Certificate Number: 1449-02

MOTOROLA

ACCREDITED

CGISS EME Test Laboratory
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S.A.R. EME Compliance Test Report
Part 1 of 2

Date of Report:	May 15, 2003
Report Revision:	Rev. O
Manufacturer:	Motorola
Product Description:	Portable 450-488 MHz 2-5W No keypad, w/ top mounted display
FCC ID:	**AZ489FT4861**
Device Model:	H10SDD9PW6AN
Test Period:	4/23/03 – 5/01/03
EME Technician:	Ed Church
EME Engineer:	Deanna Zakharia Elect. Principle Staff Eng.
Author:	Michael Sailsman Global 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.

Signature on File

Ken Enger
Senior Resource Manager, Laboratory Director, CGISS EME Lab

5/16/03

Date Approved

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REVISION HISTORY

Date	Revision	Comments
4/15/03	O	Initial Prototype results

1.0 Introduction

This report details the utilization, test setup, test equipment, and updated test results of the Specific Absorption Rate (S.A.R.) measurements performed at the CGISS EME Test Lab for model number H10SDD9PW6AN, FCC ID: AZ489FT4861.

The applicable exposure environment is Occupational/Controlled.

The test results included herein represent the highest S.A.R. 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 portable handheld transceiver, FCC ID: AZ489FT4861, operates using continuous carrier Frequency Modulation (FM) utilizing conventional analog voice, trunked analog voice, tone PL or C4FM digital modulation. The intended operating positions are “at the face” with the microphone 1 to 2 inches from the mouth, and “at the abdomen” by means of the offered body-worn accessories. Audio and PTT operation while the radio is at the abdomen is accomplished by means of optional remote accessories that connect to the radio. This device will be marketed to and used by employees solely for work-related operations, such as public safety agencies, e.g. police, fire and emergency medical. User training is the responsibility of these agencies, who can be expected to employ the usage instructions, safety information and operational cautions set forth in the user's manual, instructional sessions or other means. Motorola also makes available to its customers training classes on the proper use of two-way radios and wireless data devices.

FCC ID: AZ489FT4861 is capable of operating in the 450-488 MHz band. The rated power is 2-5 watts with a maximum output capability of 5 watts as defined by the upper limit of the production line final test station.

FCC ID: AZ489FT4861 is offered with the following options and accessories:

Antenna

8505247K06	Whip 403-512 MHz ½ wave antenna; -0.5 dBi
8505309N10	Helical "Stubby" 440-470 MHz antenna (PSM); -5 dBi

Batteries

NTN4595D	1800mAh NiCd
NTN4596D	1800mAh FM NiCd Battery
NTN4992C	NiCd Hazmat battery
HNN9033B	Impres NiCd battery
HNN9034B	Impres FM NiCd battery

Body-worn Accessories

NNTN4709A	Belt clip
4205633T01	Belt Loop
NTN5644ASP01	Carry case
NMN6158A	Back swivel mic clip
NTN5574ASP02	NYPD T-strap

Audio attachments

NMN6129B	Public safety microphone
NMN6225B	RSM
ZMN6032A	Surveillance kit 2 piece speaker mic
ZMN6038A	Surveillance kit 2 piece speaker mic (extra loud)
NTN5664D	Surveillance adaptor

3.1 Test Signal

Test Signal mode:

Test Mode	X	Base Station		Simulator	

Transmission Mode:

CW	**X**
Native Transmission	
TDM:	
Other	

3.2 Test Output Power

Output power was measured before each test. The DASY 3 system's S.A.R. drift function was used to determine the power slump characteristic of the device. A characteristic power slump table based on 50 ohms measurements is provided in APPENDIX A for the batteries producing the highest S.A.R. results.

4.0 Description of Test Equipment

4.1 Descriptions of S.A.R. 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 test system consists of a Stäubli RX90L robot with an ET3DV6 E-Field probe. Please reference the SPEAG user manual and application notes for detailed probe, robot, and S.A.R. computational procedures.
The S.A.R. measurements were conducted with probe model/serial number ET3DV6/SN1383. The system performance check was conducted daily and within 24 hours prior to testing. DASY output files of the system performance test results and the probe/dipole calibration certificates are included in appendices C and D respectively. The table below summarizes the system performance check results normalized to 1W.

Probe Serial #	Tissue Type	Probe Cal Date	Dipole Kit / Serial #	System Perf. Result when normalized to 1W (mW/g)	Reference S.A.R @ 1W (mW/g)	Test Date(s)
1383	FCC Body	2/26/03	SPEAG D450V2 MHz /1002	4.62 +/- 0.17	4.52 +/- 10%	4/23/03-4/30/03 3 test days
1383	IEEE Head	2/26/03	SPEAG D450V2 MHz /1002	4.45 +/- 0.00	4.70 +/- 10%	5/01/03

Note: see APPENDIX C for an explanation of the reference S.A.R. targets stated above.

