MOTOROLA

ACCREDITED
Certificate Number: 1449-01

FCC ID: AZ489FT3807
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: March 15, 2006
Report Revision: Rev. 0
Report ID: PCII rpt_XTS2500 VHF Submersible_Rev 0_060315 SR3669_3742

Responsible Engineer:	Deanna Zakharia (Elect. Principle Staff Eng.)
Date/s Tested:	3/1/2006-3/8/2006
Manufacturer/Location:	Motorola, Penang
Sector/Group/Div.:	GEMS
Date submitted for test:	2/17/2006
DUT Description:	Portable Transceiver; 1-5W, Digital, 512 channels, 3x6 keypad, 6-line display, submersible and secure option & no display or keypad, submersible Non secured
Test TX mode(s):	CW
Max. Power output:	5.7 Watts
Nominal Power:	5.0 Watts
Tx Frequency Bands:	136-174 MHz
Signaling type:	FM
Model(s) Tested:	PMUD2154A/H46KDH9PW7BN & PMUD2145A/H46KDC9PW5BN
Model(s) Certified:	PMUD2154A/H46KDH9PW7BN & PMUD2145A/H46KDC9PW5BN
Serial Number(s):	407T000035 & 407T000004
Classification:	Occupational/Controlled
Rule Part(s):	90

Approved Accessories:

Antenna(s):
NAD6563A (Whip 136-174MHz ¼ wave; -10.0dBi); NAD6566A (136-150.8MHz ¼ wave; -9dBi); NAD6567A (150.8-162MHz ¼ wave; -8dBi); NAD6568A (162-174MHz ¼ wave; -7dBi)

Battery(ies):
NNTN6263A (JedRay NiMH Impress FM Submersible.), NTN9857C (Nickel Metal Hydride Ultra-Hi Capacity Factory Mutual Intrinsically Safe 1800 mAh), NTN9816A (NiCAD Hi Capacity Factory Mutual Intrinsically Safe 1525 mAh), NTN9815B (NiCAD Hi Capacity 1525 mAh), NTN9858B (Nickel Metal Hydride Ultra-Hi Capacity 1800 mAh)

Body worn accessory:
NNTN4115A (Bonded case 3 inch loop with swivel), NNTN4116A (Bonded case 2.5 inch loop with swivel), NNTN4117A (Bonded case belt loop 3 inch), HLN9844A (2 inch belt clip), HLN6853A (2.25 inch belt clip), TDN9675B (Wrist strap for carrying radio), NLN6349A (Shoulder strap for carrying radio), NTN5243A (Shoulder strap for carrying radio)

Audio Accessories
See section 3.0 for list of approved audio acc.

Max. Calc. 1-g/10-g Avg. SAR: 2.37/1.47 mW/g (Body-worn)
Max. Calc. 1-g/10-g Avg. SAR: 1.89/1.40 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 CGISS EME Lab Senior Resource Manager, Laboratory Director

Approval Date: 3/16/2006

Certification Date: 3/16/2006

Certification No.: L1060362 & L1060362

Appendix E
DUT Scans (Shortened scans & Highest SAR configurations)

