Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.9 Ω + 0.0 jΩ
Return Loss	- 39.2 dB

APD (Absorbed Power Density)

APD averaged over 1 cm²	Condition	
APD measured	100 mW input power	276 W/m²
APD measured	normalized to 1W	**2760 W/m² ± 29.2 % (k=2)**

APD averaged over 4 cm²	condition	
APD measured	100 mW input power	125 W/m²
APD measured	normalized to 1W	**1250 W/m² ± 28.9 % (k=2)**

*The reported APD values have been derived using psSAR8g.

General Antenna Parameters and Design

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

DASY6 Validation Report for Head TSL

Measurement Report for D6.5GHz-1071, UID 0 -, Channel 6500 (6500.0MHz)

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
D6.5GHz	16.0 x 6.0 x 300.0	SN: 1071	-

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz]	Conversion Factor	TSL Cond. [S/m]	TSL Permittivity
Flat, HSL	5.00	Band	CW,	6500	5.75	6.10	33.8

Hardware Setup

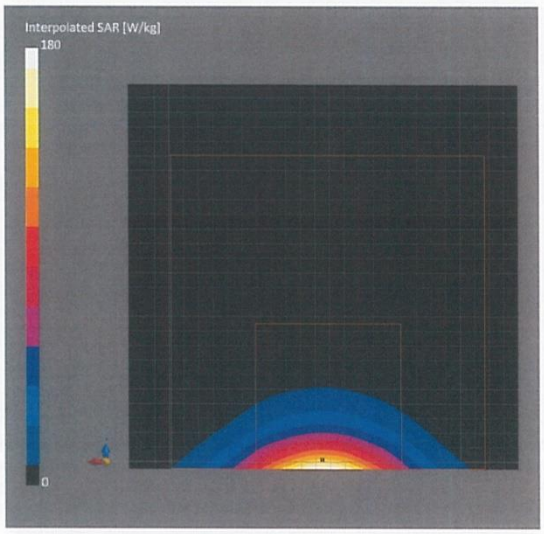
Phantom	TSL	Probe, Calibration Date	DAE, Calibration Date
MFP V8.0 Center - 1182	HBBL600-10000V6	EX3DV4 - SN7405, 2021-12-31	DAE4 Sn908, 2021-06-24

Scan Setup

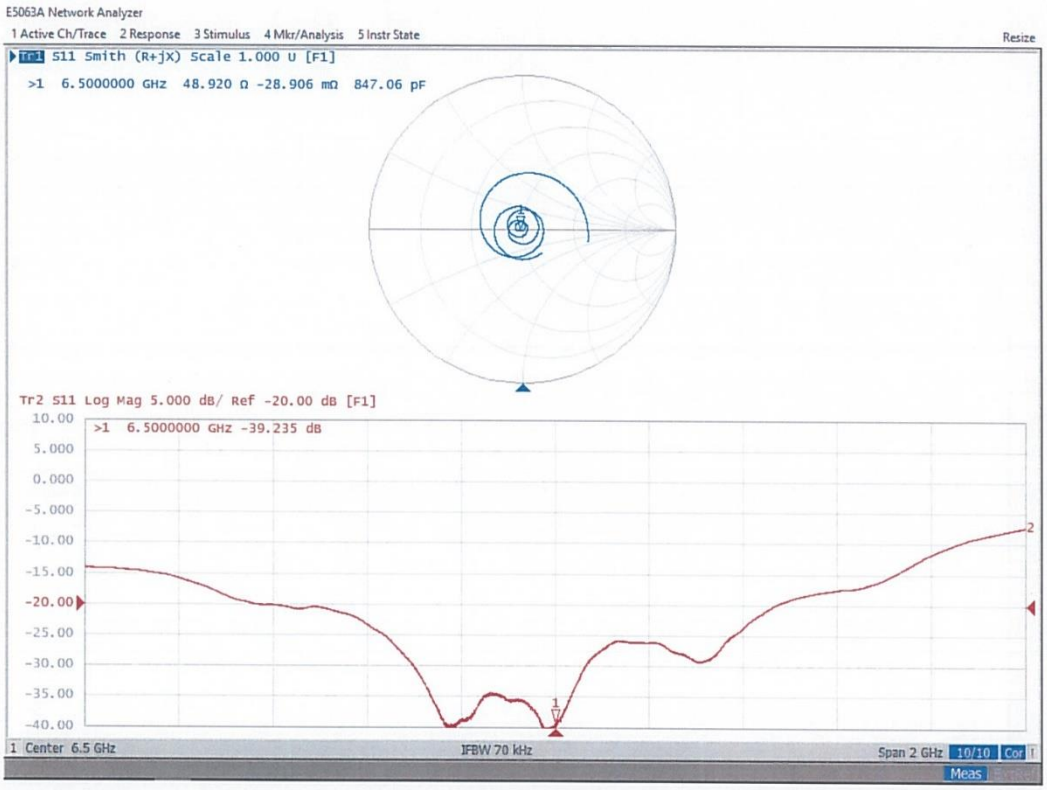
	Zoom Scan
Grid Extents [mm]	22.0 x 22.0 x 22.0
Grid Steps [mm]	3.4 x 3.4 x 1.4
Sensor Surface [mm]	1.4
Graded Grid	Yes
Grading Ratio	1.4
MAIA	N/A
Surface Detection	VMS + 6p
Scan Method	Measured

Measurement Results

	Zoom Scan
Date	2022-03-11, 14:15
psSAR1g [W/Kg]	27.8
psSAR8g [W/Kg]	6.26
psSAR10g [W/Kg]	5.13
Power Drift [dB]	0.02
Power Scaling	Disabled
Scaling Factor [dB]	
TSL Correction	No correction
M2/M1 [%]	54.1
Dist 3dB Peak [mm]	4.8



Impedance Measurement Plot for Head TSL



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 0108

Client **Apple UK**

Certificate No: 5G-Veri10-1037_Nov21

CALIBRATION CERTIFICATE

Object	5G Verification Source 10 GHz - SN: 1037
Calibration procedure(s)	QA CAL-45.v3 Calibration procedure for sources in air above 6 GHz
Calibration date:	November 29, 2021

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Reference Probe EUmmWV3	SN: 9374	2020-12-30(No. EUmmWV3-9374_Dec20)	Dec-21
DAE4ip	SN: 1602	2021-06-25 (No. DAE4ip-1602_Jun21)	Jun-22

Secondary Standards	ID #	Check Date (in house)	Scheduled Check

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Niels Kuster	Quality Manager	

Issued: November 29, 2021

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 0108

Glossary

CW Continuous wave

Calibration is Performed According to the Following Standards

- Internal procedure QA CAL-45-5Gsources
- IEC TR 63170 ED1, "Measurement procedure for the evaluation of power density related to human exposure to radio frequency fields from wireless communication devices operating between 6 GHz and 100 GHz", January 2018

Methods Applied and Interpretation of Parameters

- *Coordinate System:* z-axis in the waveguide horn boresight, x-axis is in the direction of the E-field, y-axis normal to the others in the field scanning plane parallel to the horn flare and horn flange.
- *Measurement Conditions: (1) 10 GHz:* The radiated power is the forward power to the horn antenna minus ohmic and mismatch loss. During the measurements, the horn is directly connected to the cable and the antenna ohmic and mismatch losses are determined by far-field measurements. *(2) 30, 45, 60 and 90 GHz*: The verification sources are switched on for at least 30 minutes. Absorbers are used around the probe cub and at the ceiling to minimize reflections.
- *Horn Positioning:* The waveguide horn is mounted vertically on the flange of the waveguide source to allow vertical positioning of the EUmmW probe during the scan. The plane is parallel to the phantom surface. Probe distance is verified using mechanical gauges positioned on the flare of the horn.
- *E- field distribution:* E field is measured in two x-y-plane (10mm, 10mm + $\lambda/4$) with a vectorial E-field probe. The E-field value stated as calibration value represents the E-field-maxima and the averaged (1cm^2 and 4cm^2) power density values at 10mm in front of the horn.
- *Field polarization:* Above the open horn, linear polarization of the field is expected. This is verified graphically in the field representation.

Calibrated Quantity

- Local peak E-field (V/m) and average of peak spatial components of the poynting vector (W/m^2) averaged over the surface area of 1 cm^2 and 4cm^2 at the nominal operational frequency of the verification source. Both square and circular averaging results are listed.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	cDASY6 Module mmWave	V2.4
Phantom	5G Phantom	
Distance Horn Aperture - plane	10 mm	
XY Scan Resolution	dx, dy = 7.5 mm	
Number of measured planes	2 (10mm, 10mm + λ/4)	
Frequency	10 GHz ± 10 MHz	

Calibration Parameters, 10 GHz

Circular Averaging

Distance Horn Aperture to Measured Plane	***Prad*[1] *(mW)***	**Max E-field (V/m)**	Uncertainty (k = 2)	Avg Power Density Avg (psPDn+, psPDtot+, psPDmod+) (W/m²)		Uncertainty (k = 2)
				1 cm²	4 cm²	
10 mm	86.1	**146**	1.27 dB	**53.2**	**49.8**	1.28 dB

Square Averaging

Distance Horn Aperture to Measured Plane	***Prad*[1] *(mW)***	**Max E-field (V/m)**	Uncertainty (k = 2)	Avg Power Density Avg (psPDn+, psPDtot+, psPDmod+) (W/m²)		Uncertainty (k = 2)
				1 cm²	4 cm²	
10 mm	86.1	**146**	1.27 dB	**53.2**	**49.7**	1.28 dB

[1] Assessed ohmic and mismatch loss plus numerical offset: 0.55 dB

DASY Report

Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
5G Verification Source 10 GHz	100.0 x 100.0 x 172.0	SN: 1037	-

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
5G -	10.0 mm	Validation band	CW	10000.0, 10000	1.0

Hardware Setup

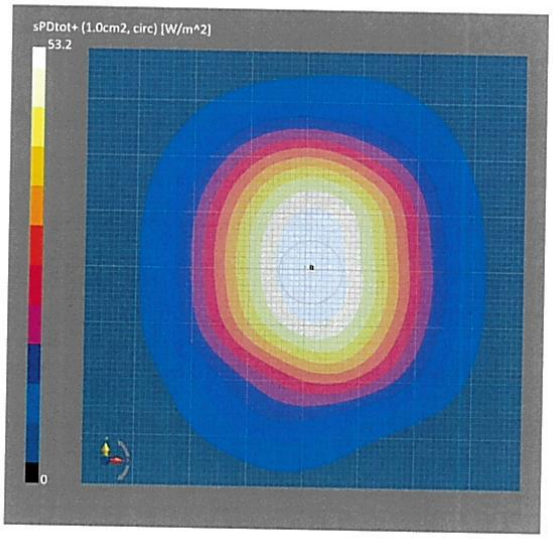
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave Phantom - 1002	Air	EUmmWV3 - SN9374_F1-78GHz, 2020-12-30	DAE4ip Sn1602, 2021-06-25

Scan Setup

	5G Scan
Grid Extents [mm]	120.0 x 120.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0
MAIA	MAIA not used

Measurement Results

	5G Scan
Date	2021-11-29, 10:22
Avg. Area [cm²]	1.00
psPDn+ [W/m²]	53.0
psPDtot+ [W/m²]	53.2
psPDmod+ [W/m²]	53.4
E_{max} [V/m]	146
Power Drift [dB]	-0.05



DASY Report

Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
5G Verification Source 10 GHz	100.0 x 100.0 x 172.0	SN: 1037	-

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
5G -	10.0 mm	Validation band	CW	10000.0, 10000	1.0

Hardware Setup

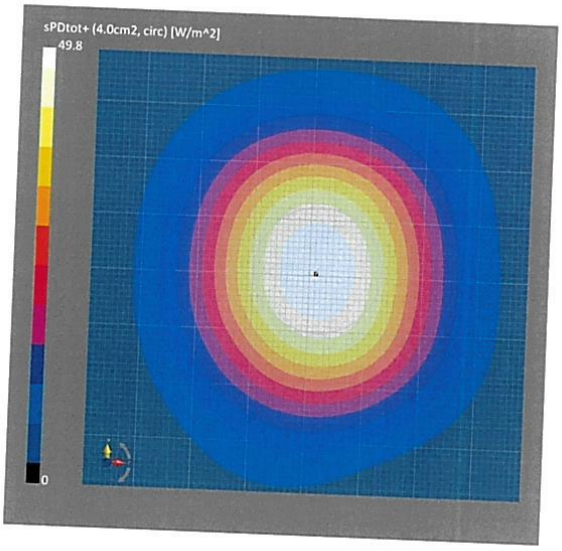
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave Phantom - 1002	Air	EUmmWV3 - SN9374_F1-78GHz, 2020-12-30	DAE4ip Sn1602, 2021-06-25

Scan Setup

	5G Scan
Grid Extents [mm]	120.0 x 120.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0
MAIA	MAIA not used

Measurement Results

	5G Scan
Date	2021-11-29, 10:22
Avg. Area [cm²]	4.00
psPDn+ [W/m²]	49.6
psPDtot+ [W/m²]	49.8
psPDmod+ [W/m²]	49.9
E_{max} [V/m]	146
Power Drift [dB]	-0.05



DASY Report

Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
5G Verification Source 10 GHz	100.0 x 100.0 x 172.0	SN: 1037	-

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
5G -	10.0 mm	Validation band	CW	10000.0, 10000	1.0

Hardware Setup

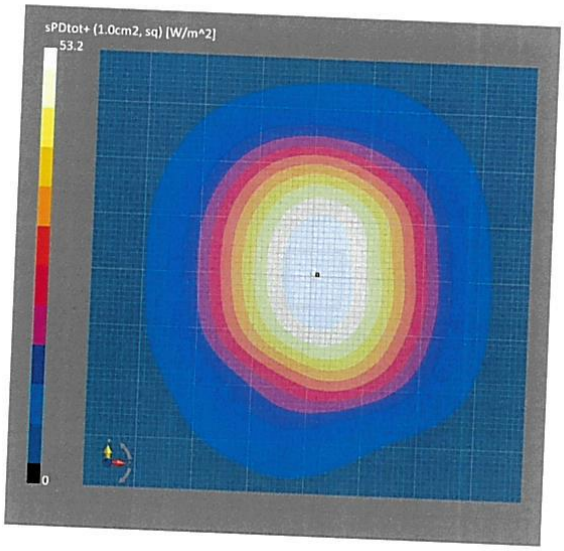
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave Phantom - 1002	Air	EUmmWV3 - SN9374_F1-78GHz, 2020-12-30	DAE4ip Sn1602, 2021-06-25

Scan Setup

	5G Scan
Grid Extents [mm]	120.0 x 120.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0
MAIA	MAIA not used

Measurement Results

	5G Scan
Date	2021-11-29, 10:22
Avg. Area [cm²]	1.00
psPDn+ [W/m²]	53.1
psPDtot+ [W/m²]	53.2
psPDmod+ [W/m²]	53.4
E_{max} [V/m]	146
Power Drift [dB]	-0.05



DASY Report

Measurement Report for 5G Verification Source 10 GHz, UID 0 -, Channel 10000 (10000.0MHz)

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
5G Verification Source 10 GHz	100.0 x 100.0 x 172.0	SN: 1037	-

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group,	Frequency [MHz], Channel Number	Conversion Factor
5G -	10.0 mm	Validation band	CW	10000.0, 10000	1.0

