

# **Axonics Modulation Technologies, Inc.**

Clinician Programmer (CP) Model: 2501 (MICS/MEDS/MedRadio)
FCC 95I:2017
MedRadio

Report # AXON0097.2 Rev. 1







NVLAP Lab Code: 200676-0

# **CERTIFICATE OF TEST**



Last Date of Test: November 9, 2017
Axonics Modulation Technologies, Inc.
Clinician Programmer (CP) Model: 2501 (MICS/MEDS/MedRadio)

# **Radio Equipment Testing**

#### **Standards**

Specification	Method
FCC 95I:2017	ANSI C63.26:2015

#### Results

Method Clause	Test Description	Applied	Results	Comments
ANSI C63.26 5.4.3	Emission Bandwidth	Yes	Pass	
FCC 95.2579(a)(1)	Emission Mask	Yes	Pass	
ANSI C63.26 5.2.3.3	Conducted Output Power	Yes	Pass	
ANSI C63.26 5.6	Frequency Stability	Yes	Pass	
ANSI C63.26 5.5.4	Spurious Radiated Emissions	Yes	Pass	
ANSI C63.26 5.7	Spurious Conducted Emissions	Yes	Pass	
ANSI C63.26 5.2.3.3, 5.2.7	Radiated Power (EIRP)	Yes	Pass	

#### **Deviations From Test Standards**

None

Approved By:

Victor Ratinoff, Operations Manager

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information.

# **REVISION HISTORY**



Revision Number	1)Ascription		Page Number
00	None		
01	Removed test plan.	2019-06-04	57-89

# 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). Certification chambers and Open Area Test Sites are filed with ISED.

#### **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

MSIP / 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:

http://portlandcustomer.element.com/ts/scope/scope.htm http://gsi.nist.gov/global/docs/cabs/designations.html

# **FACILITIES**







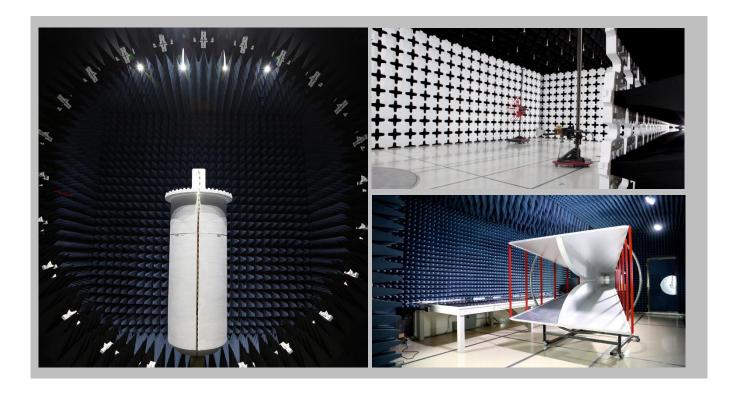
California
Labs OC01-17
41 Tesla
Irvine, CA 92618
(949) 861-8918

Minnesota Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136 New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214 Oregon Labs EV01-12 22975 NW Evergreen Pkwy 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 120<sup>th</sup> Ave NE
Bothell, WA 98011
(425)984-6600

Irvine, CA 92618 (949) 861-8918	Brooklyn Park, MN 55445 (612)-638-5136	Elbridge, NY 13060 (315) 554-8214	Hillsboro, OR 97124 (503) 844-4066	Plano, TX 75074 (469) 304-5255	Bothell, WA 98011 (425)984-6600	
	NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0	
	Innov	ation, Science and Eco	nomic Development Car	ada		
2834B-1, 2834B-3	2834E-1, 2834E-3	N/A	2834D-1, 2834D-2	2834G-1	2834F-1	
		BS	МІ			
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R	
	VCCI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110	
	Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157	



# **MEASUREMENT UNCERTAINTY**



### **Measurement Uncertainty**

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

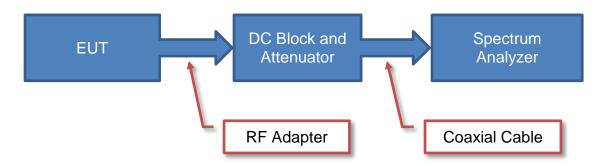
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

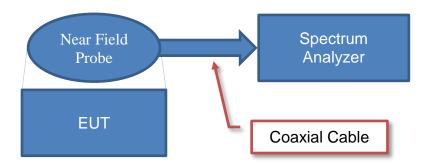
# **Test Setup Block Diagrams**



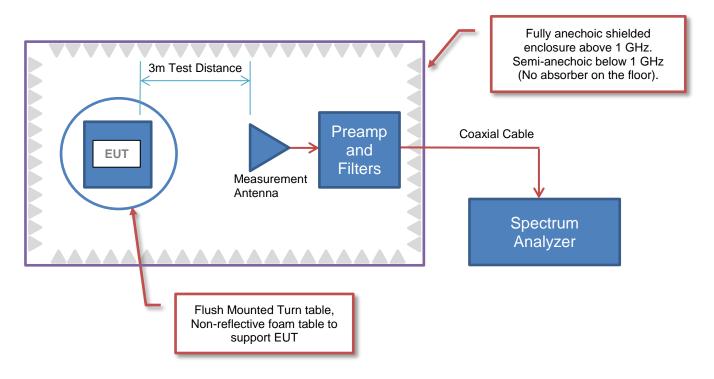
### **Antenna Port Conducted Measurements**



# **Near Field Test Fixture Measurements**



# **Spurious Radiated Emissions**



# PRODUCT DESCRIPTION



### **Client and Equipment Under Test (EUT) Information**

Company Name:	Axonics Modulation Technologies, Inc.
Address:	7575 Irvine Center Drive Suite 200
City, State, Zip:	Irvine, CA 92618
Test Requested By:	Franklin Portillo
Model:	Clinician Programmer (CP) Model: 2501 (MICS/MEDS/MedRadio)
First Date of Test:	November 2, 2017
Last Date of Test:	November 9, 2017
Receipt Date of Samples:	October 19, 2017
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

# Information Provided by the Party Requesting the Test

#### **Functional Description of the EUT:**

Clinician Programmer (CP): a tablet computer (battery operated and wall outlet) used by a clinician to program the EPG/IPG The CP generates stimulation pulses which are transferred to the region of therapy by foramen needle via a J-clip or by a Quadripolar tined lead via a Stimulation Test cable.

#### **Testing Objective:**

Seeking FCC authorization for the MedRadio transmitter to FCC Part 95I.

# **CONFIGURATIONS**



# Configuration AXON0097-27

Software/Firmware Running during test			
Description	Version		
Firmware	CP-282-ST-48-RF-42		

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Clinician Programmer	Axonics Modulation Technologies, Inc.	2501	AC1C870004
AC/DC Power Supply	Power Box	XM 30 5009	151700033

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ground Pad Cable X 2	No	2.0m	No	Clinician Programmer	Saline
EMG Cable X 4	No	2.0m	No	Clinician Programmer	Saline
Foramen Cable	No	2.0m	No	Clinician Programmer	Foramen Needle (unterminated)
DC Power	No	2.0m	No	AC/DC Power Supply	Clinician Programmer
Stim Cable	No	2.0m	No	Clinician Programmer	Lead (unterminated)

# Configuration AXON0097- 28

Software/Firmware Running during test		
Description	Version	
Firmware	CP-282-ST-48-RF-42	

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Clinician Programmer	Axonics Modulation Technologies, Inc.	2501	AC1C870004

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Ground Pad Cable X 2	No	2.0m	No	Clinician Programmer	Saline
EMG Cable X 4	No	2.0m	No	Clinician Programmer	Saline
Foramen Cable	No	2.0m	No	Clinician Programmer	Foramen Needle (unterminated)
Stim Cable	No	2.0m	No	Clinician Programmer	Lead (unterminated)

# **CONFIGURATIONS**



# **Configuration AXON0097-29**

Software/Firmware Running during test							
Description	Version						
Firmware	CP-282-ST-48-RF-42						

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Clinician Programmer (SMA)	Axonics Modulation Technologies, Inc.	2501	AC1C870003

Peripherals in test setup boundary										
Description Manufacturer Model/Part Number Serial Number										
DC Power Source	Not provided	Not provided	Not provided							

# **MODIFICATIONS**



# **Equipment Modifications**

Item	Date	Test	Modification	Note	Disposition of EUT
		Spurious	Tested as	No EMI suppression	EUT remained at
1	11/2/2017	Radiated	delivered to	devices were added or	Element following
		Emissions	Test Station.	modified during this test.	the test.
		Spurious	Tested as	No EMI suppression	EUT remained at
2	11/3/2017	Radiated	delivered to	devices were added or	Element following
		Emissions	Test Station.	modified during this test.	the test.
		Emission	Tested as	No EMI suppression	EUT remained at
3	11/7/2017	Bandwidth	delivered to	devices were added or	Element following
		Dandwidth	Test Station.	modified during this test.	the test.
			Tested as	No EMI suppression	EUT remained at
4	11/7/2017	Emission Mask	delivered to	devices were added or	Element following
			Test Station.	modified during this test.	the test.
		Conducted	Tested as	No EMI suppression	EUT remained at
5	11/7/2017	Output Power	delivered to	devices were added or	Element following
		•	Test Station.	modified during this test.	the test.
		Spurious	Tested as	No EMI suppression	EUT remained at
6	11/7/2017	Conducted	delivered to	devices were added or	Element following
		Emissions	Test Station.	modified during this test.	the test.
		Frequency	Tested as	No EMI suppression	EUT remained at
7	11/8/2017	Stability	delivered to	devices were added or	Element following
		Otability	Test Station.	modified during this test.	the test.
		Radiated Power	Tested as	No EMI suppression	EUT remained at
8	11/9/2017	(EIRP)	delivered to	devices were added or	Element following
		(LIIXE)	Test Station.	modified during this test.	the test.
		Radiated Power	Tested as	No EMI suppression	Scheduled testing
9	11/9/2017	(EIRP)	delivered to	devices were added or	was completed.
			Test Station.	modified during this test.	was completed.



XMit 2017.09.21

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	5-Feb-15	5-Feb-18
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18E-20	TKS	6-Mar-17	6-Mar-18
Block - DC	Aeroflex	INMET 8535	AMO	27-Mar-17	27-Mar-18
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFJ	28-Jan-17	28-Jan-18

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. Per 47 CFR 95.2573(a), the emission bandwidth was determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 20 dB down relative to the maximum level of the modulated carrier. A spectrum analyzer using a peak detector with no video filtering was used with a resolution bandwidth equal to approximately 1.0 percent of the emission bandwidth of the EUT.



