Certificate Number: 1449-02

MOTOROLA

ACCREDITED

CGISS EME Test Laboratory
8000 West Sunrise Blvd
Fort Lauderdale, FL. 33322

S.A.R. EME Compliance Test Report

Attention:	Federal Communication Commission
Date of Report:	March 18, 2002
Report Revision:	Rev. O
Device Manufacturer:	Motorola
Device Description:	HT1250LS 2.5W Portable Transceiver 746-794MHZ
FCC ID:	ABZ99FT5000
Device Model:	PMUF1105A

Test Period: 2/28/02 – 3/14/02

Test Engineer: ______________________

Stephen Whalen
Sr. EME Test Engineer

Author: ______________________

Michael Sailsman
EME Regulatory Affairs Liaison

Note: 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.

______________________ ______________________

Ken Enger — Date Approved
Senior Resource Manager, Product Safety and EME Director

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REVISION HISTORY

Date	Revision	Comments
3/18/02	O	Initial release

1.0 Introduction

This report details the utilization, test setup, test equipment, and test results of the Specific Absorption Rate (S.A.R.) measurements performed at the CGISS EME Test Lab for the HT1250LS, model PMUF1105A, FCC ID ABZ99FT5000.

The applicable exposure environment is Occupational/Controlled.

The test results included herein represent the highest SAR levels applicable to this product and clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of 8.0 mW/g per the requirements of 47 CFR 2.1093(d).

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; 47CFR part 2 sub-part J
- 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 Terminal frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz, 1999
- Australian Communications Authority Terminal communications (Electromagnetic Radiation - Human Exposure) Standard 2001
- ANATEL, Brazil Regulatory Authority, Resolution 256 (April 11, 2001) "additional requirements for SMR, cellular and PCS product certification."

3.0 Description of Test Sample

The HT1250LS, model PMUF1105A is a hand held portable transceiver with LTR/Passport, and DTMF capabilities. The intended use of the radio is as a hand-held Push-To-Talk (PTT) transceiver held one to two inches away from the users lips or with approved accessories.

The radio operates on traditional Trunked radio systems, PassPort trunked systems (an enhanced trunking protocol for wide area dispatch), LTR trunked systems (a transmission based trunking protocol for single site trunking) and Conventional radio systems (single channel unit to unit communications).

The transmit frequency band for the HT1250LS is 746-794MHz. The rated power of the device is 2.5W with a maximum conducted power output of 3W.

The sample devices tested for this report represents identical prototypes to those intended for production.

The HTT1250LS radio is offered with the following options and accessories:

Batteries:

HNN9008AR	NiMH High Capacity Battery
HNN9009AR	NiMH Ultra High Capacity Battery
HNN9010AR	NiMH Ultra High Capacity Battery Factory Mutual
HNN9011AR	NiCd High Capacity Battery Factory Mutual
HNN9012AR	NiCd High Capacity Battery
HNN9013BR	Lithium Ion Battery

Antennas:

NAF5083A	Whip Dipole 746-794MHz ½ wave length –0.5dBi gain

Body-Worn Accessory:

HLN9844A	Spring Belt Clip (for 1.5" belt loop)
HLN9714A	Spring Belt Clip
HLN9952A	Belt Clip Carry Holder
HLN9701B	Case, Nylon
HLN9690A	Case, Std Leather, Short, DTMF, Swivel, Thin Batt's
HLN9652A	Case, Std Leather, Short, Plain, Belt Loop, thin Batt's
HLN9665A	Case, Standard leather, Short, Plain, Belt Loop, Std Batt's
HLN9670A	Case, Standard Leather, Short, Plain, Swivel, Thin Battery
HLN9676A	Case, Standard Leather, Short, Plain, Swivel, Std Battery
HLN9677A	Case, Std Leather, Short, DTMF, Belt Loop, Thin Batt's
HLN9689A	Case, Std Leather, Short, DTMF, Belt Loop, Std Batt's
HLN9694A	Case, Std Leather, Short, DTMF, Swivel, Std Batt's
HLN9946A	Limited Keypad, Hard Leather, W/ Belt Loop, Std Battery
HLN9945A	Limited Keypad, Hard Leather, W/ Belt Loop, Thin Battery
HLN9955A	Limited Keypad, Hard Leather, W/ Swivel, Thin Battery
HLN9998A	Limited Keypad, Hard Leather, W/ Swivel, Std Battery
HLN9985B	Waterproof Bag
HLN6602A	Universal Chest Pack
RLN4815A	Fanny Pack Carry Accessory (Universal Radio Pack)
PMLN4280A	Carry Case (Full Thin Leather)
PMLN4281A	Carry Case (Basic Thin Leather)
NTN5243A	Carry Strap

Audio Accessories:

BDN6641A	Ear Microphone (Gray) requires AARMN4044 OR AARMN4045 Interface Module - FM Approved
BDN6677A	Ear Microphone (Black) requires AARMN4044 or AARMN4045 interface module
BDN6678A	Ear Microphone (Beige) requires AARMN4044 or AARMN4045 interface module)

ENLN4135A	PTT Module
ENMN4010A	Noise Com
ENMN4011A	Helmet Com
ENMN4012A	Breeze Headset with PTT
ENMN4013A	1 Wire Flexible Ear Receiver
ENMN4014A	3-Wire Min Lapel Kit, Black
ENMN4015A	Lightweight Headset
ENMN4016A	Medium Weight Behind-the-head Headset with PTT
ENMN4017A	3-Wire Min Lapel Kit, Beige
HLN9716B	Audio Accessory Adapter for GP300 accessories
HLN9717A	3.5 mm Accessory Adapter
HMN9052D	Remote Speaker Microphone (Standard)
HMN9053D	Noise Canceling Remote Speaker Microphone
NTN1722A	Integrated Ear Microphone/Receiver System with PTT
NTN1723A	Integrated Ear Microphone/Receiver System with Palm PT
NTN1724A	Integrated Ear Microphone/Receiver System with Ring PTT
NTN8370A	Extreme Noise Earpiece Adapter Kit (use with AARMN4021, AARMN4022, AARMN4028 & AARMN4029)
NTN8371A	Low Noise Earpiece Adapter Kit (use with AARMN4021, AARMN4022, AARMN4028 & AARMN4029)
PMLN4418A	Ear bud with PTT microphone
RKN4097A	In-Line PTT Adapter Cable for use with RMN4051, RMN4052 & RMN4053 Headsets
RLN4885A	Receive Only Ear bud with 3.5mm plug (for use with HMN9053)
RLN4922A	Completely Discrete Earpiece Kit (for use with 2 wire earpieces)
RLN4941A	Receive Earpiece with tube, rubber ear tip and 3.5mm plug (For use with HMN9053)
AARMN4017A	Ultra Light Headset with Streamlined Boom Microphone
AARMN4018B	Light Weight Headset W/Boom Mic and In-Line PTT
AARMN4019A	Medium Weight Over the Head Dual Muff Headset w/ Noise Canceling Mic & In-Line
AARMN4020A	Heavy Weight Headset, w/ boom microphone
AARMN4021A	Earpiece W/O Volume Control
AARMN4022A	2 Wire Earpiece W/ Mic and PTT
AARMN4028A	Ear piece W/O Volume Control
AARMN4029A	2 Wire Ear piece W/Mic and PTT
AARMN4031A	Lightweight Headset with Boom Microphone (no In-Line PTT) (VOX operational only on conventional channel)
RMN4044A	Ear Microphone Interface Module for PTT Only
RMN4045A	Ear Microphone System, Push to Talk w/ Voice
RMN4048A	Bone Vibrator Headset
RMN4051A	2-Way Hard-hat Mount Headset, Black - Noise Reduction
RMN4052A	Tactical Headband-Style Headset, Gray - Noise Reduction
RMN4053A	Tactical hard-hat Mount Headset, Gray - Noise Reduction
RMN4054A	Receive-Only Hard-hat Mount Headset with 3.5mm right angle plug – Noise Reduction Rating - 22dB
RMN4055A	Receive-Only Headband-Style Headset with 3.5mm right angle plug
WADN4190B	Flexible ear receiver w/ coiled cable

	For use with the HMN9053, HMN9054, & HMN9057 RSM and PSM
HKN9055A	Remote Speaker Microphone Replacement Cable
0180358B38	Finger Push to Talk for Ear Microphone FM Approved
0180300E83	Body Switch Push to Talk for Ear Microphone System

3.1 Test Signal

Test Signal mode:

Test Mode	X	Base Station		Simulator	

Transmission Mode:

CW	X
Native Transmission	
TDMA	
Other	

3.2 Test Output Power

The radio's output power was measured before and after each test. An HP E4419B power meter (calibration date 1/23/02) was used to measure the power output.

4.0 Description of Test Equipment

4.1.0 Descriptions of SAR Measurement System

The laboratory utilizes a Dosimetric Assessment System (DASY3™) S.A.R. measurement system manufactured by Schmid & Partner Engineering AG (SPEAG™), of Zurich Switzerland. The S.A.R. measurements were conducted with probe model/serial number ET3DV6/SN1547. The system performance check was conducted daily and within 24 hours prior to testing. DASY output files of the system performance test results, probe calibration, and dipole validation certificates are included in APPENDIX B and C. The table below summarizes the system performance check results for the highest S.A.R. scans reported herein normalized to 1W.
Note that the reference S.A.R. value presented below for head and body tissue represents the latest measured system performance target obtained during system validation.

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
1547	IEEE Head	11/16/01	D835V2	10.64	9.74 +/- 10%	3/11/02
1547	FCC Body	11/16/01	D835V2	11.02 +/- 0.28	10.82 +/- 10%	2/28 - 3/14 2002

The DASY3™ system is operated per the instructions in the DASY3™ Users Manual. The complete manual is available directly from SPEAG™.

4.2 Description of Phantom

4.2.1 Body and Face Phantom:

Flat Phantom:

A rectangular shaped box made of high-density polyethylene (HDPE) with a dielectric constant of 2.26 and a loss tangent of less than .00031. The phantom is mounted on a wooden supporting structure that has a loss tangent of < 0.05. The structure has a 67 x 26 centimeter opening at its center to allow positioning the DUT to the flat phantom's surface. The supporting structure is assembled with wooden pegs and glue. The table below shows the flat phantom dimensions.

Length	80cm
Width	30cm
Height	20cm
Surface Thickness	0.2cm

4.3 Simulated Tissue Properties:

4.3.1 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).