Hardware Setup

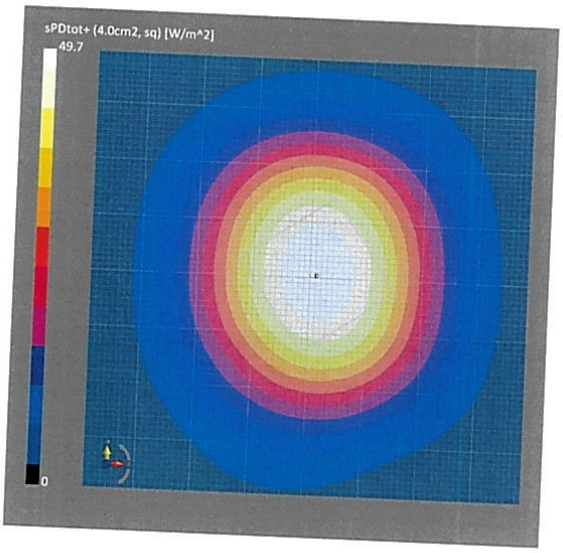
Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave Phantom - 1002	Air	EUmmWV3 - SN9374_F1-78GHz, 2020-12-30	DAE4ip Sn1602, 2021-06-25

Scan Setup

	5G Scan
Grid Extents [mm]	120.0 x 120.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0
MAIA	MAIA not used

Measurement Results

	5G Scan
Date	2021-11-29, 10:22
Avg. Area [cm²]	4.00
psPDn+ [W/m²]	49.5
psPDtot+ [W/m²]	49.7
psPDmod+ [W/m²]	49.8
E_{max} [V/m]	146
Power Drift [dB]	-0.05



ANNEX C

SAR PLOTS

Bluetooth 2450 MHz
TUV SUD

Measurement Report for A2780, BACK, ISM 2.4 GHz Band, IEEE 802.15.1 Bluetooth (GFSK, DH5), Channel 39 (2441.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	ISM 2.4 GHz Band	Bluetooth, 10032-CAA	2441.0, 39	7.94	1.71	41.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - sn:2057	HBBL-600-6000 Batch 2 DAK 3.5 Head 19 deg.C 2022-Sep-27 - B2.prn, 2022-Sep-28	EX3DV4 - SN7536, 2022-06-17	DAE4 Sn1712, 2022-03-09

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-29, 18:08	2022-09-29, 18:17
psSAR1g [W/Kg]	0.209	0.221
psSAR10g [W/Kg]	0.104	0.108
Power Drift [dB]	-0.04	0.04
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		73.8
Dist 3dB Peak [mm]		9.0

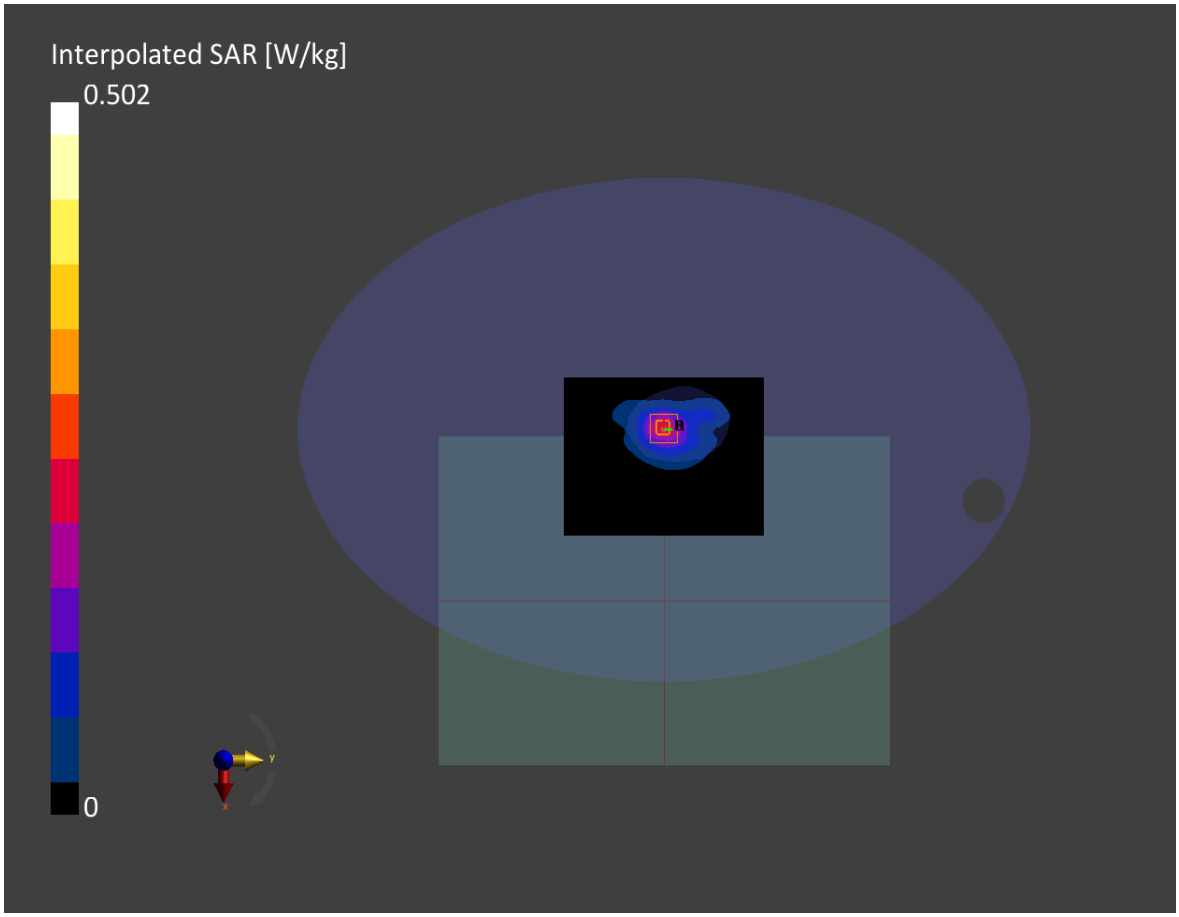


Figure C.1: SAR Body Testing Results for the A2780 at 2441 MHz

Measurement Report for A2780, BACK, ISM 2.4 GHz Band, IEEE 802.15.1 Bluetooth (GFSK, DH5), Channel 39 (2441.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	ISM 2.4 GHz Band	Bluetooth, 10032-CAA	2441.0, 39	7.94	1.71	41.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - sn:2057	HBBL-600-6000 Batch 2 DAK 3.5 Head 19 deg.C 2022-Sep-27 - B2.prn, 2022-Sep-28	EX3DV4 - SN7536, 2022-06-17	DAE4 Sn1712, 2022-03-09

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 180.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-29, 19:12	2022-09-29, 19:20
psSAR1g [W/Kg]	0.192	0.207
psSAR10g [W/Kg]	0.091	0.090
Power Drift [dB]	-0.02	0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		72.2
Dist 3dB Peak [mm]		8.9

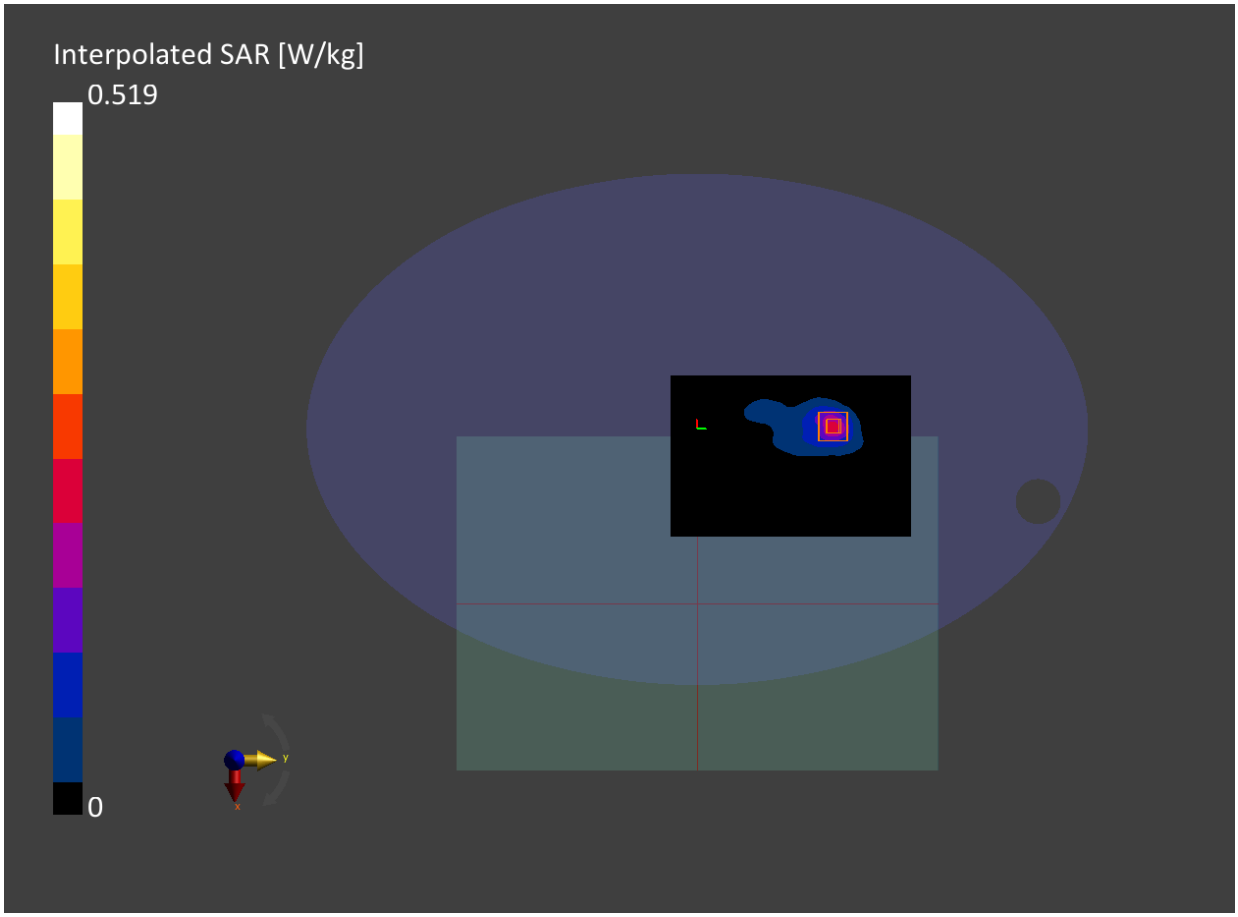


Figure C.2: SAR Body Testing Results for the A2780 at 2441 MHz

Measurement Report for A2780, BACK, ISM 2.4 GHz Band, IEEE 802.15.1 Bluetooth (GFSK, DH5), Channel 0 (2402.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	ISM 2.4 GHz Band	Bluetooth, 10032-CAA	2402.0, 0	7.94	1.68	41.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - sn:2057	HBBL-600-6000 Batch 2 DAK 3.5 Head 19 deg.C 2022-Sep-27 - B2.prn, 2022-Sep-28	EX3DV4 - SN7536, 2022-06-17	DAE4 Sn1712, 2022-03-09

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 180.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-30, 11:28	2022-09-30, 11:36
psSAR1g [W/Kg]	0.092	0.093
psSAR10g [W/Kg]	0.045	0.043
Power Drift [dB]	0.03	-0.12
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		73.0
Dist 3dB Peak [mm]		8.5

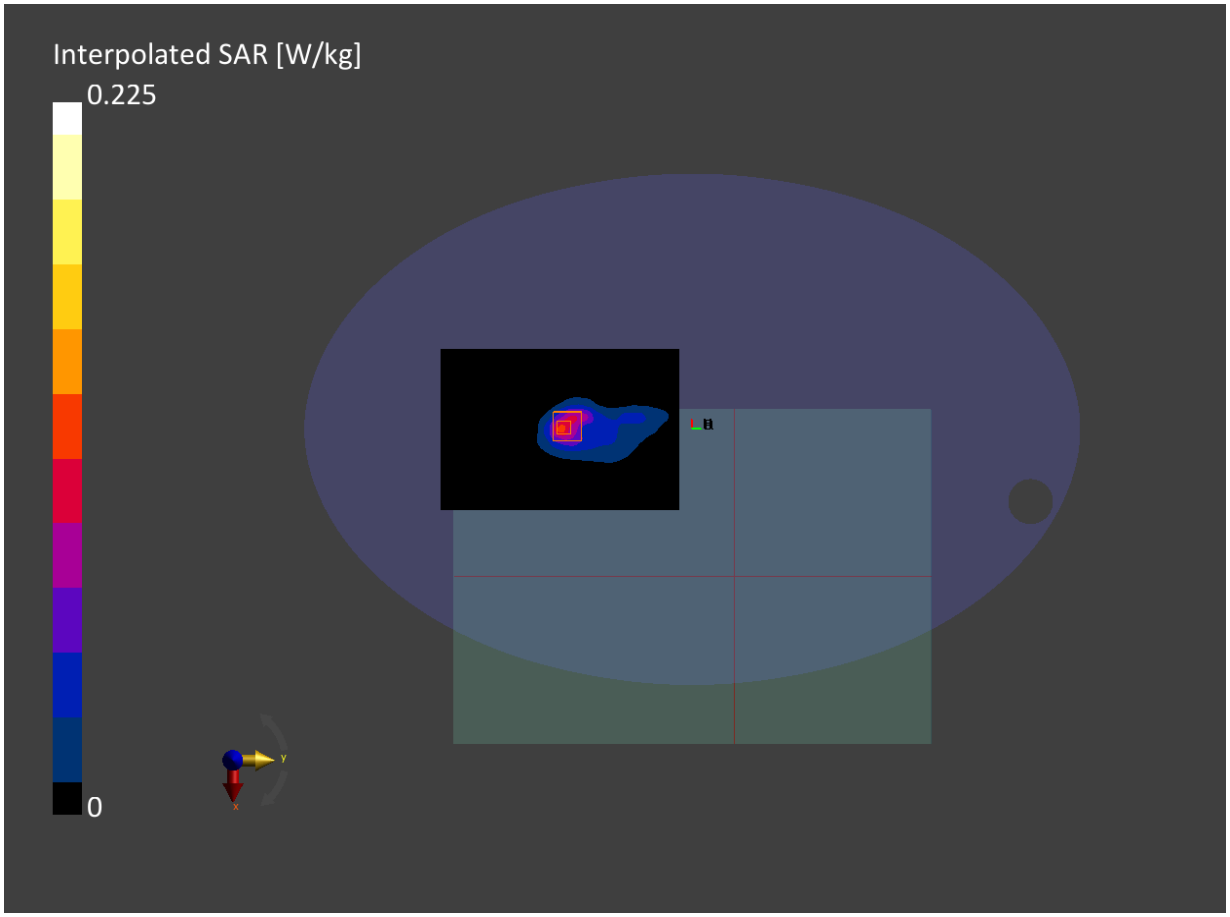


Figure C.3: SAR Body Testing Results for the A2780 at 2402 MHz

Bluetooth 5GHz

Measurement Report for A2780, BACK, Custom Band, CW, Channel 5250000 (5250.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	Custom Band	CW, 0--	5250.0, 5250000	4.57	4.59	36.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 19 deg.C 2022-Sep-27 - B3 6GHz, 2022-Oct-01	EX3DV4 - SN3759, 2020-12-17	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-03, 17:45	2022-10-03, 17:55
psSAR1g [W/Kg]	0.461	0.497
psSAR10g [W/Kg]	0.154	0.161
Power Drift [dB]	-0.04	-0.00
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		63.2
Dist 3dB Peak [mm]		7.2

