APPENDIX C CALIBRATION DOCUMENTS

1. SN: 1380 Probe Calibration Certificate
2. SN: 1012 D300V3 Dipole Calibration Certificate
3. SN: 442 DAE3 Data Acquisition Electronics Calibration Certificate

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

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Swiss Calibration Service

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Accreditation No.: **SCS 108**

Client **EMC Technologies**

Certificate No: **ET3-1380_Dec11**

CALIBRATION CERTIFICATE

Object: ET3DV6 - SN:1380

Calibration procedure(s): QA CAL-01.v8, QA CAL-12.v7, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: December 12, 2011

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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
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: December 12, 2011

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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	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.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) 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
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 ϑ = 0 (f ≤ 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, VRx,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 ≤ 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.

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Probe ET3DV6

SN:1380

Manufactured: August 16, 1999
Calibrated: December 12, 2011

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

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DASY/EASY - Parameters of Probe: ET3DV6 - SN:1380

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.68	1.60	1.72	± 10.1 %
DCP (mV)[B]	93.1	92.7	94.2	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	137.2	±3.0 %
			Y	0.00	0.00	1.00	129.6	
			Z	0.00	0.00	1.00	103.8	

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.

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DASY/EASY - Parameters of Probe: ET3DV6 - SN:1380

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	Depth (mm)	Unct. (k=2)
300	45.3	0.87	7.79	7.79	7.79	0.30	1.56	± 13.4 %
450	43.5	0.87	7.00	7.00	7.00	0.23	2.37	± 13.4 %
900	41.5	0.97	5.88	5.88	5.88	0.80	1.92	± 12.0 %
1640	40.3	1.29	5.35	5.35	5.35	0.68	2.22	± 12.0 %
1810	40.0	1.40	5.05	5.05	5.05	0.72	2.09	± 12.0 %
1950	40.0	1.40	4.80	4.80	4.80	0.71	2.17	± 12.0 %
2450	39.2	1.80	4.35	4.35	4.35	1.00	1.61	± 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 (ε and σ) 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 (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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DASY/EASY - Parameters of Probe: ET3DV6 - SN:1380

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	Depth (mm)	Unct. (k=2)
450	56.7	0.94	7.41	7.41	7.41	0.16	2.29	± 13.4 %
900	55.0	1.05	5.94	5.94	5.94	1.00	1.63	± 12.0 %
1810	53.3	1.52	4.66	4.66	4.66	0.69	2.50	± 12.0 %
1950	53.3	1.52	4.68	4.68	4.68	0.72	2.35	± 12.0 %
2450	52.7	1.95	4.15	4.15	4.15	1.00	1.29	± 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 (ε and σ) 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 (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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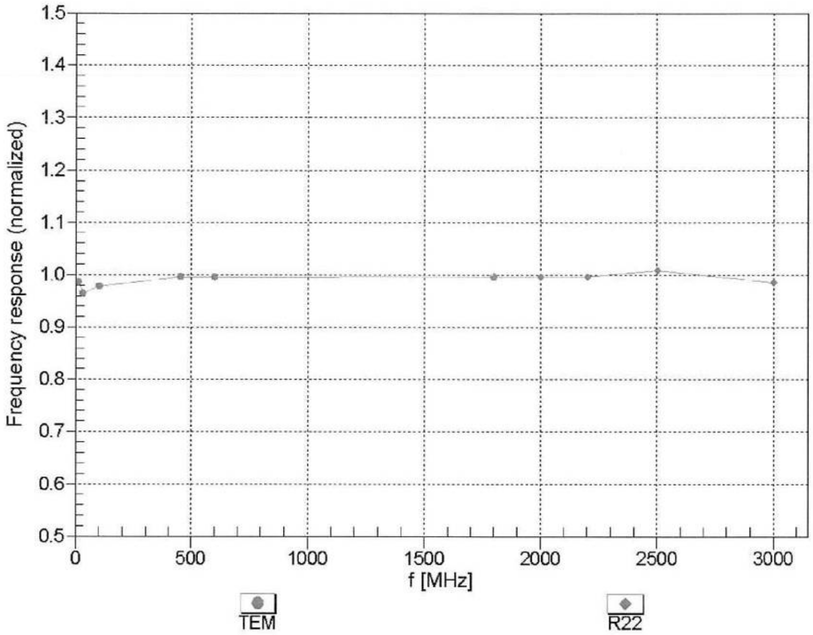
Frequency Response of E-Field

