Testing Tomorrow's Technology

Application

For

Part 2, Subpart J, Paragraph 2.907 Equipment Authorization of Certification for an Intentional Radiator per Part 15, Subpart C, paragraphs 15.207, 15.209 and 15.249

For the

Gozio, Inc.

Model: Gozio Fusion Beacon 1.0

FCC ID: 2AEFO-GZFUSION1

UST Project: 15-0106
Issue Date: April 14, 2015

Total Pages in This Report: 37

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I certify that I am authorized to sign for the Test Agency and that all of the statements in this report and in the Exhibits attached hereto are true and correct to the best of my knowledge and belief:

US TECH (Agent Responsible For Test):

By: Alan Ghasiani

Name: 

Title: Compliance Engineer – President

Date April 14, 2015

NVLAP LAB CODE 200162-0

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MEASUREMENT TECHNICAL REPORT

COMPANYS NAME: Gozio, Inc.

MODEL: Gozio Fusion Beacon 1.0

FCC ID: 2AEFO-GZFUSION1

DATE: April 14, 2015

This report concerns (check one): Original grant [X]
Class II change

Equipment type: 2.4 GHz Bluetooth Beacon

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes_____ No X

If yes, defer until: _____N/A_____
date
agrees to notify the Commission by N/A
date
of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by:

US Tech
3505 Francis Circle
Alpharetta, GA 30004

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1 General Information

1.1 Purpose of this Report

This report is prepared as a means of conveying test results and information concerning the suitability of this exact product for public distribution according to the FCC Rules and Regulations Part 15.249.

1.2 Characterization of Test Sample

The sample used for testing was received by US Tech on April 13, 2015 in good operating condition.

1.3 Product Description

The Equipment nder Test (EUT) is the Gozio, Inc. Model Gozio Fusion Beacon 1.0. The EUT is a Bluetooth Low Energy Beacon. The EUT uses indoor positioning and way finding platforms for use inside for hospitals. Every 200 msec, the beacon transmits three 416 µsec burst. One burst is centered at 2402 MHz, one at 2426 MHz, and one at 2480 MHz.

Antenna: Inverted F PCB Antenna
Modulation: DSSS
Maximum Output Power: +4 dBm
Data Rate: 1 Mbit/s
Packet type: N/A

1.4 Configuration of Tested System

The Test Sample was tested per *ANSI C63.4:2009, Methods of Measurement of Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (2009)* for FCC subpart A Digital equipment Verification requirements and per FCC Public Notice 558074 DTS measurement guide.

A list of EUT and Peripherals is found in Table 1 below. A block diagram of the tested system is shown in Figure 1. Test configuration photographs are provided in separate Appendices.

1.5 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA 30004. This site has been fully described and registered with the FCC. Its designation number is 186022. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number 9900A-1.

1.6 Related Submittals

1.6.1 The EUT is subject to the following FCC authorizations:

a) Certification under section 15.249 as a transmitter.
b) Verification under 15.101 as a digital device and receiver.

1.6.2 Certification of the Transmitter

The EUT employs DSSS modulation, but is not being certified under CFR 15.247 because the field strength of the fundamental and its harmonics are within the limits specified in 47 CFR 15.249. Therefore the EUT is instead being presented under the requirements of CFR 15.249. The EUT will operate within the frequency band of 2400 MHz to 2483.52 MHz.

1.6.3 Verification of the Digital Apparatus

The Verification requirement shares many common report elements with the Certification report. Therefore, though this report is mostly intended to provide data for the Certification process, the Verification authorization report (part 15.107 and 15.109) for the EUT is included herein.

Table 1. EUT and Peripherals

PERIPHERAL MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID:	CABLES P/D
Gozio, Inc.	Gozio Fusion Beacon 1.0	1515-00013 & 1515-00017	FCC ID:2AEFO-GZFUSION1 (Pending)	None
Antenna See antenna details	--	--	--	--

U= Unshielded S= Shielded
P= Power D= Data

2 Tests and Measurements

2.1 Test Equipment

The table below lists test equipment used to evaluate this product. Model numbers, serial numbers and their calibration status are indicated.

Table 2. Test Instruments

TEST INSTRUMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	DATE OF LAST CALIBRATION
SPECTRUM ANALYZER	E4407B	AGILENT	US41442935	1/28/2015
LOOP ANTENNA	SAS-200/562	A.H. Systems	142	9/12/2013 2 yr.
BICONICAL ANTENNA	3110B	EMCO	9307-1431	2/11/2013 2 yr. with 90 day extension
LOG PERIODIC ANTENNA	3146	EMCO	9305-3600	7/1/2014 2 yr.
HORN ANTENNA	3115	EMCO	9107-3723	7/8/2014 2 yr.
PRE-AMPLIFIER	8449B	HEWLETT-PACKARD	3008A00480	12/5/2014
PRE-AMPLIFIER	8477E	HEWLETT-PACKARD	1145A00307	11/21/2014
PRE-AMPLIFIER	8447D	HEWLETT-PACKARD	1937A02980	12/4/2014

Note: The calibration interval of the above test instruments are 12 months unless stated otherwise and all calibrations are traceable to NIST/USA.

2.2 Modifications to EUT Hardware

No physical modifications were made by US Tech in order to bring the EUT into compliance with FCC Part 15, Subpart C Intentional Radiator Limits for the transmitter portion of the EUT or the Subpart B Unintentional Radiator Limits (Receiver and Digital Device) Requirements.

2.3 Number of Measurements for Intentional Radiators (15.31(m))

Measurements of intentional radiators or receivers shall be performed and reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in Table 3 below.

Table 3. Number of Test Frequencies for Intentional Radiators

Frequency Range over which the device operates	Number of Frequencies	Location in the Range of operation
1 MHz or less	1	Middle
1 to 10 MHz	2	1 near the top 1 near the bottom
Greater than 10 MHz	3	1 near top 1 near middle 1 near bottom

Because the EUT operates within the band of 2400 MHz to 2483.5 MHz, 3 test frequencies were used.

2.4 Frequency Range of Radiated Measurements (Part 15.33)

2.4.1 Intentional Radiator

The spectrum shall be investigated for the intentional radiator from the lowest RF signal generated in the EUT, without going below 9 kHz to the 10^{th} harmonic of the highest fundamental frequency generated or 40 GHz, whichever is the lowest.

2.4.2 Unintentional Radiator

For the digital device, an unintentional radiator, the frequency range shall be 30 MHz to 1000 MHz, or to 5 times the highest internal clock frequency.

2.5 Measurement Detector Function and Bandwidth (CFR 15.35)

The radiated and conducted emissions limits shown herein are based on the following:

2.5.1 Detector Function and Associated Bandwidth

On frequencies below 1000 MHz, the limits herein are based upon measurement equipment employing a CISPR Quasi-peak detector function and related measurement bandwidths (i.e. 9 kHz from 150 kHz to 30 MHz and 120 kHz from 30 MHz to 1000 MHz). Alternatively, measurements may be made with equipment employing a peak detector function as long as the same bandwidths specified for the Quasi-peak device are used.

