MOTOROLA SOLUTIONS

MS ISO/IEC 17025
TESTING
SAMM No. 0826

ACCREDITED
CERTIFICATE 2518.05

DECLARATION OF COMPLIANCE SAR ASSESSMENT PCII Report Part 2 of 2

Motorola Solutions Inc.
EME Test Laboratory
Motorola Solutions Malaysia Sdn Bhd
Plot 2A, Medan Bayan Lepas,
Mukim 12 SWD 11900 Bayan Lepas Penang, Malaysia.

Date of Report: 04/20/2020
Report Revision: B

Responsible Engineer:	Lee Kin Kting
Report Author:	Lee Kin Kting
Date/s Tested:	1/12/2020, 3/31/2020
Manufacturer:	Motorola Solutions Inc.
DUT Description:	Handheld Portable – 450 – 520 MHz, 5W rated power, 6.25K/12.5K/25K
Test TX mode(s):	CW (PTT); Bluetooth
Max. Power output:	5.6W (LMR) ;10.0 mW (Bluetooth)
Nominal Power:	5.0W (LMR) ;10.0 mW (Bluetooth)
Tx Frequency Bands:	450-520 MHz; 2402-2480 MHz
Signaling type:	FM, TDMA; FHSS (BT)
Model(s) Tested:	H51SDH9PW7AN (MUE4080), H51SDF9PW6AN (MUE4414)
Model(s) Certified:	H51SDH9PW7AN (MUE4080), H51SDF9PW6AN (MUE4414)
Serial Number(s):	426CQV0734, 426TNF1483
Classification:	Occupational/Controlled
Applicant Name:	Motorola Solutions Inc.
Applicant Address:	8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322
FCC ID:	AZ489FT4910; LMR 450-512 MHz
FCC Test Firm Registration Number:	823256

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 FCC 47 CFR § 2.1093.

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 (no deviation from standard methods). 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.

Tiong Nguk Ing
Digitally signed by Tiong Nguk Ing
Date: 2020.04.28 00:06:27 +08'00'

Tiong Nguk Ing
Deputy Technical Manager (Approved Signatory)
Approval Date: 4/27/2020

Appendix D
System Verification Check Scans

Motorola Solutions, Inc. EME Laboratory
Date/Time: 1/12/2020 8:36:28 AM

Robot#: DASY5-PG-3 | Run#: IZ(NZ)-SYSP-450B-200110-10
Dipole Model# D450V3
Phantom#: ELI5 1150
Tissue Temp: 23.4 (C)
Serial#: 1053
Test Freq: 450 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.052 dB
Adjusted SAR (1W): 4.80 mW/g (1g)

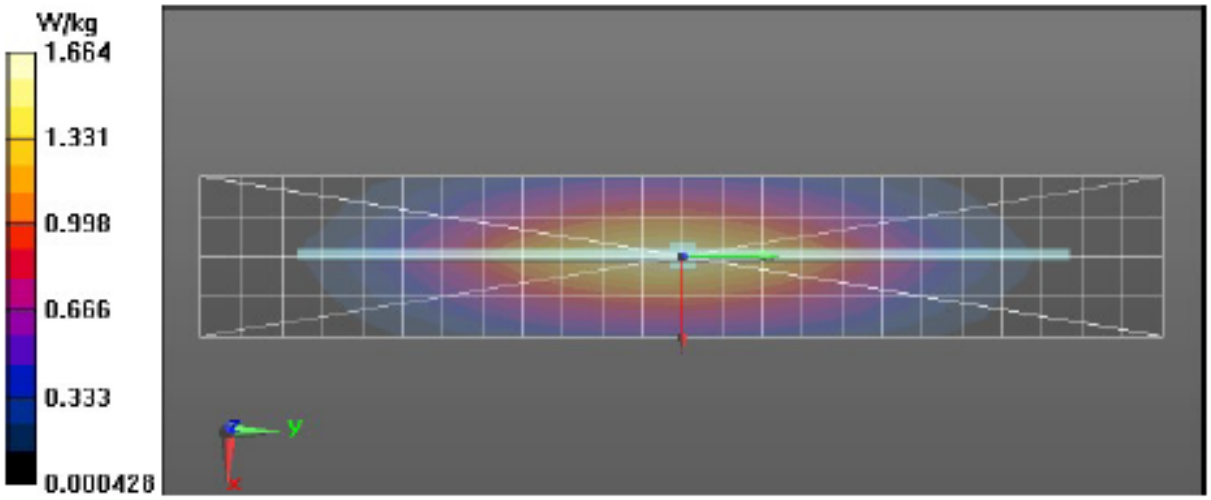
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.95 S/m; ε_r = 55.4; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 450 MHz, ConvF(11.73, 11.73, 11.73) @ 450 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (41x241x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 42.65 V/m; Power Drift = 0.00 dB
Fast SAR: SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.908 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.67 W/kg

