



TESTING CERT #2518.01

**FCC ID: AZ489FT4826
DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 3 of 3**

**Networks & Enterprise
EME Test Laboratory
8000 West Sunrise Blvd
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**Date of Report: Jan 11, 2007
Report Revision: B
Report ID: PCII rpt_PMUE1678B_RevB_070111_ SR4573**

Responsible Engineer: Kim Uong (EME lead Eng.)
Date/s Tested: 12/8/06-12/18/06, 1/10/07
Manufacturer/Location: Motorola – Penang
Sector/Group/Div.: NE/GTDG
Date submitted for test: 11/13/06
DUT Description: 403-470 MHz 4W Trunking Popular w/o Keypad
Test TX mode(s): CW
Max. Power output: 4.8W
Nominal Power: 4.0W
Tx Frequency Bands: 403-470MHz
Signaling type: FM
Model(s) Tested: PMUE1678B
Model(s) Certified: PMUE1678B
Serial Number(s): 004TGL3002
Classification: Occupational/Controlled
Rule Part(s): 90



Approved Accessories:

Antenna(s):
 PMAE4002A (403-433 MHz Stubby ¼ wave antenna, -4.5dBi); PMAE4003A (430-470 MHz Stubby ¼ wave antenna, -4.5dBi);
 NAE6483AR (403-520 MHz Whip ¼ wave antenna, -2.0dBi).
Battery(ies):
 HNN9008A (NiMH High Capacity Battery); HNN9009A (NiMH Ultra High Capacity Battery); HNN9010A (NiMH Ultra High Capacity Battery
 Factory Mutual); HNN9011B (NiCd High Capacity Battery Factory Mutual); HNN9012B (NiCd High Capacity Battery); HNN9013D (Li Ion High
 Capacity Battery).
Body worn accessory(ies):
 HLN9670A (Leather Case, Thin Battery w/ Swivel); HLN9676A (Leather Case, Standard Battery w/ Swivel); HLN9714A (Belt Clip); HLN9952A (Belt
 Clip Carry Holder); HLN9677A (Leather DTMF case, Thin Battery w/ Belt Loop); HLN9689A (Leather DTMF case, Standard Battery w/ Belt Loop);
 HLN9690A (Leather DTMF case, Thin Battery w/ Swivel); HLN9694A (Leather DTMF case, Standard Battery w/ Swivel); HLN9701B (Hard Nylon
 Case, Belt Loop, D-ring, for all battery sizes); HLN9652A (Leather Case, Thin Battery w/ belt Loop); HLN9665A (Leather Case, Standard Battery w/ Belt
 Loop).
Audio accessory(ies):
 See section 3.0 for list of approved audio accessories

**Max. Calc. : 1g Avg. SAR: 6.38 W/kg (Body); 10g Avg. SAR: 4.59 W/kg (Body)
 Max. Calc. : 1g Avg. SAR: 3.60 W/kg (Face); 10g Avg. SAR: 2.71 W/kg (Face)**

The S.A.R. results clearly demonstrate compliance to 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 10 W/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.

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

Signature on file – Deanna Zakharia
**Deanna Zakharia N&E EME Lab Senior Resource Manager,
 Laboratory Director,**

Approval Date: 1/11/07

Certification Date: 1/11/07

Certification No.: L1070107

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

Shortened Scan Results
Motorola N&E EME Laboratory
Date/Time: 12/15/2006 10:42:02 PM

Robot# / Run#: DASY4-FL-1 / CM-Ab-061215-13
Phantom# / Tissue Temp.: 80302002D-S15 / 21.2 (C)
DUT Model# / Serial# PMUE1678B / 004TGL3002
Antenna / TX Freq.: PMAE4003A / 450.0000 (MHz)
Battery: HNN9013D
Carry Acc. / Cable Acc.: HLN9714A / RMN4029A with RLN4922A
Start Power: 4.80 (W)

