





## SAR EVALUATION REPORT

For

**NeuSpera Medical Inc.**

51 Daggett Dr,  
San Jose, CA 95134

**FCC ID: 2BMNE-WT-002**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Neurostimulator Powering Device
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<b>Report Number:</b> R2408161-SAR	
<b>Report Date:</b> 2025-04-15	
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\* This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "\*" (Rev. 0)

Summary of Test Results			
EUT Information	EUT Description	The EUT is a wireless power and communication device to neurostimulation device	
	FCC ID	FCC ID: 2BMNE-WT-002	
	Tested Model	WT-1	
	Serial Number	SN: 004119	
	Test Dates:	2025-02-11 to 2025-02-20	
	Accessories:	N/A	
Frequency (MHz)	SAR Type	Max. SAR Level(s) Reported 1-g (W/kg)	FCC Limit 1-g SAR (W/kg)
902.2	1-g Body	1.29	1.6
907.2		1.19	
912		1.43	
Applicable Standards	FCC 47 CFR part 2.1093 Radiofrequency radiation exposure evaluation: portable devices		
	IEC/IEEE 62209-1528:2020 Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)		
	ANSI/IEEE C95.1: 2019 IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields,3 kHz to 300 GHz.		
	ANSI/IEEE C95.3: 2021 IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to SuchFields,100 kHz-300 GHz.		
<p><b>Note:</b> This wireless device has been shown to be capable of compliance for localized specific absorption rate (SAR) for General Population/Uncontrolled Exposure limits specified in <b>FCC 47 CFR part 2.1093</b> has been tested in accordance with the measurement procedures specified in <b>IEC/IEEE 62209-1528:2020</b>.</p> <p><b>The results and statements contained in this report pertain only to the device(s) evaluated.</b></p>			

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**DOCUMENT REVISION HISTORY**

<b>Revision Number</b>	<b>Report Number</b>	<b>Description of Revision</b>	<b>Date of Revision</b>
0	R2408161-SAR	Original Report	2025-04-15

# 1 General Description

## 1.1 Product Description for Equipment Under Test (EUT)

This test report has been compiled on behalf of *NeuSpera Medical Inc.*, and their product model: WT-1, FCC ID: *2BMNE-WT-002*, which henceforth is referred to as the EUT (Equipment Under Test). The EUT is a Neurostimulator Powering Device, and operates in the frequency range: 902MHz~912MHz.

### Test EUT Technical Specification

Item	Description
Frequency Range (MHz)	902MHz~ 912MHz
Maximum Average Conducted Power (dBm)	31.91
Device Power Source	3.7 V Lithium Ion Polymer Battery
Device Normal Operation	Body-Worn

The test data gathered are from typical production sample, model number: WT-1 with S/N: 004119 provided by the client.

## 2 Test Facility

Bay Area Compliance Laboratories Corp. (BACL) is:

**A- An independent, 3<sup>rd</sup>-Party, Commercial Test Laboratory accredited to ISO/IEC 17025:2017 by A2LA (Test Laboratory Accreditation Certificate Number 3297.02),** in the fields of: Electromagnetic Compatibility and Telecommunications. Unless noted by an Asterisk (\*) in the Compliance Matrix (See Section 3 of this Test Report), BACL's ISO/IEC 17025:2005 Scope of Accreditation includes all of the Test Method Standards and/or the Product Family Standards detailed in this Test Report..

BACL's ISO/IEC 17025:2005 Scope of Accreditation includes a comprehensive suite of EMC Emissions, EMC Immunity, Radio, RF Exposure, Safety and wireline Telecommunications test methods applicable to a wide range of product categories. These product categories include Central Office Telecommunications Equipment [including NEBS - Network Equipment Building Systems], Unlicensed and Licensed Wireless and RF devices, Information Technology Equipment (ITE); Telecommunications Terminal Equipment (TTE); Medical Electrical Equipment; Industrial, Scientific and Medical Test Equipment; Professional Audio and Video Equipment; Industrial and Scientific Instruments and Laboratory Apparatus; Cable Distribution Systems, and Energy Efficient Lighting.

**B- A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.03)** to certify

- - For the USA (Federal Communications Commission):

- 1- All Unlicensed radio frequency devices within FCC Scopes A1, A2, A3, and A4;
- 2- All Licensed radio frequency devices within FCC Scopes B1, B2, B3, and B4;
- 3- All Telephone Terminal Equipment within FCC Scope C.

- For the Canada (Innovation, Science and Economic development Canada - ISED):

- 1- All Scope 1-Licence-Exempt Radio Frequency Devices;
- 2- All Scope 2-Licensed Personal Mobile Radio Services;
- 3- All Scope 3-Licensed General Mobile & Fixed Radio Services;
- 4- All Scope 4-Licensed Maritime & Aviation Radio Services;
- 5- All Scope 5-Licensed Fixed Microwave Radio Services
- 6- All Broadcasting Technical Standards (BETS) in the Category I Equipment Standards List.

For Singapore (Infocomm Media Development Authority - IMDA):

- 1 All Line Terminal Equipment: All Technical Specifications for Line Terminal Equipment – Table 1 of IDA MRA Recognition Scheme: 2011, Annex 2
2. All Radio-Communication Equipment: All Technical Specifications for Radio-Communication Equipment – Table 2 of IDA MRA Recognition Scheme: 2011, Annex 2

- For the Hong Kong Special Administrative Region:

- 1 All Radio Equipment, per KHCA 10XX-series Specifications;
- 2 All GMDSS Marine Radio Equipment, per HKCA 12XX-series Specifications;
- 3 All Fixed Network Equipment, per HKCA 20XX-series Specifications.

- For Japan:

- 1 MIC Telecommunication Business Law (Terminal Equipment):
  - All Scope A1 - Terminal Equipment for the Purpose of Calls;
  - All Scope A2 - Other Terminal Equipment
- 2 Radio Law (Radio Equipment):
  - All Scope B1 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 1 of the Radio Law
  - All Scope B2 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 2 of the Radio Law
  - All Scope B3 - Specified Radio Equipment specified in Article 38-2-2, paragraph 1, item 3 of the Radio Law

**C- A Product Certification Body accredited to ISO/IEC 17065:2012 by A2LA (Product Certification Body Accreditation Certificate Number 3297.01)** to certify Products to USA's Environmental Protection Agency (EPA) ENERGY STAR Product Specifications for:

- 1 Electronics and Office Equipment:
  - for Telephony (ver. 3.0)
  - for Audio/Video (ver. 3.0)
  - for Battery Charging Systems (ver. 1.1)

- for Set-top Boxes & Cable Boxes (ver. 4.1)
- for Televisions (ver. 6.1)
- for Computers (ver. 6.0)
- for Displays (ver. 6.0)
- for Imaging Equipment (ver. 2.0)
- for Computer Servers (ver. 2.0)
- 2 Commercial Food Service Equipment
  - for Commercial Dishwashers (ver. 2.0)
  - for Commercial Ice Machines (ver. 2.0)
  - for Commercial Ovens (ver. 2.1)
  - for Commercial Refrigerators and Freezers
- 3 Lighting Products
  - For Decorative Light Strings (ver. 1.5)
  - For Luminaires (including sub-components) and Lamps (ver. 1.2)
  - For Compact Fluorescent Lamps (CFLs) (ver. 4.3)
  - For Integral LED Lamps (ver. 1.4)
- 4 Heating, Ventilation, and AC Products
  - for Residential Ceiling Fans (ver. 3.0)
  - for Residential Ventilating Fans (ver. 3.2)
- 5 Other
  - For Water Coolers (ver. 3.0)

***D. A NIST Designated Phase-I and Phase-II Conformity Assessment Body (CAB) for the following economies and regulatory authorities under the terms of the stated MRAs/Treaties:***

- Australia: ACMA (Australian Communication and Media Authority) – APEC Tel MRA -Phase I;
- Canada: (Innovation, Science and Economic development Canada - ISED) Foreign Certification Body – FCB – APEC Tel MRA -Phase I & Phase II;
- Chinese Taipei (Republic of China – Taiwan):
  - o BSMI (Bureau of Standards, Metrology and Inspection) APEC Tel MRA -Phase I;
  - o NCC (National Communications Commission) APEC Tel MRA -Phase I;
- European Union:
  - o EMC Directive 2014/30/EU US-EU EMC & Telecom MRA CAB (NB)
  - o Radio Equipment (RE) Directive 2014/53/EU US-EU EMC & Telecom MRA CAB (NB)
  - o Low Voltage Directive (LVD) 2014/35/EU
- Hong Kong Special Administrative Region: (Office of the Telecommunications Authority – OFTA) APEC Tel MRA -Phase I & Phase II
- Israel – US-Israel MRA Phase I
- Republic of Korea (Ministry of Communications - Radio Research Laboratory) APEC Tel MRA -Phase I
- Singapore: (Infocomm Media Development Authority - IMDA) APEC Tel MRA -Phase I & Phase II;
- Japan: VCCI - Voluntary Control Council for Interference US-Japan Telecom Treaty VCCI Side Letter
- USA:
  - o ENERGY STAR Recognized Test Laboratory – US EPA
  - o Telecommunications Certification Body (TCB) – US FCC;
  - o Nationally Recognized Test Laboratory (NRTL) – US OSHA
- Vietnam: APEC Tel MRA -Phase I



### 3 Reference and Guidelines

#### 3.1 SAR Limits

##### FCC:

The Report and Order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 W/kg as recommended by the ANSI/IEEE standard C95.1-1992 [6] for an uncontrolled environment (Paragraph 65). According to the FCC KDB 447498 D01 “RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices”, RF Exposure compliance must be determined at the maximum average power level according to source-based time-averaging requirements to determine compliance for general population exposure conditions.

This report describes the methodology and results of experiments performed on wireless data terminal. The objective was to determine if there is RF radiation, and what is the extent of radiation with respect to safety limits if radiation is found. SAR (Specific Absorption Rate) is the measure of RF exposure determined by the amount of RF energy absorbed by human body (or its parts) – to determine how the RF energy couples to the body or head which is a primary health concern for body worn devices. The limit below which the exposure to RF is considered safe by regulatory bodies in North America is 1.6 W/kg average over 1 gram of tissue mass.

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
<b>Spatial Average (averaged over the whole body)</b>	0.08	0.4
<b>Spatial Peak FCC (averaged over any 1 g of tissue)</b>	1.6	8.0
<b>Spatial Peak CE (averaged over any 10 g of tissue)</b>	2.0	10.0
<b>Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)</b>	4.0	20.0

General Population/Uncontrolled Environments are defined as locations where there is the exposure of individual who have no knowledge or control of their exposure.

General Population/Uncontrolled environments Spatial Peak limit 1.6 W/kg (FCC over 1 g) and 2.0 W/kg (CE over 10 g) applied to the EUT in this application for the worst case consideration.

## 4 Equipment List and Calibration

### 4.1 Equipment List & Calibration Info

Type/Model	Cal. Due Date	S/N
DASY8 Professional Dosimetric System	NCR	N/A
Robot TX2-90XL	NCR	F22/0045543/A/001
Robot Controller CS9spe-TX2-90	NCR	F22/0045543/C/001
Pendant Control Box SP2	NCR	D21144508A
Robot Remote Control Box	NCR	N/A
HP Z4 G4 Workstation	NCR	CZC2297ZQN
HP E27q G4 LED Backlit Monitor	NCR	CNK21105WB
SPEAG DAE4	2025-12-16	1561
DASY8 Measurement Server	NCR	N/A
SPEAG E-Field Probe EX3DV4	2025-04-02	7703
SPEAG Dipole Antenna D900LPV1	2025-04-02	1002
SPEAG ELI V8.0 Phantom	NCR	2074
TLe5.9c.12@900 – Fat Liquid for 900	Each Time	240430-1
ETS-Lindgren Power Sensor	2025-03-06	00160097
Rhode & Schwarz FSV40	2025-07-25	1321.3008k39-101203-UW
Dielectric Probe Kit SPEAG DAK-3.5 Probe	NCR	851
Agilent Network Analyzer E5071C	2025-08-21	MY46107188
HEWLETT PACKARD 779D Directional Coupler	NCR	1144/05102
HEWLETT PACKARD 778D Directional Coupler	NCR	14900
Agilent MXG Signal Generator N5183A	2025-11-07	MY50140453
EANOSIC Block Spacer Kit	N/A	X003TOVPM7

Note: NCR=No Calibration Required

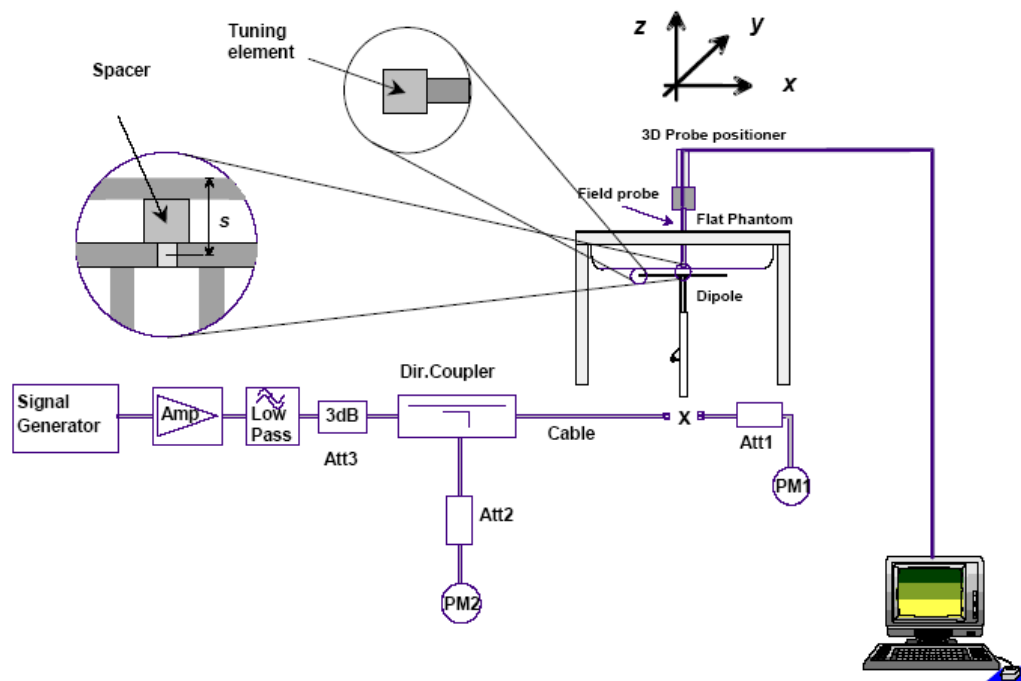
**Statement of Traceability:** *BACL Corp.* attests that all of the calibrations on the equipment items listed above were traceable to NIST or to another internationally recognized National Metrology Institute (NMI), and were compliant with the latest version of A2LA policy P102 “A2LA Policy on Metrological Traceability”.

## 5 SAR Measurement System Verification

### 5.1 System Accuracy Verification

SAR system verification is required to confirm measurement accuracy. The system verification must be performed for each frequency band. System verification must be performed before each series of SAR measurements.

### 5.2 System Setup Block Diagram



### 5.3 Liquid and System Validation

Date	Simulant	Freq. [MHz]	Parameters	Liquid Temp [°C]	Input Power (mW)	Target Value	Measured Value	Deviation [%]	Limits [%]
2025-02-12	Fat	900	$\epsilon_r$	24.6	-	5.90	6.249	5.92	$\pm 10$
			$\sigma$		-	0.12	0.125	4.17	$\pm 10$
			Parameters	Liquid Temp [°C]	Input Power (mW)	Target Value (W/kg)	Measured Value (W/kg)	Deviation [%]	Limits [%]
			1g SAR	24.6	250	1.96	2.09	6.84	$\pm 10$
			10g SAR		250	1.45	1.54	6.53	$\pm 10$
2025-02-14	Fat	900	Parameters	Liquid Temp [°C]	Input Power (mW)	Target Value	Measured Value	Deviation [%]	Limits [%]
			$\epsilon_r$	24.3	-	5.90	5.692	-3.53	$\pm 10$
			$\sigma$		-	0.12	0.123	2.5	$\pm 10$
			Parameters	Liquid Temp [°C]	Input Power (mW)	Target Value (W/kg)	Measured Value (W/kg)	Deviation [%]	Limits [%]
			1g SAR	24.3	250	1.96	1.83	-6.77	$\pm 10$
			10g SAR		250	1.45	1.32	-8.85	$\pm 10$
2025-02-21	Fat	900	Parameters	Liquid Temp [°C]	Input Power (mW)	Target Value	Measured Value	Deviation [%]	Limits [%]
			$\epsilon_r$	24.7	-	5.90	5.761	-2.36	$\pm 10$
			$\sigma$		-	0.12	0.118	-1.67	$\pm 10$
			Parameters	Liquid Temp [°C]	Input Power (mW)	Target Value (W/kg)	Measured Value (W/kg)	Deviation [%]	Limits [%]
			1g SAR	24.7	250	1.96	1.93	-1.49	$\pm 10$
			10g SAR		250	1.45	1.47	1.31	$\pm 10$

Note: Use of less strict deviation requires use of the upward correction algorithm. This algorithm is not employed for these cases since no deviation exceeds -5%.