The DASY3™ system is operated per the instructions in the DASY3™ Users Manual. The complete manual is available directly from SPEAG™. All measurement equipment used to assess EME S.A.R. compliance was calibrated according to 17025 A2LA guidelines.

4.2 Description of Phantom

4.2.1 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 0.00031. The phantom is mounted on a wooden supporting structure that has a loss tangent of < 0.05. The structure has a 68.58 cm x 25.4 cm opening at its center to allow positioning the DUT to the phantom's surface. The table below shows the flat phantom dimensions used for S.A.R. performance assessment at the abdomen and face.

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

4.2.2 SAM Phantom

SAM Phantom assessment was not applicable for this filing.

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

Tissue Ingredient (%) @ 450 MHz		
	Head	Body
Sugar	56	46.5
DGBE (Glycol)	-	-
De ionized -Water	39.1	50.53
Salt	3.8	1.87
HEC	1.0	1.0
Bact.	0.1	0.1

Characterization of Simulated tissue materials and ambient conditions:

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

Target tissue parameters

FCC Body				
Frequency (MHz)	**Di-electric Constant Target**	**Di-electric Constant Meas. (Range)**	**Conductivity Target S/m**	**Conductivity Meas. (Range) S/m**
450	56.7	54.5-55.3	0.94	0.91-0.93
459	56.66	54.4-55.2	0.94	0.91-0.93
469	56.6	54.2-55.0	0.94	0.92-0.94

IEEE Head				
Frequency (MHz)	**Di-electric Constant Target**	**Di-electric Constant Meas. (Range)**	**Conductivity Target S/m**	**Conductivity Meas. S/m**
450	43.5	43.4-43.4	0.87	0.84-0.84
469	43.4	43.0-43.0	0.87	0.86-0.86

4.4 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 S.A.R. tests reported herein:

	Target	**Measured**
Ambient Temperature	20 - 25 ˚C	Range: 21.3-23.8˚C Avg. 22.8˚C
Relative Humidity	30 - 70 %	Range: 42.2-60.9% Avg. 46.7%
Tissue Temperature	NA	Range: 20.5-21.3˚C Avg. 20.8˚C

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

All options and accessories listed in section 3.0 were considered in order to develop the S.A.R. test plan for this product. S.A.R. measurements were performed using a flat phantom to assess performance at the abdomen and face. All assessments were done using the flat phantom with the DUT in CW mode. Applicable tissue parameters were used for each body location assessment.
Note: The DUT is not capable of maintaining a maximum power condition for an entire test sequence due to the large scan area it occupies and the maximum output power level. Therefore, the results presented herein were obtained by first performing the coarse scans with the DUT set to 1W. A fully charged battery was then substituted and a cube scan was performed with the DUT set to its maximum power output. All of the results presented in section 7.1 are based on "shortened" scan assessments of 7 minutes test time. The DASY system reference for the drift results presented herein and used to determine the maximum calculated results were based on the signal reference at the start of each cube scan.

The DUT was assessed at center frequency of the TX band, with the offered belt clip against the flat phantom, in CW transmission mode, using each offered battery, the offered standard antenna, and the offered RSM.
The DUT was assessed at band edges of the TX band, using the configuration above that produced the highest S.A.R. results, against the flat phantom containing FCC body tissue, in CW transmission mode.
The DUT was assessed at the worst-case frequency from above, with the offered carry case accessories against the flat phantom containing FCC body tissue, with the RSM attached, in CW transmission mode, using the worst-case battery from above and the offered standard antenna.
The DUT was assessed at center frequency of the TX band, with the offered belt clip against the flat phantom containing FCC body tissue, with attached applicable audio accessories, in CW transmission mode, using the worst-case battery from above and the offered standard antenna.
The DUT was assessed at center frequency of the TX band, with the attached offered PSM and associated swivel microphone clip against the flat phantom containing FCC body tissue, in CW transmission mode, using the worst-case battery from above and the offered PSM antenna.
The DUT was assessed at 450.0625MHz and 459.0625MHz of the PSM antenna's TX band, with the offered PSM and associated swivel microphone clip against the flat phantom containing FCC body tissue, in CW transmission mode, using the worst-case battery from above.
The DUT was assessed at center frequency of the TX band, with the DUT's back, front and antenna each separated 2.5 cm from the flat phantom containing FCC body tissue, with attached RSM, in CW transmission mode, using the worst-case battery from above.
The DUT was assessed at center frequency of the TX band, with the DUT's front side separated 2.5 cm from the flat phantom containing IEEE head tissue, in CW transmission mode, using each offered battery.
The DUT was assessed at the band edges of the TX band, with the DUT's front side separated 2.5 cm from the flat phantom containing IEEE head tissue, in CW transmission mode, using the worst-case battery from above.

