MOTOROLA

ACCREDITED
TESTING CERT # 2518.01

FCC ID: AZ489FT7032
DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 1 of 3

Government & Public Safety
EME Test Laboratory
8000 West Sunrise Blvd
Fort Lauderdale, FL. 33322

Date of Report: 05/12/2008
Report Revision: B
Report ID: UTAH_semi rugged_Rev B_080512 SR5989

Responsible Engineer:	Stephen C. Whalen (EME Principle Staff Engineer)
Date/s Tested:	03/12/08 – 03/25/08
Manufacturer/Location:	Motorola – Israel
Sector/Group/Div.:	MCIL Israel
Date submitted for test:	12/12/07
DUT Description:	VoWLAN is a VoIP phone based on WLAN 802.11a/b/g & Bluetooth
Test TX mode(s):	100% Duty Cycle (all bands)
Max. Power output:	BT 2.51mW; 802.11a(5.15-5.25GHz) 39.8mW; 802.11a(5.25-5.35GHz) 79.3mW; 802.11a(5.47-5.725GHz) 79.3mW; 802.11a(5.725-5.825 GHz) 79.3mW; 802.11b 79.3mW; 802.11g 70.8mW.
Nominal Power:	BT 1mW; 802.11a(5.15-5.25GHz) 28.2mW; 802.11a(5.25-5.35GHz) 56.2mW; 802.11a(5.47-5.725GHz) 56.2mW; 802.11a(5.725-5.825 GHz) 56.2mW; 802.11b 63mW; 802.11g 17.8mW
Tx Frequency Bands:	BT 2402-2480MHz; 802.11a 5.18-5.24GHz; 802.11a 5.26-5.32GHz ; 802.11a 5.50-5.70GHz; 802.11a 5.745-5.805GHz; 802.11b/g 2412-2462MHz
Signaling type:	Bluetooth - Frequency Hopping Spread Spectrum (FHSS); WLAN -802.11a/b/g Direct Sequence Spread Spectrum (DSSS), Orthogonal Frequency Division Multiplexing (OFDM)
Model(s) Tested:	F2978A
Model(s) Certified:	F2978A
Serial Number(s):	079SJA00HN
Classification:	General Population/Uncontrolled
Rule Part(s):	15

DUT Photo
(Refer to Exhibit 7B)

Antenna(s):
0789971V46 (2.4GHz BT PIFA single Band ¼ wave antenna, -0.2dBi);
0789971V87 (2.4GHz WLAN b/g PIFA Dual Band ¼ wave antenna, 3.0dBi);
0789971V87 (5GHz WLAN a PIFA Dual Band ¼ wave antenna, 1.0dBi)

Battery(ies):
SNN5754A (Li Ion 1480MAH - BK90)

Body worn accessory(ies):
None

Audio/Data cable accessory(ies):
NNTN5004BP (Earpiece W/Boom Mic & PTT), NNTN5005BP (Breeze Headset W/Boom Mic), NNTN5006BP (Earpiece W/Mic & PTT), NNTN5211B (Earbud W/Clip & PTT (Surveillance)), SYN1301B (EMU Stereo Headset), NNTN5774C (Stereo Headset W/Tamper proof), SYN0896B (Headset EMU MONO), NNTN5689A (Earpiece W/Mic), SKN6222A (Data Cable EMU & EMU Y-CABLE), SKN6371C (Data Cable MINI USB TO USB)

Max. Calc. : 1-g Avg. SAR: 1.29 W/kg (Body); 10-g Avg. SAR: 0.47 W/kg (Body)
Max. Calc. : 1-g Avg. SAR: 0.11 W/kg (Face); 10-g Avg. SAR: 0.05 W/kg (Face)
Max. Calc. : 1-g Avg. SAR: 0.80 W/kg (Head); 10-g Avg. SAR: 0.31 W/kg (Head)

Signature on file
Deanna Zakharia G&PS EME Lab Senior Resource Manager, Laboratory Director,
Approval Date: 5/14/2008

Certification Date: 04/09/2008

Certification No.: L1080401P

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APPENDICES

Part 2 of 3

Part 3 of 3

Report Revision History

Date	Revision	Comments
04/01/08	O	Initial release
04/09/08	A	Corrected maximum output power for 5.725-5.825GHz in section 3.0
05/12/08	B	Removed references to simultaneous transmission in sections 3.0 and 10.0 and updated final SAR results. Added note to section 7.1 in reference to BT testing not required.

1.0 Introduction and Overview

This report details the utilization, test setup, test equipment, and test results of the Specific Absorption Rate (SAR) measurements performed at the G&PS EME Test Lab for the model number F2978A of FCC ID: AZ489FT7032. The results herein reflect initial test results.

The EME measurements were performed in accordance with the applicable testing guidelines set forth in IEC62209-1 (2005) and adopted by CENELEC as EN62209-1 (2006). The highest SAR levels clearly demonstrate compliance to ICNIRP (1998) Guidelines for limiting exposure in time-varying electric, magnetic, and electromagnetic fields (up to 300GHz) RF Exposure limits of 2.0 W/kg averaged over 10grams of contiguous tissue. The results also adhere to the 1.6 W/kg averaged over 1 gram of tissue as stipulated in ANSI C95.1-2005.

2.0 Referenced Standards and Guidelines

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

- IEC62209-1(2005) Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)
- 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) C95.1-2005 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: AZ489FT7032 is a VoIP phone based on WLANa/b/g (VoWLAN) for phone, dispatch and data application. WLAN supports the following bands; 802.11b/g (2.4 GHz ISM band) Direct Sequence Spread Spectrum (DSSS) and 802.11a (5 GHz UNII bands) Orthogonal Frequency Division Multiplexing (OFDM).
The maximum duty cycle for WLANa/b/g is 50% which is maintained within the VoWLAN device's CPU processing limitations.
Bluetooth: Frequency Hopping Spread Spectrum (FHSS) GFSK (1Mbps) maximum duty cycle is 95%. The Bluetooth is used for any application in which data/voice is exchanged with an external Bluetooth device.
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 in phone, PTT or Data modes.

FCC ID: AZ489FT7032 is capable of operating in the BT 2400-2483MHz; 802.11a 5.15-5.25GHz; 802.11a 5.25-5.35GHz; 802.11a 5.47-5.725GHz; 802.11a 5.725-5.825GHz; 802.11b/g 2.400-2.497GHz bands.

The rated conducted power is BT 1mW; 802.11a (5.15-5.25GHz) 28.2mW; 802.11a (5.25-5.35GHz) 56.2mW; 802.11a (5.47-5.725GHz) 56.2mW; 802.11a (5.725-5.825 GHz) 56.2mW; 802.11b (2.400-2.497GHz) 63mW; 802.11g (2.400-2.497GHz) 17.8mW.

The maximum conducted output power is BT 2.51mW; 802.11a (5.15-5.25GHz) 39.8mW; 802.11a (5.25-5.35GHz) 79.3mW; 802.11a (5.47-5.725GHz) 79.3mW; 802.11a (5.725-5.825 GHz) 79.3mW; 802.11b (2.400-2.497GHz) 79.3mW; 802.11g (2.400-2.497GHz) 70.8mW as defined by the upper limit of the production line final test station.

FCC ID: AZ489FT7032 is offered with the options and accessories listed on the coversheet of this report.

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™) SAR measurement system Version 4.7 build 55 manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The test system consists of a Stäubli RX90L robot, DAE3V1, EX3DV3 and ET3DV6 E-Field probes. Please reference the SPEAG user manual and application notes for detailed probe, robot, and SAR 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 SAR 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 ID	Phantom Material	Phantom Dimensions (cm)	Support structure opening dimensions (cm)	Support structure material	Loss Tangent (wood)
Flat 40302002B-S12	High Density Polyethylene (HDPE)	40x30x20x0.2	60.96x15.24	Wood	< 0.05
Flat 40302002A-S11	High Density Polyethylene (HDPE)	40x30x20x0.2	60.96x15.24	Wood	< 0.05

4.2.2 SAM Phantom

Phantom ID	Material Parameters	Material Thickness (mm)	Support structure material	Loss Tangent (wood)
SAMTP1022	300MHz -6GHz; Er = 5 Loss Tangent = <0.05	2mm +/- 0.2mm	Wood	< 0.05
SAMTP1234	200MHz -3GHz; Er = <5, Loss Tangent = <0.05	2mm +/- 0.2mm	Wood	< 0.05

4.2.3 Elliptical Phantom

Phantom ID	Material Parameters	Material Thickness (mm)	Support structure material	Loss Tangent (wood)
NA	NA	NA	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 similar type 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	2450MHz		5GHz Band	
	Head	Body	Head	Body
Sugar	NA	NA	NA	NA
Diacetin	NA	30	NA	NA
De ionized -Water	51.0	NA	NA	NA
Salt	48.8	70	NA	NA
HEC	0.1	NA	NA	NA
Bact.	0.1	NA	NA	NA

Note: 1) SPEAG provides Motorola proprietary simulant ingredients for the 5GHz band.
2) Reference section 6.1 for target parameters.

5.0 Additional Test Equipment

Equipment Type	Model Number	Serial Number	Calibration Due Date
Power Meter (Agilent)	E4419B	MY40330364	6/25/2008
E-Series Avg. Power Sensor (Agilent)	E9301B	MY41495593	2/14/2009
E-Series Avg. Power Sensor (Agilent)	E9301B	MY41495594	2/14/2009
P-Series Power Meter (Agilent)	N1912A	GB45100294	9/17/2009
Wideband Power Sensor (Agilent)	N1921A	MY45240136	11/8/2008
Weinschel Attenuator	33-30-34	BG8265	3/30/2008
Weinschel Attenuator	33-30-34	BG9479	5/16/2008
Bi-Directional Coupler (NARDA)	3024	61136	3/9/2009
Bi-Directional Coupler (NARDA)	3022	77114	2/7/2010
Signal Generator (Agilent)	E4438C	MY42082269	6/23/2008
Agilent Microwave System Amplifier	87415A	MY39500336	CNR
Agilent Power Supply	87421A	CN44350245	CNR
AMP (ComTech PST)	AR88258-10	N1R1A00-1015	CNR
Agilent PNA-L Network Analyzer	N5230A	MY45001092	5/22/2008
Dielectric Probe Kit (HP)	85070C	US99360076	CNR
Speag Dipole	D2450V2	704	11/10/2008
Speag Dipole	D5GHzV2	1010	5/3/2008

6.0 SAR Measurement System Verification

The SAR measurements were conducted with probe model/serial numbers EX3DV3/3527 and ET3DV6/1545. 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 G&PS 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 G&PS EME system performance validation are provided herein.

