



Appendix D

Plots of SAR Test Result For SZEM1801000805CR



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Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

WIFI 802.11 b-Body Bottom CH1 Main Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

Communication System: UID 0, IEEE 802.11b (0); Communication System Band: ISM 2.4GHz Band;
 Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.909$ S/m; $\epsilon_r = 52.04$; $\rho = 1000$ 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(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 Bottom CH1 Main Antenna /Area Scan (11x16x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.314 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH1 Main Antenna /Zoom Scan (7x7x5)/Cube 0:

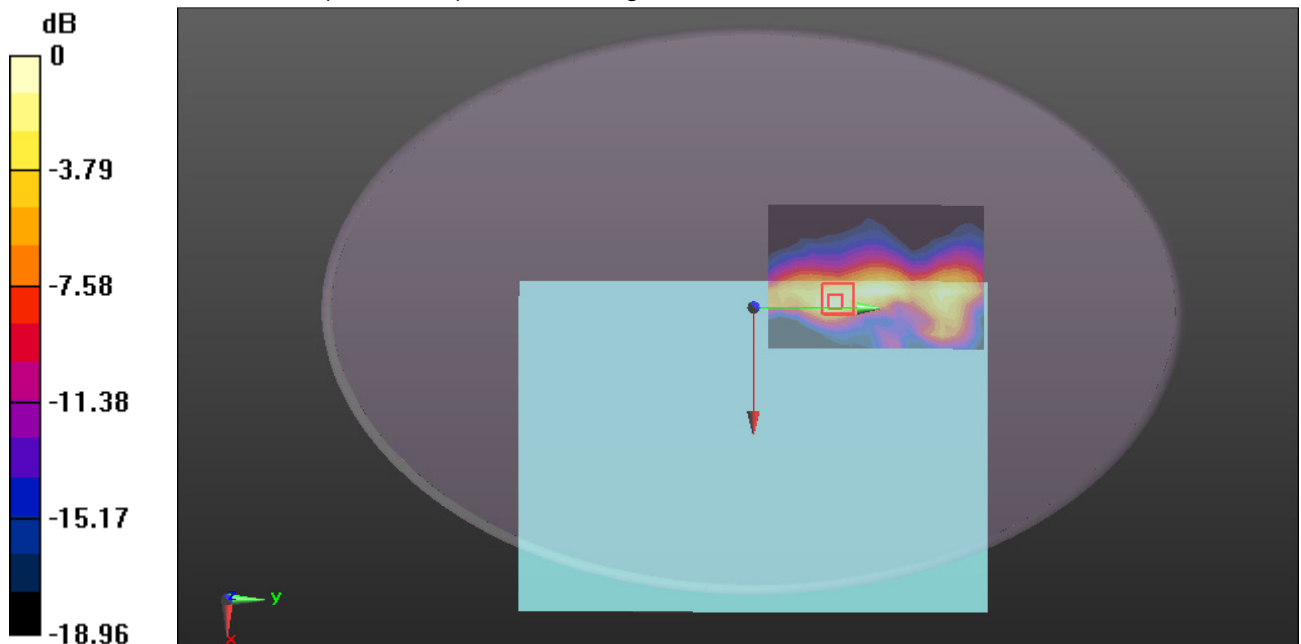
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.313 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.437 W/kg

SAR(1 g) = 0.202 W/kg; SAR(10 g) = 0.091 W/kg

Maximum value of SAR (measured) = 0.318 W/kg



0 dB = 0.318 W/kg = -4.98 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

WIFI 802.11 b-Body Bottom CH6 Main Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; 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: $f = 2437 \text{ MHz}$; $\sigma = 1.941 \text{ S/m}$; $\epsilon_r = 51.989$; $\rho = 1000 \text{ kg/m}^3$

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(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 Bottom CH6 Main Antenna /Area Scan (11x16x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.463 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH6 Main Antenna /Zoom Scan (7x7x5)/Cube 0:

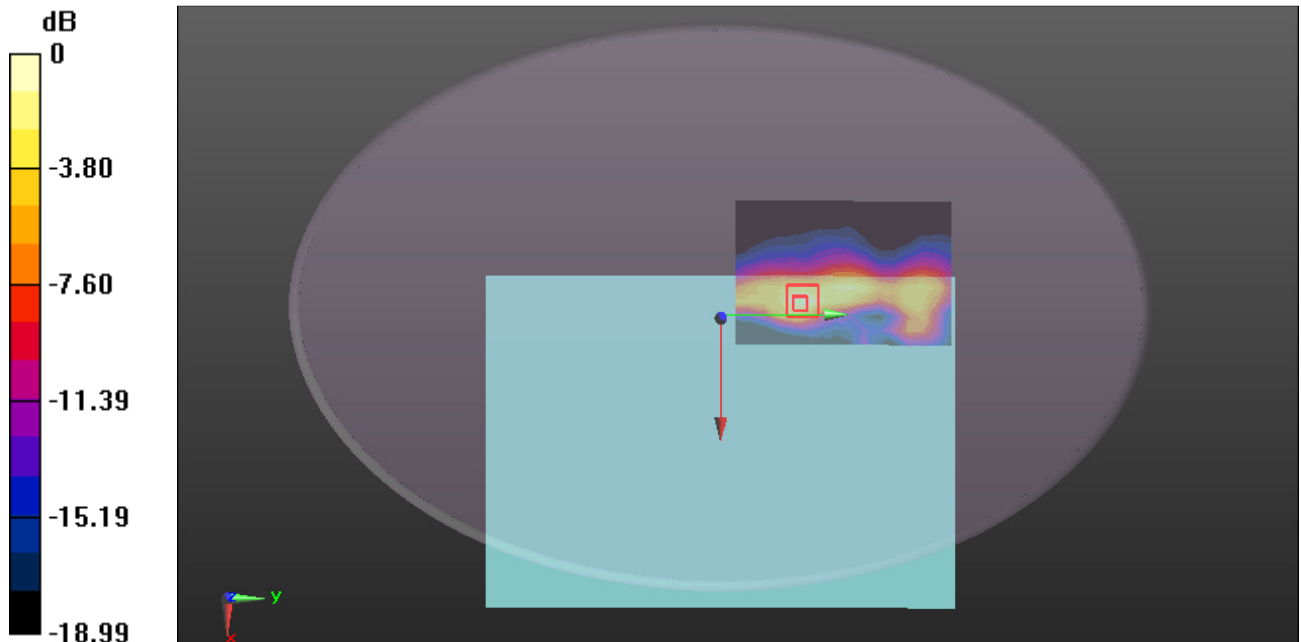
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.125 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.636 W/kg

SAR(1 g) = 0.293 W/kg; SAR(10 g) = 0.127 W/kg

Maximum value of SAR (measured) = 0.467 W/kg



0 dB = 0.467 W/kg = -3.31 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

WIFI 802.11 b-Body Bottom CH11 Main Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

Communication System: UID 0, IEEE 802.11b (0); Communication System Band: ISM 2.4GHz Band;
 Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.966 \text{ S/m}$; $\epsilon_r = 51.943$; $\rho = 1000 \text{ kg/m}^3$

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
- DASYS 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/IEEE802.11b Body Bottom CH11 Main Antenna /Area Scan (11x16x1):

Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

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

WiFi 2.4GHz/IEEE802.11b Body Bottom CH11 Main Antenna /Zoom Scan (7x7x5)/Cube 0:

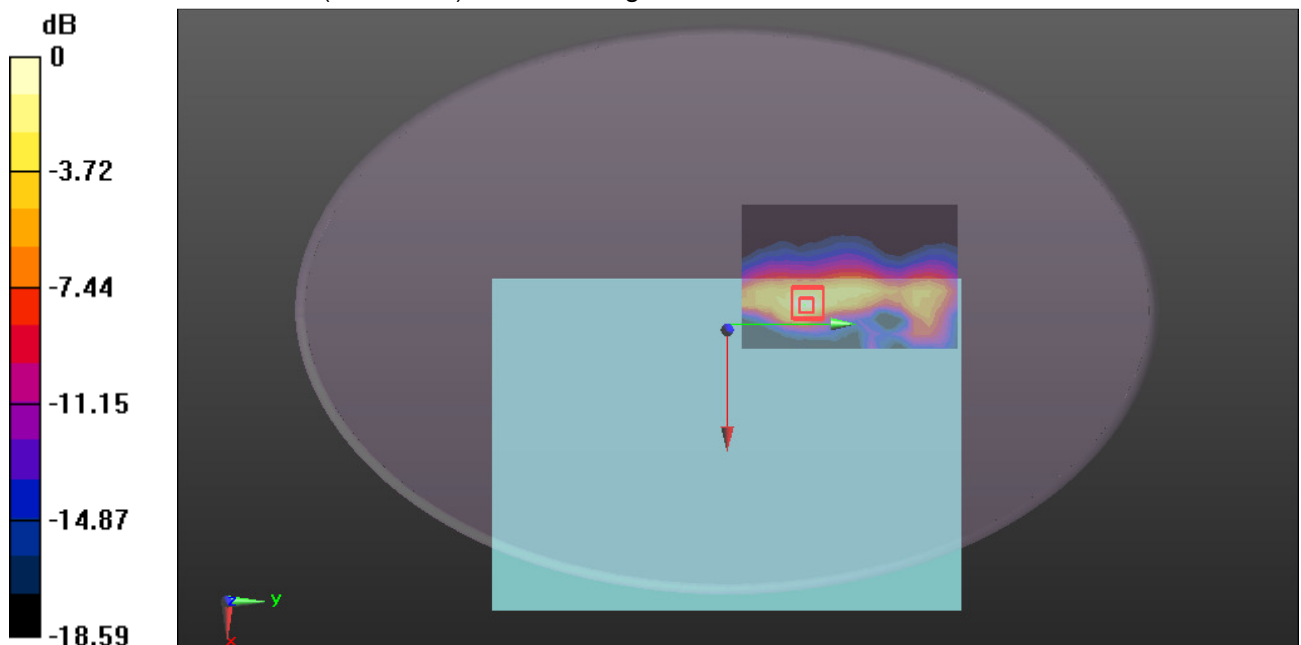
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.411 V/m ; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.715 W/kg

SAR(1 g) = 0.328 W/kg ; SAR(10 g) = 0.142 W/kg

Maximum value of SAR (measured) = 0.516 W/kg



0 dB = 0.516 W/kg = -2.87 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

WIFI 802.11 b-Body Bottom CH1 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

Communication System: UID 0, IEEE 802.11b (0); Communication System Band: ISM 2.4GHz Band;
 Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.909 \text{ S/m}$; $\epsilon_r = 52.04$; $\rho = 1000 \text{ kg/m}^3$

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
- DASYS 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/IEEE802.11b Body Bottom CH1 Aux Antenna/Area Scan (11x15x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.409 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH1 Aux Antenna/Zoom Scan (7x7x5)/Cube 0:

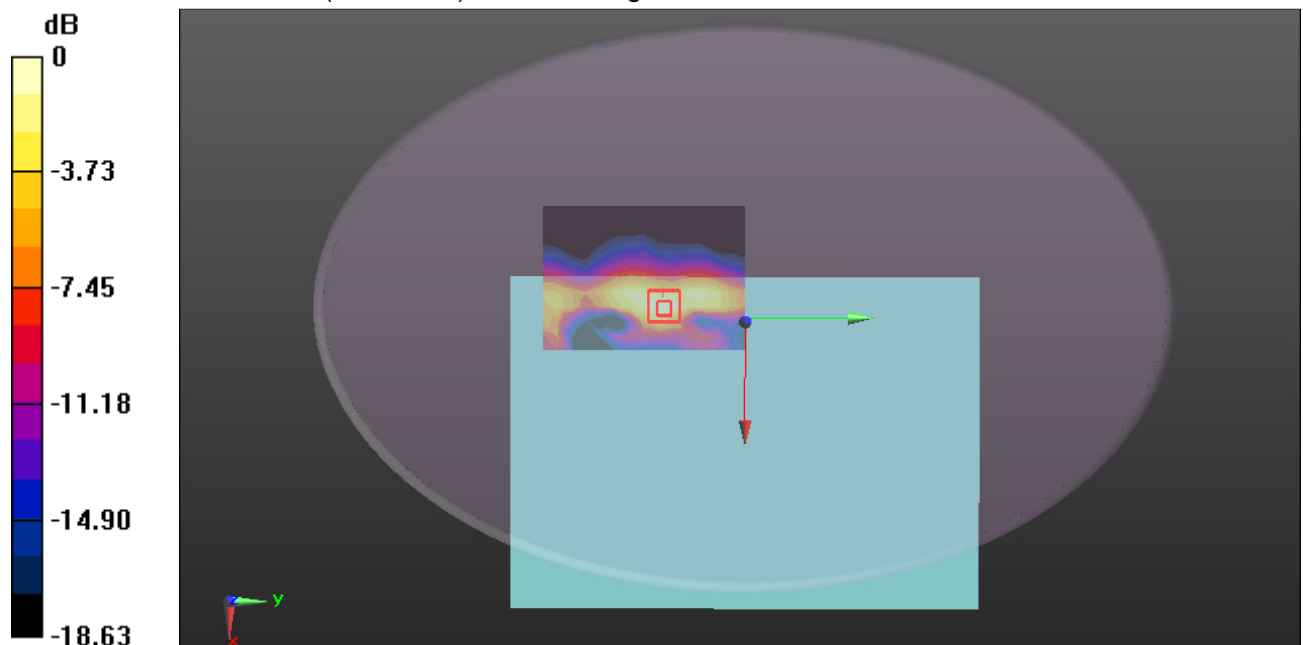
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.933 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.519 W/kg