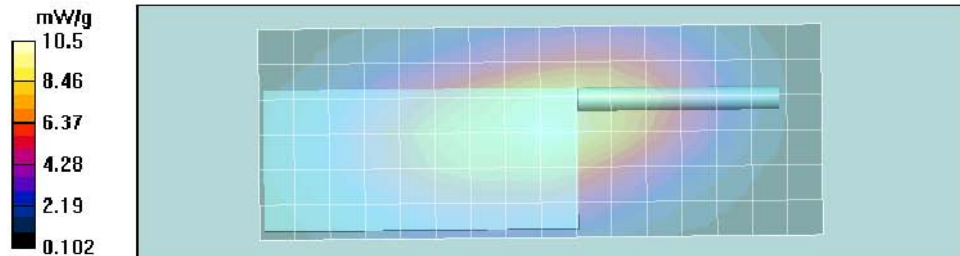
Comments:

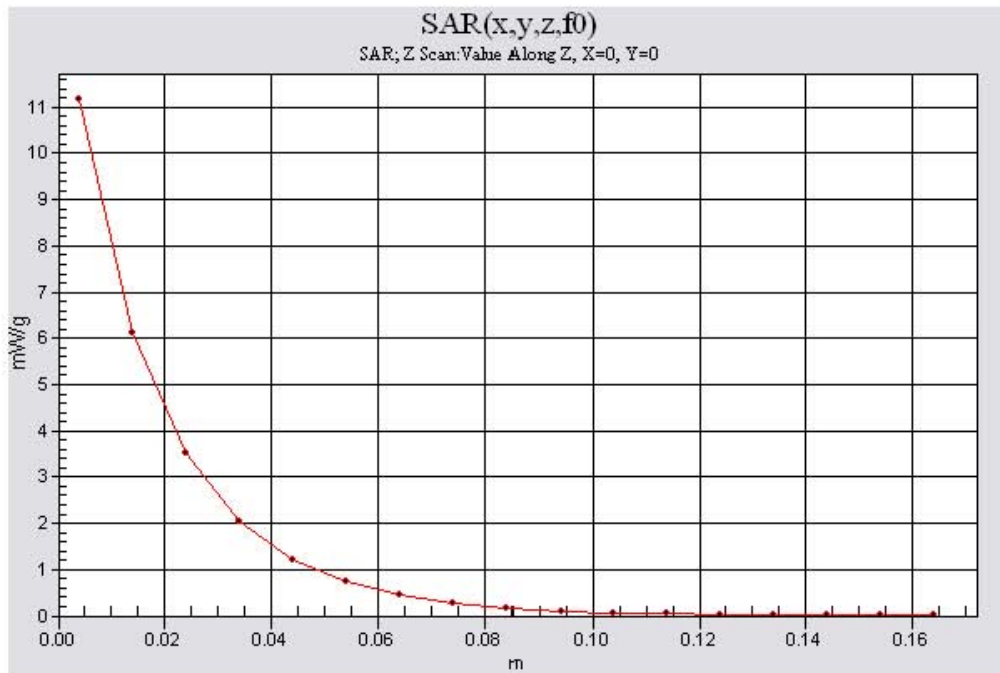
Probe: ET3DV6 - SN1383, Calibrated: 2/22/2006, ConvF(7.12, 7.12, 7.12)
Electronics: DAE3 Sn406, Calibrated: 11/13/2006
Duty Cycle: 1:1, Medium parameters used: f=436.5 MHz, sigma = 0.92 mho/m, epsilon = 57.5; rho = 1000 kg/m^3

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

Reference Value = 117.3 V/m; Power Drift = -0.669 dB
Peak SAR (extrapolated) = 14.3 W/kg
SAR(1 g) = 10.8 mW/g; SAR(10 g) = 7.79 mW/g
Maximum value of SAR (measured) = 11.5 mW/g

