

# **Appendix for the Report**

## **Dosimetric Assessment of the Portable Device Datalogic Joya X1 Plus (FCC ID: U4G0156 / IC: 3862E-M0156)**

### **According to the FCC Requirements Calibration Data**

March 24, 2014

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

Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: SCS 108

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

Client **IMST**

Certificate No: **EX3-3536\_Sep12**

## CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3536**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4  
Calibration procedure for dosimetric E-field probes**

Calibration date: **September 24, 2012**

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 E4419B         | GB41293874      | 29-Mar-12 (No. 217-01508)         | Apr-13                 |
| Power sensor E4412A        | MY41498087      | 29-Mar-12 (No. 217-01508)         | Apr-13                 |
| Reference 3 dB Attenuator  | SN: S5054 (3c)  | 27-Mar-12 (No. 217-01531)         | Apr-13                 |
| Reference 20 dB Attenuator | SN: S5086 (20b) | 27-Mar-12 (No. 217-01529)         | Apr-13                 |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 27-Mar-12 (No. 217-01532)         | Apr-13                 |
| Reference Probe ES3DV2     | SN: 3013        | 29-Dec-11 (No. ES3-3013_Dec11)    | Dec-12                 |
| DAE4                       | SN: 660         | 20-Jun-12 (No. DAE4-660_Jun12)    | Jun-13                 |
| Secondary Standards        | ID              | Check Date (in house)             | Scheduled Check        |
| RF generator HP 8648C      | US3642U01700    | 4-Aug-99 (in house check Apr-11)  | In house check: Apr-13 |
| Network Analyzer HP 8753E  | US37390585      | 18-Oct-01 (in house check Oct-11) | In house check: Oct-12 |

|   | Name           | Function              | Signature |
|---|----------------|-----------------------|-----------|
| Calibrated by:  | Jeton Kastrati | Laboratory Technician |           |
| Approved by:  | Katja Pokovic  | Technical Manager     |           |
| Issued: September 24, 2012  |                |                       |           |
| This calibration certificate shall not be reproduced except in full without written approval of the laboratory. |                |                       |           |



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Accreditation No.: **SCS 108**

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### 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                  | modulation dependent linearization parameters   |
| Polarization $\varphi$   | $\varphi$ rotation around probe axis  |
| Polarization $\vartheta$ | $\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center),<br>i.e., $\vartheta = 0$ is normal to probe axis |

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

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  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  $E^2$ -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 (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<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; VR<sub>x,y,z</sub>**: 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  $f \leq 800$  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.

# Probe EX3DV4

## SN:3536

Manufactured: April 30, 2004  
Calibrated: September 24, 2012

Calibrated for DASY/EASY Systems  
(Note: non-compatible with DASY2 system!)



## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3536

### Basic Calibration Parameters

|   | Sensor X | Sensor Y | Sensor Z | Unc (k=2)     |
|---|----------|----------|----------|---------------|
| Norm ( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.43     | 0.43     | 0.36     | $\pm 10.1 \%$ |
| DCP (mV) <sup>B</sup>                                     | 98.0     | 99.0     | 100.9    |               |

### Modulation Calibration Parameters

| UID | Communication System Name | PAR  |   | A<br>dB | B<br>dB | C<br>dB | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-----|---------------------------|------|---|---------|---------|---------|----------|---------------------------|
| 0   | CW                        | 0.00 | X | 0.00    | 0.00    | 1.00    | 155.5    | $\pm 3.5 \%$              |
|     |                           |      | Y | 0.00    | 0.00    | 1.00    | 143.2    |                           |
|     |                           |      | Z | 0.00    | 0.00    | 1.00    | 133.4    |                           |

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 NormX,Y,Z do not affect the  $E^2$ -field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<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.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3536

### Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|-------|------------|-------------|
| 1950                 | 40.0                               | 1.40                            | 8.41    | 8.41    | 8.41    | 0.45  | 0.71       | ± 12.0 %    |
| 2450                 | 39.2                               | 1.80                            | 7.76    | 7.76    | 7.76    | 0.42  | 0.83       | ± 12.0 %    |
| 2600                 | 39.0                               | 1.96                            | 7.61    | 7.61    | 7.61    | 0.44  | 0.83       | ± 12.0 %    |
| 3500                 | 37.9                               | 2.91                            | 7.44    | 7.44    | 7.44    | 0.77  | 0.62       | ± 13.1 %    |
| 5200                 | 36.0                               | 4.66                            | 5.34    | 5.34    | 5.34    | 0.40  | 1.80       | ± 13.1 %    |
| 5300                 | 35.9                               | 4.76                            | 5.03    | 5.03    | 5.03    | 0.40  | 1.80       | ± 13.1 %    |
| 5600                 | 35.5                               | 5.07                            | 4.79    | 4.79    | 4.79    | 0.40  | 1.80       | ± 13.1 %    |
| 5800                 | 35.3                               | 5.27                            | 4.66    | 4.66    | 4.66    | 0.45  | 1.80       | ± 13.1 %    |