SAR(1 g) = 0.250 W/kg; SAR(10 g) = 0.115 W/kg

Maximum value of SAR (measured) = 0.384 W/kg



0 dB = 0.384 W/kg = -4.16 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

WiFi 802.11 b-Body Bottom CH6 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; 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: $f = 2437 \text{ MHz}$; $\sigma = 1.941 \text{ S/m}$; $\epsilon_r = 51.989$; $\rho = 1000 \text{ kg/m}^3$

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
- DASYS 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/IEEE802.11b Body Bottom CH6 Aux Antenna /Area Scan (11x15x1): Measurement
 grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.408 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH6 Aux Antenna /Zoom Scan (7x7x5)/Cube 0:

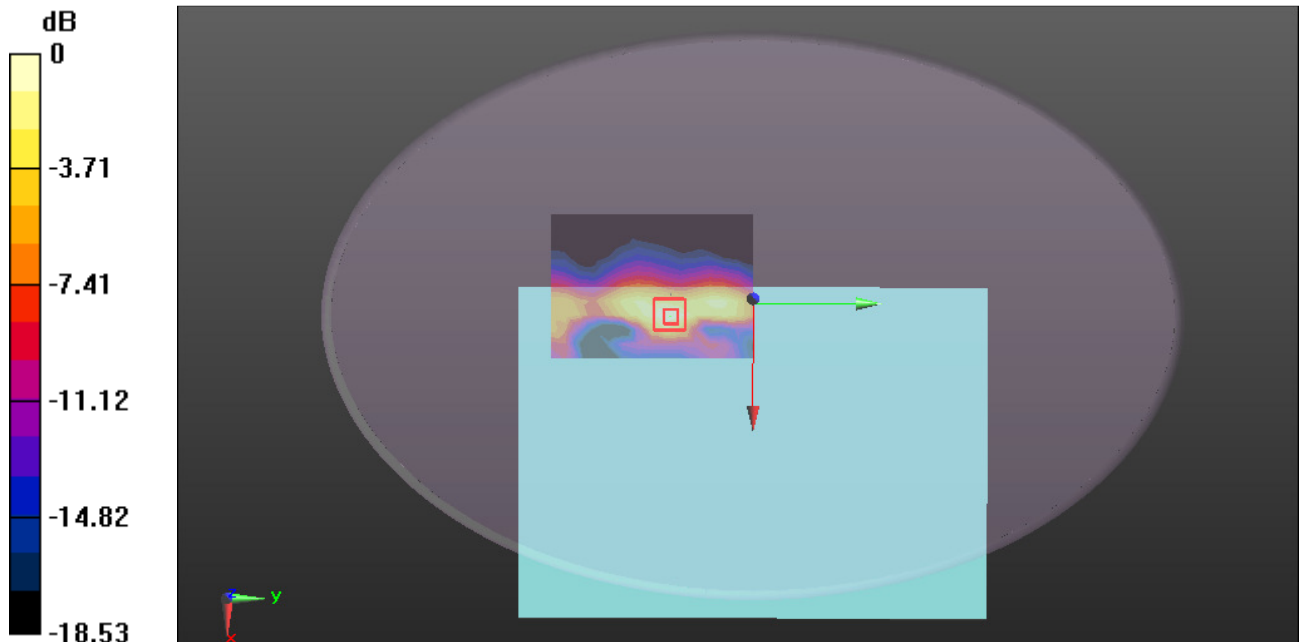
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.471 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.499 W/kg

SAR(1 g) = 0.241 W/kg; SAR(10 g) = 0.109 W/kg

Maximum value of SAR (measured) = 0.375 W/kg



0 dB = 0.375 W/kg = -4.26 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

WIFI 802.11 b-Body Bottom CH11 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

Communication System: UID 0, IEEE 802.11b (0); Communication System Band: ISM 2.4GHz Band;
 Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.966 \text{ S/m}$; $\epsilon_r = 51.943$; $\rho = 1000 \text{ kg/m}^3$

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(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 Bottom CH11 Aux Antenna /Area Scan (11x15x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.429 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH11 Aux Antenna /Zoom Scan (7x7x5)/Cube 0:

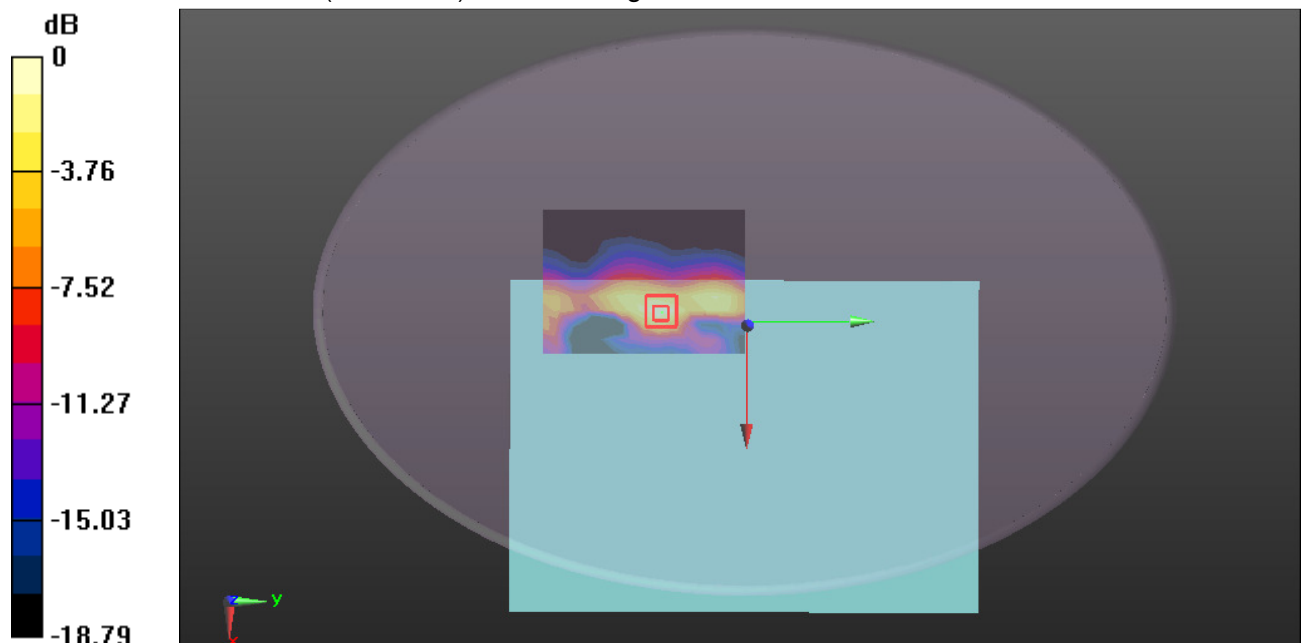
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.884 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.553 W/kg

SAR(1 g) = 0.259 W/kg; SAR(10 g) = 0.115 W/kg

Maximum value of SAR (measured) = 0.405 W/kg



0 dB = 0.405 W/kg = -3.93 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

WIFI 802.11 b-Body Bottom CH11 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

Communication System: UID 0, IEEE 802.11b (0); Communication System Band: ISM 2.4GHz Band;
 Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.966 \text{ S/m}$; $\epsilon_r = 51.943$; $\rho = 1000 \text{ kg/m}^3$

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(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 Bottom CH11 Main Antenna/Area Scan (11x16x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.359 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH11 Main Antenna/Zoom Scan (7x7x5)/Cube 0:

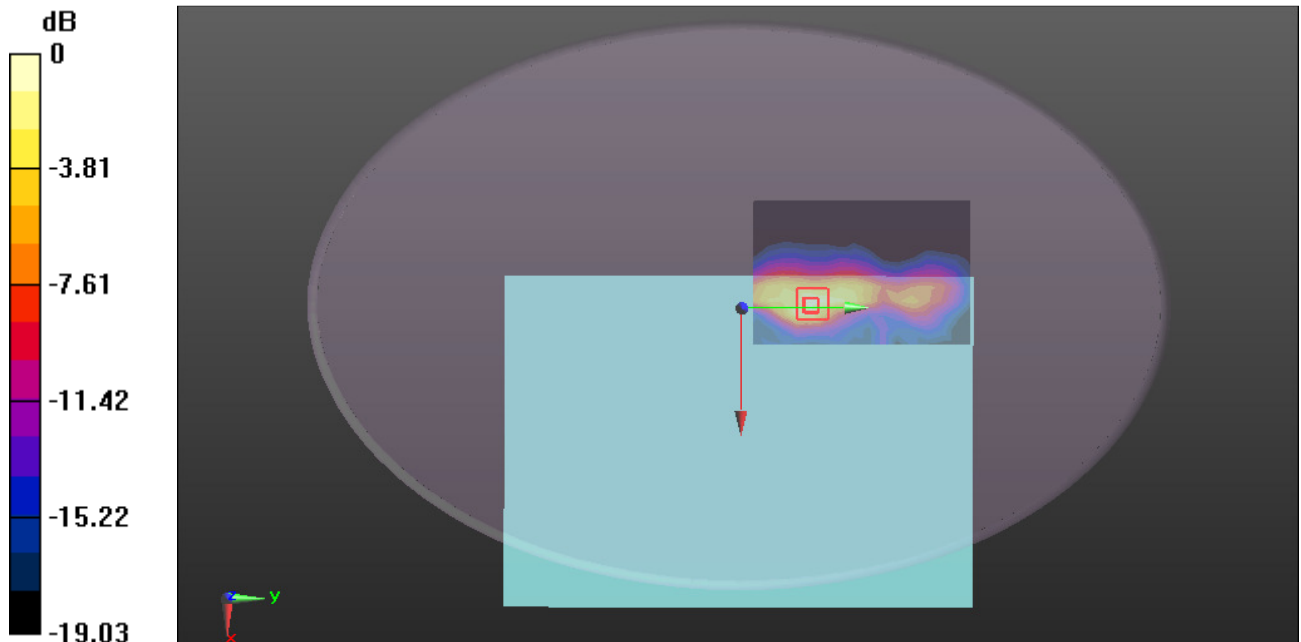
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.992 V/m ; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.501 W/kg

SAR(1 g) = 0.224 W/kg ; SAR(10 g) = 0.099 W/kg

Maximum value of SAR (measured) = 0.363 W/kg



0 dB = 0.363 W/kg = -4.40 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

WIFI 802.11 b-Body Bottom CH11 Aux Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

Communication System: UID 0, IEEE 802.11b (0); Communication System Band: ISM 2.4GHz Band;
 Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.966 \text{ S/m}$; $\epsilon_r = 51.943$; $\rho = 1000 \text{ kg/m}^3$

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
- DASYS 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/IEEE802.11b Body Bottom CH1 Aux Antenna /Area Scan (11x15x1): Measurement
 grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.280 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH1 Aux Antenna /Zoom Scan (7x7x5)/Cube 0:

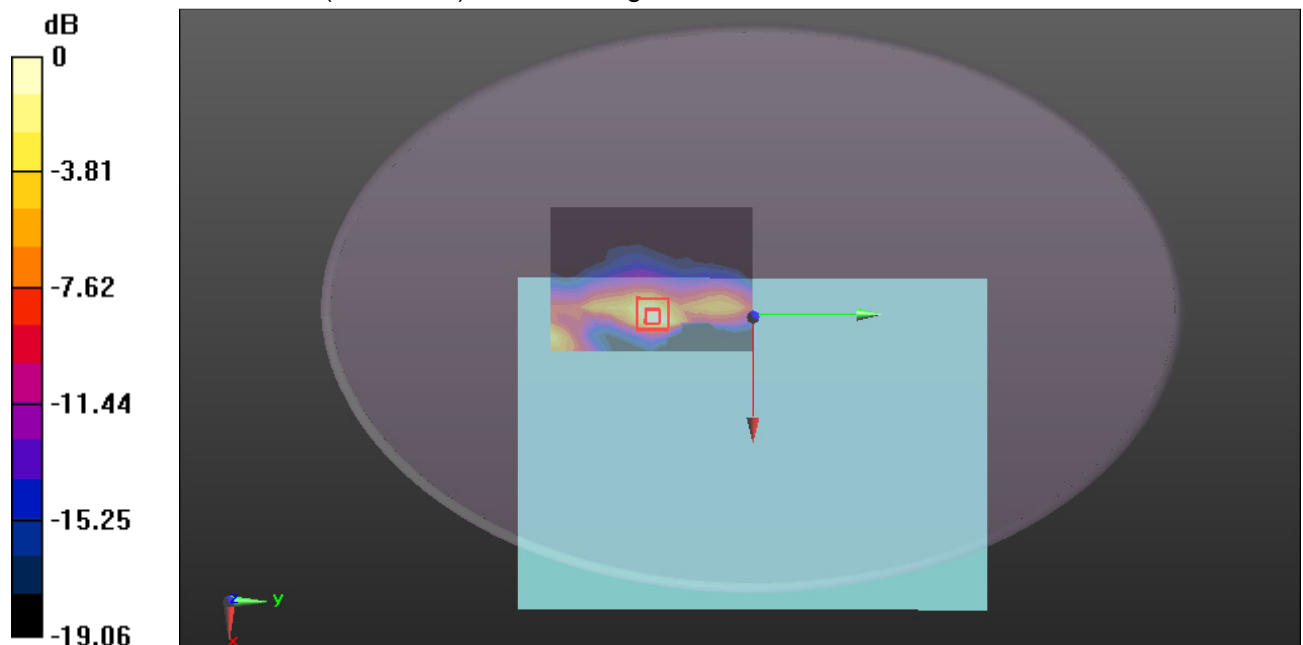
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.457 V/m ; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.433 W/kg

