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-12139-01-00.

# Appendix for the SAR Test Report

# Dosimetric Assessment of the Portable Device K-SHH14 from Panasonic

**(FCC ID: ACJ9TAK-SHH14)**
**(IC: 216A-KSHH14)**

# According to the FCC Requirements Calibration Data

December 01, 2014

**IMST GmbH**
Carl-Friedrich-Gauß-Str. 2 - 4
47475 Kamp-Lintfort
Germany

**Customer**
Panasonic System Networks Co., Ltd.
1 - 62, 4 - chome Minoshima, Hakata,
Fukuoka 812-8531
Japan

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

**S** Schweizerischer Kalibrierdienst
**C** Service suisse d'étalonnage
**S** Servizio svizzero di taratura
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 108**

**Client** **IMST**

**Certificate No: ET3-1579_Jan14**

# CALIBRATION CERTIFICATE

| | |
|---|---|
| Object | ET3DV6R - SN:1579 |
| Calibration procedure(s) | QA CAL-01.v9, QA CAL-12.v9, QA CAL-23.v5, QA CAL-25.v6<br>Calibration procedure for dosimetric E-field probes |
| Calibration date: | January 28, 2014 |

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 E4419B | GB41293874 | 04-Apr-13 (No. 217-01733) | Apr-14 |
| Power sensor E4412A | MY41498087 | 04-Apr-13 (No. 217-01733) | Apr-14 |
| Reference 3 dB Attenuator | SN: S5054 (3c) | 04-Apr-13 (No. 217-01737) | Apr-14 |
| Reference 20 dB Attenuator | SN: S5277 (20x) | 04-Apr-13 (No. 217-01735) | Apr-14 |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 04-Apr-13 (No. 217-01738) | Apr-14 |
| Reference Probe ES3DV2 | SN: 3013 | 30-Dec-13 (No. ES3-3013_Dec13) | Dec-14 |
| DAE4 | SN: 660 | 13-Dec-13 (No. DAE4-660_Dec13) | Dec-14 |
| | | | |
| Secondary Standards | ID | Check Date (in house) | Scheduled Check |
| RF generator HP 8648C | US3642U01700 | 4-Aug-99 (in house check Apr-13) | In house check: Apr-16 |
| Network Analyzer HP 8753E | US37390585 | 18-Oct-01 (in house check Oct-13) | In house check: Oct-14 |

| | Name | Function | Signature |
|---|---|---|---|
| Calibrated by: | Jeton Kastrati | Laboratory Technician | |
| Approved by: | Katja Pokovic | Technical Manager | |

Issued: January 28, 2014

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

## Glossary:

| | |
|---|---|
| TSL | tissue simulating liquid |
| NORMx,y,z | sensitivity in free space |
| ConvF | sensitivity in TSL / NORMx,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 $\varphi$ | $\varphi$ rotation around probe axis |
| Polarization $\vartheta$ | $\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ 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:

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

## Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the $E^2$-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,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*.
- *DCPx,y,z:* 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
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: 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 *NORMx,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 ± 50 MHz to ± 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 *NORMx* (no uncertainty required).

# Probe ET3DV6R

## SN:1579

Manufactured: May 7, 2001
Calibrated: January 28, 2014

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

# DASY/EASY - Parameters of Probe: ET3DV6R - SN:1579

## Basic Calibration Parameters

| | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|---|---|---|---|---|
| Norm ($\mu V/(V/m)^2$)[A] | 1.87 | 1.86 | 1.61 | ± 10.1 % |
| DCP (mV)[B] | 97.2 | 96.6 | 98.6 | |

## Modulation Calibration Parameters

| UID | Communication System Name | | A dB | B dB$\sqrt{\mu V}$ | C | D dB | VR mV | Unc[E] (k=2) |
|---|---|---|---|---|---|---|---|---|
| 0 | CW | X | 0.0 | 0.0 | 1.0 | 0.00 | 151.3 | ±1.4 % |
| | | Y | 0.0 | 0.0 | 1.0 | | 191.4 | |
| | | Z | 0.0 | 0.0 | 1.0 | | 188.4 | |

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%.

[A] The uncertainties of NormX,Y,Z do not affect the $E^2$-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] 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: ET3DV6R - SN:1579

## Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) [C] | Relative Permittivity [F] | Conductivity (S/m) [F] | ConvF X | ConvF Y | ConvF Z | Alpha [G] | Depth [G] (mm) | Unct. (k=2) |
|---|---|---|---|---|---|---|---|---|
| 450 | 43.5 | 0.87 | 7.33 | 7.33 | 7.33 | 0.25 | 2.76 | ± 13.3 % |
| 750 | 41.9 | 0.89 | 6.89 | 6.89 | 6.89 | 0.27 | 3.00 | ± 12.0 % |
| 900 | 41.5 | 0.97 | 6.42 | 6.42 | 6.42 | 0.30 | 3.00 | ± 12.0 % |
| 1750 | 40.1 | 1.37 | 5.43 | 5.43 | 5.43 | 0.80 | 1.93 | ± 12.0 % |
| 1900 | 40.0 | 1.40 | 5.19 | 5.19 | 5.19 | 0.80 | 2.04 | ± 12.0 % |
| 1950 | 40.0 | 1.40 | 5.00 | 5.00 | 5.00 | 0.80 | 2.03 | ± 12.0 % |

[C] 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.
[F] At frequencies below 3 GHz, the validity of tissue parameters ($\varepsilon$ 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 ($\varepsilon$ and $\sigma$) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] 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.

