MOTOROLA

ACCREDITED
Certificate Number: 1449-01

FCC ID: AZ489FT5843
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: May 17, 2005
Report Revision: Rev. A
Report ID: FCC rpt_i930_Rev A_050517 SR2035

Responsible Engineer: Kim Uong (EME lead Eng.)
Date/s Tested: 4/9/05-5/4/05
Manufacturer/Location: Motorola - Plantation
Sector/Group/Div.: iDEN Subscriber
Date submitted for test: 3/28/05
DUT Description: i930; Tri-band GSM(Voice and GPRS Data) and dual band iDEN (Voice/WiDEN), GPS capable
Test TX mode(s): iDEN - 1:3, 1:6, 236:310, 81:120; GSM - 1:8, 1:4
Max. Power output: iDEN 800/900MHz - 0.640W pulsed avg., GSM 900 – 1.905W pulsed avg., GSM 1800/1900 – 0.962W
Nominal Power: iDEN 800/900MHz - 0.600W, GSM 900 1.5W; GSM1800/1900MHz – 0.750W
Tx Frequency Bands: iDEN - 806-825, 896-902MHz; GSM – 880.2-914.8MHz, 1710.2-1784.8MHz, 1850.2-1909.8MHz
Signaling type: TDMA: iDEN/WiDEN; GSM 1999 spec
Model(s) Tested: H72UAH9JR7AN
Model(s) Certified: H72UAH9JR7AN
Serial Number(s): 805AFC0016, 805AFC0013
Classification: General Population/Uncontrolled
Rule Part(s): 15
Approved Accessories:

Antenna(s):
8585524F01 (retractable ¼ wave antenna, 806-825MHz (-2.44dBd); 896-902MHz (-2.77dBd); 880-915Mhz (-0.6dBi); retractable ½ wave antenna, 1710-1785MHz (-0.12dBi); 1850-1910MHz (0.58dBi)

Battery(ies):
SNN5706B (Extra capacity Li Ion); SNN5685A (High performance battery); NTN2136A (Hi performance battery door); NTN2261A (Slim battery door)

Body worn accessory(ies):
NNTN4758A (Holster); NNTN4747A (Belt clip)

Audio/Data cable accessory(ies):
NNTN5006A (PTT headset earbud), NNTN5005A (PTT headset over head), NSN6066A (RSM), SYN8390B (Earbud w/ mic.), NTN8496A (Lightweight headset w/ mic), NNTN4033A (Privacy earbud w/ PTT), SYN7875C (Hearing aide neckloop), NNTN5004A (PTT headset over ear), NNTN5774A (Stereo headset), SYN8146C (Over the ear headset w/ boom mic) , NTN8513B (Lightweight headset), NNTN5211A (Surveillance earpiece); NKN6559A (USB data cable), NKN6560A (RS232 data cable), NNTN5405A (USB data cable w/ charging), NNTN5406A (RS232 data cable w/ charging), NNTN5491A (Keyboard), NNTN5863A (Keypad adapter), NNTN5494A (Gamer w/ keypad)

Max. Calc. 1-g/10-g Avg. SAR: 1.21/0.89 mW/g (Body)
Max. Calc. 1-g/10-g Avg. SAR: 0.07/0.05 mW/g (Face)
Max. Calc. 1-g/10-g Avg. SAR: 0.87/0.58 mW/g (Head)

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.

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

Approval Date:

Certification Date: 5/12/05

Certification No.: L1050507P

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

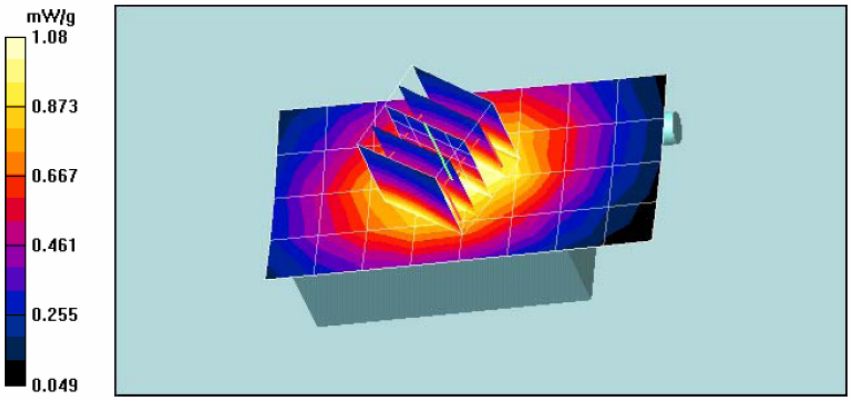
Shortened Scan Results

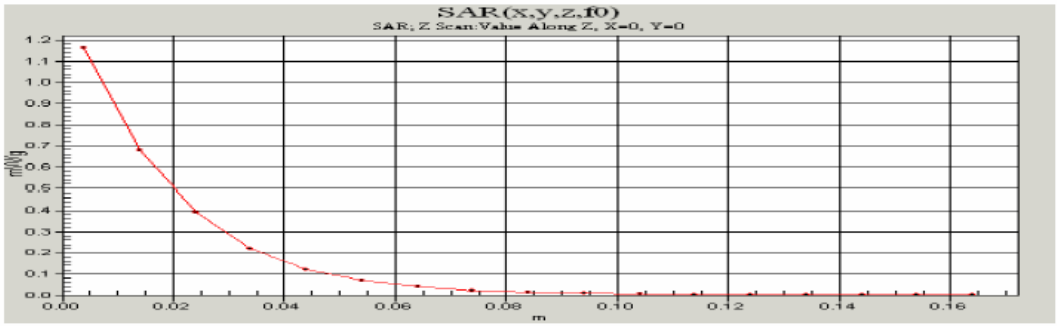
Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 5/03/05
Run #: 050503-08 Test operator: C. Miller
Sim. Tissue Temp: 21.4 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 1.88 W

Antenna: IN TX Freq: 897.4000 MHz
Battery: SNN5685A w/NTN2136MOTA
Carry acc.: NNTN4747A Audio/Data acc.: NONE

Comments: Short Scan at the body w/ body worn accessory against phantom
Shortened scan reflect highest S.A.R. producing configuration; Run time 6 minutes.
Representative "normal" scan run time was 22 minutes
"Shortened" scan max calculated S.A.R. using S.A.R. drift: 1-g Avg. = 1.21mW/g; 10-g Avg. = 0.89mW/g
"Normal" scan max calculated S.A.R. using S.A.R. drift: 1-g Avg. = 1.15mW/g; 10-g Avg. = 0.84mW/g
(see part 1 of 3 section 9.0 run # CM-Ab-R2-050425-05)

Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(6.03, 6.03, 6.03)
Duty Cycle: 1:4, Medium: 899 MHz FCC Body, Medium parameters used: σ = 1.05; mho/m, ε_r = 53.6; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Body template/5x5x7 Zoom Scan (5x5x5)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=7.5mm
Reference Value = 30.7 V/m; Power Drift = -0.246 dB
SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.829 mW/g



