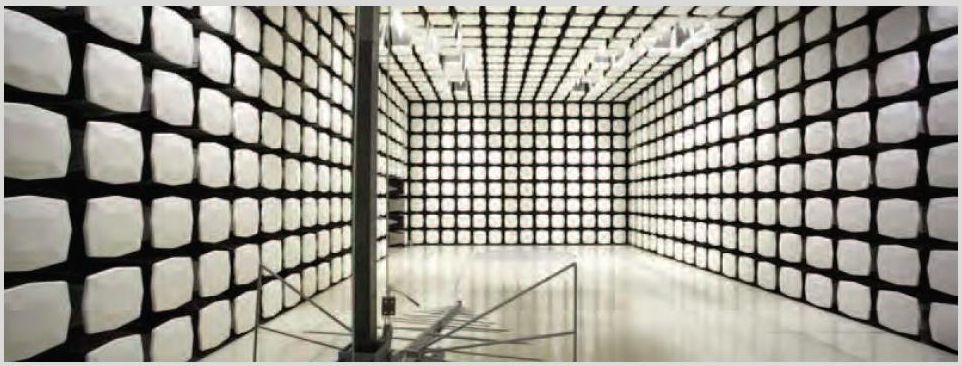
Silex Technology America, Inc.

CADD Solis Ambulatory Infusion Pump

SAR Evaluation Report # SILX0019

Evaluated to the following SAR specification:
FCC 15.247:2019
FCC 2.1093:2019



NVLAP Lab Code: 200630

CERTIFICATE OF TEST

Last Date of Test: May 24, 2019
Silex Technology America, Inc.
Model: CADD Solis Ambulatory Infusion Pump

Applicable Standard

Test Description	Specification	Test Method	Pass/Fail
SAR Evaluation	FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 248227 D01 V02r02 FCC KDB 447498 D01 v01r06 FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 IEEE Std 1528:2013	Pass

Highest SAR Values:

Frequency Bands (GHz)	Body (W/kg) 1g	Limit (W/kg) 1g	Exposure Environment
2.4	0.61	1.6	General Population
5.2	0.06		
5.3	0.02		
5.6	0.13		
5.8	0.09		

Deviations From Test Standards

None

Approved By:

Don Facteau, Systems Architect

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

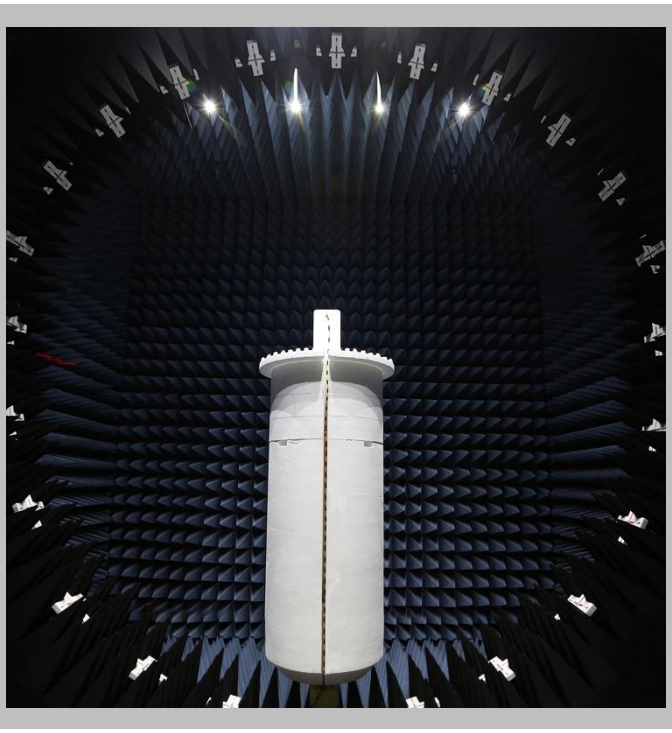
MIC – Recognized by MIC as a CAB for the acceptance of test data.

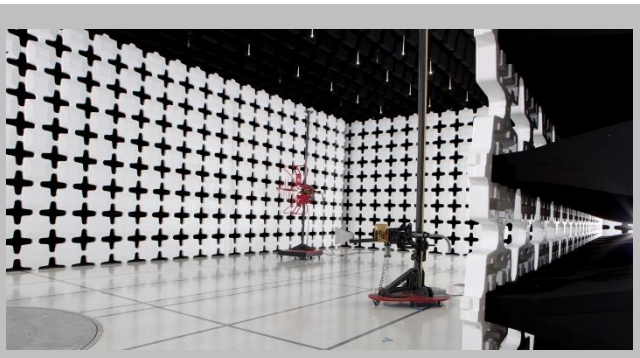
SCOPE

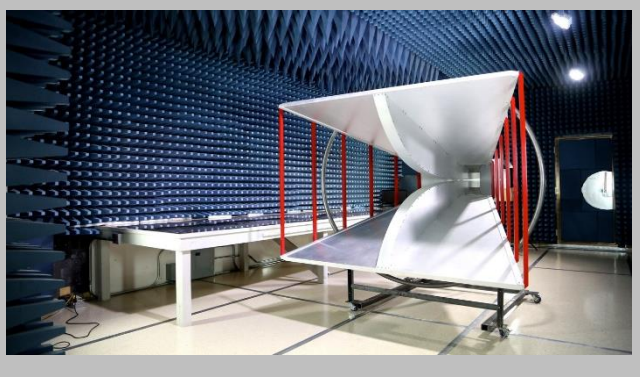
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

FACILITIES

California	Minnesota	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP				
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157







PRODUCT DESCRIPTION

2014-12-10

Client and Equipment Under Test (EUT) Information

Company Name:	Silex Technology America, Inc
Address:	201 E Sandpointe #245
City, State, Zip:	Santa Ana, CA, CA 92707
Test Requested By:	Lee Aydelotte
Model:	CADD Solis Ambulatory Infusion Pump
First Date of Test:	May 17, 2019
Last Date of Test:	May 24, 2019
Receipt Date of Samples:	May 9, 2019
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

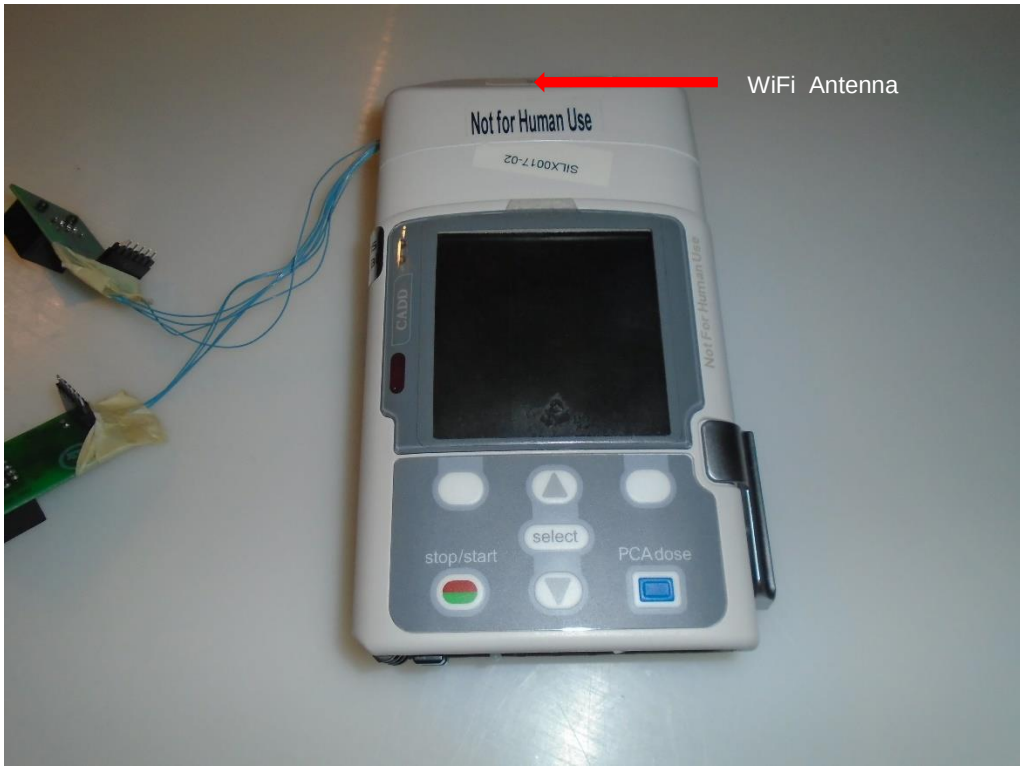
The device is an ambulatory infusion smart pump, used to deliver medication while allowing the patient to be mobile.

It includes an 802.11 abgn ac radio module, FCC ID: 2AR2I-CSCM6000.

The EUT supports the following frequency ranges:

a. 802.11bgn: 2412 – 2472 MHz, 20 and 40 MHz channel bandwidths
b. 802.11an ac: 5180 - 5825 MHz, 20, 40 and 80 MHz channel bandwidths

Location of transmit antenna(s):



PRODUCT DESCRIPTION

2014-12-10

Testing Locations

The back, left, right, and top sides were tested. The face side is unrealistic operation and bottom is too far away from the antenna. The device was tested with a clip installed on the back side of the unit. Testing was done with a 0 cm spacing to the phantom.

Simultaneous Transmission

The EUT does not have simultaneous transmission capability.

Testing Objective:

To demonstrate compliance of the Wi-Fi radio with the SAR requirements of FCC 2.1093:2018.

Scaling:

Max power

Per FCC KDB 447498, the measured SAR values were scaled to the maximum tune-up tolerance limit. The results are referred to as the "Reported SAR" values. The following formula was used to calculate the linear SAR scaling factor:

SAR scaling factor = 10^((Maximum Rated Power (dBm) - Measured Power (dBm)) / 10)

2.4 GHz (DSSS) SAR scaling factor = 10^ ((21.5 – 24.43) / 10) = 0.51

2.4 GHz (OFDM) SAR scaling factor = 10^ ((21.0 – 23.43) / 10) = 0.57

5.2 GHz SAR scaling factor = 10^ ((13.5 – 16.71) / 10) = 0.48

5.3 GHz SAR scaling factor = 10^ ((8.0 – 17.31) / 10) = 0.12

5.6 GHz SAR scaling factor = 10^ ((13.5 – 17.40) / 10) = 0.41

5.8 GHz SAR scaling factor = 10^ ((13.5 – 17.59) / 10) = 0.39

The maximum rated power was declared by Shawn Colwell of Silex Technology America, Inc. at the time of testing.

Duty Cycle

The EUT was transmitting at nearly 100% duty cycle.

CONFIGURATIONS

Configuration SILX0019- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CADD Solis Ambulatory Infusion Pump	Silex Technology America, Inc.	CADD Solis	1042234

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop PC	Dell	Latitude E6510	Unknown
USB to Serial Converter X2	Trendnet	TU-S9	Unknown
AC Power Adapter	Smiths Medical ASD, Inc.	21-0270-25	075W84R045C

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB Cable X2	Yes	.6m	No	Laptop PC	USB to Serial Converter X2
Serial cable X2	No	.93m	No	USB to Serial Converter X2	CADD Solis Ambulatory Infusion Pump
USB Cable	Yes	1.3m	Yes	Laptop PC	CADD Solis Ambulatory Infusion Pump
DC Power Cable	Yes	2.7m	Yes	AC Power Adapter	CADD Solis Ambulatory Infusion Pump

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2019-03-04	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.
2	2019-05-17	SAR Evaluation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2019-05-24	SAR Evaluation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

TISSUE – EQUIVALENT LIQUID DESCRIPTION

Characterization of tissue-equivalent liquid dielectric properties

Per IEEE 1528: 2013, Section 5.3.2, the permittivity and conductivity of the tissue material should be measured at least within 24 hours of any full-compliance test. The measured values must be within +/- 5% of the target values. The temperature variation in the liquid during SAR measurements must be within +/- 2 degrees C of that recorded when the dielectric properties were measured.

The dielectric parameters of the tissue-equivalent liquids were measured within 24 hours of the start of testing using the SPEAG DAKS:200 dielectric assessment kit. The dielectric measurements were made across the frequency range of the liquid. The attached data sheets show that the dielectric parameters of the liquid were within the required 5% tolerances.

Target values of dielectric parameters

Per KDB 865664 D01 v01r04, Appendix A:

"The head tissue dielectric parameters recommended by IEEE Std 1528-2013 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in IEEE Std 1528 are derived from tissue dielectric parameters computed from the 4-Cole-Cole equations described above and extrapolated according to the head parameters specified in IEEE Std 1528."

Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

TISSUE – EQUIVALENT LIQUID DESCRIPTION

Composition of Ingredients for Liquid Tissue Phantoms

Element uses tissue-equivalent liquids prepared by SPEAG and confirmed by them to be within +/- 5% from the target values. Their recipes are based upon the following formulations as found in IEEE 1528:2013 Annex C (head) and IEC 62209-2:2010 Annex E (body):

The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation:

HEAD

Table C.1—Suggested recipes for achieving target dielectric parameters: 300 MHz to 900 MHz

Frequency (MHz)	300	450	450	450	835	835	900	900	900	900
Reference	[B118]	[B118]	[B172]	[B74]	[B118]	[B74]	[B118]	[B196]	[B172]	[B74]
Ingredients (% by weight)										
1,2-Propanediol	—	—	—	—	—	—	—	64.81	—	—
Bactericide	0.19	0.19	0.50	—	0.10	—	0.10	—	0.50	—
Diacetin	—	—	48.90	—	—	—	—	—	49.20	—
DGBE	—	—	—	—	—	—	—	—	—	—
HEC	0.98	0.98	—	—	1.00	—	1.00	—	—	—
NaCl	5.95	3.95	1.70	1.96	1.45	1.25	1.48	0.79	1.10	1.35
Sucrose	55.32	56.32	—	—	57.00	—	56.50	—	—	—
Triton X-100	—	—	—	—	—	—	—	—	—	—
Tween 20	—	—	—	49.51	—	48.39	—	—	—	48.34
Water	37.56	38.56	48.90	48.53	40.45	50.36	40.92	34.40	49.20	50.31

Table C.2—Suggested recipes for achieving target dielectric parameters: 1450 MHz to 2000 MHz

Frequency (MHz)	1450	1800	1800	1800	1800	1800	1900	1900	1950	2000
Reference	[B118]	[B118]	[B196]	[B196]	[B172]	[B74]	[B118]	[B196]	[B74]	[B118]
Ingredients (% by weight)										
1,2-Propanediol	—	—	—	—		—	—	—	—	—
Bactericide	—	—	—	—	0.50	—	—	—	—	—
Diacetin	—	—	—	—	49.43	—	—	—	—	—
DGBE	45.51	47.00	13.84	44.92	—	—	44.92	13.84	45.00	50.00
HEC	—	—	—	—	—	—	—	—	—	—
NaCl	0.67	0.36	0.35	0.18	0.64	0.50	0.18	0.35	—	—
Sucrose	—	—	—	—	—	—	—	—	—	—
Triton X-100	—	—	30.45	—	—	—	—	30.45	—	—
Tween 20	—	—	—	—	—	45.27	—	—	—	—
Water	53.82	52.64	55.36	54.90	49.43	54.23	54.90	55.36	55.00	50.00

TISSUE – EQUIVALENT LIQUID DESCRIPTION

element VERSION

Table C.3—Suggested recipes for achieving target dielectric parameters: 2100 MHz to 5800 MHz

Frequency (MHz)	2100	2100	2450	2450	3000	5200	5800
Reference	[B118]	[B196]	[B196]	[B172]	[B196]		
Ingredients (% by weight)							
1,2-Propanediol	—	—	—		—	—	—
Bactericide	—	—	—	0.50	—	—	—
Diacetin	—	—	—	49.75	—	—	—
DGBE	50.00	7.99	7.99	—	7.99	—	—
HEC	—	—	—	—	—	—	—
NaCl	—	0.16	0.16	—	0.16	—	—
Sucrose	—	—	—	—	—	—	—
Triton X-100	—	19.97	19.97	—	19.97	17.24	17.24
Diethylenglycol monohexylether	—	—	—	—	—	17.24	17.24
Water	50.00	71.88	71.88	49.75	71.88	65.52	65.52

