



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: 05/22/2015
Report Revision: A

Responsible Engineer: Jessica Zada (EME Engineer)
Report Author: Jessica Zada (EME Engineer)
Date/s Tested: 4/07/2015, 4/10/2015, 4/27/2015, 4/29/2015
Manufacturer/Location: Motorola Solutions Inc., Penang
Sector/Group/Div.: AESS
Date submitted for test: 04/01/2015
DUT Description: APX4000 896-901MHz, 901-902MHz, 935-940MHz, 940-941MHz at 2.5W, 2.402-2.48 GHz at 10mW, 6.25kHz/12.5kHz, Single display, full keypad or limited keypad. Capable of digital and analog FM transmission. Also capable of TDMA transmission. This radio is Bluetooth equipped.
Test TX mode(s): CW (PTT)
Max. Power output: 3.0 W for 896-941 MHz, 10 mW for 2.402-2.48 GHz
Nominal Power: 2.5 W for 896-941 MHz, 10 mW 2.402-2.48 GHz
Tx Frequency Bands: 896-941 MHz, 2.402-2.48 GHz
Signaling type: FM, TDMA, FHSS (Bluetooth)
Model(s) Tested: H51WCH9PW7AN (MUF1803), H51WCF9PW6AN (MUF1802)
Model(s) Certified: H51WCH9PW7AN (MUF1803), H51WCF9PW6AN (MUF1802)
Serial Number(s): 426CRF7189
Classification: Occupational/Controlled
FCC ID: AZ489FT5861; 896-941 MHz, 2.402-2.48 GHz
IC: 109U-89FT5861

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: 5/26/2015

Certification Date: 5/26/2015

Certification No.: L1150503 & L1150504

Appendix D

System Verification Check Scans

Motorola Solutions, Inc. EME Laboratory

Date/Time: 4/7/2015 2:12:40 PM

Robot#: DASY5-FL-3 | Run# HvH-SYSP-900B-150407-09
 Dipole Model# D900V2
 Phantom# OVAL1090
 Tissue Temp 21.5 (C)
 Serial# 085
 Test Freq 900 (MHz)
 Start Power 250 (mW)
 Rotation (1D) 0.033 dB
 Adjusted SAR (1W) 10.92 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: $f = 900$ MHz; $\sigma = 1.1$ S/m; $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³
 Probe: ES3DV3 - SN3291, Frequency: 900 MHz, ConvF(6.19, 6.19, 6.19); Calibrated: 7/21/2014
 Electronics: DAE4 Sn850, Calibrated: 7/23/2014

Below 2 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (41x81x1):

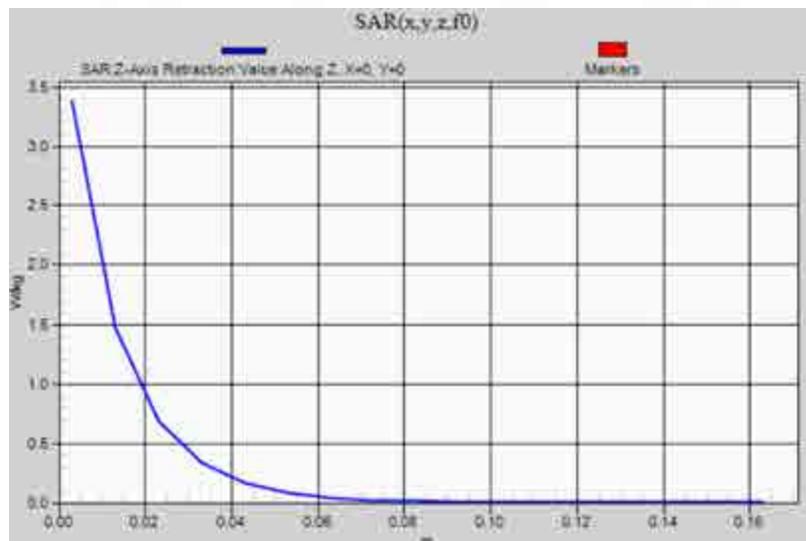
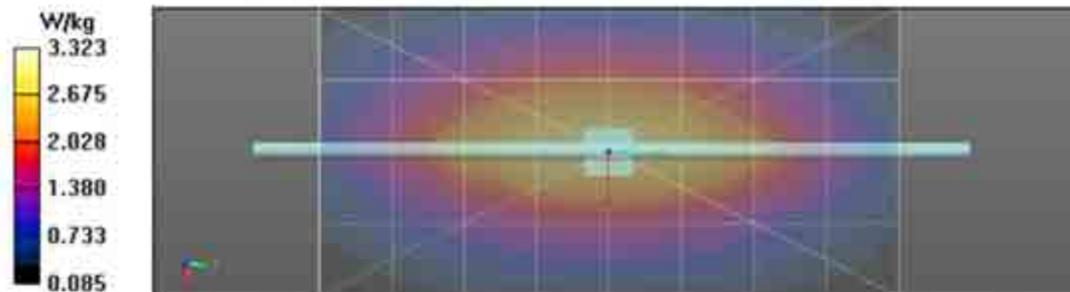
Interpolated grid: dx=1.500 mm, dy=1.500 mm
 Reference Value = 56.70 V/m; Power Drift = 0.01 dB
 Fast SAR: SAR(1 g) = 2.77 W/kg; SAR(10 g) = 1.83 W/kg (SAR corrected for target medium)
 Maximum value of SAR (interpolated) = 3.36 W/kg

