

 MOTOROLA	 Certificate Number: 1449-01
FCC ID: AZ489FT5837 DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 3 of 3	
Government & Enterprise Mobility Solutions EME Test Laboratory 8000 West Sunrise Blvd Fort Lauderdale, FL. 33322	Date of Report: October 11, 2005 Report Revision: Rev. O Report ID: FCC rpt_ATS2500_Rev O_051011 SR2859_60
Responsible Engineer: Deanna Zakharia (Elect. Principle Staff Eng.) Date/s Tested: 9/16/2005 – 9/30/2005 Manufacturer/Location: Motorola, Penang Sector/Group/Div.: GEMS Date submitted for test: 9/7/2005 DUT Description: Portable transceiver 800MHz 2.5W; POP & Pref KP; 1.5PPM Test TX mode(s): CW Max. Power output: 2.95W (806-824MHz band); 2.40W (851-870MHz band) Nominal Power: 2.5W (806-824MHz band); 2.0W (851-870MHz band) Tx Frequency Bands: 806-824MHz; 851-870MHz Signaling type: FM Model(s) Tested: PMUF1063B & PMUF1064B Model(s) Certified: PMUF1063B & PMUF1064B Serial Number(s): 921HFN4312, 921HFN4298, 921HFN4333(PMUF1064B) Classification: Occupational/Controlled Rule Part(s): 90  Approved Accessories: Antenna(s): PMAF4000A (Whip 806-870MHz ½ wave; -3.0dBd); PMAF4001A (Stubby 806-941MHz ¼ wave) Battery(ies): HNN9008A (NiMH High Cap.), HNN9009A (NiMH Ultra High Cap.), HNN9010A (NiMH Ultra High Cap. FM), HNN9011A (NiCd High Cap. FM), HNN9012A (NiCd High Cap), HNN9013B (Li Ion High Cap.), HNN9013D (Li Ion High Cap.), PMNN4045BR (NiMH 1400mAh MAGONE) Body worn Accessory(ies): HLN9652A (Short, Plain, belt loop, thin bat.), HLN9665A (Short, Plain, belt loop, std bat.), HLN9670A (Short, Plain, swivel, thin bat.), HLN9676A (Short, Plain, swivel, Std bat.), HLN9677A (Short, DTMF, belt loop, thin bat.), HLN9689A (Short, DTMF, belt loop, std. bat.), HLN9690A (Short, DTMF, swivel, thin bat.), HLN9694A (Short, DTMF, swivel, std. bat.), HLN9701B (Short, Plain, belt loop, thin bat), NTN8039B (Belt swivel 2.5”), HLN9714A (Spring belt clip for 2.5” belt width), HLN9844A (Spring belt clip for 1.5” belt width), HLN9945A (Limited keypad, hard leather, w/ belt loop, thin bat.), HLN9946A (Limited keypad, hard leather, w/belt loop, std. bat), HLN9955A (Limited keypad, hard leather, w/swivel, thin bat), HLN9998A (Limited keypad, hard leather, w/swivel, std. bat.), NTN5243A (Carry strap), RLN4815A (Fanny pack carry acc., Universal radio pack), PMLN4280A (Carry case, Full thin leather), HLN9952A (Belt clip carry holder) Audio Accessories See section 3.0 for list of approved audio acc. Max. Calc. 1-g/10-g Avg. SAR: 4.79/3.51 mW/g (Body-worn) Max. Calc. 1-g/10-g Avg. SAR: 1.83/1.33 mW/g (Face)	
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 – Ken Enger Ken Enger GEMS EME Lab Senior Resource Manager, Laboratory Director, Approval Date: 10/12/2005	Certification Date: 10/12/2005 Certification No.: L1051012 & L1051013

Appendix E

DUT Scans (Shortened scans & Highest SAR configurations)

Shortened Scan Results

Motorola GEMS EME Laboratory

FCC ID: AZ489FT5837; Test Date: 9/25/05

Run #: CM-Ab-050925-20	Sim. Tissue Temp: 20.3 (C)
Model #: PMUF1063B	SN: 921HFN4298
Antenna: PMAF4001A	TX Freq: 806.0125 MHz
Battery: HNN9013D	Start power: 2.97 W
Carry acc.: HLN9844A	Audio/Data acc.: BDN6730A w/HLN9717B