5.1 Device Test Positions

Reference figure 1 for the device orientation and position which exhibited the highest S.A.R. performance.

5.1.1 Abdomen

The DUT was positioned such that the applicable carry case accessories were centered against the flat phantom. The offered PSM and associated clip was centered against the flat phantom. The DUT back housing, front housing, as well as the antenna with the DUT back towards the phantom, was positioned with 2.5cm separation distance from the flat phantom.

5.1.2 Head

Assessments at the head was not applicable for this filing

5.1.3 Face

The DUT was positioned at the center of the flat phantom with a 2.5cm separation distance from the front housing.

5.2 Test Position Photographs

Figure 1: Highest S.A.R. Test Position
(DUT with PSM model NMN6129B and swivel mic clip against the flat phantom)

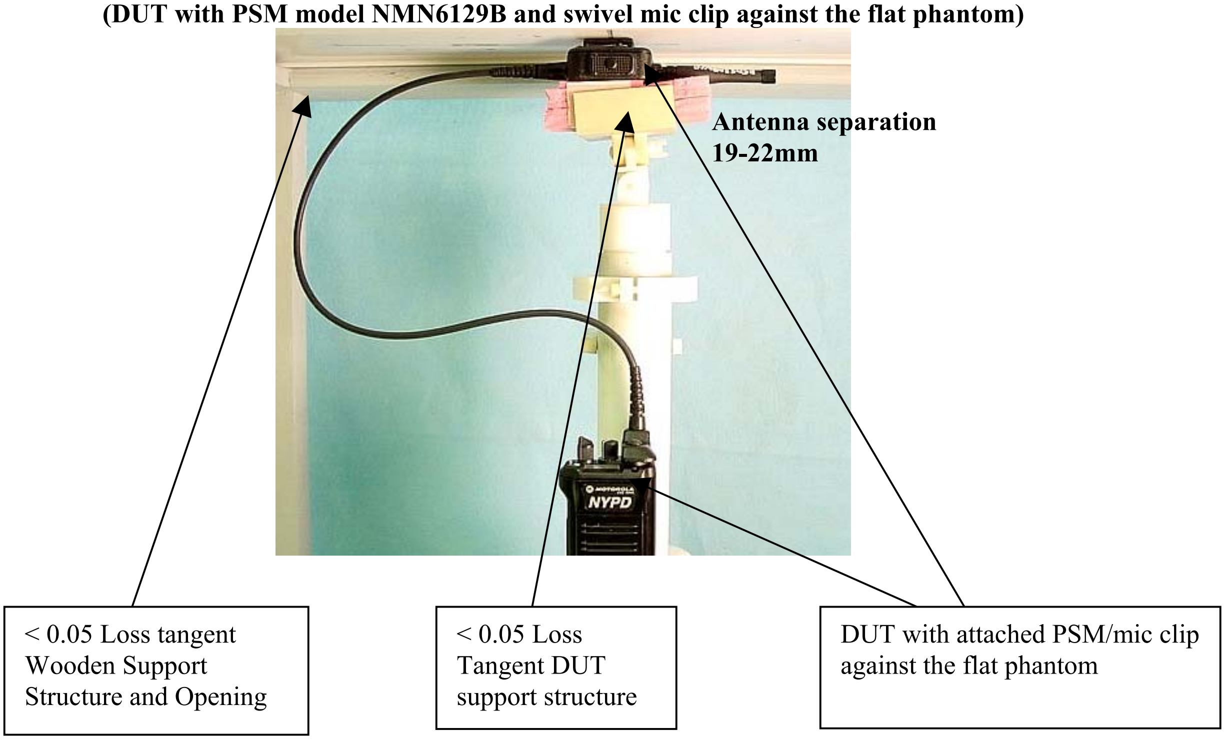


Figure 2. Assessment @ the Abdomen; DUT w/ belt clip model NNTN4709A against the flat phantom and attached RSM model NMN6225B (Same position used to assess audio accessory model ZMN6032A/NTN5664D)

