Jon Kenny Digitally signed by Jon Kenny Date: 2021.10.14 15:27:35 +01'00'

Date/Time: 02/09/21 15:52:00

Test Laboratory: TUV SUD

Bluetooth FCC-ISED

DUT: A2442

Communication System: UID 10032 - CAA, IEEE 802.15.1 Bluetooth (GFSK, DH5); Communication System Band: ISM 2.4 GHz Band (2400.0 - 2483.5 MHz); Frequency: 2441 MHz;Communication System PAR: 1.158 dB; PMF: 1.14288
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.855 S/m; ε_r = 40.656; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(7.44, 7.44, 7.44) @ 2441 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10032 - CAA, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

BT Core 0 -wifi on/Core 0 - Bottom-BT-BDR-dh5 -IPA -Power Command 1,5/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.251 W/kg

BT Core 0 -wifi on/Core 0 - Bottom-BT-BDR-dh5 -IPA -Power Command 1,5/Zoom Scan (7x7x4)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.60 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.345 W/kg
SAR(1 g) = 0.134 W/kg; SAR(10 g) = 0.066 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.253 W/kg

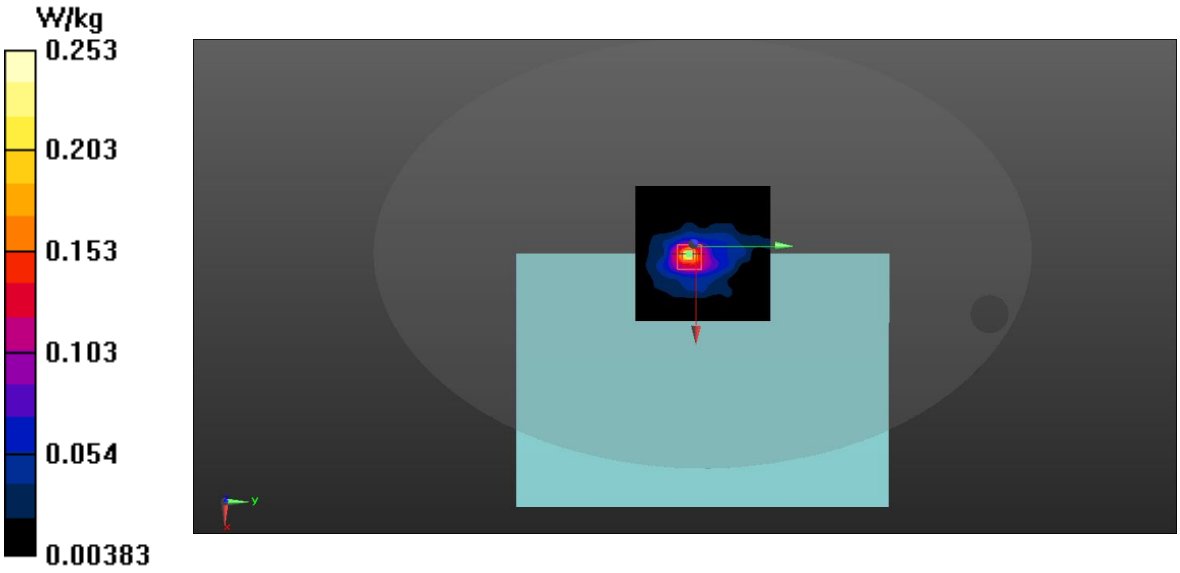


Figure C.4: SAR Body Testing Results for the A2442 at 2441 MHz

Date/Time: 02/09/21 16:14:39

Test Laboratory: TUV SUD

Bluetooth FCC-ISED

DUT: A2442

Communication System: UID 10032 - CAA, IEEE 802.15.1 Bluetooth (GFSK, DH5); Communication System Band: ISM 2.4 GHz Band (2400.0 - 2483.5 MHz); Frequency: 2441 MHz;Communication System PAR: 1.158 dB; PMF: 1.14288
Medium parameters used (interpolated): f = 2441 MHz; σ = 1.855 S/m; ε_r = 40.656; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(7.44, 7.44, 7.44) @ 2441 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10032 - CAA, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

BT Core 0 -wifi on/Core 0 - Bottom-BT-BDR-dh5 -ePA -Power Command 1,5/Area Scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.242 W/kg

BT Core 0 -wifi on/Core 0 - Bottom-BT-BDR-dh5 -ePA -Power Command 1,5/Zoom Scan (7x7x4)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.84 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.358 W/kg
SAR(1 g) = 0.134 W/kg; SAR(10 g) = 0.066 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.252 W/kg

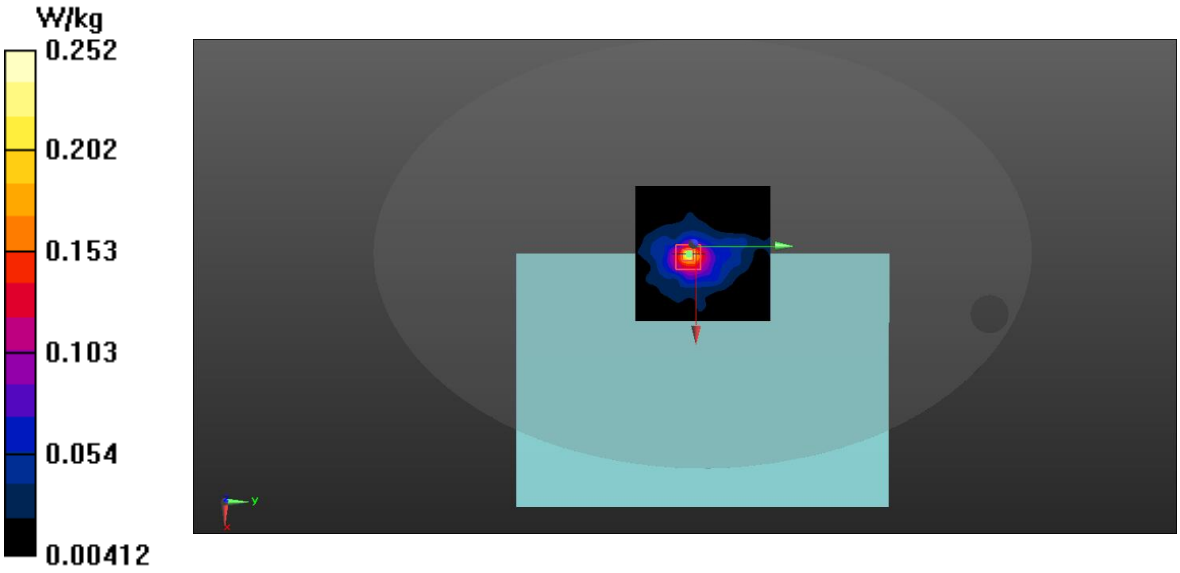


Figure C.5: SAR Body Testing Results for the A2442 at 2441 MHz

Date/Time: 02/09/21 16:37:04

Test Laboratory: TUV SUD

Bluetooth FCC-ISED

DUT: A2442

Communication System: UID 10032 - CAA, IEEE 802.15.1 Bluetooth (GFSK, DH5); Communication System Band: ISM 2.4 GHz Band (2400.0 - 2483.5 MHz); Frequency: 2402 MHz;Communication System PAR: 1.158 dB; PMF: 1.14288
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.825 S/m; ε_r = 40.719; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(7.44, 7.44, 7.44) @ 2402 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10032 - CAA, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

BT Core 1 -wifi on/Core 1 - Bottom -BT-BDR-dh5 -ePA -Power Command 1,5/Area scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.172 W/kg

BT Core 1 -wifi on/Core 1 - Bottom -BT-BDR-dh5 -ePA -Power Command 1,5/Zoom Scan (7x7x4)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.647 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 0.237 W/kg
SAR(1 g) = 0.093 W/kg; SAR(10 g) = 0.042 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.174 W/kg

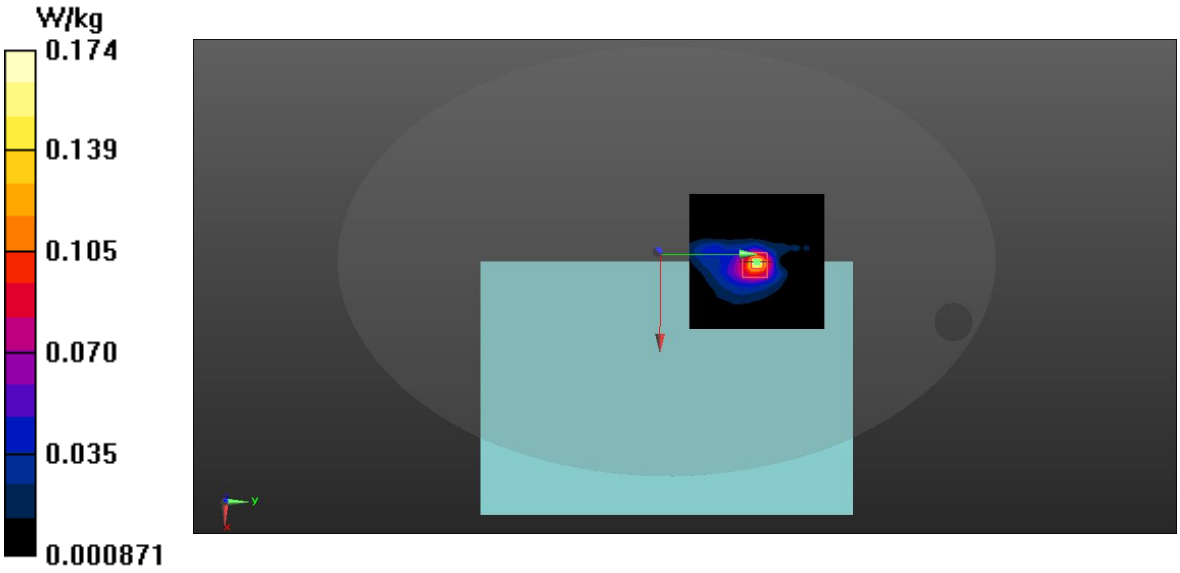


Figure C.6: SAR Body Testing Results for the A2442 at 2402 MHz

Date/Time: 02/09/21 14:46:58

Test Laboratory: TUV SUD

Bluetooth FCC-ISED

DUT: A2442

Communication System: UID 10032 - CAA, IEEE 802.15.1 Bluetooth (GFSK, DH5); Communication System Band: ISM 2.4 GHz Band (2400.0 - 2483.5 MHz); Frequency: 2480 MHz;Communication System PAR: 1.158 dB; PMF: 1.14288
Medium parameters used: f = 2480 MHz; σ = 1.887 S/m; ε_r = 40.588; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(7.44, 7.44, 7.44) @ 2480 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10032 - CAA, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 31.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

BT Core 2 - wifi on/Core 2 - Bottom-BT-BDR-dh5 -IPA -Power Command 1,5/Area scan (101x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.144 W/kg

BT Core 2 - wifi on/Core 2 - Bottom-BT-BDR-dh5 -IPA -Power Command 1,5/Zoom Scan (7x8x4)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.610 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.226 W/kg
SAR(1 g) = 0.087 W/kg; SAR(10 g) = 0.040 W/kg
Maximum value of SAR (measured) = 0.163 W/kg