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



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

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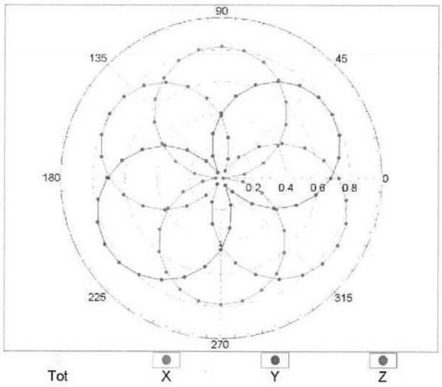
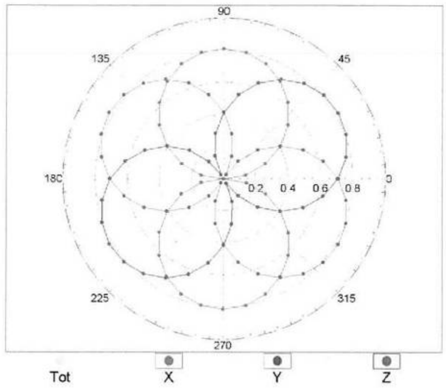
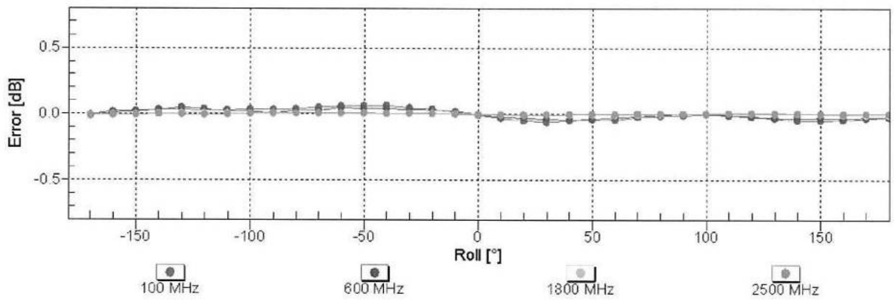
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22





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

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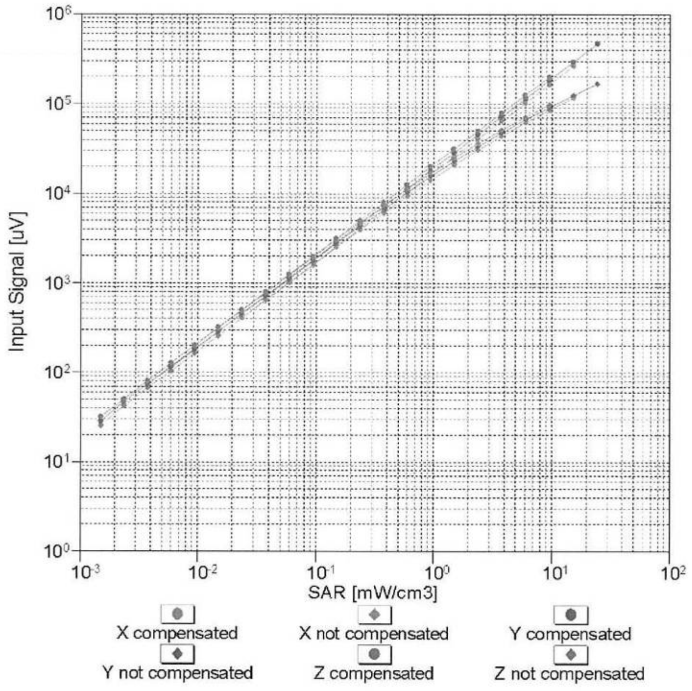
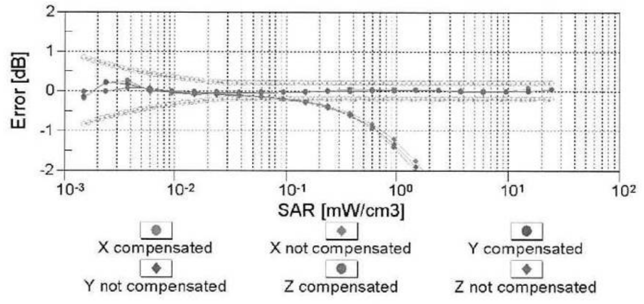
Dynamic Range f(SAR$_{head}$)
(TEM cell , f = 900 MHz)





