

**MOTOROLA SOLUTIONS**

TESTING CERT # 2518.01

DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 2 of 2

Motorola Solutions Inc.
EME Test Laboratory
 8000 West Sunrise Blvd
 Fort Lauderdale, FL. 33322

Date of Report: 12/11/2014
Report Revision: A

Responsible Engineer: Deanna Zakharia (EME Lab Senior Resource Manager)
Report Author: Jessica Zada (EME Engineer)
Date/s Tested: 11/7/2014, 11/14/2014
Manufacturer/Location: Plantation
Sector/Group/Div.: AECS
Date submitted for test: 10/22/2014
DUT Description: APX6000, 380-470MHz, 0.25-5W, 6.25kHz/12.5kHz/25kHz, Top Display Model with GPS. Capable of digital and analog FM transmission. Also capable of TDMA transmission. This radio is Bluetooth capable
Test TX mode(s): CW (PTT)
Max. Power output: 5.6W
Nominal Power: 5.0W
Tx Frequency Bands: 380-470MHz; Bluetooth 2.402-2.480GHz
Signaling type: FM, TDMA
Model(s) Tested: H98QDD9PW5AN (NUE1006)
Model(s) Certified: H98QDD9PW5AN (NUE1006)
Serial Number(s): CAH14DKK9N & CAH14DKK9P
Classification: Occupational/Controlled
FCC ID: AZ489FT4892; 380-470MHz
IC: 109U-89FT4892

The test results clearly demonstrate compliance with FCC Occupational/Controlled RF Exposure limits of 8 W/kg averaged over 1 gram per the requirements of OET Bulletin 65. The 10 grams result is not applicable to FCC filing. The test results clearly demonstrate compliance with ICNIRP (1998) Guidelines for limiting exposure in time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz), 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 4.0 of this report. This report shall not be reproduced without written approval from an officially designated representative of the Motorola Solutions Inc 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.

Deanna Zakharia
EMS EME Lab Senior Resource Manager,
Laboratory Director
Approval Date: 12/12/2014

Deanna Zakharia
Digitally signed by Deanna Zakharia
 DN: cn=Deanna Zakharia,
 o=Motorola Solutions,
 ou=Regulatory Compliance Lab,
 email=s4031@motorolasolutions.c
 om, c=US
 Date: 2014.12.12 08:40:05 -0500

Certification Date: 12/9/2014**Certification No.:** L1141110

Appendix D

System Verification Check Scans

Motorola Solutions, Inc. EME Laboratory

Date/Time: 11/7/2014 6:10:30 AM

Robot#: DASY5-FL-1 | Run#: ErC-SYSP-450B-141107-01
Dipole Model#: D450V3
Phantom#: OVAL1019
Tissue Temp: 19.9 (C)
Serial#: 1075
Test Freq: 450 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.046 dB
Adjusted SAR (1W): 4.68 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: $f = 450$ MHz; $\sigma = 0.93$ S/m; $\epsilon_r = 54.8$; $\rho = 1000$ kg/m³
Probe: ES3DV3 - SN3147, , Frequency: 450 MHz, ConvF(6.86, 6.86, 6.86); Calibrated: 4/11/2014
Electronics: DAE3 Sn401, Calibrated: 3/11/2014

Below 2 GHz-Rev.1/System Performance Check/Dipole Area Scan 2 (5x9x1): Measurement

grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.35 W/kg

Below 2 GHz-Rev.1/System Performance Check/0-Degree Cube (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 38.87 V/m; Power Drift = -0.00 dB

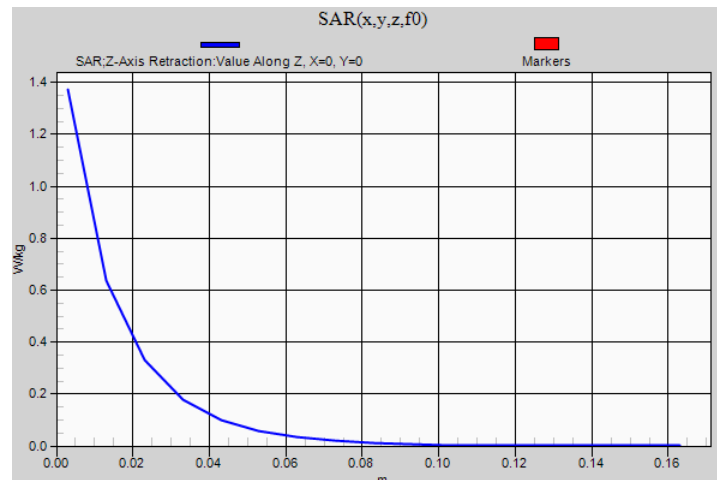
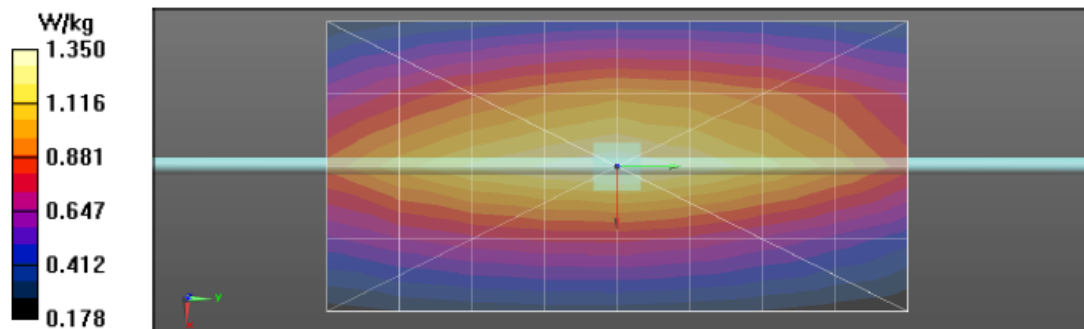
Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.785 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 1.37 W/kg