BODY

Frequency (MHz)	30	50		144		450		835	900	
Recipe source number	3	3	2	2	3	2	4	2	2	4
Ingredients (% by weight)										
Deionised water	48,30	48,30	53,53	55,12	48,30	48,53	56	50,36	50,31	56
Tween			44,70	43,31		49,51		48,39	48,34	
Oxidised mineral oil							44			44
Diethylenglycol monohexylether										
Triton X-100										
Diacetin	50,00	50,00			50,00					
DGBE										
NaCl	1,60	1,60	1,77	1,57	1,60	1,96		1,25	1,35	
Additives and salt	0,10	0,10			0,10					

Frequency (MHz)	1 800		2 450	4 000	5 000	5 200	5 800	6 000
Recipe source number	2	4	4	4	4	1	1	4
Ingredients (% by weight)								
Deionised water	54,23	56	56	56	56	65,53	65,53	56
Tween	45,27							
Oxidised mineral oil		44	44	44	44			44
Diethylenglycol monohexylether						17,24	17,24	
Triton X-100						17,24	17,24	
Diacetin								
DGBE								
NaCl	0,50							
Additives and salt								

TISSUE – EQUIVALENT LIQUID

element
WSTE.2016.12.19

Date:	05/17/2019	Temperature:	24.6°C
Tissue:	Body, MSL2450, 2450MHz	Liquid Temperature:	22.2°C
Tested By:	Jay Whitworth	Relative Humidity:	44.7%
Job Site:	EV08	Bar. Pressure:	1013 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
2450	50.3	1.948	52.7	1.95	4.55	0.1

Frequency (MHz)	Relative Permittivity	Conductivity
2000	51.85	1.371
2000	51.85	1.371
2050	51.7	1.431
2100	51.57	1.492
2100	51.57	1.492
2150	51.42	1.554
2200	51.25	1.617
2250	51.07	1.681
2250	51.07	1.681
2300	50.88	1.746
2350	50.69	1.813
2400	50.5	1.88
2400	50.5	1.88
2450	50.3	1.948
2500	50.11	2.016
2550	49.91	2.085
2550	49.91	2.085
2600	49.71	2.154
2650	49.51	2.224
2700	49.31	2.293
2700	49.31	2.293
2750	49.1	2.362
2800	48.89	2.433
2850	48.68	2.505
2850	48.68	2.505
2900	48.47	2.574
2950	48.26	2.643

TISSUE – EQUIVALENT LIQUID

element
WSTE.2016.12.19

Date:	05/20/2019	Temperature:	23.9°C
Tissue:	Body, MSL2450, 2450MHz	Liquid Temperature:	22.5°C
Tested By:	Jay Whitworth	Relative Humidity:	43.5%
Job Site:	EV08	Bar. Pressure:	1010 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
2450	50.12	1.927	52.7	1.95	4.9	1.18

Frequency (MHz)	Relative Permittivity	Conductivity
2000	51.69	1.359
2000	51.69	1.359
2050	51.53	1.418
2100	51.39	1.479
2100	51.39	1.479
2150	51.24	1.54
2200	51.07	1.602
2250	50.88	1.665
2250	50.88	1.665
2300	50.7	1.729
2350	50.51	1.794
2400	50.32	1.86
2400	50.32	1.86
2450	50.12	1.927
2500	49.93	1.994
2550	49.73	2.063
2550	49.73	2.063
2600	49.53	2.132
2650	49.33	2.201
2700	49.13	2.271
2700	49.13	2.271
2750	48.92	2.34
2800	48.71	2.41
2850	48.5	2.483
2850	48.5	2.483
2900	48.29	2.552
2950	48.08	2.621

TISSUE – EQUIVALENT LIQUID

element
WSTE.2016.12.19

Date:	05/20/2019	Temperature:	24.7°C
Tissue:	Body, MSL501, 5800MHz	Liquid Temperature:	22.1°C
Tested By:	Jay Whitworth	Relative Humidity:	42.2%
Job Site:	EV08	Bar. Pressure:	1010 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
5800	49.05	6.293	48.2	6.0	-1.76	-4.88

Frequency (MHz)	Relative Permittivity	Conductivity
5000	49.58	5.205
5000	49.58	5.205
5050	49.58	5.272
5100	49.57	5.339
5100	49.57	5.339
5150	49.55	5.409
5200	49.55	5.478
5250	49.55	5.548
5250	49.55	5.548
5300	49.55	5.617
5350	49.53	5.686
5400	49.51	5.753
5400	49.51	5.753
5450	49.48	5.824
5500	49.44	5.886
5550	49.39	5.96
5550	49.39	5.96
5600	49.35	6.032
5650	49.3	6.112
5700	49.23	6.194
5700	49.23	6.194
5750	49.14	6.273
5800	49.05	6.293
5850	48.95	6.434
5850	48.95	6.434
5900	48.84	6.507
5950	48.73	6.591

TISSUE – EQUIVALENT LIQUID

element
WSTE.2016.12.19

Date:	05/21/2019	Temperature:	24.7°C
Tissue:	Body, MSL501, 5800MHz	Liquid Temperature:	22.3°C
Tested By:	Jay Whitworth	Relative Humidity:	43.2%
Job Site:	EV08	Bar. Pressure:	1005 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
5800	48.89	6.282	48.2	6.0	-1.43	-4.7

Frequency (MHz)	Relative Permittivity	Conductivity
5000	49.41	5.156
5000	49.41	5.156
5050	49.41	5.224
5100	49.4	5.288
5100	49.4	5.288
5150	49.39	5.361
5200	49.39	5.427
5250	49.39	5.498
5250	49.39	5.498
5300	49.4	5.567
5350	49.39	5.636
5400	49.37	5.701
5400	49.37	5.701
5450	49.34	5.769
5500	49.3	5.832
5550	49.25	5.902
5550	49.25	5.902
5600	49.22	5.973
5650	49.15	6.049
5700	49.09	6.128
5700	49.09	6.128
5750	48.98	6.205
5800	48.89	6.282
5850	48.78	6.359
5850	48.78	6.359
5900	48.68	6.436
5950	48.56	6.522

TISSUE – EQUIVALENT LIQUID

element
WSTE.2016.12.19

Date:	05/22/2019	Temperature:	24.2°C
Tissue:	Body, MSL501, 5800MHz	Liquid Temperature:	22.4°C
Tested By:	Jay Whitworth	Relative Humidity:	42%
Job Site:	EV08	Bar. Pressure:	1015 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
5800	47.09	6.272	48.2	6.0	2.3	-4.53

Frequency (MHz)	Relative Permittivity	Conductivity
5000	48.53	5.216
5000	48.53	5.216
5050	48.44	5.285
5100	48.34	5.35
5100	48.34	5.35
5150	48.24	5.419
5200	48.14	5.484
5250	48.06	5.548
5250	48.06	5.548
5300	47.98	5.612
5350	47.89	5.678
5400	47.79	5.74
5400	47.79	5.74
5450	47.7	5.809
5500	47.61	5.871
5550	47.52	5.936
5550	47.52	5.936
5600	47.45	6.004
5650	47.36	6.073
5700	47.28	6.138
5700	47.28	6.138
5750	47.18	6.204
5800	47.09	6.272
5850	47	6.348
5850	47	6.348
5900	46.91	6.416
5950	46.83	6.495

TISSUE – EQUIVALENT LIQUID

element
WSTE.2016.12.19

Date:	05/23/2019	Temperature:	24.4°C
Tissue:	Body, MSL501, 5800MHz	Liquid Temperature:	22.7°C
Tested By:	Jay Whitworth	Relative Humidity:	45.7%
Job Site:	EV08	Bar. Pressure:	1017 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
5800	47.38	6.192	48.2	6.0	1.7	-3.2

Frequency (MHz)	Relative Permittivity	Conductivity
5000	47.9	5.104
5000	47.9	5.104
5050	47.9	5.172
5100	47.89	5.234
5100	47.89	5.234
5150	47.88	5.301
5200	47.88	5.367
5250	47.88	5.436
5250	47.88	5.436
5300	47.88	5.503
5350	47.88	5.566
5400	47.85	5.629
5400	47.85	5.629
5450	47.82	5.696
5500	47.78	5.757
5550	47.74	5.824
5550	47.74	5.824
5600	47.69	5.891
5650	47.63	5.967
5700	47.56	6.044
5700	47.56	6.044
5750	47.47	6.117
5800	47.38	6.192
5850	47.27	6.273
5850	47.27	6.273
5900	47.17	6.348
5950	47.06	6.434

TISSUE – EQUIVALENT LIQUID

element
WSTE.2016.12.19

Date:	05/24/2019	Temperature:	24.4°C
Tissue:	Body, MSL501, 5800MHz	Liquid Temperature:	22.7°C
Tested By:	Jay Whitworth	Relative Humidity:	45.8%
Job Site:	EV08	Bar. Pressure:	1016 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
5800	47.75	6.201	48.2	6.0	0.93	-3.35

Frequency (MHz)	Relative Permittivity	Conductivity
5000	48.32	5.118
5000	48.32	5.118
5050	48.32	5.184
5100	48.3	5.245
5100	48.3	5.245
5150	48.28	5.314
5200	48.28	5.377
5250	48.28	5.443
5250	48.28	5.443
5300	48.27	5.509
5350	48.26	5.574
5400	48.24	5.636
5400	48.24	5.636
5450	48.21	5.703
5500	48.16	5.765
5550	48.12	5.831
5550	48.12	5.831
5600	48.08	5.898
5650	48.01	5.974
5700	47.94	6.051
5700	47.94	6.051
5750	47.85	6.124
5800	47.75	6.201
5850	47.65	6.279
5850	47.65	6.279
5900	47.54	6.353
5950	47.43	6.437

TISSUE – EQUIVALENT LIQUID

element
WSTE.2016.12.19

Date:	05/28/2019	Temperature:	22.3°C
Tissue:	Body, MSL2450, 2450MHz	Liquid Temperature:	21.8°C
Tested By:	Jay Whitworth	Relative Humidity:	53.1%
Job Site:	EV08	Bar. Pressure:	1020 mb

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 IEEE Std 1528:2013

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency (MHz)	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity	Relative Permittivity	Conductivity
2450	50.42	1.958	52.7	1.95	4.33	-0.41

Frequency (MHz)	Relative Permittivity	Conductivity
2000	51.99	1.378
2000	51.99	1.378
2050	51.84	1.438
2100	51.74	1.5
2100	51.74	1.5
2150	51.61	1.563
2200	51.44	1.626
2250	51.25	1.69
2250	51.25	1.69
2300	51.05	1.756
2350	50.84	1.823
2400	50.63	1.89
2400	50.63	1.89
2450	50.42	1.958
2500	50.2	2.027
2550	49.99	2.097
2550	49.99	2.097
2600	49.77	2.167
2650	49.55	2.237
2700	49.33	2.307
2700	49.33	2.307
2750	49.11	2.378
2800	48.88	2.447
2850	48.64	2.518
2850	48.64	2.518
2900	48.41	2.587
2950	48.19	2.656

SAR SYSTEM VERIFICATION DESCRIPTION

element
WSSV.2017.1.31

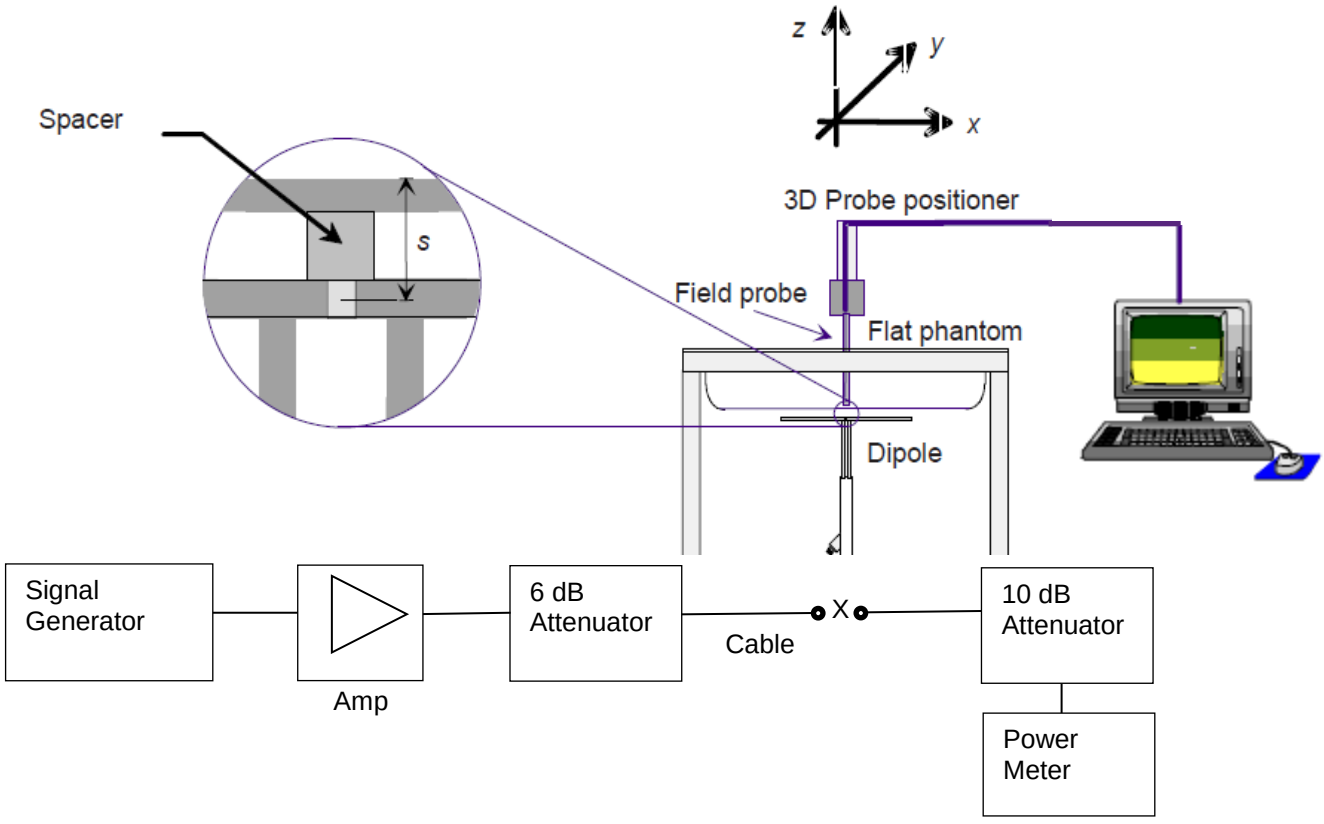
REQUIREMENT
Per IEEE 1528, Section 8.2.1, “System checks are performed prior to compliance tests and the results must always be within ± 10% of the target value corresponding to the test frequency, liquid, and the source used. The target values are 1 g or 10 g averaged SAR values measured on systems having current system validation and calibration status, and using the system check setup as shown in Figure 14. These target values should be determined using a standard source.”

TEST DESCRIPTION
Within 24 hours of a measurement, then every 72 hours thereafter, Element used the system validation kit (calibrated reference dipole) to test whether the system was operating within its specifications. The validation was performed in the indicated bands by making SAR measurements of the reference dipole with the phantom filled with the tissue-equivalent liquid. First, a signal generator and power amplifier were used to produce a 100mW level as measured with a power meter at the antenna terminals of the dipole (X). Then, the reference dipole was positioned below the bottom of the phantom and centered with its axis parallel to the longest side of the phantom. A low loss and low relative permittivity spacer was used to establish the correct distance between the center axis of the reference dipole and the liquid.

For the reference dipoles, the spacing distance s is given by:

s = 15mm, +/- 0.2mm for 300MHz ≤ f ≥ 1000 MHz:
s = 10mm, +/- 0.2mm for 1000MHz ≤ f ≥ 6000MHz

The measured 1 g and 10 g spatial average SAR values were normalized to a 1W dipole input power for comparison to the calibration data. The results are summarized in the attached table. The deviation is less than 10% in all cases, indicating that the system performance check was within tolerance.



