


**MOTOROLA**


TESTING CERT # 2518.01

**FCC ID: ABZ99FT4073  
DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 2 of 2**

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

**Date of Report:** 7/31/08  
**Report Revision:** A  
**Report ID:** FCC rpt PC II\_P1225\_Battery  
**Rev A\_080731\_SR5880**

**Responsible Engineer:** SuehFen Ooi (EME Engineer)  
**Date/s Tested:** 7/08/08 & 7/17/08  
**Manufacturer/Location:** Motorola – Penang  
**Sector/Group/Div.:** G&PS/GTDG  
**Date submitted for test:** 6/25/08  
**DUT Description:** P1225 Portable Radio 16CH. 12.5/25K 1-4 W  
**Test TX mode(s):** CW  
**Max. Power output:** 5.3 Watts  
**Nominal Power:** 4.0 Watts  
**Tx Frequency Bands:** 450-474MHz  
**Signaling type:** FM  
**Model(s) Tested:** P94ZRC90C2AA  
**Model(s) Certified:** P94ZRC90C2AA  
**Serial Number(s):** 475YCS2217, 475YCS2209  
**Classification:** Occupational/Controlled  
**Rule Part(s):** 90

**Approved Accessories:****Antenna(s):** NAE6522AR (438-470MHz Helical 1/4 wave -2.0dBi); NAE6483A (403-520MHz Whip 1/4 wave -1.0dBi)**Battery(ies):** HNN9049B (1200mAH High Capacity NiCd battery)**Body worn accessory(ies):** HLN6602A (Universal Chest pack with Radio Holder, Pen Holder & Velco Secured Pocket)**Audio accessory(ies):**

RMN4053A (Noise Cancelling Boom Microphone Hardhat Mount); RKN4094A (In-Line PTT Adapter)

**Max. Calc. : 1-g Avg. SAR: 5.90 W/kg (Body); 10-g Avg. SAR: 4.15 W/kg (Body)**  
**Max. Calc. : 1-g Avg. SAR: 4.05 W/kg (Face); 10-g Avg. SAR: 2.97 W/kg (Face)**

The test results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of **8.0W/kg** per the requirements of 47 CFR 2.1093(d).

The test results clearly demonstrate compliance with ICNIRP (1998) Guidelines for limiting exposure in time-varying electric, magnetic, and electromagnetic fields (up to 300GHz), Health Physics 74, 494-522 RF Exposure limits of **10W/kg** averaged over 10grams of contiguous tissue.

Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 2.0 of this report.

This report shall not be reproduced without written approval from an officially designated representative of the Motorola EME Laboratory.

I attest to the accuracy of the data and assume full responsibility for the completeness of these measurements.

This reporting format is consistent with the suggested guidelines of the TIA TSB-150 December 2004

The results and statements contained in this report pertain only to the device(s) evaluated.

Signature on file\_Deanna Zakharia  
**G&PS EME Lab Senior Resource Manager,**  
**Laboratory Director,**

Approval Date: 7/31/08

**Certification Date:** 7/31/08

**Certification No.:** 080724AD

**Appendix C**  
**Dipole Calibration Certificates**

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



S Schweizerischer Kalibrierdienst  
C Service suisse d'étalonnage  
S Servizio svizzero di taratura  
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client

Motorola CGISS

Certificate No: D450V2-1001\_Apr08

## CALIBRATION CERTIFICATE

Object D450V2 - SN: 1001

Calibration procedure(s) QA CAL-15.v5  
Calibration Procedure for dipole validation kits below 800 MHz

Calibration date: April 16, 2008

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  $(22 \pm 3)^\circ\text{C}$  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	01-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	01-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	01-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	08-Aug-07 (No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Mar-09
Type-N mismatch combination	SN: 5047.2 / 06327	08-Aug-07 (No. 217-00721)	Aug-08
Reference Probe ET3DV6 (LF)	SN: 1507	11-Jul-07 (No. ET3-1507_Jul07)	Jul-08
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	04-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	19-Oct-01 (in house check Oct-07)	In house check: Oct-08

Calibrated by:	Name	Function	Signature
	Marcel Fehr	Laboratory Technician	

Approved by:	Katja Pokovic	Technical Manager	

Issued: April 16, 2008

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

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



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
 The Swiss Accreditation Service is one of the signatories to the EA  
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

**Glossary:**

TSL	tissue simulating liquid
ConF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

**Calibration is Performed According to the Following Standards:**

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

**Additional Documentation:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

**Measurement Conditions**

DASY system configuration, as far as not given on page 1.

<b>DASY Version</b>	DASY4	V4.7
<b>Extrapolation</b>	Advanced Extrapolation	
<b>Phantom</b>	Flat Phantom V4.4	Shell thickness: $6 \pm 0.2$ mm
<b>Distance Dipole Center - TSL</b>	15 mm	with Spacer
<b>Area Scan Resolution</b>	$dx, dy = 15$ mm	
<b>Zoom Scan Resolution</b>	$dx, dy, dz = 5$ mm	
<b>Frequency</b>	$450$ MHz $\pm 1$ MHz	

**Head TSL parameters**

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
<b>Nominal Head TSL parameters</b>	22.0 °C	43.5	0.87 mho/m
<b>Measured Head TSL parameters</b>	$(22.0 \pm 0.2)$ °C	$43.1 \pm 6$ %	0.83 mho/m $\pm 6$ %
<b>Head TSL temperature during test</b>	$(22.4 \pm 0.2)$ °C	—	—