Below 2 GHz-Rev.1/System Performance Check/Z-Axis Retraction (1x1x17): Measurement

grid: dx=20mm, dy=20mm, dz=10mm



Motorola Solutions, Inc. EME Laboratory

Date/Time: 11/7/2014 6:58:01 AM

Robot#: DASY5-FL-1 | Run#: ErC-SYSP-450H-141107-02
Dipole Model#: D450V3
Phantom#: OVAL1020
Tissue Temp: 19.9 (C)
Serial#: 1075
Test Freq: 450 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.052 dB
Adjusted SAR (1W): 4.68 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: $f = 450$ MHz; $\sigma = 0.87$ S/m; $\epsilon_r = 43.6$; $\rho = 1000$ kg/m³
Probe: ES3DV3 - SN3147, Frequency: 450 MHz, ConvF(6.64, 6.64, 6.64); Calibrated: 4/11/2014
Electronics: DAE3 Sn401, Calibrated: 3/11/2014

Below 2 GHz-Rev.1/System Performance Check/Dipole Area Scan 2 (5x9x1): Measurement

grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.35 W/kg

Below 2 GHz-Rev.1/System Performance Check/0-Degree Cube (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 40.60 V/m; Power Drift = -0.03 dB

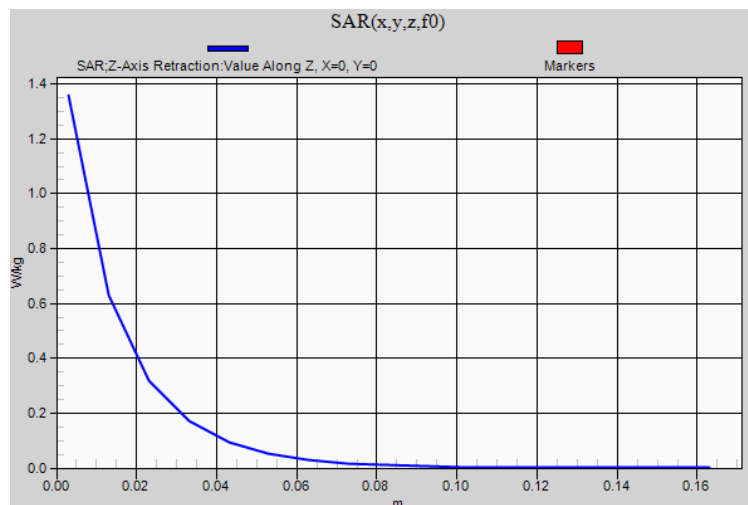
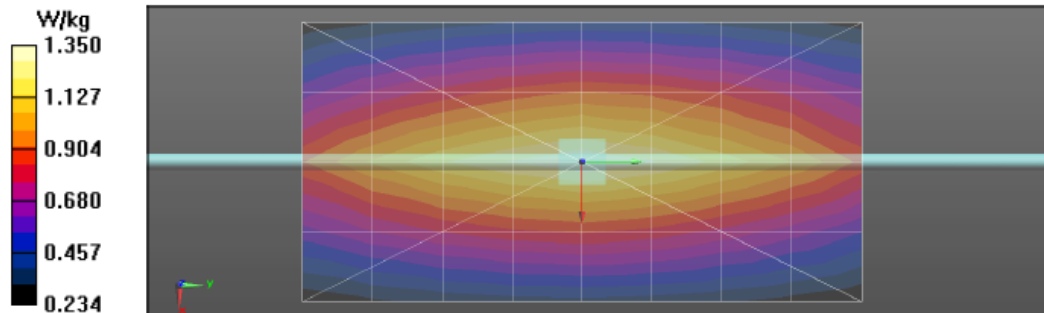
Peak SAR (extrapolated) = 1.74 W/kg

SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.780 W/kg (SAR corrected for target medium)

Below 2 GHz-Rev.1/System Performance Check/Z-Axis Retraction (1x1x17): Measurement

grid: dx=20mm, dy=20mm, dz=10mm

Maximum value of SAR (measured) = 1.36 W/kg



Appendix E

DUT Scans

Assessments at the Body - Table 16**Motorola Solutions, Inc. EME Laboratory**

Date/Time: 11/7/2014 11:45:24 AM

Robot#: DASY5-FL-1 | Run#: ErC-Ab-141107-08
Model#: H98QDD9PW5AN (NUE1006)
Phantom#: OVAL1019
Tissue Temp: 20.1 (C)
Serial#: CAH14DKK9P
Antenna: FAF5259A
Test Freq: 406.125 (MHz)
Battery: PMNN4403B
Carry Acc: NTN9179A D-clip and Belt Loop
Audio Acc: None
Start Power: 5.48 (W)