SAR(1 g) = 0.194 W/kg ; SAR(10 g) = 0.082 W/kg

Maximum value of SAR (measured) = 0.303 W/kg



0 dB = 0.303 W/kg = -5.19 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

2.4GHz-Body Bottom CH00 Main Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 2402 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2402$ MHz; $\sigma = 1.901$ S/m; $\epsilon_r = 52.041$; $\rho = 1000$ 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)

2.4GHz/2.4GHz Body Bottom CH00 Main Antenna/Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.00866 W/kg

2.4GHz/2.4GHz Body Bottom CH00 Main Antenna/Zoom Scan (7x7x5)/Cube 0: Measurement grid:

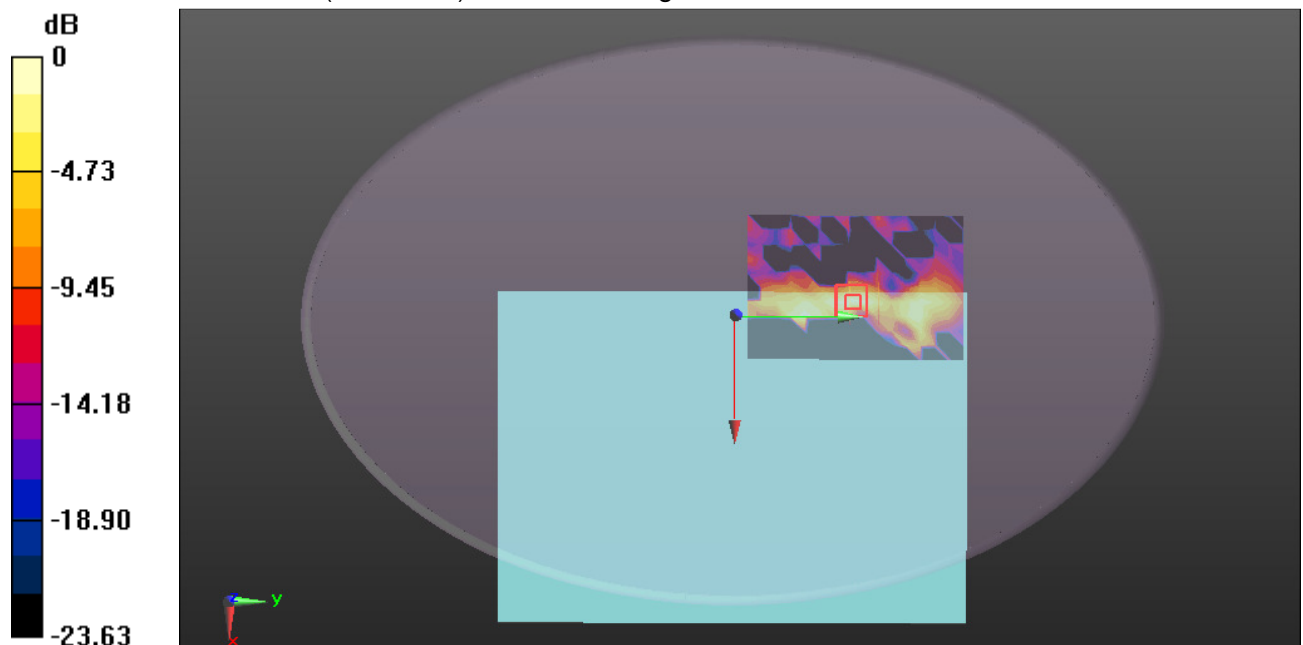
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 0.9561 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.0120 W/kg

SAR(1 g) = 0.00664 W/kg; SAR(10 g) = 0.00339 W/kg

Maximum value of SAR (measured) = 0.00982 W/kg



0 dB = 0.00982 W/kg = -20.08 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

2.4GHz-Body Bottom CH39 Main Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 2441 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2441 \text{ MHz}$; $\sigma = 1.949 \text{ S/m}$; $\epsilon_r = 51.986$; $\rho = 1000 \text{ kg/m}^3$

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
- DASYS 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

2.4GHz/2.4GHz Body Bottom CH39 Main Antenna/Area Scan (11x16x1): Measurement grid:

$dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.0137 W/kg

2.4GHz/2.4GHz Body Bottom CH39 Main Antenna/Zoom Scan (7x7x5)/Cube 0: Measurement grid:

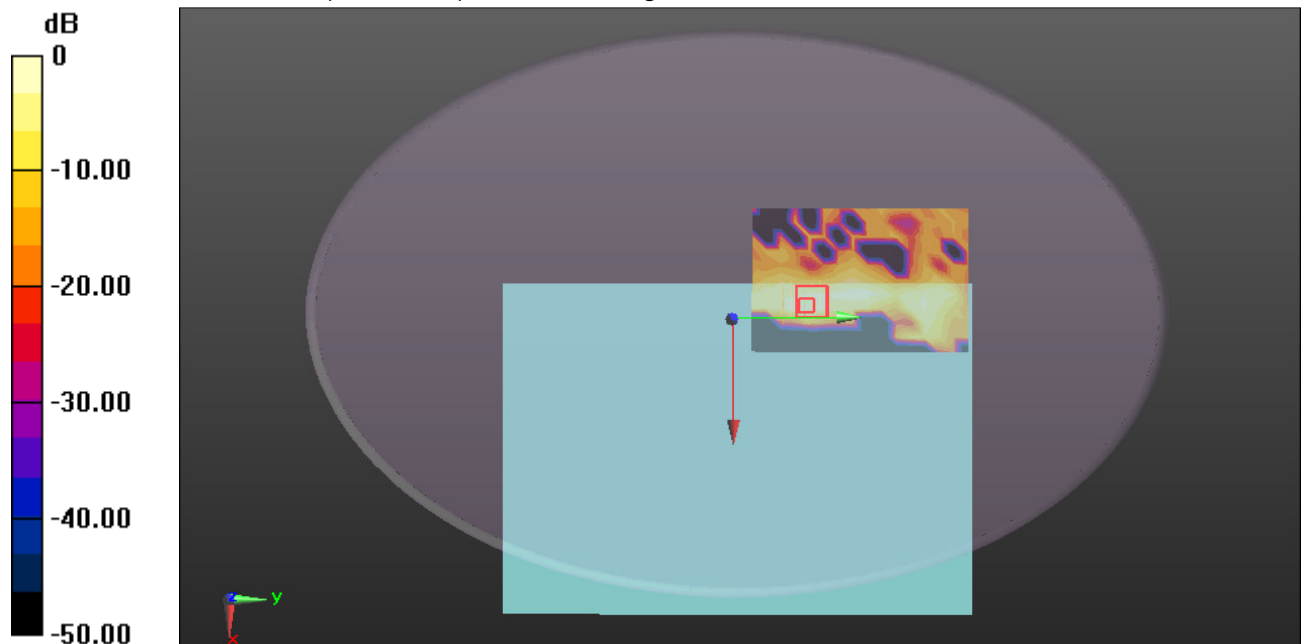
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 0.8482 V/m ; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.0190 W/kg

SAR(1 g) = 0.00931 W/kg ; SAR(10 g) = 0.00382 W/kg

Maximum value of SAR (measured) = 0.0140 W/kg



0 dB = 0.0140 W/kg = -18.54 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

2.4GHz-Body Bottom CH78 Main Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; 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: $f = 2480$ MHz; $\sigma = 1.977$ S/m; $\epsilon_r = 51.861$; $\rho = 1000$ 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(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)

2.4GHz/2.4GHz Body Bottom CH78 Main Antenna/Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.0223 W/kg

2.4GHz/2.4GHz Body Bottom CH78 Main Antenna/Zoom Scan (7x7x5)/Cube 0: Measurement grid:

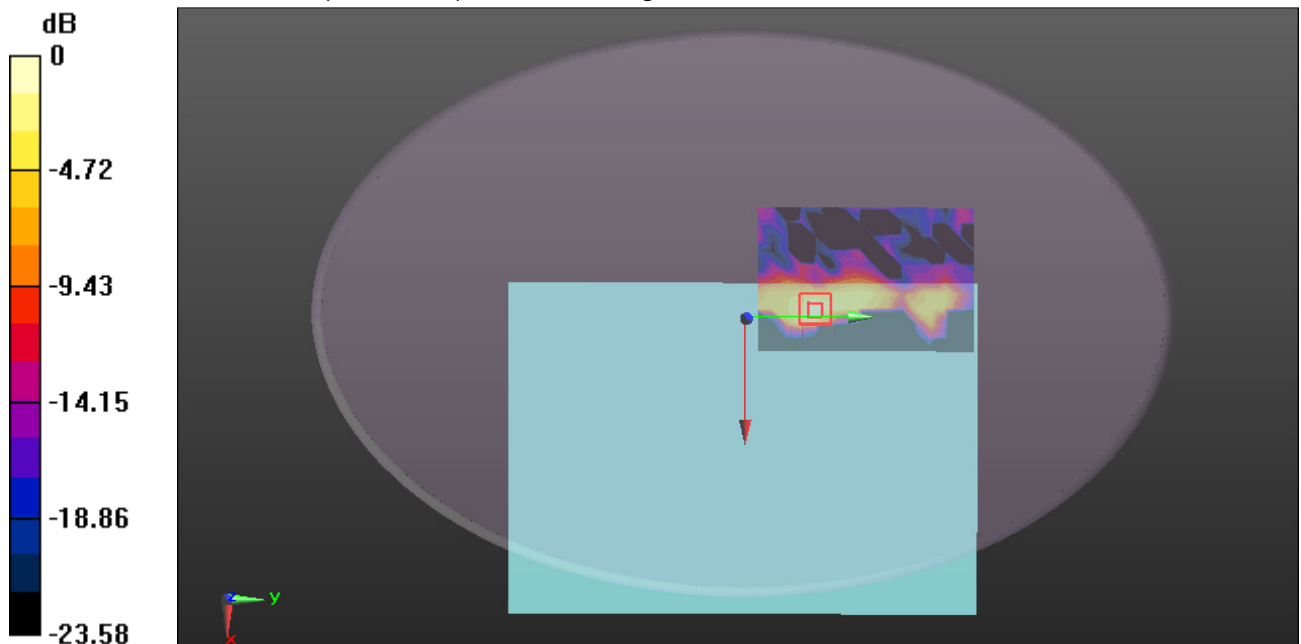
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 0.7630 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.0290 W/kg

SAR(1 g) = 0.014 W/kg; SAR(10 g) = 0.00538 W/kg

Maximum value of SAR (measured) = 0.0222 W/kg



0 dB = 0.0222 W/kg = -16.54 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/17/2018

2.4GHz-Body Bottom CH78 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; 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: $f = 2480$ MHz; $\sigma = 1.977$ S/m; $\epsilon_r = 51.861$; $\rho = 1000$ 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(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)

2.4GHz/2.4GHz Body Bottom CH78 Main Antenna/Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.0105 W/kg

2.4GHz/2.4GHz Body Bottom CH78 Main Antenna/Zoom Scan (7x7x5)/Cube 0: Measurement grid:

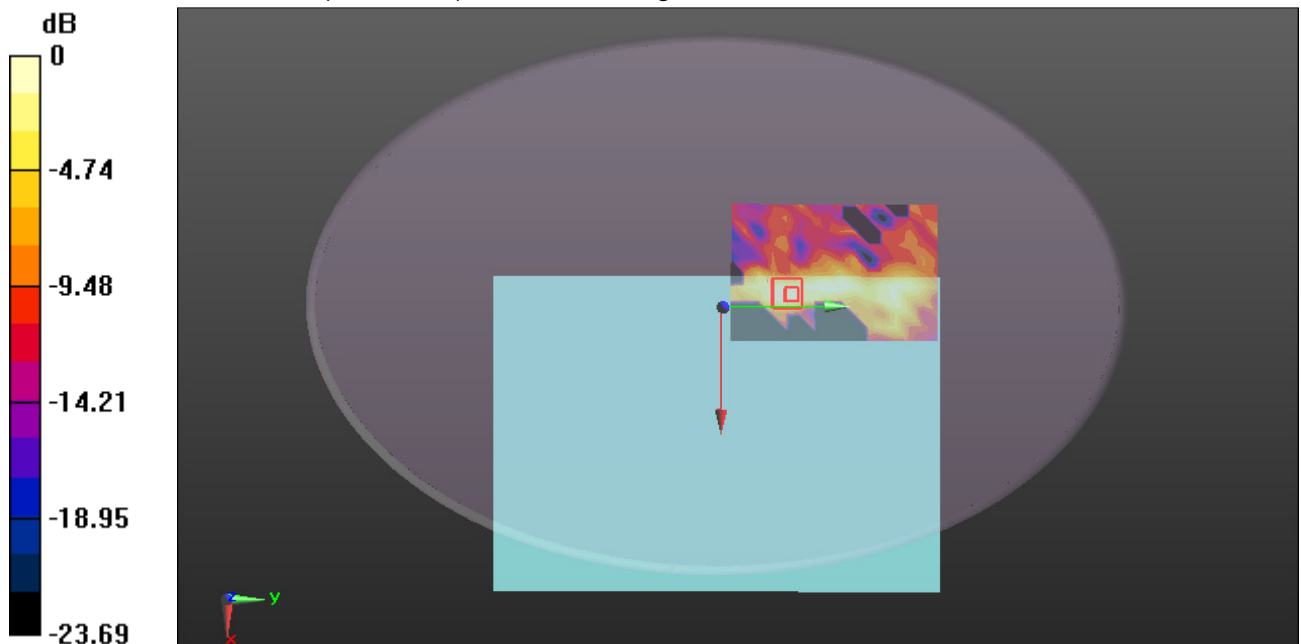
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 0.9860 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.0260 W/kg

