MOTOROLA SOLUTIONS

TESTING CERT # 2518.05

DECLARATION OF COMPLIANCE SAR ASSESSMENT Part 2 of 2

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

Date of Report: 06/22/2017
Report Revision: B

Responsible Engineer:	Veeramani Veerapan
Report Author:	Veeramani Veerapan
Date/s Tested:	5/19/2017 – 5/31/2017
Manufacturer:	Motorola Solutions Inc.
DUT Description:	Handheld Portable – 403-480MHz, 3W, Limited Keypad, BT/ WiFi
Test TX mode(s):	CW (PTT) , Bluetooth, WLAN 802.11 b/g/n
Max. Power output:	2.4 W (LMR CW 403-480 MHz band), 3.3 W (LMR TDMA 403-470 MHz), 9.2 mW (Bluetooth), 9.2 mW (Bluetooth LE), 25.1 mW (WLAN 802.11 b), 9.2 mW (WLAN 802.11g), 9.2 mW (WLAN 802.11n)
Nominal Power:	2.0 W (LMR CW 403-480MHz band), 3W (LMR TDMA 403-470 MHz), 6.3 mW (Bluetooth), 6.3 mW (Bluetooth LE), 17.8 mW (WLAN 802.11 b), 6.3 mW (WLAN 802.11g), 6.3 mW (WLAN 802.11n)
Tx Frequency Bands:	LMR 403-480MHz; Bluetooth 2.402-2.480 GHz; WLAN 802.11 b/g/n 2.412-2.462 GHz
Signaling type:	FM (LMR), FHSS (Bluetooth), 802.11 b/g/n (WLAN)
Model(s) Tested:	PMUE5099A (AAH88YCD9SA2AN)
Model(s) Certified:	PMUE5099A (AAH88YCD9SA2AN)
Serial Number(s):	130TTK0080, 130TTK0073
Classification:	Occupational/Controlled
FCC ID:	AZ489FT7106; LMR 406.125-480 MHz, Bluetooth 2.402-2.480 GHz, WLAN 802.11 b/g/n 2.412-2.462 GHz This report contains results that are immaterial for FCC equipment approval, which are clearly identified.
IC:	109U-89FT7106; This report contains results that are immaterial for IC equipment approval, which are clearly identified.
ISED Test Site Registration:	109AK

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.

Tiong

Tiong Nguk Ing
Deputy Technical Manager
Approval Date: 6/22/2017

Tiong Nguk Ing
Digitally signed by Tiong Nguk Ing
DN: cn=Tiong Nguk Ing, o=Motorola Solutions, ou=Regulatory Compliance Lab, email=n.l.tiong@motorolasolutions.com, c=MY
Date: 2017.06.22 21:46:01 +08'00'

Appendix C
Dipole Calibration Certificates

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client Motorola EME

Certificate No: D450V3-1077_Nov15

CALIBRATION CERTIFICATE

Object	D450V3 - SN: 1077
Calibration procedure(s)	QA CAL-15.v8 Calibration procedure for dipole validation kits below 700 MHz
Calibration date:	November 25, 2015

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	01-Apr-15 (No. 217-02128)	Mar-16
Power sensor E4412A	MY41498087	01-Apr-15 (No. 217-02128)	Mar-16
Reference 3 dB Attenuator	SN: S5054 (3c)	01-Apr-15 (No. 217-02129)	Mar-16
Reference 20 dB Attenuator	SN: S5058 (20k)	01-Apr-15 (No. 217-02131)	Mar-16
Type-N mismatch combination	SN: 5047.2 / 06327	01-Apr-15 (No. 217-02134)	Mar-16
Reference Probe ET3DV6	SN: 1507	30-Dec-14 (No. ET3-1507_Dec14)	Dec-15
DAE4	SN: 654	08-Jul-15 (No. DAE4-654_Jul15)	Jul-16

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	04-Aug-99 (in house check Apr-13)	In house check: Apr-16
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 25, 2015

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	ELI4 Flat Phantom	Shell thickness: 2 ± 0.2 mm
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	43.5	0.87 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	44.0 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**4.57 W/kg ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	0.777 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**3.07 W/kg ± 17.6 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	56.7	0.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	56.3 ± 6 %	0.95 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**4.52 W/kg ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	0.749 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**2.97 W/kg ± 17.6 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	58.1 Ω - 2.3 jΩ
Return Loss	- 22.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	55.0 Ω - 6.8 jΩ
Return Loss	- 21.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.349 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	June 24, 2010

DASY5 Validation Report for Head TSL

Date: 25.11.2015

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 450 MHz; Type: D450V3; Serial: D450V3 - SN: 1077

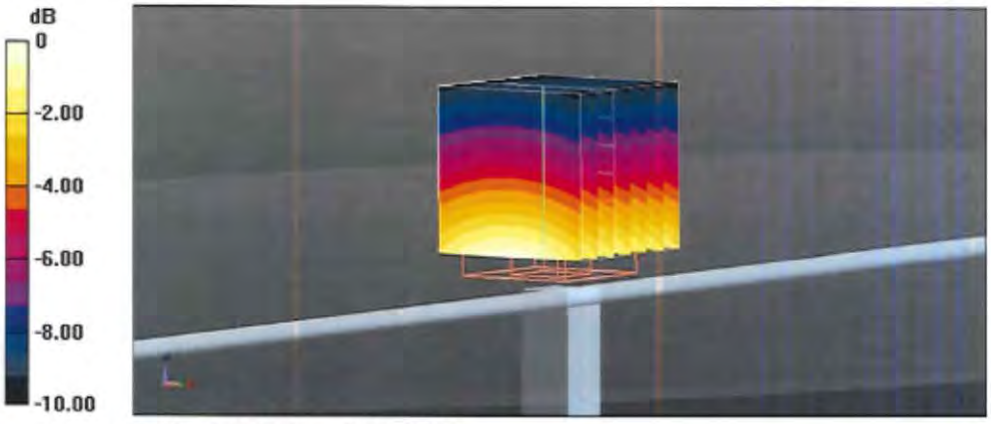
Communication System: UID 0 - CW; Frequency: 450 MHz
Medium parameters used: f = 450 MHz; σ = 0.89 S/m; ε_r = 44; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(6.58, 6.58, 6.58); Calibrated: 30.12.2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn654; Calibrated: 08.07.2015
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1003
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

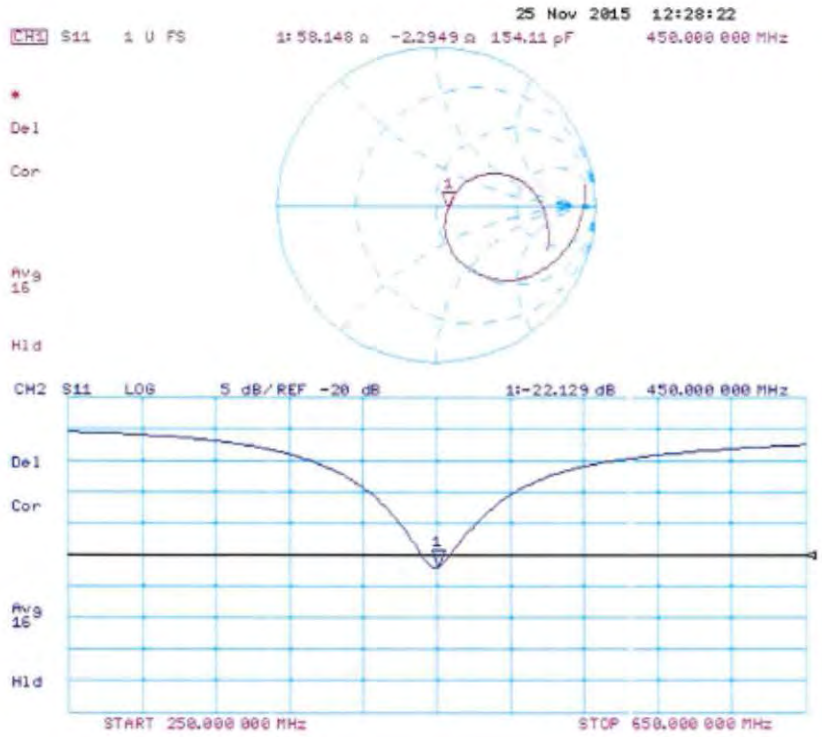
Dipole Calibration for Head Tissue/d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 39.43 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.67 W/kg
SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.777 W/kg
Maximum value of SAR (measured) = 1.25 W/kg



0 dB = 1.25 W/kg = 0.97 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.11.2015

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 450 MHz; Type: D450V3; Serial: D450V3 - SN: 1077

