



**Global Experience Innovators, Inc.**

**Ocean Medallion**

**FCC 15.247:2017**

**Bluetooth Low Energy Radio**

**Report # NYTE0005**



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 federal government of the United States of America. This Report shall not be reproduced, except in full without written approval of the laboratory.*

# CERTIFICATE OF TEST



Last Date of Test: August 10, 2017  
Global Experience Innovators, Inc.  
Model: Ocean Medallion

## Radio Equipment Testing

### Standards

Specification	Method
FCC 15.247:2017	ANSI C63.10:2013, KDB 558074

### Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	No	N/A	Not required for a battery powered EUT.
11.12.1, 11.13.2, 6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
11.6	Duty Cycle	Yes	Pass	
11.8.2	Occupied Bandwidth	Yes	Pass	
11.9.1.1	Output Power	Yes	Pass	
11.10.2	Power Spectral Density	Yes	Pass	
11.11	Band Edge Compliance	Yes	Pass	
11.11	Spurious Conducted Emissions	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	Description	Date	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). 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>

# 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.

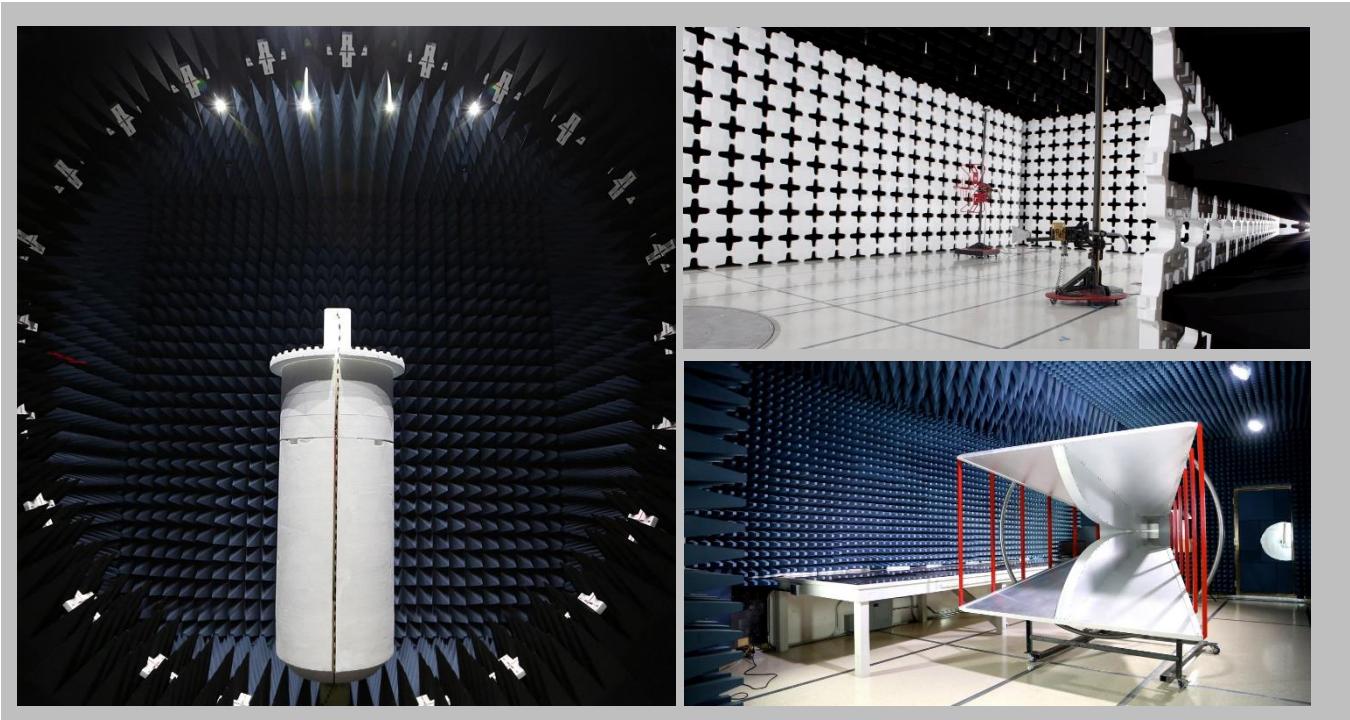
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

<u>Test</u>	<u>+ MU</u>	<u>- MU</u>
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

# FACILITIES

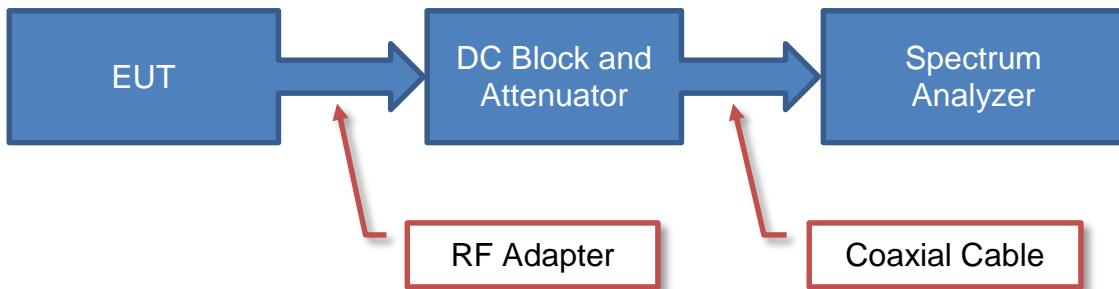


<b>California</b> Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	<b>Minnesota</b> Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	<b>New York</b> Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	<b>Oregon</b> Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	<b>Texas</b> Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	<b>Washington</b> Labs NC01-05 19201 120 <sup>th</sup> Ave NE Bothell, WA 98011 (425)984-6600
<b>NVLAP</b>					
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
<b>Innovation, Science and Economic Development Canada</b>					
2834B-1, 2834B-3	2834E-1, 2834E-3	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
<b>BSMI</b>					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
<b>VCCI</b>					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
<b>Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA</b>					
US0158	US0175	N/A	US0017	US0191	US0157

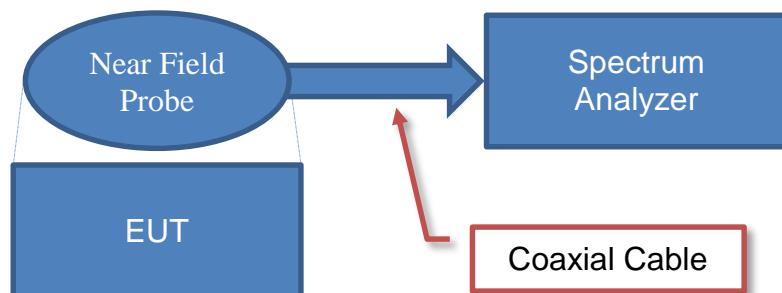


# Test Setup Block Diagrams

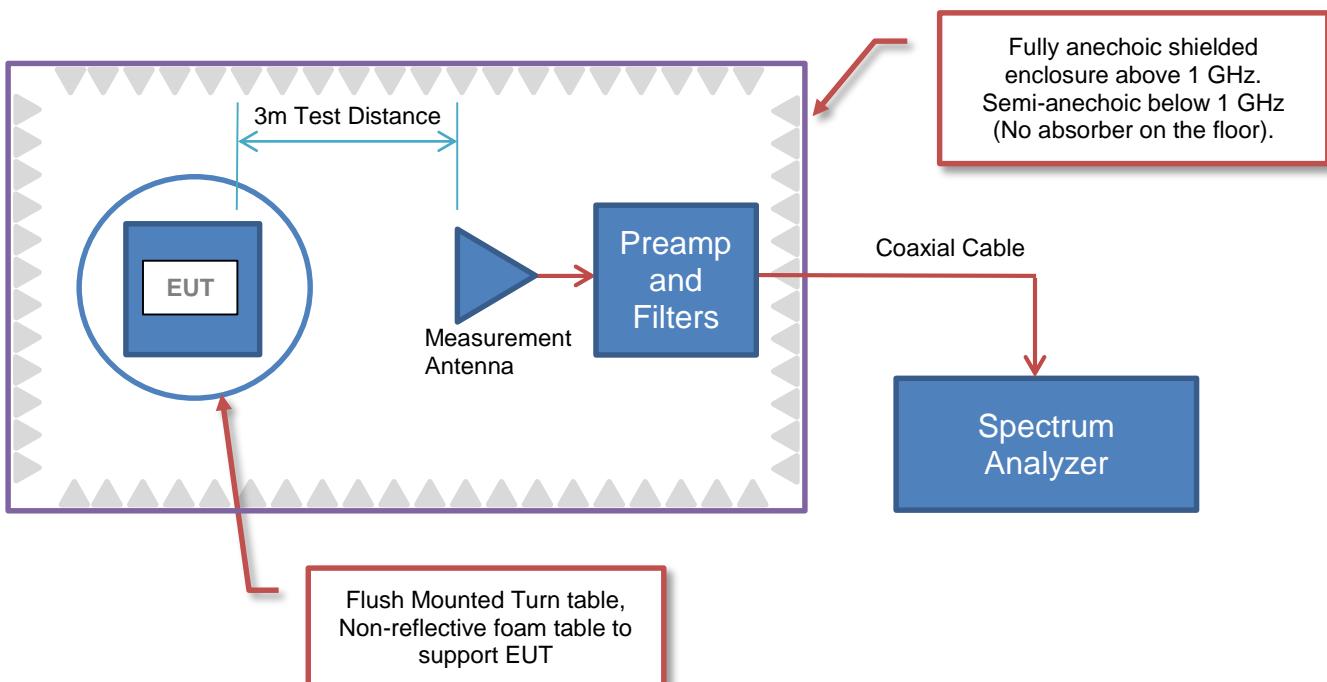
## Antenna Port Conducted Measurements



## Near Field Test Fixture Measurements



## Spurious Radiated Emissions



# PRODUCT DESCRIPTION



## Client and Equipment Under Test (EUT) Information

<b>Company Name:</b>	Global Experience Innovators, Inc.
<b>Address:</b>	3655 NW 87 <sup>th</sup> Avenue, MLGL-815
<b>City, State, Zip:</b>	Miami, FL 33178
<b>Test Requested By:</b>	Robert Lawrence of Nytec Inc.
<b>Model:</b>	Ocean Medallion
<b>First Date of Test:</b>	August 9, 2017
<b>Last Date of Test:</b>	August 10, 2017
<b>Receipt Date of Samples:</b>	August 7, 2017
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage
<b>Purchase Authorization:</b>	Verified

## Information Provided by the Party Requesting the Test

### Functional Description of the EUT:

The Medallion is a wearable device for Identification of passengers on a cruise ship for the purpose of door access, payment for goods and services on-board the cruise ship, passenger experience thru detection of their presence. It communicates with Sensors fitted on-board the cruise ship thru Bluetooth Low Energy. It contains a Lithium cell battery (to be referred to as Lithium Cell in the document) that provides energy necessary for the wireless communication between the Medallion and the Sensors on the cruise ship. It contains 4 permanent magnets for attachment to Wrist Bands, Pendants and other accessories, each with matching magnets to keep the Medallion in place. The Medallion's housing is hermetically sealed to allow passengers to wear it while swimming. This seal will prevent water ingress up to a water pressure of 5 ATM (this is approximately a depth of 50 meters).

### Testing Objective:

To demonstrate compliance of the Bluetooth Low Energy radio to FCC 15.247 requirements.

