



WIFI 802.11 b-Body Bottom CH1 Chain0 South Star Antenna.....	2
WIFI 802.11 b-Body Bottom CH6 Chain0 South Star Antenna.....	3
WIFI 802.11 b-Body Bottom CH11 Chain0 South Star Antenna.....	4
2.4GHz -Body Bottom CH00 Chain0 South Star Antenna	5
2.4GHz -Body Bottom CH39 Chain0 South Star Antenna	6
2.4GHz -Body Bottom CH78 Chain0 South Star Antenna	7
WIFI 802.11 a-Body Bottom CH52 Chain0 South Star Antenna.....	8
WIFI 802.11 a-Body Bottom CH56 Chain0 South Star Antenna.....	9
WIFI 802.11 a-Body Bottom CH64 Chain0 South Star Antenna.....	10
WIFI 802.11 a-Body Bottom CH100 Chain0 South Star Antenna.....	11
WIFI 802.11 a-Body Bottom CH116 Chain0 South Star Antenna.....	12
WIFI 802.11 a-Body Bottom CH128 Chain0 South Star Antenna.....	13
WIFI 802.11 a-Body Bottom CH149 Chain0 South Star Antenna.....	14
WIFI 802.11 a-Body Bottom CH157 Chain0 South Star Antenna.....	15
WIFI 802.11 a-Body Bottom CH165 Chain0 South Star Antenna.....	16
WIFI 802.11 b-Body Bottom CH1 Chain0 South Star Antenna repeat.....	17
WIFI 802.11 a-Body Bottom CH56 Chain0 South Star Antenna repeat.....	18
WIFI 802.11 a-Body Bottom CH128 Chain0 South Star Antenna repeat.....	19
WIFI 802.11 a-Body Bottom CH149 Chain0 South Star Antenna repeat.....	20
2.4GHz -Body Bottom CH39 Chain0 B&T Antenna	21
WIFI 802.11 b-Body Bottom CH1 Chain0 B&T Antenna.....	22
WIFI 802.11 a-Body Bottom CH56 Chain0 B&T Antenna.....	23

Test Laboratory: Compliance Certification Services Inc.

Date: 7/18/2017

WiFi 802.11 b-Body Bottom CH1 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 2412 \text{ MHz}$; $\sigma = 1.879 \text{ S/m}$; $\epsilon_r = 51.275$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(7.1, 7.1, 7.1); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASYS52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/IEEE802.11b Body Bottom CH1 Chain0 South Star Antenna/Area Scan (10x12x1):

Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (measured) = 1.39 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH1 Chain0 South Star Antenna/Zoom Scan (7x7x5)/Cube

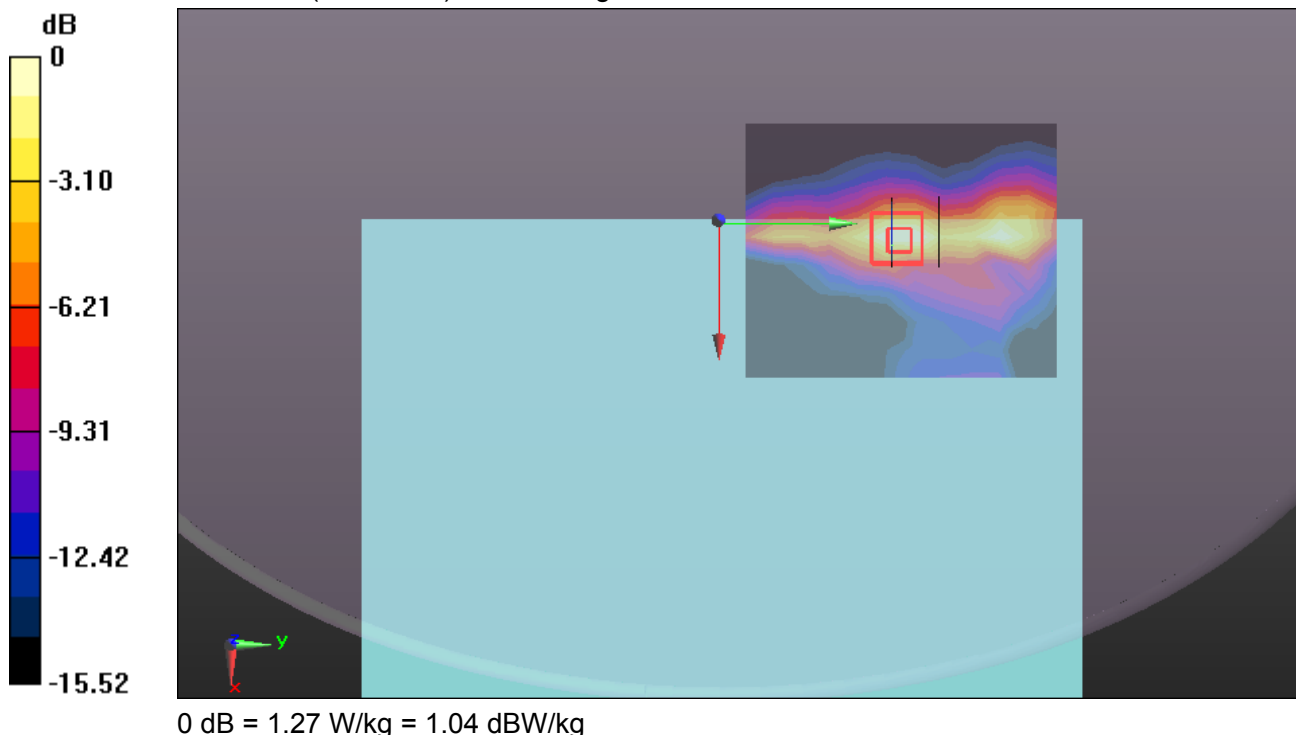
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.443 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.85 W/kg

SAR(1 g) = 0.837 W/kg; SAR(10 g) = 0.369 W/kg

Maximum value of SAR (measured) = 1.27 W/kg



Test Laboratory: Compliance Certification Services Inc.

Date: 7/18/2017

WIFI 802.11 b-Body Bottom CH6 Chain0 South Star Antenna

DUT: Notebockt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 2437 \text{ MHz}$; $\sigma = 1.909 \text{ S/m}$; $\epsilon_r = 51.202$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(7.1, 7.1, 7.1); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (10x12x1):

Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

WiFi 2.4GHz/IEEE802.11b Body Bottom CH6 Chain0 South Star Antenna/Zoom Scan (7x7x5)/Cube

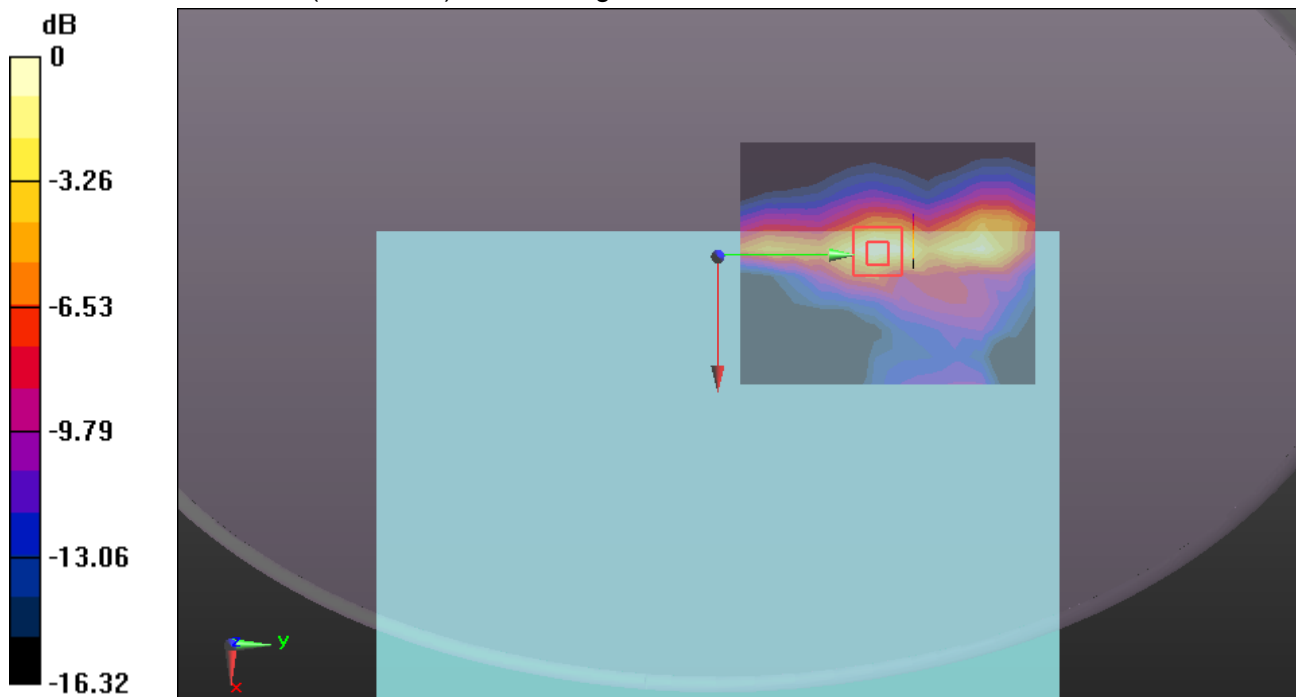
0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.225 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.68 W/kg

SAR(1 g) = 0.754 W/kg; SAR(10 g) = 0.334 W/kg

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



0 dB = 1.18 W/kg = 0.72 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/18/2017

WiFi 802.11 b-Body Bottom CH11 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 2462 \text{ MHz}$; $\sigma = 1.939 \text{ S/m}$; $\epsilon_r = 51.12$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(7.1, 7.1, 7.1); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (10x12x1):

Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (measured) = 1.43 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH11 Chain0 South Star Antenna/Zoom Scan

