

Appendix A. SAR and Power Density Plots of System Verification

The plots for system verification are shown as follows.

S01 System Check_H2450_210707

DUT: Dipole 2450 MHz; Type: D2450V2; SN: 737

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: H19T27N1_0707 Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.885$ S/m; $\epsilon_r = 38.34$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7555; ConvF(7.59, 7.59, 7.59) @ 2450 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 2020/09/15
- Phantom: Twin-ELI Phantom_2118; Type: QD OVA 004 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

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

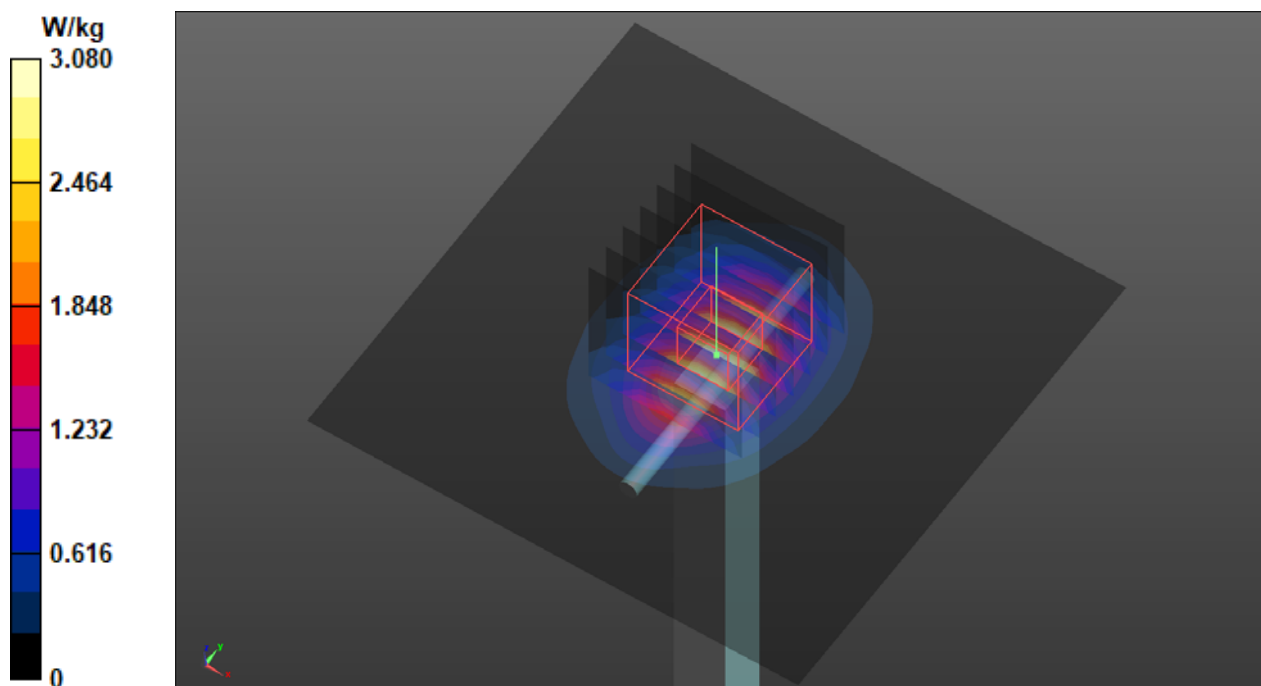
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 42.10 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.88 W/kg

SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.15 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 3.12 W/kg



S02 System Check_H5250_210708

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium: H34T60N1_0708 Medium parameters used (interpolated): $f = 5250$ MHz; $\sigma = 4.878$ S/m; $\epsilon_r = 37.061$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7555; ConvF(5.41, 5.41, 5.41) @ 5250 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 2020/09/15
- Phantom: Twin-ELI Phantom_2118; Type: QD OVA 004 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 6.23 W/kg