Comments: Short Scan at the body with body worn accessories against phantom.
Shortened Scan reflect highest S.A.R. producing configuration; Run time 8 minutes.
Representative "normal" scan run time was 26 minutes.
"Shortened" scan max. calculated S.A.R using S.A.R drift: 1-g Avg. = 6.30W/kg; 10-g Avg. = 4.54W/kg
"Normal" scan max. calculated S.A.R using S.A.R drift: 1-g Avg. = 6.38W/kg; 10-g Avg. = 4.59W/kg
(see part 1 of 3 section 9.0 run # CM-AB-061215-12)





Procedure Notes: Robot# / Run#: DASY4-FL-1 / CM-Ab-061215-13 Phantom# / Tissue Temp.: 80302002D-S15 / 21.2 (C)
DUT Model# / Serial#: PMUE1678B / 004TGL3002 Antenna / TX Freq.: PMAE4003A / 430.0000 (MHz) Battery:
HNN9013D Carry Acc. / Cable Acc.: HLN9714A / RMN4029A with RLN4922A Start Power: 4.80 (W) Comments:

Highest SAR Configurations Results

Motorola N&E EME Laboratory

Date/Time: 12/15/2006 11:14:51 PM

Robot# / Run#: DASY4-FL-1 / CM-Ab-061215-12
 Phantom# / Tissue Temp.: 80302002D-S15 / 21.2 (C)
 DUT Model# / Serial#: PMUE1678B / 004TGL3002
 Antenna / TX Freq.: PMAE4003A / 450.0000 (MHz)
 Battery: HNN9013D
 Carry Acc. / Cable Acc.: HLN9714A / RMN4029A with RLN4922A
 Start Power: 4.78 (W)

Comments:

Probe: ET3DV6 - SN1383, Calibrated: 2/22/2006, ConvF(7.12, 7.12, 7.12)
 Electronics: DAE3 Sn406, Calibrated: 11/13/2006
 Duty Cycle: 1:1, Medium parameters used: $f = 436.5$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 57.5$; $\rho = 1000$ kg/m³

Ab Scan/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 119.8 V/m, Power Drift = -0.707 dB

Peak SAR (extrapolated) = 14.2 W/kg

SAR(1 g) = 10.8 mW/g; SAR(10 g) = 7.76 mW/g

Maximum value of SAR (measured) = 11.5 mW/g

Ab Scan/Area Scan (61x161x1): Measurement grid: dx=15mm, dy=15mm

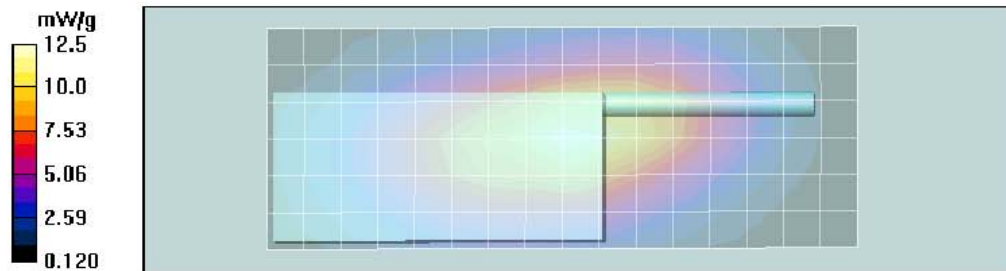
Reference Value = 119.8 V/m, Power Drift = -0.707 dB

