
Appendix B – System Check Plots

Date: 2024/7/30

System Check_13MHz

DUT: CLA-13 MHz ;Type: CLA-13 ;SN: 1018

Communication System: UID 10453 - AAD, Validation (Square, 10ms, 1ms); Frequency: 13 MHz;Duty Cycle: 1:10
Medium parameters used (interpolated): $f = 13 \text{ MHz}$; $\sigma = 0.731 \text{ S/m}$; $\epsilon_r = 55.277$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section
Measurement Standard: DASY5

DASY5.2 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN7650; ConvF(17.02, 18.46, 16.04) @ 13 MHz; Calibrated: 2024/6/4
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 2024/3/11
- Phantom: ELI; Type: QD OVA 002 AA; Serial: 1175
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.14 (7501)

Area Scan (121x121x1): Interpolated grid: $dx=2.000 \text{ mm}$, $dy=2.000 \text{ mm}$
Maximum value of SAR (interpolated) = 1.19 W/kg

Zoom Scan (7x7x16)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 39.55 V/m; Power Drift = -0.06 dB

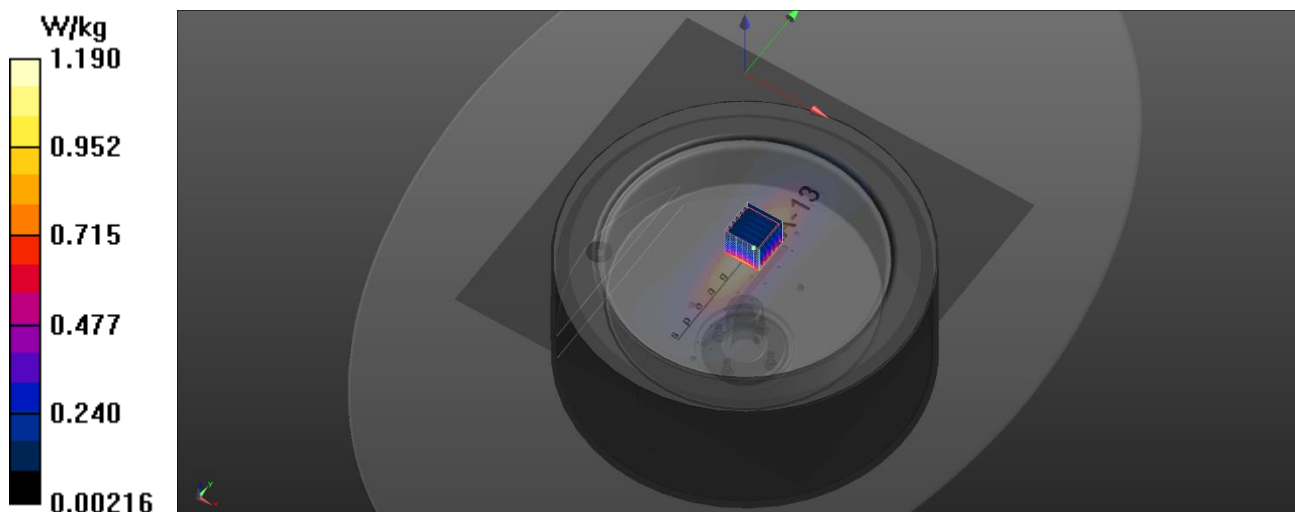
Peak SAR (extrapolated) = 2.02 W/kg

SAR(1 g) = 0.548 W/kg; SAR(10 g) = 0.349 W/kg (SAR corrected for target medium)

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid ($> 12 \text{ mm}$)

Ratio of SAR at M2 to SAR at M1 = 68.6%

Maximum value of SAR (measured) = 0.993 W/kg



Test Date : 2024-08-12 | Ambient Temp : 22.8 °C | Tissue Temp : 21.5 °C

System Performance Check**System Performance Check at 750 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D750	1222	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	750.000	9.96	0.93	42.3