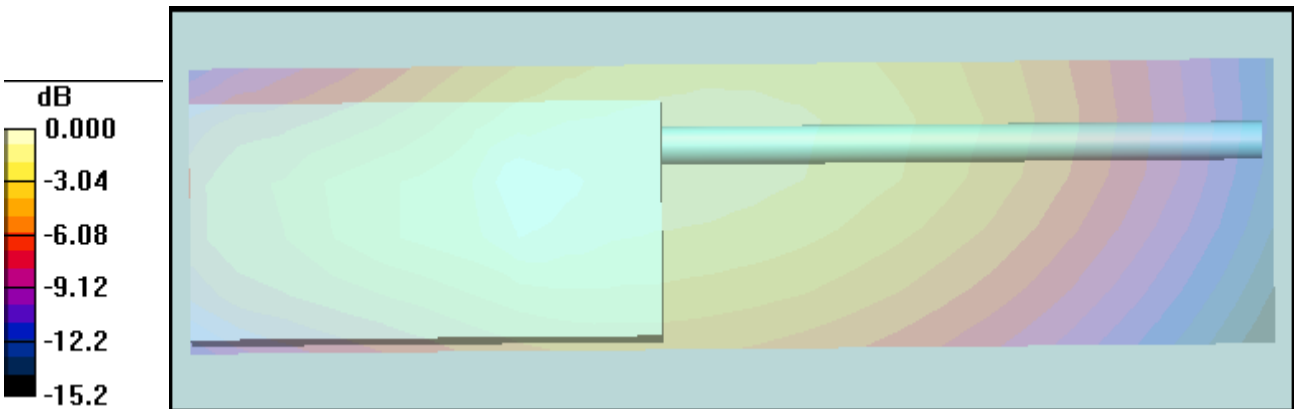
Shortened Scan Results

Motorola GEMS EME Laboratory
FCC ID: AZ489FT3807; Test Date: 3/3/06

Run #: CM-Ab-060303-26	Sim. Tissue Temp: 20.3 (C)
Robot #: GEMS-1	Phantom #: 80602002A-S1
Model #: PMUD2154A/H46KDH9PW7BN	SN: 407T000035
Antenna: NAD6566A	TX Freq: 136.0125 MHz
Battery: NTN9857C	Start power: 5.53 W
Carry acc.: HLN6853A	Audio/Data acc.: NTN1625A w/ NTN8819B

Comments: Shorten scan
Probe: ET3DV6 - SN1384, Calibrated: 5/26/2005, ConvF(8.6, 8.6, 8.6)
Duty Cycle: 1:1, Medium: 155 MHz Body, Medium parameters used: f = 155 MHz; σ = 0.79 mho/m, ε_r = 62.9; ρ = 1000 kg/m^3
Electronics: DAE3 Sn374, Calibrated: 4/6/2005
Ab Scan/Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=7.5mm
Reference Value = 63.2 V/m; Power Drift = -0.059 dB
Peak SAR (extrapolated) = 9.36 W/kg
SAR(1 g) = 4.39 mW/g; SAR(10 g) = 2.7 mW/g

Comments: Short Scan at the body w/body worn accessory against phantom
Shortened scan run time 7 minutes.
Representative "normal" scan run time was 32 minutes
"Shortened" scan max calculated S.A.R. using S.A.R. drift: 1-g Avg. = 2.29mW/g; 10-g Avg. = 1.41mW/g
"Normal" scan max calculated S.A.R. using S.A.R. drift: 1-g Avg. = 2.12mW/g; 10-g Avg. = 1.31mW/g
(See part 1 of 3 section 9.0 run #CM-Ab-060303-25)