# CONFIGURATIONS



## Configuration NYTE0005- 1

Software/Firmware Running during test	
Description	Version
nRFgo Studio	1.21.2.10

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wearable BT Device	Global Experience Innovators, Inc.	Ocean Medallion	EV1

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Development Board	Nordic Semiconductor	PCA10040 V1.1.0	682471276
Host Laptop	Toshiba	Satellite C55D-B5102	ZE315927P
Host Laptop Power Supply	Toshiba	PA3822U-1ACA	T0214490011014A

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable	Yes	2.5m	No	Host Laptop	Development Board
USB Cable (Serial COM)	Yes	2.0m	No	Host Laptop	Development Board
Ribbon Cable	No	0.15m	No	Wearable BT Device	Development Board
AC Cable	No	1.8m	No	AC Mains	Host Laptop Power Supply
DC Cable	No	2.0m	No	Host Laptop	Host Laptop Power Supply

# CONFIGURATIONS



2017-1-25

## Configuration NYTE0005- 2

Software/Firmware Running during test	
Description	Version
nRFgo Studio	1.21.2.10

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wearable BT Device	Global Experience Innovators, Inc.	Ocean Medallion	EV1-1

Peripherals in test setup boundary				
Description	Manufacturer	Model/Part Number	Serial Number	
Development Board	Nordic Semiconductor	PCA10040 V1.1.0	682471276	
Host Laptop	Toshiba	Satellite C55D-B5102	ZE315927P	
Host Laptop Power Supply	Toshiba	PA3822U-1ACA	T0214490011014A	
DC Power Source	HQ Power	PS3003U	DK10103872	

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable	Yes	2.5m	No	Host Laptop	Development Board
USB Cable (Serial COM)	Yes	2.0m	No	Host Laptop	Development Board
Ribbon Cable	No	0.15m	No	Wearable BT Device	Development Board
AC Cable	No	1.8m	No	AC Mains	Host Laptop Power Supply
DC Cable	No	2.0m	No	Host Laptop	Host Laptop Power Supply
AC Cable	No	1.8m	No	AC Mains	DC Power Source
DC Leads	No	1.0m	No	Wearable BT Device	DC Power Source

# MODIFICATIONS



## Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	8/9/2017	Spurious Radiated Emissions	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	8/10/2017	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	8/10/2017	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	8/10/2017	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	8/10/2017	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.
6	8/10/2017	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	8/10/2017	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

# SPURIOUS RADIATED EMISSIONS



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

Transmitting BLE: Low Channel 0 - 2402 MHz, Mid Ch 19 - 2440 MHz, and High Channel 39 - 2480 MHz

## POWER SETTINGS INVESTIGATED

Battery

## CONFIGURATIONS INVESTIGATED

NYTE0005 - 1

## FREQUENCY RANGE INVESTIGATED

Start Frequency | 30 MHz | Stop Frequency | 26000 MHz

## 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
Attenuator	S.M. Electronics	SA6-20	REO	2/20/2017	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	HGQ	2/20/2017	12 mo
Filter - Low Pass	Micro-Tronics	LPM50004	HGK	2/20/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	JSDWK42-18004000-60-5P	PAN	1/4/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	PAD	8/2/2017	12 mo
Cable	ESM Cable Corp.	8-18GHz cables	OCY	5/15/2017	12 mo
Cable	ESM Cable Corp.	1-8GHz cables	OCX	5/15/2017	12 mo
Cable	ESM Cable Corp.	30-1GHz cables	OCW	5/15/2017	12 mo
Cable	D-Coax	None	OC4	1/4/2017	12 mo
Antenna - Double Ridge	A.H. Systems, Inc.	SAS-574	AXV	5/3/2016	24 mo
Antenna - Biconilog	EMCO	3142	AXA	10/24/2016	24 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVP	8/3/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVL	10/17/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVJ	8/3/2017	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AIR	6/23/2016	24 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AHX	NCR	0 mo
Antenna - Standard Gain	EMCO	3160-08	AHK	NCR	0 mo
Analyzer - Spectrum Analyzer	Agilent	E4446A	AYA	10/25/2016	12 mo

## TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These “pre-scans” are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector

PK = Peak Detector

AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

# SPURIOUS RADIATED EMISSIONS



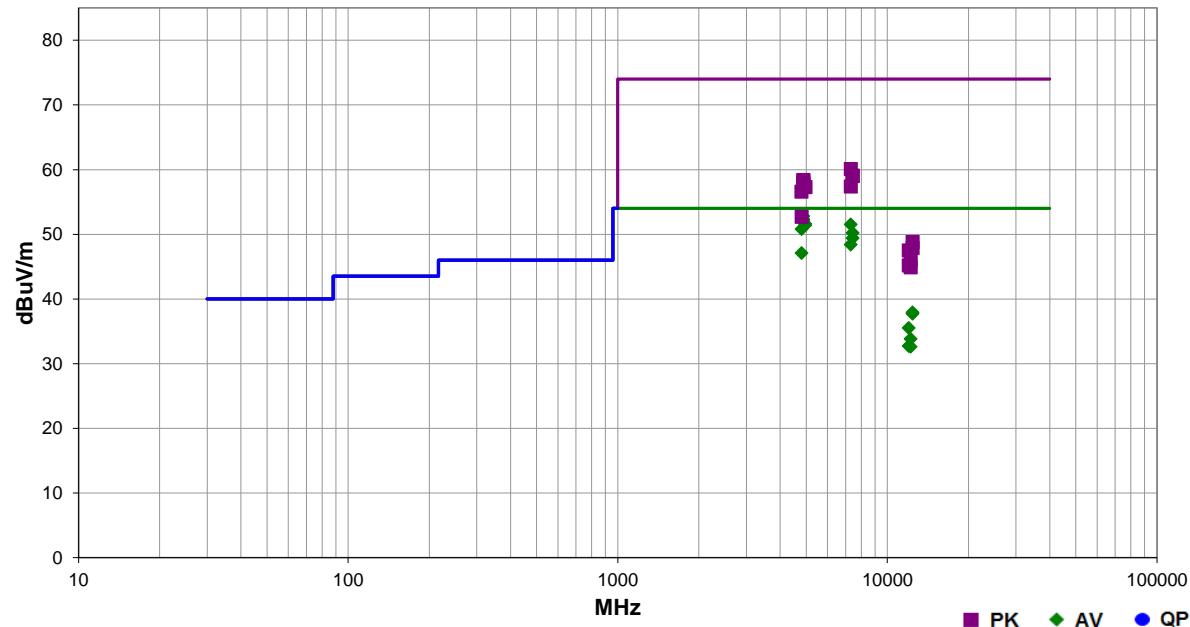
EmiR5 2017.07.11

PSA-ESCI 2017.06.01

Work Order:	NYTE0005	Date:	08/09/17	
Project:	None	Temperature:	22.9 °C	
Job Site:	OC07	Humidity:	45% RH	
Serial Number:	EV1	Barometric Pres.:	1015 mbar	Tested by: Johnny Candelas
EUT:	Ocean Medallion			
Configuration:	1			
Customer:	Global Experience Innovators, Inc.			
Attendees:	None			
EUT Power:	Battery			
Operating Mode:	Transmitting BLE: Low Channel 0 - 2402 MHz, Mid Ch 19 - 2440 MHz, and High Channel 39 - 2480 MHz			
Deviations:	None			
Comments:	Only performed testing at 2-Axis since EUT is small and round			

Test Specifications	Test Method
FCC 15.247:2017	ANSI C63.10:2013

Run #	38	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass



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
4879.850	48.9	3.9	1.0	184.0	3.0	0.0	Vert	AV	0.0	52.8	54.0	-1.2	Mid Ch 19, EUT Vert
4879.792	48.4	3.9	2.7	205.0	3.0	0.0	Vert	AV	0.0	52.3	54.0	-1.7	Mid Ch 19, EUT Horiz
4879.892	48.3	3.9	2.5	164.0	3.0	0.0	Horz	AV	0.0	52.2	54.0	-1.8	Mid Ch 19, EUT Vert
4879.800	48.1	3.9	2.7	163.0	3.0	0.0	Horz	AV	0.0	52.0	54.0	-2.0	Mid Ch 19, EUT Horiz
4959.925	47.3	4.3	1.5	176.0	3.0	0.0	Vert	AV	0.0	51.6	54.0	-2.4	High Ch 39, EUT Vert
7319.117	40.9	10.6	1.0	203.0	3.0	0.0	Vert	AV	0.0	51.5	54.0	-2.5	Mid Ch 19, EUT Vert
4959.883	47.1	4.3	1.6	207.0	3.0	0.0	Horz	AV	0.0	51.4	54.0	-2.6	High Ch 39, EUT Vert
4803.725	47.1	3.7	2.4	199.0	3.0	0.0	Horz	AV	0.0	50.8	54.0	-3.2	Low Ch 0, EUT Vert
7439.133	38.5	11.7	1.2	168.0	3.0	0.0	Horz	AV	0.0	50.2	54.0	-3.8	High Ch 39, EUT Vert
7439.317	37.7	11.7	3.5	194.0	3.0	0.0	Vert	AV	0.0	49.4	54.0	-4.6	High Ch 39, EUT Vert
7319.242	37.8	10.6	1.4	161.0	3.0	0.0	Horz	AV	0.0	48.4	54.0	-5.6	Mid Ch 19, EUT Vert
4803.833	43.4	3.7	1.5	219.0	3.0	0.0	Vert	AV	0.0	47.1	54.0	-6.9	Low Ch 0, EUT Vert
7318.917	49.5	10.6	1.0	203.0	3.0	0.0	Vert	PK	0.0	60.1	74.0	-13.9	Mid Ch 19, EUT Vert
7439.308	47.4	11.7	1.2	168.0	3.0	0.0	Horz	PK	0.0	59.1	74.0	-14.9	High Ch 39, EUT Vert
7440.458	47.3	11.7	3.5	194.0	3.0	0.0	Vert	PK	0.0	59.0	74.0	-15.0	High Ch 39, EUT Vert
4879.450	54.5	3.9	1.0	184.0	3.0	0.0	Vert	PK	0.0	58.4	74.0	-15.6	Mid Ch 19, EUT Vert
4879.500	54.4	3.9	2.7	205.0	3.0	0.0	Vert	PK	0.0	58.3	74.0	-15.7	Mid Ch 19, EUT Horiz
4879.258	54.0	3.9	2.5	164.0	3.0	0.0	Horz	PK	0.0	57.9	74.0	-16.1	Mid Ch 19, EUT Vert

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
12400.860	32.4	5.5	1.9	117.0	3.0	0.0	Horz	AV	0.0	37.9	54.0	-16.1	High Ch 39, EUT Vert
4880.450	53.9	3.9	2.7	163.0	3.0	0.0	Horz	PK	0.0	57.8	74.0	-16.2	Mid Ch 19, EUT Horiz
12400.750	32.2	5.5	1.1	67.0	3.0	0.0	Vert	AV	0.0	37.7	54.0	-16.3	High Ch 39, EUT Vert
7320.517	46.8	10.6	1.4	161.0	3.0	0.0	Horz	PK	0.0	57.4	74.0	-16.6	Mid Ch 19, EUT Vert
4959.417	53.0	4.3	1.6	207.0	3.0	0.0	Horz	PK	0.0	57.3	74.0	-16.7	High Ch 39, EUT Vert
4960.442	53.0	4.3	1.5	176.0	3.0	0.0	Vert	PK	0.0	57.3	74.0	-16.7	High Ch 39, EUT Vert
4803.358	52.9	3.7	2.4	199.0	3.0	0.0	Horz	PK	0.0	56.6	74.0	-17.4	Low Ch 0, EUT Vert
12008.530	40.7	-5.2	2.1	198.0	3.0	0.0	Horz	AV	0.0	35.5	54.0	-18.5	Low Ch 0, EUT Vert
12198.510	37.7	-3.9	1.3	345.0	3.0	0.0	Horz	AV	0.0	33.8	54.0	-20.2	Mid Ch 19, EUT Vert
4803.758	49.0	3.7	1.5	219.0	3.0	0.0	Vert	PK	0.0	52.7	74.0	-21.3	Low Ch 0, EUT Vert
12008.520	37.9	-5.2	1.5	320.0	3.0	0.0	Vert	AV	0.0	32.7	54.0	-21.3	Low Ch 0, EUT Vert
12198.520	36.5	-3.9	1.9	88.0	3.0	0.0	Vert	AV	0.0	32.6	54.0	-21.4	Mid Ch 19, EUT Vert
12400.970	43.3	5.5	1.9	117.0	3.0	0.0	Horz	PK	0.0	48.8	74.0	-25.2	High Ch 39, EUT Vert
12400.990	42.4	5.5	1.1	67.0	3.0	0.0	Vert	PK	0.0	47.9	74.0	-26.1	High Ch 39, EUT Vert
12010.940	52.7	-5.2	2.1	198.0	3.0	0.0	Horz	PK	0.0	47.5	74.0	-26.5	Low Ch 0, EUT Vert
12200.870	49.9	-3.9	1.3	345.0	3.0	0.0	Horz	PK	0.0	46.0	74.0	-28.0	Mid Ch 19, EUT Vert
12008.490	50.4	-5.2	1.5	320.0	3.0	0.0	Vert	PK	0.0	45.2	74.0	-28.8	Low Ch 0, EUT Vert
12198.270	48.8	-3.9	1.9	88.0	3.0	0.0	Vert	PK	0.0	44.9	74.0	-29.1	Mid Ch 19, EUT Vert