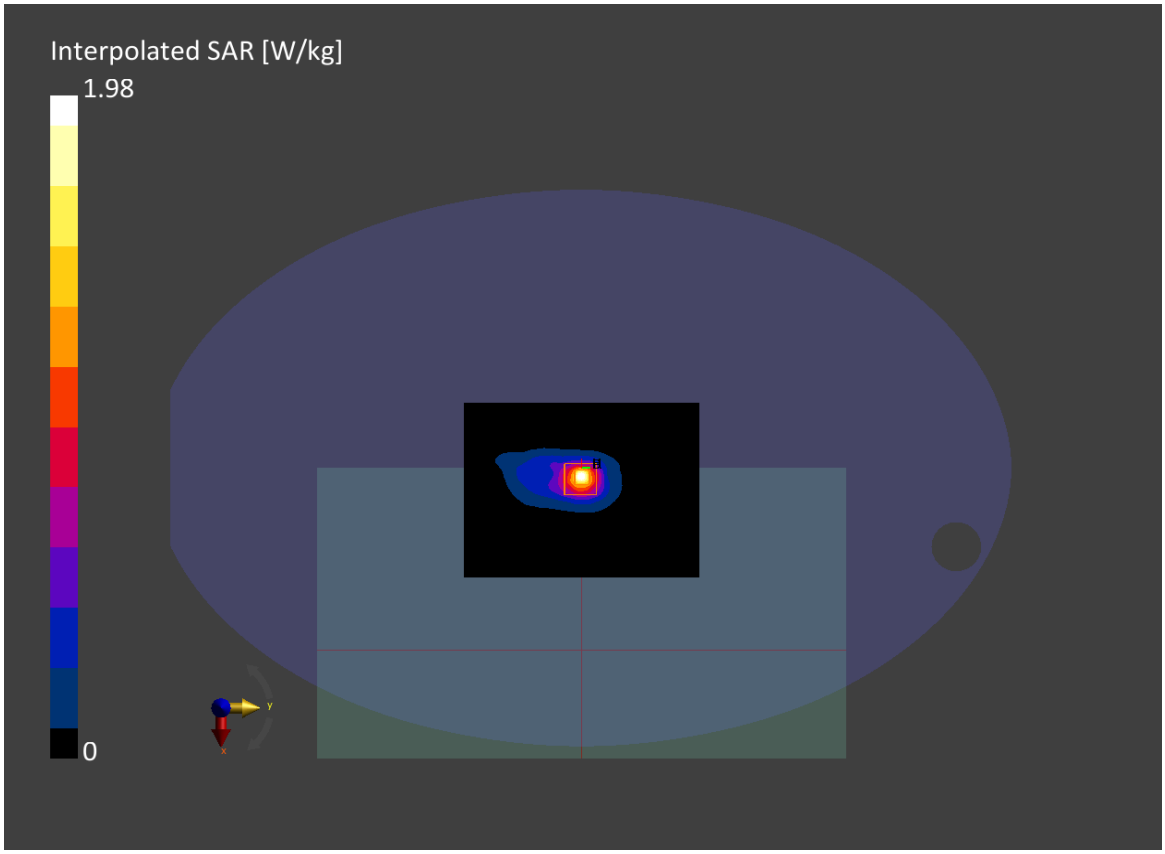


Figure C.4: SAR Body Testing Results for the A2780 at 5250 MHz

Measurement Report for A2780, BACK, Custom Band, CW, Channel 5250000 (5250.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	Custom Band	CW, 0--	5250.0, 5250000	4.53	4.49	36.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 19.4 deg.C 2022-Oct-03 - B3 5GHz, 2022-Oct-04	EX3DV4 - SN3759, 2021-12-13	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-05, 06:09	2022-10-05, 06:17
psSAR1g [W/Kg]	0.287	0.296
psSAR10g [W/Kg]	0.110	0.103
Power Drift [dB]	-0.01	-0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		66.0
Dist 3dB Peak [mm]		8.4

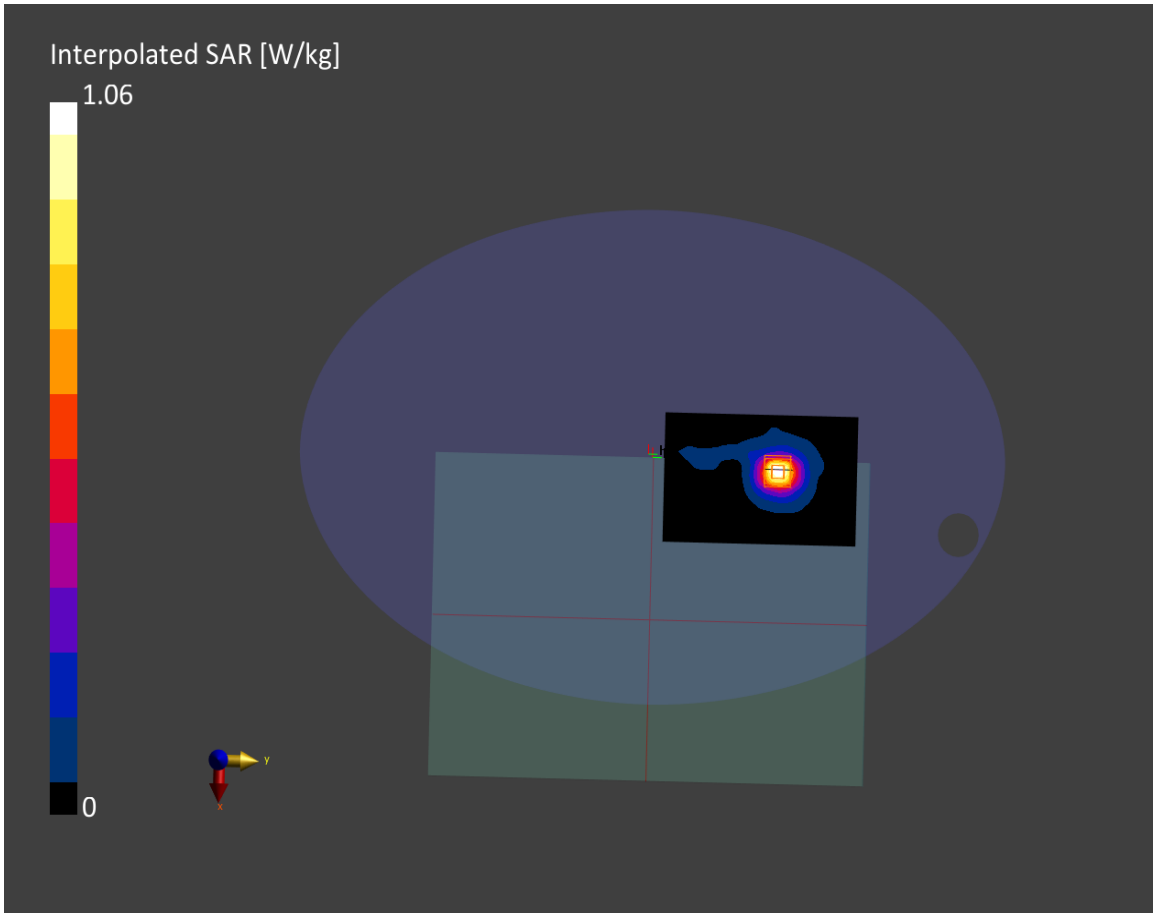


Figure C.5: SAR Body Testing Results for the A2780 at 5250 MHz

Measurement Report for A2780, BACK, Custom Band, CW, Channel 5850000 (5850.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	Custom Band	CW, 0--	5850.0, 5850000	3.88	5.31	35.1

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 19 deg.C 2022-Sep-27 - B3 6GHz, 2022-Oct-01	EX3DV4 - SN3759, 2020-12-17	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-03, 19:01	2022-10-03, 19:11
psSAR1g [W/Kg]	1.11	1.18
psSAR10g [W/Kg]	0.364	0.387
Power Drift [dB]	-0.01	0.04
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		59.9
Dist 3dB Peak [mm]		7.2

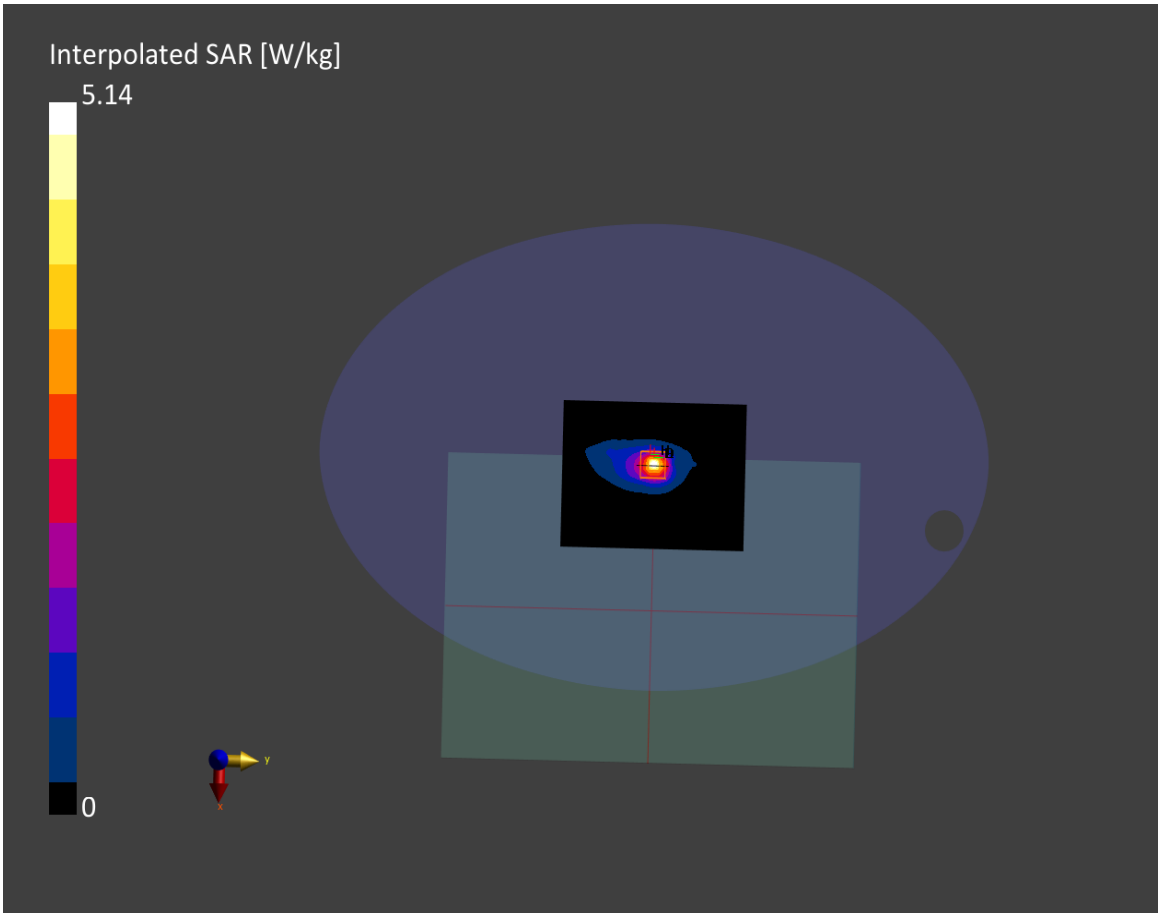


Figure C.6: SAR Body Testing Results for the A2780 at 5850 MHz

Measurement Report for A2780, BACK, Custom Band, CW, Channel 5850000 (5850.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	Custom Band	CW, 0--	5850.0, 5850000	3.85	5.16	35.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 19.4 deg.C 2022-Oct-03 - B3 5GHz, 2022-Oct-04	EX3DV4 - SN3759, 2021-12-13	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-05, 04:59	2022-10-05, 05:07
psSAR1g [W/Kg]	0.898	0.953
psSAR10g [W/Kg]	0.330	0.326
Power Drift [dB]	0.01	-0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		62.3
Dist 3dB Peak [mm]		8.0

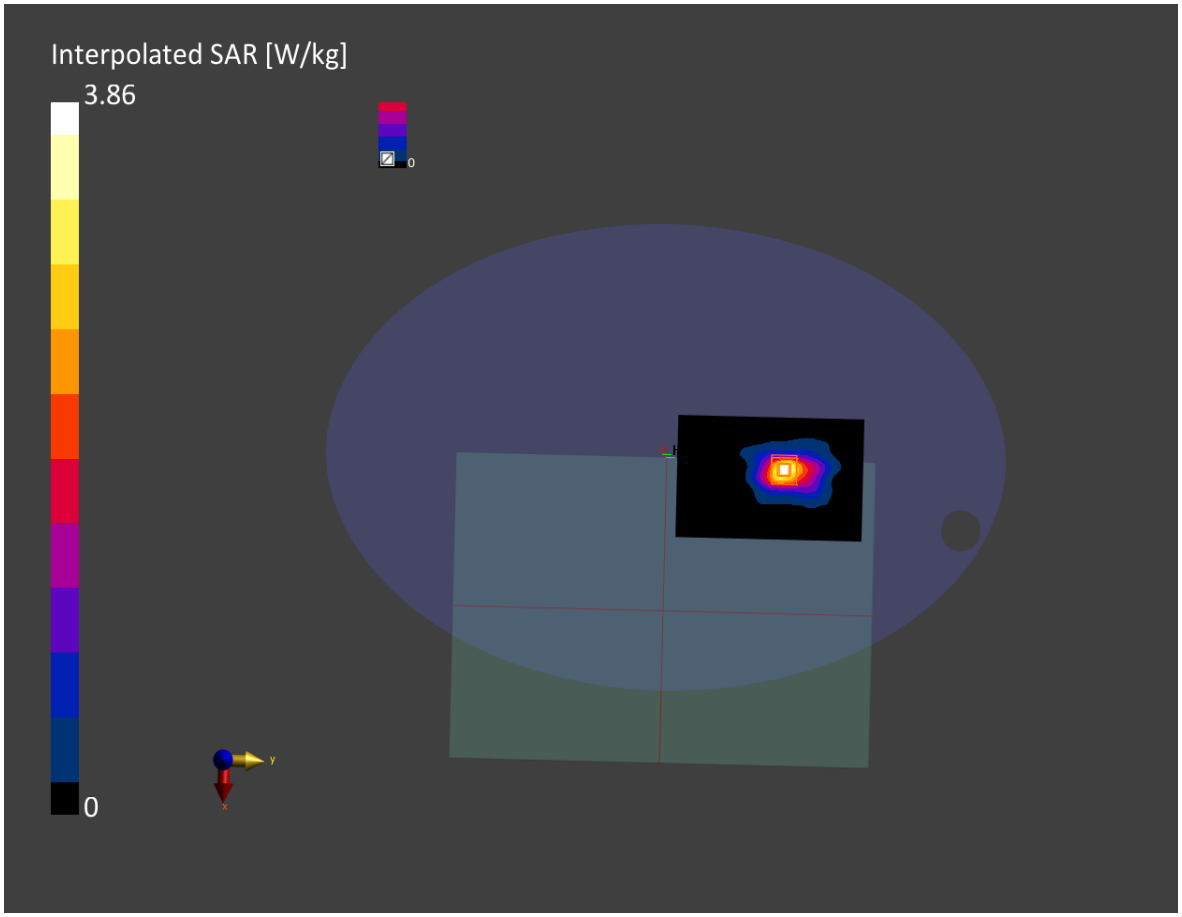


Figure C.7: SAR Body Testing Results for the A2780 at 5850 MHz

Measurement Report for A2780, BACK, Custom Band, CW, Channel 5850000 (5850.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	Custom Band	CW, 0--	5850.0, 5850000	3.88	5.31	35.1

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 19 deg.C 2022-Sep-27 - B3 6GHz, 2022-Oct-01	EX3DV4 - SN3759, 2020-12-17	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-03, 20:54	2022-10-03, 21:04
psSAR1g [W/Kg]	0.670	0.720
psSAR10g [W/Kg]	0.222	0.239
Power Drift [dB]	-0.01	-0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		61.5
Dist 3dB Peak [mm]		7.9

