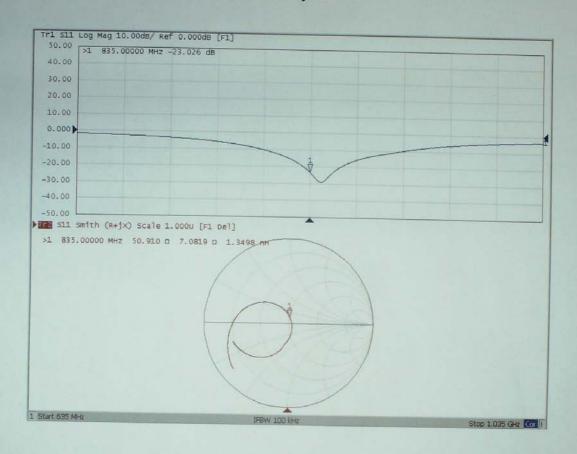


Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504 Http://www.chinattl.cn



Impedance Measurement Plot for Body TSL



6.3. D1900V2 Dipole Calibration Certificate

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

SMQ (Auden)





Schweizerischer Kalibrierdienst Service suisse d'étalonnage C Servizio svizzero di taratura S Swiss Calibration Service

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 Accreditation No.: SCS 0108

Certificate No: D1900V2-5d194_Jan15

Issued: January 7, 2015

CALIBRATION CERTIFICATE

D1900V2 - SN: 5d194 Object

Calibration procedure(s) QA CAL-05.v9

Calibration procedure for dipole validation kits above 700 MHz

Calibration date: January 07, 2015

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	US37292783	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	MY41092317	07-Oct-14 (No. 217-02021)	Oct-15
Reference 20 dB Attenuator	SN: 5058 (20k)	03-Apr-14 (No. 217-01918)	Apr-15
Type-N mismatch combination	SN: 5047.2 / 06327	03-Apr-14 (No. 217-01921)	Apr-15
Reference Probe ES3DV3	SN: 3205	30-Dec-14 (No. ES3-3205_Dec14)	Dec-15
DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37390585 S4205	18-Oct-01 (in house check Oct-14)	In house check: Oct-15
	Name	Function	Signature
Calibrated by:	Claudio Leubier	Laboratory Technician	orginature .
10		Salary (definition)	13
Approved by:	Katja Pokovic	Technical Manager	non

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

Certificate No: D1900V2-5d194_Jan15

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Calibration Laboratory of Schmid & Partner





Schweizerischer Kalibrierdienst Service suisse d'étalonnage C Servizio svizzero di taratura Swiss Calibration Service

Accreditation No.: SCS 0108

Engineering AG sstrasse 43, 8004 Zurich, Switzerland

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 not applicable or not measured N/A

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

d) DASY4/5 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 dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point. 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
- 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%

Certificate No: D1900V2-5d194 Jan15

Page 2 of 8

Measurement Conditions DASY system configuration, as far as not given on p

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

*	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.1 ± 6 %	1.39 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	***	

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	40.6 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.32 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	21.3 W/kg ± 16.5 % (k=2)

Body TSL parameters
The following parameters and calculations were applied.

The second secon	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.3 ± 6 %	1.50 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	****	-

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.95 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	40.1 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.31 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	21.3 W/kg ± 16.5 % (k=2)

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Appendix (Additional assessments outside the scope of SCS108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.7 Ω + 4.9]Ω	
Return Loss	- 24.5 dB	

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.9 Ω + 5.1 jΩ	
Return Loss	- 25.6 dB	

General Antenna Parameters and Design

Electrical Delay (one direction)	1.201 ns

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	
Manufactured on	May 06, 2014	

DASY5 Validation Report for Head TSL

Date: 07.12.2015

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d194

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used: f = 1900 MHz; $\sigma = 1.39$ S/m; $\epsilon_r = 40.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 SN3205; ConvF(5, 5, 5); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

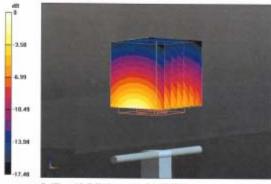
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.35 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 18.5 W/kg

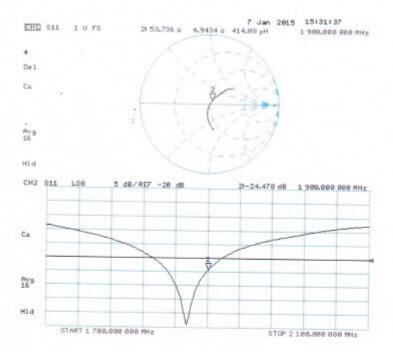
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.32 W/kg

Maximum value of SAR (measured) = 12.7 W/kg



0 dB = 12.7 W/kg = 11.04 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 07.01.2015

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d194

Communication System: UID 0 - CW; Frequency: 1900 MHz

Medium parameters used: f = 1900 MHz; $\sigma = 1.5 \text{ S/m}$; $\epsilon_r = 53.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