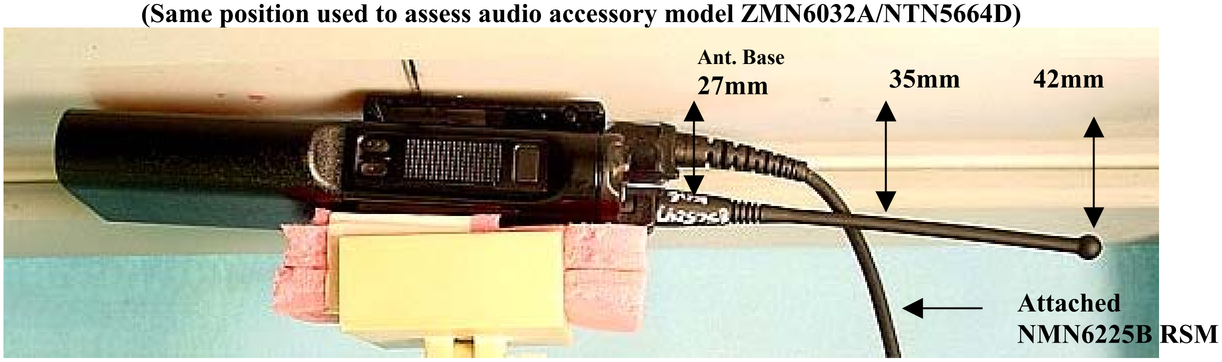


Figure 3. Assessment @ the Abdomen; DUT w/ carry case accessory model NTN5644ASP01 and belt loop model 4205633T01, and attached RSM model NMN6225B

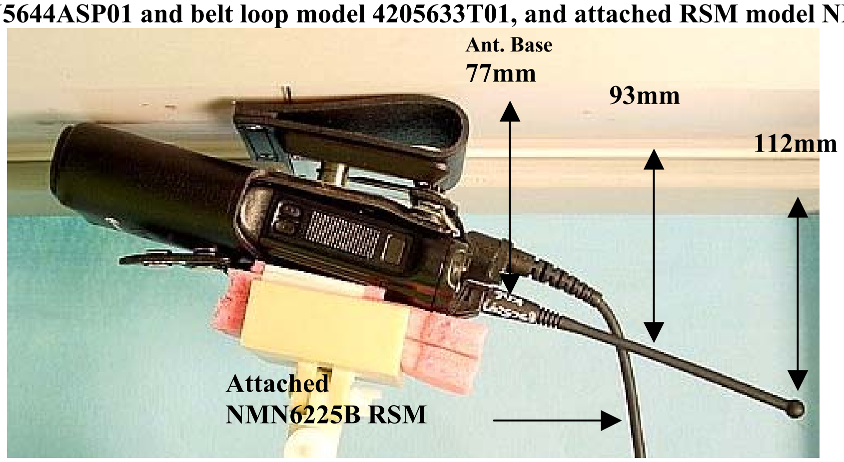


Figure 4. Assessment @ the Abdomen; DUT w/ carry case accessory model NTN5644ASP01/ belt loop model 4205633T01 & NTN5574ASP02 NYPD-T strap, and attached RSM model NMN6225B

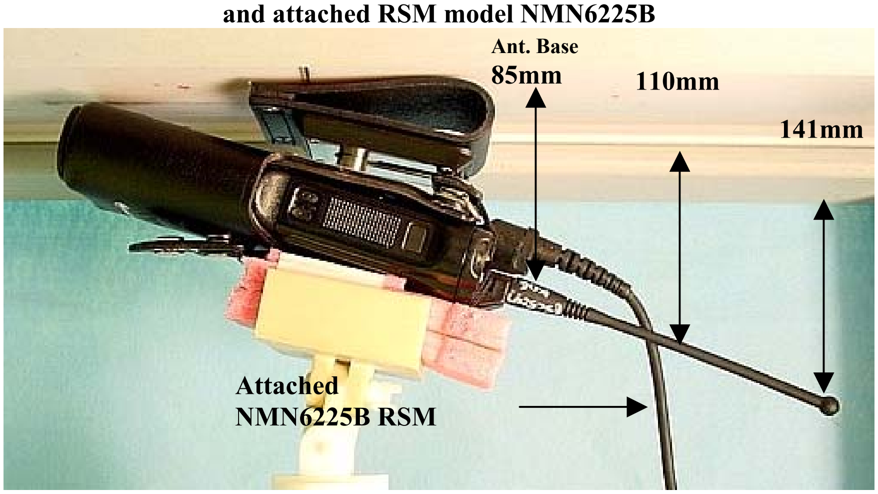


Figure 5: Assessment @ the Abdomen;
DUT back towards the phantom and antenna separated 2.5cm, w/ attached RSM model NMN6225B

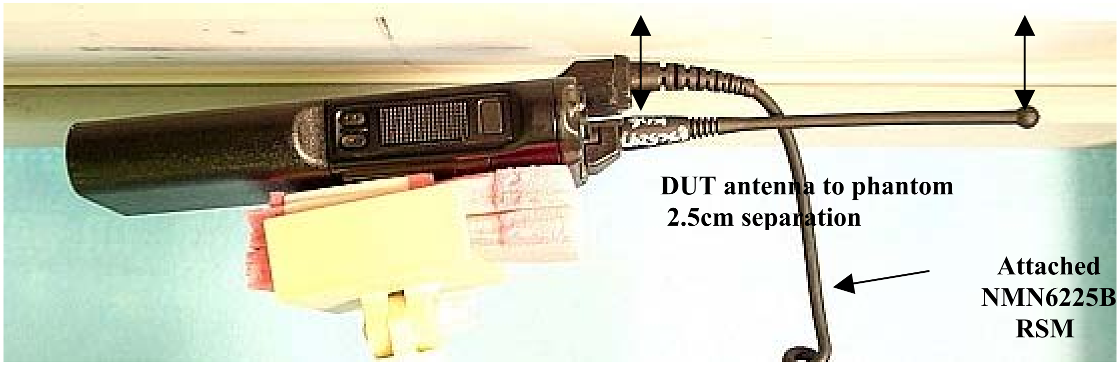


Figure 6: Assessment @ the Abdomen;
DUT back towards the phantom and separated 2.5cm, w/ attached RSM model NMN6225B