						IBUX 2017.10.04	XMit 2017.09.21			
EUT: Clin	Serial Number: AC1C870003  Customer: Axonics Modulation Technologies, Inc.  Attendees: Franklin Portillo Project: None Tested by: Johny Candelas ST SPECIFICATIONS Test Method C 951:2017 ANSI C63.26:2015  MMENTS Block + 20dB Attenuator + Coax Cable = 20.95dB Total Offset wer Transmit Index = 33  VIATIONS FROM TEST STANDARD ne Infiguration # 29  Signature  Value EDS Low Band, Mid Channel, 401.55 MHz  Axonics Modulation Technologies, Inc. Tested by: Johny Candelas Test Method Test Method ANSI C63.26:2015  VIATIONS FROM TEST STANDARD Re Signature  Value 82.582 KHz		AXON0097							
Serial Number: AC1	C870003				Date:	7-Nov-17				
Customer: Axo	nics Modulation Techn	ologies, Inc.			Temperature:	20.9 °C				
Attendees: Fran	nklin Portillo				Humidity:	49.7% RH				
Project: Non	е				Barometric Pres.:	1021 mbar				
Tested by: Joh	nny Candelas		Power:	7.6VDC	Job Site:	OC13				
TEST SPECIFICATIONS										
FCC 95I:2017				ANSI C63.26:2015						
COMMENTS										
		.95dB Total Offset								
<b>DEVIATIONS FROM TES</b>	ST STANDARD									
None										
Configuration #	29		fe d.	Collen						
						Limit				
Attendees: Franklin Portillo Humidit Project: None Barometric Pret Tested by: Johnny Candelas Power: 7.6VDC Job Sit TEST SPECIFICATIONS Test Method FCC 951:2017 ANSI C63.26:2015  COMMENTS DC Block + 20dB Attenuator + Coax Cable = 20.95dB Total Offset Power Transmit Index = 33  DEVIATIONS FROM TEST STANDARD None Configuration # 29 Signature  Value MEDS Low Band, Mid Channel, 401.55 MHz 82.582 kHz			(≤)	Result						
MEDS Low Band, Mid Ch	annel, 401.55 MHz			<u> </u>	82.582 kHz	100 kHz	Pass			
MICS Mid Band, Mid Cha	nnel, 403.5 MHz				127.432 kHz	300 kHz	Pass			
MEDS High Band, Mid Cl	nannel, 405.55 MHz				82.758 kHz	100 kHz	Pass			

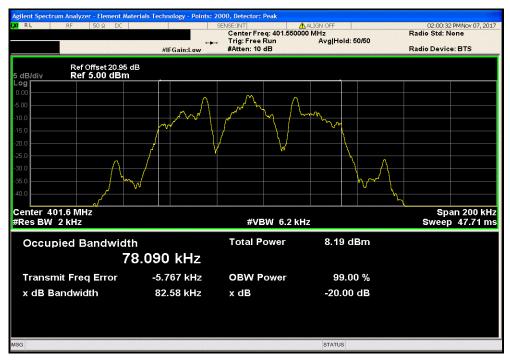


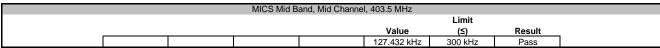
MEDS Low Band, Mid Channel, 401.55 MHz

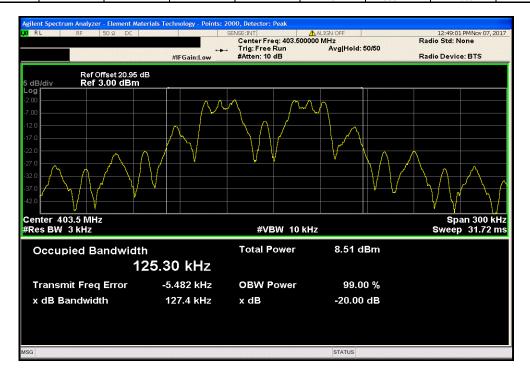
Limit

Value (5) Result

82.582 kHz 100 kHz Pass







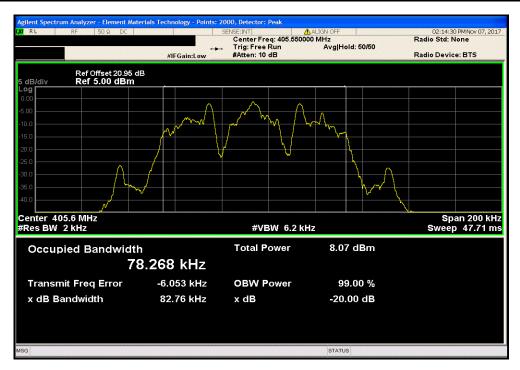


MEDS High Band, Mid Channel, 405.55 MHz

Limit

Value (5) Result

82.758 kHz 100 kHz Pass





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#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	5-Feb-15	5-Feb-18
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18E-20	TKS	6-Mar-17	6-Mar-18
Block - DC	Aeroflex	INMET 8535	AMO	27-Mar-17	27-Mar-18
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFJ	28-Jan-17	28-Jan-18

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. Per 47 CFR 95.2579(a)(1) the emission mask was measured. Emissions more than 150 kHz away from the center frequency must be attenuated below the transmitter output power by at least 20 dB. This was evaluated by the Occupied Bandwidth measurement according to 47 CFR 95.2573(a). In addition, emissions 250 kHz or less above and below the MICS band (402-405 MHz) must be attenuated below the maximum permitted output power by at least 20 dB.

A spectrum analyzer was used to measure the emission mask. A spectrum analyzer using a peak detector with no video filtering was used with a resolution bandwidth equal to approximately 1.0 percent of the emission bandwidth of the EUT. However, various plots were made using different frequency spans and resolution bandwidths in an attempt to not only satisfy the measurement criteria, but to also show that all emissions outside of the occupied band are greatly attenuated.



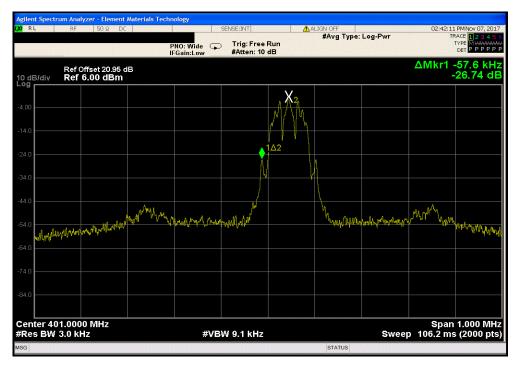
						TbtTx 2017.10.04	XMit 2017.09.21
EUT:	Clinician Programmer (CF	P) Model: 2501 (MICS/MEDS/MedRad	io)		Work Order:	AXON0097	
Serial Number:	AC1C870003		Date:	7-Nov-17			
Customer:	Axonics Modulation Tech	nologies, Inc.	Temperature:	20.9 °C			
Attendees:	Franklin Portillo				Humidity:	49.7% RH	
Project:	None				Barometric Pres.:	1021 mbar	
Tested by:	Johnny Candelas		Power:	7.6VDC	Job Site:	OC13	
TEST SPECIFICATI	ONS			Test Method			
FCC 95I:2017				ANSI C63.26:2015			
COMMENTS							
DC Block + 20dB A	ttenuator + Coax Cable = 2	20.95dB Total Offset					
Power Transmit Inc	dex = 33						
DEVIATIONS FROM	I TEST STANDARD						
None							
Configuration #	29		fe d.	Collen			
		Signature	J				
					Value (dBc)	Limit ≤ (dBc)	Result
MEDS Low Band, Lo	w Channel, 401.05 MHz				-26.74	-20	Pass
	igh Channel, 401.85 MHz				-43.87	-20	Pass
	v Channel, 402.3 MHz				-40.25	-20	Pass
	h Channel, 404.7 MHz				-40.66	-20	Pass
	ow Channel, 405.05 MHz				-26.12	-20	Pass
	ligh Channel, 405.85 MHz				-45.93	-20	Pass



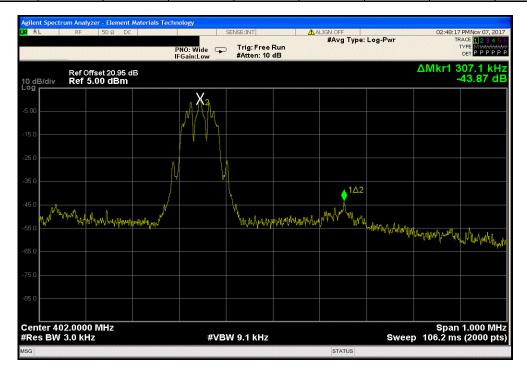
MEDS Low Band, Low Channel, 401.05 MHz

Value Limit
(dBc) ≤ (dBc) Result

-26.74 -20 Pass



	MEDS Low Band, High Channel, 401.85 MHz								
Value Limit									
					(dBc)	≤ (dBc)	Result		
					-43.87	-20	Pass		

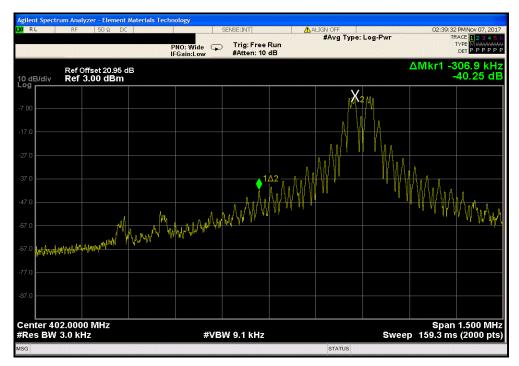




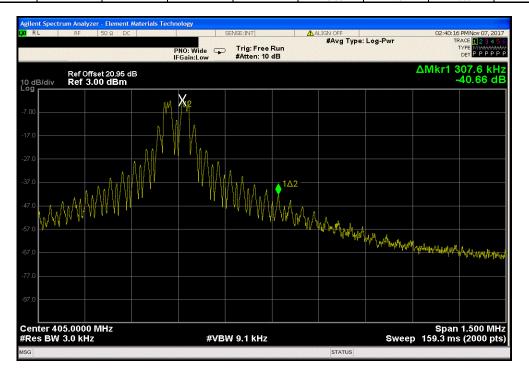
MICS Mid Band, Low Channel, 402.3 MHz

Value Limit
(dBc) ≤ (dBc) Result

-40.25 -20 Pass



	MICS Mid Band, High Channel, 404.7 MHz									
Value Limit										
	(dBc) ≤ (dBc) Result									
					-40.66	-20	Pass			

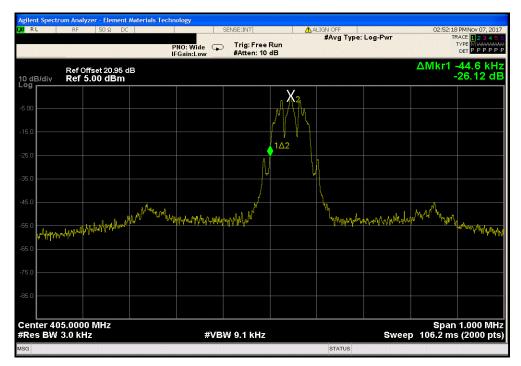




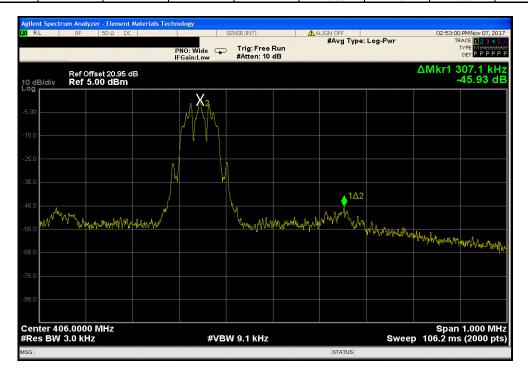
MEDS High Band, Low Channel, 405.05 MHz

Value Limit
(dBc) ≤ (dBc) Result

-26.12 -20 Pass



	MEDS High Band, High Channel, 405.85 MHz								
Value Limit									
					(dBc)	≤ (dBc)	Result		
					-45.93	-20	Pass		





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#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	5-Feb-15	5-Feb-18
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18E-20	TKS	6-Mar-17	6-Mar-18
Block - DC	Aeroflex	INMET 8535	AMO	27-Mar-17	27-Mar-18
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFJ	28-Jan-17	28-Jan-18

#### **TEST DESCRIPTION**

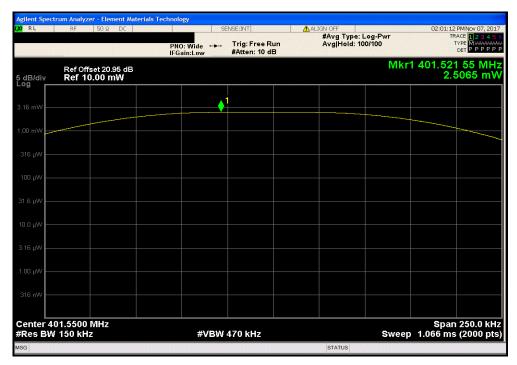
The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. Per FCC Part 2.1046, RSS-GEN, the output power shall be measured at the RF terminal. The peak output power was measured with the EUT configured in the modes listed in the datasheet. The EUT was transmitting at its maximum data rate.