Hardware Setup

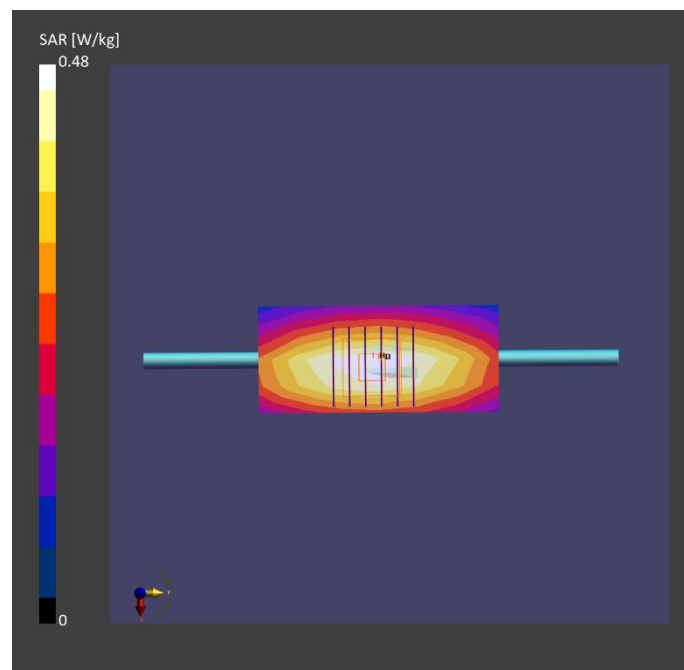
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2179	HBBL-600-10000	EX3DV4 - SN3977 / 2024-03-21	DAE4 Sn1743 / 2023-08-17

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 90.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	0.431	0.430
psSAR-10g [W/kg]	0.288	0.284
Power Drift [dB]		0.04
TSL Correction	Positive only	Positive only



Test Date : 2024-08-10 | Ambient Temp : 22.7 °C | Tissue Temp : 21.4 °C

System Performance Check**System Performance Check at 835 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D835	4d291	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	835.000	9.51	0.931	40.6

Hardware Setup

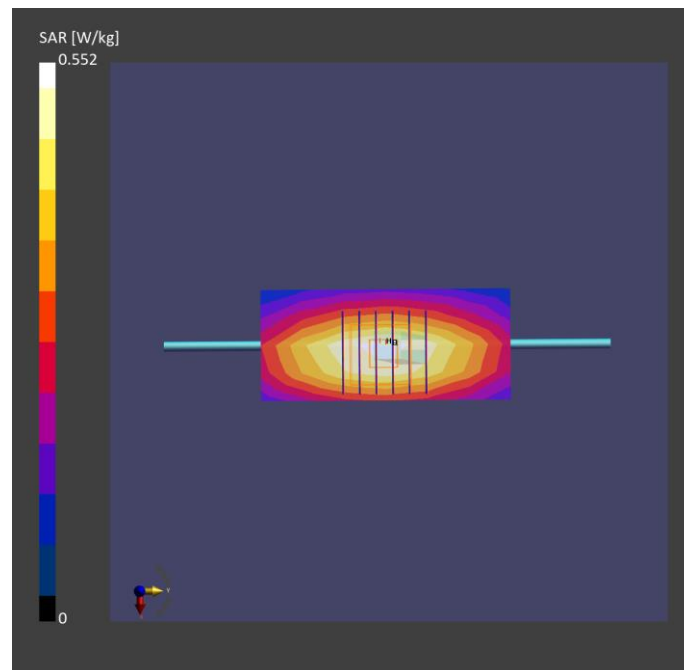
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2179	HBBL-600-10000	EX3DV4 - SN3977 / 2024-03-21	DAE4 Sn1743 / 2023-08-17

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 90.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	0.472	0.472
psSAR-10g [W/kg]	0.313	0.308
Power Drift [dB]		0.01
TSL Correction	Positive only	Positive only



Test Date : 2024-08-09 | Ambient Temp : 22.5 °C | Tissue Temp : 21.3 °C

System Performance Check**System Performance Check at 1800 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D1800	2d167	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	1800.000	8.63	1.38	42.5