Comments: Shorten scan

Probe: ET3DV6 - SN1384, Calibrated: 5/26/2005, ConvF(6.19, 6.19, 6.19)

Duty Cycle: 1:1, Medium: 815 MHz FCC Body, Medium parameters used: $\sigma = 0.98$ mho/m, $\epsilon_r = 53.6$; $\rho = 1000$ kg/m³

Electronics: DAE3 Sn374, Calibrated: 4/6/2005

Short Ab Scan/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=7.5mm

Reference Value = 102.9 V/m; Power Drift = -0.0327 dB

Peak SAR (extrapolated) = 11.8 W/kg

SAR(1 g) = 9.3 mW/g; SAR(10 g) = 6.84 mW/g

Comments: Short Scan at the body w/ body worn accessory against phantom

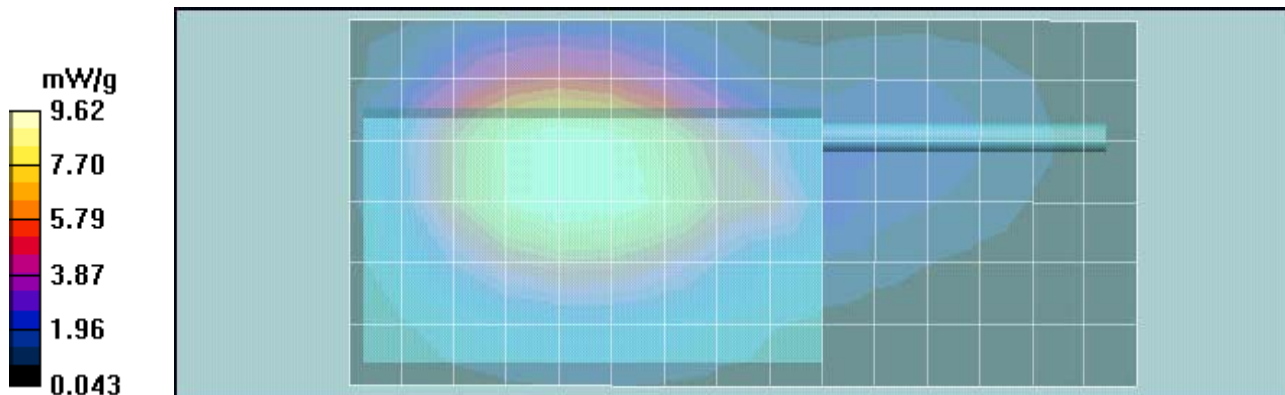
Shortened scan reflect highest S.A.R. producing configuration; Run time 7 minutes.

Representative "normal" scan run time was 24 minutes

"Shortened" scan max calculated S.A.R. using S.A.R. drift: 1-g Avg. = 4.69mW/g; 10-g Avg. = 3.45mW/g

"Normal" scan max calculated S.A.R. using S.A.R. drift: 1-g Avg. = 4.79mW/g; 10-g Avg. = 3.51mW/g

(see part 1 of 3 section 9.0 run #CM-Ab-050925-19)



Highest SAR Configurations Results

Motorola GEMS EME Laboratory
FCC ID: AZ489FT5837; Test Date: 9/25/05

Run #: CM-Ab-050925-19	Sim. Tissue Temp: 20.3 (C)
Model #: PMUF1063B	SN: 921HFN4298
Antenna: PMAF4001A	TX Freq: 806.0125 MHz
Battery: HNN9013D	Start power: 2.93 W
Carry acc.: HLN9844A	Audio/Data acc.: BDN6730A w/HLN9717B

Comments: Unit against abdomen with audio accessory

Probe: ET3DV6 - SN1384, Calibrated: 5/26/2005, ConvF(6.19, 6.19)

 Duty Cycle: 1:1, Medium: 815 MHz FCC Body, Medium parameters used: $\sigma = 0.98$ mho/m, $\epsilon_r = 53.6$; $\rho = 1000$ kg/m³