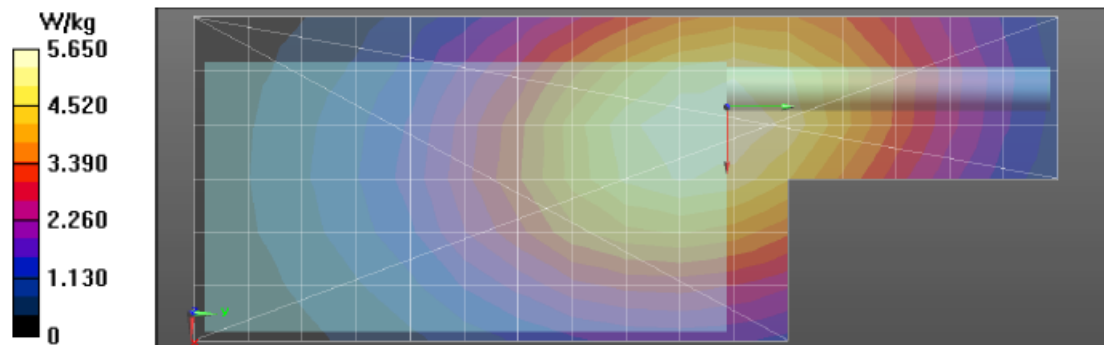
Comments:

Duty Cycle: 1:1, Medium parameters used: $f = 406$ MHz; $\sigma = 0.89$ S/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³
Probe: ES3DV3 - SN3147, , Frequency: 406.012 MHz, ConvF(6.86, 6.86, 6.86); Calibrated: 4/11/2014
Electronics: DAE3 Sn401, Calibrated: 3/11/2014

Below 2 GHz-Rev.1/Ab Scan/1-Area Scan (7x17x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 5.65 W/kg

Below 2 GHz-Rev.1/Ab Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 76.99 V/m; Power Drift = -0.42 dB
Peak SAR (extrapolated) = 6.70 W/kg
SAR(1 g) = 5.12 W/kg; SAR(10 g) = 3.85 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 5.52 W/kg

Below 2 GHz-Rev.1/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 5.45 W/kg



Assessments at the Body - Table 17**Motorola Solutions, Inc. EME Laboratory**

Date/Time: 11/7/2014 10:17:50 AM

Robot#: DASY5-FL-1 | Run#: ErC-Ab-141107-05
Model#: H98QDD9PW5AN (NUE1006)
Phantom#: OVAL1019
Tissue Temp: 19.9 (C)
Serial#: CAH14DKK9P
Antenna: FAF5259A
Test Freq: 438.125 (MHz)
Battery: PMNN4403B
Carry Acc: 4205823V01 PSM Belt clip
Audio Acc: PMMN4059B
Start Power: 5.48 (W)

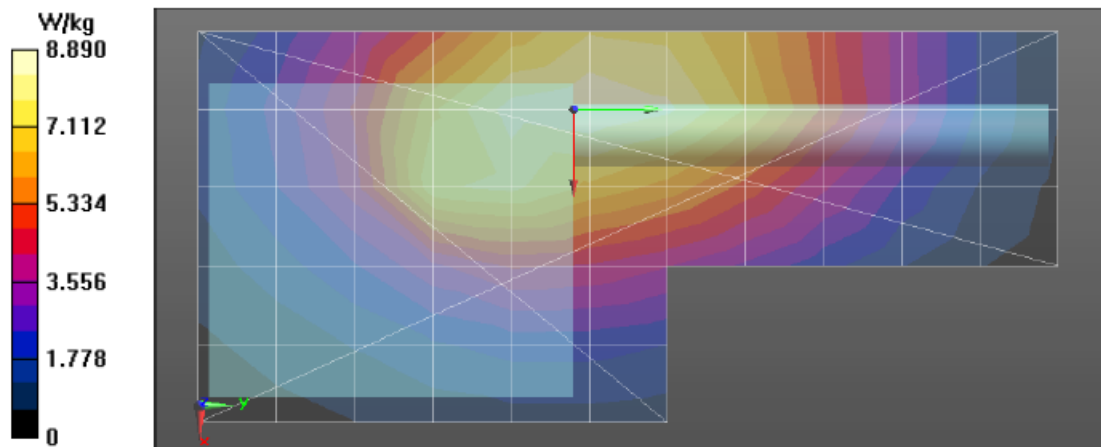
Comments: Power from PSM 4.48 W

Duty Cycle: 1:1, Medium parameters used: $f = 438$ MHz; $\sigma = 0.92$ S/m; $\epsilon_r = 55$; $\rho = 1000$ kg/m³
Probe: ES3DV3 - SN3147, , Frequency: 438.152 MHz, ConvF(6.86, 6.86, 6.86); Calibrated: 4/11/2014
Electronics: DAE3 Sn401, Calibrated: 3/11/2014

Below 2 GHz-Rev.1/Ab Scan/1-Area Scan (6x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 8.89 W/kg

Below 2 GHz-Rev.1/Ab Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 91.74 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 11.2 W/kg
SAR(1 g) = 7.91 W/kg; SAR(10 g) = 5.68 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 8.86 W/kg

