



MOTOROLA



Certificate Number: 1449-01

**FCC ID: AZ489FT5844
DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 1 of 2**

**Government & Enterprise Mobility Solutions
EME Test Laboratory
8000 West Sunrise Blvd
Fort Lauderdale, FL. 33322**

Date of Report: 02/14/06
Report Revision: 0
Report ID: i850_Rev O_060214_SR3374

Responsible Engineer: Kim Uong (EME lead Eng.)
Date/s Tested: 2/3/06-2/10/06
Manufacturer/Location: Motorola – Plantation
Sector/Group/Div.: iDEN Subscriber
Date submitted for test: 1/3/06
DUT Description: i850; TDMA: 236:310 (76.1%), 1:6, 2:6, 81:120, 1:12; 64QAM, 16 QAM & QPSK Modulation; 0.6W Pulse Avg. MOTotalk (114:120 8FSK; 0.85 W nominal); GPS capable
Test TX mode(s): 1:3, 1:6, 114:120
Max. Power output: MOTotalk - 0.891W, iDEN/WiDEN - 0.640W
Nominal Power: MOTotalk - 0.85W, iDEN/WiDEN - 0.60W
Tx Frequency Bands: MOTotalk - 902-928MHz, iDEN/WiDEN – 806-825, 896-902MHz
Signaling type: TDMA: iDEN; WiDEN, MOTotalk - (FHSS 8FSK)
Model(s) Tested: H65XAN6RR4AN/NWF1000A
Model(s) Certified: H65XAN6RR4AN/NWF1000A
Serial Number(s): 364AFA021M
Classification: General Population/Uncontrolled
Rule Part(s): 15 & 90



Approved Accessories:

Antenna(s):
8585744F04 (806-825MHz retractable ¼ wave antenna, -2.4dBd; 896-902MHz, -1.1dBd; 902-925MHz, -1.2dBd)
Battery(ies):
SNN5704C (Slim battery)
Body worn accessory(ies):
NNTN6026A Holster
Audio/Data cable accessory(ies):
NNTN6402A Wireless Wheels (ZigBEE transceiver Dongle)

Max. Calc. 1-g/10-g Avg. SAR: 1.58/1.18 W/kg (Body)
Max. Calc. 1-g/10-g Avg. SAR: 0.75/0.52 W/kg (Head)
Max. Calc. 1-g/10-g Avg. SAR: 0.47/0.33 W/kg (Face)
Max. Calc. 10-g Avg. SAR: 2.72 W/kg (Hand)

Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 2.0 of this report. This report shall not be reproduced without written approval from an officially designated representative of the Motorola EME Laboratory.

This reporting format is consistent with the test report guidelines of the TIA TSB-150 December 2004
The results and statements contained in this report pertain only to the device(s) evaluated.

Signature on file - Deanna Zakharia for Ken Enger
**Ken Enger GEMS EME Lab Senior Resource Manager,
Laboratory Director,**

Approval Date: 2/14/06

Certification Date: NA

Certification No.: NA

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APPENDICES

- A Measurement Uncertainty
- B Probe Calibration Certificates

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- C Dipole Calibration Certificates
- D Test System Verification Scans
- E DUT Scans (Highest SAR configurations)
- F DUT Supplementary Data (e.g. Power Slump)
- G DUT Test Position Photos
- H Accessory Photo

Report REVISION HISTORY

Date	Revision	Comments
2/14/2006	O	This report is an addendum to the original report (dated March 29, 2005) to include data for the new offered Wireless Wheels option model NNTN6402A.

1.0 Introduction and Overview

This report details the utilization, test setup, test equipment, and test results of the Specific Absorption Rate (S.A.R.) measurements performed at the GEMS EME Test Lab for the model number H65XAN6RR4AN/NWF1000A of FCC ID: AZ489FT5844 with the offered new wireless wheels option model NNTN6402A indicated on the cover sheet of this report.

2.0 Reference Standards and Guidelines

This product is designed to comply with the following national and international standards and guidelines.

- United States Federal Communications Commission, Code of Federal Regulations; Rule Part 47CFR § 2.1093 sub-part J:1999
- Federal Communications Commission, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields", OET Bulletin 65, Supplement C (Edition 01-01), FCC, Washington, D.C.: June 2001.
- IEEE 1528, 2003 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques"
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998
- Ministry of Health (Canada) Safety Code 6. Limits of Human Exposure to Radio frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- Australian Communications Authority Radiocommunications (Electromagnetic Radiation - Human Exposure) Standard 2003
- ANATEL, Brazil Regulatory Authority, Resolution No. 303 of July 2, 2002 "Regulation of the limitation of exposure to electrical, magnetic, and electromagnetic fields in the radio frequency range between 9KHz and 300 GHz." and "Attachment to resolution # 303 from July 2, 2002"

2.1 SAR Limits

EXPOSURE LIMITS	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / Controlled Exposure Environment)
Spatial Average - ANSI - (averaged over the whole body)	0.08	0.4
Spatial Peak - ANSI - (averaged over any 1-g of tissue)	1.60	8.0
Spatial Peak - ICNIRP/ANSI - (hands/wrists/feet/ankles averaged over 10-g)	4.0	20.0
Localized SAR - ICNIRP - (Head and Trunk 10-g)	2.0	10.0

3.0 Description of Device Under Test (DUT)

FCC ID: AZ489FT5844 is a digital multi-service data capable device that employs time division multiplexing transmission technology with a duty cycle ranging from 16.67% to 33.33% using M16-QAM modulation for voice or circuit data transmission. There is a Split 1:3 mode that operates using a 16.67% transmission duty cycle. Two 7.5ms pulses occur during the six time slots within the 90-msec frame format. This mode is available in both the 806-825MHz and 896-902MHz bands in the telephone interconnect mode only. Packet data transmission is supported up to a maximum duty cycle of 67.5% using quad QPSK modulation. MOTotalk transmission is also supported and employs a frequency hopping digital spread spectrum format operating in the 900 MHZ ISM band. MOTotalk has a transmission duty cycle of 114:120 using 8 FSK modulation. MOTotalk operates only in PTT mode in front of the face or at the abdomen with the applicable offered audio accessories. This device incorporates WiDEN technology with a maximum transmission duty cycle of 236:310 (76.1%). WiDEN uses the standard iDEN modulation modes in 1 to 4 standard 25KHz iDEN channels. WiDEN25, 50, 75, and 100 uses 1, 2, 3, and 4 25KHz channels respectfully. The highest duty cycle is in the WiDEN 25KHz mode. This device supports Circuit Data and Fax operation in either 3:1 or 6:1 modes. No simultaneous transmissions are possible. Packet Data and WiDEN operations are possible with and without connection to an external data device, via a data cable. This device is also GPS capable.