SAR SYSTEM VERIFICATION

element
WSSV.2016.12.19

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2018 FCC 2.1093:2018	FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 IEEE Std 1528:2013

RESULTS

Date	Liquid part number and frequency	Conducted Power into the Dipole (dBm)	Correction Factor	Measured		Normalized to 1W		Target (Normalized to 1W) Get from Dipole Calibration Certificate		% Difference	
				1g	10g	1g	10g	1g	10g	1g	10g
5/17/2019	MSL 2450 (2450 MHz)	20.00	10.00	5.43	2.56	54.30	25.60	50.10	23.50	8.38	8.94
5/20/2019	MSL 501 (5500 MHz)	20.00	10.00	8.44	2.37	84.40	23.70	81.70	22.60	3.30	4.87
5/20/2019	MSL 501 (5800 MHz)	20.00	10.00	7.52	2.17	75.20	21.70	77.70	21.50	-3.22	0.93
5/21/2019	MSL 501 (5200 MHz)	20.00	10.00	7.76	2.21	77.60	22.10	73.70	20.70	5.29	6.76

SAR SYSTEM VERIFICATION

element
WSSV.2016.12.19

Tested By:	Jay Whitworth	Room Temperature (°C):	24.8°C
Date:	5/17/2019	Liquid Temperature (°C):	22.3°C
		Humidity (%RH):	38.8%
		Bar. Pressure (mb):	1013 mb

MSL2450 System Check 5-17-19
DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:855
Communication System: UID 10000, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 2450 MHz; σ = 1.992 S/m; ε_r = 50.728; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(6.96, 6.96, 6.96); Calibrated: 11/12/2018;
  - Modulation Compensation:
- Sensor-Surface: 5mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), z = 1.0, 101.0, 31.0
- Electronics: DAE4 Sn1237; Calibrated: 11/6/2018
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

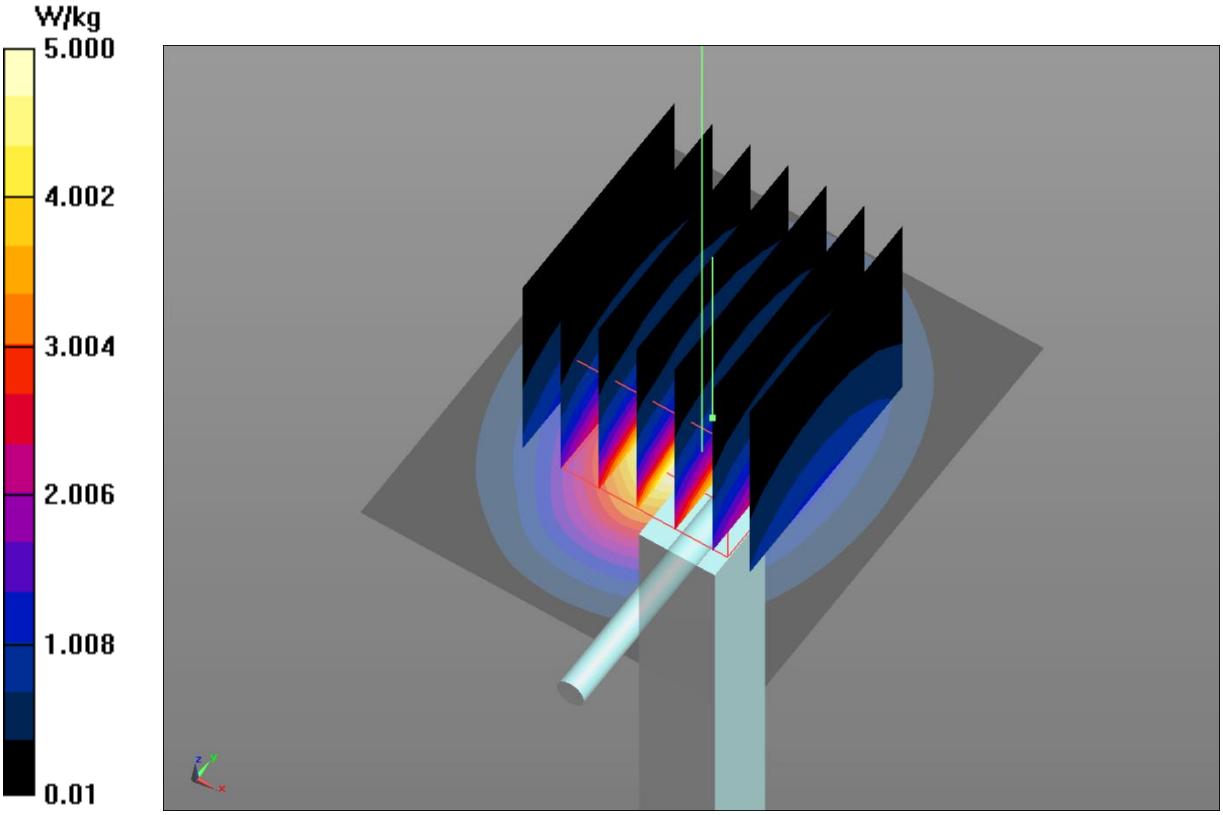
System Check/System Check/Area Scan (51x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 5.82 W/kg

System Check/System Check/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 61.47 V/m

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.57 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 10.6 W/kg
SAR(1 g) = 5.43 W/kg; SAR(10 g) = 2.56 W/kg
Maximum value of SAR (measured) = 5.48 W/kg
Maximum value of SAR (measured) = 7.53 W/kg

Approved By

MSL2450 System Check 5-17-19



SAR SYSTEM VERIFICATION

element
WSSV.2016.12.19

Tested By:	Jay Whitworth	Room Temperature (°C):	24.0°C
Date:	5/20/2019	Liquid Temperature (°C):	22.1°C
		Humidity (%RH):	41.9%
		Bar. Pressure (mb):	1008 mb

MSL501 System Check 5-21-19
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1066
Communication System: UID 10000, CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5500 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5500 MHz; σ = 5.886 S/m; ε_r = 49.436; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4, 4, 4); Calibrated: 11/12/2018;
  - Modulation Compensation:
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), z = 1.0, 21.0, 101.0
- Electronics: DAE4 Sn1237; Calibrated: 11/6/2018
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

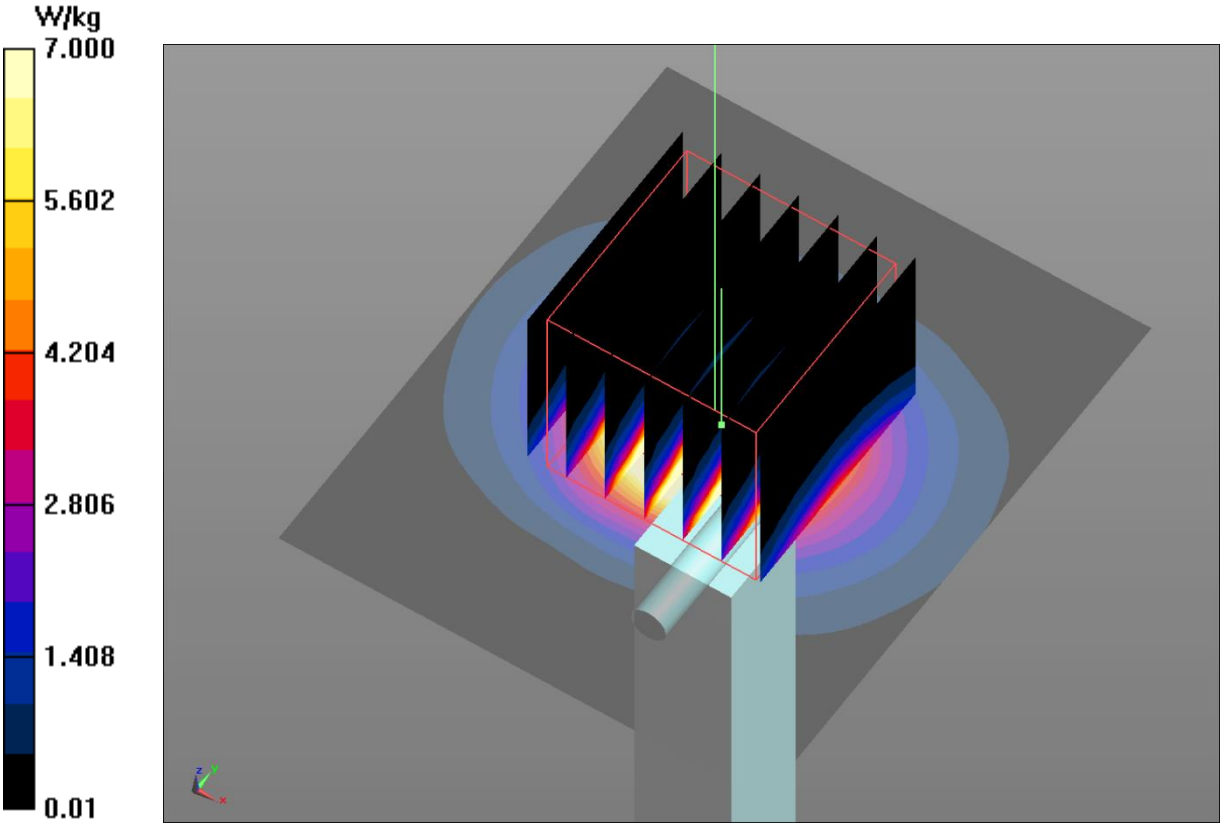
System Check/System Check - Mid Channel/Area Scan (51x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.1 W/kg

System Check/System Check - Mid Channel/Zoom Scan (7x9x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 61.24 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 33.4 W/kg
SAR(1 g) = 8.44 W/kg; SAR(10 g) = 2.37 W/kg
Maximum value of SAR (measured) = 18.0 W/kg

System Check/System Check - Mid Channel/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 25.23 V/m
Maximum value of SAR (measured) = 3.75 W/kg

Approved By

MSL501 System Check 5-21-19



SAR SYSTEM VERIFICATION

element
WSSV.2016.12.19

Tested By:	Jay Whitworth	Room Temperature (°C):	24.0°C	25.3°C
Date:	5/20/2019	Liquid Temperature (°C):	22.1°C	22.4°C
		Humidity (%RH):	41.9%	41.9%
		Bar. Pressure (mb):	1008 mb	1005 mb

MSL501 System Check 5-21-19
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1066
Communication System: UID 10000, CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5800 MHz; σ = 6.293 S/m; ε_r = 49.048; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4.06, 4.06, 4.06); Calibrated: 11/12/2018;
  - Modulation Compensation:
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), z = 1.0, 101.0, 21.0
- Electronics: DAE4 Sn1237; Calibrated: 11/6/2018
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

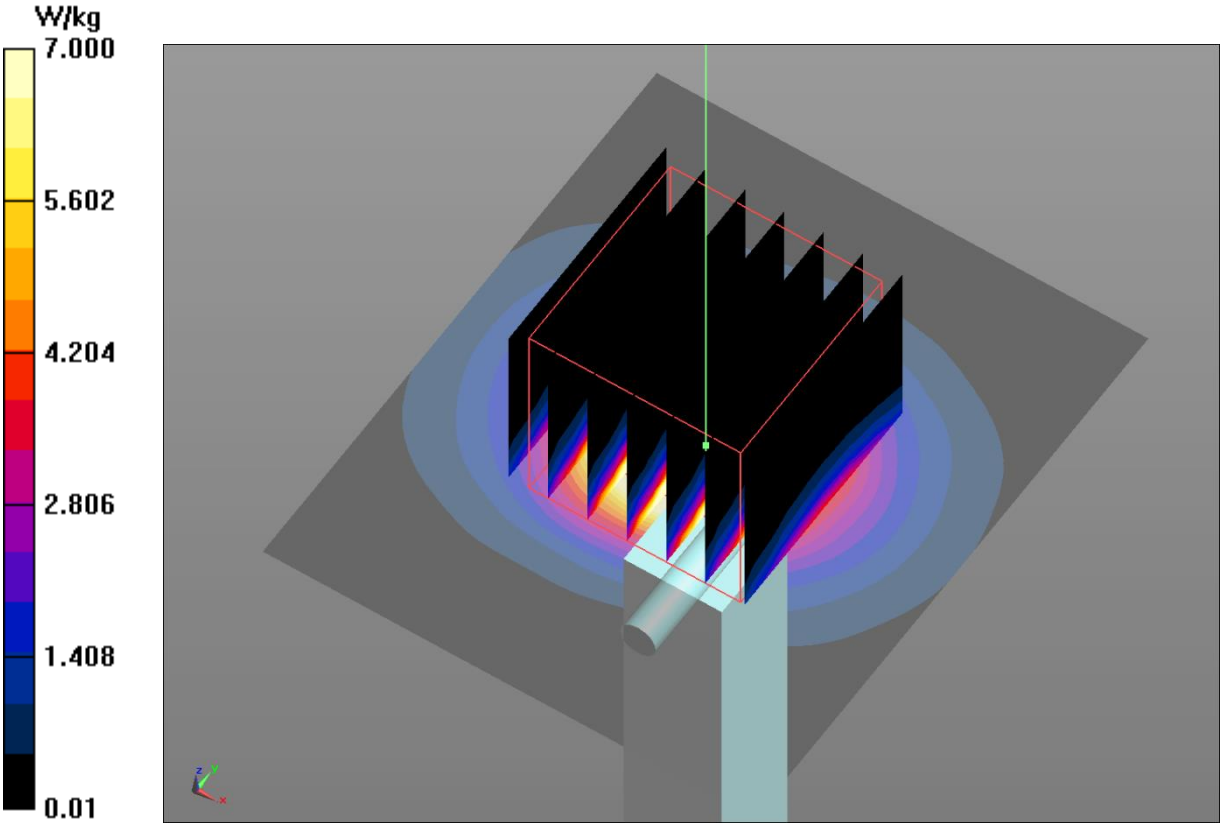
System Check/System Check - High Channel/Area Scan (51x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 16.4 W/kg

System Check/System Check - High Channel/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 44.58 V/m

System Check/System Check - High Channel/Zoom Scan (7x9x7) (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 44.40 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 32.8 W/kg
SAR(1 g) = 7.52 W/kg; SAR(10 g) = 2.17 W/kg
Maximum value of SAR (measured) = 16.0 W/kg
Maximum value of SAR (measured) = 12.5 W/kg

Approved By

MSL501 System Check 5-21-19



SAR SYSTEM VERIFICATION

element
WSSV.2016.12.19

Tested By:	Jay Whitworth	Room Temperature (°C):	25.3°C
Date:	5/21/2019	Liquid Temperature (°C):	22.4°C
		Humidity (%RH):	41.9%
		Bar. Pressure (mb):	1005 mb

MSL501 System Check-2 5-21-19
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1066
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5200 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5200 MHz; σ = 5.427 S/m; ε_r = 49.389; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4.33, 4.33, 4.33); Calibrated: 11/12/2018;
  - Modulation Compensation:
- Sensor-Surface: 2mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), z = 21.0, 101.0
- Electronics: DAE4 Sn1237; Calibrated: 11/6/2018
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

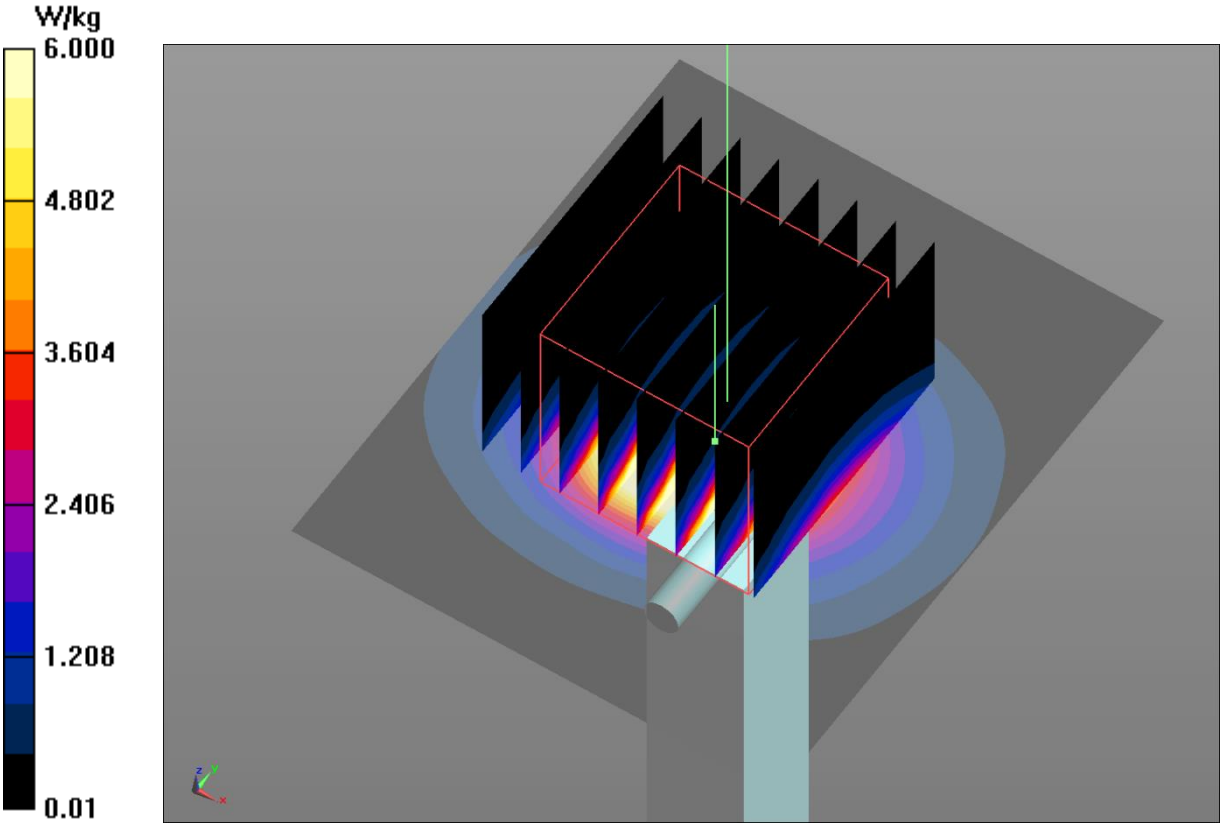
System Check/System Check - Low Channel/Zoom Scan (7x9x7) (8x8x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 59.28 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 7.76 W/kg; SAR(10 g) = 2.21 W/kg
Maximum value of SAR (measured) = 16.3 W/kg