# SPURIOUS RADIATED EMISSIONS



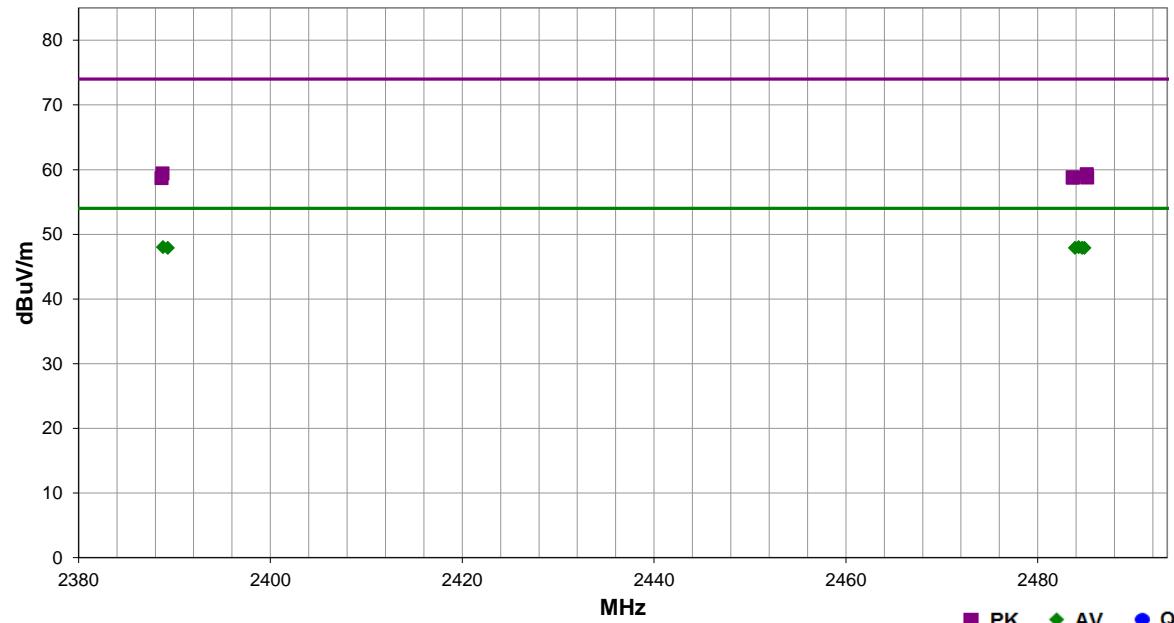
EmiR5 2017.07.11

PSA-ESCI 2017.06.01

Work Order:	NYTE0005	Date:	08/09/17	
Project:	None	Temperature:	22.9 °C	
Job Site:	OC07	Humidity:	45% RH	
Serial Number:	EV1	Barometric Pres.:	1015 mbar	Tested by: Johnny Candelas
EUT:	Ocean Medallion			
Configuration:	1			
Customer:	Global Experience Innovators, Inc.			
Attendees:	None			
EUT Power:	Battery			
Operating Mode:	Transmitting BLE: Low Channel 0 - 2402 MHz and High Channel 39 - 2480 MHz			
Deviations:	None			
Comments:	Only performed testing at 2-Axis since EUT is small and round Band Edge			

Test Specifications	Test Method
FCC 15.247:2017	ANSI C63.10:2013

Run #	41	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass



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
2484.277	32.5	-4.5	1.5	359.0	3.0	20.0	Horz	AV	0.0	48.0	54.0	-6.0	High Ch 39, EUT Vert
2388.803	32.9	-4.9	1.1	129.0	3.0	20.0	Horz	AV	0.0	48.0	54.0	-6.0	Low Ch 0, EUT Vert
2483.883	32.4	-4.5	1.5	170.0	3.0	20.0	Vert	AV	0.0	47.9	54.0	-6.1	High Ch 39, EUT Vert
2484.863	32.4	-4.5	1.5	328.0	3.0	20.0	Horz	AV	0.0	47.9	54.0	-6.1	High Ch 39, EUT Horiz
2484.627	32.4	-4.5	3.5	324.0	3.0	20.0	Vert	AV	0.0	47.9	54.0	-6.1	High Ch 39, EUT Horiz
2389.313	32.8	-4.9	1.5	96.0	3.0	20.0	Vert	AV	0.0	47.9	54.0	-6.1	Low Ch 0, EUT Vert
2388.747	44.3	-4.9	1.5	96.0	3.0	20.0	Vert	PK	0.0	59.4	74.0	-14.6	Low Ch 0, EUT Vert
2485.100	43.8	-4.5	1.5	359.0	3.0	20.0	Horz	PK	0.0	59.3	74.0	-14.7	High Ch 39, EUT Vert
2483.667	43.3	-4.5	1.5	170.0	3.0	20.0	Vert	PK	0.0	58.8	74.0	-15.2	High Ch 39, EUT Vert
2485.150	43.3	-4.5	1.5	328.0	3.0	20.0	Horz	PK	0.0	58.8	74.0	-15.2	High Ch 39, EUT Horiz
2483.653	43.3	-4.5	3.5	324.0	3.0	20.0	Vert	PK	0.0	58.8	74.0	-15.2	High Ch 39, EUT Horiz
2388.647	43.6	-4.9	1.1	129.0	3.0	20.0	Horz	PK	0.0	58.7	74.0	-15.3	Low Ch 0, EUT Vert

# DUTY CYCLE



XMit 2017.02.08

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	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	1/5/2017	1/5/2018
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

## TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

There is no compliance requirement to be met by this test, so therefore no Pass / Fail criteria.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum.

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, burst gating may have been used during some of the other tests in this report to only take the measurement during the burst duration.

# DUTY CYCLE



TbTx 2017.07.11

XMI 2017.02.08

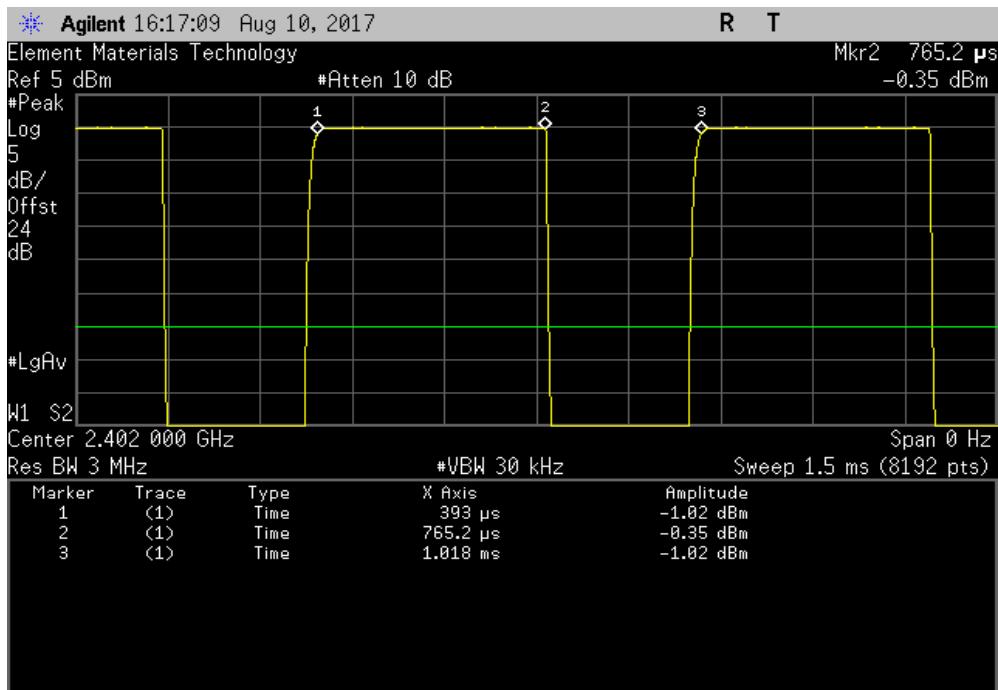
EUT:	Ocean Medallion		Work Order:	NYTE0005	
Serial Number:	EV1-1		Date:	08/10/17	
Customer:	Global Experience Innovators, Inc.		Temperature:	23.3 °C	
Attendees:	None		Humidity:	45.4% RH	
Project:	None		Barometric Pres.:	1016 mbar	
Tested by:	Johnny Candelas, Salvador Solorzano	Power:	3 VDC	Job Site:	OC13
TEST SPECIFICATIONS		Test Method			
FCC 15.247:2017		ANSI C63.10:2013			
COMMENTS					
DC Block/20dB Attenuator + Coax Cable + Patch Cable = 23.97dB total offset					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	2	Signature			
			Pulse Width	Period	Number of Pulses
BLE/GFSK Low Channel, 2402 MHz			372.15 us	624.897 us	1
BLE/GFSK Low Channel, 2402 MHz			N/A	N/A	5
BLE/GFSK Mid Channel, 2440 MHz			371.967 us	625.08 us	1
BLE/GFSK Mid Channel, 2440 MHz			N/A	N/A	5
BLE/GFSK High Channel, 2480 MHz			370.319 us	624.897 us	1
BLE/GFSK High Channel, 2480 MHz			N/A	N/A	5
					Value (%)
					Limit (%)
					Results

# DUTY CYCLE

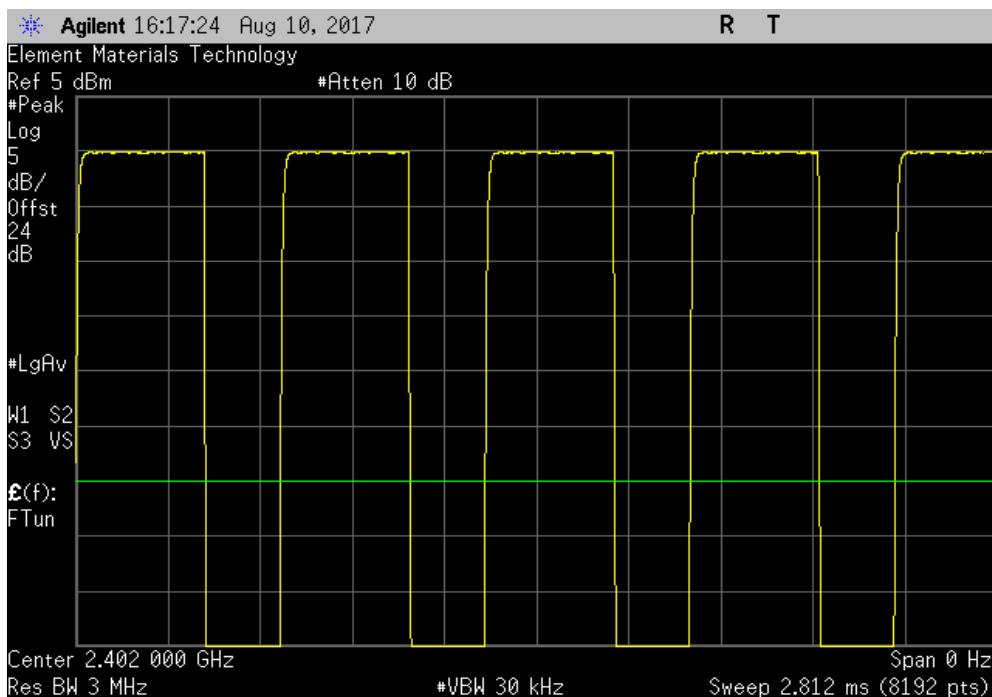


TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK Low Channel, 2402 MHz					
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
372.15 us	624.897 us	1	59.6	N/A	N/A



BLE/GFSK Low Channel, 2402 MHz					
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
N/A	N/A	5	N/A	N/A	N/A