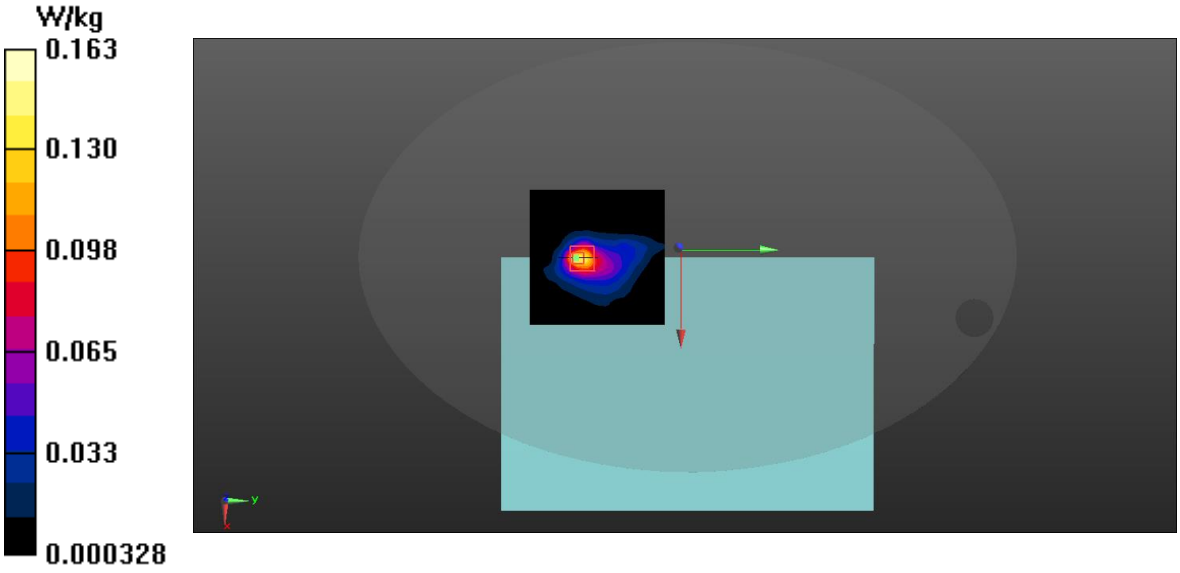


Figure C.7: SAR Body Testing Results for the A2442 at 2480 MHz

WLAN 2450 MHz

Date/Time: 23/08/21 11:56:13

Test Laboratory: TUV SUD

WIFI 2.4Ghz Core 0 - Back - 23 08 21

DUT: A2442

Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2412 MHz;Communication System PAR: 1.872 dB; PMF: 1.04833
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.836 S/m; ε_r = 40.086; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(7.44, 7.44, 7.44) @ 2412 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10012 - CAB, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 31.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

2.4GHz Core 0 -Display side/Core 0 - CH1 q70/Area Scan (101x141x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.837 W/kg

2.4GHz Core 0 -Display side/Core 0 - CH1 q70/Zoom Scan (7x7x4)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.61 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.446 W/kg; SAR(10 g) = 0.197 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.851 W/kg

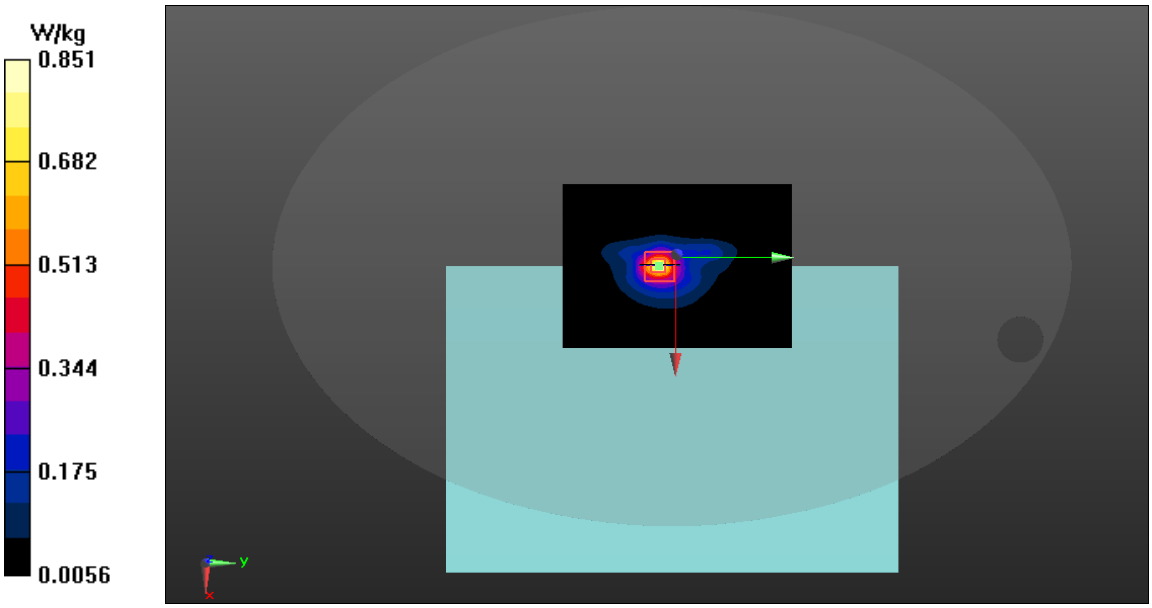


Figure C.8: SAR Body Testing Results for the A2442 at 2412 MHz

Date/Time: 23/08/21 13:07:20

Test Laboratory: TUV SUD

WIFI 2.4Ghz Core 1 Back - 23 08 21

DUT: A2442

Communication System: UID 10012 - CAB, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2467 MHz;Communication System PAR: 1.872 dB; PMF: 1.04833
Medium parameters used (interpolated): f = 2467 MHz; σ = 1.879 S/m; ε_r = 39.994; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(7.44, 7.44, 7.44) @ 2467 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10012 - CAB, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 31.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

2.4GHz Core 1 -Bottom of EUT/Core 1 - CH12 q74/Area scan (91x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.880 W/kg

2.4GHz Core 1 -Bottom of EUT/Core 1 - CH12 q74/Zoom Scan (8x8x4)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.27 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.446 W/kg; SAR(10 g) = 0.201 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.851 W/kg

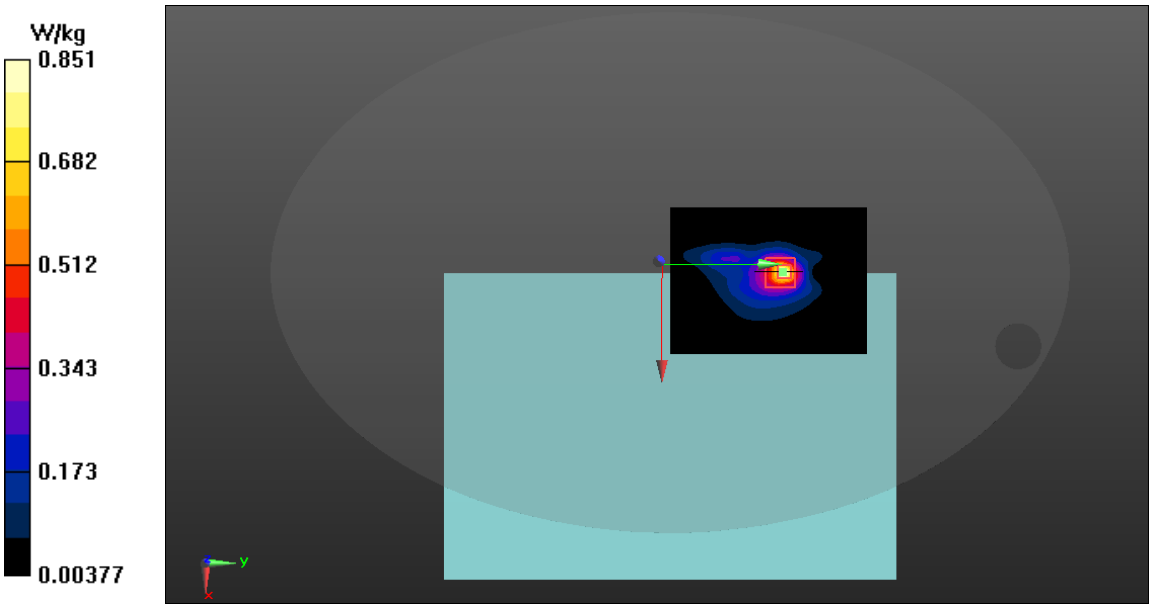


Figure C.9: SAR Body Testing Results for the A2442 at 2467 MHz

Date/Time: 23/08/21 13:34:36

Test Laboratory: TUV SUD

WIFI 2.4Ghz MIMO Core 0 +Core 1 - 23 08 21

DUT: A2442

Communication System: UID 10193 - CAC, IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK); Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz); Frequency: 2462 MHz;Communication System PAR: 8.092 dB; PMF: 1.01742
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.875 S/m; ε_r = 40.003; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(7.44, 7.44, 7.44) @ 2462 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10193 - CAC, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 31.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

2.4GHz MIMO Core 0 +Core 1 Back/Core 0&1 - CH11 q74/Area Scan (81x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.682 W/kg

2.4GHz MIMO Core 0 +Core 1 Back/Core 0&1 - CH11 q74/Area Scan (81x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.682 W/kg

2.4GHz MIMO Core 0 +Core 1 Back/Core 0&1 - CH11 q74/Zoom Scan (7x7x4)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.03 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.416 W/kg; SAR(10 g) = 0.184 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.778 W/kg

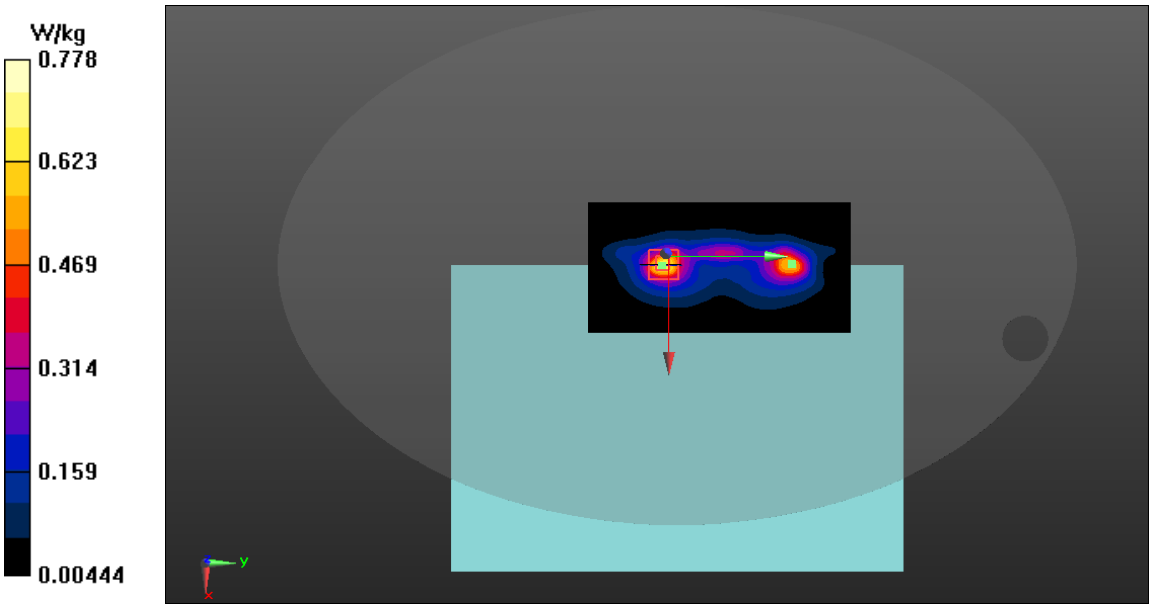


Figure C.10: SAR Body Testing Results for the A2442 at 2462 MHz

WLAN 5500 MHz

Date/Time: 20/08/21 19:04:35

Test Laboratory: TUV SUD

WIFI 5Ghz Core 0 System 1- 20 08 21

DUT: A2442

Communication System: UID 10544 - AAB, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle); Communication System Band: U-NII-1, U-NII-2A (5170 - 5330 MHz); Frequency: 5210 MHz;Communication System PAR: 8.467 dB; PMF: 1.01391
Medium parameters used (interpolated): f = 5210 MHz; σ = 4.608 S/m; ε_r = 35.158; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(4.57, 4.57, 4.57) @ 5210 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10544 - AAB, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 25.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