System Check/System Check - Low Channel/Area Scan (51x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 17.4 W/kg

System Check/System Check - Low Channel/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of Total (measured) = 26.49 V/m
Maximum value of SAR (measured) = 3.81 W/kg

Approved By

MSL501 System Check-2 5-21-19



OUTPUT POWER

element
WTD.2017.11.22.1

EUT:	CADD Solis Ambulatory Infusion Pump	Work Order:	SILX0019
Serial Number:	1042234	Date:	3/04/2019
Customer:	Silex Technology America, Inc	Temperature:	20.6
Attendees:	None	Relative Humidity:	23.1
Customer Project:	None	Bar. Pressure:	1027
Tested By:	Jay Whitworth	Job Site:	EV08
Power:	Battery	Configuration:	SILX0019-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 248227 D01 V02r02 FCC KDB 447498 D01 v01r06 FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 IEEE Std 1528:2013

COMMENTS

See the data tables below for the transmitter power setting used for each channel/data rate/band

DEVIATIONS FROM TEST STANDARD

None

OUTPUT POWER

element
WTD.2017.11.22.1

RESULTS

20 MHz Bandwidth

Channel	Frequency (MHz)	Radio Mode	Data Rate (Mbps)	Modulation	Software Power Setting dBm	Meter Reading dBm	Cable Loss dB	Output Power	
								dBm	mW
1	2412	802.11b	1	BPSK	30	22.58	1.85	24.43	277.33
			11	CCK	30	22.55	1.85	24.40	275.42
		802.11g	6	OFDM	30	21.58	1.85	23.43	220.29
			54	OFDM	30	20.62	1.85	22.47	176.60
		802.11n	MCS0	OFDM	30	21.44	1.85	23.29	213.30
			MCS7	OFDM	30	20.64	1.85	22.49	177.42
			MCS8	OFDM	30	21.38	1.85	23.23	210.38
			MCS15	OFDM	30	20.69	1.85	22.54	179.47
6	2437	802.11b	1	BPSK	30	22.32	1.85	24.17	261.22
			11	CCK	30	22.34	1.85	24.19	262.42
		802.11g	6	OFDM	30	21.33	1.85	23.18	207.97
			54	OFDM	30	20.48	1.85	22.33	171.00
		802.11n	MCS0	OFDM	30	20.34	1.85	22.19	165.58
			MCS7	OFDM	30	20.26	1.85	22.11	162.55
			MCS8	OFDM	30	20.98	1.85	22.83	191.87
			MCS15	OFDM	30	20.83	1.85	22.68	185.35
11	2462	802.11b	1	BPSK	30	21.92	1.85	23.77	238.23
			11	CCK	30	21.72	1.85	23.57	227.51
		802.11g	6	OFDM	30	20.86	1.85	22.71	186.64
			54	OFDM	30	19.99	1.85	21.84	152.76
		802.11n	MCS0	OFDM	30	20.76	1.85	22.61	182.39
			MCS7	OFDM	30	19.84	1.85	21.69	147.57
			MCS8	OFDM	30	20.76	1.85	22.61	182.39
			MCS15	OFDM	30	19.81	1.85	21.66	146.55

OUTPUT POWER

element
WTD.2017.11.22.1

40 MHz Bandwidth

Channel	Frequency (MHz)	Radio Mode	Data Rate (Mbps)	Modulation	Software Power Setting	Meter Reading dBm	Cable Loss dB	Output Power	
								dBm	mW
3F	2422	802.11n	MCS0	BPSK	30	21.48	1.85	23.33	215.28
			MCS7	64-QAM	30	19.58	1.85	21.43	139.00
			MCS8	BPSK	30	21.19	1.85	23.04	201.37
			MCS15	64-QAM	30	19.55	1.85	21.40	138.04
7F	2442	802.11n	MCS0	OFDM	30	21.41	1.85	23.26	211.84
			MCS7	OFDM	30	19.75	1.85	21.60	144.54
			MCS8	OFDM	30	21.12	1.85	22.97	198.15
			MCS15	OFDM	30	19.44	1.85	21.29	134.59
11F	2462	802.11n	MCS0	OFDM	30	20.88	1.85	22.73	187.50
			MCS7	OFDM	30	19.21	1.85	21.06	127.64
			MCS8	OFDM	30	20.85	1.85	22.70	186.21
			MCS15	OFDM	30	19.16	1.85	21.01	126.18

20 MHz Bandwidth

Channel	Frequency (MHz)	Radio Mode	Data Rate (Mbps)	Modulation	Software Power Setting	Meter Reading dBm	Cable Loss dB	Output Power	
								dBm	mW
36	5180	802.11a	6	BPSK	30	13.68	2.79	16.47	44.36
			54	64-QAM	30	12.19	2.79	14.98	31.48
		802.11n	MCS7	64-QAM	30	11.98	2.79	14.77	29.99
			MCS15	64-QAM	30	12.02	2.79	14.81	30.27
		802.11ac (SISO)	MCS0	64-QAM	30	12.95	2.79	15.74	37.50
			MCS08	256-QAM	30	12.56	2.79	15.35	34.28
40	5200	802.11a	6	BPSK	30	13.46	2.79	16.25	42.17
			54	64-QAM	30	12.33	2.79	15.12	32.51
		802.11n	MCS7	64-QAM	30	12.17	2.79	14.96	31.33
			MCS15	64-QAM	30	12.21	2.79	15.00	31.62
		802.11ac (SISO)	MCS0	64-QAM	30	13.27	2.79	16.06	40.36
			MCS08	256-QAM	30	13.35	2.79	16.14	41.11
44	5220	802.11a	6	BPSK	30	13.78	2.79	16.57	45.39
			54	64-QAM	30	12.48	2.79	15.27	33.65
		802.11n	MCS7	64-QAM	30	12.33	2.79	15.12	32.51
			MCS15	64-QAM	30	12.43	2.79	15.22	33.27
		802.11ac (SISO)	MCS0	64-QAM	30	13.59	2.79	16.38	43.45
			MCS08	256-QAM	30	13.44	2.79	16.23	41.98

OUTPUT POWER

element
WTD.2017.11.22.1

20 MHz Bandwidth

Channel	Frequency	Radio	Data Rate	Modulation	Software Power Setting	Meter Reading dBm	Cable Loss dB	Output Power	
								dBm	mW
48	5240	802.11a	6	BPSK	30	13.92	2.79	16.71	46.88
			54	64-QAM	30	12.65	2.79	15.44	34.99
		802.11n	MCS7	64-QAM	30	12.61	2.79	15.40	34.67
			MCS15	64-QAM	30	12.51	2.79	15.30	33.88
		802.11ac (SISO)	MCS0	64-QAM	30	13.66	2.79	16.45	44.16
			MCS08	256-QAM	30	13.42	2.79	16.21	41.78
52	5260	802.11a	6	BPSK	30	13.90	2.41	16.31	42.76
			54	64-QAM	30	12.45	2.41	14.86	30.62
		802.11n	MCS7	64-QAM	30	12.69	2.41	15.10	32.36
			MCS15	64-QAM	30	12.58	2.41	14.99	31.55
		802.11ac (SISO)	MCS0	64-QAM	30	13.87	2.41	16.28	42.46
			MCS08	256-QAM	30	13.88	2.41	16.29	42.56
56	5280	802.11a	6	BPSK	30	14.34	2.41	16.75	47.32
			54	64-QAM	30	13.19	2.41	15.60	36.31
		802.11n	MCS7	64-QAM	30	13.14	2.41	15.55	35.89
			MCS15	64-QAM	30	13.09	2.41	15.50	35.48
		802.11ac (SISO)	MCS0	64-QAM	30	14.13	2.41	16.54	45.08
			MCS08	256-QAM	30	14.04	2.41	16.45	44.16
62	5300	802.11a	6	BPSK	30	14.53	2.41	16.94	49.43
			54	64-QAM	30	13.26	2.41	15.67	36.90
		802.11n	MCS7	64-QAM	30	13.16	2.41	15.57	36.06
			MCS15	64-QAM	30	13.12	2.41	15.53	35.73
		802.11ac (SISO)	MCS0	64-QAM	30	14.21	2.41	16.62	45.92
			MCS08	256-QAM	30	14.05	2.41	16.46	44.26
64	5320	802.11a	6	BPSK	30	14.35	2.41	16.76	47.42
			54	64-QAM	30	13.25	2.41	15.66	36.81
		802.11n	MCS7	64-QAM	30	13.18	2.41	15.59	36.22
			MCS15	64-QAM	30	12.93	2.41	15.34	34.20
		802.11ac (SISO)	MCS0	64-QAM	30	14.17	2.41	16.58	45.50
			MCS08	256-QAM	30	14.90	2.41	17.31	53.83
100	5500	802.11a	6	BPSK	30	14.30	2.57	16.87	48.64
			54	64-QAM	30	12.98	2.57	15.55	35.89
		802.11n	MCS7	64-QAM	30	12.86	2.57	15.43	34.91
			MCS15	64-QAM	30	12.97	2.57	15.54	35.81
		802.11ac (SISO)	MCS0	64-QAM	30	14.02	2.57	16.59	45.60
			MCS08	256-QAM	30	14.00	2.57	16.57	45.39

OUTPUT POWER

element
WTD.2017.11.22.1

20 MHz Bandwidth

Channel	Frequency	Radio	Data Rate	Modulation	Software Power Setting	Meter Reading dBm	Cable Loss dB	Output Power	
								dBm	mW
104	5520	802.11a	6	BPSK	30	12.13	2.57	14.70	29.51
			54	64-QAM	30	11.09	2.57	13.66	23.23
		802.11n	MCS7	64-QAM	30	11.00	2.57	13.57	22.75
			MCS15	64-QAM	30	11.03	2.57	13.60	22.91
		802.11ac (SISO)	MCS0	64-QAM	30	11.93	2.57	14.50	28.18
			MCS08	256-QAM	30	11.83	2.57	14.40	27.54
108	5540	802.11a	6	BPSK	30	13.86	2.57	16.43	43.95
			54	64-QAM	30	12.84	2.57	15.41	34.75
		802.11n	MCS7	64-QAM	30	12.99	2.57	15.56	35.97
			MCS15	64-QAM	30	12.69	2.57	15.26	33.57
		802.11ac (SISO)	MCS0	64-QAM	30	13.84	2.57	16.41	43.75
			MCS08	256-QAM	30	13.79	2.57	16.36	43.25
112	5560	802.11a	6	BPSK	30	14.04	2.57	16.61	45.81
			54	64-QAM	30	12.98	2.57	15.55	35.89
		802.11n	MCS7	64-QAM	30	12.99	2.57	15.56	35.97
			MCS15	64-QAM	30	12.93	2.57	15.50	35.48
		802.11ac (SISO)	MCS0	64-QAM	30	13.86	2.57	16.43	43.95
			MCS08	256-QAM	30	13.90	2.57	16.47	44.36
116	5580	802.11a	6	BPSK	30	14.14	2.57	16.71	46.88
			54	64-QAM	30	13.03	2.57	15.60	36.31
		802.11n	MCS7	64-QAM	30	13.02	2.57	15.59	36.22
			MCS15	64-QAM	30	12.99	2.57	15.56	35.97
		802.11ac (SISO)	MCS0	64-QAM	30	14.04	2.57	16.61	45.81
			MCS08	256-QAM	30	14.09	2.57	16.66	46.34
132	5660	802.11a	6	BPSK	30	14.63	2.57	17.20	52.48
			54	64-QAM	30	13.48	2.57	16.05	40.27
		802.11n	MCS7	64-QAM	30	13.39	2.57	15.96	39.45
			MCS15	64-QAM	30	13.51	2.57	16.08	40.55
		802.11ac (SISO)	MCS0	64-QAM	30	14.39	2.57	16.96	49.66
			MCS08	256-QAM	30	14.33	2.57	16.90	48.98
136	5680	802.11a	6	BPSK	30	14.83	2.57	17.40	54.95
			54	64-QAM	30	13.68	2.57	16.25	42.17
		802.11n	MCS7	64-QAM	30	13.69	2.57	16.26	42.27
			MCS15	64-QAM	30	13.70	2.57	16.27	42.36
		802.11ac (SISO)	MCS0	64-QAM	30	14.75	2.57	17.32	53.95
			MCS08	256-QAM	30	14.68	2.57	17.25	53.09

OUTPUT POWER

element
WTD.2017.11.22.1

20 MHz Bandwidth

Channel	Frequency	Radio	Data Rate	Modulation	Software Power Setting	Meter Reading dBm	Cable Loss dB	Output Power	
								dBm	mW
140	5700	802.11a	6	BPSK	30	14.75	2.63	17.38	54.70
			54	64-QAM	30	13.86	2.63	16.49	44.57
		802.11n	MCS7	64-QAM	30	13.78	2.63	16.41	43.75
			MCS15	64-QAM	30	13.73	2.63	16.36	43.25
		802.11ac (SISO)	MCS0	64-QAM	30	14.62	2.63	17.25	53.09
			MCS08	256-QAM	30	14.60	2.63	17.23	52.84
149	5745	802.11a	6	BPSK	30	14.96	2.63	17.59	57.41
			54	64-QAM	30	13.74	2.63	16.37	43.35
		802.11n	MCS7	64-QAM	30	13.63	2.63	16.26	42.27
			MCS15	64-QAM	30	13.55	2.63	16.18	41.50
		802.11ac (SISO)	MCS0	64-QAM	30	14.74	2.63	17.37	54.58
			MCS08	256-QAM	30	14.62	2.63	17.25	53.09
153	5765	802.11a	6	BPSK	30	14.53	2.63	17.16	52.00
			54	64-QAM	30	13.49	2.63	16.12	40.93
		802.11n	MCS7	64-QAM	30	13.46	2.63	16.09	40.64
			MCS15	64-QAM	30	13.49	2.63	16.12	40.93
		802.11ac (SISO)	MCS0	64-QAM	30	14.54	2.63	17.17	52.12
			MCS08	256-QAM	30	14.45	2.63	17.08	51.05
157	5785	802.11a	6	BPSK	30	14.37	2.63	17.00	50.12
			54	64-QAM	30	13.29	2.63	15.92	39.08
		802.11n	MCS7	64-QAM	30	13.09	2.63	15.72	37.33
			MCS15	64-QAM	30	13.40	2.63	16.03	40.09
		802.11ac (SISO)	MCS0	64-QAM	30	14.37	2.63	17.00	50.12
			MCS08	256-QAM	30	14.19	2.63	16.82	48.08
161	5805	802.11a	6	BPSK	30	14.44	2.63	17.07	50.93
			54	64-QAM	30	13.11	2.63	15.74	37.50
		802.11n	MCS7	64-QAM	30	13.22	2.63	15.85	38.46
			MCS15	64-QAM	30	13.29	2.63	15.92	39.08
		802.11ac (SISO)	MCS0	64-QAM	30	14.30	2.63	16.93	49.32
			MCS08	256-QAM	30	14.18	2.63	16.81	47.97
165	5825	802.11a	6	BPSK	30	14.22	2.63	16.85	48.42
			54	64-QAM	30	12.85	2.63	15.48	35.32
		802.11n	MCS7	64-QAM	30	12.91	2.63	15.54	35.81
			MCS15	64-QAM	30	12.87	2.63	15.50	35.48
		802.11ac (SISO)	MCS0	64-QAM	30	14.07	2.63	16.70	46.77
			MCS08	256-QAM	30	13.92	2.63	16.55	45.19