This device will be marketed to and used by the general population. This device may be used while held against the head in voice mode, in front of the face in PTT mode, and against the body and hand in phone, dispatch, MOTotalk, Data, and WiDEN modes.

FCC ID: AZ489FT5844 is capable of operating in the 806-825 MHz and 896-902MHz bands. Packet data transmission is not available while transmitting in the 896-902 MHz band. MOTotalk operates in the 902-928MHz band. WiDEN operates with the 806-825MHz and 896-902MHz bands. The rated conducted power is 0.60 watts pulsed averaged in 806-825MHz and 896-902MHz bands and 0.85 watts in the MOTotalk band. The maximum conducted output power is 0.64 watts pulsed average and 0.891 watts respectively as defined by the upper limit of the production line final test station.

The Wireless Wheels incorporates the Free scale MC13192 transceiver. The MC13192 is a short range, low power 2.4 GHz band transceiver. It supports the IEEE 802.15.4 standard. The Wireless Wheels also supports 250 kbs Offset-Quadrature Phase Shift Keying (O-QPSK) data in 2.0 MHz channels with 5.0MHz channel spacing. The nominal and default power transmit is 0 dBm. The Wireless Wheels package contains a Motorola Wireless Remote Control Adapter; when the Wireless wheels software application is successfully loaded on the device, it will allow the user to remotely operate the toy car with the device when this adapter is attached to the device accessory connector. The Wireless Wheel application is capable of simultaneously transmitting with other device applications such as PTT, phone and Data modes.

Test Output Power

A table of the characteristic power slump versus time is provided in Appendix F.

4.0 Description of Test System



4.1 Descriptions of Robotics/probes/Readout Electronics

The laboratory utilizes a Dosimetric Assessment System (DASY4™) S.A.R. measurement system Version 4.6 build 23 manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The test system consists of a Stäubli RX90L robot, DAE3V1, and ET3DV6 E-Field probes. Please reference the SPEAG user manual and application notes for detailed probe, robot, and S.A.R. computational procedures. Section 5.0 presents relevant test equipment information. Appendices B and C present the applicable calibration certificates. The E-field probe first scans a coarse grid over a large area inside the phantom in order to locate the interpolated maximum S.A.R. distribution. After the coarse scan measurement, the probe is automatically moved to a position at the interpolated maximum. The subsequent scan can directly use this position as reference for the cube evaluations.

4.2 Description of Phantom(s)

4.2.1 Flat Phantom

Phantom Type	Phantom Material	Phantom Dimensions (cm)	Support structure opening dimensions (cm)	Support structure material	Loss Tangent (wood)
Flat	High Density Polyethylene (HDPE)	80x30x20x0.2	68.58x20.32	Wood	< 0.05

4.2.2 SAM Phantom

Phantom Type	Material Parameters	Material Thickness (mm)	Support structure material	Loss Tangent (wood)
SAMTP1022	200MHz -3GHz; Er = <5, Loss Tangent = <0.05	2mm +/- 0.2mm	Wood	< 0.05

4.3 Description of Equivalent tissues

Type of Simulated Tissue

The simulated tissue used is compliant to that specified in FCC Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01) and IEEE 1528, 2003 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

The sugar based simulate tissue is produced by placing the correct measured amount of De-ionized water into a large container. Each of the dried ingredients are weighed and added to the water carefully to avoid clumping. If the solution has a high sugar concentration the water is pre-heated to aid in dissolving the ingredients. For Diacetin and Glycol based simulates, sugar and HEC ingredients are not needed. The solution is mixed thoroughly, covered, and allowed to sit overnight prior to use.

Simulated Tissue Composition

% of listed ingredients	900MHz	
	Head	Body
Sugar	56.5	44.9
DGBE (Glycol)	NA	NA
Diacetin	NA	NA
De ionized -Water	40.95	53.06
Salt	1.45	0.94
HEC	1.0	1
Bact.	0.1	0.1

Reference section 6.1 for target parameters

5.0 Additional Test Equipment

Equipment Type	Model Number	Serial Number	Calibration Due Date
Power Meter (HP)	E4418B	GB40206480	12/30/2006
Power Meter (HP)	E4418B	US39251152	3/22/2006
Power Meter (HP)	E4418B	GB40206553	12/5/2006
Power Sensor (HP)	8482B	3318A05259	3/28/2006
Power Sensor (HP)	8482B	3318A06774	3/22/2006
Power Sensor (HP)	8482B	3318A07546	10/6/2006
Bi-Directional Coupler (NARDA)	3020A	40296	2/27/2006
Signal Generator (Agilent)	E4421B	US40051446	12/29/2007
AMP (ComTech PST)	AR88258-10	N1R1A00-1015	CNR

6.0 SAR Measurement System Verification

The S.A.R. measurements were conducted with probe model/serial number ET3DV6/SN1384. The system performance check was conducted daily and within 24 hours prior to testing. DASY output files of the probe/dipole calibration certificates and system performance test results are included in appendices B, C, D respectively. The table below summarizes the system performance check results normalized to 1W.

Dipole validation scans at the head from SPEAG are provided in APPENDIX D. The GEMS EME lab validated the dipole to the applicable IEEE system performance targets. Within the same day system validation was performed using FCC body tissue parameters to generate the system performance target values for body at the applicable frequency. The results of the GEMS EME system performance validation are provided herein.

6.1 Equivalent Tissue Test Results

Simulated tissue prepared for S.A.R. measurements is measured daily and within 24 hours prior to actual S.A.R. testing to verify that the tissue is within 5% of target parameters at the center of the transmit band. This measurement is done using the Agilent (HP) probe kit model 85070C and a HP8753D Network Analyzer.

Actual versus Target tissue parameters (2/3/06 – 2/9/06)

FCC Body				
Frequency (MHz)	Di-electric Constant Target	Di-electric Constant Meas. (Range)	Conductivity Target S/m	Conductivity Meas. (Range) S/m
900/899	55.0	52.5 - 53.8	1.05	1.04 - 1.06
915	55.0	52.4 - 53.6	1.06	1.06 - 1.08
813	55.3	53.3 - 54.7	0.97	0.96 - 0.98

IEEE Head				
Frequency (MHz)	Di-electric Constant Target	Di-electric Constant Meas. (Range)	Conductivity Target S/m	Conductivity Meas. (Range) S/m
900/899	41.5	40.8 - 41.5	0.97	1.00 - 1.01
915	41.5	40.6 - 41.3	0.98	1.02 - 1.02
813	41.6	41.8 - 42.2	0.90	0.93 - 0.93

6.2 System Check Test Results

Probe Serial #	Tissue Type	Probe Cal Date	Dipole Kit / Serial #	System Perf. Result when normalized to 1W (mW/g)	Reference S.A.R @ 1W (mW/g)	Test Date(s)
1384	FCC Body	5/26/05	SPEAG D900V2 /085	11.37 +/- 0.370	11.41 +/- 10%	2/3/06 - 2/8/06, 2/10/06
1384	CENELE C/IEEE Head	5/26/05	SPEAG D900V2 /085	11.30 +/- 0.0	11.26 +/- 10%	2/9/06

Note: See APPENDIX D for an explanation of the reference S.A.R. targets stated above.
(System performance results reflects the median performance +/- ½ of the test date(s) performance ranges)

The DASY4™ system is operated per the instructions in the DASY4™ Users Manual. The complete manual is available directly from SPEAG™. All measurement equipment used to assess EME S.A.R. compliance was calibrated according to 17025 A2LA guidelines.