<sup>C</sup> Frequency validity 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.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

## DASY/EASY - Parameters of Probe: EX3DV4 - SN:3536

### Calibration Parameter Determined in Body Tissue Simulating Media

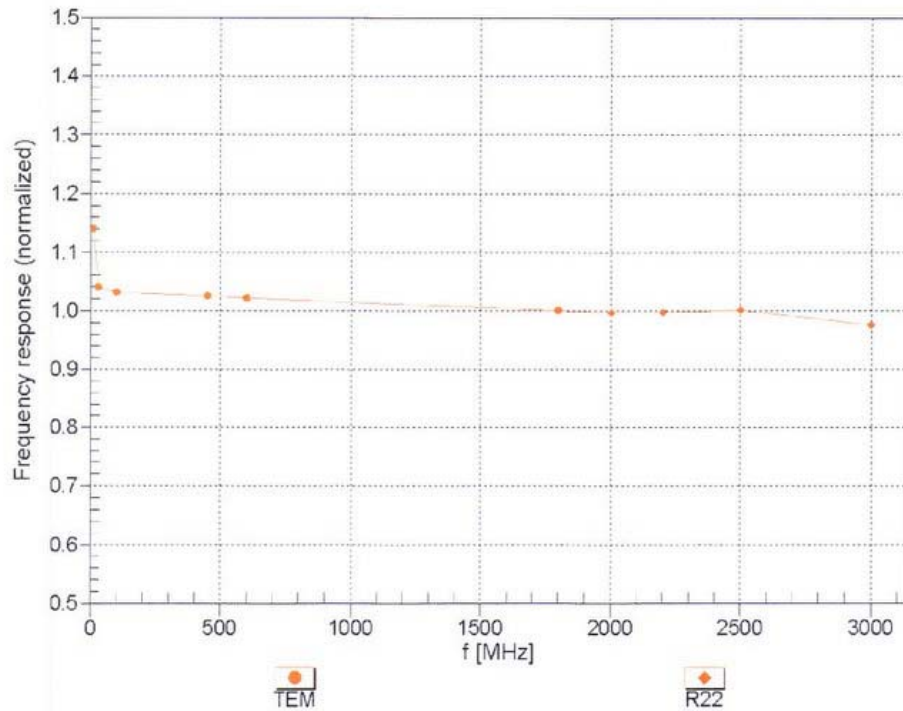
| f (MHz) <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|-------|------------|-------------|
| 1950                 | 53.3                               | 1.52                            | 8.40    | 8.40    | 8.40    | 0.33  | 1.04       | ± 12.0 %    |
| 2450                 | 52.7                               | 1.95                            | 7.55    | 7.55    | 7.55    | 0.75  | 0.62       | ± 12.0 %    |
| 2600                 | 52.5                               | 2.16                            | 7.30    | 7.30    | 7.30    | 0.80  | 0.50       | ± 12.0 %    |
| 3500                 | 51.3                               | 3.31                            | 6.79    | 6.79    | 6.79    | 0.32  | 1.29       | ± 13.1 %    |
| 5200                 | 49.0                               | 5.30                            | 4.87    | 4.87    | 4.87    | 0.45  | 1.90       | ± 13.1 %    |
| 5300                 | 48.9                               | 5.42                            | 4.59    | 4.59    | 4.59    | 0.45  | 1.90       | ± 13.1 %    |
| 5600                 | 48.5                               | 5.77                            | 4.32    | 4.32    | 4.32    | 0.45  | 1.90       | ± 13.1 %    |
| 5800                 | 48.2                               | 6.00                            | 4.43    | 4.43    | 4.43    | 0.55  | 1.90       | ± 13.1 %    |

<sup>C</sup> Frequency validity 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.

<sup>F</sup> At frequencies below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

