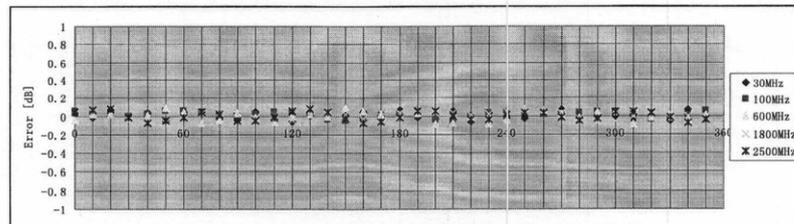
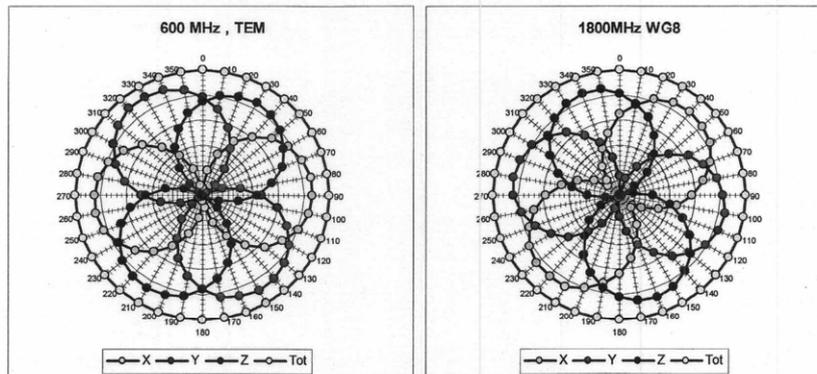


ES3DV3 SN: 3151

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Receiving Pattern (ϕ), $\theta = 0^\circ$

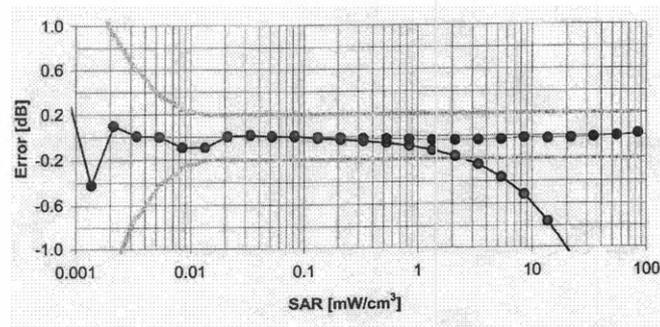
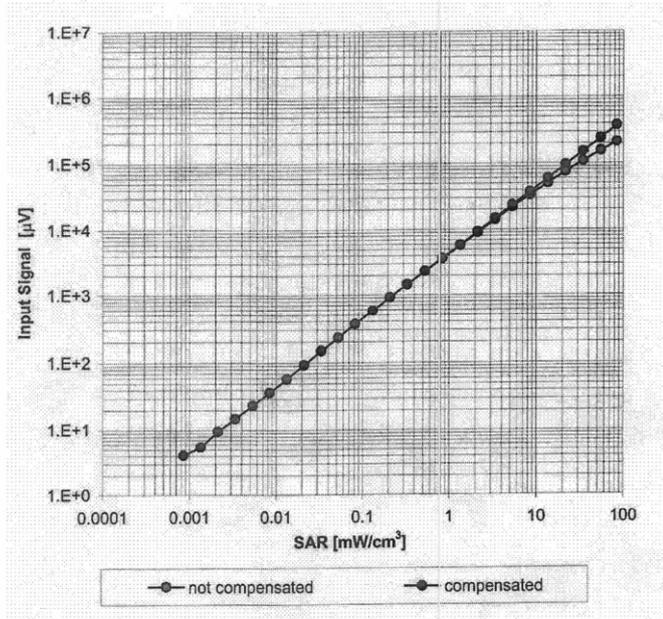


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

ES3DV3 SN: 3151

April 27, 2011

Dynamic Range $f(SAR_{head})$ (Waveguide: WG8, $f = 1800$ MHz)