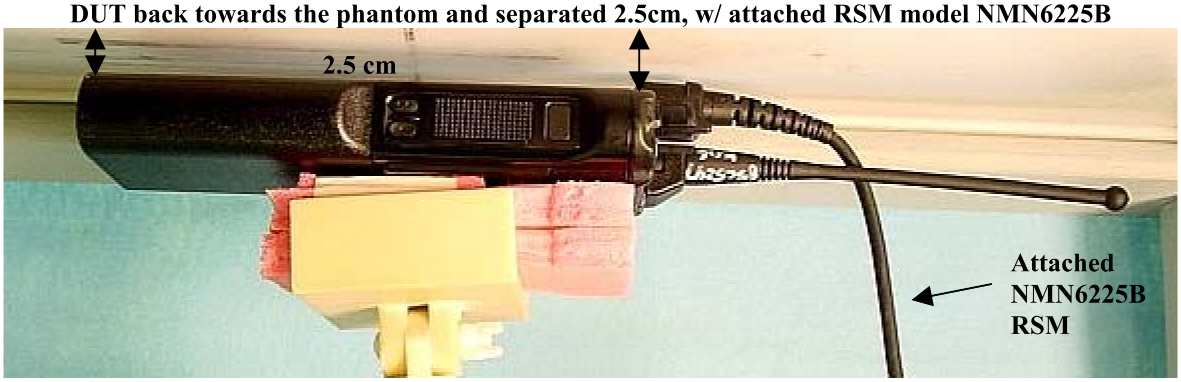


Figure 7: Assessment @ the Abdomen;
DUT Front towards the phantom and separated 2.5cm, w/ attached RSM model NMN6225B

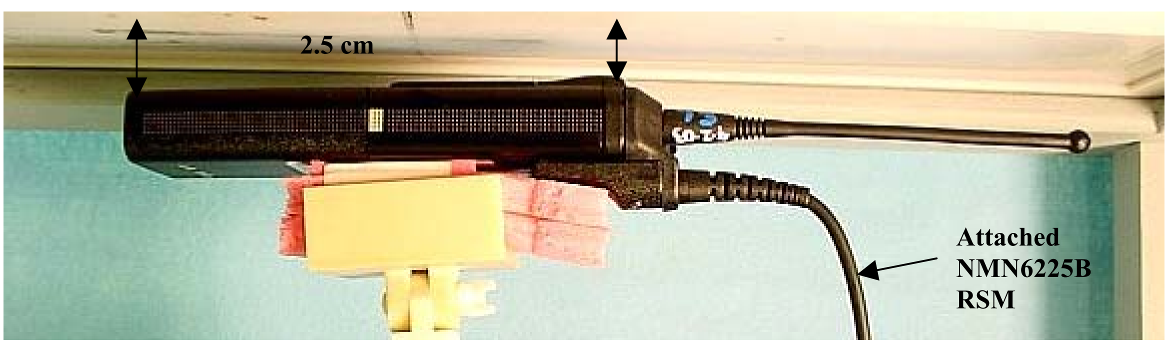


Figure 8: Assessment @ the Face;
DUT Front towards the phantom and separated 2.5cm