## Frequency Response of E-Field

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

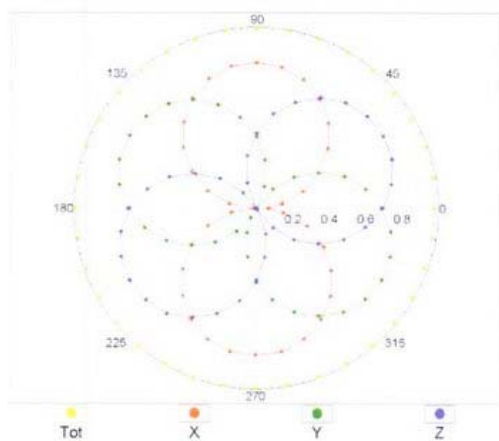


Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

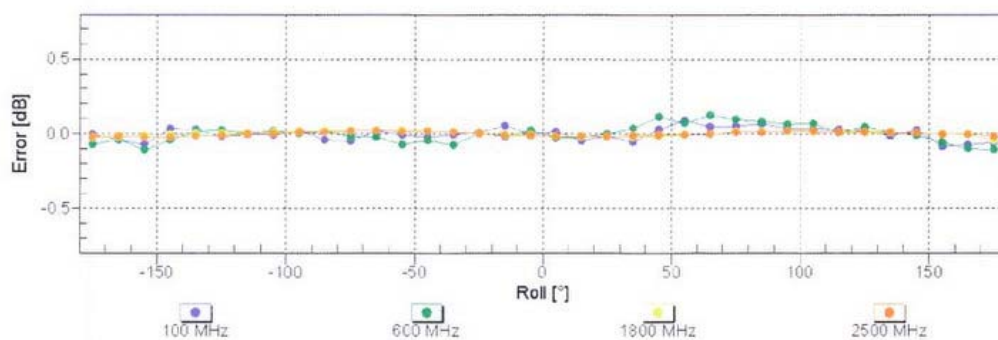
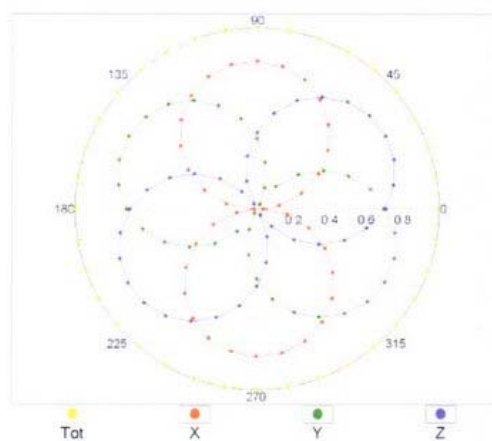


## Receiving Pattern ( $\phi$ ), $\vartheta = 0^\circ$

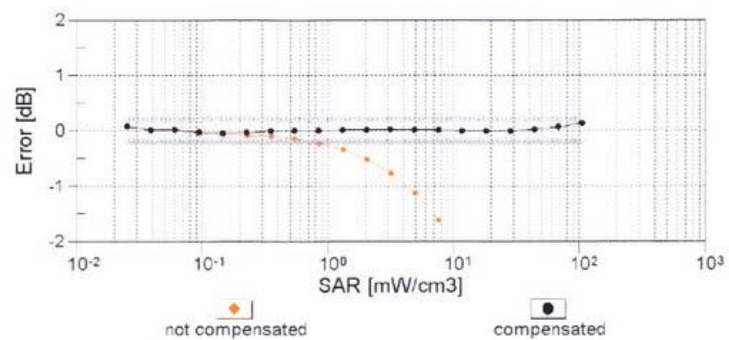
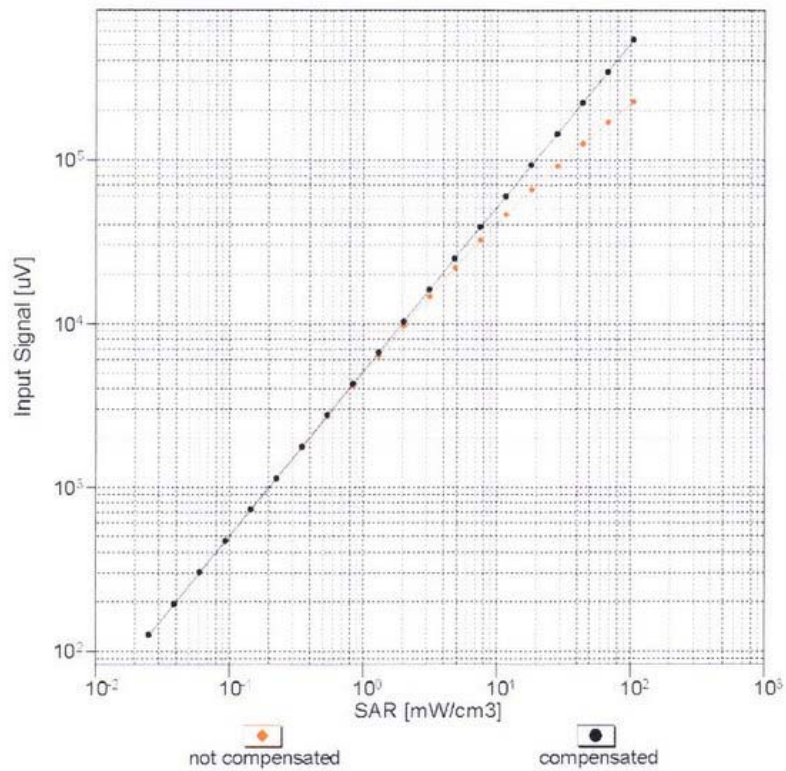
f=600 MHz,TEM