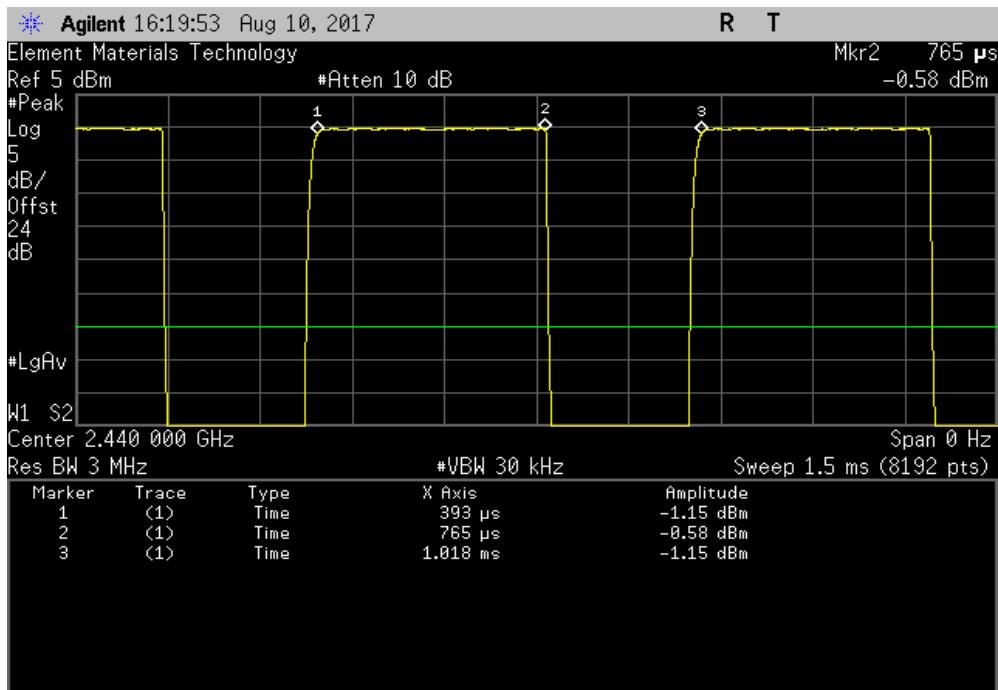


# DUTY CYCLE

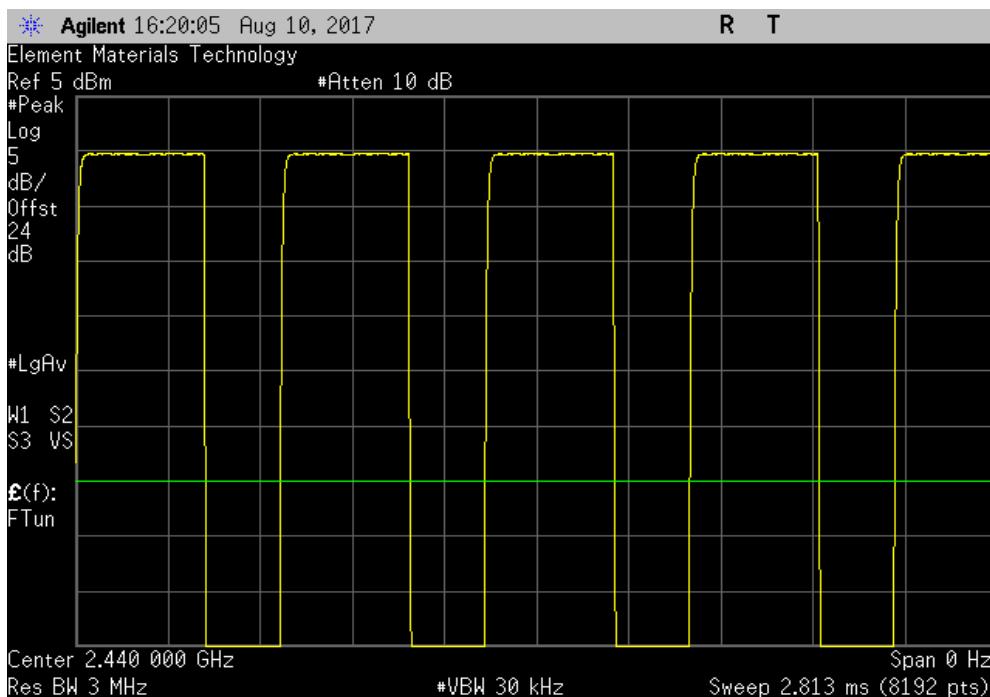


TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK Mid Channel, 2440 MHz					
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
371.967 us	625.08 us	1	59.5	N/A	N/A



BLE/GFSK Mid Channel, 2440 MHz					
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
N/A	N/A	5	N/A	N/A	N/A

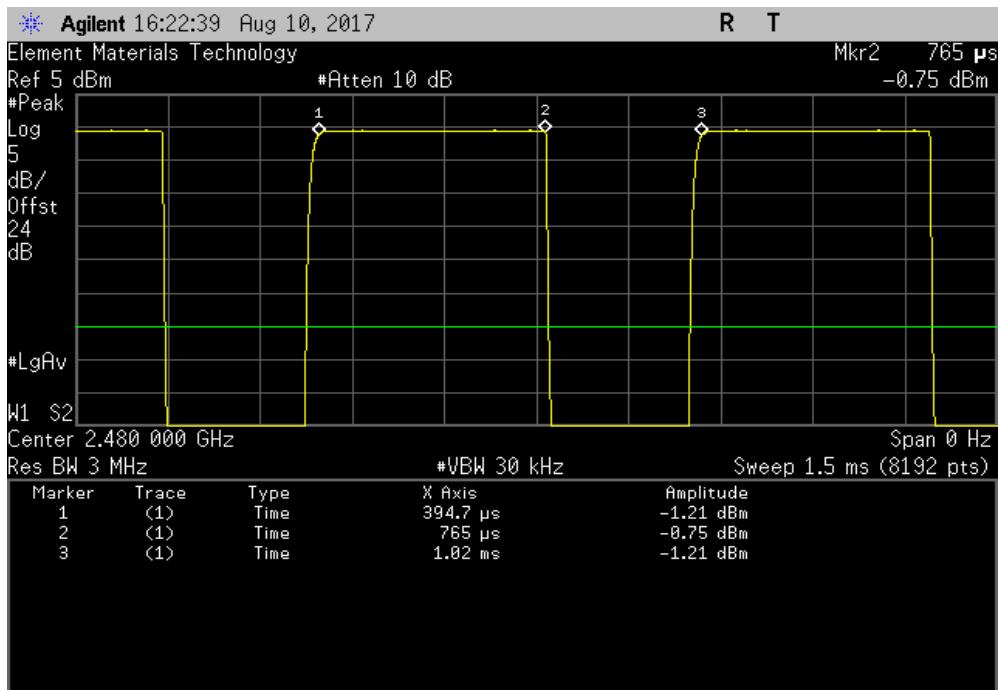


# DUTY CYCLE

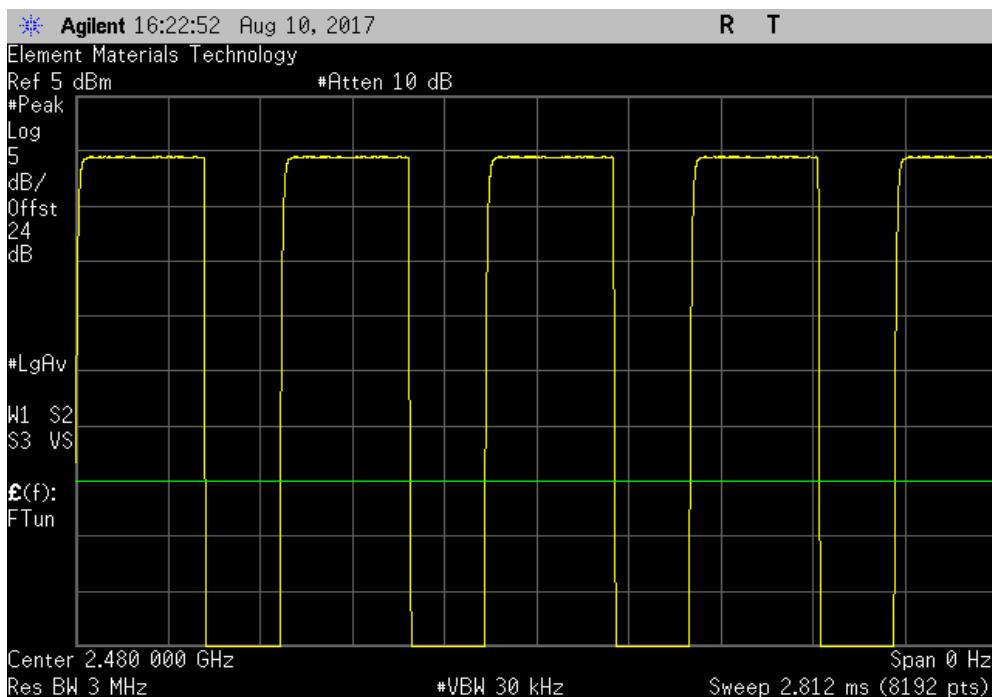


TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK High Channel, 2480 MHz					
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
370.319 us	624.897 us	1	59.3	N/A	N/A



BLE/GFSK High Channel, 2480 MHz					
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
N/A	N/A	5	N/A	N/A	N/A



# OCCUPIED BANDWIDTH



XMIT 2017.02.08

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	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	1/5/2017	1/5/2018
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

## TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was set to the channels and modes listed in the datasheet.

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.0% occupied bandwidth was also measured at the same time which can be needed during Output Power depending on the

# OCCUPIED BANDWIDTH



TbTx 2017.07.11

XMI 2017.02.08

EUT: Ocean Medallion	Work Order: NYTE0005	
Serial Number: EV1-1	Date: 08/10/17	
Customer: Global Experience Innovators, Inc.	Temperature: 23.3 °C	
Attendees: None	Humidity: 45.4% RH	
Project: None	Barometric Pres.: 1016 mbar	
Tested by: Johnny Candelas, Salvador Solorzano	Power: 3 VDC	
TEST SPECIFICATIONS	Test Method	
FCC 15.247:2017	ANSI C63.10:2013	
COMMENTS		
DC Block/20dB Attenuator + Coax Cable + Patch Cable = 23.97dB total offset		
DEVIATIONS FROM TEST STANDARD		
None		
Configuration #	2	
Signature		
	Value	Limit
	699.412 kHz	(2)
	677.287 kHz	500 kHz
	682.049 kHz	Pass
	682.049 kHz	500 kHz
	682.049 kHz	Pass

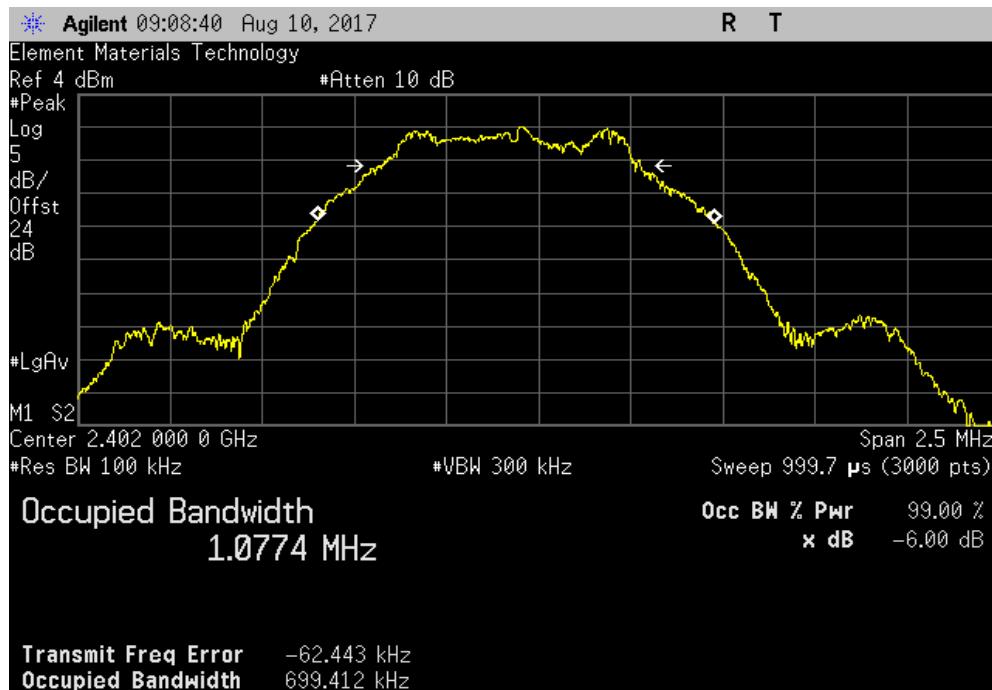
BLE/GFSK Low Channel, 2402 MHz  
 BLE/GFSK Mid Channel, 2440 MHz  
 BLE/GFSK High Channel, 2480 MHz