Simulated Tissue	Body Position
FCC Body	Abdomen
IEEE Head	Face

4.3.2 Simulated Tissue Composition

Ingredients (%) Frequency 835 MHz		
	Body	**Head**
De ionized -Water	53.06	40.45
Sugar	44.9	57
Salt	0.94	1.45
HEC	1	1
Dowicil75	0.1	0.1

Characterization of Simulated tissue materials and ambient conditions:

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% 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.

Target tissue parameters

	Body		**Head**	
Frequency (MHz)	**Di-electric Constant**	**Conductivity – S/m**	**Di-electric Constant**	**Conductivity – S/m**
770 MHz	55.46	0.96	41.84	0.89

4.4.0 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 in 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 represents the average environmental conditions during the SAR tests reported herein.

Ambient Temperature	21.5 °C
Relative Humidity	51.36 %
Tissue Temperature	20.4 °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. However, the lab environment is sufficiently protected such that no S.A.R. impacting interference has been experienced to date.

5.0 Description of Test Procedure

The S.A.R test matrix used for this radio included the body worn accessories listed in section 3.0 that offer the closest separation distance as well as those that contain unique metallic components. Also included in the test matrix were all audio accessories offered for this radio that were determined to be unique. The rationale for determining which audio and body worn accessories were included in the test matrix is described in Appendix D. Note that audio accessory model HLN9716B described in section 3.0 as an adaptor for the GP300 radio was included in the test matrix. A GP300 remote speaker microphone (the standard audio accessory for the GP300) was tested with the adaptor. The single antenna and all batteries offered for this product were included in the test matrix as well. The maximum power output of the HT1250LS radio is 3 watts. The transmit power of the tested radio was pre-adjusted to the maximum output allowed by the production alignment procedures. Power output measurements were taken before and after each S.A.R. scan. Each S.A.R. scan was taken with a fully charged battery. Measurements were performed at the low, middle, and high frequencies of the transmit band using the worst-case S.A.R. performance configurations from the body worn and audio accessory testing. The radio was operating in a continuous wave (CW) test mode for all measurements.

5.1 Device Test Positions

Reference Figure 1 for the device orientation and position that exhibited the highest S.A.R. performance. Figure 2 depicts an overall perspective of the system setup and support structure.

5.1.0 Abdomen

A flat phantom containing simulated body tissue consistent with applicable standards was used to assess S.A.R. performance of the radio.

5.1.1 Face

A flat phantom containing simulated head tissue consistent with applicable standards was used to assess S.A.R. performance of the radio at the face.

5.1.2 2.5cm

A flat phantom containing simulated body tissue consistent with applicable standards was used to assess S.A.R. performance of the radio in the front and back positions at 2.5cm from the phantom.

Figure 1: Highest S.A.R. configuration

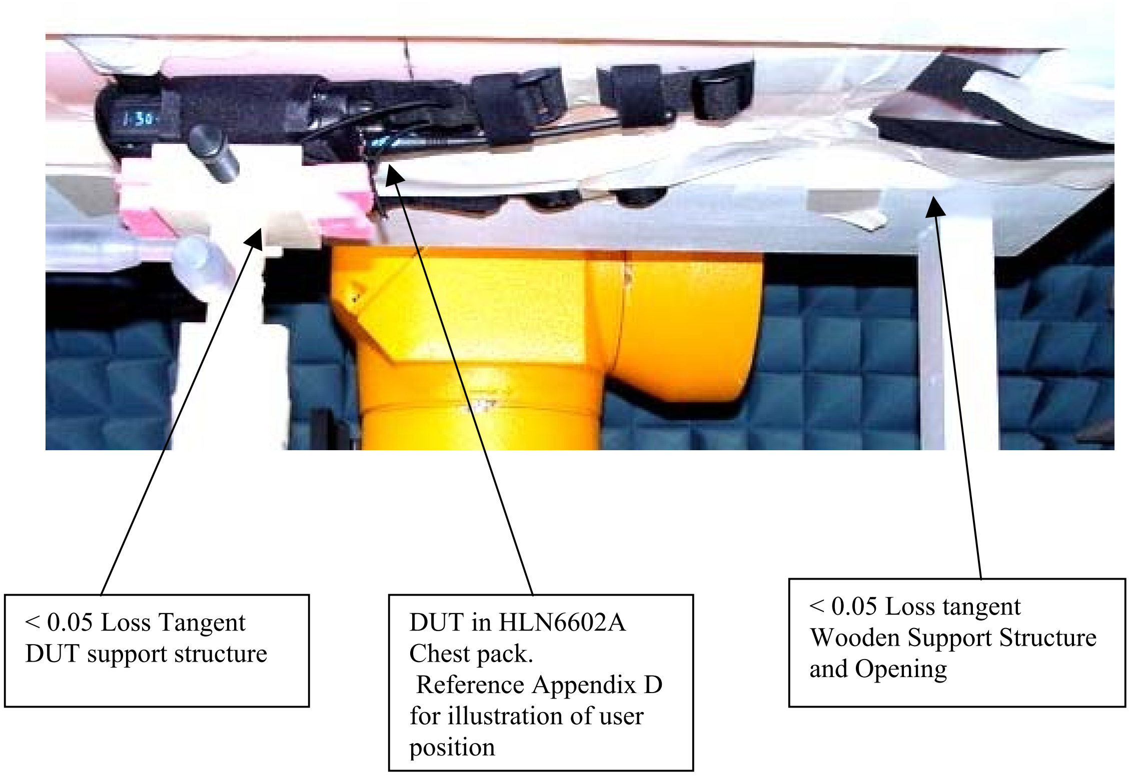
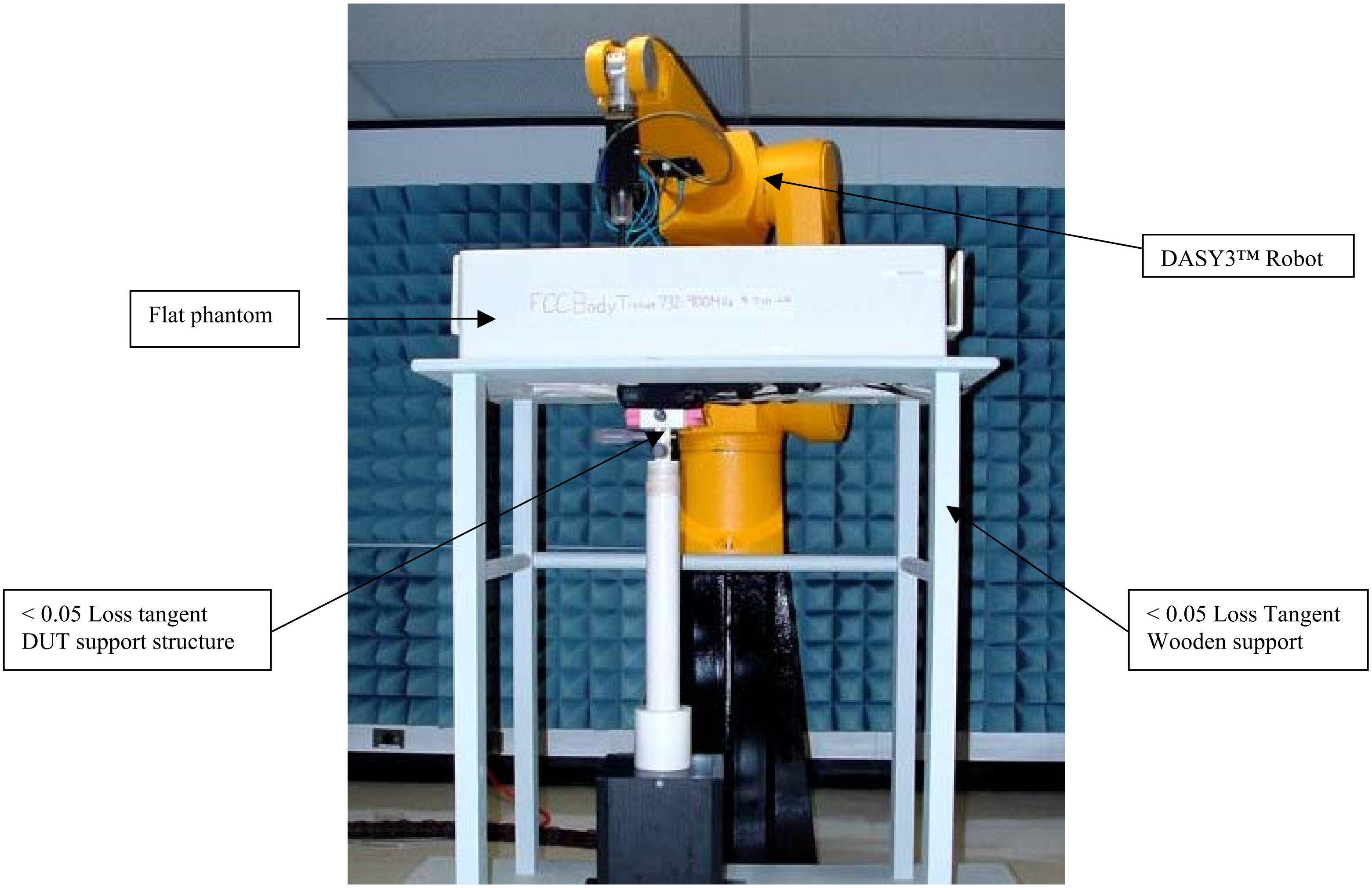


Figure 2: Robot Test System



5.2 Probe Scan Procedures

The E-field probe is first scanned in 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.

6.0 Measurement Uncertainty:

The table below lists the uncertainty estimate of the possible errors that are associated with the measurement system.

Uncertainty Description	Standard Uncertainty
Probe Uncertainty	
- Axial Isotropy	± 2.4 %
- Spherical Isotropy	± 4.8 %
- Spatial Resolution	± 0.5 %
- Linearity Error	± 2.7 %
- Calibration Error	± 8 %
Evaluation Uncertainty	
- Data Acquisition Error	± 0.60 %
- ELF and RF Disturbances	± 0.25 %
- Conductivity Assessment	± 5 %
Spatial Peak SAR Evaluation Uncertainty	
- Extrapolation and boundary effects	± 3%
- Probe positioning	± 1 %
- Integration and cube orientation	± 3 %
- Cube shape inaccuracies	± 1.2 %
- Device positioning	± 1.0 %

The Total Measurement Uncertainty is ± 12.1 %. The Expanded Measurement Uncertainty is ± 24.2 % (k=2)

7.0 SAR Test Results:

All S.A.R. results obtained by the tests described in Section 5.0 are listed in section 7.1 below. The bolded result indicates the highest observed S.A.R. performance. DASY3™ S.A.R. measurement scans are provided in APPENDIX A for all of the highest measured S.A.R. results.