f=1800 MHz,R22

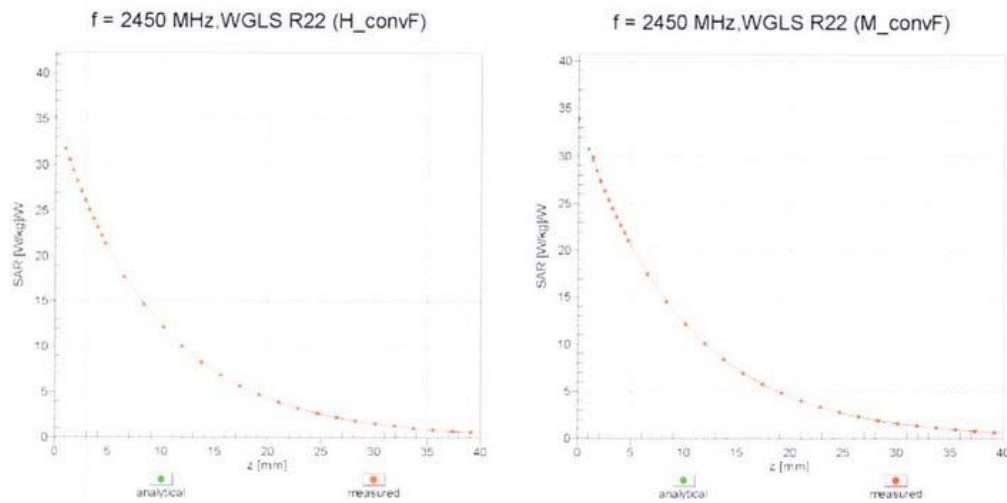
**Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )**

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



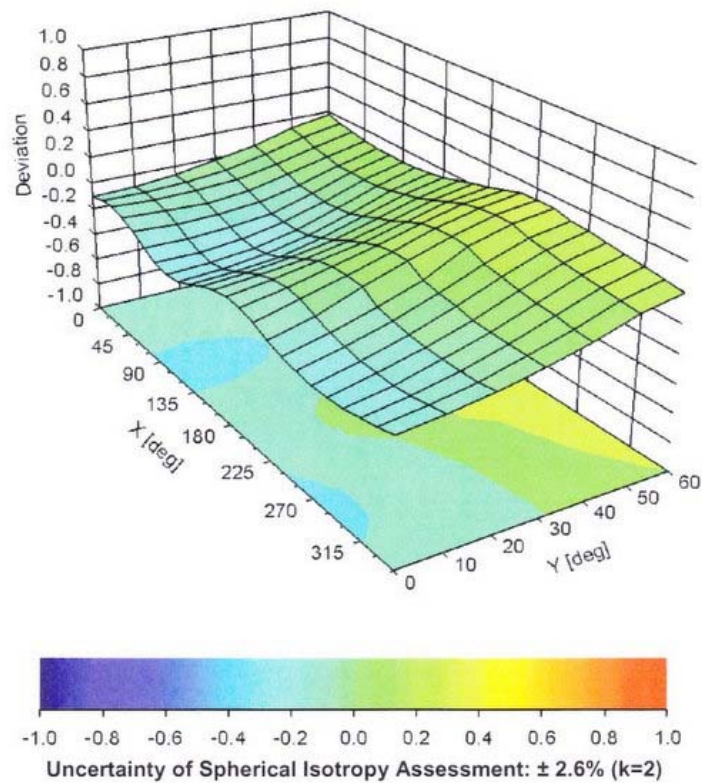
Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

## Conversion Factor Assessment



## Deviation from Isotropy in Liquid

Error ( $\phi, \theta$ ),  $f = 900 \text{ MHz}$



**DASY/EASY - Parameters of Probe: EX3DV4 - SN:3536****Other Probe Parameters**

|   |            |
|---|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle (°)                           | 175.1      |
| 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 | 2 mm       |

The Testcenter facility 'Dosimetric Test Lab' within IMST GmbH is accredited by the German National 'Deutsche Akkreditierungsstelle GmbH (DAkkS)' for testing according to the scope as listed in the accreditation certificate: D-PL-12139-01-01.