Hardware Setup

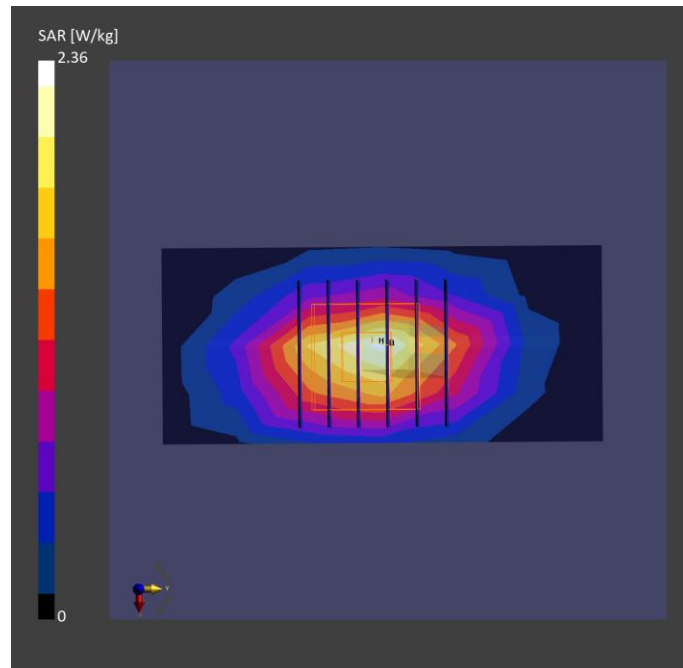
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2179	HBBL-600-10000	EX3DV4 - SN3977 / 2024-03-21	DAE4 Sn1743 / 2023-08-17

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 90.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	1.85	1.86
psSAR-10g [W/kg]	0.990	0.981
Power Drift [dB]		-0.02
TSL Correction	Positive only	Positive only



Test Date : 2024-08-09 | Ambient Temp : 22.5 °C | Tissue Temp : 21.3 °C

System Performance Check**System Performance Check at 1900 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D1900	5d111	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	1900.000	8.03	1.46	42.4

Hardware Setup

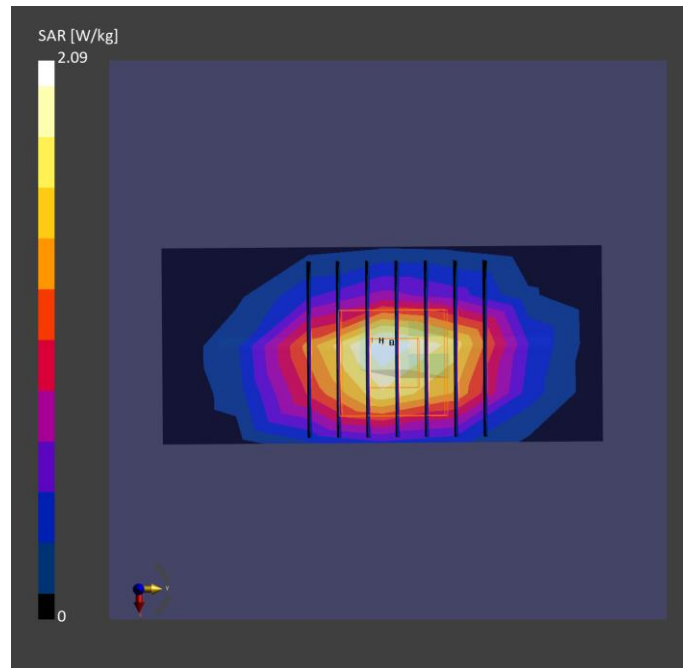
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2179	HBBL-600-10000	EX3DV4 - SN3977 / 2024-03-21	DAE4 Sn1743 / 2023-08-17

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 90.0	32.0 x 32.0 x 30.0
Grid Steps [mm]	10.0 x 15.0	6.0 x 6.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	1.77	1.89
psSAR-10g [W/kg]	0.946	0.978
Power Drift [dB]		0.01
TSL Correction	Positive only	Positive only



Test Date : 2024-07-31 | Ambient Temp : 21.9 °C | Tissue Temp : 20.9 °C

System Performance Check**System Performance Check at 2450 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D2450V2	1087	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	2450.000	7.05	1.79	39.8

