



Masimo Corporation

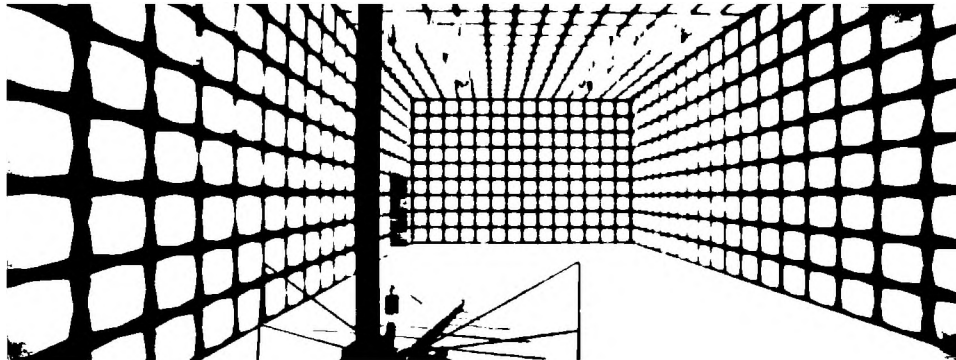
Radius VSM

SAR Evaluation Report: MASI0643.1, Issue Date: October 30, 2020

Evaluated to the following SAR specification:

Health Safety Code 6:2015

RSS-102, Issue 5:2015



NVLAP LAB CODE: 200881-0
NVLAP LAB CODE: 200676-0



This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. This Report shall not be reproduced, except in full without written approval of the laboratory.

CERTIFICATE OF TEST



Last Date of Test: October 20, 2020
Masimo Corporation
EUT: Radius VSM

Applicable Standard

Test Description	Specification	Test Method	Pass/Fail
SAR Evaluation	Health Safety Code 6: 2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019	Pass

Highest Measured SAR Values:

Radio	Frequency Bands (MHz)	Body (W/kg)	Limit (W/kg)	Exposure Environment
		1g	1g	
Bluetooth and Bluetooth Low Energy	2402-2480	0.18	1.6	General Population
Wi-Fi 802.11bgn	2412-2462	0.09	1.6	
Wi-Fi 802.11an	5180-5240	0.36	1.6	
	5260-5320	1.15	1.6	
	5500-5700	1.07	1.6	
	5745-5825	0.73	1.6	

Deviations From Test Standards

None

Approved By:

A handwritten signature in black ink, appearing to read 'Don Facticeau'.

Don Facticeau, 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
Labs OC01-17
41 Tesla
Irvine, CA 92618
(949) 861-8918

Minnesota
Labs MN01-10
9349 W Broadway Ave.
Brooklyn Park, MN 55445
(612)-638-5136

Oregon
Labs EV01-12
6775 NE Evergreen Pkwy #400
Hillsboro, OR 97124
(503) 844-4066

Texas
Labs TX01-09
3801 E Plano Pkwy
Plano, TX 75074
(469) 304-5255

Washington
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

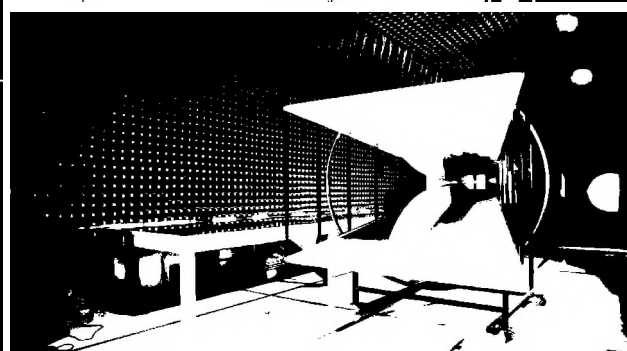
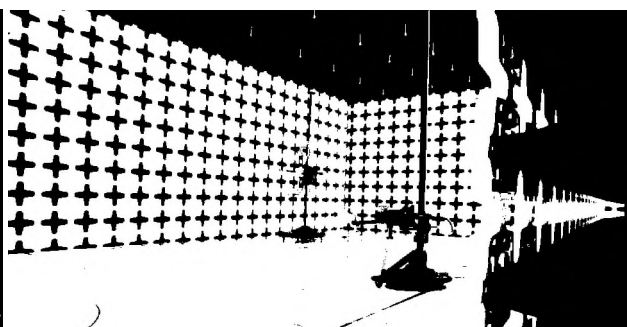
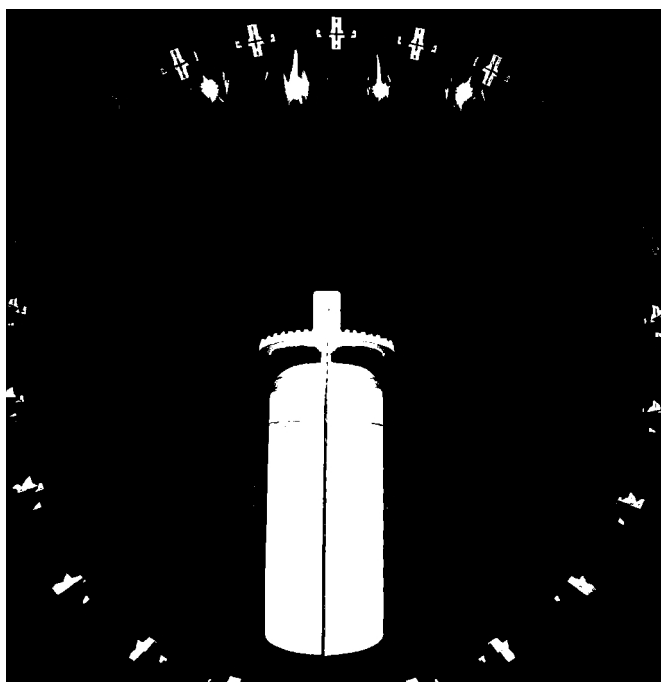
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
----------------	----------------	---------------	----------------	----------------

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

Client and Equipment Under Test (EUT) Information

Company Name:	Masimo Corporation
Address:	52 Discovery
City, State, Zip:	Irvine, CA 92618
Test Requested By:	Anami Joshi
Model:	Radius VSM
First Date of Test:	June 10, 2020
Last Date of Test:	October 21, 2020
Receipt Date of Samples:	June 10, 2020
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

System testing on Radius VSM with MWMII radio installed. The radio contains a combination 802.11abgn and Bluetooth radio module. The Bluetooth radio module supports BDR, EDR, and LE.

IC: 7362A-MWM2

The device contains the following radios:

Bluetooth BDR/EDR/LE: 2402 – 2480 MHz

802.11bgn: 2412 – 2462 MHz (SISO, 20 and 40 MHz channel bandwidths)

802.11an: 5180 – 5240, 5260 – 5320, 5500 – 5700, 5745 – 5825 MHz (SISO, 20 and 40 MHz channel bandwidths)

Location of transmit antenna(s):



Bluetooth and
802.11abgn
combination
antenna

PRODUCT DESCRIPTION



2014-12-10

Testing Locations and Separation Distance:

Technology	EUT Orientation					
	Front	Back	Left	Right	Top	Bottom
802.11bgn DSSS	0 mm	0 mm	0 mm	0 mm	0 mm	0 mm
802.11bgn OFDM	Reduced ¹	Reduced ¹	Reduced ¹	Reduced ¹	Reduced ¹	Reduced ¹
802.11an OFDM	0 mm	0 mm	0 mm	0 mm	0 mm	0 mm
Bluetooth BDR/EDR/LE	0 mm	0 mm	0 mm	0 mm	0 mm	0 mm

1: Per KDB 248227 D01 5.2.2, when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS maximum output power and the SAR ≤ 1.2 W/kg, SAR is not required for those 2.4 GHz OFDM conditions. Specified OFDM and DSSS maximum output powers are identical, ratio is 1. All reported DSSS SAR values are ≤ 1.2 W/kg therefore all these orientations can be reduced.

Simultaneous Transmission:

The EUT does not have simultaneous transmission capability.

Testing Objective:

To demonstrate compliance of the 802.11abgn radio and the Bluetooth BDR/EDR radio with the SAR requirements of RSS-102, Issue 5:2015.

CONFIGURATIONS



Configuration MASI0643- 1

Software/Firmware Running during test	
Description	Version
Processor	V 0.0.1.0 INT

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Radius VSM	Masimo Corporation	27740	20004700021

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
HP Laptop Power Adapter	HP	PPP009H	F12921029065683
Host Laptop	Hewlett-Packard	ProBook	CND638CWSR
AC/DC Adapter	Samsung	None	None
Control Board	Masimo Corporation	EQ-15114	028230

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Cable (Laptop)	No	1.8m	No	AC Mains	HP Laptop Power Adapter
DC Cable (Laptop)	No	1.0m	No	HP Laptop Power Adapter	Host Laptop
DC Cable (USB)	Yes	0.5m	No	Host Laptop	Control Board
USB Cable	Yes	3.0m	No	Control Board	Radius VSM

Configuration MASI0643- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Radius VSM	Masimo Corporation	27740	RV00000006

Configuration MASI0643- 3

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Radius VSM	Masimo Corporation	27740	RV00000033

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2020-06-10	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2020-10-20	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

The measured values must be within $\pm 10\%$ of the target values provided SAR error compensation algorithms documented in IEC 62209-2:2010+A1:2019 Annex F.2 and IEC 62209-1:2016 section 7.2.7.2 are implemented for upward correction purposes only. The temperature variation in the liquid during SAR measurements must be within ± 2 °C of that recorded when the dielectric properties were measured.

The dielectric parameters of the tissue-equivalent liquids were measured 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 tolerances.

Target values of dielectric parameters

Tables I.1, I.2, and I.3 of IEC 62209-1 contains the dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528. They are summarized 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 P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in P1528.

Linear interpolation is used for determining target dielectric parameters for values between those listed.

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 $\rho = 1000 \text{ kg/m}^3$)

TISSUE – EQUIVALENT LIQUID DESCRIPTION



Composition of Ingredients for Liquid Tissue Phantoms

Element uses broadband tissue equivalent liquids prepared by SPEAG and confirmed by Element to be within +/- 10% of target values. SAR error compensation algorithms documented in IEEE Std 1528-2013 are implemented for upward correction purposes only.

By percent weight, the approximate compositions of the broadband tissue are listed below. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation:

Material	Percent Weight
Ethanediol	1.0 - 4.9%
Sodium Petroleum Sulfonate	<2.9%
Hexylene Glycol	<2.9%
Alkoxyated Alcohol	<2.0%
Mineral Oils	<20%
Deionized Water	Fill to volume

The exact liquid recipes are proprietary to the tissue equivalent liquid manufacturer.

SAR Correction Formula for Deviation from Target Dielectric Values

A correction formula is automatically applied by the measurement software to SAR data to account for the deviation from the target dielectric values. The correction formula only scales measured values upward. The SAR system manufacturer has been contacted and has verified Element's implementation and understanding of the SAR correction formula. The correction is calculated following IEC 62209-2:2010+A1:2019 Annex F.2 and IEC 62209-1:2016 section 7.2.7.2. Where SAR correction is considered, there will be a note stating "SAR corrected for target medium." The equation is as follows:

$$\Delta SAR = c_{\epsilon} \Delta \epsilon_r + c_{\sigma} \Delta \sigma$$

Where the values for, $\Delta \epsilon_r$ and $\Delta \sigma$ and are the percent the permittivity and conductivity respectively are away from ideal values and where ΔSAR is the percent the measured SAR value is corrected.

When 1 g peak spatial-average SAR measurements are taken:

$$c_{\epsilon} = -7.854 \times 10^{-4} f^3 + 9.402 \times 10^{-3} f^2 - 2.742 \times 10^{-2} f - 0.2026$$

$$c_{\sigma} = 9.804 \times 10^{-3} f^3 - 8.661 \times 10^{-2} f^2 + 2.981 \times 10^{-2} f + 0.7829$$

Where f is the frequency in GHz.

When 10 g peak spatial-average SAR measurements are taken:

$$c_{\epsilon} = 3.456 \times 10^{-3} f^3 - 3.531 \times 10^{-2} f^2 + 7.675 \times 10^{-2} f - 0.1860$$

$$c_{\sigma} = 4.479 \times 10^{-3} f^3 - 1.586 \times 10^{-2} f^2 - 0.1972 f + 0.7717$$

Where f is the frequency in GHz.



TISSUE – EQUIVALENT LIQUID

Date:	9/17/2020	Temperature:	21°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	21.3°C
Tested By:	Marcelo Aguayo	Relative Humidity:	48%
Job Site:	MN11	Bar. Pressure:	1014 mb

TEST SPECIFICATIONS	
Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS						
Frequency(MHz)	Actual Values		Target Values		Deviation (%)	
	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
2450	39.57	1.82	39.20	1.80	0.94	1.11

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	44.27	0.77
450	43.93	0.78
500	43.62	0.80
550	43.42	0.82
600	43.24	0.83
650	43.08	0.85
700	42.92	0.86
750	42.75	0.88
800	42.58	0.90
850	42.41	0.92
900	42.29	0.94
950	42.18	0.95
1000	42.05	0.97
1050	41.95	1.00
1100	41.85	1.02
1150	41.73	1.04
1200	41.64	1.06
1250	41.50	1.09
1300	41.45	1.11
1350	41.35	1.13
1400	41.27	1.16
1450	41.17	1.19
1500	41.09	1.21
1550	40.97	1.24
1600	40.87	1.27
1650	40.81	1.29
1700	40.70	1.32
1750	40.64	1.35
1800	40.57	1.38
1850	40.47	1.41
1900	40.43	1.44
1950	40.35	1.46
2000	40.24	1.49
2050	40.16	1.53
2100	40.14	1.56
2150	40.04	1.60
2200	40.00	1.63
2250	39.93	1.67

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	39.85	1.70
2350	39.76	1.74
2400	39.67	1.78
2450	39.57	1.82
2500	39.51	1.86
2550	39.46	1.90
2600	39.33	1.94
2650	39.24	1.98
2700	39.17	2.02
2750	39.03	2.05
2800	38.95	2.10
2850	38.84	2.14
2900	38.75	2.19
2950	38.67	2.23
3000	38.59	2.26
3050	38.44	2.31
3100	38.36	2.36
3150	38.27	2.40
3200	38.17	2.44
3250	38.10	2.48
3300	38.00	2.53
3350	37.90	2.56
3400	37.79	2.62
3450	37.73	2.65
3500	37.62	2.70
3550	37.56	2.74
3600	37.48	2.78
3650	37.38	2.83
3700	37.28	2.87
3750	37.20	2.92
3800	37.16	2.97
3850	37.07	3.02
3900	37.03	3.06
3950	36.91	3.10
4000	36.85	3.15
4050	36.75	3.21
4100	36.70	3.26
4150	36.64	3.30

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	36.52	3.35
4250	36.43	3.41
4300	36.34	3.47
4350	36.28	3.52
4400	36.19	3.57
4450	36.13	3.61
4500	36.04	3.66
4550	35.95	3.71
4600	35.84	3.77
4650	35.74	3.82
4700	35.67	3.87
4750	35.57	3.93
4800	35.49	3.98
4850	35.32	3.94
4900	35.25	4.02
4950	35.20	4.07
5000	35.05	4.18
5050	35.12	4.25
5100	35.09	4.29
5150	34.98	4.33
5200	34.71	4.39
5250	34.63	4.49
5300	34.44	4.55
5350	34.66	4.65
5400	34.55	4.73
5450	34.46	4.71
5500	34.45	4.74
5550	34.30	4.76
5600	34.18	4.81
5650	34.04	4.91
5700	33.84	5.05
5750	33.99	5.05
5800	33.86	5.02
5850	33.89	5.05
5900	33.58	5.07
5950	33.46	5.14
6000	33.32	5.22



TISSUE – EQUIVALENT LIQUID

Date:	9/22/2020	Temperature:	20.3°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	20.0°C
Tested By:	Marcelo Aguayo	Relative Humidity:	59%
Job Site:	MN11	Bar. Pressure:	1014 mb