5GHz Core 0 -Bottom of EUT/Core 0 - Bottom- ch42 q51/Area Scan (91x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.16 W/kg

5GHz Core 0 -Bottom of EUT/Core 0 - Bottom- ch42 q51/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 9.395 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 2.14 W/kg
SAR(1 g) = 0.534 W/kg; SAR(10 g) = 0.181 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.24 W/kg

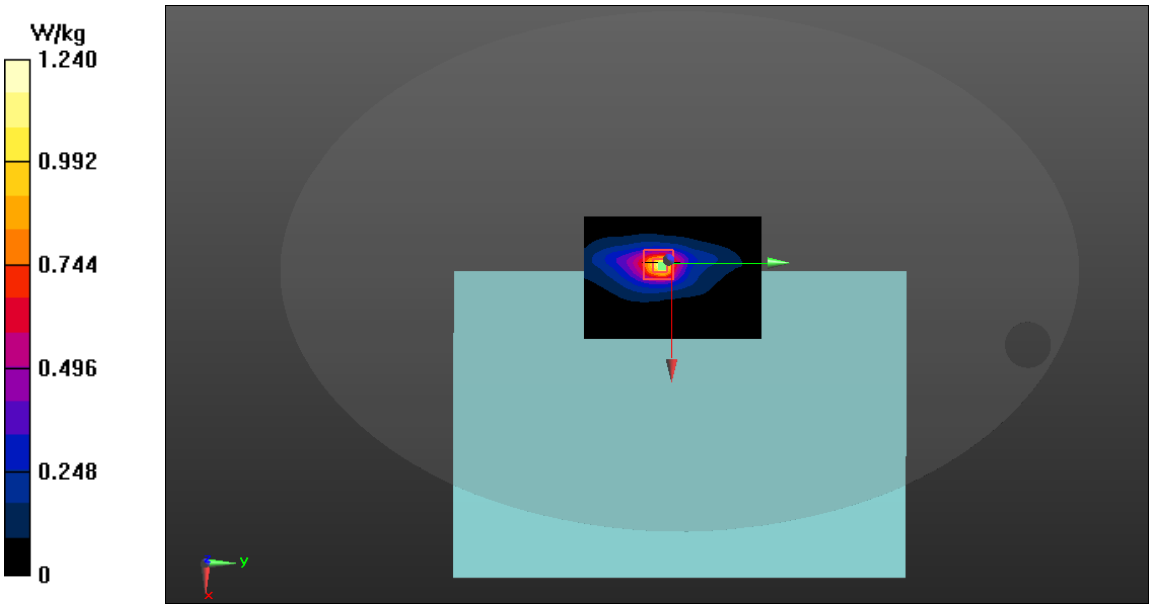


Figure C.11: SAR Body Testing Results for the A2442 at 5210 MHz

Date/Time: 20/08/21 20:22:56

Test Laboratory: TUV SUD

WIFI 5Ghz Core 1 Back - 20 08 21

DUT: A2442

Communication System: UID 10544 - AAB, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle); Communication System Band: U-NII-1, U-NII-2A (5170 - 5330 MHz); Frequency: 5210 MHz;Communication System PAR: 8.467 dB; PMF: 1.01391
Medium parameters used (interpolated): f = 5210 MHz; σ = 4.608 S/m; ε_r = 35.158; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(4.57, 4.57, 4.57) @ 5210 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10544 - AAB, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 25.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

5GHz Core 1 -Bottom of EUT/Core 1 - Bottom- ch42 q51/Area Scan (91x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.35 W/kg

5GHz Core 1 -Bottom of EUT/Core 1 - Bottom- ch42 q51/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm 2 (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 3.235 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 2.33 W/kg
SAR(1 g) = 0.611 W/kg; SAR(10 g) = 0.210 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.41 W/kg

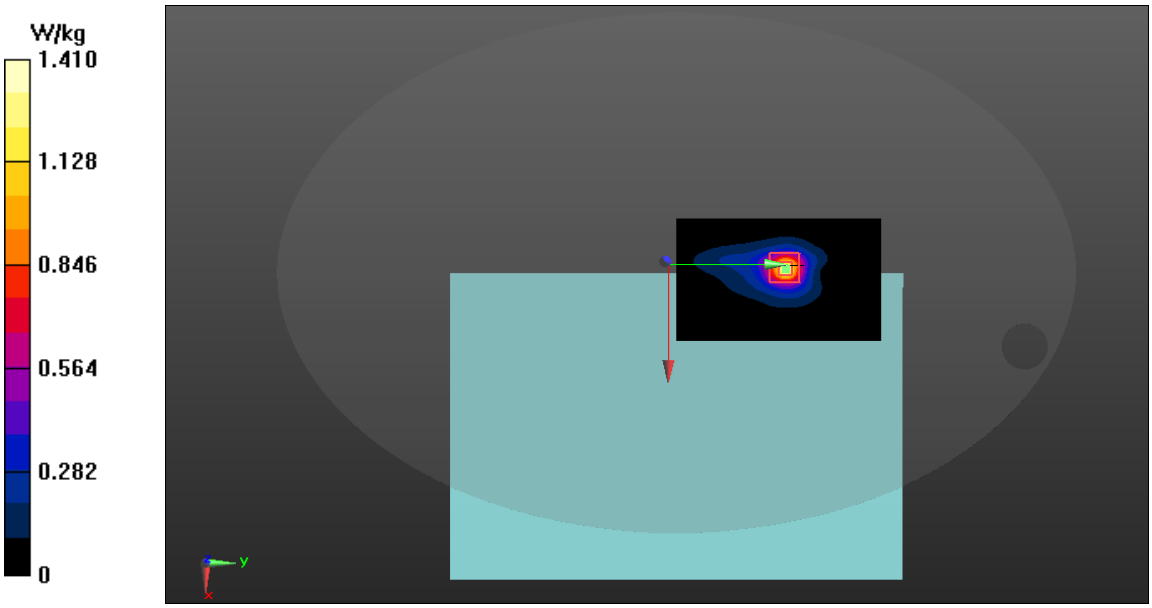


Figure C.12: SAR Body Testing Results for the A2442 at 5210 MHz

Date/Time: 25/08/21 15:16:01

Test Laboratory: TUV SUD

WIFI 5Ghz MIMO Core 0 +Core 1 Back - 25 08 21

DUT: A2442

Communication System: UID 10544 - AAB, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle); Communication System Band: U-NII-1, U-NII-2A (5170 - 5330 MHz); Frequency: 5210 MHz;Communication System PAR: 8.467 dB; PMF: 1.01391
Medium parameters used (interpolated): f = 5210 MHz; σ = 4.585 S/m; ε_r = 34.876; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN3759; ConvF(4.57, 4.57, 4.57) @ 5210 MHz; Calibrated: 17/12/20

Modulation Compensation: PMR for UID 10544 - AAB, Calibrated: 17/12/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 25.0

Electronics: DAE4 Sn475; Calibrated: 08/12/20

Phantom: ELI V8.0 Rear; Type: QD OVA 004 Ax; Serial: 2057

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

5GHz MIMO Core 0 +Core 1 Back/Core 0 +1 - ch42 q51 SDM/Area Scan (101x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.34 W/kg

5GHz MIMO Core 0 +Core 1 Back/Core 0 +1 - ch42 q51 SDM/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (8x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 15.92 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 2.37 W/kg
SAR(1 g) = 0.579 W/kg; SAR(10 g) = 0.193 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.44 W/kg

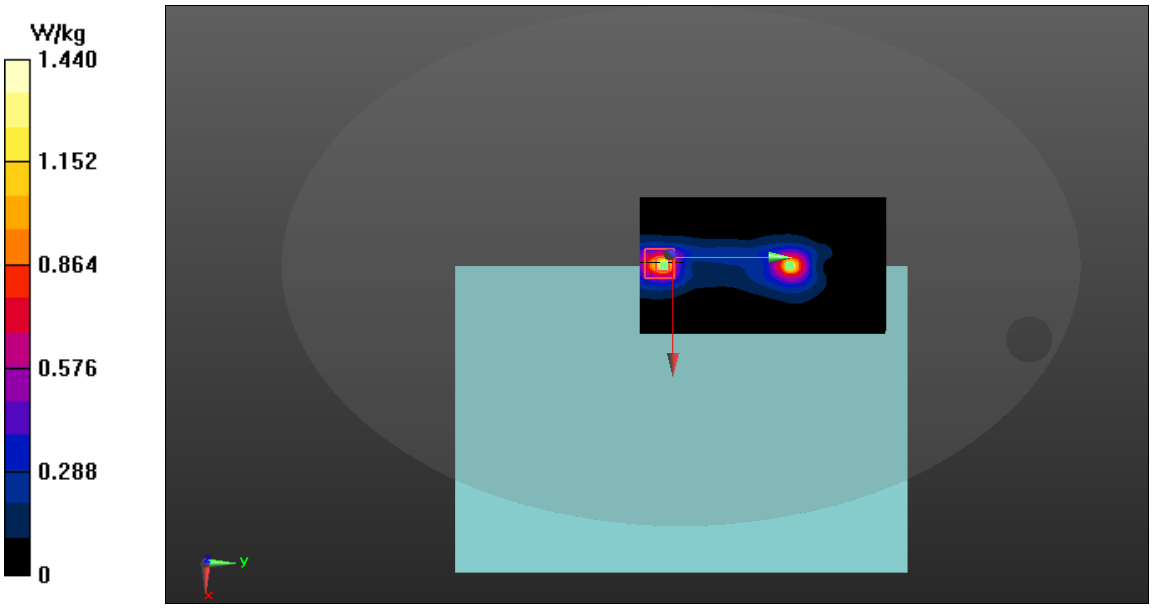


Figure C.13: SAR Body Testing Results for the A2442 at 5210 MHz

Date/Time: 27/08/21 22:44:45

Test Laboratory: TUV SUD

WIFI 5Ghz FCC-ISED RETESTS

DUT: A2442

Communication System: UID 10544 - AAB, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle); Communication System Band: U-NII-2C Standalone (5490 - 5710 MHz); Frequency: 5690 MHz;Communication System PAR: 8.467 dB; PMF: 1.01391
Medium parameters used: f = 5690 MHz; σ = 5.186 S/m; ε_r = 34.632; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN7536; ConvF(4.73, 4.73, 4.73) @ 5690 MHz; Calibrated: 22/06/20

Modulation Compensation: PMR for UID 10544 - AAB, Calibrated: 22/06/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 25.0

Electronics: DAE4 Sn1584; Calibrated: 09/06/21

Phantom: ELI V8.0 (REAR); Type: QD OVA 004 Ax; Serial: 2102

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

SISO CORE 0 - Bottom/Core 0 - Bottom- ch138 q51/Area Scan (91x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.40 W/kg