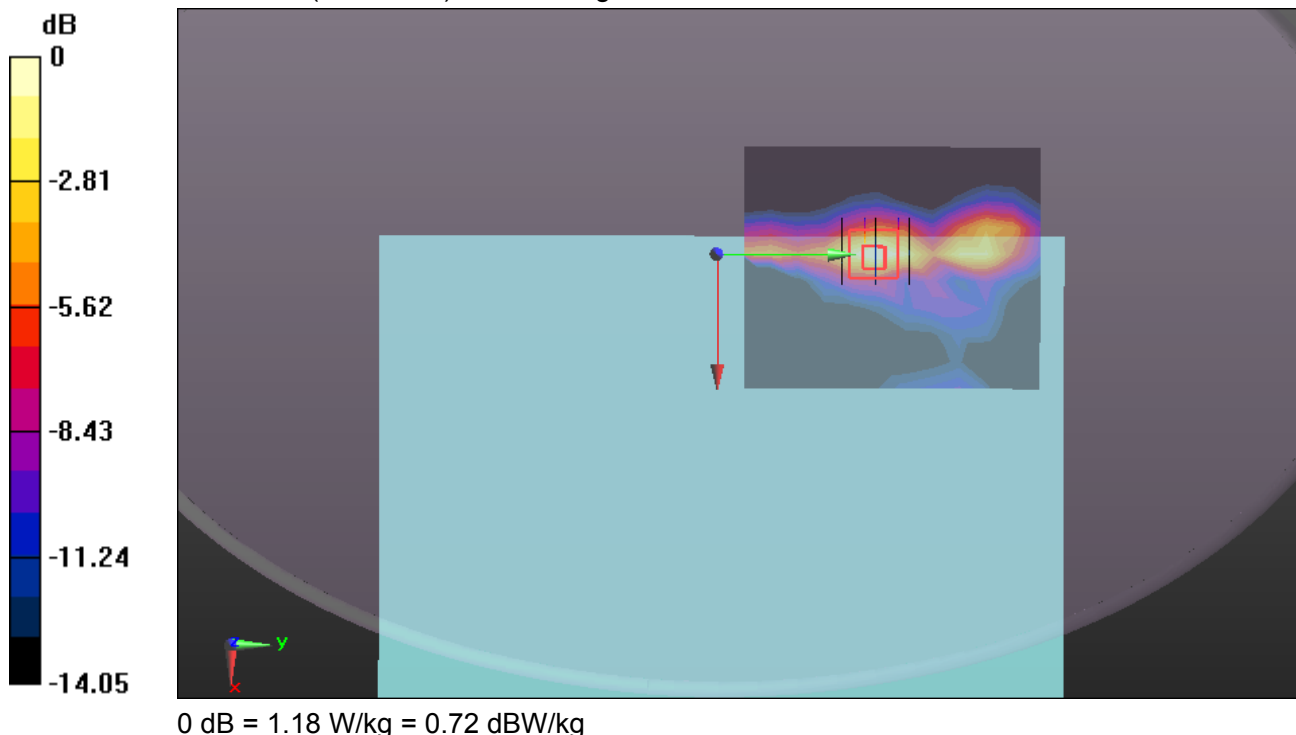
(7x7x5)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.73 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 0.760 W/kg; SAR(10 g) = 0.322 W/kg

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



Test Laboratory: Compliance Certification Services Inc.

Date: 7/18/2017

2.4GHz -Body Bottom CH00 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 2402 \text{ MHz}$; $\sigma = 1.869 \text{ S/m}$; $\epsilon_r = 51.317$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(7.1, 7.1, 7.1); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASYS52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/Body Bottom CH00 Chain0/Area Scan (10x12x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (measured) = 0.292 W/kg

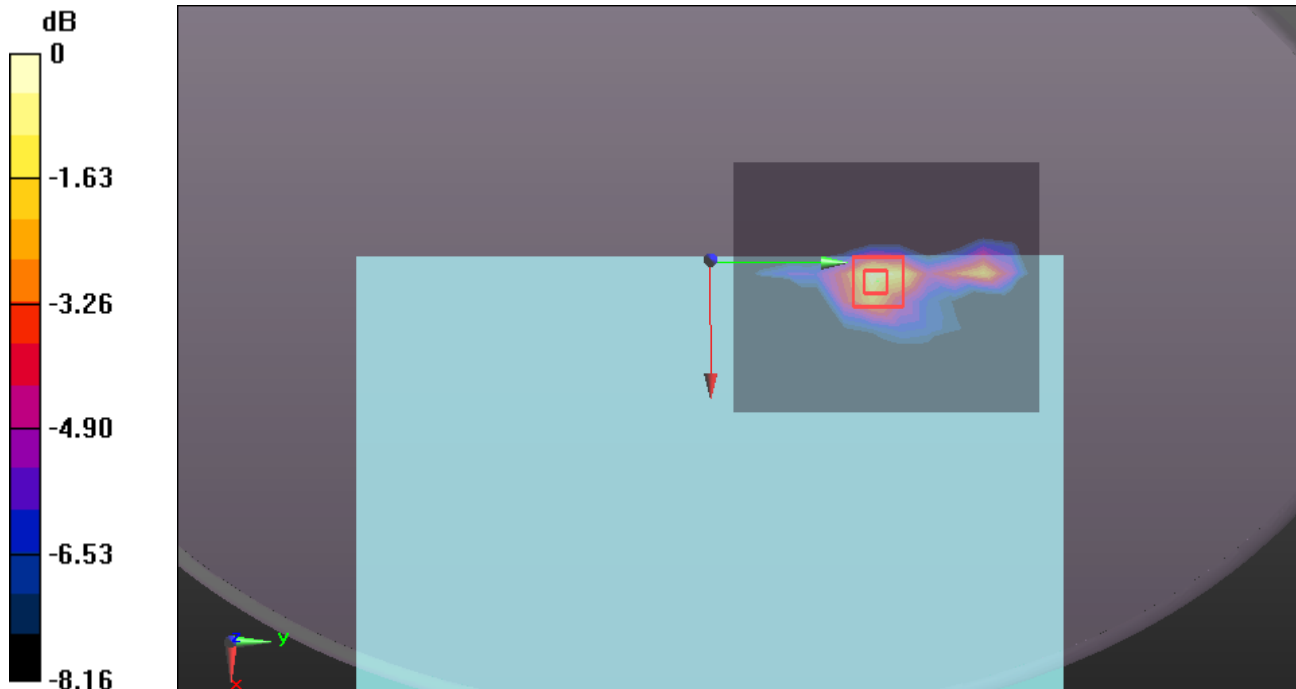
WiFi 2.4GHz/Body Bottom CH00 Chain0/Zoom Scan (7x7x5)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.703 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.812 W/kg

SAR(1 g) = 0.113 W/kg; SAR(10 g) = 0.047 W/kg

Maximum value of SAR (measured) = 0.361 W/kg



0 dB = 0.361 W/kg = -4.42 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/18/2017

2.4GHz -Body Bottom CH39 Chain0 South Star Antenna

DUT: Notebockt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 2441 \text{ MHz}$; $\sigma = 1.914 \text{ S/m}$; $\epsilon_r = 51.198$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(7.1, 7.1, 7.1); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/Body Bottom CH39 Chain0/Area Scan (10x12x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (measured) = 0.317 W/kg

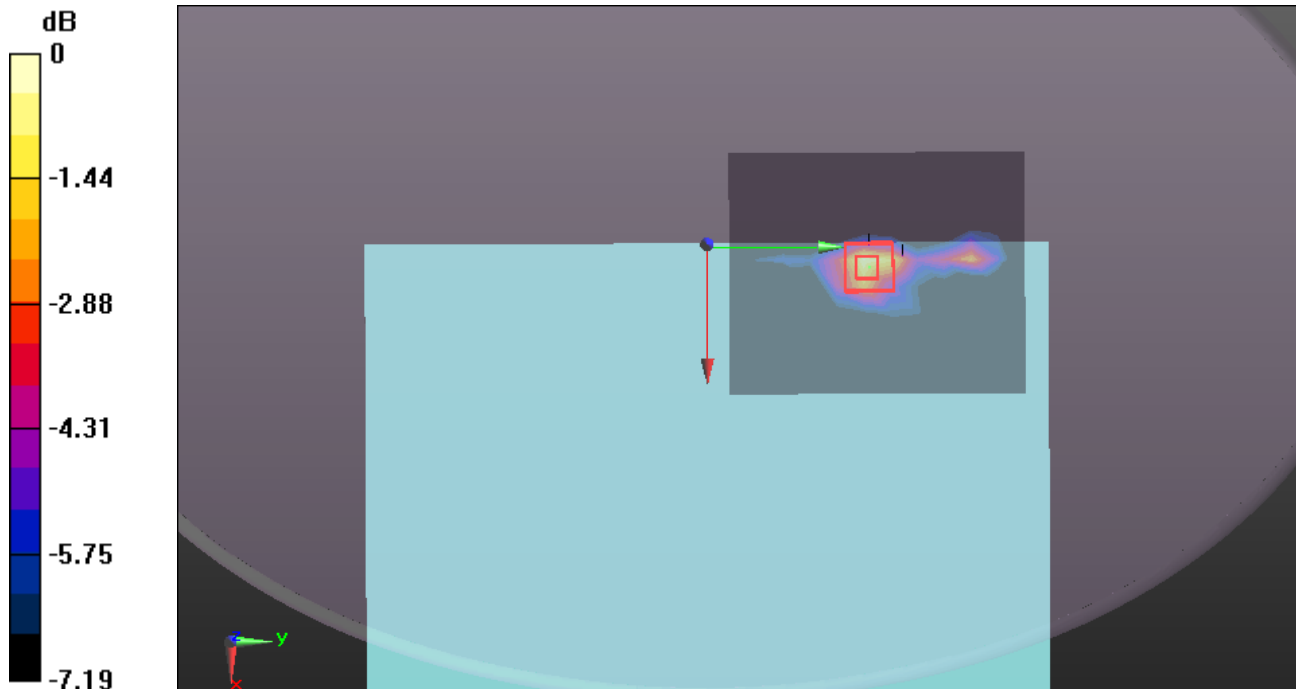
WiFi 2.4GHz/Body Bottom CH39 Chain0/Zoom Scan (7x7x5)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.09 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.921 W/kg

SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.062 W/kg

Maximum value of SAR (measured) = 0.398 W/kg



0 dB = 0.398 W/kg = -4.00 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/18/2017

2.4GHz -Body Bottom CH78 Chain0 South Star Antenna

DUT: Notebook Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 2480 \text{ MHz}$; $\sigma = 1.96 \text{ S/m}$; $\epsilon_r = 51.059$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(7.1, 7.1, 7.1); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASY52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/Body Bottom CH78 Chain0/Area Scan (10x12x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (measured) = 0.219 W/kg