TEST SPECIFICATIONS	
Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS						
Actual Values			Target Values		Deviation (%)	
Frequency(MHz)	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
2450	40.82	1.81	39.20	1.80	4.13	0.56

Freq (MHz)	Relative Perm.	Cond. (S/m)	Freq (MHz)	Relative Perm.	Cond. (S/m)	Freq (MHz)	Relative Perm.	Cond. (S/m)
400	44.86	0.75	2300	41.09	1.69	4200	37.40	3.39
450	44.56	0.77	2350	41.01	1.73	4250	37.30	3.44
500	44.27	0.78	2400	40.92	1.77	4300	37.21	3.49
550	43.99	0.79	2450	40.82	1.81	4350	37.12	3.54
600	43.72	0.81	2500	40.73	1.85	4400	37.03	3.58
650	43.48	0.82	2550	40.62	1.89	4450	36.94	3.62
700	43.26	0.83	2600	40.49	1.93	4500	36.85	3.66
750	43.07	0.85	2650	40.36	1.97	4550	36.77	3.71
800	42.92	0.86	2700	40.22	2.01	4600	36.69	3.76
850	42.80	0.88	2750	40.08	2.05	4650	36.60	3.81
900	42.71	0.90	2800	39.95	2.10	4700	36.50	3.86
950	42.64	0.92	2850	39.82	2.14	4750	36.41	3.91
1000	42.57	0.94	2900	39.71	2.18	4800	36.31	3.97
1050	42.50	0.96	2950	39.60	2.23	4850	36.23	4.02
1100	42.43	0.98	3000	39.51	2.27	4900	36.15	4.08
1150	42.36	1.01	3050	39.41	2.32	4950	36.08	4.13
1200	42.28	1.03	3100	39.32	2.36	5000	36.04	4.18
1250	42.21	1.06	3150	39.21	2.41	5050	35.98	4.23
1300	42.15	1.09	3200	39.10	2.45	5100	35.91	4.28
1350	42.10	1.12	3250	38.99	2.50	5150	35.83	4.35
1400	42.05	1.15	3300	38.87	2.54	5200	35.74	4.42
1450	42.00	1.17	3350	38.77	2.59	5250	35.65	4.51
1500	41.95	1.20	3400	38.68	2.63	5300	35.57	4.59
1550	41.88	1.22	3450	38.59	2.68	5350	35.50	4.66
1600	41.81	1.25	3500	38.51	2.72	5400	35.44	4.71
1650	41.74	1.27	3550	38.43	2.77	5450	35.40	4.75
1700	41.67	1.30	3600	38.36	2.82	5500	35.37	4.78
1750	41.61	1.33	3650	38.29	2.86	5550	35.35	4.82
1800	41.57	1.35	3700	38.21	2.91	5600	35.29	4.86
1850	41.53	1.38	3750	38.12	2.96	5650	35.21	4.92
1900	41.50	1.41	3800	38.03	3.00	5700	35.08	4.98
1950	41.48	1.44	3850	37.94	3.05	5750	34.95	5.04
2000	41.45	1.47	3900	37.86	3.09	5800	34.80	5.08
2050	41.42	1.51	3950	37.79	3.14	5850	34.66	5.12
2100	41.38	1.54	4000	37.72	3.18	5900	34.50	5.16
2150	41.32	1.57	4050	37.65	3.23	5950	34.36	5.19
2200	41.25	1.61	4100	37.57	3.28	6000	34.21	5.22
2250	41.18	1.65	4150	37.49	3.33			



TISSUE – EQUIVALENT LIQUID

Date:	10/08/2020	Temperature:	21.1°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	20.8°C
Tested By:	Marcelo Aguayo	Relative Humidity:	44%
Job Site:	MN11	Bar. Pressure:	1014 mb

TEST SPECIFICATIONS

Specification:	Method:
Health Safety Code 6:2015	FCC KDB 248227 D01 v02r02
RSS-102, Issue 5:2015	FCC KDB 447498 D01 v06
	EN 62209-2:2010+A1:2019

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency(MHz)	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
5200	35.52	4.45	35.99	4.66	-1.31	-4.51

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	44.42	0.76
450	44.19	0.77
500	43.97	0.79
550	43.75	0.80
600	43.55	0.82
650	43.36	0.83
700	43.18	0.85
750	43.02	0.87
800	42.87	0.88
850	42.74	0.90
900	42.63	0.92
950	42.52	0.94
1000	42.43	0.96
1050	42.33	0.98
1100	42.23	1.00
1150	42.13	1.02
1200	42.04	1.04
1250	41.94	1.07
1300	41.85	1.09
1350	41.77	1.12
1400	41.68	1.14
1450	41.60	1.16
1500	41.51	1.19
1550	41.43	1.22
1600	41.34	1.24
1650	41.26	1.27
1700	41.19	1.30
1750	41.12	1.33
1800	41.05	1.35
1850	40.97	1.38
1900	40.90	1.41
1950	40.83	1.44
2000	40.76	1.47
2050	40.70	1.51
2100	40.63	1.54
2150	40.57	1.57
2200	40.51	1.61
2250	40.45	1.64

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	40.37	1.68
2350	40.30	1.71
2400	40.23	1.75
2450	40.15	1.79
2500	40.07	1.83
2550	39.99	1.87
2600	39.91	1.91
2650	39.83	1.95
2700	39.74	1.99
2750	39.66	2.03
2800	39.57	2.07
2850	39.48	2.12
2900	39.39	2.16
2950	39.29	2.20
3000	39.20	2.24
3050	39.11	2.29
3100	39.02	2.33
3150	38.94	2.37
3200	38.85	2.41
3250	38.76	2.46
3300	38.68	2.50
3350	38.60	2.54
3400	38.51	2.59
3450	38.43	2.63
3500	38.35	2.67
3550	38.27	2.72
3600	38.20	2.76
3650	38.12	2.81
3700	38.05	2.86
3750	37.97	2.90
3800	37.90	2.95
3850	37.82	3.00
3900	37.75	3.04
3950	37.68	3.09
4000	37.61	3.14
4050	37.53	3.19
4100	37.45	3.24
4150	37.38	3.29

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	37.31	3.34
4250	37.23	3.40
4300	37.15	3.45
4350	37.07	3.51
4400	36.98	3.56
4450	36.89	3.61
4500	36.79	3.66
4550	36.70	3.71
4600	36.61	3.77
4650	36.52	3.82
4700	36.42	3.86
4750	36.32	3.91
4800	36.22	3.96
4850	36.12	4.01
4900	36.02	4.07
4950	35.92	4.13
5000	35.84	4.20
5050	35.76	4.26
5100	35.69	4.32
5150	35.60	4.38
5200	35.52	4.45
5250	35.45	4.52
5300	35.38	4.59
5350	35.31	4.65
5400	35.23	4.71
5450	35.17	4.76
5500	35.09	4.81
5550	35.02	4.86
5600	34.93	4.91
5650	34.83	4.96
5700	34.71	5.01
5750	34.60	5.06
5800	34.48	5.11
5850	34.35	5.16
5900	34.21	5.20
5950	34.06	5.26
6000	33.90	5.32



TISSUE – EQUIVALENT LIQUID

Date:	10/09/2020	Temperature:	21.1°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	20.8°C
Tested By:	Marcelo Aguayo	Relative Humidity:	39%
Job Site:	MN11	Bar. Pressure:	1016 mb

TEST SPECIFICATIONS	
Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS						
Frequency(MHz)	Actual Values		Target Values		Deviation (%)	
	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
5200	35.37	4.44	35.99	4.66	-1.72	-4.72

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	44.24	0.76
450	44.03	0.78
500	43.81	0.79
550	43.60	0.81
600	43.41	0.82
650	43.22	0.84
700	43.05	0.85
750	42.89	0.87
800	42.74	0.89
850	42.61	0.91
900	42.50	0.92
950	42.39	0.94
1000	42.30	0.96
1050	42.20	0.98
1100	42.10	1.00
1150	42.00	1.03
1200	41.90	1.05
1250	41.80	1.07
1300	41.71	1.10
1350	41.62	1.12
1400	41.53	1.14
1450	41.44	1.17
1500	41.35	1.19
1550	41.26	1.22
1600	41.18	1.25
1650	41.10	1.27
1700	41.03	1.30
1750	40.96	1.33
1800	40.90	1.36
1850	40.83	1.39
1900	40.76	1.42
1950	40.70	1.45
2000	40.63	1.48
2050	40.57	1.51
2100	40.51	1.54
2150	40.45	1.58
2200	40.39	1.61
2250	40.32	1.64

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	40.25	1.68
2350	40.18	1.72
2400	40.10	1.75
2450	40.02	1.79
2500	39.94	1.83
2550	39.86	1.87
2600	39.78	1.91
2650	39.70	1.95
2700	39.62	1.99
2750	39.53	2.03
2800	39.44	2.07
2850	39.36	2.12
2900	39.26	2.16
2950	39.17	2.20
3000	39.08	2.24
3050	38.99	2.29
3100	38.90	2.33
3150	38.81	2.37
3200	38.72	2.41
3250	38.64	2.46
3300	38.55	2.50
3350	38.47	2.54
3400	38.39	2.59
3450	38.31	2.63
3500	38.23	2.67
3550	38.15	2.72
3600	38.07	2.76
3650	38.00	2.81
3700	37.93	2.86
3750	37.85	2.90
3800	37.78	2.95
3850	37.71	3.00
3900	37.63	3.04
3950	37.56	3.09
4000	37.49	3.14
4050	37.42	3.19
4100	37.34	3.24
4150	37.26	3.29

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	37.19	3.34
4250	37.12	3.40
4300	37.05	3.45
4350	36.97	3.50
4400	36.88	3.55
4450	36.78	3.61
4500	36.68	3.66
4550	36.58	3.71
4600	36.49	3.77
4650	36.39	3.81
4700	36.29	3.86
4750	36.19	3.91
4800	36.09	3.96
4850	35.99	4.01
4900	35.89	4.07
4950	35.78	4.13
5000	35.69	4.19
5050	35.60	4.25
5100	35.53	4.31
5150	35.45	4.37
5200	35.37	4.44
5250	35.30	4.51
5300	35.23	4.58
5350	35.16	4.64
5400	35.09	4.70
5450	35.03	4.75
5500	34.95	4.80
5550	34.87	4.85
5600	34.76	4.90
5650	34.66	4.95
5700	34.55	5.00
5750	34.45	5.05
5800	34.33	5.10
5850	34.21	5.15
5900	34.07	5.20
5950	33.92	5.26
6000	33.76	5.32



TISSUE – EQUIVALENT LIQUID

Date:	10/12/2020	Temperature:	20.9°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	20.9°C
Tested By:	Marcelo Aguayo	Relative Humidity:	54%
Job Site:	MN11	Bar. Pressure:	1011mb

TEST SPECIFICATIONS	
Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS						
Frequency(MHz)	Actual Values		Target Values		Deviation (%)	
	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
5200	36.55	4.65	35.99	4.66	1.56	-0.21

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	46.01	0.76
450	45.75	0.78
500	45.50	0.79
550	45.25	0.81
600	45.02	0.82
650	44.81	0.84
700	44.61	0.86
750	44.43	0.87
800	44.27	0.89
850	44.13	0.91
900	44.01	0.93
950	43.90	0.95
1000	43.80	0.97
1050	43.70	0.99
1100	43.60	1.01
1150	43.50	1.03
1200	43.40	1.06
1250	43.30	1.08
1300	43.21	1.11
1350	43.12	1.13
1400	43.03	1.16
1450	42.94	1.18
1500	42.86	1.21
1550	42.77	1.24
1600	42.68	1.27
1650	42.60	1.29
1700	42.52	1.32
1750	42.45	1.35
1800	42.38	1.38
1850	42.31	1.41
1900	42.24	1.44
1950	42.17	1.48
2000	42.10	1.51
2050	42.03	1.54
2100	41.97	1.58
2150	41.90	1.61
2200	41.84	1.65
2250	41.77	1.69

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	41.69	1.72
2350	41.62	1.76
2400	41.54	1.80
2450	41.46	1.84
2500	41.38	1.88
2550	41.29	1.93
2600	41.20	1.97
2650	41.11	2.01
2700	41.02	2.05
2750	40.92	2.10
2800	40.83	2.14
2850	40.73	2.18
2900	40.63	2.23
2950	40.54	2.27
3000	40.44	2.32
3050	40.34	2.36
3100	40.24	2.41
3150	40.15	2.45
3200	40.05	2.50
3250	39.96	2.54
3300	39.87	2.59
3350	39.77	2.64
3400	39.69	2.68
3450	39.60	2.73
3500	39.51	2.77
3550	39.43	2.82
3600	39.35	2.87
3650	39.27	2.92
3700	39.19	2.97
3750	39.12	3.02
3800	39.04	3.07
3850	38.96	3.12
3900	38.89	3.17
3950	38.81	3.22
4000	38.73	3.27
4050	38.65	3.33
4100	38.57	3.38
4150	38.49	3.43

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	38.40	3.49
4250	38.32	3.54
4300	38.24	3.60
4350	38.15	3.66
4400	38.07	3.71
4450	37.97	3.77
4500	37.87	3.82
4550	37.78	3.88
4600	37.68	3.93
4650	37.58	3.99
4700	37.49	4.04
4750	37.39	4.09
4800	37.28	4.14
4850	37.17	4.20
4900	37.07	4.26
4950	36.97	4.32
5000	36.89	4.39
5050	36.80	4.45
5100	36.72	4.51
5150	36.64	4.58
5200	36.55	4.65
5250	36.47	4.72
5300	36.40	4.79
5350	36.33	4.86
5400	36.25	4.92
5450	36.19	4.98
5500	36.12	5.03
5550	36.06	5.08
5600	35.97	5.13
5650	35.87	5.18
5700	35.74	5.24
5750	35.62	5.29
5800	35.49	5.34
5850	35.36	5.38
5900	35.22	5.44
5950	35.06	5.49
6000	34.91	5.55



TISSUE – EQUIVALENT LIQUID

Date:	10/13/2020	Temperature:	21.2°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	21°C
Tested By:	Marcelo Aguayo	Relative Humidity:	41%
Job Site:	MN11	Bar. Pressure:	1015 mb

TEST SPECIFICATIONS	
Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS						
Frequency(MHz)	Actual Values		Target Values		Deviation (%)	
	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
2450	41.41	1.84	39.20	1.80	5.64	2.22
5200	36.49	4.63	35.99	4.66	1.39	-0.64

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	45.75	0.77
450	45.49	0.78
500	45.24	0.80
550	45.01	0.81
600	44.78	0.83
650	44.58	0.84
700	44.39	0.86
750	44.22	0.87
800	44.07	0.89
850	43.94	0.91
900	43.82	0.93
950	43.72	0.95
1000	43.63	0.97
1050	43.54	0.99
1100	43.45	1.01
1150	43.35	1.03
1200	43.25	1.06
1250	43.16	1.08
1300	43.07	1.11
1350	42.98	1.13
1400	42.90	1.16
1450	42.82	1.19
1500	42.73	1.21
1550	42.65	1.24
1600	42.57	1.27
1650	42.49	1.30
1700	42.42	1.32
1750	42.36	1.35
1800	42.29	1.38
1850	42.23	1.41
1900	42.16	1.44
1950	42.10	1.48
2000	42.04	1.51
2050	41.98	1.54
2100	41.91	1.57
2150	41.85	1.61
2200	41.79	1.65
2250	41.72	1.68

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	41.65	1.72
2350	41.57	1.76
2400	41.50	1.80
2450	41.41	1.84
2500	41.32	1.88
2550	41.23	1.92
2600	41.14	1.96
2650	41.05	2.01
2700	40.95	2.05
2750	40.85	2.09
2800	40.75	2.14
2850	40.66	2.18
2900	40.56	2.22
2950	40.46	2.27
3000	40.36	2.31
3050	40.26	2.36
3100	40.17	2.40
3150	40.07	2.45
3200	39.98	2.49
3250	39.89	2.54
3300	39.80	2.58
3350	39.71	2.63
3400	39.62	2.68
3450	39.54	2.72
3500	39.45	2.77
3550	39.38	2.82
3600	39.30	2.87
3650	39.23	2.91
3700	39.15	2.96
3750	39.08	3.01
3800	39.00	3.06
3850	38.93	3.11
3900	38.85	3.16
3950	38.78	3.21
4000	38.70	3.27
4050	38.62	3.32
4100	38.54	3.37
4150	38.45	3.42