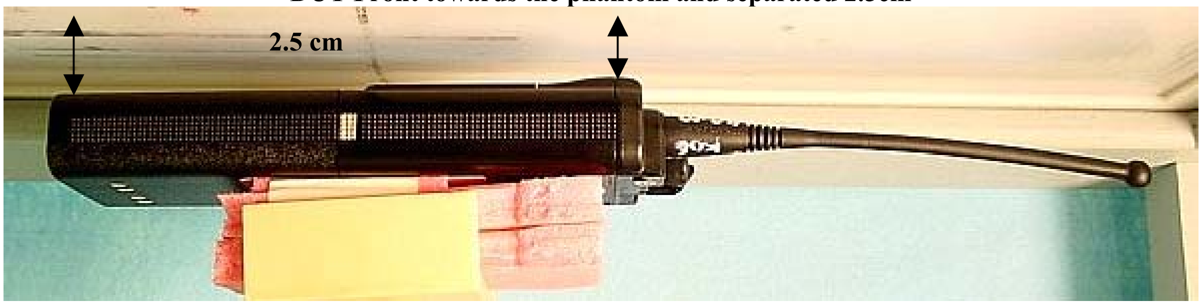
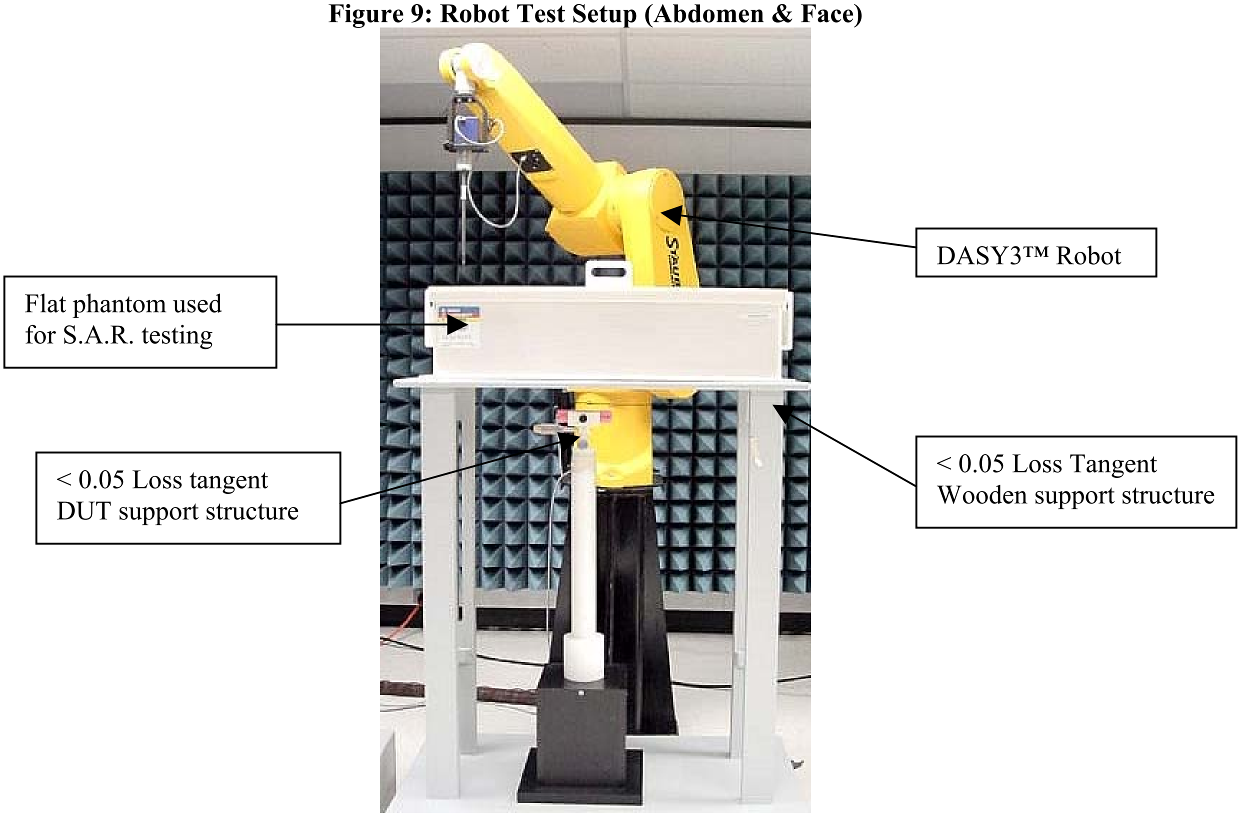


Figure 9: Robot Test Setup (Abdomen & Face)



5.3 Probe Scan Procedures

The E-field probe first scans a coarse grid over a large area inside the phantom in order to locate the interpolated maximum S.A.R. distribution. After the coarse scan measurement, the probe is automatically moved to a position at the interpolated maximum. The subsequent scan can directly use this position as reference for the cube evaluations.

6.0 Measurement Uncertainty

Table 1: Uncertainty Budget for Device Under Test

a	*b*	*c*	*d*	*e* = *f*(*d*,*k*)	*f*	*g*	*h* = *c* x *f* / *e*	*i* = *c* x *g* / *e*	*k*
Uncertainty Component	**Section of IEEE P1528**	**Tol. (± %)**	**Prob. Dist.**	**Divisor**	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	4.8	N	1.00	1	1	4.8	4.8	∞
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Spherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3	5.8	R	1.73	1	1	3.3	3.3	∞
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	1.0	N	1.00	1	1	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E.2.8	1.3	R	1.73	1	1	0.8	0.8	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.3	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	1.1	R	1.73	1	1	0.6	0.6	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	3.9	R	1.73	1	1	2.3	2.3	∞
Test sample Related									
Test Sample Positioning	E.4.2	3.6	N	1.00	1	1	3.6	3.6	29
Device Holder Uncertainty	E.4.1	2.8	N	1.00	1	1	2.8	2.8	8
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	10.0	R	1.73	0.64	0.43	3.7	2.5	∞
Liquid Permittivity - deviation from target values	E.3.2	10.0	R	1.73	0.6	0.49	3.5	2.8	∞
Liquid Permittivity - measurement uncertainty	E.3.3	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Combined Standard Uncertainty			RSS				11.72	11.09	1363
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				22.98	21.75	