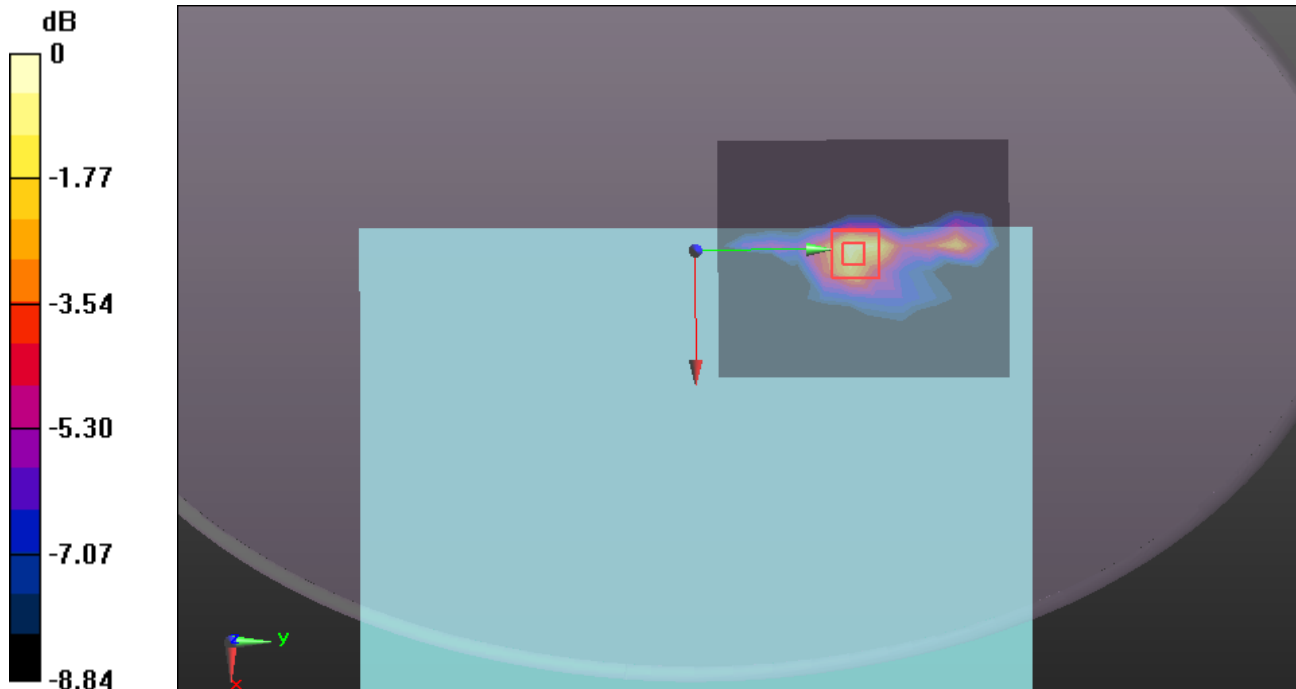
WiFi 2.4GHz/Body Bottom CH78 Chain0/Zoom Scan (7x7x5)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.477 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.791 W/kg

SAR(1 g) = 0.093 W/kg; SAR(10 g) = 0.034 W/kg

Maximum value of SAR (measured) = 0.324 W/kg



0 dB = 0.324 W/kg = -4.89 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH52 Chain0 South Star Antenna

DUT: Noteboekt Computer; Type: Lenovo ideapad 320S-13IKB; 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; $\sigma = 5.37$ S/m; $\epsilon_r = 48.937$; $\rho = 1000$ 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 - SN3820; ConvF(4.39, 4.39, 4.39); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (11x13x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.13 W/kg

WIFI/IEEE802.11a Body Bottom CH52 Chain0 South Star Antenna/Zoom Scan (7x7x7)/Cube 0:

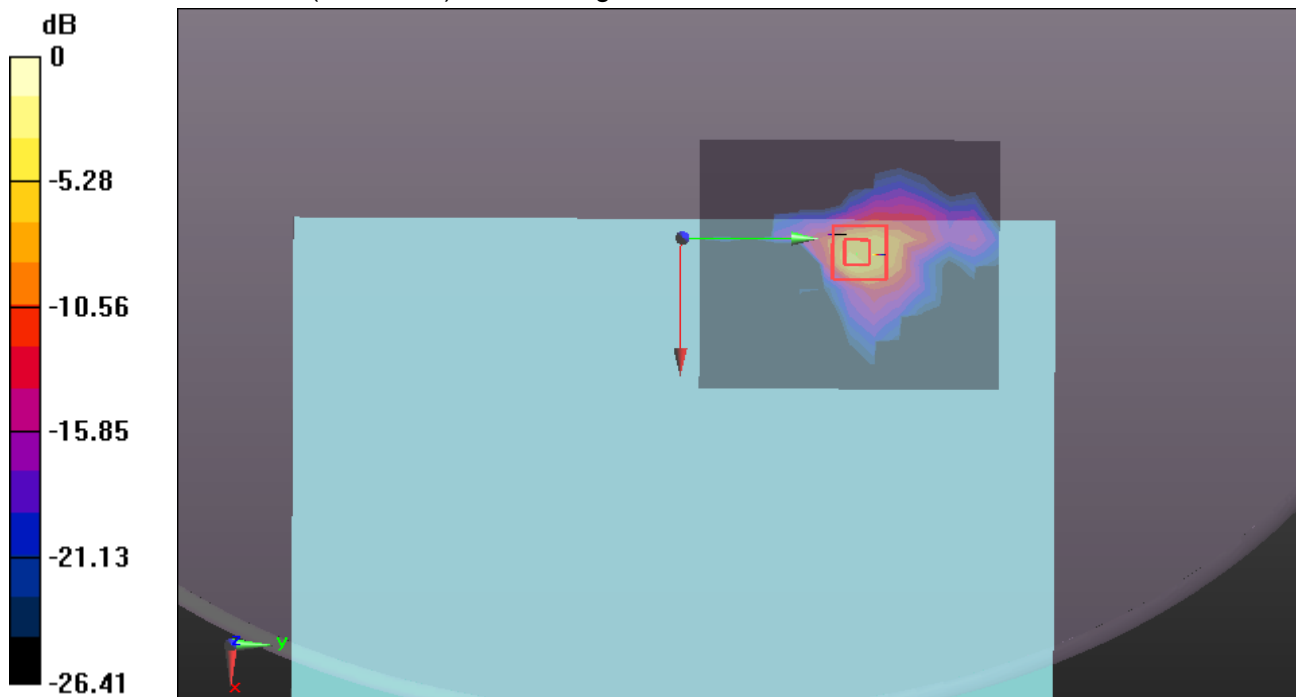
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.270 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 5.16 W/kg

SAR(1 g) = 0.939 W/kg; SAR(10 g) = 0.206 W/kg

Maximum value of SAR (measured) = 2.89 W/kg



0 dB = 2.89 W/kg = 4.61 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH56 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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; $\sigma = 5.399$ S/m; $\epsilon_r = 48.919$; $\rho = 1000$ 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 - SN3820; ConvF(4.39, 4.39, 4.39); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (11x13x1):

Measurement grid: dx=10mm, dy=10mm

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

WIFI/IEEE802.11a Body Bottom CH56 Chain0 South Star Antenna/Zoom Scan (7x7x7)/Cube 0:

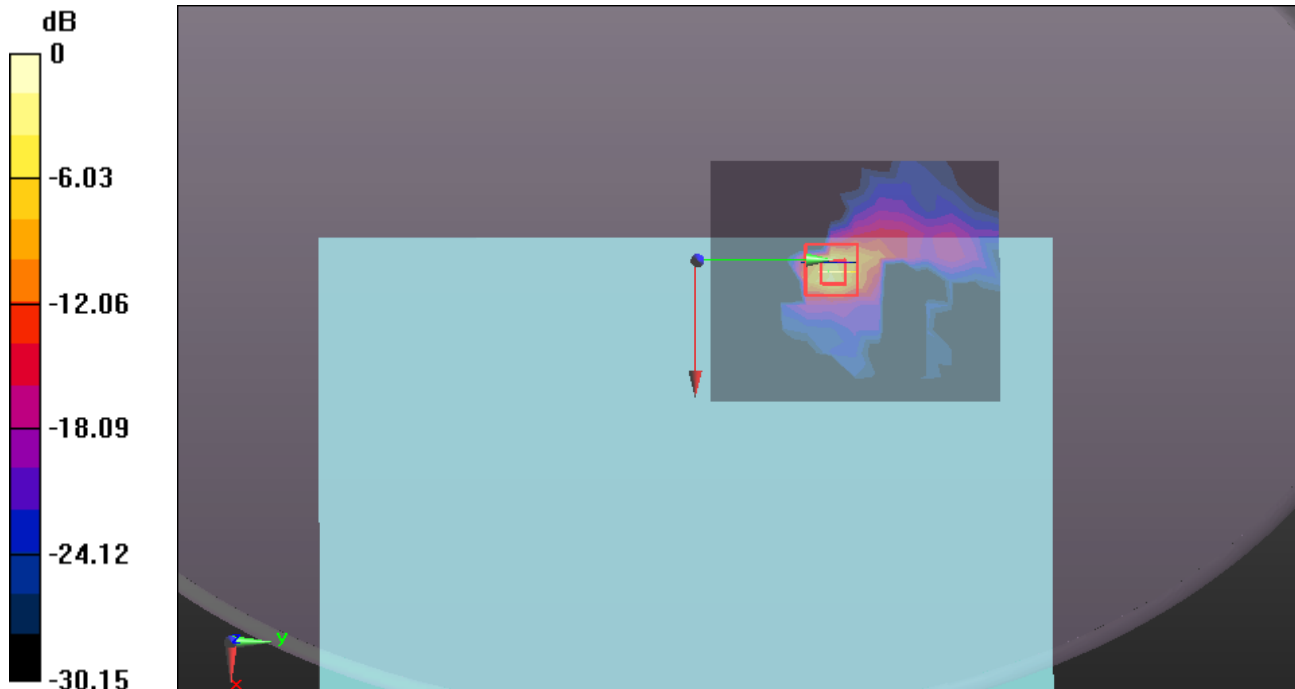
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 2.621 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 6.20 W/kg