7.0 DUT Test Strategy and Methodology

7.1 DUT Configuration(s)

The DUT is a portable device with iDEN, WiDEN, and MOTOtalk (FHSS 8FSK) transmission signaling operational at the hand, body, head, and face using the offered accessories.

DUT assessment at the body and hand for 806-825MHz and 896-902MHz Bands: due to the limitation of the test software, in order for the wireless wheels option to transmit simultaneously with the phone, the DUT was tested in 1:3 mode, then the test result is scaled up to the actual duty cycle of the data mode (WIDEN 76.1%).

DUT assessment at the body, hand and face for MOTOtalk 902-928MHz Band: due to the limitation of the test software, the wireless wheels option is not transmitting simultaneously with the phone during test.

The device is placed in the test positions presented in Appendix G.

Test Plan

All options and accessories listed on the cover page of this report were considered in order to develop the S.A.R. test plan for this product. S.A.R. measurements were performed using a flat phantom and a SAM phantom with the applicable simulated tissue to assess performance at the hand, body, head, and face respectively using the relevant transmission modes.

Note that a coarse-to-cube approximation methodology was utilized to determine the worst-case S.A.R. performance configuration for each applicable body location. The test configurations that produced the highest S.A.R. results for each body position using the coarse-to-cube approximation methodology were assessed using the full DASy4™ coarse and 7x7x7 cube scans.

Assessments at 806-825MHz band: [\[Page 13 of 32; Table 1\]](#)

- DUT assessed at the head in the 806-825MHz band; 1:3 test mode, using the highest test configurations from previous compliance assessments with both antenna positions and the co-located Wireless Wheels transmitter on.
- DUT assessed at the face in the 806-825MHz band; 1:6 test mode, using the highest test configurations from previous compliance assessments with antenna positions and the co-located Wireless Wheels transmitter on.
- DUT assessed at the body in the 806-825MHz band; 1:3 test mode, using the highest test configurations from previous compliance assessments with antenna positions and the co-located Wireless Wheels transmitter on. Assessment at band edges using the worst case antenna configuration.
- DUT assessed at the hand in the 806-825MHz band; 1:3 test mode, at the center frequency of the band with flip open and back of the phone against the phantom, using the highest test configurations from previous compliance with antenna positions and the co-located Wireless Wheels transmitter on. Assessment at band edges using the

worst case antenna configuration.

Assessments at 896-902MHz band: [\[Page 14 of 32; Table 2\]](#)

- DUT assessed at the head in the 896-902MHz band; 1:3 test mode, using the highest test configurations from previous compliance assessments with antenna positions and the co-located Wireless Wheels transmitter on.
- DUT assessed at the face in the 896-902MHz band; 1:6 test mode, using the highest test configurations from previous compliance assessments with antenna positions and the co-located Wireless Wheels transmitter on.
- DUT assessed at the body in the 896-902MHz band; 1:3 test mode, using the highest test configurations from previous compliance with antenna positions and the co-located Wireless Wheels transmitter on. Assessment at band edges using the worst case antenna configuration.
- DUT assessed at the hand in the 896-902MHz band; 1:3 test mode, at the center frequency of the band with flip open and back of the phone against the phantom, using the highest test configurations from previous compliance assessments with antenna positions and the co-located Wireless Wheels transmitter on. Assessment at band edges using the worst case antenna configuration.

Assessments at 902-927MHz MOTOtalk band: [\[Page 15 of 32; Table 3\]](#)

- DUT assessed at the face in the 896-902MHz band; MOTOtalk test mode, using the highest test configurations from previous compliance assessments with antenna positions and the co-located Wireless Wheels transmitter off.
- DUT assessed at the body in the 896-902MHz band; MOTOtalk test mode at 902.525MHz, using the highest test configurations from previous compliance assessments with antenna positions and the co-located Wireless Wheels transmitter off. Assessment at band edges using the worst case antenna configuration.
- DUT assessed at the hand in the 896-902MHz band; MOTOtalk test mode, at the center frequency of the band with flip open and back of the phone against the phantom, using the highest test configurations from previous compliance assessments with antenna positions and the co-located Wireless Wheels transmitter off. Assessment at band edges using the worst case antenna configuration.

Shortened scan assessment [\[APPENDIX E Part 2 of 2\]](#)

- A “shortened” scan was performed using the offered battery and test configuration that produced the highest S.A.R. results overall. Note that the shortened scan is obtained by first running a coarse scan to find the peak area and then, using a newly charged battery, a cube scan only was performed. The shortened scan represents the cube scan performance results.

7.2 Device Positioning Procedures

Reference Appendix G for photos of the DUT tested positions.

7.2.1 Body

The DUT was positioned in normal use configuration against the phantom with the offered body worn accessory.

7.2.2 Head

The DUT was placed against the side of the head of the SAM phantom in the cheek touch position.

7.2.3 Face

The DUT was positioned with its' front side separated 2.5cm from the phantom with the flip closed.

7.2.4 Hand

The DUT was positioned with flip open and its' back side against the phantom to assess performance at the hand.

8.0 Environmental Test Conditions

The EME Laboratory's ambient environment is well controlled resulting in very stable simulated tissue temperature and therefore stable dielectric properties. Simulated tissue temperature is measured prior to each scan to insure it is within $\pm 2^{\circ}\text{C}$ of the temperature at which the dielectric properties were determined. The liquid depth within the phantom used for measurements was 15cm \pm 0.5cm. Additional precautions are routinely taken to ensure the stability of the simulated tissue such as covering the phantoms when scans are not actively in process in order to minimize evaporation. The lab environment is continuously monitored. The table below presents the range and average environmental conditions during the S.A.R. tests reported herein:

	Target	Measured
Ambient Temperature	20 - 25 °C	Range: 21.8-22.8 °C Avg. 22.3 °C
Relative Humidity	30 - 70 %	Range: 32.7-54.6% Avg. 45.2%
Tissue Temperature	NA	Range: 21.1-21.9 °C Avg. 21.6 °C

The EME Lab RF environment uses a Spectrum Analyzer to monitor for extraneous large signal RF contaminants that could possibly affect the test results. If such unwanted signals are discovered the S.A.R scans are repeated.