# OCCUPIED BANDWIDTH

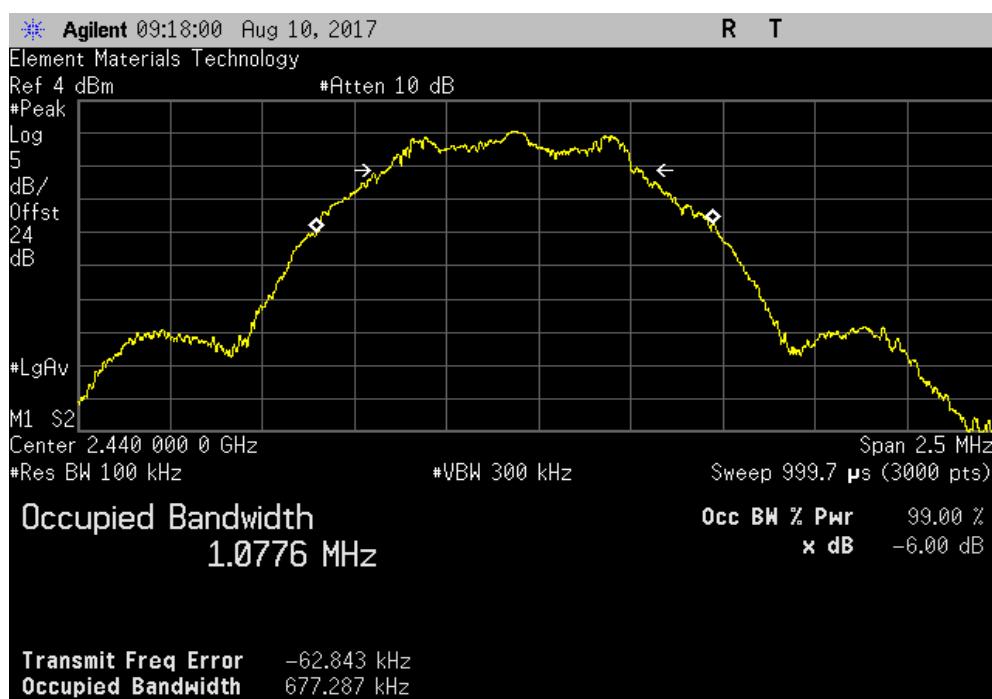


TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK Low Channel, 2402 MHz			Value	Limit (±)	Result
			699.412 kHz	500 kHz	Pass



BLE/GFSK Mid Channel, 2440 MHz			Value	Limit (±)	Result
			677.287 kHz	500 kHz	Pass

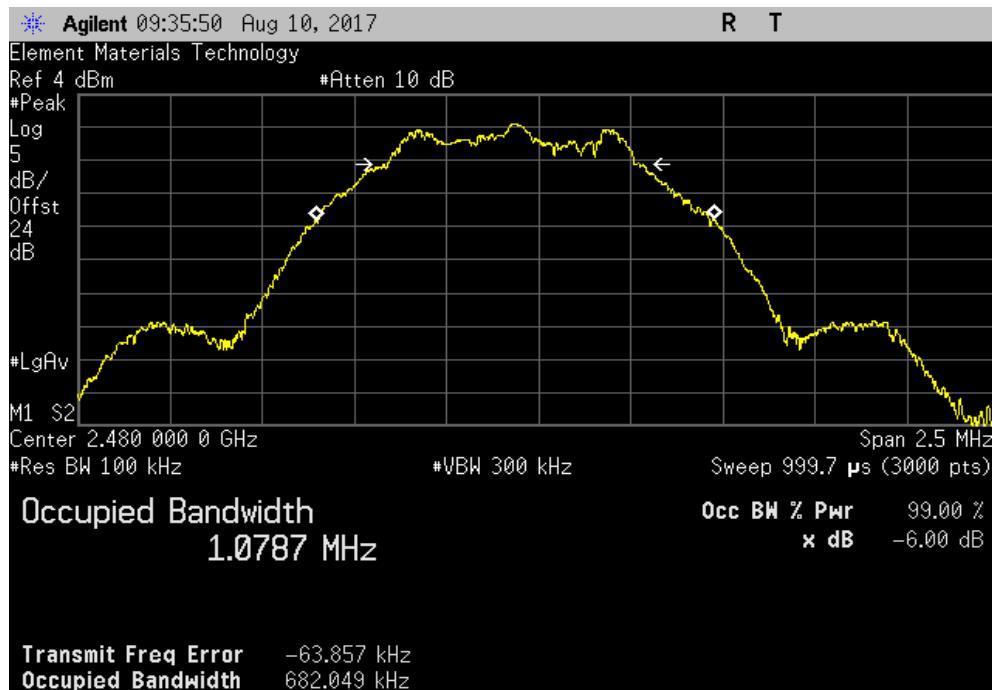


# OCCUPIED BANDWIDTH



TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK High Channel, 2480 MHz			Value	Limit (±)	Result
			682.049 kHz	500 kHz	Pass



# OUTPUT POWER



XMit 2017.02.08

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	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	1/5/2017	1/5/2018
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

## TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum.

Prior to measuring peak transmit power the DTS bandwidth (B) was measured.

The method found in ANSI C63.10:2013 Section 11.9.1.1 was used because the RBW on the analyzer was greater than the DTS Bandwidth of the radio.

**De Facto EIRP Limit:** The EUT meets the de facto EIRP limit of +36 dBm.

# OUTPUT POWER



TbTx 2017.07.11

XMI 2017.02.08

EUT: Ocean Medallion		Work Order: NYTE0005	
Serial Number: EV1-1		Date: 08/10/17	
Customer: Global Experience Innovators, Inc.		Temperature: 23.3 °C	
Attendees: None		Humidity: 45.4% RH	
Project: None		Barometric Pres.: 1016 mbar	
Tested by: Johnny Candelas, Salvador Solorzano		Power: 3 VDC	
TEST SPECIFICATIONS		Job Site: OC13	
FCC 15.247:2017		Test Method: ANSI C63.10:2013	
COMMENTS			
DC Block/20dB Attenuator + Coax Cable + Patch Cable = 23.97dB total offset			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature: 	
		Value	Limit (-)
		1.002 mW	1 W
		0.975 mW	1 W
		0.905 mW	1 W

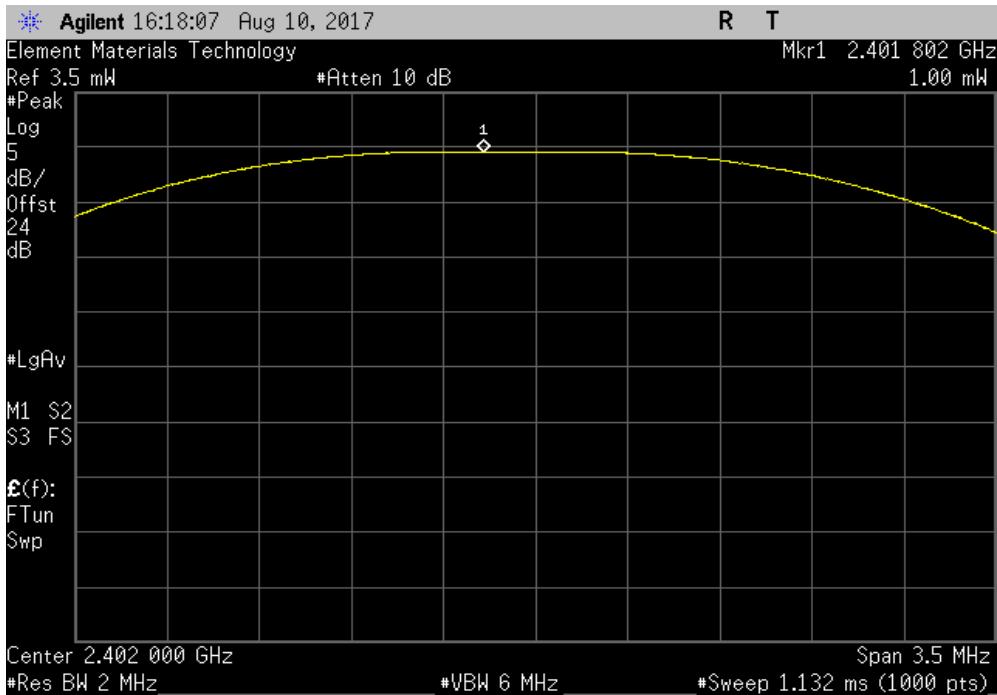
BLE/GFSK Low Channel, 2402 MHz  
 BLE/GFSK Mid Channel, 2440 MHz  
 BLE/GFSK High Channel, 2480 MHz

# OUTPUT POWER

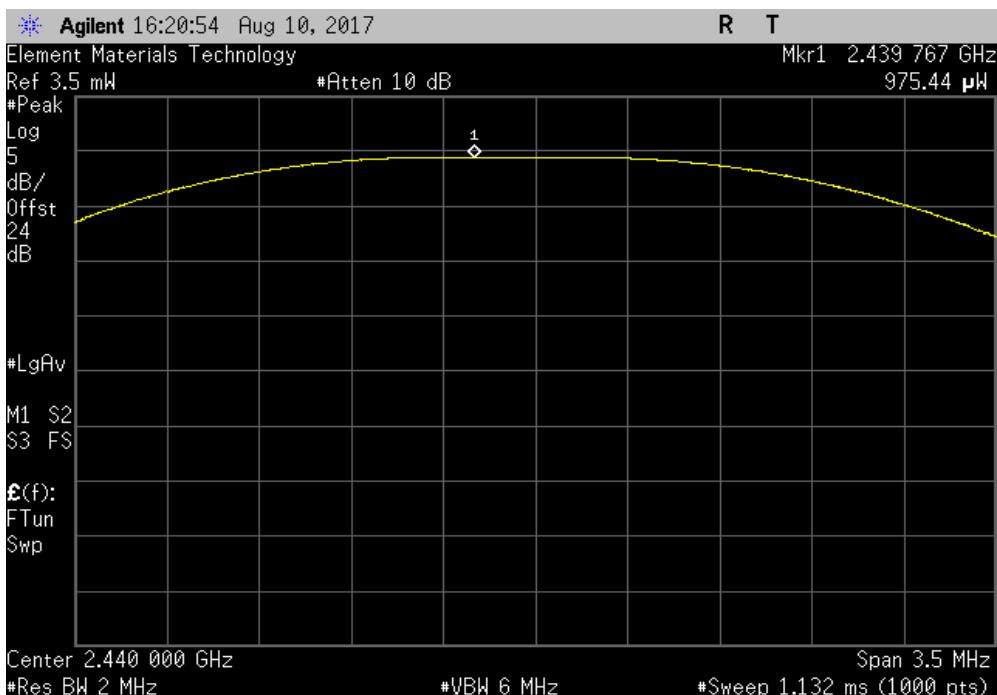


TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK Low Channel, 2402 MHz		
	Value	Limit (≤)
	1.002 mW	1 W
		Pass



BLE/GFSK Mid Channel, 2440 MHz		
	Value	Limit (≤)
	0.975 mW	1 W
		Pass

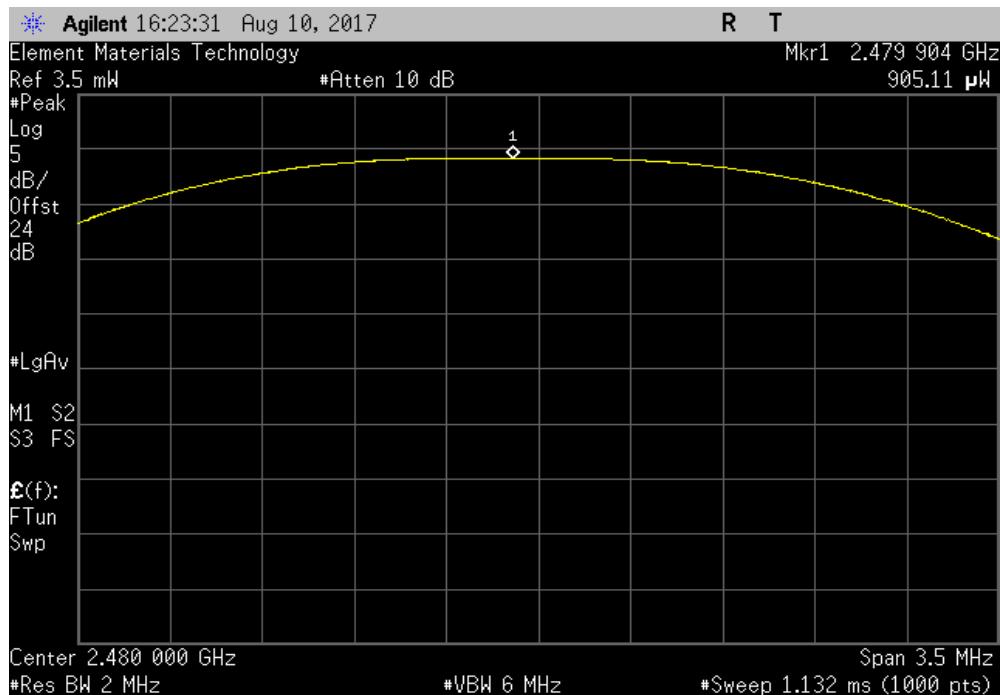


# OUTPUT POWER



TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK High Channel, 2480 MHz		
	Value	Limit (≤)
	0.905 mW	1 W



# POWER SPECTRAL DENSITY



XMit 2017.02.08

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	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	1/5/2017	1/5/2018
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

## TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

Per the procedure outlined in ANSI C63.10 the peak power spectral density was measured in a 3 kHz RBW.

