MOTOROLA SOLUTIONS

MS ISO/IEC 17025 TESTING SAMM No. 0826

ACCREDITED CERTIFICATE 2518.05

DECLARATION OF COMPLIANCE SAR ASSESSMENT 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: 07/15/2020
Report Revision: A

Responsible Engineer:	Goh Jue Yie (EME Engineer)
Report Author:	Goh Jue Yie (EME Engineer)
Date/s Tested:	02/10/2020-02/21/2020, 02/24/2020-02/28/2020, 03/01/2020, 04/29/2020, 05/01/2020, 05/20/2020, 07/08/2020-07/10/2020, 07/14/2020-07/15/2020
Manufacturer:	Motorola Solutions Inc.
DUT Description:	Handheld Portable –403-512 MHz 4W FKP GNSS BT WiFi GOB
Test TX mode(s):	CW (PTT), Bluetooth, and WLAN 802.11b/g/n
Max. Power output:	4.8 W (UHF band), 10.0 mW (Bluetooth), 22.4 mW (802.11b), 8.3 mW (802.11g), 12.6 mW(802.11n)
Nominal Power:	4.0 W (UHF band), 8.9 mW (Bluetooth), 16.6 mW (802.11b), 6.6 mW (802.11g), 10 mW(802.11n)
Tx Frequency Bands:	LMR 403-512 MHz; Bluetooth 2.402-2.480 GHz; WLAN 2.412-2.484 GHz
Signaling type:	FM, FHSS (Bluetooth), 802.11b/g/n (WLAN)
Model(s) Tested:	AAH56RDN9RA1AN (PMUE3675D) (IC MODEL: PMUE3675DBCNAA)
Model(s) Certified:	AAH56RDN9RA1AN (PMUE3675D) (IC MODEL: PMUE3675DBCNAA), AAH56RDC9RA1AN (PMUE3681D) (IC MODEL: PMUE3681DBANAA), AAH56RDC9WA1AN (PMUE3681D) (IC MODEL: PMUE3681DBANKA), AAH56RDN9WA1AN (PMUE3675D) (IC MODEL: PMUE3675DBCNKA)
Serial Number(s):	871TWB3879, 871TWB3878, 871TWB3881
Classification:	Occupational/Controlled
Applicant Name:	Motorola Solutions Inc.
Applicant Address:	8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322
FCC ID:	AZ489FT7128; LMR 406.1-512 MHz, Bluetooth 2.402-2.480 GHz, WLAN 2.412-2.462 GHz This report contains results that are immaterial for FCC equipment approval, which are clearly identified.
IC:	109U-89FT7128 This report contains results that are immaterial for ISED equipment approval, which are clearly identified.
ISED Test Site registration:	24843
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 and RSS-102 (Issue 5).

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: 2020.07.22 13:30:57 +08'00'

Tiong Nguk Ing
Deputy Technical Manager (Approved Signatory)
Approval Date:7/22/2020

Appendix D
Probe Calibration Certificates

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

S C S **Schweizerischer Kalibrierdienst**
Service suisse d'étalonnage
Servizio svizzero di taratura
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 Solutions MY**

Certificate No: **EX3-7511_Oct19**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:7511

Calibration procedure(s) QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7
Calibration procedure for dosimetric E-field probes

Calibration date: October 24, 2019

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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 660	07-Oct-19 (No. DAE4-660_Oct19)	Oct-20
Reference Probe ES3DV2	SN: 3013	31-Dec-18 (No. ES3-3013_Dec18)	Dec-19
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 24, 2019

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
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Accredited by the Swiss Accreditation Service (SAS)
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Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

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, *, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
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"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:7511

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.46	0.37	0.44	± 10.1 %
DCP (mV)[B]	99.0	96.6	99.9	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	118.4	±3.8 %	± 4.7 %
		Y	0.0	0.0	1.0		133.1		
		Z	0.0	0.0	1.0		117.4		

Note: For details on UID parameters see Appendix

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%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7511

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	0.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7511

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
150	52.3	0.76	12.15	12.15	12.15	0.00	1.00	± 13.3 %
300	45.3	0.87	10.87	10.87	10.87	0.08	1.20	± 13.3 %
450	43.5	0.87	10.30	10.30	10.30	0.10	1.30	± 13.3 %
750	41.9	0.89	9.57	9.57	9.57	0.46	0.80	± 12.0 %
835	41.5	0.90	9.28	9.28	9.28	0.33	1.01	± 12.0 %
900	41.5	0.97	9.06	9.06	9.06	0.49	0.81	± 12.0 %
1450	40.5	1.20	8.17	8.17	8.17	0.10	0.80	± 12.0 %
1810	40.0	1.40	7.94	7.94	7.94	0.28	0.80	± 12.0 %
1900	40.0	1.40	7.69	7.69	7.69	0.34	0.80	± 12.0 %
2100	39.8	1.49	7.73	7.73	7.73	0.33	0.80	± 12.0 %
2300	39.5	1.67	7.35	7.35	7.35	0.36	0.90	± 12.0 %
2450	39.2	1.80	7.06	7.06	7.06	0.33	0.90	± 12.0 %
2600	39.0	1.96	6.81	6.81	6.81	0.39	0.90	± 12.0 %
3500	37.9	2.91	6.66	6.66	6.66	0.35	1.30	± 13.1 %
3700	37.7	3.12	6.56	6.56	6.56	0.35	1.30	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

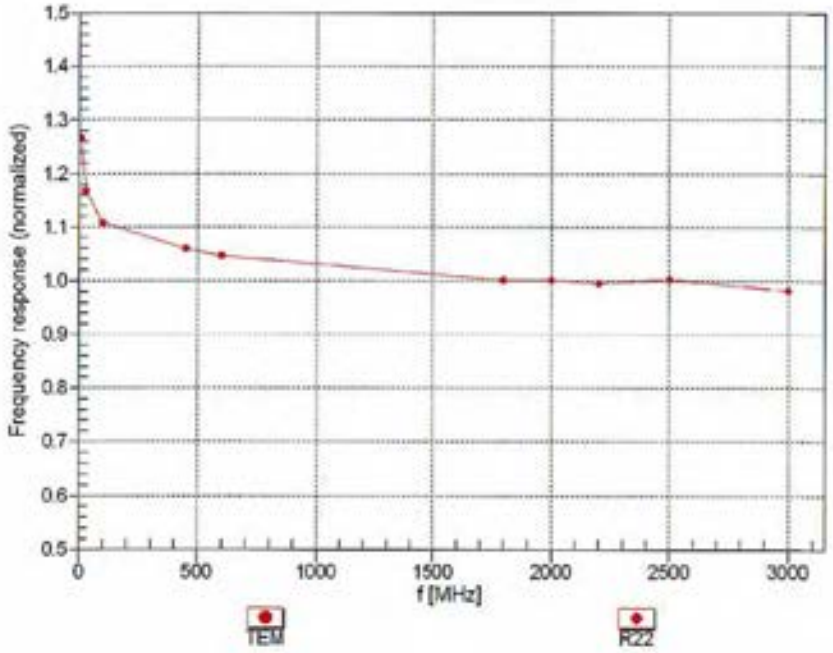
DASY/EASY - Parameters of Probe: EX3DV4 - SN:7511

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
150	61.9	0.80	11.72	11.72	11.72	0.00	1.00	± 13.3 %
300	58.2	0.92	11.12	11.12	11.12	0.04	1.20	± 13.3 %
450	56.7	0.94	10.59	10.59	10.59	0.08	1.30	± 13.3 %
750	55.5	0.96	9.52	9.52	9.52	0.49	0.80	± 12.0 %
835	55.2	0.97	9.26	9.26	9.26	0.40	0.80	± 12.0 %
900	55.0	1.05	9.14	9.14	9.14	0.42	0.84	± 12.0 %
1450	54.0	1.30	7.97	7.97	7.97	0.30	0.80	± 12.0 %
1810	53.3	1.52	7.64	7.64	7.64	0.34	0.80	± 12.0 %
1900	53.3	1.52	7.37	7.37	7.37	0.44	0.80	± 12.0 %
2100	53.2	1.62	7.46	7.46	7.46	0.31	0.86	± 12.0 %
2300	52.9	1.81	7.21	7.21	7.21	0.35	0.90	± 12.0 %
2450	52.7	1.95	6.97	6.97	6.97	0.36	0.90	± 12.0 %
2600	52.5	2.16	6.88	6.88	6.88	0.32	0.90	± 12.0 %
3500	51.3	3.31	6.11	6.11	6.11	0.40	1.35	± 13.1 %
3700	51.0	3.55	6.02	6.02	6.02	0.40	1.35	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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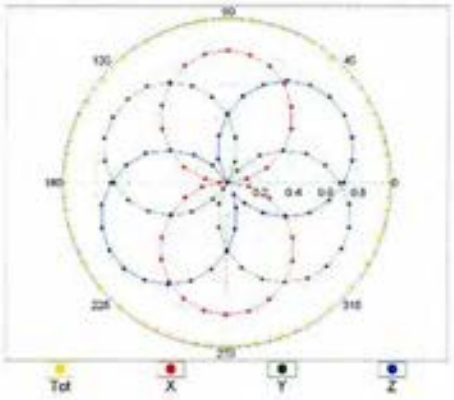
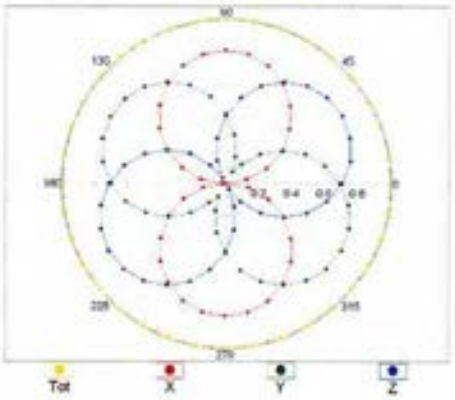
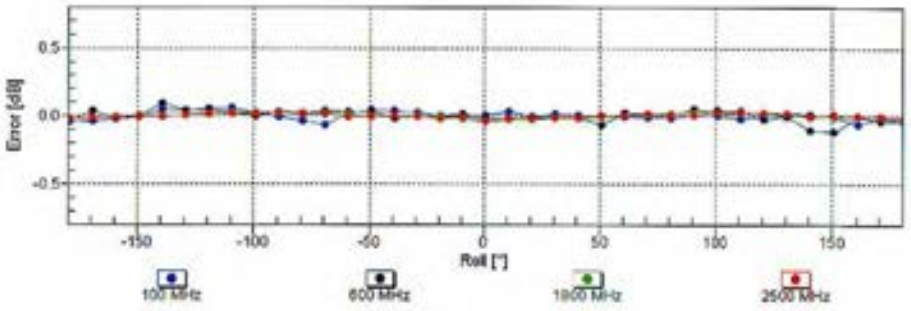
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22

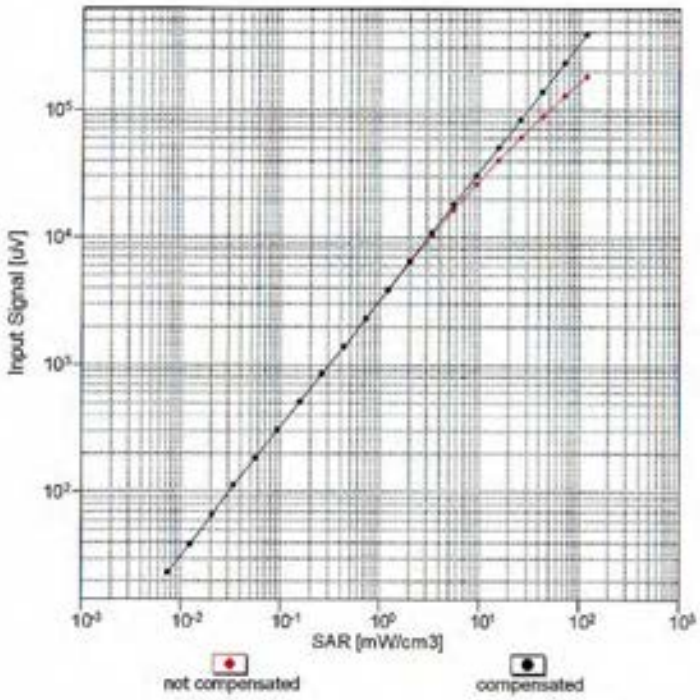


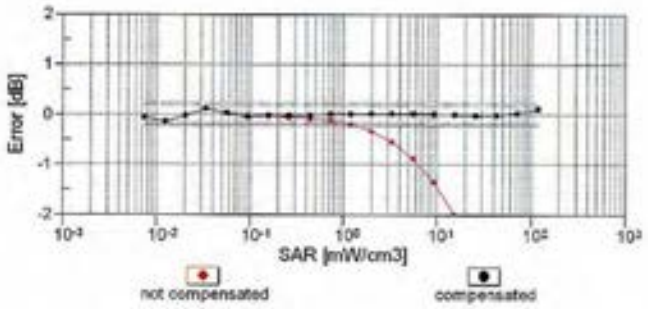


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR$_{head}$)

(TEM cell , f_{eval}= 1900 MHz)

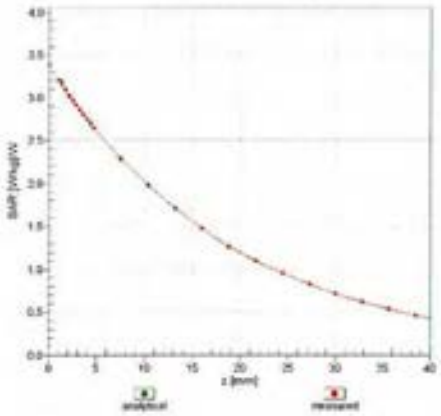




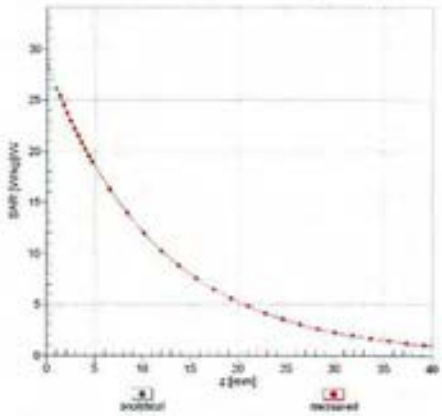
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

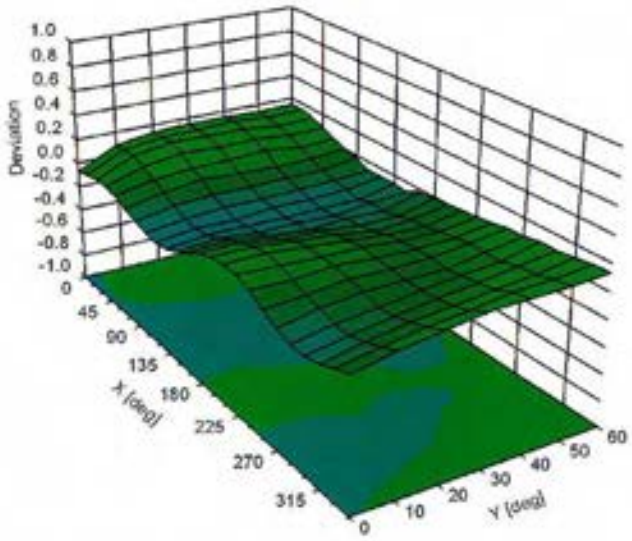


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unc[1] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	118.4	±3.8 %	± 4.7 %
		Y	0.0	0.0	1.0		133.1		
		Z	0.0	0.0	1.0		117.4		
10100-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.43	67.6	19.8	5.67	141.8	±1.4 %	± 4.7 %
		Y	6.81	70.2	22.1		112.8		
		Z	6.38	67.4	19.7		140.0		
10108-CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.29	67.3	19.8	5.80	138.5	±2.2 %	± 4.7 %
		Y	7.56	73.7	24.5		110.1		
		Z	6.28	67.3	19.8		136.5		
10110-CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	5.97	67.0	19.8	5.75	134.4	±2.5 %	± 4.7 %
		Y	6.87	72.6	24.2		149.0		
		Z	5.93	66.8	19.6		132.2		
10154-CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	5.97	67.0	19.8	5.75	134.3	±2.5 %	± 4.7 %
		Y	6.95	73.0	24.5		149.0		
		Z	5.95	66.9	19.6		132.6		
10156-CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	5.77	67.1	19.8	5.79	129.9	±2.5 %	± 4.7 %
		Y	6.92	74.0	25.2		144.8		
		Z	5.72	66.8	19.7		128.0		
10160-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.41	67.5	20.0	5.82	140.2	±2.5 %	± 4.7 %
		Y	6.27	76.0	25.8		111.2		
		Z	6.37	67.4	19.9		137.5		
10169-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.81	67.0	20.0	5.73	116.5	±2.7 %	± 4.7 %
		Y	7.29	81.0	29.2		129.3		
		Z	4.77	66.7	19.8		114.7		
10175-CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.80	66.9	20.0	5.72	116.1	±2.5 %	± 4.7 %
		Y	6.87	79.0	28.1		129.3		
		Z	4.80	66.9	19.9		114.1		
10177-CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	4.82	67.1	20.1	5.73	115.5	±2.5 %	± 4.7 %
		Y	6.68	78.1	27.6		129.4		
		Z	4.78	66.8	19.9		113.9		
10181-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	4.88	67.4	20.3	5.72	116.3	±2.5 %	± 4.7 %
		Y	6.81	78.7	27.9		129.1		
		Z	4.80	66.8	19.9		114.1		
10297-AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.37	67.7	20.2	5.81	138.2	±2.5 %	± 4.7 %
		Y	7.95	75.1	25.4		110.4		
		Z	6.32	67.5	20.0		136.2		
10311-AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.90	68.1	20.4	6.06	144.1	±2.5 %	± 4.7 %
		Y	8.57	75.6	25.7		113.8		
		Z	6.90	68.0	20.4		140.7		

10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 98pc duty cycle)	X	3.27	71.5	20.0	1.54	130.5	±3.0 %	±4.7 %
		Y	7.44	100.0	36.1		146.5		
		Z	3.30	71.7	20.1		128.2		
10435-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.67	70.0	23.2	7.82	134.0	±2.2 %	±4.7 %
		Y	6.40	76.6	28.9		142.3		
		Z	5.66	69.8	23.0		132.2		
10467-AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.67	70.0	23.2	7.82	133.7	±1.4 %	±4.7 %
		Y	5.81	72.6	26.0		142.6		
		Z	5.65	69.7	22.9		131.7		
10470-AAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.64	69.8	23.0	7.82	133.5	±1.4 %	±4.7 %
		Y	5.73	71.9	25.4		142.7		
		Z	5.69	69.9	23.0		131.9		
10473-AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.67	70.1	23.2	7.82	133.5	±1.2 %	±4.7 %
		Y	5.65	71.4	25.1		142.7		
		Z	5.67	69.8	23.0		131.5		
10485-AAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.02	67.8	21.6	7.59	110.4	±1.2 %	±4.7 %
		Y	6.00	69.0	23.2		121.1		
		Z	6.30	68.9	22.1		149.7		
10488-AAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.35	67.6	21.5	7.70	114.9	±1.2 %	±4.7 %
		Y	6.26	68.5	22.9		124.7		
		Z	6.37	67.6	21.4		113.3		
10491-AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.74	68.0	21.6	7.74	119.3	±1.2 %	±4.7 %
		Y	6.58	68.6	22.9		129.0		
		Z	6.73	67.8	21.5		117.8		
10494-AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.75	68.1	21.7	7.74	119.1	±1.2 %	±4.7 %
		Y	6.56	68.6	23.0		128.9		
		Z	6.74	67.9	21.6		117.6		
10503-AAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.37	67.7	21.5	7.72	114.8	±1.4 %	±4.7 %
		Y	6.34	68.9	23.2		124.8		
		Z	6.36	67.4	21.3		113.4		
10506-AAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.72	68.0	21.7	7.74	118.9	±1.4 %	±4.7 %
		Y	6.56	68.6	23.0		128.6		
		Z	6.73	67.9	21.6		117.8		
10509-AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.35	68.6	22.0	7.99	124.0	±1.4 %	±4.7 %
		Y	7.06	68.7	23.0		133.6		
		Z	7.37	68.5	22.0		122.9		

10512-AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.09	68.6	21.9	7.74	122.9	±1.4 %	± 4.7 %
		Y	6.83	69.0	23.0		131.8		
		Z	7.10	68.5	21.8		121.3		
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	3.42	71.9	20.4	1.99	127.1	±1.9 %	± 4.7 %
		Y	9.13	99.3	33.8		140.7		
		Z	3.61	72.9	21.0		124.4		

[8] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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: **EX3-7486_Oct19**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:7486
Calibration procedure(s)	QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7 Calibration procedure for dosimetric E-field probes
Calibration date:	October 24, 2019

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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 660	07-Oct-19 (No. DAE4-660_Oct19)	Oct-20
Reference Probe ES3DV2	SN: 3013	31-Dec-18 (No. ES3-3013_Dec18)	Dec-19
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 24, 2019

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

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Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

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, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
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"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7486

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.37	0.47	0.48	± 10.1 %
DCP (mV)[B]	105.6	93.2	97.9	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	137.7	±3.8 %	± 4.7 %
		Y	0.0	0.0	1.0		152.0		
		Z	0.0	0.0	1.0		161.5		

Note: For details on UID parameters see Appendix

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%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7486

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	19.4
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7486

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
150	52.3	0.76	13.49	13.49	13.49	0.00	1.00	± 13.3 %
300	45.3	0.87	12.20	12.20	12.20	0.07	1.20	± 13.3 %
450	43.5	0.87	11.40	11.40	11.40	0.10	1.30	± 13.3 %
750	41.9	0.89	10.68	10.68	10.68	0.34	1.06	± 12.0 %
835	41.5	0.90	10.46	10.46	10.46	0.45	0.85	± 12.0 %
900	41.5	0.97	10.31	10.31	10.31	0.32	1.00	± 12.0 %
1810	40.0	1.40	8.50	8.50	8.50	0.31	0.87	± 12.0 %
1900	40.0	1.40	8.46	8.46	8.46	0.34	0.87	± 12.0 %
2100	39.8	1.49	8.36	8.36	8.36	0.34	0.87	± 12.0 %
2450	39.2	1.80	7.59	7.59	7.59	0.34	0.90	± 12.0 %
5250	35.9	4.71	5.60	5.60	5.60	0.40	1.80	± 13.1 %
5500	35.6	4.96	5.07	5.07	5.07	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.85	4.85	4.85	0.40	1.80	± 13.1 %
5750	35.4	5.22	5.02	5.02	5.02	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7486

Calibration Parameter Determined in Body Tissue Simulating Media

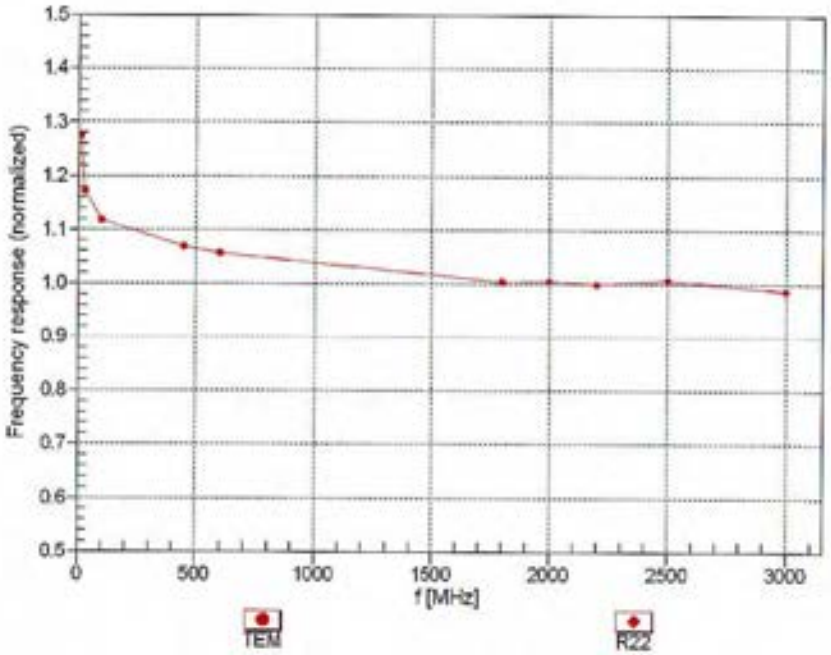
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
150	61.9	0.80	13.04	13.04	13.04	0.00	1.00	± 13.3 %
300	58.2	0.92	11.99	11.99	11.99	0.04	1.20	± 13.3 %
450	56.7	0.94	11.73	11.73	11.73	0.08	1.30	± 13.3 %
750	55.5	0.96	10.49	10.49	10.49	0.25	1.08	± 12.0 %
835	55.2	0.97	10.28	10.28	10.28	0.32	0.94	± 12.0 %
900	55.0	1.05	10.03	10.03	10.03	0.26	1.01	± 12.0 %
1810	53.3	1.52	8.48	8.48	8.48	0.36	0.87	± 12.0 %
1900	53.3	1.52	8.37	8.37	8.37	0.38	0.87	± 12.0 %
2100	53.2	1.62	8.34	8.34	8.34	0.34	0.87	± 12.0 %
2450	52.7	1.95	7.67	7.67	7.67	0.37	0.90	± 12.0 %
5250	48.9	5.36	4.72	4.72	4.72	0.50	1.90	± 13.1 %
5500	48.6	5.65	4.28	4.28	4.28	0.50	1.90	± 13.1 %
5600	48.5	5.77	4.12	4.12	4.12	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.26	4.26	4.26	0.50	1.90	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

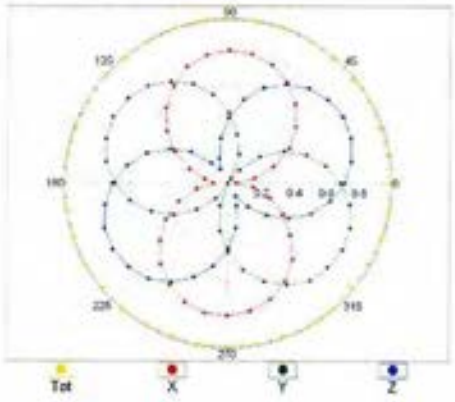
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