SAR(1 g) = 0.00679 W/kg; SAR(10 g) = 0.00224 W/kg

Maximum value of SAR (measured) = 0.00858 W/kg



0 dB = 0.00858 W/kg = -20.67 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH52 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; 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; $\sigma = 5.456$ S/m; $\epsilon_r = 48.545$; $\rho = 1000$ 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 Bottom CH52 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.507 W/kg

WIFI/IEEE802.11a Body Bottom CH52 Main Antenna 13 2/Zoom Scan (7x7x7)/Cube 0:

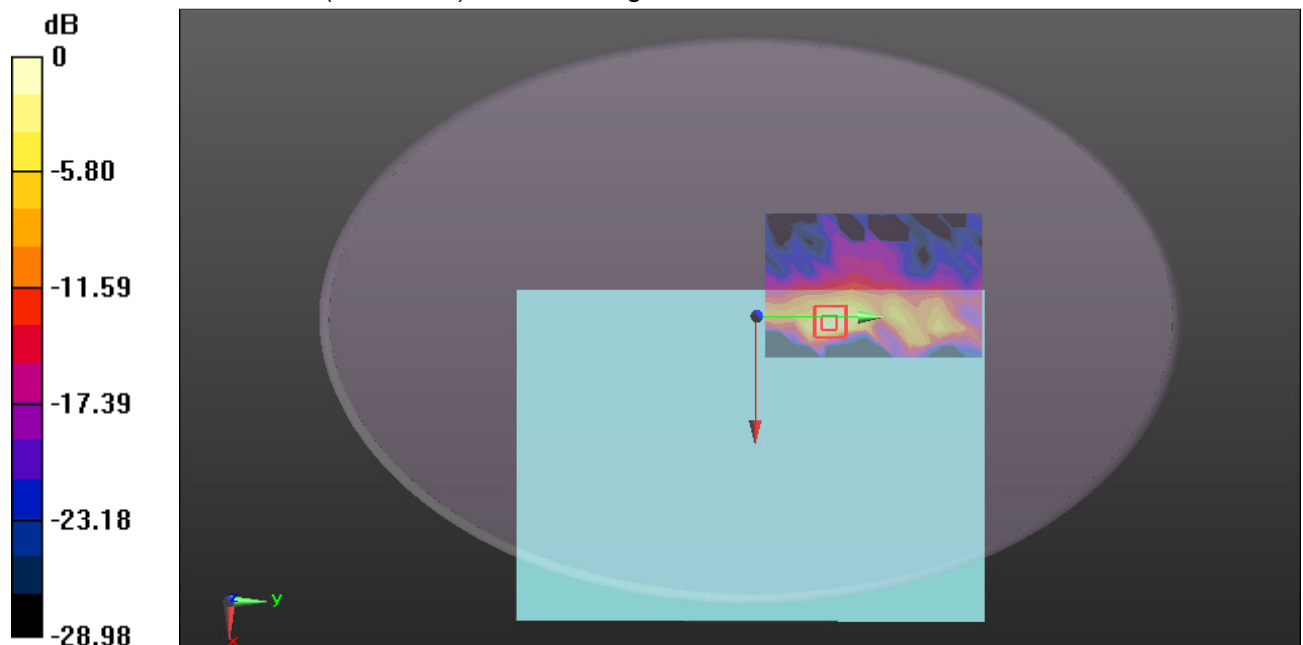
Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 2.772 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.237 W/kg; SAR(10 g) = 0.074 W/kg

Maximum value of SAR (measured) = 0.609 W/kg



0 dB = 0.609 W/kg = -2.15 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH56 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5280 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5280$ MHz; $\sigma = 5.479$ S/m; $\epsilon_r = 48.45$; $\rho = 1000$ 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 Bottom CH56 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.671 W/kg

WIFI/IEEE802.11a Body Bottom CH56 Main Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

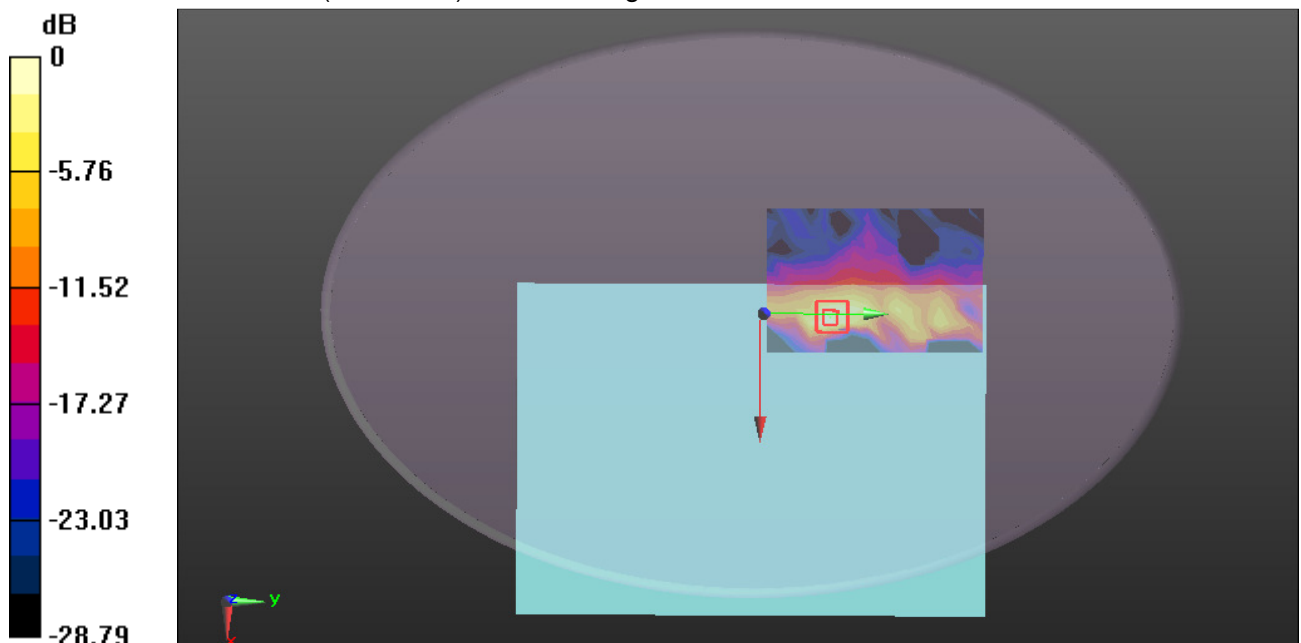
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 3.542 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.281 W/kg; SAR(10 g) = 0.087 W/kg

Maximum value of SAR (measured) = 0.721 W/kg



0 dB = 0.721 W/kg = -1.42 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH64 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5320 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5320$ MHz; $\sigma = 5.539$ S/m; $\epsilon_r = 48.405$; $\rho = 1000$ 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 Bottom CH64 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.628 W/kg

WIFI/IEEE802.11a Body Bottom CH64 Main Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

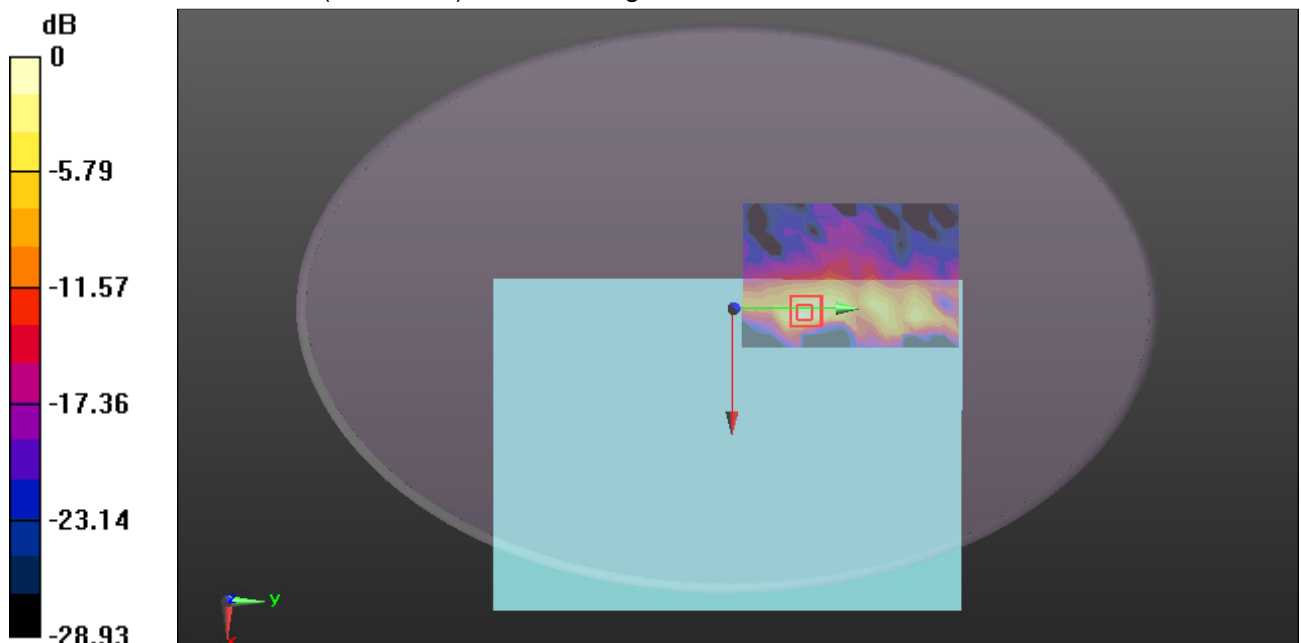
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 3.073 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.29 W/kg

SAR(1 g) = 0.263 W/kg; SAR(10 g) = 0.080 W/kg

Maximum value of SAR (measured) = 0.689 W/kg



0 dB = 0.689 W/kg = -1.62 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH100 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5500$ MHz; $\sigma = 5.791$ S/m; $\epsilon_r = 48.025$; $\rho = 1000$ 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(4.26, 4.26, 4.26); 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 Bottom CH100 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 1.06 W/kg

WIFI/IEEE802.11a Body Bottom CH100 Main Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

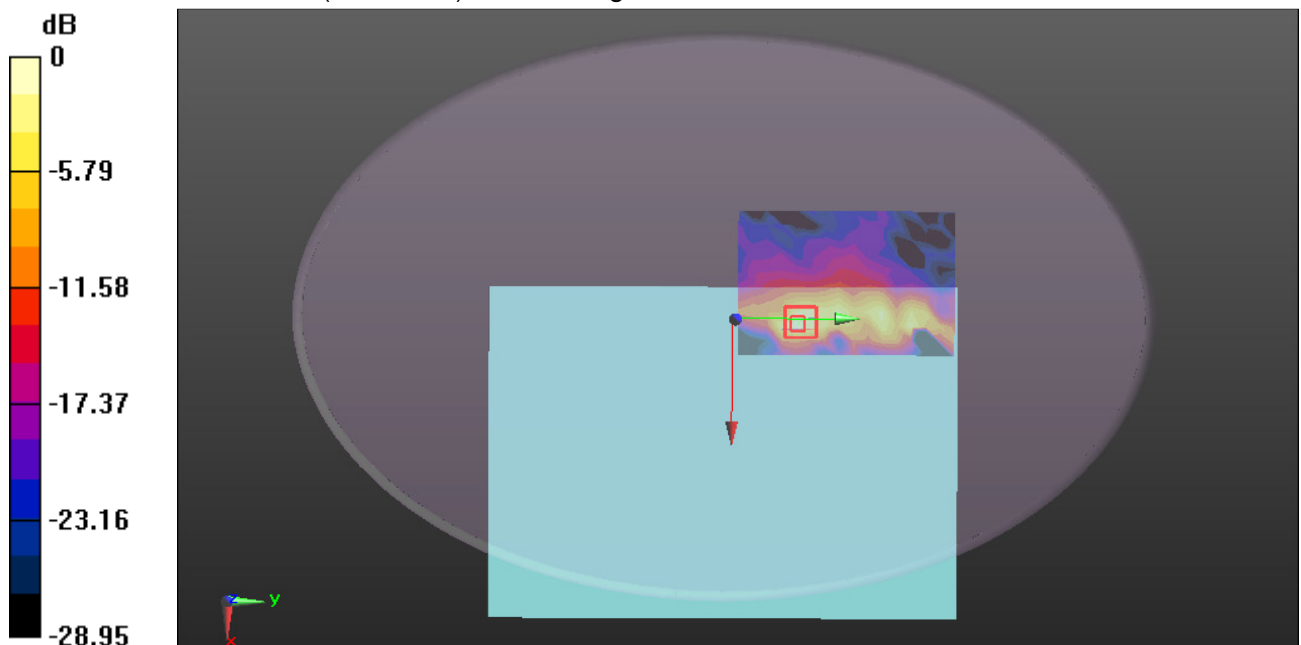
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 2.656 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.25 W/kg