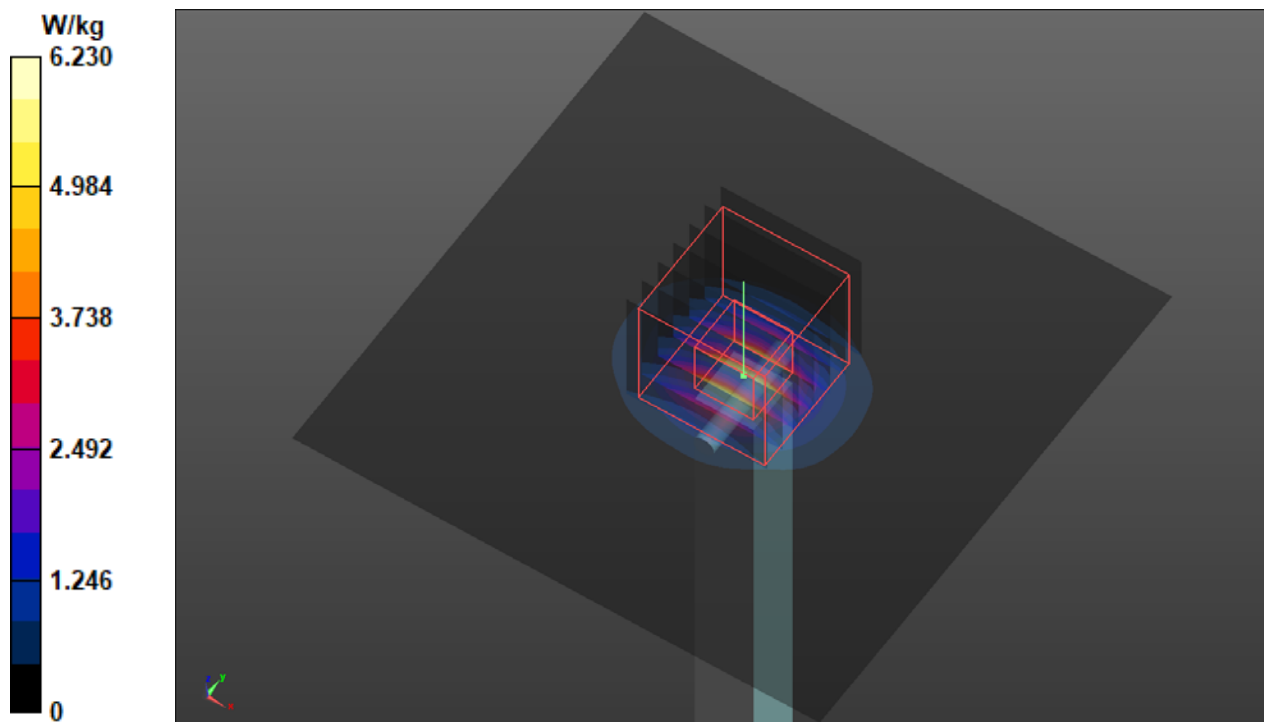
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 41.43 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 10.2 W/kg

SAR(1 g) = 4.13 W/kg; SAR(10 g) = 1.1 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 6.58 W/kg



S03 System Check_H5600_210707

DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: H34T60N1_0707 Medium parameters used: $f = 5600$ MHz; $\sigma = 4.913$ S/m; $\epsilon_r = 36.164$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7555; ConvF(4.8, 4.8, 4.8) @ 5600 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 2020/09/15
- Phantom: Twin-ELI Phantom_2118; Type: QD OVA 004 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 8.27 W/kg