**SAR result with Head TSL**

<b>SAR averaged over 1 cm<sup>3</sup> (1 g) of Head TSL</b>	condition	
<b>SAR measured</b>	398 mW input power	1.95 mW / g
<b>SAR normalized</b>	normalized to 1W	4.90 mW / g
<b>SAR for nominal Head TSL parameters <sup>1</sup></b>	normalized to 1W	4.98 mW / g $\pm 18.1$ % (k=2)

<b>SAR averaged over 10 cm<sup>3</sup> (10 g) of Head TSL</b>	condition	
<b>SAR measured</b>	398 mW input power	1.31 mW / g
<b>SAR normalized</b>	normalized to 1W	3.29 mW / g
<b>SAR for nominal Head TSL parameters <sup>1</sup></b>	normalized to 1W	3.31 mW / g $\pm 17.6$ % (k=2)

<sup>1</sup> Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

**Appendix****Antenna Parameters with Head TSL**

Impedance, transformed to feed point	54.5 $\Omega$ - 9.2 $j\Omega$
Return Loss	- 20.2 dB

**General Antenna Parameters and Design**

Electrical Delay (one direction)	1.343 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

**Additional EUT Data**

Manufactured by	SPEAG
Manufactured on	March 22, 2002

**DASY4 Validation Report for Head TSL**

Date/Time: 16.04.2008 14:29:11

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 450 MHz; Type: D450V2; Serial: D450V2 - SN:1001**

Communication System: CW; Frequency: 450 MHz; Duty Cycle: 1:1

Medium: HSL450;

Medium parameters used:  $f = 450$  MHz;  $\sigma = 0.83$  mho/m;  $\epsilon_r = 43.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

**DASY4 Configuration:**

- Probe: ET3DV6 - SN1507 (LF); ConvF(6.61, 6.61, 6.61); Calibrated: 11.07.2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.4; Type: Flat Phantom 4.4; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

**d=15mm, Pin=398mW/Area Scan (41x111x1):**

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.06 mW/g

**d=15mm, Pin=398mW/Zoom Scan (7x7x7)/Cube 0:**

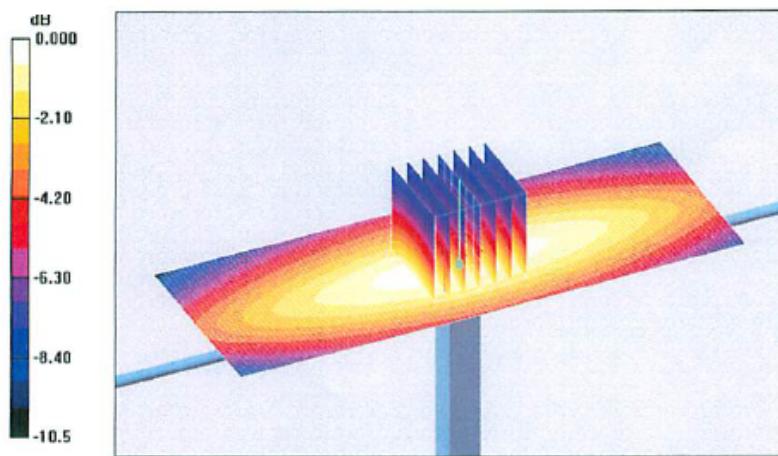
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 52.1 V/m; Power Drift = -0.040 dB

Peak SAR (extrapolated) = 2.89 W/kg

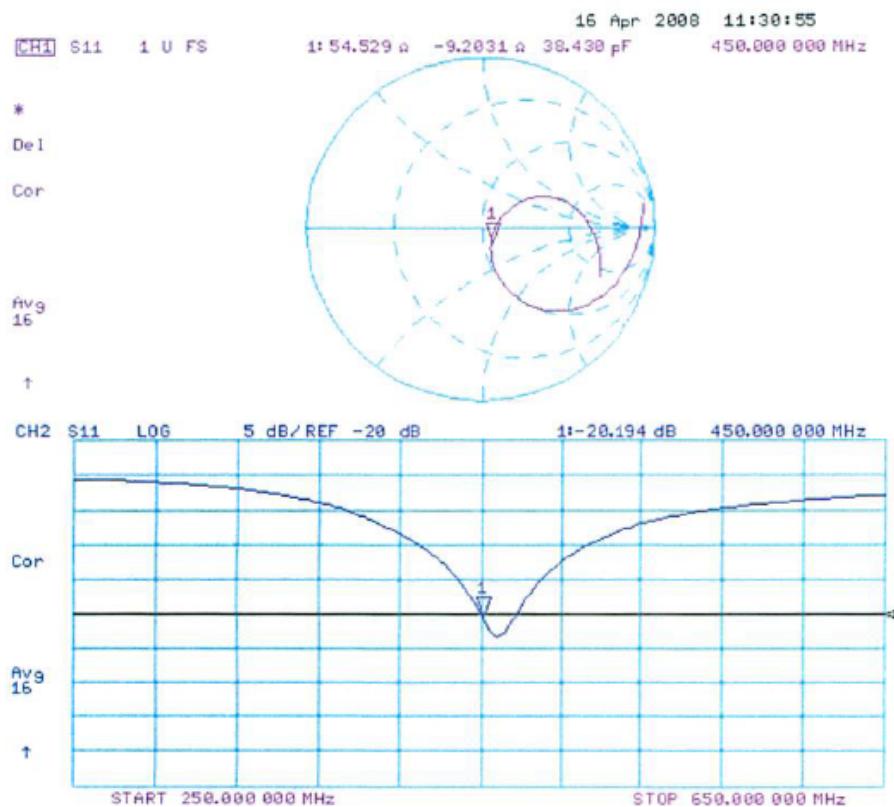
**SAR(1 g) = 1.95 mW/g; SAR(10 g) = 1.31 mW/g**