SAR(1 g) = 1.10 W/kg; SAR(10 g) = 0.225 W/kg

Maximum value of SAR (measured) = 3.32 W/kg



0 dB = 3.32 W/kg = 5.21 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH64 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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; $\sigma = 5.444$ S/m; $\epsilon_r = 48.826$; $\rho = 1000$ 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 - SN3820; ConvF(4.39, 4.39, 4.39); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (11x13x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.32 W/kg

WIFI/IEEE802.11a Body Bottom CH64 Chain0 South Star Antenna/Zoom Scan (7x7x7)/Cube 0:

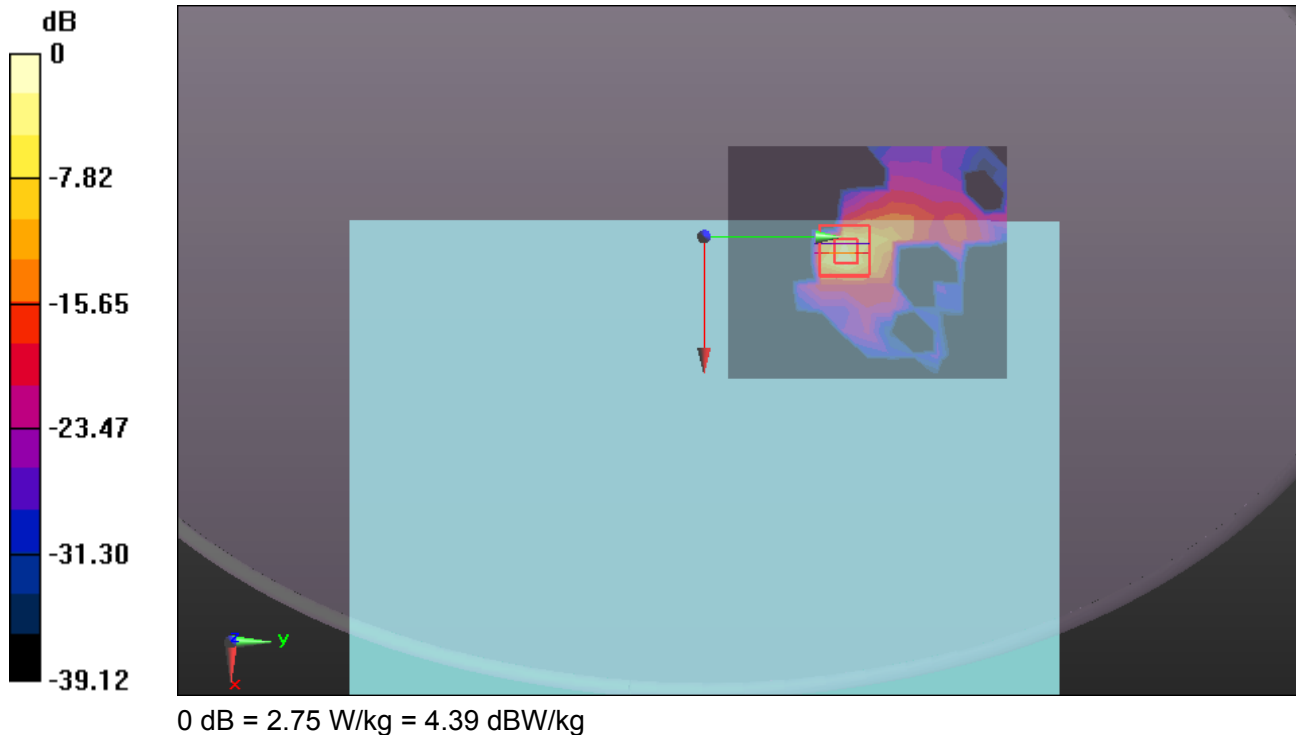
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.513 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 5.19 W/kg

SAR(1 g) = 0.903 W/kg; SAR(10 g) = 0.184 W/kg

Maximum value of SAR (measured) = 2.75 W/kg



Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH100 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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; $\sigma = 5.708$ S/m; $\epsilon_r = 48.415$; $\rho = 1000$ 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 - SN3820; ConvF(3.94, 3.94, 3.94); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (11x13x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.40 W/kg

WIFI/IEEE802.11a Body Bottom CH100 Chain0 South Star Antenna/Zoom Scan (7x7x7)/Cube 0:

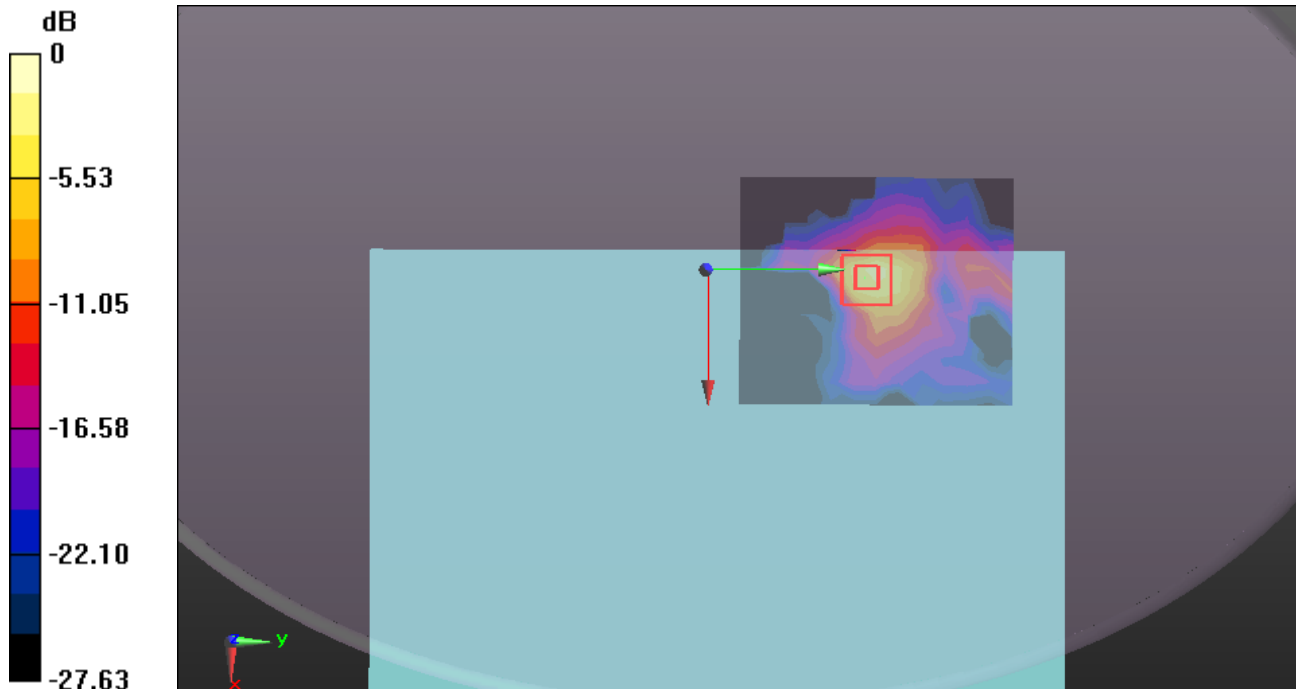
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 2.011 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 4.52 W/kg

SAR(1 g) = 0.895 W/kg; SAR(10 g) = 0.225 W/kg

Maximum value of SAR (measured) = 2.59 W/kg



0 dB = 2.59 W/kg = 4.13 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH116 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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; $\sigma = 5.838$ S/m; $\epsilon_r = 48.223$; $\rho = 1000$ 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 - SN3820; ConvF(3.8, 3.8, 3.8); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 CH116 Chain0 South Star Antenna/Area Scan (11x13x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.41 W/kg

WIFI/IEEE802.11a Body Bottom CH116 Chain0 South Star Antenna/Zoom Scan (7x7x7)/Cube 0:

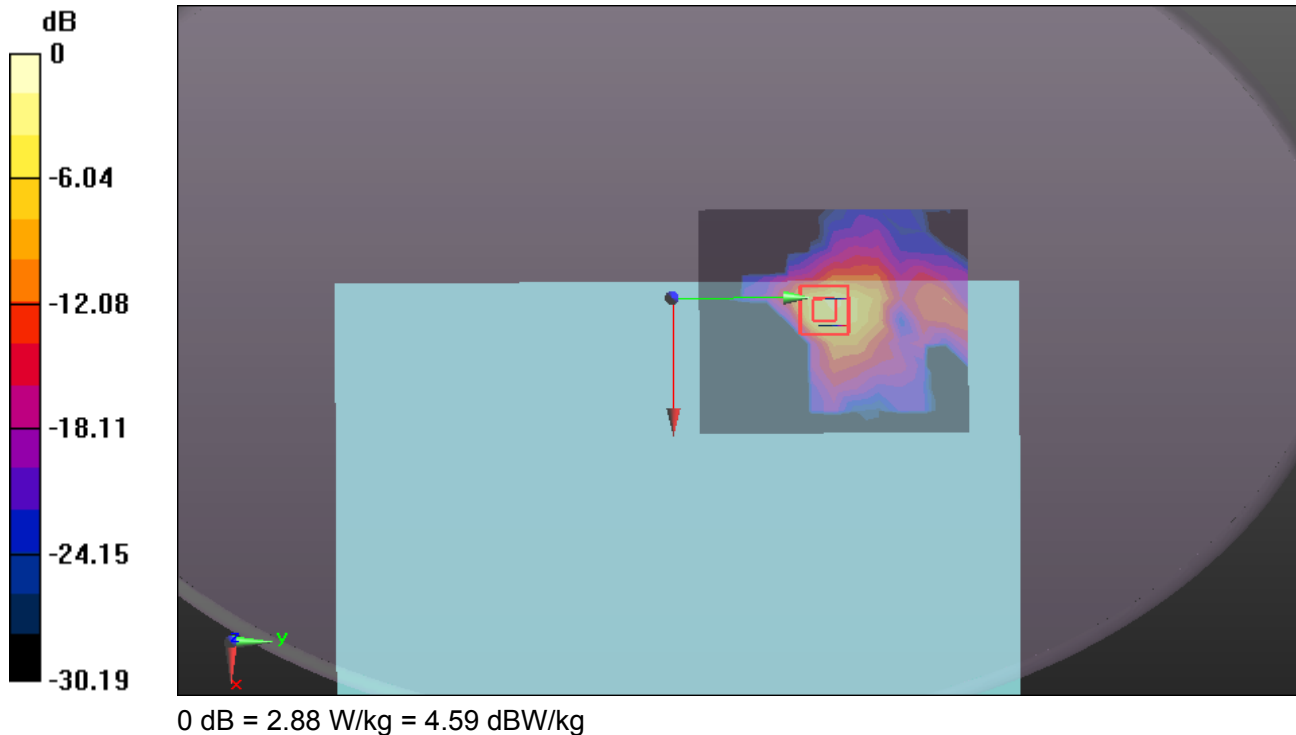
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.546 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 5.17 W/kg