SAR(1 g) = 0.428 W/kg; SAR(10 g) = 0.132 W/kg

Maximum value of SAR (measured) = 1.14 W/kg



0 dB = 1.14 W/kg = 0.57 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH128 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5640 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5640$ MHz; $\sigma = 5.956$ S/m; $\epsilon_r = 47.773$; $\rho = 1000$ 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 Bottom CH128 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.744 W/kg

WIFI/IEEE802.11a Body Bottom CH128 Main Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

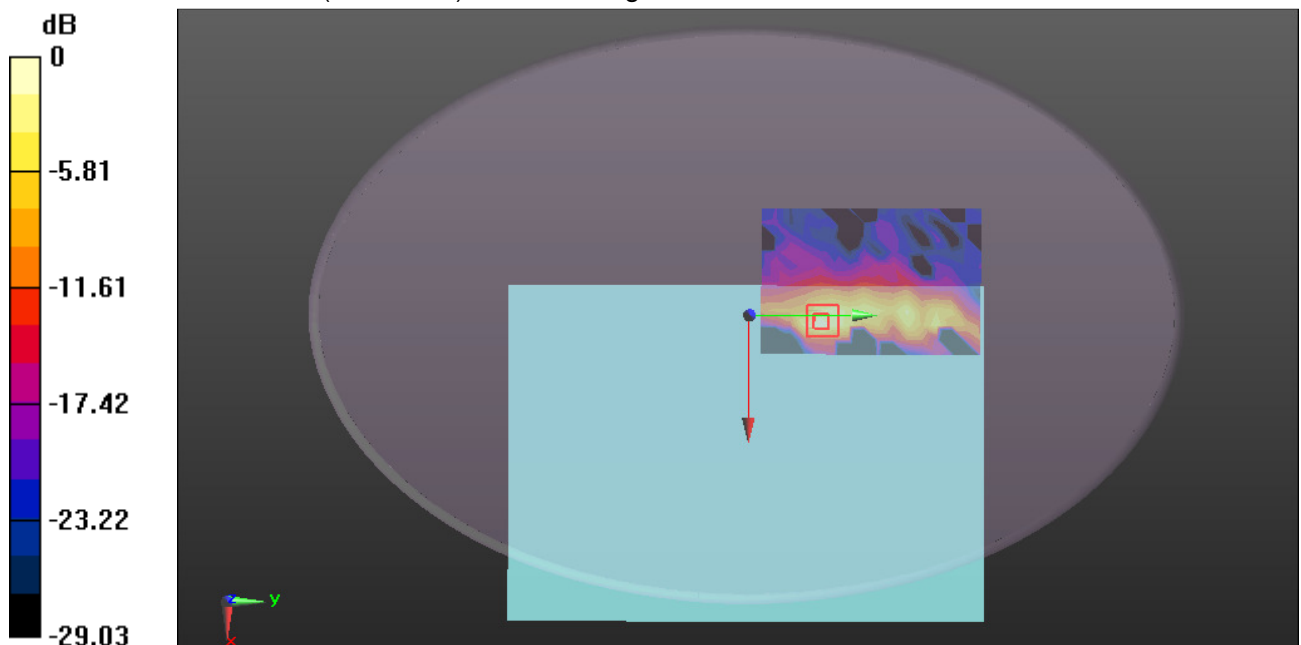
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 2.041 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.58 W/kg

SAR(1 g) = 0.291 W/kg; SAR(10 g) = 0.088 W/kg

Maximum value of SAR (measured) = 0.777 W/kg



0 dB = 0.777 W/kg = -1.10 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH144 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5720 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5720$ MHz; $\sigma = 6.059$ S/m; $\epsilon_r = 47.678$; $\rho = 1000$ 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 Bottom CH144 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.525 W/kg

WIFI/IEEE802.11a Body Bottom CH144 Main Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

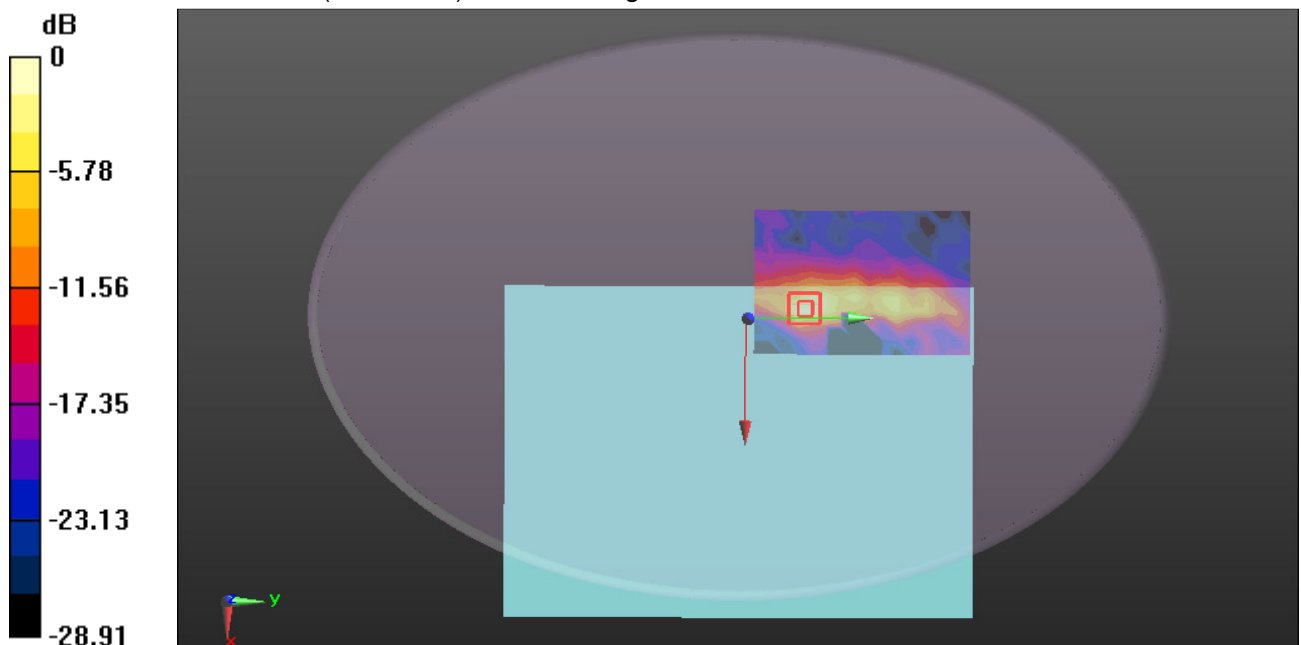
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 1.490 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.226 W/kg; SAR(10 g) = 0.063 W/kg

Maximum value of SAR (measured) = 0.638 W/kg



0 dB = 0.638 W/kg = -1.95 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH149 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5745 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5745 \text{ MHz}$; $\sigma = 6.092 \text{ S/m}$; $\epsilon_r = 47.58$; $\rho = 1000 \text{ kg/m}^3$

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 Bottom CH149 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.739 W/kg

WIFI/IEEE802.11a Body Bottom CH149 Main Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

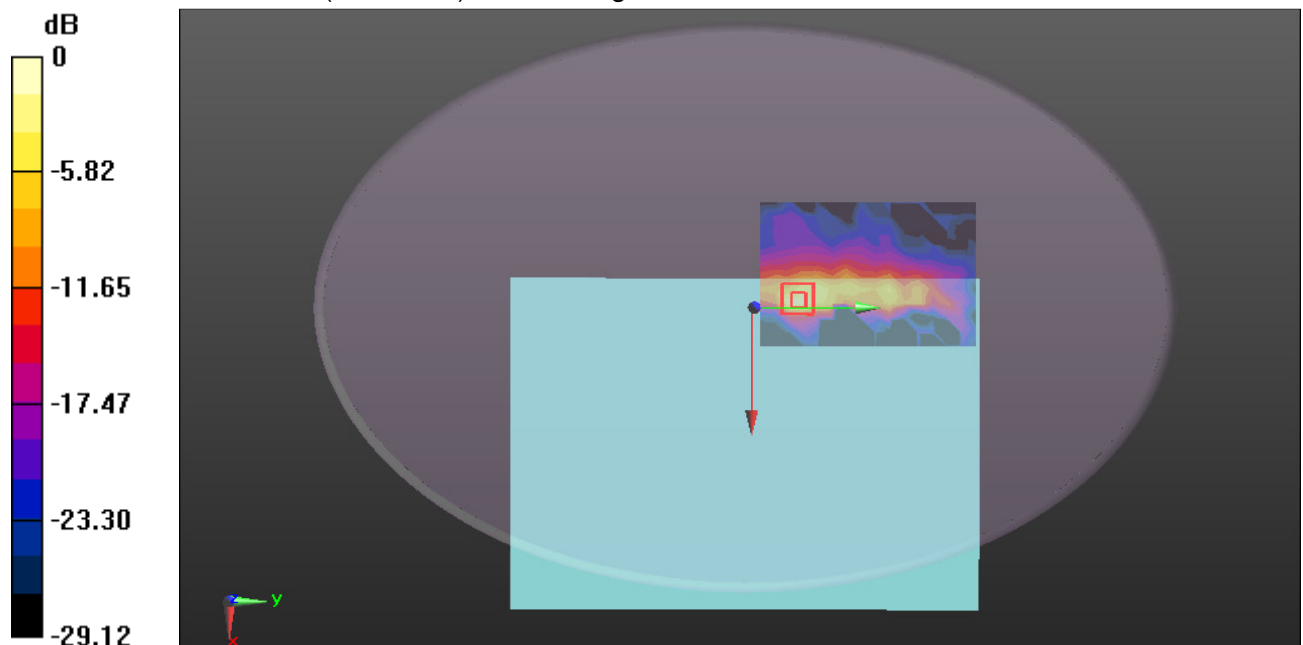
grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 0.5540 V/m ; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.20 W/kg

SAR(1 g) = 0.384 W/kg ; SAR(10 g) = 0.104 W/kg

Maximum value of SAR (measured) = 1.08 W/kg



0 dB = 1.08 W/kg = 0.33 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH157 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; 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: $f = 5785 \text{ MHz}$; $\sigma = 6.144 \text{ S/m}$; $\epsilon_r = 47.486$; $\rho = 1000 \text{ kg/m}^3$

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 Bottom CH157 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.837 W/kg

WIFI/IEEE802.11a Body Bottom CH157 Main Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

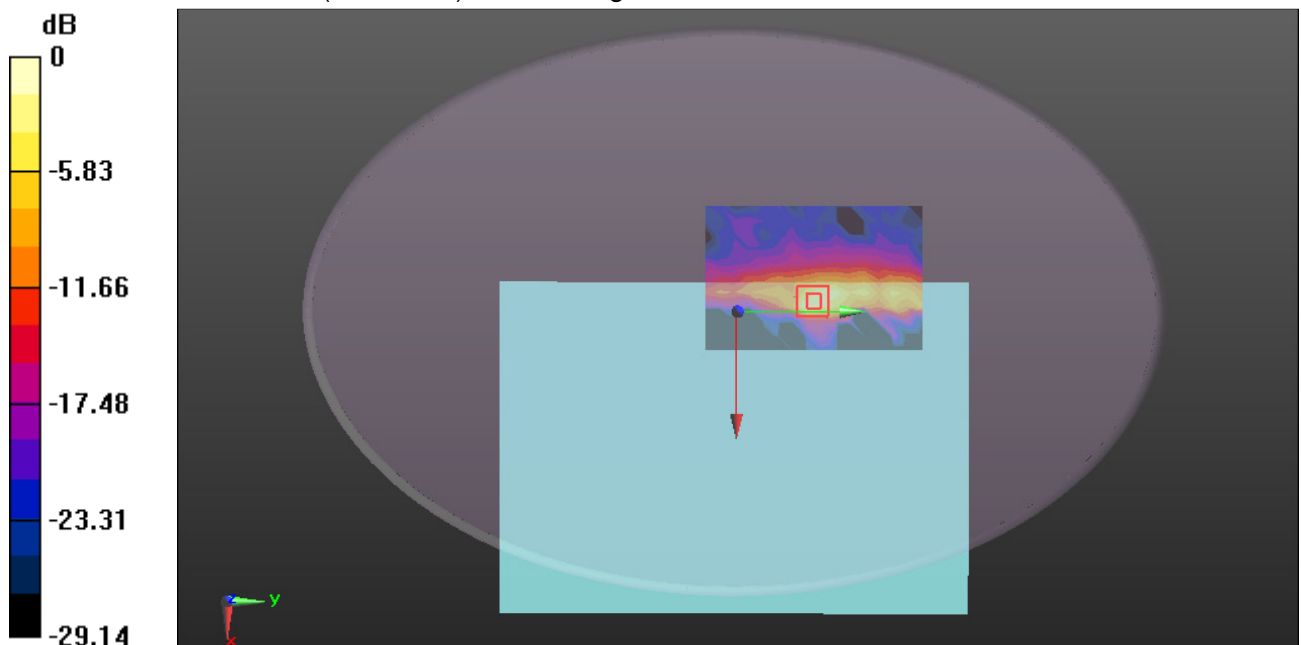
grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 1.016 V/m ; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 2.24 W/kg