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

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 56.70 V/m; Power Drift = 0.01 dB
 Peak SAR (extrapolated) = 4.30 W/kg
 SAR(1 g) = 2.73 W/kg; SAR(10 g) = 1.77 W/kg (SAR corrected for target medium)
 Maximum value of SAR (measured) = 3.34 W/kg

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

grid: dx=20mm, dy=20mm, dz=10mm
 Maximum value of SAR (measured) = 3.38 W/kg



Motorola Solutions, Inc. EME Laboratory
Date/Time: 4/10/2015 8:39:59 AM

Robot#: DASY5-FL-3 | Run# HvH-SYSP-900B-150410-01
 Dipole Model# D900V2
 Phantom# OVAL1090
 Tissue Temp 22.6 (C)
 Serial# 085
 Test Freq 900 (MHz)
 Start Power 250 (mW)
 Rotation (1D) 0.032 dB
 Adjusted SAR (1W) 11.00 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: $f = 900$ MHz; $\sigma = 1.1$ S/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³
 Probe: ES3DV3 - SN3291, Frequency: 900 MHz, ConvF(6.19, 6.19, 6.19); Calibrated: 7/21/2014
 Electronics: DAE4 Sn850, Calibrated: 7/23/2014

Below 2 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (41x81x1):

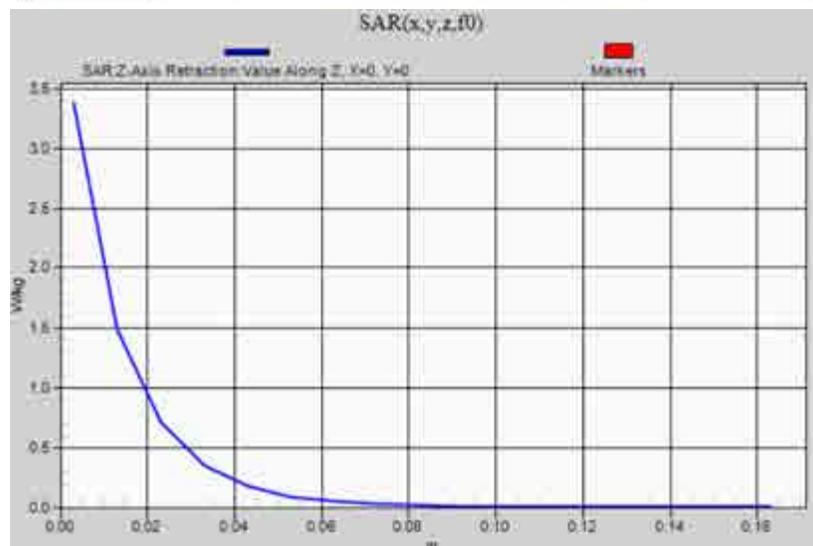
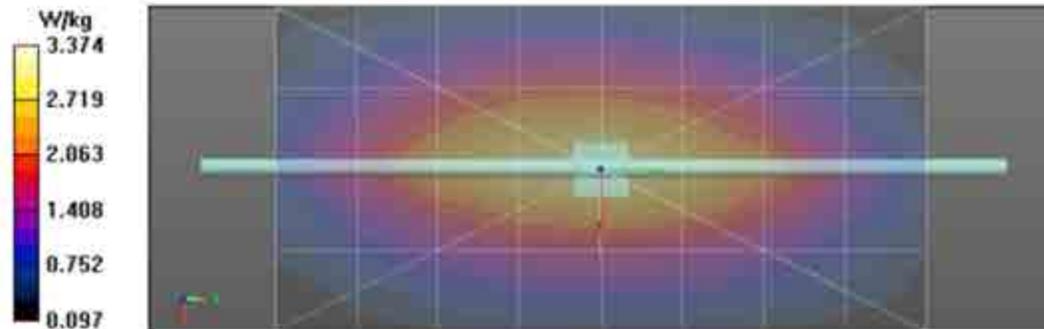
Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm
 Reference Value = 57.20 V/m; Power Drift = -0.00 dB
 Fast SAR: SAR(1 g) = 2.79 W/kg; SAR(10 g) = 1.83 W/kg (SAR corrected for target medium)
 Maximum value of SAR (interpolated) = 3.39 W/kg