2.5.2 Corresponding Peak and Average Requirements

Above 1000 MHz, radiated limits are based on measuring instrumentation employing an average detector function. When average radiated emissions are specified there is also a corresponding Peak requirement, as measured using a peak detector, of 20 dB greater than the average limit. For all measurements above 1000 MHz the Resolution Bandwidth shall be at least 1 MHz.

2.5.3 Pulsed Transmitter Averaging

When the radiated emissions limit is expressed as an average value, and the transmitter is pulsed, the measured field strength shall be determined by applying a Duty Cycle Correction Factor based upon dividing the total ON time during the first 100 ms period by 100 ms (or by the period if less than 100 ms). The duty cycle may be expressed logarithmically in dB.

NOTE: If the transmitter was programmed to transmit at >98% duty cycle, then wherever applicable (where the detection mode was AVG), the duty cycle factor calculated will be applied.

2.6 EUT Antenna Requirements (CFR 15.203)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. Only the antenna(s) listed in Table 4 will be used with this module.

Table 4. Allowed Antenna(s)

REPORT REFERENCE	MANUFACTURER	TYPE OF ANTENNA	MODEL	GAIN dB_i	TYPE OF CONNECTOR
1	Gozio	Inverted-F	Inverted F	3.3	PCB Antenna

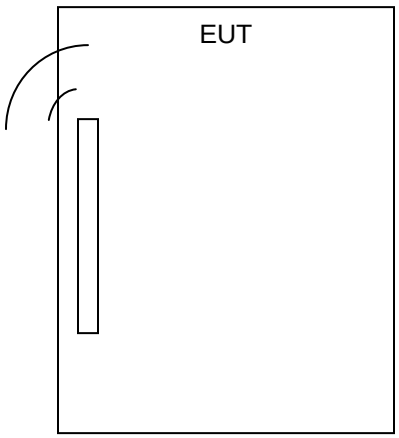

Figure 1. Test Configuration Diagram

2.7 Restricted Bands of Operation (Part 15.205)

Only spurious emissions can fall in the frequency bands of CFR 15.205. The field strength of these spurious cannot exceed the limits of 15.209. Radiated harmonics and other spurious are examined for this requirement see paragraph 2.1

2.8 Transmitter Duty Cycle (CFR 35 (c))

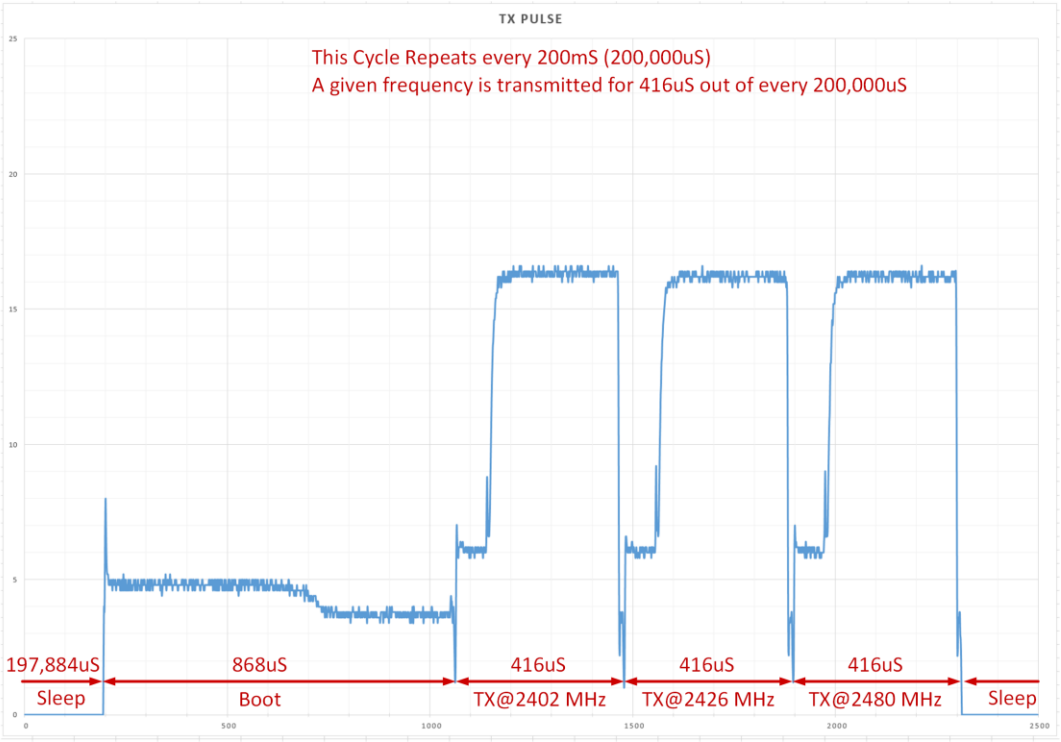

Figure 2. Duty Cycle 100ms Sweep

Total Time On from Figure 2 = 416 µsec * 3 = 1.25 msec
Total Pulse Train from Figure 3 = 200 msec

(1.25 ms Total Time On)/(200 ms Total Pulse Train) = 0.0063 Numeric Duty Cycle
Duty Cycle = 20 Log (0.0063) = -44.1 dB

Since the Duty Cycle of the EUT is less than -20 dB, only -20 dB Duty Cycle Correction factor is applied to Average measurements in the test report.

2.9 Intentional Radiator, Power Line Conducted Emissions (CFR 15.207)

The EUT was battery powered off of two AA Batteries. Since the EUT is battery powered, this test was not applied.

2.10 Intentional Radiator, Radiated Emissions (CFR 15.209, 15.247(d)) (IC RSS 210, A2.9 (a))

Radiated Spurious measurements: The EUT was placed into normal operation mode and tested per FCC Public Notice 558074 DTS measurement guide and ANSI C63.10:2013. A preliminary scan was performed on the EUT to find signal frequencies that were caused by the transmitter part of the device. A preliminary scan was performed on the EUT to find the worse case results the EUT was tested in X, Y, and Z axes or in the orientation of normal operation if the device is designed to operate in a fixed position.

Radiated measurements were then conducted between the frequency range of 9 kHz (or lowest frequency used/generated by the device) up to the tenth harmonic of the device (no greater than 40 GHz). In the band below 30 MHz a resolution bandwidth (RBW) of 9 kHz was used, emissions below 1 GHz were tested with a RBW of 120 kHz and emissions above 1 GHz were tested with a RBW of 1 MHz. All video bandwidth settings were at least three times the RBW value.

The EUT was investigated to CFR 15.209, General requirements for unwanted spurious emissions.