Hardware Setup

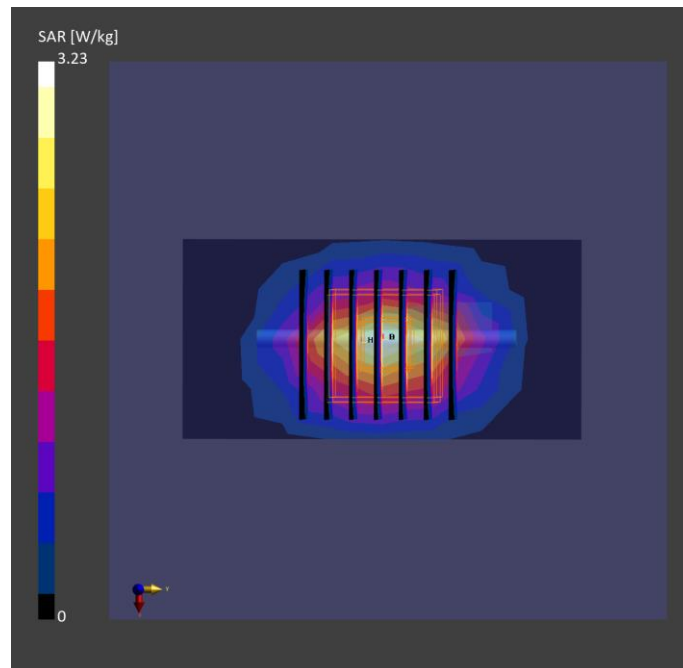
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2180	HBBL-600-10000	EX3DV4 - SN7757 / 2023-08-22	DAE4 Sn1669 / 2024-05-16

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	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	N/A	Yes
Grading Ratio	N/A	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	2.47	2.44
psSAR-10g [W/kg]	1.15	1.14
Power Drift [dB]		0.01
TSL Correction	Positive only	Positive only



Test Date : 2024-08-11 | Ambient Temp : 22.6 °C | Tissue Temp : 21.3 °C

System Performance Check**System Performance Check at 2600 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D2600	1197	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	2600.000	7.58	1.96	40.0

Hardware Setup

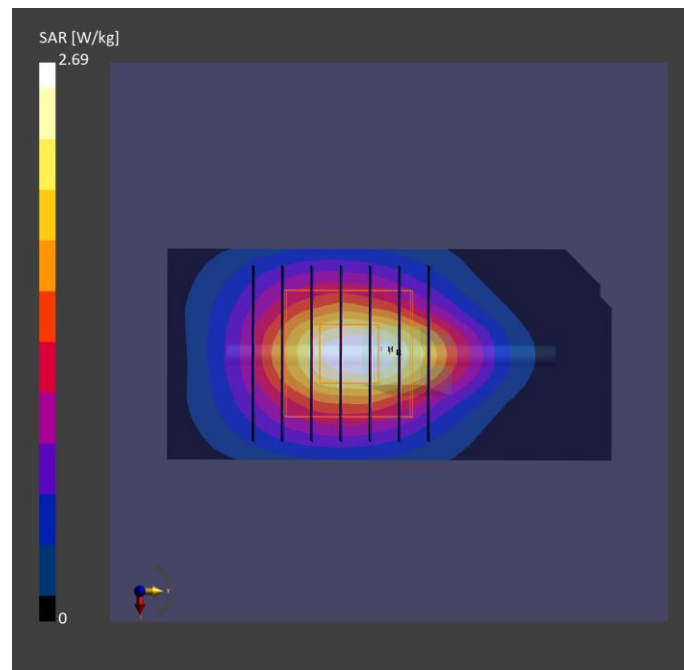
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2179	HBBL-600-10000	EX3DV4 - SN3977 / 2024-03-21	DAE4 Sn1743 / 2023-08-17

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	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	N/A	Yes
Grading Ratio	N/A	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	2.56	2.59
psSAR-10g [W/kg]	1.19	1.21
Power Drift [dB]		0.12
TSL Correction	Positive only	Positive only



Test Date : 2024-08-13 | Ambient Temp : 22.5 °C | Tissue Temp : 21.2 °C

System Performance Check**System Performance Check at 3500 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D3500	1013	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	3500.000	7.9	2.75	37.7

Hardware Setup

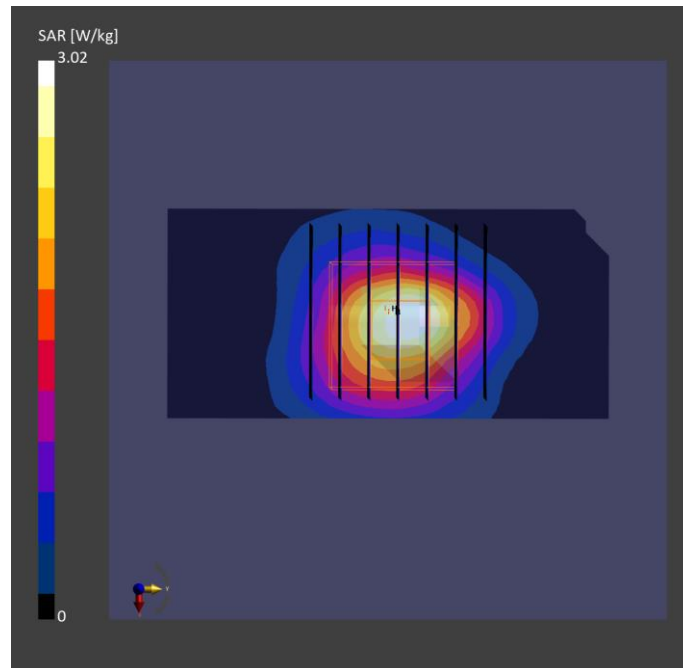
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2179	HBBL-600-10000	EX3DV4 - SN3977 / 2024-03-21	DAE4 Sn1743 / 2023-08-17