6.1 Equivalent Tissue Test Results

Simulated tissue prepared for SAR measurements is measured daily and within 24 hours prior to actual SAR testing to verify that the tissue is within +/- 5% (2.4GHz) and +/- 10% (5GHz) of target parameters at the center of the transmit band. This measurement is done using the applicable equipment indicated in section 5.0.

Target versus Actual tissue parameters (03/12/08 – 03/25/08)

FCC Body				
Frequency (MHz)	Di-electric Constant Target	Di-electric Constant Meas. (Range)	Conductivity Target S/m	Conductivity Meas. (Range) S/m
2437	52.7	51.7-52.2	1.94	1.93-1.94
2441	52.7	52.2-52.2	1.94	1.94-1.94
2450	52.7	52.2-52.2	1.95	1.95-1.95
5200	49.0	44.9-45.2	5.30	5.23-5.32
5250	49.0	44.7-45.2	5.36	5.29-5.42
5650	48.4	44.0-44.3	5.83	5.83-5.84

IEEE Head				
Frequency (MHz)	Di-electric Constant Target	Di-electric Constant Meas. (Range)	Conductivity Target S/m	Conductivity Meas. (Range) S/m
2437	39.2	38.9-39.2	1.79	1.83-1.86
2441	39.2	38.7-39.2	1.79	1.86-1.87
2450	39.2	38.7-39.2	1.80	1.85-1.88
5200	36.0	34.5-35.7	4.65	4.48-4.63
5250	36.0	34.4-35.6	4.70	4.53-4.68
5650	35.5	34.1-34.9	5.11	4.99-5.15

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 SAR @ 1W (mW/g)	Test Date(s)
1545	IEEE Head	8/28/07	SPEAG D2450V2 /704	55.000 +/- 0.600	54.77 +/- 10%	3/19/08,3/20/08, 3/24/08 3 test days
1545	FCC Body	8/28/07	SPEAG D2450V2 /704	53.600 +/- 0.000	53.74 +/- 10%	3/21/08 1 test day
3527	IEEE Head	5/17/07	SPEAG D5GHzV2 /1010	82.130 +/- 2.770	83.68 +/- 10%	3/12/08, 3/18/08, 3/19/08, 3/25/08 4 test days
3527	FCC Body	5/17/07	SPEAG D5GHzV2 /1010	75.130 +/- 4.15	76.84 +/- 10%	3/13/08-3/15/08, 3/17/08 4 test days

Note: See APPENDIX D for an explanation of the reference SAR 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 SAR 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 BT (FHSS) and 802.11a/b/g (DSSS, OFDM) transmission signaling operational at the body, head, and face using the offered accessories. 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 SAR test plan for this product. SAR measurements were performed using a flat phantom and a SAM phantom with the applicable simulated tissue to assess performance at the body, head, and face respectively using the relevant transmission modes.

Note that a coarse-to-cube approximation methodology was utilized in the 2.4GHz bands (BT and 802.11b/g) to determine the worst-case SAR performance configuration for each applicable body location. The test configurations that produced the highest SAR results for each body position using the coarse-to-cube approximation methodology were assessed using the full DASY4™ coarse and 5x5x7 cube scans.

Note that although stand alone BT data is presented, it is not required per FCC TCB workshop February 2008 and FCC OET draft 648474 (April 2008) “SAR Evaluation Considerations for Handsets with multiple Transmitters and Antennas” because the maximum output power for BT is 2.51mW and the separation distance between the BT antenna and WLAN antenna is greater than 2.5cm.

Note all 5GHz DASY SAR results were corrected for deviations in permittivity and conductivity, using the algorithm given in Annex B.3 of draft standard IEEE 1528b and Annex F of draft standard IEC 62209-2. The use of this algorithm increases the accuracy of the SAR results. All 5GHz results were assessed using the full DASY4™ coarse and 8x8x8 cube scans.

Assessments at the Head (802.11b) **Page 13 of 49; Table 1**

- Assessment in the 2.400–2.497GHz band using applicable touch and tilt test configurations at the head.
- Assessment at the 2.400–2.497GHz band edges using the worst case configuration from above.

Assessments at the Face (802.11b) **Page 14 of 49; Table 1**

- Assessment across the 2.400–2.497GHz band

Assessments at the Head (Bluetooth) **Page 14 of 49; Table 1**

- Assessment in the 2.400-2.483GHz band using applicable touch and tilt test configurations at the head.
- Assessment at the 2.400-2.483GHz band edges using the worst case configuration from above.

Assessments at the Face (Bluetooth) **Page 14 of 49; Table 1**

- Assessment across the 2.400-2.483GHz band

Assessments at the Head (802.11a) **Pages 15 of 49; Table 1**

- Assessment in the 5.15–5.35GHz band using applicable touch and tilt test configurations at the head.
- Assessment at the 5.15–5.35GHz band of the "default test channels" and/or "required test channels" per OET SAR Measurement Procedures for 802.11a/b/g transmitters (revised May 2007) using the worst case configuration from above.

Assessments at the Face (802.11a) **Page 15 of 49; Table 1**

- Assessment across the 5.15–5.35GHz band of the "default test channels" and/or "required test channels" per OET SAR Measurement Procedures for 802.11a/b/g transmitters (revised May 2007).

Assessments at the Head (802.11a) **Pages 16 of 49; Table 1**

- Assessment in the 5.470–5.825GHz band using applicable touch and tilt test configurations at the head.
- Assessment at the 5.470–5.825GHz band on the "default test channels" and/or "required test channels" per OET SAR Measurement Procedures for 802.11a/b/g transmitters (revised May 2007) using the worst case configuration from above.

Assessments at the Face (802.11a) **Page 17 of 49; Table 1**

- Assessment across the 5.470–5.825GHz band on the "default test channels" and/or "required test channels" per OET SAR Measurement Procedures for 802.11a/b/g transmitters (revised May 2007).

Assessments at the Body (802.11b) **Pages 17 & 18 of 49; Table 2**

- Assessment in the 2.400–2.497GHz band DUT (front/back) worst case adjacent to the phantom with the offered audio and data cable options.
- Assessment in the 2.400–2.497GHz band of the band edge frequencies using the worst case configuration from above.
- Assessment using the worst case test configuration at the body overall from above with the back and front housing of the DUT separated 2.5cm from the phantom.

Assessments at the Body (Bluetooth) **Pages 18 & 19 of 49; Table 2**

- Assessment in the 2.400–2.483GHz band DUT (front/back) worst case adjacent to the phantom with the offered audio and data cable options.
- Assessment in the 2.400–2.483GHz band of the band edge frequencies using the worst case configuration from above.
- Assessment using the worst case test configuration at the body overall from above with the back and front housing of the DUT separated 2.5cm from the phantom.

Assessments at the Body (802.11a) **Pages 19 & 20 of 49; Table 2**

- Assessment in the 5.15–5.35GHz band DUT (front/back) worst case adjacent to the phantom with the offered audio and data cable options.
- Assessment at the 5.15–5.35GHz band of the "default test channels" and/or "required test channels" per OET SAR Measurement Procedures for 802.11a/b/g transmitters (revised May 2007) using the worst case configuration from above.
- Assessment using the worst case test configuration at the body overall from above with the back and front housing of the DUT separated 2.5cm from the phantom.

Assessments at the Body (802.11a) **Pages 20 & 21 of 49; Table 2**

- Assessment in the 5.470–5.825GHz band DUT (front/back) worst case adjacent to the phantom with the offered audio and data cable options.
- Assessment at the 5.470–5.825GHz band of the "default test channels" and/or "required test channels" per OET SAR Measurement Procedures for 802.11a/b/g transmitters (revised May 2007) using the worst case configuration from above.
- Assessment using the worst case test configuration at the body overall from above with the back and front housing of the DUT separated 2.5cm from the phantom.

Shortened scan assessment at the Body **Page 21 & 22 of 49; Table 3**

- A "shortened" scan was performed using the offered battery and test configuration that produced the highest SAR 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 a "shirt pocket" front and back user configuration against the phantom with 0cm separation distance with and without optional cable accessories.
The DUT was positioned with its' front and back sides separated 2.5cm from the phantom.

7.2.2 Head

The DUT was placed against the right and left heads of the SAM phantom in the cheek touch and tilt positions.

7.2.3 Face

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

8.0 Environmental Test Conditions

The EME Laboratory 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 +/ - 2^{o}C of the temperature at which the dielectric properties were determined. The liquid depth within the phantom used for measurements was 15cm +/- 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 SAR tests reported herein:

	Target	Measured
Ambient Temperature	20 - 25 ˚C	Range: 20.7-24.0˚C Avg. 21.8˚C
Relative Humidity	30 - 70 %	Range: 41.6-59.0% Avg. 52.8%
Tissue Temperature	NA	Range: 19.7-21.1˚C Avg. 20.3 ˚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 SAR scans are repeated.

9.0 Test Results Summary

All SAR 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 in the 2.4GHz band (in bold with *). The worst case test configurations in the 2.4GHz band observed for each body location were assessed using the full DASY4™ coarse and 5x5x7 cube methodology and they are summarized in the worst case table below (Table 3). The worst case test configurations for each body location in the 5GHz band (in bold with *) are also summarized in Table 3. The associated SAR plots are provided in APPENDIX E. Appendix E and Table 3 also presents shortened SAR cube scan to assess the validity of the calculated results presented herein. Note: The results of the shortened cube scan presented in Appendix E demonstrate that the scaling methodology used to determine the calculated SAR results presented herein are valid.