7.1 SAR results at the abdomen:

Run #/Radio S/N	Freq. (MHz)	Antenna	Battery	Body worn Acc.	Audio Acc.	Initial Power (mW)	End Power (mW)	Measured 1g-SAR (mW/g)	Calc. 1g-SAR (mW/g)
SAR performance assessment of Batteries									
Ab_R1_020301-04/ WQCWB03X	776	NAF5083A	HNN9008A	HLN9714A Belt clip	HMN9052D	3.08	2.76	2.77	1.55
Ab_R1_020301-05/ WQCWB03X	776	NAF5083A	HNN9009A	HLN9714A Belt clip	HMN9052D	3.07	2.75	2.36	1.32
Ab_R1_020301-06/ WQCWB03X	776	NAF5083A	HNN9010A	HLN9714A Belt clip	HMN9052D	3.03	2.67	2.35	1.33
Ab_R1_020301-07/ WQCWB03X	776	NAF5083A	HNN9011A	HLN9714A Belt clip	HMN9052D	2.93	2.58	2.22	1.26
Ab_R1_020301-08/ WQCWB03X	776	NAF5083A	HNN9012A	HLN9714A Belt clip	HMN9052D	2.97	2.7	2.38	1.31
Ab_R1_020228-07/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A Belt clip	HMN9052D	2.98	2.56	3.18	**1.85**
Assessment of body worn accessories with highest SAR test configuration above									
Ab_R1_020301-09/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9844A Belt clip	HMN9052D	2.93	2.59	2.65	1.50
Ab_R1_020301-10/ WQCWB03X	776	NAF5083A	HNN9013B	PMLN4280A Leather case	HMN9052D	2.93	2.58	1.96	1.11
Ab_R1_020301-11/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9701B Nylon case	HMN9052D	3.01	2.61	2.10	1.21
Ab_R1_020301-12/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9677A Std case w/ belt clip	HMN9052D	2.97	2.65	1.22	0.68
Ab_R1_020301-13/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9677A & NTN5243A carry strap	HMN9052D	2.97	2.64	1.20	0.68
Ab_R1_020304-02/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9690 Std case w/ swivel	HMN9052D	2.96	2.59	0.63	0.36
Ab_R1_020304-03/ WQCWB03X	776	NAF5083A	HNN9013B	RLN4815A Fanny Pack	HMN9052D	2.98	2.57	1.73	1.00
Ab_R1_020304-05/ WQCWB03X	776	NAF5083A	HNN9013B	HLN6602A Chest pack	None	2.95	2.63	9.39	5.27

Body worn accessory assessment at the band edges with worst case SAR test configuration									
Ab_R1_020314-02/ WQCWB03X	746	NAF5083A	HNN9013B	HLN6602A Chest pack	None	3.03	2.68	9.27	5.24
Ab_R1_020314-03/ WQCWB03X	794	NAF5083A	HNN9013B	HLN6602A Chest pack	None	2.99	2.71	9.64	**5.32**
SAR assessment of audio accessories									
Ab_R1_020306-02/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4052A w/ RKN4097A	2.99	2.58	3.29	1.91
Ab_R1_020306-03/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4051A w/ RKN4097A	3.02	2.59	3.28	1.91
Ab_R1_020306-04/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4053A w/ RKN4097A	2.99	2.35	3.21	1.81
Ab_R1_020306-07/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	ENMN4011A w/ ENLN4135A	3.01	2.63	3.03	1.73
Ab_R1_020306-05/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	ENMN4012A w/ Breezed head Set	3.02	2.62	3.21	1.85
Ab_R1_020304-10/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	ENMN4014A	2.93	2.61	3.01	1.69
Ab_R1_020306-09/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	HLN9716B w/ HMN9725D	3.04	2.63	3.15	1.82
Ab_R1_020307-06/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	HMN9053D w/ WADN4190B	3.01	2.64	2.97	1.69
Ab_R1_020307-07/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	NTN1722A	3.02	2.62	3.09	1.78
Ab_R1_020307-08/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	NTN1723A	3.01	2.64	2.57	1.47
Ab_R1_020307-09/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	NTN1724A	3.01	2.61	3.21	1.85
Ab_R1_020304-06/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	PMLN4418A	2.96	2.58	3.52	**2.02**
Ab_R1_020304-07/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4018B	2.96	2.6	3.45	1.96
Ab_R1_020306-08/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	AARMN4022A	3.03	2.63	3.09	1.78
Ab_R1_020305-05/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4019A	3.04	2.65	3.14	1.80
Ab_R1_020305-04/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4048A	2.97	2.62	3.05	1.73
Ab_R1_020307-10/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4045A w/ BDN6677 & 0180300E83	3.01	2.66	3.09	1.75
Ab_R1_020308-02/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4044 w/ BDN6641 & 0180358B38	3.03	2.74	3.24	1.79
Ab_R1_020305-03/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	ENMN4016A	3.02	2.56	3.17	1.87
Ab_R1_020305-02/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4020A	3.03	2.62	3.28	1.90
Ab_R1_020307-05/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RLN4922A w/ ENMN4014A	3.05	2.67	3.23	1.84

Ab_R1_020305-06/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	ENMN4015	2.95	2.59	3.22	1.83
Ab_R1_020304-08/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	ENMN4010A	2.86	2.53	3.21	1.81
Ab_R1_020307-04/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	ENMN4013A	2.99	2.62	3.25	1.85
Ab_R1_020306-06/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4031B	3.04	2.61	3.32	1.93
Ab_R1_020304-09/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	AARMN4017A	2.98	2.6	3.31	1.90
Ab_R1_020306-010/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4054A w/ HLN9716B	3.01	2.58	3.41	1.99
Ab_R1_020307-02/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	RMN4055A w/ HLN9716B	3.00	2.61	3.28	1.89
Ab_R1_020307-03/ WQCWB03X	776	NAF5083A	HNN9013B	HLN9714A	AARMN4028A	3.01	2.64	3.38	1.93
Assessment at 2.5cm using worst case SAR test configuration from audio accessories testing.									
Ab_R1_020308-05/ WQCWB03X	776	NAF5083A	HNN9013B	Back 2.5cm from antenna	PMLN4418A Ear bud	3.04	2.63	7.56	**4.37**
Ab_R1_020308-06/ WQCWB03X	776	NAF5083A	HNN9013B	Front 2.5cm from antenna	PMLN4418A Ear bud	3.01	2.61	7.1	4.09
Assessment of highest S.A.R. audio accessories configuration at the band edges.									
Ab_R1_020308-03/ WQCWB03X	746	NAF5083A	HNN9013B	HLN9714A	PMLN4418A ear bud	2.98	2.71	2.52	1.39
Ab_R1_020308-04/ WQCWB03X	794	NAF5083A	HNN9013B	HLN9714A	PMLN4418A ear bud	3.03	2.71	3.75	2.10

7.2 S.A.R. results at the Face

Run #/Radio S/N	Freq. (MHz)	Antenna	Battery	Initial Power (mW)	End Power (mW)	Measured 1g-SAR (mW/g)	Calc. 1g-SAR (mW/g)
Face_R1_020311-02/ WQCWB03X	776	NAF5083A	HNN9008A	3.08	2.73	2.16	1.22
Face_R1_020311-03/ WQCWB03X	776	NAF5083A	HNN9009A	3.11	2.75	2.51	1.42
Face_R1_020311-04/ WQCWB03X	776	NAF5083A	HNN9010A	3.09	2.72	2.47	1.40
Face_R1_020311-05/ WQCWB03X	776	NAF5083A	HNN9011A	3.03	2.68	2.47	1.40
Face_R1_020311-06/ WQCWB03X	776	NAF5083A	HNN9012A	3.09	2.76	2.57	1.44
Face_R1_020311-07/ WQCWB03X	776	NAF5083A	HNN9013B	3.03	2.65	2.28	1.30
Assessment of S.A.R. performance at the band edges							
Face_R1_020311-08/ WQCWB03X	746	NAF5083A	HNN9012A	3.1	2.83	1.79	0.98
Face_R1_020311-09/ WQCWB03X	794	NAF5083A	HNN9012A	3.11	2.78	2.76	**1.54**

7.3 Peak SAR location

The peak S.A.R. was observed near the center of the antenna. Refer to APPENDIX A for detailed S.A.R. scan distributions.

7.4 SAR Results

The calculated 1-gram averaged S.A.R. value is determined by taking the ratio of the measured initial power and the end power and multiplying the ratio by 50% (duty cycle) of the measured SAR results. For this device the Calculated 1-gram averaged peak S.A.R. becomes:

$$\text{Calculated 1-gram Average Peak SAR} = \frac{P_{initial}}{P_{end}} \times D1 \times SAR_{meas.}$$

Abdomen

$$\text{Calculated 1-gram Average Peak SAR} = \frac{2.99W}{2.71W} \times .50 \times 9.64 = 5.32 \text{ mW/g}$$

Face

$$\text{Maximum Calculated 1-gram Average Peak SAR} = \frac{3.11W}{2.78W} \times .50 \times 2.76 = 1.54 \text{ mW/g}$$

$P_{initial}$ = Initial power measured
P_{end} = Lowest measured power at end of SAR
$SAR_{meas.}$ = Measured 1 gram averaged peak SAR

D1 = the transmission mode duty cycle, i.e., the ratio of the service mode and the tested mode.