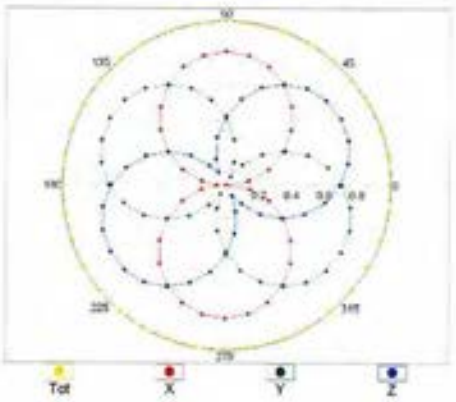
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

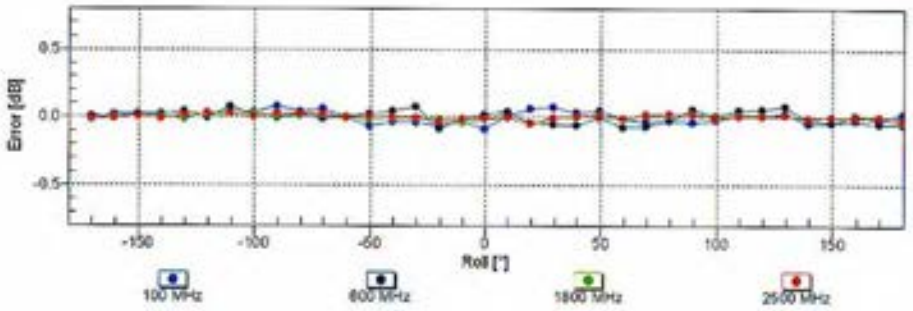
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



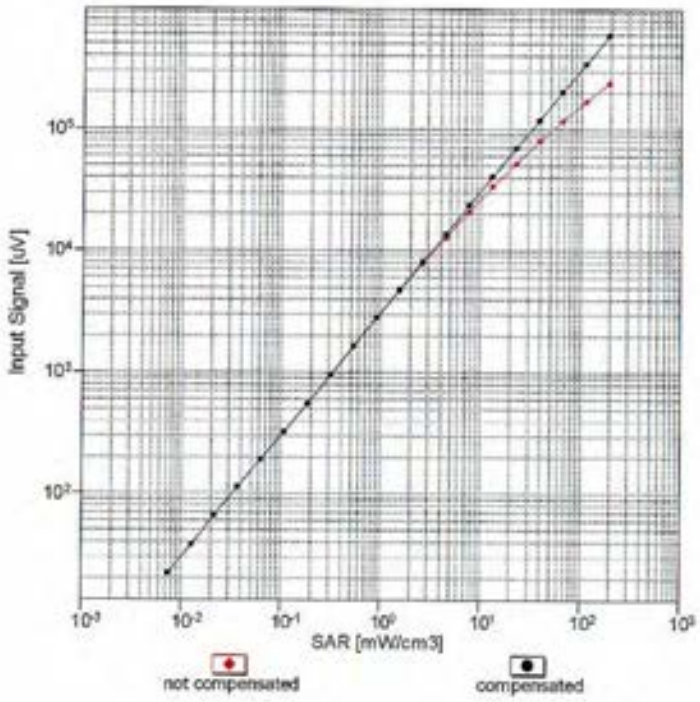
f=1800 MHz,R22

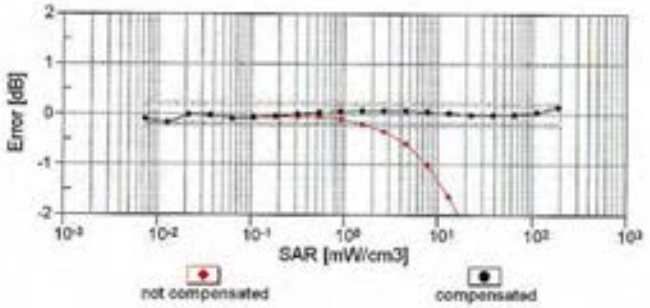




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)



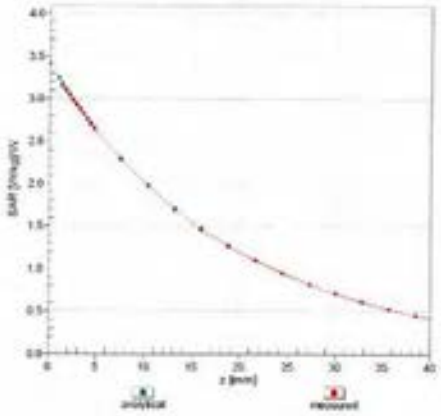


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

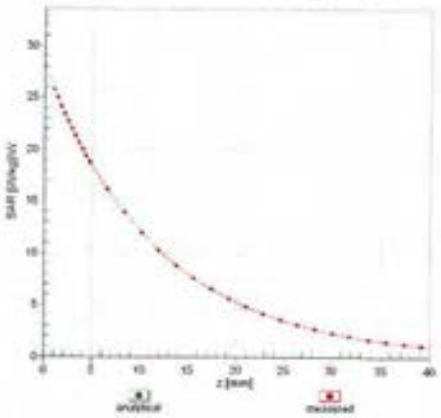
EX3DV4– SN:7486 October 24, 2019

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

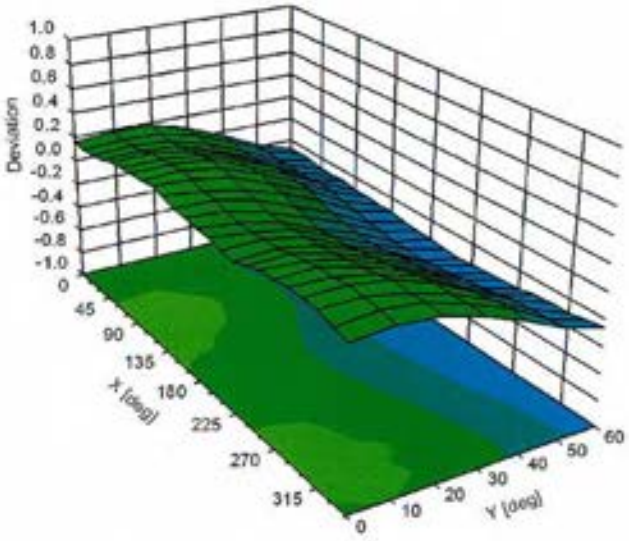


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

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Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unc[a] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	137.7	±3.8 %	± 4.7 %
		Y	0.0	0.0	1.0		152.0		
		Z	0.0	0.0	1.0		161.5		
10021-DAC	GSM-FDD (TDMA, GMSK)	X	15.47	100.0	26.2	9.39	82.1	±3.5 %	± 4.7 %
		Y	14.51	99.4	26.0		66.7		
		Z	10.49	99.5	28.8		96.2		
10023-DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	1.66	65.0	12.6	9.57	80.2	±2.7 %	± 4.7 %
		Y	29.46	99.7	23.7		64.9		
		Z	10.83	98.5	28.3		93.5		
10024-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	0.99	60.7	8.4	6.56	125.8	±3.0 %	± 4.7 %
		Y	21.05	99.6	23.1		122.6		
		Z	2.48	74.1	17.0		147.2		
10025-DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	8.37	89.3	34.3	12.62	52.9	±1.7 %	± 4.7 %
		Y	5.46	77.1	29.2		42.7		
		Z	8.46	91.9	37.4		62.0		
10026-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	5.58	79.9	28.0	9.55	119.8	±1.9 %	± 4.7 %
		Y	4.75	75.8	26.8		96.9		
		Z	5.41	78.1	27.7		141.1		
10027-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	34.47	99.9	21.2	4.80	121.3	±3.0 %	± 4.7 %
		Y	29.06	99.9	21.4		126.1		
		Z	13.02	99.2	24.7		142.4		
10028-DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	29.63	98.9	20.4	3.55	136.1	±2.7 %	± 4.7 %
		Y	15.01	99.2	22.1		144.3		
		Z	9.31	99.4	25.2		120.3		
10029-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	9.47	98.7	36.4	7.78	117.6	±2.2 %	± 4.7 %
		Y	5.43	82.2	29.6		149.9		
		Z	10.13	99.2	36.7		139.4		
10039-CAB	CDMA2000 (1xRTT, RC1)	X	6.17	76.0	24.7	4.57	146.7	±1.4 %	± 4.7 %
		Y	4.90	69.1	21.1		118.1		
		Z	5.98	74.2	23.7		126.2		
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	4.87	78.5	30.0	11.01	77.6	±2.2 %	± 4.7 %
		Y	3.98	73.0	28.0		62.2		
		Z	4.65	75.3	28.7		90.2		
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	6.68	87.2	29.7	6.52	134.1	±1.7 %	± 4.7 %
		Y	5.19	81.2	27.9		142.8		
		Z	4.96	79.0	26.7		118.1		
10081-CAB	CDMA2000 (1xRTT, RC3)	X	6.20	79.7	26.3	3.97	143.7	±1.4 %	± 4.7 %
		Y	4.66	71.7	22.4		115.6		
		Z	5.76	76.7	24.8		123.9		
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	15.43	99.6	24.4	6.56	125.4	±3.5 %	± 4.7 %
		Y	18.16	99.6	23.6		121.1		
		Z	9.82	99.2	27.4		147.6		

10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	10.19	99.2	37.2	9.55	118.7	±2.7 %	±4.7 %
		Y	5.22	79.1	28.7		95.2		
		Z	8.20	92.9	35.7		139.5		
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	9.78	68.8	21.6	8.07	103.7	±1.7 %	±4.7 %
		Y	9.82	68.4	21.5		117.8		
		Z	10.24	69.7	22.2		128.2		
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	10.17	71.0	23.1	8.10	144.0	±1.4 %	±4.7 %
		Y	9.71	69.1	22.2		112.3		
		Z	10.03	70.3	22.6		122.1		
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	11.62	94.6	32.3	3.91	146.3	±1.9 %	±4.7 %
		Y	7.57	82.8	27.6		117.6		
		Z	7.76	83.3	27.7		126.1		
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	11.80	99.2	34.4	3.46	143.4	±1.9 %	±4.7 %
		Y	12.94	99.3	34.1		115.2		
		Z	12.06	97.1	33.1		123.5		
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	11.92	99.8	34.6	3.39	143.5	±1.9 %	±4.7 %
		Y	12.32	98.8	34.0		114.9		
		Z	13.37	99.8	33.9		123.6		
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	11.76	99.1	34.4	3.50	143.5	±2.2 %	±4.7 %
		Y	12.62	99.4	34.5		115.0		
		Z	10.86	94.7	32.3		123.6		
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	4.92	66.4	23.8	12.49	63.0	±0.9 %	±4.7 %
		Y	4.52	63.4	22.8		50.7		
		Z	5.29	67.5	24.8		74.0		
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	17.21	99.8	32.2	3.76	147.7	±1.4 %	±4.7 %
		Y	8.19	81.9	25.6		119.6		
		Z	13.55	93.3	30.0		127.1		
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	15.68	99.4	32.6	3.77	146.5	±1.9 %	±4.7 %
		Y	15.19	96.4	31.5		118.1		
		Z	16.70	99.3	32.4		126.4		
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	17.03	97.6	33.1	5.22	148.4	±1.9 %	±4.7 %
		Y	11.79	86.9	29.1		120.1		
		Z	10.22	84.1	27.9		129.0		
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	7.42	98.4	34.5	1.54	109.8	±2.5 %	±4.7 %
		Y	9.91	100.0	33.3		120.8		
		Z	9.73	98.5	32.6		131.8		
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	10.51	72.0	23.9	8.23	143.9	±1.7 %	±4.7 %
		Y	10.07	70.1	23.0		111.5		
		Z	10.21	70.7	23.2		122.5		
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	10.40	72.0	23.9	8.14	142.3	±1.7 %	±4.7 %
		Y	9.82	69.6	22.6		110.3		
		Z	10.06	70.6	23.2		121.0		

10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	10.47	77.6	25.7	6.55	124.7	±1.7 %	±4.7 %
		Y	8.97	72.5	23.3		142.6		
		Z	9.40	74.2	24.0		107.3		
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	11.67	74.4	24.9	8.25	148.1	±1.7 %	±4.7 %
		Y	11.22	72.3	24.0		117.0		
		Z	11.08	72.4	23.9		127.1		
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	7.34	98.4	34.5	1.58	109.7	±2.2 %	±4.7 %
		Y	9.17	98.7	33.0		121.1		
		Z	10.32	99.6	32.8		131.4		
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	10.70	72.1	24.0	8.36	145.4	±1.7 %	±4.7 %
		Y	10.29	70.4	23.3		113.0		
		Z	10.39	70.8	23.3		123.1		
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	10.76	71.1	23.4	8.45	103.9	±1.7 %	±4.7 %
		Y	10.58	70.0	22.9		118.6		
		Z	10.94	71.1	23.4		130.0		
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	10.82	70.4	22.8	8.47	108.4	±1.4 %	±4.7 %
		Y	10.78	69.9	22.7		122.2		
		Z	11.31	71.4	23.5		135.6		
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	9.46	100.0	33.9	1.99	147.9	±1.9 %	±4.7 %
		Y	10.20	99.9	33.2		116.6		
		Z	9.81	98.7	33.1		128.4		
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	8.79	99.6	34.2	1.99	147.3	±1.9 %	±4.7 %
		Y	9.98	99.8	33.3		116.9		
		Z	9.76	98.8	33.1		128.1		
10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	10.53	71.8	24.1	8.59	140.2	±1.7 %	±4.7 %
		Y	10.12	70.2	23.3		106.9		
		Z	10.31	70.8	23.6		119.3		
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	10.55	71.9	24.1	8.59	140.7	±1.4 %	±4.7 %
		Y	10.01	69.7	23.0		109.4		
		Z	10.33	70.8	23.6		119.4		
10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	10.61	71.7	24.0	8.63	142.4	±1.4 %	±4.7 %
		Y	10.04	69.4	22.7		110.8		
		Z	10.41	70.7	23.5		120.8		
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	10.70	70.7	23.4	8.79	102.9	±1.4 %	±4.7 %
		Y	10.60	69.8	22.9		116.5		
		Z	10.98	71.0	23.6		128.0		
10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	10.72	72.0	24.3	8.64	142.1	±1.7 %	±4.7 %
		Y	10.03	69.4	22.8		110.2		
		Z	10.48	70.9	23.7		121.0		
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	10.73	70.7	23.5	8.82	103.0	±1.4 %	±4.7 %
		Y	10.55	69.6	22.8		116.4		
		Z	11.04	71.1	23.7		128.5		

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10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	10.86	70.2	22.9	8.83	106.8	±1.4 %	±4.7 %
		Y	10.78	69.6	22.7		119.8		
		Z	11.41	71.4	23.7		133.4		
10648-AAA	CDMA2000 (1x Advanced)	X	12.74	100.0	34.1	3.45	144.2	±1.9 %	±4.7 %
		Y	8.46	88.8	29.9		115.0		
		Z	13.18	99.5	34.0		124.5		

[F] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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: EX3-7534_Jul19

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:7534

Calibration procedure(s): QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7
Calibration procedure for dosimetric E-field probes

Calibration date: July 25, 2019

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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 660	19-Dec-18 (No. DAE4-660_Dec18)	Dec-19
Reference Probe ES3DV2	SN: 3013	31-Dec-18 (No. ES3-3013_Dec18)	Dec-19
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Manu Seitz	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 25, 2019

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

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

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, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
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"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7534

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.48	0.40	0.50	± 10.1 %
DCP (mV)[B]	95.7	98.1	103.0	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	114.8	±2.5 %
		Y	0.0	0.0	1.0		141.6	
		Z	0.0	0.0	1.0		127.4	

Note: For details on UID parameters see Appendix

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%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7534

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	85.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7534

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
150	52.3	0.76	13.79	13.79	13.79	0.00	1.00	± 13.3 %
300	45.3	0.87	12.60	12.60	12.60	0.08	1.20	± 13.3 %
450	43.5	0.87	11.59	11.59	11.59	0.12	1.30	± 13.3 %
750	41.9	0.89	10.17	10.17	10.17	0.35	1.04	± 12.0 %
835	41.5	0.90	9.90	9.90	9.90	0.49	0.83	± 12.0 %
900	41.5	0.97	9.84	9.84	9.84	0.49	0.80	± 12.0 %
1450	40.5	1.20	8.73	8.73	8.73	0.37	0.80	± 12.0 %
1810	40.0	1.40	8.13	8.13	8.13	0.34	0.88	± 12.0 %
1900	40.0	1.40	8.05	8.05	8.05	0.33	0.88	± 12.0 %
2100	39.8	1.49	8.04	8.04	8.04	0.33	0.85	± 12.0 %
2300	39.5	1.67	7.83	7.83	7.83	0.31	0.90	± 12.0 %
2450	39.2	1.80	7.58	7.58	7.58	0.36	0.90	± 12.0 %
2600	39.0	1.96	7.29	7.29	7.29	0.34	0.90	± 12.0 %
3500	37.9	2.91	6.61	6.61	6.61	0.30	1.30	± 13.1 %
3700	37.7	3.12	6.48	6.48	6.48	0.30	1.30	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7534

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
150	61.9	0.80	13.36	13.36	13.36	0.00	1.00	± 13.3 %
300	58.2	0.92	12.35	12.35	12.35	0.03	1.20	± 13.3 %
450	56.7	0.94	11.87	11.87	11.87	0.06	1.30	± 13.3 %
750	55.5	0.96	10.23	10.23	10.23	0.42	0.89	± 12.0 %
835	55.2	0.97	10.04	10.04	10.04	0.47	0.80	± 12.0 %
900	55.0	1.05	9.80	9.80	9.80	0.49	0.80	± 12.0 %
1450	54.0	1.30	8.59	8.59	8.59	0.33	0.80	± 12.0 %
1810	53.3	1.52	8.16	8.16	8.16	0.42	0.88	± 12.0 %
1900	53.3	1.52	7.95	7.95	7.95	0.36	0.88	± 12.0 %
2100	53.2	1.62	7.93	7.93	7.93	0.36	0.85	± 12.0 %
2300	52.9	1.81	7.88	7.88	7.88	0.34	0.90	± 12.0 %
2450	52.7	1.95	7.68	7.68	7.68	0.33	0.90	± 12.0 %
2600	52.5	2.16	7.59	7.59	7.59	0.23	0.90	± 12.0 %
3500	51.3	3.31	6.37	6.37	6.37	0.40	1.30	± 13.1 %
3700	51.0	3.55	6.13	6.13	6.13	0.40	1.30	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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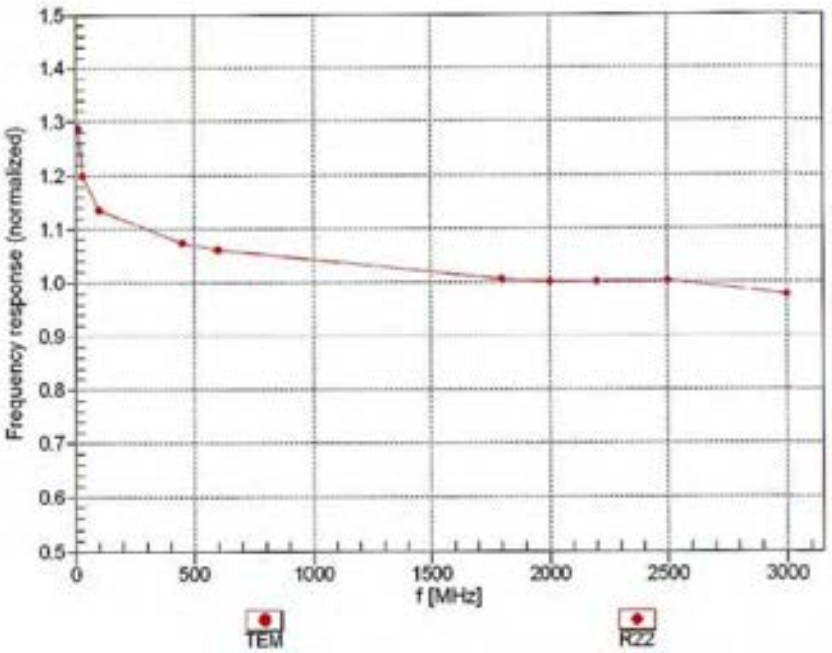
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

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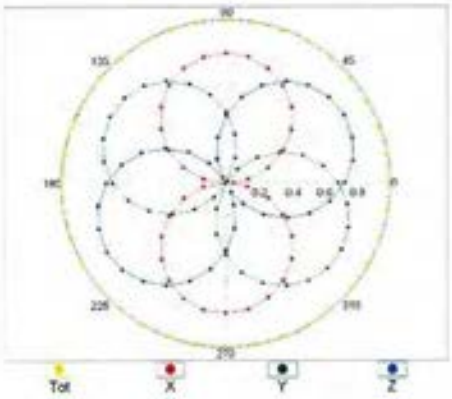
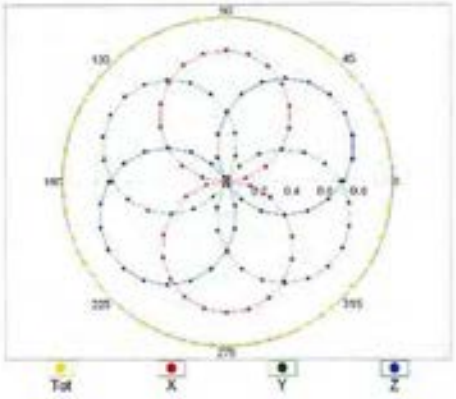
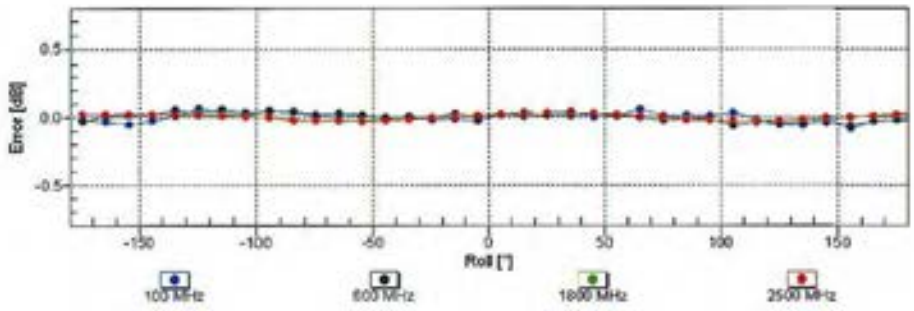
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



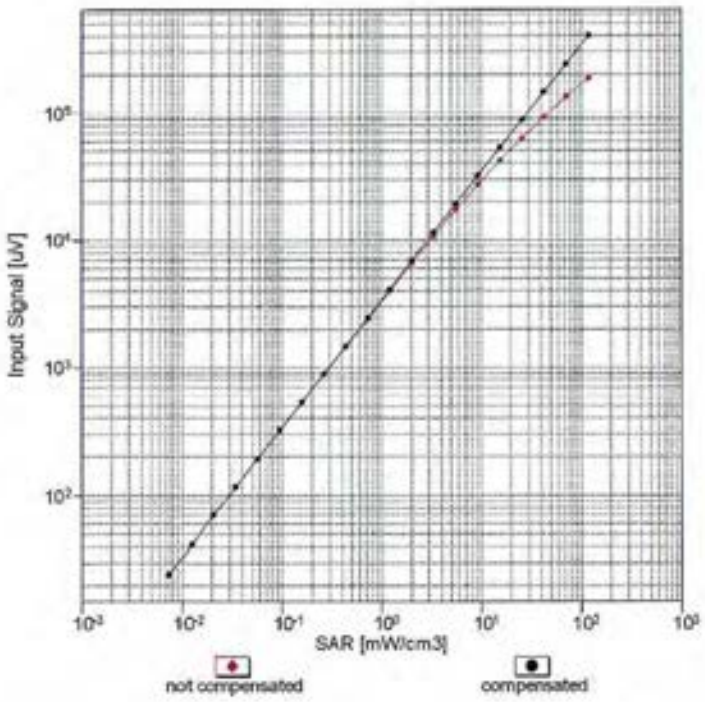
f=1800 MHz,R22

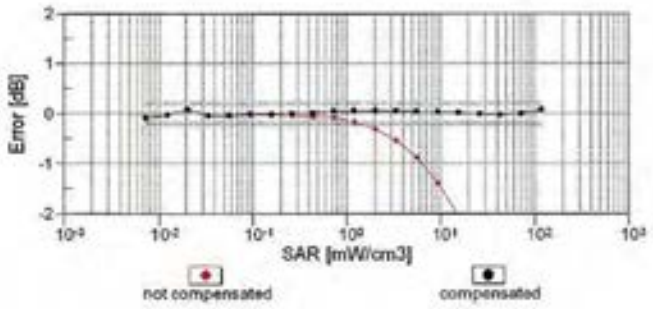




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f_{eval}= 1900 MHz)

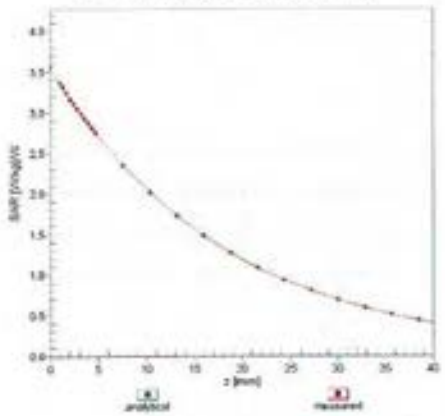




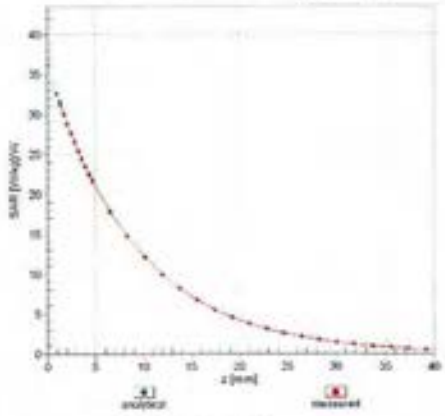
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