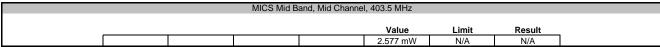
FCC Part 95 and RSS-243 have no conducted output power limit. It is a requirement to characterize this information and that data is contained within this datasheet.

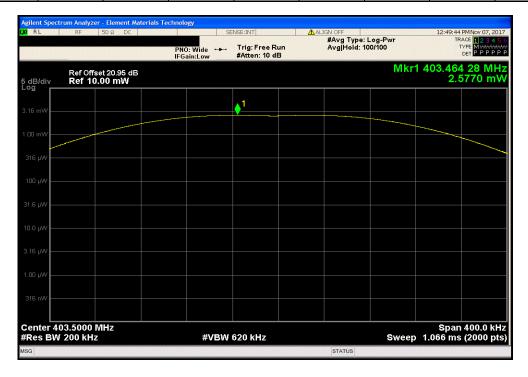


						TbtTx 2017.10.04	XMit 2017.09.21
EUT: C	Clinician Programmer (Cl	P) Model: 2501 (MICS/MEDS/MedRad	io)		Work Ord	er: AXON0097	
Serial Number: A	C1C870003					te: 7-Nov-17	
Customer: A	xonics Modulation Tech	nologies, Inc.			Temperatu	e: 20.9 °C	
Attendees: F	ranklin Portillo				Humidi	ty: 49.7% RH	
Project: N	lone				Barometric Pre	s.: 1021 mbar	
Tested by: J	ohnny Candelas		Power:	7.6VDC	Job Si	te: OC13	
TEST SPECIFICATIO	NS			Test Method			
FCC 95I:2017				ANSI C63.26:2015			
COMMENTS							
DC Block + 20dB Atte	enuator + Coax Cable = 2	20.95dB Total Offset					
Power Transmit Inde	x = 33						
<b>DEVIATIONS FROM 1</b>	TEST STANDARD						
None							
Configuration #	29	Signature	for d.	Collen			
			•		Value	Limit	Result
MEDS Low Band, Mid	Channel, 401.55 MHz				2.507 mW	N/A	N/A
MICS Mid Band, Mid C	Channel, 403.5 MHz				2.577 mW	N/A	N/A
MEDS High Band, Mid	Channel, 405.55 MHz				2.419 mW	N/A	N/A











MEDS High Band, Mid Channel, 405.55 MHz

Value Limit Result
2.419 mW N/A N/A





XMit 2017.09.21

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

#### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Meter - Multimeter	Fluke	79 III	MMD	11-Feb-16	11-Feb-19
Thermometer	Omega Engineering, Inc.	HH311	DUC	9-Oct-17	9-Oct-20
Chamber - Temperature/Humidity	Cincinnati Sub Zero (CSZ)	ZPHS-32-3.5-SCT/AC	TBE	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	5-Feb-15	5-Feb-18
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18E-20	TKS	6-Mar-17	6-Mar-18
Block - DC	Aeroflex	INMET 8535	AMO	27-Mar-17	27-Mar-18
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFJ	28-Jan-17	28-Jan-18

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spectrum analyzer is configured with a precision frequency reference that exceeds the stability requirement of the transmitter. The EUT was placed inside a temperature / humidity chamber.

#### Variation of Supply Voltage

The primary supply voltage was varied over the range specified by the client. Per the client, the device only works over this voltage range; it will shut off if the voltage is outside the specified range.

#### **Variation of Ambient Temperature**

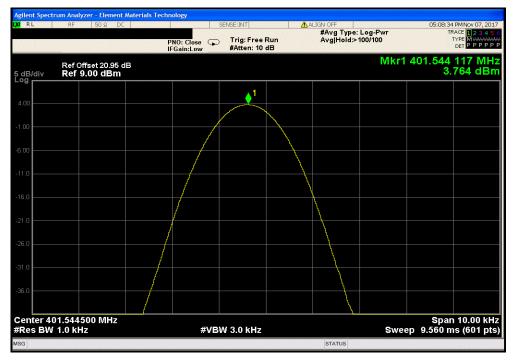
Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (0° to 55°C, in 10°C increments).



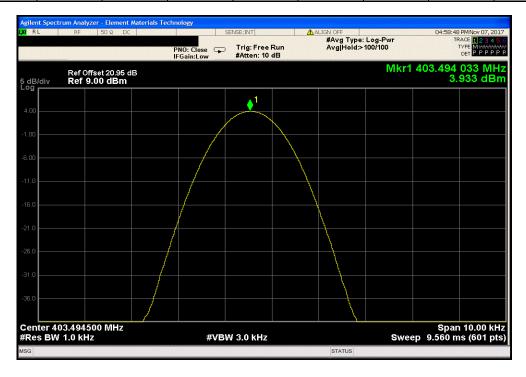
EUT: Clinician Programmer (CP) Model: 2501 (MICS/MEDS/MedRadio)
Serial Number: AC1C870003
Customer: Axonics Modulation Technologies, Inc. Work Order: AXON0097 Date: 8-Nov-17 Temperature: 20.2 °C Attendees: Franklin Portillo Humidity: 48.5% RH Barometric Pres.: 1019 mbar Project: None Tested by: Johnny Candelas
TEST SPECIFICATIONS Power: 7.6VDC Test Method Job Site: OC13 FCC 95I:2017 COMMENTS DC Block + 20dB Attenuator + Coax Cable = 20.95dB Total Offset Power Transmit Index = 33 DEVIATIONS FROM TEST STANDARD for d. lather Configuration # 29 Signature Assigned Value (MHz) Value (MHz) Results (ppm) (ppm) tery Nominal Voltage 7.6VDC MEDS Low Band, Mid Channel, 401.55 MHz 401.544 401.55 14.7 100 MICS Mid Band, Mid Channel, 403.5 MHz 403.494 403.5 14.8 100 Pass MEDS High Band, Mid Channel, 405.55 MHz 405 544 405 55 15.1 100 Pass Extreme Battery Full Voltage 8.7VDC MEDS Low Band, Mid Channel, 401.55 MHz 401.544 401.55 14.7 100 Pass MICS Mid Band, Mid Channel, 403.5 MHz 403.494 403.5 14.8 100 Pass MEDS High Band, Mid Channel, 405.55 MHz Extreme Battery Shutdown Voltage 6.0VDC 405.544 405.55 15.2 100 Pass MEDS Low Band, Mid Channel, 401.55 MHz MICS Mid Band, Mid Channel, 403.5 MHz 401 544 401 55 14.7 100 Pass 100 403.5 14.8 Pass MEDS High Band, Mid Channel, 405.55 MHz 405.544 405.55 15.2 100 Pass Extreme Temperature +55°C MEDS Low Band, Mid Channel, 401 55 MHz 401 543 401 55 16.9 100 Pass MICS Mid Band, Mid Channel, 403.5 MHz 403.493 403.5 100 Pass 17.1 MEDS High Band, Mid Channel, 405.55 MHz 405.543 405.55 17.3 100 Pass Extreme Temperature +50°C MEDS Low Band, Mid Channel, 401.55 MHz MICS Mid Band, Mid Channel, 403.5 MHz 401.543 401.55 17.3 100 Pass 17.5 100 403.5 Pass MEDS High Band, Mid Channel, 405.55 MHz 405.543 405 55 17 7 100 Pass Extreme Temperature +40°C MEDS Low Band, Mid Channel, 401.55 MHz MICS Mid Band, Mid Channel, 403.5 MHz 401.543 401.55 16.7 100 Pass 403.493 403.5 Pass 16.9 100 MEDS High Band, Mid Channel, 405.55 MHz 405 543 405 55 17 1 100 Pass Extreme Temperature +30°C MEDS Low Band, Mid Channel, 401.55 MHz 401.544 401.55 15.3 100 Pass MICS Mid Band, Mid Channel, 403.5 MHz 403.494 403.5 100 Pass 15.5 MEDS High Band, Mid Channel, 405.55 MHz 405.544 405.55 15.7 100 Pass Extreme Temperat MEDS Low Band, Mid Channel, 401.55 MHz MICS Mid Band, Mid Channel, 403.5 MHz 401 545 401 55 13.5 100 Pass 403.494 403.5 13.7 100 Pass MEDS High Band, Mid Channel, 405.55 MHz 405.544 405.55 13.9 100 Pass Extreme Temperature +10°C MEDS Low Band, Mid Channel, 401 55 MHz 401 545 401.55 12 0 100 Pass MICS Mid Band, Mid Channel, 403.5 MHz 403.495 403.5 100 Pass 12.1 MEDS High Band, Mid Channel, 405.55 MHz 405.545 405.55 12.4 100 Pass Extreme Temperature 0°C MEDS Low Band, Mid Channel, 401.55 MHz MICS Mid Band, Mid Channel, 403.5 MHz 11.5 11.7 401.545 401.55 100 Pass 403.5 100 Pass MEDS High Band, Mid Channel, 405.55 MHz 405 545 405 55 11 9 100 Pass



	Battery Nomir	nal Voltage 7.6VE	C, MEDS Low B	and, Mid Channel	, 401.55 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		401.544	401.55	14.7	100	Pass	

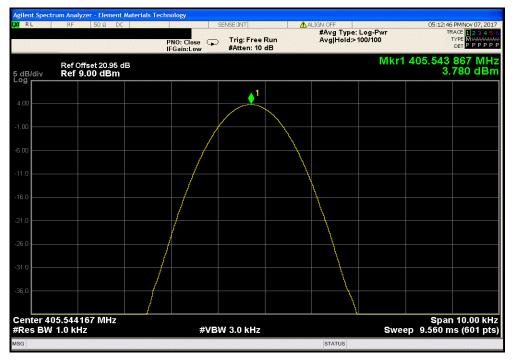


	Battery Nom	inal Voltage 7.6V	DC, MICS Mid B	and, Mid Channe	l, 403.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		403.494	403.5	14.8	100	Pass

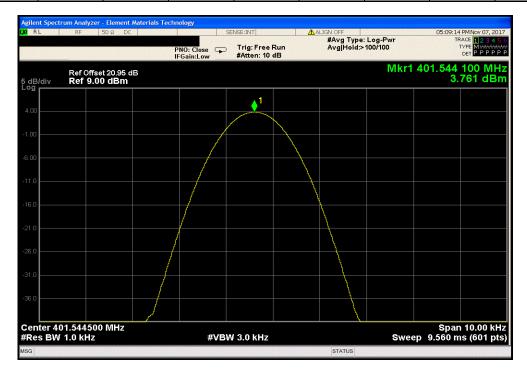




Battery Nomir	nal Voltage 7.6VD	C, MEDS High B	and, Mid Channe	l, 405.55 MHz		
	Measured	Assigned	Error	Limit		
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
	405.544	405.55	15.1	100	Pass	

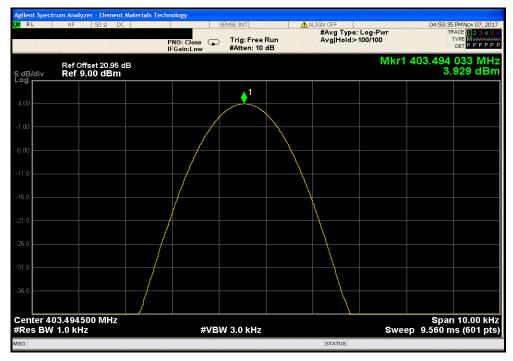


	Extreme Battery	Full Voltage 8.7	VDC, MEDS Low	Band, Mid Chani	nel, 401.55 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		401.544	401.55	14.7	100	Pass	