8.0 Conclusion

The highest Operational Maximum Calculated 1-gram average SAR values found for the two-way radio device model number PMUD1761A were:

At the abdomen: **5.32 mW/g**

At the face: **1.54 mW/g**

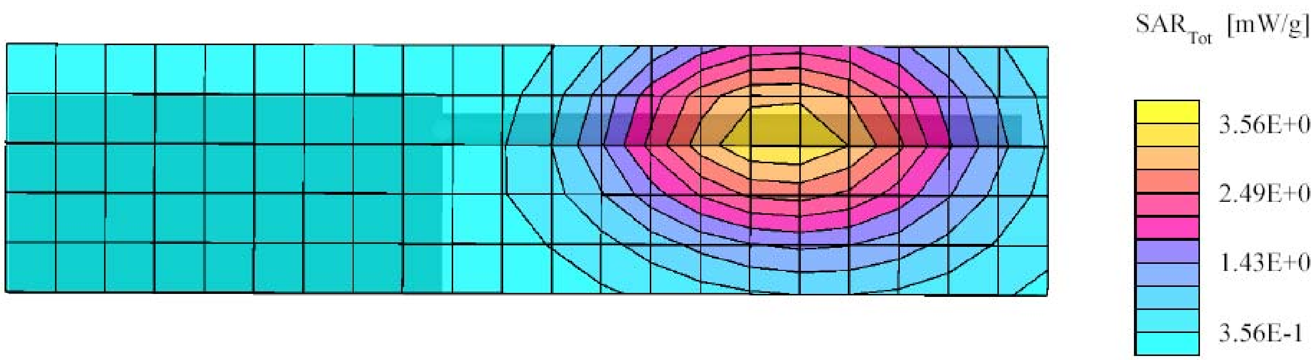
These test results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of **8.0 mW/g** per the requirements of 47 CFR 2.1093(d)

APPENDIX A

DATA RESULTS

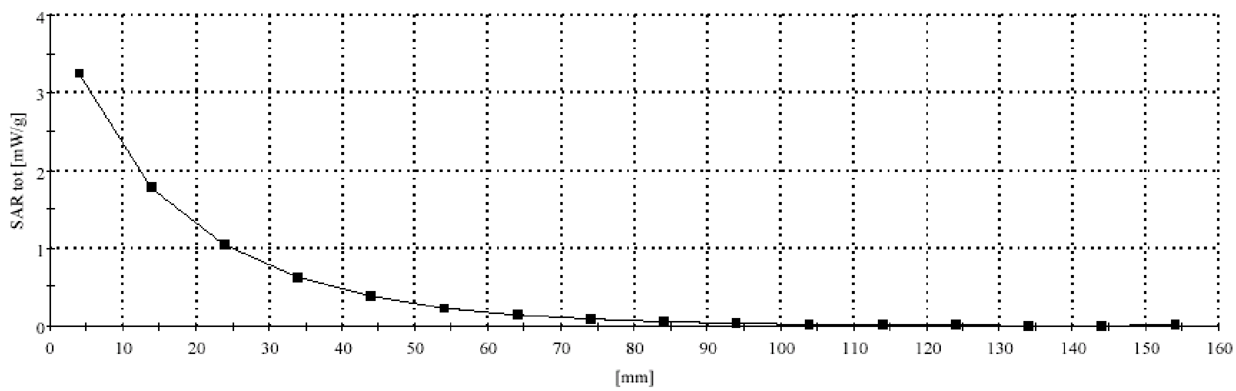
HT1250LS 700MHz; Test Date: 02/28/02
Motorola CGISS EME Laboratory
Model #: PMUF1105A SN: WQCWB03X
Run #: Ab_R1_020228-07
Tissue Temp: 20.1 (Celsius)
TX Freq: 776 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9013B
Accessories: Belt clip HLN9714A Audio: RSM HMN9052D

Flat Phantom; Device Section; Position: (90°,0°);
Probe: ET3DV6 - SN1547; ConvF(6.30,6.30,6.30); Probe cal date: 11/16/01; Crest factor: 1.0; FCC Body_770MHz: σ = 0.92 mho/m ε = 53.5 ρ = 1.00 g/cm3; DAE SN: 363 DAE Cal Date: 08/22/01
Cube 7x7x7: SAR (1g): 3.18 mW/g, SAR (10g): 2.30 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 234.0, 48.0, 4.0



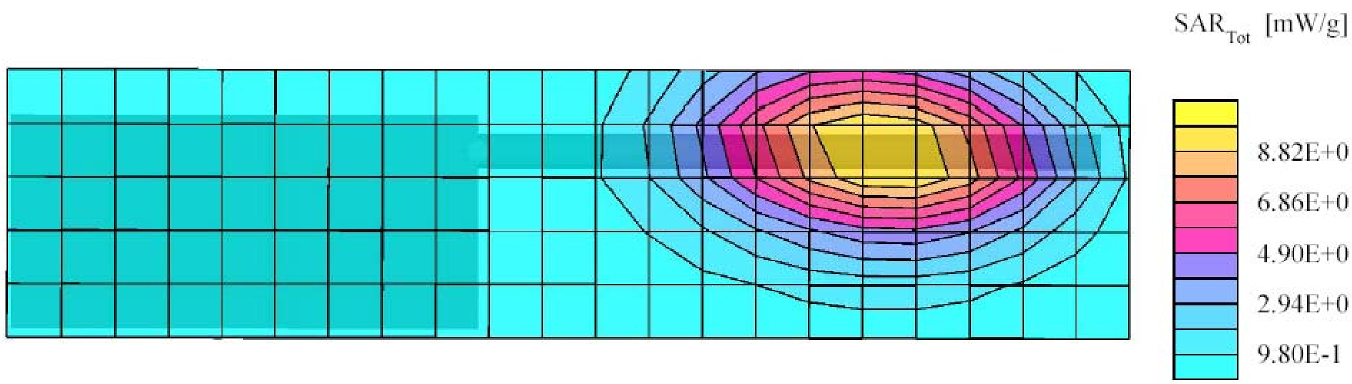
HT1250LS 700MHZ; Test Date 2/28/02
Motorola CGISS EME Lab
Model #: PMUF1105A SN: WQCWB03X
Run #: Ab_R1_020228-07
Tissue Temp: 20.1 (Celsius)
TX Freq: 776 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9013B
Accessories: Belt clip HLN9714A Audio: RSM HMN9052D

Flat Phantom Phantom; Section; Position: ; Frequency: 776 MHz
Probe: ET3DV6 - SN1547; ConvF(6.30,6.30,6.30); Crest factor: 1.0; FCC Body_770MHz: σ= 0.92 mho/m ε= 53.5 ρ= 1.00 g/cm3; DAE3: 363-V1 DAE Cal Date: 08/22/01
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 10.0,



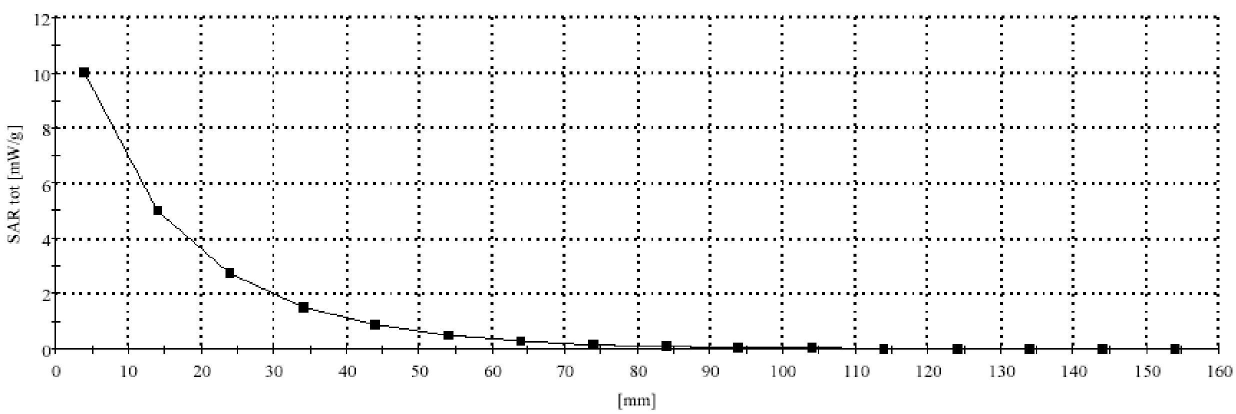
HT1250LS 700MHz; Test Date: 03/14/02
Motorola CGISS EME Lab
Model #: PMUF1105A SN: WQCWB03X
Run #: Ab_R1_020314-03
Tissue Temp: 19.9 (Celsius)
TX Freq: 794 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9013B
Accessories: Chest Pack HLN6602A Audio: None

Flat Phantom; Device Section; Position: (90°,0°);
Probe: ET3DV6 - SN1547; ConvF(6.30,6.30,6.30); Probe cal date: 11/16/01; Crest factor: 1.0; FCC Body_770MHz: σ = 0.93 mho/m ε = 53.5 ρ = 1.00 g/cm3; DAE3: 363-V1 DAE Cal Date: 08/22/01
Cube 7x7x7: SAR (1g): 9.64 mW/g, SAR (10g): 6.56 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 246.0, 52.5, 4.0



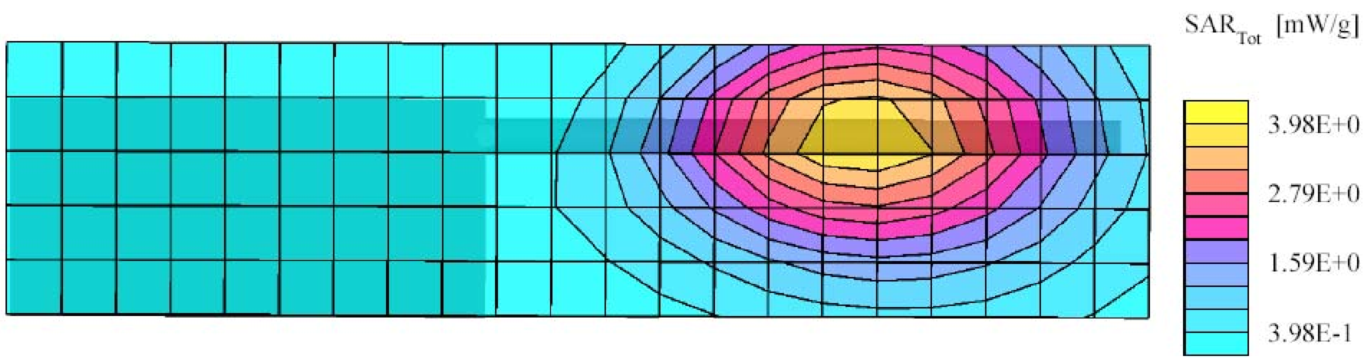
HT1250LS 700MHz; Test Date 3/14/02
Motorola CGISS EME Lab
Model #: PMUF1105A SN: WQCWB03X
Run #: Ab_R1_020314-03
Tissue Temp: 19.9 (Celsius)
TX Freq: 794 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9013B
Accessories: Chest Pack HLN6602A Audio: None

Flat Phantom; Frequency: 794 MHz
Probe: ET3DV6 - SN1547; ConvF(6.30,6.30,6.30); Crest factor: 1.0; FCC Body_770MHz: ó = 0.93 mho/m år = 53.5 ñ = 1.00 g/cm3; DAE3: 363-V1 DAE Cal Date: 08/22/01
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 10.0,