# DASY/EASY - Parameters of Probe: ET3DV6R - SN:1579

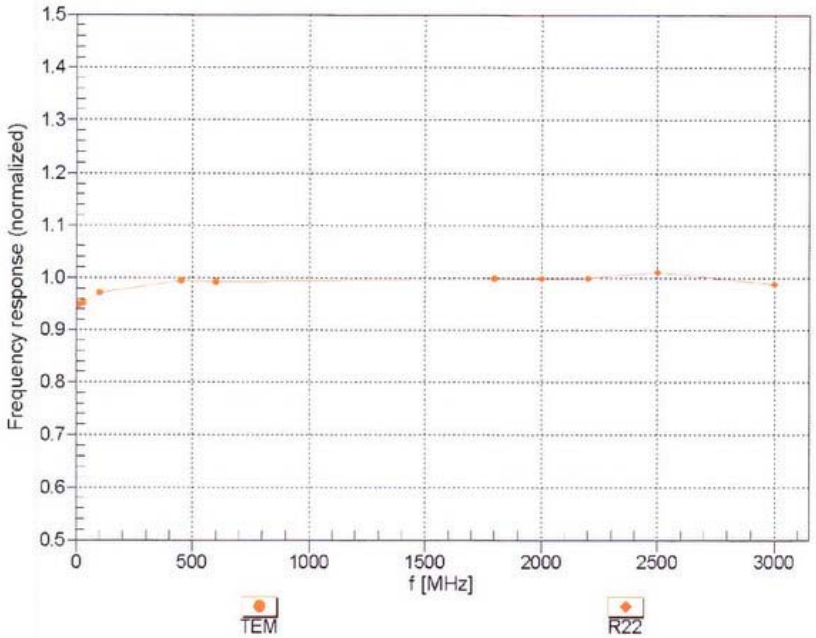
## Calibration Parameter Determined in Body Tissue Simulating Media

| f (MHz) [C] | Relative Permittivity [F] | Conductivity (S/m) [F] | ConvF X | ConvF Y | ConvF Z | Alpha [G] | Depth [G] (mm) | Unct. (k=2) |
|---|---|---|---|---|---|---|---|---|
| 450 | 56.7 | 0.94 | 7.58 | 7.58 | 7.58 | 0.19 | 2.19 | ± 13.3 % |
| 750 | 55.5 | 0.96 | 6.46 | 6.46 | 6.46 | 0.28 | 2.87 | ± 12.0 % |
| 900 | 55.0 | 1.05 | 6.25 | 6.25 | 6.25 | 0.30 | 3.00 | ± 12.0 % |
| 1750 | 53.4 | 1.49 | 4.75 | 4.75 | 4.75 | 0.80 | 2.44 | ± 12.0 % |
| 1900 | 53.3 | 1.52 | 4.49 | 4.49 | 4.49 | 0.80 | 2.40 | ± 12.0 % |
| 1950 | 53.3 | 1.52 | 4.57 | 4.57 | 4.57 | 0.80 | 2.38 | ± 12.0 % |

[C] 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.
[F] At frequencies below 3 GHz, the validity of tissue parameters ($\varepsilon$ 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 ($\varepsilon$ and $\sigma$) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] 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.

# Frequency Response of E-Field

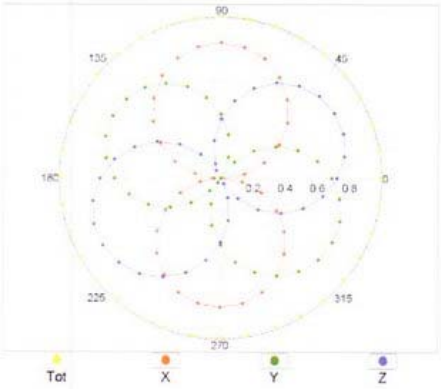
**(TEM-Cell:ifi110 EXX, Waveguide: R22)**