9.0 Test Results Summary

All S.A.R. results obtained by the tests described in Section 7.1 are listed below. As noted in section 7.1, a coarse-to-cube approximation methodology, was utilized to ascertain the worst-case test configuration for each body location. The worst case test configurations observed for each body location were then assessed using the full DASY4™ coarse and 7x7x7 cube methodology, and they are presented as bolded results. The associated S.A.R. plots are provided in APPENDIX E. Appendix E also presents shortened S.A.R. cube scans to assess the validity of the calculated results presented herein. Note: The results of the shortened cube scans presented in Appendix E demonstrate that the scaling methodology used to determine the calculated S.A.R. results presented herein are valid.

Table 1

Assessments at the 806-825MHz band												
Run Number/ SN	Antenna Pos.	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	S.A.R. Drift (dB)	Meas. 1g-S.A.R. (mW/g)	Meas. 10g- S.A.R. (mW/g)	Max Calc. 1g-S.A.R. (mW/g)	Max Calc. 10g- S.A.R. (mW/g)
Assessments at the Head (Phone mode 1:3)												
JsT-REAR-060203-18/364AFA021M	In	824.9875	SNN5704C	Cheek touch	None	NNTN6402A Wireless wheel (Dongle tx)	0.662	-0.301	0.627	0.419	0.67	0.45
JsT-REAR-060203-19/364AFA021M	Out	824.9875	SNN5704C	Cheek touch	None	NNTN6402A Wireless wheel (Dongle tx)	0.661	-0.215	0.398	0.267	0.42	0.28
Assessments at the Face (PTT mode 1:6)												
JsT-Face-060207-12/364AFA021M	In	813.5125	SNN5704C	Front 2.5cm flip closed	None	NNTN6402A Wireless wheel (Dongle tx)	0.662	0.0967	0.158	0.114	0.08	0.06
JsT-Face-060207-13/364AFA021M	Out	813.5125	SNN5704C	Front 2.5cm flip closed	None	NNTN6402A Wireless wheel (Dongle tx)	0.660	-0.3810	0.104	0.0752	0.06	0.04
Assessments at the Body (WIDEN mode 76.1%)												
JsT-Ab-060203-04/364AFA021M	In	824.9875	SNN5704C	Against phantom	NNTN6026A	NNTN6402A Wireless wheel (Dongle tx)	0.663	-0.224	0.568	0.402	1.37	0.97
JsT-Ab-060203-05/364AFA021M	Out	824.9875	SNN5704C	Against phantom	NNTN6026A	NNTN6402A Wireless wheel (Dongle tx)	0.661	-0.0953	0.395	0.280	0.92	0.65
JsT-Ab-060203-06/364AFA021M	In	806.0125	SNN5704C	Against phantom	NNTN6026A	NNTN6402A Wireless wheel (Dongle tx)	0.653	-0.275	0.561	0.397	1.36	0.97
*JsT-Ab-060203-07/364AFA021M	In	813.5125	SNN5704C	Against phantom	NNTN6026A	NNTN6402A Wireless wheel (Dongle tx)	0.658	-0.198	0.590	0.417	1.41	1.00
Assessments at the Hand (WIDEN mode 76.1%)												
JsT-Hand-060206-05/364AFA021M	In	813.5125	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.662	-0.417	1.470	0.965	3.69	2.43
JsT-Hand-060206-06/364AFA021M	Out	813.5125	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.667	-0.311	1.340	0.899	3.29	2.21
*JsT-Hand-060206-07/364AFA021M	In	806.0125	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.662	-0.566	1.480	0.971	3.85	2.53
JsT-Hand-060206-08/364AFA021M	In	824.9875	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.670	-0.295	1.430	0.936	3.49	2.29

Table 2

Assessments at the 896-902 MHz band												
Run Number/ SN	Antenna Pos.	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	S.A.R. Drift (dB)	Meas. 1g-S.A.R. (mW/g)	Meas. 10g- S.A.R. (mW/g)	Max Calc. 1g-S.A.R. (mW/g)	Max Calc. 10g- S.A.R. (mW/g)
Assessments at the Head (Phone mode 1:3)												
JsT-REAR-060207-10/364AFA021M	In	896.01875	SNN5704C	Cheek touch	None	NNTN6402A Wireless wheel (Dongle tx)	0.671	-0.437	0.432	0.291	0.478	0.322
JsT-REAR-060207-11/364AFA021M	Out	896.01875	SNN5704C	Cheek touch	None	NNTN6402A Wireless wheel (Dongle tx)	0.667	-0.365	0.308	0.206	0.335	0.224
Assessments at the Face (PTT mode 1:6)												
JsT-Face-060207-14/364AFA021M	In	898.51875	SNN5704C	Front 2.5cm flip closed	None	NNTN6402A Wireless wheel (Dongle tx)	0.667	0.1010	0.121	0.0863	0.06	0.04
JsT-Face-060207-15/364AFA021M	Out	898.51875	SNN5704C	Front 2.5cm flip closed	None	NNTN6402A Wireless wheel (Dongle tx)	0.656	-0.0600	0.107	0.0762	0.05	0.04
Assessments at the Body (WIDEN mode 76.1%)												
JsT-Ab-060203-08/364AFA021M	In	896.01875	SNN5704C	Against phantom	NNTN6026A	NNTN6402A Wireless wheel (Dongle tx)	0.667	-0.3790	0.436	0.304	1.09	0.76
JsT-Ab-060203-09/364AFA021M	Out	896.01875	SNN5704C	Against phantom	NNTN6026A	NNTN6402A Wireless wheel (Dongle tx)	0.663	-0.5540	0.334	0.235	0.87	0.61
JsT-Ab-060203-10/364AFA021M	In	898.51875	SNN5704C	Against phantom	NNTN6026A	NNTN6402A Wireless wheel (Dongle tx)	0.664	-0.4450	0.427	0.299	1.08	0.76
JsT-Ab-060203-11/364AFA021M	In	900.98125	SNN5704C	Against phantom	NNTN6026A	NNTN6402A Wireless wheel (Dongle tx)	0.660	-0.3390	0.424	0.297	1.05	0.73
Assessments at the Hand (WIDEN mode 76.1%)												
JsT-Hand-060206-09/364AFA021M	In	898.51875	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.671	-0.591	0.637	0.407	1.67	1.06
JsT-Hand-060206-10/364AFA021M	Out	898.51875	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.669	-0.695	0.953	0.616	2.55	1.65
JsT-Hand-060206-11/364AFA021M	Out	896.01875	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.670	-0.679	1.030	0.671	2.75	1.79
JsT-Hand-060206-12/364AFA021M	Out	900.98125	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.661	-0.600	0.864	0.562	2.26	1.47