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	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	N/A	Yes
Grading Ratio	N/A	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	2.78	2.99
psSAR-10g [W/kg]	1.09	1.15
Power Drift [dB]		-0.13
TSL Correction	Positive only	Positive only



Test Date : 2024-08-13 | Ambient Temp : 22.5 °C | Tissue Temp : 21.2 °C

System Performance Check**System Performance Check at 3700 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D3700	1034	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	3700.000	6.55	2.93	37.4

Hardware Setup

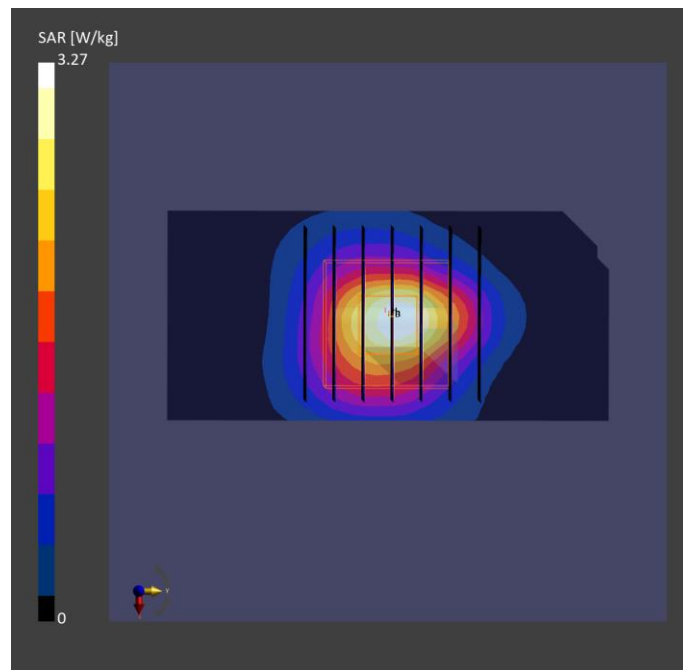
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2179	HBBL-600-10000	EX3DV4 - SN3977 / 2024-03-21	DAE4 Sn1743 / 2023-08-17

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	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	N/A	Yes
Grading Ratio	N/A	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	2.97	3.07
psSAR-10g [W/kg]	1.12	1.14
Power Drift [dB]		-0.11
TSL Correction	Positive only	Positive only



Test Date : 2024-08-01 | Ambient Temp : 22.1 °C | Tissue Temp : 21.2 °C

System Performance Check**System Performance Check at 5250 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D5GHzV2	1358	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	5250.000	5.02	4.53	36.2

Hardware Setup

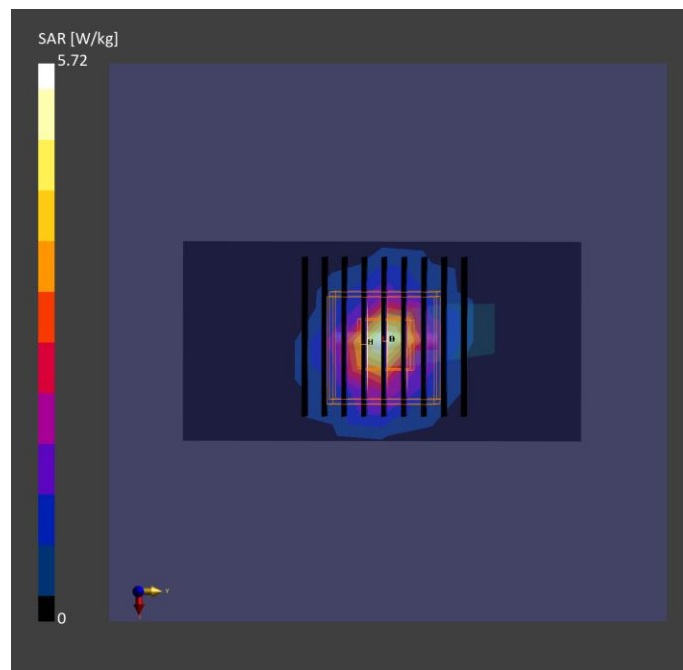
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2180	HBBL-600-10000	EX3DV4 - SN7757 / 2023-08-22	DAE4 Sn1669 / 2024-05-16

