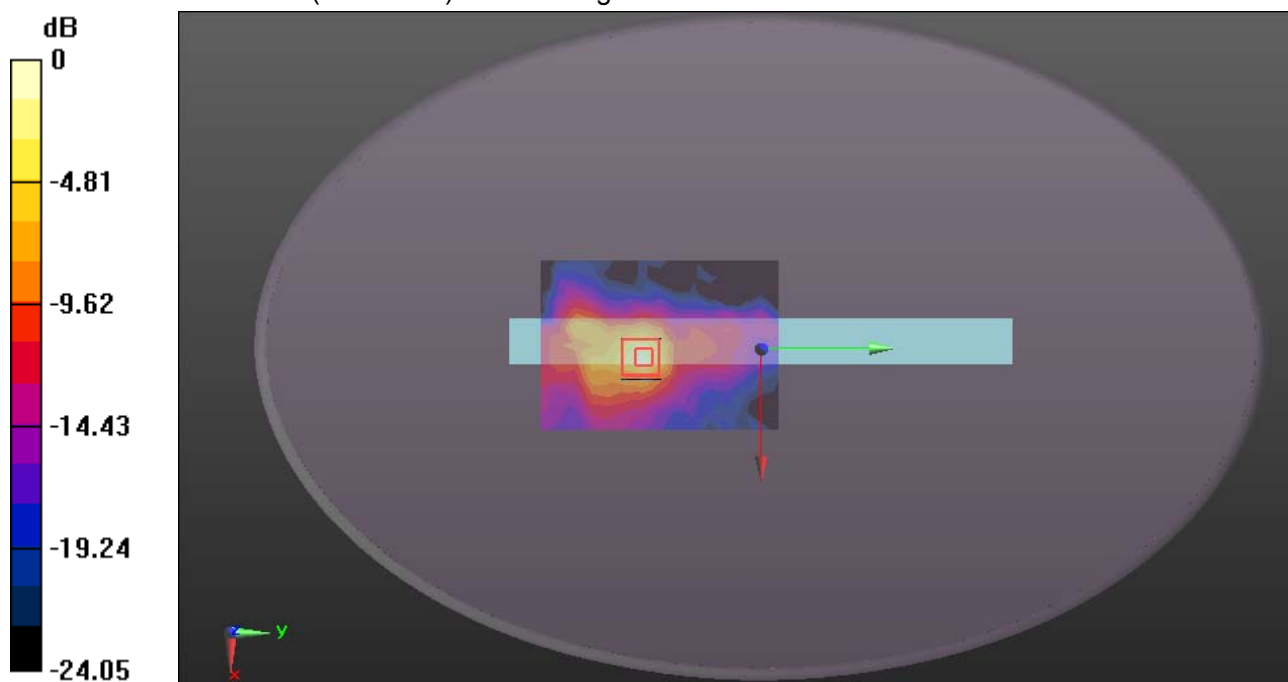
dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 7.680 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 2.03 W/kg

SAR(1 g) = 0.394 W/kg; SAR(10 g) = 0.124 W/kg

Maximum value of SAR (measured) = 1.02 W/kg



0 dB = 1.02 W/kg = 0.09 dBW/kg