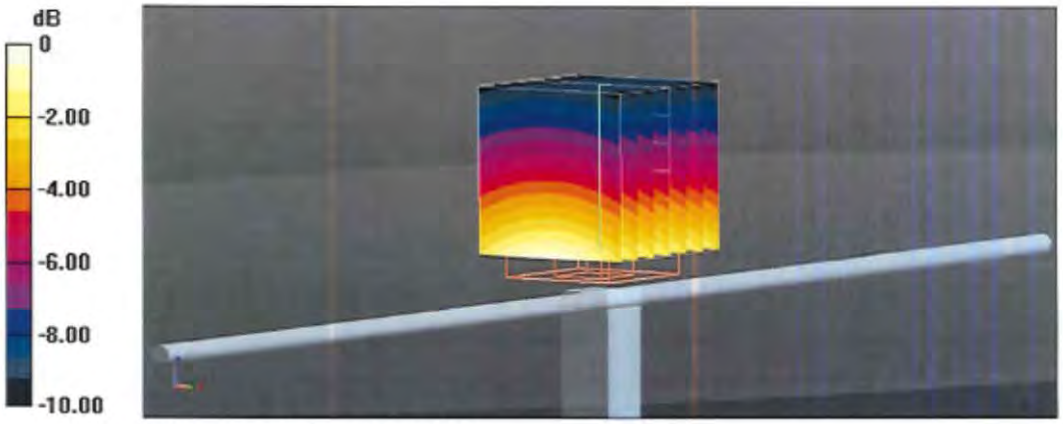
Communication System: UID 0 - CW; Frequency: 450 MHz
Medium parameters used: f = 450 MHz; σ = 0.95 S/m; ε_r = 56.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(7.05, 7.05, 7.05); Calibrated: 30.12.2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn654; Calibrated: 08.07.2015
- Phantom: ELI v4.0; Type: QDOVA001BB; Serial: TP:1003
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

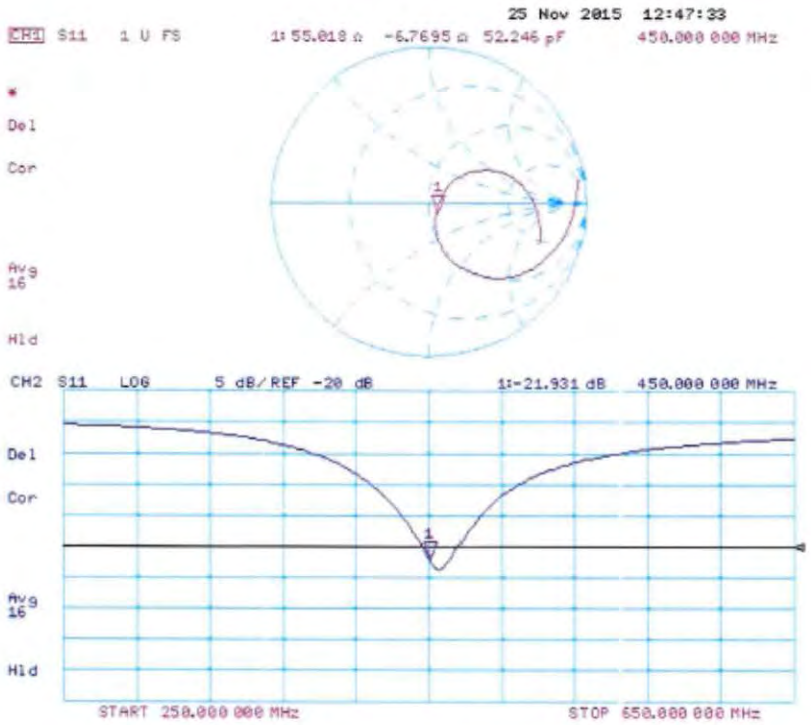
Dipole Calibration for Body Tissue/d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 36.74 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.80 W/kg
SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.749 W/kg
Maximum value of SAR (measured) = 1.22 W/kg



0 dB = 1.22 W/kg = 0.86 dBW/kg

Impedance Measurement Plot for Body TSL



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 0108

Client **Motorola Solutions MY** **Certificate No: D2450V2-782_Feb17**

CALIBRATION CERTIFICATE

Object	D2450V2 - SN:782
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	February 15, 2017

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 7349	31-Dec-16 (No. EX3-7349_Dec16)	Dec-17
DAE4	SN: 601	04-Jan-17 (No. DAE4-601_Jan17)	Jan-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-16)	In house check: Oct-17

	Name	Function	Signature
Calibrated by:	Johannes Kurikka	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 15, 2017

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Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.5 ± 6 %	1.87 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.7 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**53.3 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.8 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.6 ± 6 %	2.02 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.9 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**50.5 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.94 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**23.5 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.9 Ω + 4.0 jΩ
Return Loss	- 27.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.3 Ω + 5.7 jΩ
Return Loss	- 24.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.151 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	May 06, 2005

DASY5 Validation Report for Head TSL

Date: 15.02.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:782

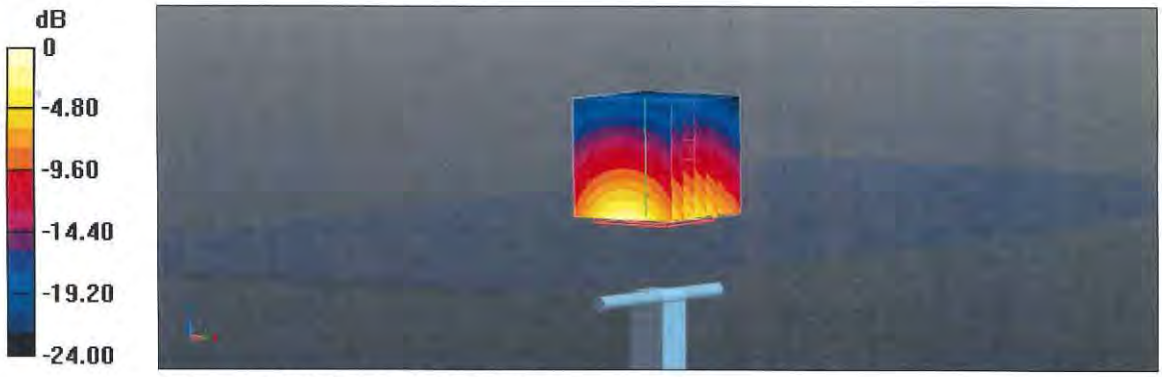
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.87 S/m; ε_r = 37.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.72, 7.72, 7.72); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7331)

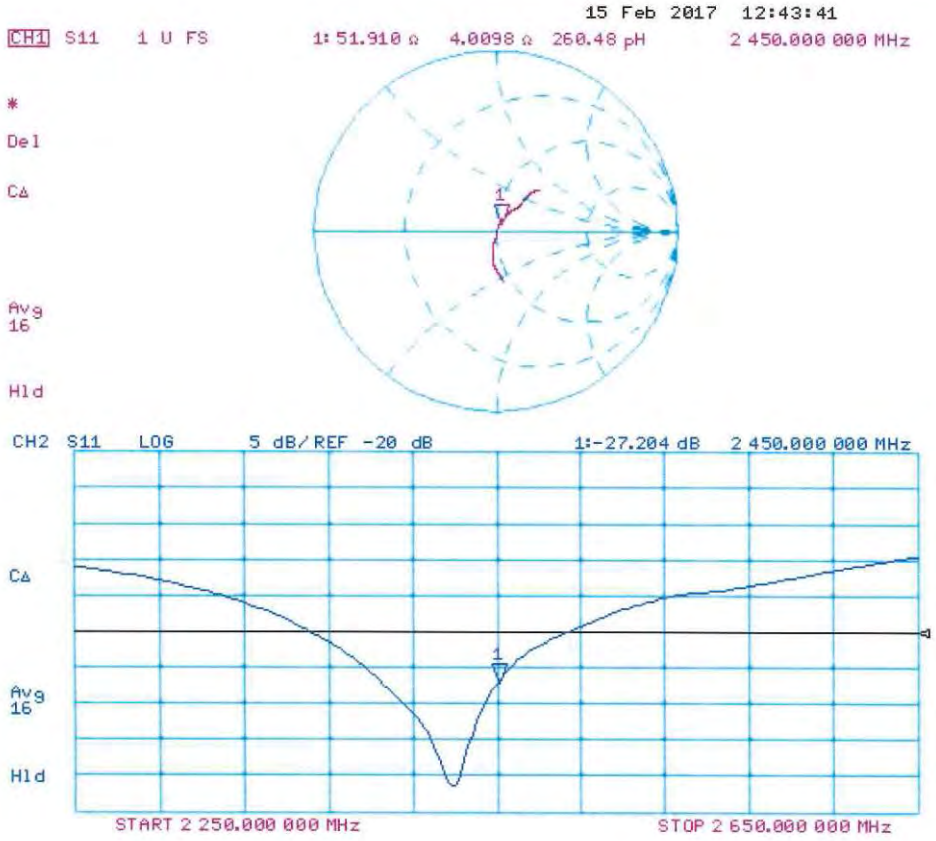
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 115.0 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 28.4 W/kg
SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.3 W/kg
Maximum value of SAR (measured) = 22.8 W/kg