OUTPUT POWER

element
WTD.2017.11.22.1

40 MHz Bandwidth

Channel	Frequency (MHz)	Radio Mode	Data Rate (Mbps)	Modulation	Software Power Setting	Meter Reading dBm	Cable Loss dB	Output Power	
								dBm	mW
36/40 (38F)	5190	802.11n	MCS7	64-QAM	30	11.73	2.79	14.52	28.31
			MCS15	64-QAM	30	11.73	2.79	14.52	28.31
		802.11ac (SISO)	MCS0	64-QAM	30	13.41	2.79	16.20	41.69
			MCS09	256-QAM	30	13.21	2.79	16.00	39.81
44/48 (46F)	5230	802.11n	MCS7	64-QAM	30	12.22	2.79	15.01	31.70
			MCS15	64-QAM	30	12.21	2.79	15.00	31.62
		802.11ac (SISO)	MCS0	64-QAM	30	13.92	2.79	16.71	46.88
			MCS09	256-QAM	30	13.39	2.79	16.18	41.50
52/56 (54F)	5270	802.11n	MCS7	64-QAM	30	12.52	2.41	14.93	31.12
			MCS15	64-QAM	30	12.49	2.41	14.90	30.90
		802.11ac (SISO)	MCS0	64-QAM	30	14.24	2.41	16.65	46.24
			MCS09	256-QAM	30	14.16	2.41	16.57	45.39
60/64 (62F)	5310	802.11n	MCS7	64-QAM	30	13.04	2.41	15.45	35.08
			MCS15	64-QAM	30	12.60	2.41	15.01	31.70
		802.11ac (SISO)	MCS0	64-QAM	30	14.82	2.41	17.23	52.84
			MCS09	256-QAM	30	14.52	2.41	16.93	49.32
100/104 (102F)	5510	802.11n	MCS7	64-QAM	30	10.69	2.57	13.26	21.18
			MCS15	64-QAM	30	10.78	2.57	13.35	21.63
		802.11ac (SISO)	MCS0	64-QAM	30	12.43	2.57	15.00	31.62
			MCS09	256-QAM	30	EUT Would not TX	2.57	N/A	N/A
108/112 (110F)	5550	802.11n	MCS7	64-QAM	30	12.59	2.57	15.16	32.81
			MCS15	64-QAM	30	12.57	2.57	15.14	32.66
		802.11ac (SISO)	MCS0	64-QAM	30	14.12	2.57	16.69	46.67
			MCS09	256-QAM	30	13.77	2.57	16.34	43.05
132/136 (134F)	5670	802.11n	MCS7	64-QAM	30	13.16	2.57	15.73	37.41
			MCS15	64-QAM	30	13.18	2.57	15.75	37.58
		802.11ac (SISO)	MCS0	64-QAM	30	14.84	2.57	17.41	55.08
			MCS09	256-QAM	30	14.59	2.57	17.16	52.00
149/153 (151F)	5755	802.11n	MCS7	64-QAM	30	12.92	2.63	15.55	35.89
			MCS15	64-QAM	30	13.08	2.63	15.71	37.24
		802.11ac (SISO)	MCS0	64-QAM	30	14.68	2.63	17.31	53.83
			MCS09	256-QAM	30	14.50	2.63	17.13	51.64

OUTPUT POWER

element
WTD.2017.11.22.1

40 MHz Bandwidth

Channel	Frequency	Radio	Data Rate	Modulation	Software Power Setting	Meter Reading dBm	Cable Loss dB	Output Power	
								dBm	mW
157/161 (159F)	5795	802.11n	MCS7	64-QAM	30	12.51	2.63	15.14	32.66
			MCS15	64-QAM	30	12.51	2.63	15.14	32.66
		802.11ac (SISO)	MCS0	64-QAM	30	14.01	2.63	16.64	46.13
			MCS09	256-QAM	30	13.62	2.63	16.25	42.17

80 Mhz Bandwidth

Channel	Frequency (MHz)	Radio Mode	Data Rate (Mbps)	Modulation	Software Power Setting	Meter Reading dBm	Cable Loss dB	Output Power	
								dBm	mW
42	5210	802.11ac (SISO)	MCSO	64-QAM	30	13.12	2.79	15.91	38.99
			MCS9	256-QAM	30	10.82	2.79	13.61	22.96
58	5290	802.11ac (SISO)	MCSO	64-QAM	30	14.13	2.41	16.54	45.08
			MCS9	256-QAM	30	11.83	2.41	14.24	26.55
106	5530	802.11ac (SISO)	MCSO	64-QAM	30	13.75	2.57	16.32	42.85
			MCS9	256-QAM	30	11.41	2.57	13.98	25.00
155	5775	802.11ac (SISO)	MCSO	64-QAM	30	14.41	2.63	17.04	50.58
			MCS9	256-QAM	30	12.00	2.63	14.63	29.04

SAR TEST DATA – 2.4 GHz

element
WSTD.2016.12.19

EUT:	CADD Solis Ambulatory Infusion Pump	Work Order:	SILX0019
Customer:	Silex Technology America, Inc	Job Site:	EV08
Attendees:	None	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 248227 D01 V02r02 FCC KDB 447498 D01 v01r06 FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Transmit Mode	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	SAR Scaling Factor	Scaled 1g SAR Level (mW/g)	Scaled 10g SAR Level (mW/g)	Test#
Body	2.4GHz	2412	1	1	DSSS	Back	-0.36	0.332	0.182	0.51	0.17	0.09	1
Body	2.4GHz	2412	1	1	DSSS	Right	-1.06	0.315	0.171	0.51	0.16	0.09	2
Body	2.4GHz	2412	1	1	DSSS	Left	-0.27	0.328	0.172	0.51	0.17	0.09	3
Body	2.4GHz	2412	1	1	DSSS	Top	-0.39	1.18	0.566	0.51	0.60	0.29	4
Body	2.4GHz	2412	1	1	DSSS	Top	-0.28	1.19	0.572	0.51	0.61	0.29	4a
Body	2.4GHz	2437	6	1	DSSS	Top	-0.32	1.16	0.549	0.51	0.59	0.28	4b
Body	2.4GHz	2462	11	1	DSSS	Top	-0.35	1.03	0.482	0.51	0.53	0.25	4c
Body	2.4GHz	2412	1	6	OFDM	Top	-0.48	1.03	0.488	0.57	0.59	0.28	21
Body	2.4GHz	2412	1	6	OFDM	Top	-0.37	0.972	0.46	0.57	0.55	0.26	21a
Body	2.4GHz	2437	6	6	OFDM	Top	-0.24	0.935	0.44	0.57	0.53	0.25	21b
Body	2.4GHz	2462	11	6	OFDM	Top	-0.23	0.842	0.391	0.57	0.48	0.22	21c
Body	2.4GHz	2412	1	6	OFDM	Right	-0.1	0.286	0.15	0.57	0.16	0.09	22
Body	2.4GHz	2412	1	6	OFDM	Left	-0.2	0.471	0.194	0.57	0.27	0.11	23
Body	2.4GHz	2412	1	6	OFDM	Back	-0.29	0.316	0.168	0.57	0.18	0.10	24

SAR TEST DATA – 2.4 GHz

element
WSTD.2016.12.19

Tested By:	Jay Whitworth	Room Temperature (°C):	24.2°C
Date:	5/17/2019 2:54:49 PM	Liquid Temperature (°C):	21.5°C
Serial Number:	1042234	Humidity (%RH):	45.2%
Configuration:	SILX0019-1	Bar. Pressure (mb):	1015 mb
Comments:	None		

Test 4a
DUT: CADD Solis; Type: Not Specified; Serial: 1042234
Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2412 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.896 S/m; ε_r = 50.452; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(6.96, 6.96, 6.96); Calibrated: 11/12/2018;
  - Modulation Compensation:
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), z = 1.0, 31.0, 101.0
- Electronics: DAE4 Sn1237; Calibrated: 11/6/2018
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Body/Body/Reference scan (21x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.34 W/kg

Body/Body/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.67 V/m; Power Drift = -0.28 dB
Peak SAR (extrapolated) = 2.35 W/kg
SAR(1 g) = 1.19 W/kg; SAR(10 g) = 0.572 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.48 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.44 W/kg

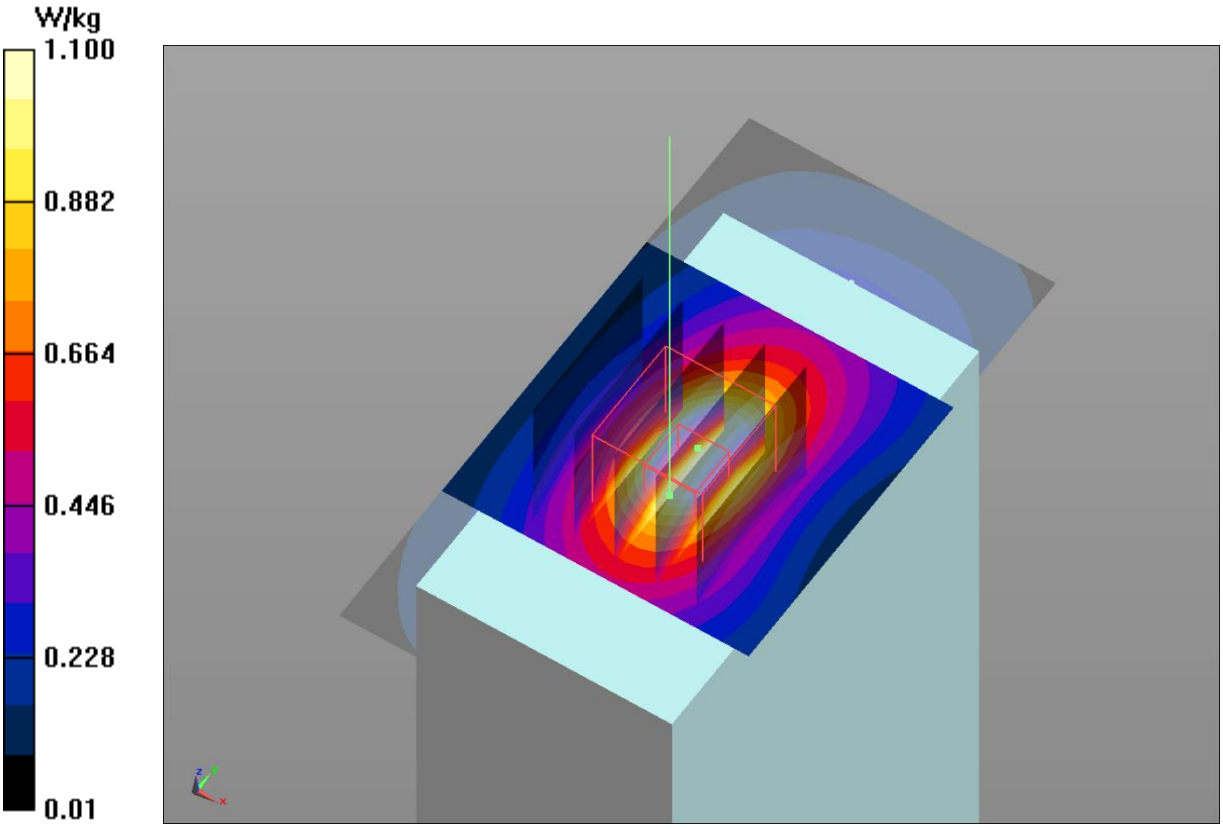
Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 27.83 V/m
Maximum value of SAR (measured) = 1.47 W/kg

Approved By

SAR TEST DATA – 2.4 GHz

Test 4a



SAR TEST DATA – 2.4 GHz

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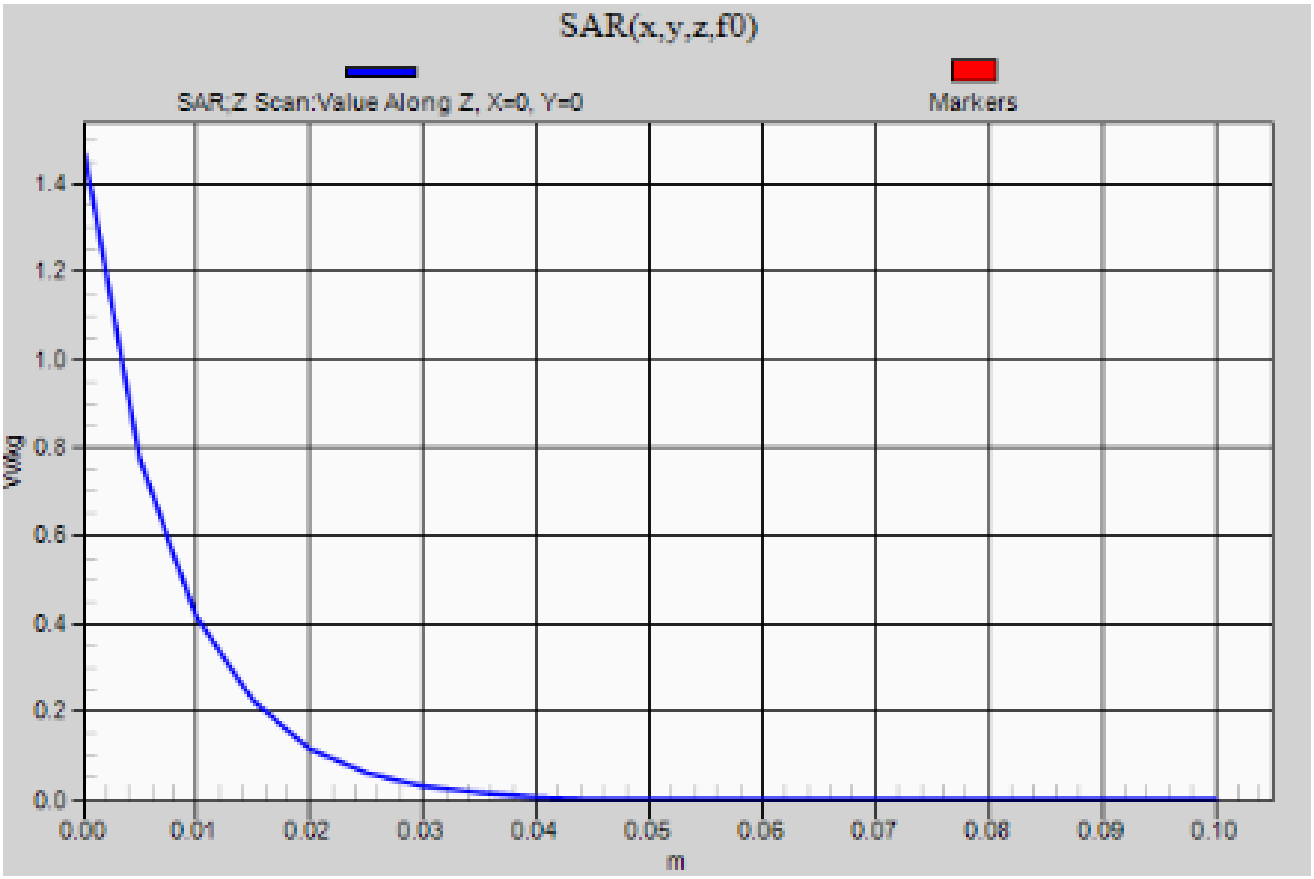