Below 2 GHz-Rev.3/System Performance Check/0-Degree Cube (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 42.65 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.97 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.801 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.68 W/kg

Below 2 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 1.68 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 1/12/2020 10:35:34 PM

Robot#: DASY5-PG-3 | Run#:	ZZ-SYSP-450H-200112-11
Dipole Model#	D450V3
Phantom#:	ELI5 1147
Tissue Temp:	21.5 (C)
Serial#:	1053
Test Freq:	450 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.15 dB
Adjusted SAR (1W):	4.88 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.91 S/m; ε_r = 41.6; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 450 MHz, ConvF(11.4, 11.4, 11.4) @ 450 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (41x241x1):

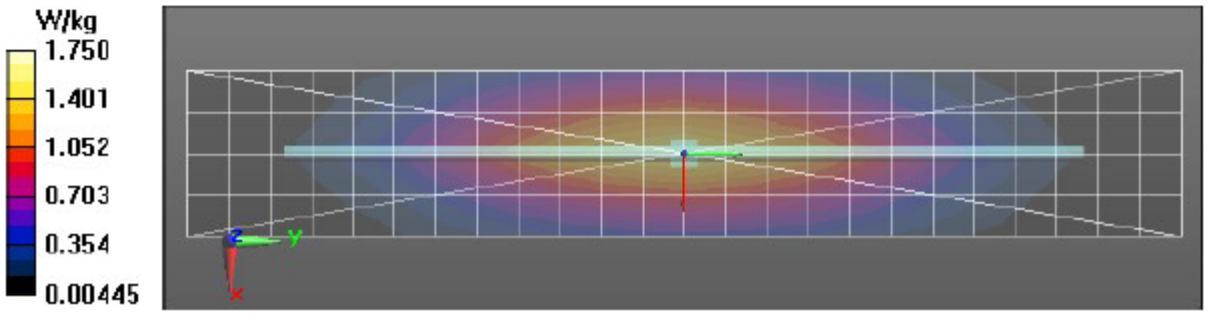
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.74 V/m; Power Drift = -0.17 dB
Fast SAR: SAR(1 g) = 1.33 W/kg; SAR(10 g) = 0.915 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.67 W/kg

Below 2 GHz-Rev.3/System Performance Check/0-Degree Cube (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 44.74 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 1.95 W/kg
SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.818 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.67 W/kg

Below 2 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement

grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 1.75 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/31/2020 12:37:59 AM

Robot#: DASY5-PG-4 | Run#:	BL-SYSP-450B-200331-01
Dipole Model#	D450V3
Phantom#:	ELI5 1150
Tissue Temp:	21.2 (C)
Serial#:	1053
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.20 dB
Adjusted SAR (1W):	4.76 mW/g (1g)

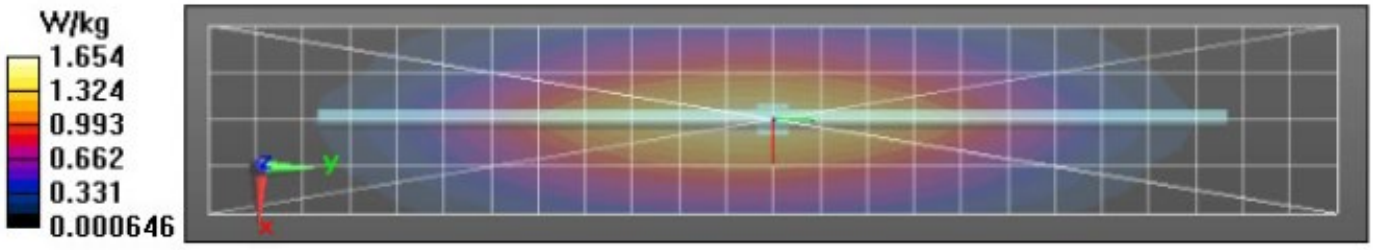
Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.97 S/m; ε_r = 54.3; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 450 MHz, ConvF(10.59, 10.59, 10.59) @ 450 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (41x241x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 42.15 V/m; Power Drift = -0.00 dB
Fast SAR: SAR(1 g) = 1.28 W/kg; SAR(10 g) = 0.891 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.67 W/kg