Maximum value of SAR (measured) = 2.09 mW/g



0 dB = 2.09mW/g

## Impedance Measurement Plot for Head TSL



## Appendix D

### Test System Verification Scans

Dipole validation scans at the head from SPEAG are provided in APPENDIX C. G&PS' EME lab validates its' dipole(s) to the applicable IEEE system performance targets. A system validation was performed using FCC body tissue parameters to generate the system performance target values for body at the applicable frequency. Dipoles are assessed using multiple probes and measurements were performed using the isotropic assessment procedure mentioned below.

To assess the isotropic characteristics of the measurement probe, two system performance zoom scans (0 and 90 degrees) were measured. The measured results were averaged together in order to obtain the final calculated 1 gram results.

The results obtained from each probe were then averaged together to determine the new measured SAR target.

**Motorola Government & Public Safety EME Laboratory**  
Date/Time: 7/8/2008 8:45:38 PM

Robot# / Run#: DASY4-FL-2 / CM-SYSP-450H-080708-05  
Phantom# / Tissue Temp.: 80302002A-S7 / 20.9 (C)  
Dipole Model# / Serial#: D450V2 / 1001  
TX Freq. / Start power: 450 (MHz) / 250 (mW)

Target: 4.61 mW/g (1g)  
Calculated: 4.82 mW/g (1g)  
Percent from Target (+/-): 4.6 % (1g)

Probe: ET3DV6 - SN1393, Calibrated: 3/17/2008, ConvF(7.07, 7.07, 7.07)

Electronics: DAE4 Sn850, Calibrated: 3/19/2008

Duty Cycle: 1:1, Medium parameters used:  $f = 450$  MHz;  $\sigma = 0.89$  mho/m;  $\epsilon_r = 43.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

**System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 38.6 V/m; Power Drift = -0.0116 dB  
Peak SAR (extrapolated) = 1.88 W/kg  
SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.788 mW/g  
Maximum value of SAR (measured) = 1.28 mW/g

**System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 38.6 V/m; Power Drift = -0.0116 dB  
Peak SAR (extrapolated) = 1.90 W/kg  
SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.804 mW/g

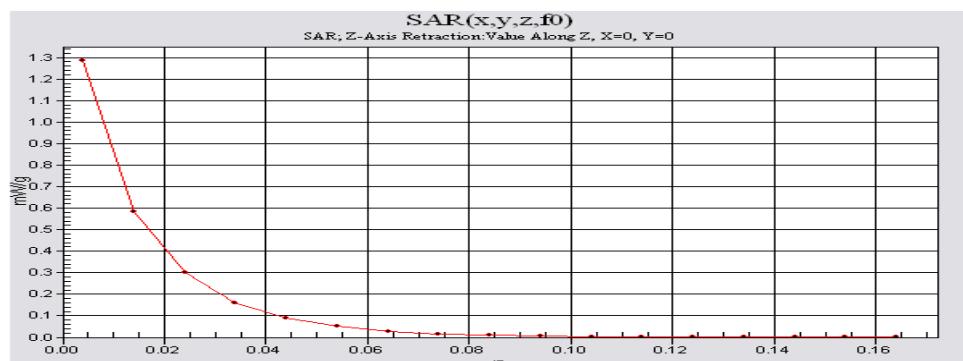
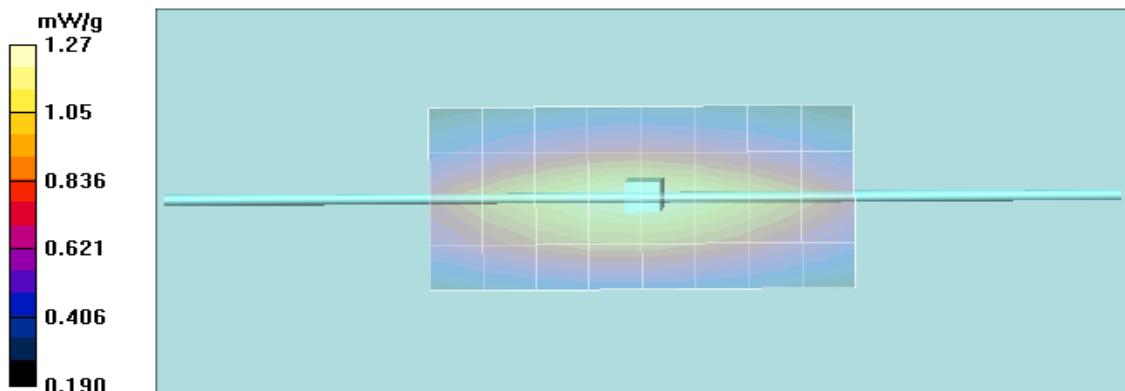
**Warning:** Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 1.27 mW/g

**System Performance Check/Dipole Area Scan (41x81x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 38.6 V/m; Power Drift = -0.0116 dB  
Motorola Fast SAR: SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.847 mW/g  
Maximum value of SAR (interpolated) = 1.28 mW/g

**System Performance Check/Z-Axis Retraction (1x1x17):** Measurement grid: dx=20mm, dy=20mm, dz=10mm  
Maximum value of SAR (measured) = 1.29 mW/g