SAR(1 g) = 0.989 W/kg; SAR(10 g) = 0.239 W/kg

Maximum value of SAR (measured) = 2.88 W/kg



Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH128 Chain0 South Star Antenna

DUT: Notebockt Computer; Type: Lenovo ideapad 320S-13IKB; 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; $\sigma = 5.92$ S/m; $\epsilon_r = 48.083$; $\rho = 1000$ 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 - SN3820; ConvF(3.8, 3.8, 3.8); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (11x13x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 2.38 W/kg

WIFI/IEEE802.11a Body Bottom CH128 Chain0 South Star Antenna/Zoom Scan (7x7x7)/Cube 0:

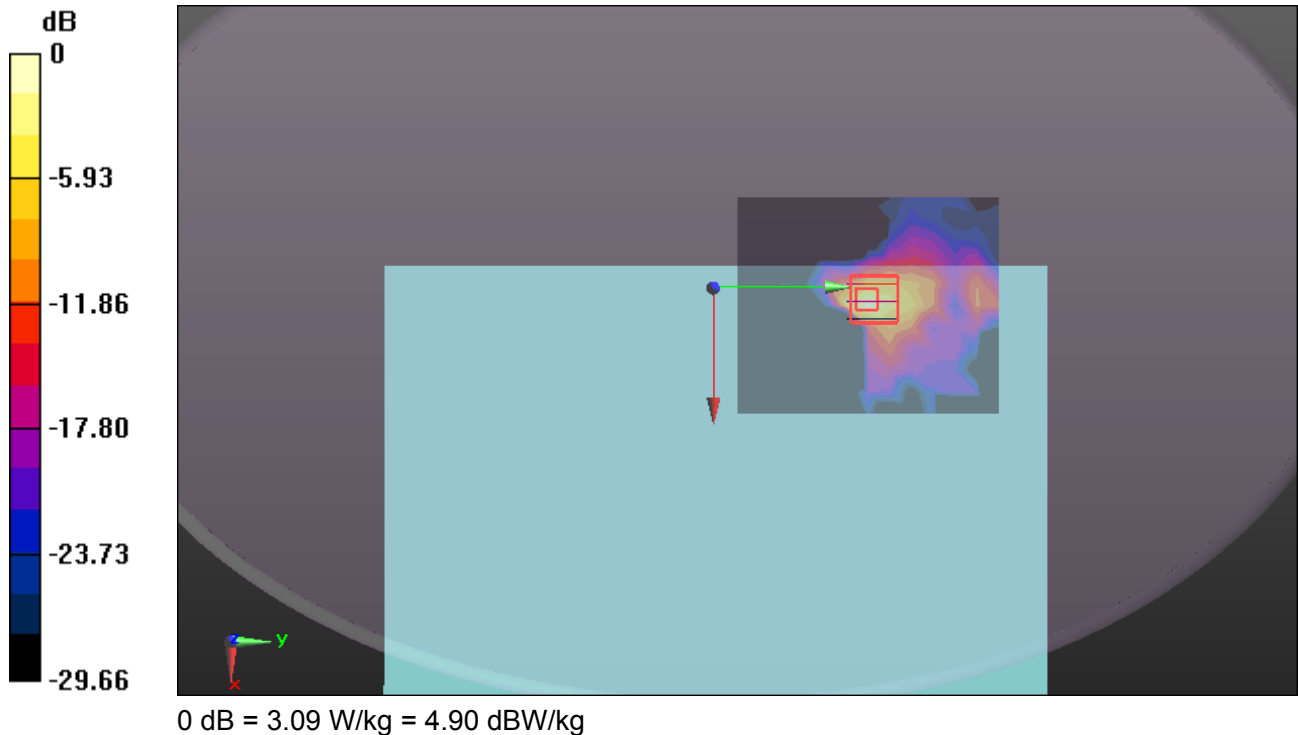
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 1.847 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 5.87 W/kg

SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.231 W/kg

Maximum value of SAR (measured) = 3.09 W/kg



Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH149 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 5745 \text{ MHz}$; $\sigma = 6.077 \text{ S/m}$; $\epsilon_r = 47.877$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(4.04, 4.04, 4.04); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (11x13x1):

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

Maximum value of SAR (measured) = 2.20 W/kg

WIFI/IEEE802.11a Body Bottom CH149 Chain0 South Star Antenna/Zoom Scan (7x7x7)/Cube 0:

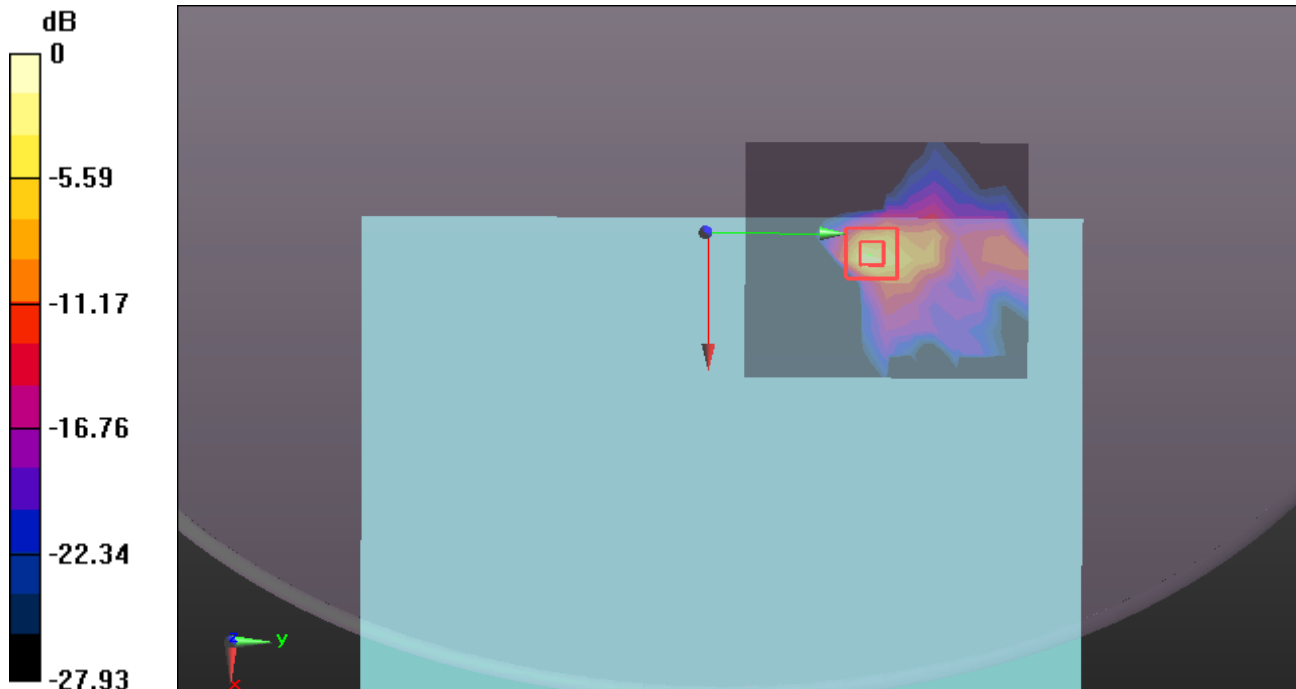
Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 3.611 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 6.54 W/kg

SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.232 W/kg

Maximum value of SAR (measured) = 3.45 W/kg



0 dB = 3.45 W/kg = 5.38 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH157 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 5785 \text{ MHz}$; $\sigma = 6.164 \text{ S/m}$; $\epsilon_r = 47.787$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(4.04, 4.04, 4.04); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (11x13x1):

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

Maximum value of SAR (measured) = 1.74 W/kg

WIFI/IEEE802.11a Body Bottom CH157 Chain0 South Star Antenna/Zoom Scan (7x7x7)/Cube 0:

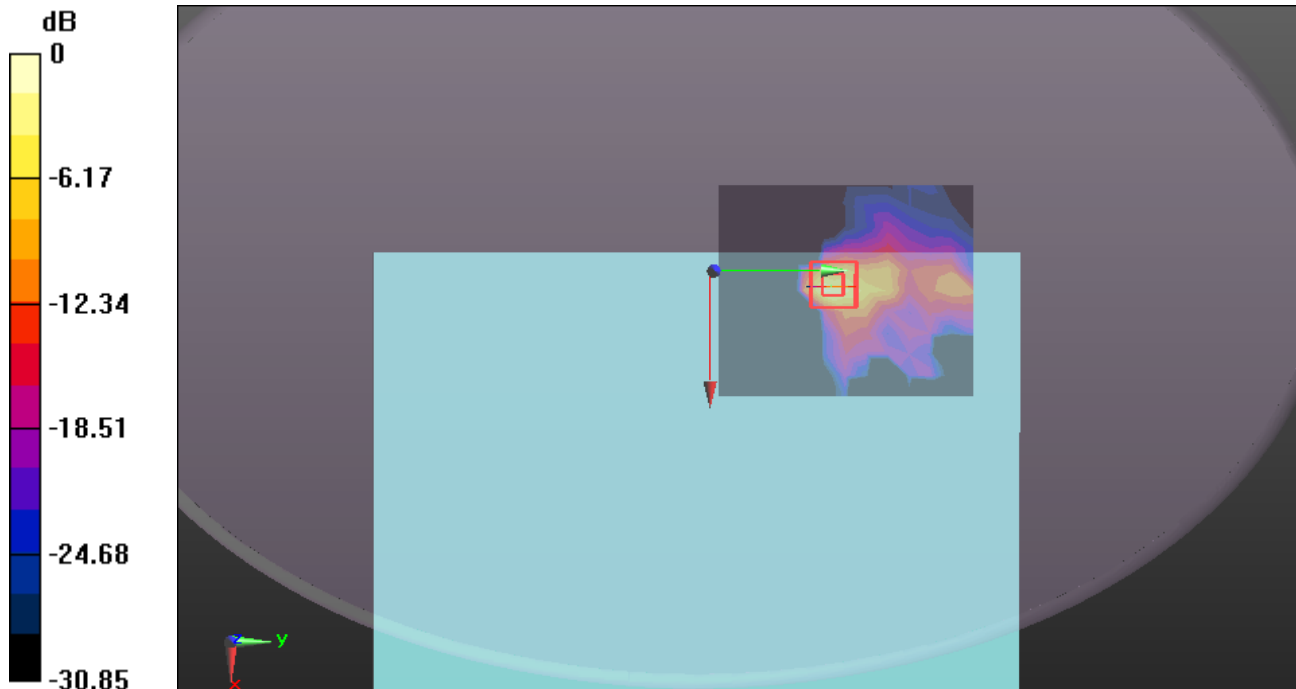
Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 1.953 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 4.39 W/kg

