



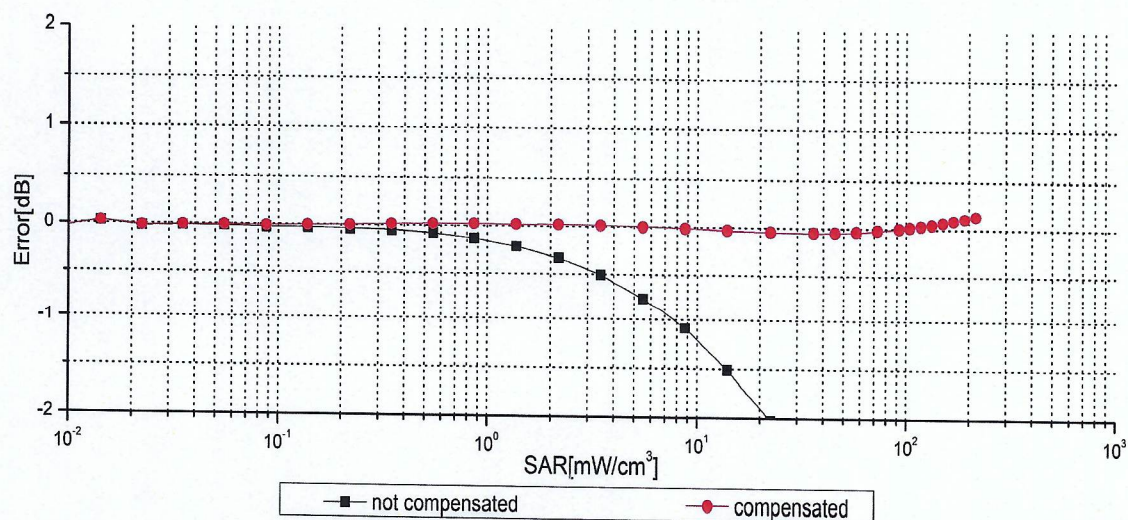
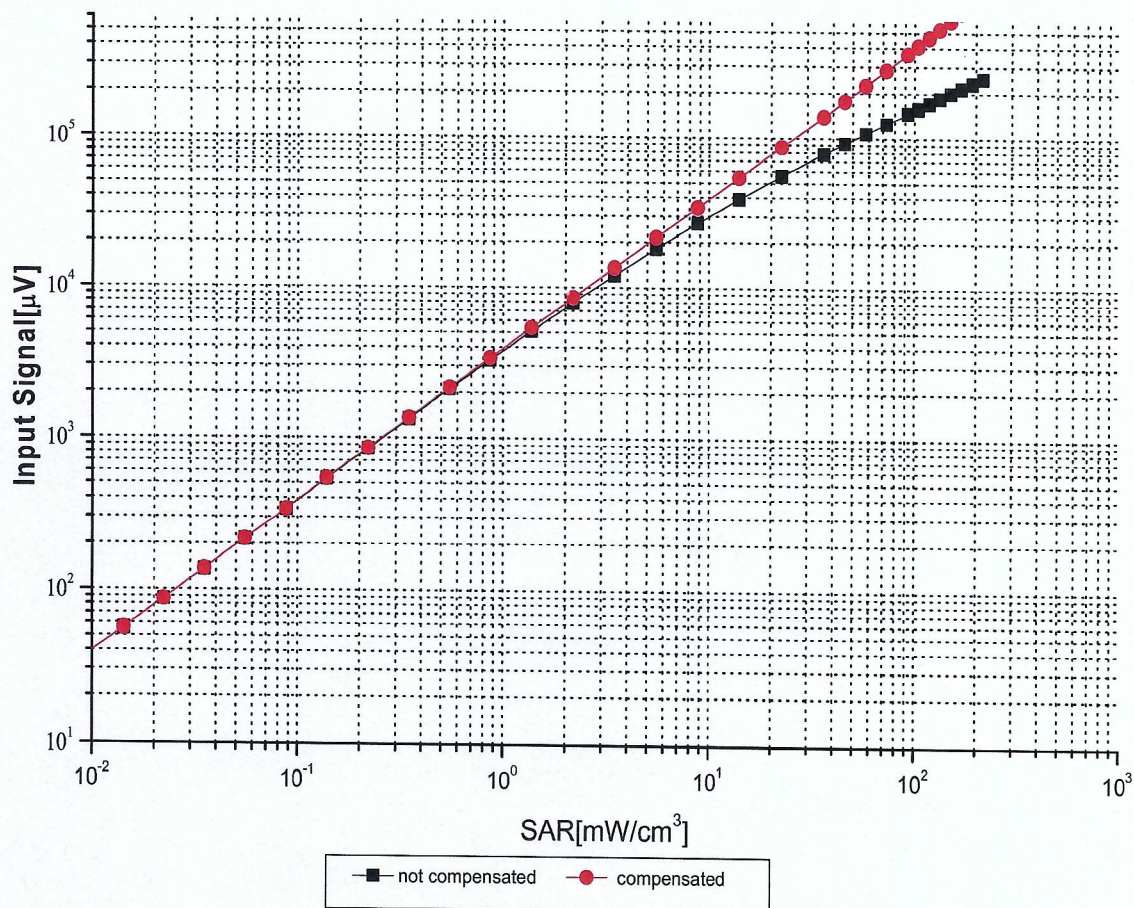
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Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f = 900 \text{ MHz}$)