Below 2 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (5x25x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.65 W/kg

Below 2 GHz-Rev.3/System Performance Check/0-Degree Cube (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 42.15 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 1.95 W/kg
SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.807 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.68 W/kg

Below 2 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 1.67 W/kg



Appendix E
DUT Scans

Battery Assessment for FCC Body Configuration - Table 16

Motorola Solutions, Inc. EME Laboratory

Date/Time: 1/12/2020 11:30:03 AM

Robot#: DASY5-PG-3 | Run#: IZ(NZ)-AB-200112-04
Model#: H51SDF9PW6AN (MUE4414)
Phantom#: ELI5 1150
Tissue Temp: 23.4 (C)
Serial#: 426CQV0734
Antenna: FAF5260A
Test Freq: 465.5000 (MHz)
Battery: NNTN8128C
Carry Acc: PMLN4651A
Audio Acc: None
Start Power: 5.24 (W)

Comments:

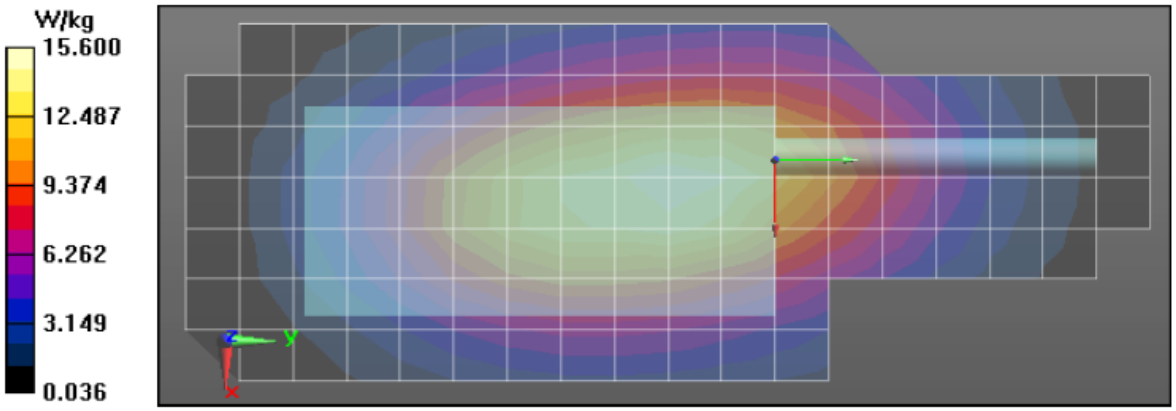
Duty Cycle: 1:1, Medium parameters used: f = 466 MHz; σ = 0.96 S/m; ε_r = 55.2; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 466 MHz, ConvF(11.73, 11.73, 11.73) @ 466 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (81x201x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 119.8 V/m; Power Drift = -0.41 dB
Fast SAR: SAR(1 g) = 12.7 W/kg; SAR(10 g) = 9.13 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 15.8 W/kg

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (9x21x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 15.6 W/kg

Below 2 GHz-Rev.3/Ab Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 119.8 V/m; Power Drift = -0.47 dB
Peak SAR (extrapolated) = 17.8 W/kg
SAR(1 g) = 11.9 W/kg; SAR(10 g) = 8.53 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 15.5 W/kg

Below 2 GHz-Rev.3/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 15.6 W/kg



Battery Assessment for FCC Face Configuration - Table 16

Motorola Solutions, Inc. EME Laboratory

Date/Time: 1/12/2020 11:14:51 PM

Robot#: DASY5-PG-3 | Run#: ZZ-FACE-200112-12
Model#: H51SDH9PW7AN (MUE4080)
Phantom#: ELI5 1147
Tissue Temp: 21.5 (C)
Serial#: 426TNF1483
Antenna: FAF5260A
Test Freq: 450.0000 (MHz)
Battery: NNTN8128C
Carry Acc: None Front Facing Phantom
Audio Acc: None
Start Power: 5.36 (W)