SAR(1 g) = 0.388 W/kg ; SAR(10 g) = 0.108 W/kg

Maximum value of SAR (measured) = 1.10 W/kg



0 dB = 1.10 W/kg = 0.41 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH165 Main Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5825 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5825 \text{ MHz}$; $\sigma = 6.192 \text{ S/m}$; $\epsilon_r = 47.37$; $\rho = 1000 \text{ kg/m}^3$

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 Bottom CH165 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.723 W/kg

WIFI/IEEE802.11a Body Bottom CH165 Main Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

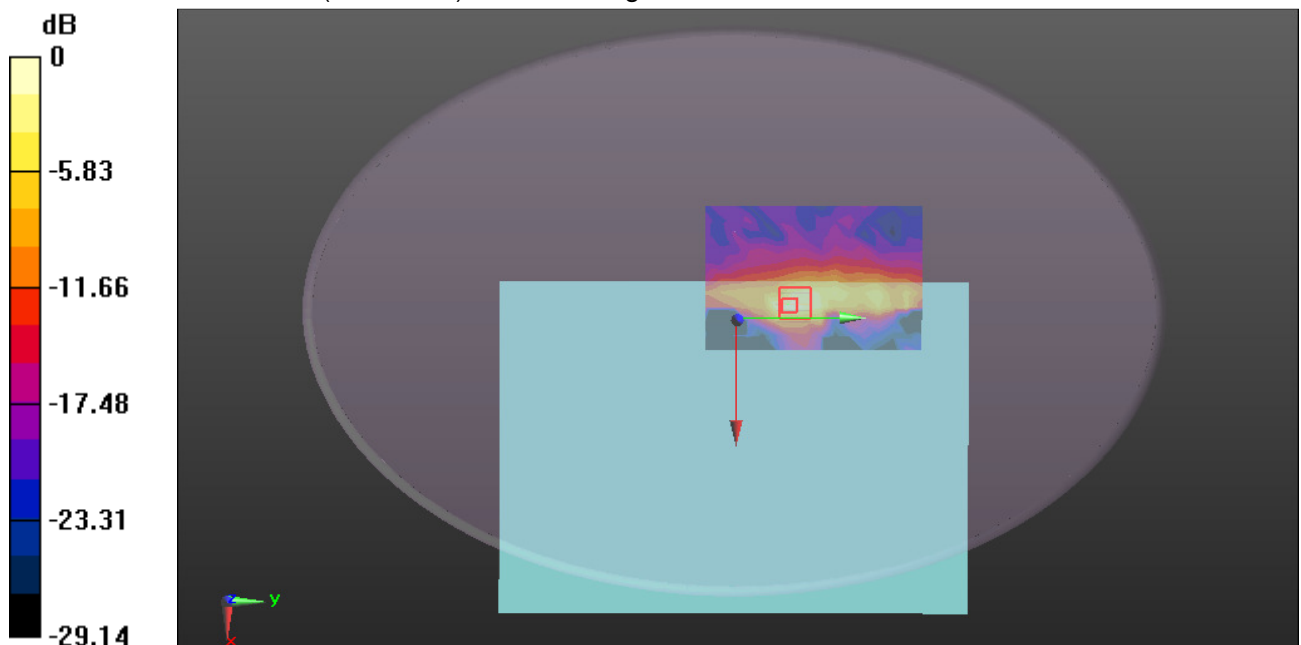
grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 1.534 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.67 W/kg

SAR(1 g) = 0.289 W/kg; SAR(10 g) = 0.094 W/kg

Maximum value of SAR (measured) = 0.758 W/kg



0 dB = 0.758 W/kg = -1.20 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH52 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; 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; $\sigma = 5.456$ S/m; $\epsilon_r = 48.545$; $\rho = 1000$ 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 Bottom CH52 Aux Antenna /Area Scan (11x15x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 1.18 W/kg

WIFI/IEEE802.11a Body Bottom CH52 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

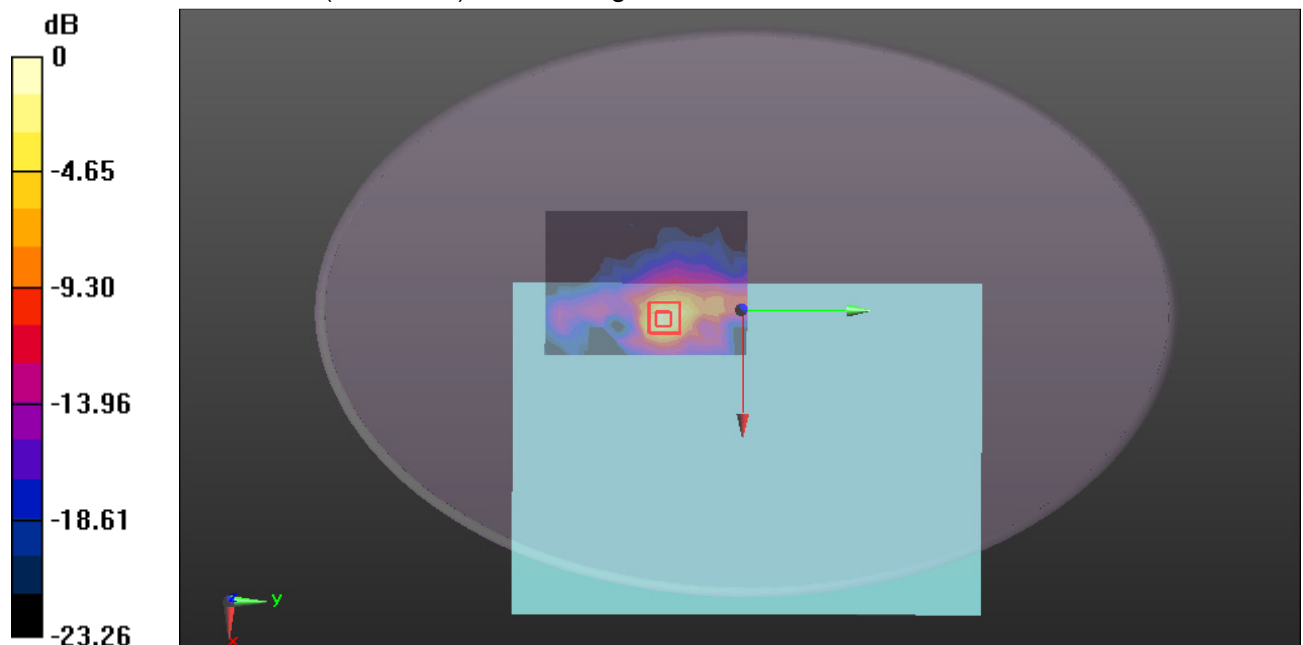
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 4.413 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 2.86 W/kg

SAR(1 g) = 0.625 W/kg; SAR(10 g) = 0.202 W/kg

Maximum value of SAR (measured) = 1.53 W/kg



0 dB = 1.53 W/kg = 1.85 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH60 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5300 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5300$ MHz; $\sigma = 5.508$ S/m; $\epsilon_r = 48.455$; $\rho = 1000$ 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 Bottom CH60 Aux Antenna /Area Scan (11x15x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 1.25 W/kg

WIFI/IEEE802.11a Body Bottom CH60 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

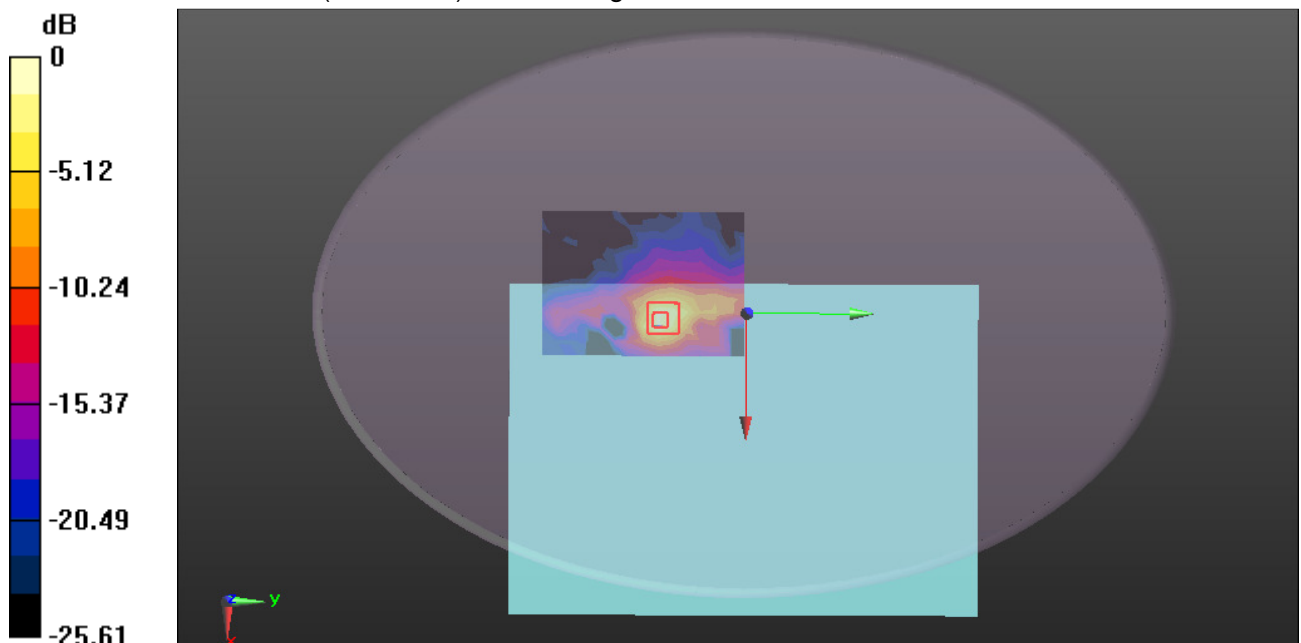
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 4.526 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 3.06 W/kg

SAR(1 g) = 0.669 W/kg; SAR(10 g) = 0.220 W/kg

Maximum value of SAR (measured) = 1.64 W/kg



0 dB = 1.64 W/kg = 2.15 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH64 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5320 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5320$ MHz; $\sigma = 5.539$ S/m; $\epsilon_r = 48.405$; $\rho = 1000$ 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 Bottom CH64 Aux Antenna /Area Scan (11x15x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 1.28 W/kg

WIFI/IEEE802.11a Body Bottom CH64 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

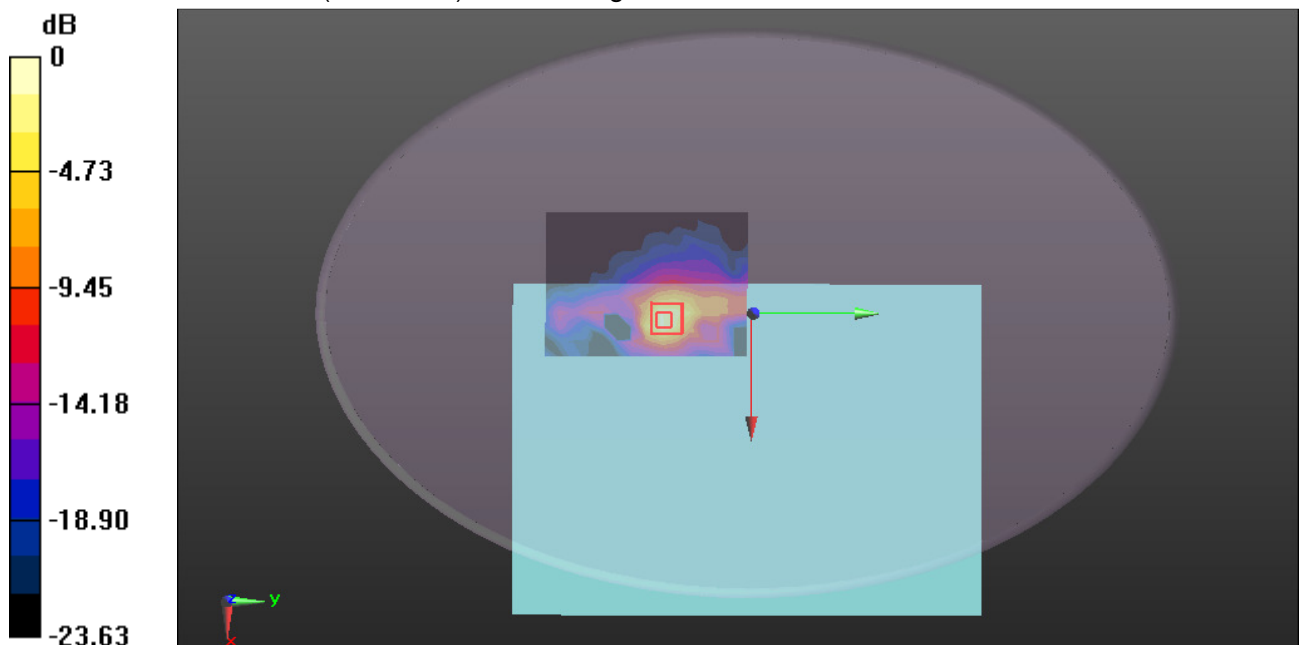
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 4.493 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 3.14 W/kg

SAR(1 g) = 0.685 W/kg; SAR(10 g) = 0.225 W/kg

Maximum value of SAR (measured) = 1.68 W/kg



0 dB = 1.68 W/kg = 2.25 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH100 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5500$ MHz; $\sigma = 5.791$ S/m; $\epsilon_r = 48.025$; $\rho = 1000$ 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(4.26, 4.26, 4.26); 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 Bottom CH100 Aux Antenna /Area Scan (11x15x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