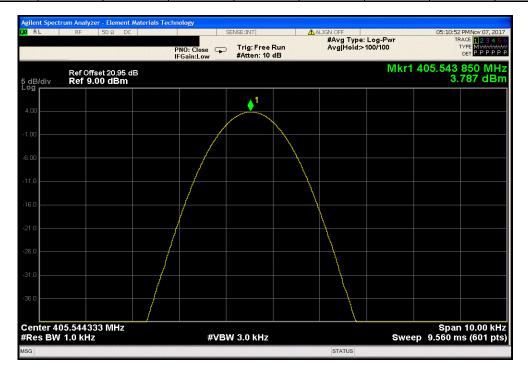




	Extreme Batter	ry Full Voltage 8.	7VDC, MICS Mid	Band, Mid Chani	nel, 403.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		403.494	403.5	14.8	100	Pass	

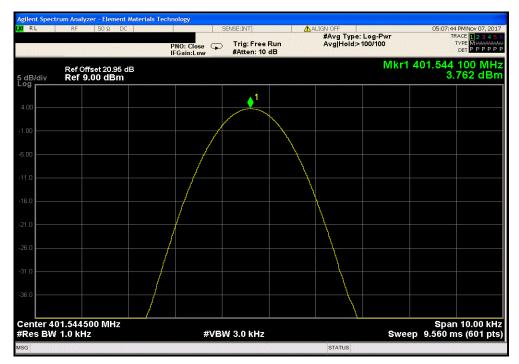


	Extreme Battery	Full Voltage 8.7\	VDC, MEDS High	Band, Mid Chan	nel, 405.55 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		405.544	405.55	15.2	100	Pass

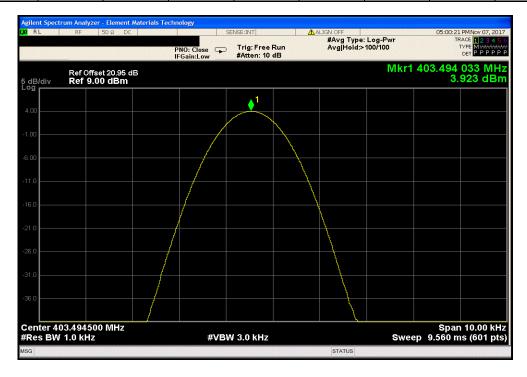




E	xtreme Battery Sh	nutdown Voltage	6.0VDC, MEDS L	ow Band, Mid Ch	nannel, 401.55 MH	Нz	
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		401.544	401.55	14.7	100	Pass	i

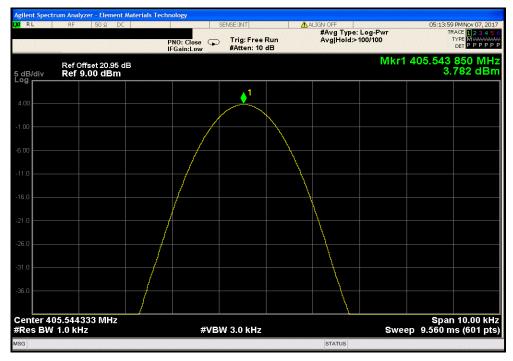


	Extreme Battery S	Shutdown Voltage	6.0VDC, MICS N	Mid Band, Mid Ch	annel, 403.5 MHz	Z	
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		403.494	403.5	14.8	100	Pass	

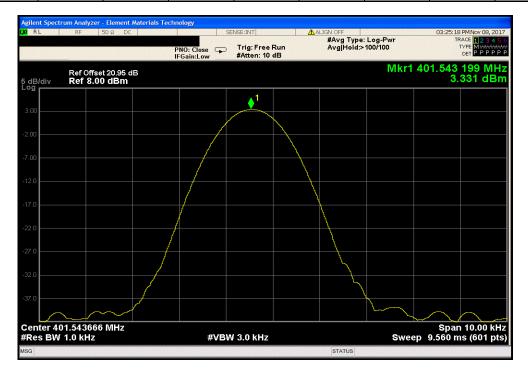




	E	treme Battery Sh	utdown Voltage 6	6.0VDC, MEDS H	ligh Band, Mid Ch	nannel, 405.55 MI	Hz	
			Measured	Assigned	Error	Limit		
			Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
l [			405.544	405.55	15.2	100	Pass	



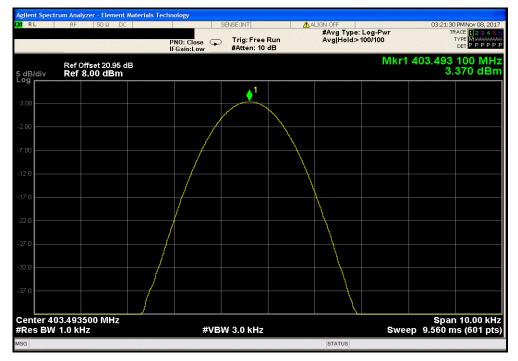
	Extreme Te	mperature +55°C	, MEDS Low Bar	d, Mid Channel,	401.55 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		401.543	401.55	16.9	100	Pass



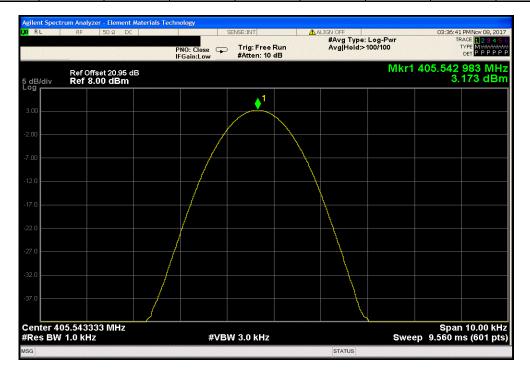


Extreme Temperature +55°C, MICS Mid Band, Mid Channel, 403.5 MHz

| Measured Assigned Error Limit | Value (MHz) Value (MHz) (ppm) (ppm) | Results | 403.493 | 403.5 | 17.1 | 100 | Pass |



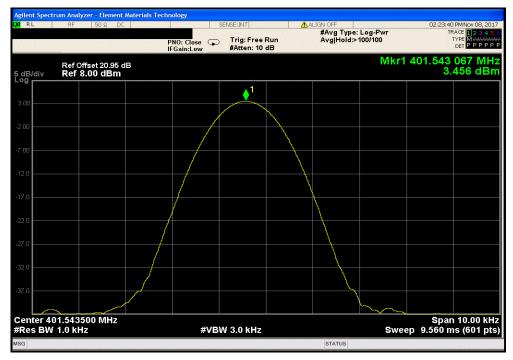
Extreme Temperature +55°C, MEDS High Band, Mid Channel, 405.55 MHz									
Measured Assigned Error Limit									
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results			
		405.543	405.55	17.3	100	Pass			



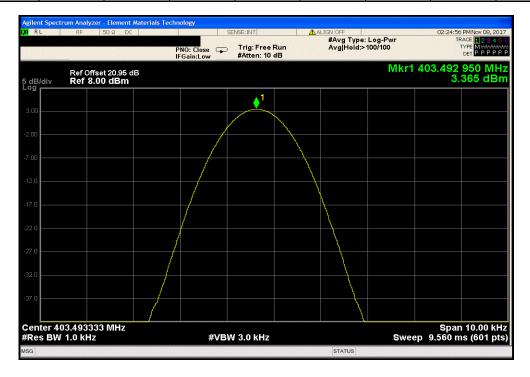


Extreme Temperature +50°C, MEDS Low Band, Mid Channel, 401.55 MHz

| Measured Assigned Error Limit | Value (MHz) Value (MHz) (ppm) (ppm) | Results | 401.543 | 401.55 | 17.3 | 100 | Pass |

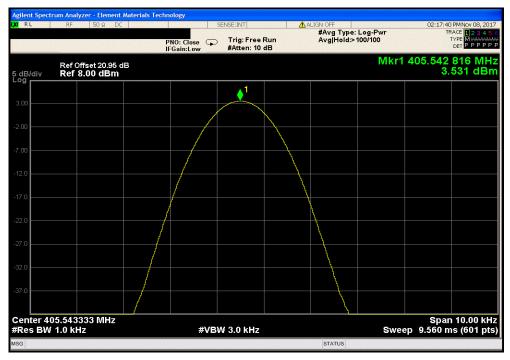


Extreme Temperature +50°C, MICS Mid Band, Mid Channel, 403.5 MHz									
			Measured	Assigned	Error	Limit			
			Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_	
			403.493	403.5	17.5	100	Pass		

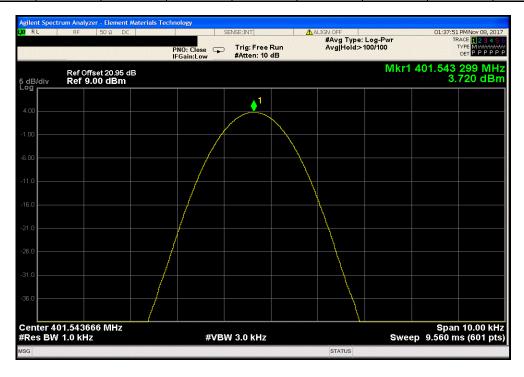




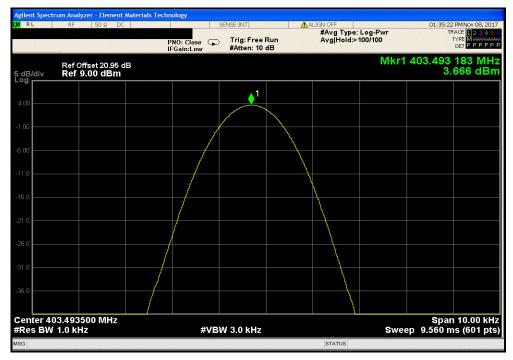
	Extreme Temperature +50°C, MEDS High Band, Mid Channel, 405.55 MHz								
	Measured Assigned Error Limit								
			Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
1			405.543	405.55	17.7	100	Pass		



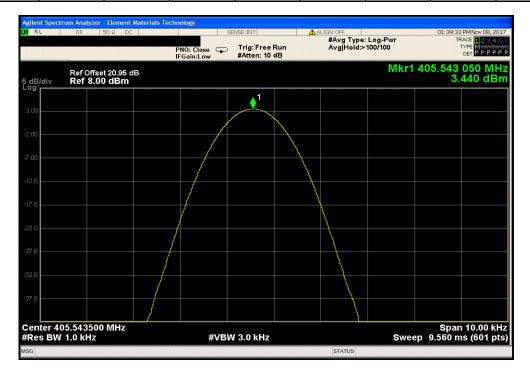
Extreme Temperature +40°C, MEDS Low Band, Mid Channel, 401.55 MHz								
	Measured Assigned Error Limit							
			Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
			401.543	401.55	16.7	100	Pass	







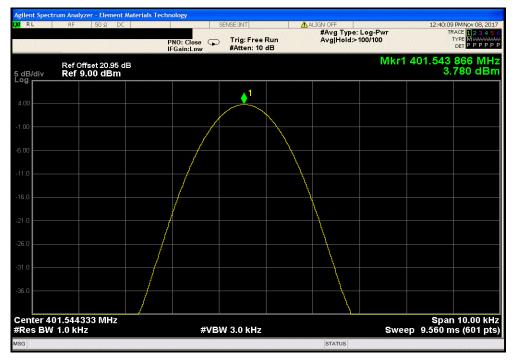
Extreme Temperature +40°C, MEDS High Band, Mid Channel, 405.55 MHz									
	Measured Assigned Error Limit								
			Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
			405.543	405.55	17.1	100	Pass	i	