Below 2 GHz-Rev.1/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 8.80 W/kg



Assessment at the Body – Table 18**Motorola Solutions, Inc. EME Laboratory**

Date/Time: 11/7/2014 11:20:55 AM

Robot#: DASY5-FL-1 | Run#: ErC-Ab-141107-07
Model#: H98QDD9PW5AN (NUE1006)
Phantom#: OVAL1019
Tissue Temp: 19.9 (C)
Serial#: CAH14DKK9P
Antenna: PMAE4065A
Test Freq: 453.9875 (MHz)
Battery: NNTN7034B
Carry Acc: 4205823V01 PSM Belt clip
Audio Acc: PMMN4059B
Start Power: 5.51 (W)

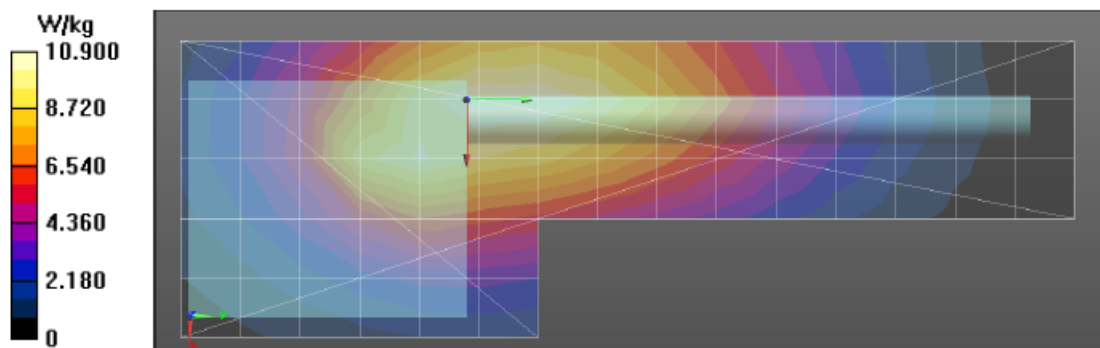
Comments: Power from PSM 4.61 W

Duty Cycle: 1:1, Medium parameters used: $f = 454$ MHz; $\sigma = 0.93$ S/m; $\epsilon_r = 54.8$; $\rho = 1000$ kg/m³
Probe: ES3DV3 - SN3147, , Frequency: 453.988 MHz, ConvF(6.86, 6.86, 6.86); Calibrated: 4/11/2014
Electronics: DAE3 Sn401, Calibrated: 3/11/2014

Below 2 GHz-Rev.1/Ab Scan/1-Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 10.9 W/kg

Below 2 GHz-Rev.1/Ab Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 107.8 V/m; Power Drift = -0.23 dB
Peak SAR (extrapolated) = 13.8 W/kg
SAR(1 g) = 9.57 W/kg; SAR(10 g) = 6.86 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 10.8 W/kg

Below 2 GHz-Rev.1/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 10.7 W/kg



Assessments at the Body - Table 19**Motorola Solutions, Inc. EME Laboratory**

Date/Time: 11/7/2014 1:30:55 PM

Robot#: DASY5-FL-1 | Run#: ErC-Face-141107-10
Model#: H98QDD9PW5AN (NUE1006)
Phantom#: OVAL1020
Tissue Temp: 20.1 (C)
Serial#: CAH14DKK9P
Antenna: FAF5259A
Test Freq: 406.125 (MHz)
Battery: PMNN4403B
Carry Acc: None; Front DUT facing phantom
Audio Acc: None
Start Power: 5.48 (W)

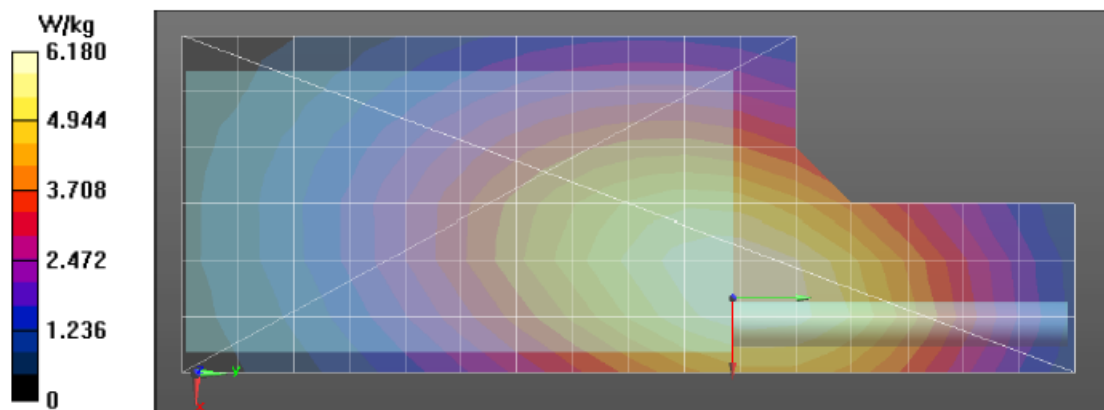
Comments:

Duty Cycle: 1:1, Medium parameters used: $f = 406$ MHz; $\sigma = 0.83$ S/m; $\epsilon_r = 44.6$; $\rho = 1000$ kg/m³
Probe: ES3DV3 - SN3147, , Frequency: 406.125 MHz, ConvF(6.64, 6.64, 6.64); Calibrated: 4/11/2014
Electronics: DAE3 Sn401, Calibrated: 3/11/2014

Below 2 GHz-Rev.2/Face Scan/1-Area Scan (7x17x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 6.18 W/kg

Below 2 GHz-Rev.2/Face Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 87.45 V/m; Power Drift = -0.46 dB
Peak SAR (extrapolated) = 6.97 W/kg
SAR(1 g) = 5.54 W/kg; SAR(10 g) = 4.15 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 5.91 W/kg

Below 2 GHz-Rev.2/Face Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 5.79 W/kg



Assessments at the Body - Table 20**Motorola Solutions, Inc. EME Laboratory**

Date/Time: 11/7/2014 1:04:18 PM

Robot#: DASY5-FL-1 | Run#: ErC-Face-141107-09
Model#: H98QDD9PW5AN (NUE1006)
Phantom#: OVAL1020
Tissue Temp: 20.1 (C)
Serial#: CAH14DKK9P
Antenna: FAF5259A
Test Freq: 453.9875 (MHz)
Battery: NNTN7034B
Carry Acc: None
Audio Acc: PMMN4059B
Start Power: 5.48 (W)

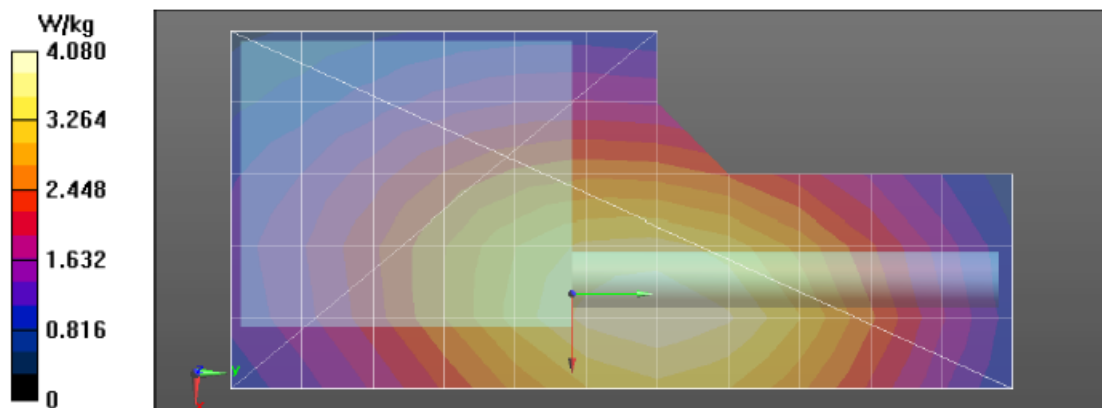
Comments: Power from PSM 4.29W

Duty Cycle: 1:1, Medium parameters used: $f = 454$ MHz; $\sigma = 0.87$ S/m; $\epsilon_r = 43.6$; $\rho = 1000$ kg/m³
Probe: ES3DV3 - SN3147, , Frequency: 453.988 MHz, ConvF(6.64, 6.64, 6.64); Calibrated: 4/11/2014
Electronics: DAE3 Sn401, Calibrated: 3/11/2014

Below 2 GHz-Rev.2/Face Scan/1-Area Scan (6x12x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 4.08 W/kg

Below 2 GHz-Rev.2/Face Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 64.59 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 4.79 W/kg
SAR(1 g) = 3.58 W/kg; SAR(10 g) = 2.63 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.00 W/kg

Below 2 GHz-Rev.2/Face Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 3.98 W/kg



APPENDIX F

Shortened Scan of Highest SAR configuration

Shortened Scan Table 21

Motorola Solutions, Inc. EME Laboratory

Date/Time: 11/14/2014 1:16:08 PM

Robot#: DASY5-FL-1 | Run#: ErC-Ab-141114-10
 Model#: H98QDD9PW5AN (NUE1006)
 Phantom#: OVAL1019
 Tissue Temp: 19.9 (C)
 Serial#: CAH14DKK9P
 Antenna: PMAE4065A
 Test Freq: 453.9875 (MHz)
 Battery: NNTN7034B
 Carry Acc: 4205823V01 PSM Belt clip
 Audio Acc: PMMN4059B
 Start Power: 5.56 (W)

Comments: Short Scan - Power from PSM 4.60 W

Duty Cycle: 1:1, Medium parameters used: $f = 454$ MHz; $\sigma = 0.95$ S/m; $\epsilon_r = 54.9$; $\rho = 1000$ kg/m³

Probe: ES3DV3 - SN3147, , Frequency: 453.988 MHz, ConvF(6.86, 6.86, 6.86); Calibrated: 4/11/2014

Electronics: DAE3 Sn401, Calibrated: 3/11/2014

Below 2 GHz-Rev.1/Ab Scan/1-Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 12.8 W/kg

Below 2 GHz-Rev.1/Ab Scan/3-Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