Table 5 . Intentional Radiator, Peak Radiated Emissions (CFR 15.209), 0.009 MHz to 30MHz

Test: FCC Part 15, Para 15.209				**Client:** Gozio, Inc.			
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0			
Frequency (MHz)	**Test Data (dBuv)**	**AF+CA-AMP (dB/m)**	**Results (dBuV/m)**	**Limits (dBuV/m)**	**Antenna Distance/ Polarization**	**Margin (dB)**	**Detector Mode**
All emissions were at least 20 dB below the applicable limit.							

SAMPLE CALCULATION: N/A

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

Table 6. Peak Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.249				**Client:** Gozio, Inc.			
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0			
Frequency (MHz)	**Test Data (dBuv)**	**AF+CA-AMP+ Extrapolation Factor (dB/m)**	**Results (dBuV/m)**	**Limits (dBuV/m)**	**Antenna Distance/ Polarization**	**Margin (dB)**	**Detector Mode**
Low Channel – PEAK							
2402.00	69.53	30.63	100.16	114.00	3.0m./HORZ	13.8	PK
7206.00	58.56	-2.66	55.90	74.00	1.0m./HORZ	18.1	PK
Mid Channel – PEAK							
2426.00	69.41	30.77	100.18	114.00	3.0m./HORZ	13.8	PK
7278.00	59.28	-3.31	55.97	74.00	1.0m./HORZ	18.0	PK
High Channel - PEAK							
2480.00	67.91	30.79	98.70	114.00	3.0m./HORZ	15.3	PK
7440.00	62.48	-2.96	59.52	74.00	1.0m./HORZ	14.5	PK

1. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic
2. Measurements were taken at 1 meter and were extrapolated to 3 meter susing a factor of (-9.5 dB).
3. The EUT was placed in three orthogonal positions. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 7206.00 MHz:

Magnitude of Measured Frequency:	58.56	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain+		
Extrapolation Factor:	-2.66	dB/m
Corrected Result:	55.90	dBuV/m

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

Table 7. Average Radiated Fundamental & Harmonic Emissions

Test: FCC Part 15, Para 15.209, 15.247(d)				**Client:** Gozio, Inc.			
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0			
Frequency (MHz)	**Test Data (dBuv)**	**AF+CA-AMP-DC + Extrapolation Factor (dB/m)**	**Results (dBuV/m)**	**Limits (dBuV/m)**	**Antenna Distance/ Polarization**	**Margin (dB)**	**Detector Mode**
Low Channel – AVERAGE							
2402.00	69.53	10.63	80.16	94.00	3.0m./HORZ	13.84	PK
7206.00	58.56	-22.66	35.90	54.00	1.0m./HORZ	18.10	PK
Mid Channel – AVERAGE							
2426.00	69.41	10.77	80.18	94.00	3.0m./HORZ	13.82	PK
7278.00	59.28	-23.31	35.97	54.00	1.0m./HORZ	18.03	PK
High Channel - AVERAGE							
2480.00	67.91	10.79	78.70	94.00	3.0m./HORZ	15.30	PK
7440.00	62.48	-22.96	39.52	54.00	1.0m./HORZ	14.48	PK

1. Duty cycle Calculation applied to Peak Measurement
2. No other signals detected within 20 dB of specification limit. Harmonics investigated up to the 10th harmonic
3. Measurements were taken at 1 meter were extrapolated to 3 meters using a factor of (-9.5 dB).
4. The EUT was placed in three orthogonal positions and the transmitter was in constant broadcast mode, with a duty cycle of greater than 98%. The emissions were measured with the receive antenna in vertical and horizontal polarizations. The data listed in the above table was worst case.

Sample Calculation at 7206.00 MHz:

Magnitude of Measured Frequency	58.56	dBuV
+Antenna Factor + Cable Loss+ Amplifier Gain – Duty Cycle	-22.66	dB/m
Corrected Result	35.90	dBuV/m

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

2.11 Band Edge Measurements – (CFR 15.247 (d))

Band Edge measurements are made following the guidelines in ANSI C63.10:2013 section 6.10.6 (Marker-Delta method) with the EUT initially operating on the Lowest Channel and the Highest Channel within its band of operation. Since the Antenna was internal, and there was not an Antenna port, radiated measurements were performed to demonstrate compliance with the requirement of 15.249 that all emissions outside of the specified frequency bands be attenuated by at least 50 dB below the fundamental or to the general radiated emissions limits of 15.209, whichever is the lesser attenuation.

To capture the band edge, set the Spectrum Analyzer frequency span large enough to capture the peak level of the emission operating on the channel closest to the band edge as well as any modulation products falling outside of the authorized band of operation. Radiated measurements were performed with RBW ≥1% of the frequency span. In all cases, the VBW is set ≥ RBW. See figure and calculations below for more detail. This measurement was performed with the EUT in normal use mode (frequency hopping ON).