$\epsilon_r$  = relative permittivity,  $\sigma$  = conductivity and  $\rho=1000 \text{ kg/m}^3$

Note<sup>1</sup>: Normalization calculation is  $N = M * (1 / (10^{(P/10)} / 1000))$

Where:

N is the 1g SAR W/kg normalized to 1W

M is the measured 1g SAR in W/kg

P is the input power in dBm

Note<sup>1</sup>: Deviation calculation is  $D = 100 * ((N - T) / T)$

Where:

D is the deviation in %  
N is the 1g SAR W/kg normalized to 1W  
T is the target 1g SAR in W/kg

## 6 EUT Test Strategy and Methodology

### 6.1 Test position for body-support device and other configurations

A typical example of a body supported device is a wireless enabled laptop device that among other orientations may be supported on the thighs of a sitting user. To represent this orientation, the device shall be positioned with its base against the flat phantom. Other orientations may be specified by the manufacturer in the user instructions. If the intended use is not specified, the device shall be tested directly against the flat phantom in all usable orientations.

The screen portion of the device shall be in an open position at a 90° angle, or at an operating angle specified for intended use by the manufacturer in the operating instructions. Where a body supported device has an integral screen required for normal operation, then the screen-side will not need to be tested if it ordinarily remains 200 mm from the body. Where a screen mounted antenna is present, this position shall be repeated with the screen against the flat phantom, if this is consistent with the intended use.

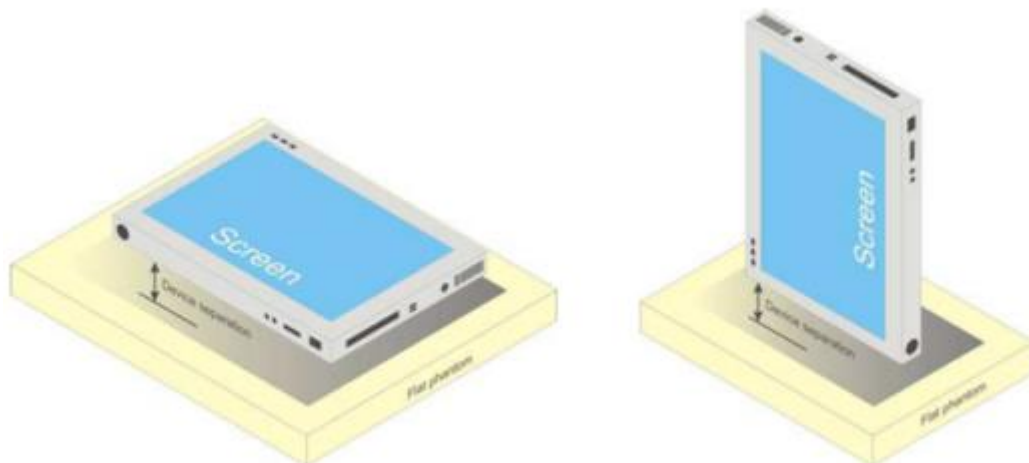
Other devices that fall into this category include tablet type portable computers and credit card transaction authorization terminals, point-of-sale and/or inventory terminals. Where these devices may be torso or limb-supported, the same principles for body-supported devices are applied.

The example in Figure b) shows a tablet form factor portable computer for which SAR should be separately assessed with

- a) Each surface and
- b) The separation distances

Positioned against the flat phantom that correspond to the intended use as specified by the manufacturer. If the intended use is not specified in the user instructions, the device shall be tested directly against the flat phantom in all usable orientations.

Some body-supported devices may allow testing with an external power supply (e.g. a.c. adapter) supplemental to the battery, but it shall be verified and documented in the measurement report that SAR is still conservative

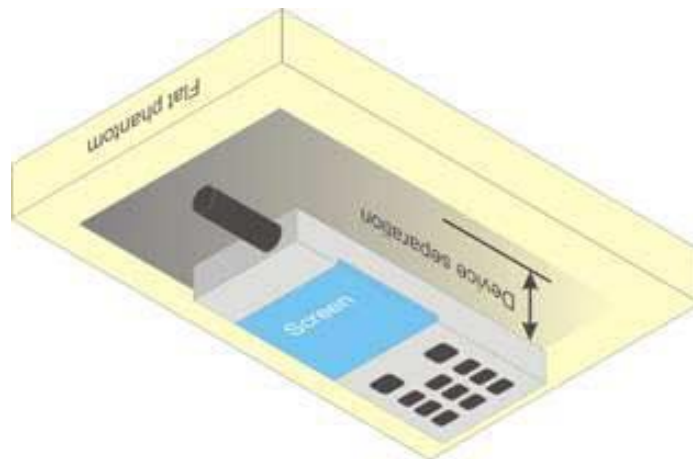


**b) Tablet form factor portable computer**

## 6.2 Test positions for body-worn and other configurations

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device. When multiple accessories that do not contain metallic components are supplied with the device, the device may be tested with only the accessory that dictates the closest spacing to the body. When multiple accessories that contain metallic components are supplied with the device, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (e.g., the same metallic belt-clip used with different holsters with no other metallic components), only the accessory that dictates the closest spacing to the body must be tested.

Body-worn accessories may not always be supplied or available as options for some devices that are intended to be authorized for body-worn use. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances. Other separation distances may be used, but they should not exceed 2.5 cm. In these cases, the device may use body-worn accessories that provide a separation distance greater than that tested for the device provided however that the accessory contains no metallic components.



## **6.3 Test Methodology**

IEC/IEEE 62209-1528:2020



## 7 DASY8 SAR Evaluation Procedure

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### 7.1 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurement jobs are useful jobs for monitoring the power drift of the device under test in the batch process. Both jobs measure the field at a specified reference position, at a selectable distance from the phantom surface. The reference position can be either the selected section's grid reference point or a user point in this section. The reference job projects the selected point onto the phantom surface, orients the probe perpendicularly to the surface, and approaches the surface using the selected detection method. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. By default, the Minimum distance of probe sensors to surface is 4mm. This distance can be modified by the user, but cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties.

### 7.2 Fast Area Scan

Fast Area Scan is a novel scan available in DASY8. The sensor voltages are sampled continuously while the robot is moving which reduces the scan duration to <30 s for most configurations. It has been developed for the two purposes described below.

**Determination of Power Reference Location:** The Fast Area Scan provides an easy time, efficient and accurate way to define the optimal power reference location. The location of the power reference and power drift measurements for the subsequent Area, Fast Volume and Zoom Scans will be automatically set at the maximum of the Fast Area Scan.

**psSAR1g/8g/10g Assessment:** The Fast Area Scan is mainly used to assess psSAR1 g/8 g/10 g values.

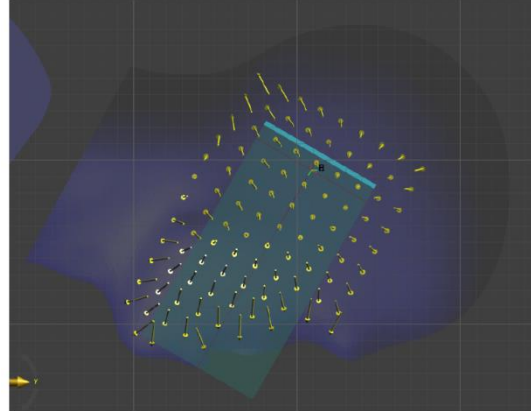
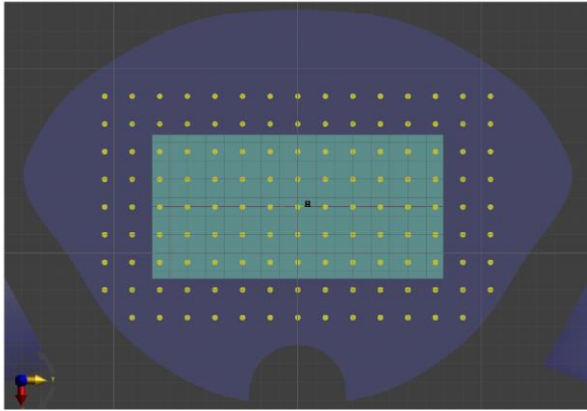
- The post processing algorithm used for regular Area Scans is applied to Fast Area Scans as well to compute psSAR1 g/8 g/10 g values.
- The measured pattern of the given test configuration is compared to the ones measured previously in the project. If a similar pattern shape (matching configuration) is found, a scaling factor defined as difference in amplitude of the two configurations is computed. The Area Scan and Zoom Scan results available for the matching configuration are then scaled to assess the psSAR1 g/8 g/10 g of the measured configuration.

### 7.3 Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a finer measurement around the hot spot. The sophisticated interpolation routines implemented in DASY52 software can find the maximum locations even in relatively coarse grids.

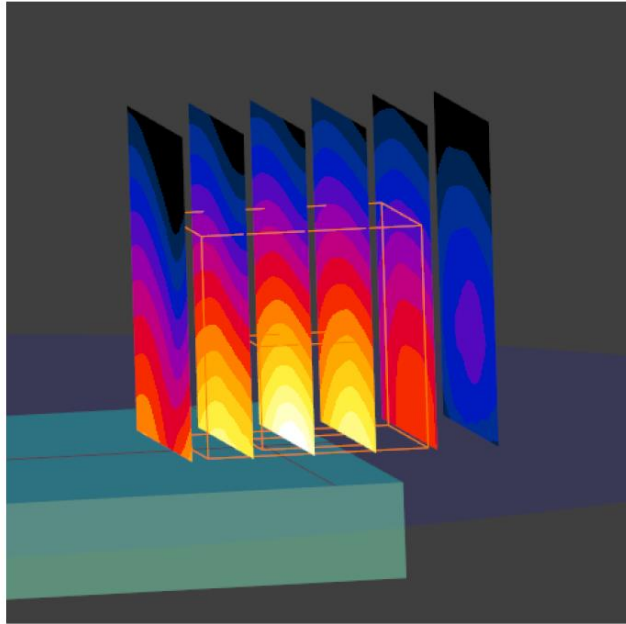
The scanning area is defined by an editable grid. This grid is anchored at the grid reference point of the selected section in the phantom. When the Area Scan's property sheet is brought-up, grid settings can be edited by a user. When an Area Scan has measured all reachable points, it computes the field maxima found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE 1528, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly (see Section 3.3.2.14 Zoom Scan for details). After measurement is completed, all maxima and their coordinates are listed in the Results property page. The maximum selected in the list is highlighted in the 3-D view. For the secondary maxima returned from an Area Scan, the user can specify a lower limit (peak SAR value), in addition to the Find secondary maxima within x dB condition.

After measurement is completed, all maxima and their coordinates are listed in the Results property page. The maximum selected in the list is highlighted in the 3-D view. For the secondary maxima returned from an Area Scan, the user can specify a lower limit (peak SAR value), in addition to the Find secondary maxima within x dB condition. Only the primary maximum and any secondary maxima within x dB from the primary maximum and above this limit will be measured.



## 7.4 Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan measures 5 x 5 x 7 points within a cube whose base faces are centered around the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.



## 7.5 Power drift measurement

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. Several drift measurements are possible for one reference measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

## 7.6 Z-Scan

The Z Scan job measures points along a vertical straight line. The line runs along the Z axis of a one-dimensional grid. A user can anchor the grid to the section reference point, to any defined user point or to the current probe location. As with any other grids, the local Z axis of the anchor location establishes the Z axis of the grid.

## 8 Description of Test System

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These measurements were performed with the automated near-field scanning system DASY8 from Schmid & Partner Engineering AG (SPEAG) which is the sixth generation of the system shown in the figure hereinafter:

The system is based on a high precision robot (working range greater than 1.45m), which positions the probes with a positional repeatability of better than  $\pm 0.02\text{mm}$ . Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit.

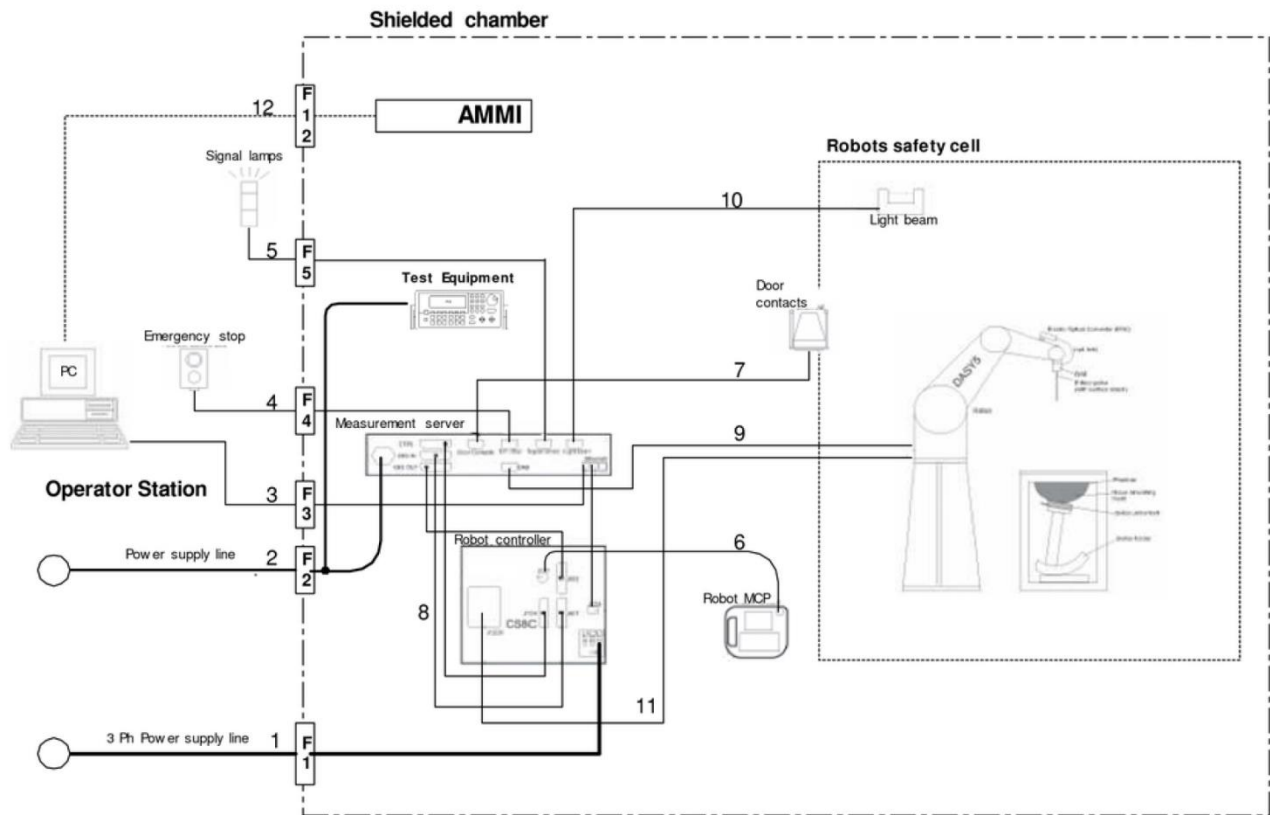
The SAR measurements were conducted with the dosimetric probe, designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure with accuracy of better than  $\pm 10\%$ . The spherical isotropy was evaluated with the procedure and found to be better than  $\pm 0.25\text{dB}$ .