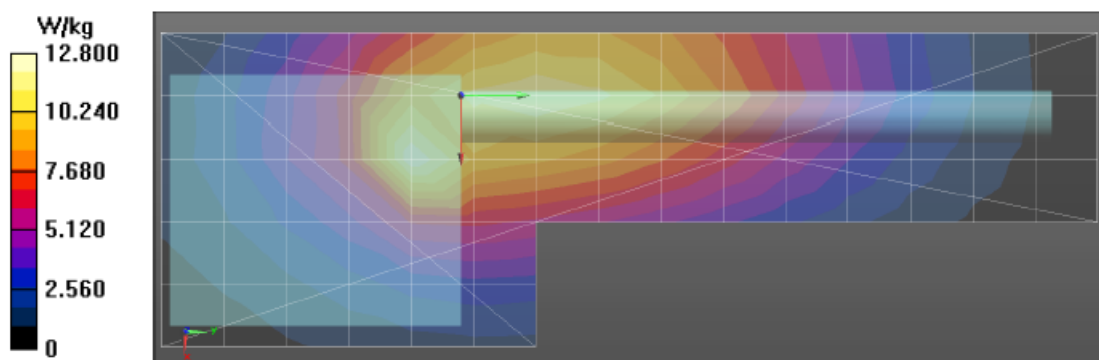
Reference Value = 105.5 V/m; Power Drift = -0.28 dB

Peak SAR (extrapolated) = 18.5 W/kg

SAR(1 g) = 10.5 W/kg; SAR(10 g) = 7.34 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 12.3 W/kg

Below 2 GHz-Rev.1/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm



Shortened scan reflects highest SAR producing configuration and is compared to the full scan.

Scan Description	Referenced Table	Test Time (min.)	SAR 1g (W/kg)	SAR 10g (W/kg)
Shorten scan (zoom)	21	8	5.64	3.94
Full scan (area & zoom)	18	28	5.13	3.68

APPENDIX G

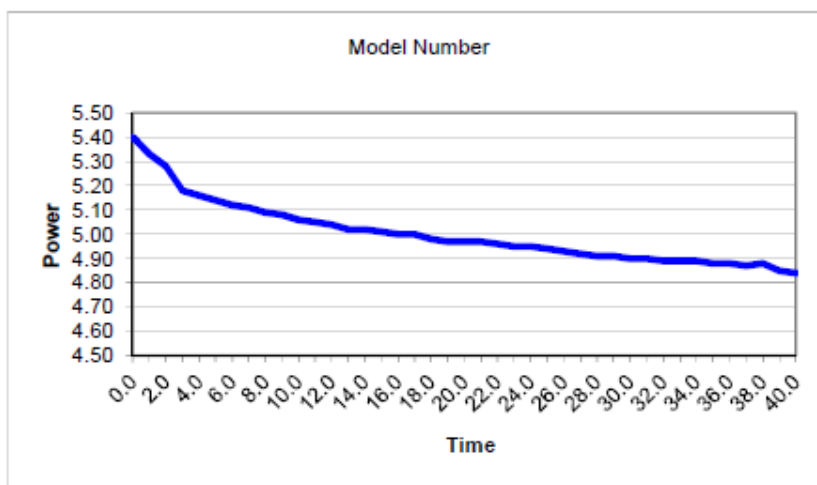
DUT Power slump

Model # H98QDD9PW5AN(NUE1006)
Serial # CAH14DKK9P

Battery	# NNTN7034B	Transmit Mode	CW
Frequency	453.9875 MHz	Audio Accessory	None
Date	11/19/2014		

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

0.0	5.40
1.0	5.33
2.0	5.28
3.0	5.18
4.0	5.16
5.0	5.14
6.0	5.12
7.0	5.11
8.0	5.09
9.0	5.08
10.0	5.06
11.0	5.05
12.0	5.04
13.0	5.02
14.0	5.02
15.0	5.01
16.0	5.00
17.0	5.00
18.0	4.98
19.0	4.97
20.0	4.97
21.0	4.97
22.0	4.96
23.0	4.95
24.0	4.95
25.0	4.94
26.0	4.93
27.0	4.92
28.0	4.91
29.0	4.91
30.0	4.90
31.0	4.90
32.0	4.89
33.0	4.89
34.0	4.89
35.0	4.88
36.0	4.88
37.0	4.87
38.0	4.88
39.0	4.85
40.0	4.84