SISO CORE 0 - Bottom/Core 0 - Bottom- ch138 q51/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 14.02 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 2.93 W/kg
SAR(1 g) = 0.601 W/kg; SAR(10 g) = 0.196 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.53 W/kg

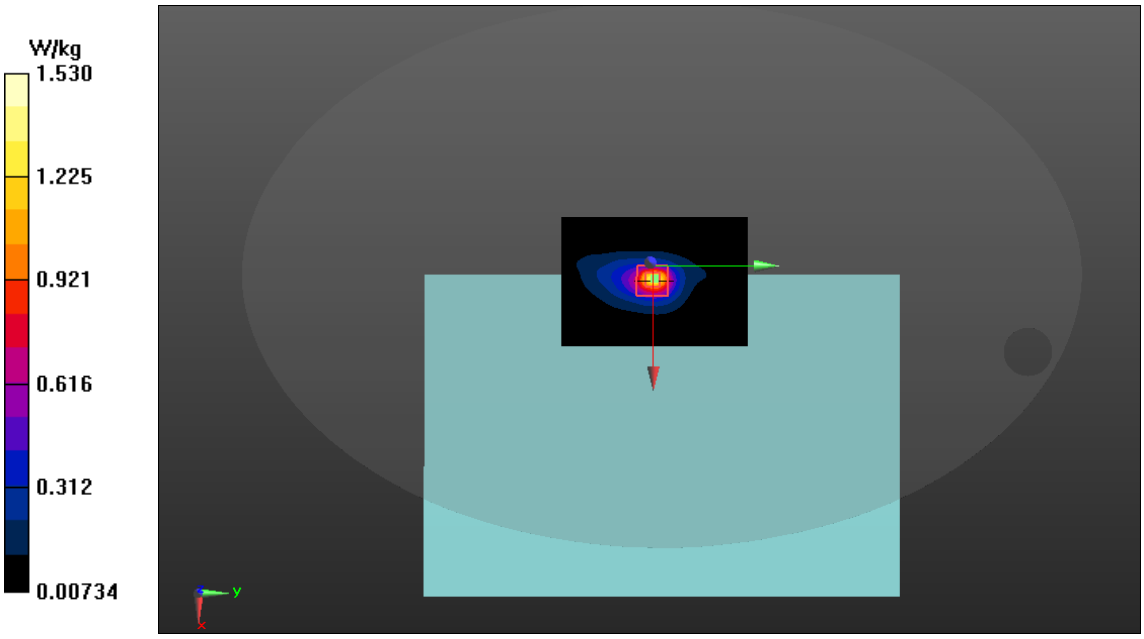


Figure C.14: SAR Body Testing Results for the A2442 at 5690 MHz

Date/Time: 28/08/21 00:20:55

Test Laboratory: TUV SUD

WIFI 5Ghz FCC-ISED RETESTS

DUT: A2442

Communication System: UID 10544 - AAB, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle); Communication System Band: U-NII-2C Standalone (5490 - 5710 MHz); Frequency: 5690 MHz;Communication System PAR: 8.467 dB; PMF: 1.01391
Medium parameters used: f = 5690 MHz; σ = 5.186 S/m; ε_r = 34.632; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN7536; ConvF(4.73, 4.73, 4.73) @ 5690 MHz; Calibrated: 22/06/20

Modulation Compensation: PMR for UID 10544 - AAB, Calibrated: 22/06/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 25.0

Electronics: DAE4 Sn1584; Calibrated: 09/06/21

Phantom: ELI V8.0 (REAR); Type: QD OVA 004 Ax; Serial: 2102

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

SISO CORE 1 - Bottom/Core 1 - Bottom- ch138 q52/Area Scan (91x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.78 W/kg

SISO CORE 1 - Bottom/Core 1 - Bottom- ch138 q52/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 15.77 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 3.51 W/kg
SAR(1 g) = 0.789 W/kg; SAR(10 g) = 0.273 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.94 W/kg

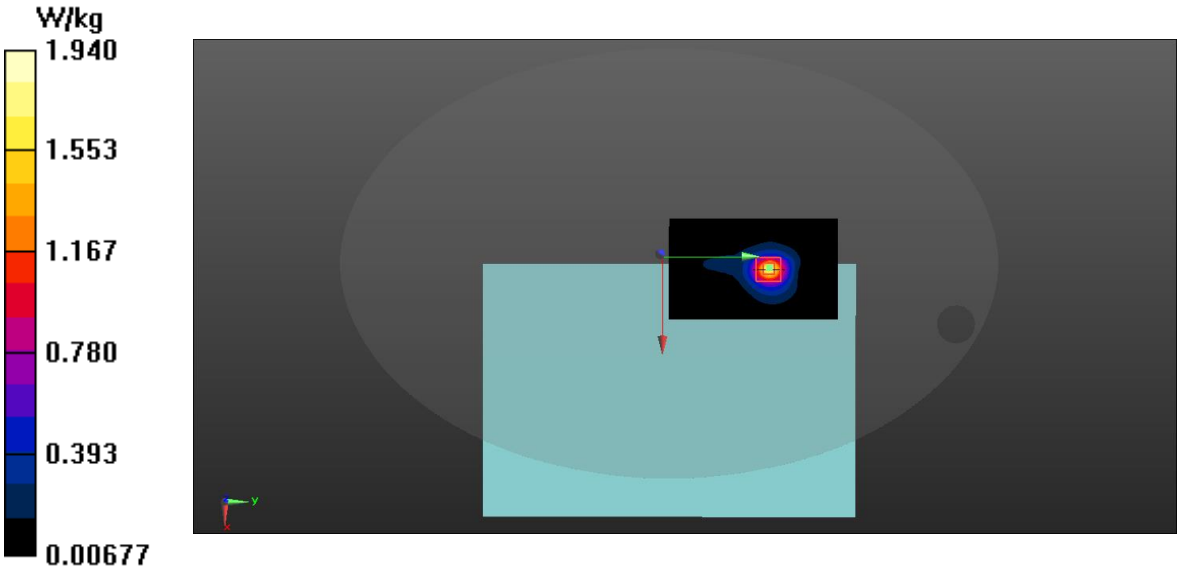


Figure C.15: SAR Body Testing Results for the A2442 at 5690 MHz

Date/Time: 27/08/21 21:13:16

Test Laboratory: TUV SUD

WIFI 5Ghz FCC-ISED RETESTS

DUT: A2442

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle); Communication System Band: U-NII-2C Standalone (5490 - 5710 MHz); Frequency: 5690 MHz;Communication System PAR: 8.467 dB; PMF: 1.01391
Medium parameters used: f = 5690 MHz; σ = 5.186 S/m; ε_r = 34.632; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN7536; ConvF(4.85, 4.85, 4.85) @ 5690 MHz; Calibrated: 18/06/21

Modulation Compensation: PMR for UID 10544 - AAC, Calibrated: 18/06/21

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 25.0

Electronics: DAE4 Sn1584; Calibrated: 09/06/21

Phantom: ELI V8.0 (REAR); Type: QD OVA 004 Ax; Serial: 2102

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

MIMO/Core 0 + 1 - Bottom- ch138 q52/Area Scan (101x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.76 W/kg

MIMO/Core 0 + 1 - Bottom- ch138 q52/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 18.11 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 3.44 W/kg
SAR(1 g) = 0.766 W/kg; SAR(10 g) = 0.259 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.85 W/kg

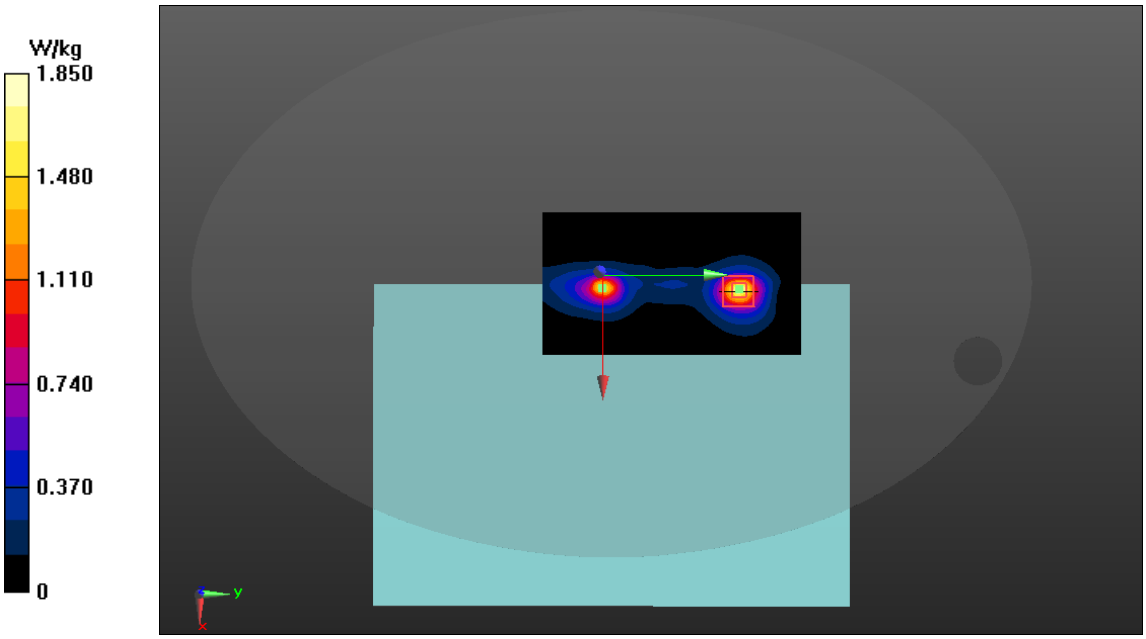


Figure C.16: SAR Body Testing Results for the A2442 at 5690 MHz

Date/Time: 28/08/21 23:41:20

Test Laboratory: TUV SUD

WIFI 5Ghz FCC-ISED RETESTS

DUT: A2442

Communication System: UID 10544 - AAB, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle); Communication System Band: U-NII-3 Standalone (5735 - 5835 MHz); Frequency: 5775 MHz;Communication System PAR: 8.467 dB; PMF: 1.01391
Medium parameters used: f = 5775 MHz; σ = 5.286 S/m; ε_r = 34.482; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN7536; ConvF(4.79, 4.79, 4.79) @ 5775 MHz; Calibrated: 22/06/20

Modulation Compensation: PMR for UID 10544 - AAB, Calibrated: 22/06/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 25.0

Electronics: DAE4 Sn1584; Calibrated: 09/06/21

Phantom: ELI V8.0 (REAR); Type: QD OVA 004 Ax; Serial: 2102

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

SISO CORE 0 - Bottom/Core 0 - Bottom- ch155 q52/Area Scan (91x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.17 W/kg

SISO CORE 0 - Bottom/Core 0 - Bottom- ch155 q52/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 11.12 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 2.39 W/kg
SAR(1 g) = 0.480 W/kg; SAR(10 g) = 0.159 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.22 W/kg