Table 2: Uncertainty Budget for System Performance Check

a	*b*	*c*	*d*	*e* = *f(d,k)*	*f*	*g*	*h* = *c x f / e*	*i* = *c x g / e*	*k*
Uncertainty Component	**Section of IEEE P1528**	**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	4.8	N	1.00	1	1	4.8	4.8	∞
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	5.8	R	1.73	1	1	3.3	3.3	∞
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	1.0	N	1.00	1	1	1.0	1.0	∞
Response Time	E.2.7	0.0	R	1.73	1	1	0.0	0.0	∞
Integration Time	E.2.8	0.0	R	1.73	1	1	0.0	0.0	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.3	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	1.1	R	1.73	1	1	0.6	0.6	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	3.9	R	1.73	1	1	2.3	2.3	∞
Dipole									
Dipole Axis to Liquid Distance	8, E.4.2	1.0	R	1.73	1	1	0.6	0.6	∞
Input Power and SAR Drift Measurement	8, 6.6.2	4.7	R	1.73	1	1	2.7	2.7	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4.0	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	10.0	R	1.73	0.64	0.43	3.7	2.5	∞
Liquid Permittivity - deviation from target values	E.3.2	10.0	R	1.73	0.6	0.49	3.5	2.8	∞
Liquid Permittivity - measurement uncertainty	E.3.3	5.0	R	1.73	0.6	0.49	1.7	1.4	∞
Combined Standard Uncertainty			RSS				10.16	9.43	∞
Expanded Uncertainty (95% CONFIDENCE LEVEL)			*k*=2				19.92	18.48	

Notes for Tables 1 and 2
a) Column headings *a-k* are given for reference.
b) Tol. - tolerance in influence quantity.
c) Prob. Dist. – Probability distribution
d) N, R - normal, rectangular probability distributions
e) Div. - divisor used to translate tolerance into normally distributed standard uncertainty
f) *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.

7.0 S.A.R. 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 B for the highest observed S.A.R.
Note that all results presented in section 7.1 as well as all scans presented in APPENDIX B reflects the shortest possible time (7 minutes) to perform each S.A.R. test scan as detailed in section 5.0 herein.

7.1 S.A.R. results

Compliance Assessment at the abdomen; CW mode												
Run Number/ SN	Freq. (MHz)	Battery	Test position	Body- worn Acc.	Additional attachments	Initial Power (W)	End Power (W)	S.A.R. Drift (dB)	Measured 1g-S.A.R. (mW/g)	Max Calc. 1g-S.A.R. (mW/g)	Meas. 10g-S.A.R. (mW/g)	Max Calc. 10g-S.A.R. (mW/g)
Assessment of offered batteries												
Ab-R3-030429-02/84	469.0625	NTN4596D	Against phantom	NNTN4709A	NMN6225B	5.060	NA	-0.170	7.020	3.61	4.550	2.34
Ab-R3-030429-03/84	469.0625	NTN4595D	Against phantom	NNTN4709A	NMN6225B	5.000	NA	-0.160	7.260	**3.77**	4.770	**2.48**
Ab-R3-030429-04/84	469.0625	HNN9034B	Against phantom	NNTN4709A	NMN6225B	4.870	NA	-0.130	3.500	1.85	2.410	1.28
Ab-R3-030429-05/84	469.0625	NTN4992C	Against phantom	NNTN4709A	NMN6225B	4.850	NA	-0.600	5.970	3.53	3.880	2.30
Ab-R3-030430-02/84	450.0625	NTN4595D	Against phantom	NNTN4709A	NMN6225B	4.950	NA	-0.390	4.090	2.26	2.730	1.51
Ab-R3-030430-03/84	488.0625	NTN4595D	Against phantom	NNTN4709A	NMN6225B	5.120	NA	-0.580	5.27	2.94	3.690	2.06
Assessment of offered carry case accessories												
Ab-R3-030430-04/84	469.0625	NTN4595D	Against phantom	NTN5644AS P01/4205633 T01	NMN6225B	5.090	NA	-0.070	3.010	**1.50**	2.100	**1.05**
Ab-R3-030430-05/84	469.0625	NTN4595D	Against phantom	NTN5644AS P01/4205633 T01 & NTN5574AS P02 NYPD-T strap	NMN6225B	5.140	NA	-0.330	2.520	1.32	1.760	0.92
Assessment of applicable audio attachments												
Ab-R3-030430-06/84	469.0625	NTN4595D	Against phantom	NNTN4709A	ZMN6032A& NTN5664D	5.120	NA	-0.180	1.510	**0.77**	0.976	**0.50**
Assessment of offered PSM												
Ab-R3-030423-02/84	469.0625	NTN4595D	Against phantom	NMN6158A	NMN6129B	5.230	NA	-0.350	13.300	**6.89**	7.410	**3.84**
Ab-R3-030423-08/84	450.0625	NTN4595D	Against phantom	NMN6158A	NMN6129B	4.980	NA	-0.400	10.100	5.56	6.888	3.79
Ab-R3-030423-09/84	459.0625	NTN4595D	Against phantom	NMN6158A	NMN6129B	5.000	NA	-0.440	9.520	5.27	6.510	3.60