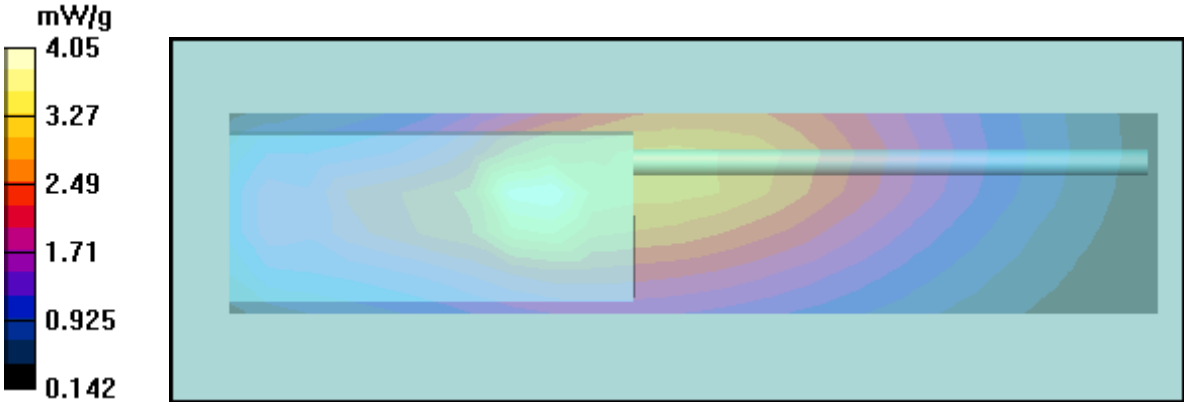


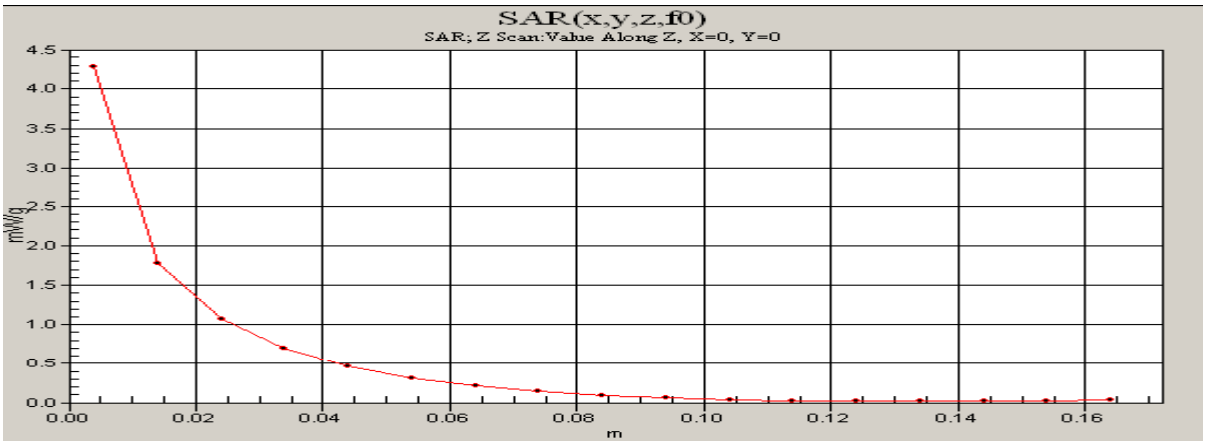
Highest SAR Configurations Results

Motorola GEMS EME Laboratory
FCC ID: AZ489FT3807; Test Date: 3/7/06

Run #: JsT-Ab-060307-11	Sim. Tissue Temp: 19.6 (C)
Robot #: GEMS-1	Phantom #: 80602002A-S1
Model #: PMUD2154A/H46KDC9PW5BN	SN: 407T000004
Antenna: NAD6566A	TX Freq: 136.0125 MHz
Battery: NTN9857C	Start power: 5.75 W
Carry acc.: HLN6853A	Audio/Data acc.: NTN1625A w/ NTN8819B

Comments: Unit against abdomen with audio accessory; full scan
Probe: ET3DV6 - SN1384, Calibrated: 5/26/2005, ConvF(8.6, 8.6, 8.6)
Duty Cycle: 1:1, Medium: 155 MHz Body, Medium parameters used: f = 155 MHz; σ = 0.8 mho/m; εr = 63.7; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/21/2005
Ab Template/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 64.9 V/m; Power Drift = -0.437 dB
Peak SAR (extrapolated) = 10.3 W/kg
SAR(1 g) = 4.28 mW/g; SAR(10 g) = 2.65 mW/g
Maximum value of SAR (measured) = 4.32 mW/g
Ab Template/Area Scan (51x231x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 64.9 V/m; Power Drift = -0.437 dB
Motorola Fast SAR: SAR(1 g) = 3.89 mW/g; SAR(10 g) = 2.82 mW/g
Maximum value of SAR (interpolated) = 4.19 mW/g
Ab Template/Z Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 4.28 mW/g