Table 1

Assessments at the Head (CW, VoWLAN 802.11b) 2.400-2.497GHz band												
Run Number/ SN	**Antenna Pos.**	**Freq. (MHz)**	**Battery**	**Test position**	**Carry Case**	**Additional attachments**	**Initial Power (W)**	**SAR Drift (dB)**	**Meas. 1g-SAR (mW/g)**	**Meas. 10g-SAR (mW/g)**	**Max Calc. 1g-SAR (mW/g)**	**Max Calc. 10g-SAR (mW/g)**
Assessment at the right ear – touch/tilt												
MeC-Rear-080319-15/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.075	0.164	0.389	0.194	0.206	0.103
MeC-Rear-080319-16/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.075	-0.173	0.289	0.147	0.159	0.081
Assessment at the right ear – freq. search using worst case position from above												
MeC-Rear-080319-17/079SJA00HN	Internal 0789971V87	2412	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.059	0.048	0.268	0.138	0.180	0.093
***MeC-Rear-080319-18/079SJA00HN**	Internal 0789971V87	2462	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.070	0.058	0.396	0.201	0.224	0.114
Assessment at the left ear – touch/tilt												
JsT-Lear-080320-02/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.075	0.046	0.290	0.153	0.153	0.081
JsT-Lear-080320-03/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.075	-0.016	0.246	0.128	0.131	0.068
Assessment at the left ear – freq. search using worst case position from above												
JsT-Lear-080320-04/079SJA00HN	Internal 0789971V87	2412	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.062	-0.034	0.226	0.121	0.146	0.078
JsT-Lear-080320-05/079SJA00HN	Internal 0789971V87	2462	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.075	0.037	0.323	0.167	0.171	0.088

Table 1 (continued)

Assessments at the Head (CW, VoWLAN 802.11b) 2.400-2.497GHz band (continued)													
Run Number/ SN	**Antenna**	**Freq. (MHz)**	**Battery**	**Test position**	**Carry Case**	**Additional attachments**	**Initial Power (W)**	**SAR Drift (dB)**	**Meas. 1g-SAR (mW/g)**	**Meas. 10g-SAR (mW/g)**	**Max Calc. 1g-SAR (mW/g)**	**Max Calc. 10g-SAR (mW/g)**
Assessment at the face – 2.5cm												
JsT-Face-080320-07/079SJA00HN	Internal 0789971V87	2412	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.063	-0.025	0.028	0.016	0.018	0.010
JsT-Face-080320-08/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.075	-0.013	0.039	0.021	0.021	0.011
***JsT-Face-080320-09/079SJA00HN**	Internal 0789971V87	2462	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.075	0.004	0.043	0.024	0.023	0.013
Assessments at the Head (CW, BT) 2.400-2.483GHz band												
Assessment at the right ear – touch/tilt												
JsT-Rear-080320-11/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.0025	-0.561	0.0188	0.0093	0.0203	0.0101
JsT-Rear-080320-12/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.0025	-0.514	0.0100	0.0048	0.0107	0.0052
Assessment at the right ear – freq. search using worst case position from above												
JsT-Rear-080320-13/079SJA00HN	Internal 0789971V46	2402	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.0025	-0.661	0.0151	0.0077	0.0167	0.0086
***JsT-Rear-080320-14/079SJA00HN**	Internal 0789971V46	2480	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.0025	-0.521	0.0203	0.0101	0.0217	0.0108
Assessment at the left ear – touch/tilt												
JsT-Lear-080320-15/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.0025	0.087	0.0200	0.0102	0.0190	0.0097
JsT-Lear-080320-16/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.0025	0.133	0.0115	0.0056	0.0109	0.0053
Assessment at the left ear – freq. search using worst case position from above												
JsT-Lear-080320-17/079SJA00HN	Internal 0789971V46	2402	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.0025	-0.041	0.0172	0.0090	0.0165	0.0086
JsT-Lear-080320-18/079SJA00HN	Internal 0789971V46	2480	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.0025	0.044	0.0213	0.0109	0.0202	0.0104
Assessment at the face – 2.5cm												
MeC-Face-080320-20/079SJA00HN	Internal 0789971V46	2402	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.0025	0.599	0.0026	0.0015	0.0025	0.0014
MeC-Face-080320-21/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.0025	1.480	0.0026	0.0014	0.0024	0.0013
***MeC-Face-080320-22/079SJA00HN**	Internal 0789971V46	2480	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.0025	0.261	0.0033	0.0017	0.0031	0.0016

Table 1 (continued)

Assessments at the Head (CW, VoWLAN 802.11a) 5.15-5.35GHz band												
Run Number/ SN	**Antenna Pos.**	**Freq. (MHz)**	**Battery**	**Test position**	**Carry Case**	**Additional attachments**	**Initial Power (W)**	**SAR Drift (dB)**	**Meas. 1g-SAR (mW/g)**	**Meas. 10g-SAR (mW/g)**	**Max Calc. 1g-SAR (mW/g)**	**Max Calc. 10g-SAR (mW/g)**
Assessment at the right ear – touch/tilt												
***JsT-Rear-080317-02/079SJA00HN**	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.080	-0.483	1.426	0.561	0.797	0.313
JsT-Rear-080317-03/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.079	-0.128	1.367	0.558	0.707	0.288
Assessment at the right ear – freq. search using worst case position from above												
JsT-Rear-080317-04/079SJA00HN	Internal 0789971V87	5180	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.040	-0.074	0.775	0.309	0.394	0.157
JsT-Rear-080317-05/079SJA00HN	Internal 0789971V87	5240	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.039	-0.098	0.786	0.315	0.410	0.164
JsT-Rear-080317-06/079SJA00HN	Internal 0789971V87	5320	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.078	-0.054	1.169	0.461	0.602	0.237
Assessment at the left ear – touch/tilt												
JsT-Lear-080317-07/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.079	-0.050	1.119	0.471	0.568	0.239
JsT-Lear-080317-08/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.078	0.006	1.258	0.528	0.639	0.268
Assessment at the left ear – freq. search using worst case position from above												
JsT-Lear-080317-09/079SJA00HN	Internal 0789971V87	5180	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.040	0.121	0.670	0.288	0.335	0.144
MeC-Lear-080317-10/079SJA00HN	Internal 0789971V87	5240	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.041	0.098	0.605	0.264	0.303	0.132
MeC-Lear-080317-11/079SJA00HN	Internal 0789971V87	5320	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.078	-0.066	0.938	0.411	0.484	0.212
Assessment at the face – 2.5cm												
MeC-Face-080317-12/079SJA00HN	Internal 0789971V87	5180	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.040	0.173	0.105	0.049	0.053	0.025
MeC-Face-080317-13/079SJA00HN	Internal 0789971V87	5240	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.042	-0.056	0.115	0.054	0.058	0.027
***MeC-Face-080317-14/079SJA00HN**	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.082	-0.119	0.219	0.102	0.113	0.052
MeC-Face-080317-16/079SJA00HN	Internal 0789971V87	5320	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.079	-0.163	0.184	0.085	0.096	0.044

Table 1 (continued)

Assessments at the Head (CW, VoWLAN 802.11a) 5.470-5.825GHz band												
Run Number/ SN	**Antenna Pos.**	**Freq. (MHz)**	**Battery**	**Test position**	**Carry Case**	**Additional attachments**	**Initial Power (W)**	**SAR Drift (dB)**	**Meas. 1g-SAR (mW/g)**	**Meas. 10g-SAR (mW/g)**	**Max Calc. 1g-SAR (mW/g)**	**Max Calc. 10g-SAR (mW/g)**
Assessment at the right ear – touch/tilt												
JsT-Rear-080318-02/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.075	-0.086	1.021	0.388	0.551	0.209
JsT-Rear-080318-03/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.075	-0.060	0.961	0.373	0.515	0.200
Assessment at the right ear – freq. search using worst case position from above												
JsT-Rear-080318-04/079SJA00HN	Internal 0789971V87	5500	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.080	-0.125	0.937	0.350	0.482	0.180
JsT-Rear-080318-05/079SJA00HN	Internal 0789971V87	5580	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.078	0.081	1.021	0.389	0.519	0.198
JsT-Rear-080318-06/079SJA00HN	Internal 0789971V87	5620	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.076	-0.038	1.061	0.400	0.558	0.211
JsT-Rear-080318-07/079SJA00HN	Internal 0789971V87	5680	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.075	0.004	1.001	0.376	0.529	0.199
JsT-Rear-080318-08/079SJA00HN	Internal 0789971V87	5745	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.076	-0.043	0.930	0.353	0.490	0.186
JsT-Rear-080318-09/079SJA00HN	Internal 0789971V87	5805	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.078	-0.139	0.921	0.350	0.483	0.184
Assessment at the left ear – touch/tilt												
MeC-Lear-080318-10/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.075	0.052	0.679	0.280	0.359	0.148
MeC-Lear-080318-11/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.076	0.128	0.733	0.307	0.382	0.160
Assessment at the left ear – freq. search using worst case position from above												
MeC-Lear-080318-12/079SJA00HN	Internal 0789971V87	5500	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.080	0.079	0.759	0.325	0.380	0.163
MeC-Lear-080318-13/079SJA00HN	Internal 0789971V87	5580	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.077	0.138	0.753	0.317	0.388	0.163
MeC-Lear-080318-14/079SJA00HN	Internal 0789971V87	5620	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.078	0.101	0.764	0.325	0.388	0.165
MeC-Lear-080318-15/079SJA00HN	Internal 0789971V87	5680	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.078	0.154	0.726	0.301	0.369	0.153
MeC-Lear-080318-16/079SJA00HN	Internal 0789971V87	5745	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.080	0.181	0.794	0.324	0.397	0.162
JsT-Lear-080319-02/079SJA00HN	Internal 0789971V87	5805	SNN5754A w/ 0189968V78	Cheek tilt	None	None	0.076	-0.245	0.740	0.297	0.408	0.164

Table 1 (continued)

Assessments at the Head (CW, VoWLAN 802.11a) 5.470-5.825GHz band (continued)												
Run Number/ SN	**Antenna Pos.**	**Freq. (MHz)**	**Battery**	**Test position**	**Carry Case**	**Additional attachments**	**Initial Power (W)**	**SAR Drift (dB)**	**Meas. 1g-SAR (mW/g)**	**Meas. 10g-SAR (mW/g)**	**Max Calc. 1g-SAR (mW/g)**	**Max Calc. 10g-SAR (mW/g)**
Assessment at the face – 2.5cm												
JsT-Face-080319-03/079SJA00HN	Internal 0789971V87	5500	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.079	-0.160	0.133	0.059	0.069	0.031
JsT-Face-080319-04/079SJA00HN	Internal 0789971V87	5580	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.077	-0.159	0.132	0.057	0.071	0.030
JsT-Face-080319-05/079SJA00HN	Internal 0789971V87	5620	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.075	-0.183	0.121	0.053	0.067	0.029
JsT-Face-080319-06/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.075	-0.168	0.108	0.047	0.059	0.026
JsT-Face-080319-07/079SJA00HN	Internal 0789971V87	5680	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.075	-0.185	0.099	0.043	0.055	0.024
JsT-Face-080319-08/079SJA00HN	Internal 0789971V87	5745	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.076	-0.414	0.091	0.043	0.052	0.025
JsT-Face-080319-09/079SJA00HN	Internal 0789971V87	5805	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.077	-0.142	0.103	0.047	0.055	0.025