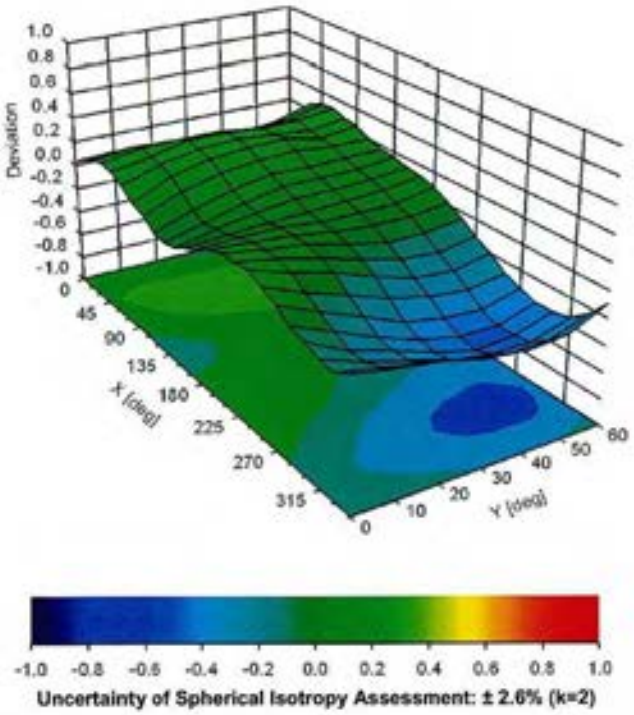


f = 2450 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[b] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	114.8	±2.5 %
		Y	0.0	0.0	1.0		141.6	
		Z	0.0	0.0	1.0		127.4	
10011-CAB	UMTS-FDD (WCDMA)	X	3.14	64.9	17.0	2.91	123.6	±0.7 %
		Y	2.93	64.5	17.1		110.4	
		Z	3.59	69.6	20.1		137.7	
10097-CAB	UMTS-FDD (HSDPA)	X	4.49	65.6	17.8	3.98	130.9	±0.9 %
		Y	4.14	64.7	17.5		115.6	
		Z	4.74	68.2	19.6		145.7	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	4.54	65.8	18.0	3.98	131.5	±0.9 %
		Y	4.19	65.0	17.6		116.2	
		Z	4.73	68.1	19.5		146.4	
10100-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.37	66.8	19.2	5.67	138.6	±1.4 %
		Y	-5.80	65.1	18.3		120.5	
		Z	5.96	66.1	19.2		109.1	
10101-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	7.51	67.4	19.9	6.42	147.7	±1.7 %
		Y	6.92	65.9	19.0		128.1	
		Z	7.01	66.6	19.6		115.7	
10108-CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.24	66.4	19.2	5.80	135.8	±1.2 %
		Y	5.70	64.9	18.4		118.3	
		Z	5.83	65.8	19.1		107.3	
10109-CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	7.25	67.2	19.9	6.43	143.2	±1.7 %
		Y	6.64	65.6	18.9		123.8	
		Z	6.76	66.4	19.6		112.2	
10110-CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	5.94	66.0	19.0	5.75	132.1	±1.2 %
		Y	5.42	64.6	18.2		115.7	
		Z	5.97	67.3	20.0		146.9	
10111-CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	6.96	67.0	19.8	6.44	138.0	±1.4 %
		Y	6.39	65.5	18.9		119.4	
		Z	6.50	66.4	19.6		108.4	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	9.93	68.0	20.8	8.07	125.4	±2.2 %
		Y	9.20	66.5	19.9		105.4	
		Z	10.03	68.9	21.5		140.9	
10140-CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	7.71	67.7	20.1	6.49	149.5	±1.7 %
		Y	7.05	66.0	19.1		129.0	
		Z	7.17	66.8	19.8		116.6	
10142-CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	5.75	65.9	19.0	5.73	129.0	±1.2 %
		Y	5.24	64.4	18.1		112.8	
		Z	5.77	67.2	19.9		143.4	
10143-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	6.69	67.0	19.7	6.35	134.2	±1.4 %
		Y	6.08	65.4	18.8		115.5	
		Z	6.71	68.2	20.6		148.6	

10145-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	5.53	66.1	19.1	5.76	124.5	±1.2 %
		Y	5.03	64.6	18.2		108.8	
		Z	5.56	67.5	20.1		137.7	
10146-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	6.37	67.1	19.8	6.41	127.2	±1.4 %
		Y	5.77	65.6	18.9		108.8	
		Z	6.41	68.6	20.8		140.5	
10149-CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	7.24	67.2	19.9	6.42	143.4	±1.4 %
		Y	6.65	65.6	18.9		124.0	
		Z	6.73	66.3	19.6		111.7	
10154-CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	5.93	66.0	19.0	5.75	131.8	±1.2 %
		Y	5.44	64.6	18.2		115.4	
		Z	5.97	67.2	19.9		147.1	
10155-CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	6.97	67.1	19.8	6.43	138.0	±1.7 %
		Y	6.38	65.5	18.9		118.9	
		Z	6.46	66.3	19.6		108.1	
10156-CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	5.69	65.8	18.9	5.79	127.9	±1.2 %
		Y	5.23	64.5	18.2		111.8	
		Z	5.73	67.2	20.0		141.7	
10157-CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	6.68	67.0	19.8	6.49	131.7	±1.4 %
		Y	6.09	65.5	18.9		113.7	
		Z	6.72	68.3	20.8		146.2	
10160-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.37	66.6	19.3	5.82	137.1	±1.4 %
		Y	5.80	64.9	18.4		119.2	
		Z	5.93	65.9	19.1		107.4	
10161-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	7.27	67.3	19.9	6.43	143.5	±1.4 %
		Y	6.68	65.8	19.0		123.6	
		Z	6.78	66.5	19.7		112.0	
10166-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	4.92	65.6	18.7	5.46	119.3	±0.9 %
		Y	4.74	65.5	18.7		144.1	
		Z	4.98	67.4	20.0		132.3	
10167-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	5.77	67.0	19.7	6.21	120.3	±1.2 %
		Y	5.56	66.9	19.7		144.3	
		Z	5.80	68.5	20.8		132.4	
10169-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.74	65.6	18.9	5.73	113.7	±1.2 %
		Y	4.59	65.5	18.9		138.0	
		Z	4.74	67.0	20.1		125.7	
10170-CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	5.35	66.3	19.7	6.52	111.5	±1.2 %
		Y	5.17	66.2	19.6		135.2	
		Z	5.35	67.8	20.8		123.4	
10175-CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	4.73	65.5	18.9	5.72	113.4	±0.9 %
		Y	4.56	65.4	18.8		137.6	
		Z	4.74	67.0	20.1		125.7	
10176-CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	5.34	66.3	19.7	6.52	111.6	±1.2 %
		Y	5.16	66.1	19.6		135.1	
		Z	5.34	67.7	20.8		123.8	

10177-CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	4.75	65.6	19.0	5.73	113.3	±0.9 %
		Y	4.58	65.4	18.9		137.6	
		Z	4.77	67.2	20.2		125.9	
10178-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	5.35	66.3	19.7	6.52	111.6	±1.2 %
		Y	5.17	66.2	19.6		135.2	
		Z	5.33	67.7	20.7		123.7	
10181-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	4.73	65.5	18.9	5.72	113.5	±1.2 %
		Y	4.61	65.6	19.0		137.6	
		Z	4.75	67.1	20.1		125.4	
10182-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	5.35	66.4	19.7	6.52	111.8	±1.2 %
		Y	5.16	66.2	19.6		135.1	
		Z	5.37	67.9	20.9		123.6	
10184-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	4.72	65.4	18.8	5.73	113.4	±1.2 %
		Y	4.60	65.6	19.0		138.0	
		Z	4.76	67.1	20.1		125.7	
10185-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	5.32	66.3	19.6	6.51	111.7	±1.2 %
		Y	5.19	66.4	19.7		135.4	
		Z	5.36	67.8	20.8		123.8	
10187-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	4.73	65.5	18.9	5.73	113.3	±0.9 %
		Y	4.60	65.6	18.9		137.8	
		Z	4.76	67.1	20.1		125.8	
10188-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	5.34	66.3	19.6	6.52	111.7	±1.2 %
		Y	5.16	66.1	19.5		135.5	
		Z	5.38	67.8	20.8		123.8	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	9.51	67.7	20.8	8.10	118.9	±2.2 %
		Y	9.41	67.9	20.8		145.9	
		Z	9.59	68.7	21.4		133.1	
10225-CAB	UMTS-FDD (HSPA+)	X	7.07	67.3	19.6	5.97	145.5	±1.4 %
		Y	6.45	65.9	18.7		124.9	
		Z	6.56	66.7	19.4		113.3	
10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	5.94	66.7	18.7	4.87	140.9	±1.2 %
		Y	5.41	65.5	18.0		122.0	
		Z	5.63	66.8	19.0		109.8	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	4.31	65.5	17.8	3.96	127.3	±0.7 %
		Y	3.94	64.4	17.4		111.9	
		Z	4.44	67.5	19.3		141.2	
10297-AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.26	66.5	19.2	5.81	135.5	±1.4 %
		Y	5.67	64.7	18.2		116.9	
		Z	6.28	67.6	20.1		150.0	
10298-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	5.54	65.8	18.9	5.72	126.1	±1.2 %
		Y	5.04	64.4	18.1		109.6	
		Z	5.56	67.2	19.9		138.9	
10299-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	6.48	67.2	19.8	6.39	129.9	±1.4 %
		Y	5.88	65.7	19.0		110.4	
		Z	6.53	68.6	20.8		143.0	

10311-AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.79	66.9	19.5	6.06	140.5	±1.4 %
		Y	6.24	65.4	18.7		122.4	
		Z	6.33	66.2	19.3		110.2	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	2.56	65.8	16.8	1.54	127.6	±0.5 %
		Y	2.32	65.0	16.6		113.0	
		Z	3.18	72.3	20.8		141.3	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule)	X	9.46	67.7	20.8	8.14	118.5	±2.5 %
		Y	9.37	67.9	20.8		143.7	
		Z	9.53	68.5	21.4		131.7	
10435-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.60	68.3	21.8	7.82	132.6	±1.7 %
		Y	4.90	65.6	20.2		114.4	
		Z	5.54	69.6	22.8		143.8	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	7.92	65.9	19.1	6.62	115.8	±1.4 %
		Y	7.95	66.5	19.3		142.3	
		Z	8.00	66.9	19.8		128.8	
10460-AAA	UMTS-FDD (WCDMA, AMR)	X	2.76	65.6	17.2	2.39	121.7	±0.5 %
		Y	2.62	65.7	17.5		148.3	
		Z	3.27	71.2	20.7		134.2	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.60	68.3	21.7	7.82	132.4	±1.9 %
		Y	4.89	65.5	20.1		114.5	
		Z	5.54	69.6	22.8		144.3	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.02	69.1	22.3	8.30	129.7	±1.7 %
		Y	5.54	67.8	21.6		147.7	
		Z	5.96	70.5	23.4		141.0	
10464-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.58	68.2	21.7	7.82	131.9	±1.7 %
		Y	4.90	65.6	20.2		115.3	
		Z	5.57	69.8	22.9		143.8	
10465-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.02	69.1	22.3	8.32	129.4	±1.7 %
		Y	5.55	67.8	21.6		147.7	
		Z	5.99	70.5	23.4		141.2	
10467-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.57	68.2	21.6	7.82	131.7	±1.7 %
		Y	4.92	65.7	20.2		115.6	
		Z	5.54	69.6	22.8		143.4	
10468-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.03	69.1	22.4	8.32	129.6	±1.7 %
		Y	5.55	67.8	21.6		147.8	
		Z	5.99	70.6	23.5		141.2	
10470-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.57	68.2	21.6	7.82	132.2	±1.7 %
		Y	4.90	65.6	20.2		115.1	
		Z	5.52	69.5	22.7		143.8	
10471-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.03	69.1	22.3	8.32	130.0	±1.9 %
		Y	5.54	67.7	21.6		147.7	
		Z	5.99	70.5	23.5		141.0	

10473-AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.56	68.2	21.7	7.82	131.5	±1.7 %
		Y	4.88	65.5	20.1		115.4	
		Z	5.55	69.6	22.8		143.9	
10474-AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.03	69.2	22.4	8.32	129.7	±1.9 %
		Y	5.56	67.8	21.6		147.9	
		Z	6.02	70.7	23.5		141.6	
10477-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.02	69.1	22.3	8.32	130.1	±1.7 %
		Y	5.56	67.8	21.7		148.4	
		Z	5.99	70.5	23.5		141.8	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	5.66	67.8	21.3	7.74	138.5	±1.7 %
		Y	5.21	65.6	20.1		121.3	
		Z	5.51	67.6	21.5		111.1	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.54	69.2	22.2	8.18	140.8	±1.7 %
		Y	5.70	66.5	20.6		120.5	
		Z	6.13	68.9	22.2		111.5	
10482-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.26	67.8	21.3	7.71	146.1	±1.7 %
		Y	5.53	65.3	19.8		126.5	
		Z	5.90	67.5	21.3		117.2	
10483-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	6.87	67.5	21.2	8.39	109.9	±1.7 %
		Y	6.44	66.6	20.7		129.7	
		Z	6.88	68.8	22.2		120.2	
10485-AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.26	67.7	21.2	7.59	149.1	±1.7 %
		Y	5.54	65.3	19.8		128.9	
		Z	5.91	67.4	21.3		119.3	
10486-AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.00	67.3	21.2	8.38	112.9	±1.9 %
		Y	6.56	66.4	20.6		133.1	
		Z	7.00	68.5	22.0		123.8	
10488-AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.27	66.3	20.3	7.70	113.1	±1.7 %
		Y	5.90	65.4	19.9		133.5	
		Z	6.25	67.3	21.2		123.4	
10489-AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.28	67.3	21.1	8.31	118.7	±1.9 %
		Y	6.82	66.2	20.5		139.4	
		Z	7.24	68.2	21.8		130.2	
10491-AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.66	66.7	20.5	7.74	117.4	±1.7 %
		Y	6.23	65.7	20.0		138.2	
		Z	6.67	67.8	21.4		128.6	
10492-AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.74	67.6	21.3	8.41	124.1	±2.2 %
		Y	7.25	66.5	20.7		144.6	
		Z	7.72	68.5	22.0		136.0	
10494-AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.65	66.8	20.6	7.74	117.0	±1.7 %
		Y	6.19	65.6	20.0		137.3	
		Z	6.67	67.9	21.5		128.3	
10495-AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.66	67.4	21.2	8.37	124.2	±2.2 %
		Y	7.15	66.2	20.5		144.7	
		Z	7.66	68.4	22.0		136.0	

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10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.18	67.9	21.2	7.67	145.5	±1.7 %
		Y	5.45	65.5	19.9		125.5	
		Z	5.82	67.6	21.3		116.2	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.18	69.3	22.2	8.40	149.4	±1.9 %
		Y	6.32	66.7	20.7		126.7	
		Z	6.76	68.8	22.2		118.6	
10500-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.08	66.2	20.3	7.67	110.6	±1.7 %
		Y	5.70	65.3	19.8		130.2	
		Z	6.06	67.3	21.2		120.7	
10501-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.18	67.4	21.2	8.44	115.2	±1.9 %
		Y	6.74	66.5	20.7		134.8	
		Z	7.16	68.4	22.0		125.5	
10503-AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.30	66.3	20.4	7.72	113.1	±1.7 %
		Y	5.89	65.3	19.8		133.2	
		Z	6.29	67.4	21.3		124.1	
10504-AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.27	67.2	21.1	8.31	118.8	±1.9 %
		Y	6.83	66.3	20.5		139.5	
		Z	7.27	68.2	21.9		129.9	
10506-AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.63	66.7	20.5	7.74	116.8	±1.7 %
		Y	6.17	65.6	19.9		137.5	
		Z	6.66	67.9	21.5		128.5	
10507-AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	7.66	67.5	21.2	8.36	124.2	±1.9 %
		Y	7.18	66.4	20.6		145.1	
		Z	7.66	68.4	22.0		136.1	
10509-AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	7.26	67.3	20.9	7.99	122.4	±1.9 %
		Y	6.73	66.1	20.3		142.7	
		Z	7.30	68.4	21.8		134.5	
10510-AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	8.19	67.9	21.5	8.49	130.0	±2.2 %
		Y	7.33	65.5	20.0		111.1	
		Z	8.17	68.8	22.2		143.1	
10512-AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	6.96	67.3	20.8	7.74	120.4	±1.9 %
		Y	6.44	65.9	20.1		141.5	
		Z	7.01	68.4	21.6		132.9	
10513-AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	8.03	67.7	21.4	8.42	129.6	±2.2 %
		Y	7.47	66.4	20.6		149.7	
		Z	8.03	68.6	22.1		142.1	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	2.56	65.8	16.8	1.58	127.2	±0.5 %
		Y	2.33	65.4	16.9		113.2	
		Z	3.31	73.3	21.3		139.9	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	2.72	66.3	17.3	1.99	124.0	±0.7 %
		Y	2.48	65.6	17.1		108.9	
		Z	3.56	74.0	21.8		137.0	

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10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	2.65	65.9	17.0	1.99	123.7	±0.5 %
		Y	2.37	65.1	16.9		149.6	
		Z	3.37	73.1	21.3		136.5	
10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	9.66	67.7	21.0	8.59	116.3	±2.5 %
		Y	9.59	68.0	21.2		140.9	
		Z	9.79	68.8	21.8		129.6	
10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	9.84	67.9	21.2	8.63	118.1	±2.5 %
		Y	9.69	68.0	21.2		142.7	
		Z	9.93	68.8	21.9		131.7	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	10.43	68.4	21.4	8.79	124.7	±2.7 %
		Y	10.24	68.4	21.4		150.0	
		Z	10.54	69.3	22.1		138.8	

[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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: **EX3-7533_Nov19**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:7533

Calibration procedure(s) QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7
Calibration procedure for dosimetric E-field probes

Calibration date: November 6, 2019

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	03-Apr-19 (No. 217-02892/02893)	Apr-20
Power sensor NRP-Z91	SN: 103244	03-Apr-19 (No. 217-02892)	Apr-20
Power sensor NRP-Z91	SN: 103245	03-Apr-19 (No. 217-02893)	Apr-20
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-19 (No. 217-02894)	Apr-20
DAE4	SN: 660	07-Oct-19 (No. DAE4-660_Oct19)	Oct-20
Reference Probe ES3DV2	SN: 3013	31-Dec-18 (No. ES3-3013_Dec18)	Dec-19
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-19)	In house check: Oct-20

	Name	Function	Signature
Calibrated by:	Jeton Kastati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 8, 2019

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

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Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

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, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
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"

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7533

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.42	0.47	0.41	± 10.1 %
DCP (mV)[B]	96.5	99.1	103.6	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	145.2	±3.8 %	±4.7 %
		Y	0.0	0.0	1.0		159.8		
		Z	0.0	0.0	1.0		148.5		

Note: For details on UID parameters see Appendix

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%.

[A] The uncertainties of Norm X,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7533

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	88.9
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7533

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
150	52.3	0.76	13.81	13.81	13.81	0.00	1.00	± 13.3 %
300	45.3	0.87	12.94	12.94	12.94	0.08	1.20	± 13.3 %
450	43.5	0.87	11.84	11.84	11.84	0.12	1.30	± 13.3 %
750	41.9	0.89	10.71	10.71	10.71	0.38	0.93	± 12.0 %
835	41.5	0.90	10.47	10.47	10.47	0.46	0.86	± 12.0 %
900	41.5	0.97	10.25	10.25	10.25	0.31	1.01	± 12.0 %
2450	39.2	1.80	7.67	7.67	7.67	0.32	0.92	± 12.0 %
5250	35.9	4.71	5.35	5.35	5.35	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.89	4.89	4.89	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.74	4.74	4.74	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.90	4.90	4.90	0.40	1.80	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 64 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:7533

Calibration Parameter Determined in Body Tissue Simulating Media

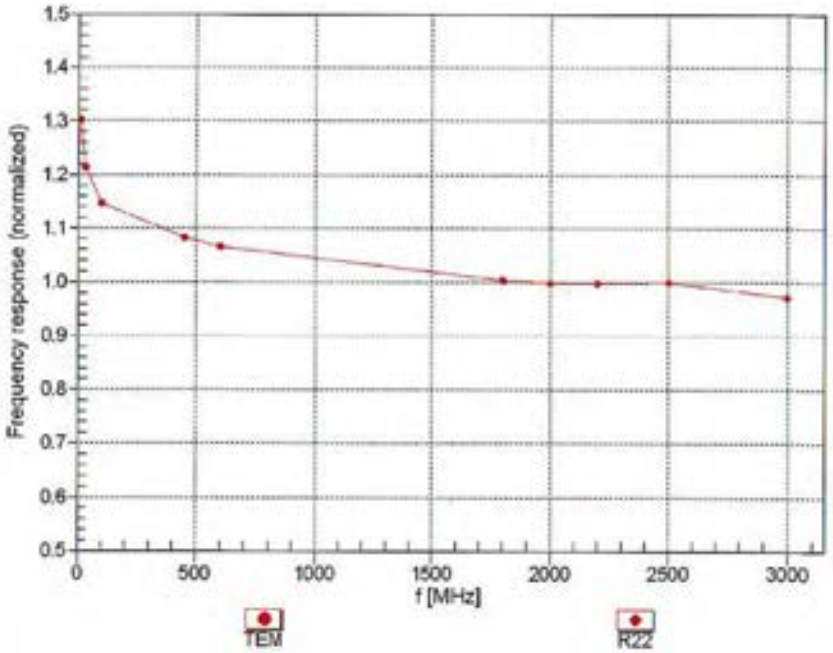
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
150	61.9	0.80	13.50	13.50	13.50	0.00	1.00	± 13.3 %
300	58.2	0.92	12.69	12.69	12.69	0.03	1.20	± 13.3 %
450	56.7	0.94	12.06	12.06	12.06	0.06	1.30	± 13.3 %
750	55.5	0.96	10.58	10.58	10.58	0.44	0.86	± 12.0 %
835	55.2	0.97	10.23	10.23	10.23	0.45	0.80	± 12.0 %
900	55.0	1.05	9.95	9.95	9.95	0.50	0.80	± 12.0 %
2450	52.7	1.95	7.79	7.79	7.79	0.35	0.92	± 12.0 %
5250	48.9	5.36	4.80	4.80	4.80	0.50	1.90	± 13.1 %
5500	48.6	5.65	4.22	4.22	4.22	0.50	1.90	± 13.1 %
5600	48.5	5.77	4.10	4.10	4.10	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.23	4.23	4.23	0.50	1.90	± 13.1 %

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

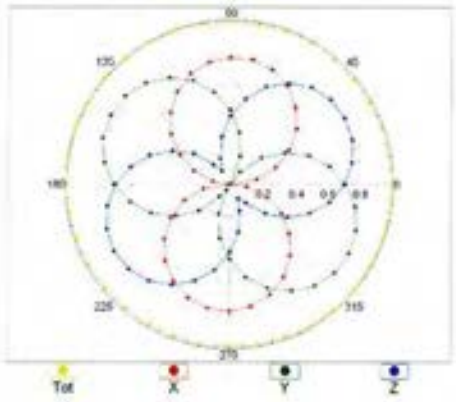
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



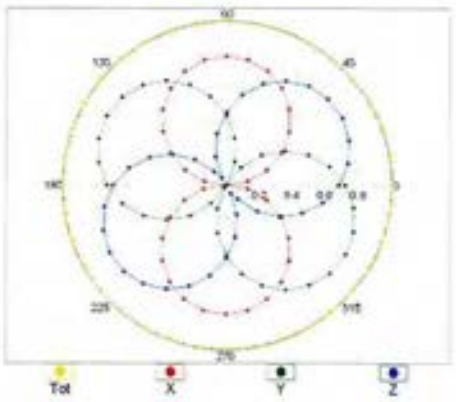
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

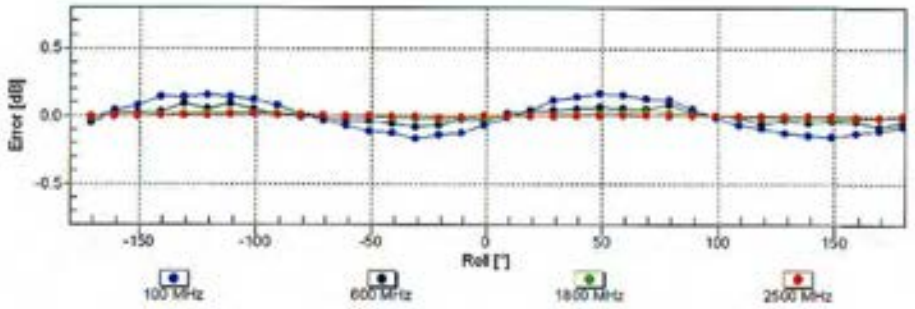
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