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

Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm
 Reference Value = 57.20 V/m; Power Drift = -0.00 dB
 Peak SAR (extrapolated) = 4.34 W/kg
 SAR(1 g) = 2.75 W/kg; SAR(10 g) = 1.78 W/kg (SAR corrected for target medium)
 Maximum value of SAR (measured) = 3.40 W/kg

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

grid: $dx=20$ mm, $dy=20$ mm, $dz=10$ mm
 Maximum value of SAR (measured) = 3.38 W/kg



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Date/Time: 4/27/2015 9:30:48 AM Date/Time: 4/27/2015 9:35:16 AM Date/Time: 4/27/2015 9:42:24 AM

Robot#: DASY4-FL-4 | Run#: AvG-SYSP-900B-150427-01
 Dipole Model#: D900V2
 Phantom#: OVAL1090
 Tissue Temp: 21.1 (C)
 Serial#: 085
 Test Freq: 900 (MHz)
 Start Power: 250 (mW)
 Rotation (1D): .027 dB
 Adjusted SAR (1W): 11 mW/g (1g)

Comment:

Duty Cycle: 1:1, Medium parameters used: $f = 900$ MHz; $\sigma = 1.03$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³
 Probe: ES3DV3 - SN3163, Calibrated: 3/24/2015, Frequency: 900 MHz, ConvF(5.93, 5.93, 5.93)
 Electronics: DAE4 Sn1231, Calibrated: 3/20/2015

System Performance Check/Dipole Area Scan 2 (41x81x1): Measurement grid: dx=15mm,

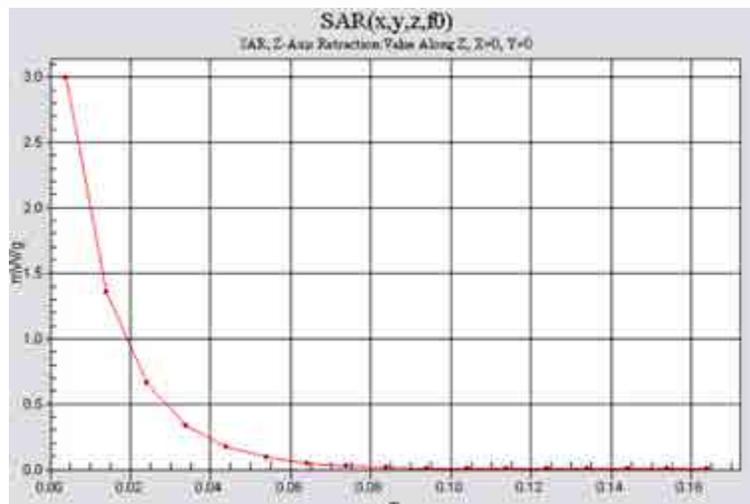
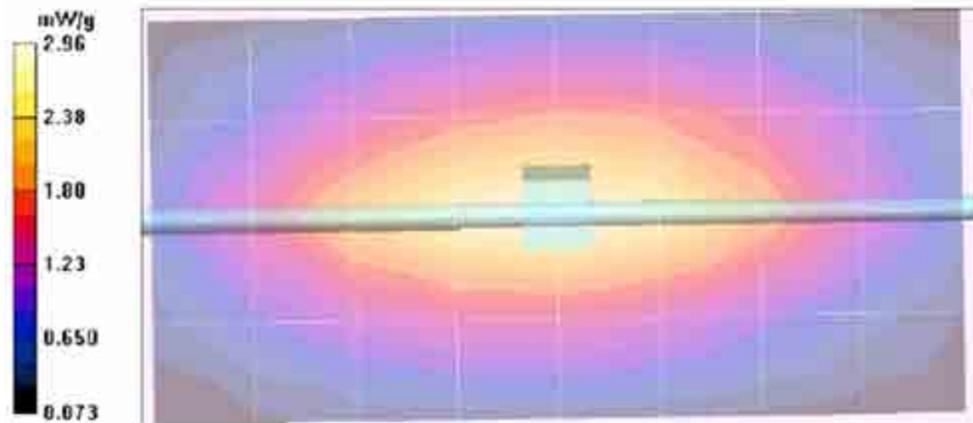
dy=15mm
 Reference Value = 54.7 V/m, Power Drift = 0.00 dB
 Motorola Fast SAR: SAR(1 g) = 2.77 mW/g; SAR(10 g) = 1.85 mW/g
 Maximum value of SAR (interpolated) = 2.98 mW/g