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

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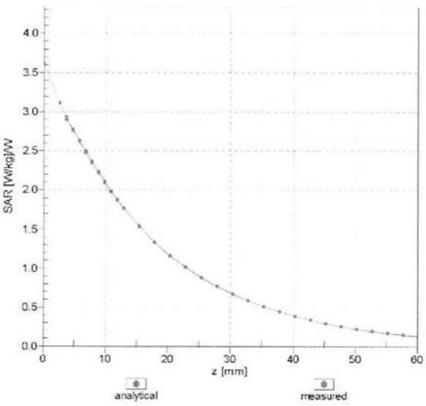
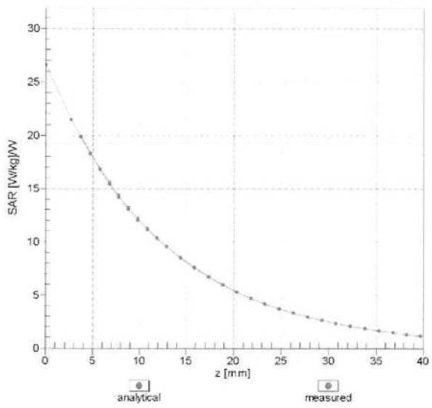
ET3DV6– SN:1380 December 12, 2011

Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

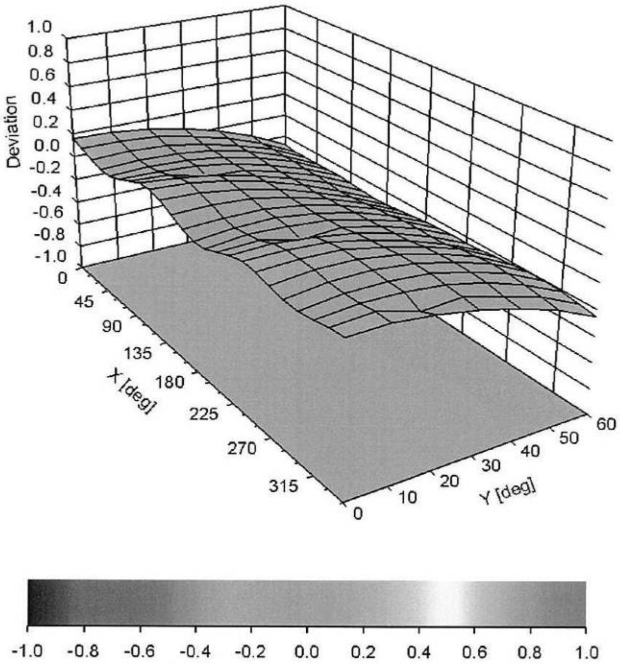


f = 1810 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

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DASY/EASY - Parameters of Probe: ET3DV6 - SN:1380

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
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

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Additional Conversion Factors

for Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1380**
Place of Assessment:	**Zurich**
Date of Assessment:	**July 13, 2012**
Probe Calibration Date:	**December 12, 2011**

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 450, 900 MHz or at 1810 MHz.

Assessed by:

Accredited for compliance with ISO/IEC 17025. The results of the test, calibrations and/or measurement included in this document are traceable to Australian/national standards. NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports.

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Dosimetric E-Field Probe ET3DV6 SN:1380

Conversion factor (± standard deviation)

250 ± 50 MHz	ConvF	**7.75 ± 10%**	**ε_r = 59.4 ± 5%** **σ = 0.88 ± 5% mho/m** (body tissue)

Important Note:

For numerically assessed probe conversion factors, parameters Alpha and Delta in the DASY software must have the following entries: Alpha = 0 and Delta = 1.