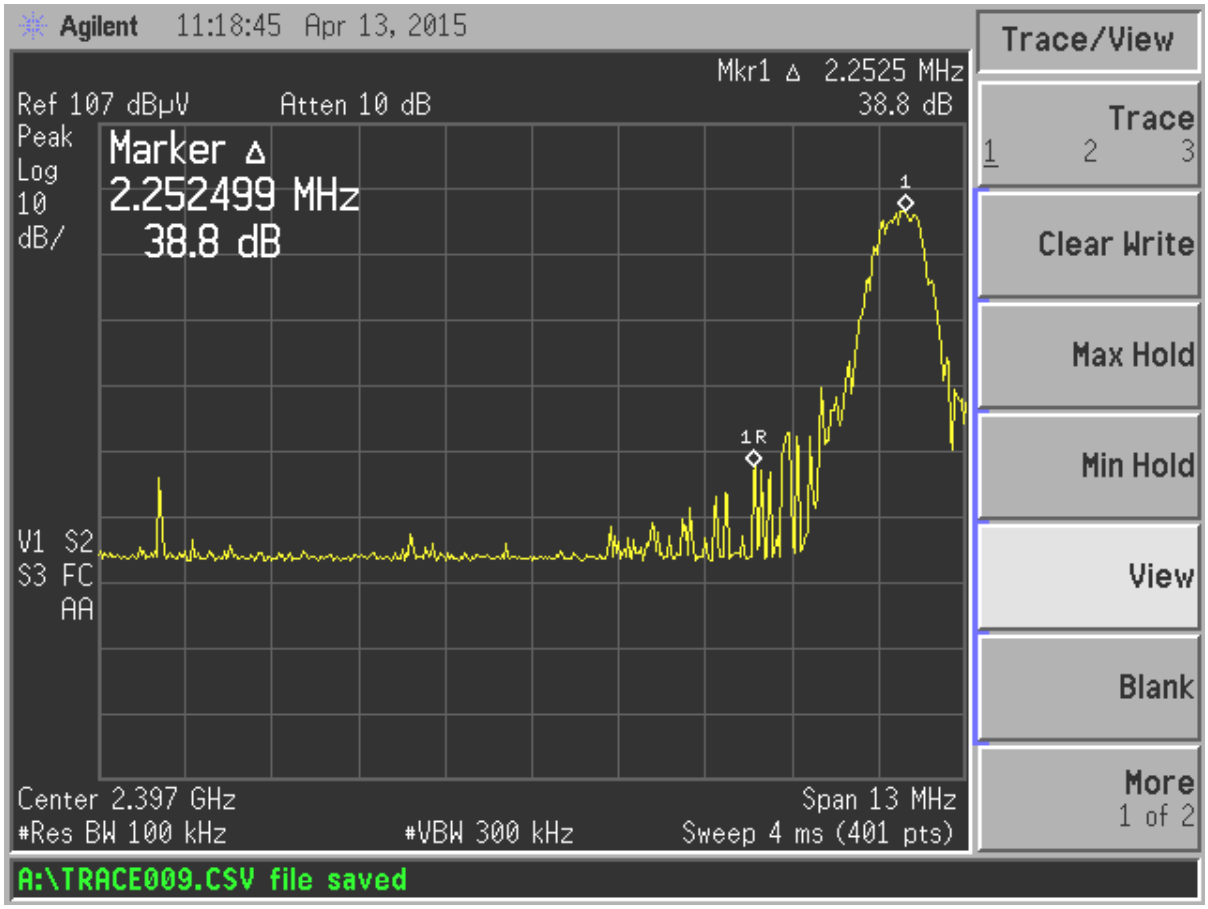

Figure 3. Band Edge Compliance, Low Channel Delta - Peak

Calculation of worst case lower band edge measurement:

The PEAK Low Channel fundamental recorded in Table 6 is 100.16 dBuV/m:

Magnitude of Fundamental (PK)	100.16 dBuV/m
- Delta (from figure above)	38.8 dB
Measured Difference	61.36 dBuV/m
Applied Limit	74.00 dBuV/m
-Measured Difference	61.36 dBuV/m
Passing Margin	12.64 dB

The AVG Low Channel fundamental recorded in Table 7 is 80.16 dBuV/m;

Magnitude of Fundamental (AVG)	80.16 dBuV/m
- Delta (from figure above)	38.8 dB
Measured Difference	41.36 dBuV/m

Applied Limit	54.00 dBuV/m
-Corrected Difference	41.36 dBuV/m
Passing Margin	12.64 dB

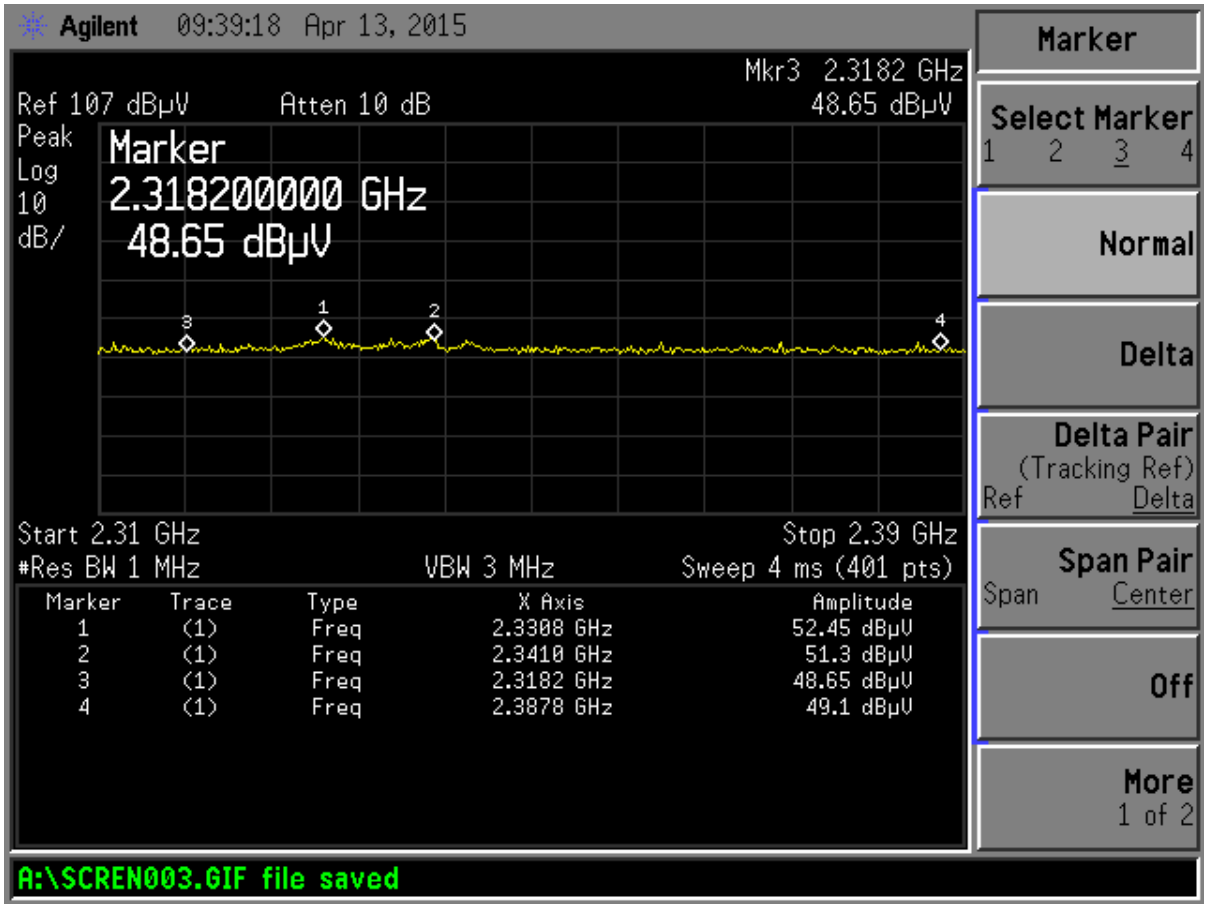

Figure 4. Radiated Restricted Band Measurements PK, 2.31 GHz to 2.39 GHz

Table 8. Radiated Restricted Band Measurements PK, 2.31 GHz to 2.39 GHz

Test: FCC Part 15, Restricted Bands				**Client:** Gozio, Inc.			
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0			
Frequency (MHz)	**Test Data (dBuv)**	**AF+CA-AMP (dB/m)**	**Results (dBuV/m)**	**Limits (dBuV/m)**	**Antenna Distance/ Polarization**	**Margin (dB)**	**Detector Mode**
2331.00	52.45	-5.61	46.84	74.0	3.0m./HORZ	27.2	**PK**
2341.00	51.30	-5.63	45.67	74.0	3.0m./HORZ	28.3	**PK**
2318.20	48.65	-5.61	43.04	74.0	3.0m./HORZ	31.0	**PK**
2387.80	49.10	-5.63	43.47	74.0	3.0m./HORZ	30.5	**PK**