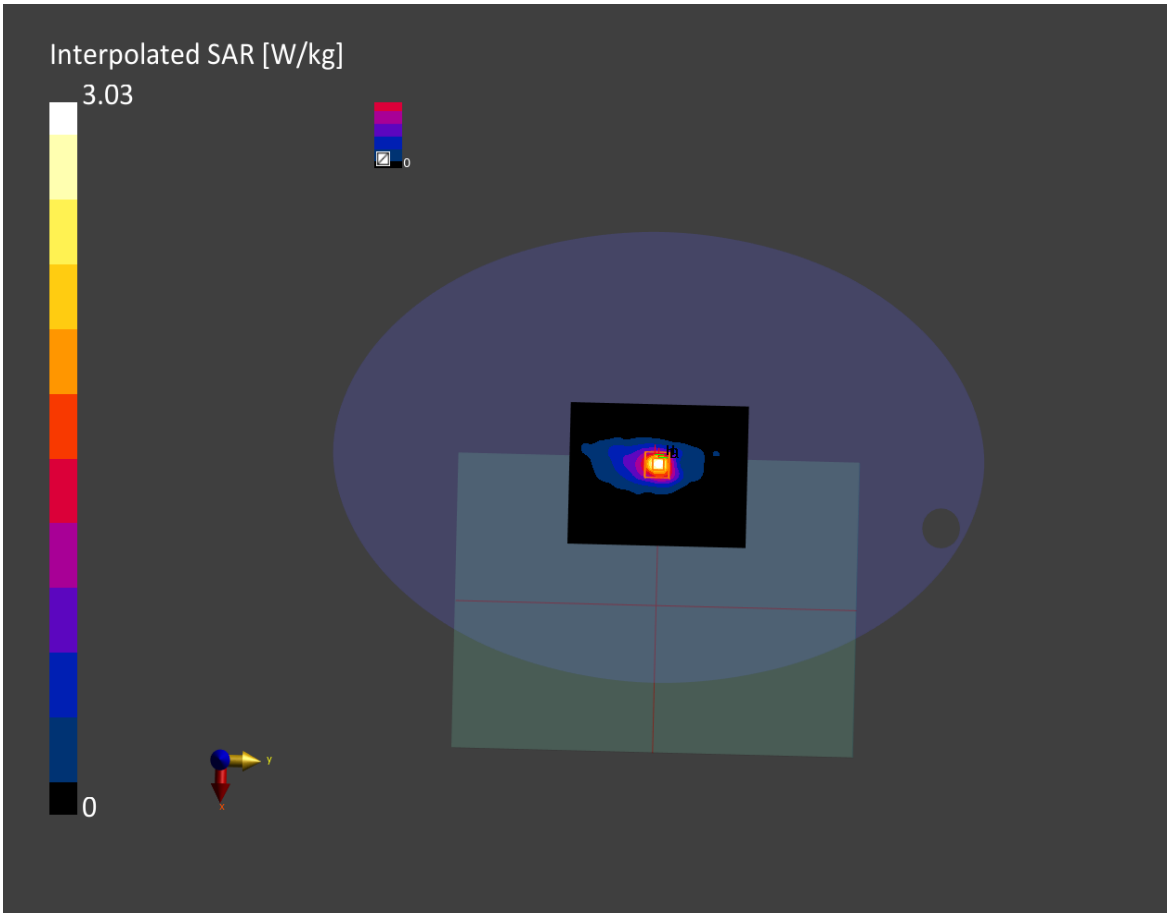


Figure C.8: SAR Body Testing Results for the A2780 at 5850 MHz

Measurement Report for A2780, BACK, Custom Band, CW, Channel 5850000 (5850.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	Custom Band	CW, 0--	5850.0, 5850000	3.85	5.16	35.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 19.4 deg.C 2022-Oct-03 - B3 5GHz, 2022-Oct-04	EX3DV4 - SN3759, 2021-12-13	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	100.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-05, 07:11	2022-10-05, 07:19
psSAR1g [W/Kg]	0.559	0.596
psSAR10g [W/Kg]	0.205	0.205
Power Drift [dB]	-0.03	0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		62.1
Dist 3dB Peak [mm]		8.0

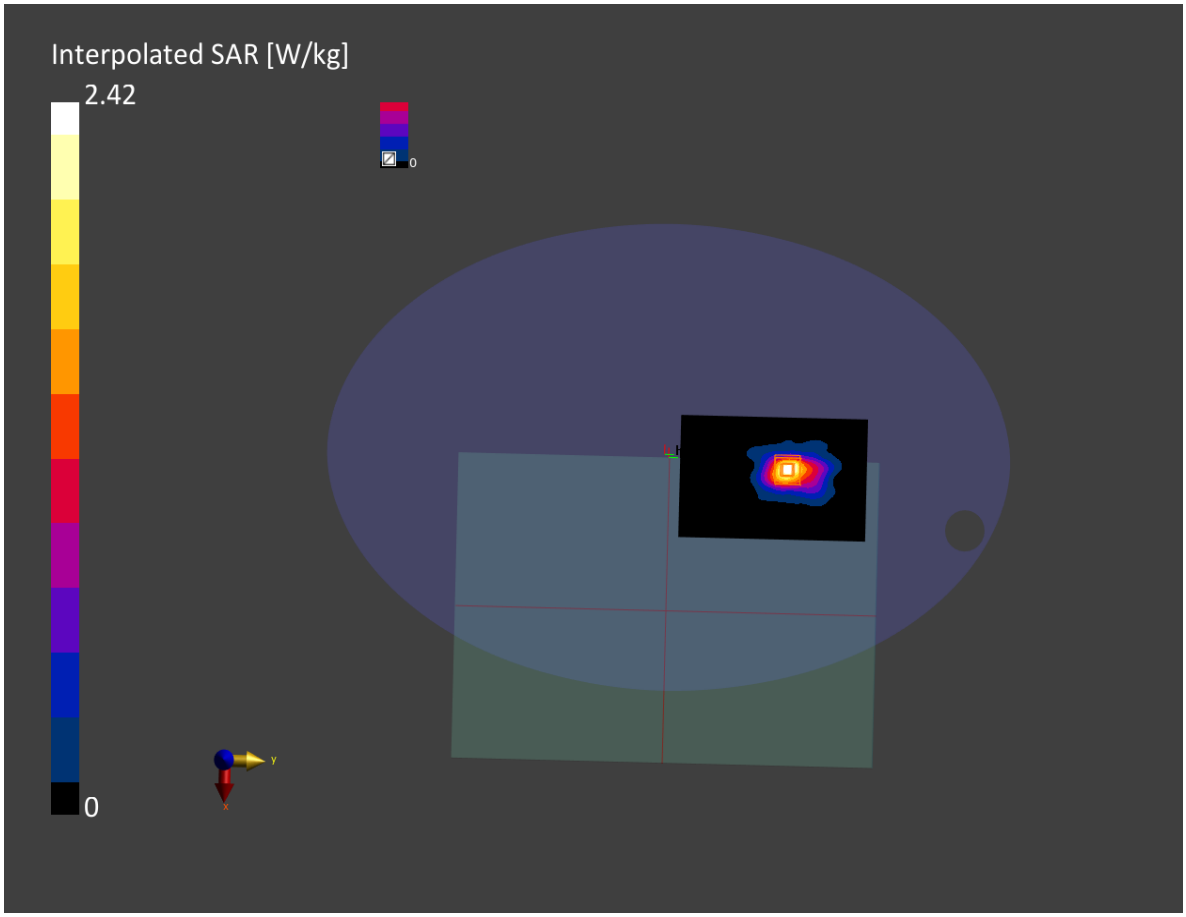


Figure C.9: SAR Body Testing Results for the A2780 at 5850 MHz

WLAN 2450 MHz
TUV SUD

Measurement Report for A2780, BACK, WLAN 2.4GHz, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle), Channel 1 (2412.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Tablet

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, HSL	BACK, 0.00	WLAN 2.4GHz	WLAN, 10415-AAA	2412.0, 1	7.43	1.69	41.5

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - sn:2057	HBBL-600-6000 Batch 2 DAK 3.5 Head 22.0 deg.C 2022-Sep-05 - B2, 2022-Sep-05	EX3DV4 - SN3759, 2021-12-13	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	180.0 x 200.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	n/a	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-05, 23:24	2022-09-05, 23:32
psSAR1g [W/Kg]	0.453	0.482
psSAR10g [W/Kg]	0.227	0.232
Power Drift [dB]	0.01	0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		74.8
Dist 3dB Peak [mm]		9.5

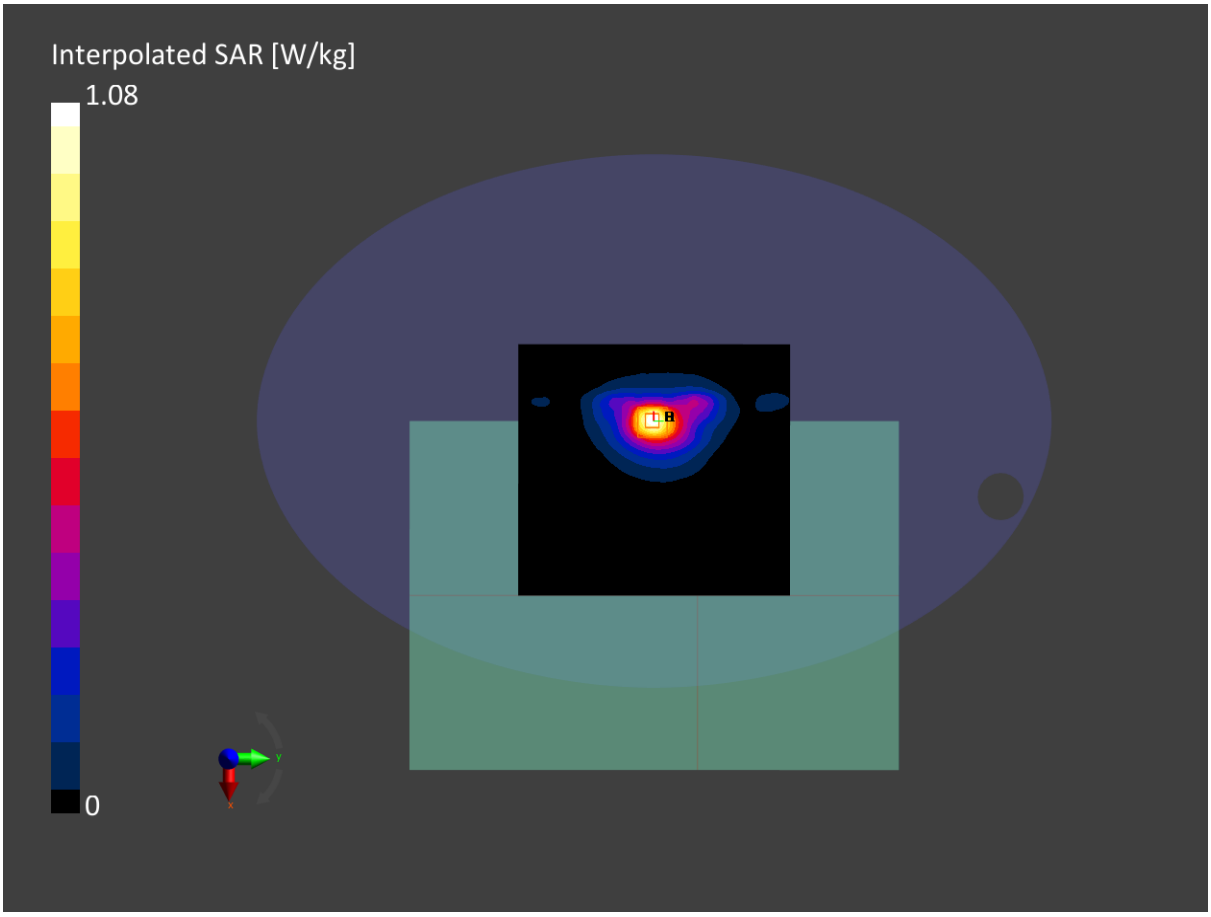


Figure C.10: SAR Body Testing Results for the A2780 at 2412 MHz

Measurement Report for A2780, BACK, WLAN 2.4GHz, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle), Channel 6 (2437.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Tablet

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, HSL	BACK, 0.00	WLAN 2.4GHz	WLAN, 10415-AAA	2437.0, 6	7.46	1.70	40.8

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 22.3 deg.C 2022-Sep-05 - B1, 2022-Sep-05	EX3DV4 - SN7719, 2022-03-11	DAE4 Sn1712, 2022-03-09

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	n/a	1.5
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-06, 10:37	2022-09-06, 10:45
psSAR1g [W/Kg]	0.399	0.410
psSAR10g [W/Kg]	0.192	0.181
Power Drift [dB]	-0.02	-0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		76.9
Dist 3dB Peak [mm]		8.6

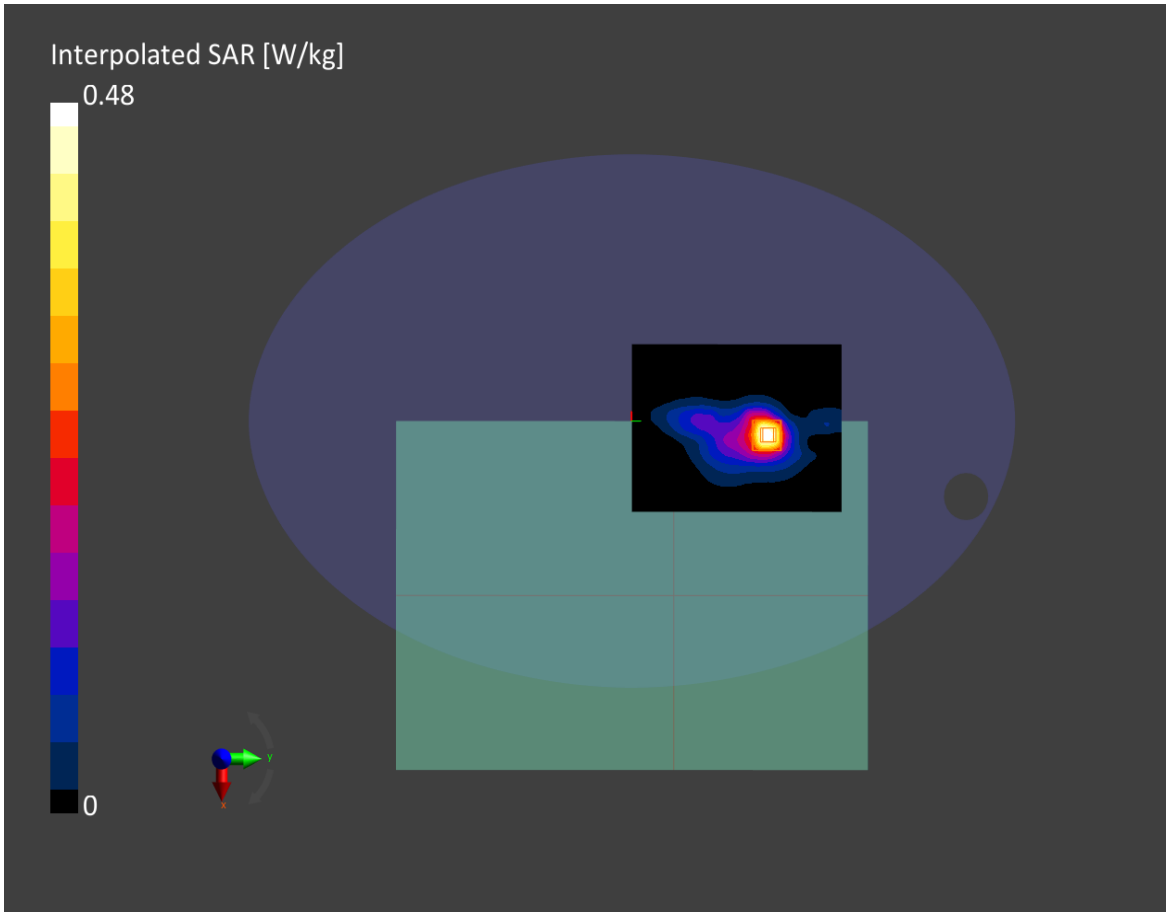


Figure C.11: SAR Body Testing Results for the A2780 at 2437 MHz

Measurement Report for A2780, BACK, WLAN 2.4GHz, UID 10193 CAD, Channel 6 (2437.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