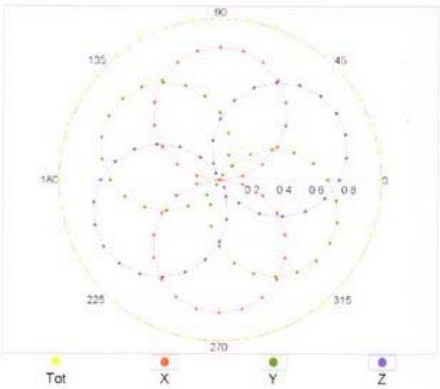

**Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)**

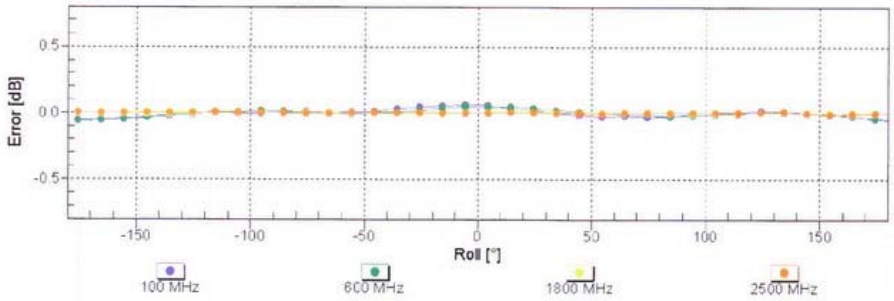
# Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