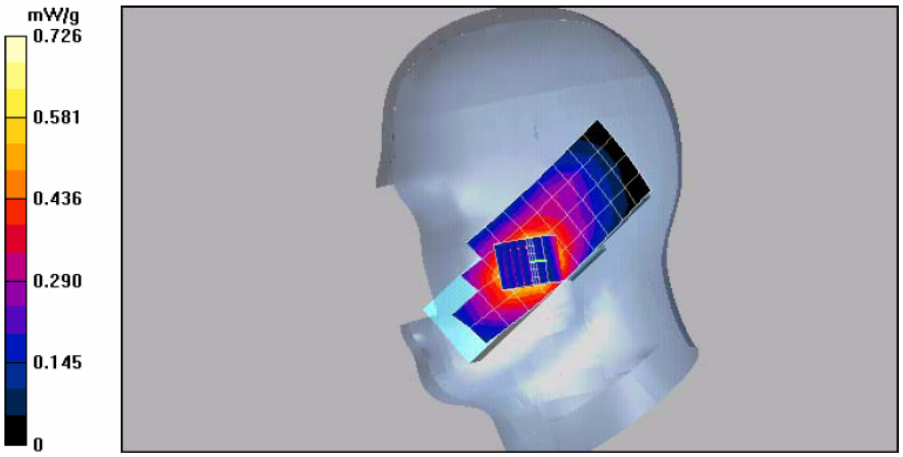


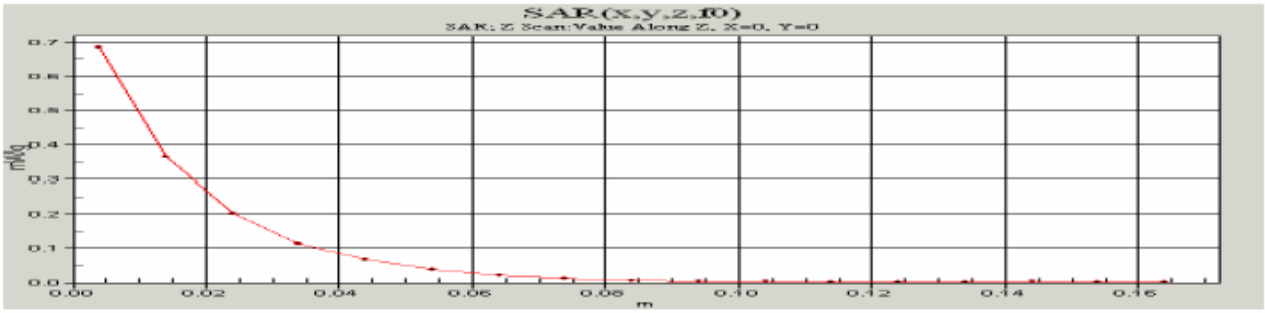
Highest SAR Configurations Results

Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 4/13/05
Run #: 050413-04 Test operator: C. Miller
Sim. Tissue Temp: 22.2 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.628 W

Antenna: IN TX Freq: 896.01875 MHz
Battery: SNN5706B w/NTN2261A
Carry acc.: NONE Audio/Data acc.: NONE

DUT in Right ear touch
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(6.35, 6.35, 6.35)
Duty Cycle: 1:3, Medium: 899 IEEE Head, Medium parameters used: σ = 1.01; mho/m, εr = 40.5; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Right Ear - Touch position/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.4 V/m; Power Drift = -0.00169 dB
SAR(1 g) = 0.665 mW/g; SAR(10 g) = 0.464 mW/g

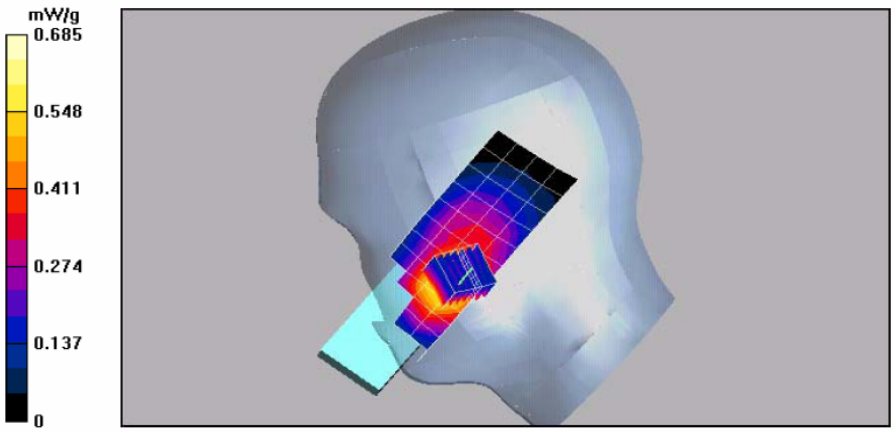


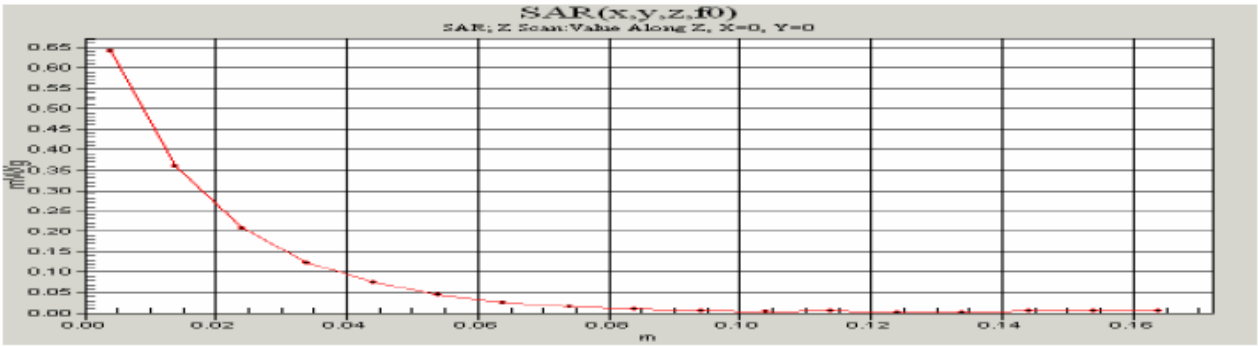


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 4/13/05
Run #: 050413-05 Test operator: C. Miller
Sim. Tissue Temp: 22.1 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.610 W

Antenna: OUT TX Freq: 813.5125 MHz
Battery: SNN5706B w/NTN2261A
Carry acc.: NONE Audio/Data acc.: NONE

DUT at right ear in Touch position
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(6.6, 6.6, 6.6)
Duty Cycle: 1:3, Medium: 813 IEEE Head, Medium parameters used: σ = 0.93; mho/m, εr = 41.7; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Right Ear - Touch position/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.2 V/m; Power Drift = 0.666 dB
SAR(1 g) = 0.645 mW/g; SAR(10 g) = 0.453 mW/g

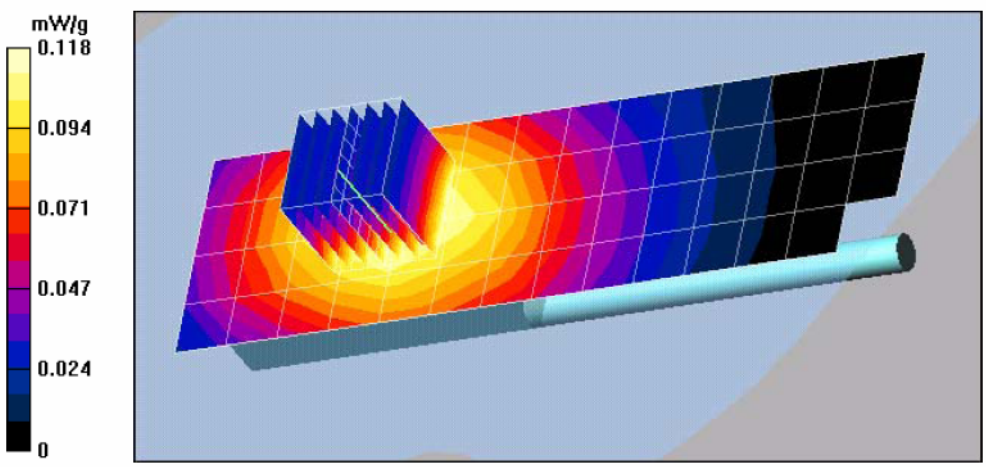


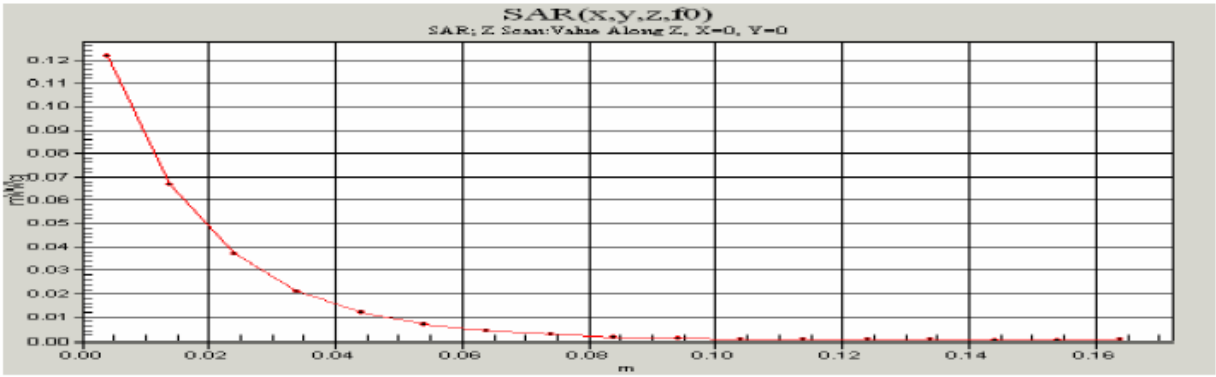


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 4/19/05
Run #: 050419-05 Test operator: C. Miller
Sim. Tissue Temp: 22.0 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.638 W