Exposure Conditions

Phantom Section	Position	Test Distance [mm]	Band	Group	UID	Rev	Frequency [MHz]	Channel Number
Flat HSL	BACK	0.00	WLAN 2.4GHz	WLAN	10193	CAD	2437.000	6

Hardware Setup

Phantom	TSL	Probe	Calibration Date	DAE	Calibration Date
ELI V8.0 (20deg probe tilt)	HBBL-600-10000	EX3DV4 - SN7719	2022-03-11	DAE4 Sn1712	2022-03-09

Scan Setup

Scan Name	Grid Extents [mm]	Grid Steps [mm]	Sensor Surface [mm]	TSL Correction	Meas. Method	Probe Positioning	MAIA
Fast Area Scan	120.0 x 260.0 x 0.0	10.0 x 10.0 x 1.0	4.0	+ only	Measured	N/A	N/A
Area Scan	120.0 x 260.0 x 0.0	10.0 x 10.0 x 1.0	3.0	+ only	Measured	VMS + 6p	N/A
Zoom Scan	28.0 x 28.0 x 28.0	5.0 x 5.0 x 1.5	1.4	+ only	Measured	VMS + 6p	N/A
Zoom Scan	28.0 x 28.0 x 28.0	5.0 x 5.0 x 1.5	1.4	+ only	Measured	VMS + 6p	N/A

SAR Measurement Results

Date	Scan Name	psSAR1g [W/kg]	psSAR10g [W/kg]	Tune-up [dB]	Drift [dB]	M2/M1 [%]	Dist 3dB [mm]
2022-09-06, 12:34	Fast Area Scan	0.472	0.238	0.00	N/A	N/A	N/A
2022-09-06, 12:41	Area Scan	0.483	0.235	0.00	-0.04	N/A	N/A
2022-09-06, 12:49	Zoom Scan	0.499	0.235	0.00	-0.03	77.2	9.1
2022-09-06, 12:56	Zoom Scan	0.465	0.206	0.00	-0.00	76.3	9.0

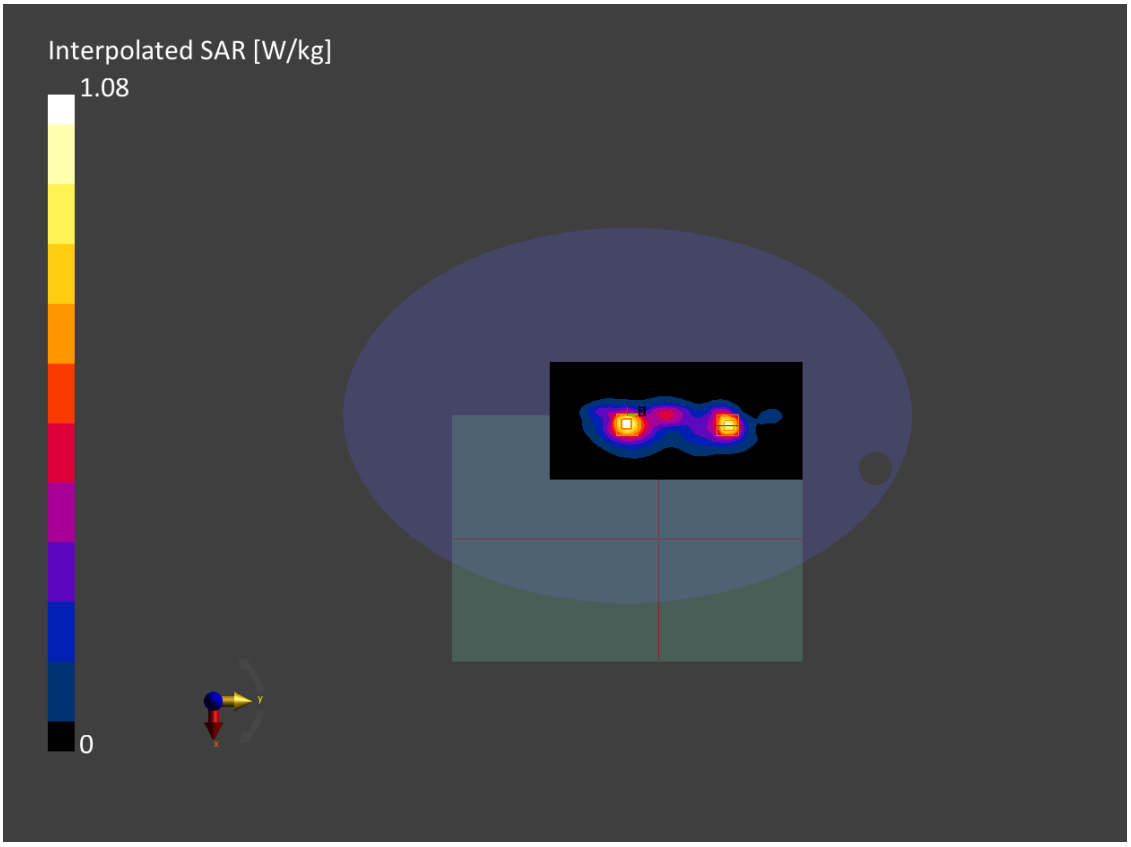


Figure C.12: SAR Body Testing Results for the A2780 at 2437 MHz

WLAN 5200/5300 MHz
TUV SUD

Measurement Report for A2780, BACK, WLAN 5GHz, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle), Channel 42 (5210.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5210.0, 42	4.53	4.28	34.3

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - sn:2057	HBBL-600-6000 Batch 2 DAK 3.5 Head 19.0 deg.C 2022-Sep-06 5GHz - B2.prn, 2022-Sep-09	EX3DV4 - SN3759, 2021-12-13	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	160.0 x 200.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-09, 21:23	2022-09-09, 21:33
psSAR1g [W/Kg]	0.574	0.619
psSAR10g [W/Kg]	0.198	0.208
Power Drift [dB]	-0.01	-0.03
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		67.1
Dist 3dB Peak [mm]		7.9

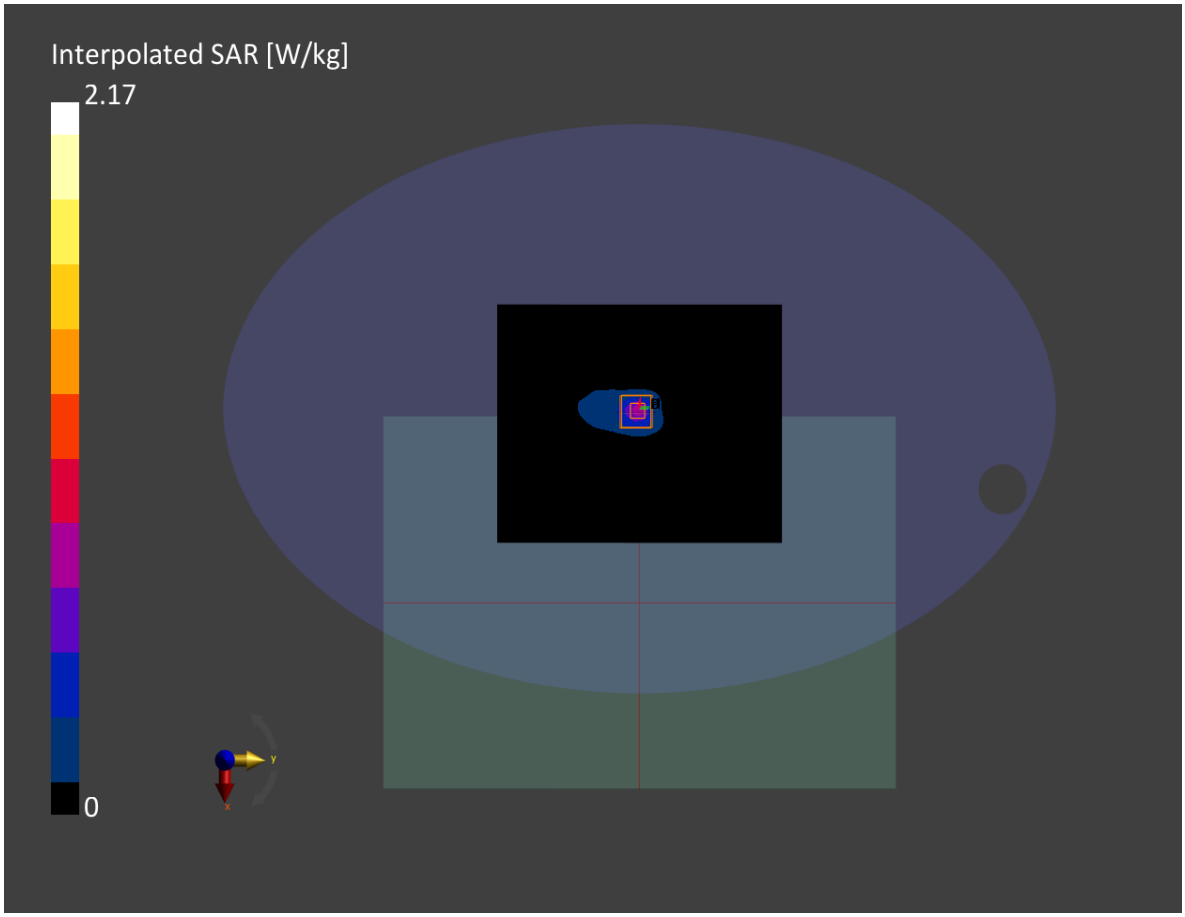


Figure C.13: SAR Body Testing Results for the A2780 at 5210 MHz

Measurement Report for A2780, BACK, WLAN 5GHz, IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle), Channel 58 (5290.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5290.0, 58	5.16	4.57	37.2

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 21.5 deg.C 2022-Sep-07 5GHz - B1.prn, 2022-Sep-07	EX3DV4 - SN7719, 2022-03-11	DAE4 Sn1712, 2022-03-09

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-10, 14:49	2022-09-10, 14:57
psSAR1g [W/Kg]	0.437	0.461
psSAR10g [W/Kg]	0.161	0.166
Power Drift [dB]	0.03	-0.09
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		66.6
Dist 3dB Peak [mm]		7.9

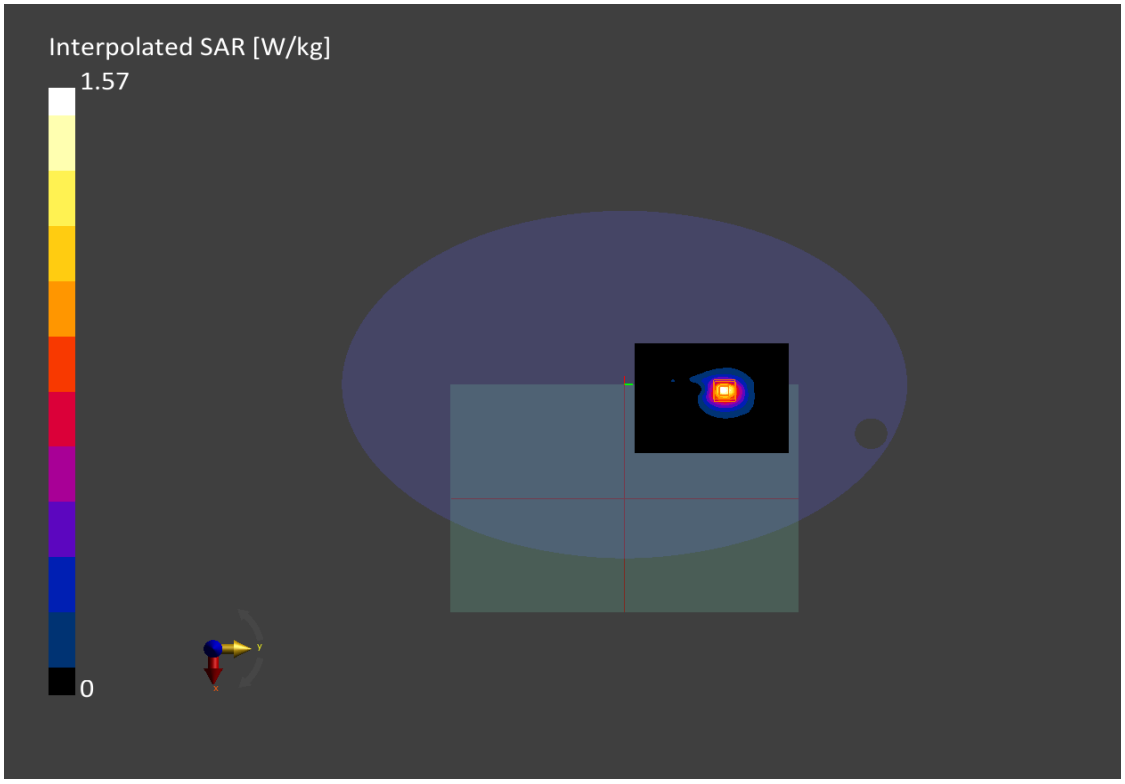


Figure C.14: SAR Body Testing Results for the A2780at 5290 MHz

Measurement Report for A2780, BACK, WLAN 5GHz, UID 10544 AAC, Channel 42 (5210.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780,	360.0 x 250.0 x 17.0		Laptop

Exposure Conditions

Phantom Section	Position	Test Distance [mm]	Band	Group	UID	Rev	Frequency [MHz]	Channel Number
Flat HSL	BACK	0.00	WLAN 5GHz	WLAN	10544	AAC	5210.000	42

Hardware Setup

Phantom	TSL	Probe	Calibration Date	DAE	Calibration Date
ELI V8.0 (20deg probe tilt)	HBBL-600-10000	EX3DV4 - SN7719	2022-03-11	DAE4 Sn1712	2022-03-09

Scan Setup

Scan Name	Grid Extents [mm]	Grid Steps [mm]	Sensor Surface [mm]	TSL Correction	Meas. Method	Probe Positioning	MAIA
Fast Area Scan	120.0 x 260.0 x 0.0	10.0 x 10.0 x 1.0	4.0	+ only	Measured	N/A	N/A
Area Scan	120.0 x 260.0 x 0.0	10.0 x 10.0 x 1.0	3.0	+ only	Measured	VMS + 6p	N/A
Zoom Scan	22.0 x 22.0 x 22.0	4.0 x 4.0 x 1.4	1.4	+ only	Measured	VMS + 6p	N/A
Zoom Scan	22.0 x 22.0 x 22.0	4.0 x 4.0 x 1.4	1.4	+ only	Measured	VMS + 6p	N/A

SAR Measurement Results

Date	Scan Name	psSAR1g [W/kg]	psSAR10g [W/kg]	Tune-up [dB]	Drift [dB]	M2/M1 [%]	Dist 3dB [mm]
2022-09-10, 15:45	Fast Area Scan	0.670	0.241	0.00	N/A	N/A	N/A
2022-09-10, 15:52	Area Scan	0.673	0.232	0.00	0.02	N/A	N/A
2022-09-10, 16:02	Zoom Scan	0.738	0.248	0.00	-0.04	65.3	7.6
2022-09-10, 16:09	Zoom Scan	0.505	0.184	0.00	-0.09	66.5	8.4