Electronics: DAE3 Sn374, Calibrated: 4/6/2005

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

Reference Value = 101.3 V/m; Power Drift = -0.151 dB

Motorola Fast SAR: SAR(1 g) = 9.39 mW/g; SAR(10 g) = 6.58 mW/g

Maximum value of SAR (interpolated) = 9.97 mW/g

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

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

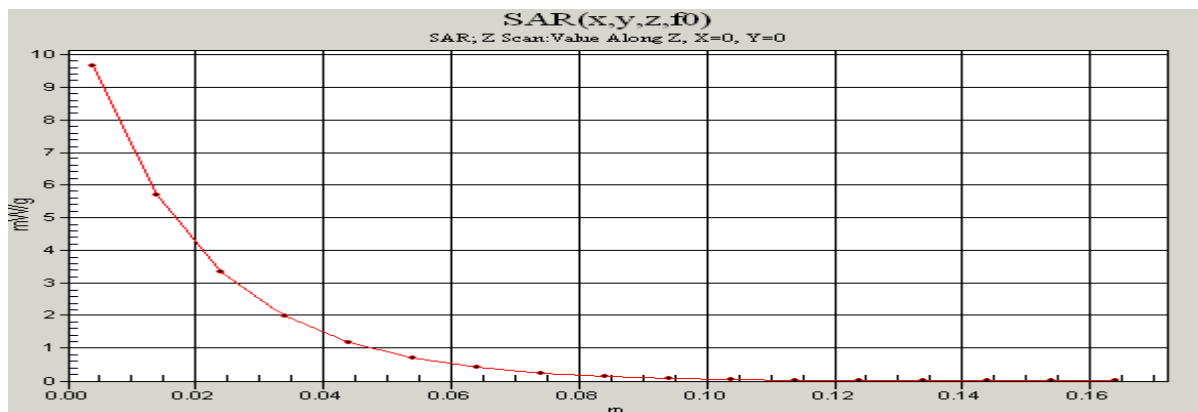
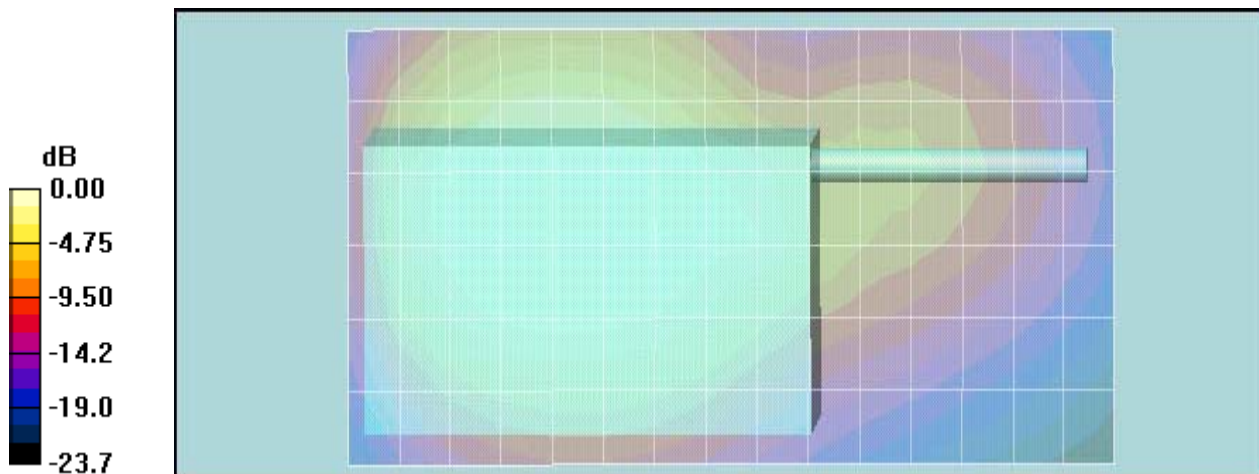
Full Ab Scan/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.3 V/m; Power Drift = -0.151 dB

Peak SAR (extrapolated) = 11.6 W/kg

SAR(1 g) = 9.19 mW/g; SAR(10 g) = 6.74 mW/g

Maximum value of SAR (measured) = 9.79 mW/g



Motorola GEMS EME Laboratory**FCC ID: AZ489FT5837; Test Date: 9/30/05**

Run #: JsT-Face-050930-07

Sim. Tissue Temp: 20.7 (C)