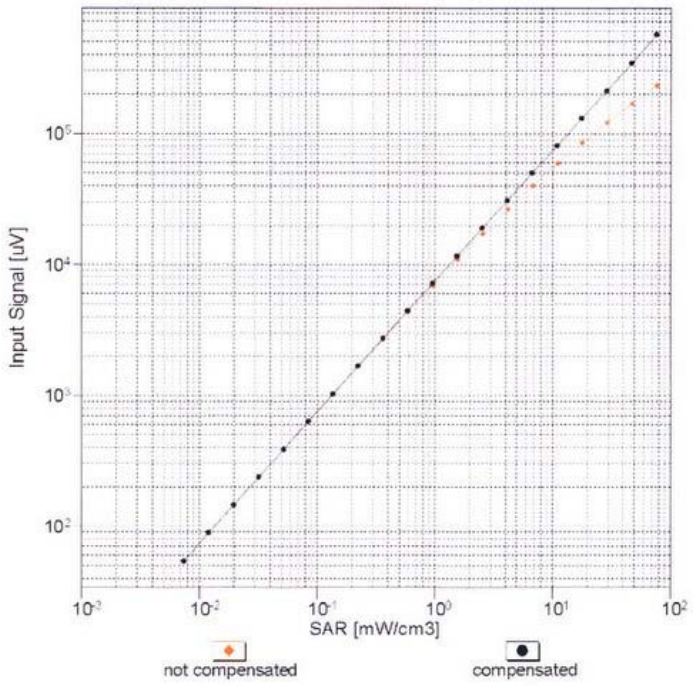

f=1800 MHz,R22

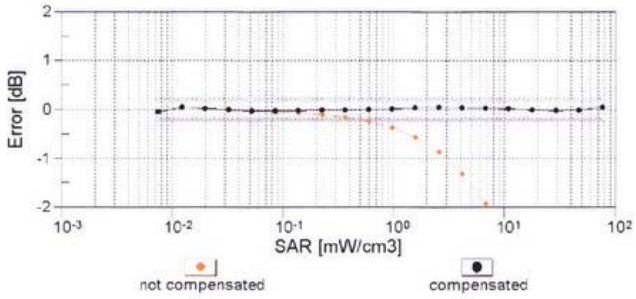



**Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)**

# Dynamic Range f($SAR_{head}$)
**(TEM cell , f = 900 MHz)**

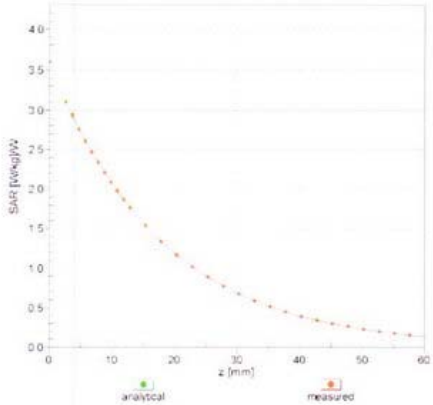


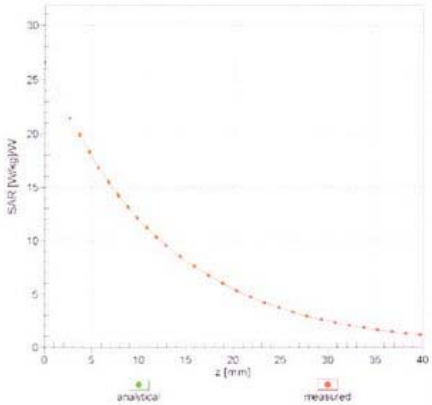

**Uncertainty of Linearity Assessment: ± 0.6% (k=2)**

# Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

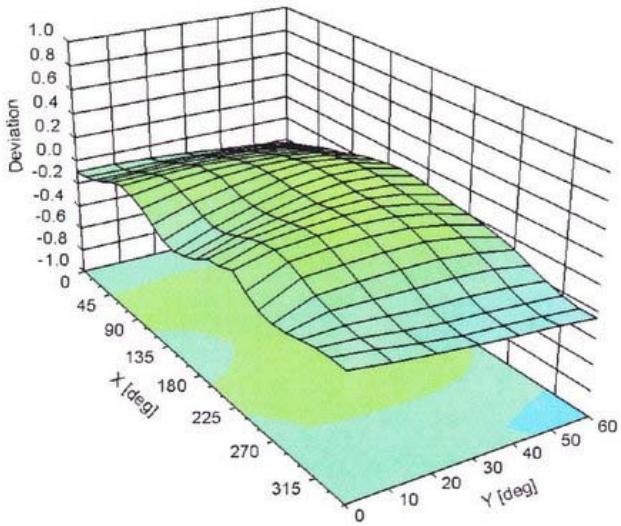


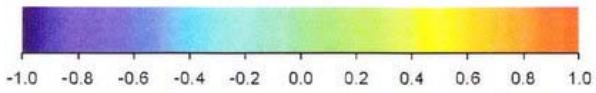

f = 1750 MHz,WGLS R22 (H_convF)




# Deviation from Isotropy in Liquid

**Error (ϕ, ϑ), f = 900 MHz**




**Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)**

# DASY/EASY - Parameters of Probe: ET3DV6R - SN:1579

## Other Probe Parameters

| | |
|---|---|
| Sensor Arrangement | Triangular |
| Connector Angle (°) | -105.6 |
| Mechanical Surface Detection Mode | enabled |
| Optical Surface Detection Mode | disabled |
| Probe Overall Length | 337 mm |
| Probe Body Diameter | 10 mm |
| Tip Length | 10 mm |
| Tip Diameter | 6.8 mm |
| Probe Tip to Sensor X Calibration Point | 2.7 mm |
| Probe Tip to Sensor Y Calibration Point | 2.7 mm |
| Probe Tip to Sensor Z Calibration Point | 2.7 mm |
| Recommended Measurement Distance from Surface | 4 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_D1900V2_SN5d051_Sep2013_V2 |
| Object: | D1900V2 SN: 5d051 |
| Date of Calibration: | September 25, 2013 |
| Next Calibration: | September 2015 |
| Object Condition: | In Tolerance |

**Calibration Equipment used:**

| Test Equipment | Serial Number | Last calibration | Calibrated by | Next calibration |
|---|---|---|---|---|
| Powermeter E4416A | GB41050414 | Nov 12 | Rohde&Schwarz (262487-D-K-15012-01-00-2012-11) | Nov 14 |
| Power Sensor E9301H | US40010212 | Nov 12 | Rohde&Schwarz (262492-D-K-15012-01-00-2012-11) | Nov 14 |
| Powermeter E4417A | GB41050441 | Nov 12 | Rohde&Schwarz (262488-D-K-15012-01-00-2012-11) | Nov 14 |
| Power Sensor E9301A | MY41495584 | Nov 12 | Rohde&Schwarz (262489-D-K-15012-01-00-2012-11) | Nov 14 |
| Network Analyzer E5071C | MY46103220 | Jul 13 | Rohde&Schwarz (11-300285997) | Jul 15 |
| Reference Probe EX3DV4 | SN 3536 | Sep 12 | SPEAG (EX3-3536_Sep12) | Sep 13 |
| DAE3 | SN 335 | Feb 13 | SPEAG (DAE3-335_Feb13) | Feb 14 |

| |
|---|
| **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 |
| **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 3GHz)", February 2005 |
| **IEC 62209-2** |
| "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures ", Part 2: “Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters” Edition 1.0, 2010-01 |
| |
| **Additional Documentation:** DASY 4/5 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 | 1059 |
| Distance Dipole Center – TSL: | 10mm | With spacer |
| Area Scan resolution | dx, dy = 10mm | |
| Zoom Scan resolution | dx, dy, dz = 5mm | |
| Frequency: | 1900 MHz ± 1MHz | |

| Head TSL Parameters | | | |
|---|---|---|---|
| | **Temperature** | **Permittivity** | **Conductivity** |
| Nominal Head TSL Parameters | 22.0 | 40.00 | 1.40 |
| Measured Head TSL Parameters | 21.8 | 41.4 ± 6% | 1.43 S/m ± 6% |

| SAR Result with Head TSL | | | |
|---|---|---|---|
| Averaged over 1g | SAR measured | 250 mW input power | 9.80 mW/g |
| | SAR normalized | normalized to 1W | 39.20 mW/g |
| | SAR for nominal Head TSL parameters | normalized to 1W | **39.01 mW/g ± 16.5 % (k=2)** |
| Averaged over 10g | SAR measured | 250 mW input power | 4.93 mW/g |
| | SAR normalized | normalized to 1W | 19.72 mW/g |
| | SAR for nominal Head TSL parameters | normalized to 1W | **19.66 mW/g ± 16.5 % (k=2)** |

| Body TSL Parameters | | | |
|---|---|---|---|
| | **Temperature** | **Permittivity** | **Conductivity** |
| Nominal Body TSL Parameters | 22.0 | 53.30 | 1.52 |
| Measured Body TSL Parameters | 21.7 | 55.00 ± 6% | 1.51 S/m ± 6% |

