

Appendix B - SAR Measurement

Test Laboratory: TUV Inc.

Date: 2025/1/15

98_WLAN2.4GHz_802.11b 1Mbps_Horizontal Down_5mm_Ch1

DUT: EW-7822UBE

Communication System: WLAN; Frequency: 2412 MHz; Duty Cycle: 1:1.001

Medium: HSL2450_250115 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.778$ S/m; $\epsilon_r = 40.096$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.4°C

DASY Configuration:

- Electronics: DAE4 Sn855; Calibrated: 2024/4/22
- Probe: EX3DV4 - SN7400; ConvF(7.67, 7.67, 7.67) @ 2412 MHz; Calibrated: 2024/4/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = -19.0, 31.0$
- Phantom: Twin-SAM V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: S/N: 1806
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Area Scan (8x13x1): Measurement grid: $dx=12$ mm, $dy=12$ mm

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

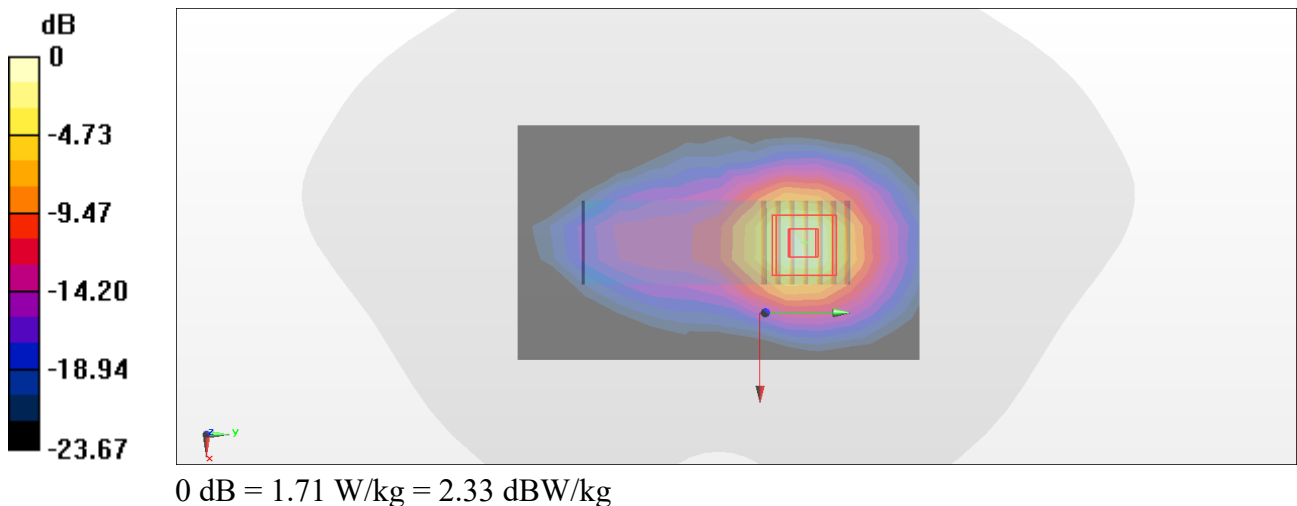
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 12.81 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 2.11 W/kg

SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.468 W/kg

Maximum value of SAR (measured) = 1.71 W/kg



39_WLAN5GHz_802.11a 6Mbps_Horizontal Up_5mm_Ch52**DUT: EW-7822UBE**

Communication System: WLAN; Frequency: 5260 MHz; Duty Cycle: 1:1.013

Medium: HSL5G_251113 Medium parameters used: $f = 5260$ MHz; $\sigma = 4.551$ S/m; $\epsilon_r = 35.62$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.3 °C

DASY Configuration:

- Electronics: DAE4 Sn855; Calibrated: 2024/4/22
- Probe: EX3DV4 - SN7400; ConvF(5.05, 5.05, 5.05) @ 5260 MHz; Calibrated: 2024/4/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = -19.0, 23.0$
- Phantom: Twin-SAM V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: S/N: 1806
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Area Scan (9x15x1): Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 2.15 W/kg