Table 2

Assessments at the Body (CW, 802.11b) 2.400-2.497GHz band												
Assessment at the body – front and back												
MeC-Ab-080320-24/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Front Against Phantom	None	None	0.075	-0.365	0.404	0.206	0.232	0.118
MeC-Ab-080320-25/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.075	-0.215	0.793	0.418	0.441	0.232
Assessment at the body – optional audio and data cable search using worst case from above												
MeC-Ab-080320-26/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	data cable SKN6371C	0.076	-0.179	0.890	0.445	0.484	0.242
MeC-Ab-080320-27/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	data cable SKN6222A	0.075	-0.101	0.903	0.442	0.489	0.239
MeC-Ab-080320-28/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5005BP	0.075	-0.201	0.862	0.429	0.477	0.238
MeC-Ab-080320-29/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5006BP	0.075	-0.283	0.855	0.427	0.482	0.241
MeC-Ab-080320-30/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	stereo headset NNTN5774C	0.076	0.000	0.929	0.459	0.485	0.239
HvH-Ab-080321-02/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio SYN0896B	0.075	-0.200	0.945	0.458	0.523	0.254
HvH-Ab-080321-03/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5689A	0.075	-0.163	0.916	0.450	0.503	0.247
***HvH-Ab-080321-04/079SJA00HN**	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.074	-0.217	0.932	0.452	0.525	0.255

Table 2 (continued)

Run Number/ SN	Antenna Pos.	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (mW/g)	Meas. 10g-SAR (mW/g)	Max Calc. 1g-SAR (mW/g)	Max Calc. 10g-SAR (mW/g)
Assessments at the Body (CW, 802.11b) 2.400-2.497GHz band (continued)												
Assessment at the body – freq. search using worst case position from above												
MeC-Ab-080321-27/079SJA00HN	Internal 0789971V87	2412	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.063	0.042	0.699	0.359	0.440	0.226
MeC-Ab-080321-28/079SJA00HN	Internal 0789971V87	2462	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.075	-0.043	0.827	0.422	0.442	0.225
Assessment at the body – 2.5cm using worst case position from above												
JsT-Ab-080324-03/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	DUT Back @ 2.5cm	None	audio NNTN5211B	0.075	-0.096	0.114	0.064	0.062	0.035
JsT-Ab-080324-04/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	DUT Front @ 2.5cm	None	audio NNTN5211B	0.075	0.058	0.037	0.020	0.019	0.010
Assessments at the Body (CW, BT) 2.400-2.483GHz band												
Assessment at the body – front and back												
HvH-Ab-080321-10/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Front Against Phantom	None	None	0.0025	0.269	0.0275	0.0141	0.0261	0.0134
HvH-Ab-080321-11/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.0025	-0.080	0.0844	0.0408	0.0817	0.0395
Assessment at the body – optional audio and data cable search using worst case from above												
HvH-Ab-080321-12/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Back Against Phantom	None	data cable SKN6371C	0.0025	0.006	0.0847	0.0402	0.0805	0.0382
HvH-Ab-080321-13/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Back Against Phantom	None	data cable SKN6222A	0.0025	0.010	0.0814	0.0399	0.0773	0.0379
HvH-Ab-080321-14/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5005BP	0.0025	-0.037	0.0898	0.0422	0.0860	0.0404
HvH-Ab-080321-15/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5006BP	0.0025	-0.018	0.0876	0.0416	0.0836	0.0397
HvH-Ab-080321-16/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Back Against Phantom	None	stereo headset NNTN5774C	0.0025	0.004	0.0876	0.0417	0.0832	0.0396
HvH-Ab-080321-17/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio SYN0896B	0.0025	-0.009	0.0795	0.0385	0.0757	0.0367
HvH-Ab-080321-18/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5689A	0.0025	-0.010	0.0843	0.0402	0.0803	0.0383
HvH-Ab-080321-19/079SJA00HN	Internal 0789971V46	2441	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.0025	-0.012	0.0857	0.0406	0.0816	0.0387

Table 2 (continued)

Assessments at the Body (CW, BT) 2.400-2.483GHz band (continued)												
Run Number/ SN	**Antenna Pos.**	**Freq. (MHz)**	**Battery**	**Test position**	**Carry Case**	**Additional attachments**	**Initial Power (W)**	**SAR Drift (dB)**	**Meas. 1g-SAR (mW/g)**	**Meas. 10g-SAR (mW/g)**	**Max Calc. 1g-SAR (mW/g)**	**Max Calc. 10g-SAR (mW/g)**
Assessment at the body – freq. search using worst case position from above												
HvH-Ab-080321-20/079SJA00HN	Internal 0789971V46	2402	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5005BP	0.0025	-0.026	0.0872	0.0416	0.0833	0.0398
***MeC-Ab-080321-21/079SJA00HN**	Internal 0789971V46	2480	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5005BP	0.0025	-0.318	0.0850	0.0409	0.0869	0.0418
Assessment at the body – 2.5cm using worst case position from above												
MeC-Ab-080321-22/079SJA00HN	Internal 0789971V46	2480	SNN5754A w/ 0189968V78	DUT Back @ 2.5cm	None	audio NNTN5005BP	0.0025	-0.399	0.0060	0.0033	0.0062	0.0034
MeC-Ab-080321-24/079SJA00HN	Internal 0789971V46	2480	SNN5754A w/ 0189968V78	DUT Front @ 2.5cm	None	audio NNTN5005BP	0.0025	3.350	0.0037	0.0017	0.0035	0.0016
Assessments at the Body (CW, VoWLAN 802.11a) 5.15-5.35GHz band												
Assessment at the body – front and back												
MeC-Ab-080312-06/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Front Against Phantom	None	None	0.082	-0.030	1.583	0.608	0.797	0.306
MeC-Ab-080312-07/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.080	-0.084	2.370	0.874	1.208	0.446
Assessment at the body – optional audio and data cable search using worst case from above												
MeC-Ab-080312-05/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	data cable SKN6371C	0.083	-0.082	2.331	0.858	1.188	0.437
MeC-Ab-080312-08/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	data cable SKN6222A	0.082	-0.044	2.273	0.840	1.148	0.424
MeC-Ab-080313-02/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5005BP	0.079	-0.178	2.412	0.870	1.261	0.455
MeC-Ab-080313-03/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5006BP	0.076	-0.083	2.412	0.888	1.283	0.472
MeC-Ab-080313-04/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	stereo headset NNTN5774C	0.078	-0.200	2.373	0.911	1.263	0.485
MeC-Ab-080313-05/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio SYN0896B	0.077	0.108	2.344	0.863	1.207	0.444
MeC-Ab-080313-06/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5689A	0.076	-0.097	2.392	0.864	1.276	0.461
***JsT-Ab-080314-03/079SJA00HN**	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.080	-0.408	2.352	0.858	1.292	0.471

Table 2 (continued)

Assessments at the Body (CW, VoWLAN 802.11a) 5.15-5.35GHz band (continued)												
Run Number/ SN	**Antenna Pos.**	**Freq. (MHz)**	**Battery**	**Test position**	**Carry Case**	**Additional attachments**	**Initial Power (W)**	**SAR Drift (dB)**	**Meas. 1g-SAR (mW/g)**	**Meas. 10g-SAR (mW/g)**	**Max Calc. 1g-SAR (mW/g)**	**Max Calc. 10g-SAR (mW/g)**
Assessment at the body – freq. search using worst case position from above												
JsT-Ab-080314-04/079SJA00HN	Internal 0789971V87	5180	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.040	-0.099	1.142	0.423	0.584	0.216
MeC-Ab-080314-06/079SJA00HN	Internal 0789971V87	5240	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.041	-0.284	1.191	0.445	0.636	0.238
MeC-Ab-080314-07/079SJA00HN	Internal 0789971V87	5320	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.081	-0.306	2.099	0.762	1.126	0.409
Assessment at the body – 2.5cm using worst case position from above												
MeC-Ab-080314-09/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	DUT Back @ 2.5cm	None	audio NNTN5211B	0.081	0.057	0.183	0.084	0.092	0.042
MeC-Ab-080314-10/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	DUT Front @ 2.5cm	None	audio NNTN5211B	0.079	-0.140	0.180	0.082	0.093	0.043
Assessments at the Body (CW, VoWLAN 802.11a) 5.470-5.825GHz band												
Assessment at the body – front and back												
MeC-Ab-080314-11/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Front Against Phantom	None	None	0.075	0.038	0.892	0.324	0.472	0.171
MeC-Ab-080314-12/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.076	-0.221	1.666	0.518	0.915	0.284
Assessment at the body – optional audio and data cable search using worst case from above												
MeC-Ab-080314-13/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Back Against Phantom	None	data cable SKN6371C	0.079	-0.264	1.685	0.521	0.899	0.278
CM-Ab-080315-02/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Back Against Phantom	None	data cable SKN6222A	0.075	-0.279	1.546	0.494	0.872	0.278
CM-Ab-080315-03/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5005BP	0.075	-0.235	1.546	0.497	0.863	0.277
CM-Ab-080315-04/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5006BP	0.075	-0.287	1.556	0.499	0.879	0.282
CM-Ab-080315-05/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Back Against Phantom	None	stereo headset NNTN5774C	0.075	-0.146	1.595	0.509	0.872	0.278
CM-Ab-080315-06/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio SYN0896B	0.075	-0.200	1.605	0.509	0.888	0.282
CM-Ab-080315-07/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5689A	0.075	-0.115	1.566	0.499	0.850	0.271
CM-Ab-080315-08/079SJA00HN	Internal 0789971V87	5660	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.075	-0.157	1.624	0.516	0.890	0.283

Table 2 (continued)