Model #: PMUF1064B

SN: 921HFN4333

Antenna: PMAF4000A

TX Freq: 823.9875 MHz

Battery: PMNN4045BR

Start power: 3.10 W

Carry acc.: None

Audio/Data acc.: ENMN4013A

Comments: Unit front at 2.5 cm

Probe: ET3DV6 - SN1384, Calibrated: 5/26/2005, ConvF(6.53, 6.53, 6.53)

Duty Cycle: 1:1, Medium: 815 IEEE Head, Medium parameters used: $\sigma = 0.94$ mho/m, $\epsilon_r = 43.6$; $\rho = 1000$ kg/m³

Electronics: DAE3 Sn374, Calibrated: 4/6/2005

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

Reference Value = 66.0 V/m; Power Drift = -0.338 dB

Peak SAR (extrapolated) = 4.38 W/kg

SAR(1 g) = 3.38 mW/g; SAR(10 g) = 2.47 mW/g

Maximum value of SAR (measured) = 3.57 mW/g

Face template/Area Scan (61x221x1): Measurement grid: dx=15mm, dy=15mm

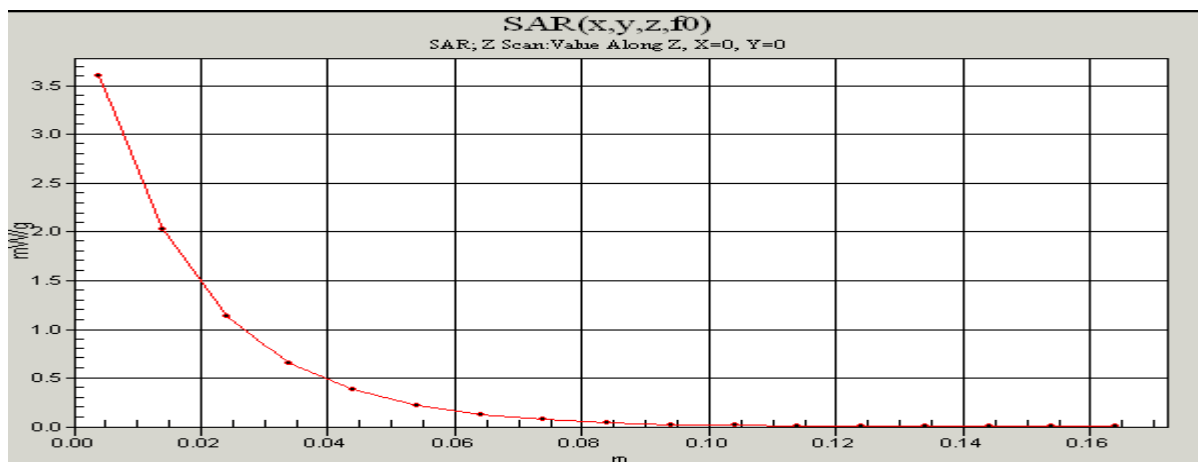
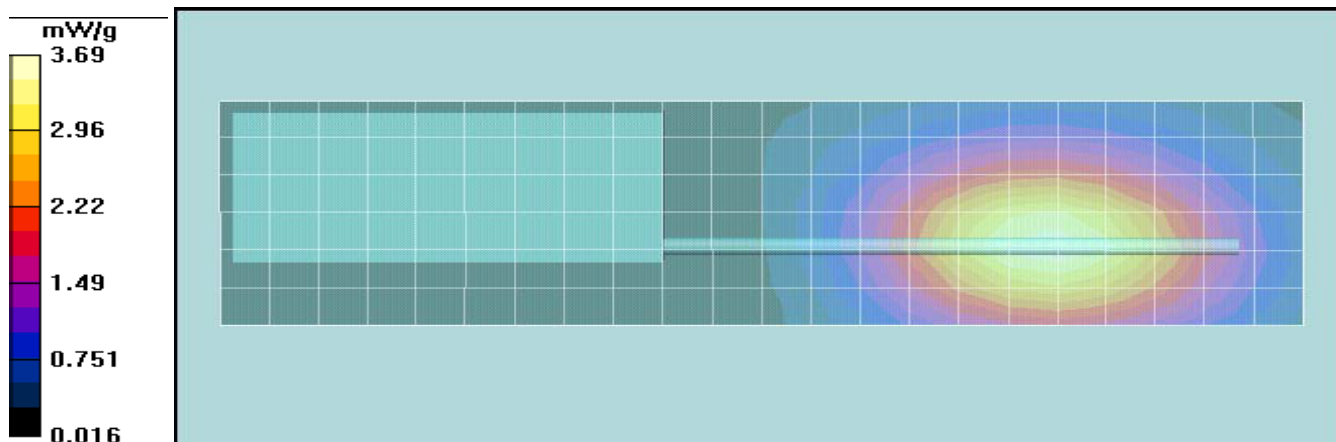
Reference Value = 66.0 V/m; Power Drift = -0.338 dB