## 8.1 Dielectric properties of the tissue-equivalent medium

### TLe5.9c.12@900 – Fat Liquid for 900MHz

Measured				Target		Diff.to Target [%]	
f [MHz]	e'	e''	sigma	e'	s	Delta-eps	Delta-sigma
300	7.46	4.1	0.07				
350	7.29	3.8	0.07				
400	7.11	3.5	0.08				
450	6.95	3.3	0.08				
500	6.80	3.2	0.09				
550	6.66	3.0	0.09				
600	6.53	2.9	0.1				
650	6.43	2.8	0.1				
700	6.33	2.7	0.11				
750	6.25	2.7	0.11				
800	6.18	2.6	0.12	5.90	0.12	4.75	-4.0
850	6.12	2.5	0.12	5.90	0.12	3.68	-0.4
900	6.06	2.5	0.12	5.90	0.12	2.67	3.2
950	6.00	2.4	0.13	5.90	0.12	1.66	6.6
1000	5.94	2.4	0.13	5.90	0.12	0.63	9.9
1050	5.87	2.3	0.14				
1100	5.81	2.3	0.14				
1150	5.75	2.2	0.14				
1200	5.69	2.2	0.15				
1250	5.64	2.2	0.15				
1300	5.59	2.1	0.16				
1350	5.55	2.1	0.16				
1400	5.51	2.1	0.16				
1450	5.47	2.1	0.17				
1500	5.45	2.0	0.17				
1550	5.42	2.0	0.17				
1600	5.39	2.0	0.18				
1650	5.37	2.0	0.18				
1700	5.35	2.0	0.19				
1750	5.32	2.0	0.19				
1800	5.29	1.9	0.19				

## 8.2 Measurement System Diagram



The DASY8 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot arm (Stäubli TX2-90XL) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE4) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 10 or Windows 11.
- DASY8 software.

- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The Twin SAM V8.0 phantom enabling testing left-hand and right-hand usage.
- The ELI V8.0 phantom.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing system validation.

### 8.3 System Components

- DASY8 Measurement Server
- Data Acquisition Electronics
- Probes
- Light Beam Unit
- Medium
- SAM Twin V8.0 Phantom
- ELI V8.0 Phantom
- Device Holder for SAM Twin Phantom
- System Validation Kits
- Robot

### 8.4 DASY8 Measurement Server

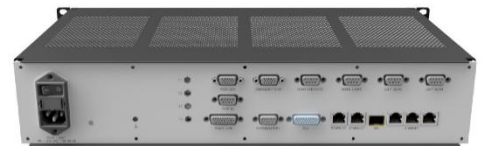
The DASY8 Measurement Server (see Figure 3.3.1) handles all time critical tasks such as:

- Acquisition of measurement data
- Detection of phantom surface
- Control of robot movements
- Supervision of safety features.

The measurement server performs all real-time data evaluations of field measurements and surface detection, controls robot movements, and handles safety operations. The PC operating system cannot interfere with these time-critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program controlled robot movements.



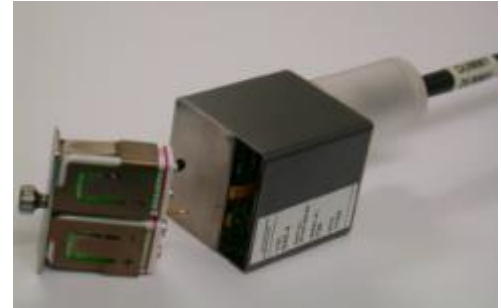
(a) Front panel



(b) Back panel

## 8.5 Data Acquisition Electronics

The data acquisition electronics DAE4 consists of a highly sensitive electrometer grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.



## 8.6 Probes

The DASY system can support many different probe types.

**Dosimetric Probes:** These probes are specially designed and calibrated for use in liquids with high permittivities. They should not be used in air, since the spherical isotropy in air is poor ( $\pm 2$  dB). The dosimetric probes have special calibrations in various liquids at different frequencies.

**Free Space Probes:** These are electric and magnetic field probes specially designed for measurements in free space. The z-sensor is aligned to the probe axis and the rotation angle of the x-sensor is specified. This allows the DASY system to automatically align the probe to the measurement grid for field component measurement. The free space probes are generally not calibrated in liquid. (The H-field probes can be used in liquids without any change of parameters.)

**Temperature Probes:** Small and sensitive temperature probes for general use. They use a completely different parameter set and different evaluation procedures. Temperature rise features allow direct SAR evaluations with these probes.

## 8.7 EX3DV4 Probe Specification

Construction Symmetrical design with triangular core  
Built-in shielding against static charges. Calibrated at frequencies of 450 MHz, 600 MHz, 750 MHz, 835 MHz, 900 MHz, 1750 MHz, 1900 MHz, 2300 MHz, 2450 MHz, 2600 MHz, 5250 MHz, 5600 MHz, and 5750 MHz.

Dimensions Overall length: 337 mm; Tip length: 20 mm;  
Body diameter: 12mm; Tip diameter: 2.5 mm  
Typical distance from probe tip to dipole centers: 1 mm

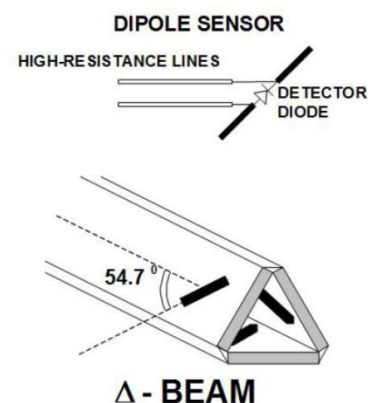


Figure 3.11.1: Typical SAR Probe Construction



## 8.8 E-Field Probe Calibration Process

Each probe is calibrated according to a dosimetric assessment procedure described in [6] with accuracy better than  $\pm 10\%$ . The spherical isotropy was evaluated with the procedure described in [7] and found to be better than  $\pm 0.25\text{dB}$ . The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies below 1 GHz, and in a waveguide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

## 8.9 Data Evaluation psSAR1g/8/10g Computation

The DASY8 post-processing software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software.

### Voltage to SAR Conversion

The measured voltages are not directly proportional to SAR and must be linearized. The formulas below are based on [1].

The measured voltage is first linearized using the (a, b, c, d) set of parameters specific to the communication system and sensor:

$$V_{\text{comp}i} = U_i + U_i^2 \cdot \frac{10^{\frac{d}{10}}}{dcp_i} \quad (1.2.1)$$

with  $V_{\text{comp}i}$  = compensated voltage of channel  $i$  ( $\mu\text{V}$ ) ( $i = x, y, z$ )  
 $U_i$  = input voltage of channel  $i$  ( $\mu\text{V}$ ) ( $i = x, y, z$ )  
 $d$  = PMR factor d (dB) (Probe parameter)  
 $dcp_i$  = diode compression point of channel  $i$  ( $\mu\text{V}$ ) (Probe parameter,  $i = x, y, z$ )

$$V_{\text{comp}i_{\text{dB}\sqrt{\mu\text{V}}}} = 10 \cdot \log_{10}(V_{\text{comp}i}) \quad (1.2.2)$$

$$\text{corr}_i = a_i \cdot e^{-\left(\frac{V_{\text{comp}i_{\text{dB}\sqrt{\mu\text{V}}}}^{c_i} - b_i}{c_i}\right)^2} \quad (1.2.3)$$

with  $\text{corr}_i$  = correction factor of channel  $i$  (dB) ( $i = x, y, z$ )  
 $V_{\text{comp}i_{\text{dB}\sqrt{\mu\text{V}}}}$  = compensated voltage of channel  $i$  ( $\text{dB}\sqrt{\mu\text{V}}$ ) ( $i = x, y, z$ )  
 $a_i$  = PMR factor a of channel  $i$  (dB) (Probe parameter,  $i = x, y, z$ )  
 $b_i$  = PMR factor b of channel  $i$  ( $\text{dB}\sqrt{\mu\text{V}}$ ) (Probe parameter,  $i = x, y, z$ )  
 $c_i$  = PMR factor c of channel  $i$  (Probe parameter,  $i = x, y, z$ )

The voltage  $V_{i_{\text{dB}\sqrt{\mu\text{V}}}}$  is the linearized voltage in  $\text{dB}\sqrt{\mu\text{V}}$ :

$$V_{i_{\text{dB}\sqrt{\mu\text{V}}}} = V_{\text{comp}i_{\text{dB}\sqrt{\mu\text{V}}}} - \text{corr}_i \quad (1.2.4)$$

with  $V_{i_{dB\sqrt{\mu V}}}$  = linearized voltage of channel  $i$  (dB $\sqrt{\mu V}$ ) (i = x,y,z)  
 $V_{comp_{i_{dB\sqrt{\mu V}}}}$  = compensated voltage of channel  $i$  (dB $\sqrt{\mu V}$ ) (i = x,y,z)  
 $Corr_i$  = correction factor of channel  $i$  (dB) (i = x,y,z)

Finally, the linearized voltage is converted in  $\mu V$ :

$$V_i = 10^{\frac{V_{i_{dB\sqrt{\mu V}}}}{10}} \quad (1.2.5)$$

with  $V_i$  = linearized voltage of channel  $i$  ( $\mu V$ ) (i = x,y,z)  
 $V_{i_{dB\sqrt{\mu V}}}$  = linearized voltage of channel  $i$  (dB $\sqrt{\mu V}$ ) (i = x,y,z)

The  $E$ -field data for each channel are calculated using the linearized voltage:

$$E\text{-field probes: } E_i = \sqrt{\frac{V_i}{\text{Norm}_i \cdot \text{ConvF}}} \quad (1.2.6)$$

with  $V_i$  = linearized voltage of channel  $i$  (i = x,y,z)  
 $\text{Norm}_i$  = sensor sensitivity ( $\mu V/(V/m)^2$ ) of channel  $i$  (i = x,y,z)  
 $\text{ConvF}$  = sensitivity enhancement in solution  
 $E_i$  = electric field strength of channel  $i$  in V/m

The RMS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{\text{tot}} = \sqrt{E_x^2 + E_y^2 + E_z^2} \quad (1.2.7)$$

The  $E$ -field value is used to calculate SAR:

$$\text{SAR} = E_{\text{tot}}^2 \cdot \frac{\sigma}{\rho \cdot 1'000} \quad (1.2.8)$$

with  $\text{SAR}$  = local specific absorption rate in W/kg  
 $E_{\text{tot}}$  = total field strength in V/m  
 $\sigma$  = conductivity in [ $\Omega/m$ ] or [S/m]  
 $\rho$  = equivalent tissue density in g/cm<sup>3</sup>

The simulated tissue density is normally set to 1 to account for the actual density of brain or body tissue rather than the density of the simulating lossy liquid.

Although the permittivity is not used in the SAR calculation, the two quantities (permittivity and conductivity) influence the actual coupling of energy into the phantom.

## 8.10 Light Beam Unit

The light beam unit allows automatic “tooling” of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, so that the robot coordinates are valid for the probe tip. The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

## 8.11 Tissue Simulating Liquids

### Parameters

The parameters of the tissue simulating liquid strongly influence the SAR in the liquid. The parameters for the different frequencies are defined in the corresponding compliance standards

### Parameter measurements

The following measurement system was applied for measuring the dielectric parameters of liquids:

- The open coax test method (e.g., SPEAG DAK-3.5 Probe dielectric probe kit) is easy to use, but has only moderate accuracy. It is calibrated with open, short, and deionized water and the calibrations a critical process.

## 8.12 SAR Phantoms

SPEAG phantoms are built with high manufacturing standards. The shells have a very tight tolerance of less than 0.2 mm, and they are fully compliant with the SAR standards and national regulations in the frequency range of 4 MHz–10 GHz. Full computer-aided design (CAD) information have been predefined in the DASY8 software, enabling fast and easy usage.

They are compatible with the following SPEAG tissue simulating liquids:

- Oil-based broadband liquids can be left permanently in the phantom. Always cover the liquid when the system is not in use to prevent changes in liquid parameters due to water evaporation.
- Sugar-water-based liquids can be left permanently in the phantom. Always cover the liquid when the system is not in use to prevent changes in liquid parameters due to water evaporation.
- DGBE-based liquids should only be used in SAM-Twin, ELI, Modular Flat, and BST phantoms. As DGBE is a softener for most plastics, the liquid should be removed from the phantom, and the phantom should be dried when the system is not in use.

The provided cover prevents the TSL from evaporating. It reduces required TSL maintenance and increases the life span. It must be placed on top of the phantom when not in use.

In DASY8, phantoms are placed in a platform slot. The position of the slot relative to the robot is taught using the three reference points (P1, P2, P3) located on top of the phantom table (see instructions in Section 4.1.6).

### 8.13 SAM Twin Phantom

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas, also called phantom sections, Left Head, Right Head, and Flat:

- Left Head, Right Head to test exposure on the head. Please note that if the location of the peak is located in the upper part of the chin, the Chin20 phantoms should be used.
- Flat to test exposure of small body-worn/hand-held devices (smartphones. . . ). For larger devices (tablets, laptops) or measurements at low frequencies, the ELI phantom must be used.



### 8.14 ELI Phantom

The ELI phantom is optimized for compliance testing of large handheld and body-mounted wireless devices (tablets, laptops) or for evaluating transmitters operating at low frequencies.

The size of the phantom, including top plate is 1.0×0.5m (1 full DASY8 platform slot). The filling volume is approximately 25 L.



### 8.15 System Validation Kits

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. For that purpose a well-defined SAR distribution in the flat section of the SAM twin phantom or ELI phantom is produced.

System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder. Dipoles are available for the variety of frequencies between 300MHz and 6 GHz (dipoles for other frequencies or media and other calibration conditions are available upon request).

The dipoles are highly symmetric and matched at the center frequency for the specified liquid and distance to the flat phantom (or flat section of the SAM-twin phantom). The accurate distance between the liquid surface and the dipole center is achieved with a distance holder that snaps on the dipole.

### 8.16 Robot

BACL's DASY8 system uses the Stäubli TX2-90XL high precision industrial robots. This robot has many features:

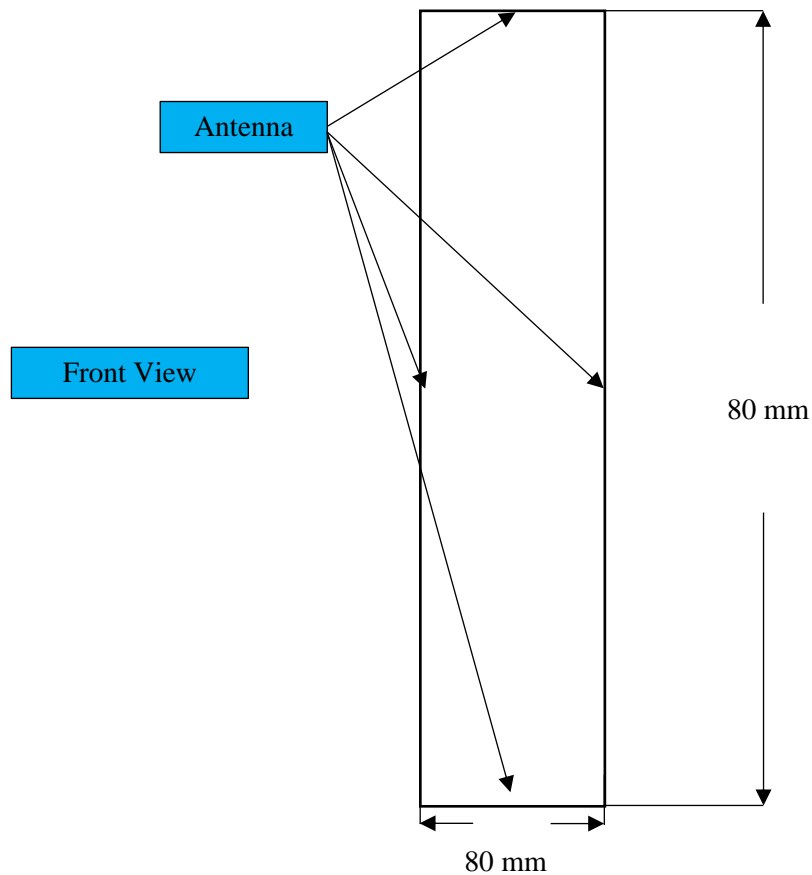
- High precision (repeatability 0.02mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance-free due to direct drive gears; no belt drives)
- Jerk-free straight movements (brushless synchronous motors; no stepper motors)
- Low ELF interference (the closed metallic construction shields against motor control fields)

BACL's DASY8 system uses the SP2 controller with S/N D21144508A.