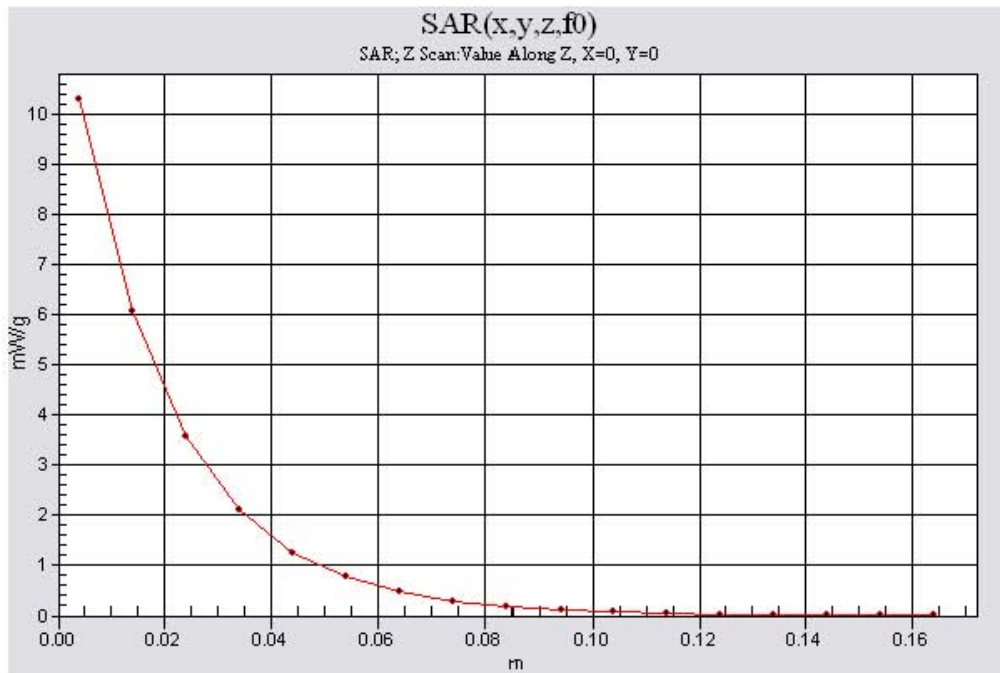
Motorola Fast SAR: SAR(1 g) = 11.8 mW/g; SAR(10 g) = 8.48 mW/g

Maximum value of SAR (interpolated) = 12.6 mW/g

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

Maximum value of SAR (measured) = 10.3 mW/g





Procedure Notes: Robot# / Run#: DASY4-FL-1 / CM-Ab-061215-12 Phantom# / Tissue Temp.: 80302002D-S15 / 21.2 (C)
DUT Model# / Serial#: PMUE1678B / 004TGL3002 Antenna / TX Freq.: PMAE4003A / 430.0000 (MHz) Battery:
HNN9013D Carry Acc. / Cable Acc.: HLN9714A / RMN4029A with RLN4922A Start Power: 4.78 (W) Comments:

Motorola N&E EME Laboratory

Date/Time: 12/18/2006 5:21:16 PM

Robot# / Run#: DASY4-FL-1 / CM-Face-061218-07
Phantom# / Tissue Temp.: 80302002C-S9 / 21.0 (C)
DUT Model# / Serial#: PMUE1678B / 004TGL3002
Antenna / TX Freq.: PMAE4003A / 450.0000 (MHz)
Battery: HNN9009A
Carry Acc. / Cable Acc.: None / None
Start Power: 4.97 (W)

Comments:

Probe: ET3DV6 - SN1383, Calibrated: 2/22/2006, ConvF(6.74, 6.74, 6.74)
Electronics: DAE3 Sn406, Calibrated: 11/13/2006
Duty Cycle: 1:1, Medium parameters used: $f=436.5$ MHz; $\sigma=0.88$ mho/m; $\epsilon_r=44.4$; $\rho=1000$ kg/m³

Face Scan/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

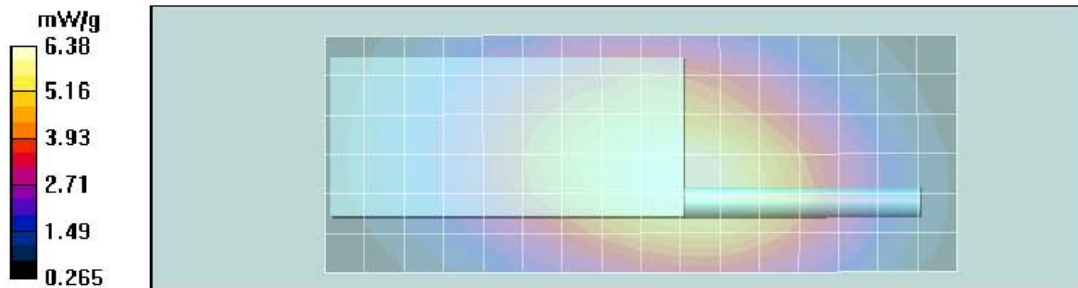
Reference Value = 92.0 V/m; Power Drift = -0.992 dB
Peak SAR (extrapolated) = 7.35 W/kg
SAR(1 g) = 5.73 mW/g; SAR(10 g) = 4.32 mW/g
Maximum value of SAR (measured) = 6.02 mW/g