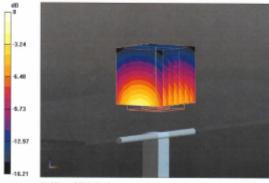
- Probe: ES3DV3 SN3205; ConvF(4.65, 4.65, 4.65); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 95.88 V/m; Power Drift = -0.00 dB Peak SAR (extrapolated) = 16.8 W/kg

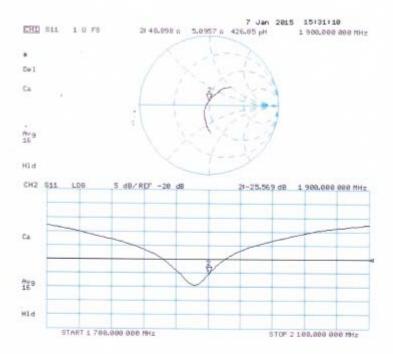
SAR(1 g) = 9.95 W/kg; SAR(10 g) = 5.31 W/kg

Maximum value of SAR (measured) = 12.6 W/kg



0 dB = 12.6 W/kg = 11.00 dBW/kg

Impedance Measurement Plot for Body TSL



6.4. D2450V2 Dipole Calibration Ceriticate

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





S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
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Accreditation No.: SCS 0108

Client

SMQ (Auden)

Certificate No: D2450V2-955_Jan15/2

CALIBRATION CERTIFICATE (Replacement of No: D2450V2-955_Jan15) D2450V2 - SN: 955 Object QA CAL-05.v9 Calibration procedure(s) Calibration procedure for dipole validation kits above 700 MHz January 08, 2015 Calibration date: This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate. All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%. Calibration Equipment used (M&TE critical for calibration) Primary Standards ID# Cal Date (Certificate No.) Scheduled Calibration Power meter EPM-442A GB37480704 07-Oct-14 (No. 217-02020) Oct-15 Power sensor HP 8481A US37292783 07-Oct-14 (No. 217-02020) Oct-15 Power sensor HP 8481A MY41092317 07-Oct-14 (No. 217-02021) Oct-15 Reference 20 dB Attenuator SN: 5058 (20k) 03-Apr-14 (No. 217-01918) Apr-15 Type-N mismatch combination SN: 5047.2 / 06327 03-Apr-14 (No. 217-01921) Reference Probe ES3DV3 SN: 3206 30-Dec-14 (No. ES3-3205_Dec14) Dec-15 SN: 601 18-Aug-14 (No. DAE4-601_Aug14) Aug-15 Secondary Standards ID# Check Date (in house) Scheduled Check RF generator R&S SMT-06 100005 04-Aug-99 (in house check Oct-13) In house check: Oct-16 Network Analyzer HP 8753E US37390585 S4206 18-Oct-01 (in house check Oct-14) In house check: Oct-15 Name Eurotion Calibrated by: Claudio Leubler Laboratory Technician Katja Pokovic Approved by: Technical Manager Issued: February 10, 2015 This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Page 91 of 102 Report No.: MWR151225107

Calibration Laboratory of Schmid & Partner

Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland





S Schweizerischer Kallbrierdienst
C Service sulsse d'étalonnage
Servizio svizzero di tarature
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 N/A sensitivity in TSL / NORM x,y,z

not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- EC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

d) DASY4/5 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 dipole is mounted with the spacer to position its feed
 point exactly below the center marking of the flat phantom section, with the arms oriented
 parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole
 positioned under the liquid filled phantom. The impedance stated is transformed from the
 measurement at the SMA connector to the feed point. The Return Loss ensures low
 reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point.
 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%.

Certificate No: D2450V2-955_Jan15/2

Measurement Conditions

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

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

**	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.7 ± 6 %	1.84 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	****	

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.2 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	52.4 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.12 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	24.4 W/kg ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

77 - 7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Messured Body TSL parameters	(22.0 ± 0.2) °C	51.0 ± 6 %	2.03 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C		

SAR result with Body TSL

SAR averaged over 1 cm2 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.8 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	53.7 W/kg ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.36 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	25.0 W/kg ± 16.5 % (k=2)

Appendix (Additional assessments outside the scope of SCS108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.8 Ω + 3.5 jΩ	
Return Loss	- 24.9 dB	

Antenna Parameters with Body TSL

Impedance, transformed to feed point	7.	51.2 Ω + 4.9 jΩ	
Return Loss		- 26.0 dB	

General Antenna Parameters and Design

Electrical Delay (one direction)	1.165 ns

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	
Manufactured on	August 05, 2014	

DASY5 Validation Report for Head TSL

Date: 08.01.2015

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 955

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: f = 2450 MHz; $\sigma = 1.84 \text{ S/m}$; $\epsilon_r = 39.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

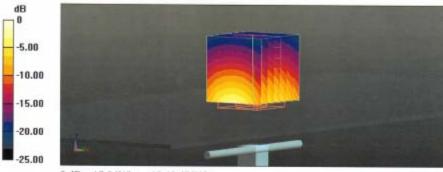
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 101.2 V/m; Power Drift = 0.03 dB