| SAR Result with Body TSL | | | |
|---|---|---|---|
| Averaged over 1g | SAR measured | 250 mW input power | 9.53 mW/g |
| | SAR normalized | normalized to 1W | 38.12 mW/g |
| | SAR for nominal Body TSL parameters | normalized to 1W | **38.54 mW/g ± 16.5 % (k=2)** |
| Averaged over 10g | SAR measured | 250 mW input power | 4.85 mW/g |
| | SAR normalized | normalized to 1W | 19.40 mW/g |
| | SAR for nominal Body TSL parameters | normalized to 1W | **19.54 mW/g ± 16.5 % (k=2)** |

| General Antenna Parameters | | |
|---|---|---|
| Antenna Parameters with Head TSL | Impedance, transformed to feed point | 47.6 Ω + 0.21 jΩ |
| | Return Loss | -32.05 dB |
| Antenna Parameter with Body TSL | Impedance, transformed to feed point | 52.4 Ω – 0.83 jΩ |
| | Return Loss | -32.06 dB |
| After long term use with 100W radiated power, only a slight warming of the dipole near the feed point can be measured. The dipole is made of standard semigrid 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: | May, 2004 |

## SAR Result with Head TSL

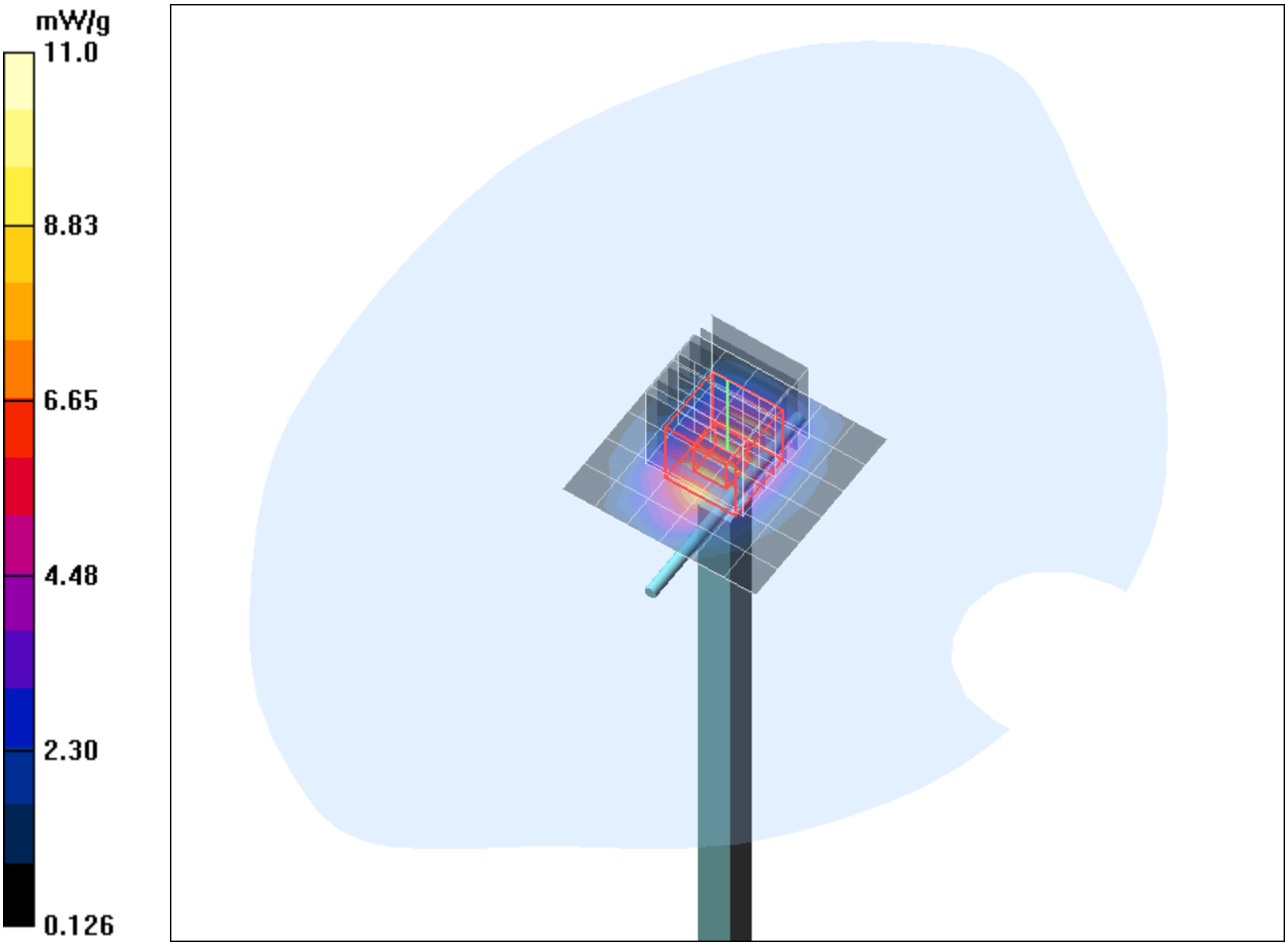
**Test Laboratory: IMST GmbH, DASY Blue (I); File Name: 250913_b_3536.da4**