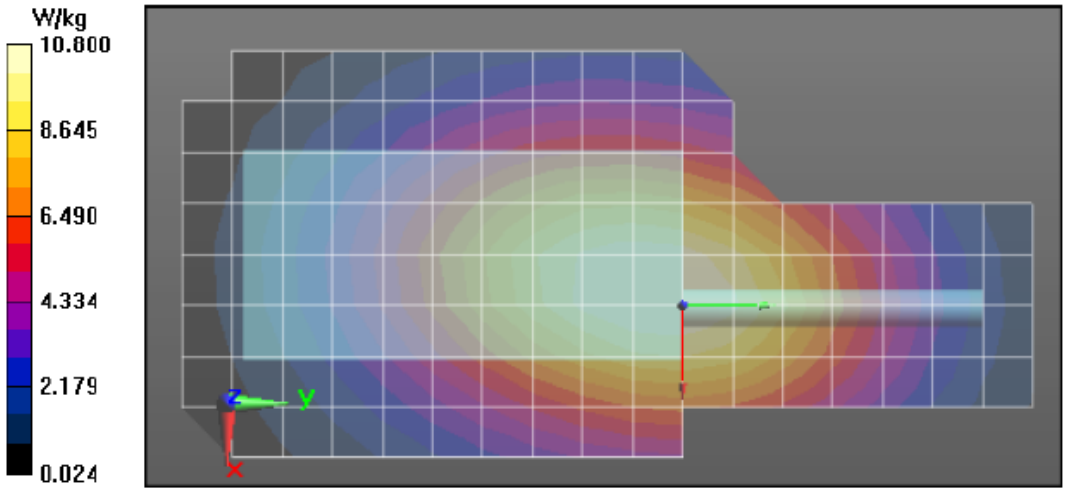
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.91 S/m; ε_r = 41.6; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 450 MHz, ConvF(11.4, 11.4, 11.4) @ 450 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

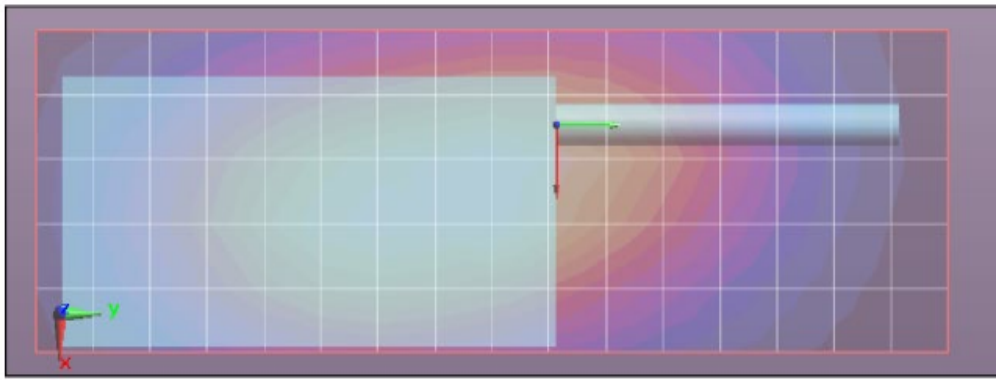
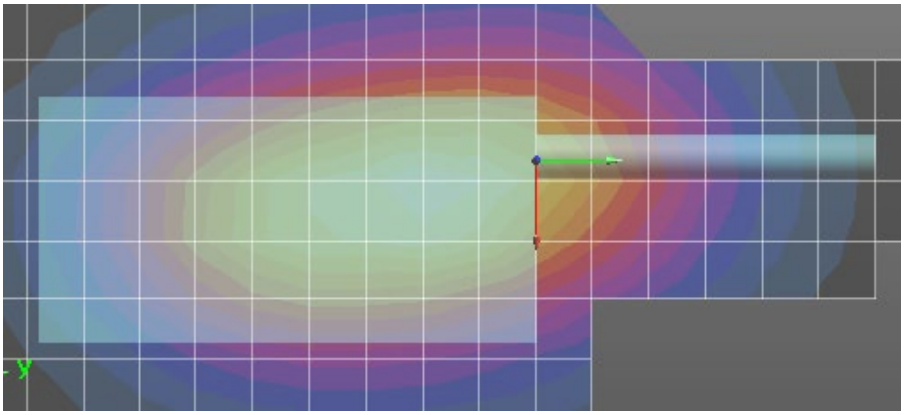
Below 2 GHz-Rev.3/Face Scan/1-Area Scan (91x261x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 109.3 V/m; Power Drift = -0.25 dB
Fast SAR: SAR(1 g) = 9.13 W/kg; SAR(10 g) = 6.7 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 11.2 W/kg