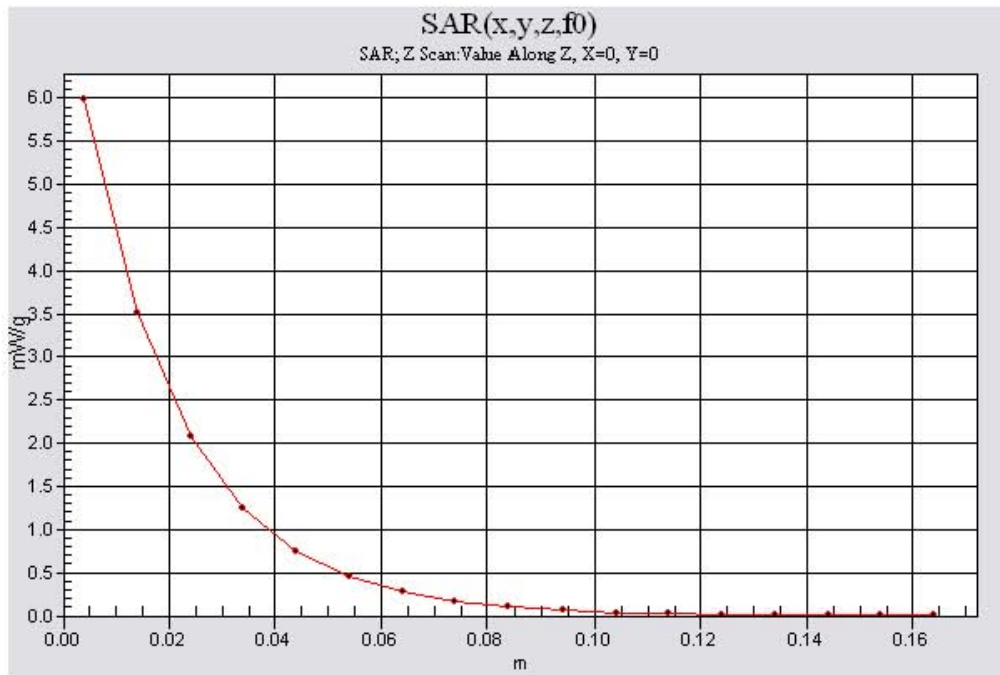
Face Scan/Area Scan (61x161x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 92.0 V/m; Power Drift = -0.992 dB
Motorola Fast SAR: SAR(1 g) = 6.21 mW/g; SAR(10 g) = 4.6 mW/g
Maximum value of SAR (interpolated) = 6.53 mW/g