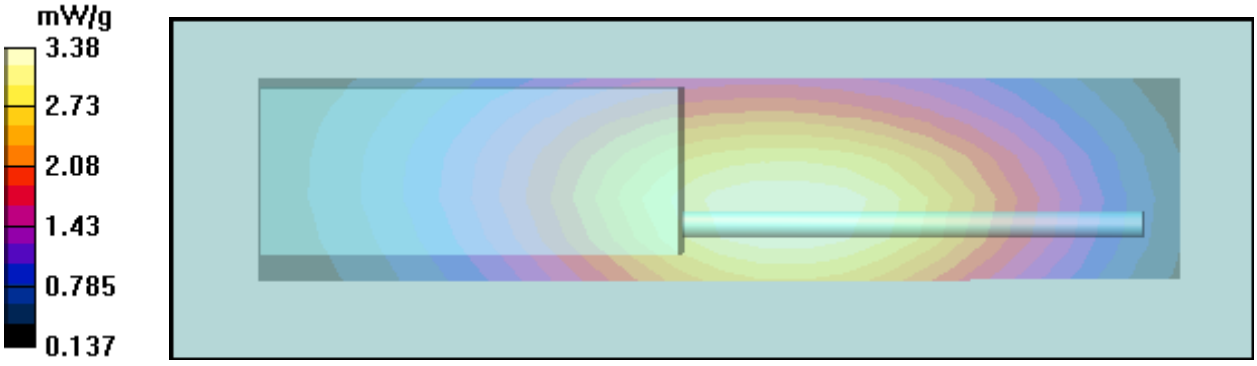


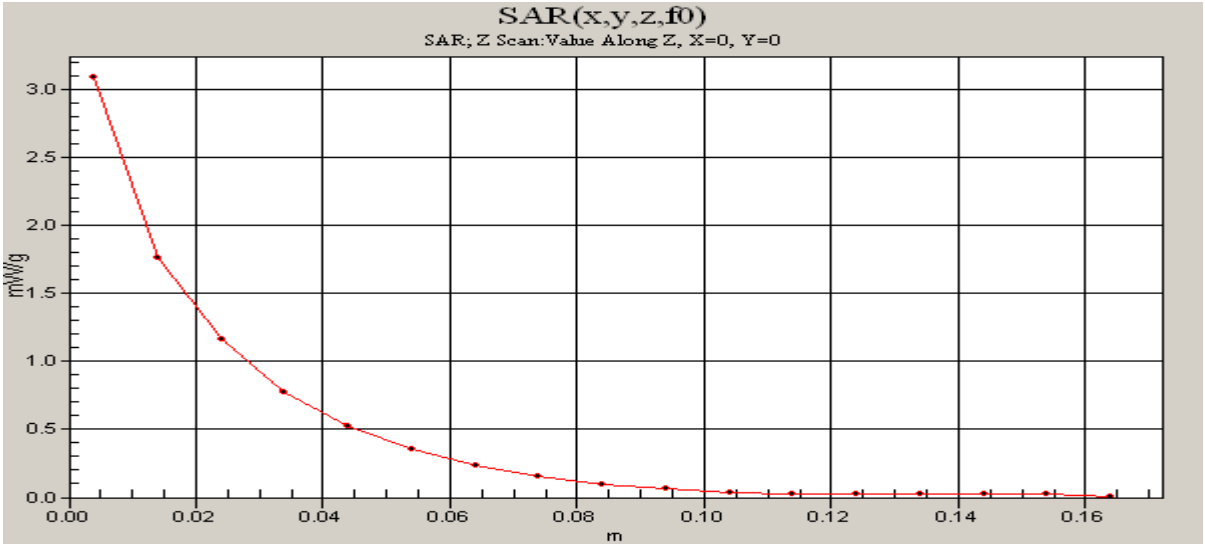


Motorola GEMS EME Laboratory
FCC ID: AZ489FT3807; Test Date: 3/8/06

Run #: JsT-Face-060308-02	Sim. Tissue Temp: 21.5 (C)
Robot #: GEMS-1	Phantom #: 80602002B-S13
Model #: PMUD2154A/H46KDC9PW5BN SN: 407T000004	
Antenna: NAD6568A	TX Freq: 168.0125 MHz
Battery: NNTN6263A	Start power: 5.67 W
Carry acc.: None	Audio/Data acc.: None