**Motorola Government & Public Safety EME Laboratory**  
 Date/Time: 7/17/2008 10:11:25 AM

Robot# / Run#: DASY4-FL-2 / HvH-SYSP-450B-080717-01  
 Phantom# / Tissue Temp.: 80302002B-S8 / 21.9 (C)  
 Dipole Model# / Serial#: D450V2 / 1001  
 TX Freq. / Start power: 450 (MHz) / 250 (mW)

Target: 4.23 mW/g (1g)  
 Calculated: 4.52 mW/g (1g)  
 Percent from Target (+/-): 6.9 % (1g)

Probe: ET3DV6 - SN1393, Calibrated: 3/17/2008, ConvF(7.73, 7.73, 7.73)

Electronics: DAE4 Sn850, Calibrated: 3/19/2008

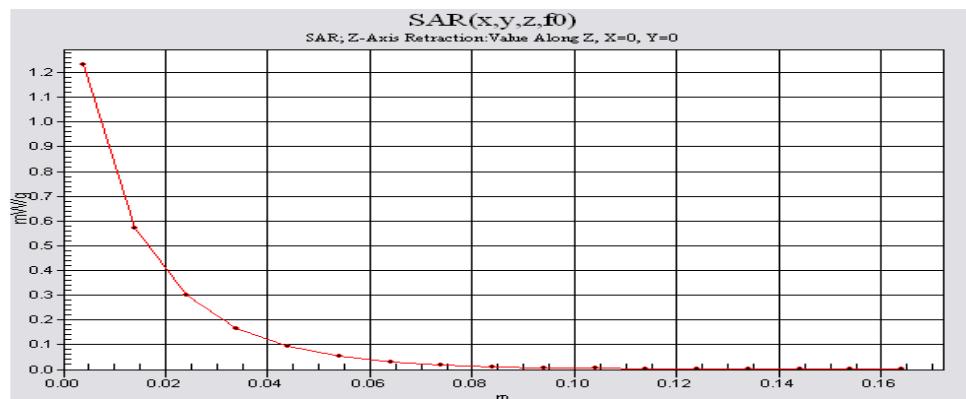
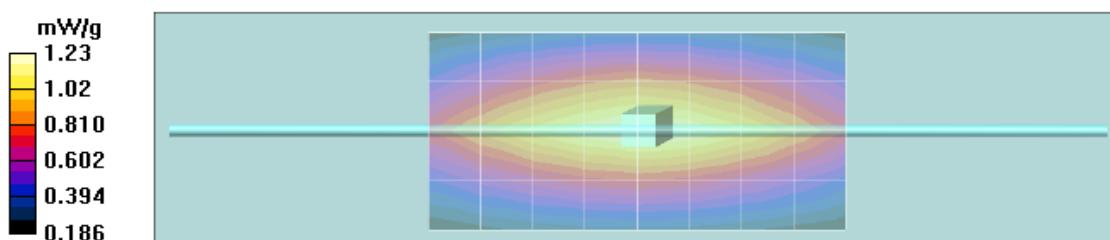
Duty Cycle: 1:1, Medium parameters used:  $f = 450$  MHz;  $\sigma = 0.92$  mho/m;  $\epsilon_r = 54.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

**System Performance Check/0-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm  
 Reference Value = 37.0 V/m; Power Drift = 0.027 dB  
 Peak SAR (extrapolated) = 1.81 W/kg  
 SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.766 mW/g  
 Maximum value of SAR (measured) = 1.24 mW/g

**System Performance Check/90-Degree 5x5x7 Cube (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm  
 Reference Value = 37.0 V/m; Power Drift = 0.027 dB  
 Peak SAR (extrapolated) = 1.75 W/kg  
 SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.731 mW/g  
 Maximum value of SAR (measured) = 1.17 mW/g

**System Performance Check/Dipole Area Scan (5x9x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (measured) = 1.23 mW/g

**System Performance Check/Z-Axis Retraction (1x1x17):** Measurement grid: dx=20mm, dy=20mm, dz=10mm



DIPOLE SAR TARGET - HEAD

Date:	<u>05/02/08</u>	Frequency (MHz):	<u>450</u>
Lab Location:	<u>(FL08/PG)-G&amp;PS</u>	Mixture Type:	<u>IEEE Head</u>
DAE Serial #:	<u>363</u>	Ambient Temp.(°C):	<u>21.6</u>

## Tissue Characteristics

Permitivity:	<u>42.7</u>	Phantom Type/SN:	<u>80302002A-S7</u>
Conductivity:	<u>0.85</u>	Distance (mm):	<u>15</u>
Tissue Temp.(°C):	<u>22</u>		

Reference Source:	<u>Dipole</u>	Power to Dipole:	<u>250</u> mW
Reference SN:	<u>1001</u>		

Target SAR Value:	<u>4.9</u> mW/g (1g avg.), (normalized to 1.0 W)	Difference from Target
		<u>-5.92%</u> (1g avg.)