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	38.37	3.48
4250	38.28	3.54
4300	38.21	3.59
4350	38.12	3.65
4400	38.03	3.70
4450	37.93	3.75
4500	37.82	3.81
4550	37.73	3.86
4600	37.63	3.92
4650	37.53	3.97
4700	37.43	4.02
4750	37.33	4.07
4800	37.22	4.12
4850	37.11	4.18
4900	37.01	4.24
4950	36.90	4.30
5000	36.82	4.37
5050	36.73	4.43
5100	36.65	4.49
5150	36.57	4.56
5200	36.49	4.63
5250	36.41	4.70
5300	36.33	4.78
5350	36.26	4.85
5400	36.19	4.91
5450	36.13	4.97
5500	36.06	5.02
5550	35.99	5.07
5600	35.89	5.13
5650	35.79	5.18
5700	35.67	5.23
5750	35.55	5.28
5800	35.42	5.33
5850	35.29	5.37
5900	35.14	5.42
5950	34.97	5.48
6000	34.81	5.53



TISSUE – EQUIVALENT LIQUID

Date:	10/14/2020	Temperature:	21.3°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	21°C
Tested By:	Marcelo Aguayo	Relative Humidity:	38%
Job Site:	MN11	Bar. Pressure:	1014 mb

TEST SPECIFICATIONS	
Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS						
Frequency(MHz)	Actual Values		Target Values		Deviation (%)	
	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
5500	35.89	5.00	35.64	4.96	0.70	0.81

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	45.61	0.77
450	45.35	0.78
500	45.10	0.80
550	44.86	0.81
600	44.64	0.83
650	44.43	0.84
700	44.24	0.86
750	44.06	0.88
800	43.91	0.89
850	43.78	0.91
900	43.66	0.93
950	43.56	0.95
1000	43.47	0.97
1050	43.38	0.99
1100	43.29	1.01
1150	43.19	1.04
1200	43.09	1.06
1250	43.00	1.09
1300	42.91	1.11
1350	42.82	1.14
1400	42.74	1.16
1450	42.66	1.19
1500	42.58	1.22
1550	42.49	1.24
1600	42.41	1.27
1650	42.34	1.30
1700	42.26	1.32
1750	42.19	1.35
1800	42.13	1.38
1850	42.06	1.41
1900	42.00	1.44
1950	41.93	1.47
2000	41.87	1.51
2050	41.81	1.54
2100	41.74	1.57
2150	41.68	1.61
2200	41.61	1.64
2250	41.55	1.68

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	41.47	1.72
2350	41.39	1.76
2400	41.32	1.80
2450	41.23	1.84
2500	41.14	1.88
2550	41.06	1.92
2600	40.96	1.96
2650	40.87	2.00
2700	40.77	2.04
2750	40.67	2.09
2800	40.57	2.13
2850	40.48	2.18
2900	40.38	2.22
2950	40.28	2.27
3000	40.18	2.31
3050	40.09	2.36
3100	39.99	2.40
3150	39.90	2.45
3200	39.80	2.49
3250	39.71	2.54
3300	39.63	2.58
3350	39.54	2.63
3400	39.46	2.68
3450	39.37	2.72
3500	39.29	2.77
3550	39.21	2.82
3600	39.13	2.86
3650	39.06	2.91
3700	38.99	2.96
3750	38.91	3.01
3800	38.84	3.06
3850	38.76	3.11
3900	38.69	3.16
3950	38.61	3.21
4000	38.53	3.26
4050	38.45	3.31
4100	38.37	3.36
4150	38.29	3.41

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	38.20	3.47
4250	38.11	3.52
4300	38.03	3.58
4350	37.95	3.63
4400	37.86	3.68
4450	37.76	3.74
4500	37.66	3.79
4550	37.56	3.85
4600	37.46	3.90
4650	37.36	3.95
4700	37.27	4.00
4750	37.17	4.05
4800	37.07	4.11
4850	36.96	4.16
4900	36.86	4.22
4950	36.76	4.29
5000	36.67	4.36
5050	36.59	4.42
5100	36.51	4.48
5150	36.43	4.55
5200	36.34	4.62
5250	36.27	4.69
5300	36.19	4.77
5350	36.11	4.84
5400	36.04	4.90
5450	35.97	4.95
5500	35.89	5.00
5550	35.82	5.06
5600	35.72	5.11
5650	35.62	5.17
5700	35.49	5.22
5750	35.37	5.27
5800	35.24	5.32
5850	35.12	5.37
5900	34.98	5.42
5950	34.82	5.47
6000	34.67	5.53



TISSUE – EQUIVALENT LIQUID

Date:	10/15/2020	Temperature:	20.2°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	20.7°C
Tested By:	Marcelo Aguayo	Relative Humidity:	35%
Job Site:	MN11	Bar. Pressure:	1017 mb

TEST SPECIFICATIONS	
Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS						
Frequency(MHz)	Actual Values		Target Values		Deviation (%)	
	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
5500	35.31	5.01	35.64	4.96	-0.93	1.01
5800	34.64	5.32	35.30	5.27	-1.87	0.95

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	45.03	0.76
450	44.81	0.78
500	44.59	0.79
550	44.38	0.81
600	44.17	0.82
650	43.98	0.84
700	43.81	0.85
750	43.65	0.87
800	43.51	0.89
850	43.38	0.90
900	43.27	0.92
950	43.17	0.94
1000	43.07	0.96
1050	42.98	0.99
1100	42.88	1.01
1150	42.77	1.03
1200	42.67	1.06
1250	42.57	1.08
1300	42.48	1.10
1350	42.39	1.13
1400	42.30	1.15
1450	42.22	1.18
1500	42.13	1.21
1550	42.04	1.23
1600	41.95	1.26
1650	41.87	1.29
1700	41.79	1.32
1750	41.72	1.35
1800	41.66	1.38
1850	41.59	1.41
1900	41.52	1.44
1950	41.46	1.47
2000	41.39	1.50
2050	41.33	1.54
2100	41.27	1.57
2150	41.21	1.61
2200	41.15	1.64
2250	41.09	1.68

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	41.01	1.72
2350	40.94	1.75
2400	40.86	1.79
2450	40.78	1.83
2500	40.70	1.87
2550	40.61	1.91
2600	40.52	1.96
2650	40.43	2.00
2700	40.34	2.04
2750	40.24	2.08
2800	40.15	2.13
2850	40.06	2.17
2900	39.96	2.22
2950	39.87	2.26
3000	39.77	2.31
3050	39.68	2.35
3100	39.58	2.40
3150	39.49	2.44
3200	39.40	2.49
3250	39.31	2.53
3300	39.22	2.58
3350	39.14	2.63
3400	39.05	2.67
3450	38.97	2.72
3500	38.89	2.77
3550	38.81	2.81
3600	38.73	2.86
3650	38.66	2.91
3700	38.59	2.96
3750	38.52	3.01
3800	38.44	3.06
3850	38.37	3.11
3900	38.29	3.16
3950	38.22	3.21
4000	38.14	3.26
4050	38.06	3.31
4100	37.97	3.36
4150	37.89	3.41

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	37.81	3.47
4250	37.73	3.53
4300	37.65	3.58
4350	37.57	3.63
4400	37.48	3.68
4450	37.37	3.74
4500	37.26	3.79
4550	37.15	3.84
4600	37.03	3.90
4650	36.92	3.95
4700	36.81	4.00
4750	36.70	4.05
4800	36.58	4.10
4850	36.47	4.16
4900	36.35	4.22
4950	36.23	4.28
5000	36.14	4.35
5050	36.04	4.41
5100	35.95	4.48
5150	35.86	4.54
5200	35.78	4.62
5250	35.70	4.69
5300	35.62	4.77
5350	35.54	4.84
5400	35.47	4.90
5450	35.39	4.96
5500	35.31	5.01
5550	35.22	5.06
5600	35.11	5.11
5650	35.00	5.17
5700	34.88	5.22
5750	34.76	5.27
5800	34.64	5.32
5850	34.52	5.36
5900	34.37	5.41
5950	34.21	5.47
6000	34.04	5.52



TISSUE – EQUIVALENT LIQUID

Date:	10/16/2020	Temperature:	20.6°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	20.6°C
Tested By:	Marcelo Aguayo	Relative Humidity:	32%
Job Site:	MN11	Bar. Pressure:	1018 mb

TEST SPECIFICATIONS

Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS

Frequency(MHz)	Actual Values		Target Values		Deviation (%)	
	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
5800	34.27	5.27	35.30	5.27	-2.92	0.00

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	44.82	0.76
450	44.59	0.77
500	44.35	0.78
550	44.13	0.80
600	43.92	0.81
650	43.73	0.83
700	43.55	0.84
750	43.39	0.86
800	43.24	0.88
850	43.11	0.90
900	43.00	0.92
950	42.90	0.94
1000	42.80	0.96
1050	42.71	0.98
1100	42.61	1.00
1150	42.51	1.02
1200	42.41	1.05
1250	42.31	1.07
1300	42.21	1.10
1350	42.12	1.12
1400	42.03	1.15
1450	41.94	1.17
1500	41.85	1.20
1550	41.76	1.23
1600	41.68	1.25
1650	41.60	1.28
1700	41.52	1.31
1750	41.45	1.34
1800	41.38	1.37
1850	41.31	1.40
1900	41.25	1.43
1950	41.19	1.46
2000	41.12	1.49
2050	41.06	1.53
2100	41.00	1.56
2150	40.94	1.60
2200	40.88	1.63
2250	40.81	1.67

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	40.73	1.71
2350	40.66	1.74
2400	40.58	1.78
2450	40.49	1.82
2500	40.41	1.86
2550	40.32	1.90
2600	40.22	1.95
2650	40.13	1.99
2700	40.03	2.03
2750	39.94	2.08
2800	39.84	2.12
2850	39.75	2.16
2900	39.65	2.21
2950	39.55	2.25
3000	39.46	2.30
3050	39.36	2.34
3100	39.27	2.39
3150	39.18	2.44
3200	39.08	2.48
3250	38.99	2.53
3300	38.90	2.58
3350	38.81	2.62
3400	38.73	2.67
3450	38.64	2.72
3500	38.56	2.76
3550	38.48	2.81
3600	38.40	2.86
3650	38.33	2.91
3700	38.26	2.96
3750	38.18	3.01
3800	38.11	3.06
3850	38.04	3.10
3900	37.96	3.15
3950	37.89	3.20
4000	37.81	3.25
4050	37.73	3.30
4100	37.64	3.35
4150	37.56	3.40

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	37.48	3.46
4250	37.40	3.51
4300	37.32	3.57
4350	37.24	3.62
4400	37.15	3.67
4450	37.04	3.72
4500	36.93	3.77
4550	36.82	3.82
4600	36.71	3.87
4650	36.60	3.93
4700	36.50	3.98
4750	36.39	4.03
4800	36.28	4.08
4850	36.17	4.13
4900	36.05	4.19
4950	35.93	4.25
5000	35.83	4.31
5050	35.72	4.37
5100	35.63	4.44
5150	35.54	4.51
5200	35.45	4.58
5250	35.36	4.65
5300	35.28	4.73
5350	35.20	4.79
5400	35.12	4.85
5450	35.04	4.91
5500	34.95	4.96
5550	34.86	5.01
5600	34.74	5.06
5650	34.64	5.12
5700	34.51	5.17
5750	34.39	5.22
5800	34.27	5.27
5850	34.15	5.32
5900	34.01	5.37
5950	33.85	5.42
6000	33.68	5.48



TISSUE – EQUIVALENT LIQUID

Date:	10/20/2020	Temperature:	20°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	20°C
Tested By:	Marcelo Aguayo	Relative Humidity:	36%
Job Site:	MN11	Bar. Pressure:	1015 mb

TEST SPECIFICATIONS

Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS

	Actual Values		Target Values		Deviation (%)	
Frequency(MHz)	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
5200	36.48	4.67	35.99	4.66	1.36	0.21

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	46.22	0.75
450	45.95	0.76
500	45.69	0.78
550	45.44	0.79
600	45.21	0.81
650	44.98	0.82
700	44.78	0.84
750	44.59	0.86
800	44.42	0.88
850	44.27	0.90
900	44.13	0.92
950	44.01	0.94
1000	43.89	0.96
1050	43.78	0.98
1100	43.68	1.00
1150	43.58	1.02
1200	43.49	1.04
1250	43.40	1.07
1300	43.32	1.09
1350	43.24	1.12
1400	43.17	1.15
1450	43.09	1.17
1500	43.00	1.20
1550	42.91	1.23
1600	42.82	1.25
1650	42.73	1.28
1700	42.63	1.31
1750	42.54	1.34
1800	42.45	1.37
1850	42.36	1.40
1900	42.27	1.43
1950	42.18	1.47
2000	42.09	1.50
2050	42.02	1.53
2100	41.94	1.57
2150	41.87	1.61
2200	41.80	1.64
2250	41.74	1.68

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	41.67	1.72
2350	41.61	1.76
2400	41.54	1.80
2450	41.46	1.85
2500	41.38	1.89
2550	41.30	1.93
2600	41.20	1.97
2650	41.10	2.02
2700	41.00	2.06
2750	40.90	2.10
2800	40.80	2.15
2850	40.70	2.19
2900	40.60	2.24
2950	40.50	2.28
3000	40.40	2.33
3050	40.30	2.37
3100	40.20	2.42
3150	40.09	2.46
3200	39.99	2.51
3250	39.89	2.56
3300	39.80	2.60
3350	39.70	2.65
3400	39.61	2.70
3450	39.51	2.74
3500	39.42	2.79
3550	39.33	2.84
3600	39.25	2.89
3650	39.16	2.94
3700	39.08	2.98
3750	39.00	3.03
3800	38.91	3.08
3850	38.83	3.14
3900	38.75	3.19
3950	38.67	3.24
4000	38.59	3.30
4050	38.51	3.35
4100	38.42	3.40
4150	38.34	3.46

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	38.25	3.52
4250	38.16	3.57
4300	38.07	3.63
4350	37.98	3.69
4400	37.88	3.74
4450	37.78	3.79
4500	37.68	3.85
4550	37.59	3.90
4600	37.50	3.96
4650	37.41	4.01
4700	37.31	4.06
4750	37.22	4.10
4800	37.12	4.16
4850	37.02	4.22
4900	36.94	4.28
4950	36.86	4.34
5000	36.79	4.41
5050	36.72	4.47
5100	36.65	4.53
5150	36.57	4.60
5200	36.48	4.67
5250	36.40	4.74
5300	36.31	4.82
5350	36.23	4.89
5400	36.15	4.95
5450	36.08	5.01
5500	36.02	5.05
5550	35.95	5.11
5600	35.86	5.16
5650	35.77	5.22
5700	35.64	5.28
5750	35.51	5.33
5800	35.38	5.38
5850	35.25	5.42
5900	35.11	5.48
5950	34.97	5.53
6000	34.83	5.59



TISSUE – EQUIVALENT LIQUID

Date:	10/21/2020	Temperature:	22°C
Tissue:	HBBL600-10000V6	Liquid Temperature:	22.1°C
Tested By:	Marcelo Aguayo	Relative Humidity:	40%
Job Site:	MN11	Bar. Pressure:	1012 mb

TEST SPECIFICATIONS	
Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS						
Frequency(MHz)	Actual Values		Target Values		Deviation (%)	
	Relative Perm.	Conductivity	Relative Perm.	Frequency(MHz)	Relative Perm.	Conductivity
5200	36.67	4.47	35.99	4.66	1.89	-4.08
5500	36.28	4.83	35.64	4.96	1.80	-2.62
5800	35.67	5.15	35.30	5.27	1.05	-2.28