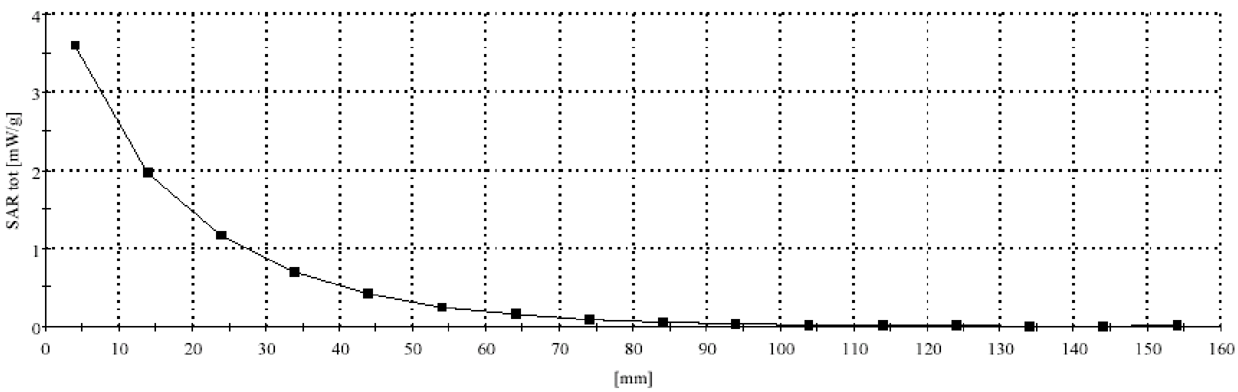
HT1250LS 700MHz; Test Date: 03/04/02
Motorola CGISS EME Lab
Model #: PMUF1105A SN: WQCWB03X
Run #: Ab_R1_020304-06
Tissue Temp: 20.5 (Celsius)
TX Freq: 776 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9013B
Accessories: Belt clip HLN9714A Audio: Ear bud W/PTT PMLN4418A

Flat Phantom; Position: (90°,0°);
Probe: ET3DV6 - SN1547; ConvF (6.30,6.30,6.30); Probe cal date: 11/16/01; Crest factor: 1.0; FCC Body_770MHz: σ = 0.93 mho/m ε = 54.5 ρ = 1.00 g/cm3; DAE3: 363-V1 DAE Cal Date: 08/22/01
Cube 7x7x7: SAR (1g): 3.52 mW/g, SAR (10g): 2.54 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 235.5, 49.5, 4.0



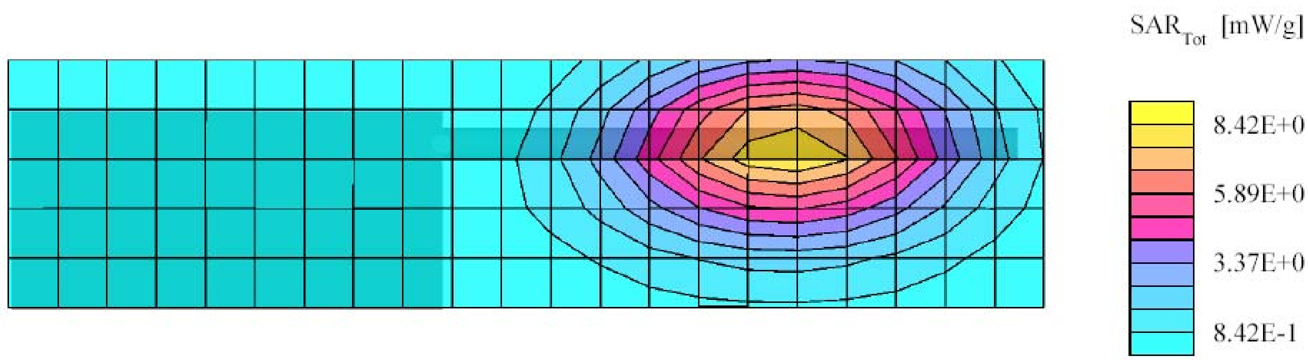
HT1250LS 700MHz; Test Date 3/04/02
Motorola CGISS EME Lab
Model #: PMUF1105A SN: WQCWB03X
Run #: Ab_R1_020304-06
Tissue Temp: 20.5 (Celsius)
TX Freq: 776 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9013B
Accessories: Belt clip HLN9714A Audio: Ear bud W/PTT PMLN4418A

Flat Phantom; Frequency: 776 MHz
Probe: ET3DV6 - SN1547; ConvF (6.30,6.30,6.30); Crest factor: 1.0; FCC Body_770MHz: σ = 0.93 mho/m ε = 54.5 ρ = 1.00 g/cm3; DAE3: 363-V1 DAE Cal Date: 08/22/01
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 10.0,



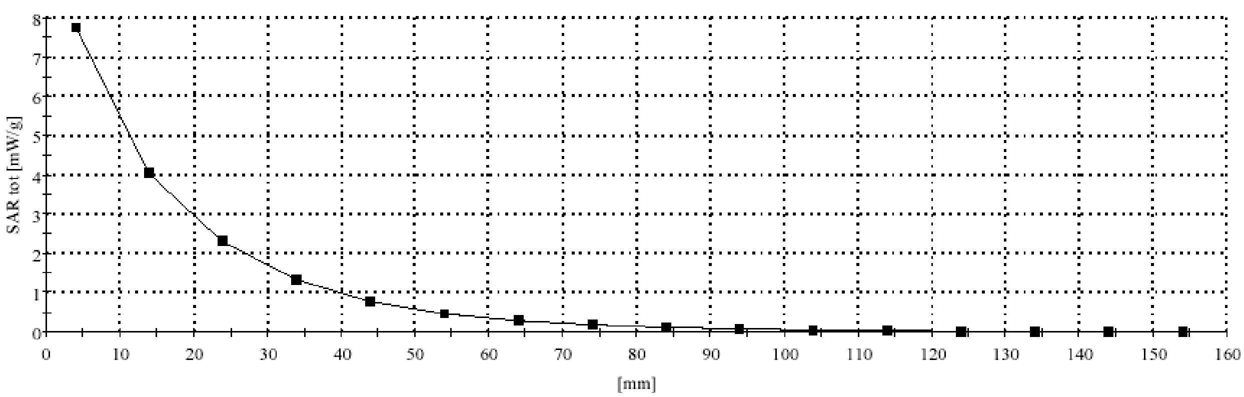
HT1250LS 700MHz; Test Date: 03/08/02
Motorola CGISS EME Lab
Model #: PMUF1105A SN: WQCWB03X
Run #: Ab_R1_020308-05
Tissue Temp: 20.3 (Celsius)
TX Freq: 776 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9013B
Accessories: Audio: Ear bud PMLN4418A

Back of radio facing phantom with antenna @ 2.5cm
Flat Phantom; Device Section; Position: (90°,0°);
Probe: ET3DV6 - SN1547; ConvF(6.30,6.30,6.30); Probe cal date: 11/16/01; Crest factor: 1.0; FCC Body_770MHz: σ = 0.92 mho/m ε = 53.4 ρ = 1.00 g/cm3; DAE3: SN363-V1 DAE Cal Date: 08/22/01
Cube 7x7x7: SAR (1g): 7.56 mW/g, SAR (10g): 5.28 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 237.0, 48.0, 4.0



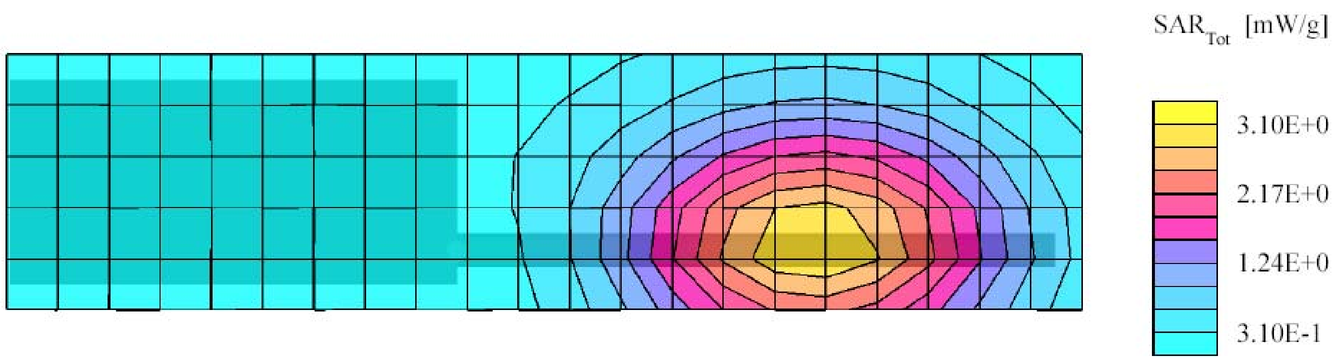
HT1250LS 700MHz; Test Date: 3/08/02
Motorola CGISS EME Lab
Model #: PMUF1105A SN: WQCWB03X
Run #: Ab_R1_020308-05
Tissue Temp: 20.3 (Celsius)
Phantom #: 80302002A
TX Freq: 776 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9013B
Accessories: Audio: Ear bud PMLN4418A

Back of radio facing phantom with antenna @ 2.5cm
Flat Phantom; Frequency: 776 MHz
Probe: ET3DV6 - SN1547; ConvF(6.30,6.30,6.30); Probe cal date: 11/16/01; Crest factor: 1.0; FCC Body_770MHz: σ = 0.92 mho/m ε = 53.4 ρ = 1.00 g/cm^3; DAE3: SN363-V1 DAE Cal Date: 08/22/01
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 10.0,



HT1250LS 700MHz; Test Date: 03/11/02
Motorola CGISS EME Lab
Model #: PMUF1105A SN: WQCWB03X
Run #: Face_R1_020311-09
Tissue Temp: 20.7 (Celsius)
TX Freq: 794 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9012A
Accessories: Carry case: None Audio: None