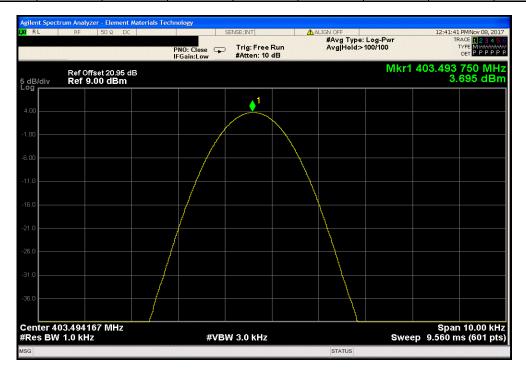


Extreme Temperature +30°C, MEDS Low Band, Mid Channel, 401.55 MHz

| Measured Assigned Error Limit | Value (MHz) Value (MHz) (ppm) (ppm) | Results | 401.544 | 401.55 | 15.3 | 100 | Pass |



Extreme Temperature +30°C, MICS Mid Band, Mid Channel, 403.5 MHz									
	Measured Assigned Error Lin								
			Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results		
			403.494	403.5	15.5	100	Pass		

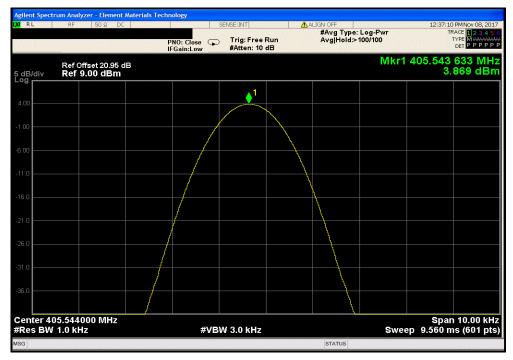




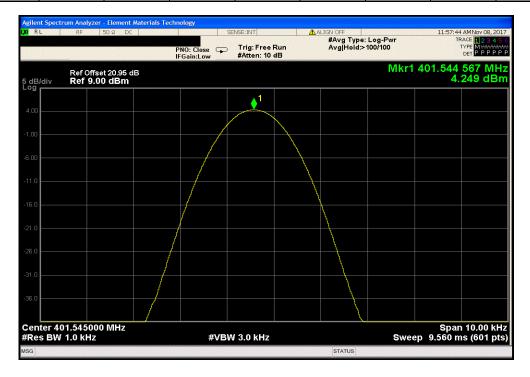
TbtTx 2017.10.04

Extreme Temperature +30°C, MEDS High Band, Mid Channel, 405.55 MHz

| Measured Assigned Error Limit | Value (MHz) Value (MHz) (ppm) (ppm) | Results | 405.544 | 405.55 | 15.7 | 100 | Pass |



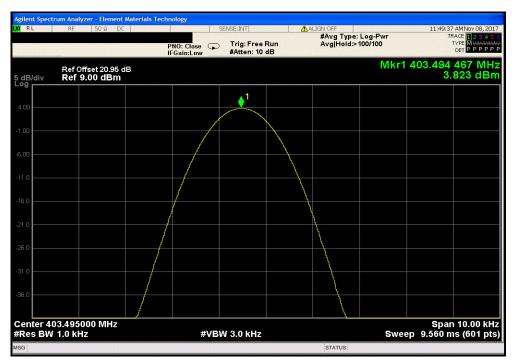
	Extreme Te	mperature +20°C	, MEDS Low Bar	nd, Mid Channel,	401.55 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		401.545	401.55	13.5	100	Pass	





Futrama Tamparatura (2000 MICS Mid Pand Mid Channel 403 5 MHz

	Extreme T	emperature +20°	C, MICS Mid Bar	d, Mid Channel,	403.5 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		403.494	403.5	13.7	100	Pass	

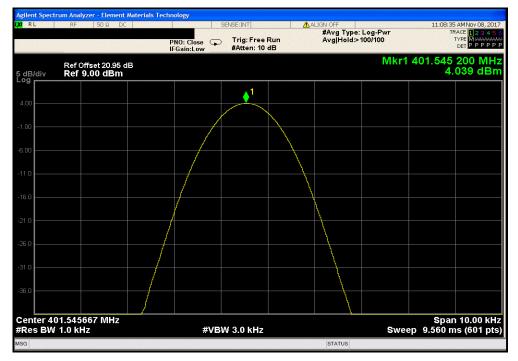


	Extreme Ter	mperature +20°C	, MEDS High Bar	nd, Mid Channel,	405.55 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		405.544	405.55	13.9	100	Pass	

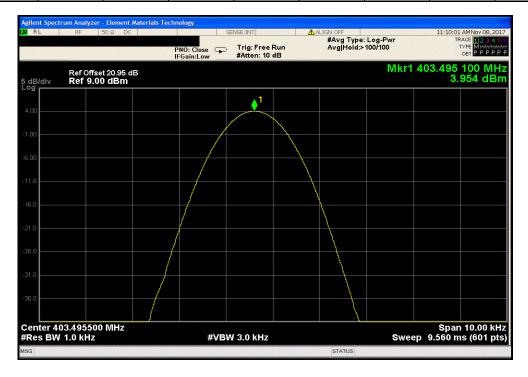




Extreme Te	emperature +10°C	, MEDS Low Bar	d, Mid Channel,	401.55 MHz		
	Measured	Assigned	Error	Limit		
	Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
	401.545	401.55	12.0	100	Pass	



	Extreme T	emperature +10°	C, MICS Mid Bar	d, Mid Channel,	403.5 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		403.495	403.5	12.1	100	Pass

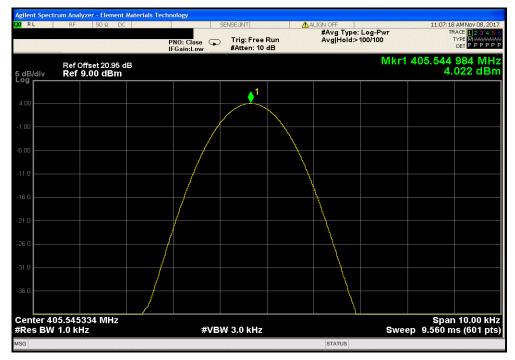




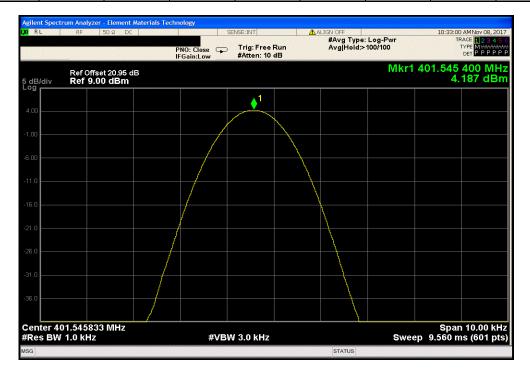
TbtTx 2017.10.04

Extreme Temperature +10°C, MEDS High Band, Mid Channel, 405.55 MHz

| Measured Assigned Error Limit | Value (MHz) Value (MHz) (ppm) (ppm) | Results | 405.545 | 405.55 | 12.4 | 100 | Pass |



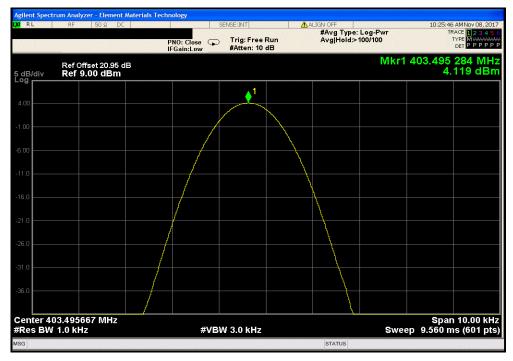
	Extreme T	emperature 0°C,	MEDS Low Band	l, Mid Channel, 40	01.55 MHz		
		Measured	Assigned	Error	Limit		
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	
		401.545	401.55	11.5	100	Pass	



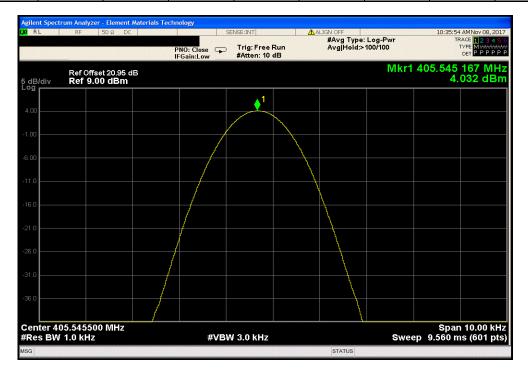


TbtTx 2017.10.04 XMit 2017.09.21

	Extreme	Temperature 0°C	, MICS Mid Band	I, Mid Channel, 40	03.5 MHz		
		Measured	Assigned	Error	Limit		
_		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results	_
		403.495	403.5	11.7	100	Pass	



	Extreme T	emperature 0°C,	MEDS High Band	d, Mid Channel, 4	05.55 MHz	
		Measured	Assigned	Error	Limit	
		Value (MHz)	Value (MHz)	(ppm)	(ppm)	Results
		405.545	405.55	11.9	100	Pass



## SPURIOUS RADIATED EMISSIONS



PSA-ESCI 2017.06.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

#### **MODES OF OPERATION**

Transmitting Modulated at Mid Ch - MEDS Low Band = 401.55 MHz, Mid Ch - MICS Mid Band = 403.5 MHz & Mid Ch - MEDS High Band = 405.55 MHz

#### POWER SETTINGS INVESTIGATED

Battery

110VAC/60Hz

#### **CONFIGURATIONS INVESTIGATED**

AXON0097 - 28

AXON0097 - 27

#### FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	5000 MHz
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#### **SAMPLE CALCULATIONS**

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Interval
Cable	Northwest EMC	1-8GHz RE Cables	OCJ	7/13/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	7/13/2017	12 mo
Antenna - Double Ridge	EMCO	3115	AHB	3/21/2016	24 mo
Cable	Northwest EMC	10kHz-1GHz RE Cables	OCH	8/1/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1402	AOZ	8/1/2017	12 mo
Antenna - Biconilog	Teseq	CBL 6141A	AYE	11/7/2017	24 mo
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12 mo

#### **TEST DESCRIPTION**

The highest gain of each type of antenna to be used with the EUT was tested. For each configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4). A preamp was used for this test in order to provide sufficient measurement sensitivity.

Per CFR 47 95.2579(a), field strength measurements were performed and compared to the specified limits.