Table 3

Assessments at 902-928 MHz band (iDEN MOTotalk 114:120 mode)												
Run Number/ SN	Antenna Pos.	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	S.A.R. Drift (dB)	Meas. 1g-S.A.R. (mW/g)	Meas. 10g- S.A.R. (mW/g)	Max Calc. 1g-S.A.R. (mW/g)	Max Calc. 10g- S.A.R. (mW/g)
Assessments at the Face (MOTotalk mode 114:120)												
JsT-Face-060208-08/364AFA021M	In	902.525	SNN5704C	Front 2.5cm flip closed	None	NNTN6402A Wireless wheel (Dongle not tx)	0.872	0.240	0.772	0.550	0.39	0.28
*JsT-Face-060208-09/364AFA021M	Out	902.525	SNN5704C	Front 2.5cm flip closed	None	NNTN6402A Wireless wheel (Dongle not tx)	0.870	-0.744	0.788	0.560	0.48	0.34
Assessments at the Body (MOTotalk mode 114:120)												
JsT-Ab-060206-16/364AFA021M	Out	902.525	SNN5704C	Against phantom	NNTN6026A	SYN8146C / NNTN6402A Wireless wheel (Dongle not tx)	0.868	-0.411	1.250	0.882	0.71	0.50
JsT-Ab-060206-14/364AFA021M	In	902.525	SNN5704C	Against phantom	NNTN6026A	SYN8146C / NNTN6402A Wireless wheel (Dongle not tx)	0.865	0.218	1.290	0.904	0.66	0.47
JsT-Ab-060206-13/364AFA021M	Out	915.525	SNN5704C	Against phantom	NNTN6026A	SYN8146C / NNTN6402A Wireless wheel (Dongle not tx)	0.870	0.011	1.860	1.300	0.95	0.67
JsT-Ab-060206-15/364AFA021M	Out	927.475	SNN5704C	Against phantom	NNTN6026A	SYN8146C / NNTN6402A Wireless wheel (Dongle not tx)	0.873	0.125	1.430	0.998	0.73	0.51
Assessments at the Hand (MOTotalk mode 114:120)												
JsT-Hand-060206-17/364AFA021M	Out	915.525	SNN5704C	Back against phantom, flip open	None	SYN8146C / NNTN6402A Wireless wheel (Dongle not tx)	0.872	0.211	3.860	2.470	1.97	1.26
JsT-Hand-060206-18/364AFA021M	In	915.525	SNN5704C	Back against phantom, flip open	None	SYN8146C / NNTN6402A Wireless wheel (Dongle not tx)	0.870	-0.964	2.680	1.700	1.71	1.09

*Assessment with the worst case test configuration above using the full DASY 4 coarse and 7x7x7 cube scan measurements.												
Run Number/ SN	Antenna Pos.	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	S.A.R. Drift (dB)	Meas. 1g-S.A.R. (mW/g)	Meas. 10g- S.A.R. (mW/g)	Max Calc. 1g-S.A.R. (mW/g)	Max Calc. 10g- S.A.R. (mW/g)
Head (Phone mode 1:3)												
JsT-REAR-060208-07/ 364AFA021M	In	824.9875	SNN5704C	Cheek touch	None	NNTN6402A Wireless wheel (Dongle tx)	0.669	-0.751	0.633	0.441	0.75	0.52
Face (MOTotalk mode 114:120)												
KU-Face-060210-02/ 364AFA021M	Out	902.525	SNN5704C	Front 2.5cm flip closed	None	NNTN6402A Wireless wheel (Dongle not tx)	0.871	0.411	0.911	0.650	0.47	0.33
Body (WIDEN mode 76.1%)												
KU-Ab-060210-04 / 364AFA021M	In	813.5125	SNN5704C	Against phantom	NNTN6026A	NNTN6402A Wireless wheel (Dongle tx)	0.671	-0.818	0.573	0.429	1.58	1.18
Hand (WIDEN mode 76.1%)												
JsT-Hand-060207-08/ 364AFA021M	In	806.0125	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.661	-1.09	1.37	0.84	4.02	2.47
KU-Hand-060210-03/ 364AFA021M (Shorten scan)	In	806.0125	SNN5704C	Back against phantom, flip open	None	NNTN6402A Wireless wheel (Dongle tx)	0.665	-0.471	1.74	1.07	4.43	2.72

9.1 Highest S.A.R. results calculation methodology

The calculated maximum 1-gram and 10-gram averaged S.A.R. results reported herein for the full DASYS™ coarse and 7x7x7 cube measurements are determined by scaling the measured S.A.R. to account for power leveling variations and power slump. For this device the Maximum Calculated 1-gram and 10-gram averaged peak S.A.R. is calculated using the following formula:

$$\text{Max. Calc. 1-g/10-g Avg. SAR} = ((\text{S.A.R. meas.} / (10^{(\text{Pdrift}/10)})) * (\text{Pmax}/\text{Pint})) * \text{DC}\%$$

P_{max} = Maximum Power (W)

P_{int} = Initial Power (W)

Pdrift = DASYS drift results (dB) - (for conservative results positive drifts are not accounted for)

SAR_{meas.} = Measured 1 gram averaged peak S.A.R. (mW/g)

DC % = Transmission mode duty cycle in % where applicable -
(76.1%/33.33%) for WIDEN data mode at the hand and body.

50% duty cycle is applied for PTT operation.

10.0 Conclusion

The highest Operational Maximum Calculated 1-gram and 10-gram average S.A.R. values found for FCC ID: AZ489FT5844 models H65XAN6RR4AN/NWF1000A.

At the Body: 1g-Avg. = 1.58 mW/g; 10-g Avg. = 1.18 mW/g

At the Face: 1g-Avg. = 0.47 mW/g; 10-g Avg. = 0.33 mW/g

At the Head: 1g-Avg. = 0.75 mW/g; 10-g Avg. = 0.52 mW/g

At the Hand: 10g-Avg. = 2.72 mW/g

These test results clearly demonstrate compliance with FCC General Population/Uncontrolled RF Exposure limits of **1.6mW/g** per the requirements of 47 CFR 2.1093(d) and also demonstrate compliance with the localized 10g average FCC General Population/Uncontrolled Environment RF Exposure hand Limit of **4.0mW/g** per the requirements of 47 CFR 2.1093(d)(2).