0 dB = 22.8 W/kg = 13.58 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 15.02.2017

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:782

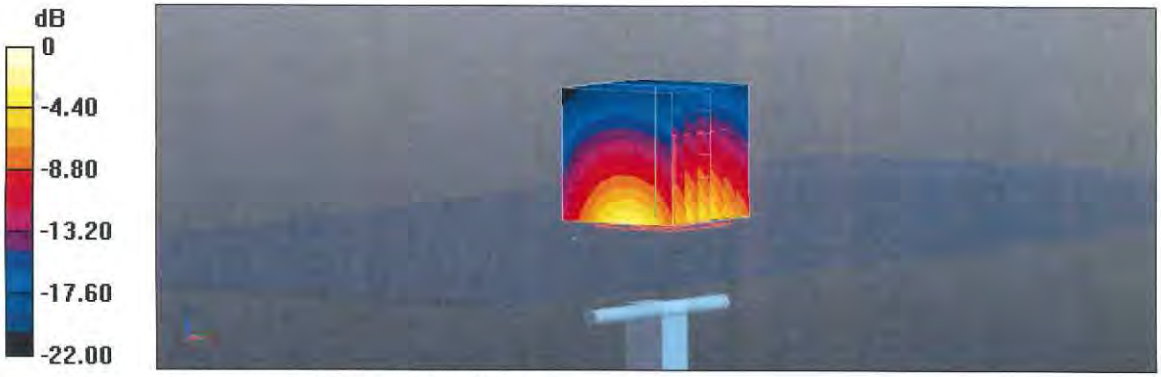
Communication System: UID 0 - CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.02 S/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.79, 7.79, 7.79); Calibrated: 31.12.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.01.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7331)

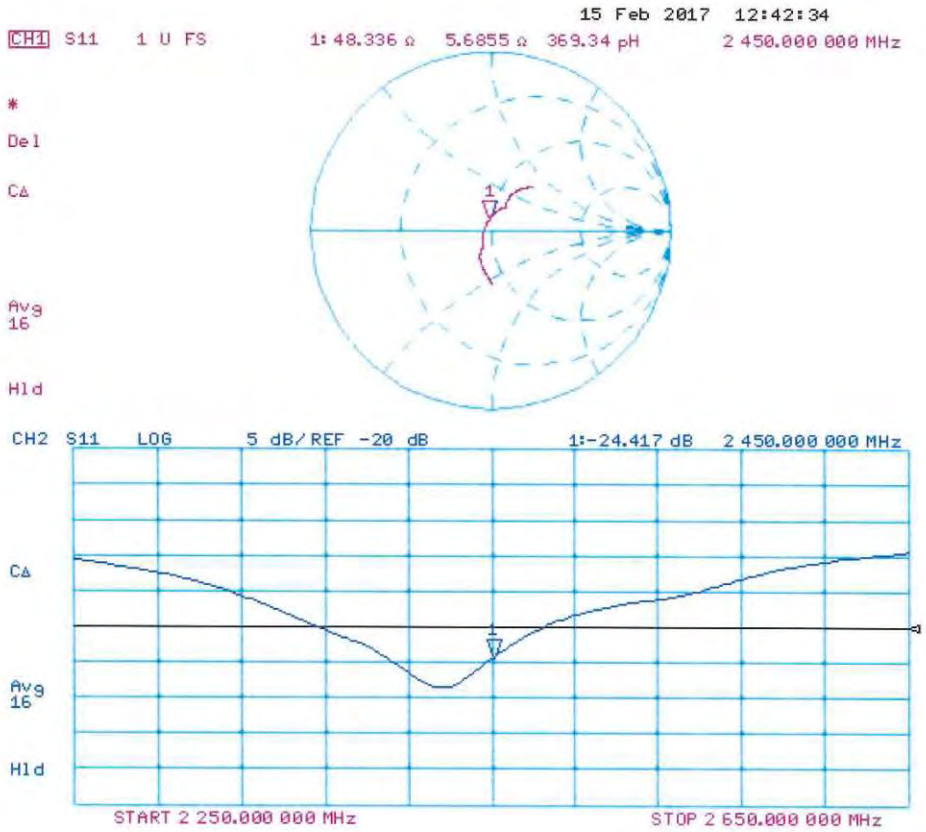
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 105.4 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 26.6 W/kg
SAR(1 g) = 12.9 W/kg; SAR(10 g) = 5.94 W/kg
Maximum value of SAR (measured) = 20.6 W/kg



0 dB = 20.6 W/kg = 13.14 dBW/kg

Impedance Measurement Plot for Body TSL



Dipole Data

As stated in KDB 865664, for dipole D450V3 (serial number 1077) exceed annual calibration, the test laboratory must ensure that the required supporting information and documentation are included in report to qualify for extended calibration interval.

The table below includes dipoles impedance and return loss measurement data measured by Motorola Solutions' EME lab. The results meet requirements stated in KDB 865664.

Dipole D450V3 (SN 1077)	Head			Body		
	Impedance		Return Loss	Impedance		Return Loss
Date Measured	real Ω	imag jΩ	dB	real Ω	imag jΩ	dB
06/28/2016	58.87	-2.93	-22.48	50.59	-6.61	-22.25
12/01/2016	59.08	-2.93	-22.65	51.05	-7.45	-22.63

Appendix D
System Verification Check Scans

Motorola Solutions, Inc. EME Laboratory

Date/Time: 5/19/2017 8:09:26 AM

Robot#: DASY5-PG-2 | Run#:	ARF-SYSP-450B-170519-01
Dipole Model#	D450V3
Phantom#:	ELI4 1016
Tissue Temp:	21.1 (C)
Serial#:	1077
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.045 dB
Adjusted SAR (1W):	4.76 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.97 S/m; ε_r = 54.5; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 450 MHz, ConvF(7.1, 7.1, 7.1); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (41x201x1):

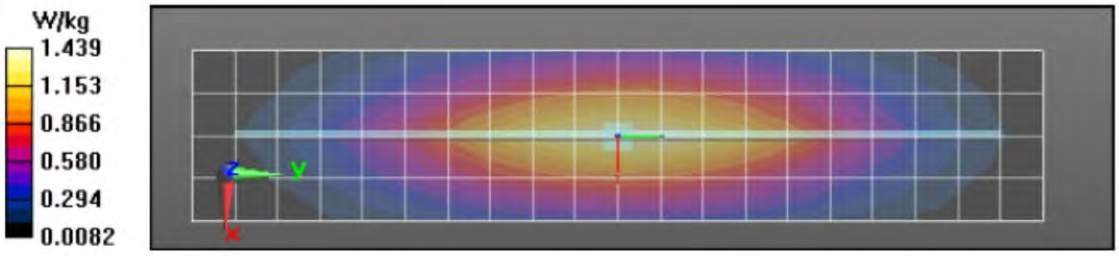
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 38.71 V/m; Power Drift = 0.01 dB
Fast SAR: SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.854 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.44 W/kg

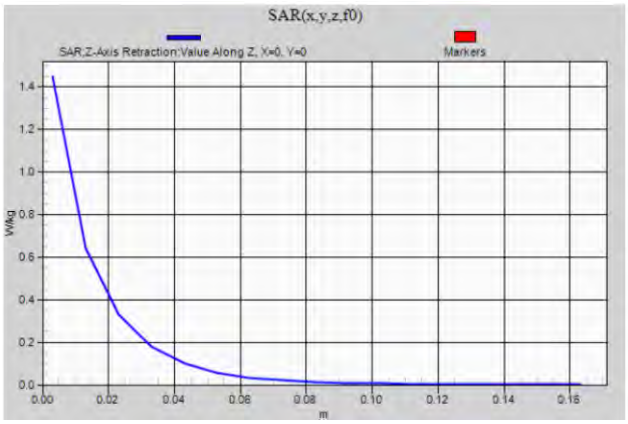
Below 2 GHz-Rev.2/System Performance Check/0-Degree Cube (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 38.71 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.99 W/kg
SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.791 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.45 W/kg