SAR TEST DATA – 5.2 GHz

element
WSTD.2016.12.19

EUT:	CADD Solis Ambulatory Infusion Pump	Work Order:	SILX0019
Customer:	Silex Technology America, Inc	Job Site:	EV08
Attendees:	None	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 248227 D01 V02r02 FCC KDB 447498 D01 v01r06 FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Transmit Mode	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	SAR Scaling Factor	Scaled 1g SAR Level (mW/g)	Scaled 10g SAR Level (mW/g)	Test#
Body	5.2GHz	5240	48	6	BPSK	Back	-0.23	0.0293	0.0182	0.48	0.01	0.01	5
Body	5.2GHz	5240	48	6	BPSK	Left	0.06	0.0382	0.0279	0.48	0.02	0.01	6
Body	5.2GHz	5240	48	6	BPSK	Right	-2.67	0.0025	0.000258	0.48	0.00	0.00	7
Body	5.2GHz	5240	48	6	BPSK	Top	-.77	0.132	0.043	0.48	0.06	0.02	8a

SAR TEST DATA – 5.2 GHz

element
WSTD.2016.12.19

Tested By:	Jay Whitworth	Room Temperature (°C):	23.6°C
Date:	5/21/2019 2:43:48 PM	Liquid Temperature (°C):	21.3°C
Serial Number:	1042234	Humidity (%RH):	46.6%
Configuration:	SILX0019-1	Bar. Pressure (mb):	1006 mb
Comments:	None		

Test 8a
DUT: CADD Solis; Type: Not Specified; Serial: 1042234
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5240 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.484 S/m; ε_r = 49.393; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4.33, 4.33, 4.33); Calibrated: 11/12/2018;
  - Modulation Compensation:
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), z = 1.0, 31.0, 101.0
- Electronics: DAE4 Sn1237; Calibrated: 11/6/2018
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Body/Body/Reference scan (21x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0993 W/kg

Body/Body/Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.256 V/m; Power Drift = -0.77 dB
Peak SAR (extrapolated) = 0.388 W/kg
SAR(1 g) = 0.132 W/kg; SAR(10 g) = 0.043 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.200 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.186 W/kg

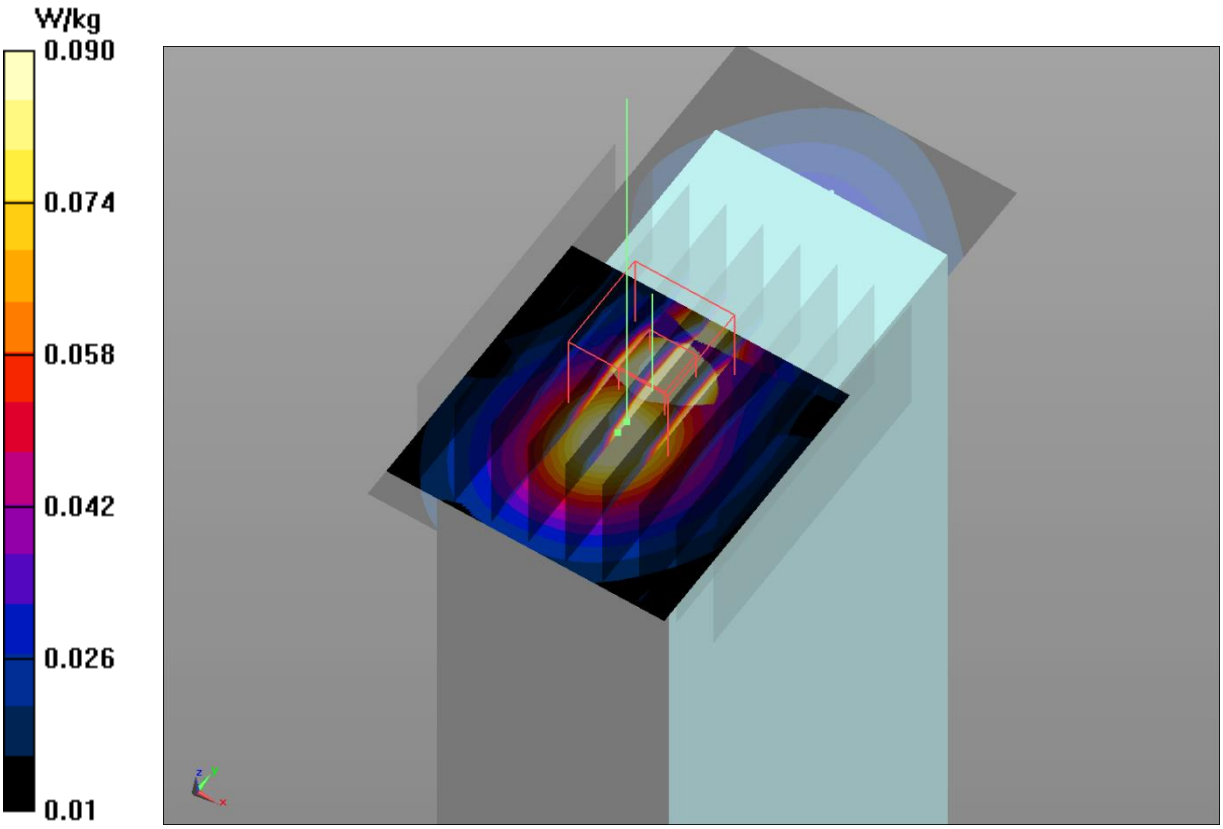
Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 5.443 V/m
Maximum value of SAR (measured) = 0.162 W/kg

Approved By

SAR TEST DATA – 5.2 GHz

Test 8a



SAR TEST DATA – 5.2 GHz

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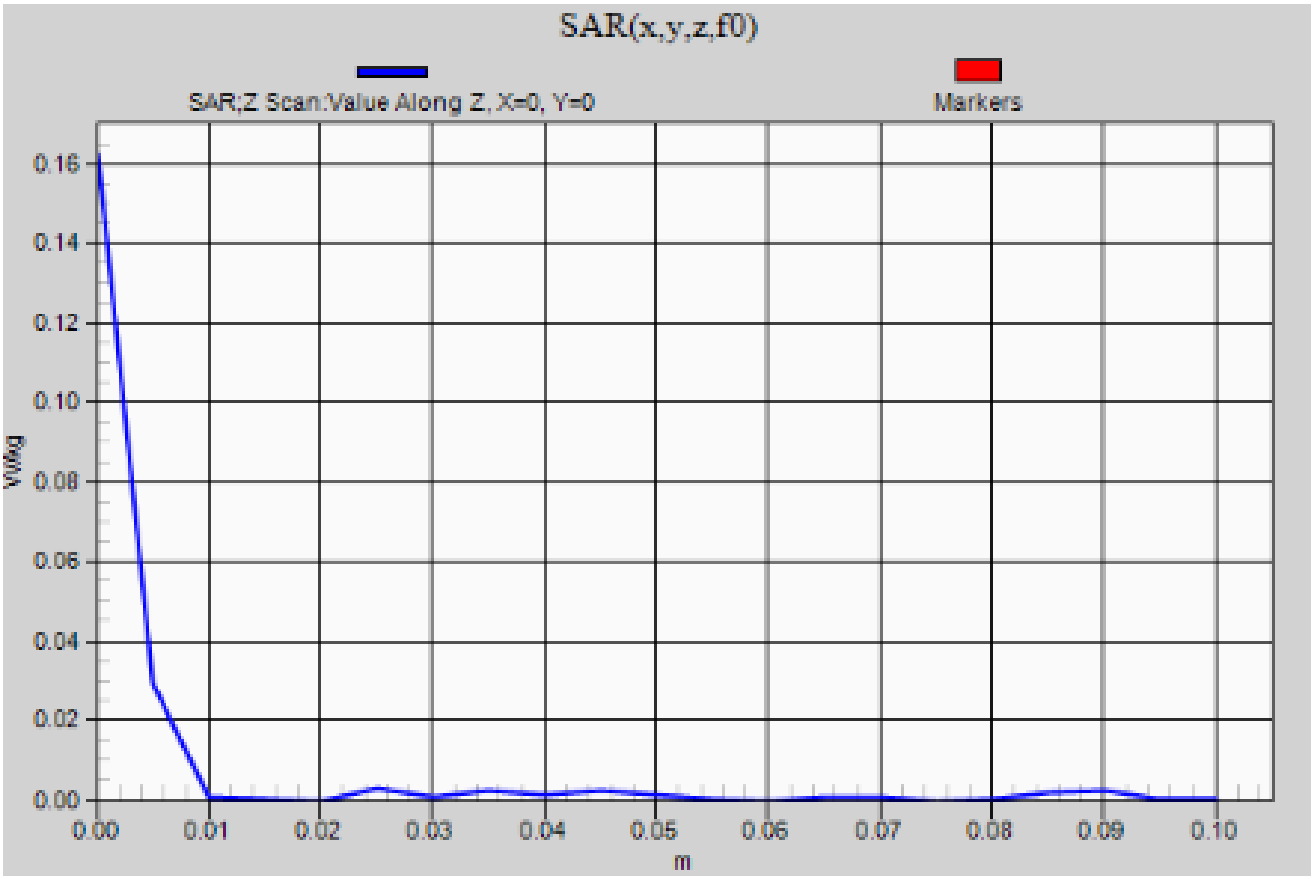


SAR TEST DATA – 5.3 GHz

element
WSTD.2016.12.19

EUT:	CADD Solis Ambulatory Infusion Pump	Work Order:	SILX0019
Customer:	Silex Technology America, Inc	Job Site:	EV08
Attendees:	None	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 248227 D01 V02r02 FCC KDB 447498 D01 v01r06 FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Transmit Mode	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	SAR Scaling factor	Scaled 1g SAR Level (mW/g	Scaled 10g SAR Level (mW/g)	Test#
Body	5.3GHz	5320	64	MCS08	256-QAM	Back	-1.16	0.0421	0.0177	0.12	0.00	0.00	12
Body	5.3GHz	5320	64	MCS08	256-QAM	Left	0.36	0.0459	0.016	0.12	0.01	0.00	11
Body	5.3GHz	5320	64	MCS08	256-QAM	Right	-0.54	0.0521	0.0237	0.12	0.01	0.00	10
Body	5.3GHz	5320	64	MCS08	256-QAM	Top	-1.17	0.131	0.041	0.12	0.02	0.00	9

SAR TEST DATA – 5.3 GHz

element
WSTD.2016.12.19

Tested By:	Jay Whitworth	Room Temperature (°C):	24.1°C
Date:	5/22/2019 8:38:06 AM	Liquid Temperature (°C):	22.4°C
Serial Number:	1042234	Humidity (%RH):	42.1%
Configuration:	SILX0019-1	Bar. Pressure (mb):	1015 mb
Comments:	None		

Test 9
DUT: CADD Solis; Type: Not Specified; Serial: 1042234
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5320 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 5320 MHz; σ = 5.638 S/m; ε_r = 47.941; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4.2, 4.2, 4.2); Calibrated: 11/12/2018;
  - Modulation Compensation:
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), z = 1.0, 31.0, 101.0
- Electronics: DAE4 Sn1237; Calibrated: 11/6/2018
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Body/Body/Reference scan (31x51x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0670 W/kg

Body/Body/Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.562 V/m; Power Drift = -1.17 dB
Peak SAR (extrapolated) = 0.440 W/kg
SAR(1 g) = 0.131 W/kg; SAR(10 g) = 0.041 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.197 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.221 W/kg

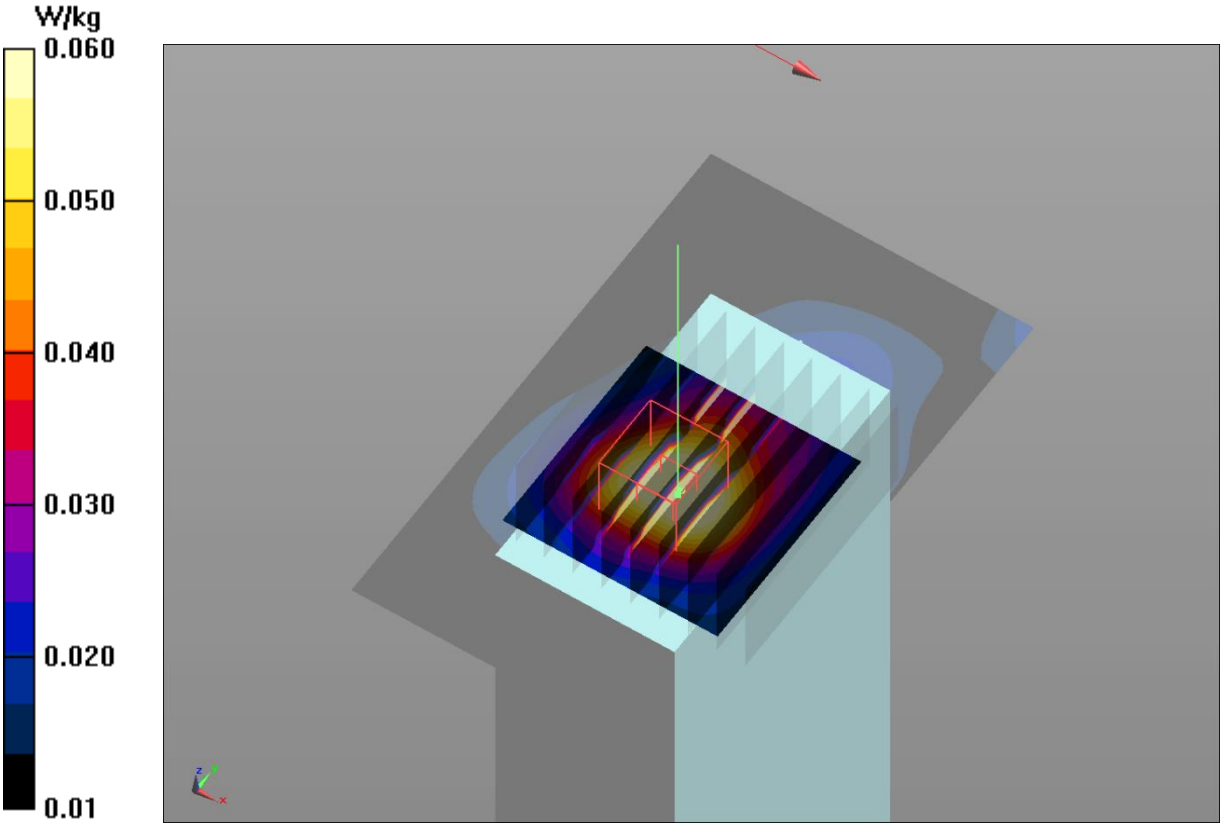
Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 5.078 V/m
Maximum value of SAR (measured) = 0.145 W/kg

Approved By

SAR TEST DATA – 5.3 GHz

Test 9



SAR TEST DATA – 5.3 GHz

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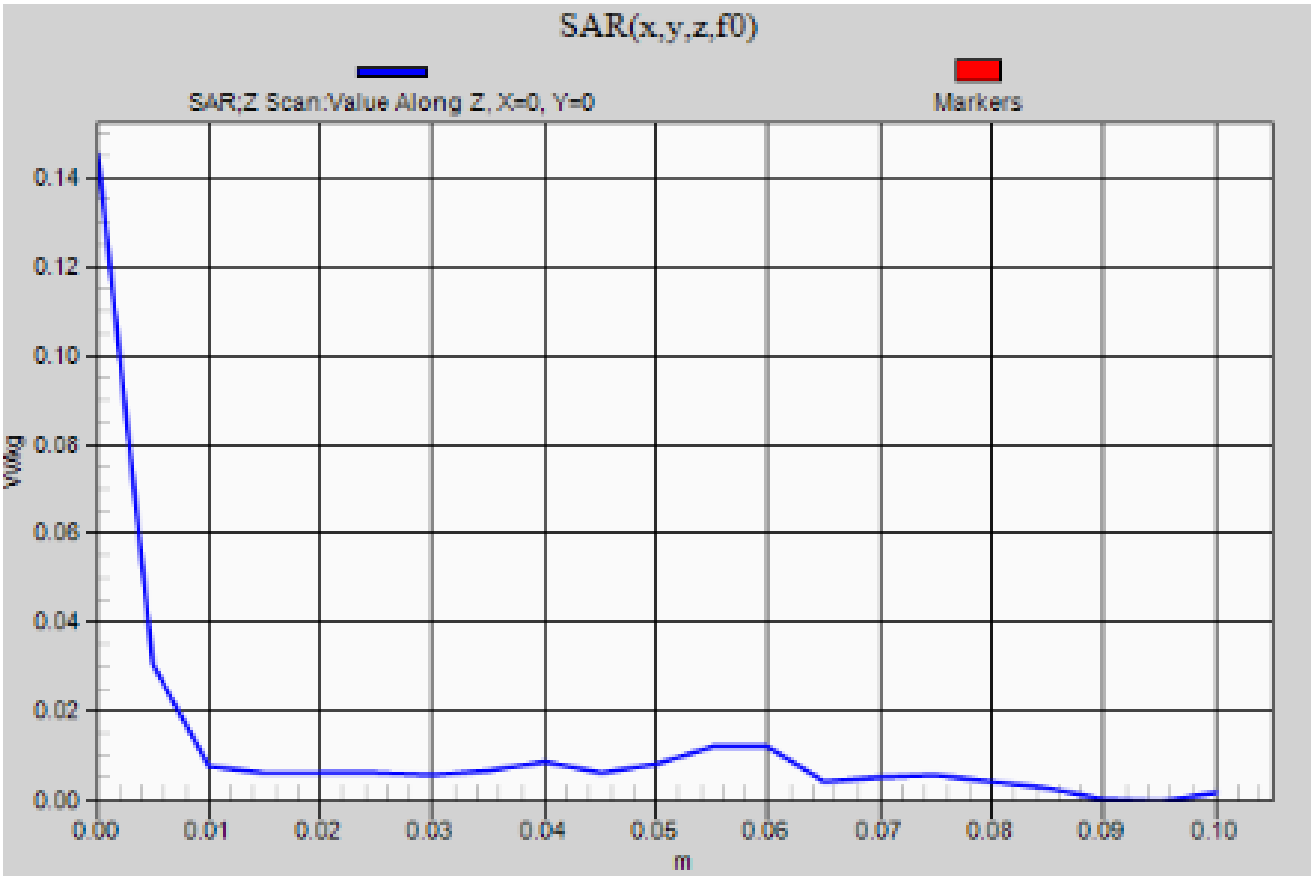