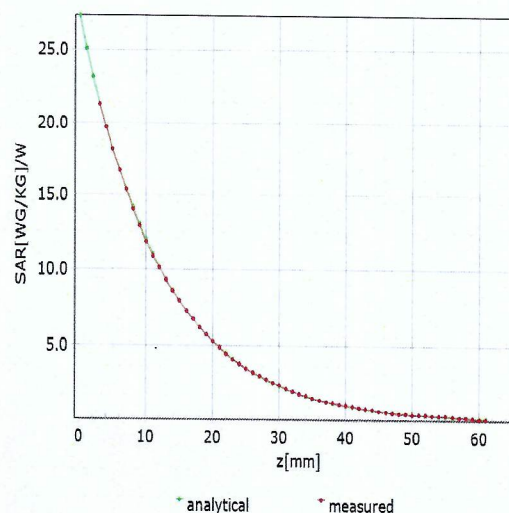
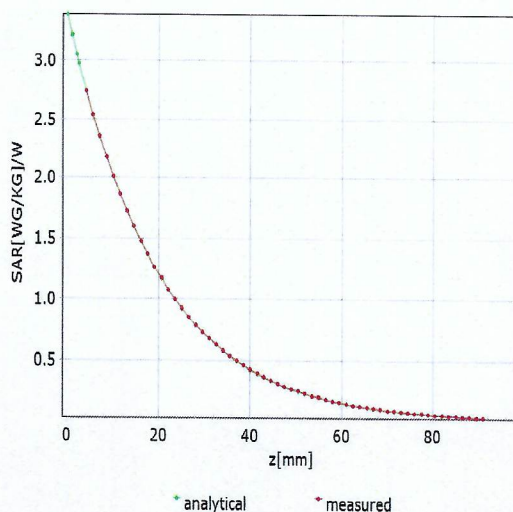
Uncertainty of Linearity Assessment: $\pm 0.9\%$ ($k=2$)

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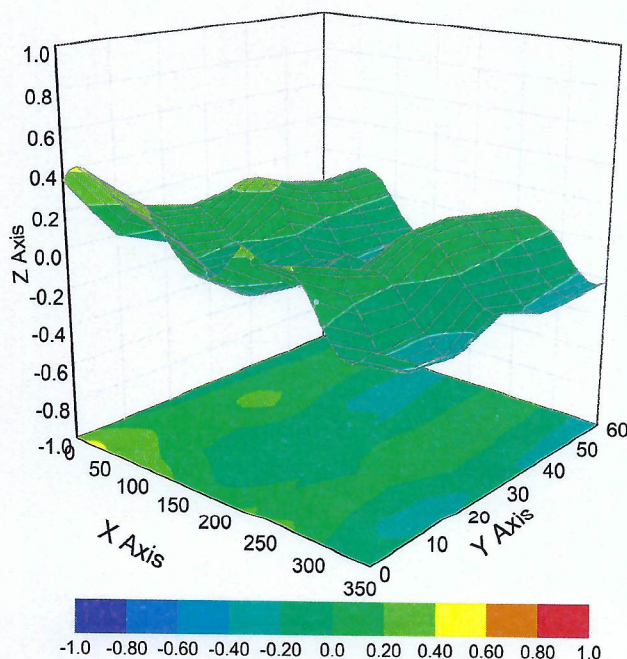
Conversion Factor Assessment

f=835 MHz,WGLS R9(H_convF)

f=1750 MHz,WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: $\pm 3.2\%$ ($k=2$)

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:3809

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	161.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

Client

BTL Inc .
Guangdong

Certificate No: 26J02Z000226

CALIBRATION CERTIFICATE

Object

EX3DV4 - SN : 3809

Calibration Procedure(s)

FF-Z11-0004-03

Calibration Procedures for Dosimetric E-field Probes

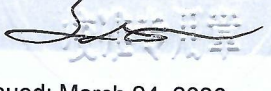
Calibration date:

March 20, 2026 (Additional SMC)