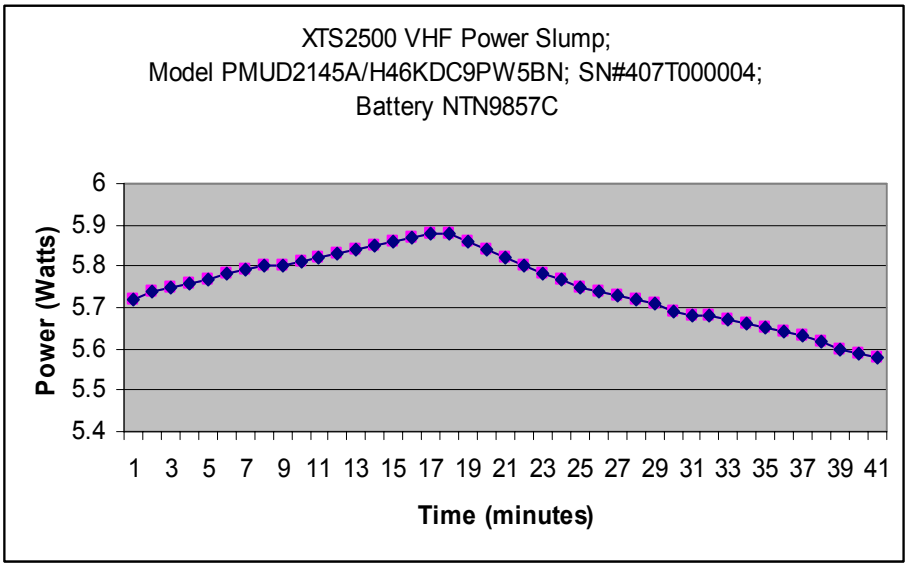
Comments: Full Scan; Front of unit @ 2.5cm
Probe: ET3DV6 - SN1384, Calibrated: 5/26/2005, ConvF(8.9, 8.9, 8.9)
Duty Cycle: 1:1, Medium: 155 IEEE Head, Medium parameters used: f = 155 MHz; σ = 0.74 mho/m; εr = 53.8; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/21/2005
Face Template/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 69.1 V/m; Power Drift = -0.729 dB
Peak SAR (extrapolated) = 5.01 W/kg
SAR(1 g) = 3.18 mW/g; SAR(10 g) = 2.36 mW/g
Maximum value of SAR (measured) = 3.28 mW/g
Face Template/Area Scan (51x221x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 69.1 V/m; Power Drift = -0.729 dB
Motorola Fast SAR: SAR(1 g) = 3.28 mW/g; SAR(10 g) = 2.49 mW/g
Maximum value of SAR (interpolated) = 3.43 mW/g
Face Template/Z Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 3.09 mW/g





APPENDIX F
DUT Supplementary Data (Power slump)

Time (mins)	Power (Watts)
0	5.72
1	5.74
2	5.75
3	5.76
4	5.77
5	5.78
6	5.79
7	5.8
8	5.8
9	5.81
10	5.82
11	5.83
12	5.84
13	5.85
14	5.86
15	5.87
16	5.88
17	5.88
18	5.86
19	5.84
20	5.82
21	5.80
22	5.78
23	5.77
24	5.75
25	5.74
26	5.73
27	5.72
28	5.71
29	5.69
30	5.68
31	5.68
32	5.67
33	5.66
34	5.65
35	5.64
36	5.63
37	5.62
38	5.60
39	5.59
40	5.58



Appendix G
DUT Test Position Photos

Figure 1: Highest S.A.R. Test Position (Body); Antenna model NAD6566A
DUT w/belt clip model HLN6853A against the phantom; worst case audio acc. model NTN1625A w/NTN8819B attached (same position used for other offered antennas and all other applicable audio accessories)