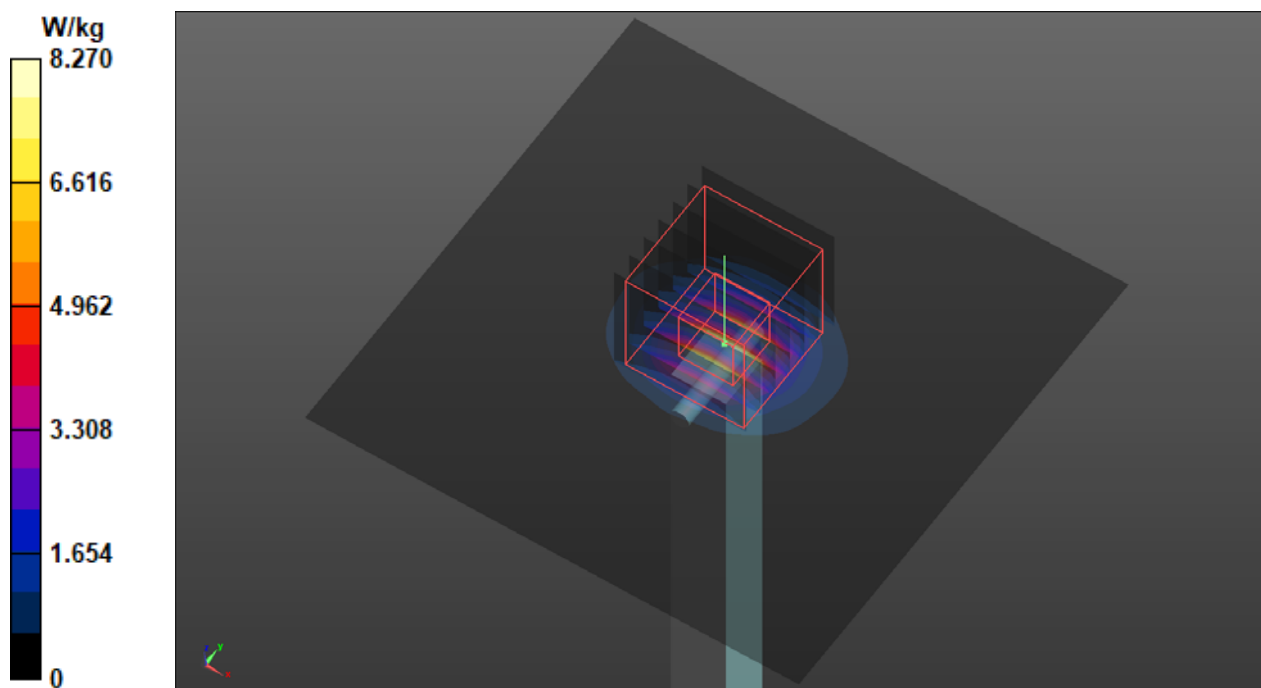
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 46.31 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 14.7 W/kg

SAR(1 g) = 3.81 W/kg; SAR(10 g) = 1.22 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 8.96 W/kg



S04 System Check_H5750_210707**DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1019**

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: H34T60N1_0707 Medium parameters used: $f = 5750$ MHz; $\sigma = 5.061$ S/m; $\epsilon_r = 35.952$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.7 °C; Liquid Temperature : 23.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN7555; ConvF(5, 5, 5) @ 5750 MHz; Calibrated: 2020/09/28
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1589; Calibrated: 2020/09/15
- Phantom: Twin-ELI Phantom_2118; Type: QD OVA 004 AA;
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 10.3 W/kg