SAR(1 g) = 0.743 W/kg; SAR(10 g) = 0.153 W/kg

Maximum value of SAR (measured) = 2.42 W/kg



0 dB = 2.42 W/kg = 3.84 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH165 Chain0 South Star Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 5825 \text{ MHz}$; $\sigma = 6.217 \text{ S/m}$; $\epsilon_r = 47.733$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(4.04, 4.04, 4.04); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna/Area Scan (11x13x1):

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

Maximum value of SAR (measured) = 1.26 W/kg

WIFI/IEEE802.11a Body Bottom CH165 Chain0 South Star Antenna/Zoom Scan (7x7x7)/Cube 0:

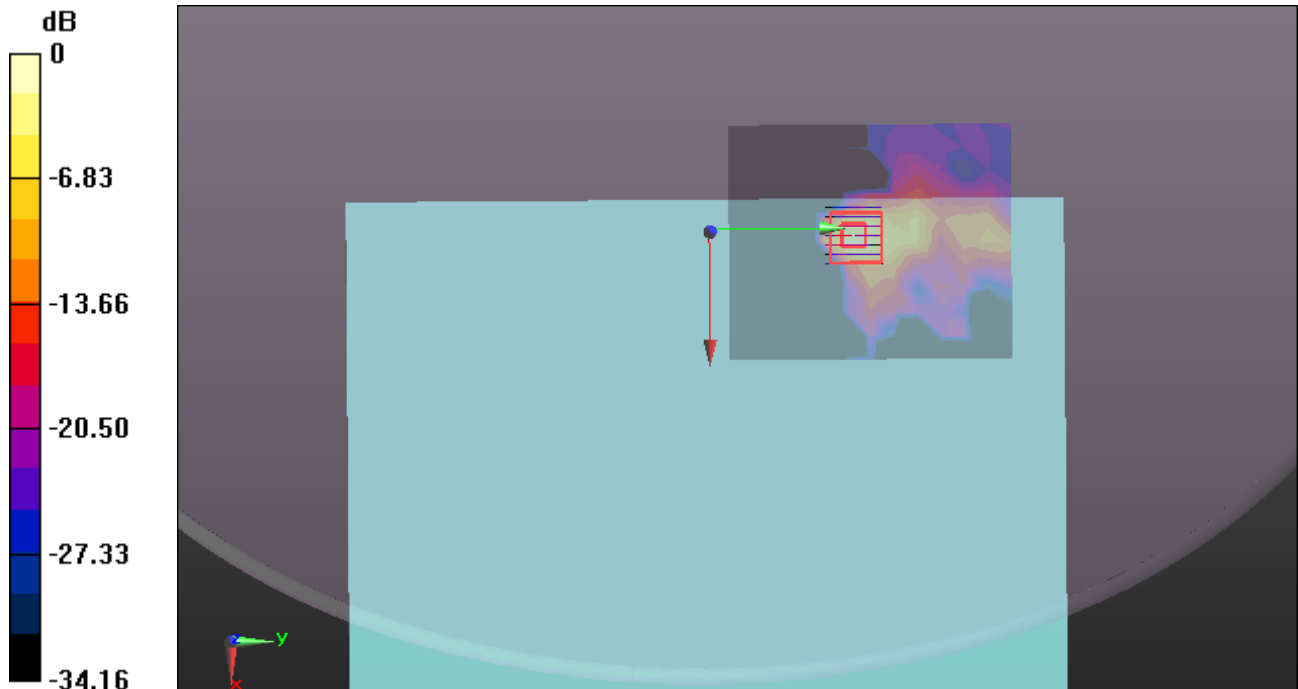
Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 0.988 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 2.96 W/kg

SAR(1 g) = 0.734 W/kg; SAR(10 g) = 0.207 W/kg

Maximum value of SAR (measured) = 1.86 W/kg



0 dB = 1.86 W/kg = 2.70 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/18/2017

WiFi 802.11 b-Body Bottom CH1 Chain0 South Star Antenna repeat

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 2412 \text{ MHz}$; $\sigma = 1.879 \text{ S/m}$; $\epsilon_r = 51.275$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(7.1, 7.1, 7.1); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna repeat/Area Scan

(10x12x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (measured) = 1.39 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH1 Chain0 South Star Antenna repeat/Zoom Scan

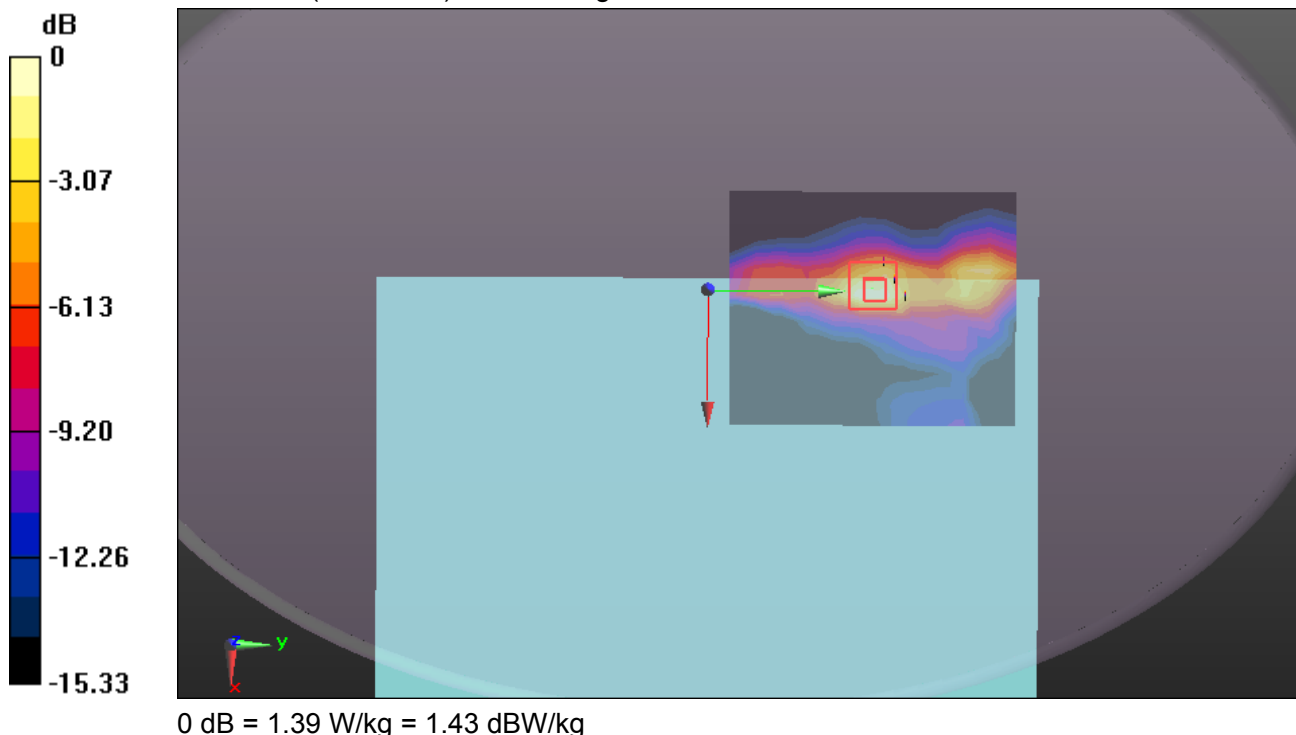
(7x7x5)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.727 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 2.06 W/kg

SAR(1 g) = 0.907 W/kg; SAR(10 g) = 0.388 W/kg

Maximum value of SAR (measured) = 1.39 W/kg



Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH56 Chain0 South Star Antenna repeat

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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; $\sigma = 5.399$ S/m; $\epsilon_r = 48.919$; $\rho = 1000$ 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 - SN3820; ConvF(4.39, 4.39, 4.39); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna repeat/Area Scan (11x13x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.62 W/kg