Antenna: OUT TX Freq: 813.5125 MHz
Battery: SNN5706B w/NTN2261A
Carry acc.: NONE Audio/Data acc.: NONE

DUT front at 2.5cm from the phantom w/ Flip closed
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(6.6, 6.6, 6.6)
Duty Cycle: 1:6, Medium: 813 IEEE Head, Medium parameters used: σ = 0.93; mho/m, εr = 42.9; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Face template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.8 V/m; Power Drift = 0.0466 dB
SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.085 mW/g

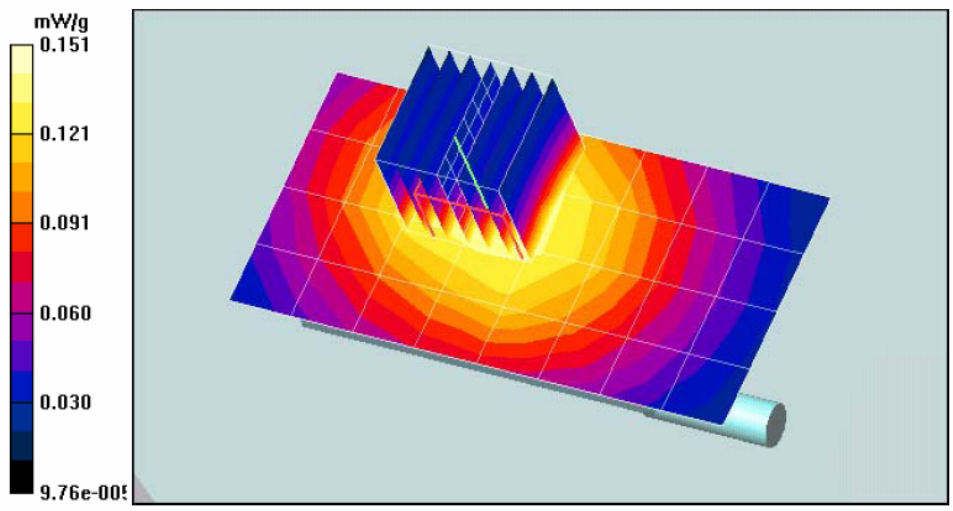


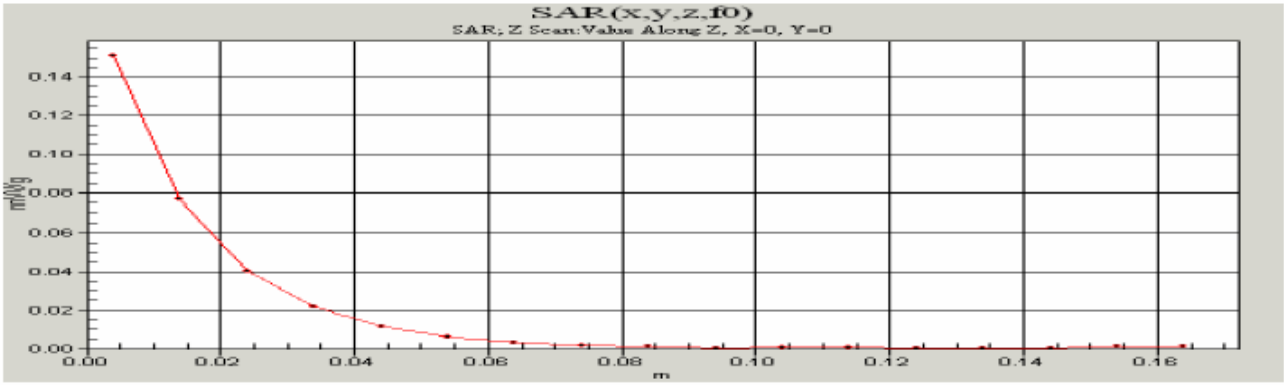


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 4/13/05
Run #: 050413-06 Test operator: C. Miller
Sim. Tissue Temp: 22.1 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.622 W

Antenna: IN TX Freq: 896.01875 MHz
Battery: SNN5706B w/NTN2261A
Carry acc.: NONE Audio/Data acc.: NONE

DUT with front 2.5cm separation from the phantom w/ Flip closed
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(6.35, 6.35, 6.35)
Duty Cycle: 1:6, Medium: 899 IEEE Head, Medium parameters used: σ = 1.01; mho/m, εr = 40.5; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Face template/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11 V/m; Power Drift = -0.0953 dB
SAR(1 g) = 0.139 mW/g; SAR(10 g) = 0.099 mW/g

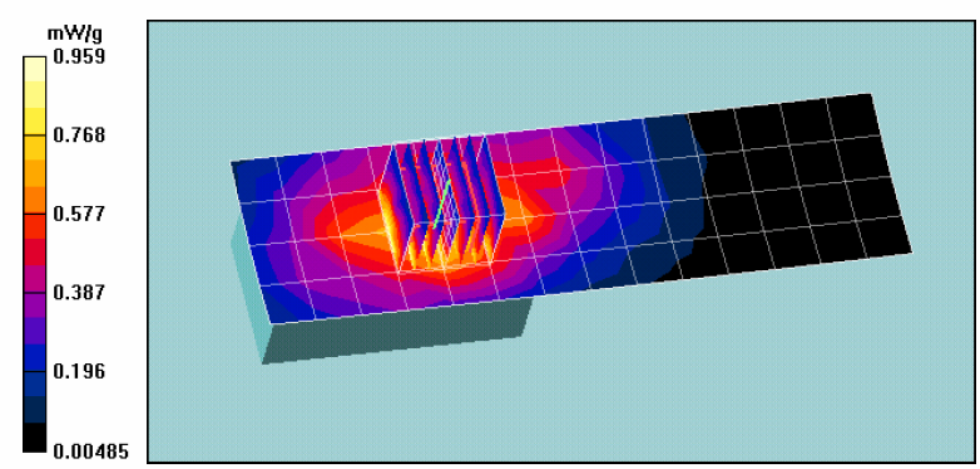


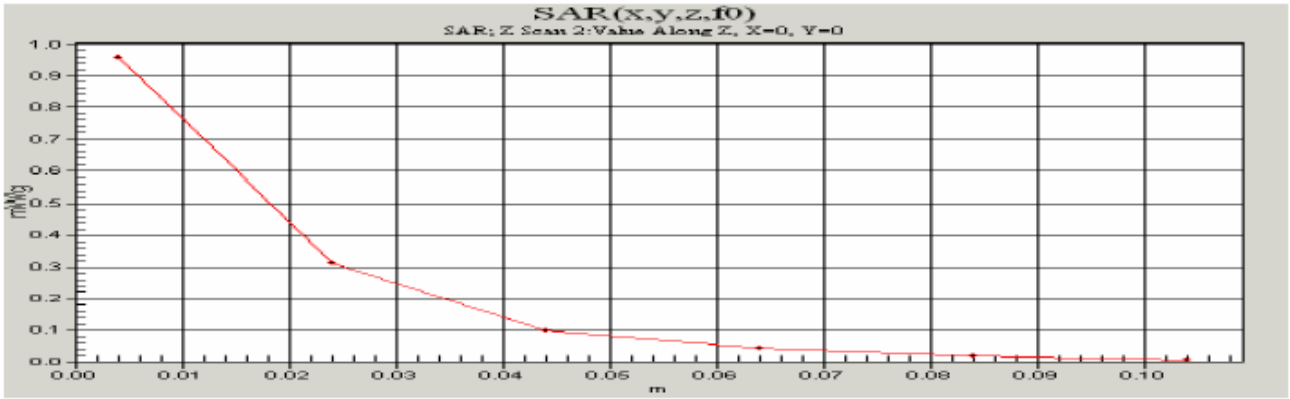


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 5/3/05
Run #: 050503-02 Test operator: C. Miller
Sim. Tissue Temp: 21.5 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.625 W

Antenna: OUT TX Freq: 806.0125 MHz
Battery: SNN5685A w/NTN2136MOTA
Carry acc.: NNTN4747A Audio/Data acc.: NONE

Comments: DUT with carry accessory against the phantom
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(6.3, 6.3, 6.3)
Duty Cycle: 1:1.33, Medium: 813 MHz FCC Body, Medium parameters used: σ = 0.96; mho/m, εr = 54.5; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Body template/7x7x7 Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.9 V/m; Power Drift = -0.162 dB
SAR(1 g) = 0.963 mW/g; SAR(10 g) = 0.700 mW/g