System Performance Check/0-Degree Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm,

dy=7.5mm, dz=5mm
 Reference Value = 54.7 V/m, Power Drift = 0.00 dB
 Peak SAR (extrapolated) = 4.09 W/kg
 SAR(1 g) = 2.75 mW/g; SAR(10 g) = 1.78 mW/g
 Maximum value of SAR (measured) = 2.99 mW/g

System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm,

dz=10mm



Motorola Solutions, Inc. EME Laboratory

Date/Time: 4/28/2015 12:27:36 PM Date/Time: 4/28/2015 12:32:02 PM Date/Time: 4/28/2015 12:39:09 PM

Robot#: DASY4-FL-4 | Run#: AvG-SYSP-900B-150428-01
 Dipole Model#: D900V2
 Phantom#: OVAL1090
 Tissue Temp: 21.9 (C)
 Serial#: 083
 Test Freq: 900 (MHz)
 Start Power: 250 (mW)
 Rotation (1D): .03 dB
 Adjusted SAR (1W): 11.2 mW/g (1g)

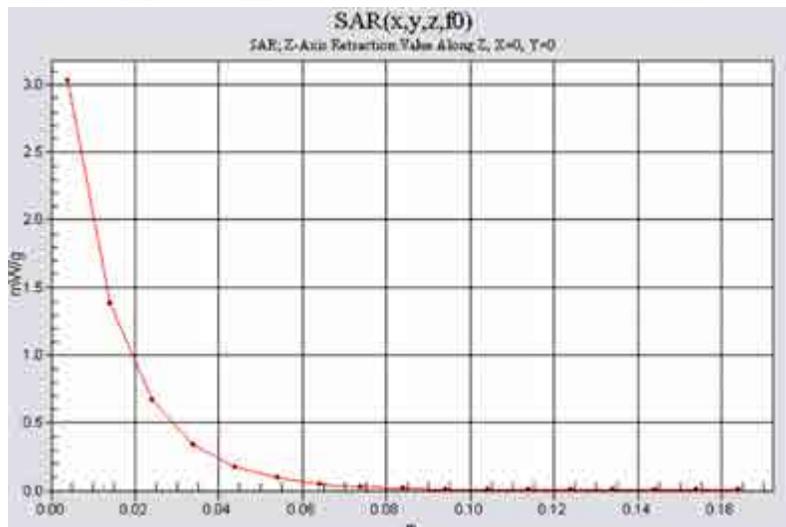
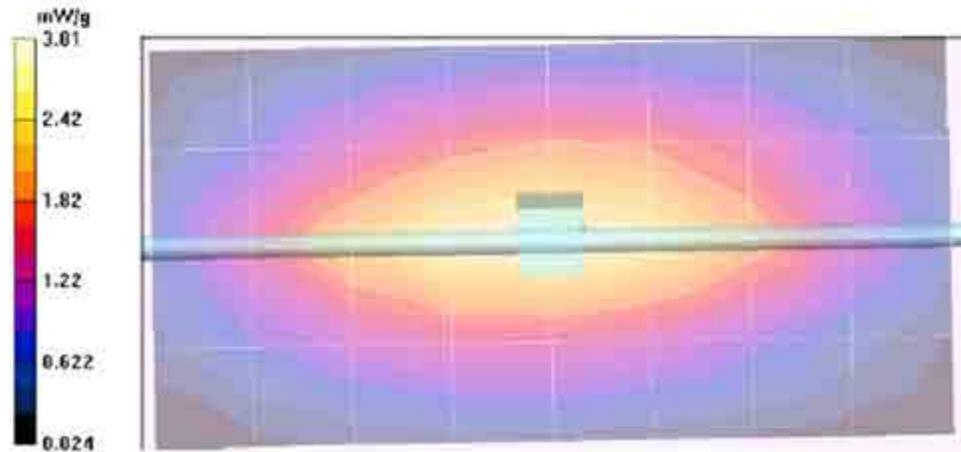
Comment:

Duty Cycle: 1:1, Medium parameters used: $f = 900$ MHz; $\sigma = 1.05$ mho/m; $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³
 Probe: ES3DV3 - SN3163, Calibrated: 3/24/2015, Frequency: 900 MHz, ConvF(5.93, 5.93, 5.93)
 Electrode: DAE4 Sn1231, Calibrated: 3/20/2015

System Performance Check/Dipole Area Scan 2 (41x81x1): Measurement grid: $dx=1.5$ mm, $dy=1.5$ mm
 Reference Value = 54.7 V/m; Power Drift = -0.035 dB
 Motorola Fact SAR: SAR(1 g) = 2.82 mW/g; SAR(10 g) = 1.89 mW/g
 Maximum value of SAR (interpolated) = 3.03 mW/g

System Performance Check/0-Degree Cube (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm
 Reference Value = 54.7 V/m; Power Drift = -0.035 dB
 Peak SAR (extrapolated) = 4.13 W/kg
 SAR(1 g) = 2.8 mW/g; SAR(10 g) = 1.81 mW/g
 Maximum value of SAR (measured) = 3.03 mW/g

System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: $dx=20$ mm, $dy=20$ mm, $dz=10$ mm



Motorola Solutions, Inc. EME Laboratory

Date/Time: 4/28/2015 5:59:17 PM Date/Time: 4/28/2015 6:03:30 PM Date/Time: 4/28/2015 6:10:28 PM

Robot#: DASY4-FL-4 | Run#: AvG-SYSP-900H-150428-08
 Dipole Model#: D900V2
 Phantom#: OVAL1011
 Tissue Temp: 21.4 (C)
 Serial#: 085
 Test Freq: 900 (MHz)
 Start Power: 250 (mW)
 Rotation (1D): 0.29 dB
 Adjusted SAR (1W): 10.16 mW/g (1g)

Note:

Prior to recording the Reported SAR values below, the Measured SAR values were corrected for tissue frequencies from 136 MHz to 3 GHz.

Reported SAR: xx.xx mW/g (1g); xx.xx mW/g (10g)

Comments:

Duty Cycle: 1:1, Medium parameters used: $f = 900$ MHz; $\sigma = 0.99$ mho/m; $\epsilon_r = 40.1$; $\rho = 1000$ kg/m³

Probe: ES3DV3 - SN3163, Calibrated: 3/24/2015, Frequency: 900 MHz, ConvF(6.09, 6.09, 6.09)

Electronics: DAE4 Sn1231, Calibrated: 3/20/2015

System Performance Check/Dipole Area Scan 2 (41x81x1): Measurement grid: dx=15mm,

dy=15mm

Reference Value = 53.8 V/m; Power Drift = -0.010 dB

Motorola Fast SAR: SAR(1 g) = 2.56 mW/g; SAR(10 g) = 1.72 mW/g

Maximum value of SAR (interpolated) = 2.76 mW/g

System Performance Check/0-Degree Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm,

dy=7.5mm, dz=5mm

Reference Value = 53.8 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 3.70 W/kg