Freq (MHz)	Relative Perm.	Cond. (S/m)
400	45.85	0.79
450	45.57	0.81
500	45.30	0.82
550	45.04	0.84
600	44.80	0.86
650	44.57	0.87
700	44.35	0.89
750	44.14	0.91
800	43.95	0.93
850	43.78	0.94
900	43.63	0.96
950	43.50	0.98
1000	43.37	1.00
1050	43.25	1.02
1100	43.14	1.04
1150	43.05	1.06
1200	42.95	1.08
1250	42.87	1.10
1300	42.79	1.12
1350	42.73	1.15
1400	42.66	1.17
1450	42.59	1.19
1500	42.51	1.22
1550	42.43	1.24
1600	42.34	1.27
1650	42.25	1.29
1700	42.15	1.32
1750	42.06	1.35
1800	41.96	1.38
1850	41.86	1.41
1900	41.76	1.44
1950	41.66	1.47
2000	41.57	1.50
2050	41.49	1.53
2100	41.41	1.56
2150	41.34	1.60
2200	41.27	1.63
2250	41.21	1.67

Freq (MHz)	Relative Perm.	Cond. (S/m)
2300	41.15	1.70
2350	41.09	1.74
2400	41.04	1.78
2450	40.98	1.82
2500	40.91	1.86
2550	40.84	1.90
2600	40.76	1.94
2650	40.68	1.98
2700	40.59	2.02
2750	40.50	2.07
2800	40.42	2.11
2850	40.33	2.15
2900	40.24	2.19
2950	40.16	2.24
3000	40.07	2.28
3050	39.97	2.32
3100	39.88	2.36
3150	39.78	2.41
3200	39.69	2.45
3250	39.59	2.49
3300	39.50	2.53
3350	39.41	2.58
3400	39.32	2.62
3450	39.23	2.66
3500	39.15	2.71
3550	39.06	2.75
3600	38.98	2.79
3650	38.90	2.84
3700	38.81	2.88
3750	38.73	2.93
3800	38.65	2.97
3850	38.58	3.02
3900	38.50	3.07
3950	38.43	3.12
4000	38.36	3.17
4050	38.29	3.22
4100	38.22	3.27
4150	38.14	3.33

Freq (MHz)	Relative Perm.	Cond. (S/m)
4200	38.06	3.38
4250	37.98	3.43
4300	37.89	3.49
4350	37.81	3.54
4400	37.73	3.59
4450	37.65	3.65
4500	37.57	3.70
4550	37.49	3.75
4600	37.43	3.80
4650	37.35	3.85
4700	37.28	3.90
4750	37.20	3.94
4800	37.12	4.00
4850	37.05	4.05
4900	36.99	4.11
4950	36.94	4.18
5000	36.90	4.24
5050	36.86	4.29
5100	36.81	4.34
5150	36.74	4.41
5200	36.67	4.47
5250	36.59	4.54
5300	36.51	4.61
5350	36.44	4.68
5400	36.37	4.74
5450	36.33	4.79
5500	36.28	4.83
5550	36.24	4.88
5600	36.16	4.94
5650	36.07	5.00
5700	35.95	5.05
5750	35.81	5.10
5800	35.67	5.15
5850	35.52	5.19
5900	35.37	5.24
5950	35.22	5.29
6000	35.08	5.35

SAR SYSTEM VERIFICATION DESCRIPTION

REQUIREMENT

Per IEC 62209-2, Section 6.1.2, “A system check according to the procedures of Annex B shall be completed before performing SAR measurements for a DUT.” The purpose of the system check is to verify that the system operates within its specifications. The system check is a test of repeatability to ensure that the system works correctly during the compliance test.

The system check is a complete 1 g or 10 g average SAR measurement. The measured 1 g or 10 g average SAR value is normalized to the target input power of the standard source and compared with the previously recorded target 1 g or 10 g value corresponding to the measurement frequency, the standard source and specific flat phantom. The acceptable tolerance must be determined for each system check and shall be within $\pm 10\%$ of previously recorded system check target values. The system check shall be performed at a frequency that is within $\pm 10\%$ of the DUT mid-band frequency.”

TEST DESCRIPTION

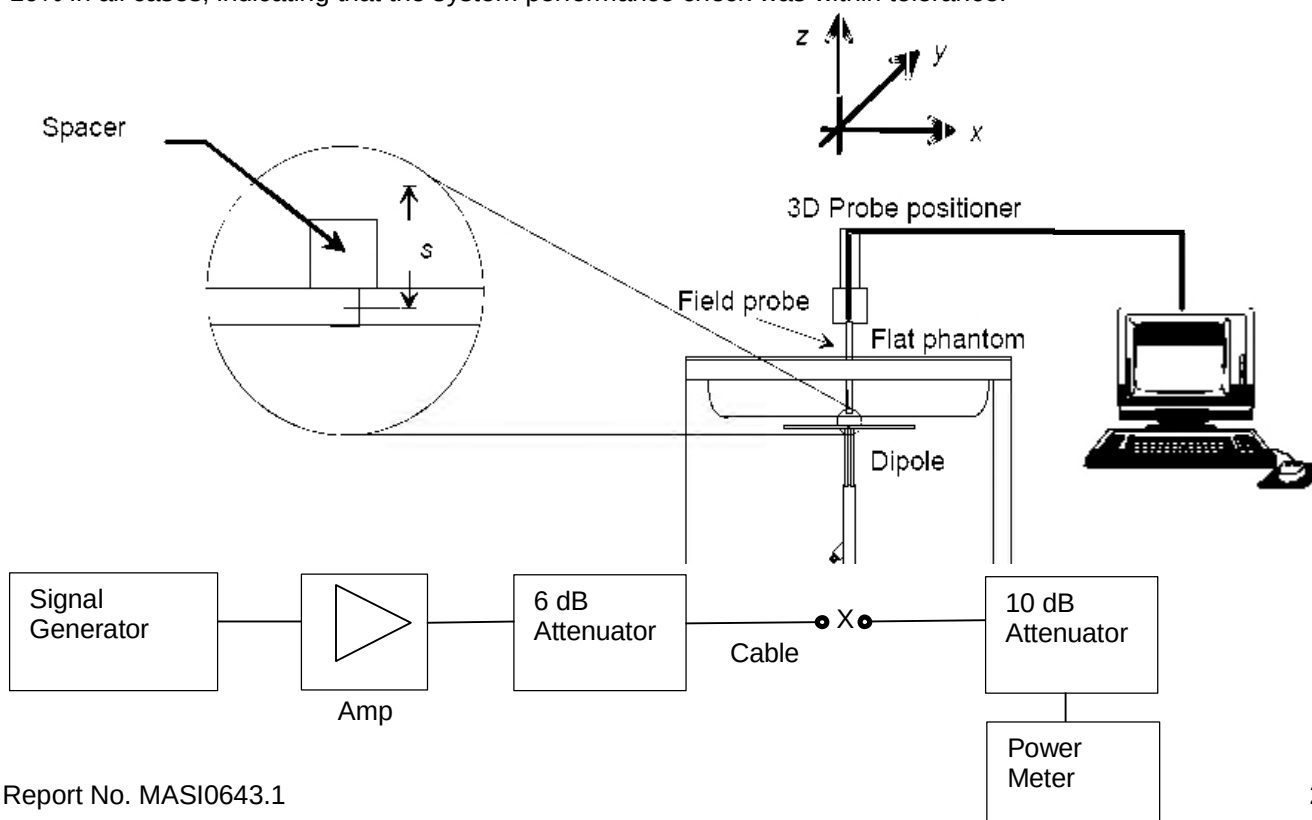
Within 24 hours of a measurement, then every 72 hours thereafter, Element used the system validation kit (calibrated reference dipole) to test whether the system was operating within its specifications. The validation was performed in the indicated bands by making SAR measurements of the reference dipole 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:

$s = 15\text{mm}$, $\pm 0.2\text{mm}$ for $300\text{MHz} \leq f \leq 1000\text{MHz}$

$s = 10\text{mm}$, $\pm 0.2\text{mm}$ for $1000\text{MHz} \leq f \leq 6000\text{MHz}$

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



TEST SPECIFICATIONS

Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

RESULTS – HBBL600-10000V6

Date	Room Temp (°C)	Liquid Temp (°C)	Freq. (MHz)	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
9/17/20	21.0	21.3	2450	20.00	10.00	5.35	2.48	53.5	24.8	52.3	24.5	2.29	1.22
9/22/20	20.3	20.0	2450	20.00	10.00	5.24	2.42	52.4	24.2	52.3	24.5	0.19	-1.22
10/8/20	21.1	20.8	5200	20.00	10.00	8.02	2.31	80.2	23.1	80.4	22.7	-0.25	1.76
			5500	20.00	10.00	8.53	2.41	85.3	24.1	86.4	24.3	-1.27	-0.82
10/12/20	20.9	20.9	2450	20.00	10.00	5.33	2.50	53.3	25.0	52.3	24.5	1.91	2.04
			5200	20.00	10.00	7.76	2.25	77.6	22.5	80.4	22.7	-3.48	-0.88
			5500	20.00	10.00	8.41	2.40	84.1	24.0	86.4	24.3	-2.66	-1.23
			5800	20.00	10.00	8.20	2.33	82.0	23.3	81.0	22.7	1.23	2.64
10/15/20	20.2	20.7	5500	20.00	10.00	8.65	2.47	86.5	24.7	86.4	24.3	0.12	1.65
			5800	20.00	10.00	7.66	2.16	76.6	21.6	81.0	22.7	-5.43	-4.85
10/20/20	20.0	20.0	5200	20.00	10.00	8.12	2.34	81.2	23.4	80.4	22.7	1.00	3.08
			5500	20.00	10.00	8.99	2.55	89.9	25.5	86.4	24.3	4.05	4.94

SAR SYSTEM VERIFICATION



Tested By:	Kyle McMullan	Room Temperature (°C):	21.0
Date:	9/17/2020	Liquid Temperature (°C):	21.3
		Humidity (%RH):	48%
		Bar. Pressure (mb):	1014

2450MHz System Check 9-17-20

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:855

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.819$ S/m; $\epsilon_r = 39.572$; $\rho = 1000$ kg/m³, Medium parameters used: $\sigma = 0$ S/m, $\epsilon_r = 1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(7.02, 7.02, 7.02) @ 2450 MHz; Calibrated: 11/19/2019
 - Modulation Compensation:
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), $z = 31.0, 101.0$
- Electronics: DAE4 Sn1237; Calibrated: 2/4/2020
- Phantom: ELI V6.0 (SAC); Type: QD OVA 003 AA; Serial: 2044
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

System Check/System Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 66.05 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 11.2 W/kg

SAR(1 g) = 5.35 W/kg; SAR(10 g) = 2.48 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 9.03 W/kg

System Check/System Check/Area Scan (61x81x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 9.54 W/kg

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

Maximum value of Total (measured) = 43.86 V/m

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

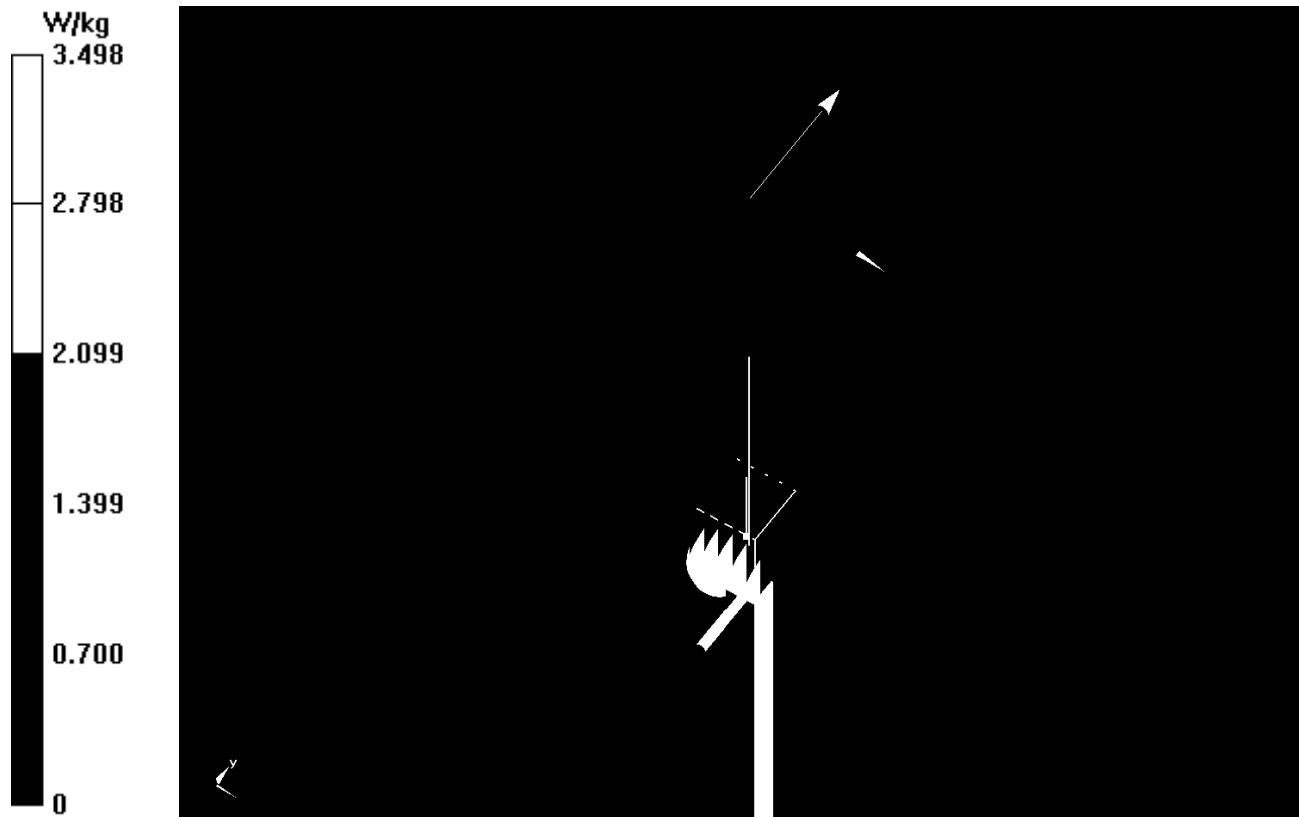
Maximum value of SAR (measured) = 3.50 W/kg

Approved By

SAR SYSTEM VERIFICATION



2450MHz System Check 9-17-20



SAR SYSTEM VERIFICATION



Tested By:	Kyle McMullan	Room Temperature (°C):	20.9°C
Date:	10/12/2020	Liquid Temperature (°C):	20.9°C
		Humidity (%RH):	54%
		Bar. Pressure (mb):	1011mb

5200MHz System Check 10-12-20

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1066

Communication System: UID 10000, CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5200 MHz

Medium parameters used: $f = 5200$ MHz; $\sigma = 4.646$ S/m; $\epsilon_r = 36.555$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(5.15, 5.15, 5.15) @ 5200 MHz, ConvF(4.49, 4.49, 4.49) @ 5800 MHz; Calibrated: 11/19/2019
 - Modulation Compensation:
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), $z = 21.0, 101.0$
- Electronics: DAE4 Sn1237; Calibrated: 2/4/2020
- Phantom: ELI V6.0 (SAC); Type: QD OVA 003 AA; Serial: 2044
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

System Check/System Check - Low Channel/Zoom Scan (7x9x7) (7x7x11)/Cube 0: Measurement grid:

$dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 62.40 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 30.9 W/kg

SAR(1 g) = 7.76 W/kg; SAR(10 g) = 2.25 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 19.4 W/kg

System Check/System Check - Low Channel/Area Scan (41x61x1): Interpolated grid: $dx=1.000$ mm,

$dy=1.000$ mm

Maximum value of SAR (interpolated) = 20.4 W/kg

System Check/System Check - Low Channel/Z Scan (1x1x21): Measurement grid: $dx=20$ mm, $dy=20$ mm, $dz=5$ mm

Maximum value of Total (measured) = 26.39 V/m

System Check/System Check - Low Channel/Z Scan (1x1x21): Measurement grid: $dx=20$ mm, $dy=20$ mm, $dz=5$ mm