## Calibration Certificate

Certificate No: Cal\_D2450V2\_SN709\_1211  
Object: D2450V2 SN: 709  
Date of Calibration: December 30, 2011  
Next Calibration: December 2013  
Object Condition: In Tolerance

### Calibration Equipment used:

| Test Equipment          | Serial Number | Last calibration | Calibrated by                                     | Next calibration |
|-------------------------|---------------|------------------|---|------------------|
| Powermeter E4416A       | GB41050414    | Nov 10           | Rohde&Schwarz<br>(200954-D-K-15012-01-00-2010-11) | Nov 12           |
| Power Sensor E9301H     | US40010212    | Nov 10           | Rohde&Schwarz<br>(200944-D-K-15012-01-00-2010-11) | Nov 12           |
| Powermeter E4417A       | GB41050441    | Nov 10           | Rohde&Schwarz<br>(200952-D-K-15012-01-00-2010-11) | Nov 12           |
| Power Sensor E9301A     | MY41495584    | Nov 10           | Rohde&Schwarz<br>(200953-D-K-15012-01-00-2010-11) | Nov 12           |
| Network Analyzer E5071C | MY46103220    | Aug 11           | Rohde& Schwarz<br>(14967-DKD-00201-2009-08)       | Aug 13           |
| Reference Probe EX3DV4  | SN 3536       | Sep 11           | SPEAG, No EX-3-3536_Sep11                         | Sep 12           |
| DAE4                    | SN 631        | Sep 11           | SPEAG, No DAE4-631_Sep11                          | Sep 12           |



**Calibration is performed according the following standards:**

**IEEE 1528-2003**

"IEEE Recommended Practice for Determining the Peak Spatial - Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communication Devices: Measurement Technique", December 2003

**EN 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 3GHz)", March 2007

**Federal Communications Commission Office of Engineering & Technologies (FCCOET)**

"Evaluating Compliance wit FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

**Additional Documentation:** DASY 4 System Handbook

prepared by:



Alexander Rahn  
test engineer

reviewed by:



André van den Bosch  
quality assurance engineer

| Measurement Conditions        |                     |             |
|-------------------------------|---------------------|-------------|
| DASY Version:                 | Dasy 4;             | V4.7        |
| Phantom:                      | SAM Phantom         | 1340        |
| Distance Dipole Center – TSL: | 10mm                | With spacer |
| Zoom Scan res.                | dx, dy, dz = 5mm    |             |
| Frequency:                    | 2450 MHz $\pm$ 1MHz |             |

| Head TSL Parameters          |             |                |                   |
|------------------------------|-------------|----------------|-------------------|
|                              | Temperature | Permittivity   | Conductivity      |
| Nominal Head TSL Parameters  | 22.0        | 39.20          | 1.80              |
| Measured Head TSL Parameters | 21.6        | 39.90 $\pm$ 6% | 1.84 S/m $\pm$ 6% |

| SAR Result with Head TSL |                                     |                   |   |
|--------------------------|-------------------------------------|-------------------|---|
| Averaged over<br>1g      | SAR measured                        | 250mW input power | 13.90 mW/g  |
|                          | SAR normalized                      | normalized to 1W  | 55.60 mW/g  |
|                          | SAR for nominal Head TSL parameters | normalized to 1W  | <b>55.23 mW/g <math>\pm</math> 16.5 %<br/>(k=2)</b> |
| Averaged over<br>10g     | SAR measured                        | 250mW input power | 6.26 mW/g   |
|                          | SAR normalized                      | normalized to 1W  | 25.04 mW/g  |
|                          | SAR for nominal Head TSL parameters | normalized to 1W  | <b>24.97 mW/g <math>\pm</math> 16.5 %<br/>(k=2)</b> |

| Body TSL Parameters          |             |              |               |
|------------------------------|-------------|--------------|---------------|
|                              | Temperature | Permittivity | Conductivity  |
| Nominal Body TSL Parameters  | 22.0        | 52.70        | 1.95          |
| Measured Body TSL Parameters | 21.5        | 51.20 ± 6%   | 2.00 S/m ± 6% |

| SAR Result with Body TSL |                                     |                   |                                      |
|--------------------------|-------------------------------------|-------------------|--------------------------------------|
| Averaged over<br>1g      | SAR measured                        | 250mW input power | 13.70 mW/g                           |
|                          | SAR normalized                      | normalized to 1W  | 54.80 mW/g                           |
|                          | SAR for nominal Body TSL parameters | normalized to 1W  | <b>53.77 mW/g ± 16.5 %<br/>(k=2)</b> |
| Averaged over<br>10g     | SAR measured                        | 250mW input power | 6.15 mW/g                            |
|                          | SAR normalized                      | normalized to 1W  | 24.60 mW/g                           |
|                          | SAR for nominal Body TSL parameters | normalized to 1W  | <b>24.33 mW/g ± 16.5 %<br/>(k=2)</b> |

| General Antenna Parameters   |                                      |                    |
|--|--------------------------------------|--------------------|
| Antenna Parameters with Head TSL   | Impedance, transformed to feed point | 48.64 jΩ - 2.97 jΩ |
|  | Return Loss                          | -29.60 dB          |
| Antenna Parameter with Body TSL  | Impedance, transformed to feed point | 48.98 jΩ - 1.17 jΩ |
|  | Return Loss                          | -36.09 dB          |
| 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. |                                      |                    |

| Additional EUT Data |              |
|---------------------|--------------|
| Manufactured by:    | SPEAG        |
| Manufactured on:    | July 5, 2002 |