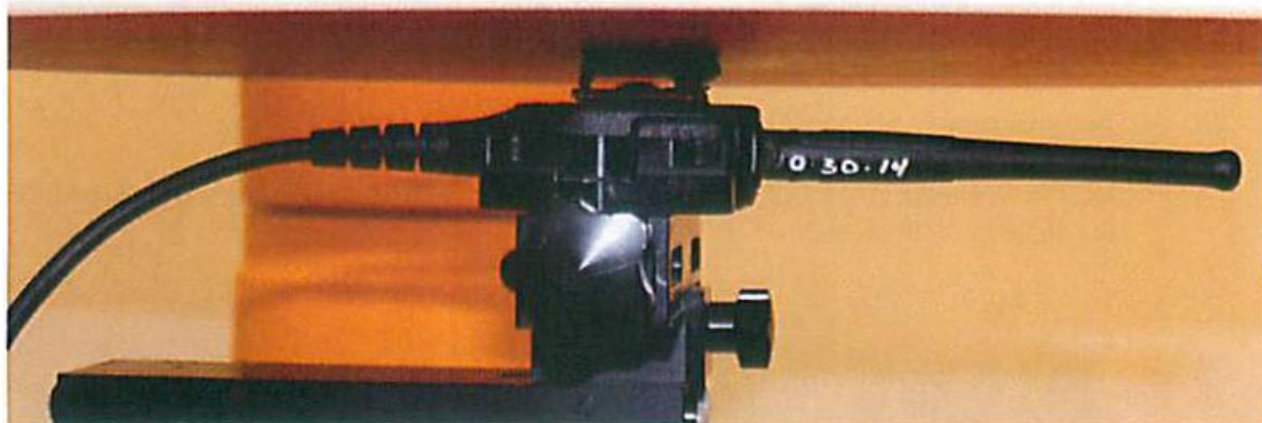


APPENDIX H

DUT Test Position Photos

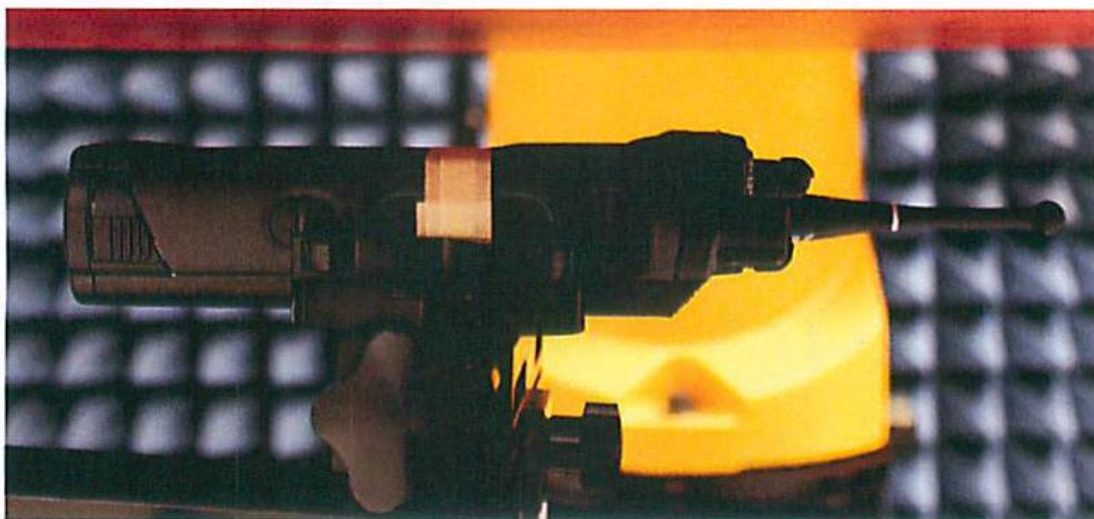
Highest SAR Test Position per body location

Body: PSM model PMMN4059B with battery NNTN7034B and PSM belt clip 4205823V01 against the phantom.



Antenna kit #	Separation Distances (mm)		
	@ bottom surface of the DUT	@ antenna's base	@ antenna's tip
PMAE4065A	12	20	26

Face: Front of DUT w/ antenna FAF5259A with offered battery PMNN4403B separated 2.5cm from the phantom without an audio accessory attached.



Antenna kit #	Separation Distances (mm)		
	@ bottom surface of the DUT	@ antenna's base	@ antenna's tip
FAF5259A	26	35	37

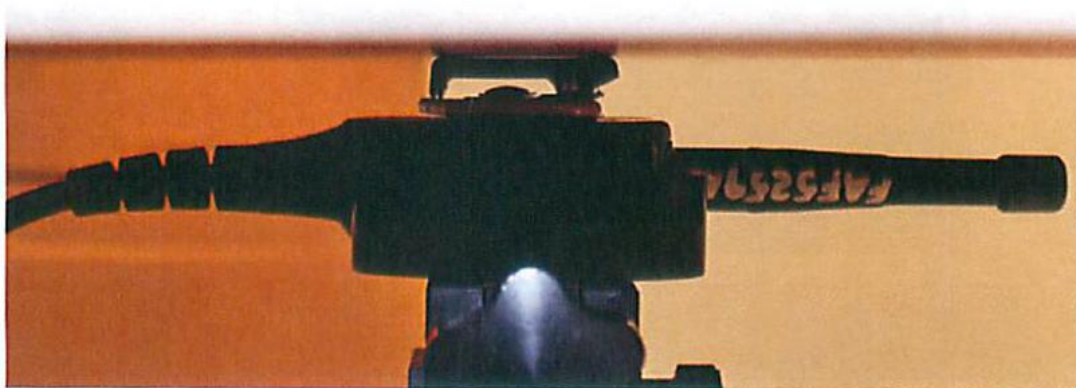
Other SAR tested positions at the body

Body worn: DUT with antenna FAF5259A, offered battery PMMN4403B, and body worn kit NTN9179A against the phantom with no audio.