Please see also DASY Manual.

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Accreditation No.: **SCS 108**

Client **EMC Technologies**

Certificate No: **D300V3-1012_Nov10**

CALIBRATION CERTIFICATE

Object: D300V3 - SN: 1012

Calibration procedure(s): QA CAL-15.v5
Calibration Procedure for dipole validation kits below 800 MHz

Calibration date: November 30, 2010

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 E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Type-N mismatch combination	SN: 5047.3 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ET3DV6	SN: 1507	30-Apr-10 (No. ET3-1507_Apr10)	Apr-11
DAE4	SN: 654	23-Apr-10 (No. DAE4-654_Apr10)	Apr-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: November 30, 2010

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Glossary:

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

Calibration is Performed According to the Following Standards:

a) 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
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) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with 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:

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.

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Measurement Conditions

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

DASY Version	DASY5	V52.2
Extrapolation	Advanced Extrapolation	
Phantom	ELI4 Flat Phantom	Shell thickness: 2 ± 0.2 mm
Distance Dipole Center - TSL	15 mm	with Spacer
Area Scan Resolution	dx, dy = 15 mm	
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	300 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	45.3	0.87 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	45.8 ± 6 %	0.88 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	condition	
SAR measured	398 mW input power	1.16 mW / g
SAR normalized	normalized to 1W	2.91 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**2.89 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	398 mW input power	0.77 mW / g
SAR normalized	normalized to 1W	1.93 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**1.91 mW / g ± 17.6 % (k=2)**

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	57.0 Ω - 7.9 jΩ
Return Loss	- 20.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.740 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.
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	February 26, 2009

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DASY5 Validation Report for Head TSL

Date/Time: 30.11.2010 11:05:28

Test Laboratory: SPEAG

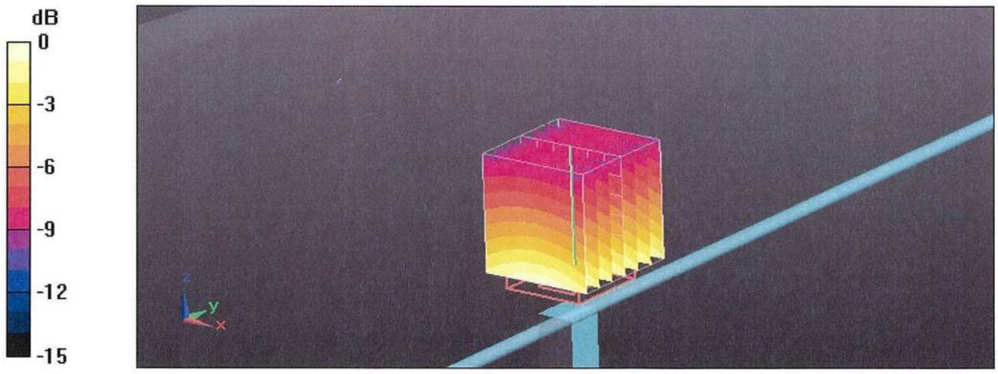
DUT: Dipole 300 MHz; Type: D300V3; Serial: D300V3 - SN:1012

Communication System: CW; Frequency: 300 MHz; Duty Cycle: 1:1
Medium: HSL300
Medium parameters used: f = 300 MHz; σ = 0.88 mho/m; ε_r = 45.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(7.39, 7.39, 7.39); Calibrated: 30.04.2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn654; Calibrated: 23.04.2010
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1002
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=398mW/d=15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 38.1 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 1.94 W/kg
SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.767 mW/g
Maximum value of SAR (measured) = 1.23 mW/g