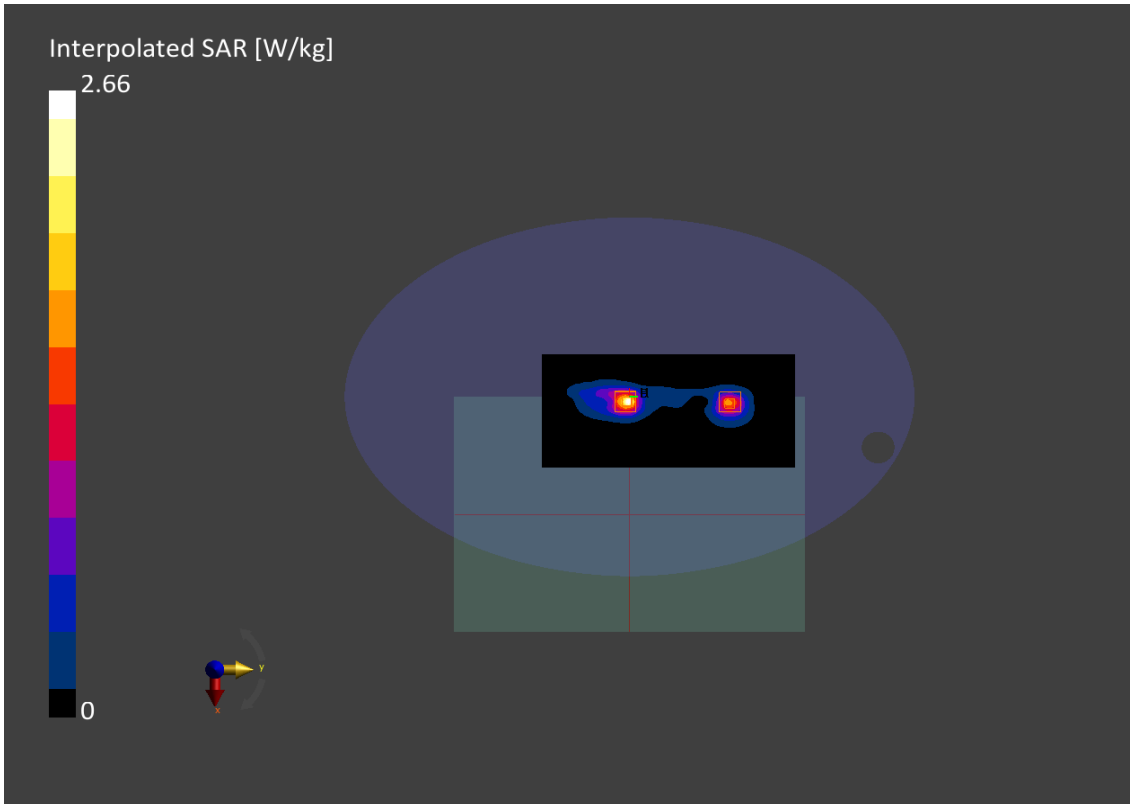


Figure C.15: SAR Body Testing Results for the A2780 at 5210 MHz

WLAN 5500/5600 MHz
TUV SUD

Measurement Report for A2780, BACK, WLAN 5GHz, IEEE 802.11ac WiFi (80 MHz, MCS0, 99pc duty cycle), Channel 138 (5690.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5690.0, 138	3.81	5.11	37.7

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 20.1 deg.C 2022-Oct-26 - B3 5GHz.prn, 2022-Oct-26	EX3DV4 - SN3759, 2021-12-13	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	No	Yes
Grading Ratio	n/a	1.4
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-27, 02:19	2022-10-27, 02:37
psSAR1g [W/Kg]	0.495	0.531
psSAR10g [W/Kg]	0.177	0.169
Power Drift [dB]	-0.15	0.14
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only

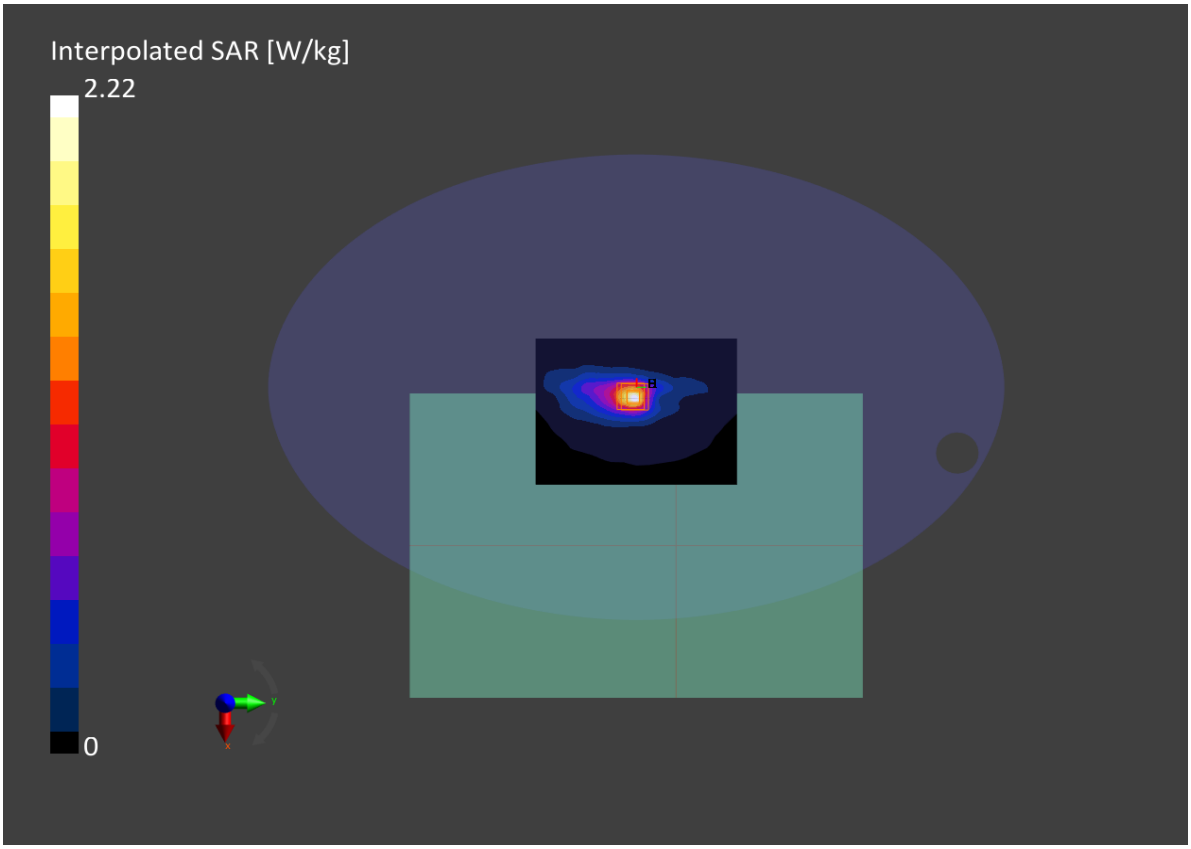


Figure C.16: SAR Body Testing Results for the A2780 at 5690 MHz

Measurement Report for A2780, BACK, WLAN 5GHz, IEEE 802.11ac WiFi (80 MHz, MCS0, 99pc duty cycle), Channel 138 (5690.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5690.0, 138	4.66	4.81	36.1

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 22.2 deg.C 2022-Sep-12 5GHz - B1.prn, 2022-Sep-12	EX3DV4 - SN7719, 2022-03-11	DAE4 Sn1712, 2022-03-09

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-13, 21:59	2022-09-13, 22:07
psSAR1g [W/Kg]	0.404	0.419
psSAR10g [W/Kg]	0.142	0.148
Power Drift [dB]	-0.03	-0.10
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		62.7
Dist 3dB Peak [mm]		7.4

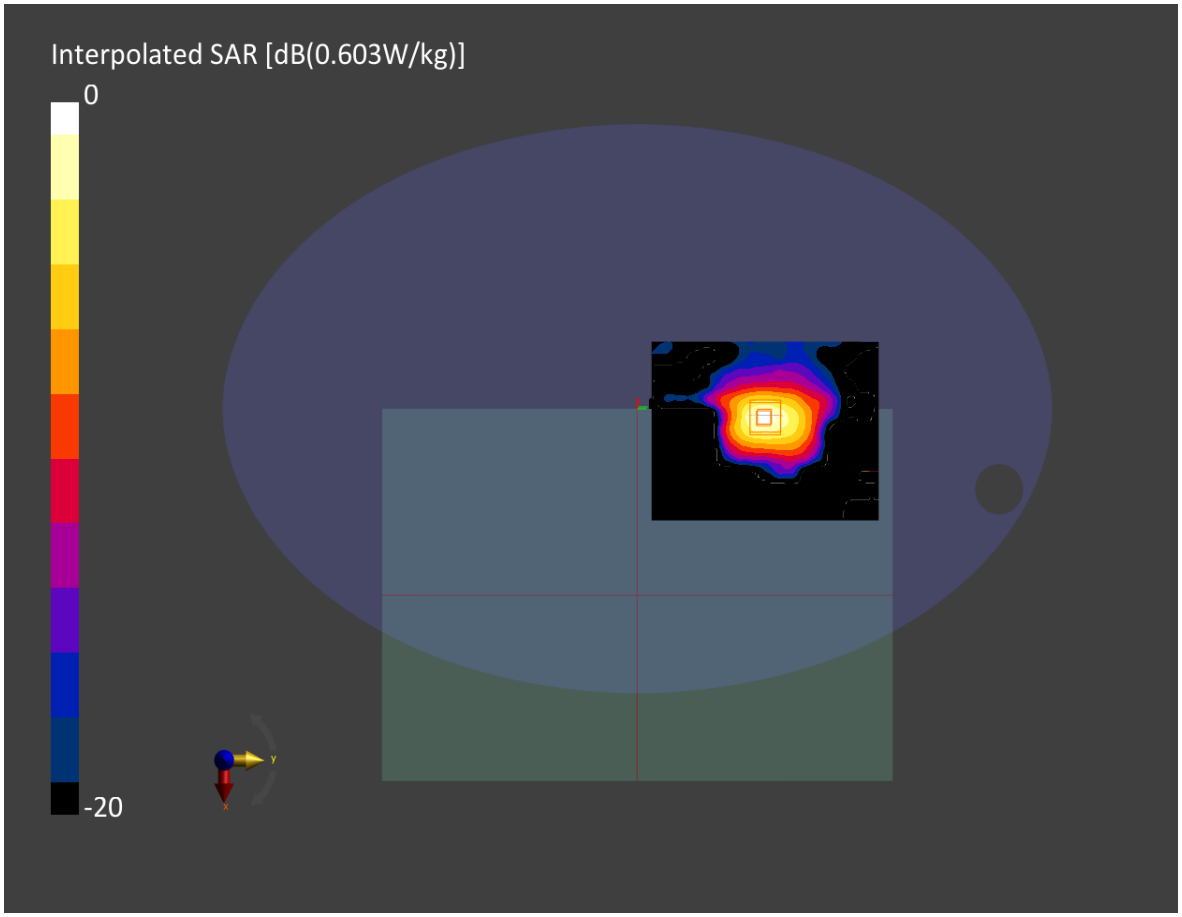


Figure C.17: SAR Body Testing Results for the A2780 at 5690 MHz

Measurement Report for A2780, BACK, WLAN 5GHz, UID 10544 AAC, Channel 138 (5690.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

Exposure Conditions

Phantom Section	Position	Test Distance [mm]	Band	Group	UID	Rev	Frequency [MHz]	Channel Number
Flat HSL	BACK	0.00	WLAN 5GHz	WLAN	10544	AAC	5690.000	138

Hardware Setup

Phantom	TSL	Probe	Calibration Date	DAE	Calibration Date
ELI V8.0 (20deg probe tilt)	HBBL-600-10000	EX3DV4 - SN7719	2022-03-11	DAE4 Sn1712	2022-03-09

Scan Setup

Scan Name	Grid Extents [mm]	Grid Steps [mm]	Sensor Surface [mm]	TSL Correction	Meas. Method	Probe Positioning	MAIA
Fast Area Scan	120.0 x 260.0 x 0.0	10.0 x 10.0 x 1.0	4.0	+ only	Measured	N/A	N/A
Area Scan	120.0 x 260.0 x 0.0	10.0 x 10.0 x 1.0	3.0	+ only	Measured	VMS + 6p	N/A
Zoom Scan	22.0 x 22.0 x 22.0	4.0 x 4.0 x 1.4	1.4	+ only	Measured	VMS + 6p	N/A
Zoom Scan	22.0 x 22.0 x 22.0	4.0 x 4.0 x 1.4	1.4	+ only	Measured	VMS + 6p	N/A

SAR Measurement Results

Date	Scan Name	psSAR1g [W/kg]	psSAR10g [W/kg]	Tune-up [dB]	Drift [dB]	M2/M1 [%]	Dist 3dB [mm]
2022-09-13, 19:42	Fast Area Scan	0.502	0.173	0.00	N/A	N/A	N/A
2022-09-13, 19:49	Area Scan	0.474	0.164	0.00	0.07	N/A	N/A
2022-09-13, 19:59	Zoom Scan	0.529	0.174	0.00	-0.01	62.2	7.4
2022-09-13, 20:08	Zoom Scan	0.427	0.147	0.00	0.04	62.3	8.1

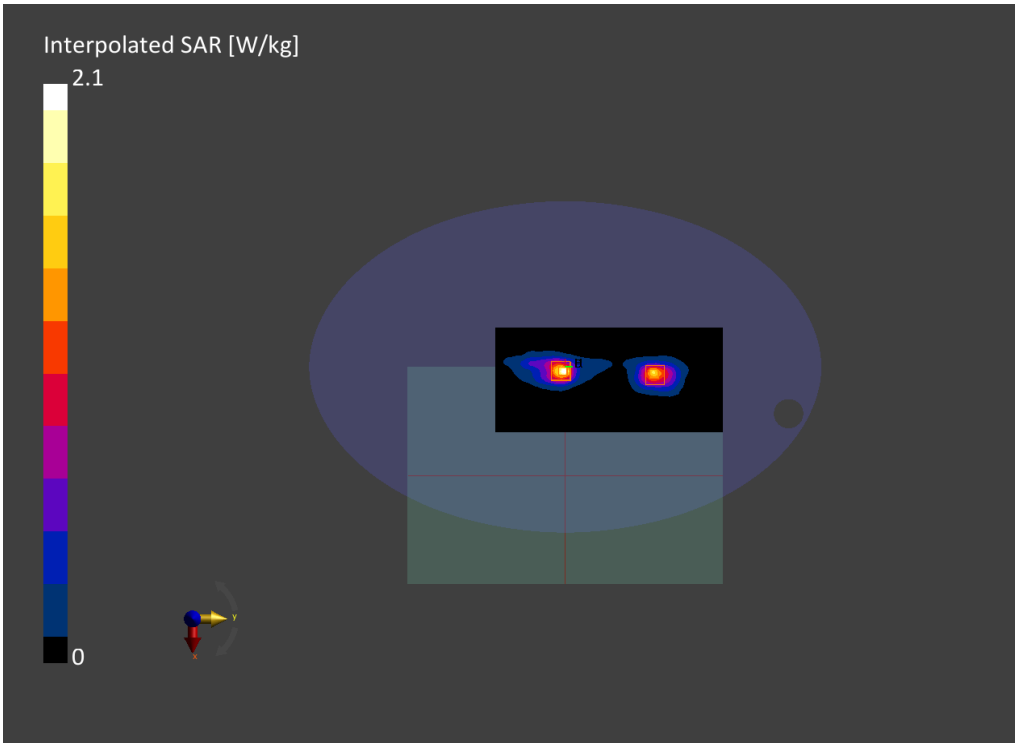


Figure C.18: SAR Body Testing Results for the A2780 at 5690 MHz

WLAN 5800 MHz
TUV SUD

Measurement Report for A2780, BACK, WLAN 5GHz, IEEE 802.11ac WiFi (80 MHz, MCS0, 99pc duty cycle), Channel 155 (5775.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5775.0, 155	4.65	4.90	36.0