Motorola Fast SAR: SAR(1 g) = 3.52 mW/g; SAR(10 g) = 2.5 mW/g

Maximum value of SAR (interpolated) = 3.72 mW/g

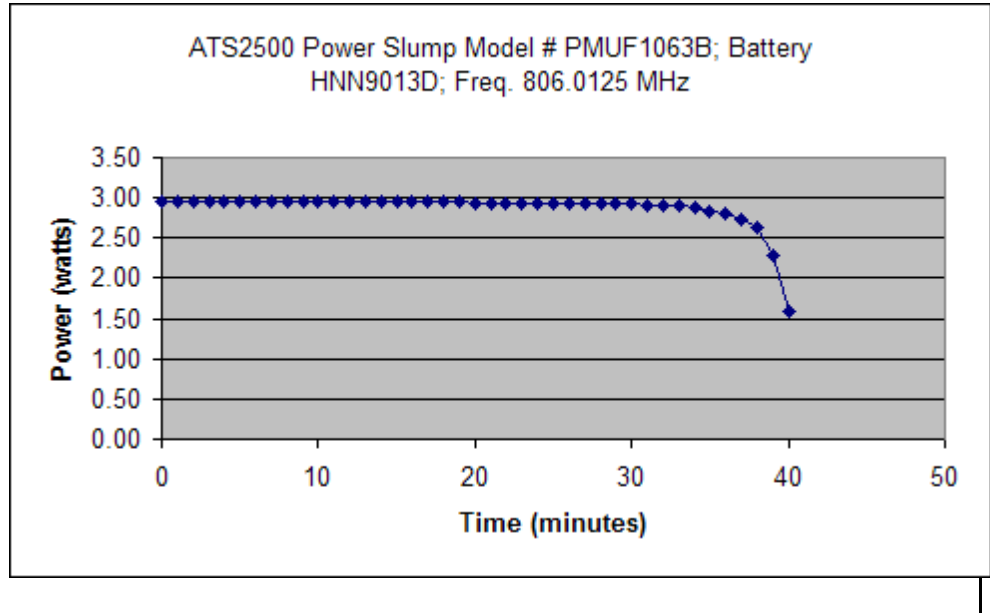
Face template/Z Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 3.60 mW/g



APPENDIX F
DUT Supplementary Data (Power slump)

Time (min.)	Pwr (watt)
1	2.96
2	2.96
3	2.95
4	2.95
5	2.96
6	2.96
7	2.96
8	2.96
9	2.96
10	2.95
11	2.95
12	2.95
13	2.95
14	2.95
15	2.95
16	2.95
17	2.95
18	2.95
19	2.95
20	2.94
21	2.94
22	2.94
23	2.94
24	2.93
25	2.93
26	2.93
27	2.92
28	2.93
29	2.93
30	2.92
31	2.91
32	2.91
33	2.90
34	2.87
35	2.84
36	2.81
37	2.74
38	2.63
39	2.28
40	1.59



Appendix G

DUT Test Position Photos

**Figure 1: Highest S.A.R. Test Position (Body); Antenna model PMAF4001A
DUT w/belt clip model HLN9844A against the phantom; worst case audio acc. model BDN6730A w/HLN9717A
attached (same position used for other offered antenna and all other applicable audio accessories)**



**Figure 2: Highest S.A.R. Test Position (face); Antenna model PMAF4000A
DUT front side separated 2.5cm from the phantom; w/audio accessory Model ENMN4013A attached
(same position used for other offered antenna, all other applicable audio accessories,
as well as without any audio accessory)**