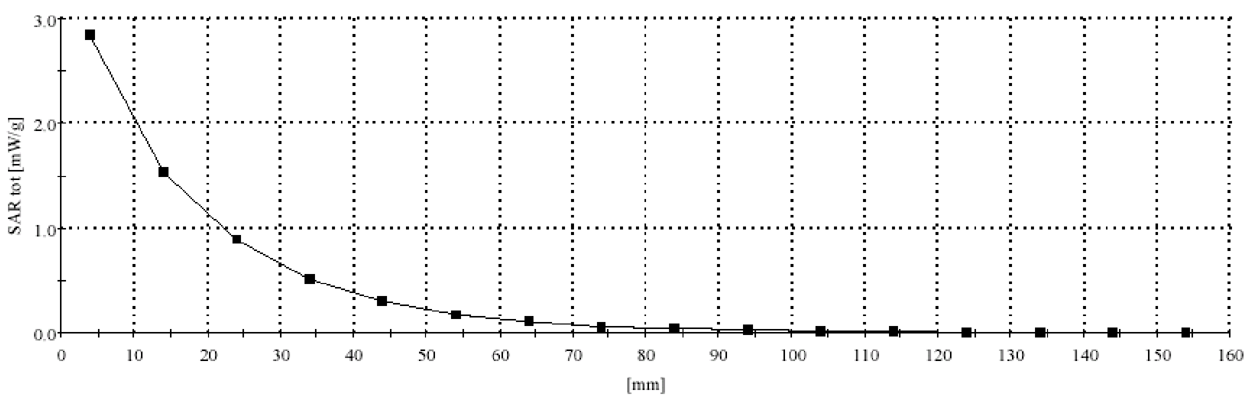
Radio @ 2.5cm from phantom
Flat Phantom; Device Section; Position: (90°,0°);
Probe: ET3DV6 - SN1547; ConvF(6.50,6.50,6.50); Probe cal date: 11/16/01; Crest factor: 1.0; IEEE Head_770 MHz: σ = 0.85 mho/m ε = 43.3 ρ = 1.00 g/cm3; DAE3: SN363-V1 DAE Cal Date: 08/22/01
Cube 7x7x7: SAR (1g): 2.76 mW/g, SAR (10g): 1.98 mW/g, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 237.0, 19.5, 4.0



HT1250LS 700MHz; Test Date: 3/11/02

Motorola CGISS EME Lab
Run #: Face_R1_020311-09
Model #: PMUF1105A SN: WQCWB03X
Tissue Temp: 20.7 (Celsius)
TX Freq: 794 MHz
Antenna: NAF5083A 1/2wave Battery Kit: HNN9012A
Accessories: Carry case: None Audio: None

Radio @ 2.5cm from phantom
Flat Phantom; Frequency: 776 MHz
Probe: ET3DV6 - SN1547; ConvF(6.50,6.50,6.50); Crest factor: 1.0; IEEE Head_770 MHz: σ = 0.85 mho/m ε = 43.3 ρ = 1.00 g/cm3; DAE3: SN363-V1 DAE Cal Date: 08/22/01
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 10.0,

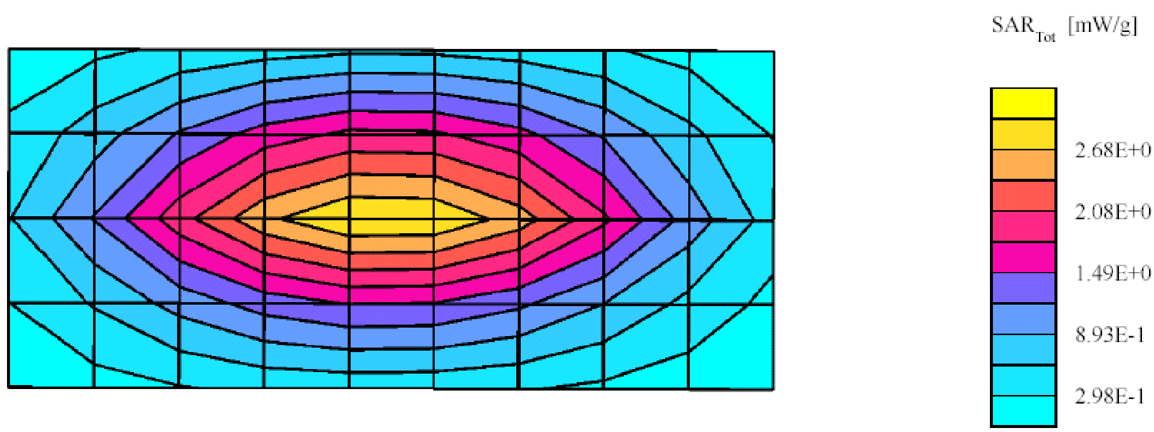


APPENDIX B

Dipole System Performance Check Results

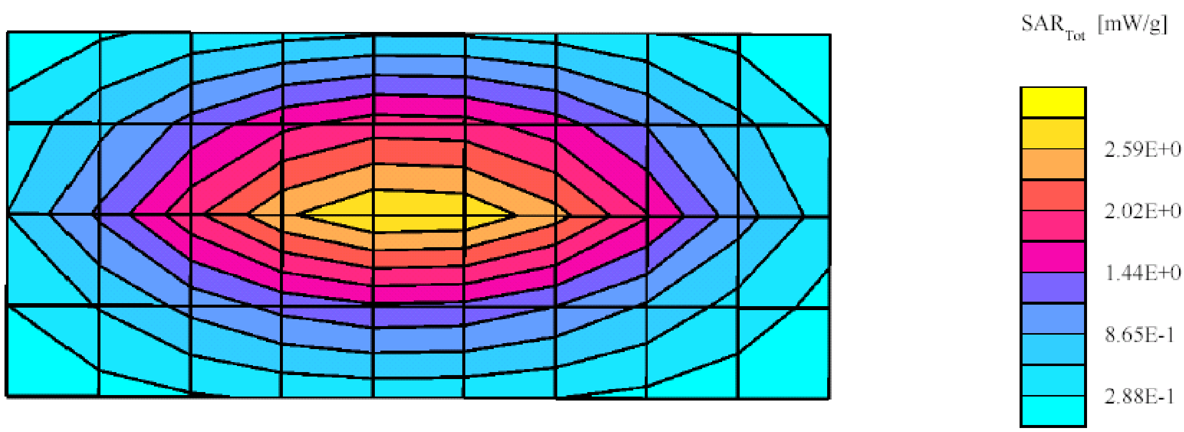
SPEAG Dipole D835V2 - SN 427; Test Date:02/28/02
Motorola CGISS EME Lab
Model #: D835V2 SN: 427
Run #: Sys Val_R1_020228-01
Tissue Temp: 20.1 (Celsius)
TX Freq: 835 MHz
Input Power; 250mW
Target at 1W is 10.82

Flat Phantom; Probe: ET3DV6 - SN1547;Probe Cal Date: 11/16/01ConvF(6.20,6.20,6.20); Crest factor: 1.0; FCC Body_835 MHz: σ = 0.99 mho/m ε = 52.6 ρ = 1.00 g/cm3; DAE3: SN363-V1 DAE Cal Date: 08/22/01
Cube 7x7x7: Peak: 4.48 mW/g, SAR (1g): 2.82 mW/g, SAR (10g): 1.80 mW/g, (Worst-case extrapolation)
Penetration depth: 12.2 (10.8, 14.0) [mm]
Power drift: -0.01 dB



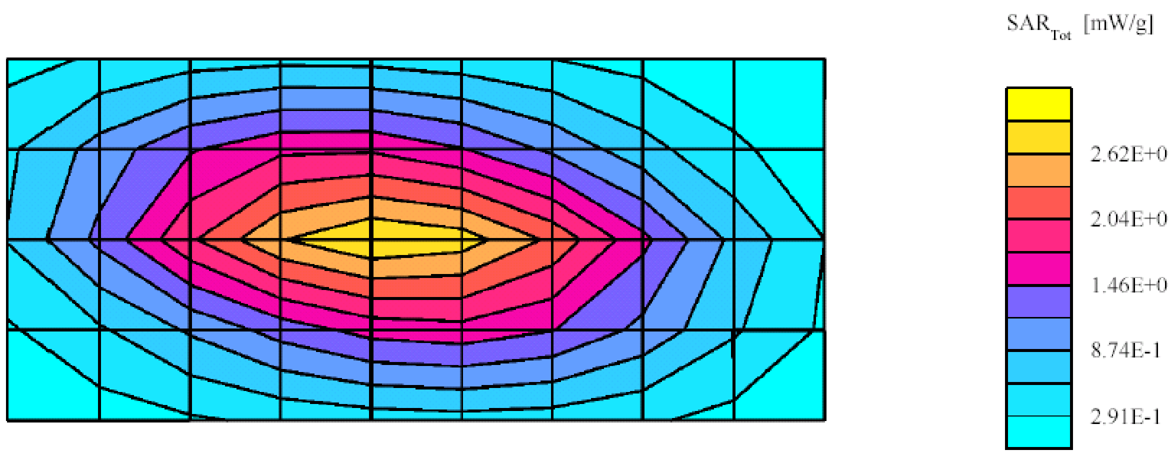
SPEAG Dipole D835V2 - SN 427. Test Date:03/04/02
Motorola CGISS EME Lab
Run #: Sys Val_R1_020304-01
Tissue Temp: 20.5 (Celsius)
TX Freq: 835 MHz
Input Power; 250mW
Target at 1W is 10.82

Flat Phantom; Probe: ET3DV6 - SN1547;Probe Cal Date: 11/16/01ConvF(6.20,6.20,6.20); Crest factor: 1.0; FCC Body_835 MHz: σ = 1.00 mho/m ε = 54.0 ρ = 1.00 g/cm3; DAE3: SN363-V1 DAE Cal Date: 08/22/01
Cube 7x7x7: Peak: 4.32 mW/g, SAR (1g): 2.72 mW/g, SAR (10g): 1.74 mW/g, (Worst-case extrapolation)
Penetration depth: 12.2 (10.8, 14.0) [mm]
Power drift: -0.00 dB