Assessments at the Body (CW, VoWLAN 802.11a) 5.470-5.825GHz band (continued)												
Run Number/ SN	**Antenna Pos.**	**Freq. (MHz)**	**Battery**	**Test position**	**Carry Case**	**Additional attachments**	**Initial Power (W)**	**SAR Drift (dB)**	**Meas. 1g-SAR (mW/g)**	**Meas. 10g-SAR (mW/g)**	**Max Calc. 1g-SAR (mW/g)**	**Max Calc. 10g-SAR (mW/g)**
Assessment at the body – freq. search using worst case position from above												
CM-Ab-080315-09/079SJA00HN	Internal 0789971V87	5500	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.076	-0.220	1.527	0.533	0.838	0.293
CM-Ab-080315-10/079SJA00HN	Internal 0789971V87	5580	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.075	-0.154	1.566	0.519	0.858	0.284
CM-Ab-080315-11/079SJA00HN	Internal 0789971V87	5620	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.075	-0.116	1.731	0.553	0.940	0.300
CM-Ab-080315-12/079SJA00HN	Internal 0789971V87	5680	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.075	-0.190	1.809	0.548	0.999	0.303
MeC-Ab-080315-13/079SJA00HN	Internal 0789971V87	5745	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.076	-0.229	1.887	0.560	1.038	0.308
MeC-Ab-080315-14/079SJA00HN	Internal 0789971V87	5805	SNN5754A w/ 0189968V78	Back Against Phantom	None	None	0.076	-0.226	2.217	0.645	1.218	0.354
Assessment at the body – 2.5cm using worst case position from above												
MeC-Ab-080315-15/079SJA00HN	Internal 0789971V87	5805	SNN5754A w/ 0189968V78	DUT Back @ 2.5cm	None	None	0.075	0.020	0.104	0.044	0.055	0.023
MeC-Ab-080315-16/079SJA00HN	Internal 0789971V87	5805	SNN5754A w/ 0189968V78	DUT Front @ 2.5cm	None	None	0.076	-0.019	0.059	0.026	0.031	0.014

Table 3

*Worst case configuration per body location from above (including shortened scan) –using the DASY 4 full coarse and 5x5x7 cube scan measurements.												
802.11b (2.4GHz)												
Full Scan JsT-Rear-080320-06/079SJA00HN	Internal 0789971V87	2462	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.075	0.072	0.442	0.223	0.234	0.118
Full Scan JsT-Face-080320-10/079SJA00HN	Internal 0789971V87	2462	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.075	-0.037	0.043	0.021	0.023	0.011
Full Scan MeC-Ab-080324-07/079SJA00HN	Internal 0789971V87	2437	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.075	-0.035	0.943	0.470	0.503	0.250
BT (2.4GHz)												
Full Scan MeC-Rear-080320-19/079SJA00HN	Internal 0789971V46	2480	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.0025	-0.267	0.0180	0.0101	0.0182	0.0102
Full Scan MeC-Face-080320-23/079SJA00HN	Internal 0789971V46	2480	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.0025	-0.358	0.0007	0.0001	0.0007	0.0001
Full Scan MeC-Ab-080321-25/079SJA00HN	Internal 0789971V46	2480	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5005BP	0.0025	-0.001	0.0943	0.0407	0.0896	0.0387

Table 3 (continued)

Run Number/ SN	Antenna Pos.	Freq. (MHz)	Battery	Test position	Carry Case	Additional attachments	Initial Power (W)	SAR Drift (dB)	Meas. 1g-SAR (mW/g)	Meas. 10g-SAR (mW/g)	Max Calc. 1g-SAR (mW/g)	Max Calc. 10g-SAR (mW/g)
***Worst case configuration per body location from above (including shortened scan) –using the DASY 4 full coarse and 8x8x8 cube scan measurements.**												
802.11a (5GHz)												
JsT-Rear-080317-02/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Cheek touch	None	None	0.080	-0.483	1.426	0.561	0.797	0.313
MeC-Face-080317-14/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Front 2.5cm	None	None	0.082	-0.119	0.219	0.102	0.113	0.052
JsT-Ab-080314-03/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.080	-0.408	2.352	0.858	1.292	0.471
Short Scan MeC-Ab-080319-13/079SJA00HN	Internal 0789971V87	5260	SNN5754A w/ 0189968V78	Back Against Phantom	None	audio NNTN5211B	0.082	-0.0173	2.500	0.956	1.255	0.480

9.1 Highest SAR results calculation methodology

The calculated maximum 1-gram and 10-gram averaged SAR results reported herein for the full DASY ™ coarse and 5x5x7 or 8x8x8 cube measurements are determined by scaling the measured SAR to account for power leveling variations and power slump. For this device the Maximum Calculated 1-gram and 10-gram averaged peak SAR is calculated using the following formula:

Max. Calc. 1-g/10-g Avg. SAR = ((SAR meas. / (10^(Pdrift/10)))*(Pmax/Pint))* DC%
P_{max} = Maximum Power (W)
P_{int} = Initial Power (W)
Pdrift = DASY drift results (dB) - (for conservative results positive drifts are not accounted for)
$SAR_{meas.}$ = Measured 1-g/10-g Avg. SAR (mW/g)
DC % = Transmission mode duty cycle in % where applicable
50% duty cycle is applied for PTT operation.

10.0 Conclusion

The highest Operational Maximum Calculated 1-gram and 10-gram average SAR values found for FCC ID: AZ489FT7032 model F2978A.

Highest 2.4GHz per body position

Max. Calc. : 1-g Avg. SAR: 0.50 W/kg (Body); 10-g Avg. SAR: 0.25 W/kg (Body)
Max. Calc. : 1-g Avg. SAR: 0.02 W/kg (Face); 10-g Avg. SAR: 0.01 W/kg (Face)
Max. Calc. : 1-g Avg. SAR: 0.23 W/kg (Head); 10-g Avg. SAR: 0.12 W/kg (Head)

Highest 5GHz per body position

Max. Calc. : 1-g Avg. SAR: 1.29 W/kg (Body); 10-g Avg. SAR: 0.47 W/kg (Body)
Max. Calc. : 1-g Avg. SAR: 0.11 W/kg (Face); 10-g Avg. SAR: 0.05 W/kg (Face)
Max. Calc. : 1-g Avg. SAR: 0.80 W/kg (Head); 10-g Avg. SAR: 0.31 W/kg (Head)

These test results clearly demonstrate compliance with FCC General Population/Uncontrolled RF Exposure limits of **1.6W/kg** per the requirements of 47 CFR 2.1093(d).

APPENDIX A
Measurement Uncertainty

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

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	IEEE 1528 section	**Tol. (± %)**	**Prob Dist**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**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	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)			*k*=2				22	22	

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Uncertainty Budget for System Validation (dipole & flat phantom) for 30 MHz to 3 GHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	IEEE 1528 section	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i (1 g)**	**c_i (10 g)**	**1 g u_i (±%)**	**10 g u_i (±%)**	**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	

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Uncertainty Budget for Device Under Test for 3 to 6 GHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	IEEE 1528 section	**Tol. (± %)**	**Prob Dist**	**Div.**	c_i **(1 g)**	c_i **(10 g)**	**1 g** u_i **(±%)**	**10 g** u_i **(±%)**	v_i
Measurement System									
Probe Calibration	E.2.1	8.3	N	1.00	1	1	8.3	8.3	∞
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	2.0	R	1.73	1	1	1.2	1.2	∞
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	1.0	R	1.73	1	1	0.6	0.6	∞
Probe Positioning w.r.t Phantom	E.6.3	4.0	R	1.73	1	1	2.3	2.3	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	2.1	R	1.73	1	1	1.2	1.2	∞
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				13	12	702
Expanded Uncertainty (95% CONFIDENCE LEVEL)			$k=2$				25	25	

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Uncertainty Budget for System Validation (dipole & flat phantom) for 3 to 6 GHz

a	*b*	*c*	*d*	*e = f(d,k)*	*f*	*g*	*h = c x f / e*	*i = c x g / e*	*k*
Uncertainty Component	IEEE 1528 section	**Tol. (± %)**	**Prob. Dist.**	**Div.**	c_i **(1 g)**	c_i **(10 g)**	**1 g** u_i **(±%)**	**10 g** u_i **(±%)**	v_i
Measurement System									
Probe Calibration	E.2.1	8.3	N	1.00	1	1	8.3	8.3	∞
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	2.0	R	1.73	1	1	1.2	1.2	∞
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	1.0	R	1.73	1	1	0.6	0.6	∞
Probe Positioning w.r.t. Phantom	E.6.3	4.0	R	1.73	1	1	2.3	2.3	∞
Max. SAR Evaluation (ext., int., avg.)	E.5	2.1	R	1.73	1	1	1.2	1.2	∞
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				11	11	99999
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				21	21	

FCD-0558 Rev 5

Notes for Uncertainty Budget Tables
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) *ci* - sensitivity coefficient that should be applied to convert the variability of the uncertainty component into a variability of SAR.
g) *ui* – SAR uncertainty
h) *vi* - degrees of freedom for standard uncertainty and effective degrees of freedom for the expanded uncertainty.

Appendix B
Probe Calibration Certificates

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 MFRL** **Certificate No: EX3-3527_May07**

CALIBRATION CERTIFICATE

Object	EX3DV3 - SN:3527
Calibration procedure(s)	QA CAL-01.v5 and QA CAL-14.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	May 17, 2007
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	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: May 17, 2007

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

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Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,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., 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 effect 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 (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 ≤ 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.

Probe EX3DV3

SN:3527

Manufactured:	March 19, 2004
Last calibrated:	May 25, 2006
Recalibrated:	May 17, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

EX3DV3 SN:3527 May 17, 2007

DASY - Parameters of Probe: EX3DV3 SN:3527

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**0.780** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**95** mV
NormY	**0.640** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**93** mV
NormZ	**0.870** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**94** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **5200 MHz** **Typical SAR gradient: 25 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	4.5	1.0
SAR_{be} [%]	With Correction Algorithm	0.0	0.0

TSL **5800 MHz** **Typical SAR gradient: 30 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	3.4	0.9
SAR_{be} [%]	With Correction Algorithm	0.0	0.0

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

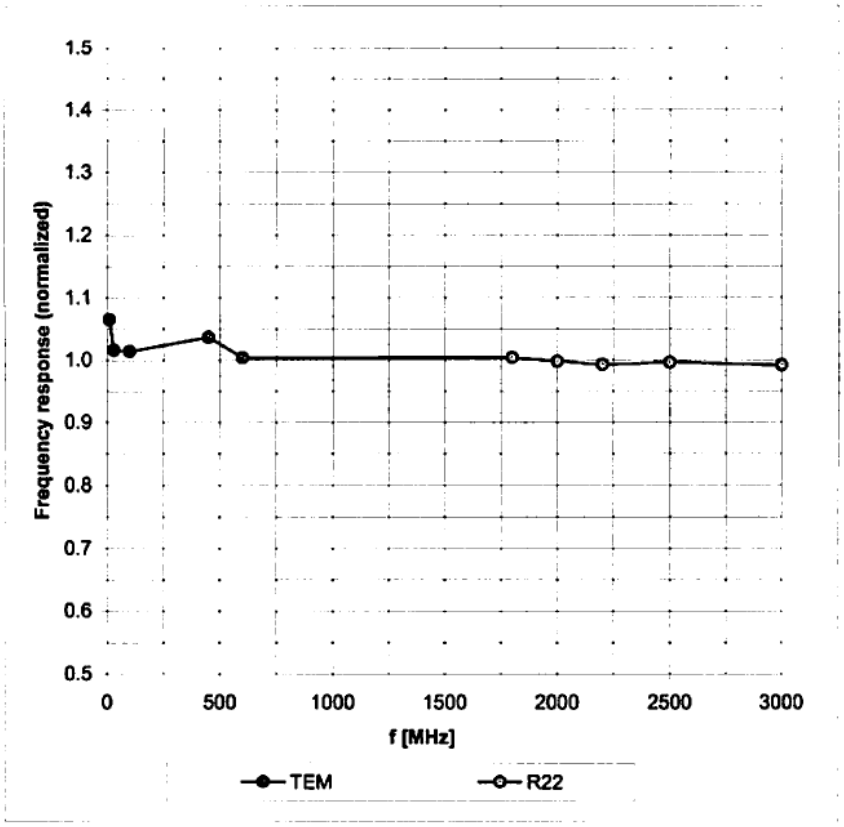
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