# **SPURIOUS RADIATED EMISSIONS**



				EmiR5 2017.07.11 PSA-ESCI 2017.06
Work Order:	AXON0097	Date:	11/02/17	-Cull Man
Project:	None	Temperature:	20.7 °C	Je d. Coller
Job Site:	OC10	Humidity:	53.7% RH	
Serial Number:	AC1C870004	Barometric Pres.:	1019 mbar	Tested by: Johnny Candelas
EUT:	Clinician Programmer	(CP) Model: 2501 (MI	CS/MEDS/MedRadio)	
Configuration:	27			
Customer:	Axonics Modulation To	echnologies, Inc.		
Attendees:	Franklin Portillo			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting Modulate	ed at Mid Ch - MEDS Lo	ow Band = 401.55 MH	Hz, Mid Ch - MICS Mid Band = 403.5 MHz &
Operating Mode.	Mid Ch - MEDS High I	Band = 405.55 MHz		
Deviations:	None			
	Power Transmit Index	= 33		
Comments:				

Test Specifications
FCC 95I:2016 Test Method

ANSI C63.26:2015

		•		
		-		
			<b>◆ ◆</b>	
		• •		
100		1000		100
	100		100 1000	

Freq	Amplitude	Factor	Antenna Height	Azimuth	Test Distance	External Attenuation	Polarity/ Transducer Type	Detector	Distance Adjustment	Adjusted	Spec. Limit	Compared to Spec.	
(MHz)	(dBuV)	(dB)	(meters)	(degrees)	(meters)	(dB)			(dB)	(dBuV/m)	(dBuV/m)	(dB)	C
0010.01	10.5	4.0		100.0				***					Comments
2810.810		4.0	2.7	192.0	3.0	0.0	Horz	AV	0.0	52.5	54.0	-1.5	Low 401.55MHz, EUT Horiz
2824.460		4.0	2.7	191.0	3.0	0.0	Horz	AV	0.0	52.4	54.0	-1.6	Mid 403.5MHz, EUT Horiz
2838.835		4.2	2.6	194.0	3.0	0.0	Horz	AV	0.0	52.2	54.0	-1.8	High 405.55MHz, EUT Horiz
2433.280		2.9	1.4	30.0	3.0	0.0	Vert	AV	0.0	51.6	54.0	-2.4	High 405.55MHz, EUT on Side
2409.290	48.2	2.9	1.3	50.0	3.0	0.0	Vert	AV	0.0	51.1	54.0	-2.9	Low 401.55MHz, EUT on Side
2824.505	46.4	4.0	2.1	360.0	3.0	0.0	Horz	AV	0.0	50.4	54.0	-3.6	Mid 403.5MHz, EUT Vert
2409.285	47.2	2.9	2.9	238.0	3.0	0.0	Horz	AV	0.0	50.1	54.0	-3.9	Low 401.55MHz, EUT Horiz
2810.835	45.7	4.0	1.2	4.0	3.0	0.0	Vert	AV	0.0	49.7	54.0	-4.3	Low 401.55MHz, EUT on Side
2838.775	44.8	4.2	1.2	133.0	3.0	0.0	Vert	AV	0.0	49.0	54.0	-5.0	High 405.55MHz, EUT on Side
2824.475	44.8	4.0	3.0	15.0	3.0	0.0	Horz	AV	0.0	48.8	54.0	-5.2	Mid 403.5MHz, EUT on Side
2824.450	44.3	4.0	1.2	135.0	3.0	0.0	Vert	AV	0.0	48.3	54.0	-5.7	Mid 403.5MHz, EUT on Side
1606.170	48.1	0.1	2.5	96.0	3.0	0.0	Vert	AV	0.0	48.2	54.0	-5.8	Low 401.55MHz, EUT on Side
2421.000	45.1	2.9	1.2	51.0	3.0	0.0	Vert	AV	0.0	48.0	54.0	-6.0	Mid 403.5MHz, EUT on Side
1606.175	47.2	0.1	1.0	208.0	3.0	0.0	Horz	AV	0.0	47.3	54.0	-6.7	Low 401.55MHz, EUT Horiz
1622.185	47.1	0.1	2.6	99.0	3.0	0.0	Vert	AV	0.0	47.2	54.0	-6.8	High 405.55MHz, EUT on Side
1613.975	46.7	0.1	1.0	189.0	3.0	0.0	Horz	AV	0.0	46.8	54.0	-7.2	Mid 403.5MHz, EUT Horiz
2433.275	43.9	2.9	1.2	189.0	3.0	0.0	Horz	AV	0.0	46.8	54.0	-7.2	High 405.55MHz, EUT Horiz
1613.975		0.1	1.2	120.0	3.0	0.0	Vert	AV	0.0	46.3	54.0	-7.7	Mid 403.5MHz. EUT on Side
2824.475		4.0	2.8	182.0	3.0	0.0	Vert	AV	0.0	45.9	54.0	-8.1	Mid 403.5MHz, EUT Vert
1622.180		0.1	1.0	206.0	3.0	0.0	Horz	AV	0.0	45.5	54.0	-8.5	High 405.55MHz, EUT Horiz
2420.960		2.9	1.2	196.0	3.0	0.0	Horz	AV	0.0	43.9	54.0	-10.1	Mid 403.5MHz, EUT Horiz
2824.480		4.0	1.0	264.0	3.0	0.0	Vert	AV	0.0	43.6	54.0	-10.4	Mid 403.5MHz, EUT Horiz
2024.400	30.0		0	204.0	0.0	0.0	. 511		0.0	.5.0	3 1.0		

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
803.123	16.8	13.6	1.2	247.0	3.0	0.0	Vert	QP	0.0	30.4	46.0	-15.6	Low 401.55MHz, EUT on Side
811.067	16.7	13.7	1.2	320.0	3.0	0.0	Horz	QP	0.0	30.4	46.0	-15.6	High 405.55MHz, EUT Horiz
811.070	16.7	13.7	1.2	252.0	3.0	0.0	Vert	QP	0.0	30.4	46.0	-15.6	High 405.55MHz, EUT on Side
806.940	15.6	13.6	1.0	183.0	3.0	0.0	Vert	QP	0.0	29.2	46.0	-16.8	Mid 403.5MHz, EUT on Side
807.058	15.1	13.6	1.0	206.0	3.0	0.0	Horz	QP	0.0	28.7	46.0	-17.3	Mid 403.5MHz, EUT Horiz
1223.985	38.4	-1.8	1.3	213.0	3.0	0.0	Horz	AV	0.0	36.6	54.0	-17.4	Mid 403.5MHz, EUT Horiz
803.123	14.7	13.6	1.2	4.0	3.0	0.0	Horz	QP	0.0	28.3	46.0	-17.7	Low 401.55MHz, EUT Horiz
1200.000	37.9	-1.9	1.3	236.0	3.0	0.0	Horz	AV	0.0	36.0	54.0	-18.0	Low 401.55MHz, EUT Horiz
2824.655	50.9	4.0	2.7	191.0	3.0	0.0	Horz	PK	0.0	54.9	74.0	-19.1	Mid 403.5MHz, EUT Horiz
2838.865	50.7	4.2	2.6	194.0	3.0	0.0	Horz	PK	0.0	54.9	74.0	-19.1	High 405.55MHz, EUT Horiz
2433.170	51.4	2.9	1.4	30.0	3.0	0.0	Vert	PK	0.0	54.3	74.0	-19.7	High 405.55MHz, EUT on Side
2810.980	50.2	4.0	2.7	192.0	3.0	0.0	Horz	PK	0.0	54.2	74.0	-19.8	Low 401.55MHz, EUT Horiz
2409.340	50.8	2.9	1.3	50.0	3.0	0.0	Vert	PK	0.0	53.7	74.0	-20.3	Low 401.55MHz, EUT on Side
2824.190	49.1	4.0	2.1	360.0	3.0	0.0	Horz	PK	0.0	53.1	74.0	-20.9	Mid 403.5MHz, EUT Vert
1200.015	35.0	-1.9	1.2	172.0	3.0	0.0	Vert	AV	0.0	33.1	54.0	-20.9	Low 401.55MHz, EUT on Side
1224.030	34.7	-1.8	1.2	167.0	3.0	0.0	Vert	AV	0.0	32.9	54.0	-21.1	Mid 403.5MHz, EUT on Side
2409.185	49.1	2.9	2.9	238.0	3.0	0.0	Horz	PK	0.0	52.0	74.0	-22.0	Low 401.55MHz, EUT Horiz
2824.705	47.9	4.0	3.0	15.0	3.0	0.0	Horz	PK	0.0	51.9	74.0	-22.1	Mid 403.5MHz, EUT on Side
2824.730	47.8	4.0	1.2	135.0	3.0	0.0	Vert	PK	0.0	51.8	74.0	-22.2	Mid 403.5MHz, EUT on Side
2811.035	47.8	4.0	1.2	4.0	3.0	0.0	Vert	PK	0.0	51.8	74.0	-22.2	Low 401.55MHz, EUT on Side
2838.650	47.3	4.2	1.2	133.0	3.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	High 405.55MHz, EUT on Side
2421.215	47.9	2.9	1.2	51.0	3.0	0.0	Vert	PK	0.0	50.8	74.0	-23.2	Mid 403.5MHz, EUT on Side
1606.285	49.7	0.1	2.5	96.0	3.0	0.0	Vert	PK	0.0	49.8	74.0	-24.2	Low 401.55MHz, EUT on Side
2824.745	45.6	4.0	2.8	182.0	3.0	0.0	Vert	PK	0.0	49.6	74.0	-24.4	Mid 403.5MHz, EUT Vert
1606.175	49.1	0.1	1.0	208.0	3.0	0.0	Horz	PK	0.0	49.2	74.0	-24.8	Low 401.55MHz, EUT Horiz
2433.255	46.3	2.9	1.2	189.0	3.0	0.0	Horz	PK	0.0	49.2	74.0	-24.8	High 405.55MHz, EUT Horiz
1622.205	49.0	0.1	2.6	99.0	3.0	0.0	Vert	PK	0.0	49.1	74.0	-24.9	High 405.55MHz, EUT on Side
1613.785	48.8	0.1	1.0	189.0	3.0	0.0	Horz	PK	0.0	48.9	74.0	-25.1	Mid 403.5MHz, EUT Horiz
1614.030	48.5	0.1	1.2	120.0	3.0	0.0	Vert	PK	0.0	48.6	74.0	-25.4	Mid 403.5MHz, EUT on Side
2824.790	44.4	4.0	1.0	264.0	3.0	0.0	Vert	PK	0.0	48.4	74.0	-25.6	Mid 403.5MHz, EUT Horiz
2421.250	44.8	2.9	1.2	196.0	3.0	0.0	Horz	PK	0.0	47.7	74.0	-26.3	Mid 403.5MHz, EUT Horiz
1622.210	47.6	0.1	1.0	206.0	3.0	0.0	Horz	PK	0.0	47.7	74.0	-26.3	High 405.55MHz, EUT Horiz
1216.610	29.3	-1.9	1.2	138.0	3.0	0.0	Vert	AV	0.0	27.4	54.0	-26.6	High 405.55MHz, EUT on Side
1216.550	29.0	-1.9	1.2	186.0	3.0	0.0	Horz	AV	0.0	27.1	54.0	-26.9	High 405.55MHz, EUT Horiz
1224.015	43.8	-1.8	1.3	213.0	3.0	0.0	Horz	PK	0.0	42.0	74.0	-32.0	Mid 403.5MHz, EUT Horiz
1199.900	43.3	-1.9	1.3	236.0	3.0	0.0	Horz	PK	0.0	41.4	74.0	-32.6	Low 401.55MHz, EUT Horiz
1200.000	41.8	-1.9	1.2	172.0	3.0	0.0	Vert	PK	0.0	39.9	74.0	-34.1	Low 401.55MHz, EUT on Side
1223.995	41.4	-1.8	1.2	167.0	3.0	0.0	Vert	PK	0.0	39.6	74.0	-34.4	Mid 403.5MHz, EUT on Side
1216.650	38.3	-1.9	1.2	138.0	3.0	0.0	Vert	PK	0.0	36.4	74.0	-37.6	High 405.55MHz, EUT on Side
1216.840	38.2	-1.9	1.2	186.0	3.0	0.0	Horz	PK	0.0	36.3	74.0	-37.7	High 405.55MHz, EUT Horiz