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

WIFI/IEEE802.11a Body Bottom CH100 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

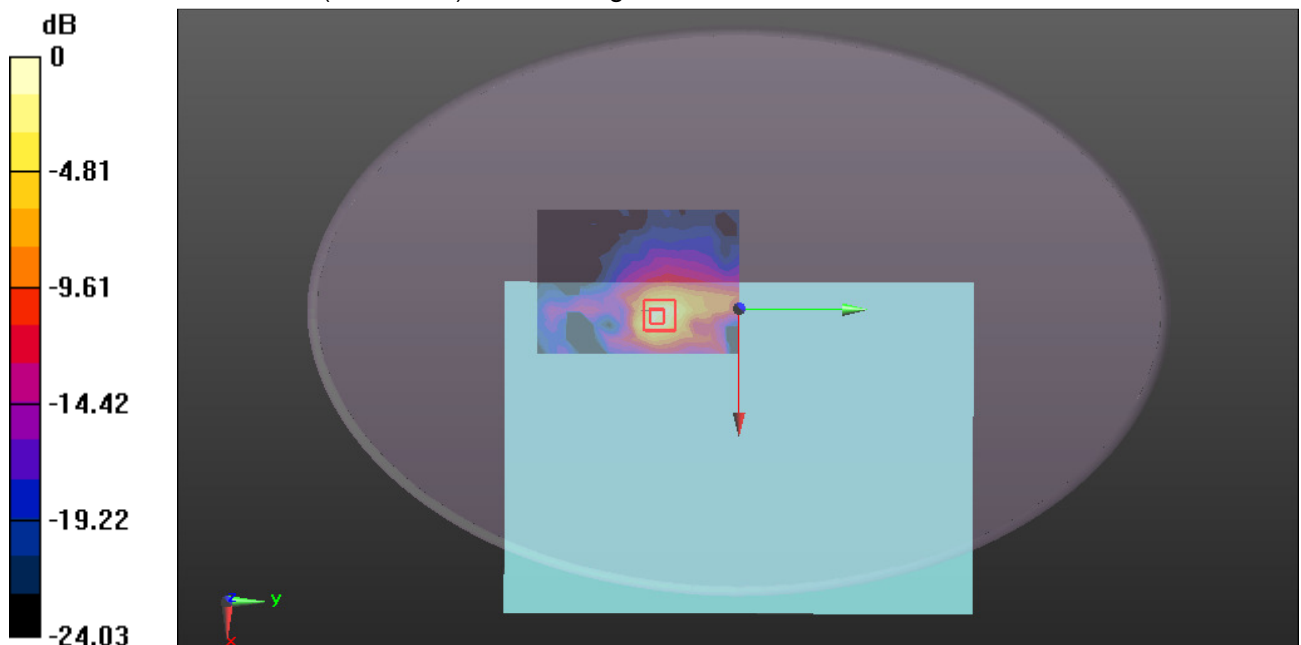
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 4.027 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 2.64 W/kg

SAR(1 g) = 0.550 W/kg; SAR(10 g) = 0.188 W/kg

Maximum value of SAR (measured) = 1.36 W/kg



0 dB = 1.36 W/kg = 1.34 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH136 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5680 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5680$ MHz; $\sigma = 6.004$ S/m; $\epsilon_r = 47.67$; $\rho = 1000$ 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 Bottom CH136 Aux Antenna /Area Scan (11x15x1): Measurement grid:

dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.974 W/kg

WIFI/IEEE802.11a Body Bottom CH136 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

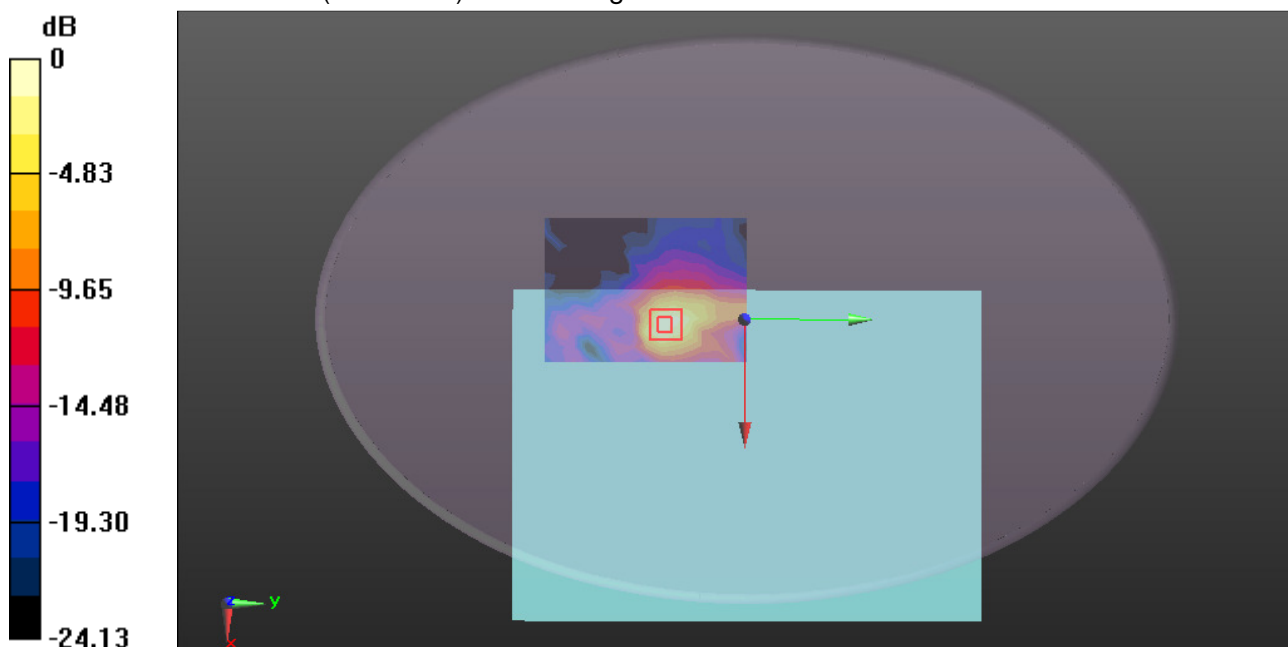
grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 4.153 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 2.30 W/kg

SAR(1 g) = 0.440 W/kg; SAR(10 g) = 0.154 W/kg

Maximum value of SAR (measured) = 1.11 W/kg



0 dB = 1.11 W/kg = 0.45 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH144 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5720 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5720$ MHz; $\sigma = 6.059$ S/m; $\epsilon_r = 47.678$; $\rho = 1000$ 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 Bottom CH144 Aux Antenna /Area Scan (11x15x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.660 W/kg

WIFI/IEEE802.11a Body Bottom CH144 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

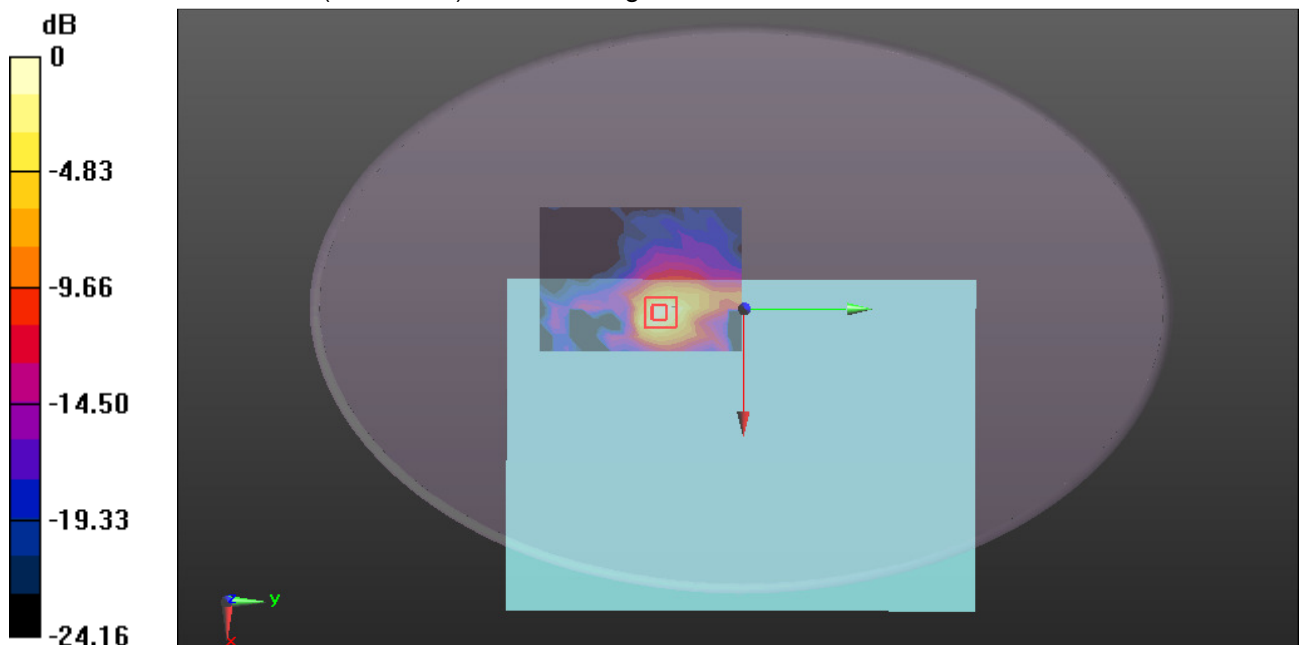
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 3.201 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.58 W/kg

SAR(1 g) = 0.312 W/kg; SAR(10 g) = 0.110 W/kg

Maximum value of SAR (measured) = 0.771 W/kg



0 dB = 0.771 W/kg = -1.13 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH149 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5745 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5745 \text{ MHz}$; $\sigma = 6.092 \text{ S/m}$; $\epsilon_r = 47.58$; $\rho = 1000 \text{ kg/m}^3$

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 Bottom CH149 Aux Antenna /Area Scan (11x15x1): Measurement grid:

$dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.842 W/kg

WIFI/IEEE802.11a Body Bottom CH149 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

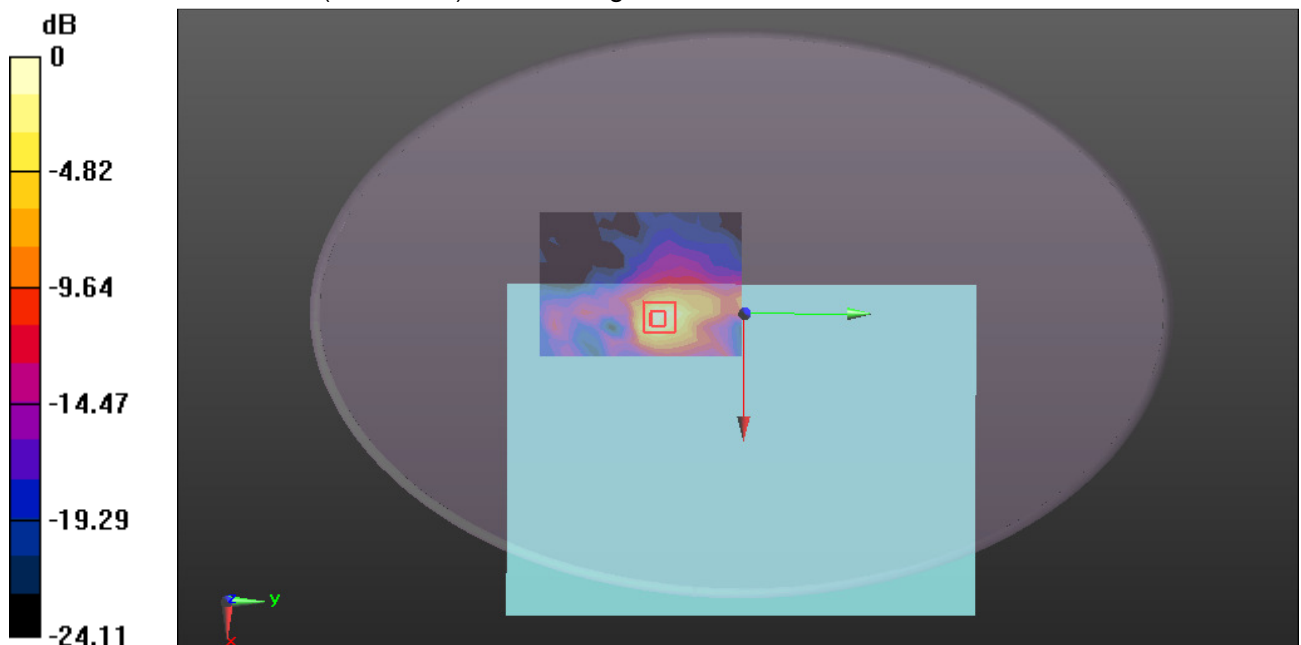
grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 4.724 V/m ; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 2.11 W/kg

SAR(1 g) = 0.402 W/kg ; SAR(10 g) = 0.141 W/kg

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



Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH157 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; 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: $f = 5785 \text{ MHz}$; $\sigma = 6.144 \text{ S/m}$; $\epsilon_r = 47.486$; $\rho = 1000 \text{ kg/m}^3$

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 Bottom CH157 Aux Antenna /Area Scan (11x15x1): Measurement grid:

$dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.793 W/kg

WIFI/IEEE802.11a Body Bottom CH157 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

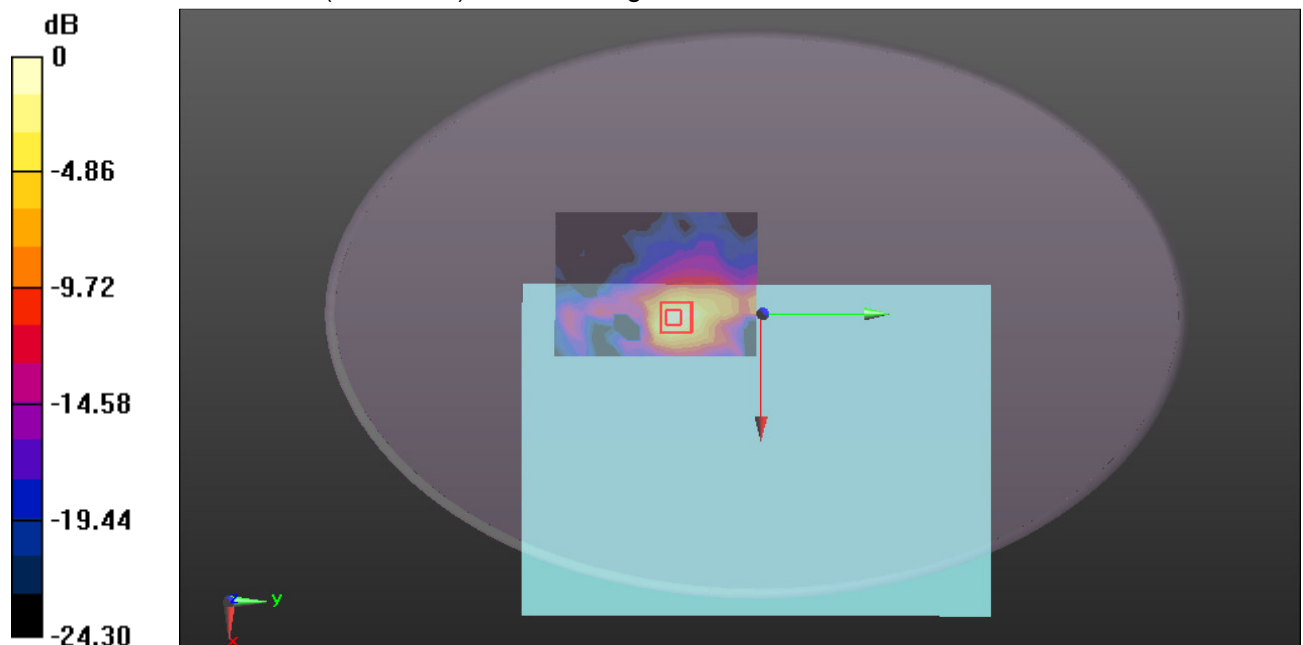
grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 3.786 V/m ; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.84 W/kg

SAR(1 g) = 0.359 W/kg ; SAR(10 g) = 0.128 W/kg

Maximum value of SAR (measured) = 0.898 W/kg



0 dB = 0.898 W/kg = -0.47 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH149 Aux Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5825 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5825 \text{ MHz}$; $\sigma = 6.192 \text{ S/m}$; $\epsilon_r = 47.37$; $\rho = 1000 \text{ kg/m}^3$

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(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 Bottom CH149 Aux Antenna /Area Scan (11x15x1): Measurement grid:

$dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.833 W/kg

WIFI/IEEE802.11a Body Bottom CH149 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

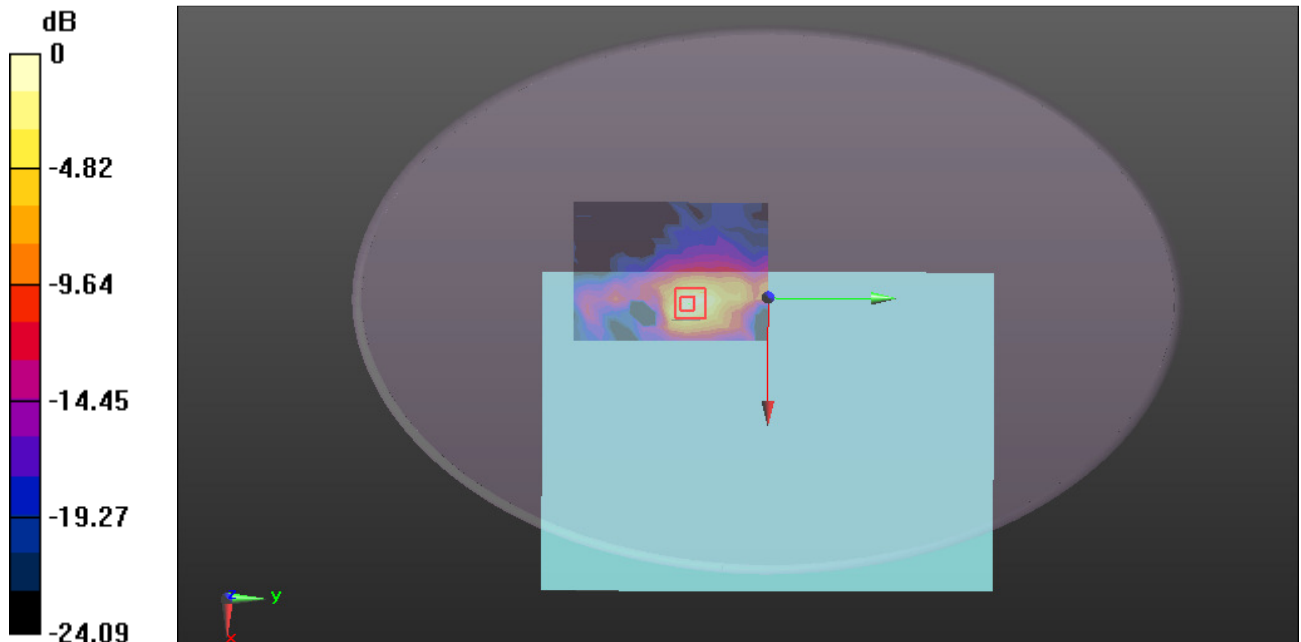
grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 4.255 V/m ; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 2.00 W/kg

SAR(1 g) = 0.375 W/kg ; SAR(10 g) = 0.134 W/kg

Maximum value of SAR (measured) = 0.937 W/kg



0 dB = 0.937 W/kg = -0.28 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH100 Main Antenna for South Star antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5500 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5500$ MHz; $\sigma = 5.791$ S/m; $\epsilon_r = 48.025$; $\rho = 1000$ 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(4.26, 4.26, 4.26); 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 Bottom CH100 Main Antenna /Area Scan (11x16x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.921 W/kg

WIFI/IEEE802.11a Body Bottom CH100 Main Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

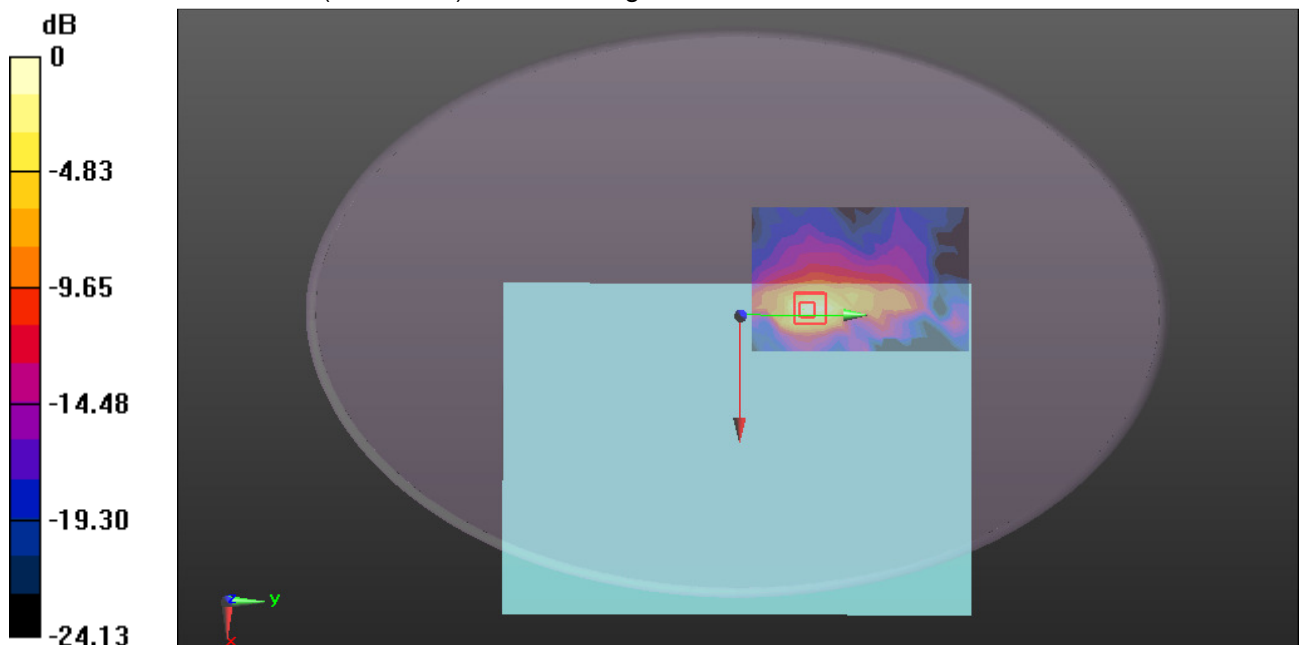
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 2.482 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 0.393 W/kg; SAR(10 g) = 0.138 W/kg

Maximum value of SAR (measured) = 0.955 W/kg



0 dB = 0.955 W/kg = -0.20 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 1/18/2018

WIFI 802.11 a-Body Bottom CH64 Aux Antenna for INPAQ antenna

DUT: Notebook Computer; Type: Lenovo ideapad 330S-14IKB; Serial: N/A

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

Frequency: 5320 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5320$ MHz; $\sigma = 5.539$ S/m; $\epsilon_r = 48.405$; $\rho = 1000$ 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 Bottom CH64 Aux Antenna /Area Scan (11x15x1): Measurement grid:

$dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 0.460 W/kg

WIFI/IEEE802.11a Body Bottom CH64 Aux Antenna /Zoom Scan (7x7x7)/Cube 0: Measurement

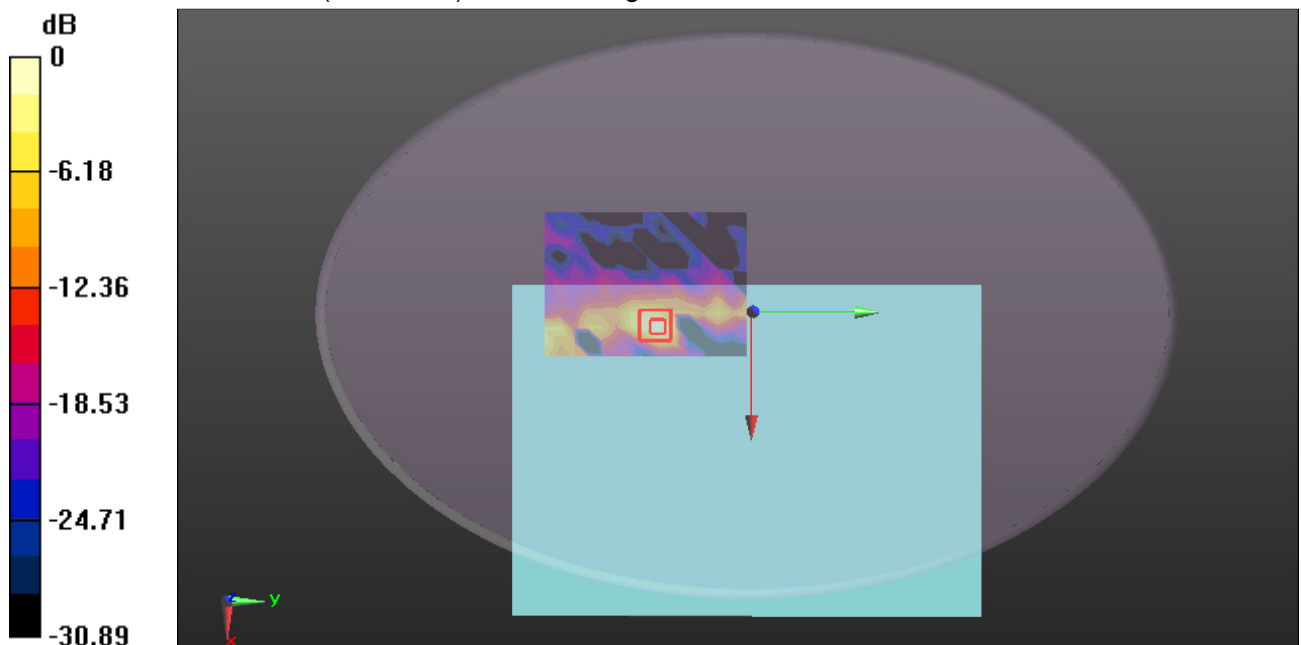
grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 3.267 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.712 W/kg

SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.044 W/kg

Maximum value of SAR (measured) = 0.438 W/kg



0 dB = 0.438 W/kg = -3.59 dBW/kg