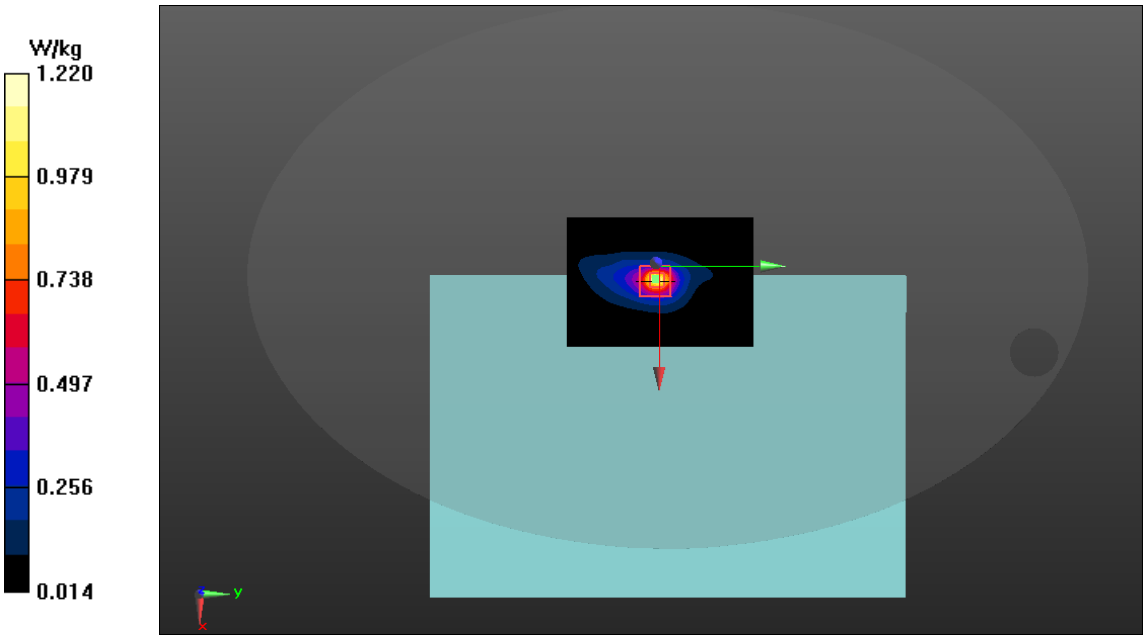


Figure C.17: SAR Body Testing Results for the A2442 at 5775 MHz

Date/Time: 29/08/21 00:11:43

Test Laboratory: TUV SUD

WIFI 5Ghz FCC-ISED RETESTS

DUT: A2442

Communication System: UID 10544 - AAB, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle); Communication System Band: U-NII-3 Standalone (5735 - 5835 MHz); Frequency: 5775 MHz;Communication System PAR: 8.467 dB; PMF: 1.01391
Medium parameters used: f = 5775 MHz; σ = 5.286 S/m; ε_r = 34.482; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN7536; ConvF(4.79, 4.79, 4.79) @ 5775 MHz; Calibrated: 22/06/20

Modulation Compensation: PMR for UID 10544 - AAB, Calibrated: 22/06/20

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 25.0

Electronics: DAE4 Sn1584; Calibrated: 09/06/21

Phantom: ELI V8.0 (REAR); Type: QD OVA 004 Ax; Serial: 2102

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

SISO CORE 1 - Bottom/Core 1 - Bottom- ch155 q52/Area Scan (91x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.89 W/kg

SISO CORE 1 - Bottom/Core 1 - Bottom- ch155 q52/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 14.55 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 3.81 W/kg
SAR(1 g) = 0.837 W/kg; SAR(10 g) = 0.291 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 2.03 W/kg

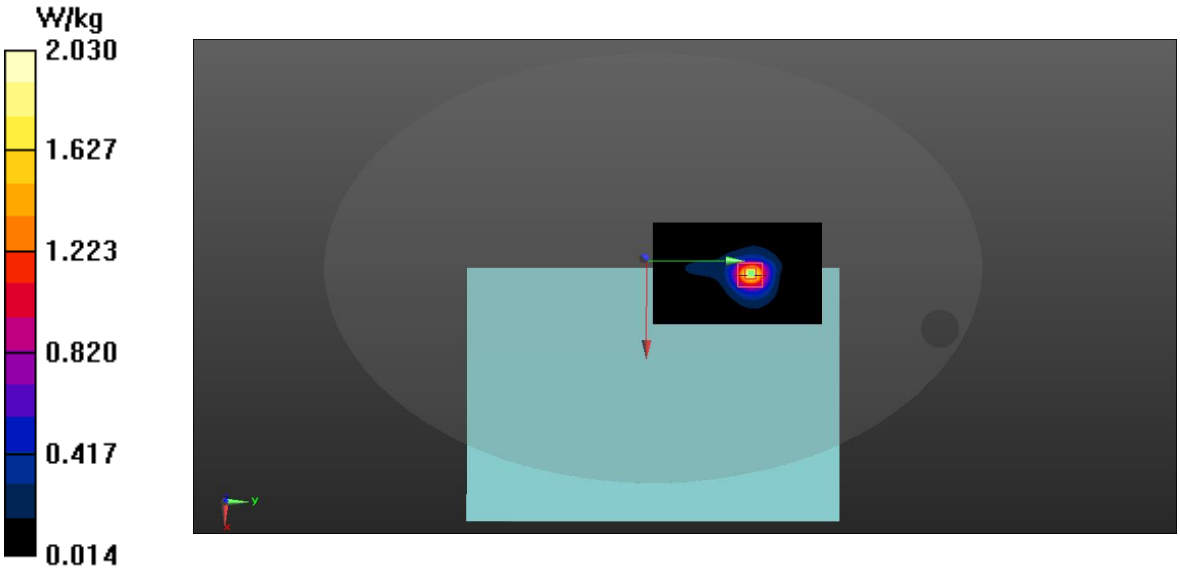


Figure C.18: SAR Body Testing Results for the A2442 at 5775 MHz

WLAN 5800 MHz

Date/Time: 27/08/21 12:02:33

Test Laboratory: TUV SUD

WIFI 5Ghz MIMO Core 0 +Core 1 Back - 27 08 21

DUT: A2442

Communication System: UID 10544 - AAC, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle); Communication System Band: U-NII-3 Standalone (5735 - 5835 MHz); Frequency: 5775 MHz;Communication System PAR: 8.467 dB; PMF: 1.01391
Medium parameters used: f = 5775 MHz; σ = 5.286 S/m; ε_r = 34.482; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY Configuration:

Probe: EX3DV4 - SN7536; ConvF(4.8, 4.8, 4.8) @ 5775 MHz; Calibrated: 18/06/21

Modulation Compensation: PMR for UID 10544 - AAC, Calibrated: 18/06/21

Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -14.0, 25.0

Electronics: DAE4 Sn1584; Calibrated: 09/06/21

Phantom: ELI V8.0 (REAR); Type: QD OVA 004 Ax; Serial: 2102

DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

5GHz MIMO Core 0 +Core 1 Back/Core 0 +1 - Bottom- ch155 q52/Area Scan (101x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.60 W/kg

5GHz MIMO Core 0 +Core 1 Back/Core 0 +1 - Bottom- ch155 q52/Zoom Scan 2(4x4x1.4mm, graded), dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 19.43 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 2.99 W/kg
SAR(1 g) = 0.647 W/kg; SAR(10 g) = 0.219 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.59 W/kg

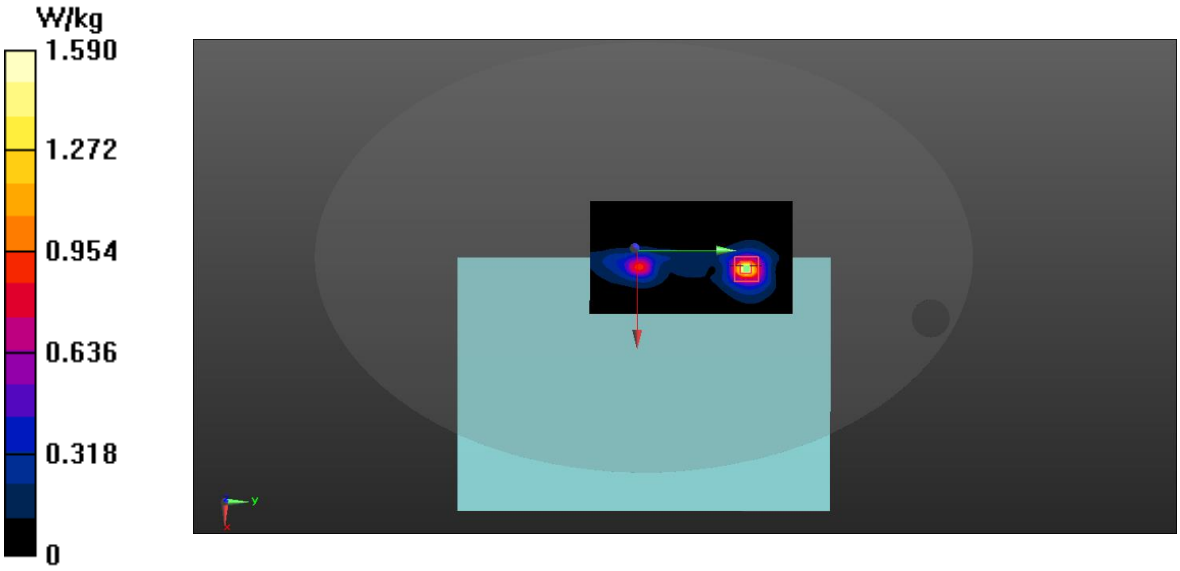
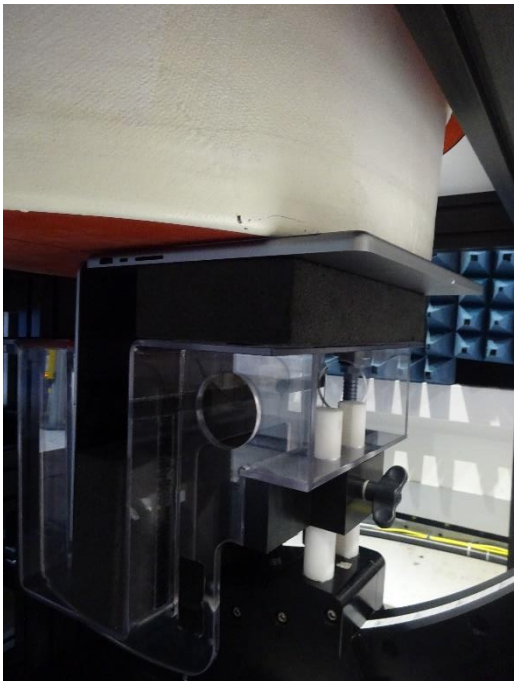


Figure C.19: SAR Body Testing Results for the A2442 at 5775 MHz

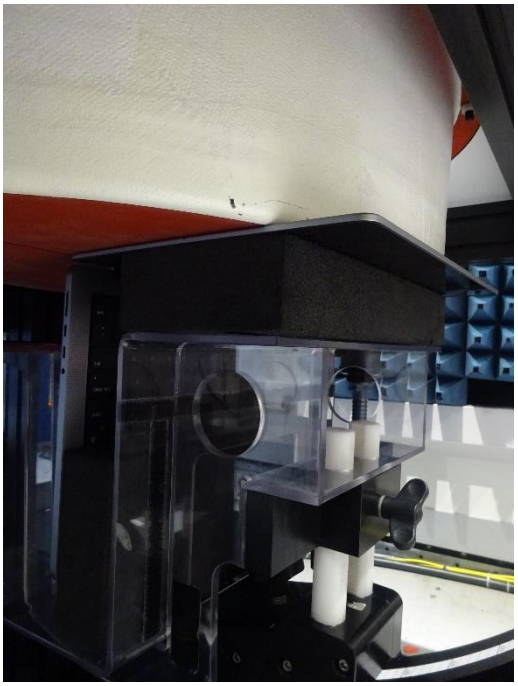
- **ANNEX D**

- **PHOTOGRAPHS**

TEST POSITIONAL PHOTOGRAPHS



Bottom – 0 mm separation distance.