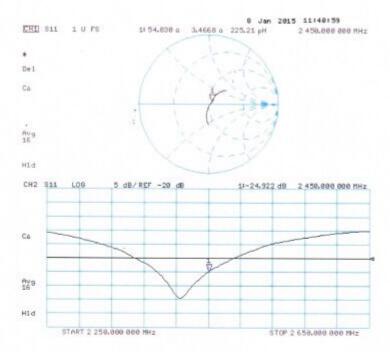
Peak SAR (extrapolated) = 27.5 W/kg

SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.12 W/kg

Maximum value of SAR (measured) = 17.5 W/kg



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 08.01.2015

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 955

Communication System: UID 0 - CW; Frequency: 2450 MHz

Medium parameters used: f = 2450 MHz; $\sigma = 2.03$ S/m; $\epsilon_r = 51$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

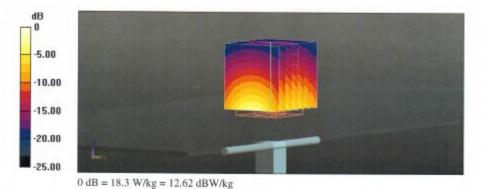
- Probe: ES3DV3 SN3205; ConvF(4.17, 4.17, 4.17); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

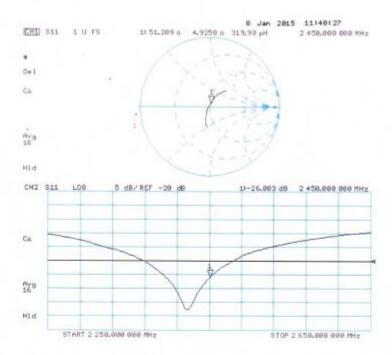
Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 97.96 V/m; Power Drift = 0.01 dB Peak SAR (extrapolated) = 28.8 W/kg

SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.36 W/kg

Maximum value of SAR (measured) = 18.3 W/kg



Impedance Measurement Plot for Body TSL



6.5. DAE4 Calibration Certificate





Report No.: MWR151225107

Add: No.51 Xueyuan Road, Haidian District, Beljing, 100191, China Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209 E-mail: ettl@chinattl.com Http://www.chinattl.com

Certificate No: Z15-97093 Auden Client : CALIBRATION CERTIFICATE Object DAE4 - SN: 905 Calibration Procedure(s) FD-Z11-2-002-01 Calibration Procedure for the Data Acquisition Electronics Calibration date: July 16, 2015 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) Scheduled Calibration Cal Date(Calibrated by, Certificate No.) ID# Primary Standards July-16 06-July-15 (CTTL, No:J15X04257) 1971018 Process Calibrator 753 Name Function Calibrated by: SAR Test Engineer Yu Zongying Reviewed by: Qi Dianyuan SAR Project Leader Approved by: Deputy Director of the laboratory Lu Bingsong Issued: July 17, 2015 This calibration certificate shall not be reproduced except in full without written approval of the laboratory

Certificate No: Z15-97093

Page 1 of 3



Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209 E-mail: ettl@chinattl.com Http://www.chinattl.cn

Glossary:

DAE data acquisition electronics

Connector angle information used in DASY system to align probe sensor X

to the robot coordinate system.

Methods Applied and Interpretation of Parameters:

- DC Voltage Measurement: Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- Connector angle: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The report provide only calibration results for DAE, it does not contain other performance test results.

Certificate No: Z15-97093

Page 2 of 3



 Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China

 Tel: +86-10-62304633-2218
 Fax: +86-10-62304633-2209

 E-mail: cttl@chinattl.com
 Http://www.chinattl.cn

DC Voltage Measurement

A/D - Converter Resolution nominal
High Range: 1LSB = 6.1 µV, full range = -100...+300 mV
Low Range: 1LSB = 61nV, full range = -1......+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	х	Y	Z
High Range	404.672 ± 0.15% (k=2)	405.235 ± 0.15% (k=2)	404.825 ± 0.15% (k=2)
Low Range	3.98116 ± 0.7% (k=2)	4.00286 ± 0.7% (k=2)	3.99735 ± 0.7% (k=2)

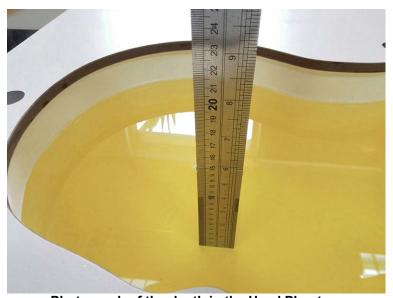
Connector Angle

Connector Angle to be used in DASY system	269° ± 1 °

Certificate No: Z15-97093 Page 3 of 3

Report No.: MWR151225107

7. <u>Liquid depth</u>



Photograph of the depth in the Head Phantom



Photograph of the depth in the Body Phantom

8. Test Setup Photos

Please refer to separated files for Test	t Setup Photos of the EUI	
	End of Report	