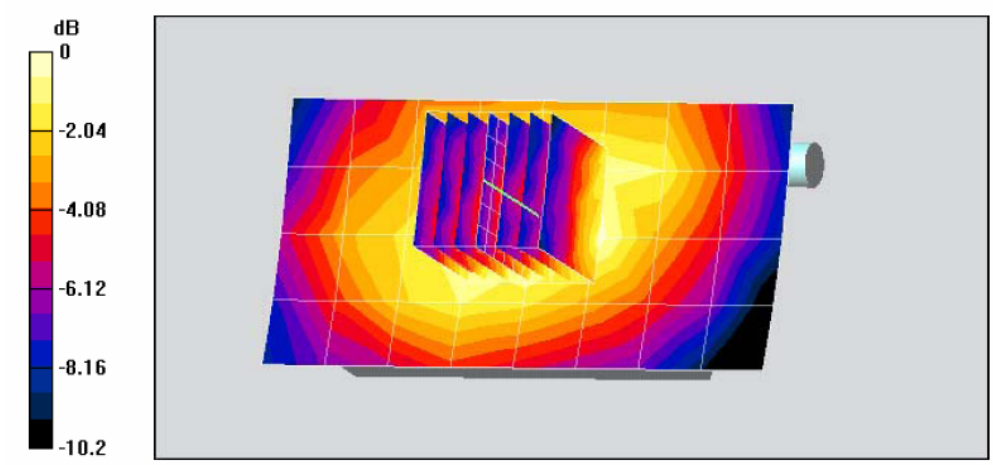


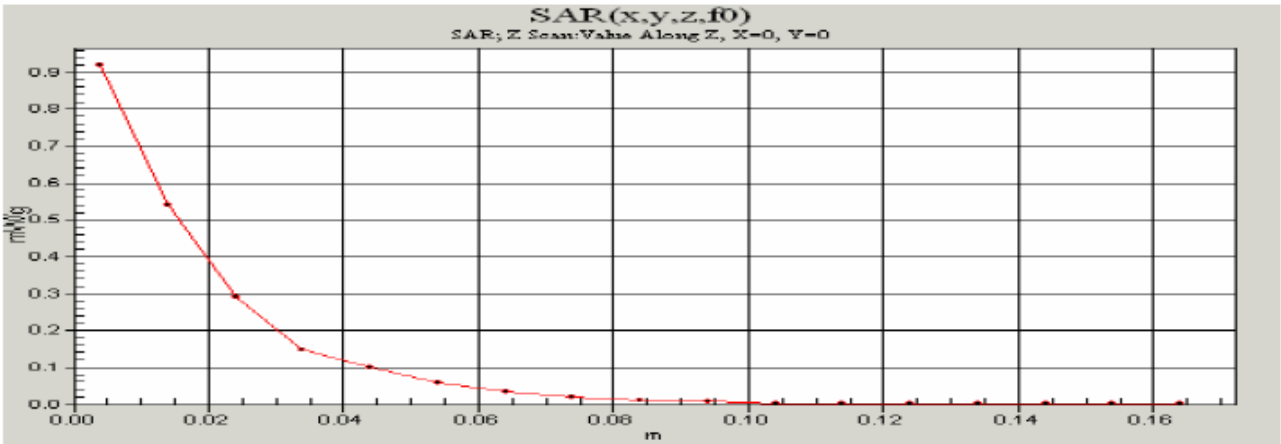


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 4/19/05
Run #: 050419-02 Test operator: C. Miller
Sim. Tissue Temp: 22.1 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.617 W

Antenna: IN TX Freq: 896.01875 MHz
Battery: SNN5685A w/NTN2136MOTA
Carry acc.: NNTN4747A Audio/Data acc.: NONE

Comments: DUT with carry accessory against the phantom
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(6.03, 6.03, 6.03)
Duty Cycle: 1:1.33, Medium: 899 MHz FCC Body, Medium parameters used: σ = 1.04; mho/m, εr = 52.8; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Body template/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.1 V/m; Power Drift = -0.82 dB
SAR(1 g) = 0.901 mW/g; SAR(10 g) = 0.643 mW/g

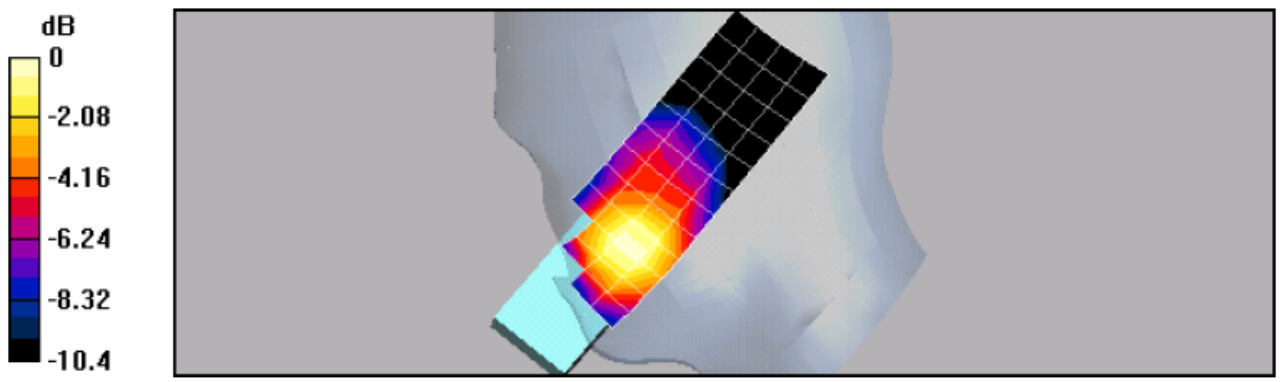


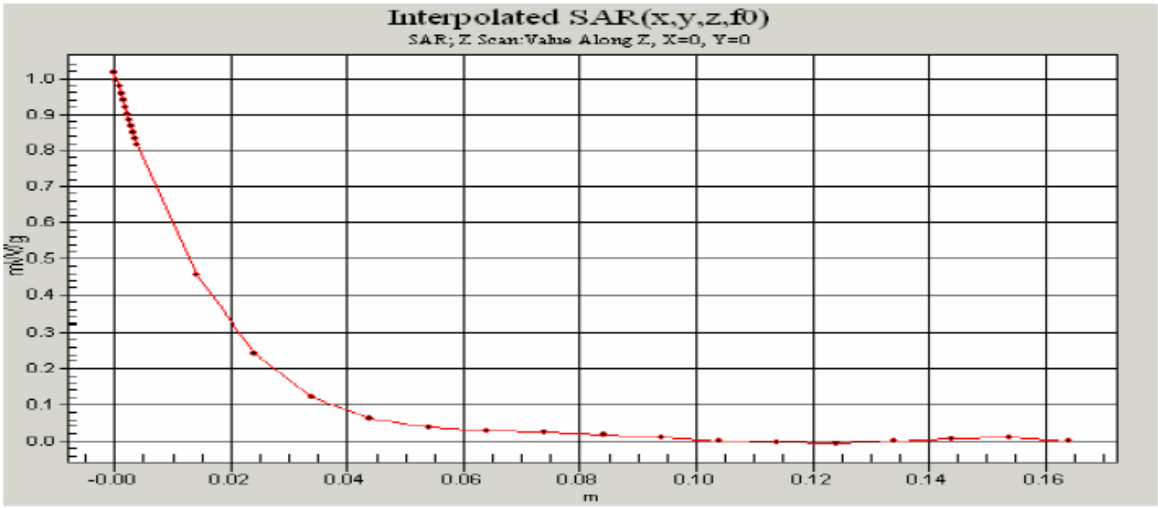


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 5/4/05
Run #: 050504-02 Test operator: K. Uong
Sim. Tissue Temp: 21.0 (C)
Model #: H72UAH9JR7AN SN: 805AFC0013
Start power: 1.99 W

Antenna: IN TX Freq: 897.4 MHz
Battery: SNN5685A w/ NTN2136MOTA
Carry acc.: NONE Audio/Data acc.: NONE

DUT at the right ear in touch position
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(6.35, 6.35, 6.35)
Duty Cycle: 1:8, Medium: 899 IEEE Head, Medium parameters used: σ = 1.01; mho/m, εr = 41.9; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Right Ear - Touch position/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.6 V/m; Power Drift = -0.233 dB
SAR(1 g) = 0.820 mW/g; SAR(10 g) = 0.554 mW/g