Frequency Response of E-Field

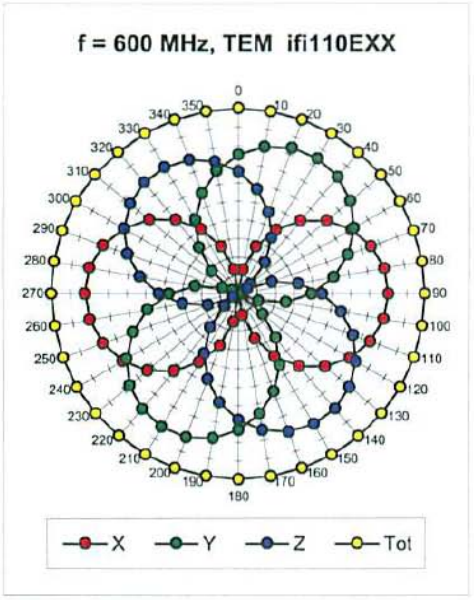
(TEM-Cell:ifi110 EXX, Waveguide: R22)

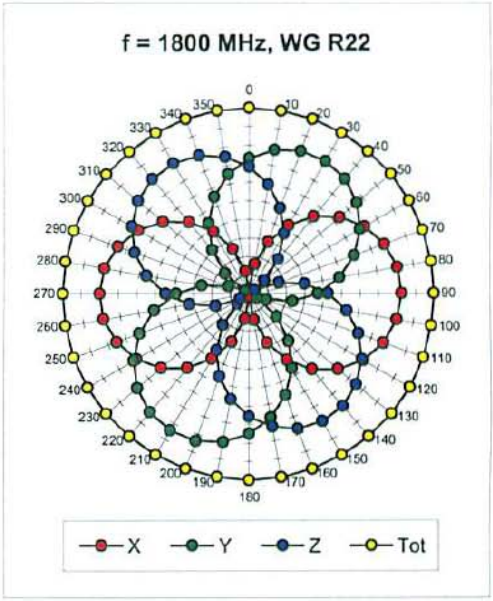


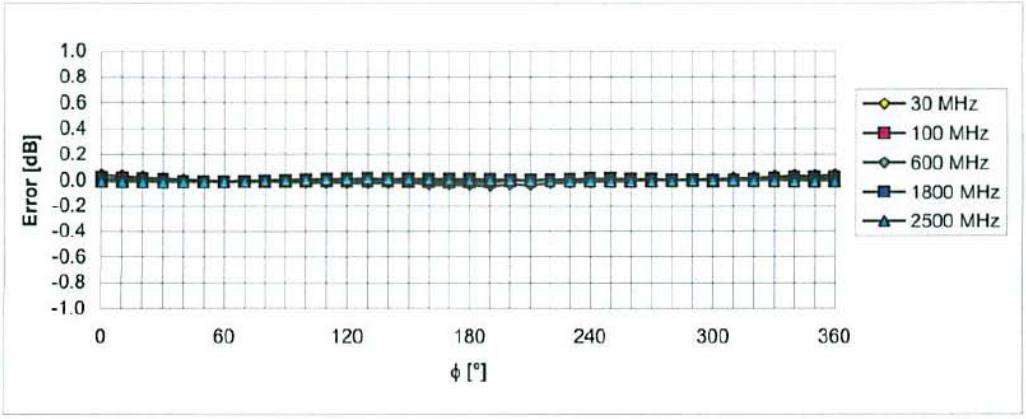
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

EX3DV3 SN:3527 May 17, 2007

Receiving Pattern (ϕ), ϑ = 0°



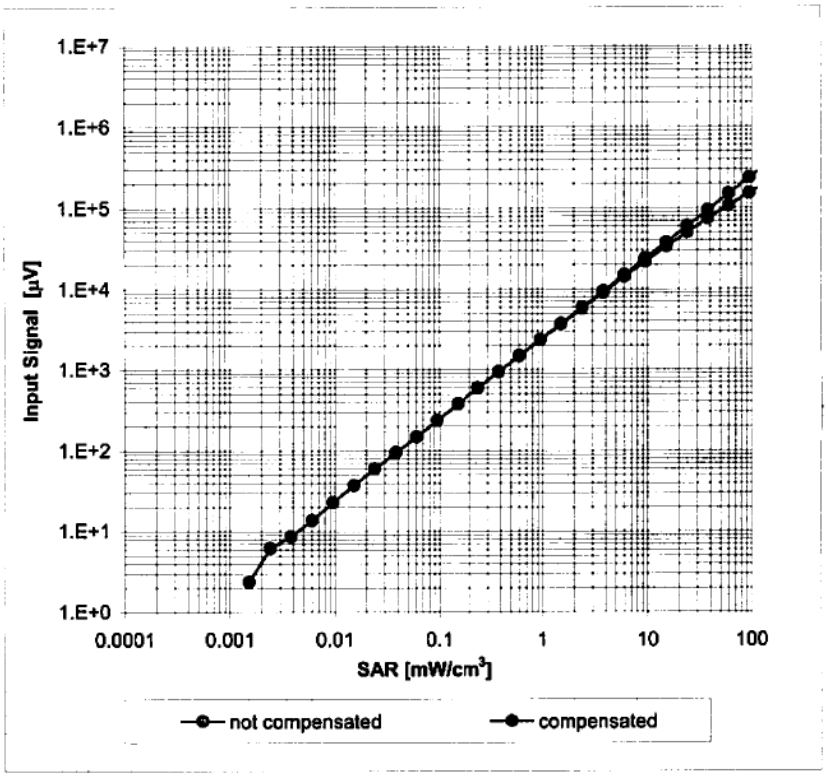


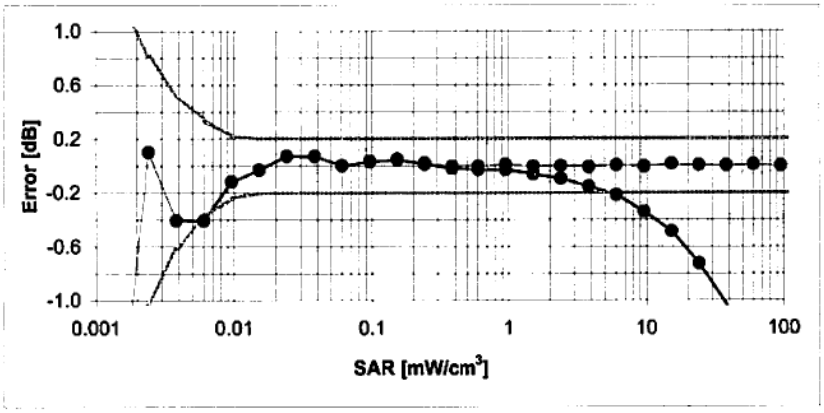


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)