Sample Calculation at 2331.00 MHz:

Magnitude of Measured Frequency	52.45	dBuV
+Correction Factors	-5.61	dB/m
Corrected Result	46.84	dBuV/m

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

Table 9. Radiated Restricted Band Measurements AVG, 2.31 GHz to 2.39 GHz

Test: FCC Part 15, Restricted Bands				**Client:** Gozio, Inc.			
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0			
Frequency (MHz)	**Test Data (dBuv)**	**AF+CA-AMP (dB/m)**	**Results (dBuV/m)**	**Limits (dBuV/m)**	**Antenna Distance/ Polarization**	**Margin (dB)**	**Detector Mode**
2331.00	52.45	-5.61	46.84	54.0	3.0m./HORZ	7.2	**PK**
2341.00	51.30	-5.63	45.67	54.0	3.0m./HORZ	8.3	**PK**
2318.20	48.65	-5.61	43.04	54.0	3.0m./HORZ	10.9	**PK**
2387.80	49.10	-5.63	43.47	54.0	3.0m./HORZ	10.6	**PK**

Sample Calculation at 2331.00 MHz:

Magnitude of Measured Frequency	52.45	dBuV
+Correction Factors	-5.61	dB/m
Corrected Result	46.84	dBuV/m

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

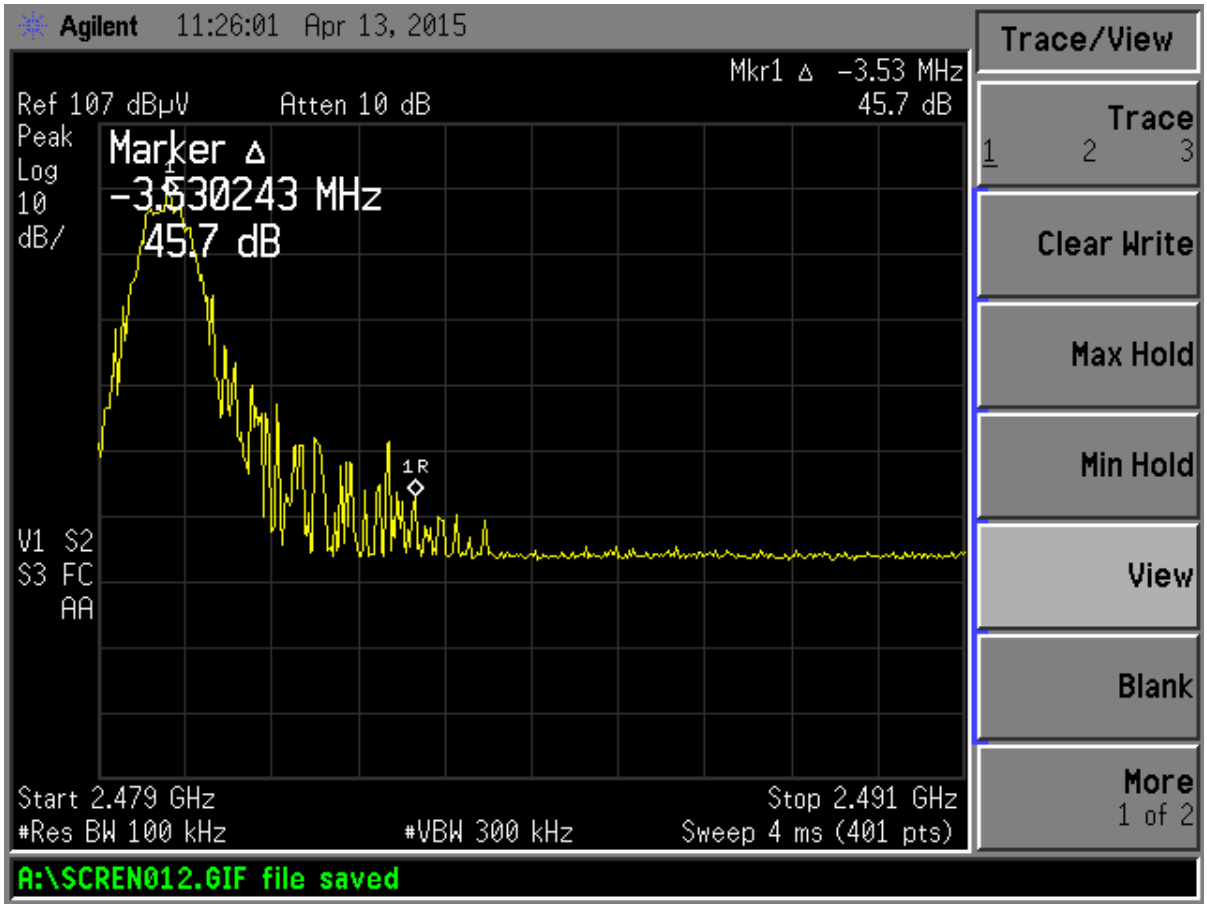

Figure 5. Band Edge Compliance, High Channel Delta – Peak

Calculation of worst case peak upper band edge measurement:

High Channel Corrected Measured Value from Table 6	98.70	dBuV
High Channel Band Edge Delta from Figure 5	45.70	dB
Peak Band Edge Calculated Result	53.00	dBuV/m
Band Edge Limit (Peak Restricted Limit)	74.00	dBuV/m
Calculated Result	53.00	dBuV/m
Band Edge Margin	21.00	dBuV/m

Calculation of worst case average upper band edge measurement:

Peak Band Edge Calculated Results	53.00	dBuV
-Duty Cycle Correction Factor	20.00	dB
Average Band Edge Calculated Result	33.00	dBuV/m
Band Edge Limit (Average Restricted Limit)	54.00	dBuV/m
Calculated Result	33.00	dBuV/m
Band Edge Margin	21.00	dBuV/m