Face Scan/Z Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 5.99 mW/g



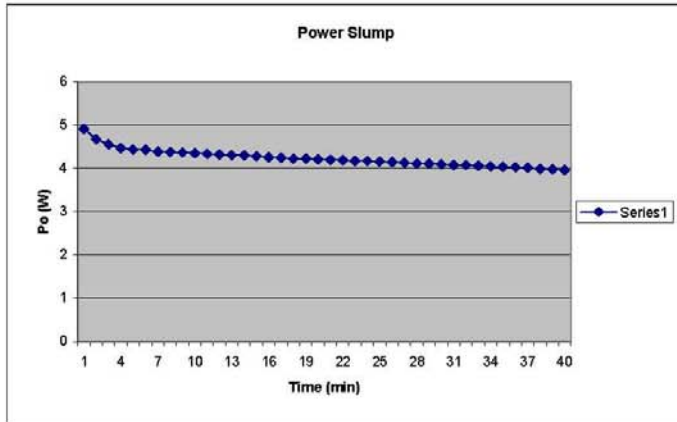


Procedure Notes: Robot# / Run#: DASY4-FL-1 / CM-Face-061218-07 Phantom# / Tissue Temp.: 80302002C-S9 / 21.0 (C)
DUT Model# / Serial#: PMUE1678B / 004TGL3002 Antenna / TX Freq.: PMAE4003A / 430.0000 (MHz) Battery:
HNN9009A Carry Acc. / Cable Acc.: None / None Start Power: 4.97 (W) Comments:

APPENDIX F
DUT Supplementary Data (Power slump)

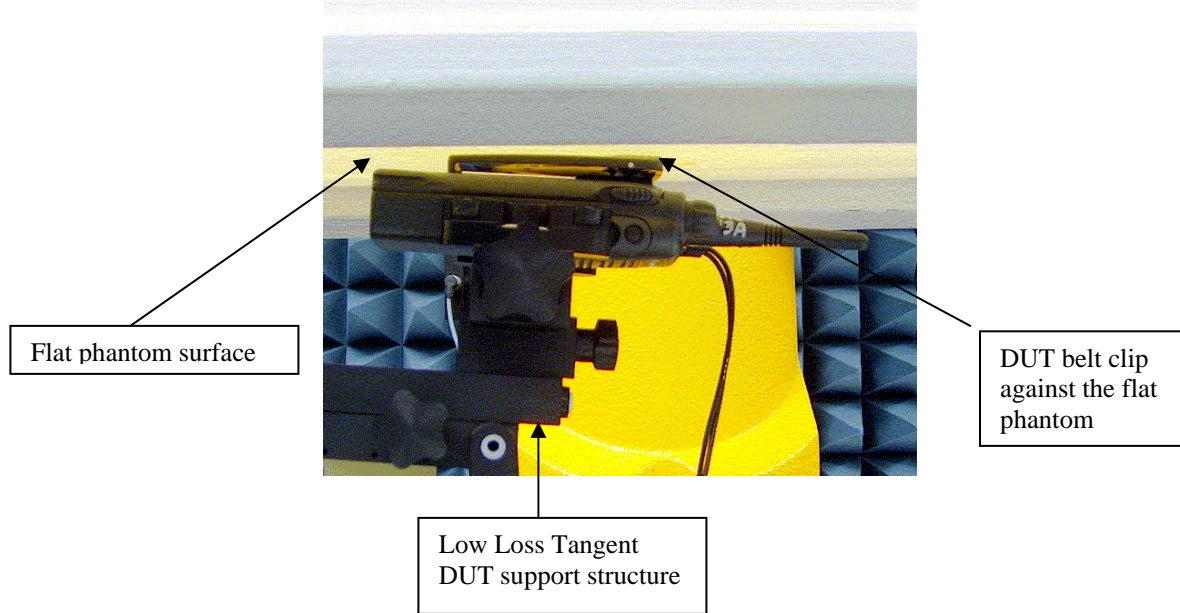
POWER SLUMP FOR WARIS LAZARUS PMUE1678B, S/N: 004TGL3002, BATT: HNN9013D, AUDIO: RMN4029A w/RLN4922A
 FREQ = 450 MHZ.

Time (Minutes)	Power (Watts)
Start	4.92
1	4.68
2	4.56
3	4.47
4	4.44
5	4.43
6	4.39
7	4.38
8	4.37
9	4.35
10	4.34
11	4.33
12	4.31
13	4.30
14	4.28
15	4.26
16	4.25
17	4.23
18	4.23
19	4.21
20	4.20
21	4.19
22	4.18
23	4.17
24	4.16
25	4.15
26	4.13
27	4.11
28	4.11
29	4.09
30	4.08
31	4.08
32	4.06
33	4.05
34	4.04
35	4.03
36	4.02
37	3.99
38	3.98
39	3.96
40	3.94