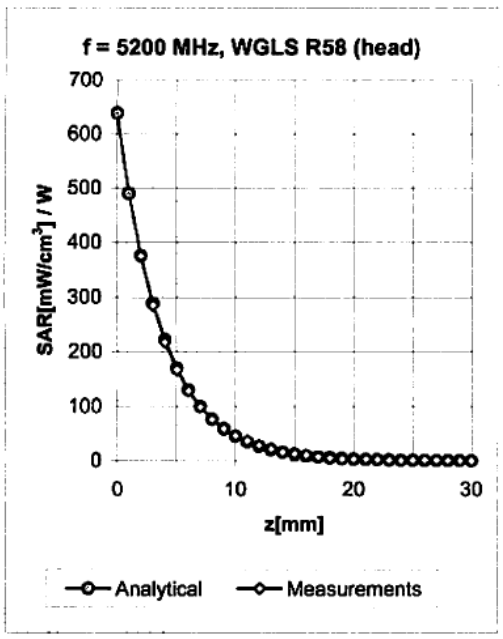


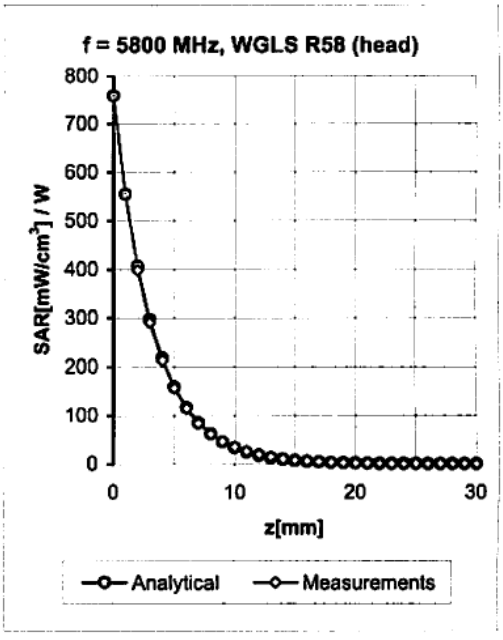


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

EX3DV3 SN:3527 May 17, 2007

Conversion Factor Assessment





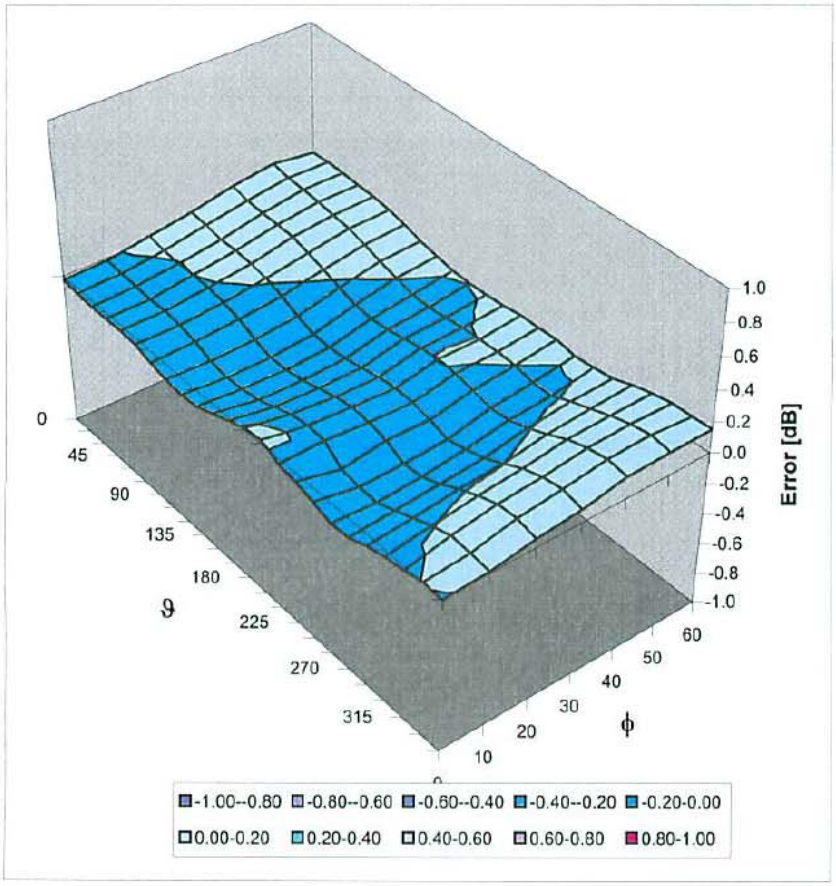
f [MHz]	Validity [MHz][c]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
5200	± 50 / ± 100	Head	36.0 ± 5%	4.66 ± 5%	0.32	1.70	5.27 ± 13.1% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.32	1.70	4.67 ± 13.1% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.32	1.80	4.59 ± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.28	1.80	4.42 ± 13.1% (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.

EX3DV3 SN:3527 May 17, 2007

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

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CF022008: Linearization of the ConvF for the EX/3527 probe

To Whom It May Concern

On request of Motorola we have evaluated the calibration data of the probe EX/3527 since April 24th, 2004 and noticed a good stability of the performance of the probe at both frequencies 5.2 and 5.8 GHz, i.e., the probe performance is as expected. Due to the physics of the probe, the conversion factors for non-faulty probes are within those of the two frequencies. Therefore it is possible to interpolate the conversion factor linearly between the two frequencies for the same liquid and the expected uncertainty of interpolated calibration parameters (new term is treated as offset) is not more than

$$Unc_{ConvF-Ext} = Unc_{ConvF} + 100\% \left(\frac{ConvF_{5200} - ConvF_{5800}}{ConvF_{5200} + ConvF_{5800}} \right) \frac{1}{\sqrt{3}} \quad (k = 1)$$

whereby Unc_{ConvF} (k=1) is the ConvF uncertainty stated on the probe calibration document.

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info@speag.com, http://www.speag.com

Technical Manager: Katja Pokovic

Zurich, February 15, 2008

Calibration Laboratory of
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Accreditation No.: SCS 108

Client Motorola CGISS

Certificate No: ET3-1545_Aug07

CALIBRATION CERTIFICATE

Object	ET3DV6R - SN:1545
Calibration procedure(s)	QA CAL-01.v6 and QA CAL-12.v5 Calibration procedure for dosimetric E-field probes
Calibration date:	August 28, 2007
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	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: August 29, 2007

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

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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

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,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., 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 effect 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 (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 ≤ 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.

Probe ET3DV6R

SN:1545

Manufactured:	October 16, 2000
Last calibrated:	September 21, 2006
Recalibrated:	August 28, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

ET3DV6R SN:1545 August 28, 2007

DASY - Parameters of Probe: ET3DV6R SN:1545

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**2.03** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**96** mV
NormY	**2.23** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**95** mV
NormZ	**1.85** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**95** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR_{be} [%]	Without Correction Algorithm	5.8	2.6
SAR_{be} [%]	With Correction Algorithm	0.1	0.1

TSL **1810 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR_{be} [%]	Without Correction Algorithm	13.6	9.1
SAR_{be} [%]	With Correction Algorithm	0.8	0.1

Sensor Offset

Probe Tip to Sensor Center	**2.7** mm

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%.

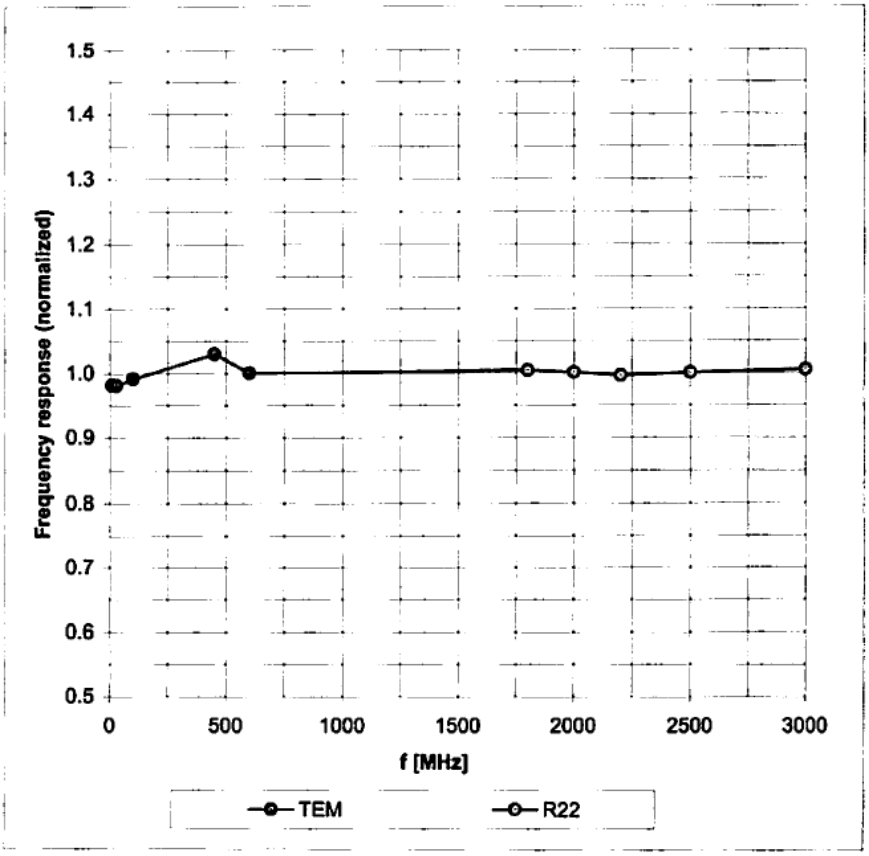
[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

ET3DV6R SN:1545 August 28, 2007

Frequency Response of E-Field

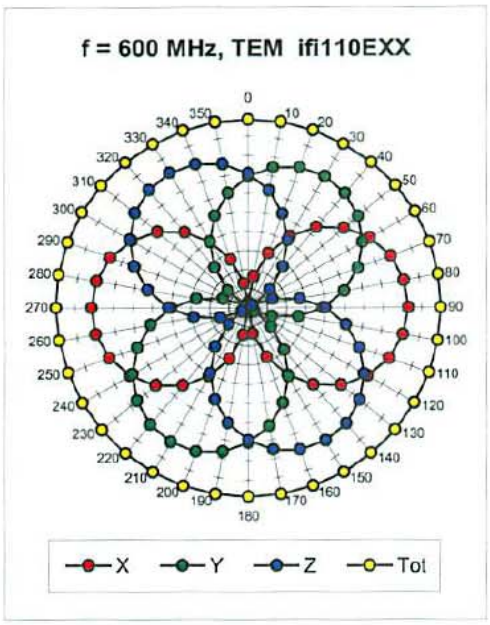
(TEM-Cell:ifi110 EXX, Waveguide: R22)

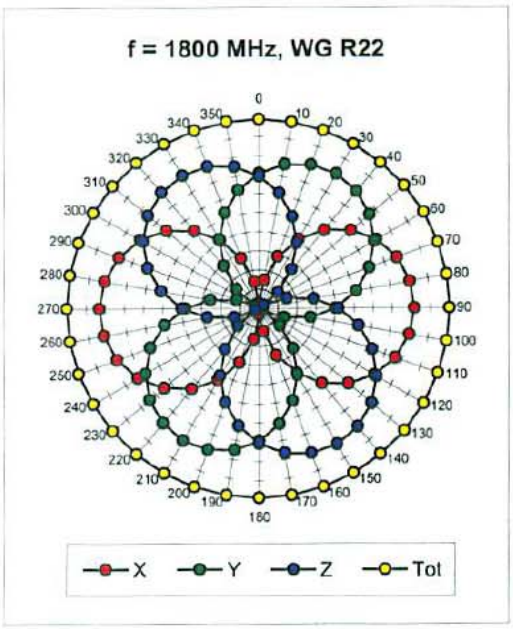


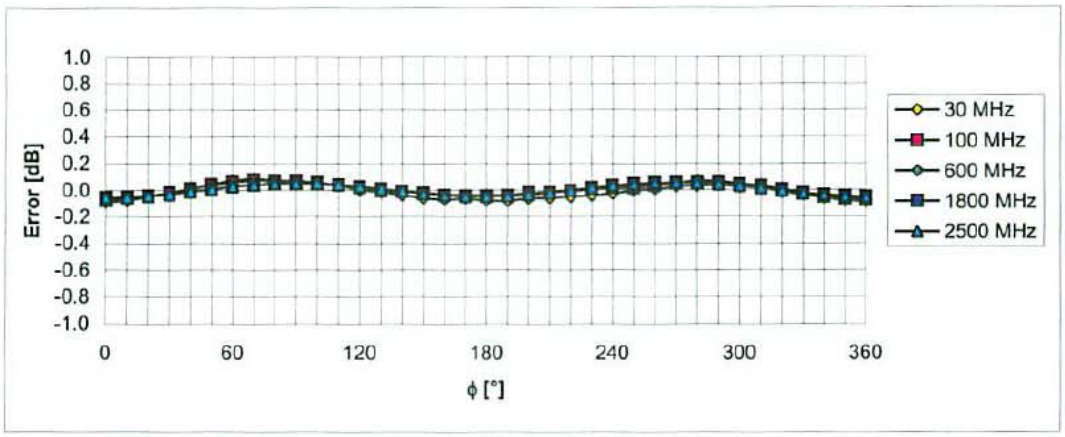
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ET3DV6R SN:1545 August 28, 2007