0 dB = 1.23mW/g

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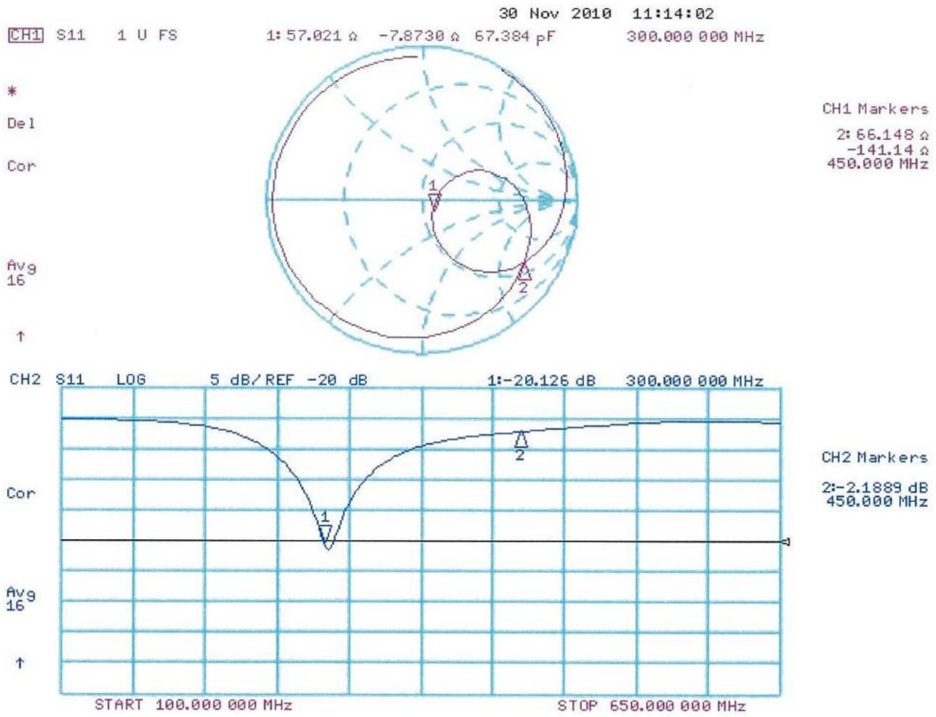
Impedance Measurement Plot for Head TSL



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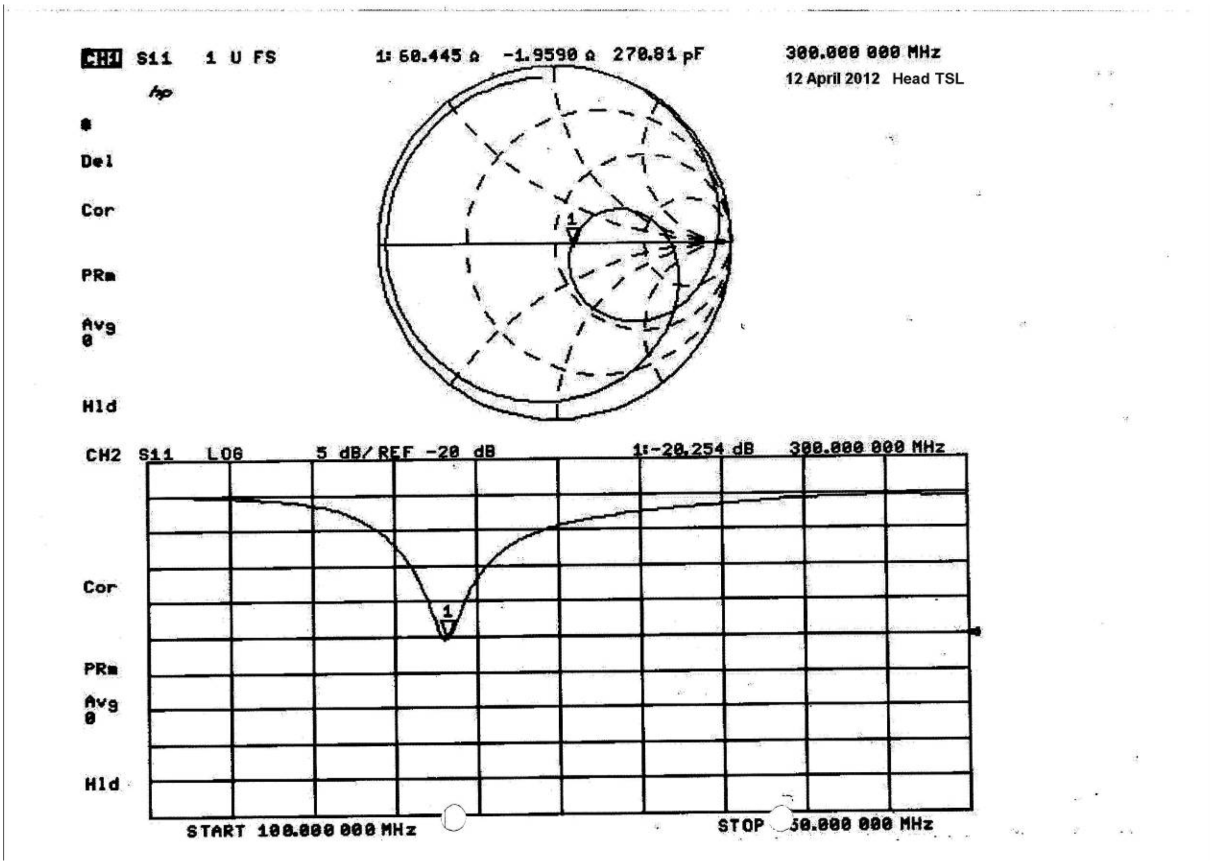