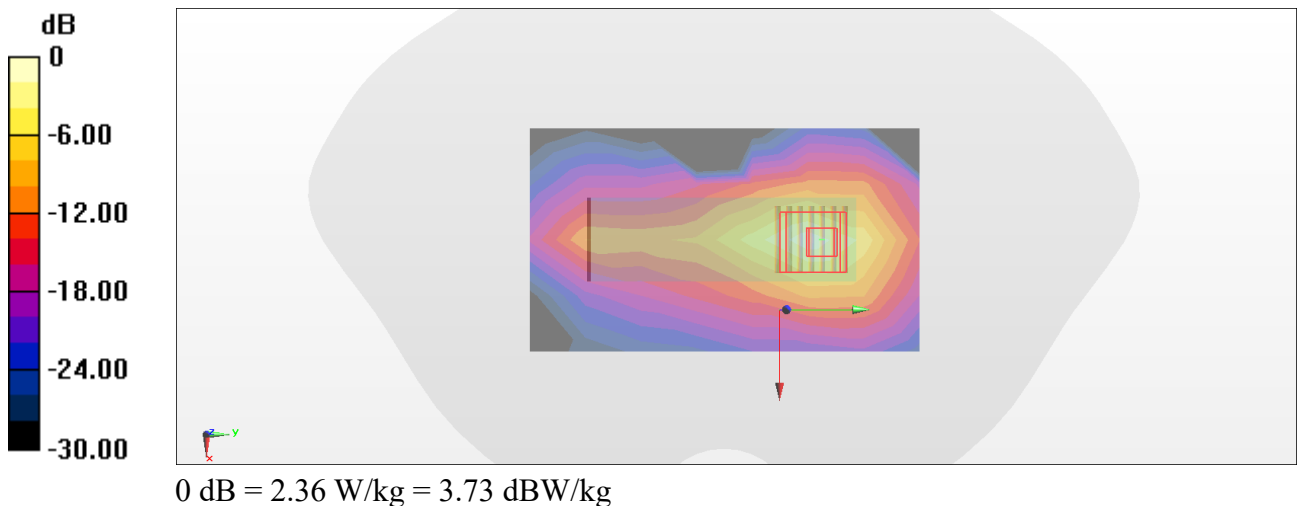
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 13.02 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 3.74 W/kg

SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.363 W/kg

Maximum value of SAR (measured) = 2.36 W/kg



73_WLAN5GHz_802.11a 6Mbps_Horizontal Up_5mm_Ch100**DUT: EW-7822UBE**

Communication System: WLAN; Frequency: 5500 MHz; Duty Cycle: 1:1.013

Medium: HSL5G_251113 Medium parameters used: $f = 5500$ MHz; $\sigma = 4.79$ S/m; $\epsilon_r = 35.151$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.3 °C

DASY Configuration:

- Electronics: DAE4 Sn855; Calibrated: 2024/4/22
- Probe: EX3DV4 - SN7400; ConvF(4.74, 4.74, 4.74) @ 5500 MHz; Calibrated: 2024/4/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = -19.0, 23.0$
- Phantom: Twin-SAM V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: S/N: 1806
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Area Scan (5x8x1): Measurement grid: $dx=20$ mm, $dy=20$ mm