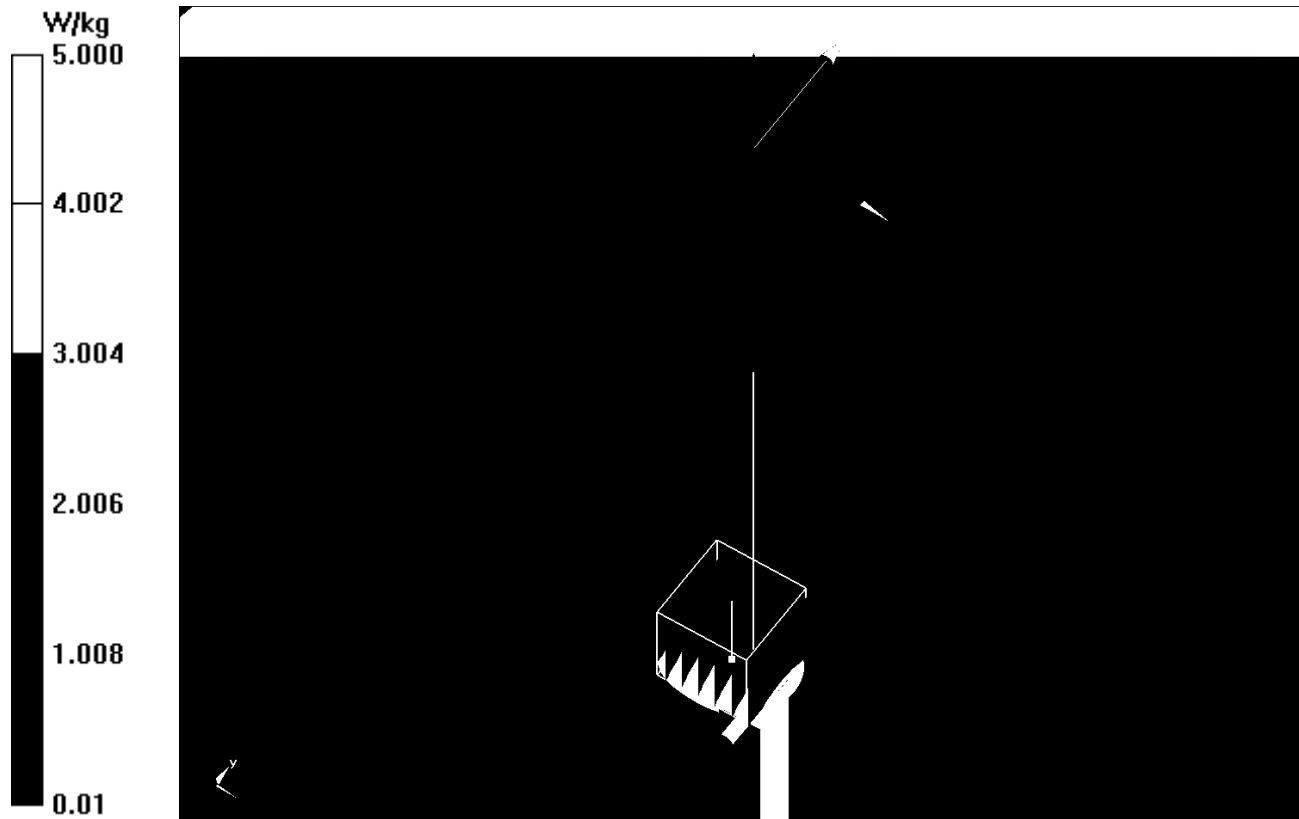
Maximum value of SAR (measured) = 3.23 W/kg

Approved By

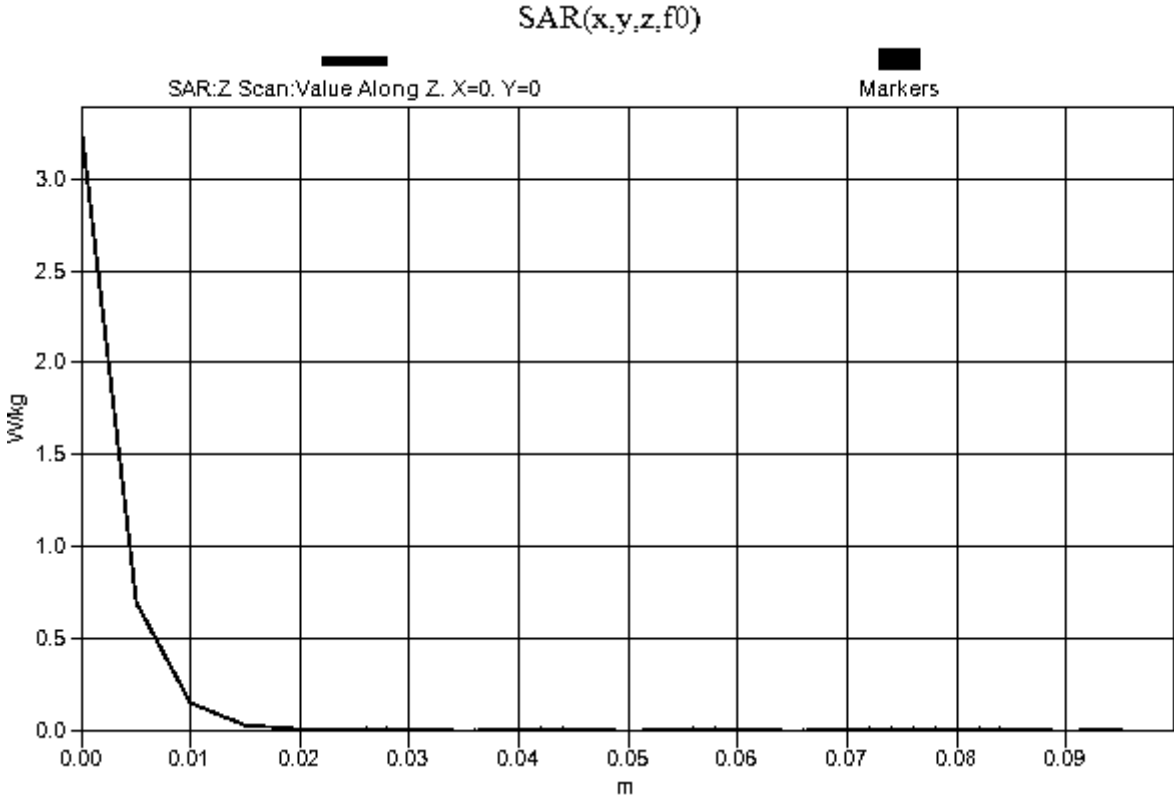
SAR SYSTEM VERIFICATION



5200MHz System Check 10-12-20



SAR SYSTEM VERIFICATION



SAR SYSTEM VERIFICATION



Tested By:	Kyle McMullan	Room Temperature (°C):	20.2°C
Date:	10/15/2020	Liquid Temperature (°C):	20.7°C
		Humidity (%RH):	35%
		Bar. Pressure (mb):	1017 mb

5800MHz System Checks 10-15 Rev2

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; $\sigma = 5.316$ S/m; $\epsilon_r = 34.639$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4.49, 4.49, 4.49) @ 5800 MHz; Calibrated: 11/19/2019
 - Modulation Compensation:
- Sensor-Surface: 0mm (Fix Surface), Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = 101.0, 21.0$
- Electronics: DAE4 Sn1237; Calibrated: 2/4/2020
- Phantom: ELI V6.0 (SAC); Type: QD OVA 003 AA; Serial: 2044
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

System Check/System Check - High Channel/Z Scan (1x1x21): Measurement grid: $dx=20$ mm, $dy=20$ mm, $dz=5$ mm

Maximum value of Total (measured) = 21.11 V/m

System Check/System Check - High Channel/Area Scan (41x61x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 21.6 W/kg

System Check/System Check - High Channel/Zoom Scan (7x9x7) (7x7x11)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 54.85 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 36.1 W/kg

SAR(1 g) = 7.66 W/kg; SAR(10 g) = 2.16 W/kg (SAR corrected for target medium)

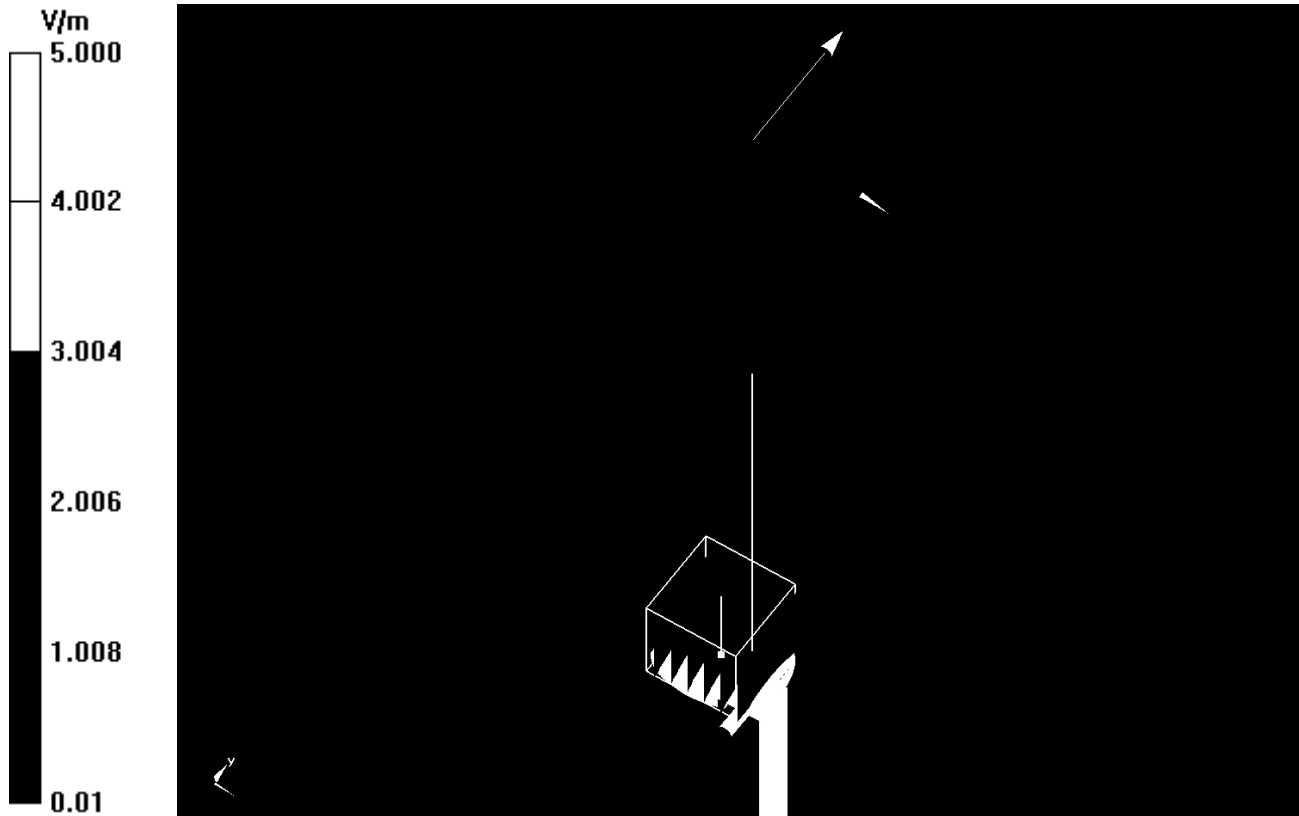
Maximum value of SAR (measured) = 20.4 W/kg

System Check/System Check - High Channel/Z Scan (1x1x21): Measurement grid: $dx=20$ mm, $dy=20$ mm, $dz=5$ mm

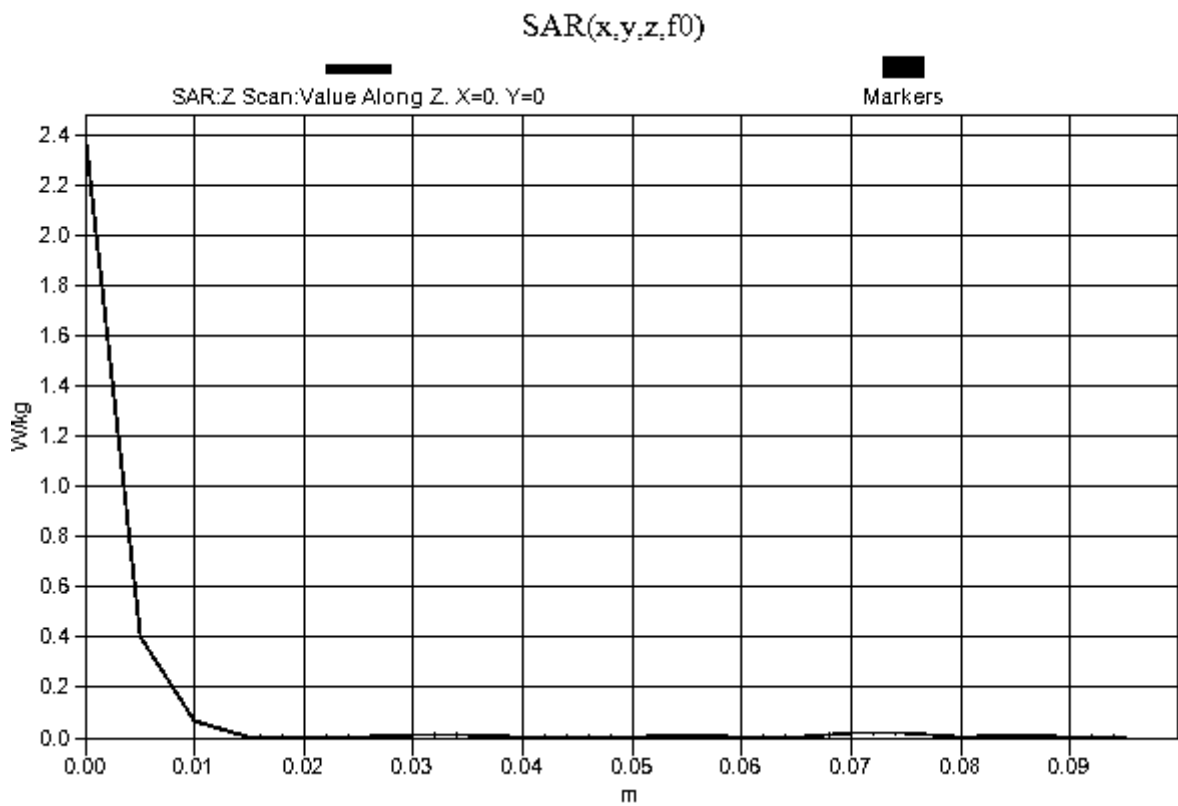
Maximum value of SAR (measured) = 2.37 W/kg

Approved By

SAR SYSTEM VERIFICATION



SAR SYSTEM VERIFICATION



SAR SYSTEM VERIFICATION



Tested By:	Kyle McMullan	Room Temperature (°C):	20.0°C
Date:	10/20/2020	Liquid Temperature (°C):	20.0°C
		Humidity (%RH):	36%
		Bar. Pressure (mb):	1015 mb

5500MHz System Checks 10-20-20

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

Medium parameters used: $f = 5500$ MHz; $\sigma = 5.055$ S/m; $\epsilon_r = 36.018$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4.55, 4.55, 4.55) @ 5500 MHz, ConvF(4.49, 4.49, 4.49) @ 5800 MHz; Calibrated: 11/19/2019
 - Modulation Compensation:
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 0mm (Fix Surface), $z = 21.0, 101.0$
- Electronics: DAE4 Sn1237; Calibrated: 2/4/2020
- Phantom: ELI V6.0 (SAC); Type: QD OVA 003 AA; Serial: 2044
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

System Check/System Check - Mid Channel/Zoom Scan (7x9x7) (9x9x11)/Cube 0: Measurement grid:

$dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 68.14 V/m; Power Drift = -0.20 dB

Peak SAR (extrapolated) = 40.2 W/kg

SAR(1 g) = 8.99 W/kg; SAR(10 g) = 2.55 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 23.2 W/kg