APPENDIX A
Measurement Uncertainty

Uncertainty Budget for Device Under Test, for 30 MHz to 3 GHz

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e = f(d,k)</i>	<i>f</i>	<i>g</i>	<i>h = c x f / e</i>	<i>i = c x g / e</i>	<i>k</i>
Uncertainty Component	IEEE 1528 section	Tol. (± %)	Prob Dist	Div.	<i>c_i</i> (1 g)	<i>c_i</i> (10 g)	1 g <i>u_i</i> (±%)	10 g <i>u_i</i> (±%)	<i>v_i</i>
Measurement System									
Probe Calibration	E.2.1	5.9	N	1.00	1	1	5.9	5.9	∞
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3	1.0	R	1.73	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	0.3	N	1.00	1	1	0.3	0.3	∞
Response Time	E.2.7	1.1	R	1.73	1	1	0.6	0.6	∞
Integration Time	E.2.8	1.1	R	1.73	1	1	0.6	0.6	∞
RF Ambient Conditions - Noise	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	0.0	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mech. Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning w.r.t Phantom	E.6.3	1.4	R	1.73	1	1	0.8	0.8	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	3.4	R	1.73	1	1	2.0	2.0	∞
Test sample Related									
Test Sample Positioning	E.4.2	3.2	N	1.00	1	1	3.2	3.2	29
Device Holder Uncertainty	E.4.1	4.0	N	1.00	1	1	4.0	4.0	8
SAR drift	6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	E.3.3	3.3	N	1.00	0.64	0.43	2.1	1.4	∞
Liquid Permittivity (target)	E.3.2	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	E.3.3	1.9	N	1.00	0.6	0.49	1.1	0.9	∞
Combined Standard Uncertainty			RSS				11	11	411
Expanded Uncertainty (95% CONFIDENCE LEVEL)			<i>k</i> =2				22	22	

**Uncertainty Budget for System Performance Check
(dipole & flat phantom) for 30 MHz to 3 GHz**

<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	$e = f(d,k)$	<i>f</i>	<i>g</i>	$h = c \times f / e$	$i = c \times g / e$	<i>k</i>
Uncertainty Component	IEEE 1528 section	Tol. (\pm %)	Prob. Dist.	Div.	c_i (1 g)	c_i (10 g)	1 g u_i (\pm %)	10 g u_i (\pm %)	v_i
Measurement System									
Probe Calibration	E.2.1	5.9	N	1.00	1	1	5.9	5.9	∞
Axial Isotropy	E.2.2	4.7	R	1.73	1	1	2.7	2.7	∞
Spherical Isotropy	E.2.2	9.6	R	1.73	0	0	0.0	0.0	∞
Boundary Effect	E.2.3	1.0	R	1.73	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1.0	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	0.3	N	1.00	1	1	0.3	0.3	∞
Response Time	E.2.7	1.1	R	1.73	1	1	0.6	0.6	∞
Integration Time	E.2.8	0.0	R	1.73	1	1	0.0	0.0	∞
RF Ambient Conditions - Noise	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
RF Ambient Conditions - Reflections	E.6.1	0.0	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning w.r.t. Phantom	E.6.3	1.4	R	1.73	1	1	0.8	0.8	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	3.4	R	1.73	1	1	2.0	2.0	∞
Dipole									
Dipole Axis to Liquid Distance	8, E.4.2	2.0	R	1.73	1	1	1.2	1.2	∞
Input Power and SAR Drift Measurement	8, 6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	E.3.3	3.3	R	1.73	0.64	0.43	1.2	0.8	∞
Liquid Permittivity (target)	E.3.2	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	E.3.3	1.9	R	1.73	0.6	0.49	0.6	0.5	∞
Combined Standard Uncertainty			RSS				9	9	99999
Expanded Uncertainty (95% CONFIDENCE LEVEL)			$k=2$				18	17	

Notes for Tables 1 and 2

- a) Column headings *a-k* are given for reference.
- b) Tol. - tolerance in influence quantity.
- c) Prob. Dist. – Probability distribution
- d) N, R - normal, rectangular probability distributions
- e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty
- f) c_i - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
- g) u_i – SAR uncertainty
- h) v_i - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty.

Appendix B
Probe Calibration Certification

**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 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**

Client **Motorola CGISS**

Certificate No: **ET3-1384_May05**

CALIBRATION CERTIFICATE

Object: **ET3DV6 - SN:1384**

Calibration procedure(s): **QA CAL-01.v5 and QA CAL-12.v4
Calibration procedure for dosimetric E-field probes**

Calibration date: **May 26, 2005**

Condition of the calibrated item: **In Tolerance**

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	3-May-05 (METAS, No. 251-00466)	May-06
Power sensor E4412A	MY41495277	3-May-05 (METAS, No. 251-00466)	May-06
Power sensor E4412A	MY41498087	3-May-05 (METAS, No. 251-00466)	May-06
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-04 (METAS, No. 251-00403)	Aug-05
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-05 (METAS, No. 251-00467)	May-06
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-04 (METAS, No. 251-00404)	Aug-05
Reference Probe ES3DV2	SN: 3013	7-Jan-05 (SPEAG, No. ES3-3013_Jan05)	Jan-06
DAE4	SN: 617	19-Jan-05 (SPEAG, No. DAE4-617_Jan05)	Jan-06

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-04)	In house check: Nov 05

	Name	Function	Signature
Calibrated by:	Nico Vetterli	Laboratory Technician	<i>N. Vetterli</i>
Approved by:	Katja Pokovic	Technical Manager	<i>Katja Pokovic</i>

Issued: May 26, 2005

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

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



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S Servizio svizzero di taratura
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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
NORM _{x,y,z}	sensitivity in free space
ConF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
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., $\vartheta = 0$ 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
- 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

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below *ConvF*).
- NORM(f)_{x,y,z}** = NORM_{x,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*.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- 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_{x,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.

ET3DV6 SN:1384

May 26, 2005

Probe ET3DV6

SN:1384

Manufactured:	August 16, 1999
Last calibrated:	May 27, 2004
Recalibrated:	May 26, 2005

Calibrated for DASYS Systems

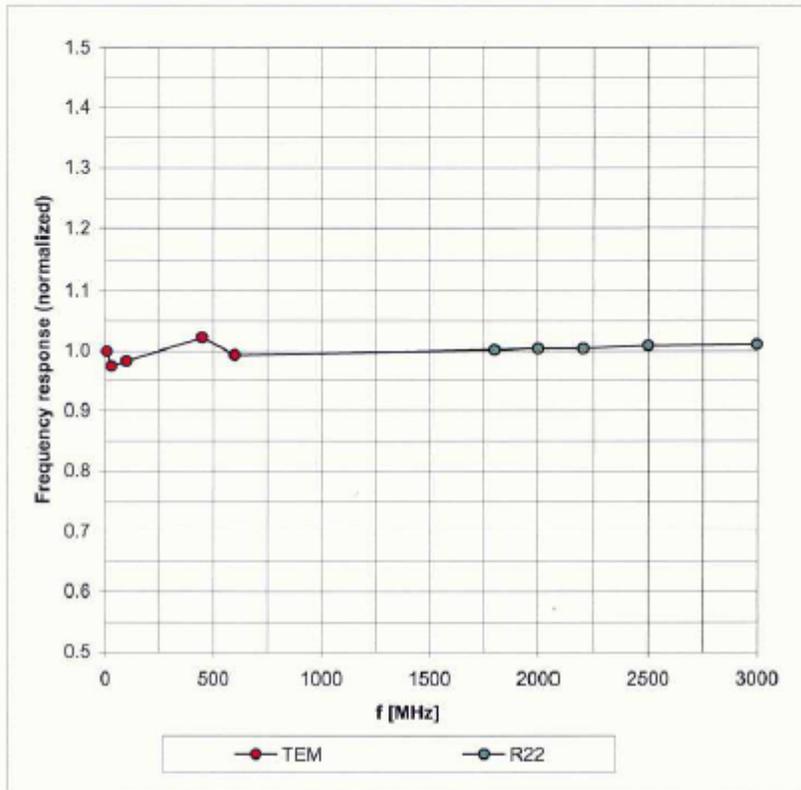
(Note: non-compatible with DASYS2 system!)