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

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





Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/20/2017 12:09:37 PM

Robot#: DASY5-PG-2 | Run#:	ARF-SYSP-450B-170520-09
Dipole Model#	D450V3
Phantom#:	ELI4 1016
Tissue Temp:	21.8 (C)
Serial#:	1077
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.034 dB
Adjusted SAR (1W):	4.72 mW/g (1g)

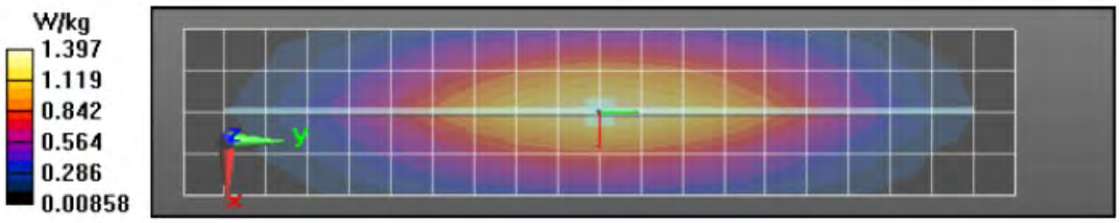
Comments:

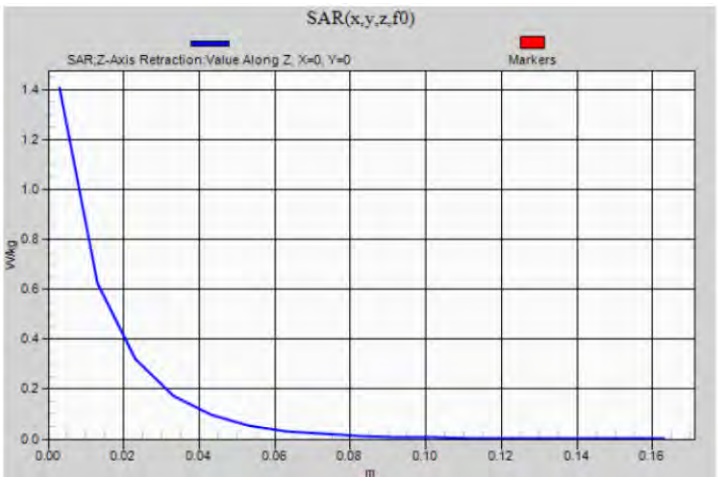
Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.95 S/m; ε_r = 54.4; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 450 MHz, ConvF(7.1, 7.1, 7.1); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (41x201x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 38.69 V/m; Power Drift = -0.06 dB
Fast SAR: SAR(1 g) = 1.21 W/kg; SAR(10 g) = 0.842 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.40 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 = 38.69 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.95 W/kg
SAR(1 g) = 1.18 W/kg; SAR(10 g) = 0.780 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.41 W/kg

Below 2 GHz-Rev.2/System Performance Check/Z-Axis Retraction (1x1x17):
Measurement grid: dx=20mm, dy=20mm, dz=10mm





Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/20/2017 7:26:20 AM

Robot#: DASY5-PG-2 | Run#:	ARF-SYSP-450H-170520-02
Dipole Model#	D450V3
Phantom#:	ELI4 1109
Tissue Temp:	21.9 (C)
Serial#:	1077
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.044 dB
Adjusted SAR (1W):	4.76 mW/g (1g)

Comments:

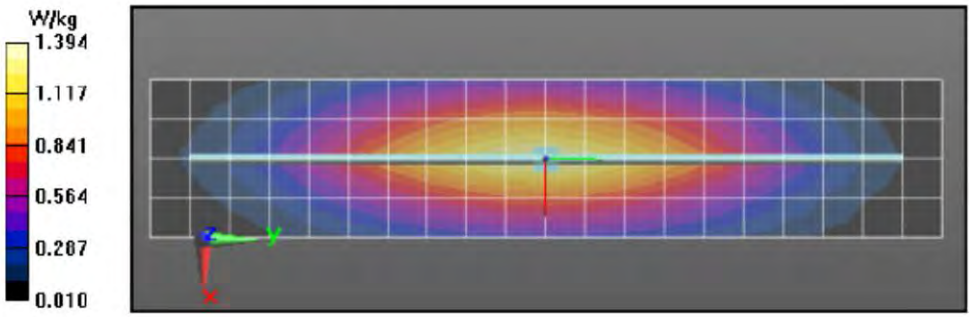
Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 42.8; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 450 MHz, ConvF(7, 7, 7); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

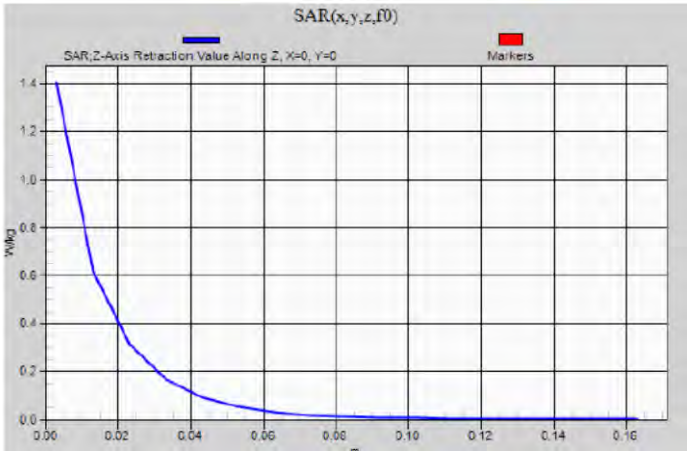
Below 2 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (41x201x1):
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 40.46 V/m; Power Drift = -0.00 dB
Fast SAR: SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.850 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.40 W/kg

Below 2 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (5x21x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.39 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 = 40.46 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.788 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.41 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) = 1.40 W/kg





Motorola Solutions, Inc. EME Laboratory

Date/Time: 5/25/2017 3:26:53 PM

Robot#: DASY5-PG-2 | Run#:	TLC(AM)-SYSP-450B-170525-03
Dipole Model#	D450V3
Phantom#:	ELI4 1016
Tissue Temp:	20.7 (C)
Serial#:	1077
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.048 dB
Adjusted SAR (1W):	4.68 mW/g (1g)

Comments

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.96 S/m; ε_r = 55; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 450 MHz, ConvF(7.1, 7.1, 7.1); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (41x201x1):

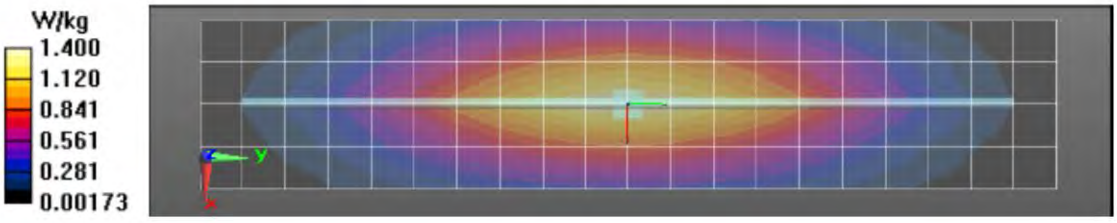
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 38.34 V/m; Power Drift = -0.02 dB
Fast SAR: SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.835 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.40 W/kg

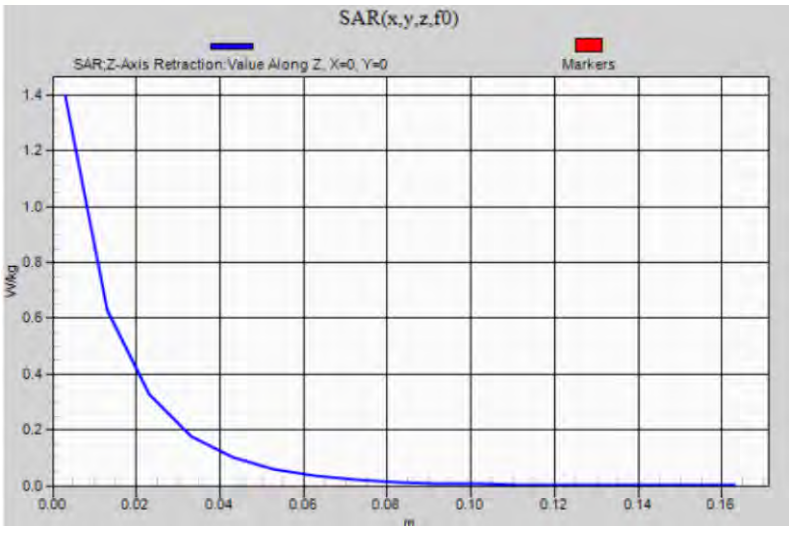
Below 2 GHz-Rev.2/System Performance Check/0-Degree Cube (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 38.34 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.92 W/kg
SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.778 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.40 W/kg