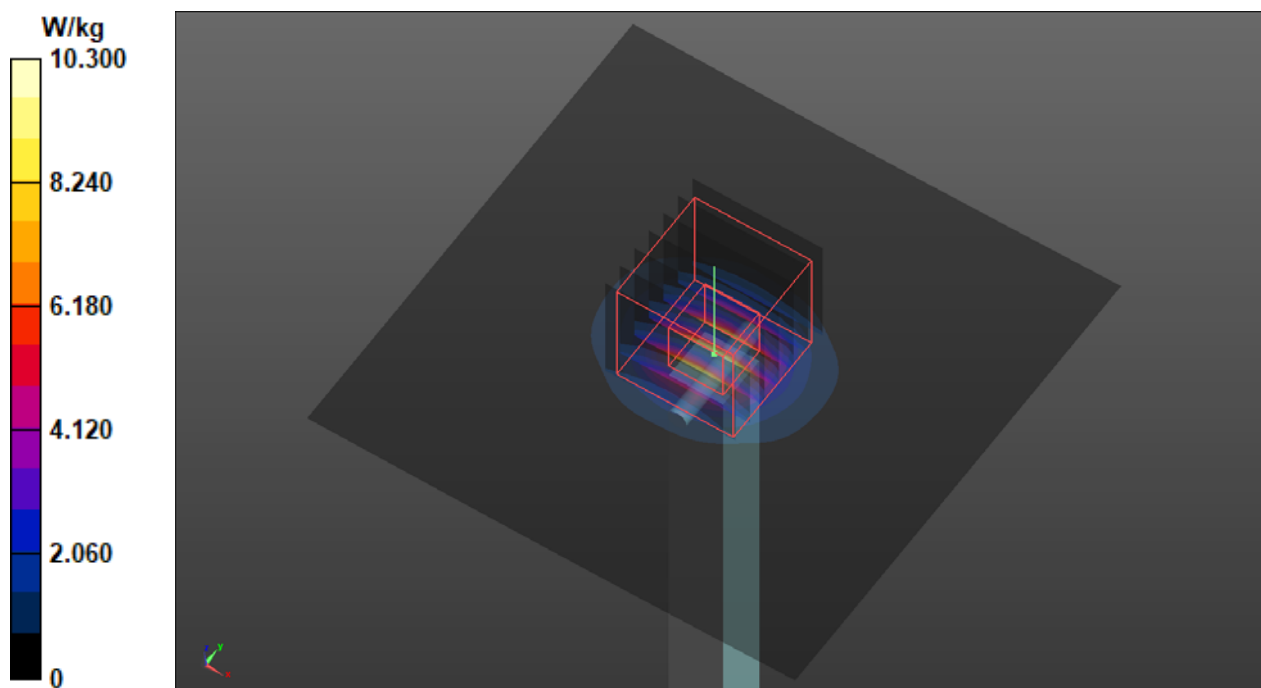
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 51.74 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 19.1 W/kg

SAR(1 g) = 4.24 W/kg; SAR(10 g) = 1.2 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 11.0 W/kg



S05 System Check_H2450_210415

DUT: Dipole 2450 MHz; Type: D2450V2; SN: 737

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: H19T27N1_0415 Medium parameters used (interpolated): $f = 2450$ MHz; $\sigma = 1.882$ S/m; $\epsilon_r = 38.359$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.5 °C ; Liquid Temperature : 23.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(7.77, 7.77, 7.77) @ 2450 MHz; Calibrated: 2021/03/26
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1356; Calibrated: 2020/05/19
- Phantom: ELI Phantom_1245; Type: QDOVA002AA
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7483)

Pin=50mW/Area Scan (81x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 4.40 W/kg