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Frequency Response of E-Field

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

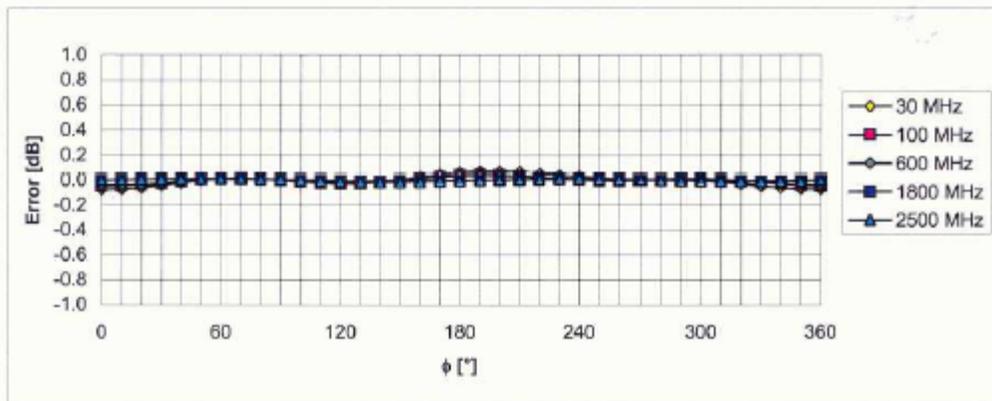
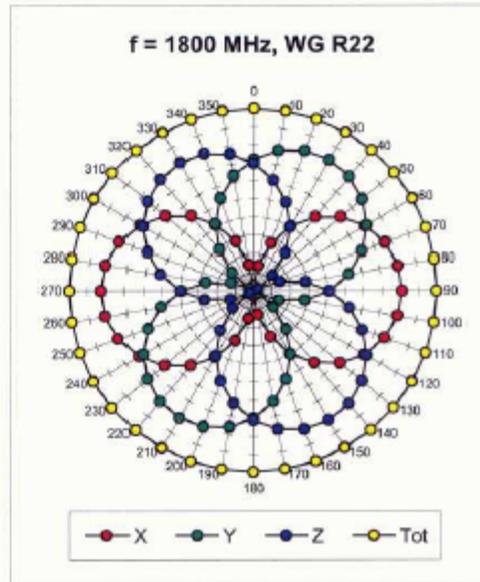
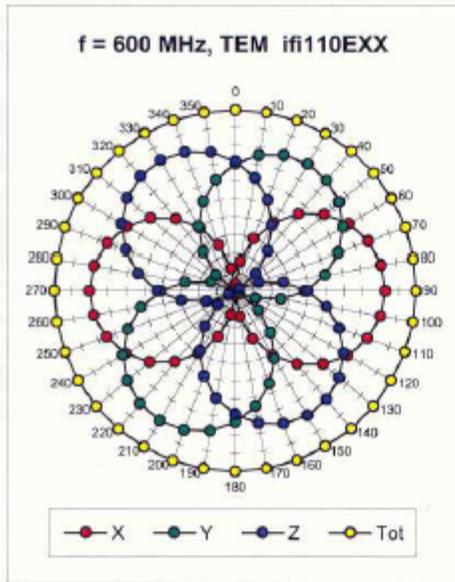


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

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

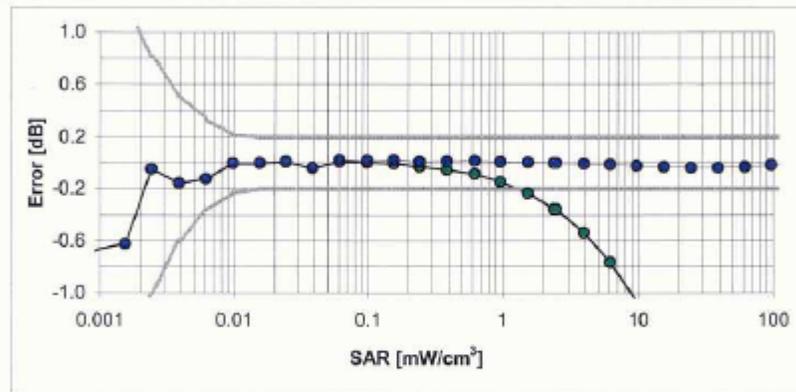
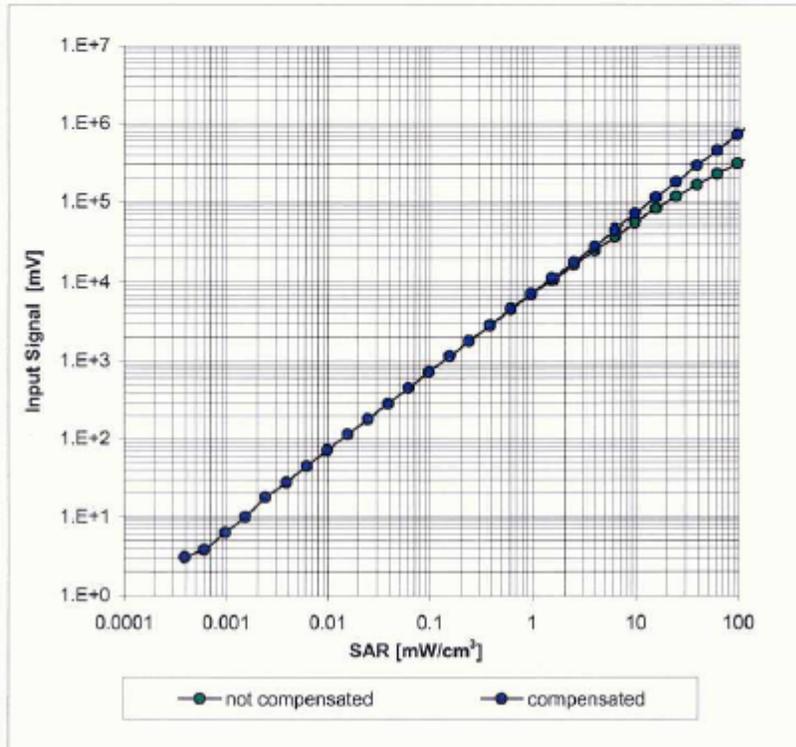