Receiving Pattern (ϕ), ϑ = 0°





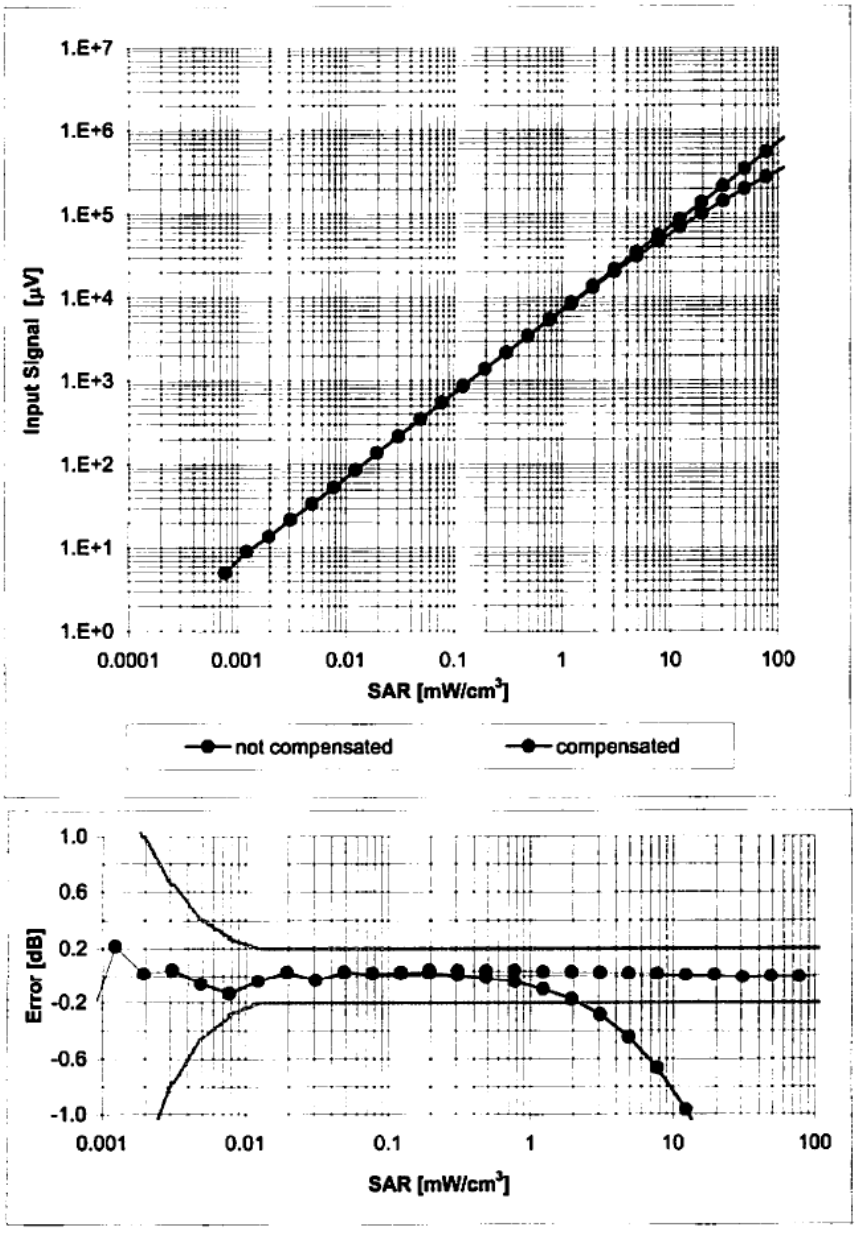


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ET3DV6R SN:1545 August 28, 2007

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)



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

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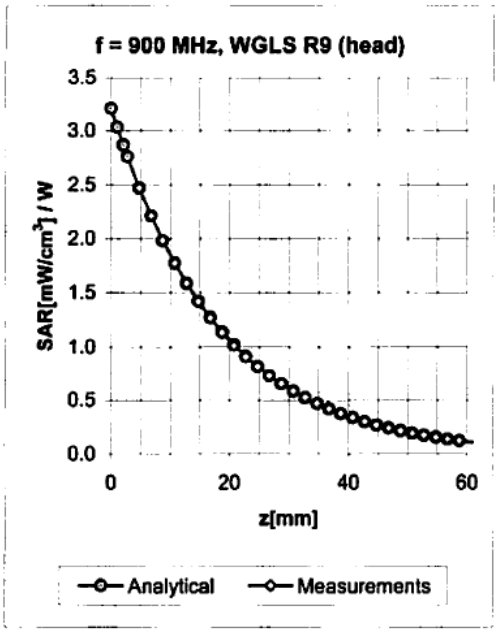
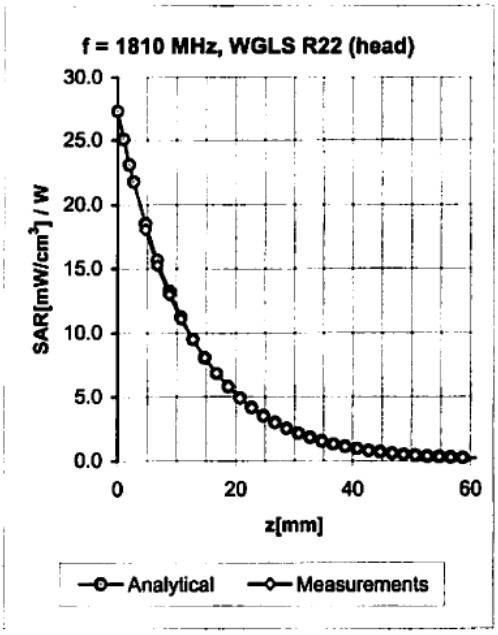
Conversion Factor Assessment





f [MHz]	Validity [MHz][c]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
450	± 50 / ± 100	Head	43.5 ± 5%	0.87 ± 5%	0.38	1.92	6.66 ± 13.3% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.36	2.48	6.15 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.57	2.46	4.85 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.62	2.40	4.67 ± 11.0% (k=2)
2300	± 50 / ± 100	Head	39.4 ± 5%	1.71 ± 5%	0.67	2.25	4.53 ± 11.8% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.83	1.72	4.32 ± 11.8% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.31	1.94	7.14 ± 13.3% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.39	2.54	5.68 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.63	2.59	4.39 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.81	2.17	4.17 ± 11.0% (k=2)
2300	± 50 / ± 100	Body	52.8 ± 5%	1.85 ± 5%	0.65	2.08	4.01 ± 11.8% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.71	1.92	3.73 ± 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.

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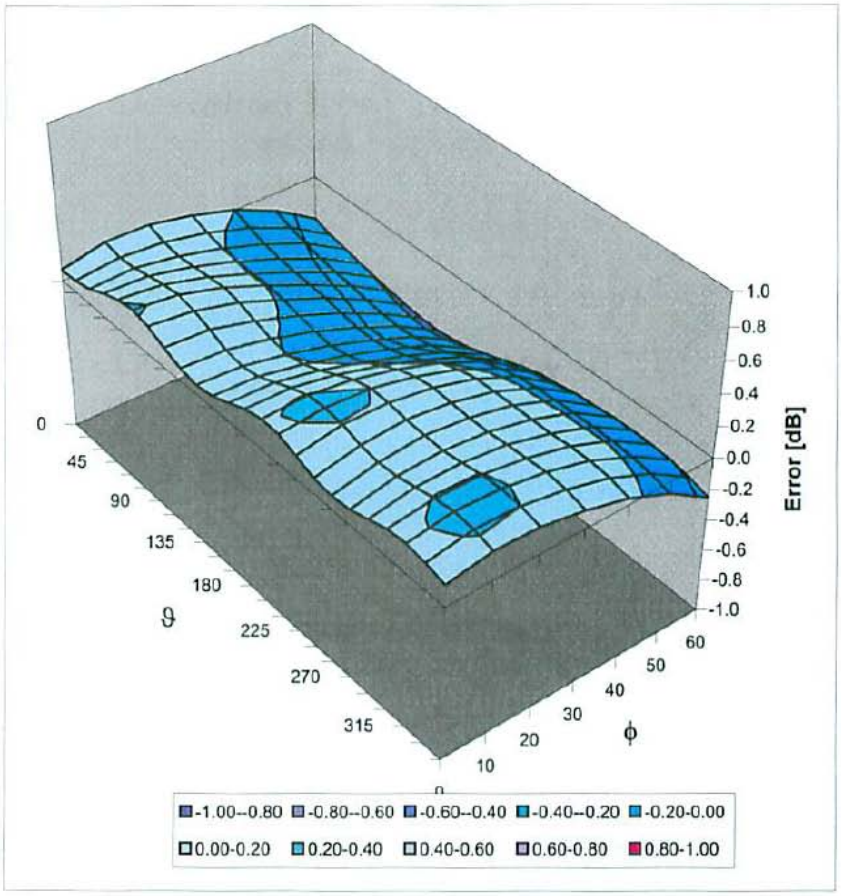
Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

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Additional Conversion Factors

for Dosimetric E-Field Probe

Type:	**ET3DV6R**
Serial Number:	**1545**
Place of Assessment:	**Zurich**
Date of Assessment:	**August 31, 2007**
Probe Calibration Date:	**August 28, 2007**

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 900 MHz or at 1810 MHz.

Assessed by:

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Dosimetric E-Field Probe ET3DV6R SN:1545

Conversion factor (± standard deviation)

150 MHz	*ConvF*	**8.4 ± 10%**	ε_r = 52.3 σ = 0.76 mho/m (head tissue)
250 MHz	*ConvF*	**7.6 ± 10%**	ε_r = 47.6 σ = 0.83 mho/m (head tissue)
300 MHz	*ConvF*	**7.5 ± 9%**	ε_r = 45.3 σ = 0.87 mho/m (head tissue)
750 MHz	*ConvF*	**6.4 ± 7%**	ε_r = 41.9 σ = 0.89 mho/m (head tissue)
150 MHz	*ConvF*	**8.1 ± 10%**	ε_r = 61.9 σ = 0.80 mho/m (body tissue)
250 MHz	*ConvF*	**7.6 ± 10%**	ε_r = 59.4 σ = 0.88 mho/m (body tissue)
300 MHz	*ConvF*	**7.5 ± 9%**	ε_r = 58.2 σ = 0.92 mho/m (body tissue)
750 MHz	*ConvF*	**6.2 ± 7%**	ε_r = 55.5 σ = 0.96 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.