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	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	N/A	Yes
Grading Ratio	N/A	1.4

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	3.49	3.58
psSAR-10g [W/kg]	0.995	1.03
Power Drift [dB]		0.02
TSL Correction	Positive only	Positive only



Test Date : 2024-08-01 | Ambient Temp : 22.1 °C | Tissue Temp : 21.2 °C

System Performance Check**System Performance Check at 5600 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D5GHzV2	1358	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	5600.000	4.29	4.92	35.6

Hardware Setup

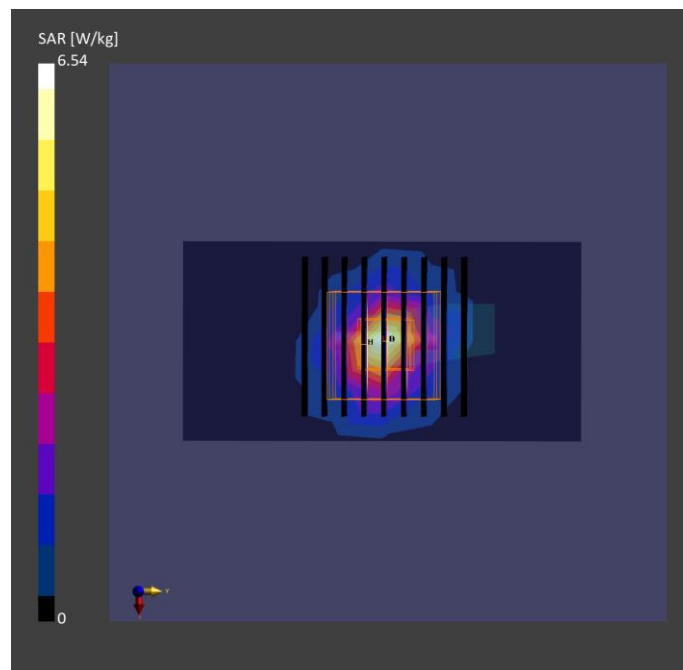
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2180	HBBL-600-10000	EX3DV4 - SN7757 / 2023-08-22	DAE4 Sn1669 / 2024-05-16

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	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	N/A	Yes
Grading Ratio	N/A	1.4

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	4.05	4.12
psSAR-10g [W/kg]	1.14	1.17
Power Drift [dB]		0.02
TSL Correction	Positive only	Positive only



Test Date : 2024-08-01 | Ambient Temp : 22.1 °C | Tissue Temp : 21.2 °C

System Performance Check**System Performance Check at 5800 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D5GHzV2	1358	17.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	5800.000	4.36	5.15	35.3

Hardware Setup

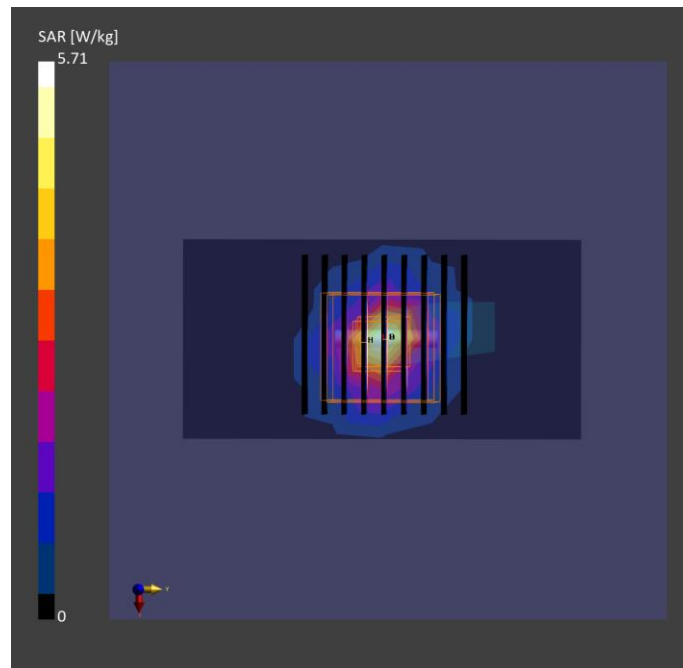
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2180	HBBL-600-10000	EX3DV4 - SN7757 / 2023-08-22	DAE4 Sn1669 / 2024-05-16