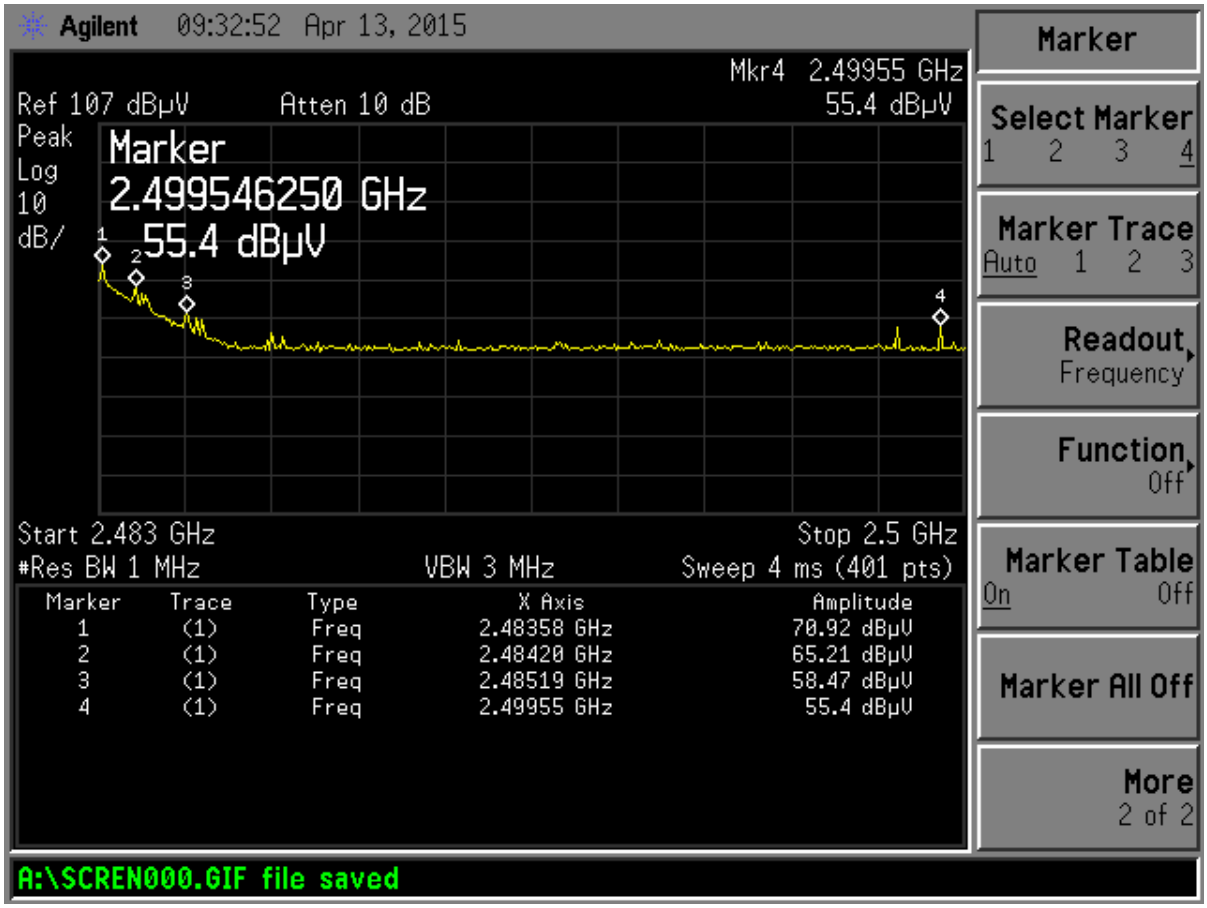

Figure 6. Radiated Restricted Band Measurements PK, 2.4835 GHz to 2.5 GHz

Table 10. Radiated Restricted Band Measurements PK, 2.4835 GHz to 2.5 GHz

Test: FCC Part 15, Restricted Bands				**Client:** Gozio, Inc.			
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0			
Frequency (MHz)	**Test Data (dBuv)**	**AF+CA-AMP (dB/m)**	**Results (dBuV/m)**	**Limits (dBuV/m)**	**Antenna Distance/ Polarization**	**Margin (dB)**	**Detector Mode**
2483.58	70.92	-5.10	65.82	74.0	3.0m./HORZ	8.2	**PK**
2484.20	65.21	-5.10	60.11	74.0	3.0m./HORZ	13.9	**PK**
2485.20	58.47	-5.10	53.37	74.0	3.0m./HORZ	20.6	**PK**
2495.55	55.40	-5.10	50.30	74.0	3.0m./HORZ	23.7	**PK**

Sample Calculation at 2483.58 MHz:

Magnitude of Measured Frequency	70.92	dBuV
+Correction Factors	-5.10	dB/m
Corrected Result	65.82	dBuV/m

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

Table 11. Radiated Restricted Measurements AVG, 2.4835 GHz to 2.5 GHz

Test: FCC Part 15, Restricted Bands				**Client:** Gozio, Inc.			
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0			
Frequency (MHz)	**Test Data (dBuv)**	**AF+CA-AMP-DC (dB/m)**	**Results (dBuV/m)**	**Limits (dBuV/m)**	**Antenna Distance/ Polarization**	**Margin (dB)**	**Detector Mode**
2483.58	70.92	-25.10	45.82	54.0	3.0m./HORZ	8.2	**PK**
2484.20	65.21	-25.10	40.11	54.0	3.0m./HORZ	13.9	**PK**
2485.20	58.47	-25.10	33.37	54.0	3.0m./HORZ	20.6	**PK**
2495.55	55.40	-25.10	30.30	54.0	3.0m./HORZ	23.7	**PK**

Note: Duty cycle Calculation applied to Peak Measurement, as a worse case measurement

Sample Calculation at 2483.58 MHz:

Magnitude of Measured Frequency	70.92	dBuV
+Correction Factors	-25.10	dB/m
Corrected Result	45.82	dBuV/m

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

2.12 6 dB and 99% Occupied Bandwidth

These measurements were performed while the EUT was in a normal use mode. The spectrum analyzer was set to max hold until the trace stabilized. The spectrum analyzer's bandwidth measurement mode was used to capture the bandwidth of the EUT. The RBW was set to approximately 1/100 of the manufacturers claimed RBW and with the VBW ≥ RBW. The results of this test are given in Table 12 and Figures 10-12.

Table 12. 6 dB Bandwidth and 99% Occupied Bandwidth

Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
2402	.652	1.074
2426	.609	1.083
2480	.657	1.190