Antenna kit #	Separation Distances (mm)		
	@ bottom surface of the DUT	@ antenna's base	@ antenna's tip
FAF5259A	19	45	55

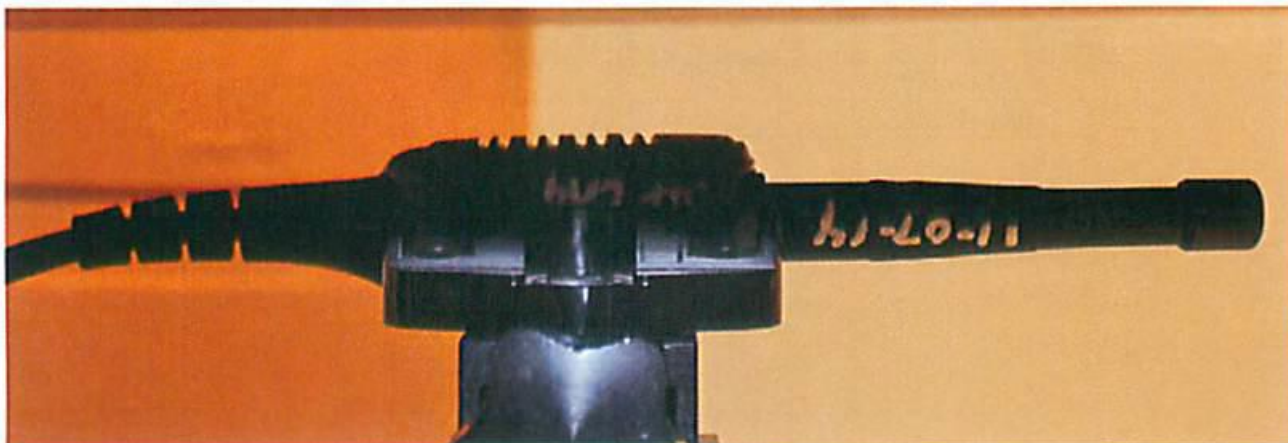
PSM model PMMN4059B with battery PMNN4403B and belt clip 4205823V01 against the phantom.



Antenna kit #	Separation Distances (mm)		
	@ bottom surface of the DUT	@ antenna's base	@ antenna's tip
FAF5259A	12	20	23

Other SAR tested positions at the face

Front of PSM at 2.5cm separation: PSM model PMMN4059B with battery NNTN7034B separated 2.5cm from the phantom.



Antenna kit #	Separation Distances (mm)		
	@ bottom surface of the DUT	@ antenna's base	@ antenna's tip
FAF5259A	12	20	23

APPENDIX I

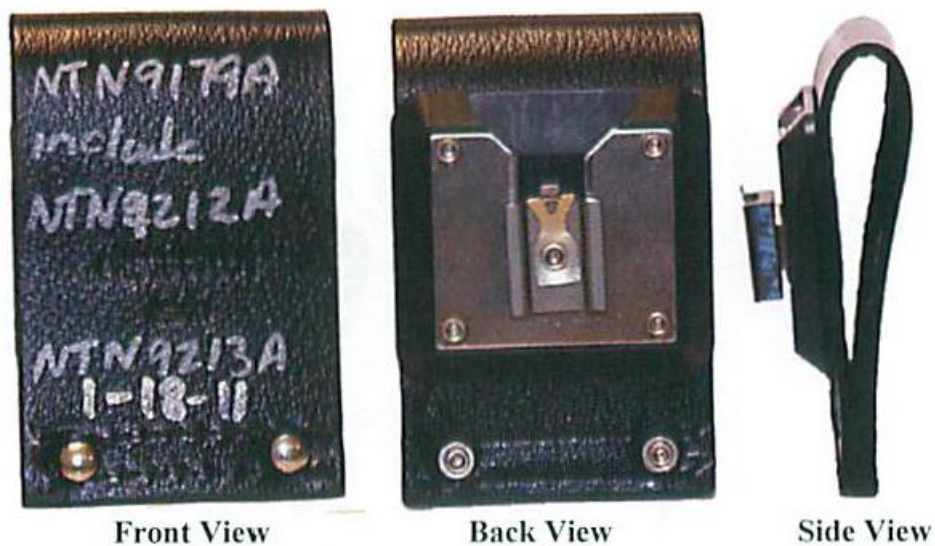
DUT, Body worn and audio accessories Photos

Antenna dimension and photos

Antenna Kit #	Physical Length (mm)	Electrical Length
FAF5259A	93	$\frac{1}{4}$ wave
PMAE4065A	150	$\frac{1}{4}$ wave

**Left to Right: FAF5259A, PMAE4065A**

Body worn accessories



NTN9179A Swivel D-clip and Belt Loop

Battery accessories



NNTN7043B Battery
Front, Back, Side

PMNN4403B Battery
Front, Back, Side

Audio accessories**PMMN4059B PSM****DUT Dimensions**

	Height (mm)	Width (mm)	Depth (mm)
Radio only (w/o battery)	140	65	40
Radio with battery PMNN4403B	150	65	40
Radio with battery NNTN7034B	195	65	40

For illustration purposes only- the following figure reflects the location of the device's dimensions.



Note: H = Height, W = Width, D = Depth

$W1 = (\text{Width @ Top}) / (\text{Width @ PTT})$

$D2 = (\text{Depth @ Bottom}) / (\text{Depth @ PTT})$