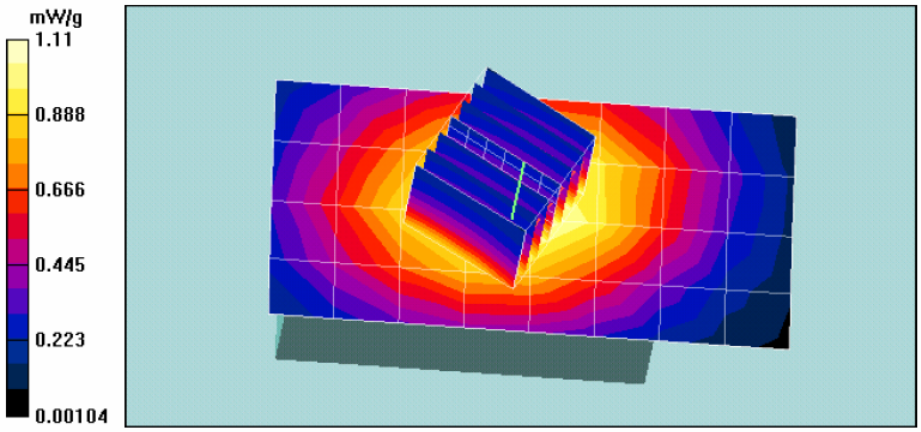


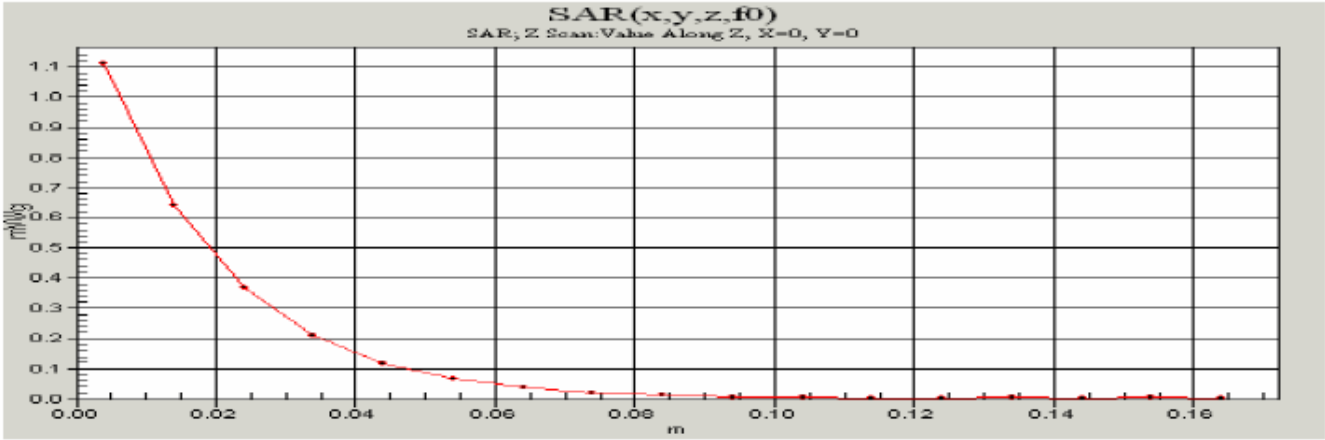


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 4/25/05
Run #: 050425-05 Test operator: C. Miller
Sim. Tissue Temp: 21.9 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 1.91 W

Antenna: IN TX Freq: 897.4000 MHz
Battery: SNN5685A w/NTN2136MOTA
Carry acc.: NNTN4747A Audio/Data acc.: NONE

DUT with carry accessory against the phantom
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(6.03, 6.03, 6.03)
Duty Cycle: 1:4, Medium: 899 MHz FCC Body, Medium parameters used: σ = 1.04; mho/m, εr = 52.5; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Body template/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31 V/m; Power Drift = -0.325 dB
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.779 mW/g

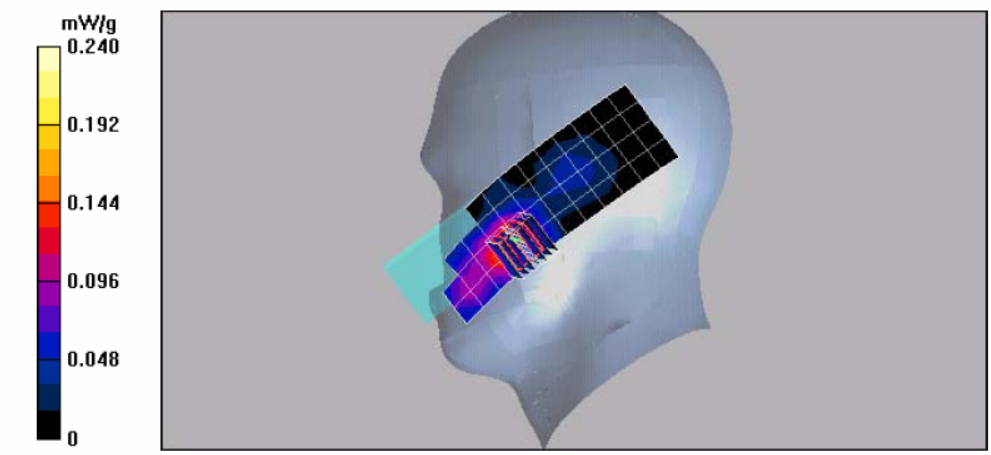


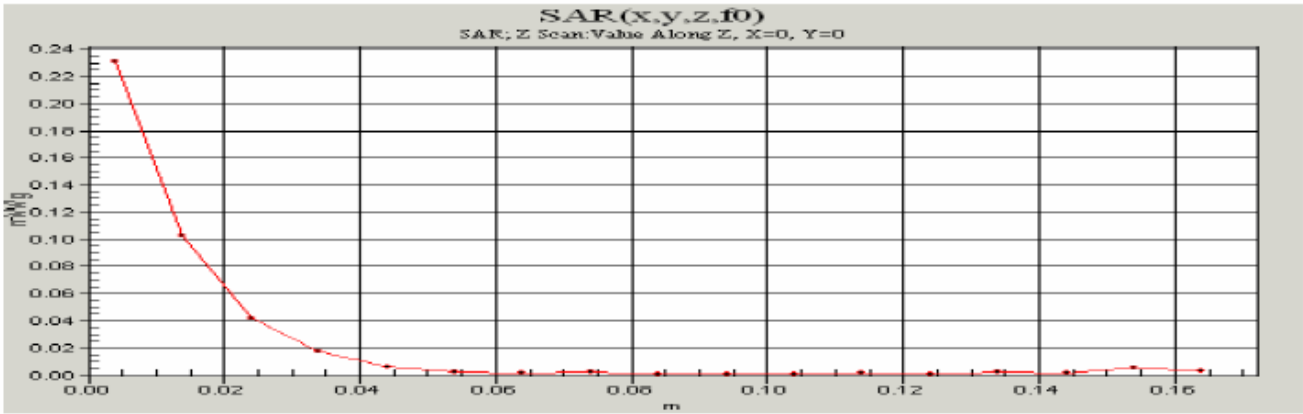


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 4/27/05
Run #: 050427-10 Test operator: C. Miller
Sim. Tissue Temp: 21.6 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.950 W

Antenna: IN TX Freq: 1850.2 MHz
Battery: SNN5685A w/ NTN2136MOTA
Carry acc.: NONE Audio/Data acc.: NONE

DUT at the right ear in touch position
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(5.26, 5.26, 5.26)
Duty Cycle: 1:8, Medium: 1880 IEEE Head, Medium parameters used: σ = 1.42; mho/m, εr = 38.5; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Right Ear - Touch position/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = -0.0451 dB
Peak SAR (extrapolated) = 0.335 W/kg
SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.124 mW/g