**DUT: Dipole 1900 MHz SN: 5d051; Type: D1900V2; Serial: D1900V2 - SN5d051**
**Program Name: System Performance Check at 1900 MHz**

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; $\sigma$ = 1.43 mho/m; $\varepsilon_r$ = 41.4; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3536; ConvF(8.41, 8.41, 8.41); Calibrated: 24.09.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 18.02.2013
- 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) = 10.8 mW/g
**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.1 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 19.2 W/kg
**SAR(1 g) = 9.8 mW/g; SAR(10 g) = 4.93 mW/g**
Maximum value of SAR (measured) = 11.0 mW/g



## SAR Result with Body TSL

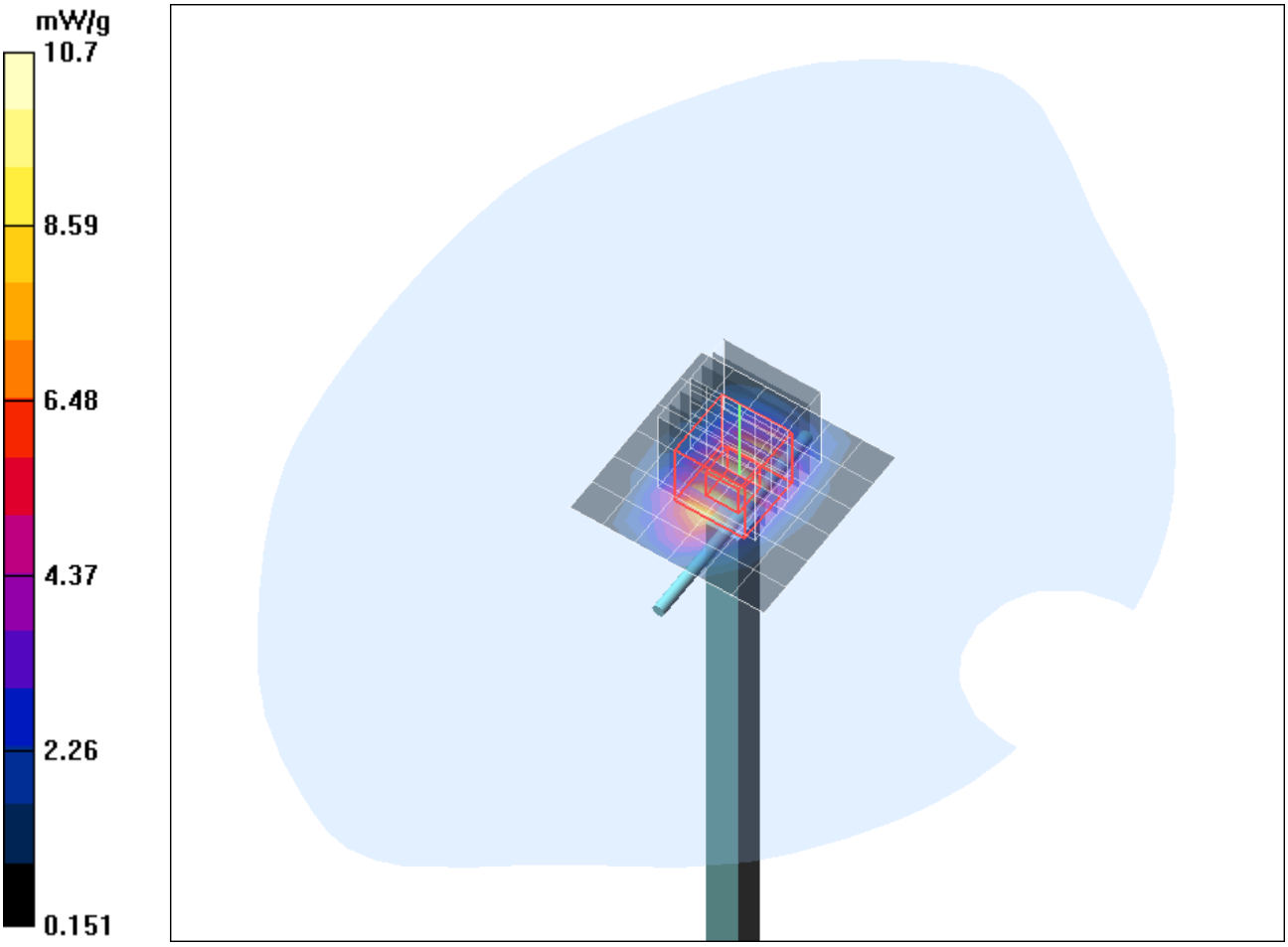
**Test Laboratory: IMST GmbH, DASY Blue (I); File Name: 250913_b_3536.da4**

**DUT: Dipole 1900 MHz SN: 5d051; Type: D1900V2; Serial: D1900V2 - SN5d051**
**Program Name: System Performance Check at 1900 MHz**