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	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	N/A	Yes
Grading Ratio	N/A	1.4

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	3.56	3.62
psSAR-10g [W/kg]	1.00	1.03
Power Drift [dB]		0.01
TSL Correction	Positive only	Positive only



Test Date : 2024-07-31 | Ambient Temp : 21.9 °C | Tissue Temp : 20.9 °C

System Performance Check**System Performance Check at 6500 MHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.	Input Power [dBm]
SPEAG	D6.5GHz	1081	20.0

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat	CW	6500.000	4.47	6.05	33.3

Hardware Setup

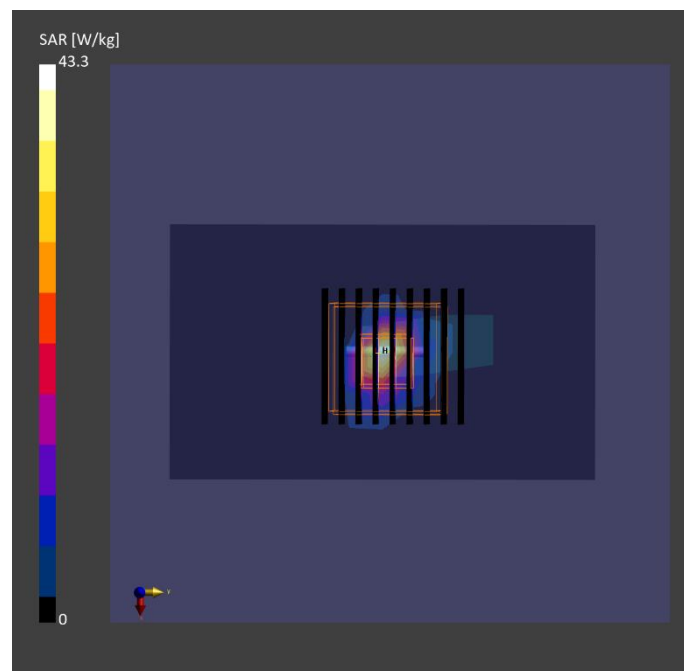
Phantom	Tissue Simulating Liquid	Probe / Calibration Date	DAE / Calibration Date
ELI V8.0 (20deg probe tilt) - 2180	HBBL-600-10000	EX3DV4 - SN7757 / 2023-08-22	DAE4 Sn1669 / 2024-05-16

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
Graded Grid	N/A	Yes
Grading Ratio	N/A	1.4

Measurement Results

	Area Scan	Zoom Scan
psSAR-1g [W/kg]	22.9	26.3
psSAR-8g [W/kg]	5.54	6.01
psSAR-10g [W/kg]	4.59	4.98
psAPD (1.0 cm ² , sq) [W/m ²]		263
psAPD (4.0 cm ² , sq) [W/m ²]		120
Power Drift [dB]		0.01
TSL Correction	Positive only	Positive only



Test Date : 2024-08-05 | Ambient Temp : 22.5 °C

System Performance Check**System Performance Check at 10 GHz****Verification Source Properties**

Manufacturer	Model No.	Serial No.
SPEAG	D10G	1060

Exposure Conditions

Phantom Section	Group	Frequency [MHz]	Conversion Factor
5G	CW	10000.0	1.0

Hardware Setup

Phantom	Medium	Probe / Calibration Date	DAE / Calibration Date
mmWave - 1102	Air	EUmmWV3 - SN9403_F1-55GHz / 2023-12-05	DAE4 Sn1742 / 2023-08-17

Scan Setup

	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [mm]	0.125 x 0.125
Sensor Surface [mm]	10.0

Measurement Results

	5G Scan
Avg. Area [cm ²]	4.00
psPD n+ [W/m ²]	56.4
psPD tot+ [W/m ²]	56.5
psPD mod+ [W/m ²]	56.9
E max [V/m]	153
Power Drift [dB]	0.05