## 9 SAR Measurement Consideration, Exclusion and Reduction

### 9.1 SAR Consideration

#### EUT Mechanical Configuration



*Note: the diagram above is only to show antenna location, and it doesn't represent the shape of the host device or the antenna. Please refer to the EUT photos exhibit for detailed information.*

Multiple positions were tested to find the position that has higher RF exposure level, with the EUT transmitting in its center frequency. Configurations: EUT vertical in relation to the phantom for the Top Edge, and Bottom Edge position; EUT parallel to the phantom for the Front, Back, Right Edge, and Left Edge positions. Please refer to the EUT setup photographs for all test positions described here.

The EUT was tested at a distance of 6.5mm per customer specification. This distance considers the space attributed by the accompanying belt holster. This belt holster has no metal parts.

## 9.2 SAR Reduction

Model	Positions	Frequency (MHz)	Result
WT-1	Front	902.2	Tested
		907.2	Tested
		912	Tested
	Back	902.2	Reduced <sup>1</sup>
		907.2	Tested
		912	Reduced <sup>1</sup>
	Right	902.2	Reduced <sup>1</sup>
		907.2	Tested
		912	Reduced <sup>1</sup>
	Left	902.2	Reduced <sup>1</sup>
		907.2	Tested
		912	Reduced <sup>1</sup>
	Bottom	902.2	Reduced <sup>1</sup>
		907.2	Tested
		912	Reduced <sup>1</sup>
	Top	902.2	Reduced <sup>1</sup>
		907.2	Tested
		912	Reduced <sup>1</sup>

Note<sup>1</sup>: Test procedure of 62209-1528:2020 instructs to measure middle channel first on all sides. The position with the highest SAR will have its additional channels evaluated. Since all other measured peak spatial-average SAR is less than 3dB or half the SAR limit of 1.6 W/kg on the 1-g all other channels are reduced for the other positions.



## 10 SAR Measurement Results

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This page summarizes the results of the performed diametric evaluation. The plots with the corresponding SAR distributions, which detail information about the location of the maximum SAR with respect to the device, is in Annex E.

### 10.1 Test Environmental Conditions

<b>Temperature:</b>	24° C
<b>Relative Humidity:</b>	54 %
<b>ATM Pressure:</b>	102.1 kPa

*Testing was performed by Kevin Chau in the SAR chamber on 2025-02-12 to 2025-02-21.*

### 10.2 Standalone SAR Results

Separation Distance @ 6.5mm 1g; 3s Dwell Time									
EUT Position	Frequency (MHz)	Phantom	Average Output Power (dBm)	Rated Average Output Power (dBm)	Scale	Measured SAR (W/kg) 1g Tissue	Scaled SAR (W/kg) 1g Tissue	Limit (W/kg) 1g Tissue	Plot #
Front	902.2	ELI Flat	28.07	28.32	1.060	1.23	1.304	1.6	1
	907.2		28.16	28.32	1.038	1.16	1.204	1.6	2
	<b>912</b>		<b>28.22</b>	<b>28.32</b>	<b>1.023</b>	<b>1.31</b>	<b>1.340</b>	<b>1.6</b>	<b>3</b>
Back	902.2		28.07	28.32	1.060	X	X	1.6	-
	907.2		28.16	28.32	1.038	0.29	0.301	1.6	4
	912		28.22	28.32	1.023	X	X	1.6	-
Right	902.2		28.07	28.32	1.060	X	X	1.6	-
	907.2		28.16	28.32	1.038	0.58	0.602	1.6	5
	912		28.22	28.32	1.023	X	X	1.6	-
Left	902.2		28.07	28.32	1.060	X	X	1.6	-
	907.2		28.16	28.32	1.038	0.64	0.664	1.6	6
	912		28.22	28.32	1.023	X	X	1.6	-
Bottom	902.2		28.07	28.32	1.060	X	X	1.6	-
	907.2		28.16	28.32	1.038	0.31	0.322	1.6	7
	912		28.22	28.32	1.023	X	X	1.6	-
Top	902.2		28.07	28.32	1.060	X	X	1.6	-
	907.2		28.16	28.32	1.038	0.52	0.540	1.6	8
	912		28.22	28.32	1.023	X	X	1.6	-
Repeat - Front	<b>912</b>		<b>28.22</b>	<b>28.32</b>	<b>1.023</b>	<b>1.41</b>	<b>1.442</b>	<b>1.6</b>	<b>9</b>

Note: Scaling Factor is calculated by (Rated Power (mW) / Output Power (mW))

## 11 Annex A – Measurement Uncertainty

The uncertainty budget has been determined for the DASY8 measurement system and is given in the following tables.

<b>DASY8 Uncertainty Budget</b> According to IEC/IEEE 62209-1528, Specific Phantoms (Frequency band: 300 MHz–3 GHz range)								
Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	( $c_i$ ) (1 g)	( $c_i$ ) (10 g)	Std. Unc. (1 g)	Std. Unc. (10 g)
<b>Measurement System Errors</b>								
CF	Probe Calibration	±12.0%	N	2	1	1	±6.0%	±6.0%
CF <sub>drift</sub>	Probe Calibration Drift	±1.7%	R	$\sqrt{3}$	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%
ISO	Probe Isotropy	±9.6%	R	$\sqrt{3}$	1	1	±5.5%	±5.5%
DAE	Other Probe+Electronic	±0.3%	N	1	1	1	±0.3%	±0.3%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
$\Delta_{sys}$	Probe Positioning	±0.006 mm	N	1	0.14	0.14	±0.5%	±0.5%
DAT	Data Processing	±8.7%	N	1	1	1	±8.7%	±8.7%
<b>Phantom and Device Errors</b>								
LIQ( $\sigma$ )	Conductivity (meas.) <sup>DAK</sup>	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%
LIQ( $T_\sigma$ )	Conductivity (temp.) <sup>BB</sup>	±3.3%	R	$\sqrt{3}$	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	$\sqrt{3}$	0	0	±0%	±0%
DIS	Distance DUT – TSL	±2.0%	N	1	2	2	±4.0%	±4.0%
D <sub>xyz</sub>	Device Positioning	±1.0%	N	1	1	1	±1.0%	±1.0%
H	Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%
MOD	DUT Modulation <sup>m</sup>	±2.4%	R	$\sqrt{3}$	1	1	±1.4%	±1.4%
TAS	Time-average SAR	±1.7%	R	$\sqrt{3}$	1	1	±1.0%	±1.0%
RF <sub>drift</sub>	DUT drift	±2.5%	N	1	1	1	±2.5%	±2.5%
VAL	Val Antenna Unc. <sup>val</sup>	±0.0%	N	1	1	1	±0%	±0%
RF <sub>in</sub>	Unc. Input Power <sup>val</sup>	±0.0%	N	1	1	1	±0%	±0%
<b>Correction to the SAR results</b>								
C( $\varepsilon, \sigma$ )	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
C(R)	SAR scaling <sup>p</sup>	±0%	R	$\sqrt{3}$	1	1	±0%	±0%
u( $\Delta$ SAR)	Combined Uncertainty						±14.3%	±14.3%
U	Expanded Uncertainty						±28.7%	±28.5%

Table 6.4.1: Worst-Case uncertainty budget for DASY8 assessed according to IEC/IEEE 62209-1528 [4]. The budget is valid for the frequency range 300 MHz–3 GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller. All listed error components have  $v_{eff}$  equal to  $\infty$ .

**Footnote details:** <sup>m</sup> SMC calibration is a new method for determining the total deviation from linearity. The uncertainty is  $\leq 2.4\%$  for psSAR1 g/10 g  $\leq 2$  W/kg,  $\leq 4.8\%$  for psSAR1 g/10 g  $\leq 4$  W/kg and  $\leq 9.6\%$  for psSAR1 g/10 g  $\leq 10$  W/kg (see modulation calibration parameter uncertainty in the probe calibration certificate); <sup>BB</sup> if SPEAG's broad-band liquids (BBL) are used that have low temperature coefficients; <sup>DAK</sup> if SPEAG's high precision dielectric probe kit (DAK) is applied; <sup>p</sup> if power scaling is used, error item "SAR Scaling" must be adjusted accordingly; <sup>val</sup> only applies in case of validation measurements.

<b>DASY8 Uncertainty Budget</b> <b>According to IEC/IEEE 62209-1528, Specific Phantoms</b> <b>(Frequency band: 3 GHz–6 GHz range)</b>								
Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	( $c_i$ ) (1 g)	( $c_i$ ) (10 g)	Std. Unc. (1 g)	Std. Unc. (10 g)
<b>Measurement System Errors</b>								
CF	Probe Calibration	$\pm 13.1\%$	N	2	1	1	$\pm 6.55\%$	$\pm 6.55\%$
CF <sub>drift</sub>	Probe Calibration Drift	$\pm 1.7\%$	R	$\sqrt{3}$	1	1	$\pm 1.0\%$	$\pm 1.0\%$
LIN	Probe Linearity	$\pm 4.7\%$	R	$\sqrt{3}$	1	1	$\pm 2.7\%$	$\pm 2.7\%$
BBS	Broadband Signal	$\pm 2.6\%$	R	$\sqrt{3}$	1	1	$\pm 1.5\%$	$\pm 1.5\%$
ISO	Probe Isotropy	$\pm 9.6\%$	R	$\sqrt{3}$	1	1	$\pm 5.5\%$	$\pm 5.5\%$
DAE	Other Probe+Electronic	$\pm 0.3\%$	N	1	1	1	$\pm 0.3\%$	$\pm 0.3\%$
AMB	RF Ambient	$\pm 1.8\%$	N	1	1	1	$\pm 1.8\%$	$\pm 1.8\%$
$\Delta_{sys}$	Probe Positioning	$\pm 0.005$ mm	N	1	0.29	0.29	$\pm 0.8\%$	$\pm 0.8\%$
DAT	Data Processing	$\pm 8.7\%$	N	1	1	1	$\pm 8.7\%$	$\pm 8.7\%$
<b>Phantom and Device Errors</b>								
LIQ( $\sigma$ )	Conductivity (meas.) <sup>DAK</sup>	$\pm 2.5\%$	N	1	0.78	0.71	$\pm 2.0\%$	$\pm 1.8\%$
LIQ( $T_\sigma$ )	Conductivity (temp.) <sup>BB</sup>	$\pm 3.4\%$	R	$\sqrt{3}$	0.78	0.71	$\pm 1.5\%$	$\pm 1.4\%$
EPS	Phantom Permittivity	$\pm 14.0\%$	R	$\sqrt{3}$	0.25	0.25	$\pm 2.0\%$	$\pm 2.0\%$
DIS	Distance DUT – TSL	$\pm 2.0\%$	N	1	2	2	$\pm 4.0\%$	$\pm 4.0\%$
D <sub>xyz</sub>	Device Positioning	$\pm 1.0\%$	N	1	1	1	$\pm 1.0\%$	$\pm 1.0\%$
H	Device Holder	$\pm 3.6\%$	N	1	1	1	$\pm 3.6\%$	$\pm 3.6\%$
MOD	DUT Modulation <sup>m</sup>	$\pm 2.4\%$	R	$\sqrt{3}$	1	1	$\pm 1.4\%$	$\pm 1.4\%$
TAS	Time-average SAR	$\pm 1.7\%$	R	$\sqrt{3}$	1	1	$\pm 1.0\%$	$\pm 1.0\%$
RF <sub>drift</sub>	DUT drift	$\pm 2.5\%$	N	1	1	1	$\pm 2.5\%$	$\pm 2.5\%$
VAL	Val Antenna Unc. <sup>val</sup>	$\pm 0.0\%$	N	1	1	1	$\pm 0\%$	$\pm 0\%$
RF <sub>in</sub>	Unc. Input Power <sup>val</sup>	$\pm 0.0\%$	N	1	1	1	$\pm 0\%$	$\pm 0\%$
<b>Correction to the SAR results</b>								
C( $\varepsilon, \sigma$ )	Deviation to Target	$\pm 1.9\%$	N	1	1	0.84	$\pm 1.9\%$	$\pm 1.6\%$
C(R)	SAR scaling <sup>p</sup>	$\pm 0\%$	R	$\sqrt{3}$	1	1	$\pm 0\%$	$\pm 0\%$
u( $\Delta$ SAR)	Combined Uncertainty						$\pm 14.7\%$	$\pm 14.6\%$
U	<b>Expanded Uncertainty</b>						$\pm 29.4\%$	$\pm 29.3\%$

Table 6.4.2: Worst-Case uncertainty budget for DASY8 assessed according to IEC/IEEE 62209-1528 [4]. The budget is valid for the frequency range 3 GHz–6 GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller. All listed error components have  $v_{eff}$  equal to  $\infty$ .

**Footnote details:** <sup>m</sup> SMC calibration is a new method for determining the total deviation from linearity. The uncertainty is  $\leq 2.4\%$  for psSAR1 g/10 g  $\leq 2$  W/kg,  $\leq 4.8\%$  for psSAR1 g/10 g  $\leq 4$  W/kg and  $\leq 9.6\%$  for psSAR1 g/10 g  $\leq 10$  W/kg (see modulation calibration parameter uncertainty in the probe calibration certificate); <sup>BB</sup> if SPEAG's broad-band liquids (BBL) are used that have low temperature coefficients; <sup>DAK</sup> if SPEAG's high precision dielectric probe kit (DAK) is applied; <sup>p</sup> if power scaling is used, error item "SAR Scaling" must be adjusted accordingly; <sup>val</sup> only applies in case of validation measurements.

## 12 Annex B – Probe Calibration Certificates

EQ-00608

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**Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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**S** Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

**Client**  
**Neuspera Medical**  
San Jose, USA

**Certificate No.**  
**EX-7703\_Apr24**

### CALIBRATION CERTIFICATE

**Object** EX3DV4 - SN:7703

**Calibration procedure(s)** QA CAL-01.v10, QA CAL-12.v10, QA CAL-14.v7, QA CAL-23.v6,  
QA CAL-25.v8  
Calibration procedure for dosimetric E-field probes

**Calibration date** April 02, 2024

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  $(22 \pm 3)^\circ\text{C}$  and humidity  $< 70\%$ .  
Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
Power sensor NRP-Z91	SN: 103244	26-Mar-24 (No. 217-04036)	Mar-25
OCP DAK-3.5 (weighted)	SN: 1249	05-Oct-23 (OCP-DAK3.5-1249_Oct23)	Oct-24
OCP DAK-12	SN: 1016	05-Oct-23 (OCP-DAK12-1016_Oct23)	Oct-24
Reference 20 dB Attenuator	SN: CC2552 (20x)	26-Mar-24 (No. 217-04046)	Mar-25
DAE4	SN: 660	23-Feb-24 (No. DAE4-660_Feb24)	Feb-25
Reference Probe EX3DV4	SN: 3877	10-Jan-24 (No. EX3-3877_Jan24)	Jan-25
Reference Probe EX3DV4	SN: 7349	03-Nov-23 (No. EX3-7349_Nov23)	Nov-24

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-22)	In house check: Jun-24
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-22)	In house check: Jun-24
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-22)	In house check: Jun-24
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-22)	In house check: Jun-24
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

	Name	Function	Signature
Calibrated by	Jeton Kastrati	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	
Issued: April 10, 2024			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			



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Accreditation No.: **SCS 0108**

## Glossary

TSL	tissue simulating liquid
NORM <sub>x,y,z</sub>	sensitivity in free space
ConvF	sensitivity in TSL / NORM <sub>x,y,z</sub>
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization $\varphi$	$\varphi$ rotation around probe axis
Polarization $\theta$	$\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

## Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices – Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

## Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\theta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not affect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP<sub>x,y,z</sub>**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; D<sub>x,y,z</sub>; VR<sub>x,y,z</sub>**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM<sub>x</sub> (no uncertainty required).