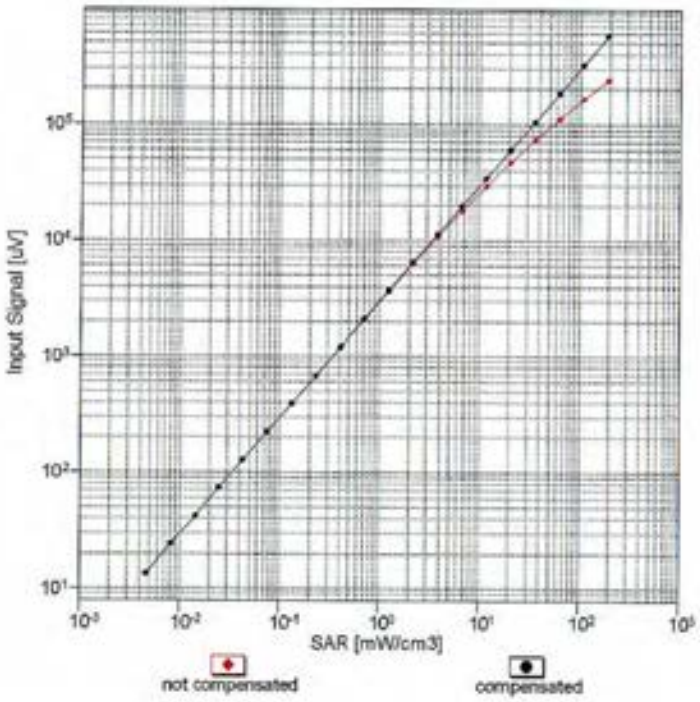
f=1800 MHz,R22

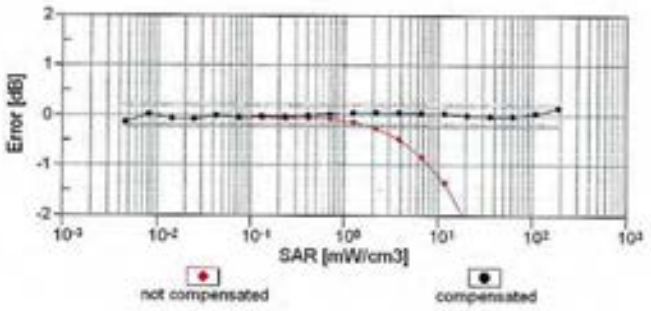




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR$_{head}$)
(TEM cell , f_{eval}= 1900 MHz)

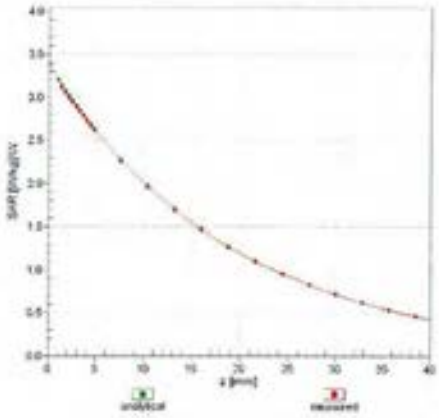




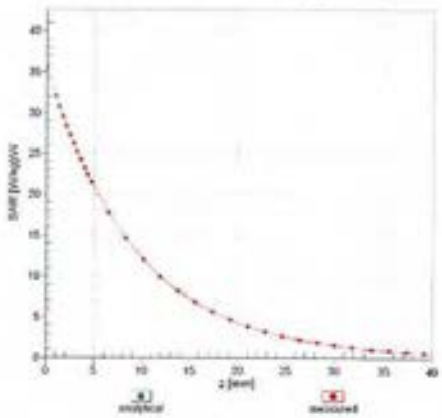
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

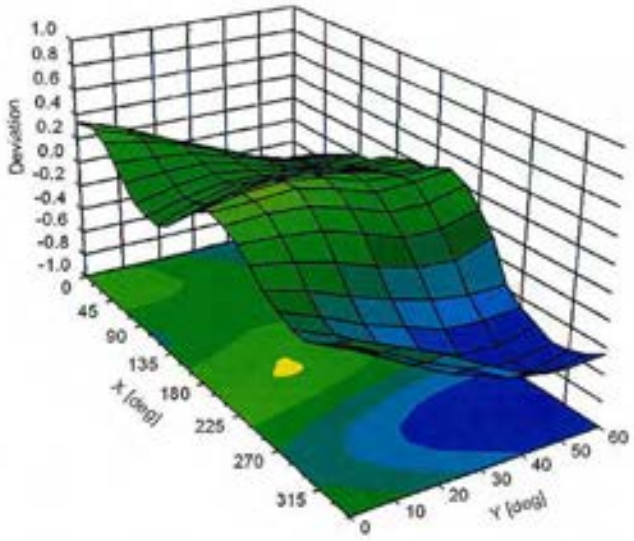


f = 2450 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unc[k] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	145.2	±3.8 %	± 4.7 %
		Y	0.0	0.0	1.0		159.8		
		Z	0.0	0.0	1.0		148.5		
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	9.83	67.8	20.7	8.07	135.6	±3.0 %	± 4.7 %
		Y	9.76	68.0	20.8		149.2		
		Z	9.86	68.3	21.0		139.0		
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	9.44	67.6	20.6	8.10	129.3	±2.7 %	± 4.7 %
		Y	9.40	67.9	20.8		141.8		
		Z	9.49	68.2	21.0		132.6		
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	2.53	65.8	16.9	1.54	136.9	±0.5 %	± 4.7 %
		Y	2.47	66.8	17.8		149.8		
		Z	3.39	72.8	20.7		140.5		
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	9.51	67.6	20.7	8.23	127.8	±2.5 %	± 4.7 %
		Y	9.49	67.9	20.9		141.8		
		Z	9.56	68.1	21.0		131.6		
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	9.74	67.8	20.9	8.36	130.1	±2.7 %	± 4.7 %
		Y	9.69	68.1	21.1		143.5		
		Z	9.78	68.3	21.2		133.9		
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	10.28	68.3	21.1	8.45	137.0	±3.0 %	± 4.7 %
		Y	9.85	67.6	20.7		124.3		
		Z	10.31	68.7	21.4		140.8		
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	10.60	68.5	21.1	8.47	142.9	±3.3 %	± 4.7 %
		Y	10.09	67.7	20.7		128.7		
		Z	10.63	69.0	21.4		147.0		
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	2.60	65.8	17.0	1.99	132.6	±0.7 %	± 4.7 %
		Y	2.58	67.1	18.2		144.9		
		Z	3.64	73.7	21.4		136.4		
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	9.64	67.7	21.0	8.59	125.3	±2.5 %	± 4.7 %
		Y	9.55	67.8	21.1		136.8		
		Z	9.65	68.1	21.3		128.7		
10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	9.75	67.7	21.0	8.63	126.7	±2.7 %	± 4.7 %
		Y	9.69	67.9	21.2		139.7		
		Z	9.82	68.3	21.4		131.0		
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	10.38	68.3	21.4	8.79	134.2	±3.3 %	± 4.7 %
		Y	10.24	68.4	21.4		146.7		
		Z	10.37	68.6	21.6		137.3		

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10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	9.78	67.8	21.1	8.64	126.9	±3.3 %	± 4.7 %
		Y	9.69	67.9	21.2		138.6		
		Z	9.83	68.3	21.4		131.1		
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	10.41	68.3	21.4	8.82	134.4	±3.3 %	± 4.7 %
		Y	10.26	68.4	21.4		146.8		
		Z	10.43	68.8	21.6		138.7		
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	10.71	68.5	21.4	8.83	138.9	±3.5 %	± 4.7 %
		Y	10.17	67.6	20.8		125.5		
		Z	10.74	69.0	21.6		143.7		

[F] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

Appendix E
System Verification Check Scans

Motorola Solutions, Inc. EME Laboratory

Date/Time: 7/8/2020 7:51:29 PM

Robot#: DASY5-PG-4 | Run#:	MA-SYSP-450H-200708-10
Dipole Model#	D450V3
Phantom#:	ELI5 1147
Tissue Temp:	20.5 (C)
Serial#:	1053
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.050 dB
Adjusted SAR (1W):	4.60 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.89 S/m; ε_r = 43.1; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 450 MHz, ConvF(10.3, 10.3, 10.3) @ 450 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

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

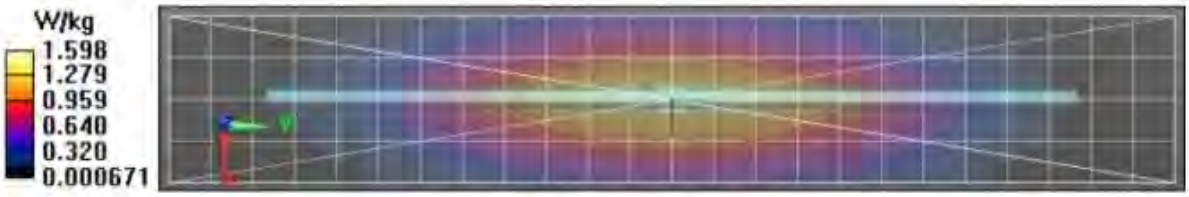
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 43.01 V/m; Power Drift = -0.05 dB
Fast SAR: SAR(1 g) = 1.25 W/kg; SAR(10 g) = 0.861 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.60 W/kg

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 = 43.01 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 1.15 W/kg; SAR(10 g) = 0.768 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 63.4%
Maximum value of SAR (measured) = 1.60 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) = 1.59 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 7/9/2020 7:43:42 PM

Robot#: DASY5-PG-4 | Run#:	MA-SYSP-450H-200709-16
Dipole Model#	D450V3
Phantom#:	ELI5 1147
Tissue Temp:	20.5 (C)
Serial#:	1053
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.190 dB
Adjusted SAR (1W):	4.44 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.89 S/m; ε_r = 42.3; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 450 MHz, ConvF(10.3, 10.3, 10.3) @ 450 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

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

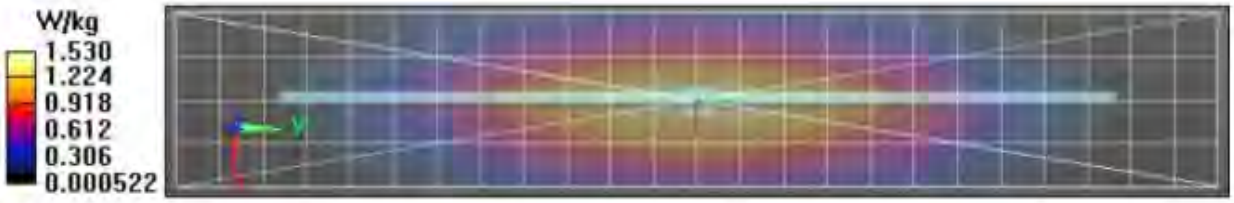
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 41.92 V/m; Power Drift = 0.07 dB
Fast SAR: SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.829 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.54 W/kg

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 = 41.92 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.80 W/kg
SAR(1 g) = 1.11 W/kg; SAR(10 g) = 0.744 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 63.3%
Maximum value of SAR (measured) = 1.55 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) = 1.54 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 7/10/2020 7:55:09 PM

Robot#: DASY5-PG-4 | Run#:	MA-SYSP-450H-200710-23
Dipole Model#	D450V3
Phantom#:	ELI5 1147
Tissue Temp:	20.4 (C)
Serial#:	1053
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.240 dB
Adjusted SAR (1W):	4.64 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.88 S/m; ε_r = 42.3; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 450 MHz, ConvF(10.3, 10.3, 10.3) @ 450 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

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

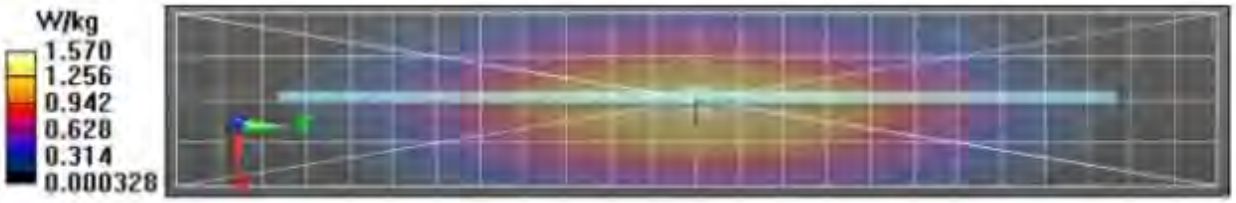
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 43.52 V/m; Power Drift = -0.00 dB
Fast SAR: SAR(1 g) = 1.25 W/kg; SAR(10 g) = 0.866 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.59 W/kg

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 = 43.52 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 1.86 W/kg
SAR(1 g) = 1.16 W/kg; SAR(10 g) = 0.777 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 63.5%
Maximum value of SAR (measured) = 1.60 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) = 1.62 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 7/12/2020 9:41:25 AM

Robot#: DASY5-PG-4 | Run#:	MA-SYSP-450H-200712-01
Dipole Model#	D450V3
Phantom#:	ELI5 1147
Tissue Temp:	19.9 (C)
Serial#:	1053
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.120 dB
Adjusted SAR (1W):	4.44 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.88 S/m; ε_r = 42.9; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 450 MHz, ConvF(10.3, 10.3, 10.3) @ 450 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

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

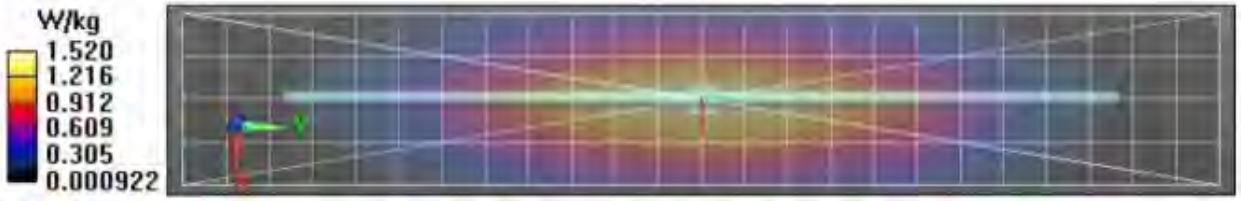
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 42.37 V/m; Power Drift = -0.03 dB
Fast SAR: SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.831 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.53 W/kg

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 = 42.37 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.79 W/kg
SAR(1 g) = 1.11 W/kg; SAR(10 g) = 0.739 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 62.9%
Maximum value of SAR (measured) = 1.53 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) = 1.53 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/9/2020 7:31:25 PM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200209-01
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.1 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.053 dB
Adjusted SAR (1W): 4.80 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 43.8; 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 (41x221x1):

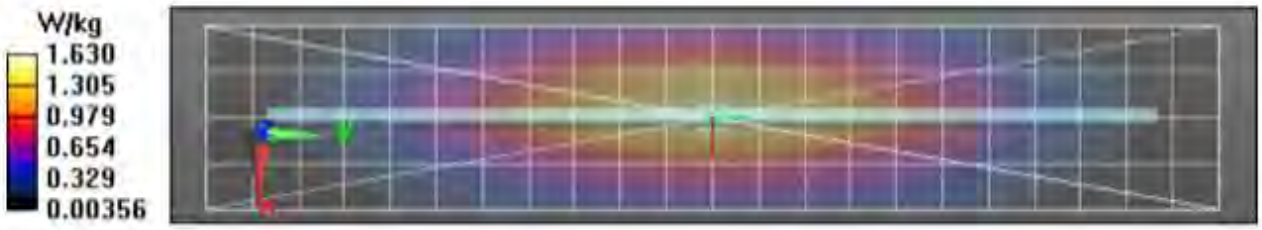
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.26 V/m; Power Drift = -0.07 dB
Fast SAR: SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.903 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.64 W/kg

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 = 44.26 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.91 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.806 W/kg (SAR corrected for target medium)
Ratio of SAR at M2 to SAR at M1 = 62.9%
Maximum value of SAR (measured) = 1.63 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) = 1.65 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/10/2020 7:01:32 PM

Robot#: DASY5-PG-3 ; Run#: AM-SYSP-450H-200210-20
Dipole Model#: D450V3
Phantom#: FLI5 1147
Tissue Temp: 20.5 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.056 dB
Adjusted SAR (1W): 4.92 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 44; 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 (41x221x1):

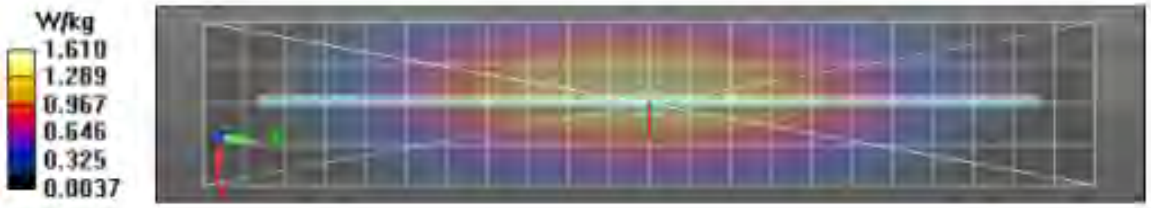
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.28 V/m; Power Drift = 0.04 dB
Fast SAR: SAR(1 g) = 1.32 W/kg; SAR(10 g) = 0.913 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.65 W/kg

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 = 44.28 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.822 W/kg (SAR corrected for target medium)
Ratio of SAR at M2 to SAR at M1 = 63.6%
Maximum value of SAR (measured) = 1.66 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: 2/11/2020 7:50:22 PM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200211-13
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.4 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.044 dB
Adjusted SAR (1W): 4.84 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 42.7; 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 (41x221x1):

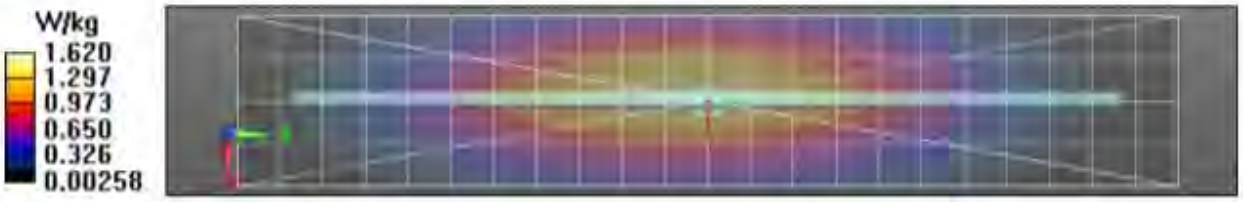
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.45 V/m; Power Drift = -0.04 dB
Fast SAR: SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.906 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.65 W/kg

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 = 44.45 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.21 W/kg; SAR(10 g) = 0.812 W/kg (SAR corrected for target medium)
Ratio of SAR at M2 to SAR at M1 = 63.2%
Maximum value of SAR (measured) = 1.65 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) = 1.66 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/12/2020 8:10:56 PM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200212-16
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 19.2 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.04 dB
Adjusted SAR (1W): 4.84 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 44.3; 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 (41x221x1):

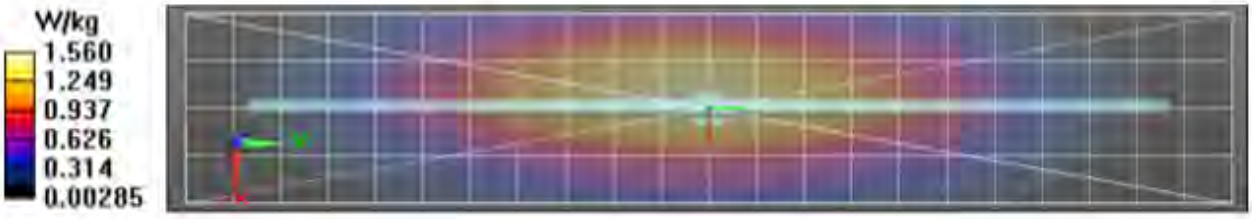
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.47 V/m; Power Drift = 0.01 dB
Fast SAR: SAR(1 g) = 1.3 W/kg; SAR(10 g) = 0.905 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.62 W/kg

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 = 44.47 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.91 W/kg
SAR(1 g) = 1.21 W/kg; SAR(10 g) = 0.817 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.63 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) = 1.65 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/13/2020 7:55:06 PM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200213-12
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 21.1 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.048 dB
Adjusted SAR (1W): 4.80 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.88 S/m; ε_r = 42; 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 (41x221x1):

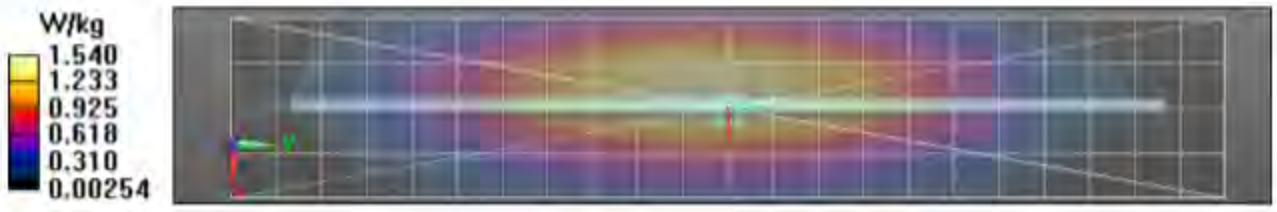
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.22 V/m; Power Drift = -0.01 dB
Fast SAR: SAR(1 g) = 1.28 W/kg; SAR(10 g) = 0.900 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.63 W/kg

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 = 44.22 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.94 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.807 W/kg (SAR corrected for target medium)
Ratio of SAR at M2 to SAR at M1 = 63.1%
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) = 1.67 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/14/2020 8:02:52 PM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200213-12
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.6 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.048 dB
Adjusted SAR (1W): 4.80 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: 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 (41x221x1):

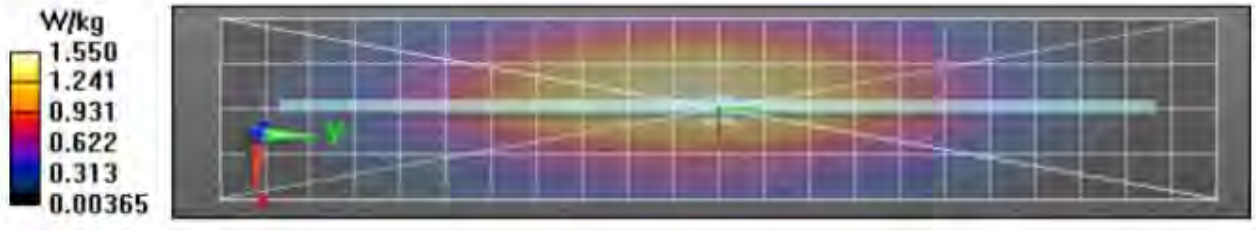
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 45.74 V/m; Power Drift = -0.28 dB
Fast SAR: SAR(1 g) = 1.29 W/kg; SAR(10 g) = 0.904 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.62 W/kg

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 = 45.74 V/m; Power Drift = -0.28 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.819 W/kg (SAR corrected for target medium)
Ratio of SAR at M2 to SAR at M1 = 63.5%
Maximum value of SAR (measured) = 1.66 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) = 1.66 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/16/2020 11:34:18 AM

Robot#: DASY5-PG-3 | Run#: ZR(AR)-SYSP-450H-200216-01

Dipole Model#	D450V3
Phantom#:	ELI5 1147
Tissue Temp:	20.5 (C)
Serial#:	1053
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.033 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 = 44; 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 (41x221x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 43.97 V/m; Power Drift = -0.00 dB

Fast SAR: SAR(1 g) = 1.29 W/kg; SAR(10 g) = 0.891 W/kg (SAR corrected for target medium)

Maximum value of SAR (interpolated) = 1.62 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 = 43.97 V/m; Power Drift = -0.00 dB

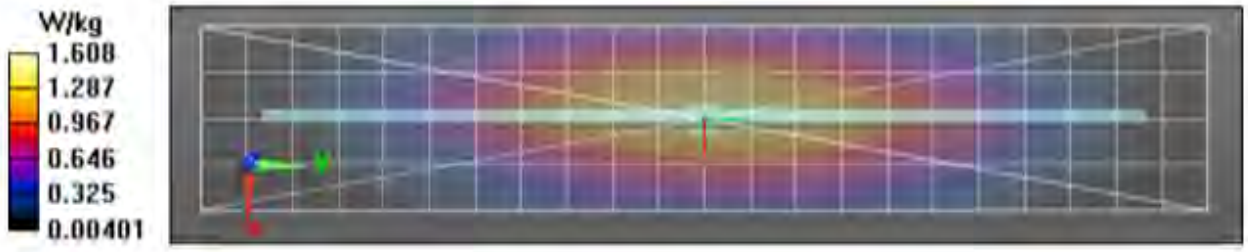
Peak SAR (extrapolated) = 1.90 W/kg

SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.793 W/kg (SAR corrected for target medium)

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) = 1.62 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/17/2020 12:35:41 PM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200217-01
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.1 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.045 dB
Adjusted SAR (1W): 4.80 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 43.6; 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: DAF4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (41x221x1):

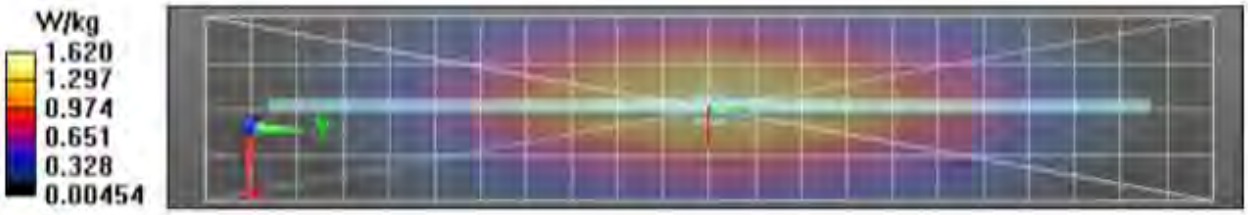
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.18 V/m; Power Drift = -0.01 dB
Fast SAR: SAR(1 g) = 1.3 W/kg; SAR(10 g) = 0.899 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.64 W/kg

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 = 44.18 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.92 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) = 1.64 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) = 1.64 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/18/2020 1:33:06 PM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200218-12
Dipole Model#: D450V3
Phantom#: ELI5 1147
Tissue Temp: 19.7 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.037 dB
Adjusted SAR (1W): 4.80 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.86 S/m; ε_r = 42.1; 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 (41x221x1):