SAR TEST DATA – 5.6 GHz

element
WSTD.2016.12.19

EUT:	CADD Solis Ambulatory Infusion Pump	Work Order:	SILX0019
Customer:	Silex Technology America, Inc	Job Site:	EV08
Attendees:	None	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 248227 D01 V02r02 FCC KDB 447498 D01 v01r06 FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Transmit Mode	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	SAR Scaling Factor	Scaled 1g SAR Level (mW/g)	Scaled 10g SAR Level (mW/g)	Test#
Body	5.6GHz	5680	136	6	BPSK	Back	-0.68	0.0609	0.0246	0.41	0.02	0.01	13
Body	5.6GHz	5680	136	6	BPSK	Left	0.39	0.0407	0.0142	0.41	0.02	0.01	14
Body	5.6GHz	5680	136	6	BPSK	Right	-1.15	0.0619	0.0277	0.41	0.03	0.01	15
Body	5.6GHz	5680	136	6	BPSK	Top	-1.79	0.236	0.075	0.41	0.13	0.04	16a

SAR TEST DATA – 5.6 GHz

element
WSTD.2016.12.19

Tested By:	Jay Whitworth	Room Temperature (°C):	23.3°C
Date:	5/23/2019 3:23:33 PM	Liquid Temperature (°C):	21.2°C
Serial Number:	1042234	Humidity (%RH):	49.7%
Configuration:	SILX0019-1	Bar. Pressure (mb):	1012 mb
Comments:	None		

Test 16a
DUT: CADD Solis; Type: Not Specified; Serial: 1042234
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5680 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 5680 MHz; σ = 6.013 S/m; ε_r = 47.588; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(3.78, 3.78, 3.78); Calibrated: 11/12/2018;
  - Modulation Compensation:
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), z = 1.0, 31.0, 101.0
- Electronics: DAE4 Sn1237; Calibrated: 11/6/2018
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0708 W/kg

Body/Body/Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.409 V/m; Power Drift = -1.79 dB
Peak SAR (extrapolated) = 0.752 W/kg
SAR(1 g) = 0.236 W/kg; SAR(10 g) = 0.075 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.367 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.380 W/kg

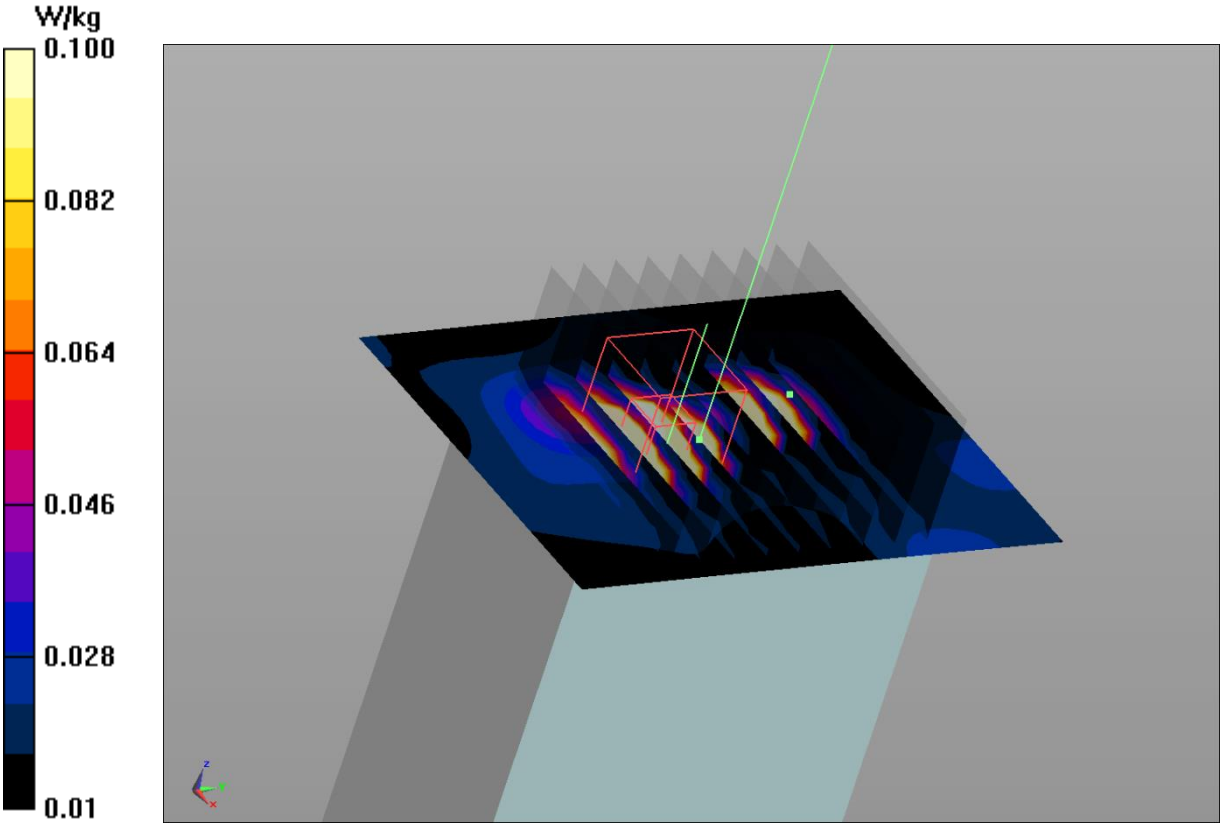
Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 5.850 V/m
Maximum value of SAR (measured) = 0.206 W/kg

Approved By

SAR TEST DATA – 5.6 GHz

Test 16a



SAR TEST DATA – 5.6 GHz

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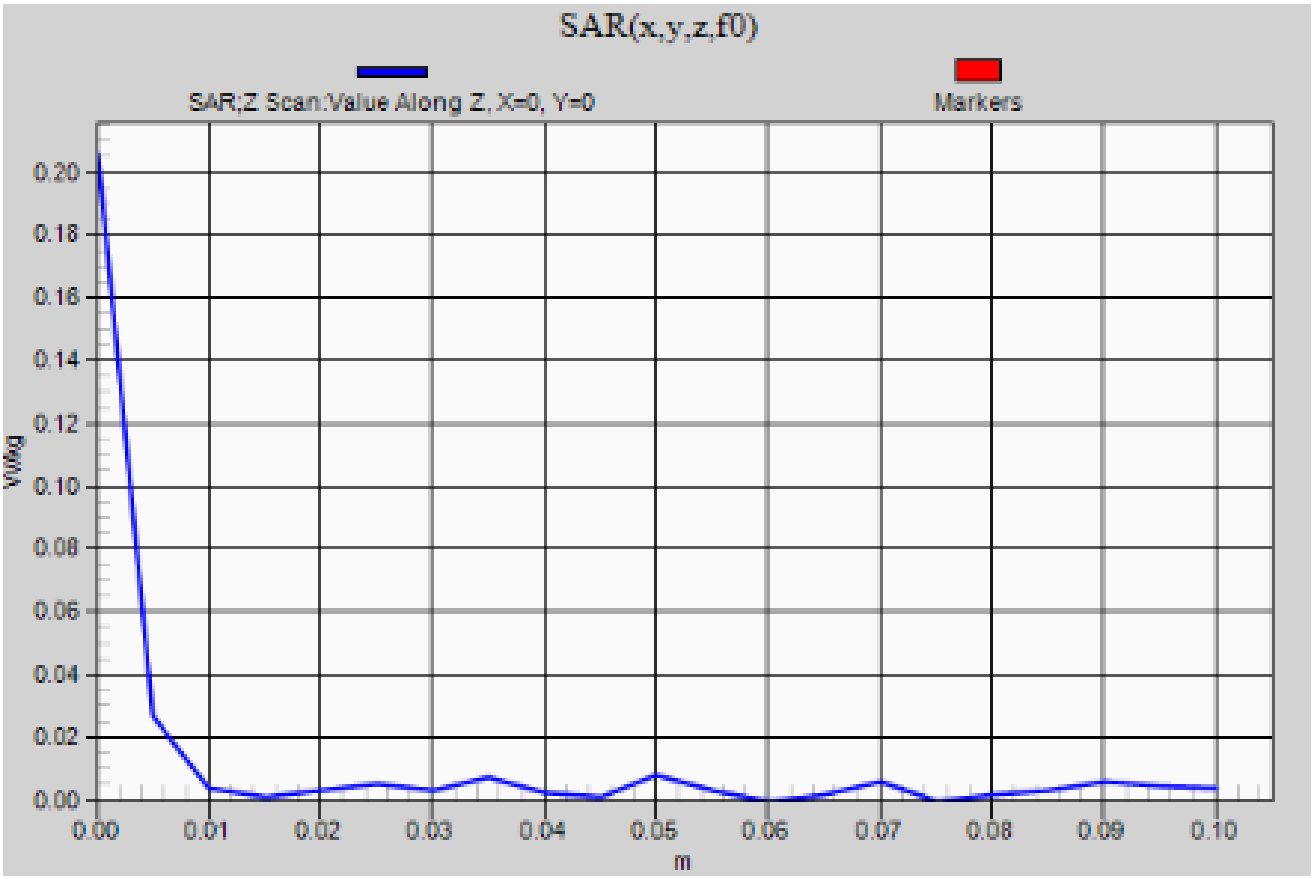


SAR TEST DATA – 5.8 GHz

element
WSTD.2016.12.19

EUT:	CADD Solis Ambulatory Infusion Pump	Work Order:	SILX0019
Customer:	Silex Technology America, Inc	Job Site:	EV08
Attendees:	None	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2019 FCC 2.1093:2019	FCC KDB 248227 D01 V02r02 FCC KDB 447498 D01 v01r06 FCC KDB 865664 D01 v01r04 FCC KDB 865664 D02 v01r02 IEEE Std 1528:2013

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

RESULTS

Test Configuration	Frequency Band	Transmit Frequency (MHz)	Transmit Channel	Data Rate (Mbps)	Transmit Mode	EUT Position	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	SAR Scaling Factor	Scaled 1g SAR Level (mW/g)	Scaled 10g SAR Level (mW/g)	Test#
Body	5.6GHz	5745	149	6	BPSK	Back	0	0.0556	0.0227	0.39	0.02	0.01	20
Body	5.6GHz	5745	149	6	BPSK	Left	-0.45	0.0535	0.0239	0.39	0.02	0.01	19
Body	5.6GHz	5745	149	6	BPSK	Right	-0.66	0.0264	0.0116	0.39	0.01	0.00	18
Body	5.6GHz	5745	149	6	BPSK	Top	-0.06	0.230	0.082	0.39	0.09	0.03	17a

SAR TEST DATA – 5.8 GHz

element
WSTD.2016.12.19

Tested By:	Jay Whitworth	Room Temperature (°C):	23.3°C
Date:	5/24/2019 12:41:19 PM	Liquid Temperature (°C):	22.2°C
Serial Number:	1042234	Humidity (%RH):	44.1%
Configuration:	SILX0019-1	Bar. Pressure (mb):	1015 mb
Comments:	None		

Test 17a
DUT: CADD Solis; Type: Not Specified; Serial: 1042234
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5745 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.11 S/m; ε_r = 47.478; ρ = 1000 kg/m^3 , Medium parameters used: σ = 0 S/m, ε_r = 1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4.06, 4.06, 4.06); Calibrated: 11/12/2018;
  - Modulation Compensation:
- Sensor-Surface: 3mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), z = 1.0, 31.0, 101.0
- Electronics: DAE4 Sn1237; Calibrated: 11/6/2018
- Phantom: ELI v5.0; Type: QDOVA002AA
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7373)

Body/Body/Reference scan (31x41x1): Interpolated grid: dx=3.000 mm, dy=3.000 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.0433 W/kg

Body/Body/Zoom Scan (9x11x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.051 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.757 W/kg
SAR(1 g) = 0.230 W/kg; SAR(10 g) = 0.082 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.329 W/kg

Body/Body/Area scan (41x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.223 W/kg

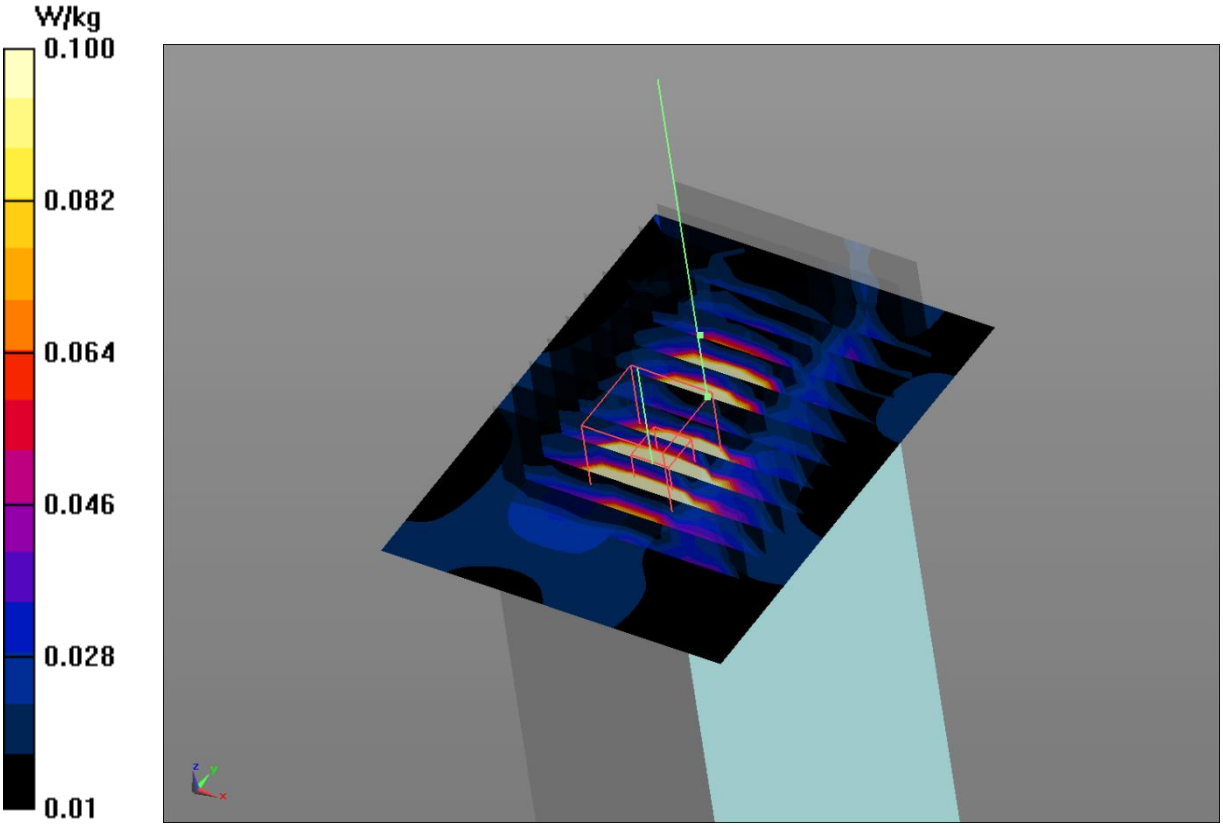
Body/Body/Z Scan (1x1x21): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of Total (measured) = 5.945 V/m
Maximum value of SAR (measured) = 0.216 W/kg