## **SPURIOUS RADIATED EMISSIONS**



										EmiR5 2017.07.11	F	SA-ESCI 2017.06.01	
Wo	ork Order:	AXON00	97		Date:	11/0	3/17	-	0	//	10		1
	Project:	None		Ter	nperature:	21.1		1	el s	1.	Alle.	-	
0	Job Site:	OC10		D	Humidity:	42.89		0	F 4 1	1-1			_
Seria	I Number:	AC1C8700 Clinician Prog			etric Pres.:	1022			Tested by:	Johnny Ca	ndelas		_
Conf		28	Tallille	(CI ) WIOC	IGI. 2301 (IVI	ICO/IVILDO/	ivieuraulo)						<del>-</del>
		Axonics Modu	lation Te	chnologie	s, Inc.								_
Δ.	Attendees:	Franklin Portil	lo										=
EU	JT Power:												_
Operat	ing Mode:	Transmitting N				ow Band =	401.55 MH	lz, Mid Ch	- MICS Mid	Band = 40	3.5 MHz &		
		Mid Ch - MED None	S High E	sand = 405	5.55 MHZ								_
D	eviations:	None											
		Power Transm	nit Index	= 33									_
C	omments:												
													=
<b>Test Spec</b>							Test Metho						=
FCC 951:20	016						ANSI C63.2	26:2015					
													<u> </u>
Run#	20	Test Distan	nce (m)	3	Antenna	Height(s)		1 to 3(m)		Results	Pa	ISS	_
Г													
80													
70													
70													
60 +													
								📙			_		
_ 50 -													
Ē										•			
w//ngp													
₽ 40													
30 +													
20													
10													
10													
0 +	<u> </u>			100				1000				10000	
10	,			100		MHz		1000				10000	
						ıvı⊓Z				■ PK	◆ AV	<ul><li>QP</li></ul>	
							Polarity/						
Freq	Amplitude	Factor Ante	nna Height	Azimuth	Test Distance	External Attenuation	Transducer Type	Detector	Distance Adjustment	Adjusted	Spec. Limit	Compared to Spec.	
(MHz)	(dBuV)		meters)	(degrees)	(meters)	(dB)	.,,,,,	Dolooioi	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
2810.805	48.3	4.0	2.7	196.0	3.0	0.0	Horz	AV	0.0	52.3	54.0	-1.7	Comments Low 401.55MHz, EUT Horiz, Batt
2810.805	48.3 48.2	4.0	2.7	196.0	3.0	0.0	Horz	AV	0.0	52.3 52.2	54.0 54.0	-1.7 -1.8	Mid 403.5MHz, EUT Horiz, Batt
2838.805	47.9	4.2	2.7	194.0	3.0	0.0	Horz	AV	0.0	52.1	54.0	-1.9	High 405.55MHz, EUT Horiz, Batt
2810.785 2838.810	46.2 45.8	4.0 4.2	1.2 1.2	360.0 63.0	3.0 3.0	0.0 0.0	Vert Vert	AV AV	0.0 0.0	50.2 50.0	54.0 54.0	-3.8 -4.0	Low 401.55MHz, EUT on Side, Batt High 405.55MHz, EUT on Side, Batt
2824.465	43.6	4.0	1.7	287.0	3.0	0.0	Vert	AV	0.0	47.6	54.0	-6.4	Mid 403.5MHz, EUT on Side, Batt
2810.915	51.1	4.0	2.7	196.0	3.0	0.0	Horz	PK	0.0	55.1	74.0	-18.9	Low 401.55MHz, EUT Horiz, Batt
2839.035 2824.200	50.5 50.6	4.2 4.0	2.7 2.7	194.0 194.0	3.0 3.0	0.0 0.0	Horz Horz	PK PK	0.0 0.0	54.7 54.6	74.0 74.0	-19.3 -19.4	High 405.55MHz, EUT Horiz, Batt Mid 403.5MHz, EUT Horiz, Batt
2810.710	48.4	4.0	1.2	360.0	3.0	0.0	Vert	PK	0.0	52.4	74.0	-21.6	Low 401.55MHz, EUT on Side, Batt
2838.880	48.0	4.2	1.2	63.0	3.0	0.0	Vert	PK	0.0	52.2	74.0	-21.8	High 405.55MHz, EUT on Side, Batt Mid 403.5MHz, EUT on Side, Batt
2824.690	47.0	4.0	1.7	287.0	3.0	0.0	Vert	PK	0.0	51.0	74.0	-23.0	IVIIU 403.3IVIDZ, EUT ON SIDE, BATT



XMit 2017.09.21

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

### **TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	5-Feb-15	5-Feb-18
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18E-20	TKS	6-Mar-17	6-Mar-18
Block - DC	Aeroflex	INMET 8535	AMO	27-Mar-17	27-Mar-18
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFJ	28-Jan-17	28-Jan-18

#### **TEST DESCRIPTION**

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. Per FCC Part 2.1051, RSS-GEN, the spurious emissions shall be measured at the RF terminal. The peak spurious emissions were measured with the EUT configured to the modes listed in the datasheet. The EUT was transmitting at its maximum data rate. FCC Part 95 and RSS-243 have no conducted spurious emissions limit. It is a requirement to characterize this information and that data is contained within this datasheet.



					TbtTx 2017.10.04	XMit 201			
		P) Model: 2501 (MICS/MEDS/MedRadio)		Work Order:					
Serial Number:					7-Nov-17				
Customer:	Axonics Modulation Tech	nologies, Inc.		Temperature:	20.9 °C				
Attendees:	Franklin Portillo			Humidity:	49.7% RH				
Project:	None			Barometric Pres.:	Barometric Pres.: 1021 mbar				
	Johnny Candelas		Power: 7.6VDC	Job Site:	OC13				
ST SPECIFICATION	ONS		Test Method						
C 95I:2017			ANSI C63.26:2015						
MMENTS									
Block + 20dB Att	tenuator + Coax Cable =	20.95dB Total Offset							
VIATIONS FROM	TEST STANDARD								
one									
onfiguration #	29	Signature	e de lather						
		-ig-ia-ia-ia	Frequency	Max Value	Limit				
			Range	(dBc)	A (dBc)	Result			
DS Low Band, Mic	d Channel, 401,55 MHz		9 kHz - 150 kHz	-60.86	N/A	N/A			
DS Low Band, Mid	d Channel, 401.55 MHz		150 kHz - 30 MHz	-54.41	N/A	N/A			
DS Low Band, Mic	d Channel, 401,55 MHz		30 MHz - 1 GHz	-56.61	N/A	N/A			
	d Channel, 401.55 MHz		1 GHz - 5 GHz	-43.18	N/A	N/A			
CS Mid Band, Mid	Channel, 403.5 MHz		9 kHz - 150 kHz	-59.16	N/A	N/A			
	Channel, 403.5 MHz		150 kHz - 30 MHz	-54.06	N/A	N/A			
VICS Mid Band, Mid Channel, 403.5 MHz 30 MHz - 1 GHz			30 MHz - 1 GHz	-55.79	N/A	N/A			
AICS Mid Band, Mid Channel, 403.5 MHz 1 GHz - 5 GHz			1 GHz - 5 GHz	-43.50	N/A	N/A			
	id Channel, 405.55 MHz		9 kHz - 150 kHz	-60.54	N/A	N/A			
	d Channel, 405.55 MHz		150 kHz - 30 MHz	-53.96	N/A	N/A			
	id Channel, 405.55 MHz		30 MHz - 1 GHz	-56.10	N/A	N/A			
	id Channel, 405,55 MHz		1 GHz - 5 GHz	-42.98	N/A	N/A			

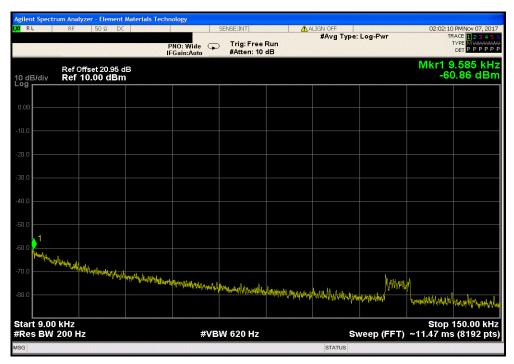


MEDS Low Band, Mid Channel, 401.55 MHz

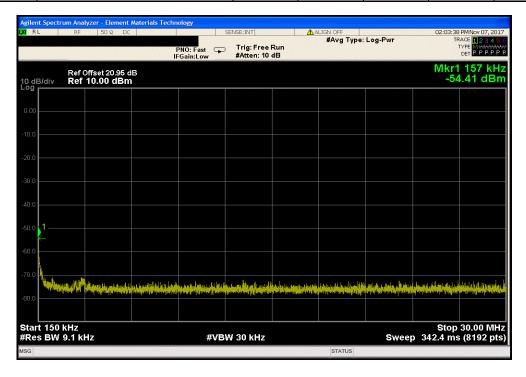
Frequency Max Value Limit

Range (dBc) A (dBc) Result

9 kHz - 150 kHz - 50.86 N/A N/A



	MEDS Low Band, Mid Channel, 401.55 MHz							
Frequency Max Value Limit								
	Range		(dBc)	A (dBc)	Result			
,	150 kHz - 30 MHz		-54.41	N/A	N/A			

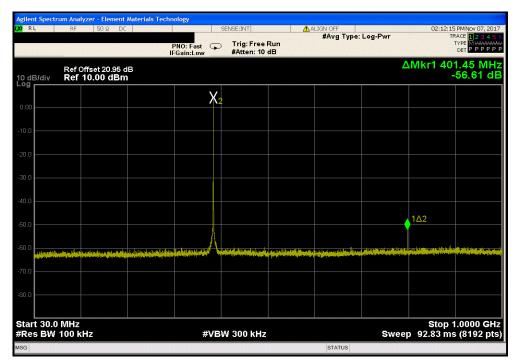




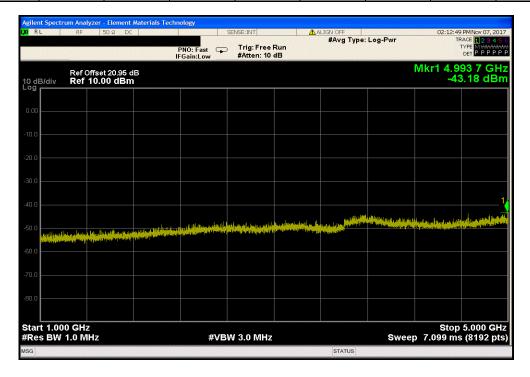
MEDS Low Band, Mid Channel, 401.55 MHz

Frequency
Range
(dBc)
30 MHz - 1 GHz

-56.61
N/A
N/A



MEDS Low Band, Mid Channel, 401.55 MHz							
Frequency Max Value Limit							
Range		(dBc)	A (dBc)	Result			
1 GHz - 5 GHz		-43.18	N/A	N/A			



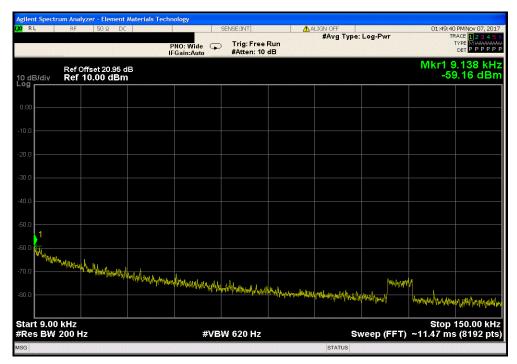


MICS Mid Band, Mid Channel, 403.5 MHz

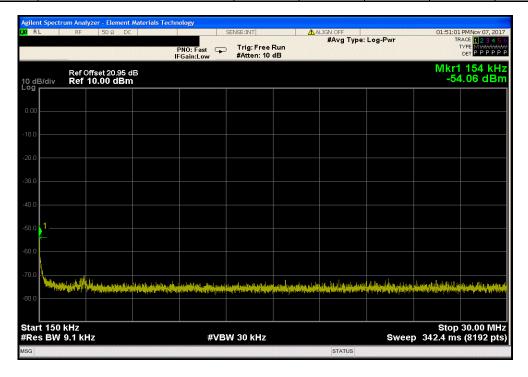
Frequency Max Value Limit

Range (dBc) A (dBc) Result

9 kHz - 150 kHz - 59.16 N/A N/A



MICS Mid Band, Mid Channel, 403.5 MHz							
Frequency Max Value Limit							
Range		(dBc)	A (dBc)	Result			
150 kHz - 30 MHz		-54.06	N/A	N/A			