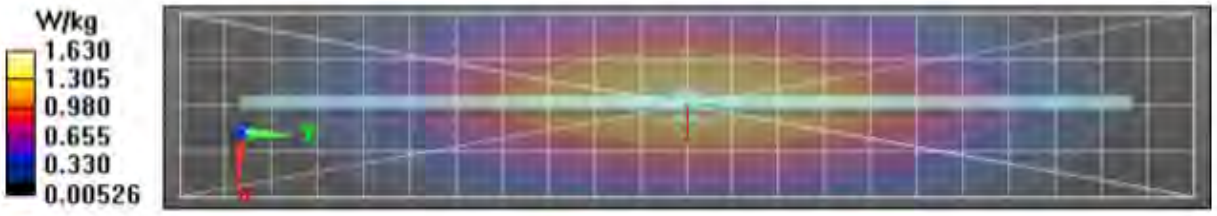
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 45.20 V/m; Power Drift = -0.18 dB
Fast SAR: SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.901 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.64 W/kg

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 = 45.20 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 1.91 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.810 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.64 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) = 1.64 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/19/2020 3:08:18 PM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200219-18
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 19.7 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.043 dB
Adjusted SAR (1W): 4.80 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 44.4; 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 (41x221x1):

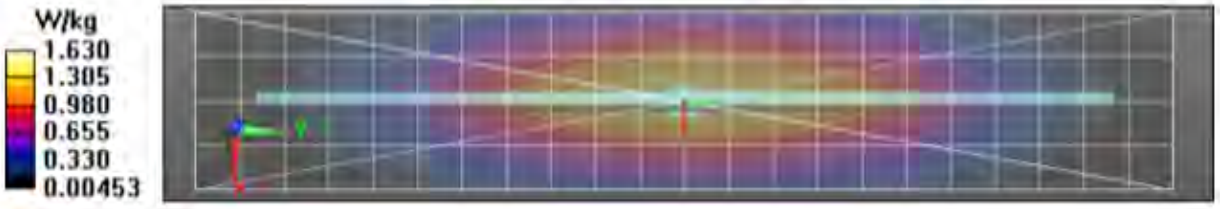
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.04 V/m; Power Drift = -0.02 dB
Fast SAR: SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.899 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.64 W/kg

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 = 44.04 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.90 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.796 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.63 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) = 1.62 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/20/2020 8:19:55 PM

Robot#: DASY5-PG-3 | Run#: AN(AR)-SYSP-450H-200220-18
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.7 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.043 dB
Adjusted SAR (1W): 4.96 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 44.1; ρ = 1000 kg/m³
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 (41x221x1):

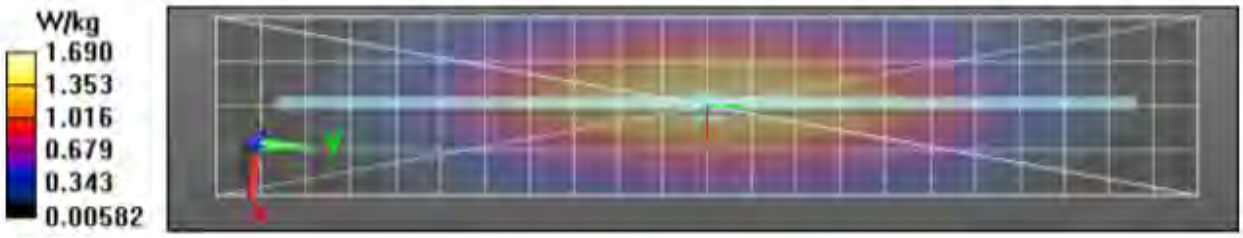
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.94 V/m; Power Drift = -0.04 dB
Fast SAR: SAR(1 g) = 1.36 W/kg; SAR(10 g) = 0.934 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.71 W/kg

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 = 44.94 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.99 W/kg
SAR(1 g) = 1.24 W/kg; SAR(10 g) = 0.832 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.71 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) = 1.69 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/21/2020 2:57:08 PM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200221-1

Dipole Model#	D450V3
Phantom#:	ELI5 1147
Tissue Temp:	20.2 (C)
Serial#:	1053
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.043 dB
Adjusted SAR (1W):	4.84 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.86 S/m; ε_r = 44.1; 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 (41x221x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 43.72 V/m; Power Drift = 0.04 dB

Fast SAR: SAR(1 g) = 1.29 W/kg; SAR(10 g) = 0.888 W/kg (SAR corrected for target medium)

Maximum value of SAR (interpolated) = 1.60 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 = 43.72 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.84 W/kg

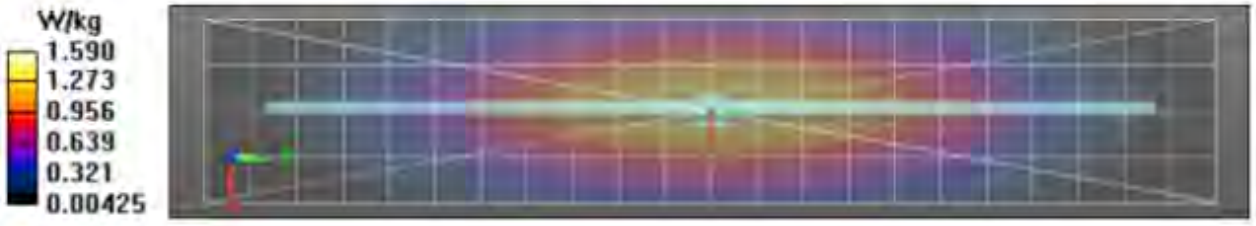
SAR(1 g) = 1.21 W/kg; SAR(10 g) = 0.817 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 1.61 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) = 1.62 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/24/2020 9:58:28 AM

Robot#: DASY5-PG-3 | Run#: AN(AR)-SYSP-450H-200224-04
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.3 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.035 dB
Adjusted SAR (1W): 4.80 mW/g (1g)

Comments:

Communication System Band: Dipole 450, Communication System UID: 0, Duty Cycle: 1:1,
Medium parameters used: f = 450 MHz; σ = 0.86 S/m; ε_r = 44.1; 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 (41x221x1):

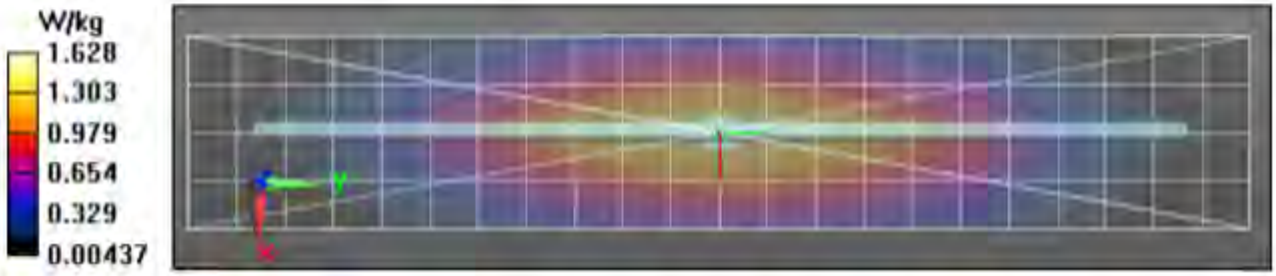
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.12 V/m; Power Drift = -0.08 dB
Fast SAR: SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.900 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.63 W/kg

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 = 44.12 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.89 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.798 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.62 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) = 1.62 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/25/2020 10:13:28 AM

Robot#: DASY5-PG-3 | Run#: IZ(AR)-SYSP-450H-200225-07
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.4 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.038 dB
Adjusted SAR (1W): 4.92 mW/g (1g)

Comments:

Communication System Band: Dipole 450, Communication System UID: 0, Duty Cycle: 1:1,
Medium parameters used: f = 450 MHz; σ = 0.86 S/m; ε_r = 44.1; 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 (41x221x1):

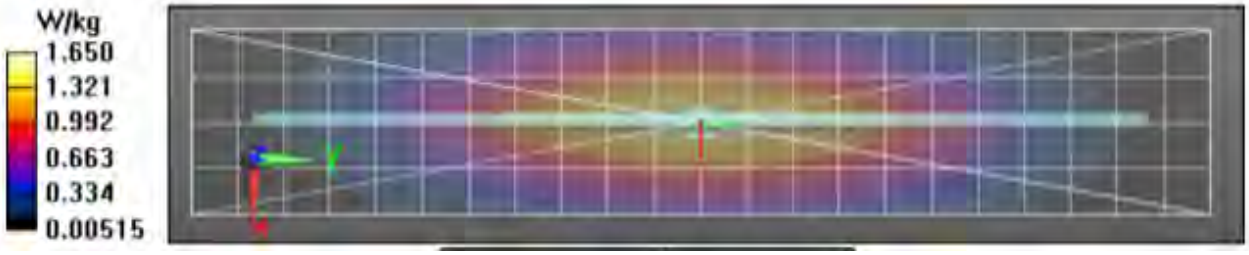
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.39 V/m; Power Drift = -0.00 dB
Fast SAR: SAR(1 g) = 1.34 W/kg; SAR(10 g) = 0.917 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.66 W/kg

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 = 44.39 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 1.92 W/kg
SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.822 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.65 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) = 1.65 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/26/2020 10:15:48 AM

Robot#: DASY5-PG-3 | Run#: AN(AR)-SYSP-450H-200226-09
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 19.9 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.041 dB
Adjusted SAR (1W): 4.92 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 44.5; 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 (41x221x1):

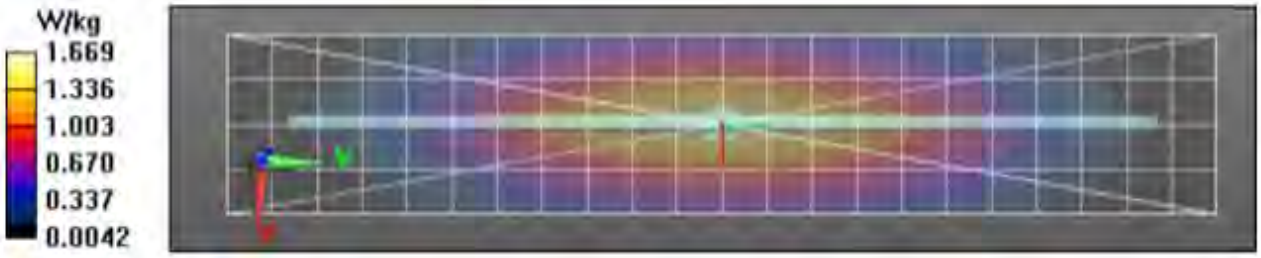
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.53 V/m; Power Drift = -0.01 dB
Fast SAR: SAR(1 g) = 1.33 W/kg; SAR(10 g) = 0.915 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.67 W/kg

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 = 44.53 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.822 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.66 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) = 1.65 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/27/2020 9:55:01 AM

Robot#: DASY5-PG-3 | Run#: AN(AR)-SYSP-450H-200227-08

Dipole Model#	D450V3
Phantom#:	ELI5 1147
Tissue Temp:	20.6 (C)
Serial#:	1053
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.054 dB
Adjusted SAR (1W):	4.88 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 44.8; 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: DAF4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (41x221x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 44.97 V/m; Power Drift = -0.15 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 = 44.97 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 1.93 W/kg

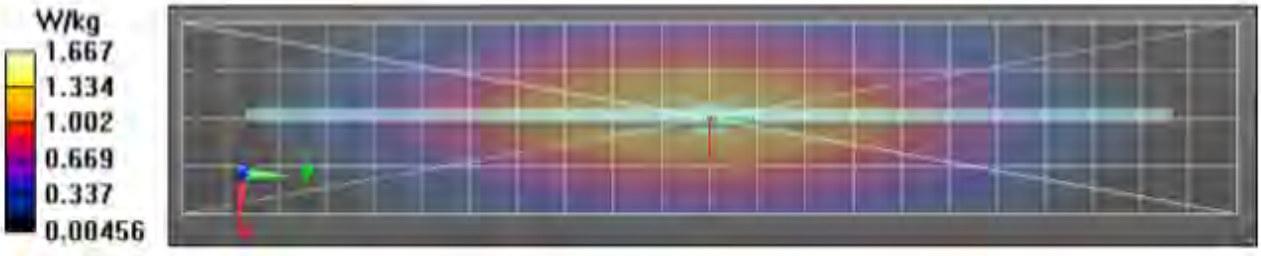
SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.819 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 1.66 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) = 1.66 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/28/2020 11:07:41 AM

Robot#: DASY5-PG-3 | Run#: AN(AR)-SYSP-450H-200228-06
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.7 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.052 dB
Adjusted SAR (1W): 4.88 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.86 S/m; ε_r = 44.9; 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 (41x221x1):

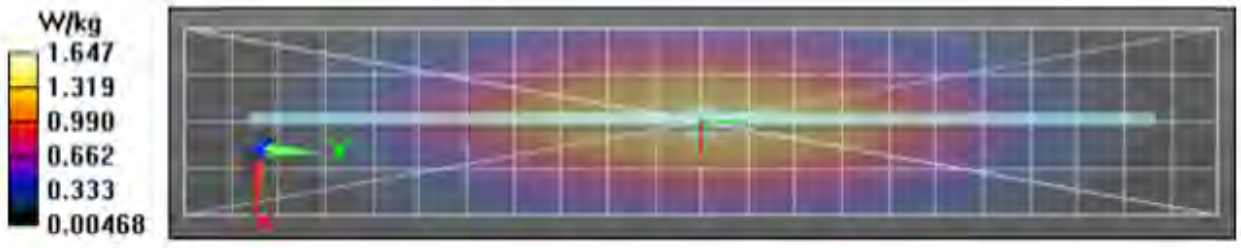
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.43 V/m; Power Drift = -0.04 dB
Fast SAR: SAR(1 g) = 1.33 W/kg; SAR(10 g) = 0.912 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.65 W/kg

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 = 44.43 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.91 W/kg
SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.817 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.64 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) = 1.63 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/1/2020 9:46:26 AM

Robot#: DASY5-PG-3 | Run#: ZZ(AR)-SYSP-450H-200301-01
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 19.4 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.034 dB
Adjusted SAR (1W): 4.84 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.86 S/m; ε_r = 44.3; 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 (41x221x1):

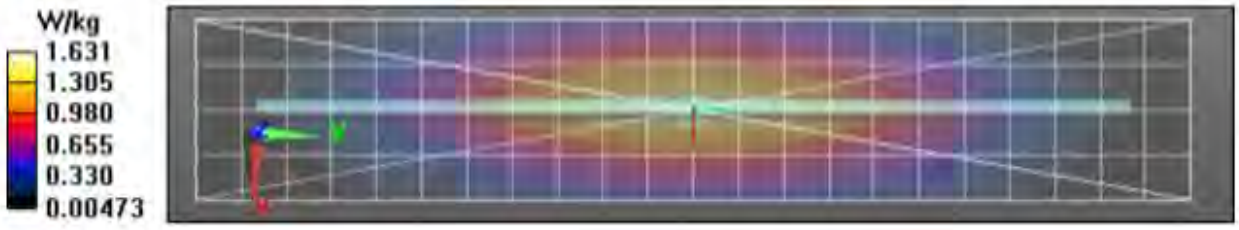
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.21 V/m; Power Drift = -0.04 dB
Fast SAR: SAR(1 g) = 1.32 W/kg; SAR(10 g) = 0.905 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.63 W/kg

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 = 44.21 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.90 W/kg
SAR(1 g) = 1.21 W/kg; SAR(10 g) = 0.810 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.63 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) = 1.64 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/2/2020 10:02:20 AM

Robot#: DASY5-PG-3 | Run#: ZZ(AR)-SYSP-450H-200302-08
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 19.5 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.032 dB
Adjusted SAR (1W): 4.88 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz: σ = 0.87 S/m; ε_r = 44.7; 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 (41x221x1):

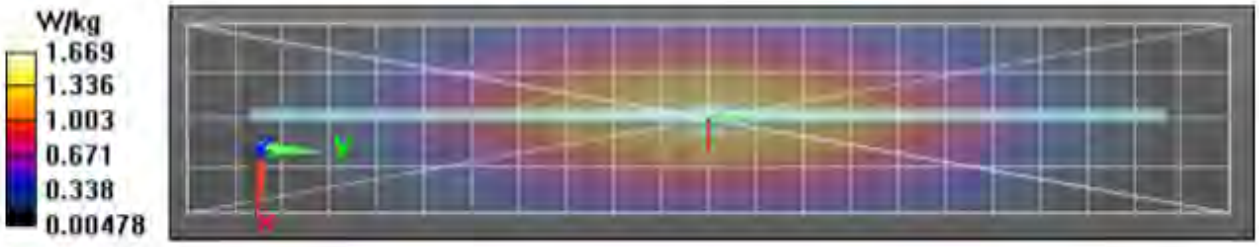
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 45.27 V/m; Power Drift = -0.23 dB
Fast SAR: SAR(1 g) = 1.34 W/kg; SAR(10 g) = 0.919 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.67 W/kg

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 = 45.27 V/m; Power Drift = -0.23 dB
Peak SAR (extrapolated) = 1.94 W/kg
SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.820 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) = 1.66 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/3/2020 10:34:54 AM

Robot#: DASY5-PG-3 | Run#: ZZ(AR)-SYSP-450H-200303-09
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 19.6 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.031 dB
Adjusted SAR (1W): 4.88 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 44.1; 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 (41x221x1):

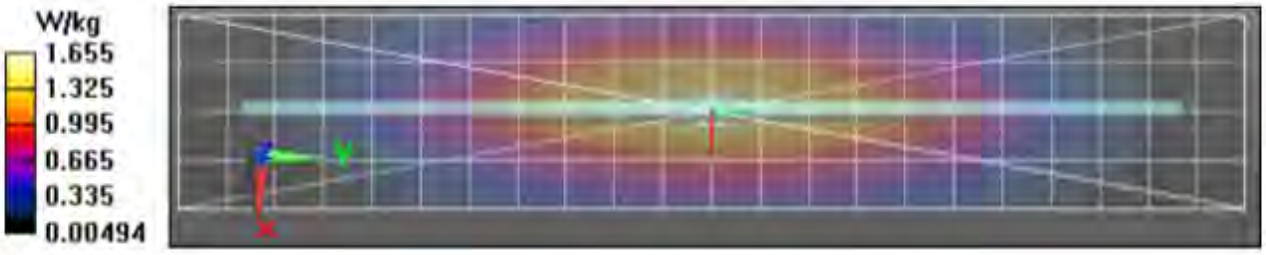
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.18 V/m; Power Drift = 0.00 dB
Fast SAR: SAR(1 g) = 1.32 W/kg; SAR(10 g) = 0.911 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.66 W/kg

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 = 44.18 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.820 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.66 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



Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/4/2020 11:09:50 AM

Robot#: DASY5-PG-3 | Run#: ZZ(AR)-SYSP-450H-200304-08
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.2 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.038 dB
Adjusted SAR (1W): 4.92 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 44.7; 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 (41x221x1):

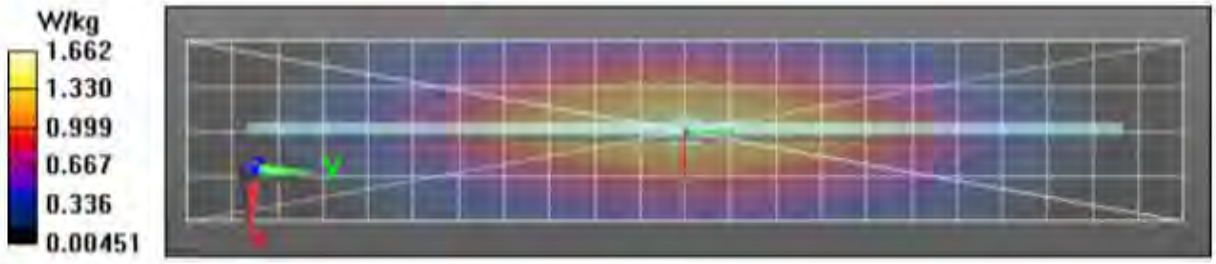
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.45 V/m; Power Drift = -0.04 dB
Fast SAR: SAR(1 g) = 1.33 W/kg; SAR(10 g) = 0.916 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.67 W/kg

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 = 44.45 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.23 W/kg; SAR(10 g) = 0.825 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.66 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) = 1.66 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/5/2020 11:12:18 AM

Robot#: DASY5-PG-3 | Run#: ZZ(AR)-SYSP-450H-200305-09

Dipole Model#	D450V3
Phantom#:	ELI5 1147
Tissue Temp:	20.4 (C)
Serial#:	1053
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.033 dB
Adjusted SAR (1W):	4.44 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 44.7; 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 (41x221x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 42.86 V/m; Power Drift = -0.16 dB

Fast SAR: SAR(1 g) = 1.22 W/kg; SAR(10 g) = 0.839 W/kg (SAR corrected for target medium)

Maximum value of SAR (interpolated) = 1.53 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 = 42.86 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 1.74 W/kg

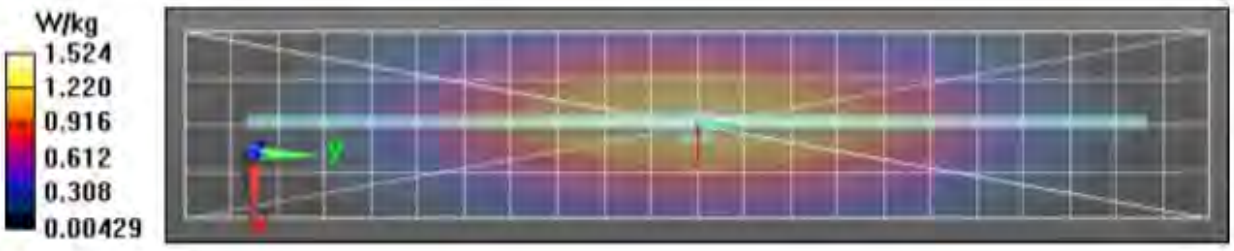
SAR(1 g) = 1.11 W/kg; SAR(10 g) = 0.746 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 1.50 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) = 1.51 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/6/2020 1:47:43 AM

Robot#: DASY5-PG-3 | Run#: AM-SYSP-450H-200306-03
Dipole Model# D450V3
Phantom#: ELI5 1147
Tissue Temp: 20.6 (C)
Serial#: 1053
Test Freq: 450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.044 dB
Adjusted SAR (1W): 4.80 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.85 S/m; ε_r = 44.4; 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 (41x221x1):

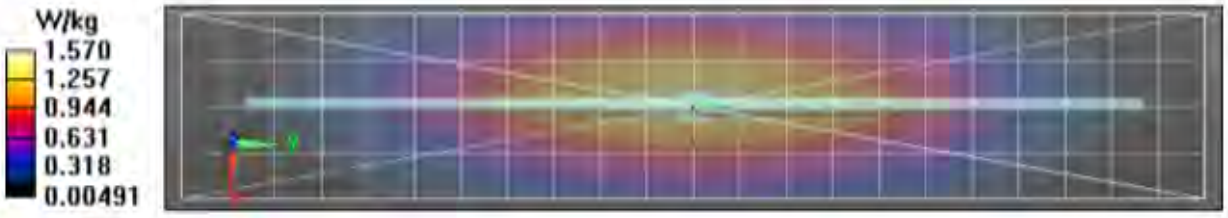
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 44.06 V/m; Power Drift = -0.01 dB
Fast SAR: SAR(1 g) = 1.29 W/kg; SAR(10 g) = 0.892 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.59 W/kg

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 = 44.06 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.807 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.60 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) = 1.59 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 4/29/2020 10:10:39 AM

Robot#: DASY5-PG-4 | Run#:	NZ-SYSP-450H-200429-01
Dipole Model#	D450V3
Phantom#:	ELI4 1022
Tissue Temp:	20.7 (C)
Serial#:	1054
Test Freq:	450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.18 dB
Adjusted SAR (1W):	4.60 mW/g (1g)

Comments:

Duty Cycle: 1:1, Medium parameters used: f = 450 MHz; σ = 0.87 S/m; ε_r = 43.1; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 450 MHz, ConvF(10.3, 10.3, 10.3) @ 450 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

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

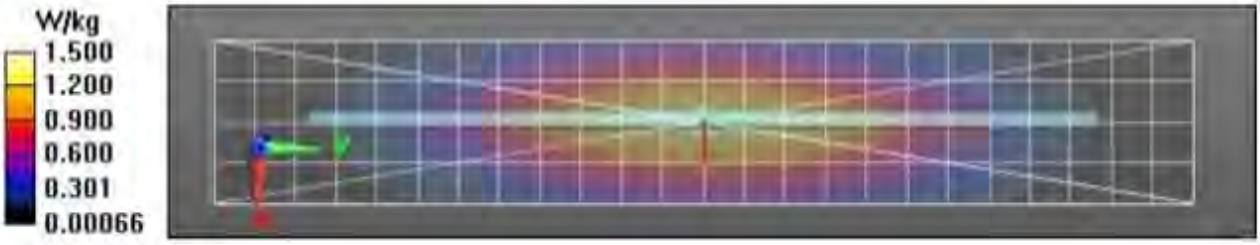
Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 43.54 V/m; Power Drift = -0.18 dB
Fast SAR: SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.832 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 1.50 W/kg

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 = 43.54 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 1.78 W/kg
SAR(1 g) = 1.15 W/kg; SAR(10 g) = 0.775 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.55 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) = 1.56 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 7/9/2020 8:57:52 PM

Robot#: DASY5-PG-1 | Run# ZZ-SYSP-2450H-200709-15
Dipole Model# D2450V2
Phantom#: ELI4 1103
Tissue Temp: 21.2 (C)
Serial#: 782
Test Freq: 2450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.035 dB
Adjusted SAR (1W): 50.80 mW/g (1g)