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 22.2 deg.C 2022-Sep-12 5GHz - B1.prn, 2022-Sep-12	EX3DV4 - SN7719, 2022-03-11	DAE4 Sn1712, 2022-03-09

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-12, 14:32	2022-09-12, 14:42
psSAR1g [W/Kg]	0.513	0.560
psSAR10g [W/Kg]	0.172	0.183
Power Drift [dB]	-0.09	-0.05
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		59.1
Dist 3dB Peak [mm]		7.6

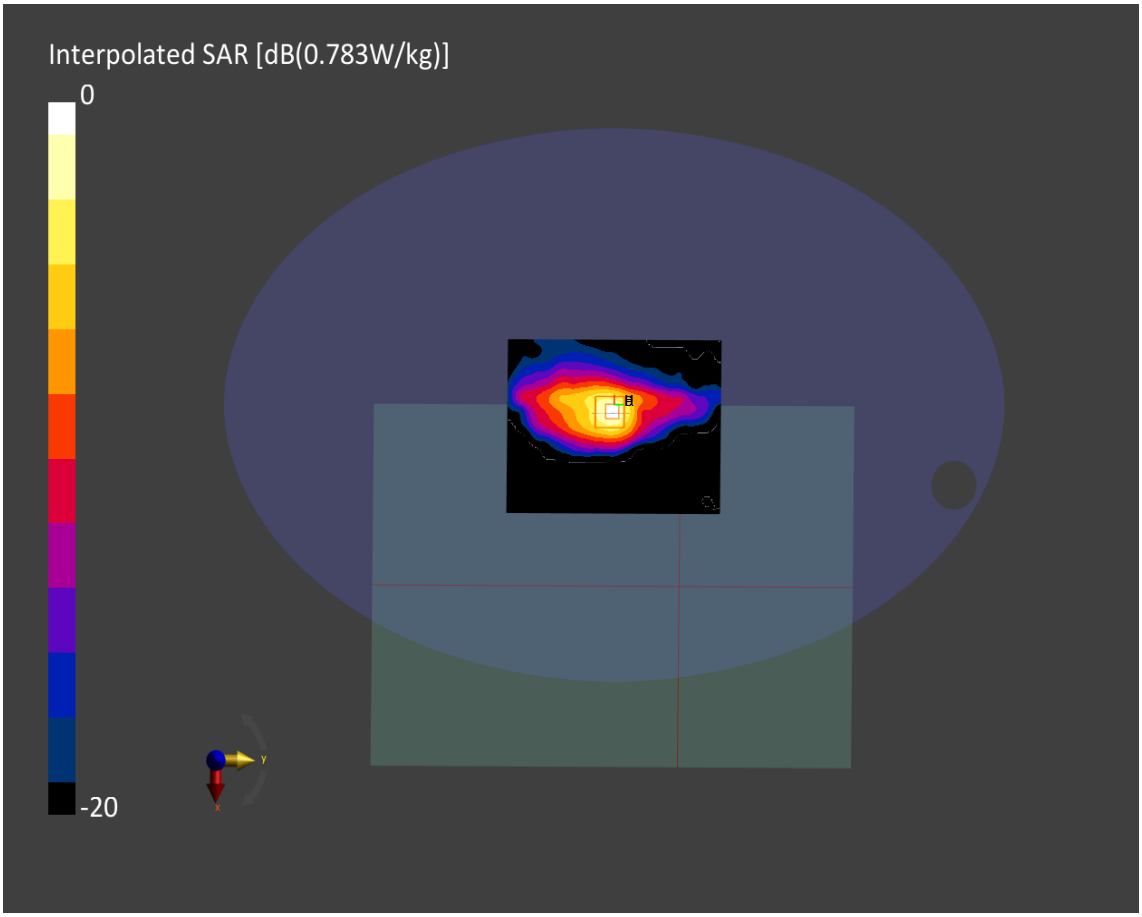


Figure C.19: SAR Body Testing Results for the A2780 at 5775 MHz

Measurement Report for A2780, BACK, WLAN 5GHz, IEEE 802.11ac WiFi (80 MHz, MCS0, 99pc duty cycle), Channel 155 (5775.0 MHz)

Device Under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	WLAN 5GHz	WLAN, 10544-AAC	5775.0, 155	4.65	4.90	36.0

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 22.2 deg.C 2022-Sep-12 5GHz - B1.prn, 2022-Sep-12	EX3DV4 - SN7719, 2022-03-11	DAE4 Sn1712, 2022-03-09

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 160.0	22.0 x 22.0 x 22.0
Grid Steps [mm]	10.0 x 10.0	4.0 x 4.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	N/A	N/A
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-12, 22:24	2022-09-12, 22:33
psSAR1g [W/Kg]	0.340	0.381
psSAR10g [W/Kg]	0.132	0.134
Power Drift [dB]	0.15	-0.07
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		61.1
Dist 3dB Peak [mm]		8.0

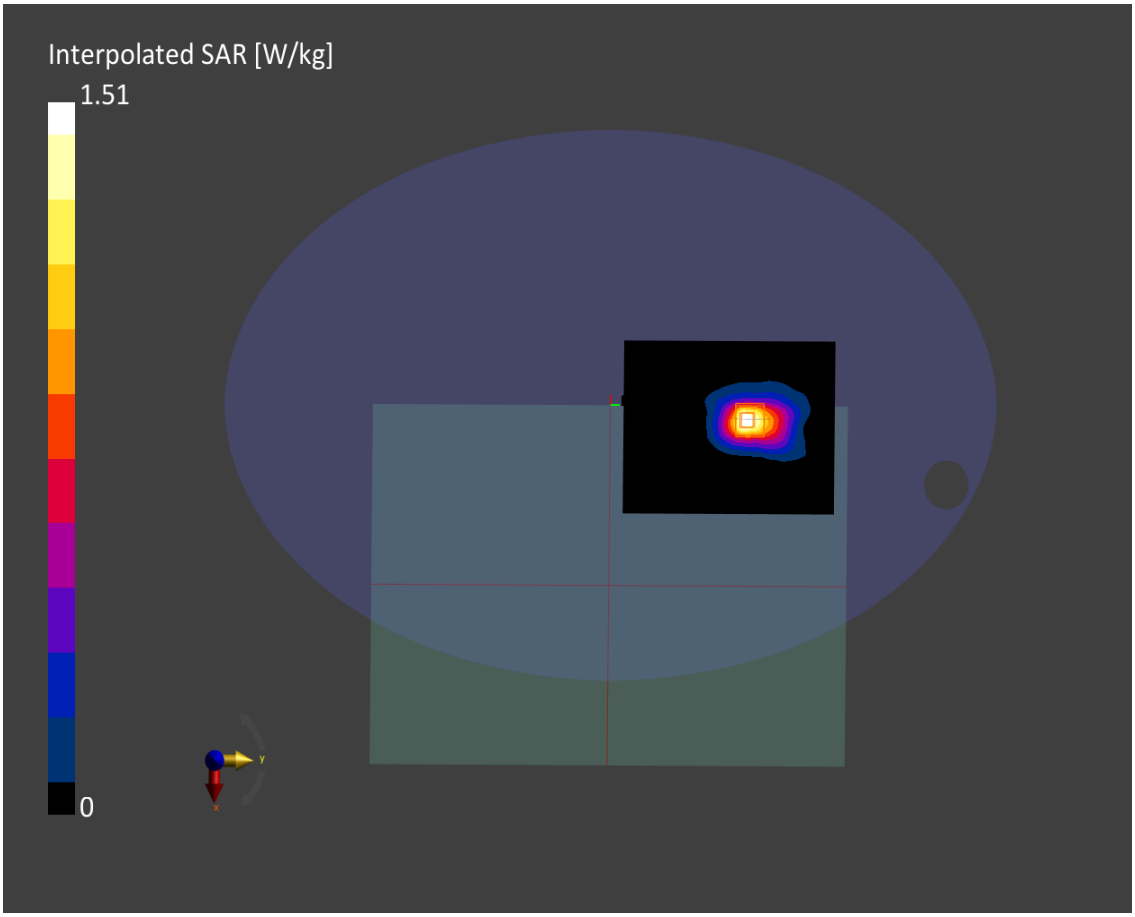


Figure C.20: SAR Body Testing Results for the A2780 at 5775 MHz

Measurement Report for A2780, BACK, WLAN 5 GHz, UID 10544 AAC, Channel 155 (5775.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Phone

Exposure Conditions

Phantom Section	Position	Test Distance [mm]	Band	Group	UID	Rev	Frequency [MHz]	Channel Number
Flat HSL	BACK	0.00	WLAN 5GHz	WLAN	10544	AAC	5775.000	155

Hardware Setup

Phantom	TSL	Probe	Calibration Date	DAE	Calibration Date
ELI V8.0 (20deg probe tilt)	HBBL-600-10000	EX3DV4 - SN7719	2022-03-11	DAE4 Sn1712	2022-03-09

Scan Setup

Scan Name	Grid Extents [mm]	Grid Steps [mm]	Sensor Surface [mm]	TSL Correction	Meas. Method	Probe Positioning	MAIA
Fast Area Scan	120.0 x 260.0 x 0.0	10.0 x 10.0 x 1.0	4.0	+ only	Measured	N/A	N/A
Area Scan	120.0 x 260.0 x 0.0	10.0 x 10.0 x 1.0	3.0	+ only	Measured	VMS + 6p	N/A
Zoom Scan	22.0 x 22.0 x 22.0	4.0 x 4.0 x 1.4	1.4	+ only	Measured	VMS + 6p	N/A
Zoom Scan	22.0 x 22.0 x 22.0	4.0 x 4.0 x 1.4	1.4	+ only	Measured	VMS + 6p	N/A

SAR Measurement Results

Date	Scan Name	psSAR1g [W/kg]	psSAR10g [W/kg]	Tune-up [dB]	Drift [dB]	M2/M1 [%]	Dist 3dB [mm]
2022-09-12, 17:25	Fast Area Scan	0.444	0.159	0.00	N/A	N/A	N/A
2022-09-12, 17:32	Area Scan	0.410	0.145	0.00	-0.09	N/A	N/A
2022-09-12, 17:43	Zoom Scan	0.462	0.153	0.00	0.05	60.8	7.4
2022-09-12, 17:51	Zoom Scan	0.389	0.139	0.00	0.01	60.0	8.4

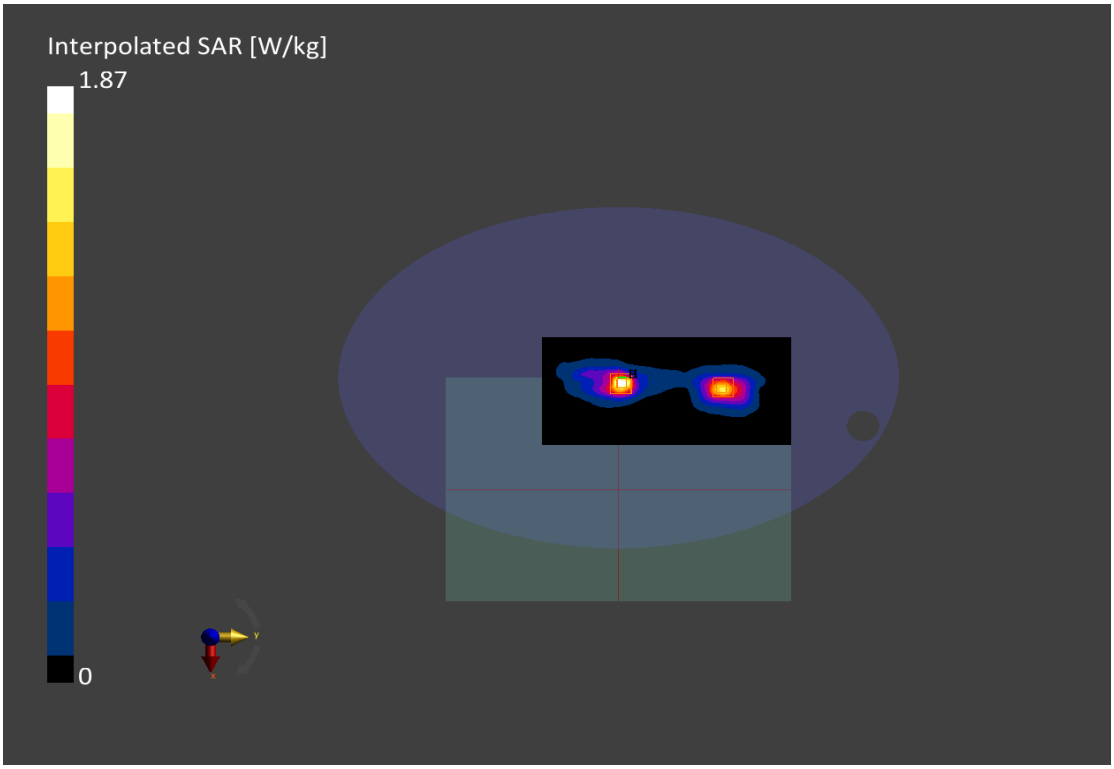


Figure C.21: SAR Body Testing Results for the A2780 at 5775 MHz

WLAN 6GHz
TUV SUD

Measurement Report for A2780, BACK, U-NII-5, UID 10755 AAC, Channel 79 (6345.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	U-NII-5	WLAN, 10755-AAC	6345.0, 79	5.1	6.02	32.7

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2102	HBBL-600-10000 DAK 3.5 Head 19.1 deg.C 2022-Oct-12 - B3 6GHz.prn, 2022-Oct-12	EX3DV4 - SN3759, 2021-12-13	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	136.0 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	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-10-17, 23:14	2022-10-17, 23:24
psSAR1g [W/kg]	0.380	0.440
psSAR10g [W/kg]	0.124	0.140
psAPD (1.0cm2, sq) [W/m2]		4.40
psAPD (4.0cm2, sq) [W/m2]		3.22
Power Drift [dB]	-0.01	0.02
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		49.6
Dist 3dB Peak [mm]		7.5