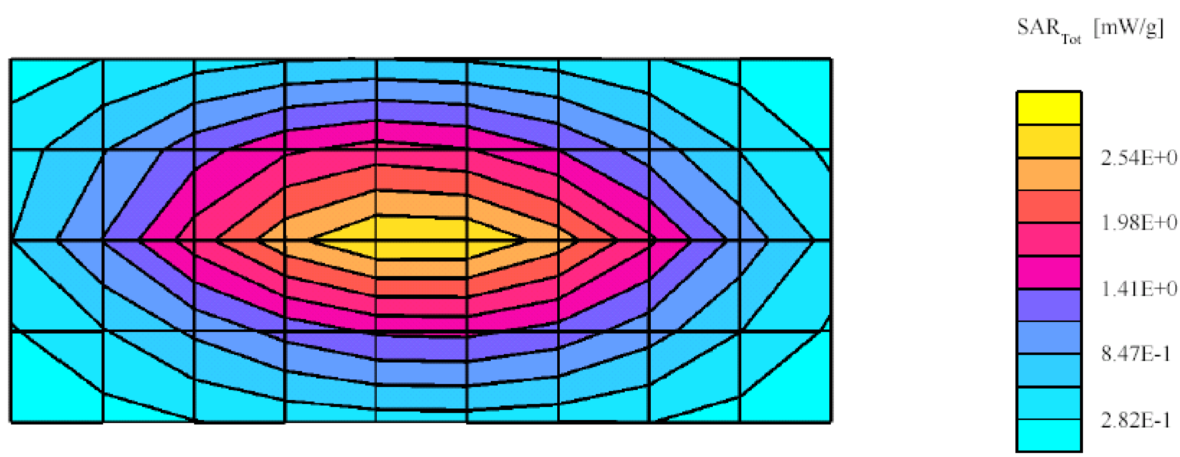
SPEAG Dipole D835V2 - SN 427; Test Date:03/08/02
Motorola CGISS EME Lab
Run #: Sys Val_R1_020308-01
Tissue Temp: 20.3 (Celsius)
TX Freq: 835 MHz
Input Power; 250mW
Target at 1W is 10.82

Flat Phantom; Probe: ET3DV6 - SN1547;Probe Cal Date: 11/16/01ConvF(6.20,6.20,6.20); Crest factor: 1.0; FCC Body_835 MHz: σ = 0.99 mho/m ε = 53.2 ρ = 1.00 g/cm3; DAE3: SN363-V1 DAE Cal Date: 08/22/01
Cube 7x7x7: Peak: 4.25 mW/g, SAR (1g): 2.68 mW/g, SAR (10g): 1.71 mW/g, (Worst-case extrapolation)
Penetration depth: 12.2 (10.8, 14.0) [mm]
Power drift: -0.01 dB



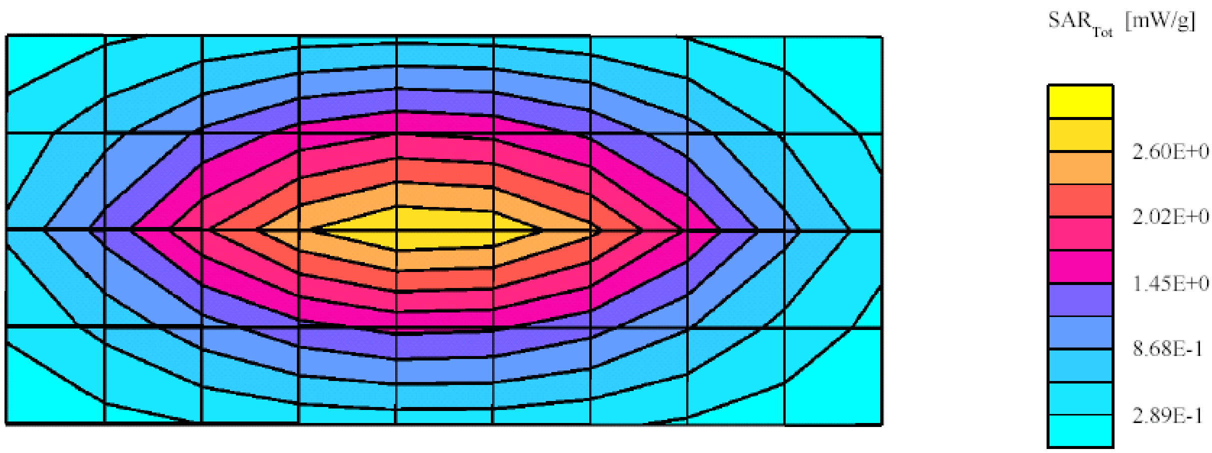
SPEAG Dipole D835V2 - SN 427; Test Date:03/11/02
Run #: Sys Val_R1_020311-01
Tissue Temp: 20.7 (Celsius)
TX Freq: 835 MHz
Input Power; 250mW
Target at 1W is 9.74

Flat Phantom; Probe: ET3DV6 - SN1547;Probe Cal Date: 11/16/01ConvF(6.40,6.40,6.40); Crest factor: 1.0; IEEE Head_835 MHz: σ = 0.92 mho/m ε = 42.4 ρ = 1.00 g/cm3; DAE3: SN363-V1 DAE Cal Date: 08/22/01
Cube 7x7x7: Peak: 4.26 mW/g, SAR (1g): 2.66 mW/g, SAR (10g): 1.69 mW/g, (Worst-case extrapolation)
Penetration depth: 11.9 (10.6, 13.6) [mm]
Power drift: -0.00 dB



SPEAG Dipole D835V2 - SN 427; Test Date:03/14/02
Run #: Sys Val_R1_020314-01
Tissue Temp: 19.9 (Celsius)
TX Freq: 835 MHz
Input Power; 250mW
Target at 1W is 10.82

Flat Phantom; Probe: ET3DV6 - SN1547;Probe Cal Date: 11/16/01ConvF(6.20,6.20,6.20); Crest factor: 1.0; FCC Body_835 MHz: σ = 0.99 mho/m ε = 52.7 ρ = 1.00 g/cm3; DAE3: SN363-V1 DAE Cal Date: 08/22/01
Cube 7x7x7: Peak: 4.33 mW/g, SAR (1g): 2.70 mW/g, SAR (10g): 1.72 mW/g, (Worst-case extrapolation)
Penetration depth: 12.2 (10.7, 14.1) [mm]
Power drift: -0.00 dB



APPENDIX C

Calibration Certificates

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Calibration Certificate

Dosimetric E-Field Probe

Type:	ET3DV6
Serial Number:	1547
Place of Calibration:	Zurich
Date of Calibration:	November 16, 2001
Calibration Interval:	12 months

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:	Nikoloski Neviana
Approved by:	Pokovic Katja

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Additional Conversion Factors

for Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1547**
Place of Assessment:	**Zurich**
Date of Assessment:	**November 17, 2001**
Probe Calibration Date:	**November 16, 2001**

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 1800 MHz.

Assessed by:

Dosimetric E-Field Probe ET3DV6 SN:1547

Conversion factor (± standard deviation)

150 MHz	ConvF	7.9 ± 8%	ε_r = 61.9 σ = 0.80 mho/m (body tissue)
236 MHz	ConvF	7.7 ± 8%	ε_r = 59.8 σ = 0.87 mho/m (body tissue)
300 MHz	ConvF	7.6 ± 8%	ε_r = 58.2 σ = 0.92 mho/m (body tissue)
350 MHz	ConvF	7.4 ± 8%	ε_r = 57.7 σ = 0.93 mho/m (body tissue)
450 MHz	ConvF	7.2 ± 8%	ε_r = 56.7 σ = 0.94 mho/m (body tissue)
784 MHz	ConvF	6.3 ± 8%	ε_r = 55.4 σ = 0.97 mho/m (body tissue)
835 MHz	ConvF	6.2 ± 8%	ε_r = 55.2 σ = 0.97 mho/m (body tissue)
925 MHz	ConvF	6.0 ± 8%	ε_r = 55.0 σ = 1.06 mho/m (body tissue)
1450 MHz	ConvF	5.5 ± 8%	ε_r = 54.0 σ = 1.30 mho/m (body tissue)
1900 MHz	ConvF	4.8 ± 8%	ε_r = 53.3 σ = 1.52 mho/m (body tissue)
2450 MHz	ConvF	4.0 ± 8%	ε_r = 52.7 σ = 1.95 mho/m (body tissue)

Dosimetric E-Field Probe ET3DV6 SN:1547

Conversion factor (± standard deviation)

150 MHz	ConvF	8.6 ± 8%	ε_r = 52.3 σ = 0.76 mho/m (head tissue)
236 MHz	ConvF	7.8 ± 8%	ε_r = 48.3 σ = 0.82 mho/m (head tissue)
300 MHz	ConvF	7.4 ± 8%	ε_r = 45.3 σ = 0.87 mho/m (head tissue)
350 MHz	ConvF	7.3 ± 8%	ε_r = 44.7 σ = 0.87 mho/m (head tissue)
400 MHz	ConvF	7.2 ± 8%	ε_r = 44.4 σ = 0.87 mho/m (head tissue - CENELEC)
450 MHz	ConvF	7.1 ± 8%	ε_r = 43.5 σ = 0.87 mho/m (head tissue)
784 MHz	ConvF	6.5 ± 8%	ε_r = 41.8 σ = 0.90 mho/m (head tissue)
835 MHz	ConvF	6.4 ± 8%	ε_r = 41.5 σ = 0.90 mho/m (head tissue)
835 MHz	ConvF	6.4 ± 8%	ε_r = 42.5 σ = 0.98 mho/m (head tissue - CENELEC)
925 MHz	ConvF	6.2 ± 8%	ε_r = 41.5 σ = 0.98 mho/m (head tissue)
900 MHz	ConvF	6.3 ± 8%	ε_r = 42.3 σ = 0.99 mho/m (head tissue - CENELEC)

Dosimetric E-Field Probe ET3DV6 SN:1547

Conversion factor (± standard deviation)

1500 MHz	ConvF	**5.8 ± 8%**	ε_r = 40.4 σ = 1.23 mho/m (head tissue)
1900 MHz	ConvF	**5.2 ± 8%**	ε_r = 40.0 σ = 1.40 mho/m (head tissue)
2450 MHz	ConvF	**4.4 ± 8%**	ε_r = 39.2 σ = 1.80 mho/m (head tissue)

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Calibration Certificate

835 MHz System Validation Dipole

Type:	**D835V2**
Serial Number:	**427**
Place of Calibration:	**Zurich**
Date of Calibration:	**Nov. 2, 2000**
Calibration Interval:	**24 months**

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:	Nikoloski Neviana
Approved by:	Pokovic Katja

Table 7.1 – Numerical reference SAR values for reference dipole and flat phantom. All values are normalized to a forward power of 1 W.