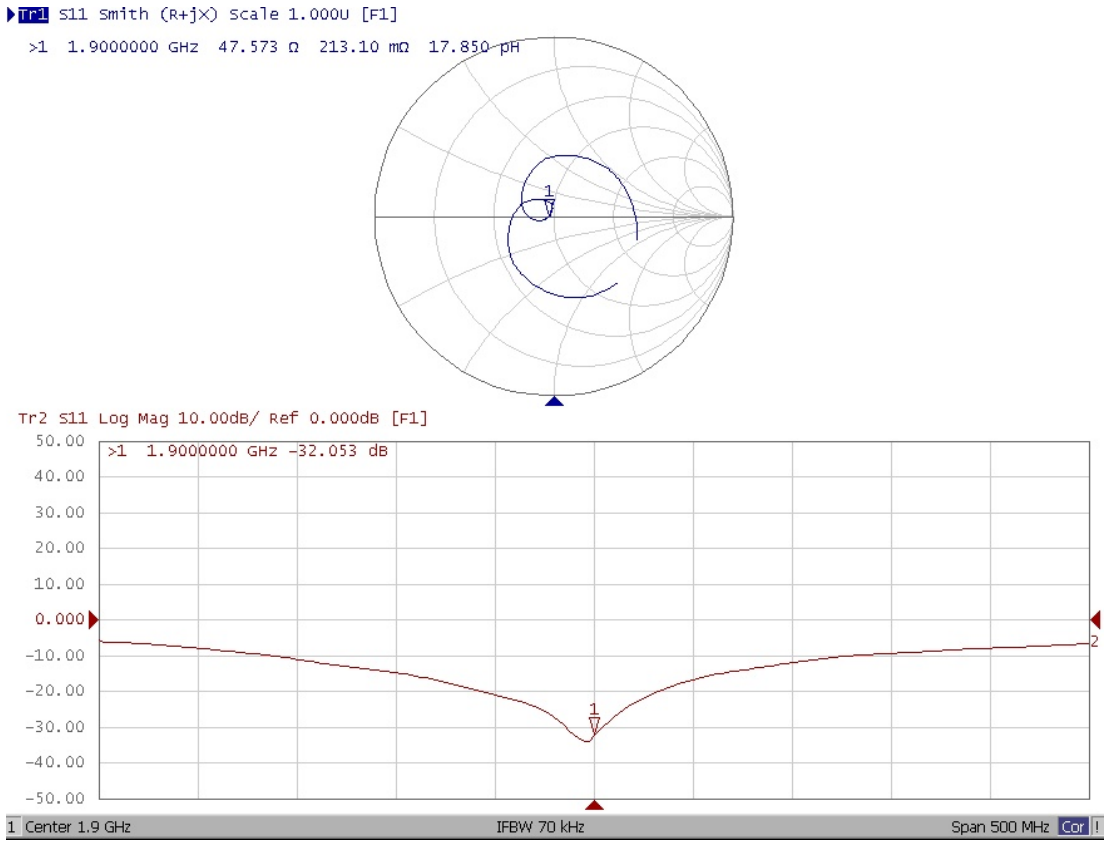
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; $\sigma$ = 1.51 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3536; ConvF(8.4, 8.4, 8.4); Calibrated: 24.09.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 18.02.2013
- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

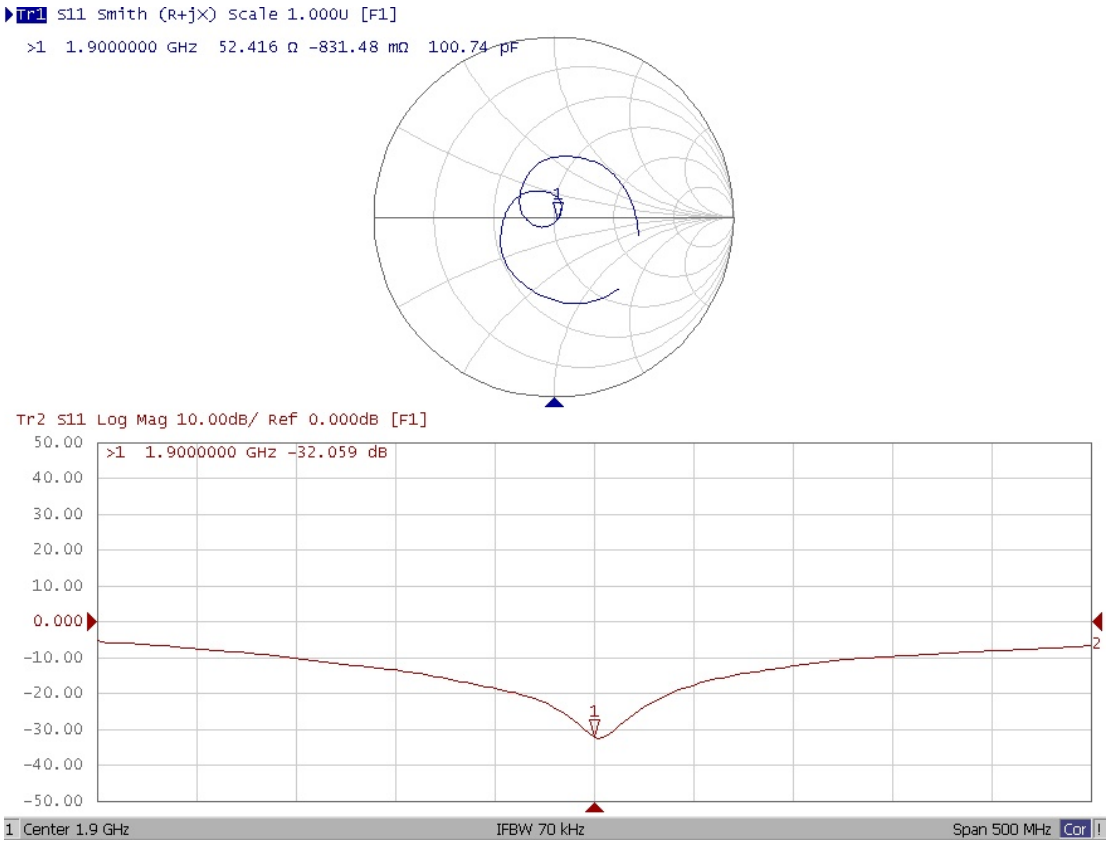
**d=10mm, Pin=250mW/Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 10.8 mW/g
**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 85.1 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 18.0 W/kg
**SAR(1 g) = 9.53 mW/g; SAR(10 g) = 4.85 mW/g**
Maximum value of SAR (measured) = 10.7 mW/g