Compliance Assessment at the abdomen; CW mode (Continued)												
Run Number/ SN	Freq. (MHz)	Battery	Test position	Body- worn Acc.	Additional attachments	Initial Power (W)	End Power (W)	S.A.R. Drift (dB)	Measured 1g-S.A.R. (mW/g)	Max Calc. 1g-S.A.R. (mW/g)	Meas. 10g-S.A.R. (mW/g)	Max Calc. 10g-S.A.R. (mW/g)
Assessment at 2.5cm distance												
Ab-R3-030430-07/84	469.0625	NTN4595D	DUT back/ant. 2.5cm	None	NMN6225B	5.080	NA	-0.100	1.630	0.82	1.120	0.56
Ab-R3-030430-08/84	469.0625	NTN4595D	DUT back 2.5cm	None	NMN6225B	4.950	NA	-0.460	4.320	**2.43**	2.950	**1.66**
Ab-R3-030430-09/84	469.0625	NTN4595D	DUT Front 2.5cm	None	NMN6225B	5.010	NA	-0.170	2.450	1.27	1.760	0.91

Compliance Assessment at the Face; CW mode												
Run Number/ SN	Freq. (MHz)	Battery	Test position	Body- worn Accessories	Additional attachments	Initial Power (W)	End Power (W)	S.A.R. Drift (dB)	Measured 1g-S.A.R. (mW/g)	Max Calc. 1g-S.A.R. (mW/g)	Meas. 10g-S.A.R. (mW/g)	Max Calc. 10g-S.A.R. (mW/g)
Assessment of offered batteries including band edge assessment												
Face -R3-030501-02/84	469.0625	NTN4595D	DUT Front 2.5cm	None	None	5.150	NA	-0.120	3.830	1.911	2.690	1.34
Face -R3-030501-03/84	469.0625	NTN4596D	DUT Front 2.5cm	None	None	5.080	NA	-0.150	3.060	1.56	2.160	1.10
Face -R3-030501-04/84	469.0625	NTN4992C	DUT Front 2.5cm	None	None	5.040	NA	-0.130	3.330	1.70	2.370	1.21
Face -R3-030501-05/84	469.0625	HNN9034B	DUT Front 2.5cm	None	None	5.010	NA	-0.610	2.480	1.42	1.780	1.02
Face-R3-030501-07/84	450.0625	NTN4595D	DUT Front 2.5cm	None	None	4.800	NA	-0.190	1.390	0.76	0.993	0.54
Face -R3-030501-08/84	488.0625	NTN4595D	DUT Front 2.5cm	None	None	5.200	NA	-0.530	5.400	**2.93**	3.770	**2.05**

7.2 Peak S.A.R. location

Refer to APPENDIX B for detailed S.A.R. scan distributions.

7.3 Highest S.A.R. results calculation methodology

The calculated maximum 1-gram averaged S.A.R. value is determined by scaling the measured S.A.R. to account for power leveling variations and power output slump below the reported maximum power during the S.A.R. measurements. For this device the Maximum Calculated 1-gram and 10-gram averaged peak S.A.R. is calculated using the following formula:

Max. Calc. 1-g and 10-g Avg. SAR = ((S.A.R. meas. / (10^(Pdrift/10))*(Pmax/Pint))* DC%)
P_{max} = Maximum Power (W)
P_{int} = Initial Power (W)
Pdrift = DASY drift results (dB)
$SAR_{meas.}$ = Measured 1 gram averaged peak S.A.R. (mW/g)
DC % = Transmission mode duty cycle in % where applicable

8.0 Conclusion

The highest Operational Maximum Calculated 1-gram and 10-gram average S.A.R. values found for FCC ID: AZ489FT4861

At the abdomen: 1-g Avg. = 6.90 mW/g; 10-g Avg. = 3.84mW/g
At the Face: 1-g Avg. = 2.93 mW/g; 10-g Avg. = 2.05 mW/g
At the Head: NA

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)