EX3DV4 - SN:7703

April 02, 2024

**Parameters of Probe: EX3DV4 - SN:7703****Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc ( $k = 2$ )
Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup>	0.68	0.68	0.62	$\pm 10.1\%$
DCP (mV) <sup>B</sup>	106.5	105.8	105.7	$\pm 4.7\%$

**Calibration Results for Modulation Response**

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max dev.	Max Unc <sup>E</sup> $k = 2$
0	CW	X	0.00	0.00	1.00	0.00	148.8	$\pm 2.7\%$	$\pm 4.7\%$
		Y	0.00	0.00	1.00		153.2		
		Z	0.00	0.00	1.00		160.3		

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%.

<sup>A</sup> The uncertainties of Norm X,Y,Z do not affect the  $E^2$ -field uncertainty inside TSL (see Page 5).

<sup>B</sup> Linearization parameter uncertainty for maximum specified field strength.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EX3DV4 - SN:7703

April 02, 2024

**Parameters of Probe: EX3DV4 - SN:7703****Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle	-12.7°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

**Note:** Measurement distance from surface can be increased to 3–4 mm for an *Area Scan* job.



EX3DV4 - SN:7703

April 02, 2024

Parameters of Probe: EX3DV4 - SN:7703

Calibration Parameter Determined in TLe5.9c.12@900 Tissue Simulating Media

f (MHz) <sup>C</sup>	Relative Permittivity <sup>F</sup>	Conductivity <sup>F</sup> (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha <sup>G</sup>	Depth <sup>G</sup> (mm)	Unc (k = 2)
900	5.9	0.12	6.10	6.10	6.10	0.20	0.87	± 13.3%

<sup>C</sup> Frequency validity above 300 MHz of ±100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ±50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ±10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4–9 MHz, and ConvF assessed at 13 MHz is 9–19 MHz. Above 5 GHz frequency validity can be extended to ±110 MHz.

<sup>F</sup> The probes are calibrated using tissue simulating liquids (TSL) that deviate for  $\epsilon$  and  $\sigma$  by less than ±5% from the target values (typically better than ±3%) and are valid for TSL with deviations of up to ±10% if SAR correction is applied.

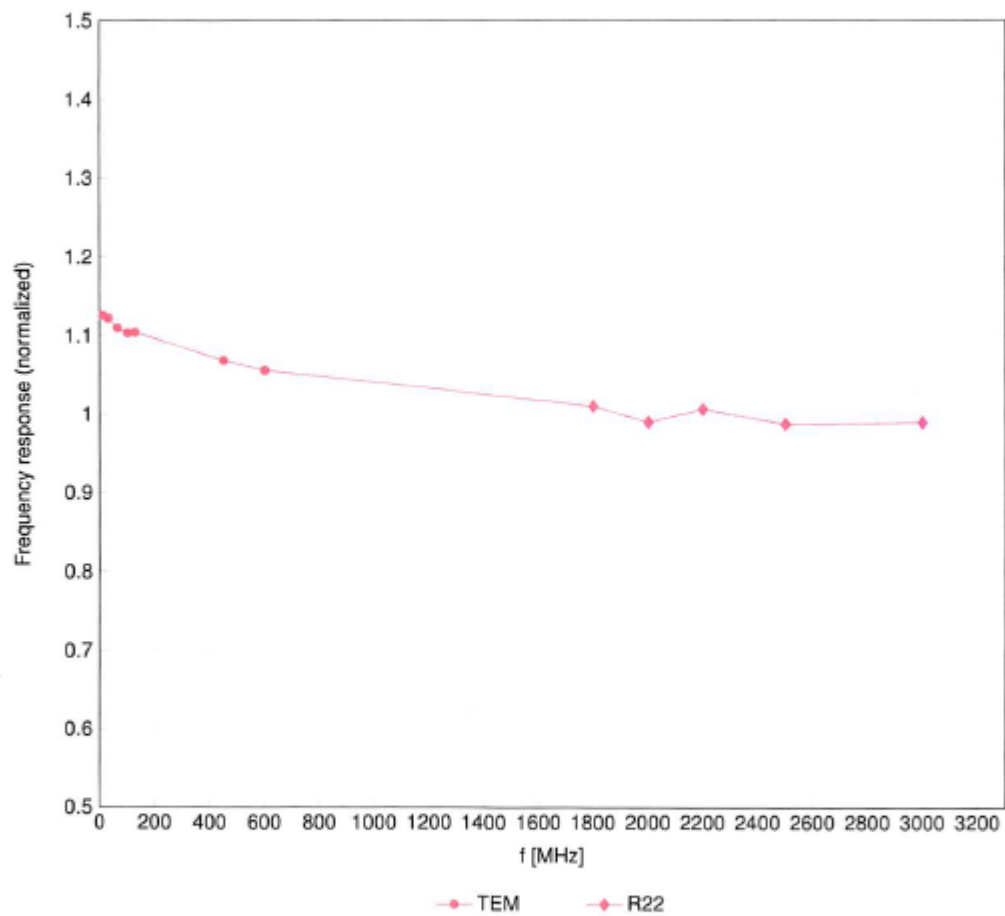
<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for frequencies between 3–6 GHz at any distance larger than half the probe tip diameter from the boundary.

EX3DV4 - SN:7703

April 02, 2024

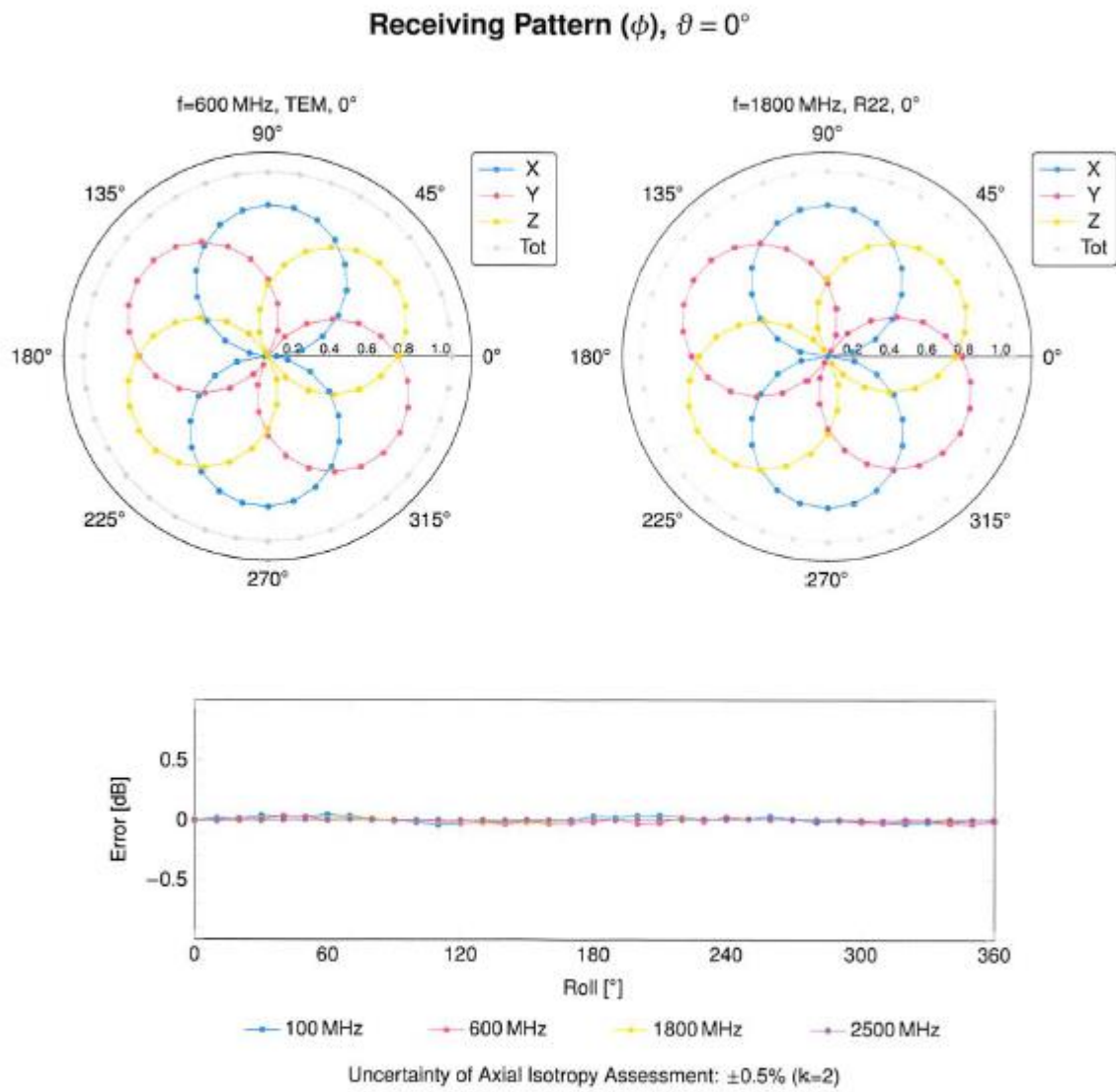
### Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide:R22)

Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

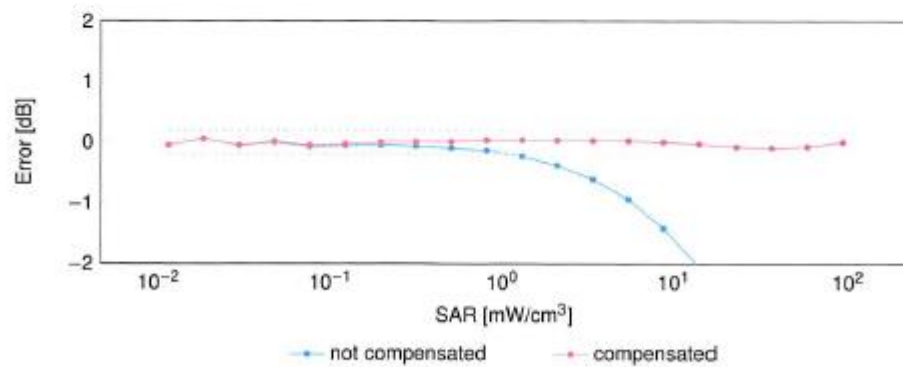
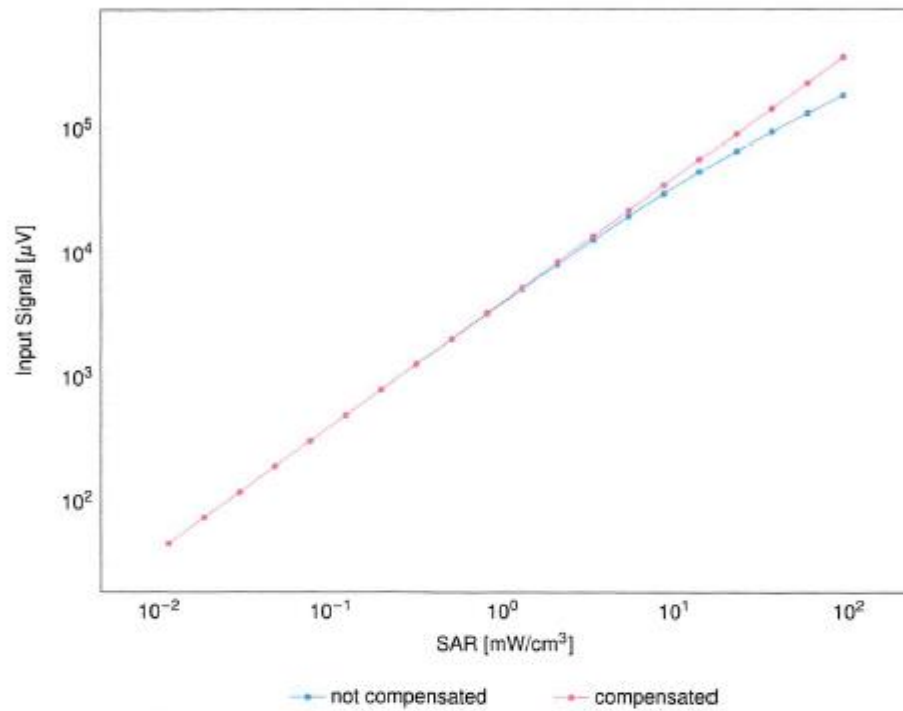
EX3DV4 - SN:7703

April 02, 2024



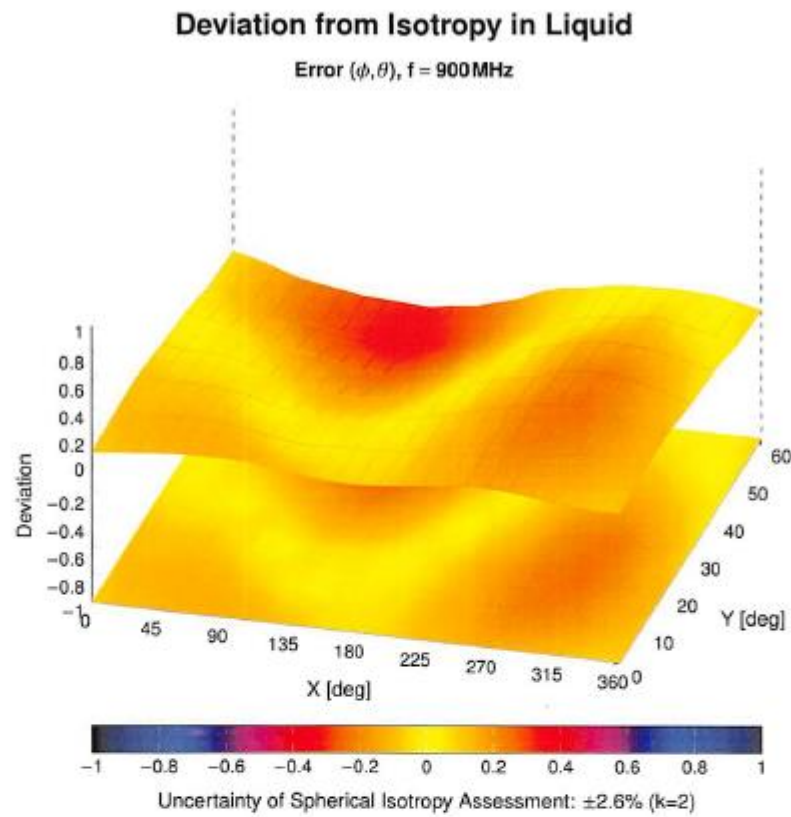
EX3DV4 - SN:7703

April 02, 2024

**Dynamic Range  $f(\text{SAR}_{\text{head}})$** (TEM cell,  $f_{\text{eval}} = 1900\text{MHz}$ )Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

EX3DV4 - SN:7703

April 02, 2024



## 13 Annex C – Dipole Calibration Certificates

EQ-00633

**Calibration Laboratory of  
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Accreditation No.: **SCS 0108**

Client **Neuspera Medical**  
San Jose, USA

Certificate No. **D900LPV1-1002\_Apr24**

### CALIBRATION CERTIFICATE

Object **D900LPV1 - SN:1002**Calibration procedure(s) **QA CAL-05.v12  
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz**Calibration date: **April 02, 2024**

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 ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&amp;TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
Power sensor NRP-Z91	SN: 103244	26-Mar-24 (No. 217-04036)	Mar-25
Power sensor NRP-Z91	SN: 103245	26-Mar-24 (No. 217-04037)	Mar-25
Reference 20 dB Attenuator	SN: BH9394 (20k)	26-Mar-24 (No. 217-04046)	Mar-25
Type-N mismatch combination	SN: 310982 / 06327	26-Mar-24 (No. 217-04047)	Mar-25
Reference Probe EX3DV4	SN: 3877	10-Jan-24 (No. EX3-3877_Jan24)	Jan-25
DAE4	SN: 601	30-Jan-24 (No. DAE4-601_Jan24)	Jan-25
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-22)	In house check: Oct-24
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-22)	In house check: Oct-24
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-22)	In house check: Oct-24

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature 
Approved by:	Sven Kühn	Technical Manager	

Issued: April 10, 2024

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**S** Swiss Calibration Service

Accreditation No.: **SCS 0108**

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

#### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

#### Calibration is Performed According to the Following Standards:

- IEC/IEEE 62209-1528, "Measurement Procedure For The Assessment Of Specific Absorption Rate Of Human Exposure To Radio Frequency Fields From Hand-Held And Body-Worn Wireless Communication Devices - Part 1528: Human Models, Instrumentation And Procedures (Frequency Range of 4 MHz to 10 GHz)", October 2020.
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

#### Additional Documentation:

- DASY System Handbook

#### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The source is mounted in a touch configuration below the center marking of the flat phantom.
- Return Loss:** This parameter is measured with the source positioned under the liquid filled phantom (as described in the measurement condition clause). The Return Loss ensures low reflected power. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

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.