**New Target:**Average Measured SAR Value: 4.61 mW/g (1g avg.),

Passes K=2

Percent Difference From Target (MUST be within k=2 Uncertainty):

Probe SN #s	1-G Cube	Diff from Ave	Robot
1393	4.86	5.1%	R2
1547	4.48	-2.9%	R2
1383	4.46	-3.4%	R2
1545	4.64	0.6%	R2
		#DIV/0!	
Average	<b>4.6100</b>	New Measured SAR Value	

(normalized to 1.0 W)

Test performed by: Gene Von Holten Initial: HvH

**DIPOLE SAR TARGET - BODY**

Date:	<b>05/02/08</b>	Frequency (MHz):	<b>450</b>
Lab Location:	<b>(FL08/PG)-G&amp;PS</b>	Mixture Type:	<b>FCC Body</b>
DAE Serial #:	<b>363</b>	Ambient Temp.(°C):	<b>21.8</b>

**Tissue Characteristics**

Permitivity:	<b>55.9</b>	Phantom Type/SN:	<b>80302002B-S8</b>
Conductivity:	<b>0.94</b>	Distance (mm):	<b>15</b>
Tissue Temp.(°C):	<b>21.7</b>		

Reference Source:	<b>Dipole</b>	Power to Dipole:	<b>250</b> mW
Reference SN:	<b>1001</b>		

**New Target:**

Average Measured SAR Value: **4.23** mW/g(1g avg.),

Probe SN #s	1-G Cube	Diff from Ave	Robot
1393	4.28	1.2%	R2
1547	4.20	-0.7%	R2
1545	4.24	0.2%	R2
1383	4.20	-0.7%	R2
<b>Average</b>	<b>4.2300</b>	New Measured SAR Value	

(normalized to 1.0 W)

Test performed by: **C. Miller** Initial: *CM*

**Appendix E**  
**DUT Scans (Shortened Scans and Highest SAR configurations)**

**Shortened Scan Results**  
**Motorola Government & Public Safety EME Laboratory**  
 Date/Time: 7/17/2008 2:59:30 PM

Robot# / Run#: DASY4-FL-2 / JsT-Ab-080717-06  
 Phantom# / Tissue Temp.: 80302002B-S8 / 21.6 (C)  
 DUT Model# / Serial#: P94ZRC90C2AA / 475YCS2217  
 Antenna / TX Freq.: NAE6522AR / 450.0000 (MHz)  
 Battery: HNN9049B  
 Carry Acc. / Cable Acc.: HLN6602A / RMN4053A with RKN4094A  
 Start Power: 5.05 (W)

Comments: Shortened Scan

Probe: ET3DV6 - SN1393, Calibrated: 3/17/2008, ConvF(7.73, 7.73, 7.73)

Electronics: DAE4 Sn850, Calibrated: 3/19/2008

Duty Cycle: 1:1, Medium parameters used:  $f = 460$  MHz;  $\sigma = 0.93$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

**Ab Scan/5x5x7 Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 112.2 V/m; Power Drift = -0.661 dB

Peak SAR (extrapolated) = 14.2 W/kg

**SAR(1 g) = 9.66 mW/g; SAR(10 g) = 6.8 mW/g**

Maximum value of SAR (measured) = 10.2 mW/g

**Ab Scan/Area Scan (51x151x1):** Measurement grid: dx=15mm, dy=15mm

Reference Value = 106.7 V/m; Power Drift = -0.687 dB

**Motorola Fast SAR: SAR(1 g) = 9.61 mW/g; SAR(10 g) = 6.99 mW/g**

Maximum value of SAR (interpolated) = 10.1 mW/g

**Ab Scan/Z-Axis Scan (1x1x17):** Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 9.83 mW/g

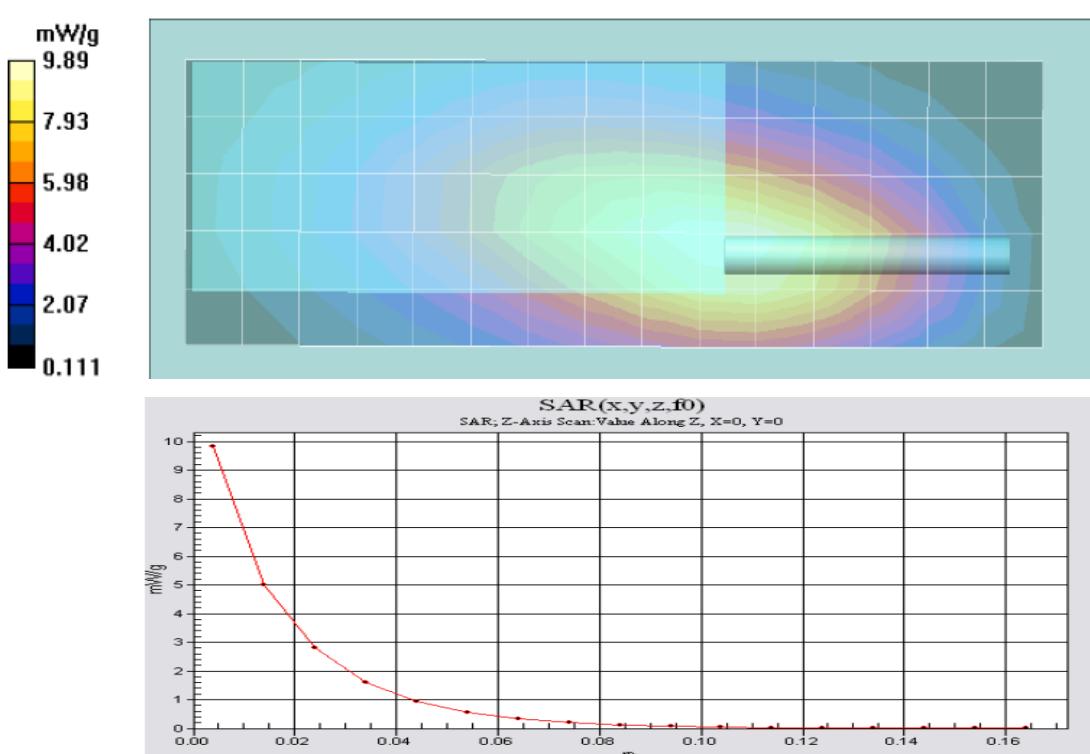
Shortened scan reflect highest SAR producing configuration; Run time 8 minutes.