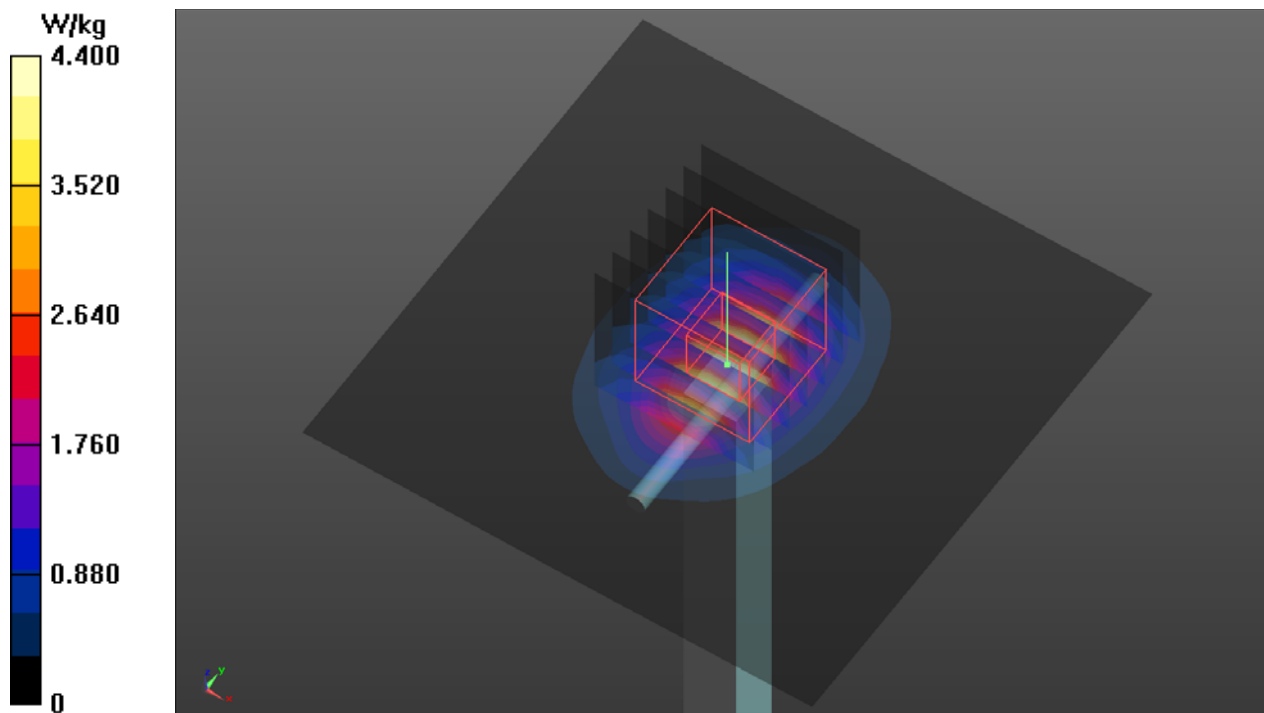
Pin=50mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 50.49 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 5.55 W/kg

SAR(1 g) = 2.58 W/kg; SAR(10 g) = 1.21 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 4.46 W/kg



Measurement Report for Device,
S06 System Check_H6.5GHz_210602

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Speag 6.5GHz System Valisation Kit	50.0 x 10.0 x 8.0	SN:1008	6.5GHzV2 Valisation Kit

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,	,		UID 0	6500.0,	5.5	6.21	33.7

Hardware Setup

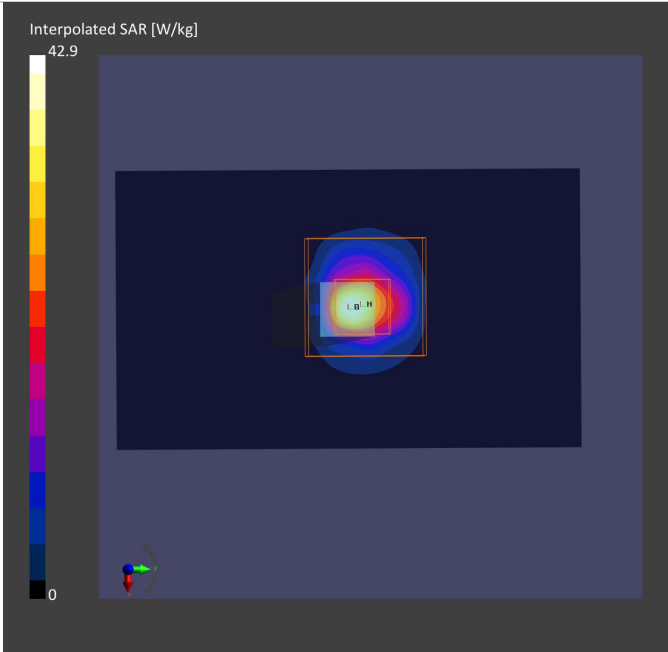
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt) - 1245	H50T72N1, 2021-Jun-02	EX3DV4 - SN3971, 2021-01-27	DAE4 Sn1431, 2021-03-24

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	51.0 x 85.0	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