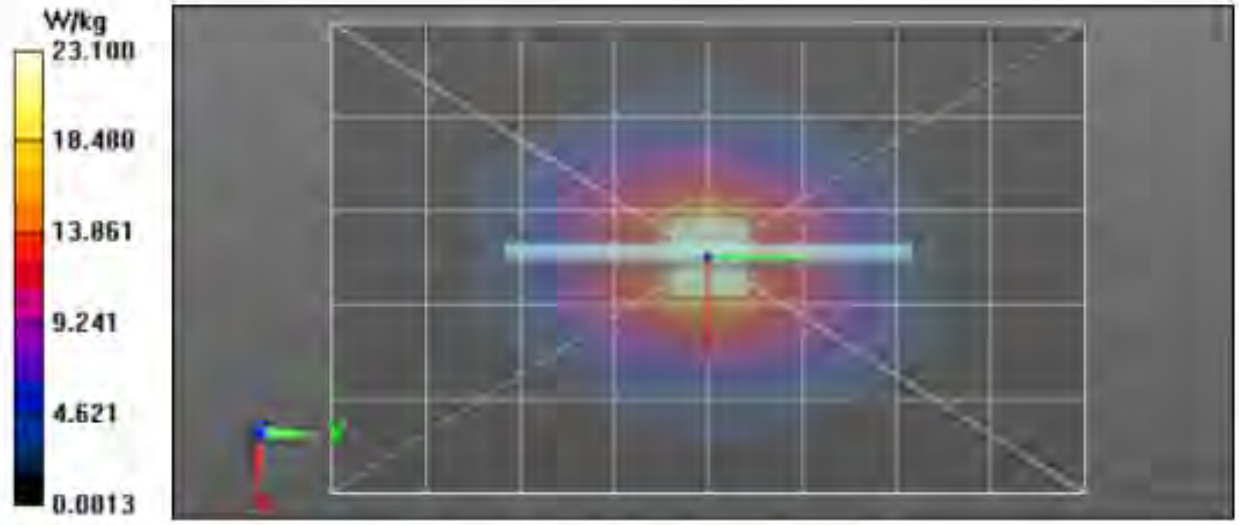
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.85 S/m; ε_r = 35.4; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7533, Calibrated: 11/6/2019, Frequency: 2450 MHz. ConvF(7.67, 7.67, 7.67) @ 2450 MHz
Electronics: DAE4 Sn1488, Calibrated: 7/23/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 115.9 V/m; Power Drift = -0.08 dB
Fast SAR: SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.5 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 23.6 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 115.9 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 28.7 W/kg
SAR(1 g) = 12.9 W/kg; SAR(10 g) = 5.95 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 46%
Maximum value of SAR (measured) = 22.9 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 23.1 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 7/10/2020 7:11:33 PM

Robot#: DASY5-PG-1 | Run#	ZZ-SYSP-2450H-200710-10
Dipole Model#	D2450V2
Phantom#:	ELI4 1103
Tissue Temp:	19.9 (C)
Serial#:	782
Test Freq:	2450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.25 dB
Adjusted SAR (1W):	52.00 mW/g (1g)

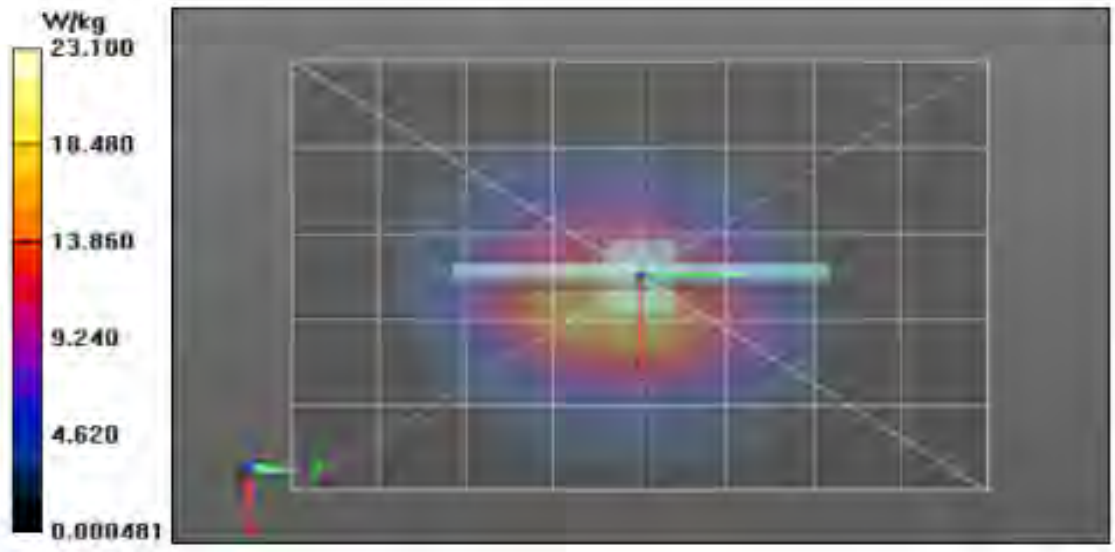
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.86 S/m; ε_r = 35.5; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7533, Calibrated: 11/6/2019, Frequency: 2450 MHz, ConvF(7.67, 7.67, 7.67) @ 2450 MHz
Electronics: DAE4 Sn1488, Calibrated: 7/23/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 114.7 V/m; Power Drift = -0.04 dB
Fast SAR: SAR(1 g) = 14 W/kg; SAR(10 g) = 6.43 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 24.0 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 114.7 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 29.1 W/kg
SAR(1 g) = 13 W/kg; SAR(10 g) = 5.95 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 45.9%
Maximum value of SAR (measured) = 23.1 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 23.1 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/5/2020 1:21:04 AM

Robot#: DASY5-PG-2	Run#: FD-SYSP-2450H-200305-01#
Dipole Model#	D2450V2
Phantom#	ELI4 1028
Tissue Temp:	20.6 (C)
Serial#:	781
Test Freq:	2450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.110 dB
Adjusted SAR (1W):	52.40 mW/g (1g)

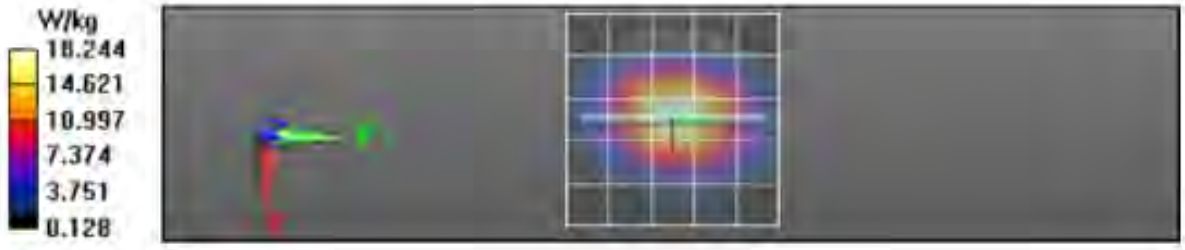
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.88 S/m; ε_r = 35.4; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7534, Calibrated: 7/25/2019, Frequency: 2450 MHz, ConvF(7.58, 7.58, 7.58) @ 2450 MHz
Electronics: DAE3 Sn374, Calibrated: 7/17/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x51x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 117.0 V/m; Power Drift = -0.12 dB
Fast SAR: SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.69 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 25.1 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 117.0 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 29.6 W/kg
SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.01 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 23.6 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 23.5 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 4/29/2020 8:53:20 AM

Robot#: DASY5-PG-3	Run#: FAZ-SYSP-2450H-200429-03
Dipole Model#	D2450V2
Phantom#:	ELI4 1108
Tissue Temp:	20.5 (C)
Serial#:	703
Test Freq:	2450.000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.07 dB
Adjusted SAR (1W):	55.20 mW/g (1g)

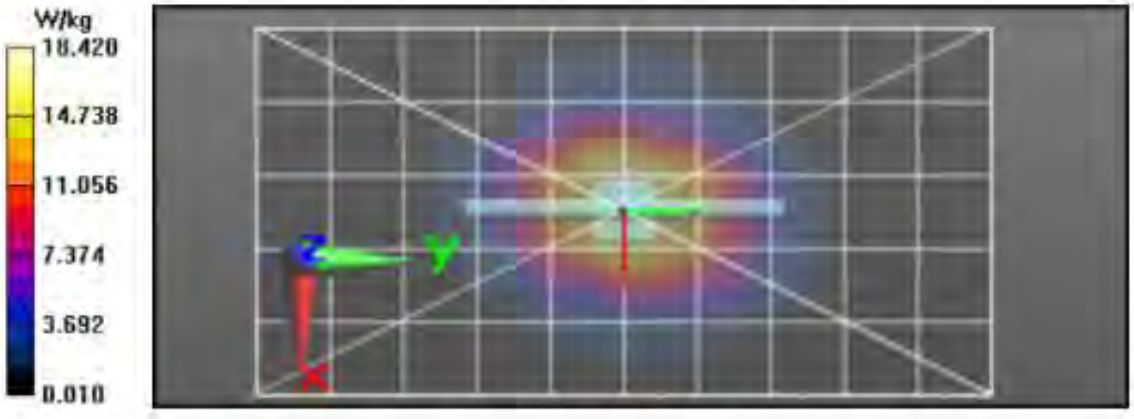
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.89 S/m; ε_r = 35.9; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 2450 MHz, ConvF(7.59, 7.59, 7.59) @ 2450 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 117.5 V/m; Power Drift = -0.05 dB
Fast SAR: SAR(1 g) = 14.5 W/kg; SAR(10 g) = 6.89 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 24.9 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 117.5 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 30.0 W/kg
SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.43 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 24.1 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 24.4 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 4/30/2020 9:06:52 AM

Robot#:	DASY5-PG-3	Run#:	FAZ-SYSP-2450H-200430-09
Dipole Model#:			D2450V2
Phantom#:			ELI4.1108
Tissue Temp:			19.6 (C)
Serial#:			703
Test Freq:			2450.000 (MHz)
Start Power:			250 (mW)
Rotation (1D):			0.078 dB
Adjusted SAR (1W):			56.40 mW/g (1g)

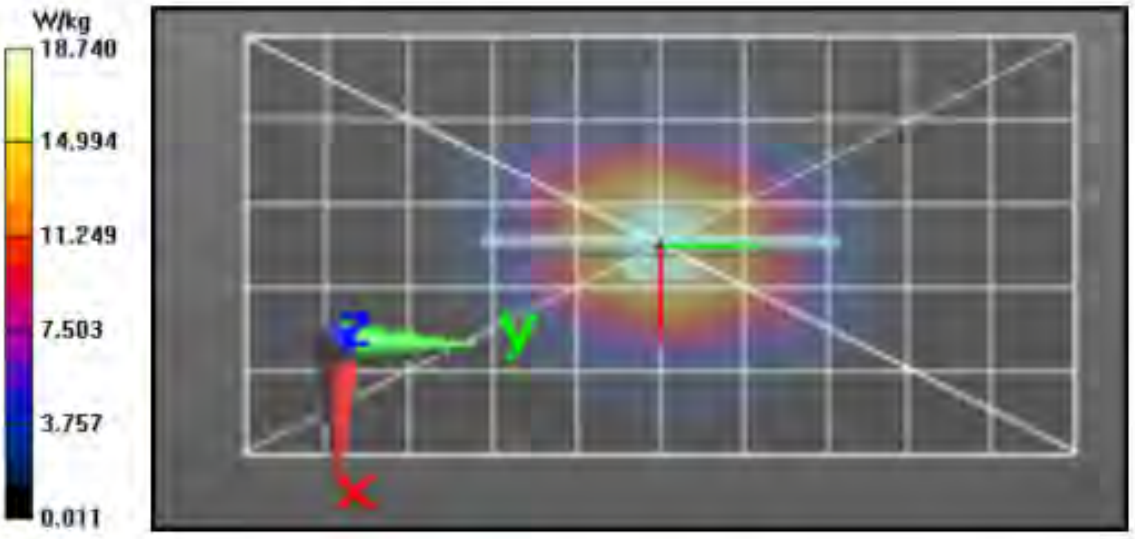
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.87 S/m; ε_r = 35.5; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 2450 MHz, ConvF(7.59, 7.59, 7.59) @ 2450 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 120.3 V/m; Power Drift = 0.00 dB
Fast SAR: SAR(1 g) = 15.2 W/kg; SAR(10 g) = 7.15 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 26.0 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 120.3 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 31.0 W/kg
SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.74 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 25.1 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 25.4 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 5/1/2020 10:33:51 AM

Robot#: DASY5-PG-3	Run#: FAZ-SYSP-2450H-200501-09
Dipole Model#	D2450V2
Phantom#:	ELI4 1108
Tissue Temp:	20.3 (C)
Serial#:	703
Test Freq:	2450.0000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.063 dB
Adjusted SAR (1W):	53.20 mW/g (1g)

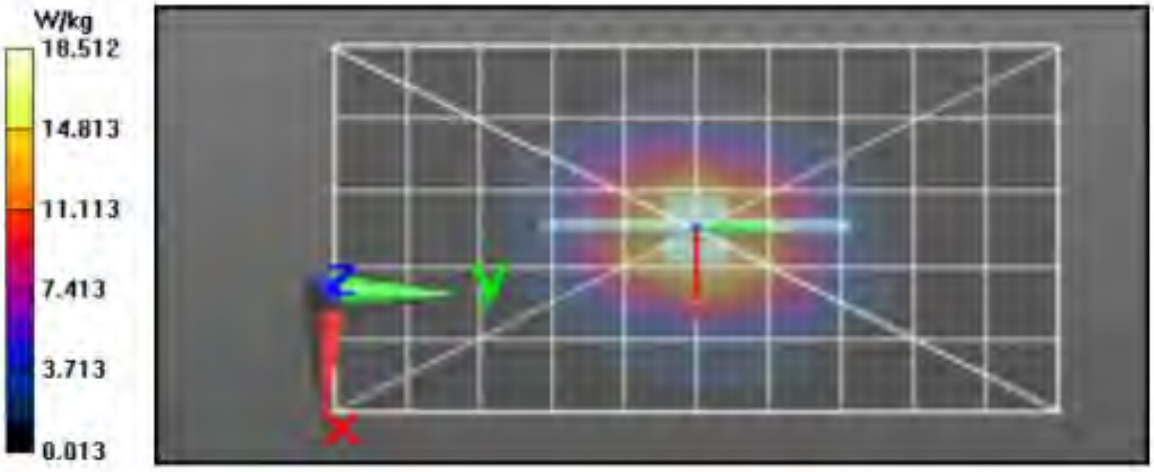
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.86 S/m; ε_r = 35.5; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 2450 MHz, ConvF(7.59, 7.59, 7.59) @ 2450 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 116.2 V/m; Power Drift = -0.02 dB
Fast SAR: SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.63 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 24.0 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 116.2 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 28.7 W/kg
SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.22 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 23.3 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 23.4 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 5/3/2020 10:32:31 PM

Robot#: DASY5-PG-3	Run#: AM-SYSP-2450H-200503-01
Dipole Model#	D2450V2
Phantom#:	ELI4 1108
Tissue Temp:	21.9 (C)
Serial#:	703
Test Freq:	2450.000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.064dB
Adjusted SAR (1W):	52.00 mW/g (1g)

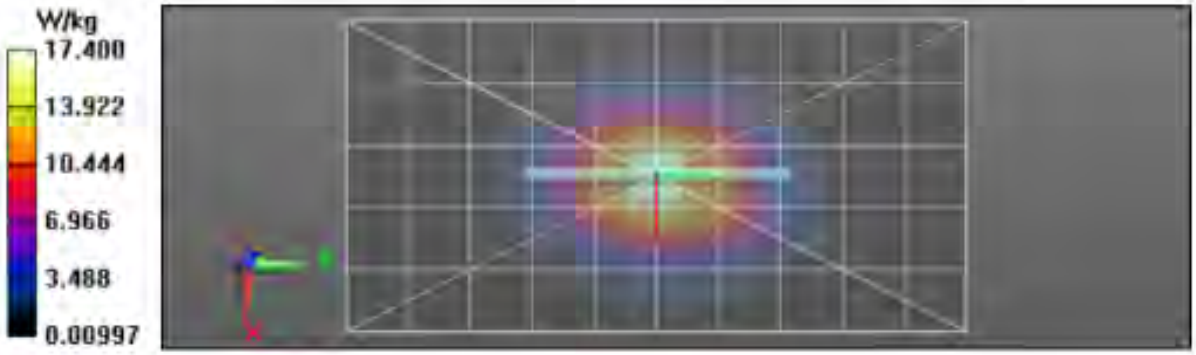
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.8 S/m; ε_r = 35.5; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 2450 MHz, ConvF(7.59, 7.59, 7.59) @ 2450 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 116.4 V/m; Power Drift = -0.17 dB
Fast SAR: SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.44 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 23.1 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 116.4 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 27.3 W/kg
SAR(1 g) = 13 W/kg; SAR(10 g) = 6.1 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 22.2 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 22.2 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 7/14/2020 11:32:51 PM

Robot#: DASY5-PG-1 | Run# BL(AR)-SYSP-2450H-200714-17
Dipole Model# D2450V2
Phantom#: ELI4 1103
Tissue Temp: 21.1 (C)
Serial#: 782
Test Freq: 2450.0000 (MHz)
Start Power: 250 (mW)
Rotation (1D): 0.12 dB
Adjusted SAR (1W): 50.80 mW/g (1g)

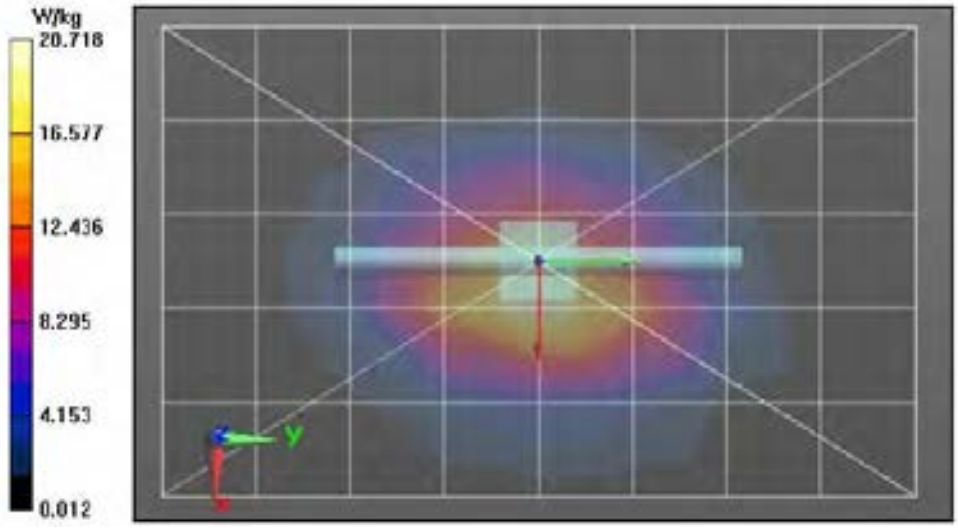
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.82 S/m; ε_r = 35.4; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7533, Calibrated: 11/6/2019, Frequency: 2450 MHz, ConvF(7.67, 7.67, 7.67) @ 2450 MHz
Electronics: DAE4 Sn1488, Calibrated: 7/23/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x81x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 114.6 V/m; Power Drift = -0.11 dB
Fast SAR: SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.33 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 22.6 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 114.6 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 28.3 W/kg
SAR(1 g) = 12.7 W/kg; SAR(10 g) = 5.86 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 46%
Maximum value of SAR (measured) = 22.5 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 22.5 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 5/4/2020 11:28:05 PM

Robot#: DASY5-PG-3	Run#: AM-SYSP-2450H-200504-14
Dipole Model#	D2450V2
Phantom#:	FL14 1108
Tissue Temp:	21.7 (C)
Serial#:	703
Test Freq:	2450.000 (MHz)
Start Power:	250 (mW)
Rotation (3D):	0.056 dB
Adjusted SAR (1W):	53.60 mW/g (1g)

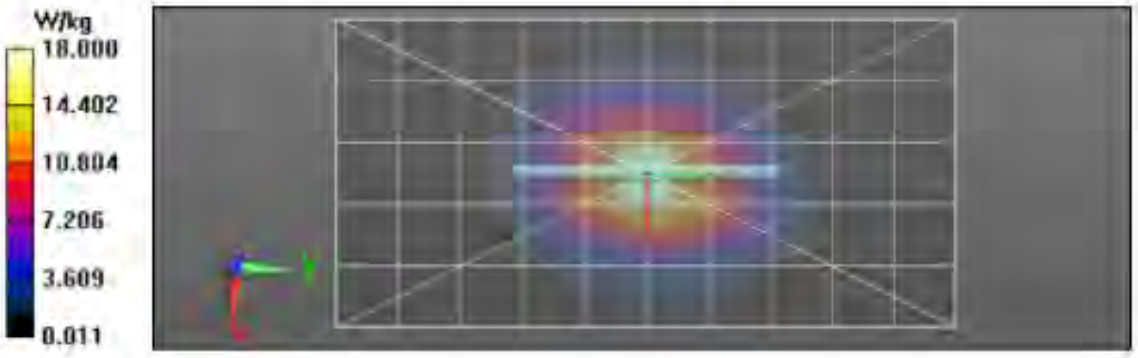
Comments:

Duty Cycle: 1:1; Medium parameters used: $f = 2450$ MHz; $\sigma = 1.78$ S/m; $\varepsilon_r = 37.4$; $\rho = 1000$ kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 2450 MHz, ConvF(7.59, 7.59, 7.59) @ 2450 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 116.8 V/m; Power Drift = -0.07 dB
Fast SAR: SAR(1 g) = 14 W/kg; SAR(10 g) = 6.53 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 23.1 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 116.8 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 27.6 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.22 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 22.3 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 22.5 W/kg



Motorola Solutions, Inc. EME Laboratory

Date/Time: 5/20/2020 2:00:41 PM

Robot#: DASY5-PG-4	Run#: ZZ(MA)-SYSP-2450H-200520-07
Dipole Model#	D2450V2
Phantom#:	ELI4 1108
Tissue Temp:	22.1 (C)
Serial#:	703
Test Freq:	2450.000 (MHz)
Start Power:	250 (mW)
Rotation (1D):	0.170 dB
Adjusted SAR (1W):	51.20 mW/g (1g)

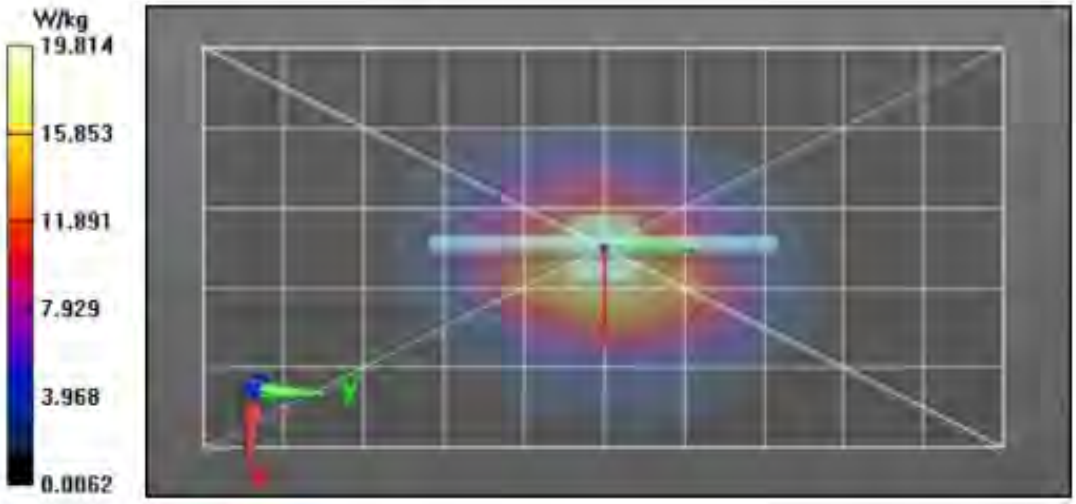
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 2450 MHz; σ = 1.83 S/m; ϵ_r = 36.1; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 2450 MHz, ConvF(7.06, 7.06, 7.06) @ 2450 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

2-3 GHz-Rev.3/System Performance Check/Dipole Area Scan 2 (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 113.5 V/m; Power Drift = 0.00 dB
Fast SAR: SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.22 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 22.2 W/kg

2-3 GHz-Rev.3/System Performance Check/0-Degree Cube (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 113.5 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 27.2 W/kg
SAR(1 g) = 12.8 W/kg; SAR(10 g) = 6.05 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 22.0 W/kg

2-3 GHz-Rev.3/System Performance Check/Z-Axis Retraction (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 22.2 W/kg



Appendix F
DUT Scans

Assessments at the FCC LMR Body with Body worn PMLN5838A w/ NTN5243A - Table 18

Motorola Solutions, Inc. EME Laboratory
Date/Time: 7/9/2020 4:11:30 PM

Robot#: DASY5-PG-4 | Run#: NZ-AB-200709-14#
Model#: PMUE3675D
Phantom#: ELI5 1147
Tissue Temp: 20.8 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4407BR
Carry Acc: PMLN5838A w/ NTN5243A
Audio Acc: PMMN4024A
Start Power: 4.80 (W)

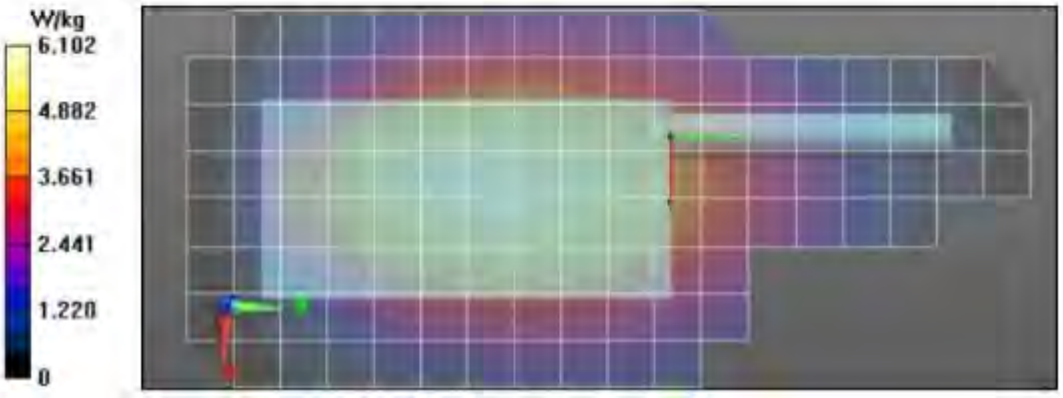
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.91 S/m; ε_r = 42.7; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(10.3, 10.3, 10.3) @ 470 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (81x241x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 79.67 V/m; Power Drift = -0.36 dB
Fast SAR: SAR(1 g) = 5.01 W/kg; SAR(10 g) = 3.66 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 6.17 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 = 79.67 V/m; Power Drift = -0.44 dB
Peak SAR (extrapolated) = 6.60 W/kg
SAR(1 g) = 4.72 W/kg; SAR(10 g) = 3.53 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 71.6%
Maximum value of SAR (measured) = 5.91 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) = 5.76 W/kg