Representative "normal" scan run time was 19 minutes

"Shortened" scan max calculated SAR using SAR drift: 1-g Avg. = 5.90mW/g; 10-g Avg. = 4.15mW/g

"Normal" scan max calculated SAR using SAR drift: 1-g Avg. = 5.75mW/g; 10-g Avg. = 4.03mW/g

(see part 1 of 2 section 9.0 run # JsT-Ab-080717-04)



**Highest SAR Configurations Results**  
**Motorola Government & Public Safety EME Laboratory**  
 Date/Time: 7/17/2008 1:20:13 PM

Robot# / Run#: DASY4-FL-2 / JsT-Ab-080717-04  
 Phantom# / Tissue Temp.: 80302002B-S8 / 21.3 (C)  
 DUT Model# / Serial#: P94ZRC90C2AA / 475YCS2217  
 Antenna / TX Freq.: NAE6522AR / 450.0000 (MHz)  
 Battery: HNN9049B  
 Carry Acc. / Cable Acc.: HLN6602A / RMN4053A with RKN4094A  
 Start Power: 5.01 (W)

Comments: Full Scan

Probe: ET3DV6 - SN1393, Calibrated: 3/17/2008, ConvF(7.73, 7.73, 7.73)

Electronics: DAE4 Sn850, Calibrated: 3/19/2008

Duty Cycle: 1:1, Medium parameters used:  $f = 460$  MHz;  $\sigma = 0.93$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

**Ab Scan/5x5x7 Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 108.0 V/m; Power Drift = -0.746 dB

Peak SAR (extrapolated) = 13.5 W/kg

**SAR(1 g) = 9.15 mW/g; SAR(10 g) = 6.42 mW/g**

Maximum value of SAR (measured) = 9.65 mW/g

**Ab Scan/Area Scan (61x151x1):** Measurement grid: dx=15mm, dy=15mm

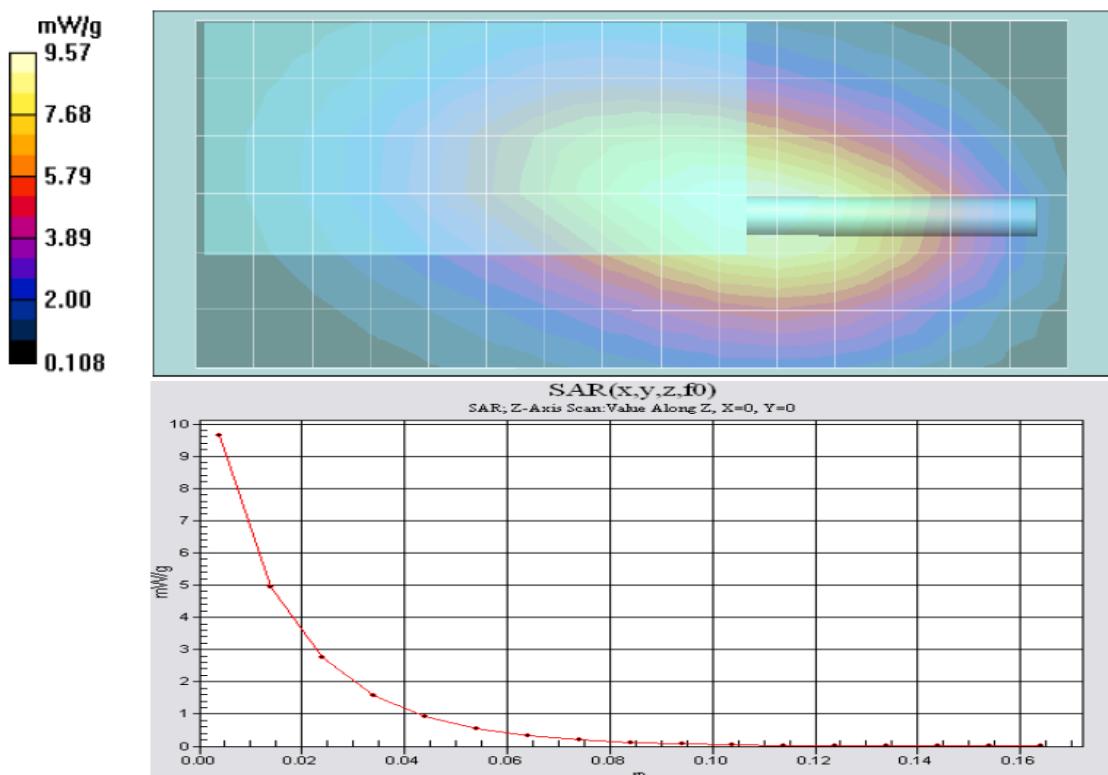
Reference Value = 108.0 V/m; Power Drift = -0.746 dB