System Check/System Check - Mid Channel/Area Scan (41x61x1): Interpolated grid: $dx=1.000$ mm,

$dy=1.000$ mm

Maximum value of SAR (interpolated) = 24.4 W/kg

System Check/System Check - Mid Channel/Z Scan (1x1x21): Measurement grid: $dx=20$ mm, $dy=20$ mm,

$dz=5$ mm

Maximum value of Total (measured) = 26.46 V/m

System Check/System Check - High Channel/Z Scan (1x1x21): Measurement grid: $dx=20$ mm, $dy=20$ mm,

$dz=5$ mm

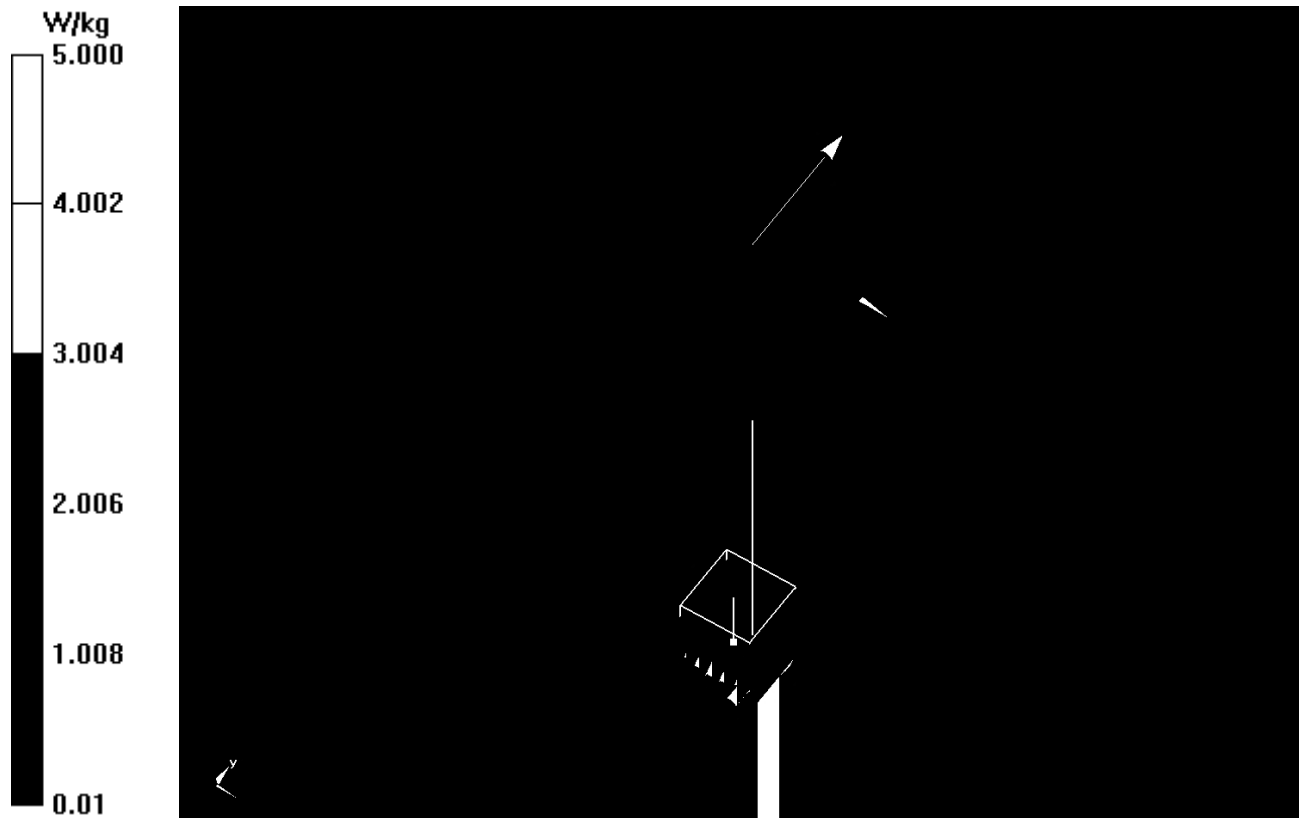
Maximum value of SAR (measured) = 3.41 W/kg

Approved By

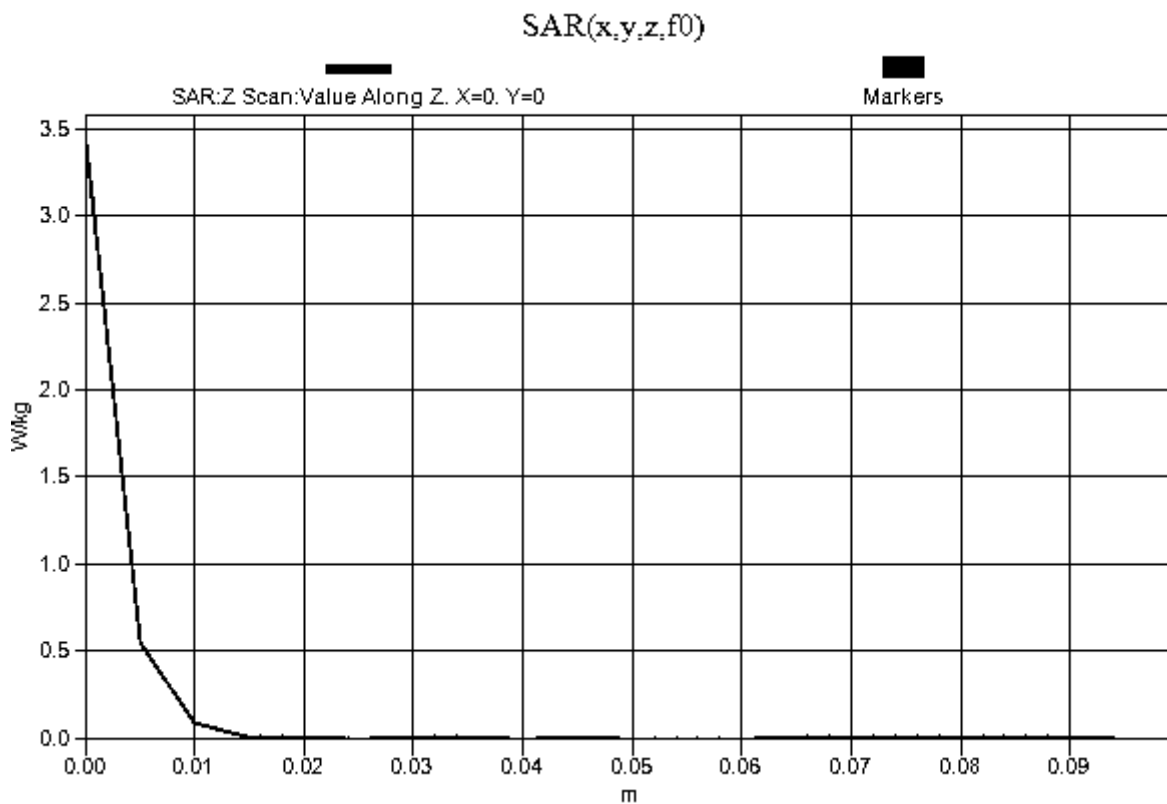
SAR SYSTEM VERIFICATION



5500MHz System Checks 10-20-20



SAR SYSTEM VERIFICATION



OUTPUT POWER



EUT:	Radius VSM	Work Order:	MASI0643
Serial Number:	20004700021	Date:	10-June-20
Customer:	Masimo Corporation	Temperature:	22.8 °C
Attendees:	None	Relative Humidity:	32.4% RH
Customer Project:	None	Bar. Pressure:	1016 mbar
Tested By:	Salvador Solozano, Nolan De Ramos, Mauricio Joaquin	Job Site:	OC13
Power:	Battery	Configuration:	MASI0643-1

TEST SPECIFICATIONS

Specification:	Method:
Health Safety Code 6:2015	FCC KDB 248227 D01 v02r02
RSS-102, Issue 5:2015	FCC KDB 447498 D01 v06
	EN 62209-2:2010+A1:2019

COMMENTS

None

RESULTS

Channel	Frequency (MHz)	Radio Mode	Data Rate (Mbps)	Modulation	Software Power Setting (No units)	Output Power (dBm)	mW
1	2412	802.11b	1	DSSS	17	15.4	34.7
			11	DSSS	17	15.2	33.1
		802.11g	6	OFDM	14	15.0	31.6
			54	OFDM	14	13.3	21.4
1/5	2422	802.11n	MCS0 (20 MHz)	OFDM	15	14.6	28.8
			MCS7 (20 MHz)	OFDM	15	12.7	18.6
			MCS0 (40 MHz)	OFDM	10	14.7	29.5
			MCS7 (40 MHz)	OFDM	10	11.7	14.8
6	2437	802.11b	1	DSSS	17	14.9	30.9
			11	DSSS	17	15.2	33.1
		802.11g	6	OFDM	14	15.0	31.6
			54	OFDM	14	13.1	20.4
		802.11n	MCS0 (20 MHz)	OFDM	15	14.6	28.8
			MCS7 (20 MHz)	OFDM	15	12.8	19.1
			MCS0 (40 MHz)	OFDM	10	14.8	30.2
			MCS7 (40 MHz)	OFDM	10	11.7	14.8
11	2462	802.11b	1	DSSS	17	14.8	30.2
			11	DSSS	17	15.1	32.4
		802.11g	6	OFDM	14	15.0	31.6
			54	OFDM	14	13.2	20.9
		802.11n	MCS0 (20 MHz)	OFDM	15	14.6	28.8
			MCS7 (20 MHz)	OFDM	15	12.9	19.5
7/11	2452	802.11n	MCS0 (40 MHz)	OFDM	10	14.7	29.5
			MCS7 (40 MHz)	OFDM	10	11.8	15.1

OUTPUT POWER



EUT:	Radius VSM	Work Order:	MASI0643
Serial Number:	20004700021	Date:	10-June-20
Customer:	Masimo Corporation	Temperature:	22.8 °C
Attendees:	None	Relative Humidity:	32.4% RH
Customer Project:	None	Bar. Pressure:	1016 mbar
Tested By:	Salvador Solozano, Nolan De Ramos, Mauricio Joaquin	Job Site:	OC13
Power:	Battery	Configuration:	MASI0643-1

TEST SPECIFICATIONS

Specification:	Method:
Health Safety Code 6:2015	FCC KDB 248227 D01 v02r02
RSS-102, Issue 5:2015	FCC KDB 447498 D01 v06
	EN 62209-2:2010+A1:2019

COMMENTS

None

RESULTS

Channel	Frequency (MHz)	Radio Mode	Data Rate (Mbps)	Modulation	Software Power Setting dBm	Output Power (dBm)	mW
36	5180	802.11a	6	OFDM	20	13.7	23.5
			54	OFDM	20	13.6	23.1
		802.11n	MCS0	OFDM	20	13.5	22.3
			MCS7	OFDM	20	13.6	22.8
40	5200	802.11a	6	OFDM	20	13.5	22.2
			54	OFDM	20	13.6	22.8
		802.11n	MCS0	OFDM	20	13.4	21.9
			MCS7	OFDM	20	13.1	20.3
48	5240	802.11a	6	OFDM	20	13.4	22.1
			54	OFDM	20	13.4	21.8
		802.11n	MCS0	OFDM	20	12.9	19.7
			MCS7	OFDM	20	13.0	20.0
52	5260	802.11a	6	OFDM	21	12.5	17.7
			54	OFDM	21	12.4	17.4
		802.11n	MCS0	OFDM	21	11.9	15.6
			MCS7	OFDM	21	12.0	15.9
60	5300	802.11a	6	OFDM	21	12.5	17.9
			54	OFDM	21	12.5	17.8
		802.11n	MCS0	OFDM	21	12.1	16.0
			MCS7	OFDM	21	12.0	15.9
64	5320	802.11a	6	OFDM	21	12.3	17.3
			54	OFDM	21	12.2	16.8
		802.11n	MCS0	OFDM	21	11.9	15.6
			MCS7	OFDM	21	12.1	16.1
100	5500	802.11a	6	OFDM	21	12.3	17.1
			54	OFDM	21	12.2	16.4
		802.11n	MCS0	OFDM	21	11.8	15.1
			MCS7	OFDM	21	12.1	16.2
116	5580	802.11a	6	OFDM	21	11.8	15.2
			54	OFDM	21	11.8	15.1
		802.11n	MCS0	OFDM	21	11.6	14.4
			MCS7	OFDM	21	11.6	14.6
140	5700	802.11a	6	OFDM	21	11.3	13.6
			54	OFDM	21	11.1	13.0
		802.11n	MCS0	OFDM	21	10.8	11.9
			MCS7	OFDM	21	10.9	12.3

OUTPUT POWER

149	5745	802.11a	6	OFDM	21	12.0	15.9
			54	OFDM	21	11.9	15.6
		802.11n	MCS0	OFDM	21	11.7	14.7
			MCS7	OFDM	21	11.7	14.8
157	5785	802.11a	6	OFDM	21	11.9	15.4
			54	OFDM	21	12.0	15.7
		802.11n	MCS0	OFDM	21	11.6	14.6
			MCS7	OFDM	21	11.7	14.9
165	5825	802.11a	6	OFDM	21	12.3	16.8
			54	OFDM	21	12.1	16.2
		802.11n	MCS0	OFDM	21	12.0	16.0
			MCS7	OFDM	21	12.1	16.1
38F	5190	802.11n	MCS0	OFDM	18	12.2	16.5
			MCS7	OFDM	18	12.1	16.1
46F	5230	802.11n	MCS0	OFDM	18	11.9	15.5
			MCS7	OFDM	18	11.7	14.9
54F	5270	802.11n	MCS0	OFDM	18	11.0	12.5
			MCS7	OFDM	18	10.7	11.7
62F	5310	802.11n	MCS0	OFDM	18	11.2	13.0
			MCS7	OFDM	18	10.8	11.9
102F	5510	802.11n	MCS0	OFDM	18	10.9	12.2
			MCS7	OFDM	18	10.7	11.0
110F	5550	802.11n	MCS0	OFDM	18	10.6	11.6
			MCS7	OFDM	18	10.6	11.4
134F	5670	802.11n	MCS0	OFDM	18	9.8	9.6
			MCS7	OFDM	18	9.7	9.4
151F	5755	802.11n	MCS0	OFDM	18	10.9	12.3
			MCS7	OFDM	18	10.9	12.2
159F	5795	802.11n	MCS0	OFDM	18	11.1	12.8
			MCS7	OFDM	18	10.9	12.3

OUTPUT POWER



EUT:	Radius VSM	Work Order:	MASI0643
Serial Number:	20004700021	Date:	10-June-20
Customer:	Masimo Corporation	Temperature:	22.8 °C
Attendees:	None	Relative Humidity:	32.4% RH
Customer Project:	None	Bar. Pressure:	1016 mbar
Tested By:	Salvador Solozano, Nolan De Ramos, Mauricio Joaquin	Job Site:	OC13
Power:	Battery	Configuration:	MASI0643-1

TEST SPECIFICATIONS

Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

COMMENTS

None

RESULTS

Channel	Frequency	Modulation	Software Power Setting	Output Power (dBm)	mW
0	2402	DH5	Max	10.2	10.5
		2DH5	Max	5	3.2
		3DH5	Max	5.4	3.5
38	2440	DH5	Max	4.3	2.7
		2DH5	Max	9.7	9.3
		3DH5	Max	5	3.2
78	2480	DH5	Max	5	3.2
		2DH5	Max	3.9	2.5
		3DH5	Max	9.2	8.3

SAR TEST DATA



EUT:	Radius VSM	Work Order:	MASI0643
Customer:	Masimo Corporation	Job Site:	MN11
Attendees:	None	Customer Project:	None

TEST SPECIFICATIONS

Specification:	Method:
Health Safety Code 6:2015 RSS-102, Issue 5:2015	FCC KDB 248227 D01 v02r02 FCC KDB 447498 D01 v06 EN 62209-2:2010+A1:2019

COMMENTS

Note 1 in the measured values indicates that no measurement was found due to the signal being lower than the probe could measure. The SAR probe is capable of measurements down to 0.010 mW/g.