Frequency (MHz)	1 g SAR	10 g SAR	local SAR at surface (above feedpoint)	local SAR at surface (y=2cm offset from feedpoint)
300	3.0	2.0	4.4	2.1
450	4.9	3.3	7.2	3.2
835	9.5	6.2	14.1	4.9
900	10.8	6.9	16.4	5.4
1450	29.0	16.0	50.2	6.5
1800	38.1	19.8	69.5	6.8
1900	39.7	20.5	72.1	6.6
2000	41.1	21.1	74.6	6.5
2450	52.4	24.0	104.2	7.7
3000	63.8	25.7	140.2	9.5

SYSTEM VALIDATION

Date:	__2/12/02__	Frequency (MHz):	__835__
Lab Location:	__CGISS____	Mixture Type:	__IEEE Head_
Robot System:	__CGISS-1___	Ambient Temp.(°C):	__22_______
Probe Serial #:	__1547______	Tissue Temp. (°C):	__21.0_____
DAE Serial #:	___363_____		

Tissue Characteristics		Phantom Type/SN:	_ACL40232002A__
Permitivity:	____40.2_____	Distance:	__15mm__________
Conductivity:	____0.89_____		

Reference Source: __D835V2___(Dipole/Handset)
Reference SN: __427_______

Power to Dipole: ___250_____ mW
Power Output (radio): ____N/A____ mW

Target SAR Value: (normalized to 1.0 W)	__9.5_ mW/g,	__6.2__ mW/g (10g avg.)
Measured SAR Value:	__2.43__ mW/g,	__1.55_ mW/g (10g avg.)
Power Drift:	__-.01_ dB	
Measured SAR Value: (normalized to 1.0 W, with drift compensation)	__9.74__ mW/g,	__6.21__ mW/g (10g avg.)

Percent Difference From Target (must be within System Uncertainty): _2.5__ % (1g avg)
_0.2__ % (10g avg)

Test performed by: ______Stephen Whalen________ Initial: SCW 2/12/02

SYSTEM PERFORMANCE CHECK TARGET SAR

Date:	2/12/2002	Frequency (MHz):	835
Lab Location:	CGISS	Mixture Type:	FCC Body
Robot System:	CGISS 1	Ambient Temp.(°C):	22
Probe Serial #:	1547	Tissue Temp.(°C):	20.5
DAE Serial #:	363		

Tissue Characteristics

Permitivity:	52.6	Phantom Type/SN:	80302002A
Conductivity:	1.00	Distance (mm):	15

Reference Source: D835V2 (Dipole)
Reference SN: 427

Power to Dipole: 250 mW

Measured SAR Value: 2.7 mW/g, 1.72 mW/g (10g avg.)
Power Drift: -0.01 dB

New Target/Measured
SAR Value: 10.82 mW/g, 6.90 mW/g (10g avg.)
(normalized to 1.0 W, including drift)

Test performed by: Stephen C. Whalen Initial: SCW 2/27/02

SYSTEM PERFORMANCE CHECK TARGET SAR

Date:	2/12/2002	Frequency (MHz):	835
Lab Location:	CGISS	Mixture Type:	IEEE Head
Robot System:	CGISS 1	Ambient Temp.(^{o}C):	22
Probe Serial #:	1547	Tissue Temp.(^{o}C):	21
DAE Serial #:	363		

Tissue Characteristics

Permitivity:	40.2	Phantom Type/SN:	ACL40232002A
Conductivity:	0.89	Distance (mm):	15

Reference Source: D835V2 (Dipole)

Reference SN: 427

Power to Dipole: 250 mW

Measured SAR Value: 2.43 mW/g, 1.55 mW/g (10g avg.)

Power Drift: -0.01 dB

New Target/Measured SAR Value: 9.74 mW/g, 6.21 mW/g (10g avg.)
(normalized to 1.0 W, including drift)

Test performed by: Stephen C. Whalen Initial: SCW 2/27/02

APPENDIX D: Illustration of Body-Worn Accessories

The purpose of this appendix is to illustrate the body worn carry accessories tested for the HT1250LS model PMUD1761A. The radio that was used in the following photos represents the device used to obtain the results presented herein.

Photo 1.
Model PMLN4280A
Full Thin Leather
Front View

Photo 2.
Model PMLN4280A
Full Thin Leather
Side view

Photo 3.
Model PMLN4280A
Full Thin Leather
Back view

Photo 4.
Model HLN9690A
Standard Leather case with swivel
Front view

Photo 5.
Model HLN9690A
Standard Leather case with swivel
Side view

Photo 6.
Model HLN9690A
Standard Leather case with swivel
Back view

Photo 7.
Model HLN9701B
Nylon Case
Front view

Photo 8.
Model HLN9701B
Nylon Case
Side view

Photo 9.
Model HLN9701B
Nylon Case
Back view

Photo 10.
Model HLN9677A
Standard case w/
belt loop
Front view

Photo 11.
Model HLN9677A
Standard case w/
belt loop
Side view

Photo 12.
Model HLN9677A
Standard case w/
belt loop
Back view

Photo 13.
Model HLN9714A
Belt Clip
Back view

Photo 14.
Model HLN9844A
Belt clip
Back view

Photo 15.
Model HLN6602A
Chest Pack
Side view
Normal user position

Photo 16.
Model HLN6602A
Chest Pack
Front view
Normal user position

Photo 17.
Model RLN4815A
Fanny Pack
Front view
Normal user position

The following table provides information regarding the accessories offered for the HT1250LS. Justification for why specific accessories were not included in the test matrix is presented.

Accessories Type	Model	Comments	Justification for not including model in test plan	Separation distance - base of antenna to phantom surface. (mm)
Body-worn	HLN9677A	Tested	NA	36
Body-worn	HLN9690A	Tested	NA	52
Body-worn	HLN6602A	Tested	NA	20
Body-worn	HLN9701B	Tested	NA	31
Body-worn	HLN9714A	Tested	NA	23
Body-worn	HLN9844A	Tested	NA	24
Body-worn	HLN9952A	Not Tested	Plastic case – no metal components. Greater separation distance when used with HLN9714A or HLN9844	30
Body-worn	HLN9985B	Not Tested	Waterproof carry bag only. No intended radio operation.	NA
Body-worn	NTN5243A	Tested w/ HLN9677A	NA	NA
Body-worn	PMLN4281A	Not Tested	Similar to PMLN4280A. Contain same metallic components	29
Body-worn	RLN4815A	Tested	NA	35
Body-worn	HLN9945A	Not Tested	Similar to HLN9677A. Contain same metallic components	=>36
Body-worn	HLN9689A	Not Tested	Similar to HLN9946A. Contain same metallic components	=>36

Body-worn	HLN9946A	Not Tested	Similar to HLN9677A. Contain same metallic components	=>36
Body-worn	HLN9665A	Not Tested	Similar to HLN9677A. Contain same metallic components	=>36
Body-worn	HLN9652A	Not Tested	Similar to HLN9677A. Contain same metallic components	=>52
Body-worn	HLN9670A	Not Tested	Similar to HLN9690A. Contain same metallic components	=>52
Body-worn	HLN9676A	Not Tested	Similar to HLN9690A. Contain same metallic components	=>52
Body-worn	HLN9694A	Not Tested	Similar to HLN9690A. Contain same metallic components	=>52
Body-worn	HLN9955A	Not Tested	Similar to HLN9690A. Contain same metallic components	=>52
Body-worn	HLN9998A	Not Tested	Similar to HLN9690A. Contain same metallic components	=>52
Body-worn	PMLN4280A	Tested	NA	29
Audio	AARMN4017A	Tested	NA	NA
Audio	AARMN4028A	Tested	NA	NA
Audio	AARMN4031B	Tested	NA	NA
Audio	RMN4054A	Tested with HLN9716B GP300 adapter	NA	NA
Audio	RMN4055A	Tested with HLN9716B GP300 adapter	NA	NA
Audio	ENMN4013A	Tested	NA	NA
Audio	ENMN4010A	Tested	NA	NA
Audio	ENMN4015A	Tested	NA	NA

Audio	AARMN4021A	Not tested	Similar to AARMN4028A	NA
Audio	ENMN4016A	Tested	NA	NA
Audio	BDN6641A	Tested w/ RMN4044A	NA	NA
Audio	BDN6677A	Tested w/ RMN4045A	NA	NA
Audio	BDN6678A	Not Tested	Similar to BDN6677A (different color)	NA
Audio	ENLN4135A	Tested w/ ENMN4011A	NA	NA
Audio	ENMN4011A	Tested With ENLN4135A	NA	NA
Audio	ENMN4012A	Tested	NA	NA
Audio	ENMN4014A	Tested	NA	NA
Audio	ENMN4017A	Not Tested	Similar to ENMN4014A (different color)	NA
Audio	HLN9716B	Tested w/ HMN9725D GP300 adapter	NA	NA
Audio	HLN9717A	Tested w/ NTN1722A/1723 A/1724A	NA	NA
Audio	HMN9052D	Tested	NA	NA
Audio	HMN9053D	Tested w/ WADN4190B	NA	NA
Audio	NTN1722A	Tested	NA	NA
Audio	NTN1723A	Tested	NA	NA
Audio	NTN1724A	Tested	NA	NA

Audio	NTN8370A	Not Tested	Similar to WADN4190A Receive only ear piece.	NA
Audio	NTN8371A	Not Tested	Similar to WADN4190A Receive only ear piece	NA
Audio	PMLN4418A	Tested	NA	NA
Audio	RKN4097A	Tested w/ RMN4051A/ 4052A/4053A	NA	NA
Audio	RLN4885A	Not Tested	Similar to WADN4190B (Receive only ear piece)	NA
Audio	RLN4922A	Tested w/ ENMN4014A	NA	NA
Audio	RLN4941A	Not Tested	Similar to WADN4190B (Receive only ear piece)	NA
Audio	AARMN4018B	Tested	NA	NA
Audio	AARMN4019A	Tested	NA	NA
Audio	AARMN4020A	Tested	NA	NA
Audio	AARMN4022A	Tested	NA	NA
Audio	AARMN4029A	Not Tested	Similar to AARMN4022A	NA
Audio	RMN4044A	Tested w/ 0180358B38 & BDN6641A	NA	NA
Audio	RMN4045A	Tested w/ 0180300E83 & BDN6677A	NA	NA
Audio	RMN4048A	Tested	NA	NA
Audio	RMN4051A	Tested With RKN4097A	NA	NA
Audio	RMN4052A	Tested With RKN4097A	NA	NA

Audio	RMN4053A	Tested w/ RKN4097A	NA	NA
Audio	WADN4190B	Tested w/ HMN9053D	NA	NA
Audio	HKN9055A	Not Tested	Remote Speaker Mic. Replacement cable	NA
Audio	0180358B38	Tested w/ RMN4044A	NA	NA
Audio	0180300E83	Tested w/ RMN4045A	NA	NA