WIFI/IEEE802.11a Body Bottom CH56 Chain0 South Star Antenna repeat/Zoom Scan

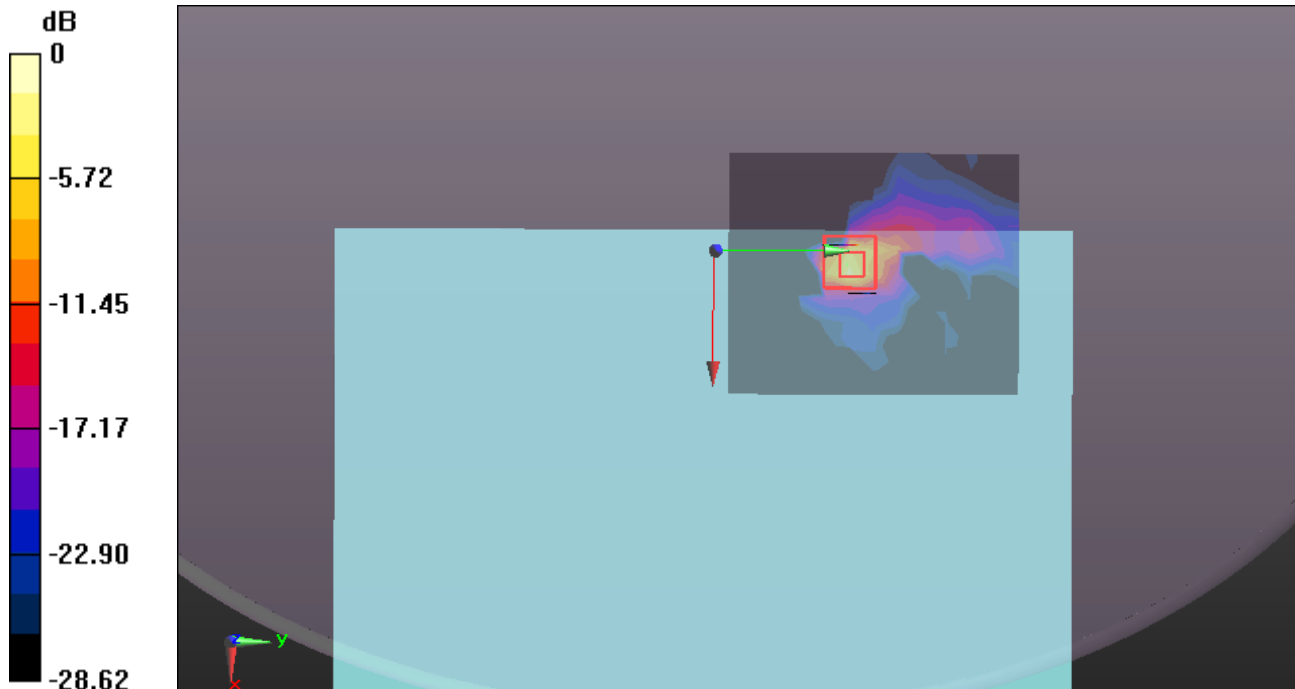
(7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 3.617 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 6.08 W/kg

SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.222 W/kg

Maximum value of SAR (measured) = 3.24 W/kg



0 dB = 3.24 W/kg = 5.11 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH128 Chain0 South Star Antenna repeat

DUT: Notebockt Computer; Type: Lenovo ideapad 320S-13IKB; 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; $\sigma = 5.92$ S/m; $\epsilon_r = 48.083$; $\rho = 1000$ 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 - SN3820; ConvF(3.8, 3.8, 3.8); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna repeat/Area Scan (11x13x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 2.31 W/kg

WIFI/IEEE802.11a Body Bottom CH128 Chain0 South Star Antenna repeat/Zoom Scan

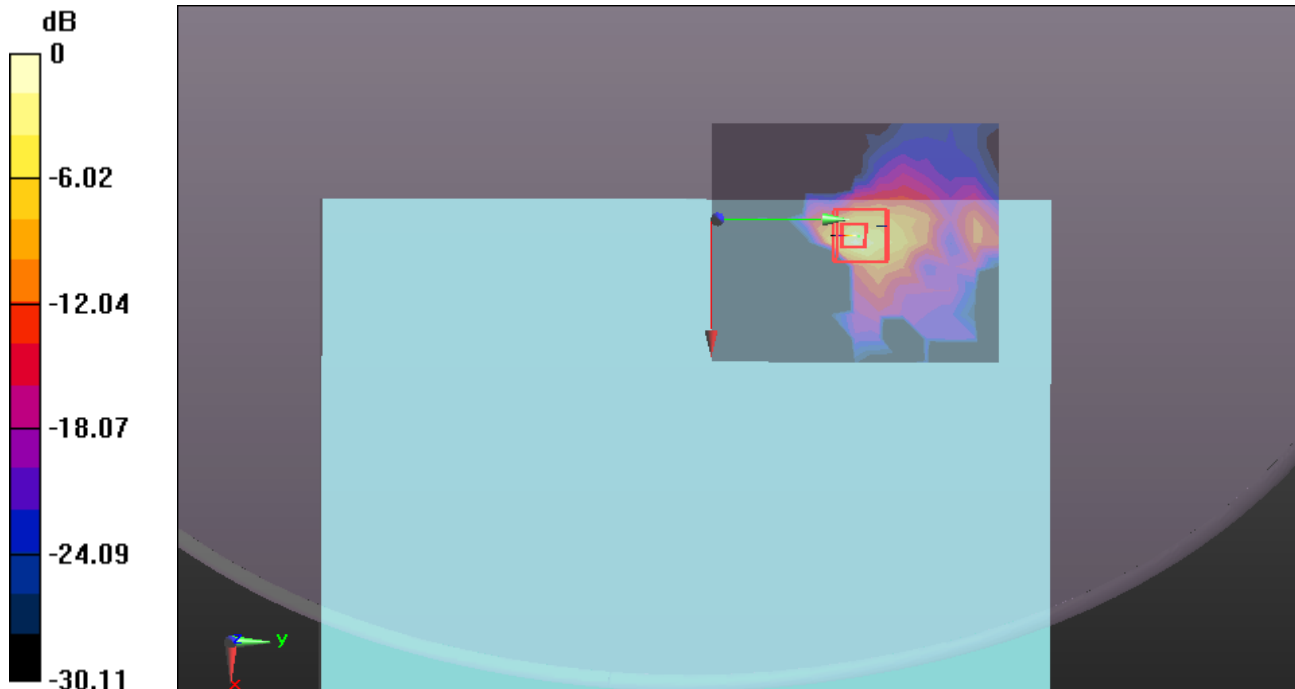
(7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 2.215 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 5.66 W/kg

SAR(1 g) = 1 W/kg; SAR(10 g) = 0.229 W/kg

Maximum value of SAR (measured) = 3.03 W/kg



0 dB = 3.03 W/kg = 4.81 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH149 Chain0 South Star Antenna repeat

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 5745 \text{ MHz}$; $\sigma = 6.077 \text{ S/m}$; $\epsilon_r = 47.877$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(4.04, 4.04, 4.04); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0 South Star Antenna repeat/Area Scan (11x13x1):

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

Maximum value of SAR (measured) = 2.11 W/kg

WIFI/IEEE802.11a Body Bottom CH149 Chain0 South Star Antenna repeat/Zoom Scan

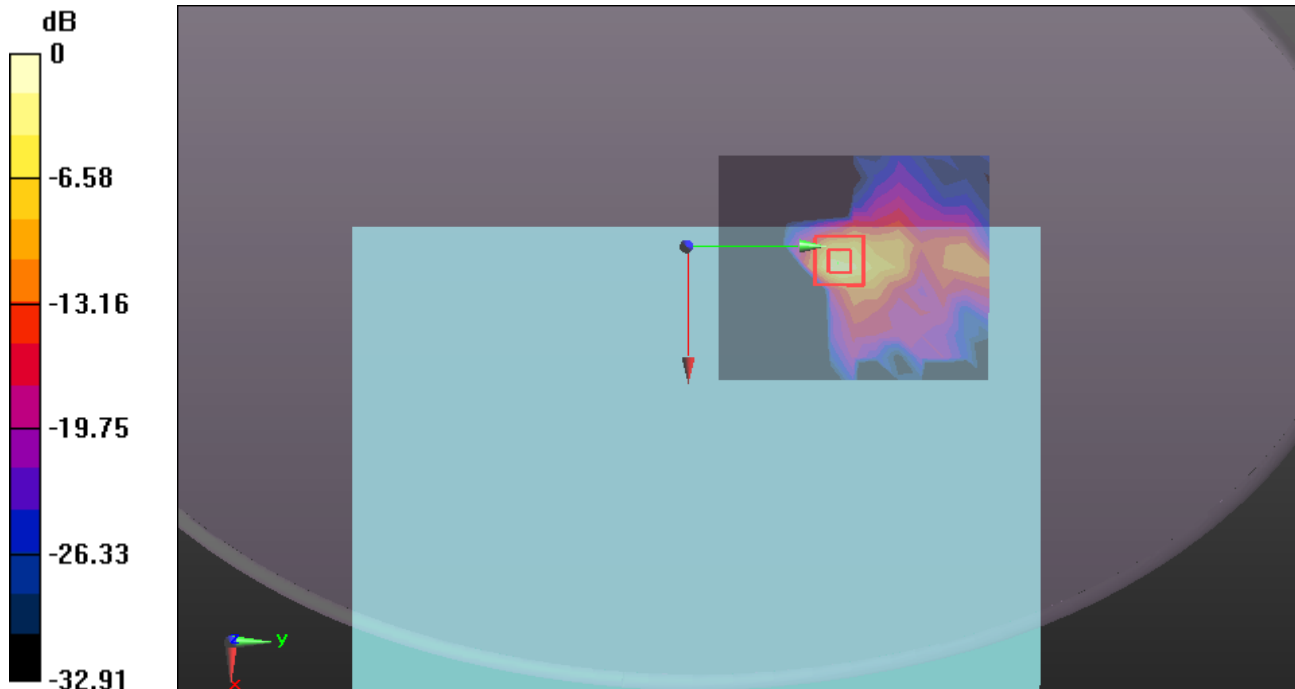
(7x7x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 3.444 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 5.92 W/kg

SAR(1 g) = 1.06 W/kg; SAR(10 g) = 0.221 W/kg

Maximum value of SAR (measured) = 3.08 W/kg



0 dB = 3.08 W/kg = 4.89 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/18/2017

2.4GHz -Body Bottom CH39 Chain0 B&T Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 2441 \text{ MHz}$; $\sigma = 1.914 \text{ S/m}$; $\epsilon_r = 51.198$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(7.1, 7.1, 7.1); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:xxxx
- DASYS52 52.8.8(1222);
- SEMCAD X Version 14.6.10 (7331)

WiFi 2.4GHz/Body Bottom CH39 Chain0/Area Scan (10x12x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (measured) = 0.193 W/kg