Rear of Display – 0 mm separation distance.

PHOTOGRAPHS OF EQUIPMENT UNDER TEST (EUT)

Top

Bottom

- **ANNEX E**

- **TIME AVERAGED SAR VERIFICATION**

Time Average SAR Verification - ISED

1.0 Introduction

The following verification was completed at the client's site in the UK, using the clients own test equipment and verification procedures.

1.1 Time-Averaged SAR Verification Summary

This device supports the manufacturer's time-averaged SAR (TAS) mechanism for WLAN operations. The output power is controlled in real-time so that the power averaged over any 60 second window does not exceed the 1gm power level tested for SAR in this report. The time-averaged SAR algorithm tracks the energy contribution relative to the available energy budget for each transmitter, defined as the "utilization ratio". Once the utilization ratios for each of the individual WLAN transmitters are calculated, they are summed to derive the overall WLAN system power utilization ratio. This metric is used by the WLAN chipset to manage power levels over time and ensure that SAR limits are never exceeded.

As per ISED Algorithm acceptance letter, the following test scenarios were defined to validate the TAS mechanism. The specific scenarios are constructed to validate the operation of the algorithm in all operational states, including transitions between states/antennas:

• Change in Antenna

• Change in Band (includes connection drop scenario)

Predefined transmit profiles for each test scenario are provided by the manufacturer's test automation software to control the operation of the DUT while synchronized operational data was recorded from internal firmware and external power monitors. The data was plotted over time relative to the utilization limit to demonstrate that the maximum time-averaged power is never exceeded. "Reported" values were output and captured directly from DUT firmware, while "Measured" results were obtained from external power meter. The uncertainty budget applied to the WLAN power control functions for this device is 1.5 dB. In all test cases, WLAN radios were configured to operate at 100% duty cycle.

Table 1-1
Test Configurations for Time-Averaged SAR Verification

Mode	Antenna	Channel	Plim (dBm)	Plim (mW)
802.11b	Core 0 – WF2	6	17.25	53.1
802.11b	Core 1 – WF1	6	18.25	66.8
802.11a	Core 0 – WF2	149	12.25	16.8
802.11a	Core 1 – WF1	149	12.25	16.8

Plim is the maximum time-averaged output power evaluated for SAR compliance

1.2 Verification Summary

Scenario 1: Change in Antenna from Core 0 to Core 1

For this test, the effect on the time-averaging algorithm from a change in the active transmit antenna was evaluated. Figures F-1 and F-2 show a switch of 2.4 GHz transmissions from Core 0(WF2) to Core 1(WF1) at Time = 120 s. The test automation is controlling the WLAN radios to operate at 100% duty cycle. The utilization ratio never exceeds 100% and the average transmit power never exceeds the Plim of each respective antenna.

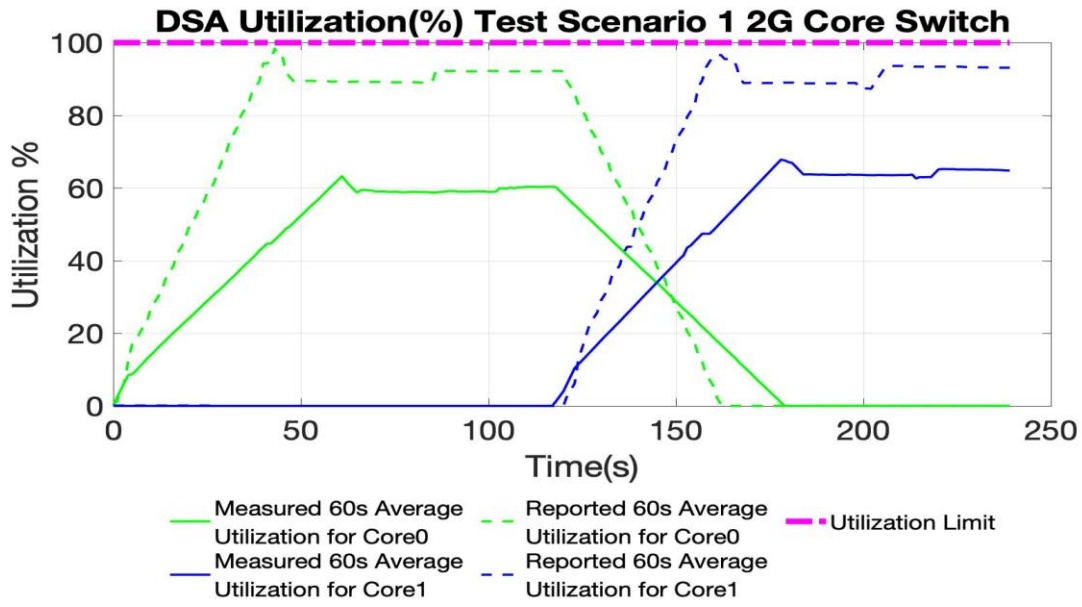


Figure F - 1
60 Sec Average SAR Utilization vs. Time, 2.4 GHz

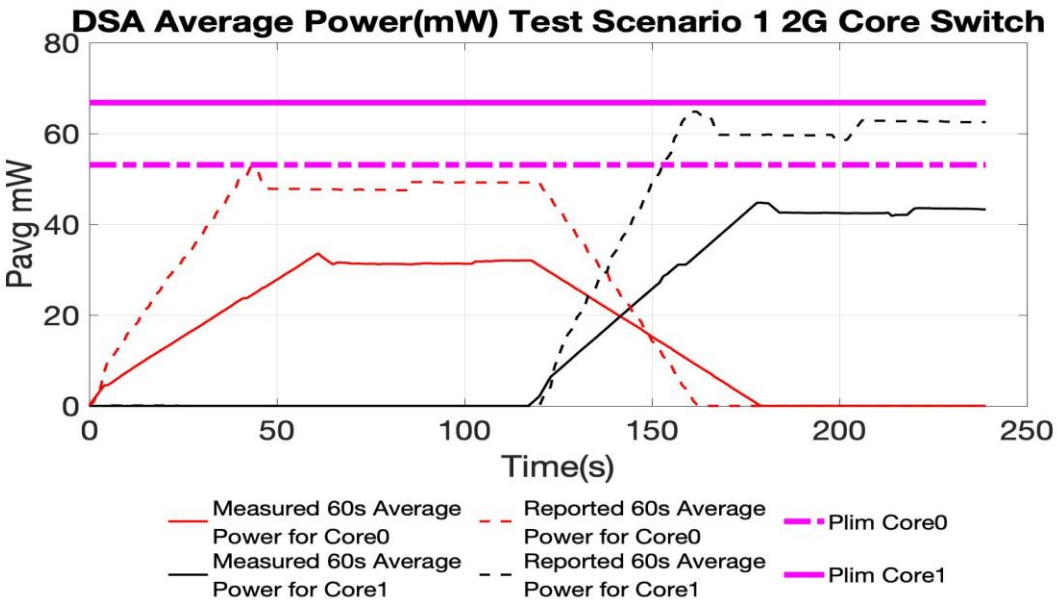


Figure F - 2
60 Sec Average Power vs. Time, 2.4 GHz

For this test, the effect on the time-averaging algorithm from a change in the active transmit antenna was evaluated. Figures F-3 and F-4 show a switch of 5 GHz transmissions from Core 0(WF2) to Core 1(WF1) at Time = 120 s. The test automation is controlling the WLAN radios to operate at 100% duty cycle. The utilization ratio never exceeds 100% and the average transmit power never exceeds the Plim of each respective antenna.

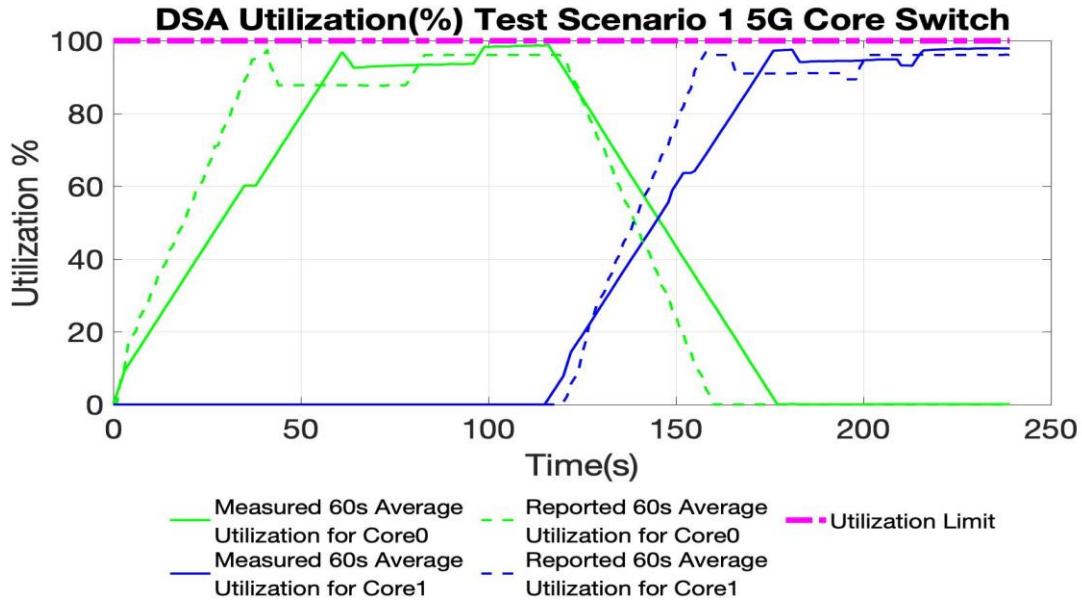


Figure F - 3
60 Sec Average SAR Utilization vs. Time, 5 GHz

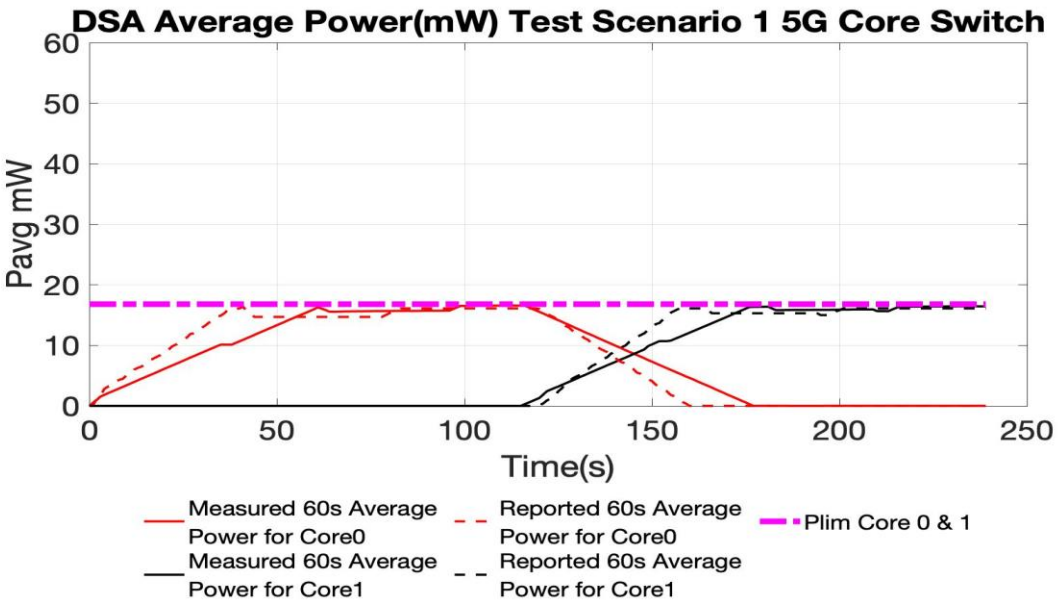


Figure F - 4
60 Sec Average Power vs. Time, 5 GHz

Scenario 2: Change in Band Test Case on the same Antenna

This test demonstrates the efficacy of the time-averaged SAR algorithm while switching between 2.4 GHz and 5 GHz WLAN bands. In addition, it shows that the algorithm tracks time-averaged power and system utilization when the active transmitter is disabled and then reconnects.