<b>DASY Version</b>	DASY52	V52.10.4
<b>Extrapolation</b>	Advanced Extrapolation	
<b>Phantom</b>	Modular Flat Phantom	
<b>Distance Dipole Center - TSL</b>	15 mm	with Spacer
<b>Zoom Scan Resolution</b>	dx, dy, dz = 5 mm	
<b>Frequency</b>	900 MHz $\pm$ 1 MHz	

**TLe5.9c.12@900 TSM parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
<b>Nominal TLe5.9c.12@900 TSM parameters</b>	22.0 °C	5.90	0.12 mho/m
<b>Measured TLe5.9c.12@900 TSM parameters</b>	(22.0 $\pm$ 0.2) °C	6.00 $\pm$ 6 %	0.122 mho/m $\pm$ 6 %
<b>TLe5.9c.12@900 TSM temperature change during test</b>	< 0.5 °C	----	----

**SAR result with TLe5.9c.12@900 TSM**

<b>SAR averaged over 1 cm<sup>3</sup> (1 g) of TLe5.9c.12@900 TSM</b>	Condition	
SAR measured	250 mW input power	0.491 W/kg
SAR for nominal TLe5.9c.12@900 TSM parameters	normalized to 1W	<b>1.96 W/kg <math>\pm</math> 18.0 % (k=2)</b>

<b>SAR averaged over 10 cm<sup>3</sup> (10 g) of TLe5.9c.12@900 TSM</b>	condition	
SAR measured	250 mW input power	0.362 W/kg
SAR for nominal TLe5.9c.12@900 TSM parameters	normalized to 1W	<b>1.45 W/kg <math>\pm</math> 17.5 % (k=2)</b>



**Appendix (Additional assessments outside the scope of SCS 0108)****Antenna Parameters with TLe5.9c.12@900 TSM**

Return Loss	- 36.3 dB
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**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
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**DASY5 Validation Report for TLe5.9c.12@900 TSM**

Date: 02.04.2024

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 900 MHz; Type: D900LPV1; Serial: D900LPV1 - SN:1002**

Communication System: UID 0 - CW; Frequency: 900 MHz

Medium parameters used:  $f = 900$  MHz;  $\sigma = 0.122$  S/m;  $\epsilon_r = 6.00$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3877 (TLe5.9c12@900); ConvF(5.85, 5.85, 5.85) @ 900 MHz; Calibrated: 10.01.2024
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2024
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.4(1535); SEMCAD X 14.6.14(7501)

**Dipole Calibration for TLe5.9c.12@900 Tissue/Pin=250 mW, d=15mm/Zoom Scan**

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

Reference Value = 72.55 V/m; Power Drift = -0.04 dB

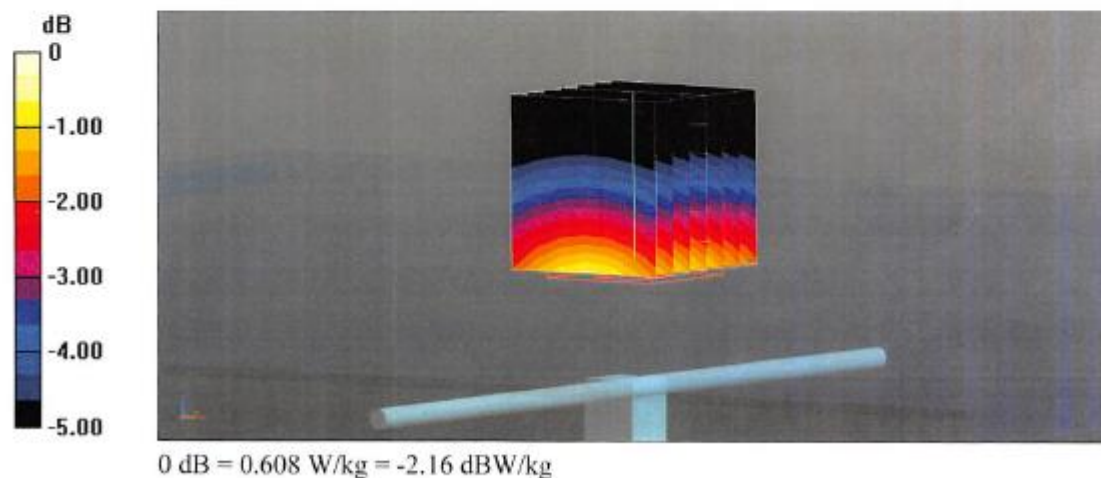
Peak SAR (extrapolated) = 0.668 W/kg

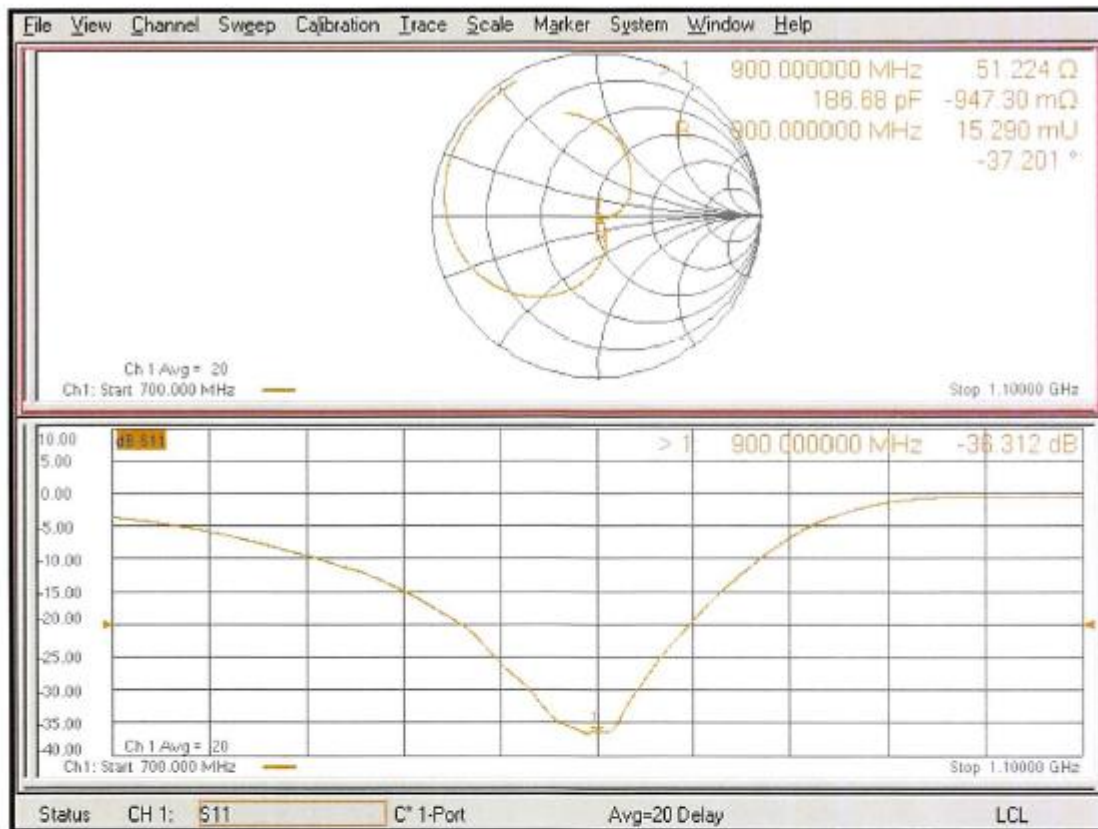
**SAR(1 g) = 0.491 W/kg; SAR(10 g) = 0.362 W/kg**

Smallest distance from peaks to all points 3 dB below: Larger than measurement grid (&gt; 15 mm)

Ratio of SAR at M2 to SAR at M1 = 74%

Maximum value of SAR (measured) = 0.608 W/kg



**Impedance Measurement Plot for TLe5.9c.12@900 TSM**

## 14 Annex D – Liquid and System Validation

### Liquid Validation

; Name : DAK 3.5 NeuSpera_Custom_Liquid 24.6 deg.C						
; Date : 2025-Feb-12 02:04:11						
; Temperature(C) : 24.6						
; Probe : DAK 3.5						
; Network Analyzer : Keysight ENA						
MHz	RefIR	Refll	EpsR	EpsI	Sigma	TanD
800	0.9747	-0.063	6.304	2.4487	0.109	0.3884
900	0.9709	-0.0701	6.2486	2.4901	0.1246	0.3985
900	0.9709	-0.0701	6.2483	2.4901	0.1246	0.3985
900	0.9709	-0.0701	6.2481	2.4901	0.1246	0.3985
900	0.9709	-0.0701	6.2478	2.4901	0.1247	0.3986
900	0.9709	-0.0701	6.2474	2.4902	0.1247	0.3986
900	0.9709	-0.0701	6.2469	2.4903	0.1247	0.3986
900	0.9709	-0.0701	6.2465	2.4905	0.1247	0.3987
900	0.9708	-0.0701	6.246	2.4905	0.1247	0.3987
900	0.9709	-0.0701	6.2456	2.4904	0.1248	0.3987
902	0.9708	-0.0702	6.2432	2.4904	0.1249	0.3989
902	0.9708	-0.0702	6.2429	2.4905	0.1249	0.3989
902	0.9708	-0.0702	6.2425	2.4906	0.1249	0.399
902	0.9708	-0.0702	6.2421	2.4903	0.1249	0.399
902	0.9708	-0.0702	6.2417	2.4901	0.125	0.3989
902	0.9708	-0.0702	6.2413	2.4898	0.125	0.3989
902	0.9708	-0.0702	6.2407	2.4895	0.125	0.3989
902	0.9708	-0.0702	6.2402	2.4891	0.125	0.3989
902	0.9708	-0.0702	6.2395	2.4885	0.1249	0.3988
907	0.9708	-0.0703	6.2225	2.4792	0.125	0.3984
907	0.9708	-0.0704	6.2219	2.4792	0.1251	0.3985
907	0.9708	-0.0703	6.2214	2.479	0.1251	0.3985
907	0.9708	-0.0703	6.2209	2.4788	0.1251	0.3985
907	0.9707	-0.0704	6.2204	2.4787	0.1251	0.3985
907	0.9708	-0.0704	6.22	2.4785	0.1251	0.3985
907	0.9707	-0.0704	6.2194	2.4784	0.1251	0.3985
912	0.9708	-0.0704	6.1951	2.4611	0.1248	0.3973
912	0.9708	-0.0704	6.1942	2.4605	0.1248	0.3972
912	0.9708	-0.0704	6.1933	2.4599	0.1248	0.3972
912	0.9708	-0.0704	6.1925	2.4592	0.1248	0.3971
912	0.9708	-0.0704	6.1917	2.4586	0.1247	0.3971
912	0.9708	-0.0704	6.191	2.458	0.1247	0.397
912	0.9708	-0.0704	6.1901	2.4573	0.1247	0.397
912	0.9708	-0.0704	6.1894	2.4568	0.1247	0.3969

912	0.9708	-0.0704	6.1886	2.4562	0.1247	0.3969
1000	0.9677	-0.0753	6.0446	2.4748	0.1377	0.4094

Measurement Report for (900.000MHz)  
Exposure Conditions

Phantom Section, TSL	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	900.000	6.1	0.125	6.2

Hardware Setup

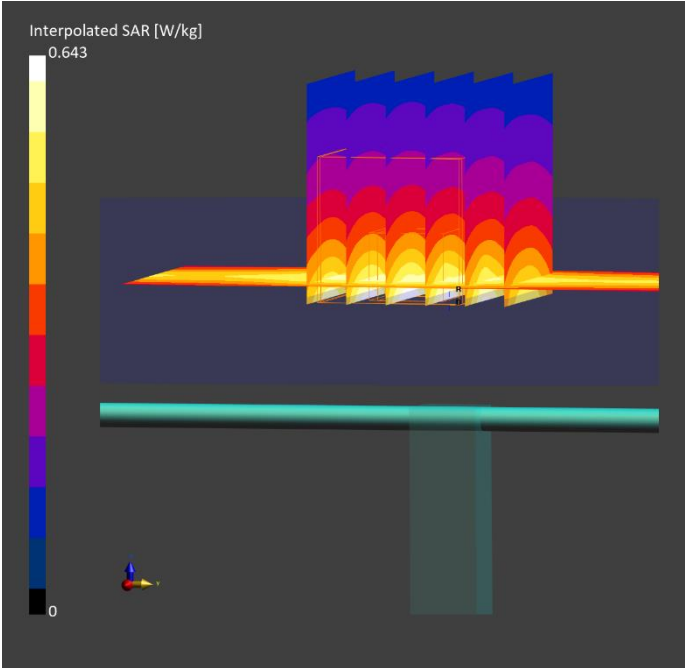
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-12	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-12, 02:38	2025-02-12, 02:58
psSAR1g [W/kg]	0.511	0.526
psSAR10g [W/kg]	0.346	0.388
Power Drift [dB]	-0.00	0.38
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		89.6
Dist 3dB Peak [mm]		15.7



; Name : DAK 3.5 NeuSpera_Custom_Liquid 20 deg.C						
; Date : 2025-Feb-14 01:34:16						
; Temperature(C) : 24.3						
; Probe : DAK 3.5						
; Network Analyzer : Keysight ENA						
MHz	RefIR	ReflI	EpsR	EpsI	Sigma	TanD
800	0.9745	-0.0585	5.8231	2.4896	0.1108	0.4275
900	0.9715	-0.0642	5.6919	2.465	0.1233	0.4331
900	0.9715	-0.0642	5.6917	2.4646	0.1233	0.433
900	0.9715	-0.0643	5.6915	2.4643	0.1233	0.433
900	0.9715	-0.0643	5.6913	2.4639	0.1233	0.4329
900	0.9714	-0.0643	5.6911	2.4635	0.1233	0.4329
900	0.9715	-0.0643	5.6909	2.463	0.1233	0.4328
900	0.9715	-0.0643	5.6909	2.4626	0.1233	0.4327
900	0.9715	-0.0643	5.6905	2.4623	0.1233	0.4327
900	0.9715	-0.0643	5.6902	2.4618	0.1233	0.4326
902	0.9715	-0.0643	5.6891	2.4586	0.1233	0.4322
902	0.9715	-0.0644	5.6891	2.458	0.1233	0.4321
902	0.9715	-0.0644	5.6889	2.4575	0.1233	0.432
902	0.9715	-0.0644	5.6887	2.4573	0.1233	0.432
902	0.9715	-0.0644	5.6885	2.4568	0.1233	0.4319
902	0.9715	-0.0644	5.6885	2.4564	0.1233	0.4318
902	0.9714	-0.0644	5.6884	2.4561	0.1233	0.4318
902	0.9715	-0.0644	5.6882	2.4557	0.1233	0.4317
902	0.9715	-0.0644	5.688	2.4556	0.1233	0.4317
907	0.9715	-0.0646	5.6801	2.4361	0.1229	0.4289
907	0.9715	-0.0646	5.6799	2.4355	0.1229	0.4288
907	0.9715	-0.0646	5.6797	2.4348	0.1228	0.4287
907	0.9715	-0.0646	5.6795	2.434	0.1228	0.4286
907	0.9716	-0.0647	5.6793	2.4333	0.1228	0.4285
907	0.9716	-0.0647	5.679	2.4327	0.1228	0.4284
907	0.9716	-0.0647	5.6788	2.4319	0.1228	0.4282
912	0.9717	-0.0649	5.6675	2.4028	0.1218	0.424
912	0.9717	-0.0648	5.6672	2.4021	0.1218	0.4239
912	0.9717	-0.0649	5.6669	2.4013	0.1218	0.4237
912	0.9717	-0.0649	5.6665	2.4006	0.1218	0.4237
912	0.9717	-0.0649	5.6662	2.3999	0.1218	0.4235
912	0.9718	-0.0649	5.6659	2.3991	0.1217	0.4234
912	0.9718	-0.0649	5.6656	2.3983	0.1217	0.4233
912	0.9718	-0.0649	5.6652	2.3975	0.1217	0.4232
912	0.9718	-0.0649	5.6647	2.3964	0.1217	0.423
1000	0.9696	-0.0696	5.5446	2.3376	0.13	0.4216