## Impedance Measurement Plot for Head TSL



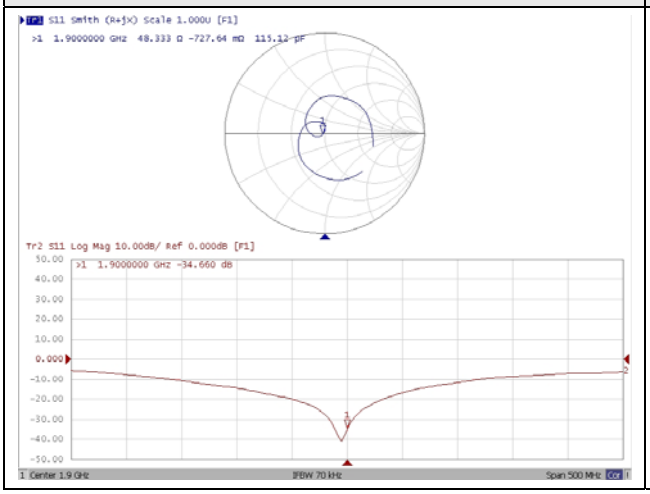
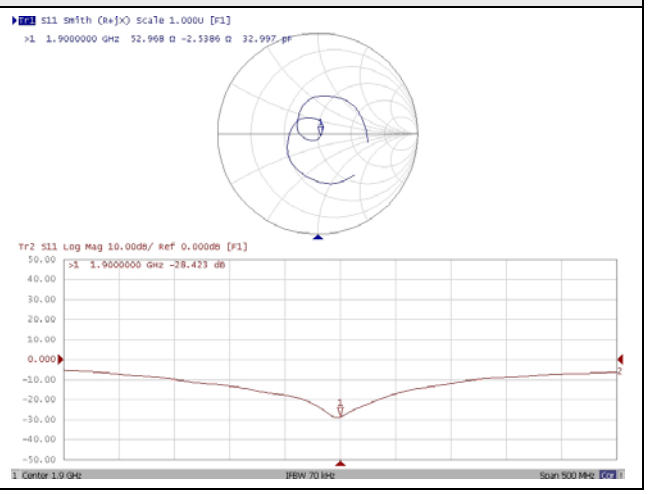

## Impedance Measurement Plot for Body TSL



## Extended Dipole Calibration for D1900V2, SN: 5d051

Referring to section 3.2.2 of KDB 865664 D01, the tables below contain the measurement results for the impedance and return loss of the dipole.

| Justification of the Extended Calibration | | | |
|---|---|---|---|
| | Calibration<br>Sept. 25, 2013 | Verification<br>Sept. 02, 2014 | |
| **1900 Head TSL** | Target | Measured | Delta |
| Impedance, transformed to feed point | 47.6 Ω + 0.21 jΩ | 48.3 Ω – 0.73 jΩ | R = 0.7 Ω,<br>X = -0.94 Ω |
| Return Loss | -32.05 dB | -34.66 dB | -8.1 % |
| **1900 Body TSL** | Target | Measured | Delta |
| Impedance, transformed to feed point | 52.4 Ω – 0.83 jΩ | 53.0 Ω – 2.54 jΩ | R = 0.6 Ω,<br>X = -1.71 Ω |
| Return Loss | -32.06 dB | -28.42 dB | 11.36% |

| Measurement Plot for Head TSL | Measurement Plot for Body TSL |
|---|---|
|  |  |

The impedance is within 5 ohm of prior calibration.
The return loss is <-20 dB and within 20% of prior calibration.
Therefore the verification result supports extended dipole calibration.