Figure 3: Body Assessment
DUT w/ back housing separated 2.5cm from the phantom
Worst case audio acc. Model BDN6730A w/HLN9717A attached

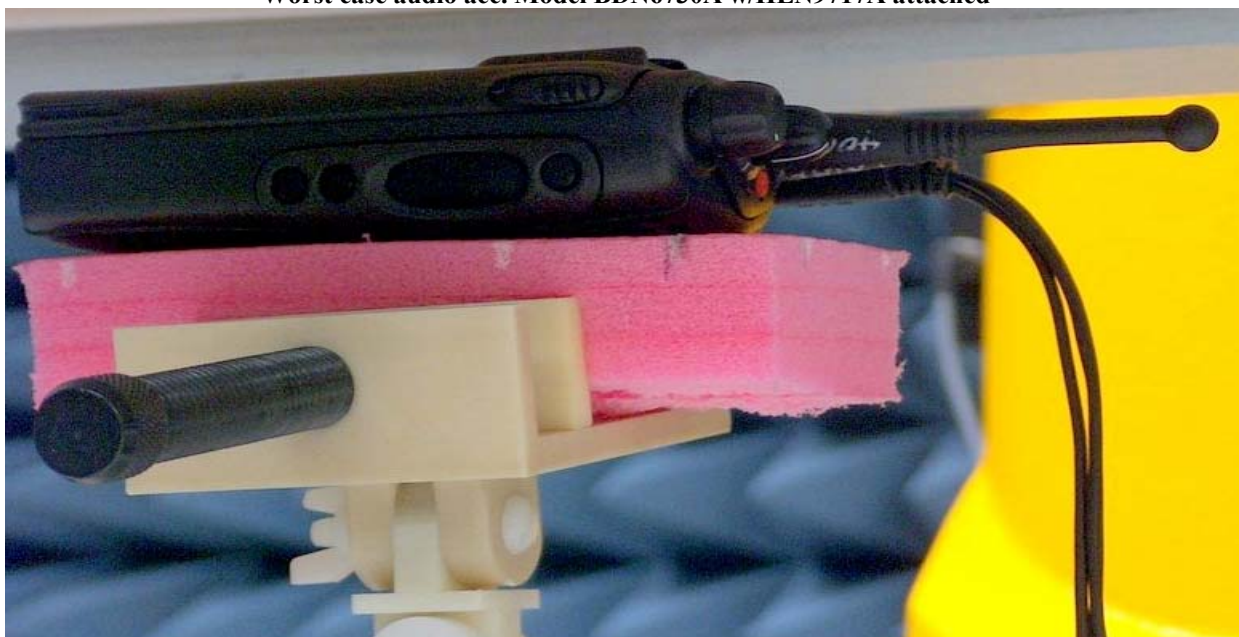


Figure 4: Body Assessment
DUT w/ front housing separated 2.5cm from the phantom
Worst case audio acc. Model RMN4048A attached



**Figure 5: Test Position (Body); Antenna model PMAF4001A
DUT w/carry case model HLN9652A against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 6: Test Position (Body); Antenna model PMAF4001A
DUT w/carry case model HLN9655A against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 7: Test Position (Body); Antenna model PMAF4001A
DUT w/carry case model HLN9670A w/NTN8039B against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 8: Test Position (Body); Antenna model PMAF4001A
DUT w/carry case model HLN9676A w/NTN8039B against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 9: Test Position (Body); Antenna model PMAF4001A
DUT w/carry case model HLN9701B against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 10: Test Position (Body); Antenna model PMAF4001A
DUT w/carry case model HLN9701B w/carry strap NTN5243A against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 11: Test Position (Body); Antenna model PMAF4001A
DUT w/carry case model HLN9952A and belt clip model HLN9714A against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 12: Test Position (Body); Antenna model PMAF4001A
DUT w/carry case model HLN9952A and belt clip model HLN9844A against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 13: Test Position (Body); Antenna model PMAF4001A
DUT w/belt clip model HLN9714A against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 14: Test Position (Body); Antenna model PMAF4001A
DUT w/fanny pack model RLN4815A against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



**Figure 15: Test Position (Body); Antenna model PMAF4001A
DUT w/carry case model PMLN4280A against the phantom;
audio acc. model HMN9030A w/HLN9716C attached**



Appendix H

DUT and Accessory Photos

The purpose of this appendix is to illustrate the body-worn carry accessory(ies) for FCC ID: AZ489FT5836. The sample that was used in the following photos represents the product used to obtain the results presented herein and was used in this section to demonstrate the offered body-worn accessory(ies).