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **EMC Technologies**

Certificate No: DAE3-442_Dec11

CALIBRATION CERTIFICATE

Object	DAE3 - SD 000 D03 AE - SN: 442
Calibration procedure(s)	QA CAL-06.v23 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	December 5, 2011

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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	08-Jun-11 (in house check)	In house check: Jun-12

	Name	Function	Signature
Calibrated by:	Andrea Guntli	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: December 5, 2011

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Accreditation No.: **SCS 108**

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 following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

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DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1μV , 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	X	Y	Z
High Range	404.367 ± 0.1% (k=2)	405.009 ± 0.1% (k=2)	405.229 ± 0.1% (k=2)
Low Range	3.98363 ± 0.7% (k=2)	3.98114 ± 0.7% (k=2)	3.98948 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	57.0 ° ± 1 °

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Appendix

1. DC Voltage Linearity

High Range		Reading (µV)	Difference (µV)	Error (%)
Channel X	+ Input	200002.2	-0.05	-0.00
Channel X	+ Input	20000.16	0.66	0.00
Channel X	- Input	-19997.14	2.86	-0.01
Channel Y	+ Input	200008.3	-2.15	-0.00
Channel Y	+ Input	19996.72	-2.68	-0.01
Channel Y	- Input	-19998.92	0.08	-0.00
Channel Z	+ Input	200008.5	-0.80	-0.00
Channel Z	+ Input	20000.01	-0.09	-0.00
Channel Z	- Input	-19998.00	1.90	-0.01

Low Range		Reading (µV)	Difference (µV)	Error (%)
Channel X	+ Input	1999.8	-0.20	-0.01
Channel X	+ Input	200.22	0.22	0.11
Channel X	- Input	-198.99	1.01	-0.50
Channel Y	+ Input	2000.6	0.94	0.05
Channel Y	+ Input	199.59	-0.51	-0.26
Channel Y	- Input	-200.74	-0.84	0.42
Channel Z	+ Input	2000.0	-0.14	-0.01
Channel Z	+ Input	198.71	-1.29	-0.64
Channel Z	- Input	-200.84	-0.94	0.47

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (µV)	Low Range Average Reading (µV)
Channel X	200	-8.70	-10.53
	- 200	11.41	10.05
Channel Y	200	0.01	-0.31
	- 200	-1.37	-1.76
Channel Z	200	-5.64	-5.53
	- 200	3.08	3.29

3. Channel separation

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

	Input Voltage (mV)	Channel X (µV)	Channel Y (µV)	Channel Z (µV)
Channel X	200	-	1.76	-1.72
Channel Y	200	1.75	-	1.74
Channel Z	200	2.90	-0.48	-

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4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	15778	16839
Channel Y	15772	16308
Channel Z	15590	16770

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-0.87	-2.04	0.18	0.54
Channel Y	-1.01	-2.34	-0.08	0.42
Channel Z	-1.28	-3.05	1.11	0.70

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	–0.01	-8	-9

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