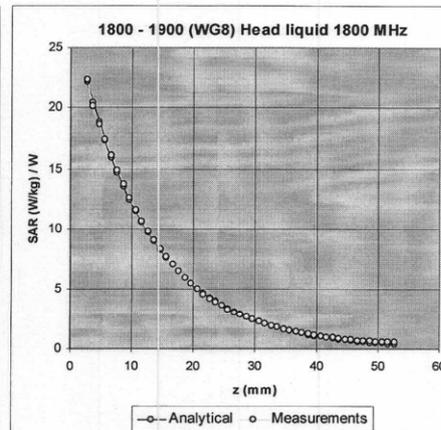
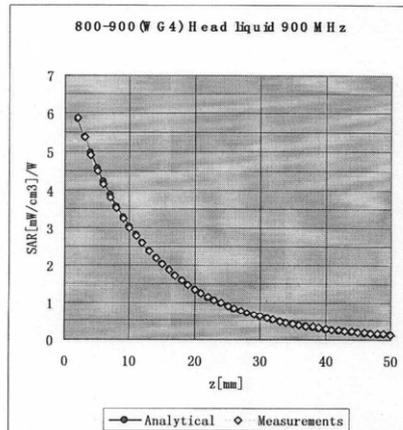


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

ES3DV3 SN: 3151

April 27, 2011

Conversion Factor Assessment



f[MHz]	Validity[MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
450	±50 / ±100	Head	43.5±5%	0.87±5%	0.82	1.44	7.42	±13.3% (k=2)
900	±50 / ±100	Head	41.5±5%	0.97±5%	0.80	1.29	6.23	±11.0% (k=2)
1810	±50 / ±100	Head	40.0±5%	1.40±5%	0.61	1.57	5.08	±11.0% (k=2)
1900	±50 / ±100	Head	40.0±5%	1.40±5%	0.63	1.44	4.98	±11.0% (k=2)
2100	±50 / ±100	Head	39.8±5%	1.49±5%	0.66	1.34	4.58	±11.0% (k=2)
900	±50 / ±100	Body	55.0±5%	1.05±5%	0.99	1.06	6.02	±11.0% (k=2)
1810	±50 / ±100	Body	53.3±5%	1.52±5%	0.75	1.34	4.87	±11.0% (k=2)
1900	±50 / ±100	Body	53.3±5%	1.52±5%	0.62	1.47	4.73	±11.0% (k=2)
2100	±50 / ±100	Body	53.5±5%	1.57±5%	0.68	1.34	4.35	±11.0% (k=2)
2450	±50 / ±100	Body	52.7±5%	1.95±5%	0.60	1.40	3.72	±11.0% (k=2)

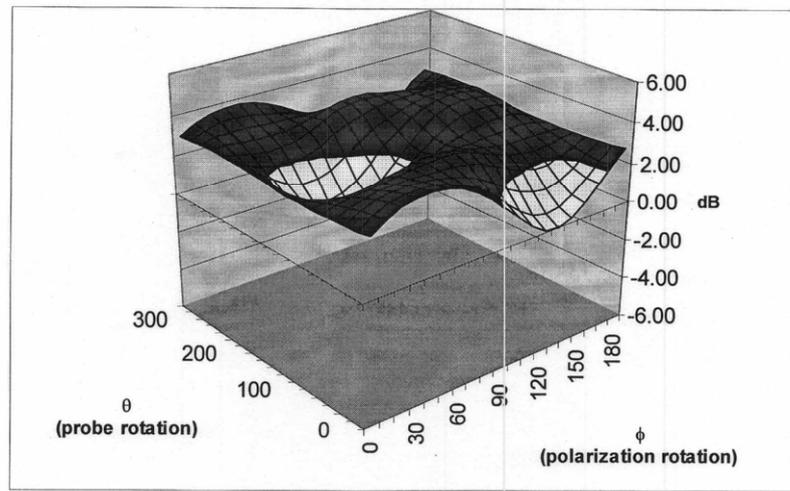
^c The validity of ±100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

