Paycom Software, Inc.

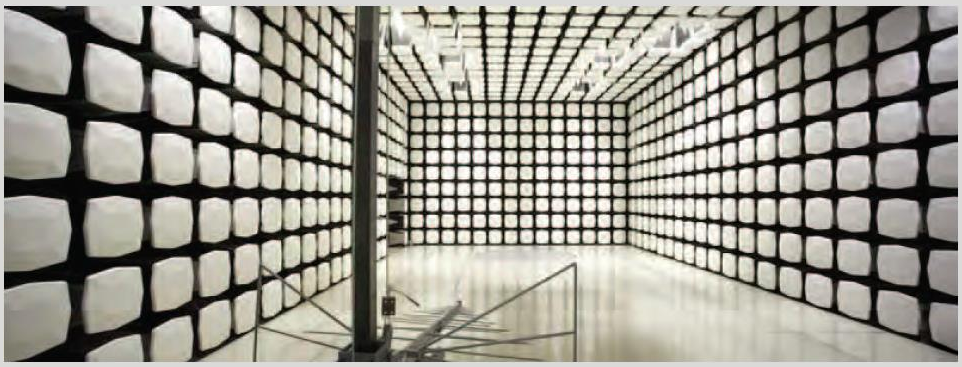
PMF-002NP Microfence Bluetooth Low Energy Beacon

FCC 15.247:2022

RSS-247 Issue 2:2017

Bluetooth Low Energy Radio

Report: PAYC0009.0 Rev. 2, Issue Date: October 25, 2022



ACCREDITED
CERT #3310.03

CERTIFICATE OF TEST

Last Date of Test: September 27, 2022
Paycom Software, Inc.
EUT: PMF-002NP Microfence Bluetooth Low Energy Beacon

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2022	ANSI C63.10:2013, FCC KDB 558074 v05r02:2019
RSS-247 Issue 2:2017, RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

Results

Test Description	Result	FCC Section(s)	RSS Section(s)	ANSI C63.10 Section(s)	Comments
Powerline Conducted Emissions	Pass	15.207	RSS-Gen 8.8	6.2	
Occupied Bandwidth (99%)	N/A	KDB 558074 - 2.1	RSS-Gen 6.7	6.9.3	
Duty Cycle	N/A	KDB 558074 - 6.0	RSS-Gen 3.2	11.6	
DTS Bandwidth (6 dB)	Pass	15.247(a)(2), KDB 558074 - 8.2	RSS-247 5.2(a)	11.8.2	
Output Power	Pass	15.247(b)(3), KDB 558074 - 8.3.1	RSS-247 5.4(d, f), RSS-Gen 6.12	11.9.1.1	
Equivalent Isotropic Radiated Power	Pass	15.247(b)(3), KDB 558074 - 8.3.1	RSS-247 5.4(d, f), RSS-Gen 6.12	11.9.1.1	
Power Spectral Density	Pass	15.247(e), KDB 558074 -8.4	RSS-247 5.2(b)	11.10.2	
Band Edge Compliance	Pass	15.247(d), KDB 558074 -8.5	RSS-247 5.5	11.11	
Spurious Conducted Emissions	Pass	15.247(d), KDB 558074 -8.5	RSS-247 5.5	11.11	
Spurious Radiated Emissions	Pass	15.247(d), KDB 558074 - 8.6, 8.7	RSS-247 5.5, RSS-Gen 6.13, 8.10	11.12.1, 11.13.2, 6.5, 6.6	

Deviations From Test Standards

None

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. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

CERTIFICATE OF TEST

element
2022.04.01

Approved By:

Adam Bruno, 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. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Corrected EUT name.	2022-10-20	1, 2, 11, 13
	Updated last date of test.	2022-10-20	2, 11, 13
	Updated power settings and antenna table.	2022-10-20	12
	Corrected calibration due date.	2022-10-20	15
	Updated test description.	2022-10-20	51
02	Updated the Occupied Bandwidth (99%) and Duty Cycle result to N/A, as there is no pass/fail criteria for these tests.	2022-10-25	2
	Updated power settings and antenna table.	2022-10-25	12
	Updated test description in Spurious Radiated Emissions.	2022-10-25	51

ACCREDITATIONS AND AUTHORIZATIONS

element
2021.09.01

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 - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

Canada

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

European Union

European Commission – Recognized as an EU Notified Body validated for the EMCD and RED Directives.