**SAR Result with Head TSL**

**Test Laboratory:** Imst GmbH, DASY Yellow (II); **File Name:** [29122011\\_y\\_3536.da4](#)

**DUT:** Dipole 2450 MHz SN: 709; **Type:** D2450V2; **Serial:** D2450V2 - SN:709

**Program Name:** System Performance Check at 2450 MHz

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.84$  mho/m;  $\epsilon_r = 39.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.45, 7.45, 7.45); Calibrated: 26.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 21.09.2011
- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**d=10mm, Pin=250mW/Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

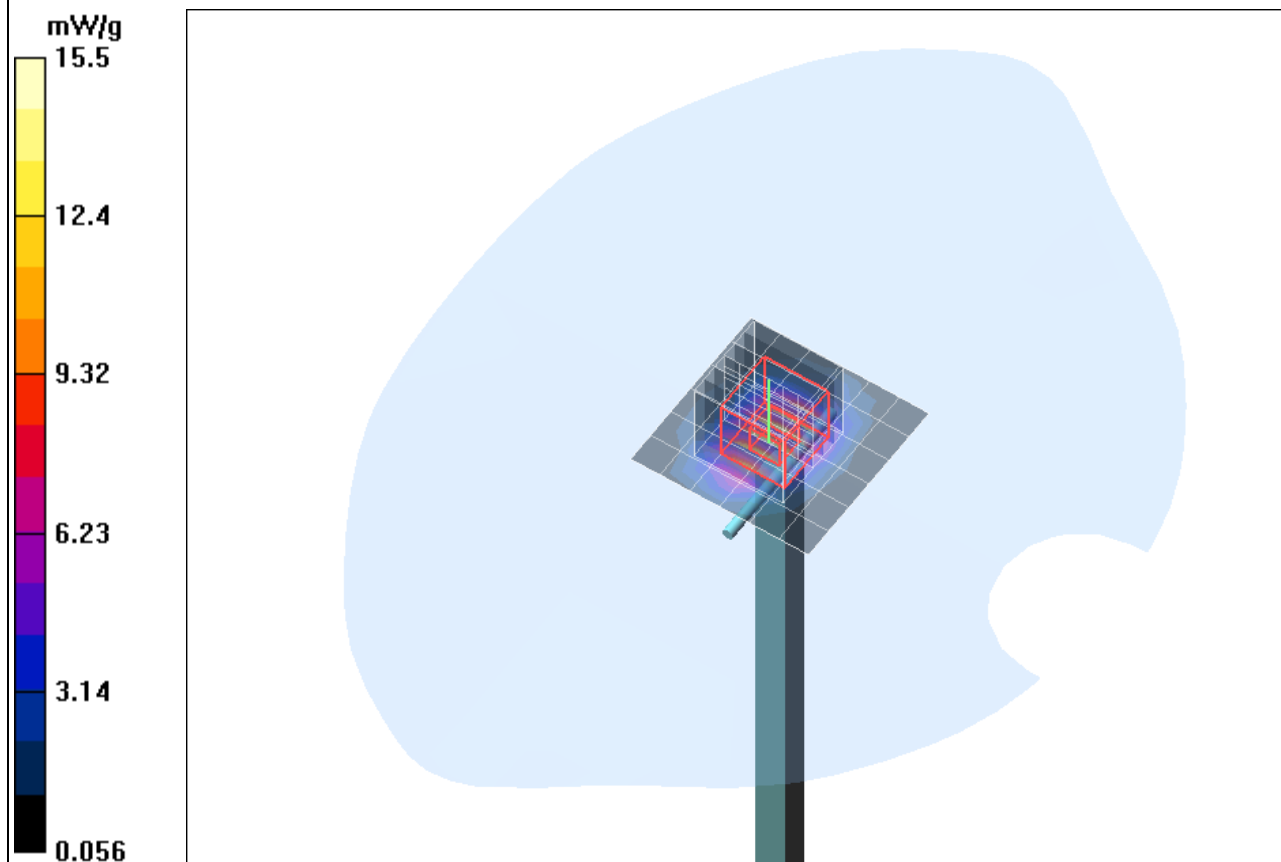
Maximum value of SAR (measured) = 15.5 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.7 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 31.5 W/kg