ES3DV3 SN: 3151

April 27, 2011

Deviation from Isotropy

Error (ϕ, θ), $f = 900$ MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

ANNEX F DIPOLE CALIBRATION CERTIFICATE

835 MHz Dipole Calibration Certificate

**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
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 108**

Client **TMC China**

Certificate No: **D835V2-443_Oct09**

CALIBRATION CERTIFICATE																																															
Object	D835V2-SN: 443																																														
Calibration procedure(s)	QA CAL-05.v6 Calibration procedure for dipole validation kits																																														
Calibration date:	October 25, 2009																																														
Condition of the calibrated item	In Tolerance																																														
<p>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.</p> <p>All calibrations have been conducted at an environment temperature (22±3)°C and humidity<70%</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID#</th> <th>Cal Data (Calibrated by, Certification NO.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter EPM-442A</td> <td>GB37480704</td> <td>01-Oct-09 (METAS, NO. 217-00608)</td> <td>Oct-10</td> </tr> <tr> <td>Power sensor 8481A</td> <td>US37292783</td> <td>01-Oct-09 (METAS, NO. 217-00608)</td> <td>Oct-10</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN:5086 (20g)</td> <td>08-Aug-09 (METAS, NO. 217-00591)</td> <td>Aug-10</td> </tr> <tr> <td>Reference 10 dB Attenuator</td> <td>SN:5047_2 (10r)</td> <td>08-Aug-09 (METAS, NO. 217-00591)</td> <td>Aug-10</td> </tr> <tr> <td>DAE4</td> <td>SN:601</td> <td>28-Jan-09 (SPEAG, NO.DAE4-601_Jan09)</td> <td>Jan-10</td> </tr> <tr> <td>Reference Probe ET3DV6 (HF)</td> <td>SN: 1507</td> <td>17-Oct-09 (SPEAG, NO. ET3-1507_Oct09)</td> <td>Oct-10</td> </tr> <tr> <th>Secondary Standards</th> <th>ID#</th> <th>Check Data (in house)</th> <th>Scheduled Calibration</th> </tr> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>18-Oct-02(SPEAG, in house check Oct-09)</td> <td>In house check: Oct-10</td> </tr> <tr> <td>RF generator Aglient E4421B</td> <td>MY41000676</td> <td>11-May-05(SPEAG, in house check Nov-07)</td> <td>In house check: Nov -09</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585S4206</td> <td>18-Oct-01(SPEAG, in house check Oct-09)</td> <td>In house check: Oct -10</td> </tr> </tbody> </table>				Primary Standards	ID#	Cal Data (Calibrated by, Certification NO.)	Scheduled Calibration	Power meter EPM-442A	GB37480704	01-Oct-09 (METAS, NO. 217-00608)	Oct-10	Power sensor 8481A	US37292783	01-Oct-09 (METAS, NO. 217-00608)	Oct-10	Reference 20 dB Attenuator	SN:5086 (20g)	08-Aug-09 (METAS, NO. 217-00591)	Aug-10	Reference 10 dB Attenuator	SN:5047_2 (10r)	08-Aug-09 (METAS, NO. 217-00591)	Aug-10	DAE4	SN:601	28-Jan-09 (SPEAG, NO.DAE4-601_Jan09)	Jan-10	Reference Probe ET3DV6 (HF)	SN: 1507	17-Oct-09 (SPEAG, NO. ET3-1507_Oct09)	Oct-10	Secondary Standards	ID#	Check Data (in house)	Scheduled Calibration	Power sensor HP 8481A	MY41092317	18-Oct-02(SPEAG, in house check Oct-09)	In house check: Oct-10	RF generator Aglient E4421B	MY41000676	11-May-05(SPEAG, in house check Nov-07)	In house check: Nov -09	Network Analyzer HP 8753E	US37390585S4206	18-Oct-01(SPEAG, in house check Oct-09)	In house check: Oct -10
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Calibrated by:	Name Marcel Fehr	Function Laboratory Technician	Signature 																																												
Approved by:	Name Katja Pokovic	Function Technical Director	Signature 																																												
Issued: October 25, 2009																																															
This calibration certificate shall not be reported except in full without written approval of the laboratory.																																															

**Calibration Laboratory of
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Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL tissue simulating liquid
ConvF 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) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
- 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 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.