Photo 1.
Model HLN9670A
w/NTN8039B
Back View



Photo 2.
Model HLN9670A
w/NTN8039B
Side View



Photo 3.
Model HLN9670A
w/NTN8039B
Front View



Photo 4.
HLN9714A
Back View



Photo 5.
HLN9714A
Side View



Photo 6.
Model HLN9714A
w/HLN9952A
Back View



Photo 7.
Model HLN9714A
w/HLN9952A
Side View



Photo 8.
Model HLN9844A
Back View



Photo 9.
Model HLN9844A
Side View



Photo 10.
Model HLN9652A
Back View



Photo 11.
Model HLN9652A
Side View



Photo 12.
Model HLN9652A
Front View



Photo 13.
Model HLN9665A
Back View



Photo 14.
Model HLN9665A
Side View



Photo 15.
Model HLN9665A
Front View



Photo 16.
Model HLN9676A
w/NTN8039B
Back View



Photo 17.
Model HLN9676A
w/NTN8039B
Side View



Photo 18.
Model HLN9676A
w/NTN8039B
Front View



Photo 19.
Model HLN9701B
Back View



Photo 20.
Model HLN9701B
Side View



Photo 21.
Model HLN9701B
Front View



Photo 22.
Model HLN9844A
w/HLN9952A
Back View



Photo 23.
Model HLN9844A
w/HLN9952A
Side View



Photo 24.
Model PMLN4280A
Back View



Photo 25.
Model PMLN4280A
Side View



Photo 26.
Model PMLN4280A
Front View



Photo 27.
Model HLN9701B
w/NTN5243A
Front View



Photo 28.
Model RLN4815A
Front View

Appendix I

DUT Body-worn Separation Distances

The following table summarizes the test status and separation distance 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
HLN9652A	yes	38-54	NA
HLN9665A	yes	33-45	NA
HLN9670A	yes	53-73	NA
HLN9676A	yes	54-76	NA
HLN9952A	yes	NA	tested w/HLN9714A & HLN9844A
HLN9701B	yes	32-43	tested w/NTN5243A and w/out
NTN8039B	yes	NA	tested w/HLN9670A & HLN9676A
HLN9714A	yes	21-40	tested also w/HLN9952A
HLN9844A	yes	22-60	Tested also w/HLN9952A
NTN5243A	yes	NA	tested w/HLN9701B
RLN4815A	yes	34-48	NA
PMLN4280A	Yes	28-37	NA
HLN9677A	No	NA	B/S HLN9652A except for cutout
HLN9689A	No	NA	B/S HLN9665A except for cutout
HLN9690A	No	NA	B/S HLN9670A except for cutout
HLN9694A	No	NA	B/S HLN9676A except for cutout
HLN9945A	No	NA	B/S HLN9652A except for cutout
HLN9946A	No	NA	B/S HLN9665A except for cutout
HLN9955A	No	NA	B/S HLN9670A except for cutout
HLN9998A	No	NA	B/S HLN9676A except for cutout