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.
All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	106277	20-Oct-25(CTTL, No.25J02X100272)	Oct-26
Power sensor NRP8S	104291	20-Oct-25(CTTL, No.25J02X100272)	Oct-26
Power sensor NRP8S	104292	20-Oct-25(CTTL, No.25J02X100272)	Oct-26
Reference 10dBAttenuator	18N50W-10dB	22-Jan-25(CTTL, No.25J02X000465)	Jan-27
Reference 20dBAttenuator	18N50W-20dB	22-Jan-25(CTTL, No.25J02X000466)	Jan-27
Reference Probe EX3DV4	SN 7307	27-May-25(SPEAG, No.EX-7307_May25)	May-26
DAE4	SN 1525	12-Sep-25(SPEAG, No.DAE4-1525_Sep25)	Sep-26
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	10-Jun-25(CTTL, No.25J02X004975)	Jun-26
SignalGenerator APSIN26G	181-33A6D0700-1959	27-Mar-25(CTTL, No.25J02X001962)	Mar-26
Network Analyzer E5071C	MY46110673	26-Nov-25(CTTL, No.25J02X102468)	Nov-26
Reference 10dBAttenuator	BT0520	15-May-25(CTTL, No.25J02X003069)	May-27
Reference 20dBAttenuator	BT0267	15-May-25(CTTL, No. 25J02X003070)	May-27
OCP DAKS-3.5	SN 0015	20-Oct-25(SPEAG, No. OCP-DAKS-0015_Oct25)	Oct-26

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: March 24, 2026

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



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Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i $\theta=0$ 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 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_{x,y,z}**: Assessed for E-field polarization $\theta=0$ ($f \leq 900\text{MHz}$ in TEM-cell; $f > 1800\text{MHz}$: waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * 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_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). 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_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}; A,B,C** 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 $f \leq 800\text{MHz}$) and inside waveguide using analytical field distributions based on power measurements for $f > 800\text{MHz}$. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * 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 $\pm 50\text{MHz}$ to $\pm 100\text{MHz}$.
- 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_x (no uncertainty required).



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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3809

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu V}$	C	D dB	VR mV	Max Dev.	Max Unc ^E ($k=2$)
0	CW	X	0.0	0.0	1.0	0.00	163.6	$\pm 2.0\%$	$\pm 4.7\%$
		Y	0.0	0.0	1.0		158.7		
		Z	0.0	0.0	1.0		174.4		
10352-AAA	Pulse Waveform (200Hz, 10%)	X	4.11	70.69	12.33	10.00	60	$\pm 4.0\%$	$\pm 9.6\%$
		Y	2.23	64.36	8.90		60		
		Z	3.83	69.62	11.87		60		
10353-AAA	Pulse Waveform (200Hz, 20%)	X	3.74	71.14	11.53	6.99	80	$\pm 2.8\%$	$\pm 9.6\%$
		Y	1.09	61.19	6.50		80		
		Z	2.98	68.70	10.65		80		
10354-AAA	Pulse Waveform (200Hz, 40%)	X	1.45	65.78	8.34	3.98	95	$\pm 1.8\%$	$\pm 9.6\%$
		Y	0.55	60.00	4.85		95		
		Z	1.37	64.89	8.10		95		
10355-AAA	Pulse Waveform (200Hz, 60%)	X	0.38	60.00	4.64	2.22	120	$\pm 2.8\%$	$\pm 9.6\%$
		Y	16.80	125.32	4.48		120		
		Z	0.42	60.00	4.90		120		
10387-AAA	QPSK Waveform, 1 MHz	X	1.43	64.37	13.13	1.00	150	$\pm 2.8\%$	$\pm 9.6\%$
		Y	1.32	64.04	12.64		150		
		Z	1.45	64.23	13.16		150		
10388-AAA	QPSK Waveform, 10 MHz	X	1.98	66.43	14.29	0.00	150	$\pm 1.1\%$	$\pm 9.6\%$
		Y	1.86	65.86	14.01		150		
		Z	2.00	66.35	14.27		150		
10396-AAA	64-QAM Waveform, 100 kHz	X	2.66	69.28	18.53	3.01	150	$\pm 0.7\%$	$\pm 9.6\%$
		Y	2.39	68.14	18.16		150		
		Z	2.69	69.20	18.44		150		
10414-AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.71	65.34	15.19	0.00	150	$\pm 3.7\%$	$\pm 9.6\%$
		Y	4.68	65.54	15.30		150		
		Z	4.73	65.30	15.18		150		

Note: For details on UID parameters see Appendix

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%.

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



In Collaboration with

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CALIBRATION LABORATORY



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DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3809

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	42.54	321.84	36.09	13.60	0.00	5.08	0.04	0.39	1.02
Y	36.71	278.01	36.14	10.34	0.00	5.03	0.00	0.31	1.02
Z	44.37	336.81	36.29	16.45	0.00	5.07	0.32	0.37	1.02

Note: For other parameters please refer to Certificate (No. 26J02Z000049). And this Certificate should be used together with No. 26J02Z000049 Certificate.