The 2.4 GHz (Core 0 - WF2) transmitter is active at 100% duty cycle until Time = 120 s. When 2.4 GHz transmissions cease, the 5 GHz (Core 0 - WF2) transmitter is activated and begins to negotiate a new connection. The connection is established and the increase in average transmit power and utilization can clearly be seen. In this case the utilization ratio never exceeds 100% and the average transmit power never exceeds the Plim of each respective antenna. Figures G-5/6 show a switch from 2.4 GHz to 5 GHz transmissions on Core 0 -WF2.

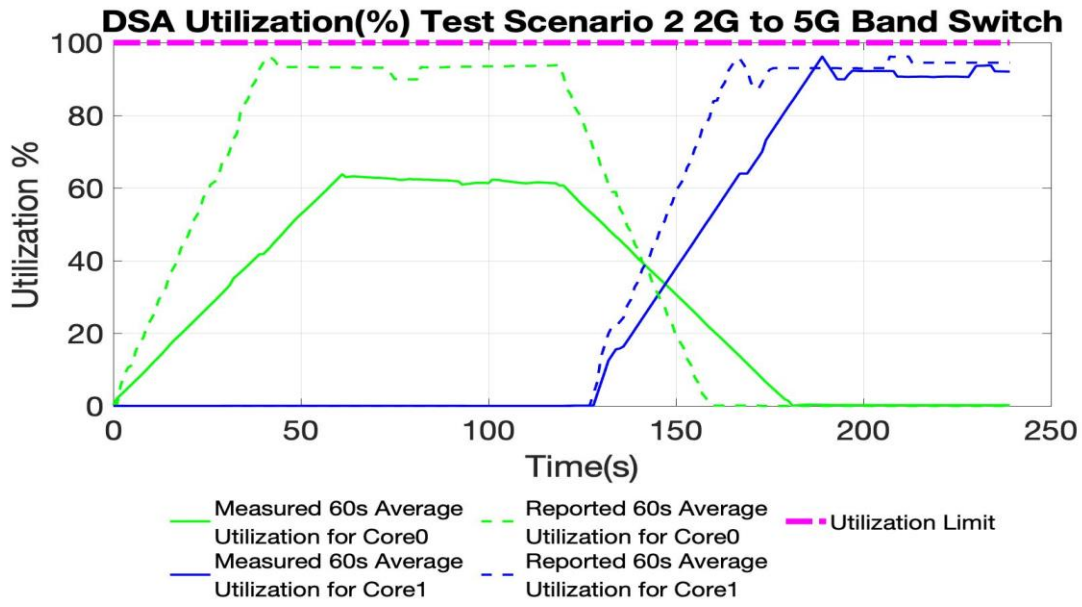


Figure F - 5
60 Sec Average SAR Utilization vs. Time during Band Switch

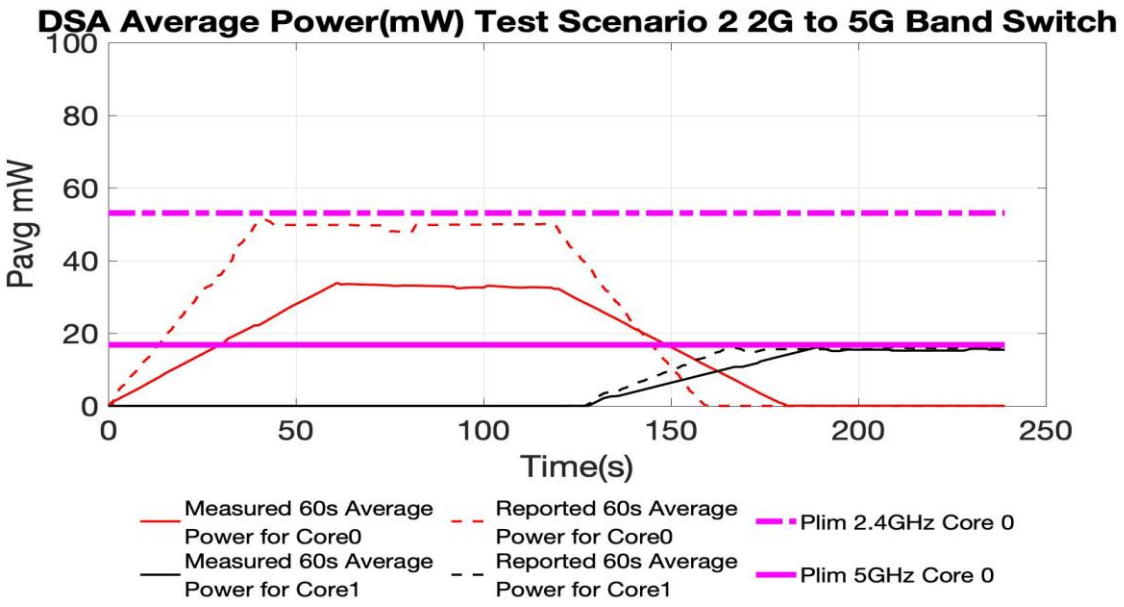


Figure F - 6
60 Sec Average Power vs. Time during Band Switch

Time Average SAR Verification - FCC

1.0 Introduction

The following verification was completed at the client's site in the UK, using the clients own test equipment and verification procedures.

1.1 Time-Averaged SAR Verification Summary

This device supports the manufacturer's time-averaged SAR (TAS) mechanism for WLAN operations. The output power is controlled in real-time so that the power averaged over any 60 second window does not exceed the 1gm power level tested for SAR in this report. The time-averaged SAR algorithm tracks the energy contribution relative to the available energy budget for each transmitter, defined as the "utilization ratio". Once the utilization ratios for each of the individual WLAN transmitters are calculated, they are summed to derive the overall WLAN system power utilization ratio. This metric is used by the WLAN chipset to manage power levels over time and ensure that SAR limits are never exceeded.

Following FCC guidance, the following test scenarios were defined to validate the TAS mechanism. The specific scenarios are constructed to validate the operation of the algorithm in all operational states, including transitions between states/antennas:

• Change in Antenna

• Change in Band (includes connection drop scenario)

Predefined transmit profiles for each test scenario are provided by the manufacturer's test automation software to control the operation of the DUT while synchronized operational data was recorded from internal firmware and external power monitors. The data was plotted over time relative to the utilization limit to demonstrate that the maximum time-averaged power is never exceeded. "Reported" values were output and captured directly from DUT firmware, while "Measured" results were obtained from external power meter. The uncertainty budget applied to the WLAN power control functions for this device is 1.5 dB. In all test cases, WLAN radios were configured to operate at 100% duty cycle.

Table 1-1
Test Configurations for Time-Averaged SAR Verification

Mode	Antenna	Channel	Plim (dBm)	Plim (mW)
802.11b	Core 0 – WF2	6	18.0	63.1
802.11b	Core 1 – WF1	6	19.0	79.4
802.11a	Core 0 – WF2	149	13.0	19.9
802.11a	Core 1 – WF1	149	13.0	19.9

Plim is the maximum time-averaged output power evaluated for SAR compliance

1.2 Verification Summary

Scenario 1: Change in Antenna from Core 0 to Core 1

For this test, the effect on the time-averaging algorithm from a change in the active transmit antenna was evaluated. Figures F-1 and F-2 show a switch of 2.4 GHz transmissions from Core 0(WF2) to Core 1(WF1) at Time = 120 s. The test automation is controlling the WLAN radios to operate at 100% duty cycle. The utilization ratio never exceeds 100% and the average transmit power never exceeds the Plim of each respective antenna.