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

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





Motorola Solutions, Inc. EME Laboratory

Date/Time: 5/26/2017 4:25:40 PM

Robot#: DASY5-PG-2 | Run#:	ARF(HR&FAZ)-SYSP-450H-170526-05
Dipole Model#	D450V3
Phantom#:	ELI4 1109
Tissue Temp:	20.8 (C)
Serial#:	1077
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.053 dB
Adjusted SAR (1W):	4.64 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.84 S/m; ε_r = 42.5; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 450 MHz, ConvF(7, 7, 7); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (41x181x1):

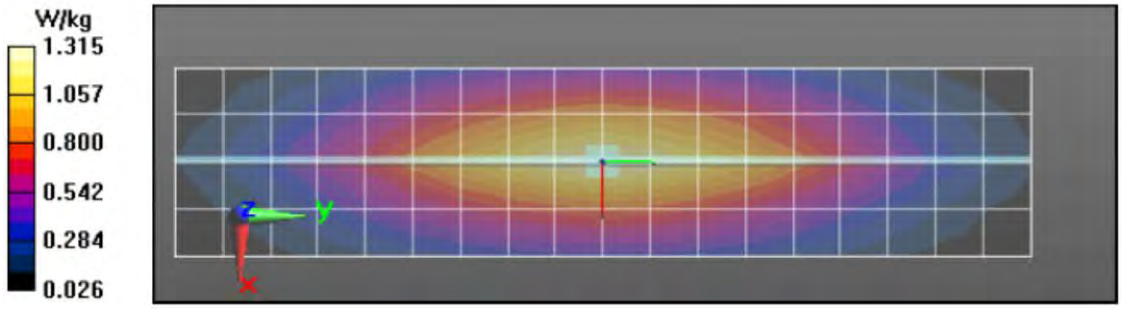
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 40.07 V/m; Power Drift = -0.06 dB
Fast SAR: SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.821 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.32 W/kg

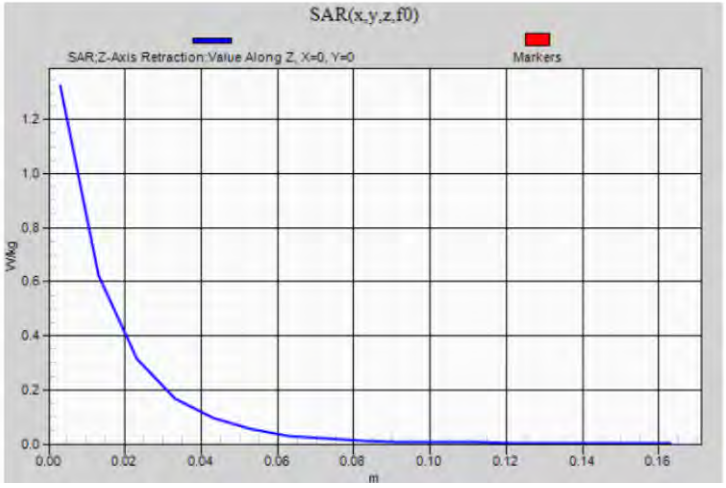
Below 2 GHz-Rev.2/System Performance Check/0-Degree Cube (5x5x7)/Cube 0:

Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 40.07 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.62 W/kg
SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.780 W/kg (SAR corrected for target medium)

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

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





Motorola Solutions, Inc. EME Laboratory

Date/Time: 5/30/2017 5:34:18 PM

Robot#: DASY5-PG-1 | Run#:	FD-SYSP-2450H-170530-01
Dipole Model#	D2450V2
Phantom#:	TP 1174-3
Tissue Temp:	21.3 (C)
Serial#:	782
Test Freq:	2450.000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.130 dB
Adjusted SAR (1W):	52.80 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.88 S/m; ε_r = 38.2; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN3735, , Frequency: 2450 MHz, ConvF(7.08, 7.08, 7.08); Calibrated: 3/10/2017
Electronics: DAE4 Sn729, Calibrated: 10/12/2016

2-3 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (51x101x1): Interpolated

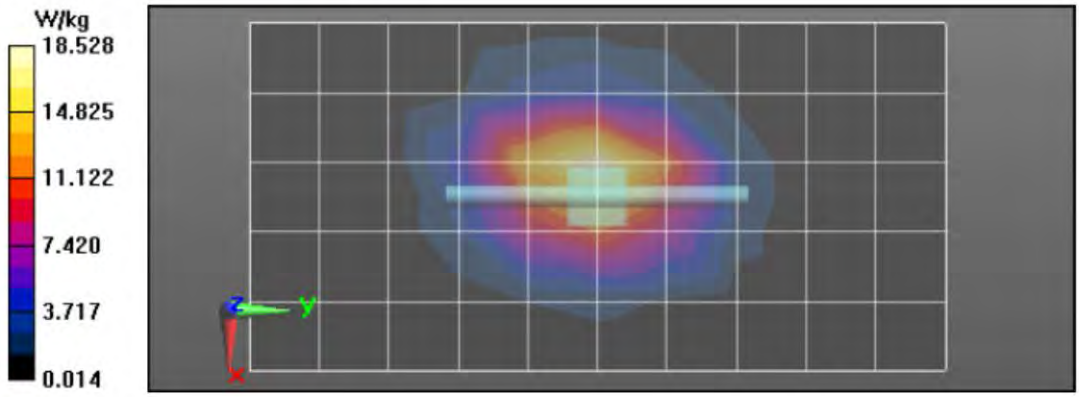
grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 106.2 V/m; Power Drift = 0.01 dB
Fast SAR: SAR(1 g) = 13.7 W/kg; SAR(10 g) = 6.37 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 21.2 W/kg

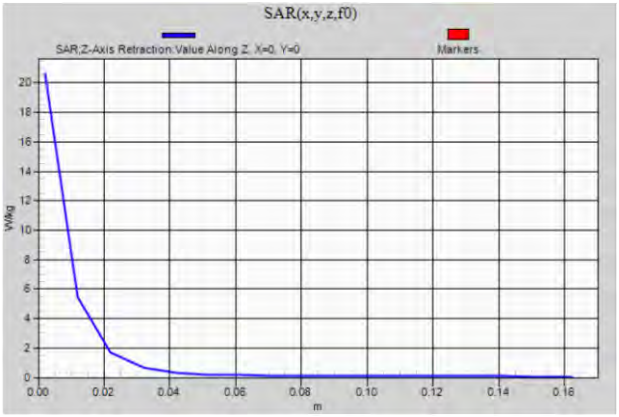
2-3 GHz-Rev.2/System Performance Check/0-Degree Cube (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 106.2 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 27.3 W/kg
SAR(1 g) = 13.2 W/kg; SAR(10 g) = 6.31 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 20.3 W/kg

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

grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 20.6 W/kg





Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/31/2017 7:37:34 AM

Robot#: DASY5-PG-1 | Run#:	ZR-SYSP-2450B-170531-01
Dipole Model#	D2450V2
Phantom#:	TP 1174-1
Tissue Temp:	21.7 (C)
Serial#:	782
Test Freq:	2450.000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.14 dB
Adjusted SAR (1W):	49.60 mW/g (1g)

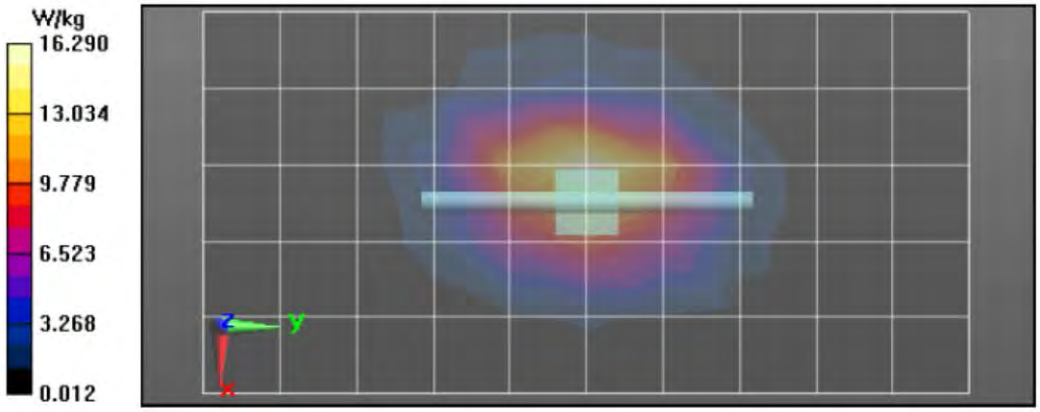
Comments:

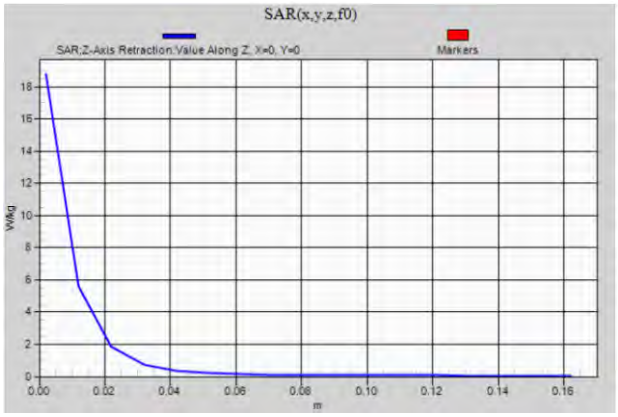
Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.95 S/m; ε_r = 51.8; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN3735, , Frequency: 2450 MHz, ConvF(7.24, 7.24, 7.24); Calibrated: 3/10/2017
Electronics: DAE4 Sn729, Calibrated: 10/12/2016

2-3 GHz-Rev.2/System Performance Check/Dipole Area Scan 2 (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 99.35 V/m; Power Drift = -0.02 dB
Fast SAR: SAR(1 g) = 12.4 W/kg; SAR(10 g) = 5.62 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 18.9 W/kg

2-3 GHz-Rev.2/System Performance Check/0-Degree Cube (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.35 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 24.0 W/kg
SAR(1 g) = 12.4 W/kg; SAR(10 g) = 5.95 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 18.6 W/kg

2-3 GHz-Rev.2/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 18.8 W/kg





Appendix E
DUT Scans

Assessments at the Body with Body Worn PMLN7128A
Table 18

Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/19/2017 11:35:23 AM

Robot#: DASY5-PG-2 | Run#: ARF-AB-170519-04
Model#: PMUE5099A
Phantom#: ELI4 1016
Tissue Temp: 21.1 (C)
Serial#: 130TTK0080
Antenna: PMAE4095B
Test Freq: 435.0000 (MHz)
Battery: PMNN4468A
Carry Acc: PMLN7128A
Audio Acc: PMLN7156A
Start Power: 2.39 (W)

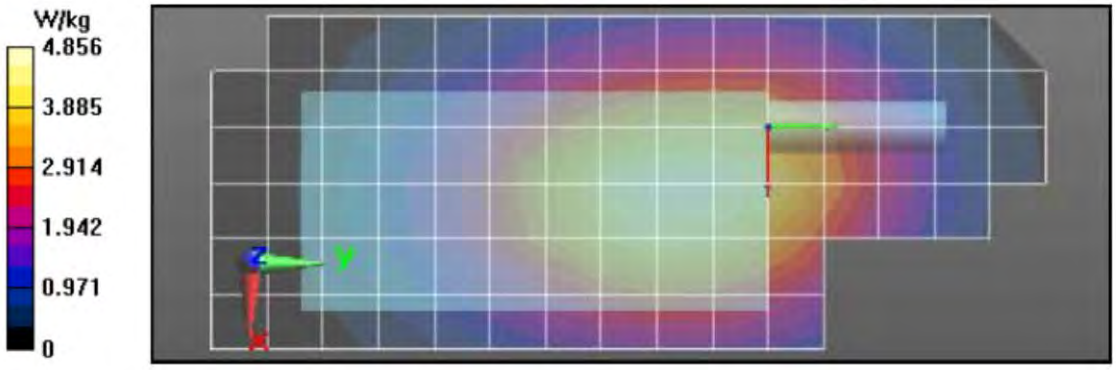
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 435 MHz; σ = 0.96 S/m; ε_r = 54.8; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 435 MHz, ConvF(7.1, 7.1, 7.1); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/Ab Scan/1-Area Scan (61x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 64.87 V/m; Power Drift = -0.36 dB
Fast SAR: SAR(1 g) = 4.39 W/kg; SAR(10 g) = 3.19 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 4.92 W/kg

Below 2 GHz-Rev.2/Ab Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 64.87 V/m; Power Drift = -0.49 dB
Peak SAR (extrapolated) = 5.94 W/kg
SAR(1 g) = 4.17 W/kg; SAR(10 g) = 3.04 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.70 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) = 4.63 W/kg



Assessments at the Body with Body Worn PMLN7190A

Table 19

Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/19/2017 8:17:27 PM

Robot#: DASY5-PG-2 | Run#:	TLC(AM)-AB-170519-09
Model#:	PMUE5099A
Phantom#:	ELI4 1016
Tissue Temp:	21.0 (C)
Serial#:	130TTK0080
Antenna:	PMAE4095B
Test Freq:	435.0000 (MHz)
Battery:	PMNN4468A
Carry Acc:	PMLN7190A
Audio Acc:	PMLN7156A
Start Power:	2.36 (W)

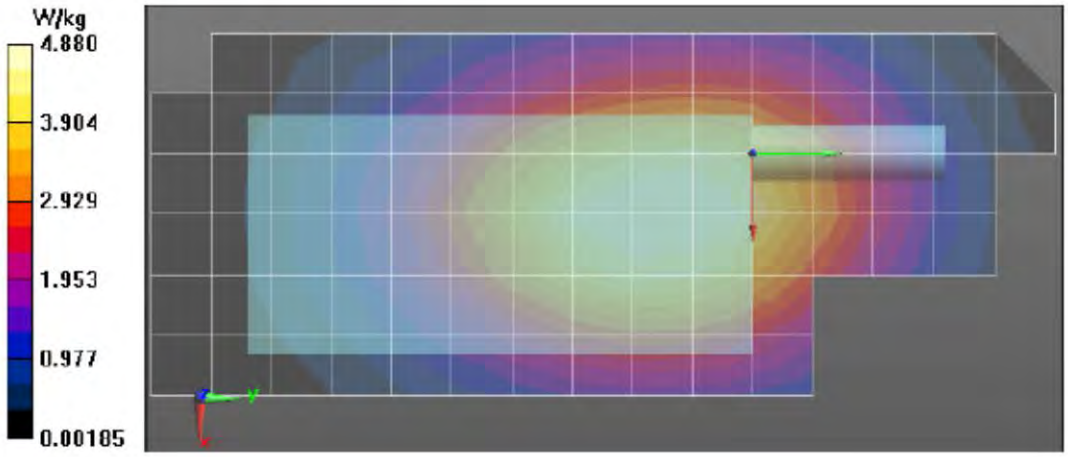
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 435 MHz; σ = 0.96 S/m; ε_r = 54.8; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 435 MHz, ConvF(7.1, 7.1, 7.1); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/Ab Scan/1-Area Scan (61x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 69.50 V/m; Power Drift = -0.37 dB
Fast SAR: SAR(1 g) = 4.65 W/kg; SAR(10 g) = 3.36 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 5.23 W/kg

Below 2 GHz-Rev.2/Ab Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 69.50 V/m; Power Drift = -0.50 dB
Peak SAR (extrapolated) = 6.27 W/kg
SAR(1 g) = 4.37 W/kg; SAR(10 g) = 3.18 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.97 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) = 4.88 W/kg



Assessment of wireless BT configuration
Table 20

Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/20/2017 6:25:16 AM

Robot#: DASY5-PG-2 | Run#: ARF-AB-170520-01#
Model#: PMUE5099A
Phantom#: ELI4 1016
Tissue Temp: 21.1 (C)
Serial#: 130TTK0080
Antenna: PMAE4095B
Test Freq: 435.0000 (MHz)
Battery: PMNN4468A
Carry Acc: PMLN7190A
Audio Acc: NONE
Start Power: 2.32 (W)

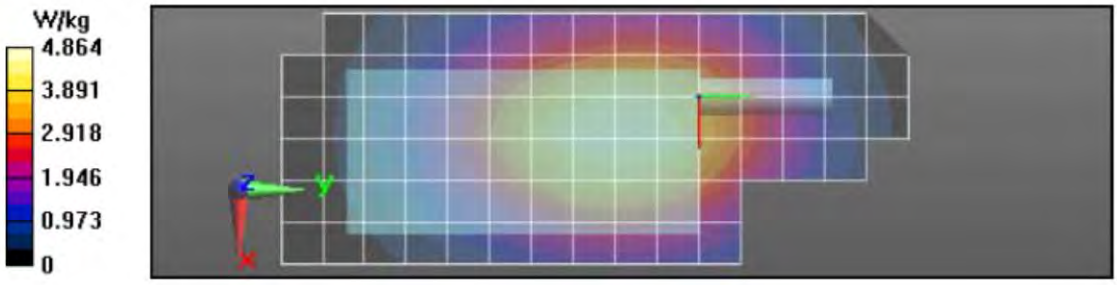
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 435 MHz; σ = 0.96 S/m; ε_r = 54.8; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 435 MHz, ConvF(7.1, 7.1, 7.1); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/Ab Scan/1-Area Scan (61x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 66.55 V/m; Power Drift = -0.09 dB
Fast SAR: SAR(1 g) = 4.39 W/kg; SAR(10 g) = 3.2 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 4.90 W/kg