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

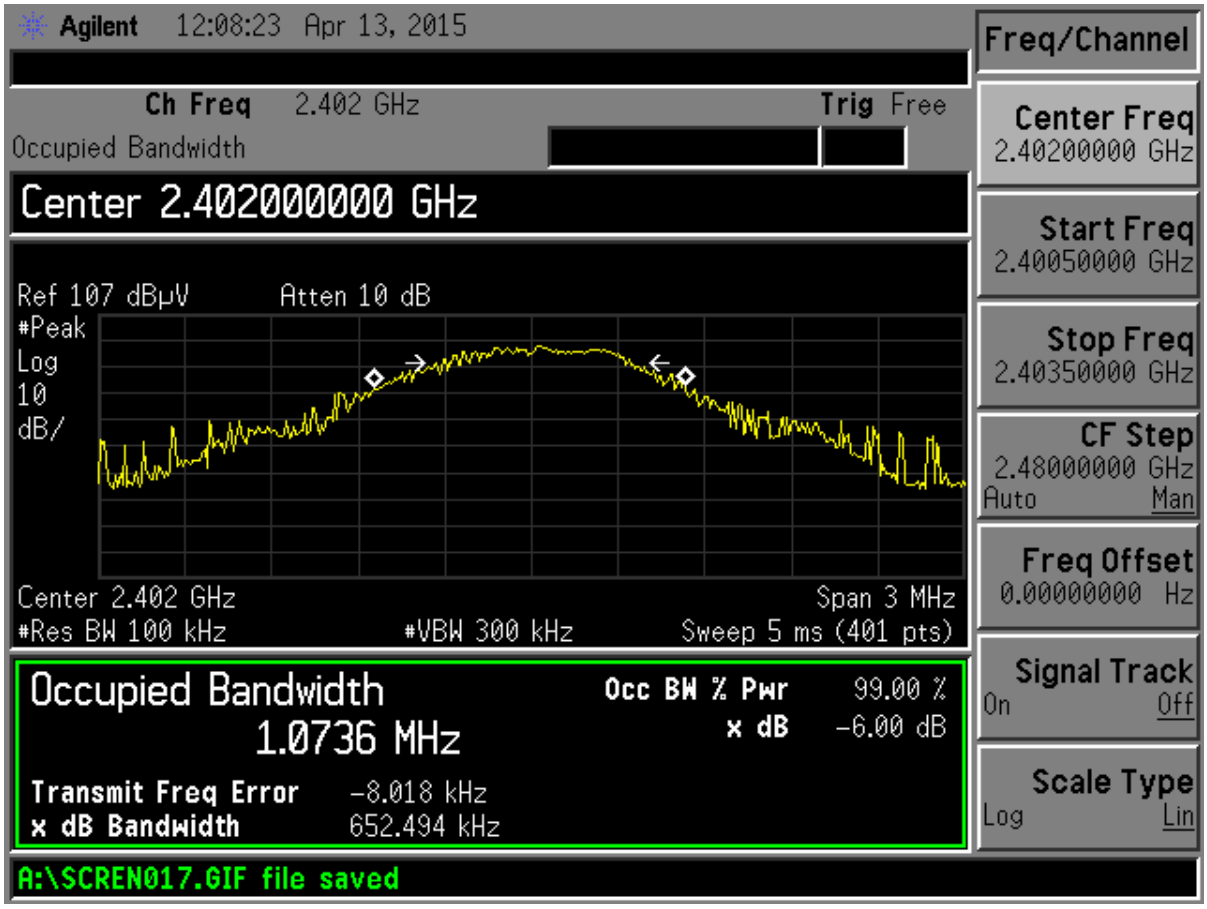

Figure 7. Twenty dB Bandwidth - Low Channel

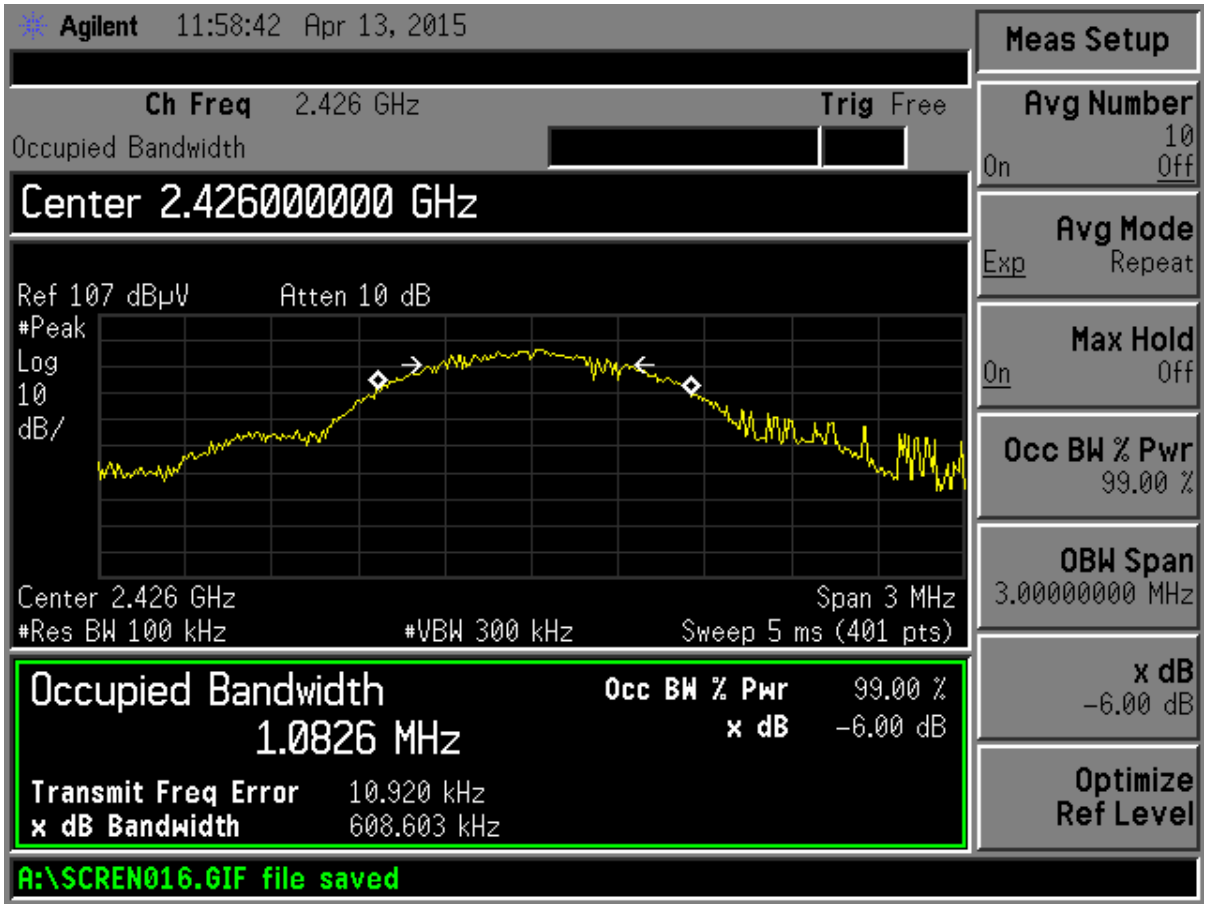

Figure 8. Twenty dB Bandwidth - Mid Channel

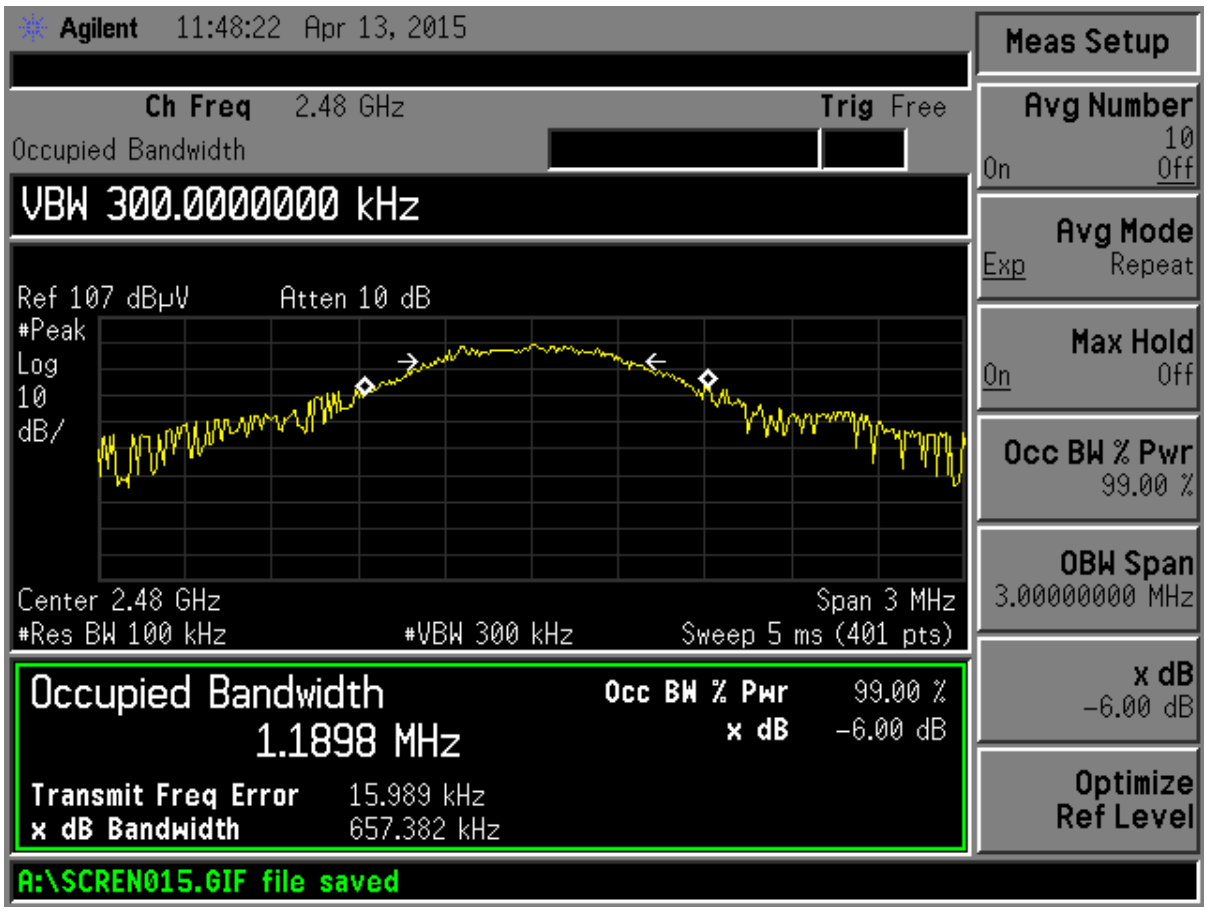

Figure 9. Twenty dB Bandwidth - High Channel

2.13 Unintentional Radiator, Powerline Emissions (CFR 15.107)

The power line conducted voltage emission measurements have been carried out in accordance with CFR 15.107, per ANSI C63.4:2009, Paragraph 7, with a spectrum analyzer connected to a LISN and the EUT placed into a continuous mode of transmission.

The EUT is battery powered; therefore this test was not applied.

NOTE: The test data provided in this section is to support the Verification for the digital apparatus and the radios within.

Table 13. Transmitter Power Line Conducted Emissions Test Data, Part 15.107

150KHz to 30 MHz with Class A Limits						
Test: Power Line Conducted Emissions				**Client:** Gozio, Inc.		
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0		
Frequency (MHz)	**Test Data (dBuv)**	**LISN+CL-PA (dB)**	**Results (dBuV)**	**AVG Limits (dBuV)**	**Margin (dB)**	**Detector PK, QP, or AVG**
This EUT is Battery Powered; therefore this test was deemed inapplicable.						

SAMPLE CALCULATION : N/A

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

2.14 Unintentional Radiator, Radiated Emissions (CFR 15.109)

Radiated emissions disturbance Measurements were performed with an instrument having both peak and quasi-peak detectors over the frequency range of 30 MHz to 12.5 GHz. Measurements of the radiated emissions were made with the receiver antenna at a distance of 3 m from the boundary of the test unit.

The end product device is a considered a Class B device therefore all measurements performed at a test distance of 3 m.

The test antenna was varied from 1 m to 4 m in height while watching the analyzers' display for the maximum magnitude of the signal at the test frequency. The antenna polarization (horizontal or vertical) and test sample azimuth were varied during the measurements to find the maximum field strength readings to record.

All Emissions seen were 20 dB or more from the limit.