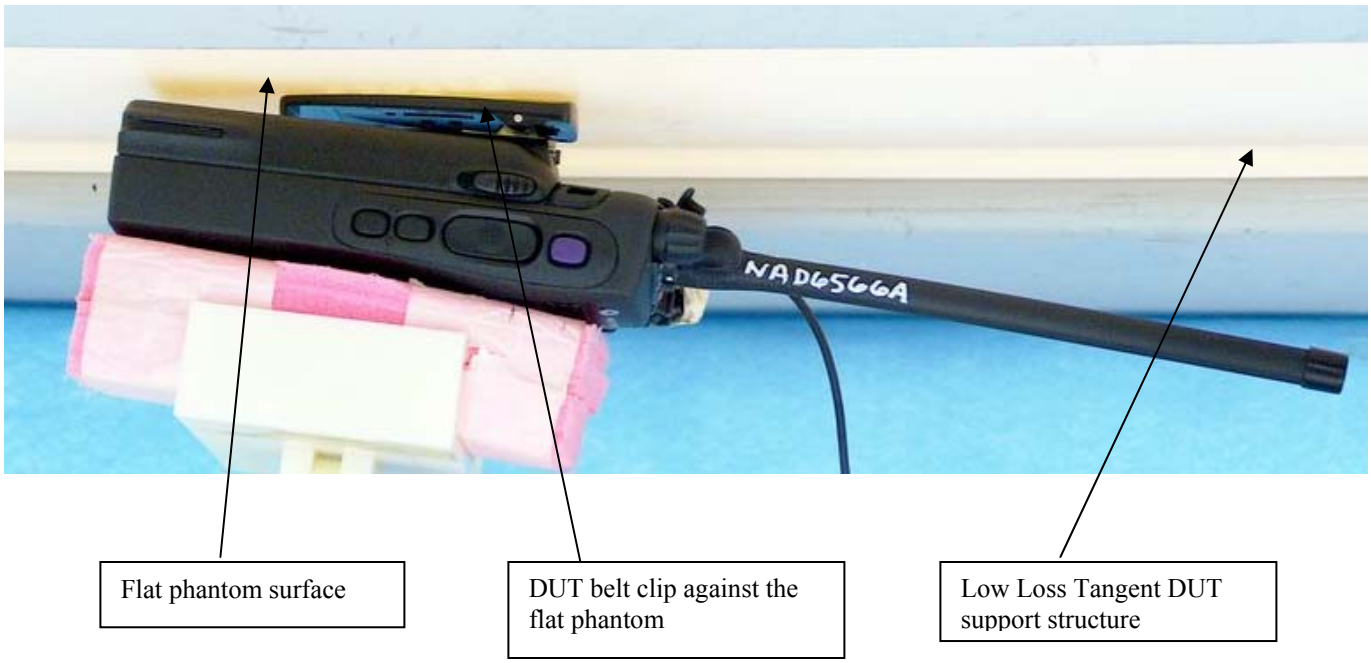


Figure 2: Highest S.A.R. Test Position (Face); Antenna model NAD6568A
DUT front side separated 2.5cm from the phantom; no audio accessory attached
(same position used for other offered antennas and all other applicable audio accessories)

Appendix H
DUT and Accessory Photos

The purpose of this appendix is to illustrate the body-worn carry accessory(ies) for FCC ID: AZ489FT3807. The sample that was used in the following photos represents the product used to obtain the results presented herein.