Approved By

SAR TEST DATA – 5.8 GHz

Test 17a



SAR TEST DATA – 5.8 GHz

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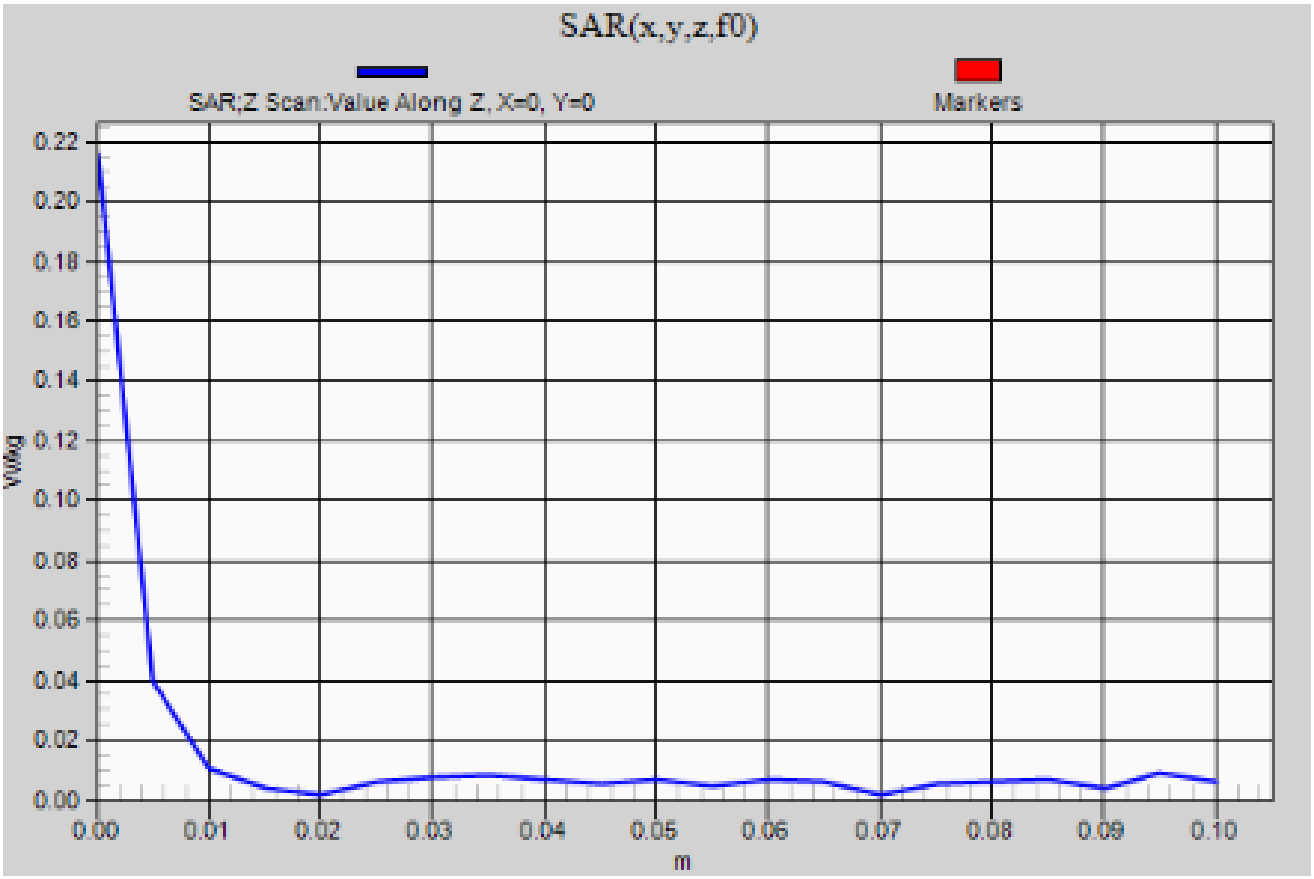


SYSTEM AND TEST SITE DESCRIPTION

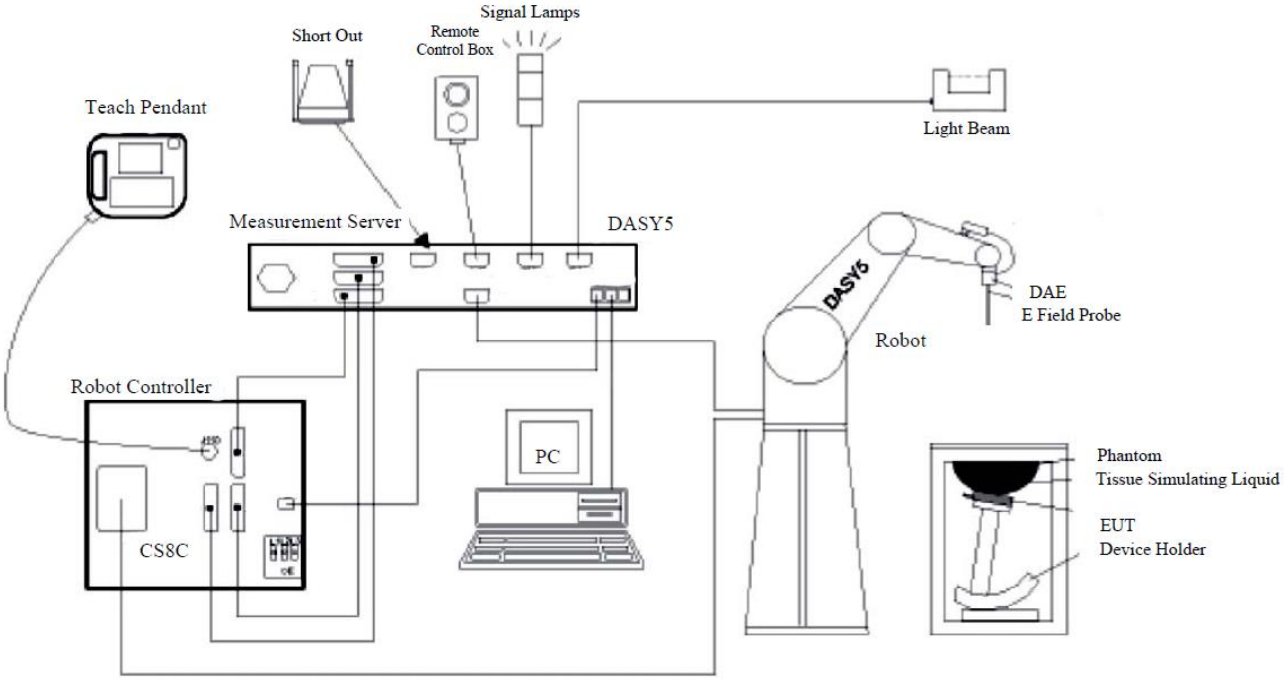
element
WSTD.2017.1.31

SAR MEASUREMENT SYSTEM

Schmid & Partner Engineering AG, DASY52

Element selected the leader in SAR evaluation systems to provide the measurement tools for this evaluation. SPEAG's DASY52 is the fastest and most accurate scanner on the market. It is fully compatible with all world-wide standards for transmitters operating at the ear or within 20cm of the body. It provides full compatibility with IEC 62209-1, IEC 62209-2, IEEE 1528 as well as national adaptations such as FCC OET-65c and Korean Std. MIC #2000-93

The DASY52 system for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot (Staubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom, oval flat phantom, device holder, tissue simulating liquids, and validation dipole kits.

SYSTEM AND TEST SITE DESCRIPTION

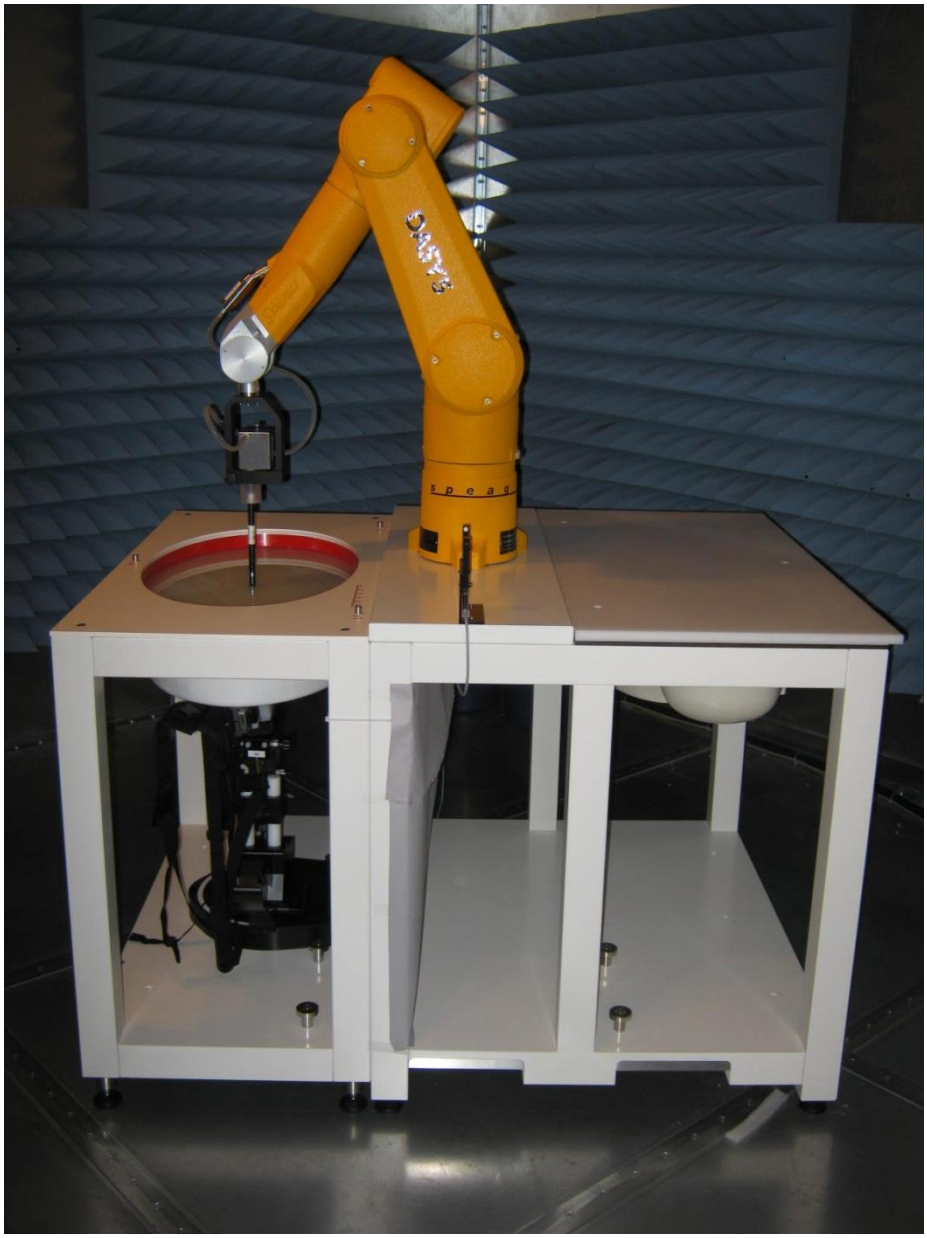
element
WSTD.2017.1.31

TEST SITE

Element, Lab EV08

The SAR measurement system is located in a semi-anechoic chamber. This provides an ambient free environment that also eliminates reflections.

The chamber is 12 ft wide by 16 ft long x 8 ft high. A dedicated HVAC unit provides +/- 1 degree C temperature control.



TEST EQUIPMENT

element
WSEQ.2016.12.19

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Amplifier	Mini Circuits	ZVE-3W-83+	TTA	NCR [1]	0 mo
Antenna - Dipole	SPEAG	D2450V2	ADL	11/5/2018	12 mo
Antenna - Dipole	SPEAG	D5GHzV2	ADM	11/9/2018	12 mo
DAE	SPEAG	SD 000 D04 EJ	SAH	11/6/2018	12 mo
Dielectric Assessment Kit	SPEAG	DAKS:200	IPR	4/25/2019	36 mo
Generator - Signal	Agilent	V2920A	TIH	NCR	0 mo
Meter - Power	Agilent	N1913A	SQR	10/2/2018	12 mo
Power Sensor	Agilent	E9300H	SQO	10/2/2018	12 mo
Probe - Dielectric	SPEAG	DAKS-3.5	IPRA	11/1/2016	36 mo
Probe - SAR	SPEAG	EX3DV4	SAG	11/12/2018	12 mo
SAR - Tissue Test Solution	SPEAG	MSL 2450	SAM	At start of testing	
SAR - Tissue Test Solution	SPEAG	MSL 5000		At start of testing	
SAR Test System	Staeubli	DAYS5	SAK	11/1/2016	36 mo
SAR Test System	SPEAG	QD OVA 001 BB	SAC	NCR	0 mo
Thermometer	Omegaette	HH311	DTX	3/29/2018	36 mo

Note 1: The output of the signal generator / amplifier is verified with the calibrated power meter listed above.

MEASUREMENT UNCERTAINTY

MEASUREMENT UNCERTAINTY BUDGETS PER IEEE 1528:2013

300-3000 MHz Range

Uncertainty Component	Tolerance (+/- %)	Probability Distribution	Divisor	c_i (1g)	c_i (10g)	u_i (1g) (+/-%)	u_i (10g) (+/-%)	v_i
Measurement System								
Probe calibration (k=1)	5.5	normal	1	1	1	5.5	5.5	∞
Axial isotropy	4.7	rectangular	1.732	0.707	0.707	1.9	1.9	∞
Hemispherical isotropy	9.6	rectangular	1.732	0.707	0.707	3.9	3.9	∞
Boundary effect	1.0	rectangular	1.732	1	1	0.6	0.6	∞
Linearity	4.7	rectangular	1.732	1	1	2.7	2.7	∞
System detection limits	1.0	rectangular	1.732	1	1	0.6	0.6	∞
Readout electronics	0.3	normal	1	1	1	0.3	0.3	∞
Response time	0.8	rectangular	1.732	1	1	0.5	0.5	∞
Integration time	2.6	rectangular	1.732	1	1	1.5	1.5	∞
RF ambient conditions - noise	1.7	rectangular	1.732	1	1	1.0	1.0	∞
RF Ambient Reflections	0.0	rectangular	1.732	1	1	0.0	0.0	∞
Probe positioner mechanical tolerance	0.4	rectangular	1.732	1	1	0.2	0.2	∞
Probe positioner with respect to phantom shell	2.9	rectangular	1.732	1	1	1.7	1.7	∞
Extrapolation, interpolation, and integration algorithms for max. SAR evaluation	1.0	rectangular	1.732	1	1	0.6	0.6	∞
Test Sample Related								
Device Positioning	2.9	normal	1	1	1	2.9	2.9	145
Device Holder	3.6	normal	1	1	1	3.6	3.6	5
Power Drift	5.0	rectangular	1.732	1	1	2.9	2.9	∞
Phantom and tissue parameters								
Phantom Uncertainty - shell thickness tolerances	4.0	rectangular	1.732	1	1	2.3	2.3	∞
Liquid conductivity - deviation from target values	5.0	rectangular	1.732	0.64	0.43	1.8	1.2	∞
Liquid conductivity - measurement uncertainty	6.5	normal	1	0.64	0.43	4.2	2.8	∞
Liquid permittivity - deviation from target values	5.0	rectangular	1.732	0.6	0.49	1.7	1.4	∞
Liquid permittivity - measurement uncertainty	3.2	normal	1	0.6	0.49	1.9	1.6	∞
Combined Standard Uncertainty		RSS				11.2	10.6	387
Expanded Measurement Uncertainty (95% Confidence/		normal (k=2)				22.5	21.2	