Assessments at the FCC LMR Body with Body worn PMLN5840A w/ NTN5243A - Table 19

Motorola Solutions, Inc. EME Laboratory
Date/Time: 7/10/2020 6:53:06 PM

Robot#: DASY5-PG-4 | Run#: MA-AB-200710-22#
Model#: PMUE3675D
Phantom#: EL15 1147
Tissue Temp: 20.0 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4412AR
Carry Acc: PMLN5840A w/ NTN5243A
Audio Acc: PMMN4024A
Start Power: 4.80 (W)

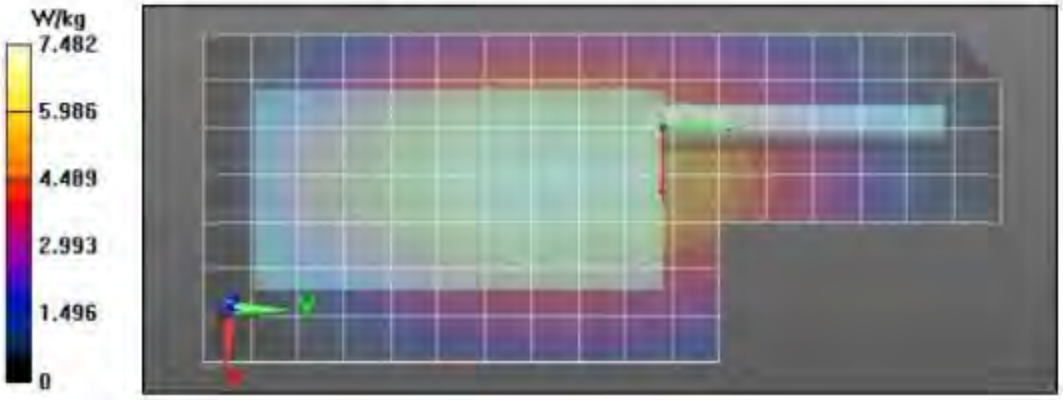
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.9 S/m; ε_r = 41.9; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(10.3, 10.3, 10.3) @ 470 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (81x241x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 89.84 V/m; Power Drift = -0.61 dB
Fast SAR: SAR(1 g) = 6.08 W/kg; SAR(10 g) = 4.43 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 7.49 W/kg

Below 2 GHz-Rev.3/Ab Scan/3-Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 89.84 V/m; Power Drift = -0.70 dB
Peak SAR (extrapolated) = 8.04 W/kg
SAR(1 g) = 5.74 W/kg; SAR(10 g) = 4.28 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 71.5%
Maximum value of SAR (measured) = 7.17 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) = 7.05 W/kg



Assessments at the FCC LMR Body with Body worn PMLN5844A w/ NTN5243A – Table 20

Motorola Solutions, Inc. EME Laboratory
Date/Time: 7/12/2020 2:50:17 PM

Robot#: DASY5-PG-4 | Run#:	MA-AB-200712-10
Model#:	PMUE3675D
Phantom#:	ELI5 1147
Tissue Temp:	20.4 (C)
Serial#:	871TWB3879
Antenna:	PMAE4071A
Test Freq:	470.0000 (MHz)
Battery:	PMNN4407BR
Carry Acc:	PMLN5844A w/ NTN5243A
Audio Acc:	PMMN4024A
Start Power:	4.77 (W)

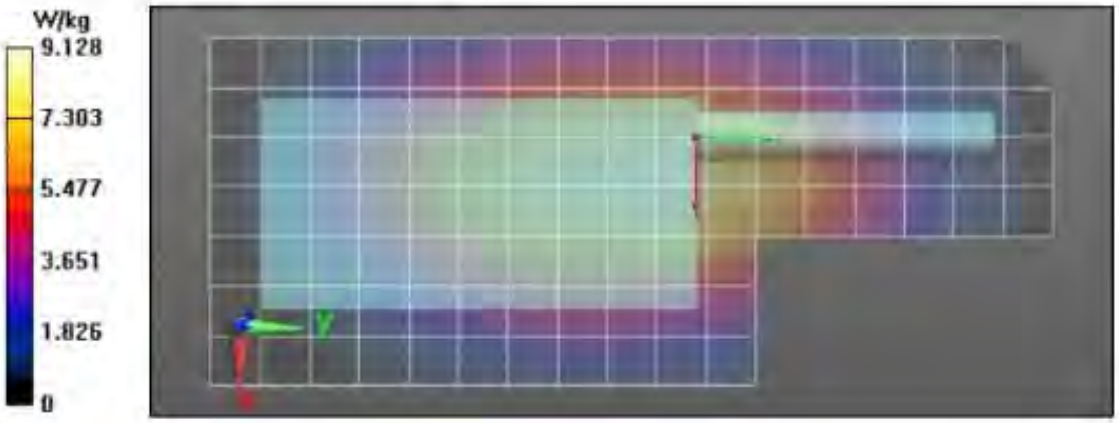
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.89 S/m; ε_r = 42.5; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(10.3, 10.3, 10.3) @ 470 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (81x241x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 99.38 V/m; Power Drift = -0.47 dB
Fast SAR: SAR(1 g) = 7.41 W/kg; SAR(10 g) = 5.39 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 9.14 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 = 99.38 V/m; Power Drift = -0.54 dB
Peak SAR (extrapolated) = 9.90 W/kg
SAR(1 g) = 6.84 W/kg; SAR(10 g) = 5.02 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 69.1%
Maximum value of SAR (measured) = 8.70 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) = 8.62 W/kg



Assessments at the FCC LMR Body with Body worn PMLN4651A - Table 21

Motorola Solutions, Inc. EME Laboratory
Date/Time: 2/10/2020 8:29:12 PM

Robot#: DASY5-PG-3 | Run#: AM-AB-200210-22
Model#: PMUE3675D
Phantom#: ELI5 1147
Tissue Temp: 21.7 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4407BR
Carry Acc: PMLN4651A
Audio Acc: PMMN4024A
Start Power: 4.79 (W)

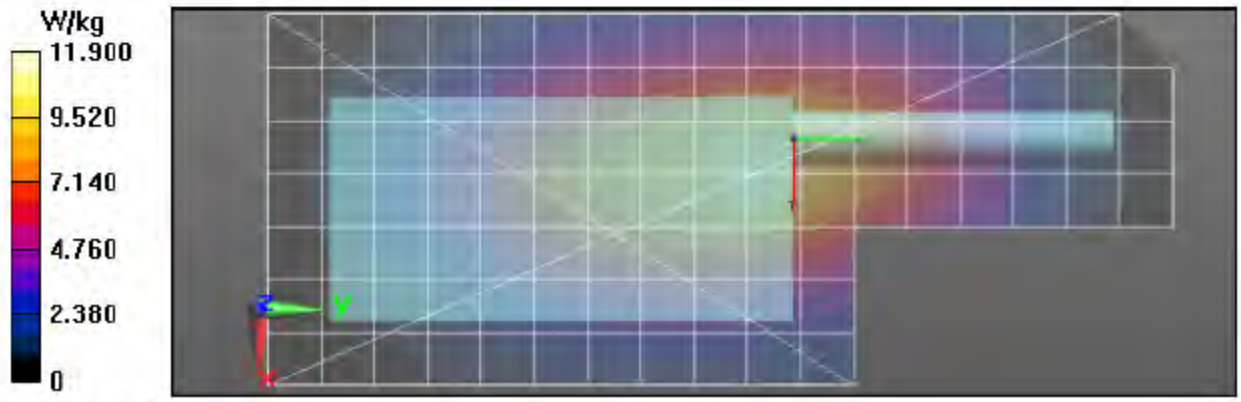
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.89 S/m; ε_r = 43.6; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(11.4, 11.4, 11.4) @ 470 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (71x171x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 108.7 V/m; Power Drift = -0.52 dB
Fast SAR: SAR(1 g) = 9.42 W/kg; SAR(10 g) = 6.54 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 11.9 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 = 108.7 V/m; Power Drift = -0.60 dB
Peak SAR (extrapolated) = 12.9 W/kg
SAR(1 g) = 8.39 W/kg; SAR(10 g) = 5.91 W/kg (SAR corrected for target medium)
Ratio of SAR at M2 to SAR at M1 = 65.5%
Maximum value of SAR (measured) = 11.3 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) = 11.2 W/kg



Assessments at the FCC LMR Body with Body worn PMLN7008A - Table 22

Motorola Solutions, Inc. EME Laboratory
Date/Time: 2/12/2020 11:29:54 PM

Robot#: DASY5-PG-3 | Run#: AM-AB-200212-21
Model#: PMUE3675D
Phantom#: ELI5 1147
Tissue Temp: 19.6 (C)
Serial#: 871TWB3879
Antenna: PMAE4070A
Test Freq: 457.9000 (MHz)
Battery: PMNN4407BR
Carry Acc: PMLN7008A
Audio Acc: PMMN4024A
Start Power: 4.80 (W)

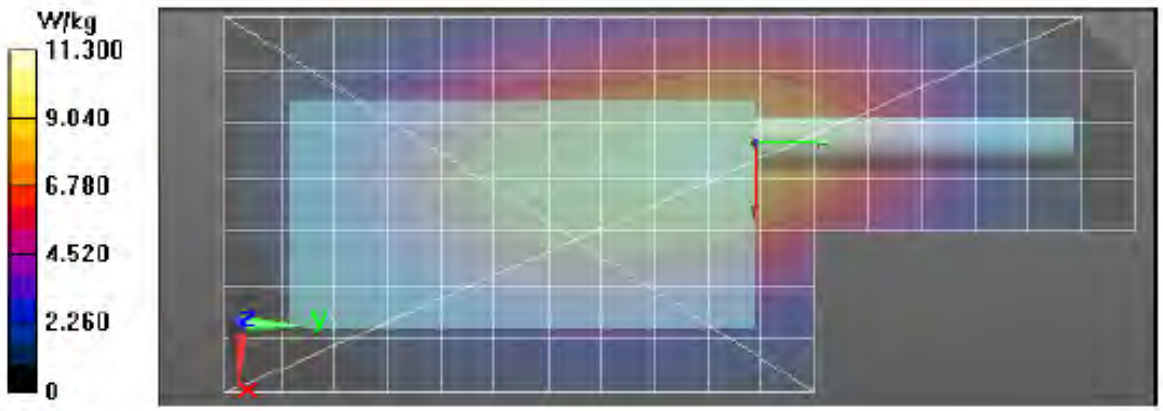
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 458 MHz; σ = 0.88 S/m; ε_r = 44.1; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 457.9 MHz, ConvF(11.4, 11.4, 11.4) @ 457.9 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (71x221x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 113.6 V/m; Power Drift = -0.56 dB
Fast SAR: SAR(1 g) = 9.04 W/kg; SAR(10 g) = 6.32 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 11.4 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 = 113.6 V/m; Power Drift = -0.66 dB
Peak SAR (extrapolated) = 12.6 W/kg
SAR(1 g) = 8.21 W/kg; SAR(10 g) = 5.83 W/kg (SAR corrected for target medium)
Ratio of SAR at M2 to SAR at M1 = 65.1%
Maximum value of SAR (measured) = 10.9 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) = 10.9 W/kg



Assessments at the FCC LMR Body with Body worn PMLN7296A - Table 23

Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/27/2020 9:28:46 PM

Robot#: DASY5-PG-3 | Run#: AM-AB-200227-20
Model#: PMUE3675D
Phantom#: ELI5 1147
Tissue Temp: 21.0 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4488A
Carry Acc: PMLN7296A
Audio Acc: PMMN4024A
Start Power: 4.73 (W)

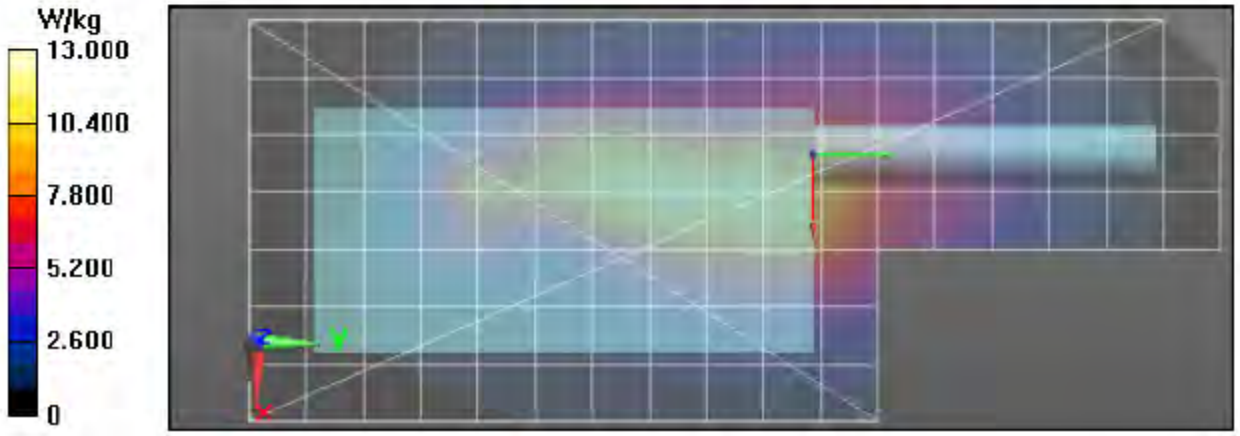
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.88 S/m; ε_r = 44.3; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(11.4, 11.4, 11.4) @ 470 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (71x221x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 97.91 V/m; Power Drift = -0.56 dB
Fast SAR: SAR(1 g) = 10.1 W/kg; SAR(10 g) = 6.77 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 13.0 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 = 97.91 V/m; Power Drift = -0.72 dB
Peak SAR (extrapolated) = 14.9 W/kg
SAR(1 g) = 8.94 W/kg; SAR(10 g) = 5.99 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 12.4 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) = 12.5 W/kg



Assessments at the FCC LMR Body with Body worn HLN6602A - Table 24

Motorola Solutions, Inc. EME Laboratory
Date/Time: 2/18/2020 12:11:47 PM

Robot#: DASY5-PG-3 | Run#: AM-AB-200218-11#
Model#: PMUE3675D
Phantom#: ELI5 1147
Tissue Temp: 19.5 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4407BR
Carry Acc: HLN6602A
Audio Acc: PMMN4024A
Start Power: 4.80 (W)

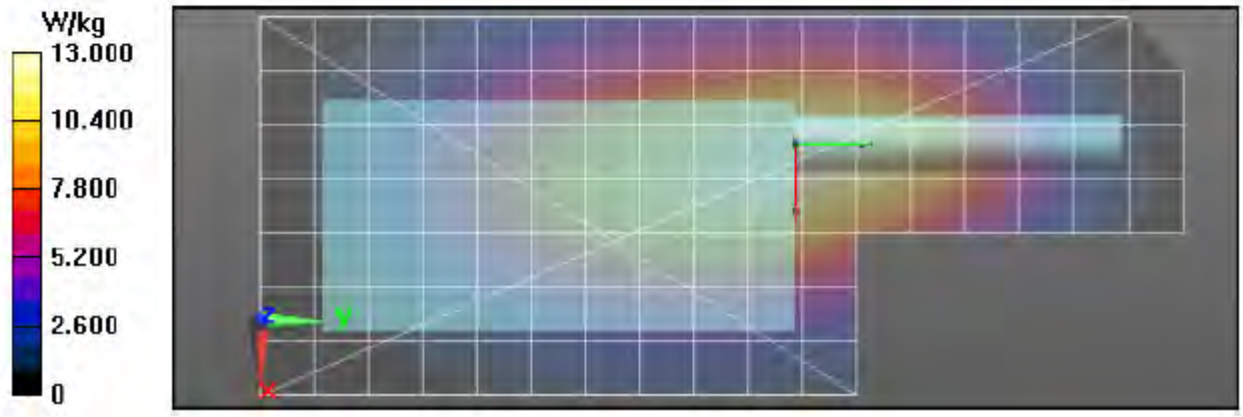
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.88 S/m; ε_r = 43.2; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(11.4, 11.4, 11.4) @ 470 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (71x221x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 124.1 V/m; Power Drift = -0.47 dB
Fast SAR: SAR(1 g) = 11 W/kg; SAR(10 g) = 7.9 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 13.6 W/kg

Below 2 GHz-Rev.3/Ab Scan/3-Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 124.1 V/m; Power Drift = -0.59 dB
Peak SAR (extrapolated) = 14.8 W/kg
SAR(1 g) = 10.1 W/kg; SAR(10 g) = 7.32 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 13.0 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) = 12.7 W/kg



Assessments at the FCC LMR Body with Body worn RLN4570A - Table 25

Motorola Solutions, Inc. EME Laboratory

Date/Time: 2/24/2020 8:34:25 PM

Robot#: DASY5-PG-3 | Run#: AM-AB-200224-14
Model#: PMUE3675D
Phantom#: ELI5 1147
Tissue Temp: 20.3 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4407BR
Carry Acc: RLN4570A
Audio Acc: PMMN4024A
Start Power: 4.75 (W)

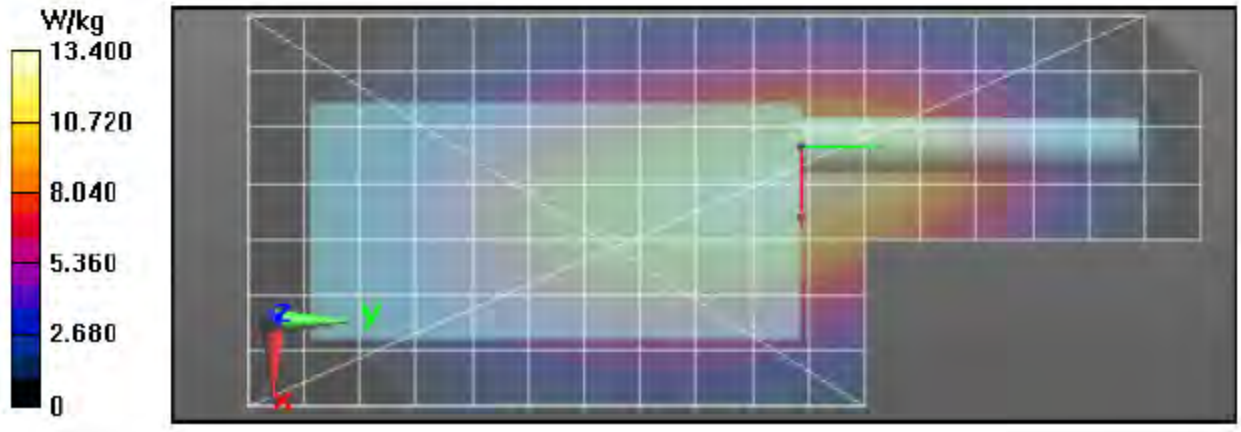
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.89 S/m; ε_r = 43.7; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(11.4, 11.4, 11.4) @ 470 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (71x221x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 116.4 V/m; Power Drift = -0.66 dB
Fast SAR: SAR(1 g) = 10.9 W/kg; SAR(10 g) = 7.82 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 13.4 W/kg

Below 2 GHz-Rev.3/Ab Scan/3-Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 116.4 V/m; Power Drift = -0.81 dB
Peak SAR (extrapolated) = 14.4 W/kg
SAR(1 g) = 9.76 W/kg; SAR(10 g) = 7 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 12.6 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) = 12.5 W/kg



Assessments at the FCC LMR Body with Body worn RLN4815A - Table 26

Motorola Solutions, Inc. EME Laboratory
Date/Time: 2/28/2020 7:13:09 PM

Robot#: DASY5-PG-3 | Run#: AM-AB-200228-10
Model#: PMUE3675D
Phantom#: ELI5 1147
Tissue Temp: 20.8 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4407BR
Carry Acc: RLN4815A
Audio Acc: PMMN4024A
Start Power: 4.68 (W)

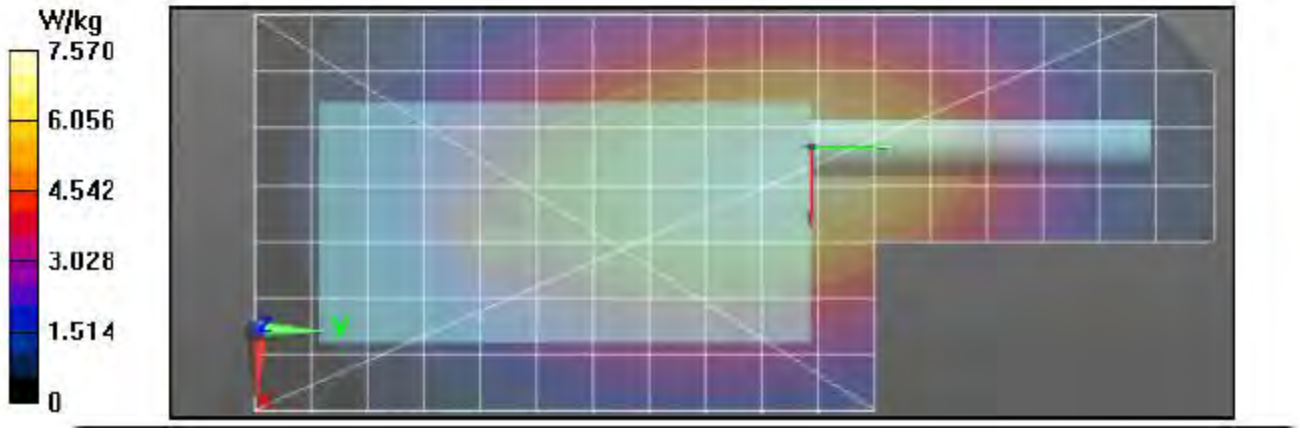
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.88 S/m; ε_r = 44.5; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(11.4, 11.4, 11.4) @ 470 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (71x221x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 94.20 V/m; Power Drift = -0.49 dB
Fast SAR: SAR(1 g) = 6.16 W/kg; SAR(10 g) = 4.49 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 7.58 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 = 94.20 V/m; Power Drift = -0.57 dB
Peak SAR (extrapolated) = 8.17 W/kg
SAR(1 g) = 5.75 W/kg; SAR(10 g) = 4.25 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 7.27 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) = 7.15 W/kg



Assessments at the FCC LMR Body with Body worn PMLN5844A w/ RLN6487A w/ RLN6488A - Table 27

Motorola Solutions, Inc. EME Laboratory
Date/Time: 7/14/2020 11:50:24 AM

Robot#: DASY5-PG-4 | Run#:	MA-AB-200714-04
Model#:	PMUE3675D
Phantom#:	ELI5 1147
Tissue Temp:	21.0 (C)
Serial#:	871TWB3879
Antenna:	PMAE4071A
Test Freq:	470.0000 (MHz)
Battery:	PMNN4491B
Carry Acc:	PMLN5844A w/ RLN6487A w/ RLN6488A
Audio Acc:	PMMN4024A
Start Power:	4.80 (W)

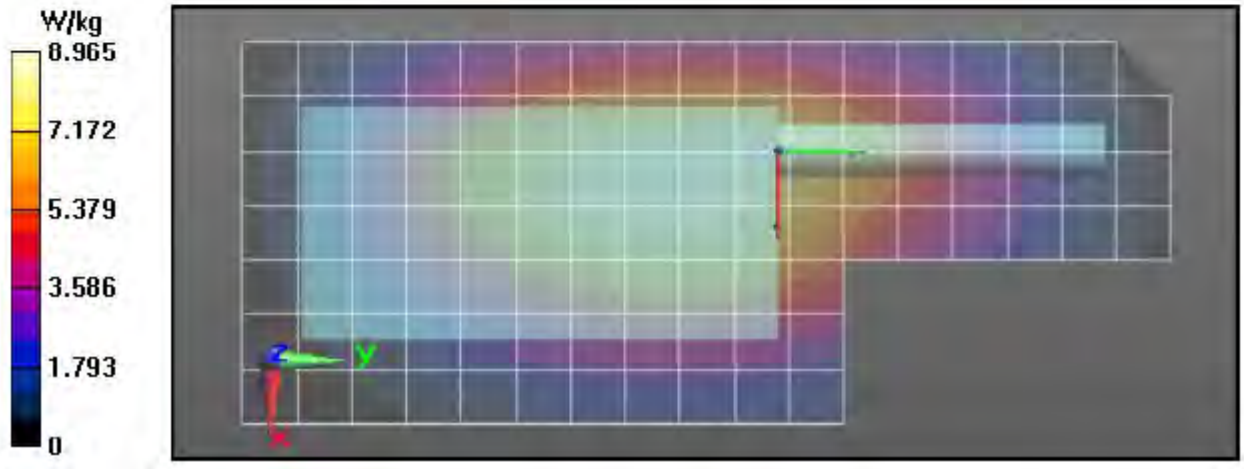
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.9 S/m; ε_r = 42.1; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(10.3, 10.3, 10.3) @ 470 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (81x241x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 102.7 V/m; Power Drift = -0.44 dB
Fast SAR: SAR(1 g) = 7.47 W/kg; SAR(10 g) = 5.44 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 9.24 W/kg

Below 2 GHz-Rev.3/Ab Scan/3-Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 102.7 V/m; Power Drift = -0.57 dB
Peak SAR (extrapolated) = 10.2 W/kg
SAR(1 g) = 6.99 W/kg; SAR(10 g) = 5.18 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 70%
Maximum value of SAR (measured) = 8.80 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) = 8.47 W/kg