**SAR(1 g) = 13.9 mW/g; SAR(10 g) = 6.26 mW/g**



**SAR Result with Body TSL**

**Test Laboratory:** Imst GmbH, DASY Yellow (II); **File Name:** [301211\\_y\\_3536\\_2450.da4](#)

**DUT:** Dipole 2450 MHz SN: 709; **Type:** D2450V2; **Serial:** D2450V2 - SN:709  
**Program Name:** System Performance Check at 2450 MHz

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2$  mho/m;  $\epsilon_r = 51.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

**DASY4 Configuration:**

- Probe: EX3DV4 - SN3536; ConvF(7.42, 7.42, 7.42); Calibrated: 26.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 21.09.2011
- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**d=10mm, Pin=250mW/Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 15.5 mW/g

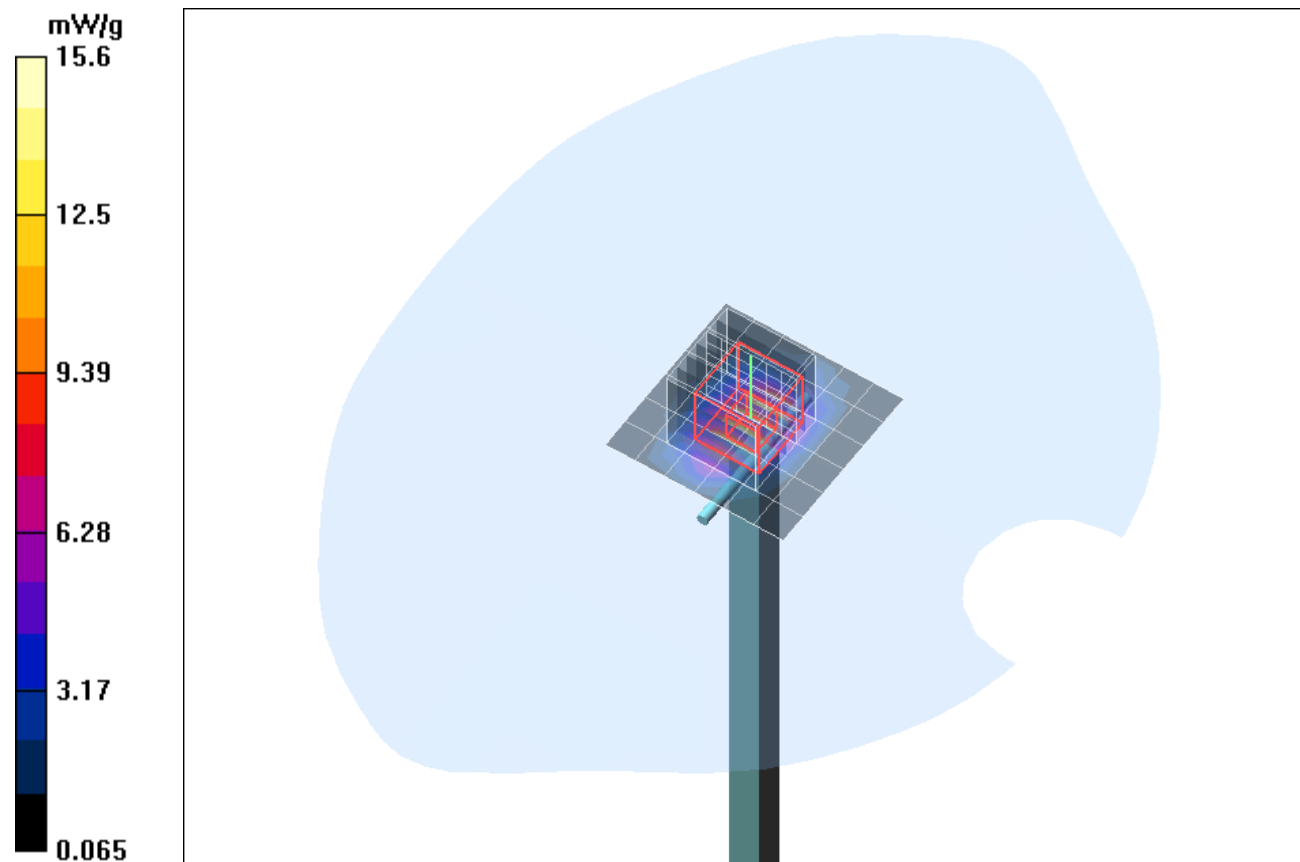
**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.7 V/m; Power Drift = -0.036 dB