Measurement Results

	Area Scan	Zoom Scan
Date	2021-06-02	2021-06-02
psSAR1g [W/Kg]	24.7	31.2
psSAR10g [W/Kg]	5.20	5.74
Power Drift [dB]	0.02	0.00



Measurement Report for Device,
S07 System Check_H6.5GHz_210602

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Speag 6.5GHz System Valisation Kit	50.0 x 10.0 x 8.0	SN:1008	6.5GHzV2 Valisation Kit

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,	,		UID 0	6500.0,	5.5	6.21	33.7

Hardware Setup

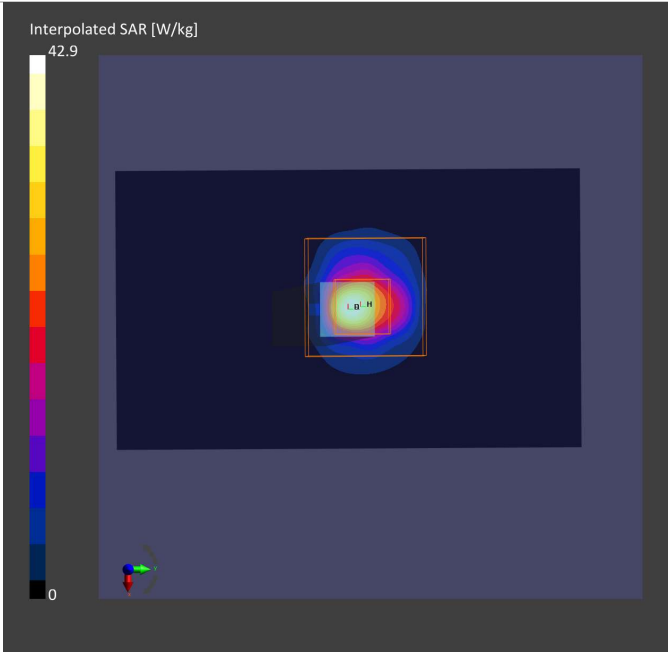
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt) - 1245	H50T72N1, 2021-Jun-02	EX3DV4 - SN3971, 2021-01-27	DAE4 Sn1431, 2021-03-24

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	51.0 x 85.0	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

Measurement Results

	Area Scan	Zoom Scan
Date	2021-06-02	2021-06-02
psSAR1g [W/Kg]	24.7	31.2
psSAR10g [W/Kg]	5.20	5.74
Power Drift [dB]	0.02	0.00



Measurement Report for Device,
S08 System Check_H6.5GHz_210602

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Speag 6.5GHz System Valisation Kit	50.0 x 10.0 x 8.0	SN:1008	6.5GHzV2 Valisation Kit

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,	,		UID 0	6500.0,	5.5	6.19	33.8

Hardware Setup

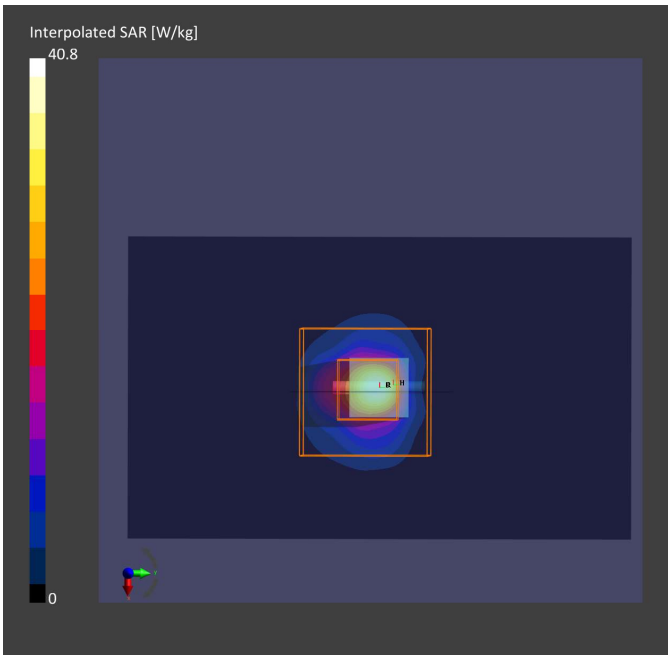
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2105	H50T72N1, 2021-Jun-02	EX3DV4 - SN7554, 2020-09-28	DAE4 Sn1590, 2020-09-15