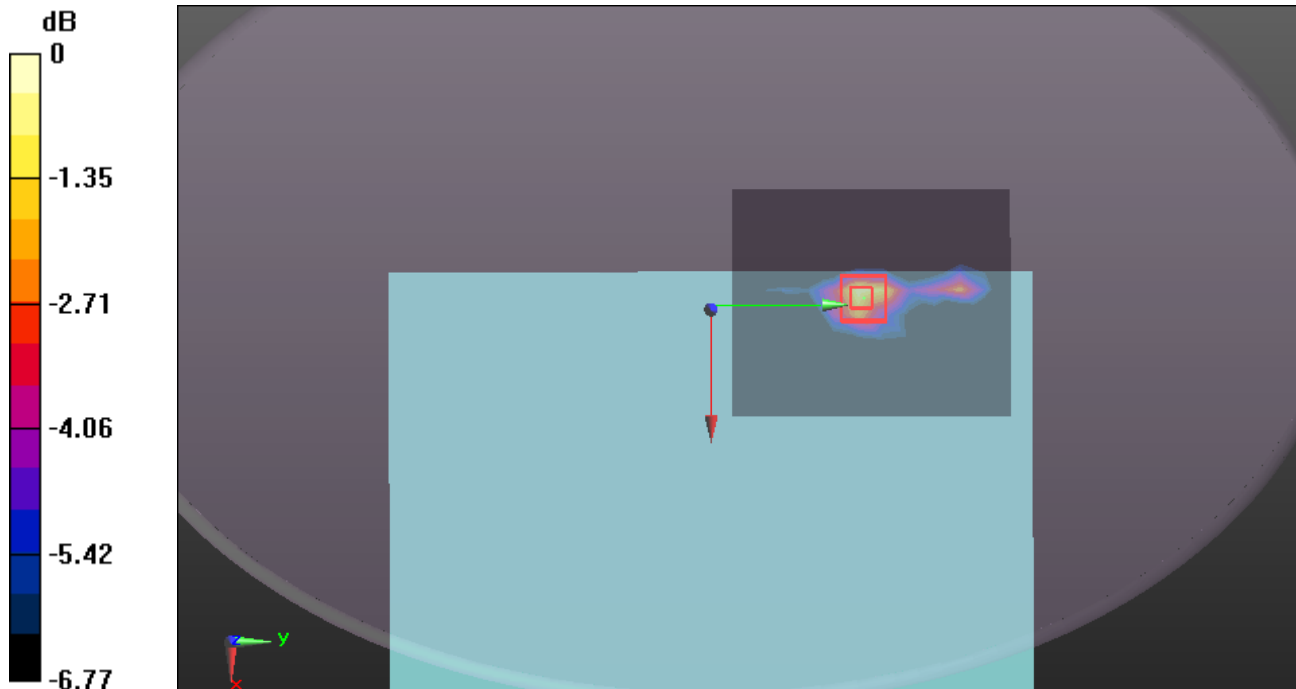
WiFi 2.4GHz/Body Bottom CH39 Chain0/Zoom Scan (7x7x5)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.221 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.683 W/kg

SAR(1 g) = 0.114 W/kg; SAR(10 g) = 0.047 W/kg

Maximum value of SAR (measured) = 0.288 W/kg



0 dB = 0.288 W/kg = -5.41 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/18/2017

WIFI 802.11 b-Body Bottom CH1 Chain0 B&T Antenna

DUT: Notebockt Computer; Type: Lenovo ideapad 320S-13IKB; 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: $f = 2412 \text{ MHz}$; $\sigma = 1.879 \text{ S/m}$; $\epsilon_r = 51.275$; $\rho = 1000 \text{ kg/m}^3$

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 - SN3820; ConvF(7.1, 7.1, 7.1); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0/Area Scan (10x12x1): Measurement grid:

$dx=12\text{mm}$, $dy=12\text{mm}$

Maximum value of SAR (measured) = 1.04 W/kg

WiFi 2.4GHz/IEEE802.11b Body Bottom CH1 Chain0/Zoom Scan (7x7x5)/Cube 0: Measurement grid:

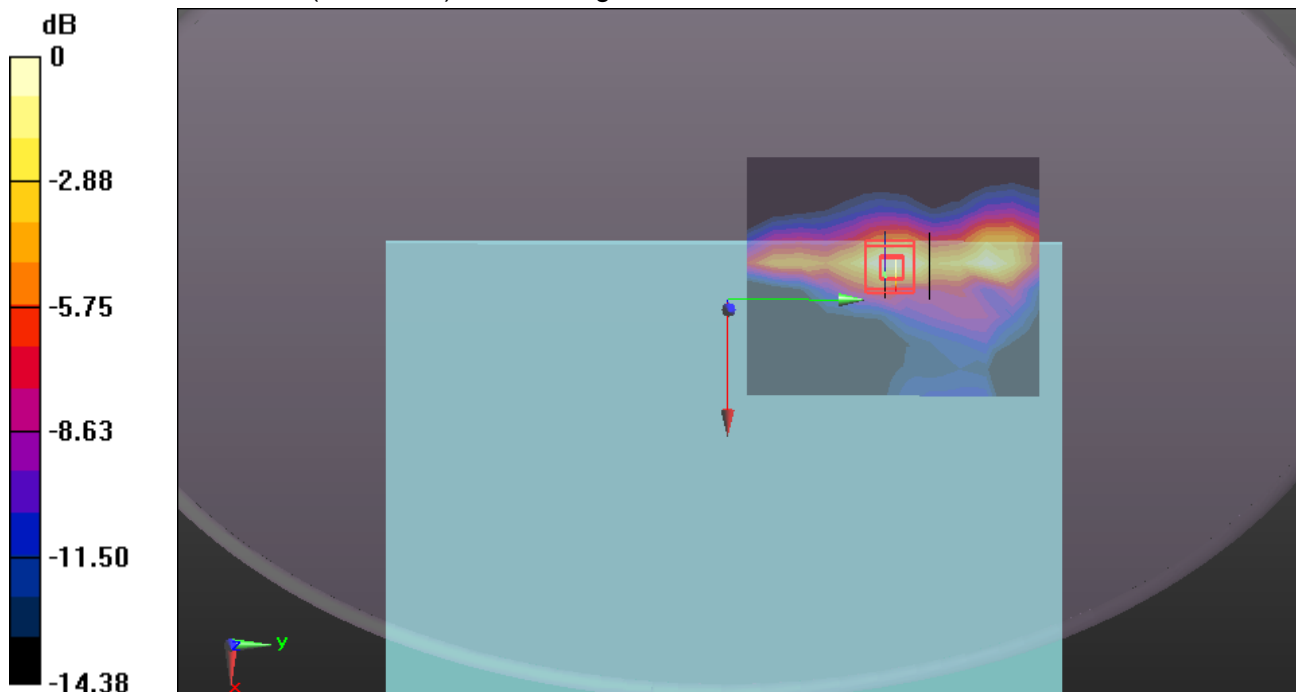
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.132 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.66 W/kg

SAR(1 g) = 0.652 W/kg; SAR(10 g) = 0.152 W/kg

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



0 dB = 1.09 W/kg = 0.37 dBW/kg

Test Laboratory: Compliance Certification Services Inc.

Date: 7/19/2017

WIFI 802.11 a-Body Bottom CH56 Chain0 B&T Antenna

DUT: Notebookt Computer; Type: Lenovo ideapad 320S-13IKB; 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; $\sigma = 5.399$ S/m; $\epsilon_r = 48.919$; $\rho = 1000$ 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 - SN3820; ConvF(4.39, 4.39, 4.39); Calibrated: 6/27/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/20/2017
- 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 Chain0/Area Scan (11x13x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 1.49 W/kg

WIFI/IEEE802.11a Body Bottom CH56 Chain0/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

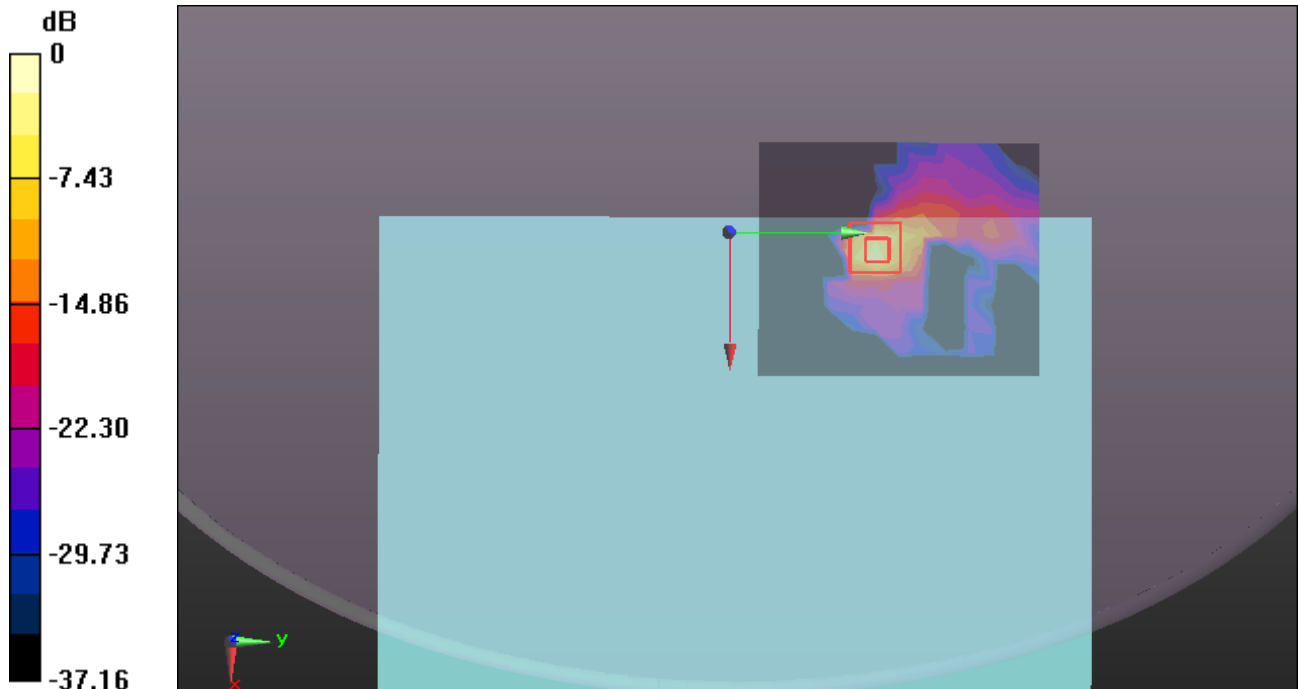
dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 2.574 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 5.48 W/kg

SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.209 W/kg

Maximum value of SAR (measured) = 2.16 W/kg



0 dB = 2.16 W/kg = 3.34 dBW/kg