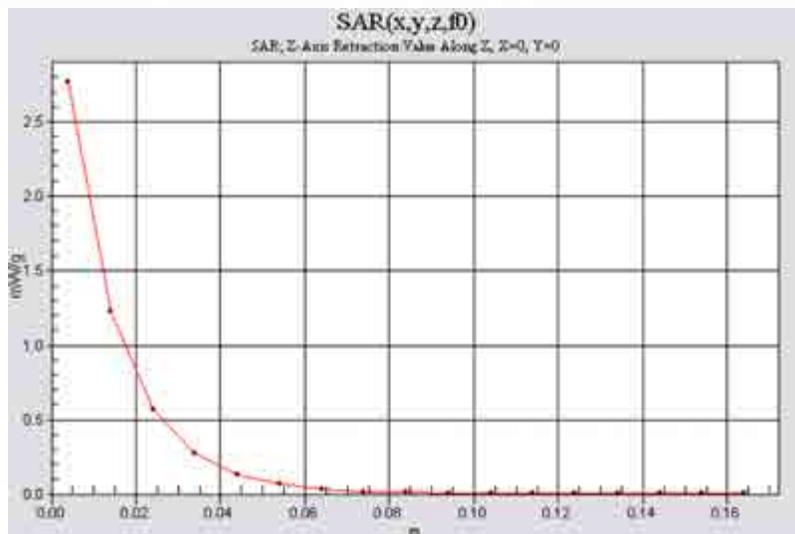
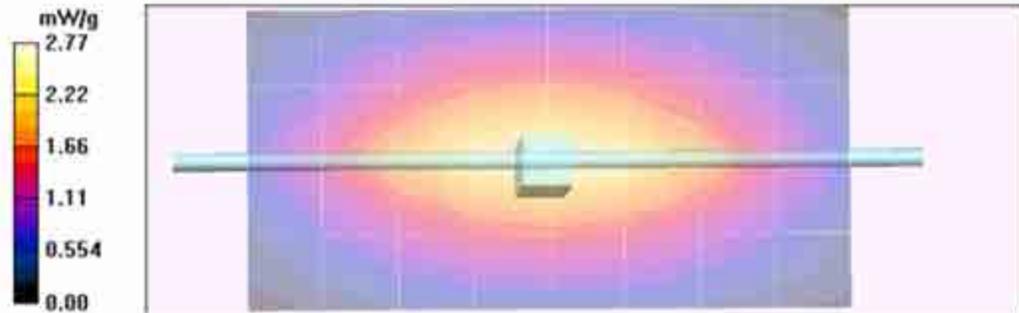
SAR(1 g) = 2.54 mW/g; SAR(10 g) = 1.64 mW/g

Maximum value of SAR (measured) = 2.75 mW/g

System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm,

dz=10mm

Maximum value of SAR (measured) = 2.77 mW/g



Appendix E

DUT Scans

Assessments at the Body - Table 15

Motorola Solutions, Inc. EME Laboratory

Date/Time: 4/7/2015 2:59:50 PM

Robot#: DASY5-FL-3 | Run#: HvH-Ab-150407-10
Model#: H51WCF9PW6AN (MUF1802)
Phantom#: OVAL1090
Tissue Temp: 21.5 (C)
Serial#: 426CRF7189
Antenna: PMAF4008A
Test Freq: 896.0250 (MHz)
Battery: NNTN8128B
Carry Acc: PMLN7182A w/NTN5243A w/o belt loop
Audio Acc: Non/BT
Start Power: 2.88 (W)

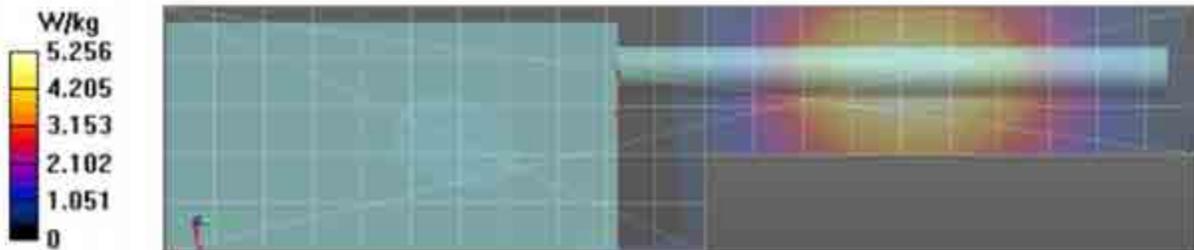
Comments:

Duty Cycle: 1:1. Medium parameters used: f = 896 MHz; sigma = 1.1 S/m; epsilon_r = 52.9; rho = 1000 kg/m^3
Probe: ES3DV3 - SN3291, Frequency: 896.025 MHz, ConvF(6.19, 6.19, 6.19), Calibrated: 7/21/2014
Electronics: DAE4 Sn850, Calibrated: 7/23/2014