**Motorola Fast SAR: SAR(1 g) = 9.37 mW/g; SAR(10 g) = 6.82 mW/g**

Maximum value of SAR (interpolated) = 9.91 mW/g

**Ab Scan/Z-Axis Scan (1x1x17):** Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 9.64 mW/g



**Motorola Government & Public Safety EME Laboratory**  
 Date/Time: 7/17/2008 5:46:01 PM

Robot# / Run#: DASY4-FL-2 / CM-Face-080717-09  
 Phantom# / Tissue Temp.: 80302002A-S7 / 21.7 (C)  
 DUT Model# / Serial#: P94ZRC90C2AA / 475YCS2209  
 Antenna / TX Freq.: NAE6483AR / 450.0000 (MHz)  
 Battery: HNN9049B  
 Carry Acc. / Cable Acc.: None / None  
 Start Power: 5.24 (W)

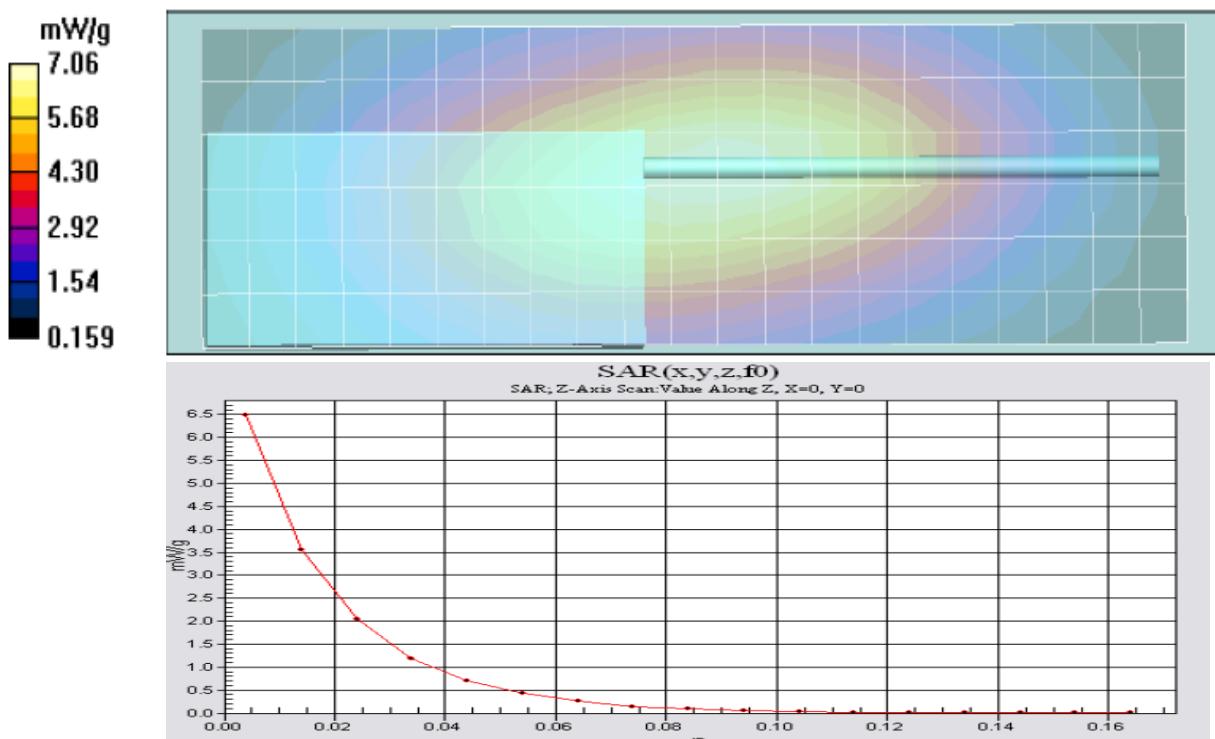
Comments: Full scan

Probe: ET3DV6 - SN1393, Calibrated: 3/17/2008, ConvF(7.07, 7.07, 7.07)  
 Electronics: DAE4 Sn850, Calibrated: 3/19/2008  
 Duty Cycle: 1:1, Medium parameters used:  $f = 460$  MHz;  $\sigma = 0.91$  mho/m;  $\epsilon_r = 43.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

**Face Scan/5x5x7 Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm  
 Reference Value = 95.8 V/m; Power Drift = -1.01 dB  
 Peak SAR (extrapolated) = 8.75 W/kg  
**SAR(1 g) = 6.35 mW/g; SAR(10 g) = 4.66 mW/g**  
 Maximum value of SAR (measured) = 6.66 mW/g

**Face Scan/Area Scan (61x211x1):** Measurement grid: dx=15mm, dy=15mm  
 Reference Value = 95.8 V/m; Power Drift = -1.01 dB  
**Motorola Fast SAR: SAR(1 g) = 6.79 mW/g; SAR(10 g) = 5.04 mW/g**  
 Maximum value of SAR (interpolated) = 7.13 mW/g

**Face Scan/Z-Axis Scan (1x1x17):** Measurement grid: dx=20mm, dy=20mm, dz=10mm  
 Maximum value of SAR (measured) = 6.49 mW/g



**APPENDIX F**  
**DUT Supplementary Data (Power slump)**

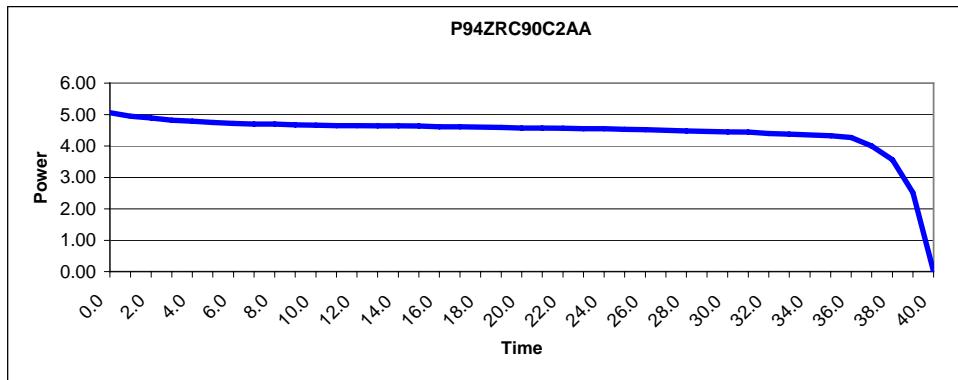
**Model # P94ZRC90C2AA**  
**Serial # 475YCS2217**