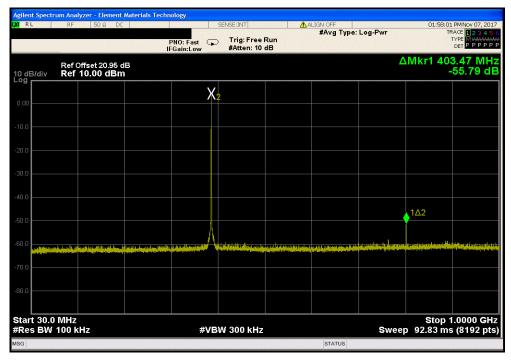
TbtTx 2017.10.04

MICS Mid Band, Mid Channel, 403.5 MHz

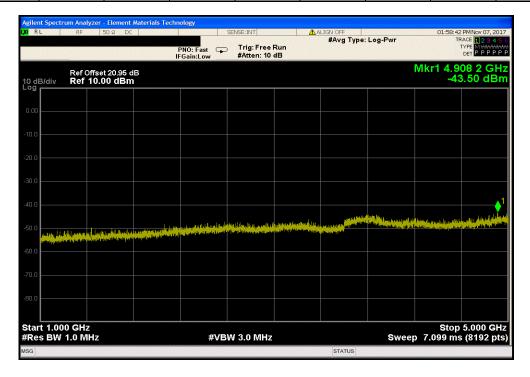
Frequency Max Value Limit

Range (dBc) A (dBc) Result

30 MHz - 1 GHz -55.79 N/A N/A



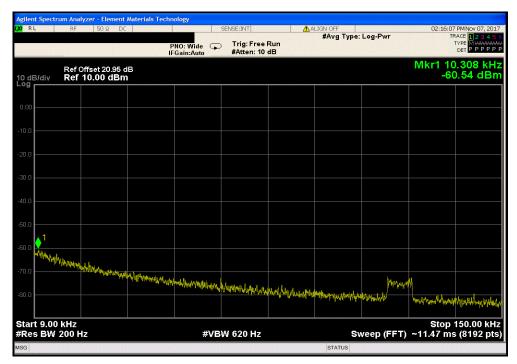
MICS Mid Band, Mid Channel, 403.5 MHz								
Frequency Max Value Limit								
Range (dBc) A (dBc) Result								
1 GHz - 5 GHz		-43.50	N/A	N/A				



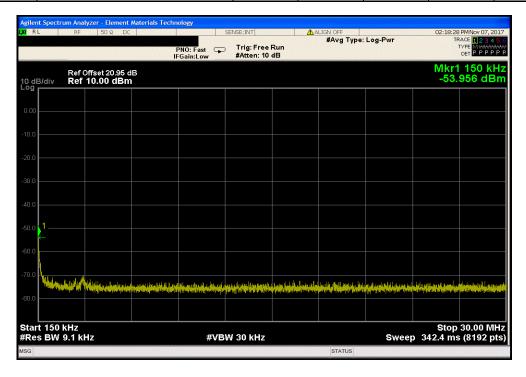


MEDS High Band, Mid Channel, 405.55 MHz

Frequency
Range
(dBc)
9 kHz - 150 kHz
-60.54
N/A
N/A



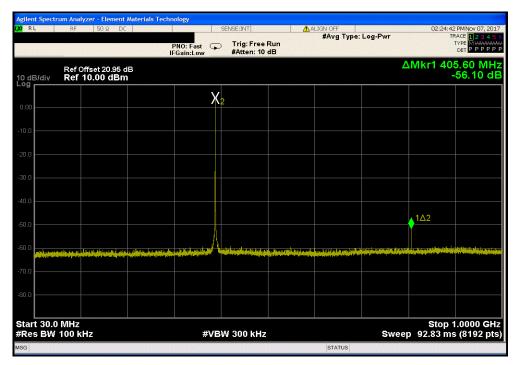
MEDS High Band, Mid Channel, 405.55 MHz							
Frequency Max Value Limit							
Range		(dBc)	A (dBc)	Result			
150 kHz - 30 MHz		-53.96	N/A	N/A			



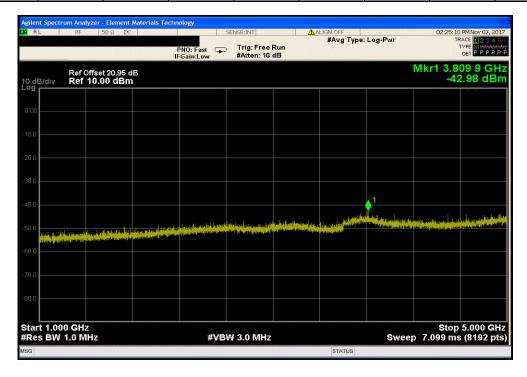


MEDS High Band, Mid Channel, 405.55 MHz

Frequency
Range
(dBc)
A (dBc)
Result
30 MHz - 1 GHz
-56.10
N/A
N/A



MEDS High Band, Mid Channel, 405.55 MHz								
Frequency Max Value Limit								
Range	(dBc)	A (dBc)	Result					
1 GHz - 5 GHz	-42.98	N/A	N/A					



# **RADIATED POWER (EIRP)**



PSA-ESCI 2017.06.01

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

#### **MODES OF OPERATION**

Continuosuly Transmitting at Mid Ch - MEDS Low Band = 401.55 MHz, Mid Ch - MICS Mid Band = 403.5 MHz & Mid Ch - MEDS High Band = 405.55 MHz

### **POWER SETTINGS INVESTIGATED**

Battery

110VAC/60Hz

#### **CONFIGURATIONS INVESTIGATED**

AXON0097 - 28

AXON0097 - 27

#### FREQUENCY RANGE INVESTIGATED

Start Frequency 401 MHz	Stop Frequency	406 MHz
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#### **SAMPLE CALCULATIONS**

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

### **TEST EQUIPMENT**

1201 24011 1112111					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Power Sensor	Agilent	E4412A	SQE	1/26/2017	12 mo
Meter - Power	Hewlett Packard	E4418A	SPA	1/26/2017	12 mo
Generator - Signal	Agilent	E8257D	TGU	2/5/2015	36 mo
Antenna - Dipole	A.H. Systems, Inc.	FCC-4	ADCA	NCR	0 mo
Cable	Element	10kHz-1GHz RE Cables	OCH	8/1/2017	12 mo
Antenna - Biconilog	Teseq	CBL 6141A	AYE	11/7/2017	24 mo
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12 mo

#### **TEST DESCRIPTION**

Per 95.2567(a)(2), the maximum radiated field strength for a MICS transmitter is 25uW EIRP. The Field Strength of the Fundamental data was converted to EIRP with the formula based upon the Friis transmission equation with 6 dB removed due to reflections from the ground plane: EIRP =  $((E/2)*d)^2/30$  where E is V/m and d = distance = 3m, and EIRP = W (Reference 95.2569(a)).

The Field Strength of the Fundamental was measured in the far-field at an FCC Listed Semi-anechoic Chamber. Spectrum analyzer and linearly polarized antennas were used to measure the radiated field strength of the fundamental.

The orientation of the EUT and measurement antenna were manipulated to maximize the level of emissions. The turntable azimuth was varied to maximize the level of radiated emissions. The height of the measurement antenna was also varied from 1 to 4 meters. The amplitude and frequency of the emissions were noted.

The EUT was configured to transmit in a fixture that simulates the human torso. The dimensions of the test fixture and the characteristics of the tissue substitute material met the requirements 95.2569(c) and FCC KDB 617965. The height of the transmitter was 0.8-meter above the reference ground plane.

# **RADIATED POWER (EIRP)**



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# RADIATED POWER (EIRP)



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W	ork Or							Date: 11/0											le de la																	
	Job	ject:			Non OC1			Temperature: 21.4 Humidity: 48.79											-																	
Seri	al Num			AC1C870004 Barometric Pres.: 1019																Test	ed l	w.	loh	nnv	/ Ca	nde	elas									
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	Attend				Por	tillo																														
	UT Po	wer:	_	_																			MICS Mid Band – 403 5 MHz &													
Opera	ting M	ode:								at Mid Ch - MEDS Low Band = 401.55 MHz, Mid Ch - MICS M = 405.55 MHz														5 Mia Band = 403.5 MHz &												
			Nor	_	- IVIE	<u>DS</u>	High	Ban	a = 4	05.5	55 IV	IHZ																								
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Run #	4:	5	Т	est	Dist	ance	e (m)		3		Δn	ten	na F	leia	ht(s	)			1	to 4	(m)				R	681	ılts	1		P	ass		—			
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	(MI			neters)	-	(degr			.,,		500	00101		(Wa			(dBr			(dBn			(dB)													
				1.0		10	2.0					1/2		4.04	- 05			^		40	^		1.0		V 4: ~1	402	EN 41	J-, -	UT	Uc-i	. Bat					
	403. 401.			1.0 1.0		192 162			Horz Horz			γK γK		1.61l 1.22l			-17 -19			-16. -16.			-1.9 -3.1					,			:, Bat riz, B					
	405.	543		1.0		155	5.0		Horz		F	Ϋ́		1.14	E-05		-19	.4		-16.	0		-3.4		High	405	5.55	MHz,	, EU	ТНо	riz, E	att				
	405.			1.2		200			Vert			K		6.41			-21			-16.			-5.9								Side					
	401. 403.			1.2 1.2		211 206			Vert Vert			γK γK		5.99l 5.21l			-22 -22			-16. -16.			-6.2 -6.8								Side, ide, E					
	405.			1.0		182			Horz			Ϋ́Κ		5.21			-22			-16.			-6.8		High	405	5.55	MHz,	, EU	T Ve	rt, Ba	att				
	401.			1.0		180			Horz			K		5.09			-22			-16.			-6.9								rt, Ba					
	403. 403.			2.7 1.0		283 126			Horz Horz			γK γK		3.61l 3.52l			-24 -24			-16. -16.			-8.4 -8.5								ide, E Batt	satt				
	403.			1.4		195			Vert			·Κ		3.37			-24			-16.			-8.7								Batt					
	401.	550		1.3		195	5.0		Vert		F	Ϋ́		2.931	E-06		-25	.3		-16.	0		-9.3		Low	401	.551	ЛHz,	EU	T Ve	rt, Ba					
	405. 401.			1.3 2.6		197 129			Vert Vert			γK γK		2.67l 2.17l			-25 -26			-16. -16.			-9.7 -10.6								rt, Ba riz, B					
	405.			2.6		12			Vert			·Κ		2.17			-26			-16.			10.7								riz, E					
	401.	550		2.7		293	3.0		Horz		F	Ϋ́		1.941	E-06		-27	.1		-16.	0	-	11.1		Low	401	.551	ЛHz,	EUT	T on	Side	Batt				
	405. 403.			1.0 3.1		150 304			Horz Vert			γK γK		1.54l 1.17l			-28 -29			-16. -16.			·12.1 ·13.3								Side Bat,		1			
	+03.	730		J. I		304	7.0		4 OIL		-	11			00		-23			- 10.	J	-	10.0		ivilu	-100.	JIVIE	., =		10112	., Dai					