Note 2 in the measured values indicates the SAR value was low enough where a SAR drift measurement was not practical.

DEVIATIONS FROM TEST STANDARD

None

SCALING FACTORS

Technology	Data Rate and Modulation	Measured OP (dBm)	Rated Power (dBm) ⁴	Max Power Scaling Factor ¹	Test Mode Duty Cycle (%)	Max. Field Duty Cycle (%) ⁵	Duty Cycle Scaling Factor ²	Scaling Factor ³
Bluetooth	DH5 GFSK	10.2	8.3	0.65	100	100	1	0.65
Wi-Fi 2.4 GHz	802.11b 11Mbps	15.4	17.1	1.48	95	9	0.09	0.13
Wi-Fi U-NII-1	802.11a 6Mbps	13.7	14.2	1.12	95	9	0.09	0.10
	802.11a 54Mbps	13.7	14.0	1.07	65	9	0.14	0.15
Wi-Fi U-NII-2A	802.11a 6Mbps	12.5	14.1	1.45	95	9	0.09	0.13
Wi-Fi U-NII-2C	802.11a 6Mbps	12.3	13.4	1.29	95	9	0.09	0.12
Wi-Fi U-NII-3	802.11a 6Mbps	12.3	12.6	1.07	95	9	0.09	0.10
	802.11a 54Mbps	12.0	12.5	1.12	65	9	0.14	0.16

1: Max power scaling factor = $10^{(Tune-up\ Tolerance\ Power\ (dBm) - Measured\ Power\ (dBm)) / 10}$

2: Duty cycle scaling factor = Maximum duty cycle / Test mode duty cycle

3: Scaling factor = Max power scaling factor * Duty cycle scaling factor

4: Rated Power source is MASI0553.4 Rev. 2

5: Anami Joshi attests the 802.11abgn duty cycle will be restricted by software and limited to a maximum of 9%.

RESULTS – BODY CONFIGURATION

Tech. and Freq. Band	Transmit Freq. (MHz)	Transmit Channel	EUT Position	Data Rate and Modulation	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Scaling Factor	DC Corrected 1g SAR Level (mW/g)	DC Corrected 10g SAR Level (mW/g)	Test Run
Bluetooth 2.4 GHz	2402	0	Right	DH5 GFSK	0.07	0.04	0.01	0.65	0.03	0.01	BT 2402 Right 1
	2402	0	Left	DH5 GFSK	N/A ²	0.01	0.01	0.65	0.01	0.01	BT 2402 Left 1
	2402	0	Screen	DH5 GFSK	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	BT 2402 Screen 1
	2402	0	Back	DH5 GFSK	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	BT 2402 Back 1
	2402	0	Top	DH5 GFSK	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	BT 2402 Top 1
	2402	0	Bottom	DH5 GFSK	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	BT 2402 Bottom 1
	2440	38	Right	DH5 GFSK	-0.20	0.16	0.05	0.65	0.10	0.03	BT 2440 Right 1
	2480	78	Right	DH5 GFSK	-0.03	0.28	0.09	0.65	0.18	0.06	BT 2480 Right 1
Wi-Fi 2.4 GHz	2437	6	Right	802.11b 11Mbps	-0.04	0.59	0.21	0.14	0.08	0.03	Wi-Fi 2437 Right 1
	2437	6	Left	802.11b 11Mbps	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	Wi-Fi 2437 Left 1
	2437	6	Screen	802.11b 11Mbps	-0.11	0.07	0.03	0.14	0.01	0.00	Wi-Fi 2437 Screen 1
	2437	6	Back	802.11b 11Mbps	0.01	0.16	0.07	0.14	0.02	0.01	Wi-Fi 2437 Back 1
	2437	6	Top	802.11b 11Mbps	N/A ²	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	Wi-Fi 2437 Top 1
	2437	6	Bottom	802.11b 11Mbps	N/A ²	0.02	0.001	0.14	0.00	0.00	Wi-Fi 2437 Bottom 1
	2412	1	Right	802.11b 11Mbps	0.1	0.624	0.222	0.14	0.09	0.03	Wi-Fi 2412 Right 1
	2462	11	Right	802.11b 11Mbps	0.03	0.619	0.215	0.14	0.09	0.03	Wi-Fi 2462 Right 1
Wi-Fi U-NII-1	5180	36	Right	802.11a 6Mbps	0.10	3.33	0.76	0.10	0.33	0.08	U-NII-1 5180 Right 1
	5180	36	Left	802.11a 6Mbps	-0.07	0.02	0.006	0.10	0.00	0.00	U-NII-1 5180 Left 1
	5180	36	Screen	802.11a 6Mbps	0.01	1.04	0.23	0.10	0.10	0.02	U-NII-1 5180 Screen 1
	5180	36	Back	802.11a 6Mbps	0.02	0.50	0.13	0.10	0.05	0.01	U-NII-1 5180 Back 1
	5180	36	Top	802.11a 6Mbps	0.18	0.02	0.007	0.10	0.00	0.00	U-NII-1 5180 Top 1
	5180	36	Bottom	802.11a 6Mbps	0.10	0.05	0.02	0.10	0.01	0.00	U-NII-1 5180 Bottom 1
	5200	40	Right	802.11a 54Mbps	-0.11	3.32	0.76	0.15	0.50	0.11	U-NII-1 5200 Right 1
	5240	48	Right	802.11a 6Mbps	-0.17	3.64	0.82	0.10	0.36	0.08	U-NII-1 5240 Right 1
Wi-Fi U-NII-2A	5300	60	Right	802.11a 6Mbps	0.21	7.89	1.84	0.13	1.03	0.24	U-NII-2A 5300 Right 1
	5300	60	Left	802.11a 6Mbps	N/A ²	0.01	0.01	0.13	0.00	0.00	U-NII-2A 5300 Left 1

SAR TEST DATA



	5300	60	Screen	802.11a 6Mbps	-0.05	1.15	0.26	0.13	0.15	0.03	U-NII-2A 5300 Screen 1
	5300	60	Back	802.11a 6Mbps	-0.01	1.28	0.38	0.13	0.17	0.05	U-NII-2A 5300 Back 1
	5300	60	Top	802.11a 6Mbps	N/A ²	0.02	0.01	0.13	0.00	0.00	U-NII-2A 5300 Top 1
	5300	60	Bottom	802.11a 6Mbps	0.17	0.04	0.02	0.13	0.01	0.00	U-NII-2A 5300 Bottom 1
	5260	52	Right	802.11a 6Mbps	0.00	4.91	1.09	0.13	0.64	0.14	U-NII-2A 5260 Right 1
	5280	56	Right	802.11a 6Mbps	-0.03	8.83	1.97	0.13	1.15	0.26	U-NII-2A 5280 Right 1
	5320	60	Right	802.11a 6Mbps	-0.15	5.08	1.13	0.13	0.66	0.15	U-NII-2A 5320 Right 1
	5500	100	Right	802.11a 6Mbps	-0.06	4.90	1.03	0.12	0.59	0.12	U-NII-2C 5500 Right 1
	5500	100	Left	802.11a 6Mbps	0.16	0.29	0.01	0.12	0.03	0.00	U-NII-2C 5500 Left 1
	5500	100	Screen	802.11a 6Mbps	0.06	1.67	0.38	0.12	0.20	0.05	U-NII-2C 5500 Screen 1
	5500	100	Back	802.11a 6Mbps	-0.08	0.53	0.15	0.12	0.06	0.02	U-NII-2C 5500 Back 1
	5500	100	Top	802.11a 6Mbps	N/A ²	0.03	0.02	0.12	0.00	0.00	U-NII-2C 5500 Top 1
Wi-Fi U-NII-2C	5500	100	Bottom	802.11a 6Mbps	0.00	0.04	0.01	0.12	0.00	0.00	U-NII-2C 5500 Bottom 1
	5580	116	Right	802.11a 6Mbps	0.00	8.92	1.93	0.12	1.07	0.23	U-NII-2C 5580 Right 1
	5700	140	Right	802.11a 6Mbps	-0.10	8.91	1.96	0.12	1.07	0.24	U-NII-2C 5700 Right 1
	5745	149	Right	802.11a 6Mbps	-0.01	7.30	1.64	0.10	0.73	0.16	U-NII-3 5745 Right 1
	5745	149	Left	802.11a 6Mbps	N/A ²	0.01	0.01	0.10	0.00	0.00	U-NII-3 5745 Left 1
	5745	149	Screen	802.11a 6Mbps	0.03	1.33	0.29	0.10	0.13	0.03	U-NII-3 5745 Screen 1
Wi-Fi U-NII-3	5745	149	Back	802.11a 6Mbps	-0.19	0.18	0.06	0.10	0.02	0.01	U-NII-3 5745 Back 1
	5745	149	Top	802.11a 6Mbps	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	U-NII-3 5745 Top 1
	5745	149	Bottom	802.11a 6Mbps	N/A ²	0.02	0.01	0.10	0.00	0.00	U-NII-3 5745 Bottom 1
	5785	157	Right	802.11a 54Mbps	-0.14	5.52	1.29	0.16	0.88	0.21	U-NII-3 5785 Right 1
	5825	165	Right	802.11a 6Mbps	-0.21	1.54	0.38	0.10	0.15	0.04	U-NII-3 5825 Right 1

RESULTS – REPEAT MEASUREMENTS

Repeated Test Run	SAR Drift During Test (dB)	Measured 1g SAR Level (mW/g)	Measured 10g SAR Level (mW/g)	Scaling Factor	Scaled 1g SAR Level (mW/g)	Scaled 10g SAR Level (mW/g)	Largest 1g % Variation	Largest 10g % Variation	Test#
U-NII-1 5240 Right 1	-0.06	3.24	0.74	0.10	0.32	0.07	12.35	10.81	U-NII-1 5240 Right 2
U-NII-1 5240 Right 1	-0.10	3.61	0.80	0.10	0.36	0.08			U-NII-1 5240 Right 3
U-NII-2A 5280 Right 1	-0.01	4.13	0.93	0.13	0.54	0.12	113.8	112.7	U-NII-2A 5280 Right 2
U-NII-2A 5280 Right 1	0.00	4.23	0.95	0.13	0.55	0.12			U-NII-2A 5280 Right 3
U-NII-2A 5280 Right 1	0.02	4.20	0.95	0.13	0.55	0.12	199.3	203.9	U-NII-2A 5280 Right 4
U-NII-2C 5580 Right 1	0.00	2.98	0.64	0.12	0.36	0.08			U-NII-2C 5580 Right 2
U-NII-2C 5580 Right 1	0.02	3.00	0.64	0.12	0.36	0.08	199.3	203.9	U-NII-2C 5580 Right 3
U-NII-2C 5580 Right 1	-0.03	3.00	0.63	0.12	0.36	0.08			U-NII-2C 5580 Right 4
U-NII-3 5745 Right 1	-0.06	2.64	0.59	0.10	0.26	0.06	188.5	193.9	U-NII-3 5745 Right 2
U-NII-3 5745 Right 1	0.00	2.54	0.57	0.10	0.25	0.06			U-NII-3 5745 Right 3
U-NII-3 5745 Right 1	0.00	2.53	0.56	0.10	0.25	0.06			U-NII-3 5745 Right 4

SAR TEST DATA



Tested By:	Marcelo Aguayo, Kyle McMullan, William Hoffa	Room Temperature (°C):	20.3
Date:	9/22/2020 4:55:40 PM	Liquid Temperature (°C):	20.0
Serial Number:	RV00000033	Humidity (%RH):	59
Configuration:	MASI0643-3	Bar. Pressure (mb):	1014
Comments:	None		

BT 2480 Right 1

DUT: Radius VSM; Type: NA; Serial: RV00000033

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2480 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated): $f = 2480$ MHz; $\sigma = 1.841$ S/m; $\epsilon_r = 41.049$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(7.02, 7.02, 7.02) @ 2480 MHz; Calibrated: 11/19/2019
 - Modulation Compensation:
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = 23.0, 1.0$
- Electronics: DAE4 Sn1237; Calibrated: 2/4/2020
- Phantom: ELI V6.0 (SAC); Type: QD OVA 003 AA; Serial: 2044
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

Body/Body/Zoom Scan (9x9x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 11.84 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.275 W/kg; SAR(10 g) = 0.090 W/kg (SAR corrected for target medium)

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.576 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.778 W/kg

Body/Body/Reference scan (21x51x1): Interpolated grid: $dx=3.000$ mm, $dy=3.000$ mm

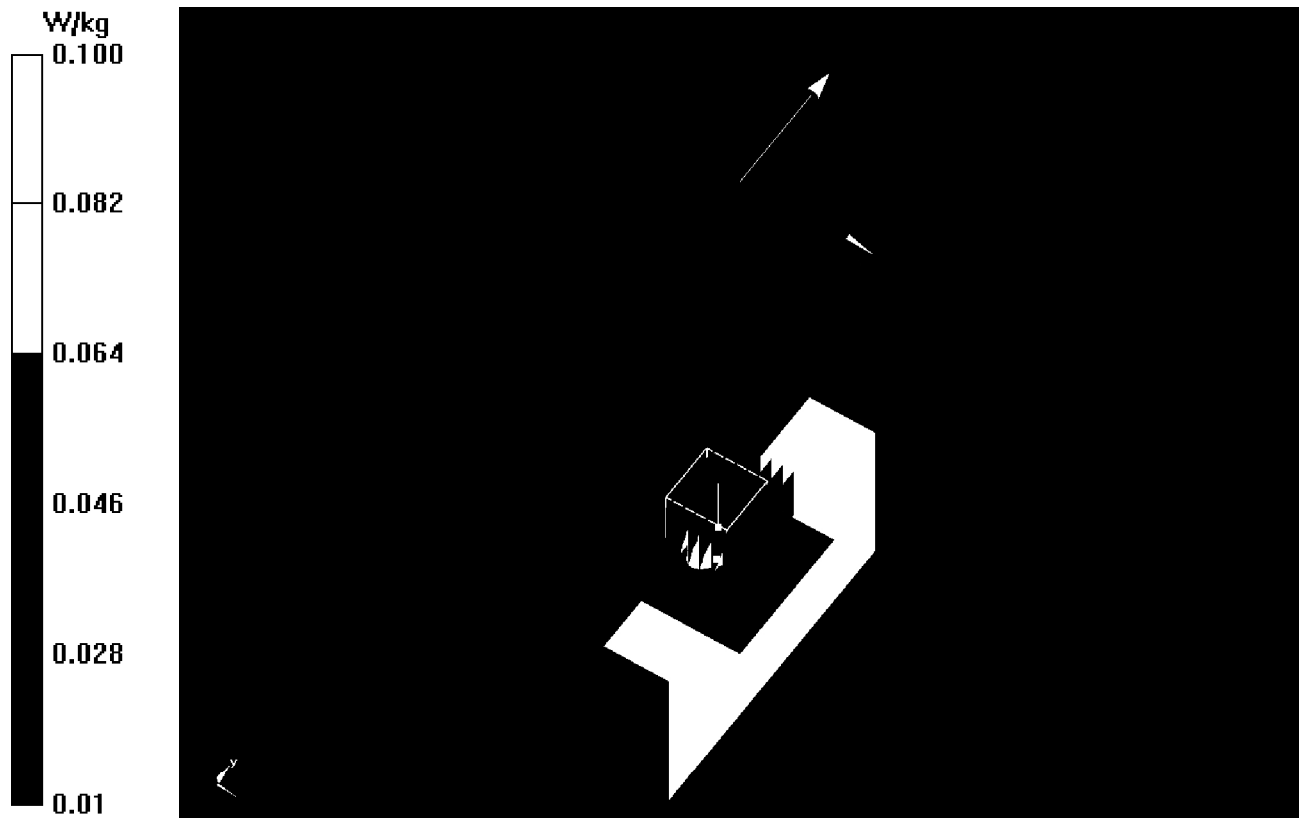
Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.170 W/kg