Measurement Report for (900.000MHz)  
Exposure Conditions

Phantom Section, TSL	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	900.000	6.1	0.123	5.7

Hardware Setup

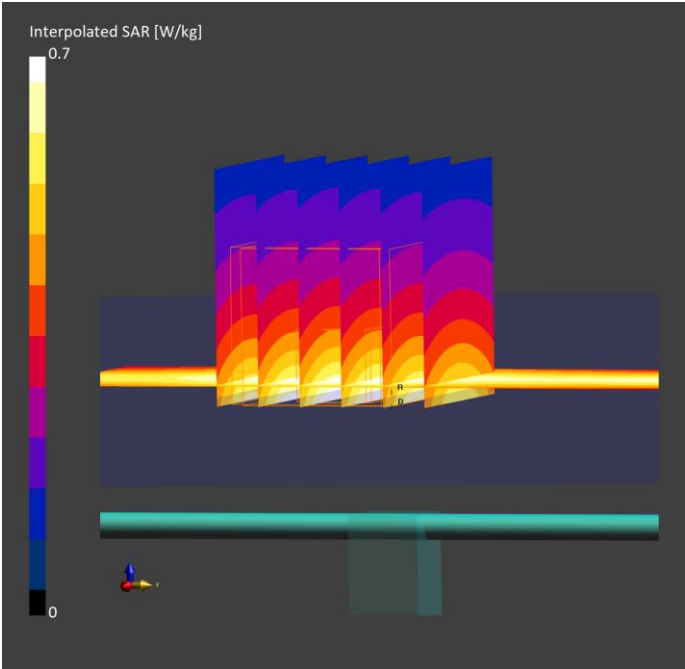
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-14	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-14, 02:18	2025-02-14, 02:39
psSAR1g [W/kg]	0.510	0.459
psSAR10g [W/kg]	0.346	0.332
Power Drift [dB]	0.02	0.03
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		88.7
Dist 3dB Peak [mm]		16.8





; Name : DAK 3.5 NeuSpera_Custom_Liquid 24.7 deg.C						
; Date : 2025-Feb-21 01:29:53						
; Temperature(C) : 24.7						
; Probe : DAK 3.5						
; Network Analyzer : Keysight ENA						
MHz	RefIR	ReflI	EpsR	EpsI	Sigma	TanD
850	0.9734	-0.0621	5.8252	2.428	0.1148	0.4168
900	0.9725	-0.065	5.7582	2.3621	0.1182	0.4102
900	0.9725	-0.065	5.7565	2.3618	0.1182	0.4103
900	0.9725	-0.0649	5.7548	2.3614	0.1182	0.4103
900	0.9725	-0.0649	5.7534	2.3609	0.1182	0.4104
900	0.9726	-0.0649	5.7525	2.3606	0.1182	0.4104
900	0.9726	-0.0649	5.7523	2.3603	0.1182	0.4103
900	0.9725	-0.0649	5.7527	2.3602	0.1182	0.4103
900	0.9725	-0.0649	5.7535	2.3604	0.1182	0.4102
900	0.9725	-0.065	5.7553	2.3607	0.1182	0.4102
900	0.9725	-0.065	5.7575	2.3611	0.1182	0.4101
900	0.9725	-0.0651	5.7591	2.3613	0.1182	0.41
900	0.9725	-0.0651	5.7605	2.3616	0.1183	0.41
900	0.9725	-0.0652	5.7612	2.3617	0.1183	0.4099
900	0.9725	-0.0652	5.7612	2.3616	0.1183	0.4099
900	0.9725	-0.0651	5.7604	2.3613	0.1183	0.4099
900	0.9725	-0.0651	5.7592	2.361	0.1183	0.4099
900	0.9725	-0.065	5.7577	2.3608	0.1183	0.41
902	0.9725	-0.065	5.755	2.3586	0.1183	0.4098
902	0.9725	-0.065	5.7534	2.358	0.1183	0.4098
902	0.9725	-0.065	5.7523	2.3578	0.1183	0.4099
902	0.9725	-0.065	5.7518	2.3578	0.1183	0.4099
902	0.9725	-0.0651	5.7521	2.3582	0.1183	0.41
902	0.9725	-0.0651	5.753	2.359	0.1184	0.41
902	0.9725	-0.0651	5.7546	2.3598	0.1184	0.4101
902	0.9724	-0.0652	5.756	2.3603	0.1184	0.4101
902	0.9724	-0.0652	5.7574	2.3607	0.1185	0.41
902	0.9724	-0.0652	5.7585	2.3613	0.1185	0.4101
902	0.9724	-0.0652	5.7591	2.3614	0.1185	0.41
902	0.9724	-0.0652	5.7592	2.3612	0.1185	0.41
902	0.9724	-0.0652	5.7586	2.3607	0.1185	0.4099
902	0.9724	-0.0652	5.7573	2.3598	0.1185	0.4099
902	0.9725	-0.0652	5.7557	2.359	0.1184	0.4099
902	0.9725	-0.0652	5.754	2.3579	0.1184	0.4098
902	0.9725	-0.0651	5.7527	2.3568	0.1183	0.4097
907	0.9724	-0.0654	5.7483	2.3522	0.1186	0.4092
907	0.9724	-0.0653	5.7474	2.3519	0.1186	0.4092
907	0.9724	-0.0653	5.7472	2.3514	0.1186	0.4091

907	0.9724	-0.0653	5.7474	2.3513	0.1186	0.4091
907	0.9724	-0.0653	5.7481	2.3513	0.1186	0.4091
907	0.9724	-0.0654	5.7491	2.3513	0.1186	0.409
907	0.9724	-0.0654	5.7501	2.3516	0.1186	0.409
907	0.9724	-0.0655	5.7507	2.3516	0.1187	0.4089
907	0.9724	-0.0655	5.7514	2.3516	0.1187	0.4089
907	0.9723	-0.0655	5.752	2.3518	0.1187	0.4089
907	0.9724	-0.0655	5.7523	2.352	0.1187	0.4089
907	0.9723	-0.0655	5.7522	2.3521	0.1187	0.4089
907	0.9723	-0.0655	5.7516	2.352	0.1187	0.4089
907	0.9724	-0.0655	5.7507	2.352	0.1187	0.409
907	0.9723	-0.0655	5.7494	2.3518	0.1187	0.4091
912	0.9723	-0.0657	5.7445	2.3487	0.1191	0.4089
912	0.9723	-0.0657	5.7451	2.3488	0.1191	0.4088
912	0.9722	-0.0657	5.7459	2.3488	0.1191	0.4088
912	0.9723	-0.0657	5.7466	2.3488	0.1191	0.4087
912	0.9722	-0.0658	5.7468	2.3486	0.1191	0.4087
912	0.9722	-0.0658	5.7467	2.3484	0.1191	0.4087
912	0.9722	-0.0658	5.7463	2.348	0.1191	0.4086
912	0.9723	-0.0658	5.7456	2.3476	0.1191	0.4086
912	0.9723	-0.0658	5.7449	2.347	0.1191	0.4085
912	0.9723	-0.0657	5.7441	2.3467	0.1191	0.4085
912	0.9723	-0.0657	5.7434	2.3462	0.1191	0.4085
912	0.9723	-0.0657	5.7427	2.3459	0.119	0.4085
912	0.9723	-0.0657	5.7422	2.3456	0.119	0.4085
912	0.9723	-0.0657	5.7422	2.3455	0.119	0.4085
912	0.9723	-0.0657	5.7427	2.3455	0.119	0.4084
912	0.9723	-0.0657	5.7434	2.3455	0.1191	0.4084
912	0.9723	-0.0657	5.744	2.3456	0.1191	0.4084
950	0.9713	-0.068	5.7045	2.3245	0.1229	0.4075

Measurement Report for (900.000MHz)  
Exposure Conditions

Phantom Section, TSL	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	900.000	6.1	0.118	5.8

Hardware Setup

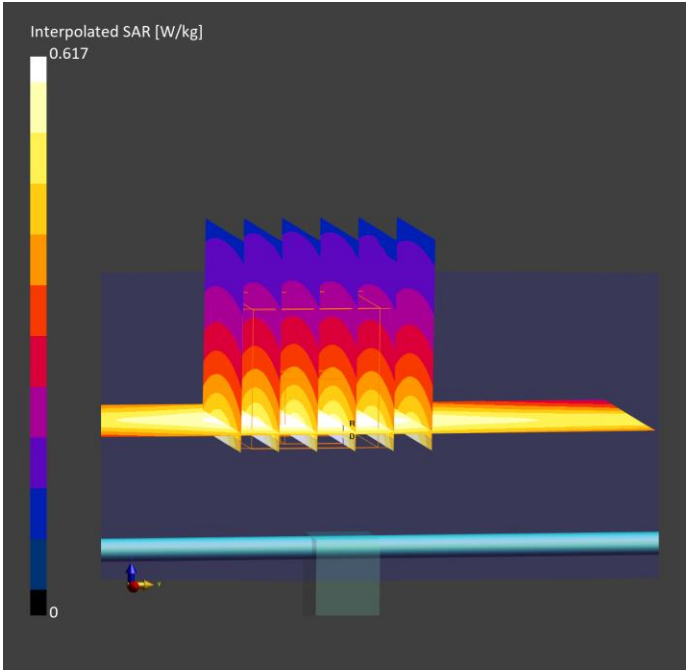
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-21	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-21, 02:28	2025-02-21, 02:35
psSAR1g [W/kg]	0.465	0.486
psSAR10g [W/kg]	0.319	0.369
Power Drift [dB]	0.01	-0.04
Power Scaling	Disabled	Disabled
Scaling Factor [dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		94.0
Dist 3dB Peak [mm]		> 15.0



15 Annex E – SAR Plots

Measurement Report for NeuSpera Medical Inc., FRONT, 902.200MHz, 3s Dwell Time  
Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
WT-1, NeuSpera Medical Inc.	80.0 x 80.0 x 15.0	Neurostimulator Powering Device

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	FRONT, 6.50	902.200	6.1	0.125	6.2

Hardware Setup

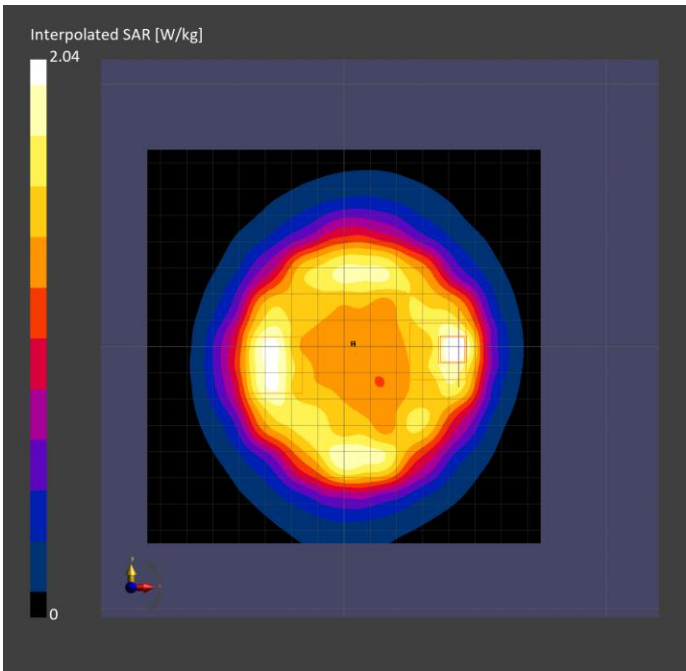
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-12	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	150.0 x 150.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-12, 20:24	2025-02-12, 21:30
psSAR1g [W/kg]	1.23	1.23
psSAR10g [W/kg]	0.786	0.867
Power Drift [dB]	-0.19	-0.13
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		84.7
Dist 3dB Peak [mm]		9.7



Plot #1

Measurement Report for NeuSpera Medical Inc., FRONT, 907.200MHz, 3s Dwell Time

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
WT-1, NeuSpera Medical Inc.	80.0 x 80.0 x 15.0	Neurostimulator Powering Device

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	FRONT, 6.50	907.200	6.1	0.125	6.2

Hardware Setup

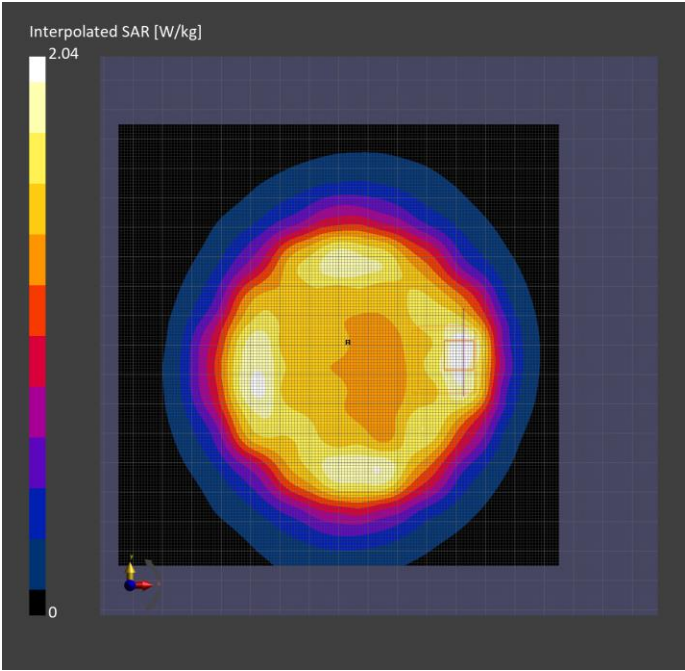
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-12	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	150.0 x 150.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-12, 21:57	2025-02-12, 23:03
psSAR1g [W/kg]	1.20	1.16
psSAR10g [W/kg]	0.770	0.840
Power Drift [dB]	-0.08	0.08
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		87.7
Dist 3dB Peak [mm]		10.8



Plot #2

Measurement Report for NeuSpera Medical Inc., FRONT, 912.000MHz, 3s Dwell Time  
Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
WT-1, NeuSpera Medical Inc.	80.0 x 80.0 x 15.0	Neurostimulator Powering Device

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	FRONT, 6.50	912.000	6.1	0.125	6.2

Hardware Setup

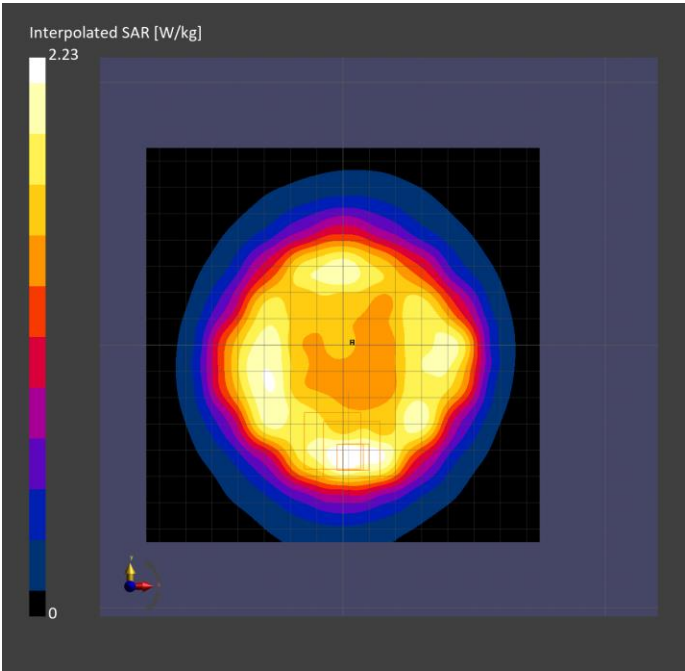
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-12	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	150.0 x 150.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-12, 18:32	2025-02-12, 19:54
psSAR1g [W/kg]	1.34	1.31
psSAR10g [W/kg]	0.861	0.907
Power Drift [dB]	-0.07	-0.02
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		85.2
Dist 3dB Peak [mm]		9.9