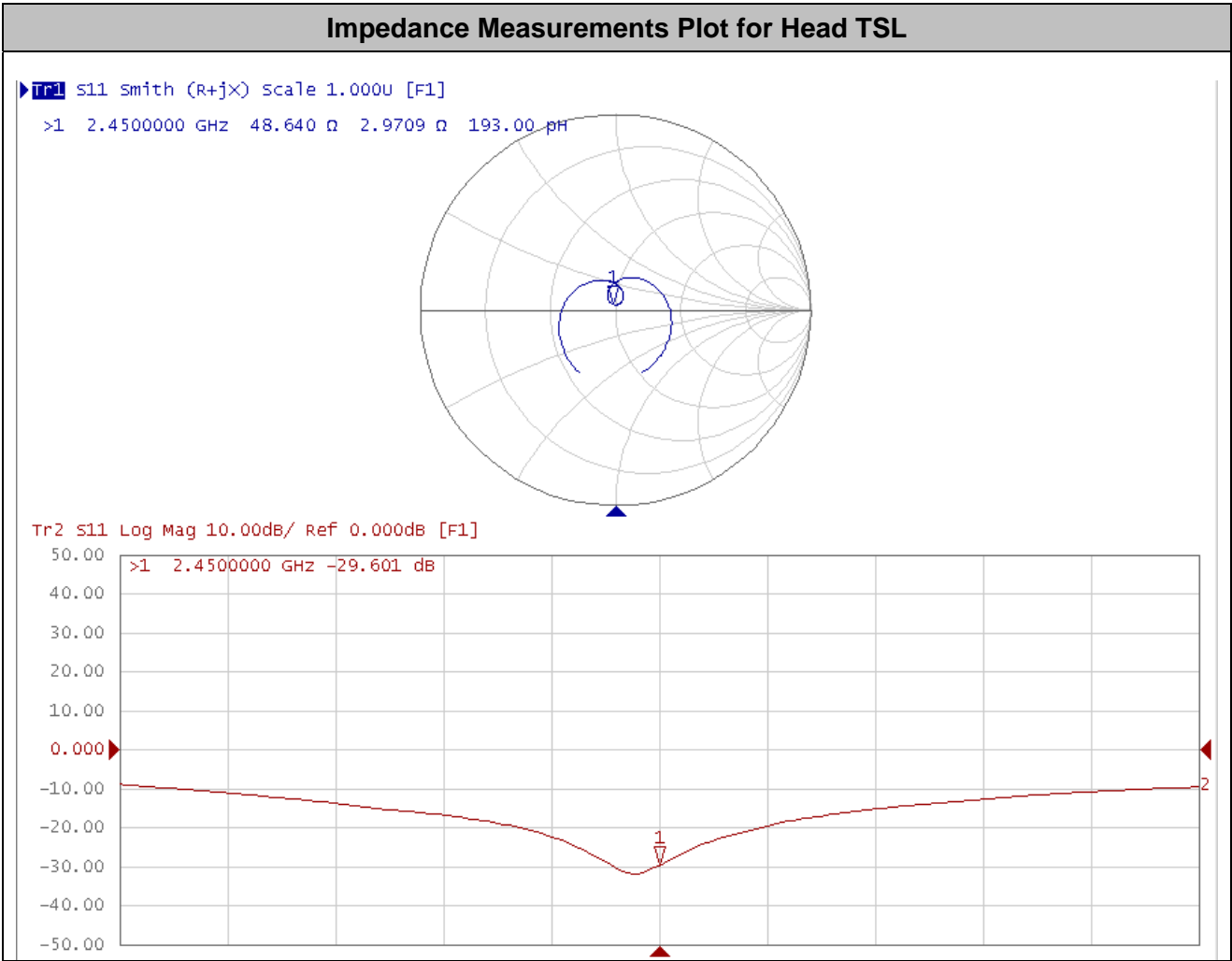
Peak SAR (extrapolated) = 30.2 W/kg

**SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.15 mW/g**

Maximum value of SAR (measured) = 15.6 mW/g



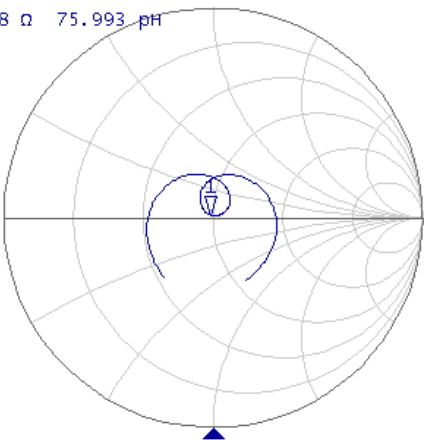




Impedance Measurements Plot for Body TSL

Tr1 S11 Smith (R+jX) scale 1.000U [F1]

>1 2.4500000 GHz 48.978  $\Omega$  1.1698  $\Omega$  75.993  $\mu\text{H}$



Tr2 S11 Log Mag 10.00dB/ Ref 0.000dB [F1]

>1 2.4500000 GHz -36.086 dB