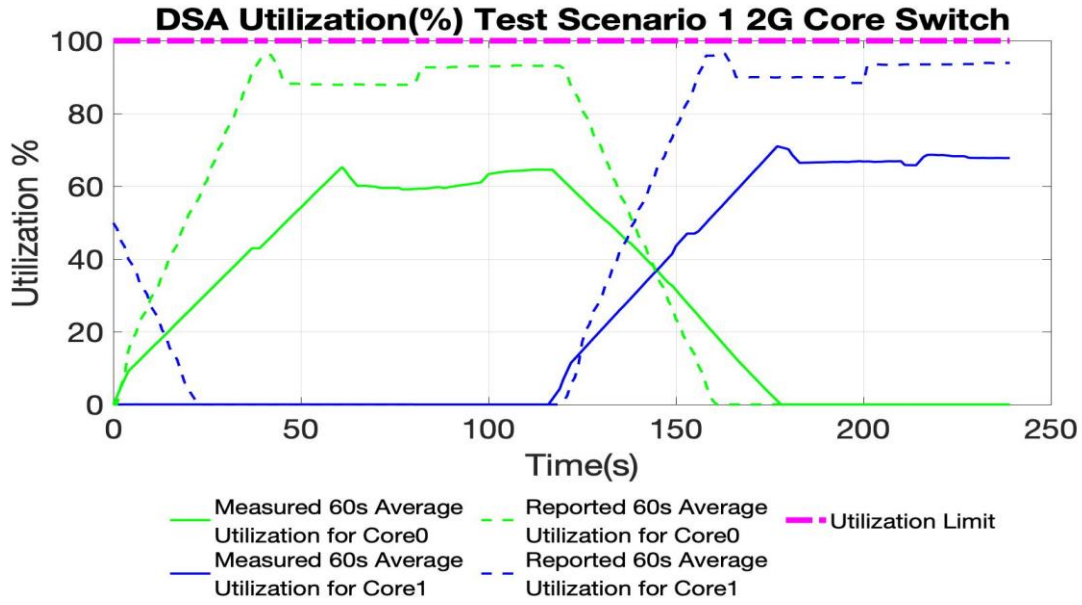


Figure F - 1
60 Sec Average SAR Utilization vs. Time, 2.4 GHz

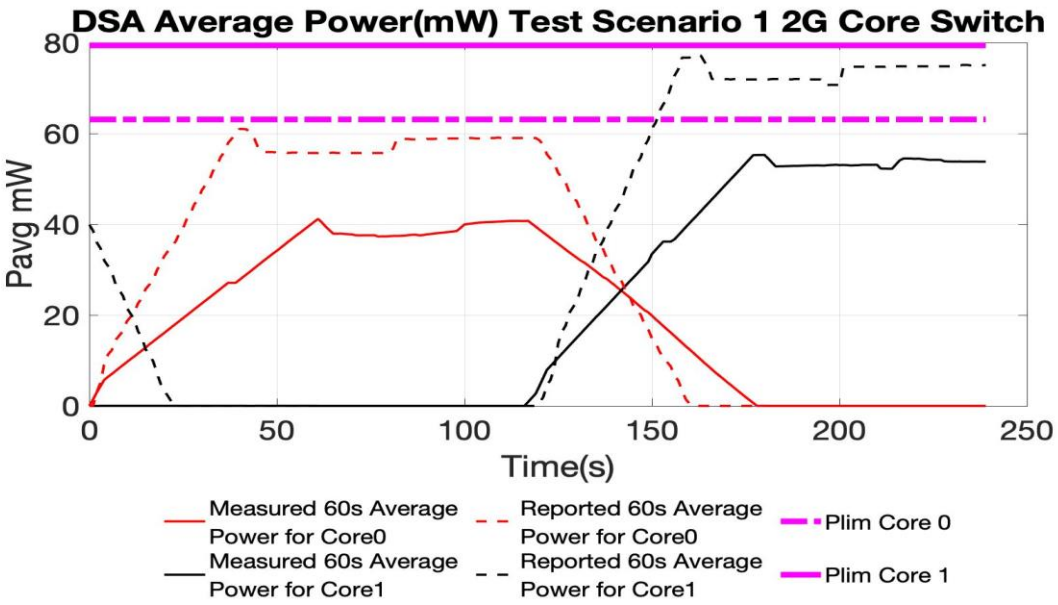


Figure F - 2
60 Sec Average Power vs. Time, 2.4 GHz

For this test, the effect on the time-averaging algorithm from a change in the active transmit antenna was evaluated. Figures F-3 and F-4 show a switch of 5 GHz transmissions from Core 0(WF2) to Core 1(WF1) at Time = 120 s. The test automation is controlling the WLAN radios to operate at 100% duty cycle. The utilization ratio never exceeds 100% and the average transmit power never exceeds the Plim of each respective antenna.

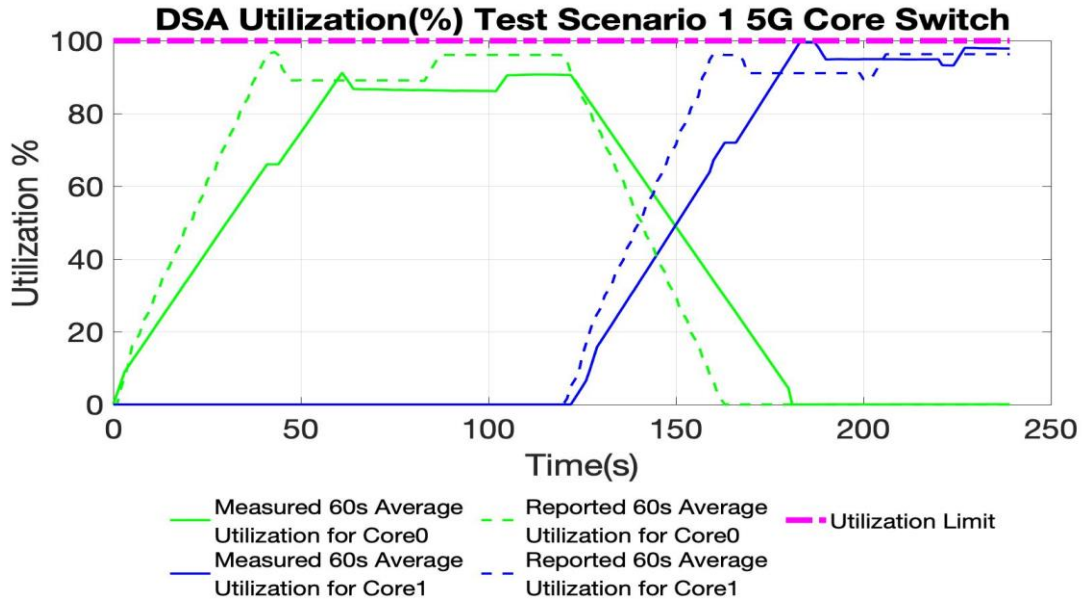


Figure F - 3
60 Sec Average SAR Utilization vs. Time, 5 GHz

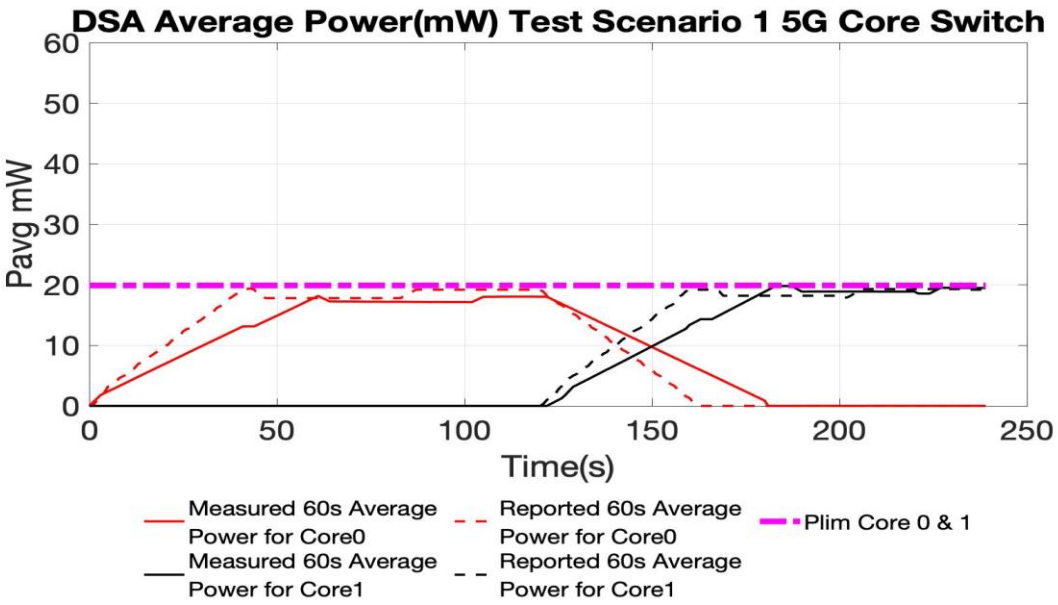


Figure F - 4
60 Sec Average Power vs. Time, 5 GHz

Scenario 2: Change in Band Test Case on the same Antenna

This test demonstrates the efficacy of the time-averaged SAR algorithm while switching between 2.4 GHz and 5 GHz WLAN bands. In addition, it shows that the algorithm tracks time-averaged power and system utilization when the active transmitter is disabled and then reconnects.

The 2.4 GHz (Core 0 - WF2) transmitter is active at 100% duty cycle until Time = 120 s. When 2.4 GHz transmissions cease, the 5 GHz (Core 0 - WF2) transmitter is activated and begins to negotiate a new connection. The connection is established and the increase in average transmit power and utilization can clearly be seen. In this case the utilization ratio never exceeds 100% and the average transmit power never exceeds the Plim of each respective antenna. Figures G-5/6 show a switch from 2.4 GHz to 5 GHz transmissions on Core 0 -WF2.

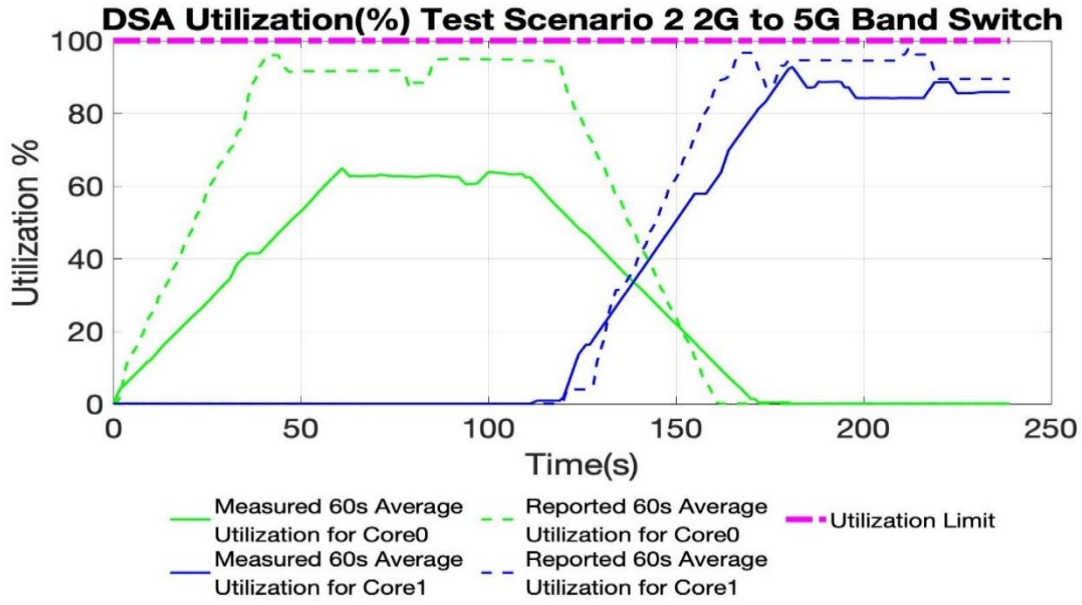


Figure F - 5
60 Sec Average SAR Utilization vs. Time during Band Switch

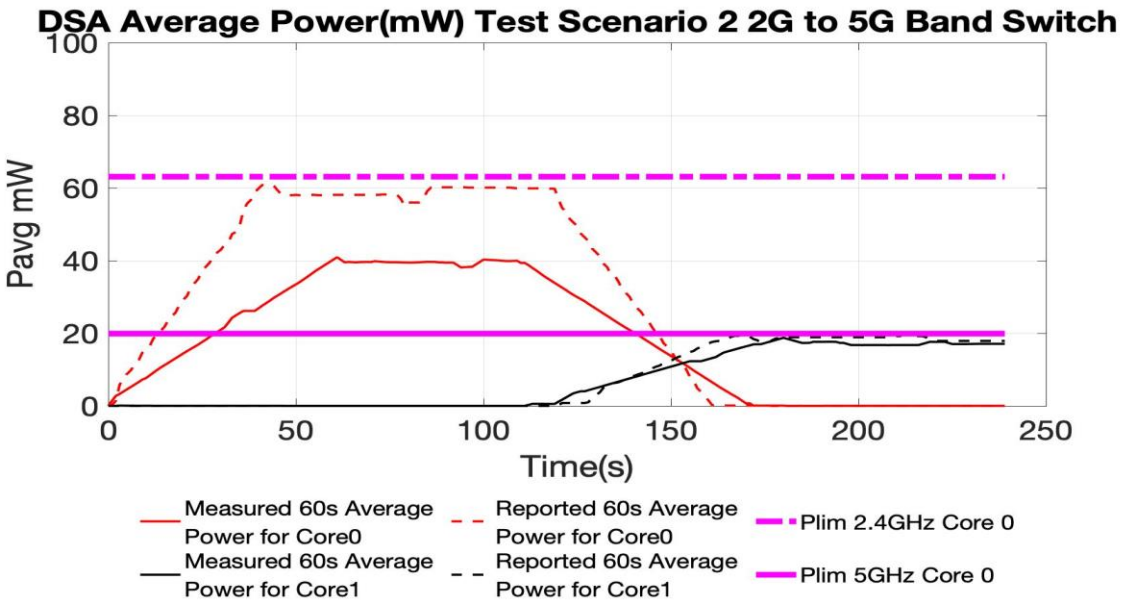


Figure F - 6
60 Sec Average Power vs. Time during Band Switch