Appendix G DUT Test Position Photos

**Figure 1: Highest SAR Test Position (Body); Antenna model PMAE4003A
DUT w/ belt clip model HLN9714A against the phantom; worst case audio accessory model RMN4029A w/ RLN4922A
attached. (Same position used for other offered antennas and all other applicable audio accessories)**



**Figure 2: Highest SAR Test Position (face)
DUT front side separated 2.5cm from the phantom.
(Same position used for other offered antennas, all other applicable audio accessories)**

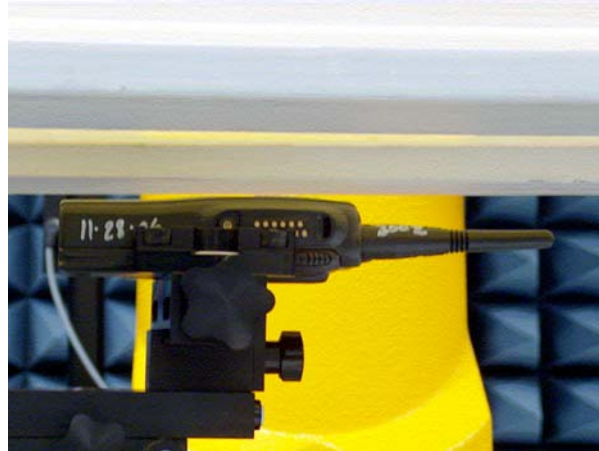


Figure 3: Body Assessment
DUT back w/ antenna separated 2.5cm from the phantom,
Worst case audio acc. Model RMN4029A w/ RLN4922A attached.



Figure 4: Body Assessment
DUT back separated 2.5cm from the phantom,
Worst case audio acc. Model RMN4029A w/ RLN4922A attached.



Figure 5: Body Assessment
DUT w/ front housing separated 2.5cm from the phantom,
Worst case audio acc. Model RMN4029A w/ RLN4922A attached.

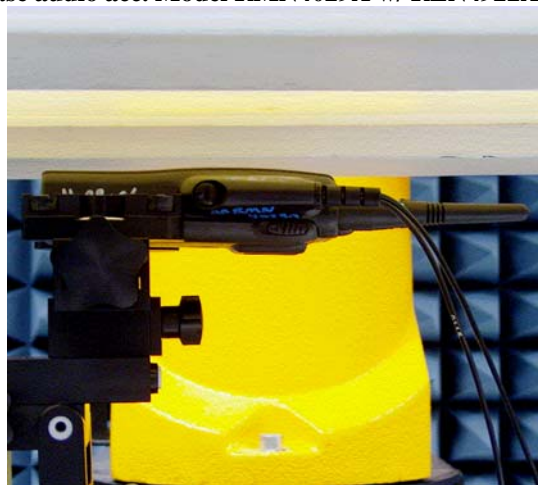


Figure 6: Body Assessment

DUT w/ belt clip model HLN9670A against the phantom; worst case audio accessory model RMN4029A w/ RLN4922A attached.



Figure 7: Body Assessment

DUT w/ belt clip carry holder model HLN9952A and belt clip model HLN9714A against the phantom; worst case audio accessory model RMN4029A w/ RLN4922A attached.

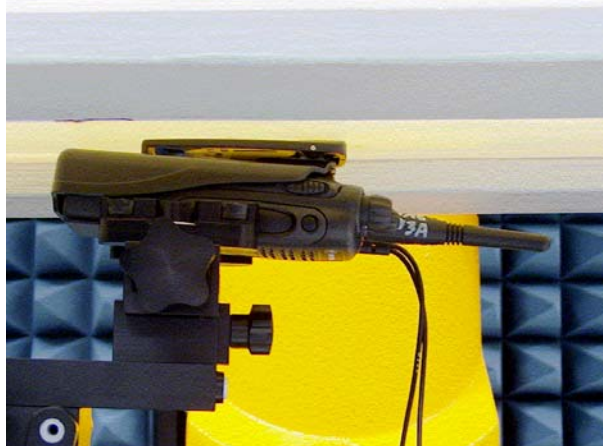


Figure 8: Body Assessment

DUT w/ belt clip model HLN9701B against the phantom; worst case audio accessory model RMN4029A w/ RLN4922A attached.