# POWER SPECTRAL DENSITY



TbTx 2017.07.11

XMI 2017.02.08

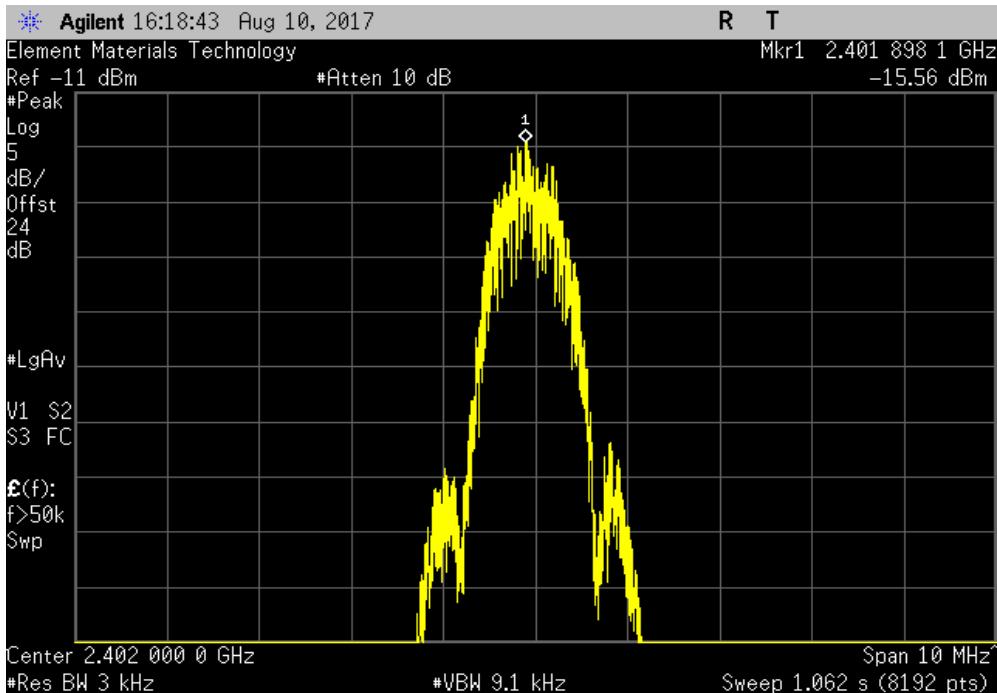
EUT: Ocean Medallion		Work Order: NYTE0005																
Serial Number: EV1-1		Date: 08/10/17																
Customer: Global Experience Innovators, Inc.		Temperature: 23.3 °C																
Attendees: None		Humidity: 45.4% RH																
Project: None		Barometric Pres.: 1016 mbar																
Tested by: Johnny Candelas, Salvador Solorzano	Power: 3 VDC	Job Site: OC13																
TEST SPECIFICATIONS		Test Method																
FCC 15.247:2017		ANSI C63.10:2013																
COMMENTS																		
DC Block/20dB Attenuator + Coax Cable + Patch Cable = 23.97dB total offset																		
DEVIATIONS FROM TEST STANDARD																		
None																		
Configuration #	2	Signature 																
<table border="1"> <thead> <tr> <th>Value</th> <th>Limit</th> <th>Results</th> </tr> <tr> <th>dBm/3kHz</th> <th>&lt; dBm/3kHz</th> <th></th> </tr> </thead> <tbody> <tr> <td>-15.557</td> <td>8</td> <td>Pass</td> </tr> <tr> <td>-15.747</td> <td>8</td> <td>Pass</td> </tr> <tr> <td>-16.022</td> <td>8</td> <td>Pass</td> </tr> </tbody> </table>				Value	Limit	Results	dBm/3kHz	< dBm/3kHz		-15.557	8	Pass	-15.747	8	Pass	-16.022	8	Pass
Value	Limit	Results																
dBm/3kHz	< dBm/3kHz																	
-15.557	8	Pass																
-15.747	8	Pass																
-16.022	8	Pass																
BLE/GFSK Low Channel, 2402 MHz BLE/GFSK Mid Channel, 2440 MHz BLE/GFSK High Channel, 2480 MHz																		

# POWER SPECTRAL DENSITY

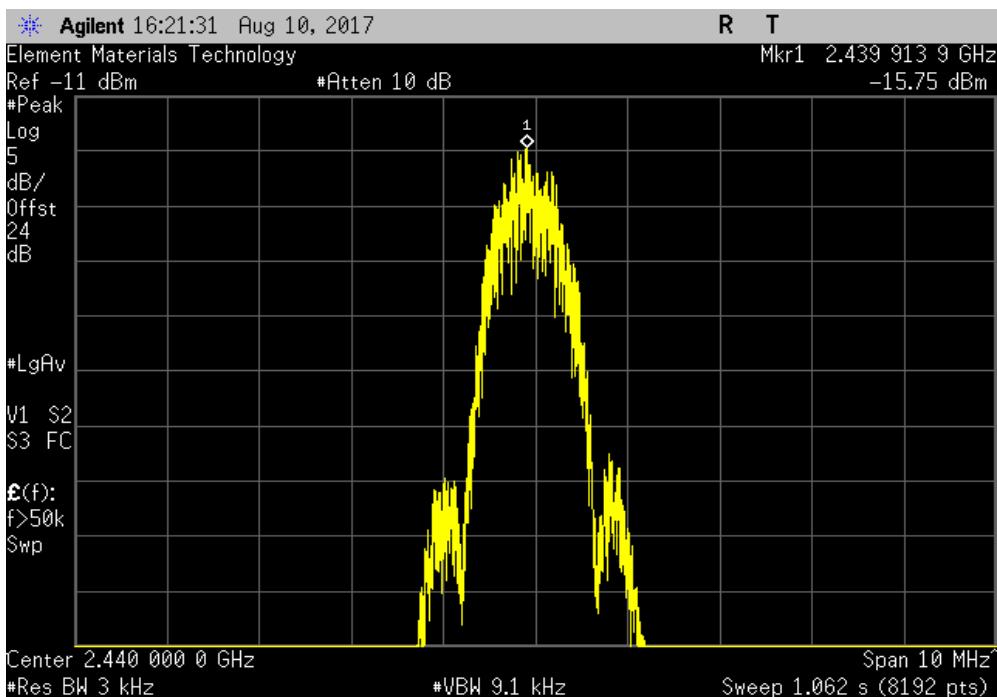


TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK Low Channel, 2402 MHz		
	Value dBm/3kHz	Limit < dBm/3kHz
	-15.557	8
		Pass



BLE/GFSK Mid Channel, 2440 MHz		
	Value dBm/3kHz	Limit < dBm/3kHz
	-15.747	8
		Pass

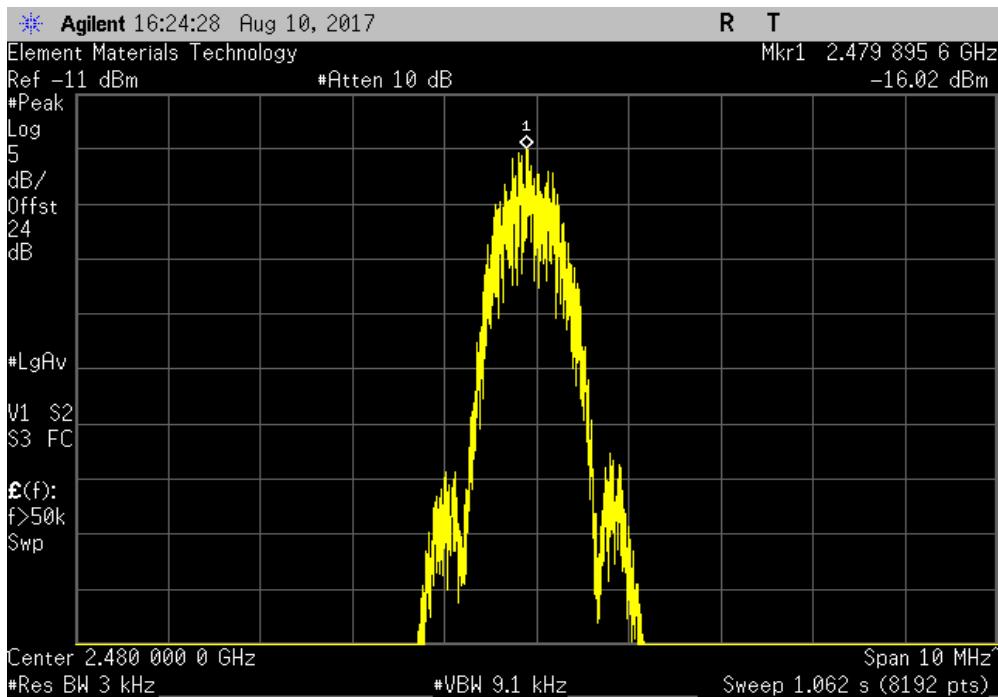


# POWER SPECTRAL DENSITY



TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK High Channel, 2480 MHz		
	Value dBm/3kHz	Limit < dBm/3kHz
	-16.022	8



# BAND EDGE COMPLIANCE



XMit 2017.02.08

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	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	1/5/2017	1/5/2018
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

## TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

# BAND EDGE COMPLIANCE



TbTx 2017.07.11

XMI 2017.02.08

EUT:	Ocean Medallion		Work Order:	NYTE0005	
Serial Number:	EV1-1		Date:	08/10/17	
Customer:	Global Experience Innovators, Inc.		Temperature:	23.3 °C	
Attendees:	None		Humidity:	45.4% RH	
Project:	None		Barometric Pres.:	1016 mbar	
Tested by:	Johnny Candelas, Salvador Solorzano	Power:	3 VDC	Job Site:	OC13
TEST SPECIFICATIONS		Test Method			
FCC 15.245:2017		ANSI C63.10:2013			
COMMENTS					
DC Block/20dB Attenuator + Coax Cable + Patch Cable = 23.97dB total offset					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	2	Signature			
			Value (dBc)	Limit ≤ (dBc)	Result
			-49.70	-20	Pass
			-55.73	-20	Pass