Below 2 GHz-Rev.2/Ab Scan/3-Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 66.55 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 6.07 W/kg
SAR(1 g) = 4.29 W/kg; SAR(10 g) = 3.15 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 4.80 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) = 4.74 W/kg



Assessment at the Body for WLAN 802.11 b/g/n
Table 22
Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/31/2017 10:20:39 AM

Robot#: DASY5-PG-01 | Run#: ZR-AB-170531-03

Model#:	PMUE5099A
Phantom#:	TP1174-3
Tissue Temp:	21.4 (C)
Serial#:	130TTK0073
Antenna:	PMLN7569A WiFi Ant
Test Freq:	2412.0000 (MHz)
Battery:	PMNN4468A
Carry Acc:	PMLN7190A
Audio Acc:	None
Start Power:	0.0199 (W)

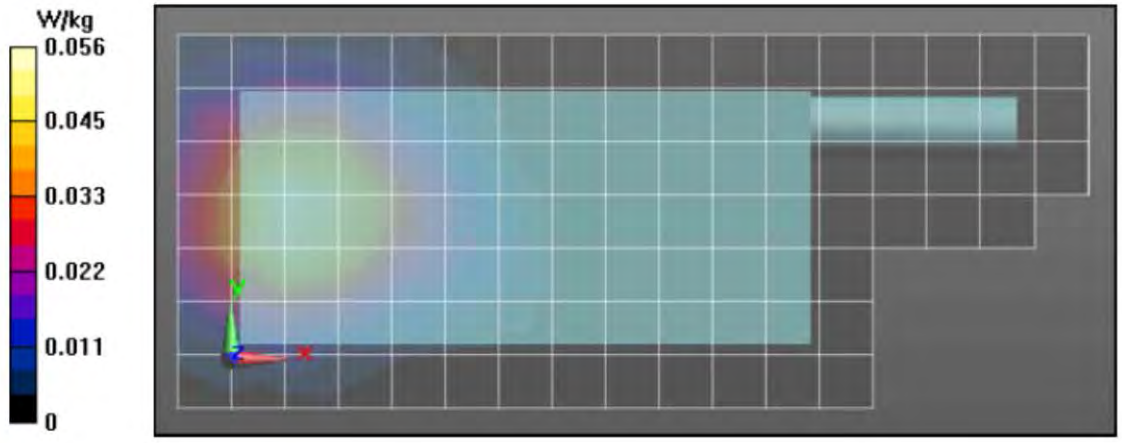
Comments:

Duty Cycle: 1:1.42561, Medium parameters used: f = 2412 MHz; σ = 1.9 S/m; ε_r = 52; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN3735, , Frequency: 2412 MHz, ConvF(7.24, 7.24, 7.24); Calibrated: 3/10/2017
Electronics: DAE4 Sn729, Calibrated: 10/12/2016

2-3 GHz-Rev.2/Ab Scan/1-Area Scan (91x181x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 3.573 V/m; Power Drift = 0.01 dB
Fast SAR: SAR(1 g) = 0.042 W/kg; SAR(10 g) = 0.024 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 0.0582 W/kg

2-3 GHz-Rev.2/Ab Scan/3-Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.573 V/m; Power Drift = -0.36 dB
Peak SAR (extrapolated) = 0.0650 W/kg
SAR(1 g) = 0.039 W/kg; SAR(10 g) = 0.023 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.0519 W/kg

2-3 GHz-Rev.2/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 0.0557 W/kg



Assessment at the Face (Front of DUT)
Table 24

Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/20/2017 10:57:15 AM

Robot#: DASY5-PG-2 | Run#: ARF-FACE-170520-07
Model#: PMUE5099A
Phantom#: ELI4 1109
Tissue Temp: 21.9 (C)
Serial#: 130TTK0080
Antenna: PMAE4099A
Test Freq: 445.0000 (MHz)
Battery: PMNN4468A
Carry Acc: @front
Audio Acc: NONE
Start Power: 2.31 (W)

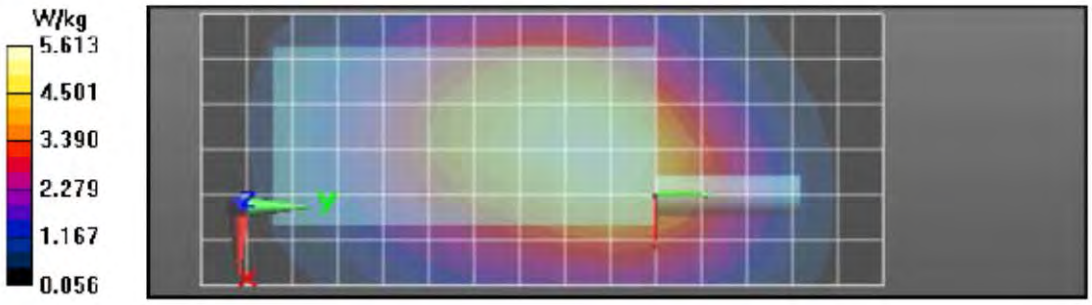
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 445 MHz; σ = 0.87 S/m; ε_r = 42.9; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 445 MHz, ConvF(7, 7, 7); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/Face Scan/1-Area Scan (61x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 77.26 V/m; Power Drift = -0.28 dB
Fast SAR: SAR(1 g) = 5.06 W/kg; SAR(10 g) = 3.67 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 5.68 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 = 77.26 V/m; Power Drift = -0.37 dB
Peak SAR (extrapolated) = 6.97 W/kg
SAR(1 g) = 4.85 W/kg; SAR(10 g) = 3.51 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 5.47 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) = 5.36 W/kg



Assessment at the Face for WLAN 802.11 b/g/n
Table 26

Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/31/2017 11:55:10 AM

Robot#: DASY5-PG-01 | Run#: ZR-FACE-170531-04#

Model#:	PMUE5099A
Phantom#:	TP1174-2
Tissue Temp:	20.5 (C)
Serial#:	130TTK0073
Antenna:	PMLN7569A WiFi Ant
Test Freq:	2412.0000 (MHz)
Battery:	PMNN4468A
Carry Acc:	2.5cm @ Front
Audio Acc:	None
Start Power:	0.0199 (W)

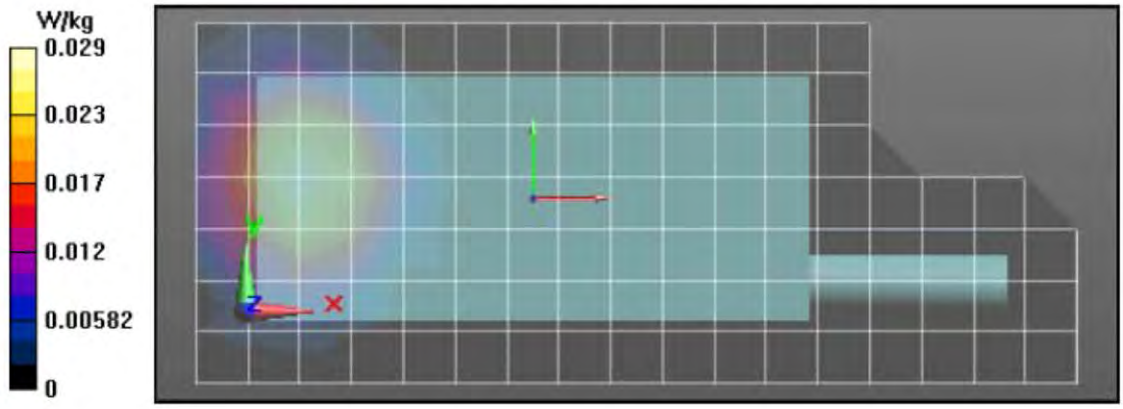
Comments:

Duty Cycle: 1:1.42561, Medium parameters used: f = 2412 MHz; σ = 1.85 S/m; ε_r = 38.2; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN3735, , Frequency: 2412 MHz, ConvF(7.08, 7.08, 7.08); Calibrated: 3/10/2017
Electronics: DAE4 Sn729, Calibrated: 10/12/2016