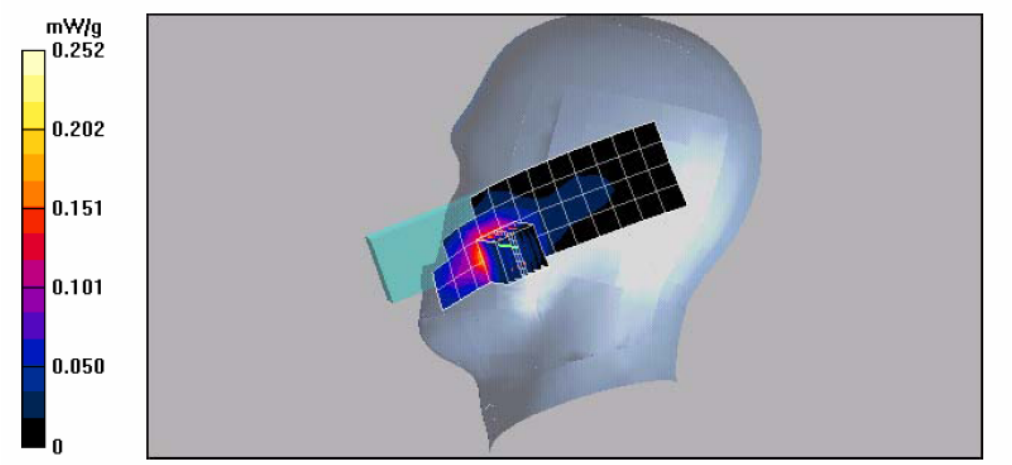


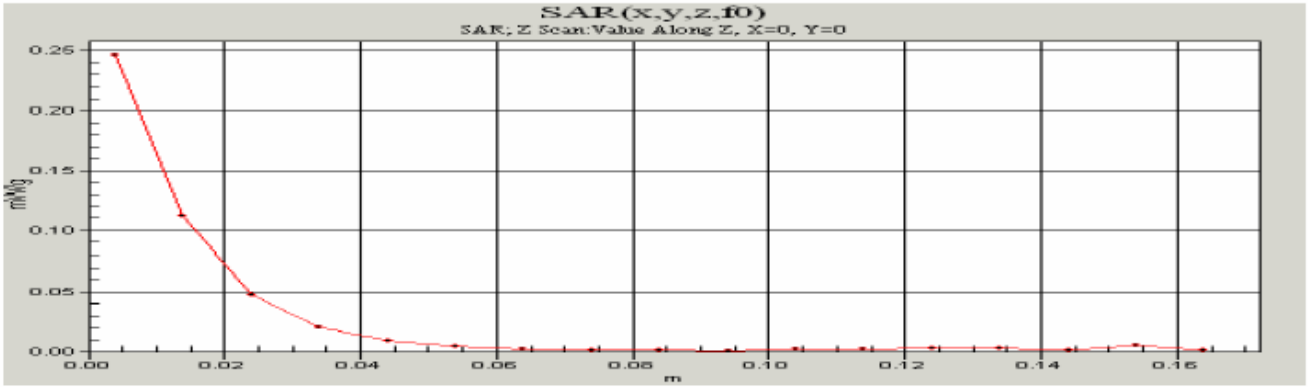


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 4/27/05
Run #: 050427-09 Test operator: C. Miller
Sim. Tissue Temp: 21.6 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.953 W

Antenna: IN TX Freq: 1784.8 MHz
Battery: SNN5685A w/ NTN2136MOTA
Carry acc.: NONE Audio/Data acc.: NONE

DUT at the right ear in touch position
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(5.26, 5.26, 5.26)
Duty Cycle: 1:8, Medium: 1747 IEEE Head, Medium parameters used: σ = 1.31; mho/m, εr = 38.9; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Right Ear - Touch position/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.8 V/m; Power Drift = -0.0956 dB
SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.144 mW/g

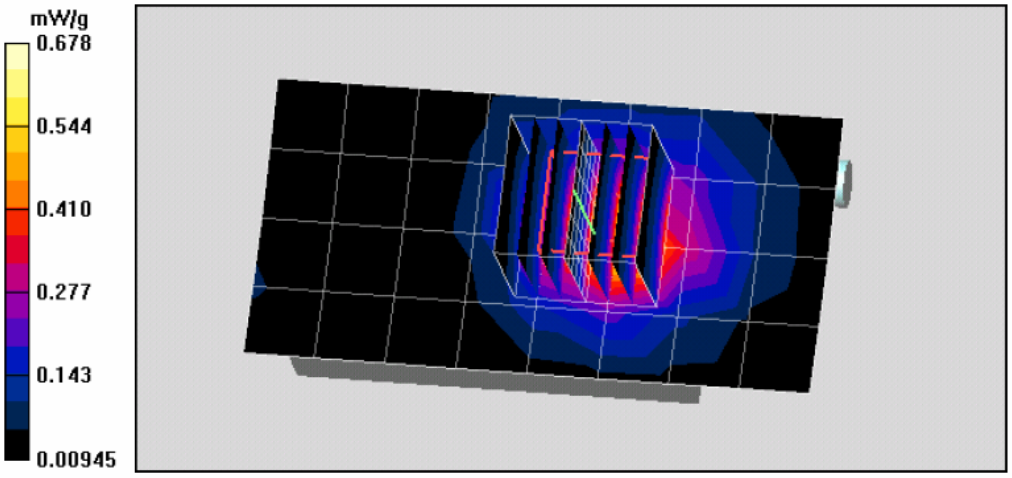


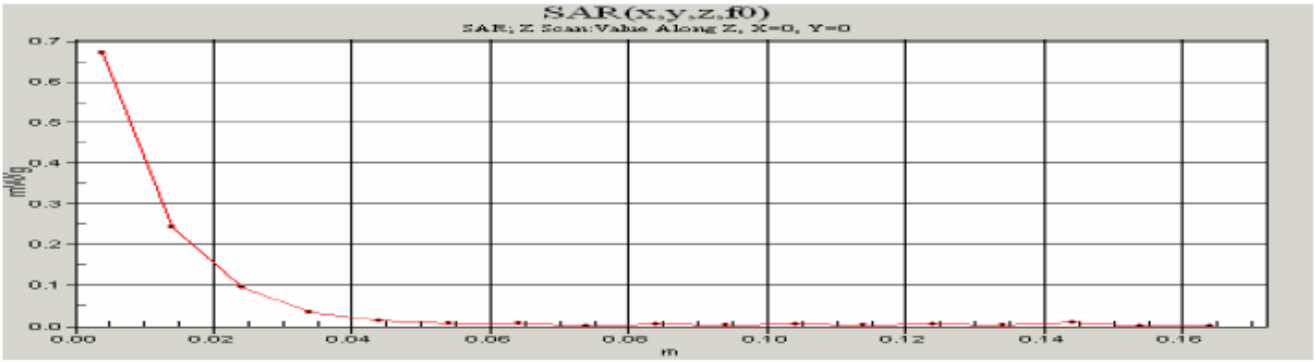


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 5/02/05
Run #: 050502-02 Test operator: C. Miller
Sim. Tissue Temp: 21.8 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.996 W

Antenna: IN TX Freq: 1880.0 MHz
Battery: SNN5685A w/NTN2136MOTA
Carry acc.: NNTN4747A Audio/Data acc.: NNTN5491A

DUT with carry accessory against the phantom
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(4.71, 4.71, 4.71)
Duty Cycle: 1:4, Medium: 1880 FCC Body, Medium parameters used: σ = 1.59; mho/m, εr = 52.7; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Body template/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.24 V/m; Power Drift = -0.654 dB
SAR(1 g) = 0.613 mW/g; SAR(10 g) = 0.331 mW/g