Below 2 GHz-Rev.3/Face Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 109.3 V/m; Power Drift = -0.28 dB
Peak SAR (extrapolated) = 12.2 W/kg
SAR(1 g) = 8.71 W/kg; SAR(10 g) = 6.55 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 10.9 W/kg

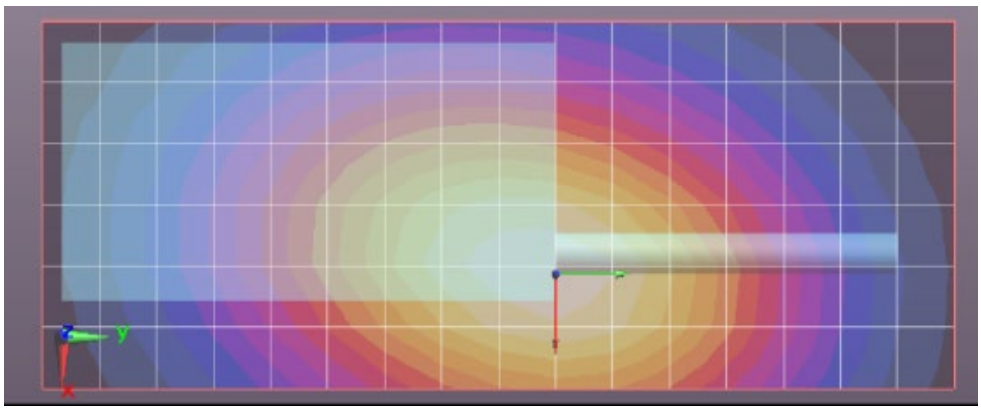
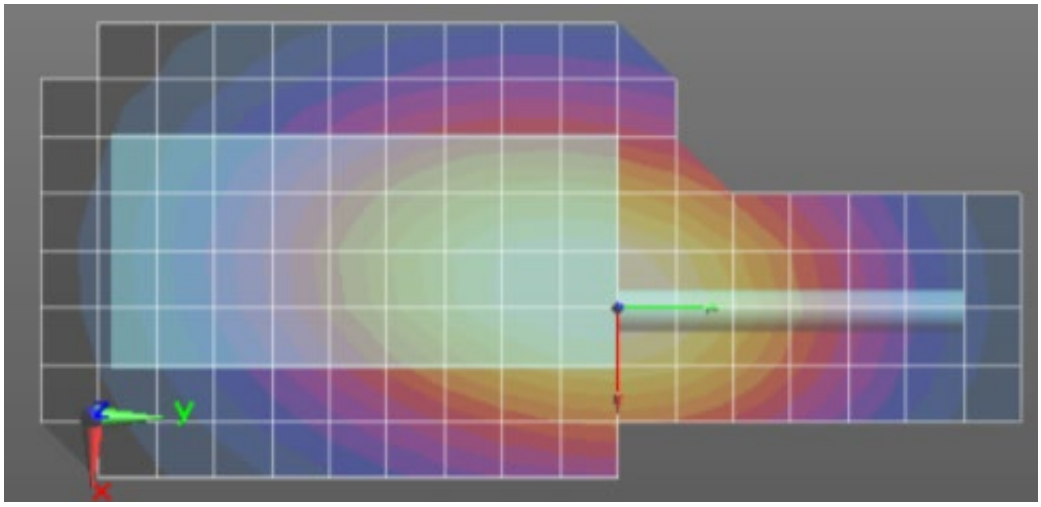
Below 2 GHz-Rev.3/Face Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 10.8 W/kg



Comparison of the SAR distributions between the initial filing and this filing (Body)

	Initial Filing
	This Filing

Comparison of the SAR distributions between the initial filing and this filing (Face)