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	51.0 x 85.0	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

Measurement Results

	Area Scan	Zoom Scan
Date	2021-06-02	2021-06-02
psSAR1g [W/Kg]	22.6	27.5
psSAR10g [W/Kg]	4.55	5.08
Power Drift [dB]	-0.08	-0.04



Measurement Report for Device,
S09 System Check_H6.5GHz_210602

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
Speag 6.5GHz System Valisation Kit	50.0 x 10.0 x 8.0	SN:1008	6.5GHzV2 Valisation Kit

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,	,		UID 0	6500.0,	5.5	6.21	33.7

Hardware Setup

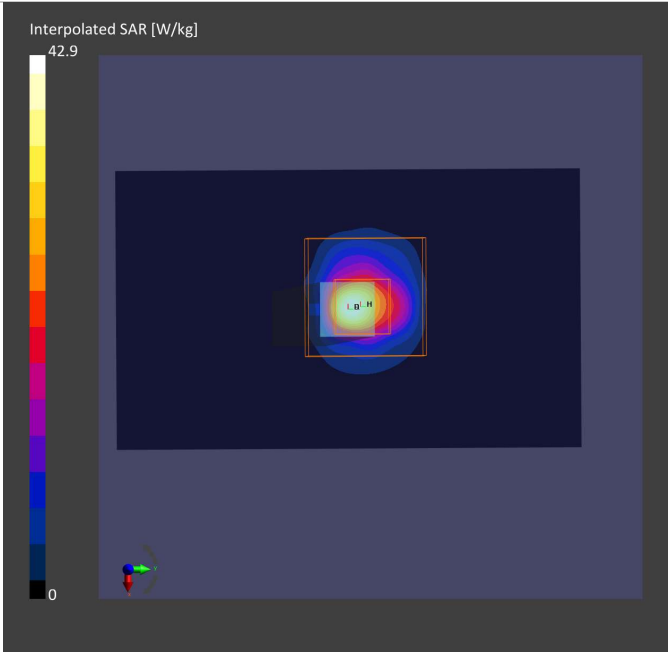
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V5.0 (20deg probe tilt) - 1245	H50T72N1, 2021-Jun-02	EX3DV4 - SN3971, 2021-01-27	DAE4 Sn1431, 2021-03-24

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	51.0 x 85.0	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

Measurement Results

	Area Scan	Zoom Scan
Date	2021-06-02	2021-06-02
psSAR1g [W/Kg]	24.7	31.2
psSAR10g [W/Kg]	5.20	5.74
Power Drift [dB]	0.02	0.00



Test Lab: Bureau Veritas ADT SAR/HAC/PD Testing Lab

Power Density Plot No.:

S09 PD_System Check_10 GHz_210611

Device under Test Properties

Name, Manufacturer	Dimensions [mm]	IMEI	DUT Type
SPEAG	100.0 x 100.0 x 100.0	SN: 1025	Phone

Exposure Conditions

Phantom Section	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor
5GAir	FRONT 10.00	Validation band	CW	10000	1.0

Hardware Setup

Phantom	Medium	Probe, Calibration Date	DAE, Calibration Date
mmWave	Air---	EUmmWV4 - SN9454_F1-78GHz, 2020-09-24	DAE4 Sn1590, 2020-09-15

Scan Setup

	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

	5G Scan
Date	2021-06-11
Avg. Area [cm ²]	4.00
pStotavg[W/m ²]	42.3
pSnavg [W/m ²]	42.1
E _{peak} [V/m]	136
Power Drift [dB]	0.01