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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May 26, 2005

Dynamic Range $f(\text{SAR}_{\text{head}})$ (Waveguide R22, $f = 1800 \text{ MHz}$)

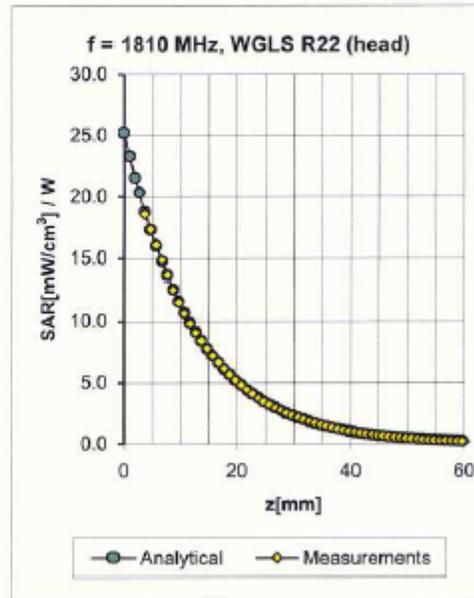
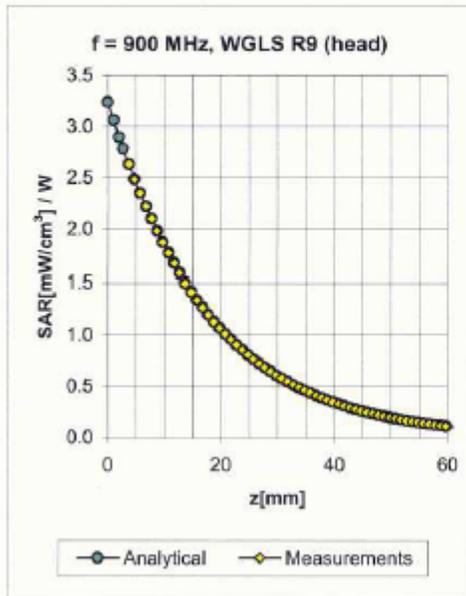


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

ET3DV6 SN:1384

May 26, 2005

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%	0.08	1.62	7.51 ± 13.3% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.84	1.67	6.53 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.73	2.19	5.31 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.81	2.05	4.71 ± 11.8% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.10	1.75	7.10 ± 13.3% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.66	1.95	6.19 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.67	2.58	4.80 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.93	1.80	4.46 ± 11.8% (k=2)

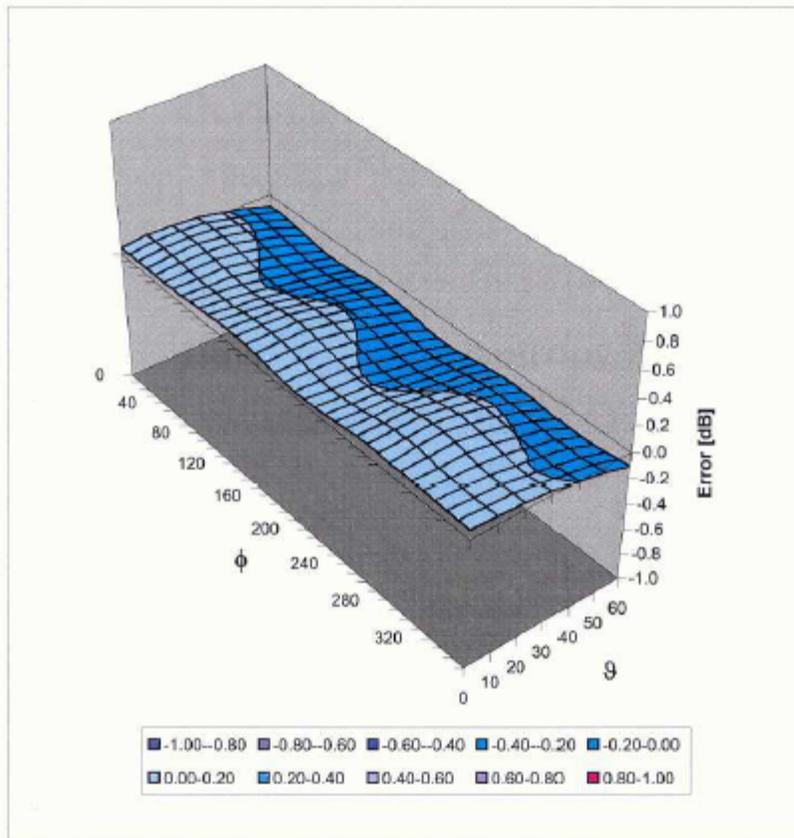
^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

ET3DV6 SN:1384

May 26, 2005

Deviation from Isotropy in HSL

Error (ϕ, θ), $f = 900$ MHz



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

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Additional Conversion Factors for Dosimetric E-Field Probe

Type:

ET3DV6

Serial Number:

1384

Place of Assessment:

Zurich

Date of Assessment:

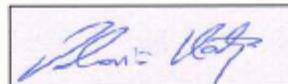
May 30, 2005

Probe Calibration Date:

May 26, 2005

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 recalibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 900 MHz or at 1800 MHz.

Assessed by:



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Dosimetric E-Field Probe ET3DV6 SN:1384

Conversion factor (\pm standard deviation)

150 MHz	<i>ConvF</i>	8.9 \pm 10%	$\epsilon_r = 52.3$ $\sigma = 0.76 \text{ mho/m}$ (head tissue)
250 MHz	<i>ConvF</i>	8.1 \pm 10%	$\epsilon_r = 47.6$ $\sigma = 0.83 \text{ mho/m}$ (head tissue)
300 MHz	<i>ConvF</i>	8.0 \pm 9%	$\epsilon_r = 45.3$ $\sigma = 0.87 \text{ mho/m}$ (head tissue)
750 MHz	<i>ConvF</i>	6.8 \pm 7%	$\epsilon_r = 41.9$ $\sigma = 0.89 \text{ mho/m}$ (head tissue)
150 MHz	<i>ConvF</i>	8.6 \pm 10%	$\epsilon_r = 61.9$ $\sigma = 0.80 \text{ mho/m}$ (body tissue)
250 MHz	<i>ConvF</i>	8.1 \pm 10%	$\epsilon_r = 59.4$ $\sigma = 0.88 \text{ mho/m}$ (body tissue)
300 MHz	<i>ConvF</i>	8.0 \pm 9%	$\epsilon_r = 58.2$ $\sigma = 0.92 \text{ mho/m}$ (body tissue)
750 MHz	<i>ConvF</i>	6.6 \pm 7%	$\epsilon_r = 55.5$ $\sigma = 0.96 \text{ mho/m}$ (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 Section 4.7 of the DASY4 Manual.