	Initial Filing
	This Filing

APPENDIX F
Shortened Scan of Highest SAR configuration

Shortened Scan Assessment - Table 17

Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/31/2020 4:32:58 AM

Robot#: DASY5-PG-4 | Run#: BL-AB-200331-04
Model#: H51SDF9PW6AN (MUE4414)
Phantom#: ELI5 1150
Tissue Temp: 21.4 (C)
Serial#: 426CQV0734
Antenna: FAF5260A
Test Freq: 465.5000 (MHz)
Battery: NNTN8128C
Carry Acc: PMLN4651A
Audio Acc: None
Start Power: 5.32 (W)

Comments: Shorten Scan

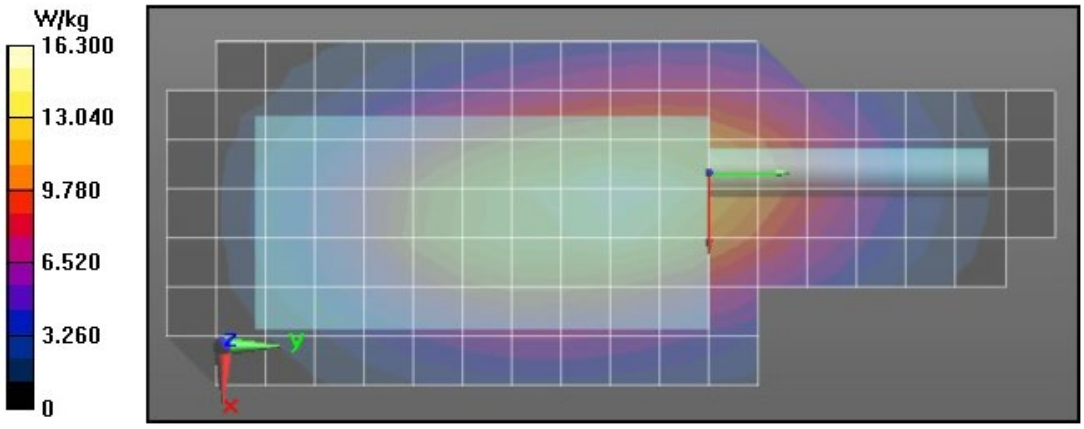
Duty Cycle: 1:1, Medium parameters used: f = 466 MHz; σ = 0.99 S/m; ε_r = 54.2; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 466 MHz, ConvF(10.59, 10.59, 10.59) @ 466 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (81x201x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 120.7 V/m; Power Drift = -0.35 dB
Fast SAR: SAR(1 g) = 13.3 W/kg; SAR(10 g) = 9.53 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 16.5 W/kg

Below 2 GHz-Rev.3/Ab Scan/2-Volume 2D Scan (41x41x1): Interpolated grid: dx=0.7500 mm, dy=0.7500 mm, dz=1.000 mm
Reference Value = 120.7 V/m; Power Drift = -0.38 dB
Fast SAR: SAR(1 g) = 13.7 W/kg; SAR(10 g) = 9.72 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 16.8 W/kg

Below 2 GHz-Rev.3/Ab Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 137.0 V/m; Power Drift = -0.26 dB
Peak SAR (extrapolated) = 20.5 W/kg
SAR(1 g) = 13.6 W/kg; SAR(10 g) = 9.81 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 17.8 W/kg

Below 2 GHz-Rev.3/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 16.6 W/kg



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

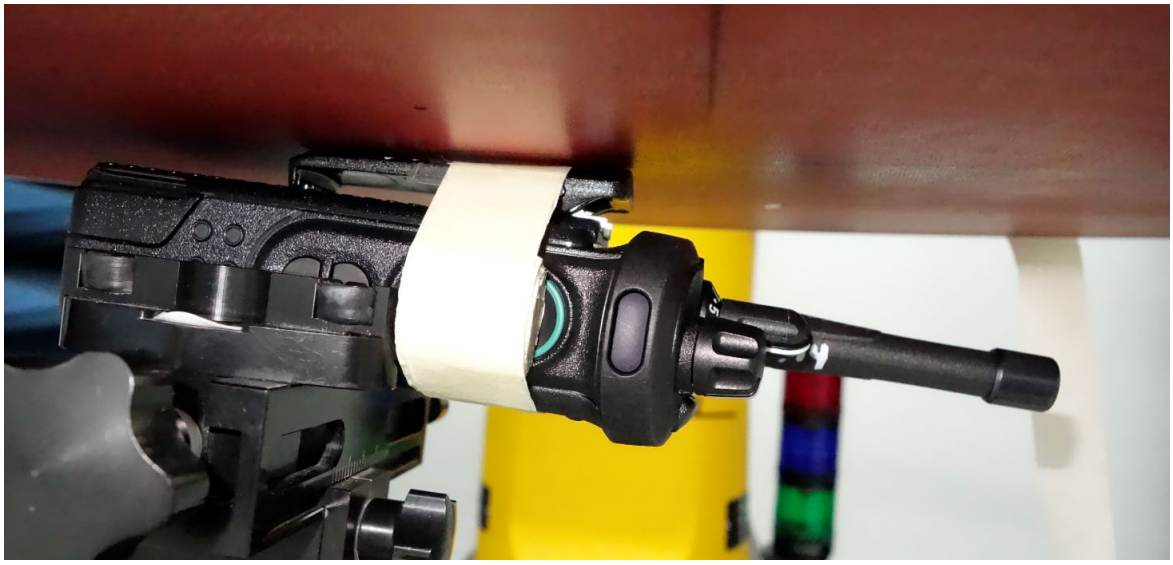
Scan Description	Referenced Table	Test Time (min.)	SAR 1g (W/kg)
Shorten scan (zoom)	17	8	7.60
Full scan (area & zoom)	16	25	7.09