Assessment at the FCC LMR Body with other audio accessories - Table 28

Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/3/2020 8:50:33 PM

Robot#: DASY5-PG-3 | Run#: AM-AB-200303-18
Model#: PMUE3675D
Phantom#: ELI5 1147
Tissue Temp: 20.8 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4407BR
Carry Acc: RLN4570A
Audio Acc: PMLN6765A w/ PMLN6767A & PMLN6833A
Start Power: 4.80 (W)

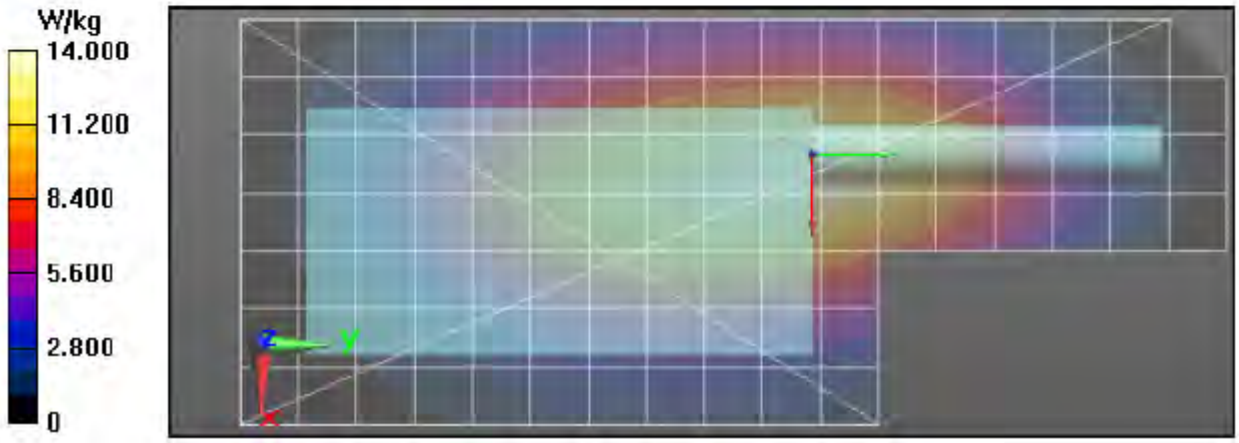
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.89 S/m; ε_r = 43.7; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(11.4, 11.4, 11.4) @ 470 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (71x221x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 127.5 V/m; Power Drift = -0.52 dB
Fast SAR: SAR(1 g) = 11.6 W/kg; SAR(10 g) = 8.39 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 14.4 W/kg

Below 2 GHz-Rev.3/Ab Scan/3-Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 127.5 V/m; Power Drift = -0.65 dB
Peak SAR (extrapolated) = 15.7 W/kg
SAR(1 g) = 10.7 W/kg; SAR(10 g) = 7.7 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 13.8 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) = 13.4 W/kg



Assessment at FCC Body of wireless BT configuration - Table 29

Motorola Solutions, Inc. EME Laboratory
Date/Time: 3/4/2020 1:02:16 PM

Robot#: DASY5-PG-3 | Run#:	ZZ(AR)-AB-200304-09
Model#:	PMUE3675D
Phantom#:	ELI5 1147
Tissue Temp:	21.1 (C)
Serial#:	871TWB3879
Antenna:	PMAE4071A
Test Freq:	470.0000 (MHz)
Battery:	PMNN4407BR
Carry Acc:	RLN4570A
Audio Acc:	None (BT)
Start Power:	4.80 (W)

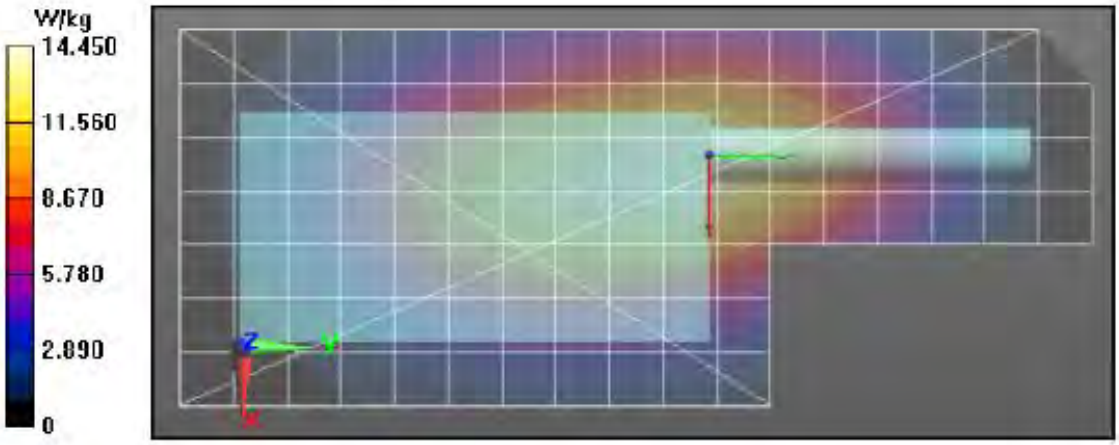
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.88 S/m; ε_r = 44.3; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(11.4, 11.4, 11.4) @ 470 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (71x221x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 132.2 V/m; Power Drift = -0.43 dB
Fast SAR: SAR(1 g) = 11.9 W/kg; SAR(10 g) = 8.68 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 14.7 W/kg

Below 2 GHz-Rev.3/Ab Scan/3-Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 132.2 V/m; Power Drift = -0.55 dB
Peak SAR (extrapolated) = 16.0 W/kg
SAR(1 g) = 11.1 W/kg; SAR(10 g) = 8.15 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 14.1 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) = 13.8 W/kg



Assessments at the FCC/ISED WLAN Body - Table 31/Table 36

Motorola Solutions, Inc. EME Laboratory

Date/Time: 7/14/2020 8:42:30 AM

Robot#: DASY5-PG-1 | Run#: ZZ-AB-200713-07#

Model#:	PMUE3675D
Phantom#:	ELI4 1103
Tissue Temp:	20.3 (C)
Serial#:	871TWB3881
Antenna:	0104039J80 WiFi Ant
Test Freq:	2412.0000(MHz)
Battery:	PMNN4412A
Carry Acc:	PMLN5844A w/ NTN5243A
Audio Acc:	None
Start Power:	0.018 (W)

Comments:

Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz), Communication System UID: 10415 - AAA, Duty Cycle: 1:1.42561,

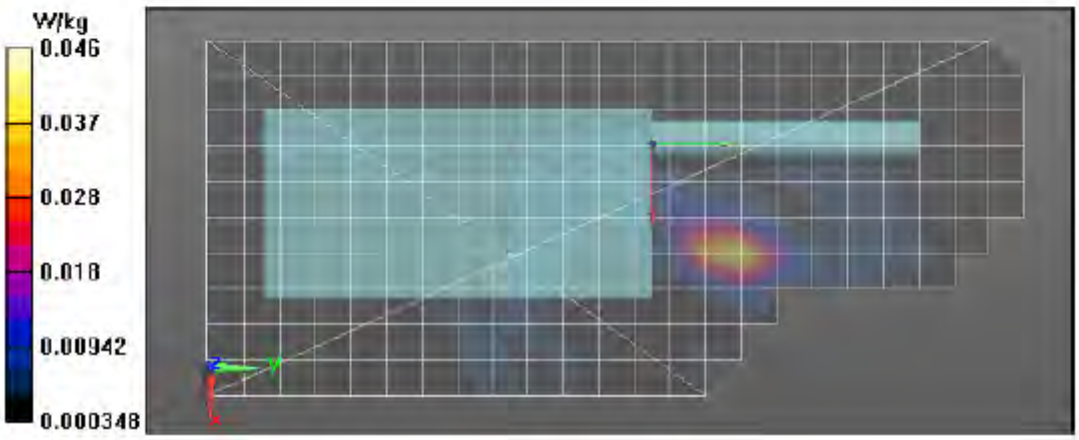
Medium parameters used: f = 2412 MHz; σ = 1.82 S/m; ε_r = 37.4; ρ = 1000 kg/m^3

Probe: EX3DV4 - SN7533, Calibrated: 11/6/2019, Frequency: 2412 MHz, ConvF(7.67, 7.67, 7.67) @ 2412 MHz
Electronics: DAE4 Sn1488, Calibrated: 7/23/2019

2-3 GHz-Rev.3/Ab Scan/1-Area Scan (101x241x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 3.675 V/m; Power Drift = -0.26 dB
Fast SAR: SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.011 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 0.0534 W/kg

2-3 GHz-Rev.3/Ab Scan/3-Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.675 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0580 W/kg
SAR(1 g) = 0.025 W/kg; SAR(10 g) = 0.011 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 47.1%
Maximum value of SAR (measured) = 0.0436 W/kg

2-3 GHz-Rev.3/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 0.0457 W/kg



Assessments at the ISED LMR Body - Table 36

Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/4/2020 1:02:16 PM

Robot#: DASY5-PG-3 | Run#:	ZZ(AR)-AB-200304-09
Model#:	PMUE3675D
Phantom#:	ELI5 1147
Tissue Temp:	21.1 (C)
Serial#:	871TWB3879
Antenna:	PMAE4071A
Test Freq:	470.0000 (MHz)
Battery:	PMNN4407BR
Carry Acc:	RLN4570A
Audio Acc:	None (BT)
Start Power:	4.80 (W)

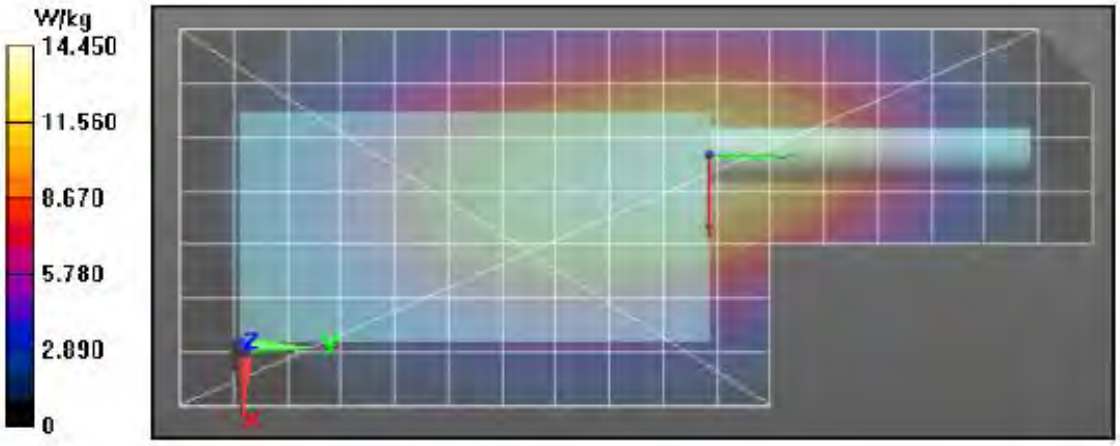
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.88 S/m; ε_r = 44.3; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(11.4, 11.4, 11.4) @ 470 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (71x221x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 132.2 V/m; Power Drift = -0.43 dB
Fast SAR: SAR(1 g) = 11.9 W/kg; SAR(10 g) = 8.68 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 14.7 W/kg

Below 2 GHz-Rev.3/Ab Scan/3-Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 132.2 V/m; Power Drift = -0.55 dB
Peak SAR (extrapolated) = 16.0 W/kg
SAR(1 g) = 11.1 W/kg; SAR(10 g) = 8.15 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 14.1 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) = 13.8 W/kg



Assessments at the FCC/ISED LMR Face - Table 33 / Table 36

Motorola Solutions, Inc. EME Laboratory

Date/Time: 3/5/2020 8:04:57 AM

Robot#: DASY5-PG-3 | Run#: ZZ(AR)-FACE-200305-05#
Model#: PMUE3675D
Phantom#: ELI5 1147
Tissue Temp: 19.8 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4448AR
Carry Acc: @ front
Audio Acc: N/A
Start Power: 4.80 (W)

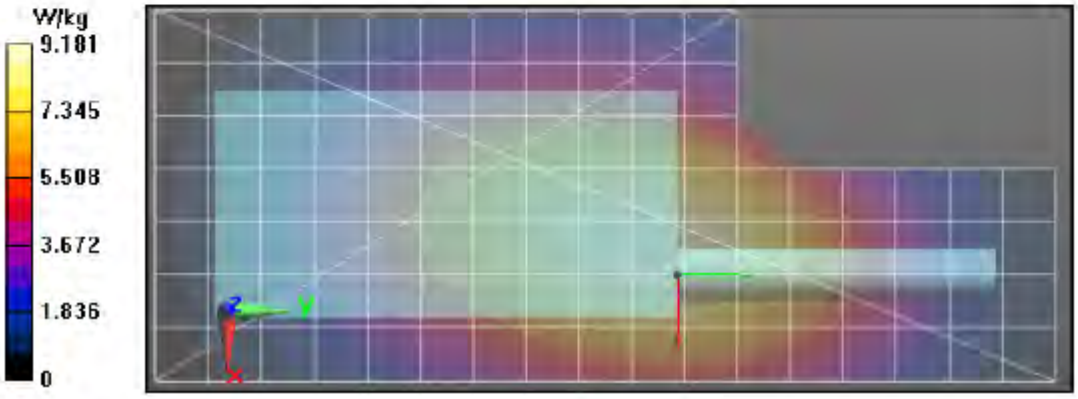
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 470 MHz; σ = 0.88 S/m; ε_r = 44.3; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(11.4, 11.4, 11.4) @ 470 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Face Scan/1-Area Scan (71x211x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 103.5 V/m; Power Drift = -0.30 dB
Fast SAR: SAR(1 g) = 7.64 W/kg; SAR(10 g) = 5.59 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 9.39 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 = 103.5 V/m; Power Drift = -0.40 dB
Peak SAR (extrapolated) = 10.1 W/kg
SAR(1 g) = 7.21 W/kg; SAR(10 g) = 5.41 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 8.98 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) = 8.92 W/kg



Assessments at the FCC/ISED WLAN Face - Table 35 / Table 36

Motorola Solutions, Inc. EME Laboratory

Date/Time: 5/5/2020 2:31:07 AM

Robot#: DASY5-PG-3 | Run#:	AM-FACE-200505-02#
Model#:	PMUE3675D
Phantom#:	ELI4 1108
Tissue Temp:	21.7 (C)
Serial#:	871TWB3881
Antenna:	0104039J80 WiFi Ant
Test Freq:	2412.0000 (MHz)
Battery:	PMNN4412A
Carry Acc:	None
Audio Acc:	None
Start Power:	0.0180 (W)

Comments:

Communication System Band: WLAN 2.4GHz (2412.0 - 2484.0 MHz), Communication System UID: 10415 - AAA, Duty Cycle: 1:1.42561,

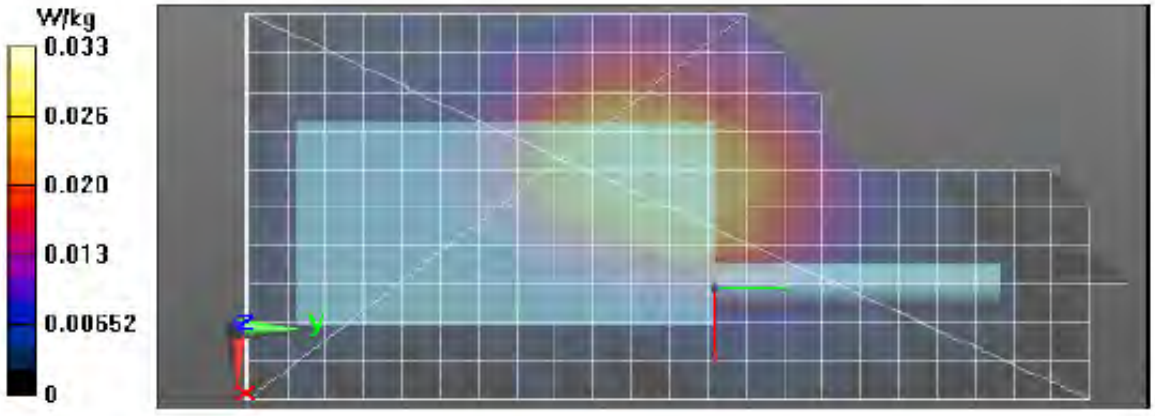
Medium parameters used: f = 2412 MHz; σ = 1.74 S/m; ε_r = 37.5; ρ = 1000 kg/m^3

Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 2412 MHz, ConvF(7.59, 7.59, 7.59) @ 2412 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

2-3 GHz-Rev.3/Ab Scan/1-Area Scan (101x231x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Reference Value = 4.406 V/m; Power Drift = 0.10 dB
Fast SAR: SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.013 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 0.0326 W/kg

2-3 GHz-Rev.3/Ab Scan/3-Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.406 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.0420 W/kg
SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.014 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.0342 W/kg

2-3 GHz-Rev.3/Ab Scan/4-Z-Axis Scan (1x1x17): Measurement grid: dx=20mm, dy=20mm, dz=10mm
Maximum value of SAR (measured) = 0.0331 W/kg



Assessments at the Body
- Table 37 (Outside PT90)

Motorola Solutions, Inc. EME Laboratory
Date/Time: 4/29/2020 11:25:53 PM

Robot#: DASY5-PG-4 | Run#: ZZ(MA)-AB-200429-12
Model#: PMUE3675D
Phantom#: ELI4 1022
Tissue Temp: 21.0 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 527.0000 (MHz)
Battery: PMNN4407BR
Carry Acc: RLN4570A
Audio Acc: None (BT)
Start Power: 4.79 (W)

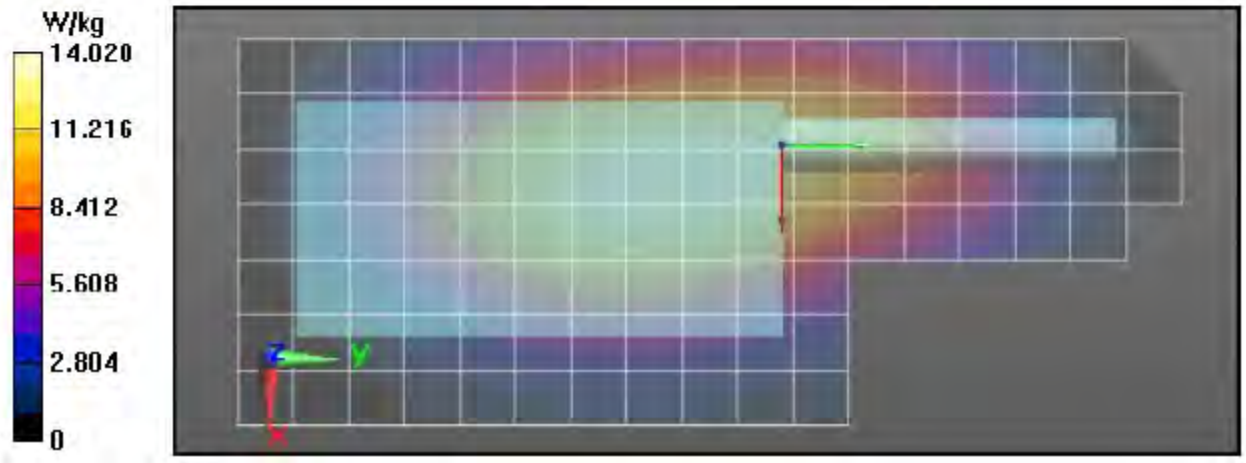
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 527 MHz; σ = 0.92 S/m; ε_r = 42; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 527 MHz, ConvF(10.3, 10.3, 10.3) @ 527 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (81x231x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 128.6 V/m; Power Drift = -0.51 dB
Fast SAR: SAR(1 g) = 11.6 W/kg; SAR(10 g) = 8.42 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 14.4 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 = 128.6 V/m; Power Drift = -0.60 dB
Peak SAR (extrapolated) = 15.4 W/kg
SAR(1 g) = 10.9 W/kg; SAR(10 g) = 8.02 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 13.6 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) = 13.5 W/kg



Assessments at the Face
- Table 37(Outside PT90)

Motorola Solutions, Inc. EME Laboratory
Date/Time: 3/6/2020 3:13:43 AM

Robot#: DASY5-PG-3 | Run#: AM-FACE-200306-05

Model#:	PMUE3675D
Phantom#:	ELI5 1147
Tissue Temp:	20.6 (C)
Serial#:	871TWB3879
Antenna:	PMAE4071A
Test Freq:	527.0000 (MHz)
Battery:	PMNN4448A
Carry Acc:	@ front
Audio Acc:	N/A
Start Power:	4.80 (W)

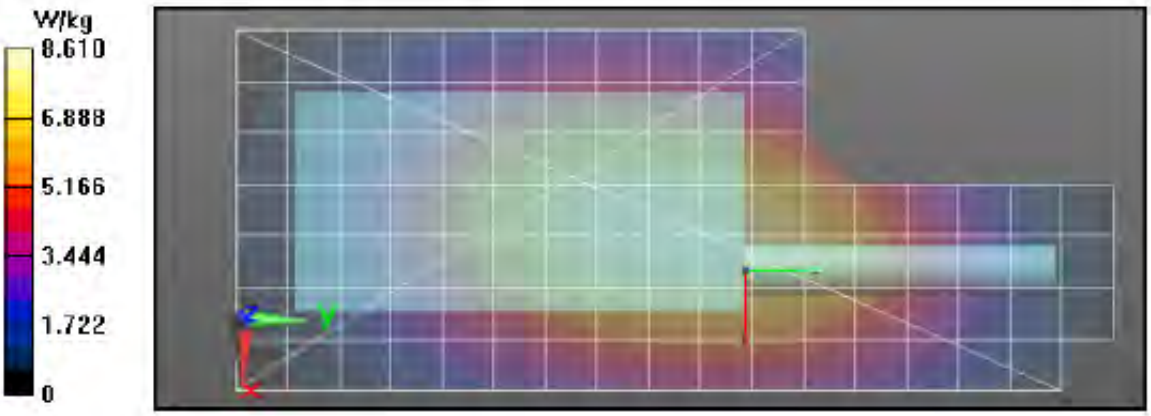
Comments:

Duty Cycle: 1:1, Medium parameters used: f = 527 MHz; σ = 0.92 S/m; ε_r = 42.9; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7486, Calibrated: 10/24/2019, Frequency: 527 MHz, ConvF(11.4, 11.4, 11.4) @ 527 MHz
Electronics: DAE4 Sn850, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Face Scan/1-Area Scan (71x211x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 96.70 V/m; Power Drift = -0.26 dB
Fast SAR: SAR(1 g) = 7.01 W/kg; SAR(10 g) = 5.11 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 8.66 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 = 96.70 V/m; Power Drift = -0.32 dB
Peak SAR (extrapolated) = 9.33 W/kg
SAR(1 g) = 6.65 W/kg; SAR(10 g) = 4.94 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 8.34 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) = 8.31 W/kg



APPENDIX G
Shortened Scan of Highest SAR configuration

Shortened Scan
Table 38

Motorola Solutions, Inc. EME Laboratory
Date/Time: 4/30/2020 1:35:35 PM

Robot#: DASY5-PG-4 | Run#: NZ-AB-200430-15#
Model#: PMUE3675D
Phantom#: ELI4 1022
Tissue Temp: 21.0 (C)
Serial#: 871TWB3879
Antenna: PMAE4071A
Test Freq: 470.0000 (MHz)
Battery: PMNN4407BR
Carry Acc: RLN4570A
Audio Acc: None (BT)
Start Power: 4.80 (W)

Comments:

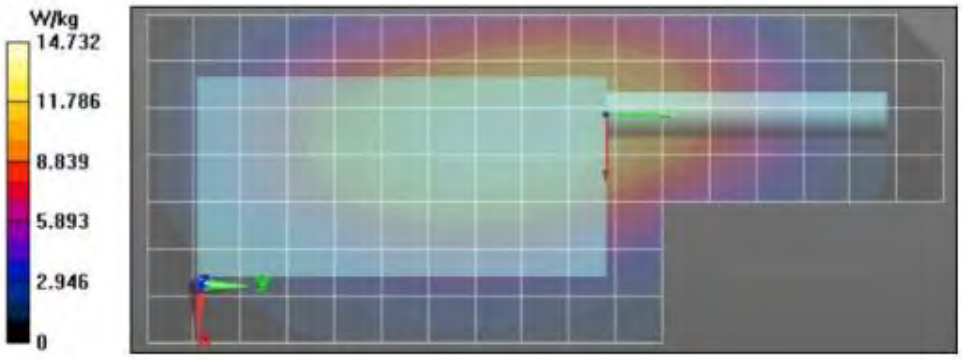
Duty Cycle: 1:1, Medium parameters used: f = 470 MHz, σ = 0.87 S/m; ε_r = 43.1; ρ = 1000 kg/m^3
Probe: EX3DV4 - SN7511, Calibrated: 10/24/2019, Frequency: 470 MHz, ConvF(10.3, 10.3, 10.3) @ 470 MHz
Electronics: DAE4 Sn729, Calibrated: 10/16/2019

Below 2 GHz-Rev.3/Ab Scan/1-Area Scan (81x231x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Reference Value = 135.6 V/m; Power Drift = -0.37 dB
Fast SAR: SAR(1 g) = 12.4 W/kg; SAR(10 g) = 8.97 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 15.2 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 = 135.6 V/m; Power Drift = -0.40 dB
Fast SAR: SAR(1 g) = 12.1 W/kg; SAR(10 g) = 8.94 W/kg (SAR corrected for target medium)
Maximum value of SAR (interpolated) = 14.8 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 = 137.9 V/m; Power Drift = -0.21 dB
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 12.4 W/kg; SAR(10 g) = 9.15 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 15.7 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) = 14.4 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)	38	9	6.51
Full scan (area & zoom)	29	43	6.30

APPENDIX H
DUT Test Position Photos

Photos available in Exhibit 7B

APPENDIX I
DUT, Body worn and audio accessories Photos

Photos available in Exhibit 7B