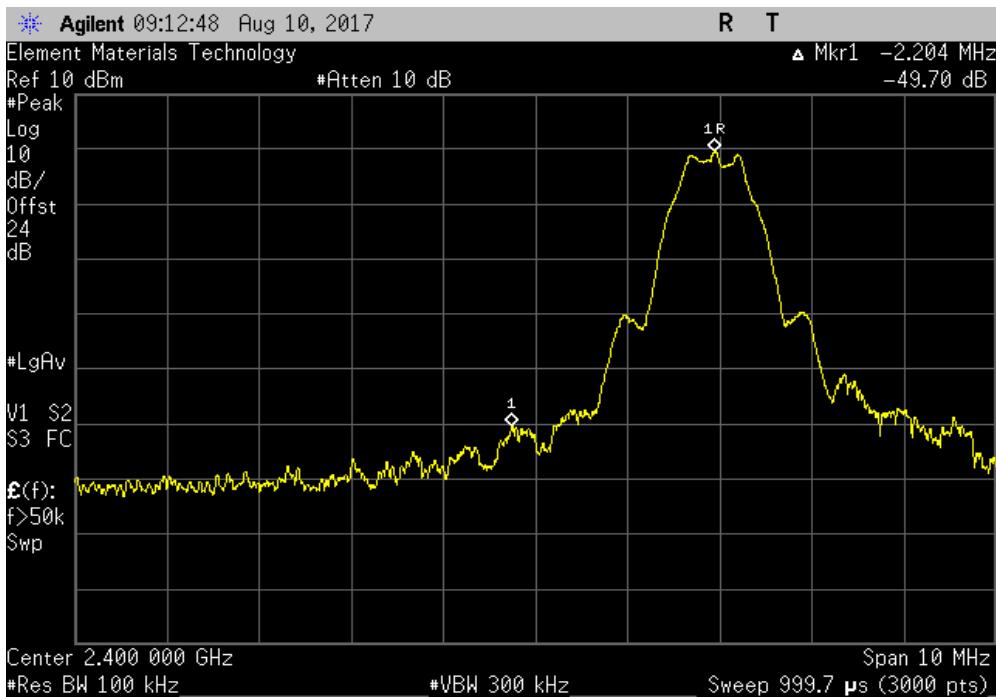
BLE/GFSK Low Channel, 2402 MHz  
BLE/GFSK High Channel, 2480 MHz

# BAND EDGE COMPLIANCE

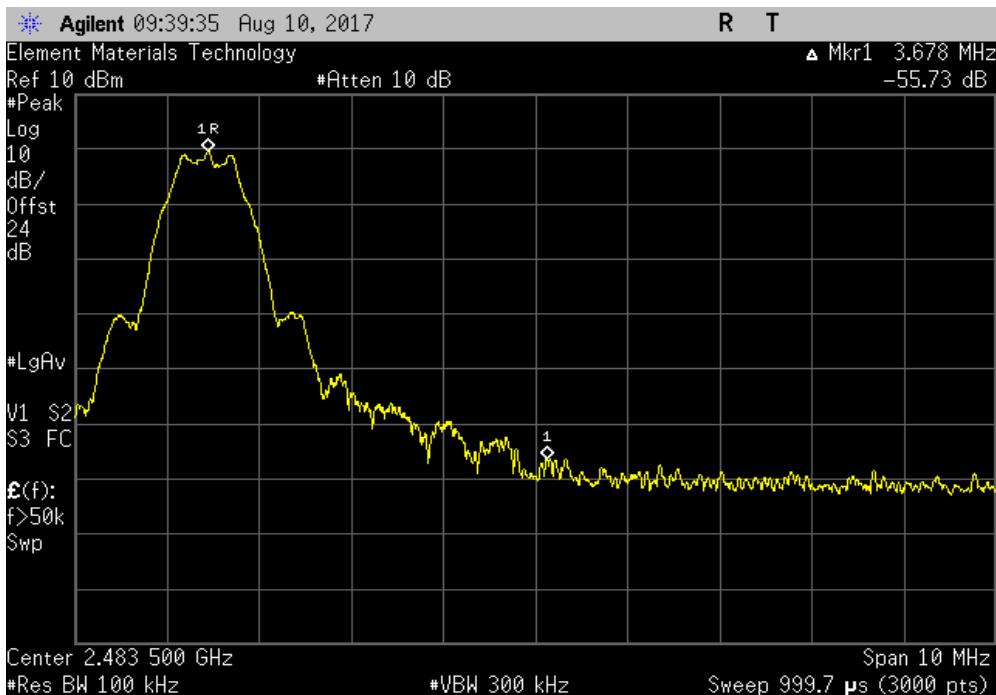


TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK Low Channel, 2402 MHz		
	Value (dBc)	Limit ≤ (dBc)
	-49.70	-20
		Pass



BLE/GFSK High Channel, 2480 MHz		
	Value (dBc)	Limit ≤ (dBc)
	-55.73	-20
		Pass



# SPURIOUS CONDUCTED EMISSIONS



XMit 2017.02.08

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	2/5/2015	2/5/2018
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	1/5/2017	1/5/2018
Block - DC	Fairview Microwave	SD3379	AMV	1/11/2017	1/11/2018
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	11/2/2016	11/2/2017

## TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

# SPURIOUS CONDUCTED EMISSIONS



TbTx 2017.07.11

XMI 2017.02.08

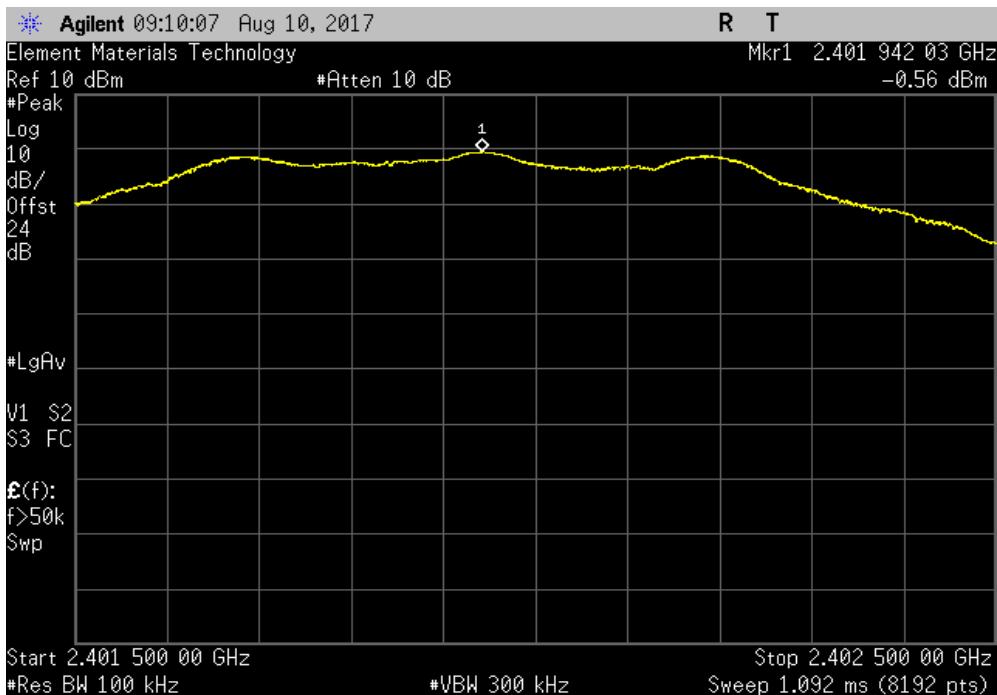
EUT: Ocean Medallion		Work Order: NYTE0005			
Serial Number: EV1-1		Date: 08/10/17			
Customer: Global Experience Innovators, Inc.		Temperature: 23.3 °C			
Attendees: None		Humidity: 45.4% RH			
Project: None		Barometric Pres.: 1016 mbar			
Tested by: Johnny Candelas, Salvador Solorzano	Power: 3 VDC	Job Site: OC13			
TEST SPECIFICATIONS		Test Method			
FCC 15.247:2017		ANSI C63.10:2013			
COMMENTS					
DC Block/20dB Attenuator + Coax Cable + Patch Cable = 23.97dB total offset					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	2	Signature			
		Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result
BLE/GFSK Low Channel, 2402 MHz		Fundamental	N/A	N/A	N/A
BLE/GFSK Low Channel, 2402 MHz		30 MHz - 12.5 GHz	-48.83	-20	Pass
BLE/GFSK Low Channel, 2402 MHz		12.5 GHz - 25 GHz	-50.43	-20	Pass
BLE/GFSK Mid Channel, 2440 MHz		Fundamental	N/A	N/A	N/A
BLE/GFSK Mid Channel, 2440 MHz		30 MHz - 12.5 GHz	-49.95	-20	Pass
BLE/GFSK Mid Channel, 2440 MHz		12.5 GHz - 25 GHz	-49.97	-20	Pass
BLE/GFSK High Channel, 2480 MHz		Fundamental	N/A	N/A	N/A
BLE/GFSK High Channel, 2480 MHz		30 MHz - 12.5 GHz	-49.82	-20	Pass
BLE/GFSK High Channel, 2480 MHz		12.5 GHz - 25 GHz	-50.13	-20	Pass