APPENDIX G
DUT Test Position Photos

1.0 Highest SAR Test Position per body location

1.1 Body

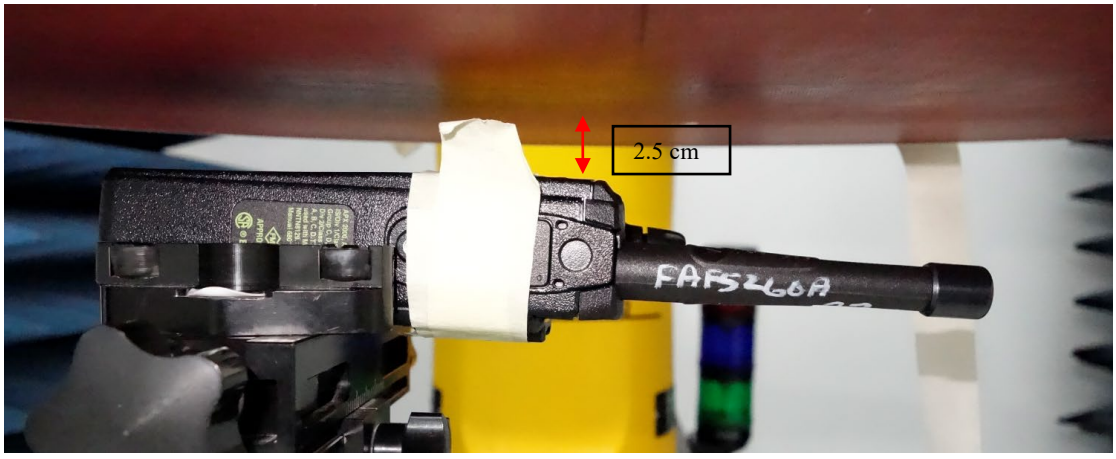
DUT with antenna FAF5260A, new offered battery NNTN8128C and body worn PMLN4651A positioned against the phantom without an audio attached.



Antenna kit #	Batteries	Separation Distances (mm)		
		@ bottom surface of DUT	@ base of antenna	@ tip of antenna
FAF5260A	NNTN8128C	7	28	38

1.2 Face

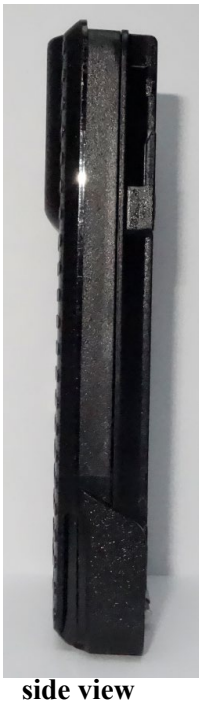
Front of DUT with antenna FAF5260A and new offered battery NNTN8128C separated 2.5cm from the phantom without an audio accessory attached.



Antenna kit #	Batteries	Separation Distances (mm)		
		@ bottom surface of DUT	@ base of antenna	@ tip of antenna
FAF5260A	NNTN8128C	28	41	45

APPENDIX H
Battery Photo

Front view



side view

Back view

New offered battery NNTN8128C

For photos of other previously approved accessories please refer to previous filing report.