NOTE: The test data provided in this section is to support the Verification requirement for the digital apparatus and the radios within.

Table 14. Unintentional Radiator, Peak Radiated Emissions (CFR 15.109), 30 MHz to 1000 MHz

30 MHz to 1000 MHz with Class B Limits							
Test: Radiated Emissions				**Client:** Gozio, Inc.			
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0			
Frequency (MHz)	**Test Data (dBuv)**	**AF+CA-AMP (dB/m)**	**Results (dBuV/m)**	**QP Limits (dBuV/m)**	**Antenna Distance/ Polarization**	**Margin (dB)**	**Detector PK, or QP**
All emissions seen were 20 dB or more the limit.							

Tested from 30 MHz to 1 GHz

SAMPLE CALCULATION: N/A

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

Table 15. Unintentional Radiator, Peak Radiated Emissions (CFR 15.109), 1 GHz to ? GHz

1 GHz to 12.5 GHz with Class B Limits							
Test: Radiated Emissions				**Client:** Gozio, Inc.			
Project: 15-0106				**Model:** Gozio Fusion Beacon 1.0			
Frequency (MHz)	**Test Data (dBuv)**	**AF+CA-AMP (dB/m)**	**Results (dBuV/m)**	**AVG Limits (dBuV/m)**	**Antenna Distance/ Polarization**	**Margin (dB)**	**Detector PK, or AVG**
All Emissions seen were 20 dB or more from the limit.							

Tested from 1 GHz to 12.5 GHz

SAMPLE CALCULATION: N/A

Test Date: April 13, 2015
Tested By
Signature: _____ Name: Carrie Fincannon

2.15 Measurement Uncertainty

The measurement uncertainties given were calculated using the method detailed in CISPR 16-4. A coverage factor of k=2 was used to give a level of confidence of approximately 95%.

2.15.1 Conducted Emissions Measurement Uncertainty

Measurement Uncertainty (within a 95% confidence level) for this test is ± 2.78 dB.

This test was not performed because the EUT was battery powered.

2.15.2 Radiated Emissions Measurement Uncertainty

For a measurement distance of 3 m the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is ± 5.39 dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is ± 5.18 dB.

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is ± 5.21dB.

The data listed in this test report does have sufficient margin to negate the effects of uncertainty. Therefore, the EUT unconditionally meets this requirement.