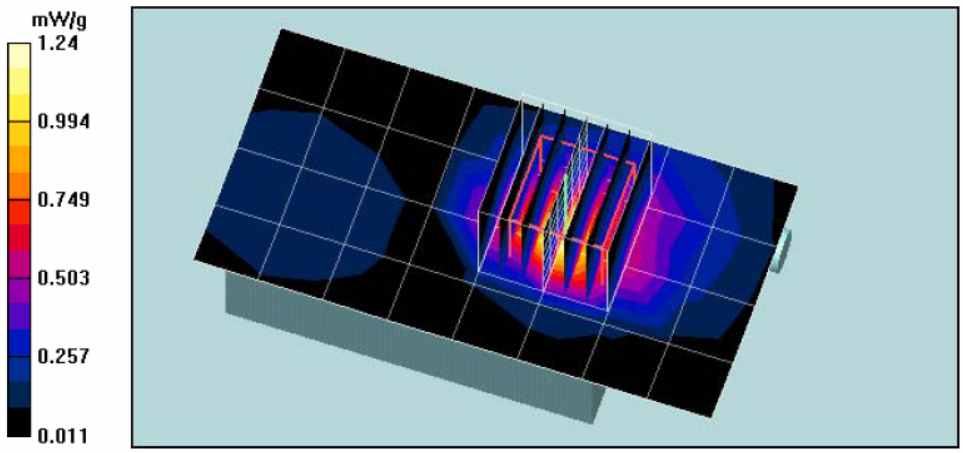


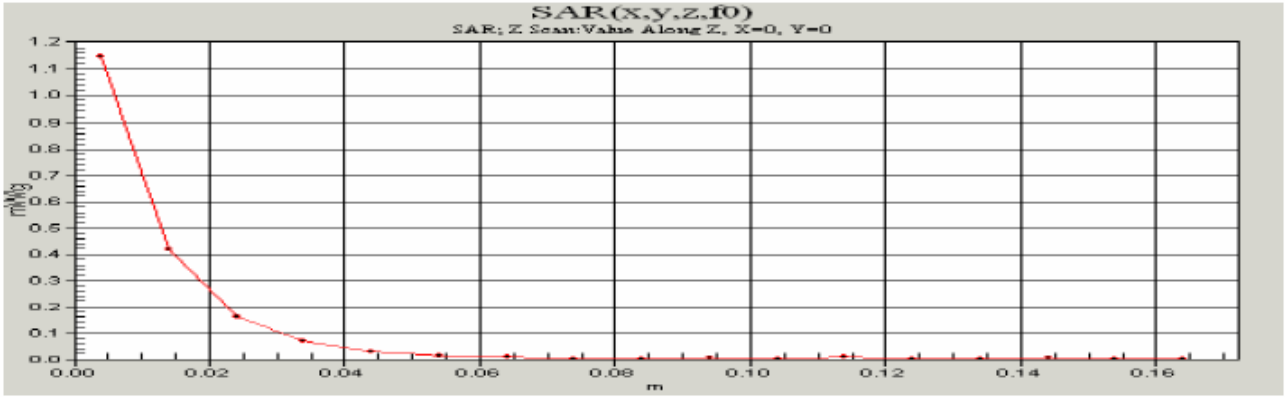


Motorola GEMS EME Laboratory
FCC ID: AZ489FT5843; Test Date: 5/02/05
Run #: 050502-09 Test operator: C. Miller
Sim. Tissue Temp: 21.4 (C)
Model #: H72UAH9JR7AN SN: 805AFC0016
Start power: 0.985 W

Antenna: IN TX Freq: 1747.6 MHz
Battery: SNN5685A w/NTN2136MOTA
Carry acc.: NNTN4747A Audio/Data acc.: NONE

DUT with carry accessory against the phantom
Probe: ET3DV6 - SN1383, Calibrated: 2/24/2005, ConvF(4.71, 4.71, 4.71)
Duty Cycle: 1:4, Medium: 1747 FCC Body, Medium parameters used: σ = 1.45; mho/m, εr = 53; ρ = 1000 kg/m3
Electronics: DAE3 Sn406, Calibrated: 11/17/2004
Body template/7x7x7 Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = -0.303 dB
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.534 mW/g

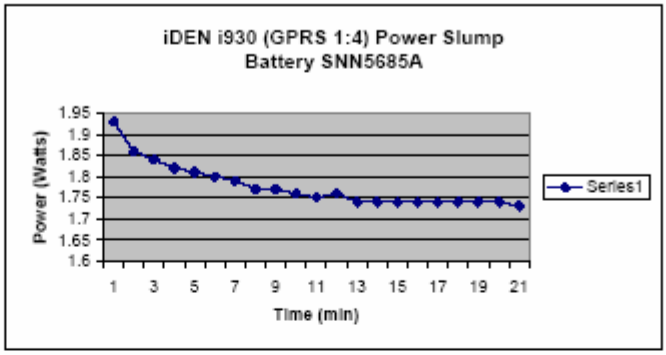




APPENDIX F
DUT Supplementary Data (Power slump)

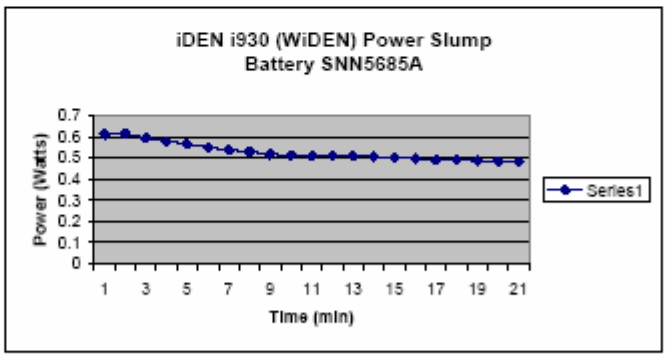
BATTERY: SNN5685A, FREQ: 897.4 MODE: GPRS 4:1

TIME (Min)	POWER (Watts)
Start	1.93
2	1.86
4	1.84
6	1.82
8	1.81
10	1.80
12	1.79
14	1.77
16	1.77
18	1.76
20	1.75
22	1.76
24	1.74
26	1.74
28	1.74
30	1.74
32	1.74
34	1.74
36	1.74
38	1.74
40	1.73



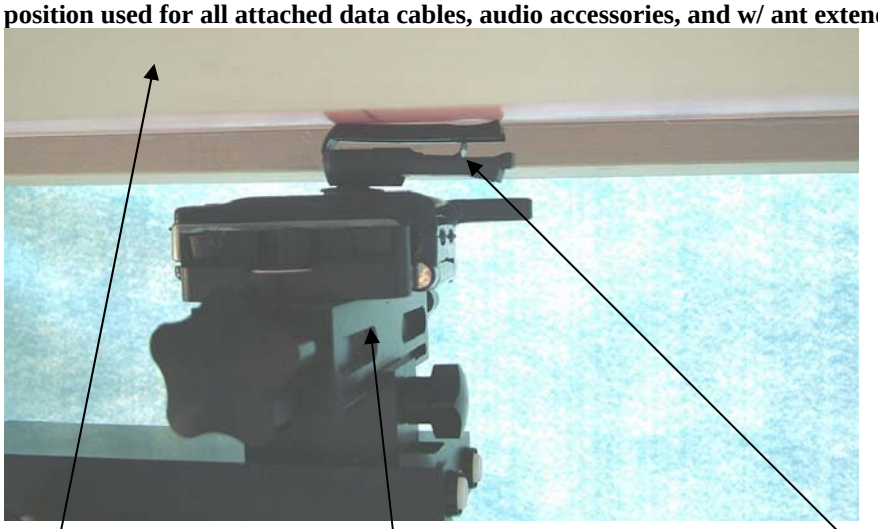
BATTERY: SNN5685A, FREQ: 896.01875 MODE: WIDEN 75% duty cycle

TIME (Min)	POWER (Watts)
Start	0.612
2	0.615
4	0.595
6	0.579
8	0.566
10	0.550
12	0.537
14	0.530
16	0.517
18	0.514
20	0.510
22	0.510
24	0.508
26	0.506
28	0.505
30	0.497
32	0.490
34	0.490
36	0.487
38	0.485
40	0.482



Appendix G
DUT Test Position Photos

Figure 1: Highest S.A.R. Test Position (Body)
DUT w/ belt clip model NNTN4747A against the phantom
(same position used for all attached data cables, audio accessories, and w/ ant extended)



Flat phantom surface

Low Loss Tangent DUT support structure

DUT belt clip against the flat phantom

Figure 2: Highest S.A.R. Test Position (face)
DUT flip closed w/ front side separated 2.5cm from the phantom
(same position used for antenna extended)

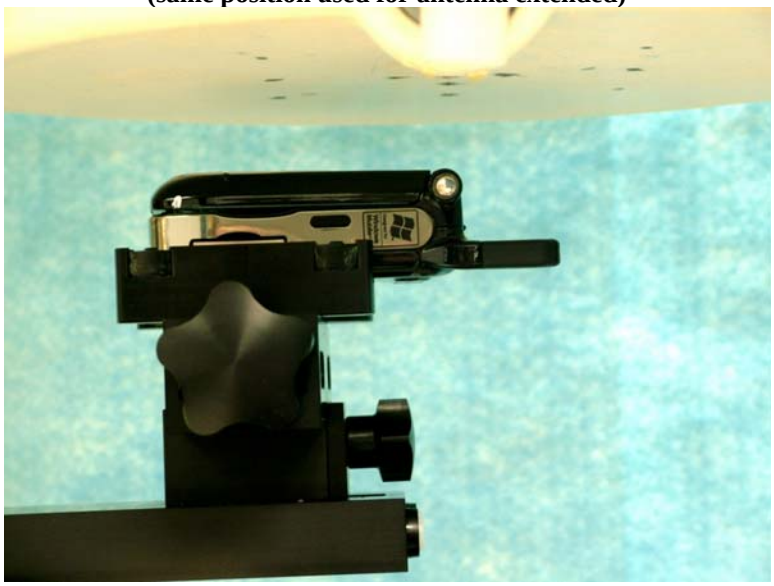


Figure 3: Highest S.A.R. Test Position (Head)
DUT at the right ear in cheek touch position.
(same position used for antenna extended)