Approved By

SAR TEST DATA

BT 2480 Right 1



SAR TEST DATA



Tested By:	Marcelo Aguayo, Kyle McMullan, William Hoffa	Room Temperature (°C):	21.2
Date:	10/13/2020 7:12:11 AM	Liquid Temperature (°C):	21.0
Serial Number:	RV00000006	Humidity (%RH):	41
Configuration:	MASI0643-2	Bar. Pressure (mb):	1015
Comments:	None		

Wi-Fi 2412 Right 1

DUT: Radius VSM; Type: NA; Serial: RV00000006

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; $\sigma = 1.809$ S/m; $\epsilon_r = 41.475$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(7.02, 7.02, 7.02) @ 2412 MHz; Calibrated: 11/19/2019
 - Modulation Compensation:
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = 23.0, 1.0$
- Electronics: DAE4 Sn1237; Calibrated: 2/4/2020
- Phantom: ELI V6.0 (SAC); Type: QD OVA 003 AA; Serial: 2044
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

Body/Body/Zoom Scan (8x8x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm
Reference Value = 12.25 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 0.624 W/kg; SAR(10 g) = 0.222 W/kg (SAR corrected for target medium)

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.27 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

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

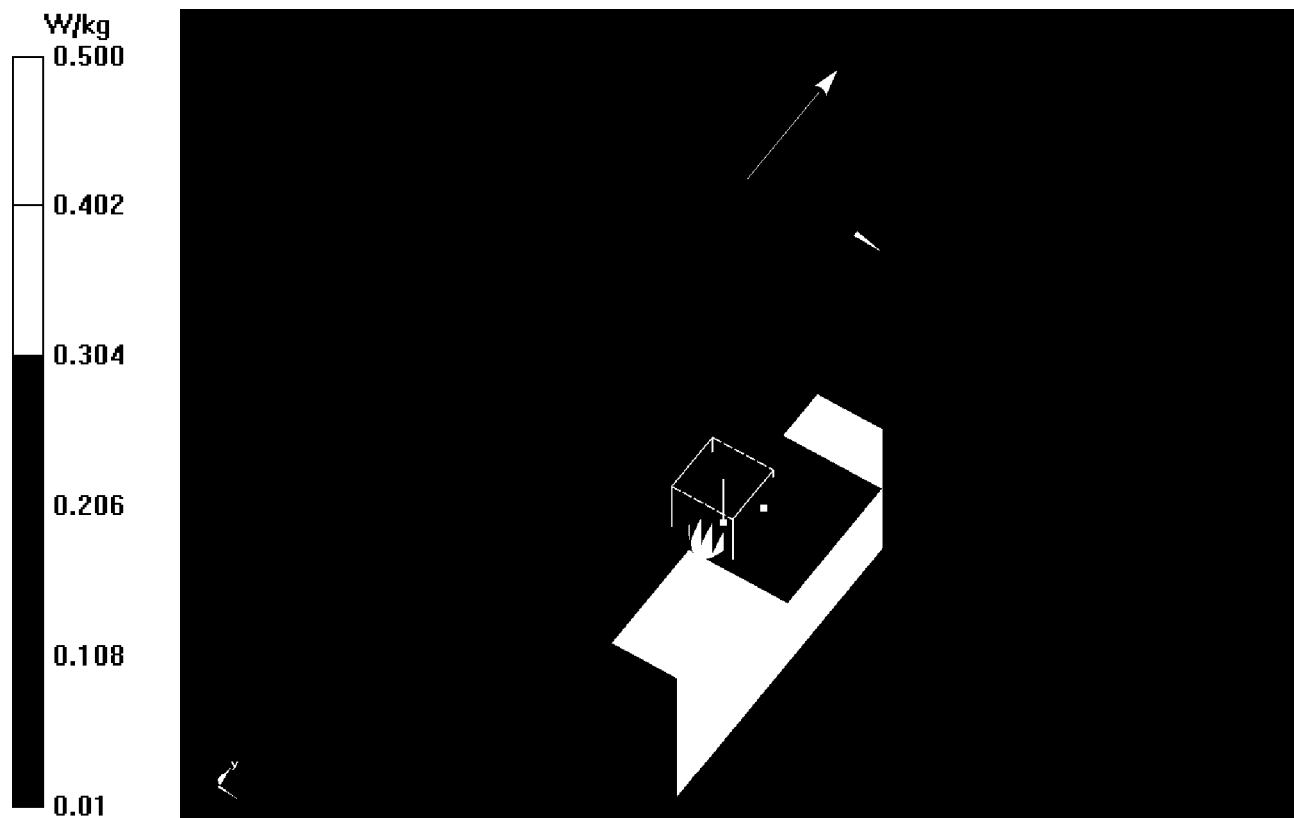
Body/Body/Reference scan (21x51x1): Interpolated grid: $dx=3.000$ mm, $dy=3.000$ mm

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

Approved By

SAR TEST DATA

Wi-Fi 2412 Right 1



SAR TEST DATA



Tested By:	Marcelo Aguayo, Kyle McMullan, William Hoffa	Room Temperature (°C):	20.0
Date:	10/20/2020 6:36:46 PM	Liquid Temperature (°C):	20.0
Serial Number:	RV00000006	Humidity (%RH):	36
Configuration:	MASI0643-2	Bar. Pressure (mb):	1015
Comments:	None		

U-NII-1 5240 Right 1

DUT: Radius VSM; Type: NA; Serial: RV00000006

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; $\sigma = 4.727$ S/m; $\epsilon_r = 36.416$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(5.15, 5.15, 5.15) @ 5240 MHz; Calibrated: 11/19/2019
 - Modulation Compensation:
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = 23.0, 1.0$
- Electronics: DAE4 Sn1237; Calibrated: 2/4/2020
- Phantom: ELI V6.0 (SAC); Type: QD OVA 003 AA; Serial: 2044
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

Body/Body/Zoom Scan (8x8x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 49.43 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 16.9 W/kg

SAR(1 g) = 3.64 W/kg; SAR(10 g) = 0.818 W/kg (SAR corrected for target medium)

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 9.87 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 8.29 W/kg

Body/Body/Reference scan (21x51x1): Interpolated grid: $dx=3.000$ mm, $dy=3.000$ mm

Info: Interpolated medium parameters used for SAR evaluation.

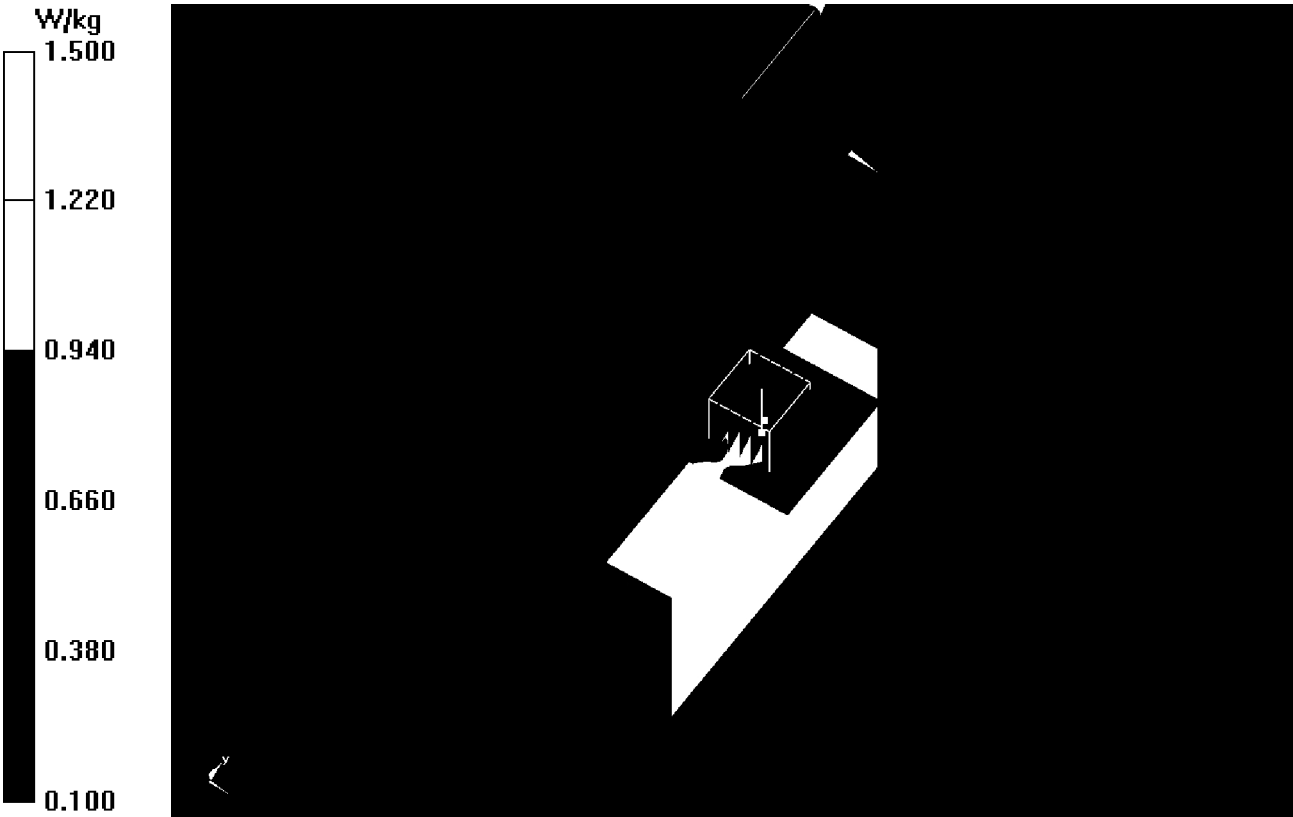
Maximum value of SAR (interpolated) = 6.16 W/kg

Approved By

SAR TEST DATA



U-NII-1 5240 Right 1



SAR TEST DATA



Tested By:	Marcelo Aguayo, Kyle McMullan, William Hoffa	Room Temperature (°C):	20.9
Date:	10/12/2020 9:33:27 AM	Liquid Temperature (°C):	20.9
Serial Number:	RV00000006	Humidity (%RH):	54
Configuration:	MASI0643-2	Bar. Pressure (mb):	1011
Comments:	None		

U-NII-2A 5280 Right 1

DUT: Radius VSM; Type: NA; Serial: RV00000006

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
Frequency: 5280 MHz; Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): $f = 5280$ MHz; $\sigma = 4.764$ S/m; $\epsilon_r = 36.428$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4.97, 4.97, 4.97) @ 5280 MHz; Calibrated: 11/19/2019
 - Modulation Compensation:
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = 23.0, 1.0$
- Electronics: DAE4 Sn1237; Calibrated: 2/4/2020
- Phantom: ELI V6.0 (SAC); Type: QD OVA 003 AA; Serial: 2044
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

Body/Body/Zoom Scan (9x9x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 59.35 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 41.7 W/kg

SAR(1 g) = 8.83 W/kg; SAR(10 g) = 1.97 W/kg (SAR corrected for target medium)

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 23.9 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 23.4 W/kg

Body/Body/Reference scan (21x51x1): Interpolated grid: $dx=3.000$ mm, $dy=3.000$ mm

Info: Interpolated medium parameters used for SAR evaluation.

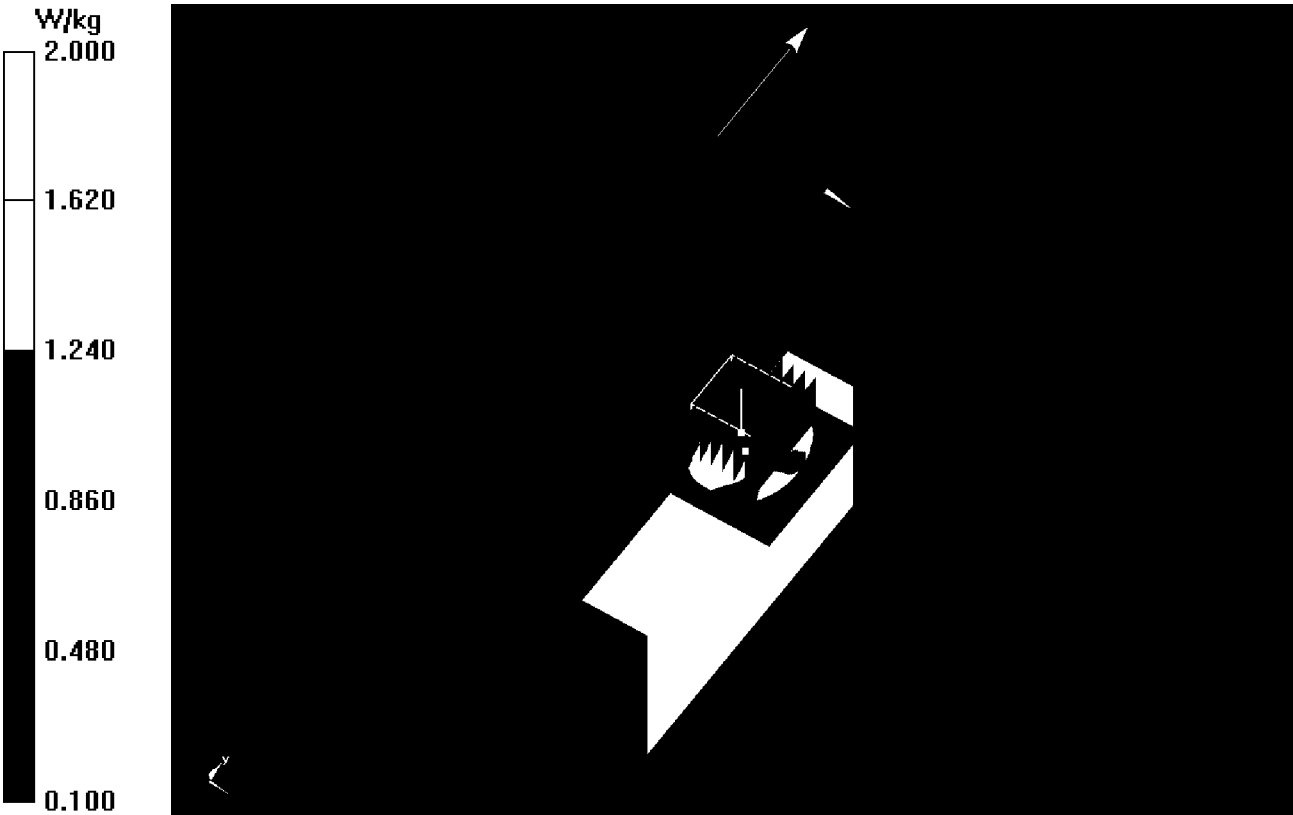
Maximum value of SAR (interpolated) = 13.9 W/kg

Approved By

SAR TEST DATA



U-NII-2A 5280 Right 1



SAR TEST DATA



Tested By:	Marcelo Aguayo, Kyle McMullan, William Hoffa	Room Temperature (°C):	20.9
Date:	10/15/2020 10:20:14 AM	Liquid Temperature (°C):	20.9
Serial Number:	RV00000006	Humidity (%RH):	54
Configuration:	MASI0643-2	Bar. Pressure (mb):	1011
Comments:	None		

U-NII-2C 5580 Right 1

DUT: Radius VSM; Type: NA; Serial: RV00000006

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5580 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used (interpolated): $f = 5580$ MHz; $\sigma = 5.09$ S/m; $\epsilon_r = 35.158$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3746; ConvF(4.51, 4.51, 4.51) @ 5580 MHz; Calibrated: 11/19/2019
 - Modulation Compensation:
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), $z = 23.0, 1.0$
- Electronics: DAE4 Sn1237; Calibrated: 2/4/2020
- Phantom: ELI V6.0 (SAC); Type: QD OVA 003 AA; Serial: 2044
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

Body/Body/Zoom Scan (9x9x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

Reference Value = 65.78 V/m; Power Drift = 0.00

Peak SAR (extrapolated) = 46.8 W/kg

SAR(1 g) = 8.92 W/kg; SAR(10 g) = 1.93 W/kg (SAR corrected for target medium)

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 25.9 W/kg

Body/Body/Area scan (51x51x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 24.3 W/kg

Body/Body/Reference scan (21x51x1): Interpolated grid: $dx=3.000$ mm, $dy=3.000$ mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 18.8 W/kg

Approved By