# SPURIOUS CONDUCTED EMISSIONS

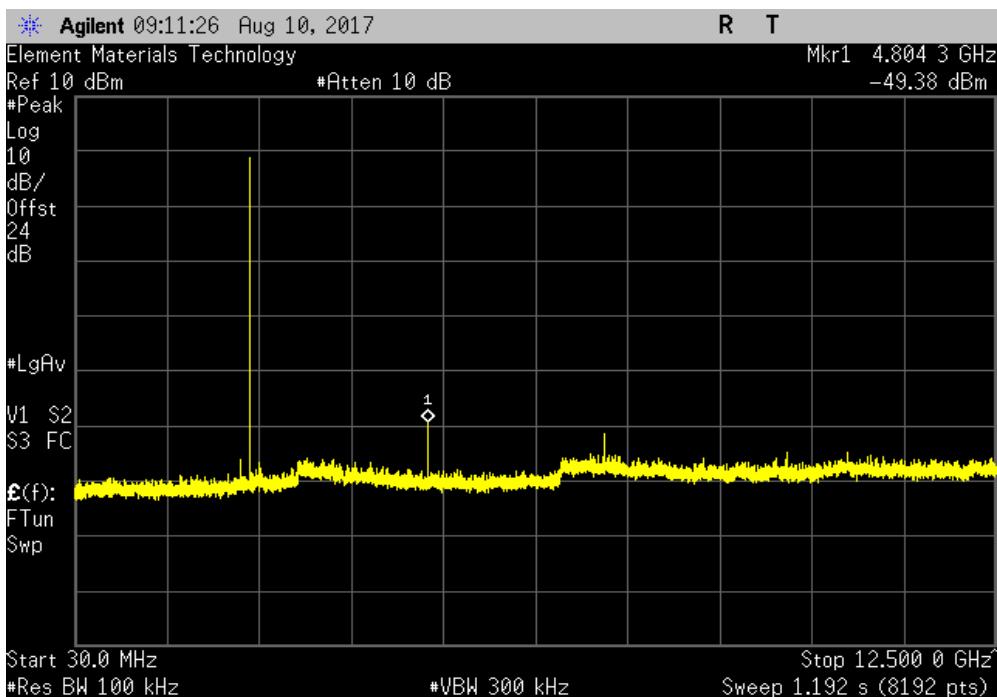


TbITx 2017.07.11 XMII 2017.02.08

Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental		N/A	N/A	N/A



Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz		-48.83	-20	Pass

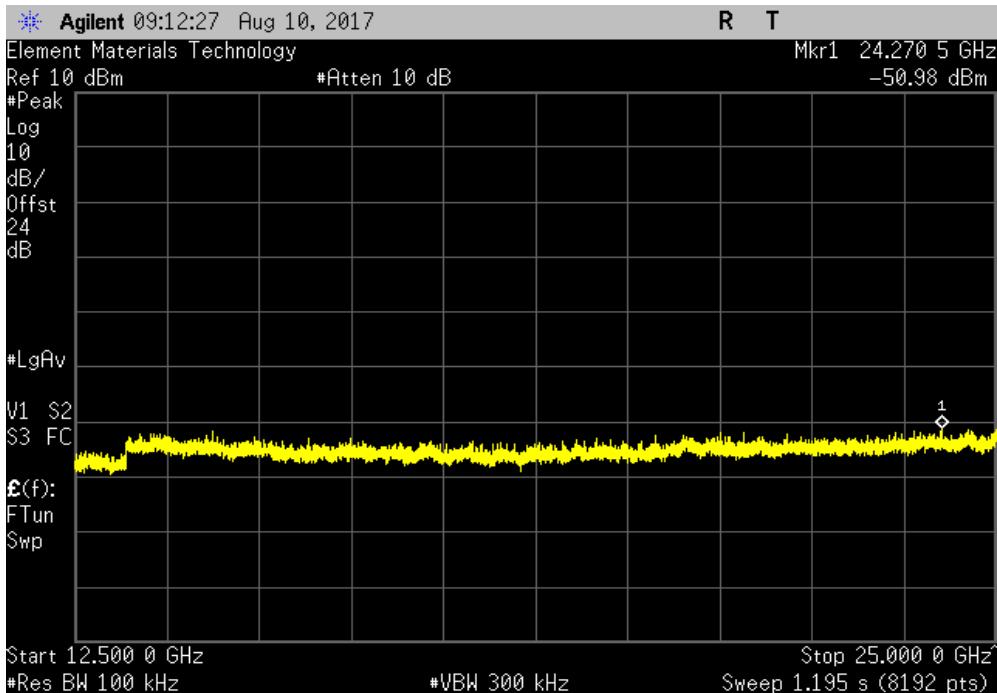


# SPURIOUS CONDUCTED EMISSIONS

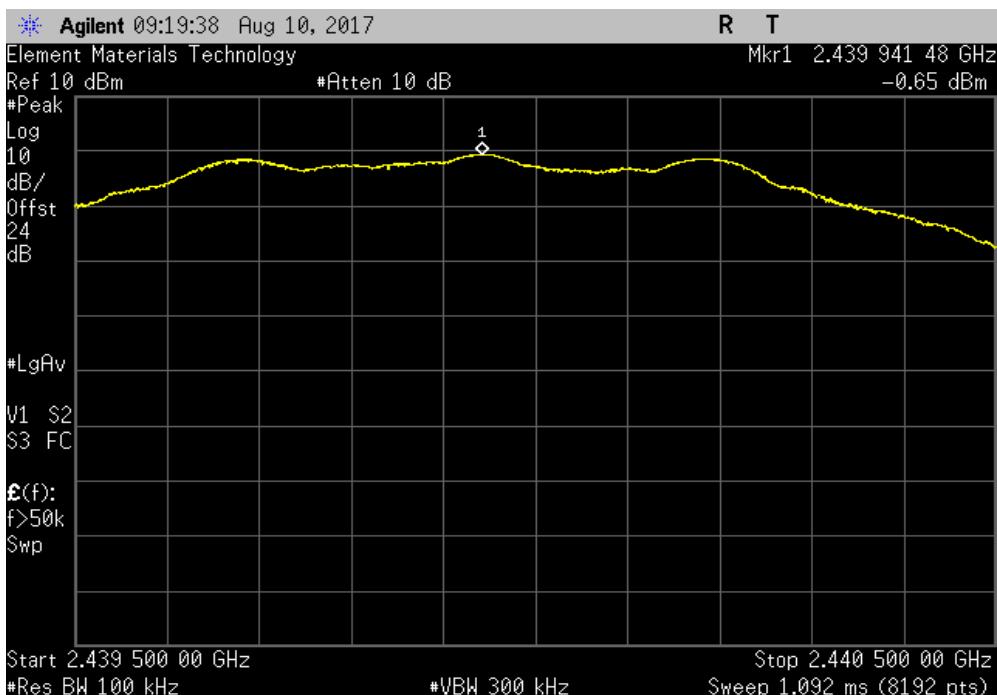


TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK Low Channel, 2402 MHz					
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz		-50.43	-20	Pass	



BLE/GFSK Mid Channel, 2440 MHz					
Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental		N/A	N/A	N/A	N/A

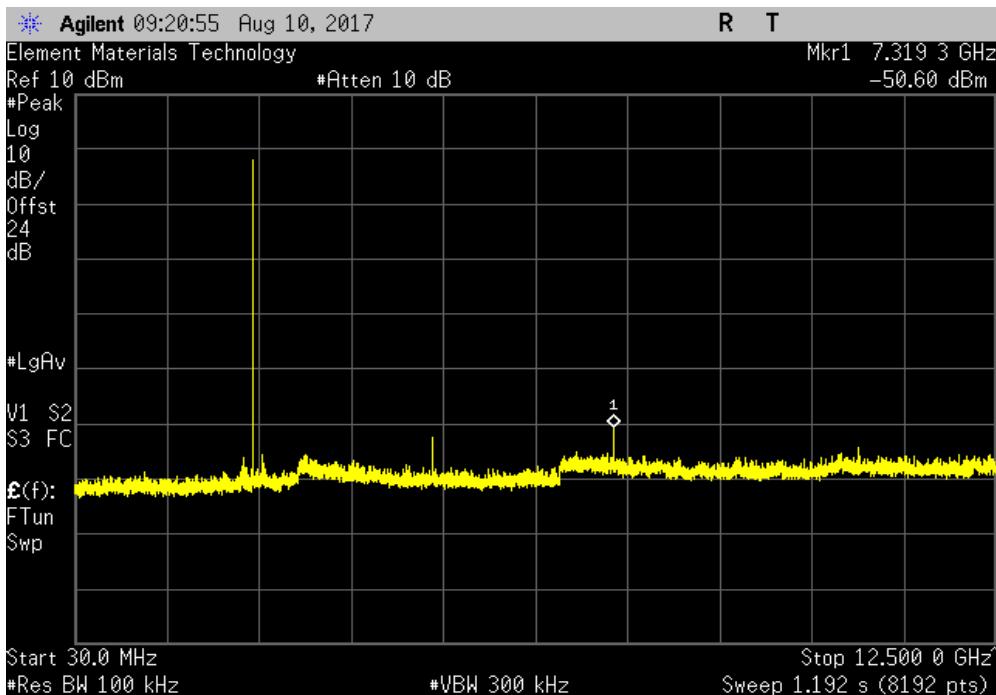


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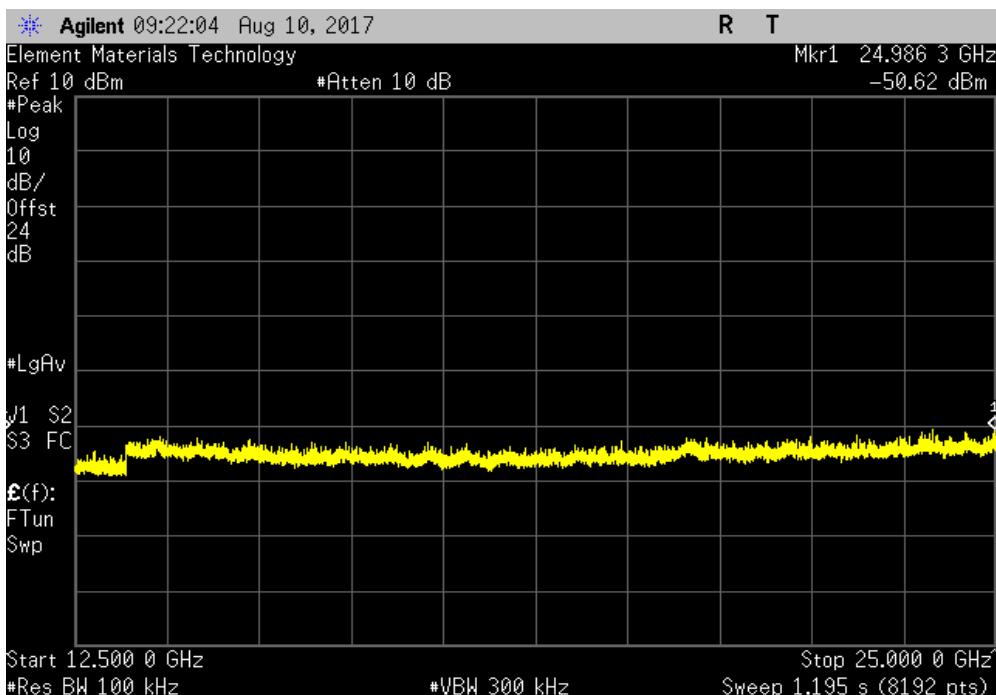


TbITx 2017.07.11 XMII 2017.02.08

Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz		-49.95	-20	Pass



Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz		-49.97	-20	Pass

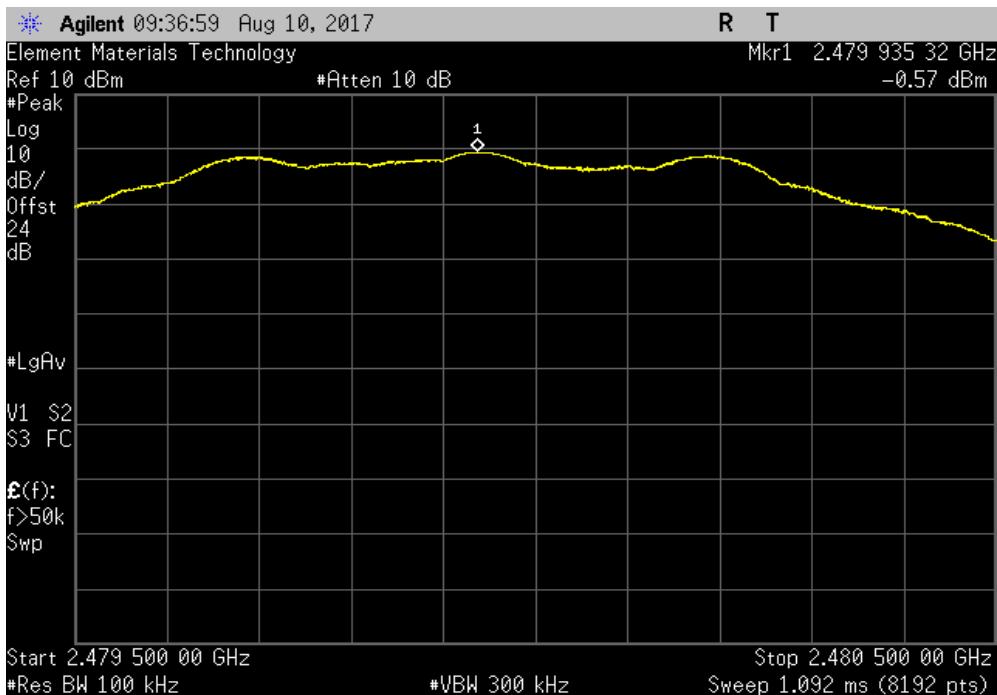


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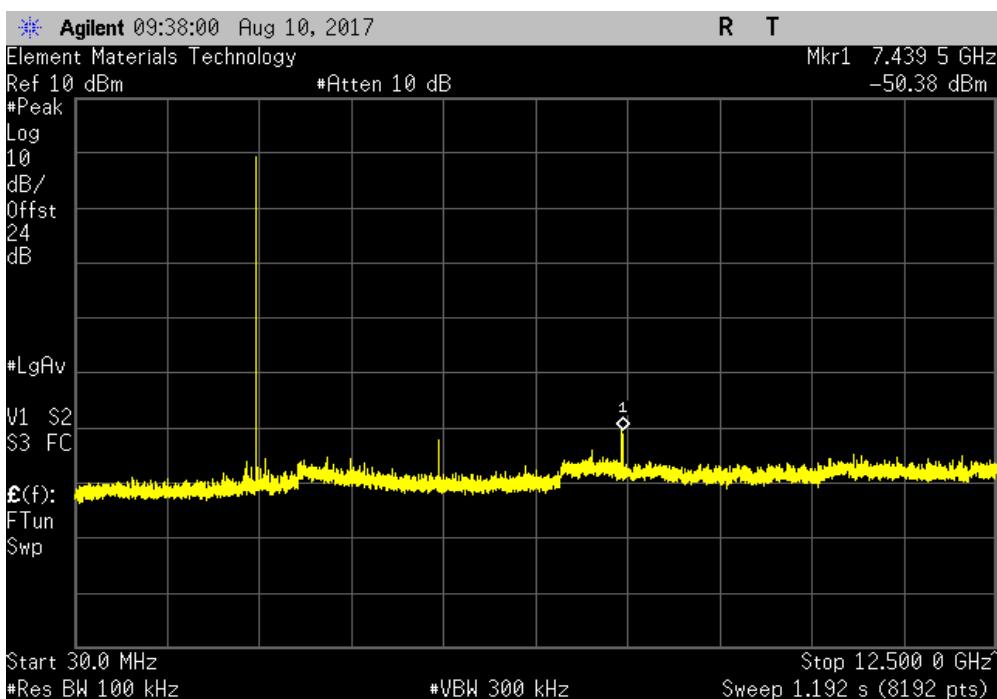


TbITx 2017.07.11 XMII 2017.02.08

Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental		N/A	N/A	N/A



Frequency Range		Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz		-49.82	-20	Pass



# SPURIOUS CONDUCTED EMISSIONS



TbITx 2017.07.11 XMII 2017.02.08

BLE/GFSK High Channel, 2480 MHz			
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	-50.13	-20	Pass