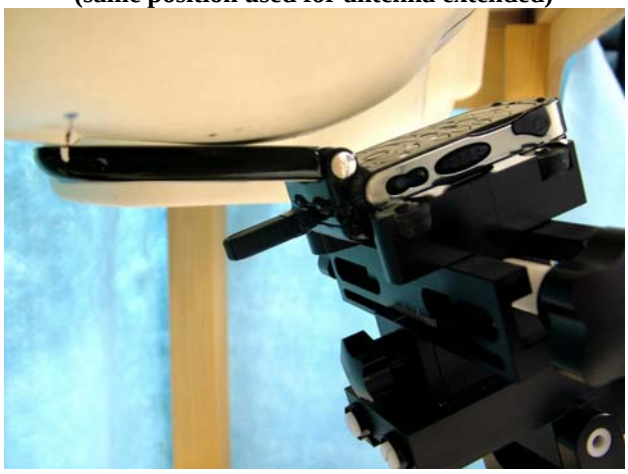


Figure 4: Body Assessment
DUT w/ holster model NNTN4758A against the phantom.
(same position used for antenna extended)

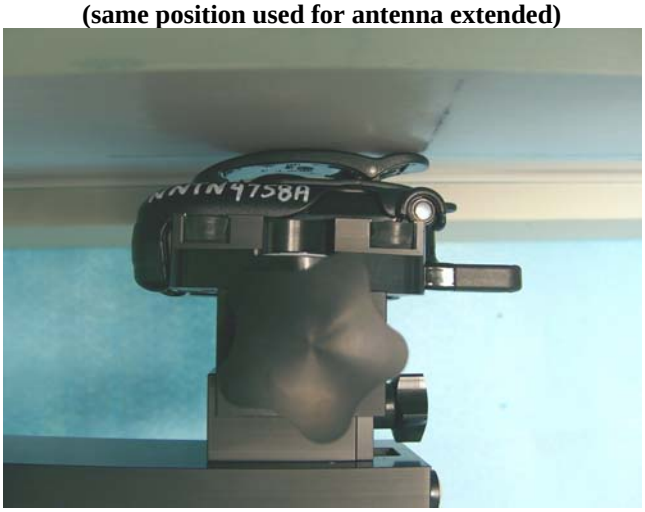


Figure 5: Body Assessment
DUT w/ back side separated 2.5cm from the phantom.

Figure 6: Body Assessment
DUT w/ front side separated 2.5cm from the phantom.

Figure 7: Body Assessment
DUT w/ carry accessory model NNTN4747A against the phantom
and attached keyboard model NNTN5491A.
(same position used for antenna extended)

Figure 8: Face Assessment
DUT Flip opened w/ front side separated 2.5cm from the phantom.

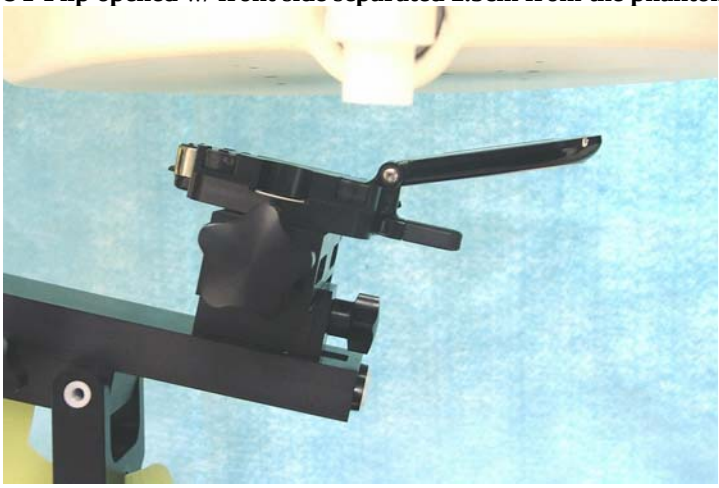


Figure 9: Assessment at the Head
DUT at the right ear in tilt position.
(same position used for antenna extended)

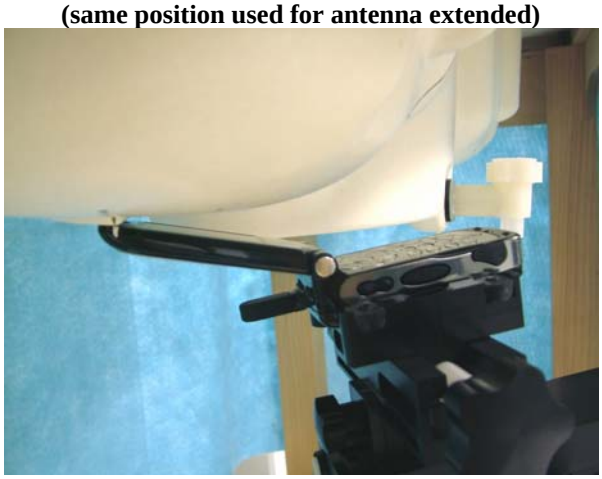


Figure 10: Assessment at the Head
DUT at the left ear in cheek touch position.
(same position used for antenna extended)

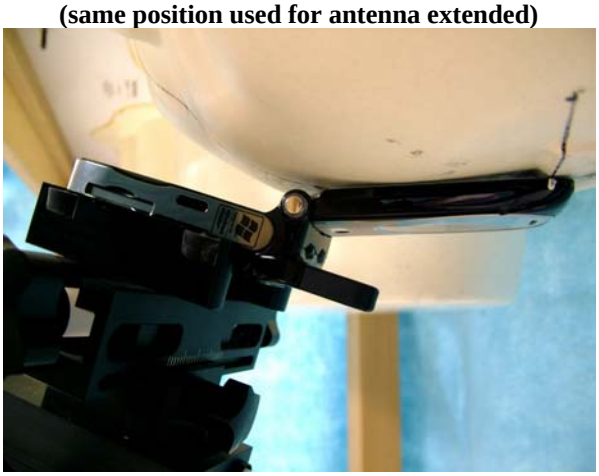
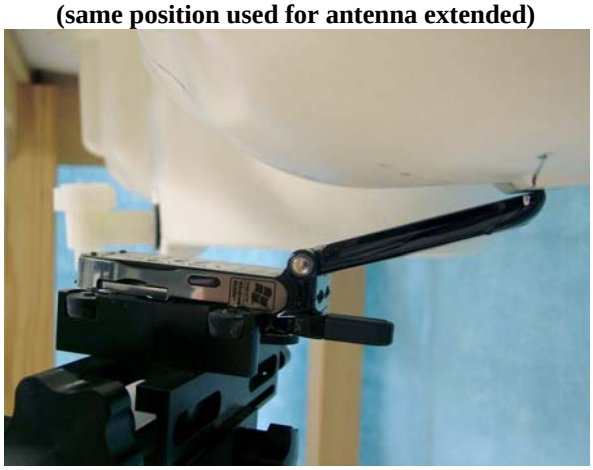


Figure 11: Assessment at the Head
DUT at the left ear in tilt position.
(same position used for antenna extended)



Appendix H
DUT and Accessory Photos

The purpose of this appendix is to illustrate the body-worn carry accessory(ies) for FCC ID: AZ489FT5843. 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 NNTN4747A
DUT Back View

Photo 2.
Model NNTN4747A
DUT Front View

Photo 3.
Model NNTN4747A
DUT Side View

Photo 4.
Model NNTN4758A
DUT Back View

Photo 5.
Model NNTN4758A
DUT Front View

Photo 6.
Model NNTN4758A
DUT Side 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
NNTN4747A	Yes	28-33	NA
NNTN4758A	Yes	39-43	NA

Audio Acc. Models	Tested ?	Separation distances between DUT antenna and phantom surface. (mm)	Comments
SYN8146C	Yes	NA	NA
SYN7875C	Yes	NA	NA
NTN8496A	Yes	NA	NA
NTN8513B	Yes	NA	NA
SYN8390B	Yes	NA	NA
NNTN4033A	Yes	NA	NA
NSN6066A	Yes	NA	NA
NNTN5004A	Yes	NA	NA
NNTN5005A	Yes	NA	NA
NNTN5006A	Yes	NA	NA
NNTN5211A	Yes	NA	NA
NNTN5774A	Yes	NA	NA

Data cable Models	Tested ?	Separation distances between DUT antenna and phantom surface. (mm)	Comments
NKN6560A	Yes	NA	NA
NKN6559A	Yes	NA	NA
NNTN5405A	Yes	NA	NA
NNTN5406A	Yes	NA	NA
NNTN5491A	Yes	NA	NA
NNTN5863A	Yes	NA	Tested w/ NNTN5491A
NNTN5494A	No	NA	Similar to NNTN5863A