Photo 1.
Model HLN9844A
Side View

Photo 2.
Model HLN9844A
Back View

Photo 3.
Model NNTN4115A
Side View

Photo 4.
Model NNTN4115A
Back View

Photo 5.
Model NNTN4116A
Side View

Photo 6.
Model NNTN4116A
Back View

Photo 7.
Model NNTN4117A
Side View

Photo 8.
Model NNTN4117A
Back View

Photo 9.
Model HLN6853A
Side View

Photo 10.
Model HLN6853A
Back 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
NNTN4115A	yes	74-133	NA
NNTN4116A	yes	84-145	NA
NNTN4117A	yes	64-110	NA
HLN9844A	yes	35-60	NA
HLN6853A	yes	35-60	NA
TDN9675B	No	NA	Shoulder strap
NLN6349A	No	NA	Shoulder strap
NTN5243A	No	NA	Shoulder strap
Audio Acc. Models	**Tested ?**	**Separation distances between DUT antenna and phantom surface. (mm)**	**Comments**
BDN6665A	Yes	NA	Receive only
BDN6666A	Yes	NA	Receive only
BDN6781A	Yes	NA	Receive only
NMN6191C	Yes	NA	
NMN6193BSP03	Yes	NA	
BDN6641A	Yes	NA	Part of Kit # BDN6671B and tested w/0180300E83
BDN6671B	Yes	NA	Tested w/BDN6641A & 0180300E83
BDN6645A	Yes	NA	Tested w/BDN6673B
BDN6673B	Yes	NA	Tested w/BDN6645A
BDN6729A	Yes	NA	Tested w/BDN6676D
BDN6730A	Yes	NA	Tested w/BDN6676D
BDN6676D	Yes	NA	Used with various accessories and identified
NMN1020A	Yes	NA	
NMN6245A	Yes	NA	Tested w/BDN6676D
NMN6246B	Yes	NA	Tested w/BDN6676D
NMN6258A	Yes	NA	Tested w/BDN6676D
RMN4049A	Yes	NA	
ZMN6031A	Yes	NA	Tested w/NTN8613A
ZMN6032A	Yes	NA	Tested w/NTN8613A
NTN1625A	Yes	NA	
0180300E83	Yes	NA	Tested w/BDN6671B & BDN6641A
NTN8613A	Yes	NA	Tested w/ZMN6031A & ZMN6032A
RMN5038A	Yes	NA	Tested w/NNTN4285A

Audio Acc. Models (cont.)	Tested ?	Separation distances between DUT antenna and phantom surface. (mm)	Comments
NNTN4285A	Yes	NA	Tested w/RMN5038A
NTN8819B	Yes	NA	Tested w/NTN1625A
BDN6664A	No	NA	By similarity to BDN6665A
BDN6667A	No	NA	By similarity to BDN6729A
BDN6668A	No	NA	By similarity to BDN6730A
BDN6669A	No	NA	By similarity to BDN6729A
BDN6670A	No	NA	By similarity to BDN6730A
BDN6719A	No	NA	By similarity to BDN6665A
BDN6780A	No	NA	By similarity to BDN6729A
NMN6193C	No	NA	By similarity to NMN6191C
BDN6677A	No	NA	By similarity to BDN6641A
BDN6678A	No	NA	By similarity to BDN6641A
BDN6708B	No	NA	By similarity to BDN6671B
BDN6726A	No	NA	By similarity to BDN6665A
BDN6727A	No	NA	By similarity to BDN6665A
BDN6728A	No	NA	By similarity to BDN6666A
BDN6731A	No	NA	By similarity to BDN6729A
BDN6732A	No	NA	By similarity to BDN6730A
BDN6635C	No	NA	By similarity to BDN6745A
BDN6636C	No	NA	By similarity to BDN6745A
NMN6259A	No	NA	By similarity to NMN6258A
ZMN6038A	No	NA	By similarity to ZMN6032A
ZMN6039A	No	NA	By similarity to ZMN6031A
NTN1624A	No	NA	By similarity to NTN1625A
NTN1663A	No	NA	By similarity to NTN1625A
NTN1736A	No	NA	By similarity to NTN1625A

Audio Acc. Models (cont.)	Tested ?	Separation distances between DUT antenna and phantom surface. (mm)	Comments
NNTN4186A	No	NA	By similarity to NTN1625A
NTN7660C	No	NA	Mech. part