Plot #3

Measurement Report for NeuSpera Medical Inc., BACK, 907.200MHz, 3s Dwell Time

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
WT-1, NeuSpera Medical Inc.	80.0 x 80.0 x 15.0	Neurostimulator Powering Device

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	BACK, 6.50	907.200	6.1	0.123	5.7

Hardware Setup

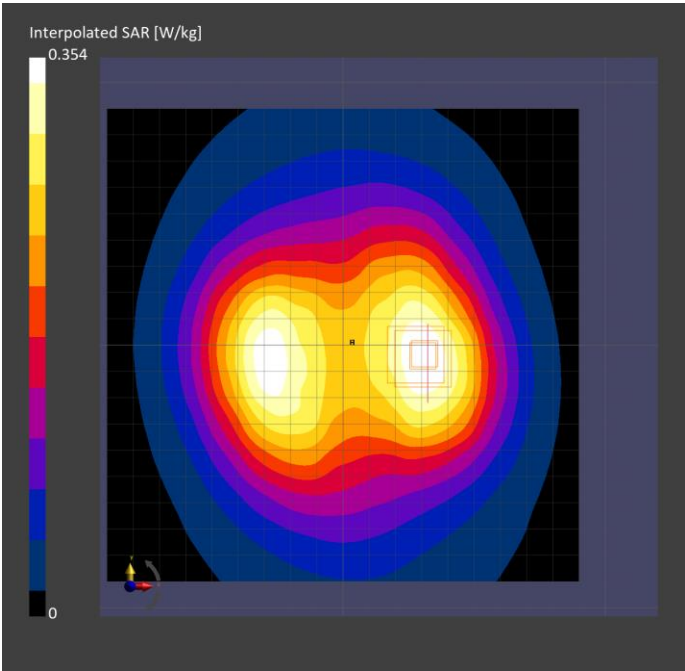
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025-Feb-14	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	180.0 x 180.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-14, 20:00	2025-02-14, 20:28
psSAR1g [W/kg]	0.280	0.291
psSAR10g [W/kg]	0.191	0.228
Power Drift [dB]	-0.14	0.06
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		95.3
Dist 3dB Peak [mm]		> 15.0



Plot #4

Measurement Report for NeuSpera Medical Inc., EDGE RIGHT, 907.200MHz, 3s Dwell Time

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
WT-1, NeuSpera Medical Inc.	80.0 x 80.0 x 15.0	Neurostimulator Powering Device

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	EDGE RIGHT, 6.50	907.200	6.1	0.123	5.7

Hardware Setup

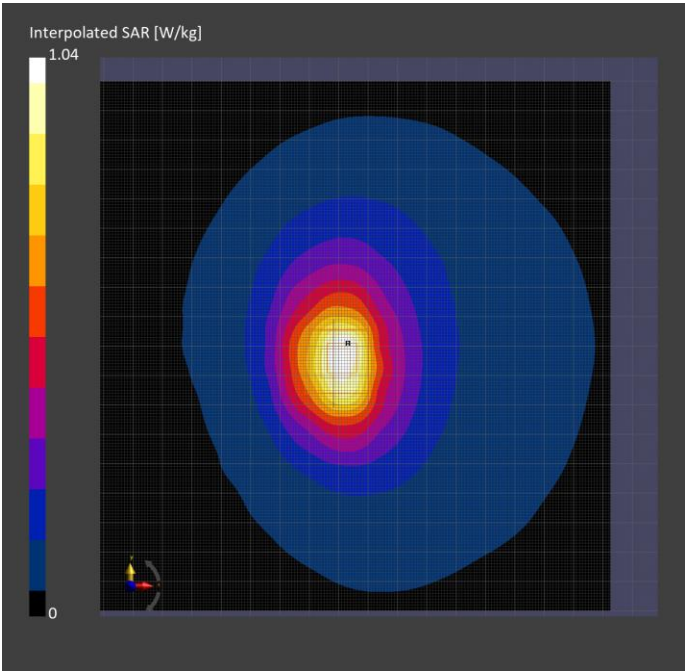
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-14	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	180.0 x 180.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-14, 16:44	2025-02-14, 17:08
psSAR1g [W/kg]	0.535	0.576
psSAR10g [W/kg]	0.334	0.332
Power Drift [dB]	-0.01	-0.13
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		84.3
Dist 3dB Peak [mm]		11.9



Plot #5



Measurement Report for NeuSpera Medical Inc., EDGE LEFT, 907.200MHz, 3s Dwell Time

Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
WT-1, NeuSpera Medical Inc.	80.0 x 80.0 x 15.0	Neurostimulator Powering Device

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	EDGE LEFT, 6.50	907.200	6.1	0.125	6.2

Hardware Setup

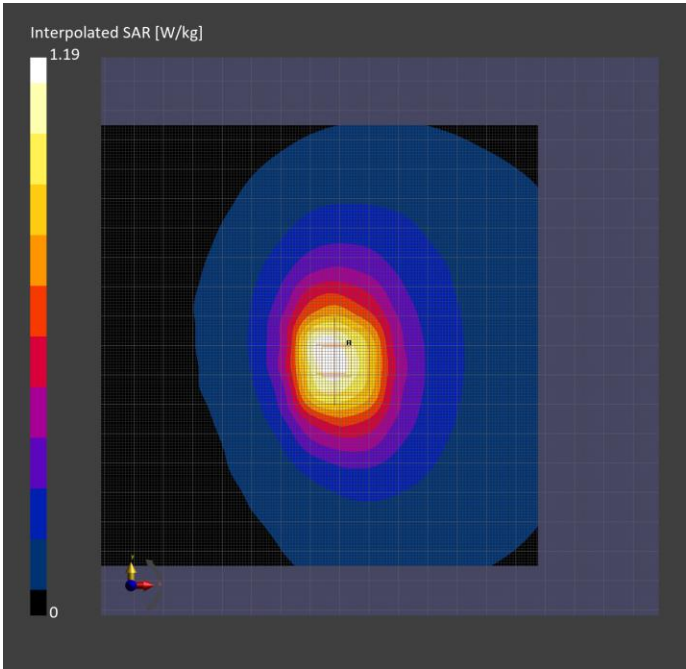
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-12	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	150.0 x 150.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-12, 17:35	2025-02-12, 18:00
psSAR1g [W/kg]	0.560	0.643
psSAR10g [W/kg]	0.357	0.361
Power Drift [dB]	0.14	-0.16
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		83.0
Dist 3dB Peak [mm]		10.8



Plot #6

Measurement Report for NeuSpera Medical Inc., EDGE BOTTOM, 907.200MHz, 3s Dwell Time  
Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
WT-1, NeuSpera Medical Inc.	80.0 x 80.0 x 15.0	Neurostimulator Powering Device

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	EDGE BOTTOM, 6.50	907.200	6.1	0.123	5.7

Hardware Setup

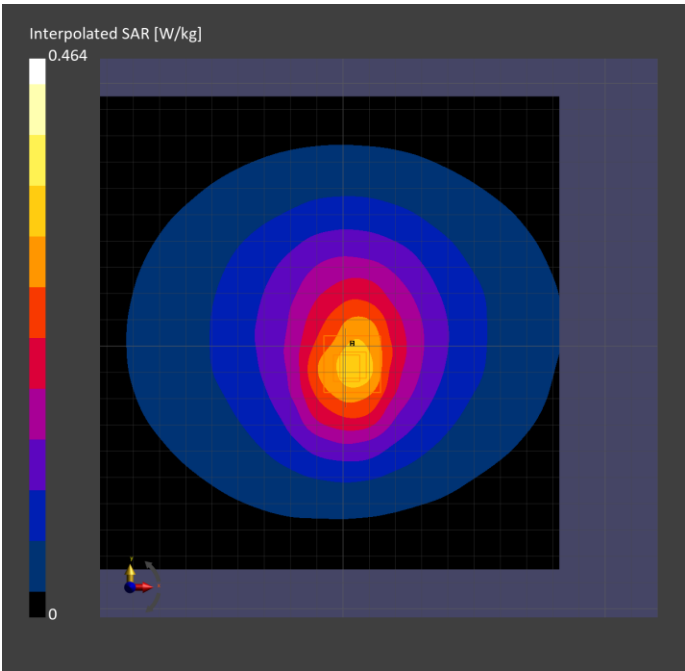
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-14	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	180.0 x 180.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-14, 19:00	2025-02-14, 19:25
psSAR1g [W/kg]	0.292	0.309
psSAR10g [W/kg]	0.194	0.211
Power Drift [dB]	-0.01	-0.06
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		89.7
Dist 3dB Peak [mm]		16.1



Plot #7

Measurement Report for NeuSpera Medical Inc., EDGE TOP, 907.200MHz, 3s Dwell Time  
Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
WT-1, NeuSpera Medical Inc.	80.0 x 80.0 x 15.0	Neurostimulator Powering Device

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	EDGE TOP, 6.50	907.200	6.1	0.123	5.7

Hardware Setup

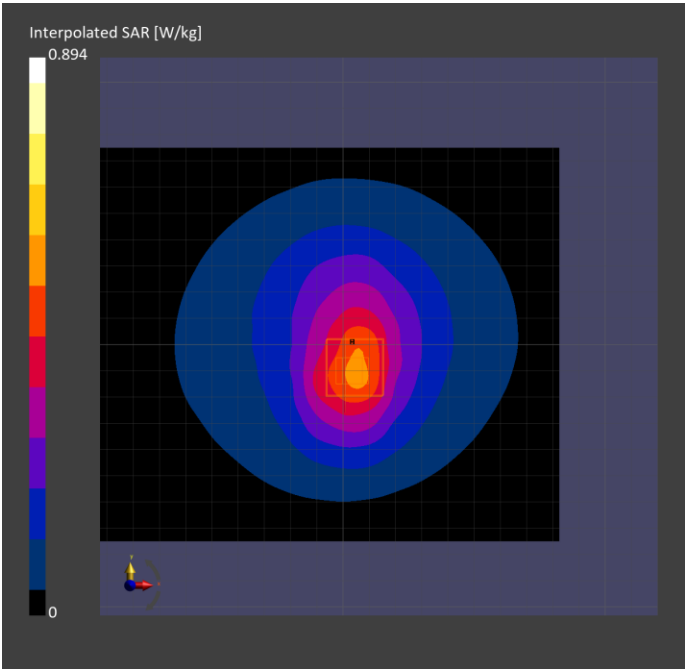
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-14	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1724, 2024-03-28

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	180.0 x 150.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-14, 17:59	2025-02-14, 18:24
psSAR1g [W/kg]	0.474	0.522
psSAR10g [W/kg]	0.309	0.329
Power Drift [dB]	0.14	-0.02
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		86.8
Dist 3dB Peak [mm]		13.2



Plot #8

Measurement Report for NeuSpera Medical Inc., FRONT (Repeat), 912.000MHz, 3s Dwell Timed  
Device under Test Properties

Model, Manufacturer	Dimensions [mm]	DUT Type
WT-1, NeuSpera Medical Inc.	80.0 x 80.0 x 15.0	Neurostimulator Powering Device

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Frequency [MHz]	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, Blood High Conductive Gel	FRONT, 6.50	912.000	6.1	0.119	5.7

Hardware Setup

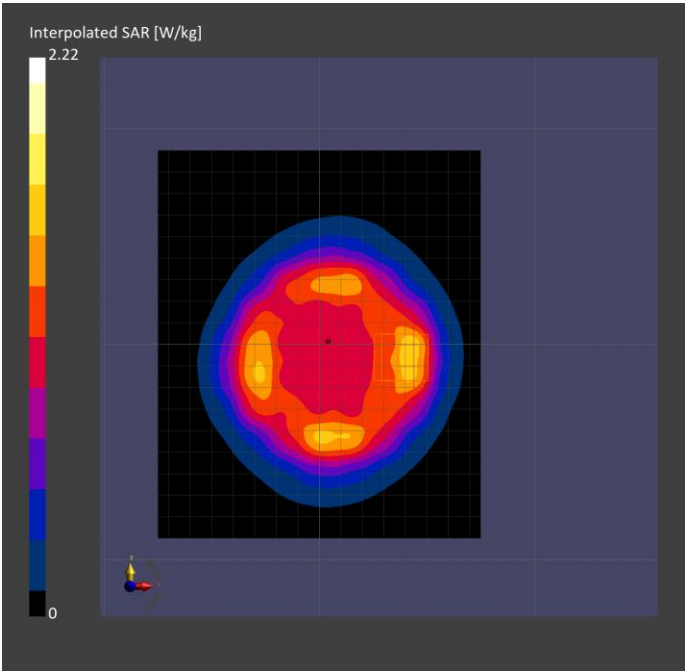
Phantom	TSL, Measured Date	Probe, Calibration Date	DAE, Calibration Date
ELI V8.0 (20deg probe tilt) - 2191	TGe78c1.20@64 Charge: xxxx, 2025- Feb-21	EX3DV4 - SN7703, 2024-04-02	DAE4 Sn1561, 2023-01-23

Scan Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	150.0 x 180.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	15.0 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
MAIA	N/A	N/A
Surface Detection	All points	All points
Scan Method	Measured	Measured

Measurement Results

	Area Scan	Zoom Scan
Date	2025-02-21, 15:55	2025-02-21, 16:51
psSAR1g [W/kg]	1.38	1.41
psSAR10g [W/kg]	0.879	0.968
Power Drift [dB]	-0.06	-0.17
Power Scaling	Disabled	Disabled
Scaling Factor		
[dB]		
TSL Correction	No correction	No correction
M2/M1 [%]		86.2
Dist 3dB Peak [mm]		9.7



Plot #9

## 16 Annex F – RF Average Output Power Measurement

Channel	Frequency (MHz)	Average Measured Power (dBm)				Total Measured Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Rated EIRP (dBm)
		Port 1	Port 2	Port 3	Port 4				
Low	902.2	22.05	22.15	21.99	21.99	28.07	-5	23.07	23.32
Middle	907.2	22.15	22.23	22.10	22.08	28.16	-5	23.16	23.32
High	912	22.21	22.28	22.18	22.14	28.22	-5	23.22	23.32

## **17 Annex G – EUT Test Setup Photographs**

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Please refer to the attachment

## 18 Annex H - Informative References

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- [1] Federal Communications Commission, \Report and order: Guidelines for evaluating the environmental effects of radiofrequency radiation", Tech. Rep. FCC 96-326, FCC, Washington, D.C. 20554, 1996.
- [2] David L. Means Kwok Chan, Robert F. Cleveland, \Evaluating compliance with FCC guidelines for human exposure to radiofrequency electromagnetic fields", Tech. Rep., Federal Communication Commission, Office of Engineering & Technology, Washington, DC, 1997.
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- [6] ANSI, ANSI/IEEE C95.1-1992: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, The Institute of Electrical and Electronics Engineers, Inc., New York, NY 10017, 1992.
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- [11] W. Gander, Computermathematik, Birkhaeuser, Basel, 1992.
- [12] W. H. Press, S. A. Teukolsky, W. T. Vetterling, and B. P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second Edition, Cambridge University Press, 1992. Dosimetric Evaluation of Sample device, month 1998 9
- [13] NIS81 NAMAS, \The treatment of uncertainty in EMC measurement", Tech. Rep., NAMAS Executive, National Physical Laboratory, Teddington, Middlesex, England, 1994.
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## 19 Annex I (Normative) - A2LA Electrical Testing Certificate



### Accredited Laboratory

A2LA has accredited

### BAY AREA COMPLIANCE LABORATORIES CORP.

Sunnyvale, CA

for technical competence in the field of

### Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This laboratory also meets A2LA R222 - Specific Requirements EPA ENERGY STAR Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 13<sup>th</sup> day of September 2024.

A blue ink signature of Mr. Trace McInturff.

Mr. Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 3297.02  
Valid to September 30, 2026

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

Please follow the web link below for a full ISO 17025 scope

[A2LA Scope ~ Cert. 3297-02.pdf](#)

--- END OF REPORT ---