Battery # HNN9049B  
Frequency 450.0000 MHz  
Date 7/18/2008

Transmit Mode: CW  
Audio Accessory: RMN4053A w/ RKN4094A  
Antenna: N/A

**TX TIME      Measured Power**  
**(Minutes)      (Watts)**

0.0	5.06
1.0	4.95
2.0	4.89
3.0	4.82
4.0	4.79
5.0	4.75
6.0	4.72
7.0	4.70
8.0	4.70
9.0	4.67
10.0	4.66
11.0	4.65
12.0	4.65
13.0	4.64
14.0	4.64
15.0	4.63
16.0	4.61
17.0	4.61
18.0	4.60
19.0	4.59
20.0	4.57
21.0	4.57
22.0	4.56
23.0	4.55
24.0	4.55
25.0	4.53
26.0	4.52
27.0	4.50
28.0	4.48
29.0	4.46
30.0	4.45
31.0	4.44
32.0	4.40
33.0	4.38
34.0	4.35
35.0	4.33
36.0	4.27
37.0	4.00
38.0	3.56
39.0	2.51
40.0	0.00

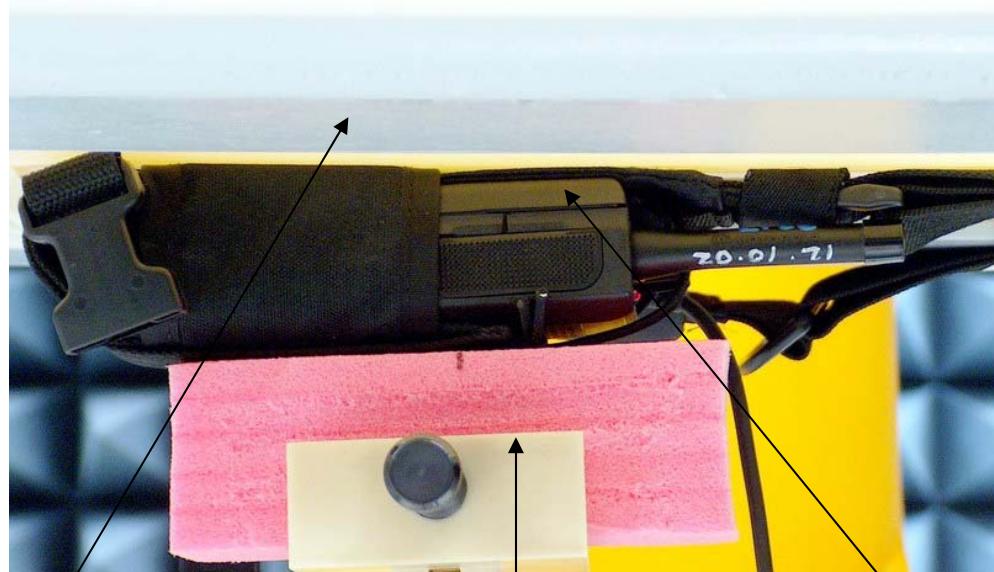


## Appendix G

### DUT Test Position Photos

**Figure 1: Highest SAR Test Position (Body);  
Antenna model NAE6522AR**

**DUT with carry accessory HLN6602A against the phantom.  
Worst case audio accessory RMN4053A with RKN4094A attached.**



**Figure 2: Highest SAR Test Position (Face)  
Antenna model NAE6483AR**  
**DUT front side separated 2.5cm from the phantom; no accessory attached.**



## Appendix H

### DUT and Body worn Accessory Photos

The purpose of this appendix is to illustrate the offered body-worn carry accessory. The sample that was used in the following photo represent the product used to obtain the results presented herein.



**Photo 1.**  
**Model HLN6602A**  
**Front View**

## Appendix I

### DUT Antenna Separation Distances and Offered Accessory Test Status

The following table(s) summarizes the separation distances and test status provided by each of the applicable body-worn accessory(ies):

<b>Battery Models</b>	<b>Tested ?</b>	<b>Min. Separation distances between DUT antenna and phantom surface. (mm)</b>	<b>Comments</b>
HNN9049B	Yes	NA	NA

<b>Antenna Models</b>	<b>Tested ?</b>	<b>Separation distances between DUT antenna and phantom surface. (mm)</b>	<b>Comments</b>
NAE6483AR	Yes	35-39	NA
NAE6522AR	Yes	17-18	NA

<b>Carry Acc. Models</b>	<b>Tested ?</b>	<b>Separation distances between DUT antenna and phantom surface. (mm)</b>	<b>Comments</b>
HLN6602A	Yes	17-18	NA

<b>Audio Acc. Models</b>	<b>Tested ?</b>	<b>Separation distances between DUT antenna and phantom surface. (mm)</b>	<b>Comments</b>
RMN4053A	Yes	NA	Tested with RKN4094A
RKN4094A	Yes	NA	NA