Maximum value of SAR (measured) = 2.13 W/kg

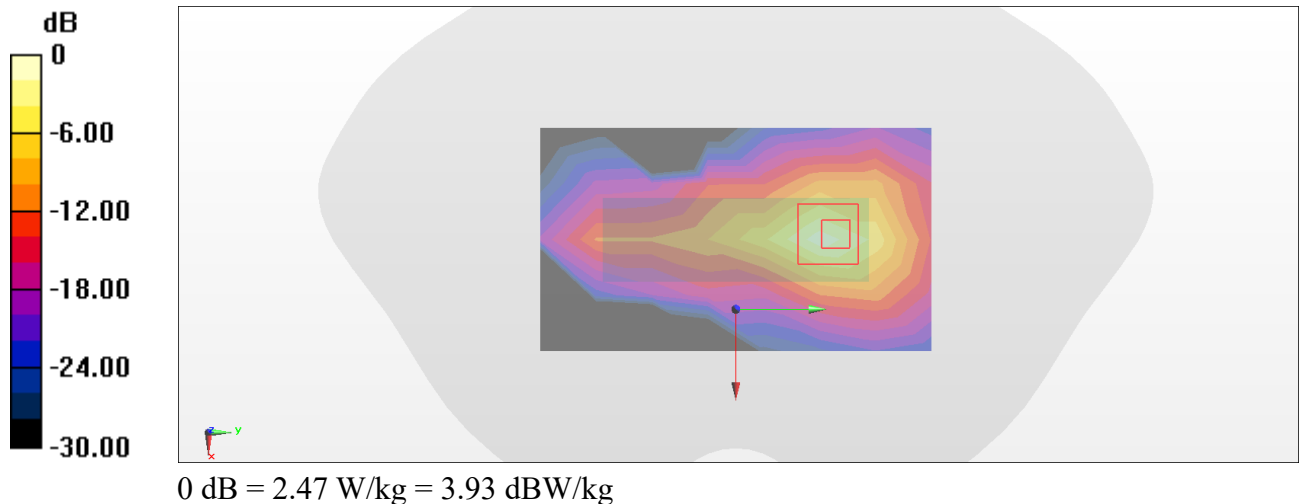
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 13.53 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 4.07 W/kg

SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.375 W/kg

Maximum value of SAR (measured) = 2.47 W/kg



78_WLAN5GHz_802.11a 6Mbps_Horizontal Up_5mm_Ch165**DUT: EW-7822UBE**

Communication System: WLAN; Frequency: 5825 MHz; Duty Cycle: 1:1.013

Medium: HSL5G_251113 Medium parameters used: $f = 5825$ MHz; $\sigma = 5.141$ S/m; $\epsilon_r = 34.587$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.3 °C

DASY Configuration:

- Electronics: DAE4 Sn855; Calibrated: 2024/4/22
- Probe: EX3DV4 - SN7400; ConvF(4.77, 4.77, 4.77) @ 5825 MHz; Calibrated: 2024/4/25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = -19.0, 23.0$
- Phantom: Twin-SAM V5.0 (20deg probe tilt); Type: QD 000 P40 CD; Serial: S/N: 1806
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

Area Scan (9x15x1): Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (measured) = 2.27 W/kg

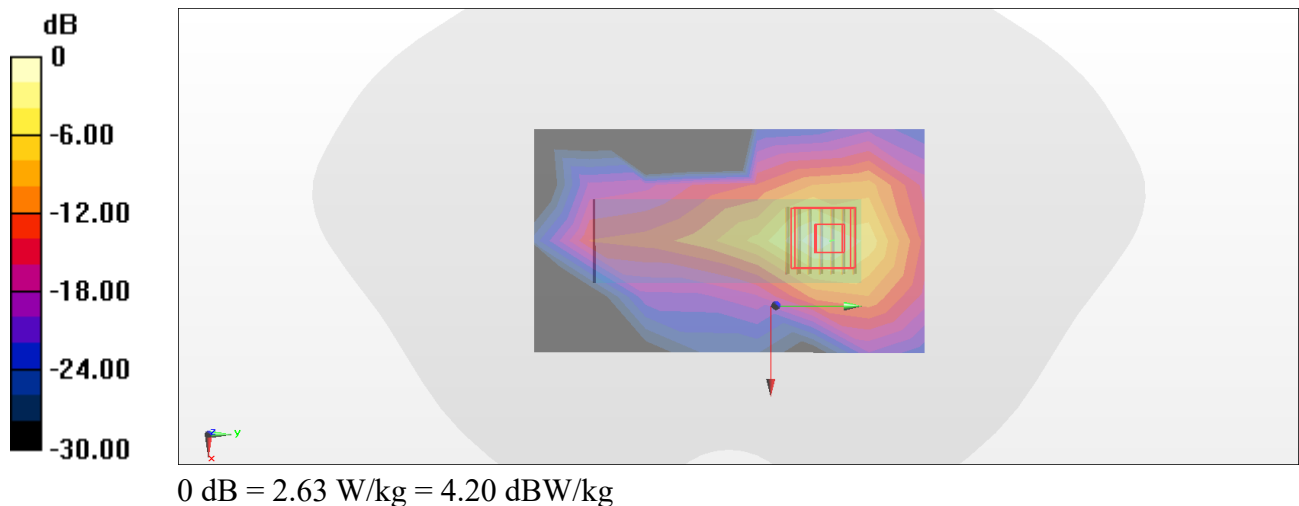
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=1.4$ mm