Below 2 GHz-Rev.2/Ab Scan/1-Area Scan (51x211x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 75.14 V/m; Power Drift = -0.35 dB
Fast SAR: SAR(1 g) = 4.83 W/kg; SAR(10 g) = 3.34 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 5.49 W/kg

Below 2 GHz-Rev.2/Ab Scan/2-Volume 2D Scan (41x41x1): Interpolated grid: dx=0.7500 mm, dy=0.7500 mm, dz=1.000 mm
Reference Value = 75.14 V/m; Power Drift = -0.41 dB
Fast SAR: SAR(1 g) = 4.79 W/kg; SAR(10 g) = 3.37 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 5.39 W/kg

Below 2 GHz-Rev.2/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 5.32 W/kg



Assessments at the Face - Table 16

Motorola Solutions, Inc. EME Laboratory

Date/Time: 4/29/2015 9:49:59 AM Date/Time: 4/29/2015 10:04:31 AM Date/Time: 4/29/2015 10:10:24 AM

Robot#: DASY4-xx-x | Run#: AvG-Face-150429-01
 Model#: APX4000
 Phantom#: OVAL1011
 Tissue Temp: 21.4 (C)
 Serial#: 426CRF5549
 Antenna: PMAF4008A
 Test Freq: 896.025 (MHz)
 Battery: NNTN8560A
 Carry Acc: NONE
 Audio Acc: NONE
 Start Power: 2.81 (W)

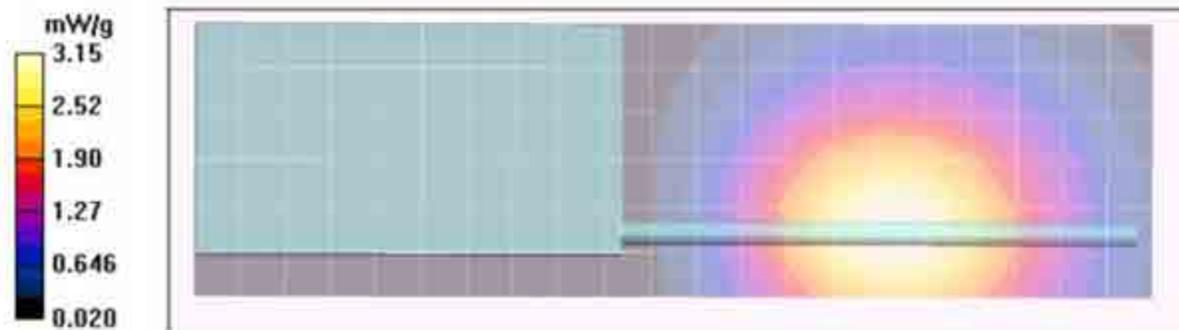
Note:
 Prior to recording the Reported SAR values below, the Measured SAR values were corrected for tissue frequencies from 136 MHz to 3 GHz.
 Reported SAR: 2.927 mW/g (1g), 2.11 mW/g (10g)

Comments:
 Duty Cycle: 1:1. Medium parameters used: $f = 896.025$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 40.1$; $\rho = 1000$ kg/m³
 Probe: ES3DV3 - SN3163, Calibrated: 3/24/2015, Frequency: 896.025 MHz, ConvF(6.09, 6.09, 6.09)
 Electronics: DAE4 Sn1231, Calibrated: 3/20/2015

Face Scan/1-Area Scan (61x211x1): Measurement grid: dx=15mm, dy=15mm
 Reference Value = 56.1 V/m; Power Drift = -0.252 dB
 Motorola Fast SAR: SAR(1 g) = 3.09 mW/g; SAR(10 g) = 2.2 mW/g
 Maximum value of SAR (interpolated) = 3.27 mW/g

Face Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
 Reference Value = 56.1 V/m; Power Drift = -0.329 dB
 Peak SAR (extrapolated) = 3.79 W/kg
 SAR(1 g) = 2.92 mW/g; SAR(10 g) = 2.11 mW/g
 Maximum value of SAR (measured) = 3.10 mW/g