Audio Acc. Models	Tested ?	Separation distances between DUT antenna and phantom surface. (mm)	Comments
HMN9030A	Yes	NA	tested w/HLN9716C
AAHMN9053E	Yes	NA	tested w/WADN4190B
ENMN4015A	Yes	NA	NA
ENMN4012A	Yes	NA	NA
ENMN4011A	Yes	NA	tested w/ENLN4135A
ENMN4010A	Yes	NA	NA
ENMN4013A	Yes	NA	NA
ENMN4014A	Yes	NA	tested w/RLN4922A
AZRMN4019A	Yes	NA	NA
AARMN4020B	Yes	NA	NA
PMMN4009A	Yes	NA	NA
ENLN4135A	Yes	NA	tested w/ENMN4011A
PMLN4418A	Yes	NA	NA
AARMN4017A	Yes	NA	NA
AARMN4044A	Yes	NA	tested w/BDN6641A
RMN4048A	Yes	NA	NA
WADN4190B	Yes	NA	tested w/HMN9053E
PMLN4556A	Yes	NA	NA
HMN9013A	Yes	NA	tested w/HLN9716C
HMN9727B	Yes	NA	tested w/HLN9716C
HMN9752B	Yes	NA	tested w/HLN9716C
HMN9754D	Yes	NA	tested w/HLN9716C
NTN1722A	Yes	NA	NA
NTN1723A	Yes	NA	NA
NMN6245A	Yes	NA	tested w/HLN9717A
NMN6246B	Yes	NA	tested w/HLN9717A
RLN4922A	Yes	NA	tested w/ENMN4014A
AARMN4018B	Yes	NA	NA
AARMN4022A	Yes	NA	NA
AZRMN4032A	Yes	NA	NA
RMN4051B	Yes	NA	tested w/ RKN4097A
RMN4054B	Yes	NA	tested w/ HLN9717A
RMN4055B	Yes	NA	tested w/HLN9717A
BDN6641A	Yes	NA	tested w/AARMN4044A
BDN6646C	Yes	NA	tested w/HLN9716C
BDN6647G	Yes	NA	tested w/HLN9716C
BDN6648C	Yes	NA	tested w/HLN9716C
BDN6665A	Yes	NA	tested w/HLN9717A
BDN6666A	Yes	NA	tested w/HLN9717A
BDN6720A	Yes	NA	tested w/HLN9716C
BDN6729A	Yes	NA	tested w/HLN9717A
BDN6730A	Yes	NA	tested w/HLN9717A
BDN6781A	Yes	NA	tested w/HLN9717A
NNTN4187A	Yes	NA	tested w/HLN9717A
HLN9717A	Yes	NA	tested w/ various audio
HLN9716C	Yes	NA	tested w/ various audio
0180358B38	Yes	NA	tested w/AARMN4044A
RKN4097A	Yes	NA	tested w/RMN4051B

Audio Acc. Models	Tested ?	Separation distances between DUT antenna and phantom surface. (mm)	Comments
PMMN4027A	Yes	NA	NA
PMLN4653A	Yes	NA	NA
AARLN4885A	No	NA	B/S to WADN4190B
RLN4941A	No	NA	B/S to WADN4190B
ENMN4016A	No	NA	B/S to RMN4019A
ENMN4017A	No	NA	B/S to ENMN4014A
PMMN4002B	No	NA	B/S to HMN9053E
PMLN4558A	No	NA	B/S to PMLN4556A
PMLN4557A	No	NA	B/S to PMLN4556A
NTN1724A	No	NA	B/S to NTN1723A
NTN8370A	No	NA	mechanical part
NTN8371A	No	NA	mechanical part
RLN4760A	No	NA	mechanical part
RLN4761A	No	NA	mechanical part
RLN4762A	No	NA	mechanical part
RLN4763A	No	NA	mechanical part
RLN4764A	No	NA	mechanical part
RLN4765A	No	NA	mechanical part
AARMN4021A	No	NA	B/S to ENMN4013A
AARMN4028A	No	NA	B/S to ENMN4013A
AARMN4029A	No	NA	B/S to AARMN4022A
AARMN4031B	No	NA	B/S to ENMN4015A
AARMN4045A	No	NA	B/S to AARMN4044A
RMN4052B	No	NA	B/S to RMN4051B
RMN4053A	No	NA	B/S to RMN4051B
BDN6664A	No	NA	B/S to BDN6665A
BDN6667A	No	NA	B/S to BDN6729A
BDN6668A	No	NA	B/S to BDN6730A
BDN6669A	No	NA	B/S to BDN6729A
BDN6670A	No	NA	B/S to BDN6730A
BDN6677A	No	NA	B/S to BDN6641A
BDN6678A	No	NA	B/S to BDN6641A
BDN6719A	No	NA	B/S to BDN6665A
BDN6726A	No	NA	B/S to BDN6665A
BDN6727A	No	NA	B/S to BDN6665A
BDN6728A	No	NA	B/S to BDN6666A
BDN6731A	No	NA	B/S to BDN6729A
BDN6732A	No	NA	B/S to BDN6730A
BDN6780A	No	NA	B/S to BDN6729A
0180300E83	No	NA	B/S to 0180358B38