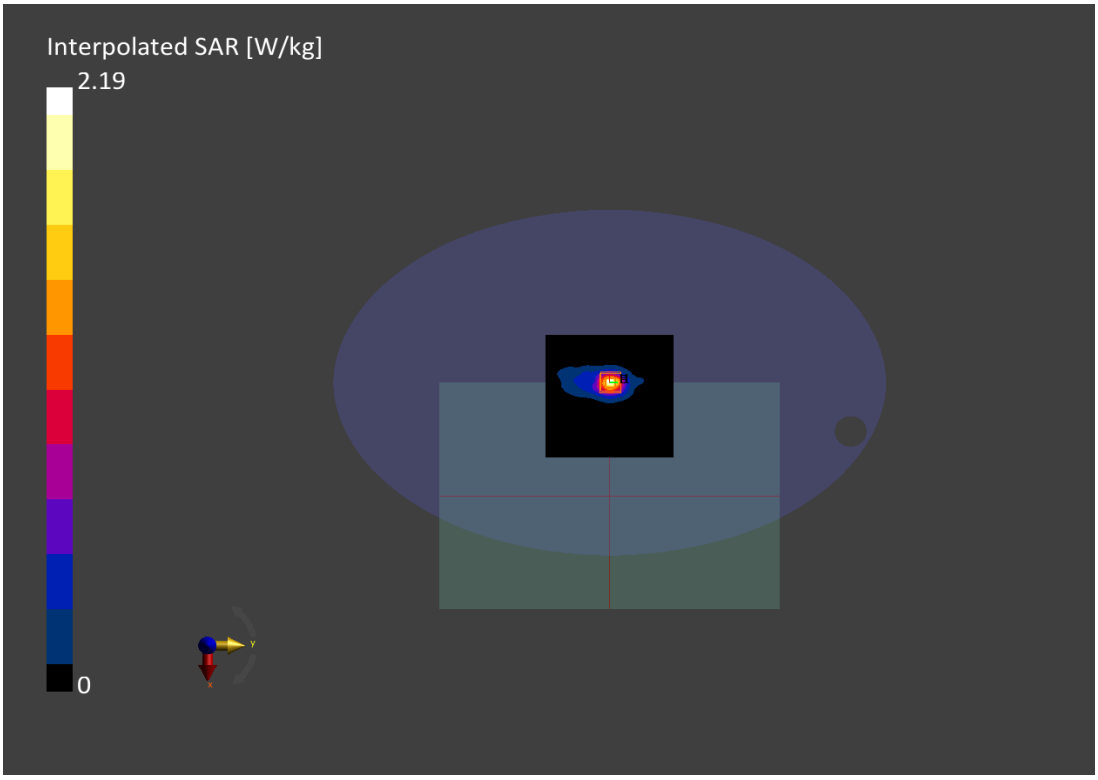


Figure C.22: SAR Body Testing Results for the A2780 at 6345 MHz

Measurement Report for A2780, BACK, U-NII-8, UID 10755 AAC, Channel 207 (6985.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

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, HSL	BACK, 0.00	U-NII-8	WLAN, 10755-AAC	6985.0, 207	5.1	6.62	32.2

Hardware Setup

Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - xxxx	HBBL-600-10000 DAK 3.5 Head 19.0 deg.C 2022-Sep-20 6GHz - B3.prn, 2022-Sep-20	EX3DV4 - SN3759, 2021-12-13	DAE4 Sn475, 2021-12-06

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	102.0 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	Yes	Yes
Grading Ratio	1.5	1.4
MAIA	Y	Y
Surface Detection	VMS + 6p	VMS + 6p
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2022-09-23, 20:07	2022-09-23, 20:17
psSAR1g [W/kg]	0.506	0.568
psSAR10g [W/kg]	0.163	0.177
psAPD (1.0cm2, sq) [W/m2]		5.68
psAPD (4.0cm2, sq) [W/m2]		4.06
Power Drift [dB]	-0.14	0.01
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	Positive only	Positive only
M2/M1 [%]		45.4
Dist 3dB Peak [mm]		7.6

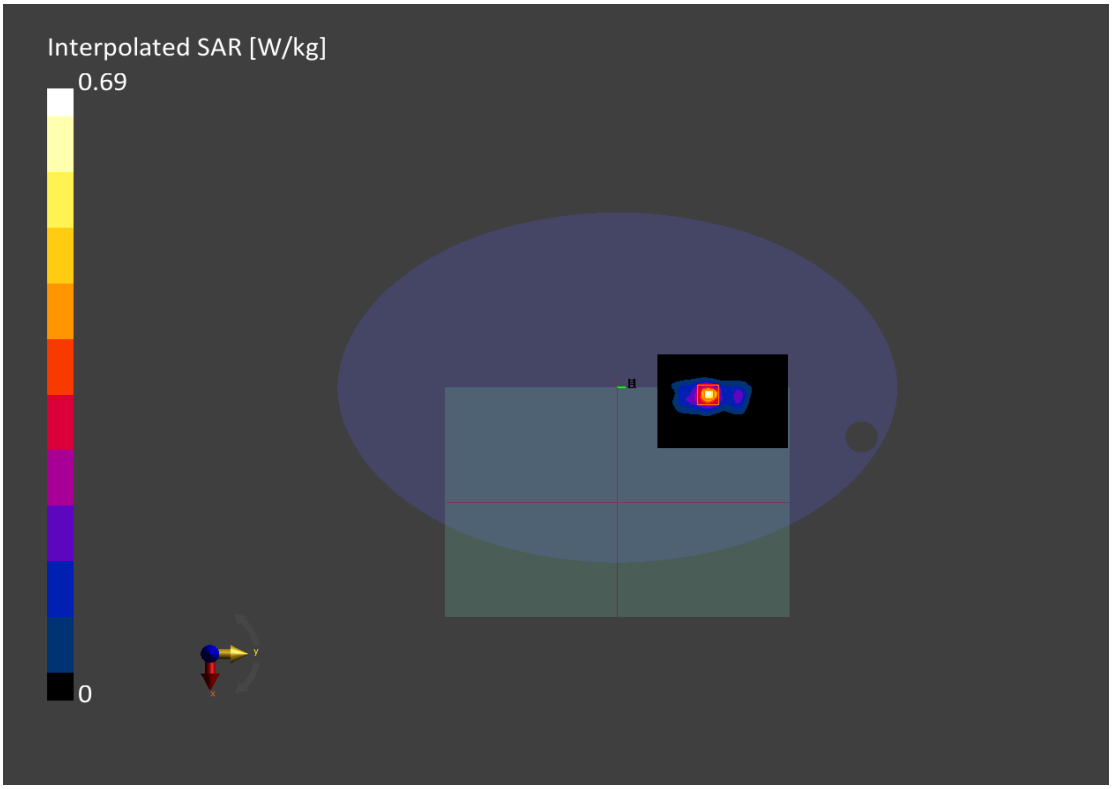


Figure C.23: SAR Body Testing Results for the A2780at 6985 MHz

Measurement Report for A2780, BACK, U-NII-8, UID 10755 AAC, Channel 207 (6985.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	360.0 x 250.0 x 17.0		Laptop

Exposure Conditions

Phantom Section	Position	Test Distance [mm]	Band	Group	UID	Rev	Frequency [MHz]	Channel Number
Flat HSL	BACK	0.00	U-NII-8	WLAN	10755	AAC	6985.000	207

Hardware Setup

Phantom	TSL	Probe	Calibration Date	DAE	Calibration Date
ELI V8.0 (20deg probe tilt)	HBBL-600-10000	EX3DV4 - SN3759	2021-12-13	DAE4 Sn475	2021-12-06

Scan Setup

Scan Name	Grid Extents [mm]	Grid Steps [mm]	Sensor Surface [mm]	TSL Correction	Meas. Method	Probe Positioning	MAIA
Fast Area Scan	102.0 x 255.0 x 0.0	8.5 x 8.5 x 1.0	4.0	+ only	Measured	N/A	N/A
Area Scan	102.0 x 255.0 x 0.0	8.5 x 8.5 x 1.0	3.0	+ only	Measured	VMS + 6p	Y
Zoom Scan	22.0 x 22.0 x 22.0	3.4 x 3.4 x 1.4	1.4	+ only	Measured	VMS + 6p	Y
Zoom Scan	22.0 x 22.0 x 22.0	3.4 x 3.4 x 1.4	1.4	+ only	Measured	VMS + 6p	Y

SAR Measurement Results

Date	Scan Name	psSAR1g [W/kg]	psSAR10g [W/kg]	psAPD (1.0cm2, sq) [W/m2]	psAPD (4.0cm2, sq) [W/m2]	Drift [dB]	M2/M1 [%]	Dist 3dB [mm]
2022-09-24, 06:18	Fast Area Scan	0.312	0.104	N/A	N/A	N/A	N/A	N/A
2022-09-24, 06:26	Area Scan	0.306	0.098	N/A	N/A	0.10	N/A	N/A
2022-09-24, 06:36	Zoom Scan	0.332	0.102	3.32	2.35	-0.09	45.5	7.5
2022-09-24, 06:46	Zoom Scan	0.317	0.098	3.17	2.24	-0.02	46.4	7.8

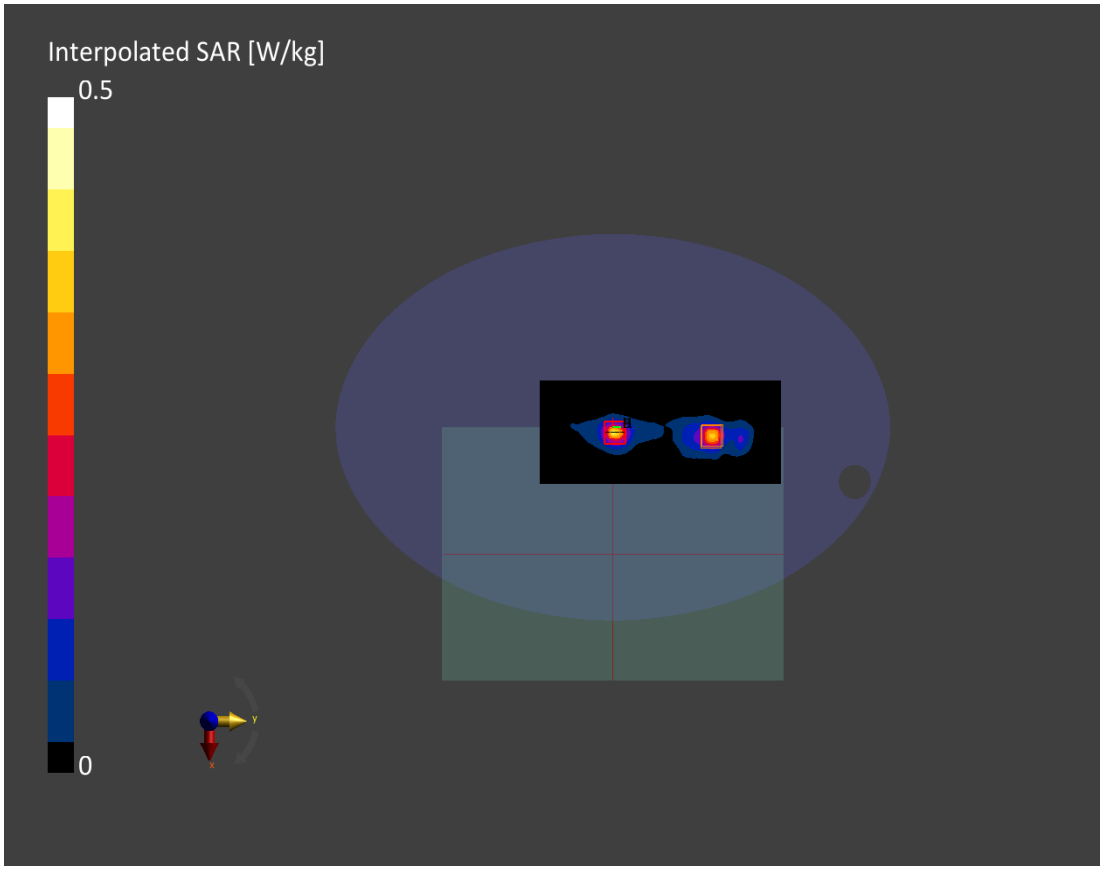


Figure C.24: SAR Body Testing Results for the A2780 at 6985 MHz

Measurement Report for A2780, BACK, U-NII-8, UID 10755 AAC, Channel 207 (6985.0MHz)

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	IMEI	DUT Type
A2780	355.0 x 250.0 x 20.0		Laptop

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor
5G Air	BACK, 2.00	U-NII-8	WLAN, 10755-AAC	6985.0, 207	1.0

Hardware Setup

Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave- 1056	---Air	EUmmWV4 - SN9481_F1-55GHz, 2022-02-23	DAE4 Sn475, 2021-12-06

Scan Setup

	5G Scan
Grid Extents [mm]	86.0 x 86.0
Grid Steps [lambda]	0.058 x 0.058
Sensor Surface [mm]	2.0
MAIA	Y

Measurement Results

	5G Scan
Date	2022-11-18, 13:06
Avg. Area [cm^2]	4.00
psPDn+ [W/m^2]	2.12
psPDtot+ [W/m^2]	3.95
psPDmod+ [W/m^2]	5.27
E_{max} [V/m]	62.8
Power Drift [dB]	-0.06

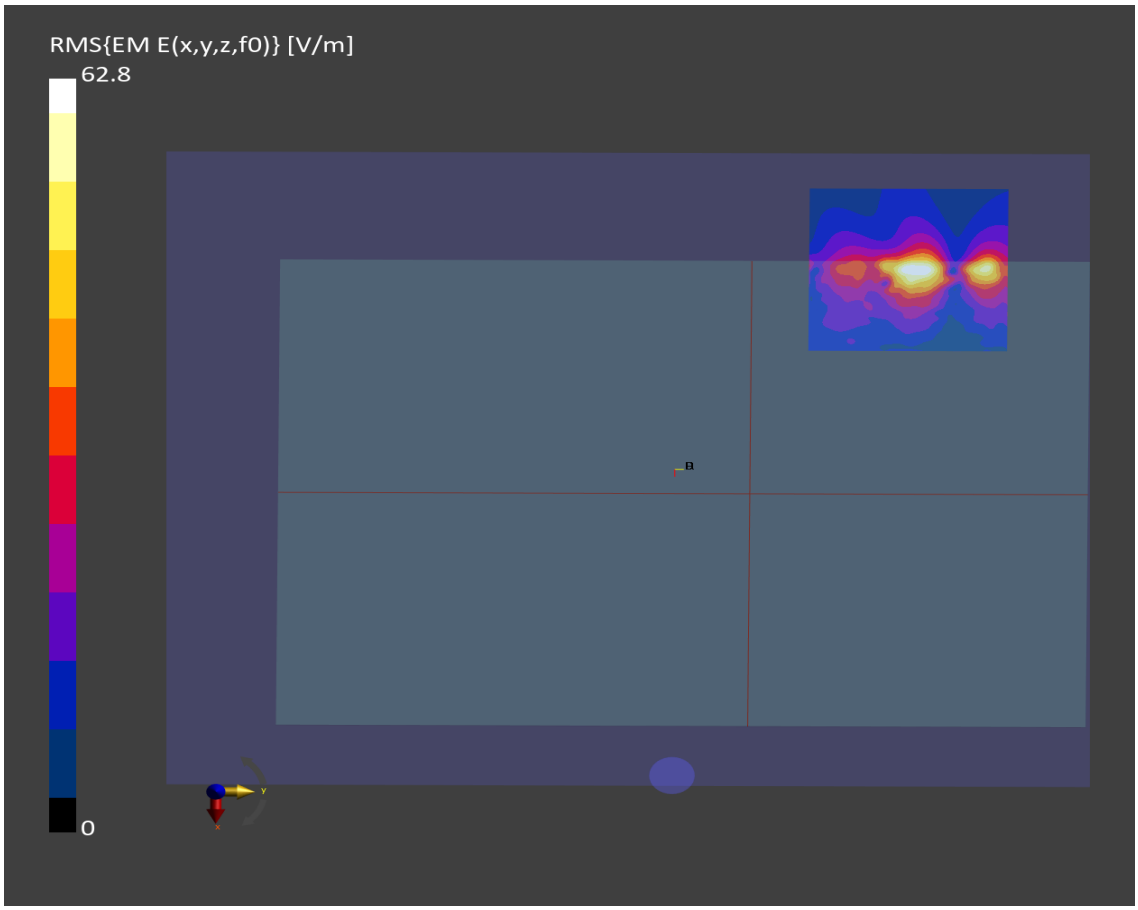


Figure C.25: SAR Body Testing Results for the A2780 at 6985 MHz