Face Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm



APPENDIX F
Shortened Scan of Highest SAR configuration

Shortened Scan Table 17

Motorola Solutions, Inc. EME Laboratory
Date/Time: 4/10/2015 9:41:12 AM

Robot#: DASY5-FL-3 | Run#: HvH-Ab-150410-02
 Model#: H51WCF9PW6AN (MUF1802)
 Phantom#: OVAL1090
 Tissue Temp: 22.5 (C)
 Serial#: 426CRF7189
 Antenna: PMAF400SA
 Test Freq: 896.0250 (MHz)
 Battery: NNTN8128B
 Carry Acc: PMLN7182A w/ NTN5243A w/o belt loop
 Audio Acc: Non/BT
 Start Power: 2.79 (W)

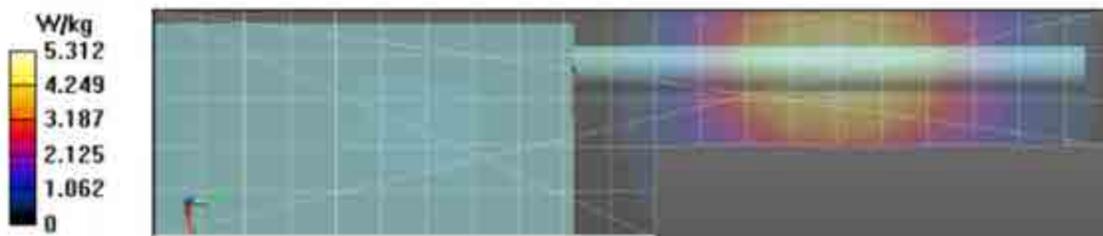
Comments: Shortened Scan.

Duty Cycle: 1:1, Medium parameters used: $f = 896 \text{ MHz}$; $\sigma = 1.09 \text{ S/m}$; $\epsilon_r = 53.1$; $\rho = 1000 \text{ kg/m}^3$
 Probe: ES3DV3 - SN3291, Frequency: 896.025 MHz, ConvF(6.19, 6.19, 6.19); Calibrated: 7/21/2014
 Electronics: DAE4 Sn850, Calibrated: 7/23/2014

Below 2 GHz-Rev.2/Ab Scan/1-Area Scan (51x211x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
 Reference Value = 73.91 V/m; Power Drift = -0.36 dB
 Fast SAR: SAR(1 g) = 4.71 W/kg; SAR(10 g) = 3.25 W/kg (SAR corrected for target medium)
 Maximum value of SAR (interpolated) = 5.37 W/kg

Below 2 GHz-Rev.2/Ab Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$,
 $dy=7.5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 73.96 V/m; Power Drift = -0.27 dB
 Peak SAR (extrapolated) = 6.48 W/kg
 SAR(1 g) = 4.81 W/kg; SAR(10 g) = 3.43 W/kg (SAR corrected for target medium)
 Maximum value of SAR (measured) = 5.40 W/kg

Below 2 GHz-Rev.2/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$,
 $dz=10\text{mm}$
 Maximum value of SAR (measured) = 5.28 W/kg



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)	16	7	2.75	1.96
Full scan (area & zoom)	15	26	2.74	1.93

APPENDIX G

DUT Test Position Photos

Highest SAR Test Position per body location

Body: DUT w/ antenna PMAF4008A, battery NNTN8128B and carry case PMLN7182A with carry strap NTN5243A without belt loop against the phantom without an audio accessory attached.



Antenna kit #	Separation Distances (mm)		
	@ bottom surface of the DUT	@ antenna's base	@ antenna's tip
PMAF4008A	12	29	37

Face: Front of DUT w/ antenna PMAF4008A and battery NNTN8560A 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
PMAF4008A	25	40	50

APPENDIX H
DUT, Body worn and audio accessories Photos

Antenna dimension and photos

Antenna Kit #	Physical Length (mm)	Electrical Length
PMAF4008A	165	½ wave



PMAF4008A

Body worn accessories



PMLN7182A Carry Case with Belt Loop



PMLN7182A Carry Case without Belt Loop



NTN5243A Carry Strap

Battery accessories



**NNTN8128B Battery
Front, Side and back views**



NNTN8560A Battery
Front, Side and Back views



PMNN4448AR Battery
Front, Side and Back views

DUT Dimensions

	Height (mm)	Width (mm)	Depth (mm)
Radio only (w/o battery)	130	64/53	32/18
Radio with battery NNTN8128B	130	64/53	35/42
Radio with battery PMNN4448AR	130	64/53	35/42

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



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

W1 = (Width @ Top) / (Width @ PTT)

D2 = (Depth @ Bottom) / (Depth @ PTT)