2-3 GHz-Rev.2/FACE/1-Area Scan (91x181x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 1.912 V/m; Power Drift = -0.37 dB
Fast SAR: SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.012 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 0.0293 W/kg

2-3 GHz-Rev.2/FACE/3-Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.912 V/m; Power Drift = -0.50 dB
Peak SAR (extrapolated) = 0.0360 W/kg
SAR(1 g) = 0.020 W/kg; SAR(10 g) = 0.011 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.0281 W/kg

2-3 GHz-Rev.2/FACE/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 0.0265 W/kg



Assessments at the Body for Outside Part 90
Table 28

Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/20/2017 5:00:31 PM

Robot#: DASY5-PG-2 | Run#: TLC-AB-170520-14
Model#: PMUE5099A
Phantom#: ELI4 1016
Tissue Temp: 21.2 (C)
Serial#: 130TTK0080
Antenna: PMAE4093B
Test Freq: 403.0000 (MHz)
Battery: PMNN4468A
Carry Acc: PMLN7190A
Audio Acc: PMLN7156A
Start Power: 2.30 (W)

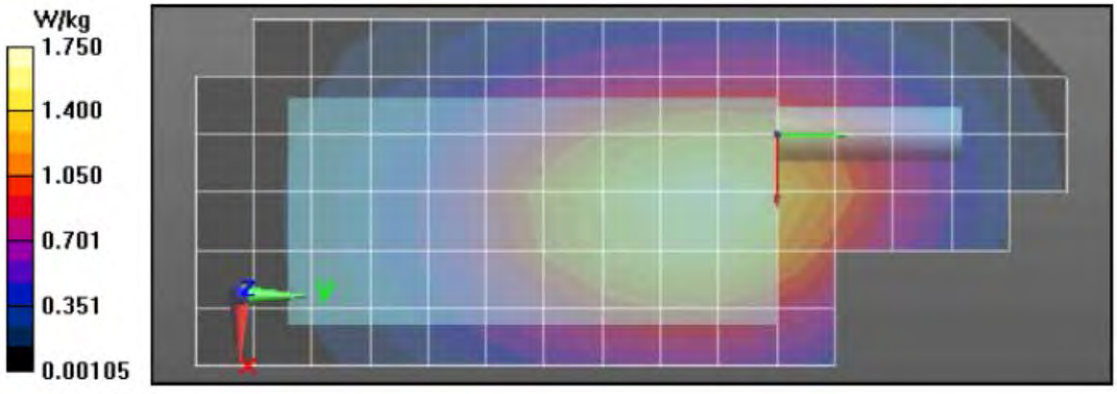
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 403 MHz; σ = 0.83 S/m; ε_r = 43.8; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 403 MHz, ConvF(7, 7, 7); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/Ab Scan/1-Area Scan (61x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 40.12 V/m; Power Drift = -0.09 dB
Fast SAR: SAR(1 g) = 1.61 W/kg; SAR(10 g) = 1.17 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.75 W/kg

Below 2 GHz-Rev.2/Ab Scan/3-Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 40.12 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 2.22 W/kg
SAR(1 g) = 1.59 W/kg; SAR(10 g) = 1.15 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.75 W/kg

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



Assessments at the Face for Outside Part 90
Table 28

Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/20/2017 6:42:34 PM

Robot#: DASY5-PG-2 | Run#: TLC-FACE-170520-17
Model#: PMUE5099A
Phantom#: ELI4 1109
Tissue Temp: 21.1 (C)
Serial#: 130TTK0080
Antenna: PMAE4094B
Test Freq: 403.0000 (MHz)
Battery: PMNN4468A
Carry Acc: @front
Audio Acc: NONE
Start Power: 2.30 (W)

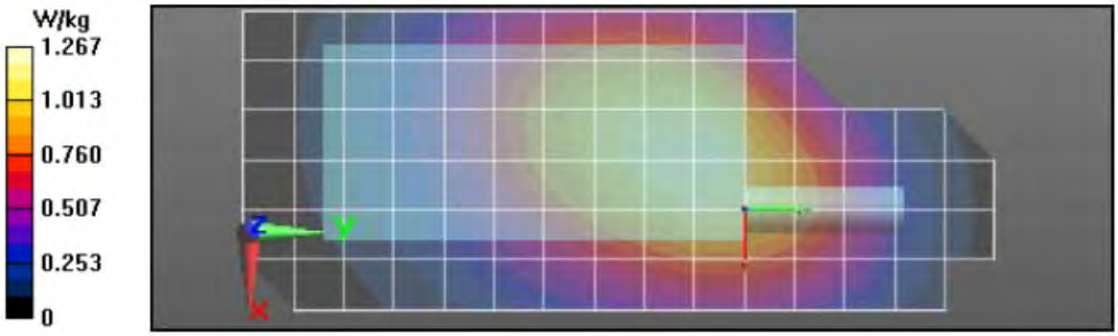
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 403 MHz; σ = 0.83 S/m; ε_r = 43.8; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 403 MHz, ConvF(7, 7, 7); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/FACE Scan/1-Area Scan (61x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 38.68 V/m; Power Drift = -0.49 dB
Fast SAR: SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.854 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.27 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 = 38.68 V/m; Power Drift = -0.50 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.828 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.24 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) = 1.23 W/kg



Appendix F
Shortened Scan of Highest SAR configuration

Motorola Solutions, Inc. EME Laboratory
Date/Time: 5/20/2017 7:12:10 PM

Robot#: DASY5-PG-2 | Run#: TLC-FACE-170520-18
Model#: PMUE5099A
Phantom#: ELI4 1109
Tissue Temp: 21.0 (C)
Serial#: 130TTK0080
Antenna: PMAE4099A
Test Freq: 445.0000 (MHz)
Battery: PMNN4468A
Carry Acc: @front
Audio Acc: NONE
Start Power: 2.35 (W)

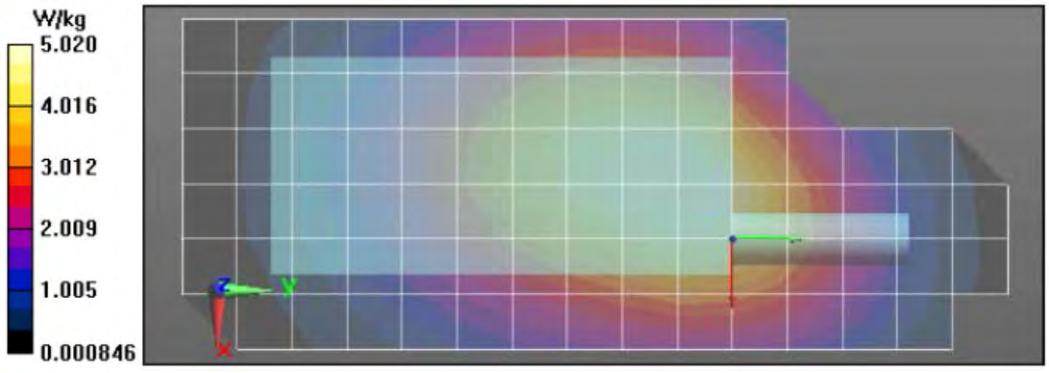
Comments: Shorten scan

Duty Cycle: 1:1, Medium parameters used: f = 445 MHz; σ = 0.87 S/m; ε_r = 42.9; ρ = 1000 kg/m^3
Probe: ES3DV3 - SN3122, , Frequency: 445 MHz, ConvF(7, 7, 7); Calibrated: 3/10/2017
Electronics: DAE4 Sn850, Calibrated: 2/28/2017

Below 2 GHz-Rev.2/FACE Scan/1-Area Scan (61x151x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 76.43 V/m; Power Drift = -0.37 dB
Fast SAR: SAR(1 g) = 4.78 W/kg; SAR(10 g) = 3.46 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 5.35 W/kg

Below 2 GHz-Rev.2/FACE Scan/2-Volume 2D Scan (41x41x1): Interpolated grid: dx=0.7500 mm, dy=0.7500 mm, dz=1.000 mm
Reference Value = 76.43 V/m; Power Drift = -0.44 dB
Fast SAR: SAR(1 g) = 4.65 W/kg; SAR(10 g) = 3.42 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 5.16 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 = 82.95 V/m; Power Drift = -0.35 dB
Peak SAR (extrapolated) = 7.13 W/kg
SAR(1 g) = 4.96 W/kg; SAR(10 g) = 3.6 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 5.56 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)	29	7	2.75	1.99
Full scan (area & zoom)	24	25	2.74	1.99

Appendix G
DUT Test Position Photos

Photos available in Exhibit 7B

Appendix H
DUT, Body worn and audio accessories Photos

Photos available in Exhibit 7B