Figure 9: Body Assessment

DUT w/ Leather case, thin battery with belt loop model HLN9652A against the phantom; worst case audio accessory model RMN4029A w/ RLN4922A attached.



Appendix H DUT and Body worn Accessory Photos

The purpose of this appendix is to illustrate the offered body-worn carry accessory(ies). The sample that was used in the following photos represents the product used to obtain the results presented herein.



Photo 1.
Model HLN9701B
Front View



Photo 2.
Model HLN9701B
Side View



Photo 3.
Model HLN9701B
Back View



Photo 4.
Model HLN9670A
Front View



Photo 5.
Model HLN9670A
Side View



Photo 6.
Model HLN9670A
Back View



Photo 7.
Model HLN9652A
Front View



Photo 8.
Model HLN9652A
Back View



Photo 9.
Model HLN9652A
Side View



Photo 10.
Model HLN9952A
w/HLN9714A
Front View



Photo 11.
Model HLN9952A
w/HLN9714A
Side View



Photo 12.
Model HLN9952A
w/HLN9714A
Back View



Photo 13.
Model HLN9714A
Side View



Photo 14.
Model HLN9714A
Back 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):

Carry Case Models	Tested ?	Min. Separation distances between DUT antenna and phantom surface. (mm)	Comments
HLN9670A	Yes	58-73	NA
HLN9676A	No	NA	Similar to HLN9670A, except for to be used w/ standard battery
HLN9714A	Yes	21-39	NA
HLN9952A	Yes	28-42	Tested w/ HLN9714A
HLN9677A	No	NA	Similar to HLN9652A, except for Leather cut out
HLN9689A	No	NA	Similar to HLN9652A, except for Leather cut out
HLN9690A	No	NA	Similar to HLN9670A, except for Leather cut out
HLN9694A	No	NA	Similar to HLN9670A, except for Leather cut out and to be used w/ standard battery
HLN9701B	Yes	29-42	NA
HLN9652A	Yes	35-51	NA
HLN9665A	No	NA	Similar to HLN9652A, except for to be used w/ standard battery

Audio Acc. Models	Tested ?	Separation distances between DUT antenna and phantom surface. (mm)	Comments
AAHMN9052E	Yes	NA	NA
AAHMN9053E	Yes	NA	NA
NTN1722A	Yes	NA	NA
NTN1723A	Yes	NA	NA
NTN1724A	Yes	NA	NA
AARMN4019A	Yes	NA	NA
AARMN4018A	Yes	NA	NA
AARMN4031B	Yes	NA	NA
AARMN4017A	Yes	NA	NA
AARMN4032A	Yes	NA	NA
AARMN4022A	No	NA	Similar to AARMN4029A
AARMN4029A	Yes	NA	NA
AARMN4021A	No	NA	Similar to AARMN4028A
AARMN4028A	Yes	NA	NA
RLN4941A	No	NA	Receive only – attaches to RSM
RLN4922A	Yes	NA	NA
AAHLN9716C	Yes	NA	NA
HMN9725D	Yes	NA	NA

Battery models	Tested ?	Separation distances between DUT antenna and phantom surface. (mm)	Comments
HNN9008A	Yes	NA	NA
HNN9009A	Yes	NA	NA
HNN9010A	Yes	NA	NA
HNN9011B	Yes	NA	NA
HNN9012B	Yes	NA	NA
HNN9013D	Yes	NA	NA

Antenna models	Tested ?	Separation distances between DUT antenna and phantom surface. (mm)	Comments
PMAE4002A	Yes	NA	NA
PMAE4003A	Yes	NA	NA
NAE6483AR	Yes	NA	NA