Reference Value = 13.60 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 4.60 W/kg

SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.377 W/kg

Maximum value of SAR (measured) = 2.63 W/kg



Test Laboratory: TUV International Inc.

#102_WLAN6GHz_802.11ax-HE160 MCS0_Horizontal Up_5mm_Ch47

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
EW-7822UBE	95.32 x 30.0 x 14.8		Dongle

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Head Simulating Liquid	Horizontal Down, 5.00	U-NII-5	WLAN, 10743-AAC	6185.000, 47	5.35	5.78	34.9

Hardware Setup

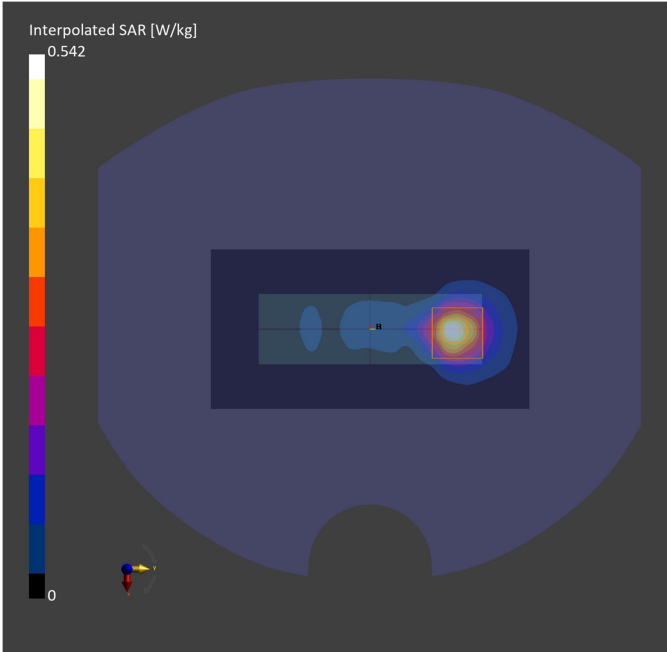
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V5.0 (30deg probe tilt) - 1806	HSL6500_250111 , --	EX3DV4 - SN7400, 2024-04-25	DAE4 Sn855, 2024-04-22

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	68.0 x 136.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	8.5 x 8.5	3.4 x 3.4 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.4
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-01-11, 11:13	2025-01-11, 11:48
psSAR1g [W/kg]	0.384	0.425
psSAR10g [W/kg]	0.125	0.140
Power Drift [dB]	0.09	0.11
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		54.3
Dist 3dB Peak [mm]		8.6
psAPD 4cm2[W/m2]		3.17



Test Laboratory: TÜV Rheinland Inc.

#114_WLAN6GHz_802.11ax-HE160 MCS0_Horizontal Up_2mm_Ch175

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
EW-7822UBE	95.32 x 30.0 x 14.8		Dongle

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor
5G Air	FRONT, 2.00	U-NII-7	WLAN, 10743-AAC	6825.0, 175	1.0

Hardware Setup

Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 1089	---Air	EUmmWV4 - SN9599_F1-55GHz, 2024-04-22	DAE4 Sn855, 2024-04-22

Scan Setup

	5G Scan
Grid Extents [mm]	70.0 x 70.0
Grid Steps [lambda]	0.0625 x 0.0625
Sensor Surface [mm]	2.0
MAIA	Y

Measurement Results

	5G Scan
Date	2025-01-10, 12:20
Avg. Area [cm²]	4.00
psPDn+ [W/m²]	5.39
psPDtot+ [W/m²]	5.87
psPDmod+ [W/m²]	6.16
E _{max} [V/m]	67.5
Power Drift [dB]	0.12