United Kingdom

BEIS – Recognized by the UK as an Approved Body under the UK Radio Equipment and UK EMC Regulations.

Australia/New Zealand

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

Korea

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

Japan

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

Taiwan

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

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

Singapore

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

Israel

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

Hong Kong

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

Vietnam

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

SCOPE

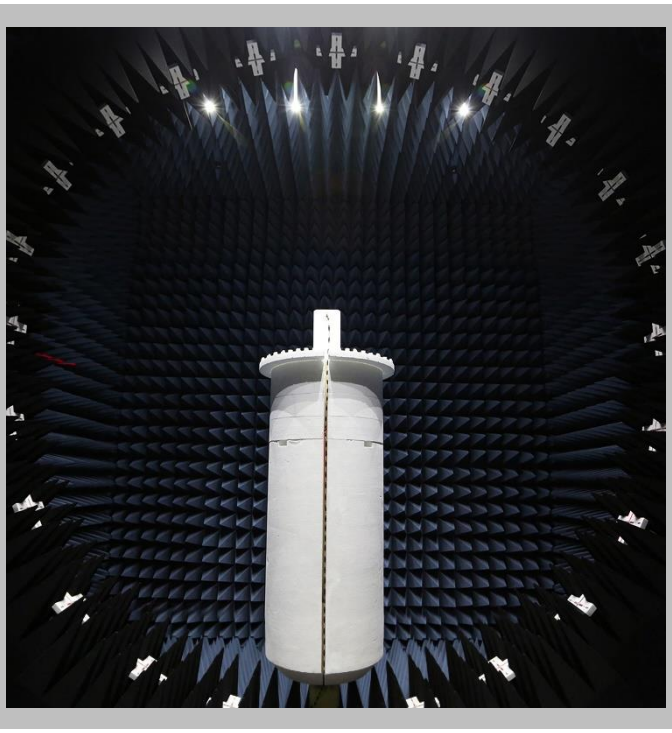
For details on the Scopes of our Accreditations, please visit:

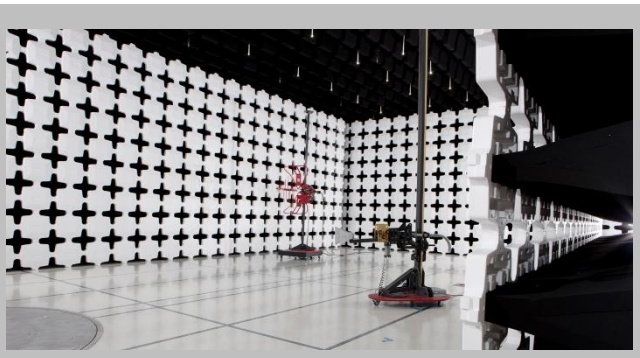
California Minnesota Oregon Texas Washington

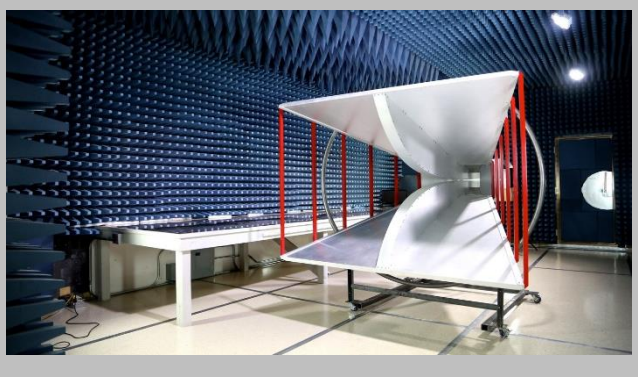
FACILITIES

element
2020.12.15

California	Minnesota	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-11 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
A2LA				
Lab Code: 3310.04	Lab Code: 3310.05	Lab Code: 3310.02	Lab Code: 3310.03	Lab Code: 3310.06
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157







MEASUREMENT UNCERTAINTY

element
TMU.2015.07.10

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 in the table below. A lab specific value may also be found in the applicable test description section. 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	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 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)	5.1 dB	-5.1 dB
AC Powerline Conducted Emissions (dB)	3.1 dB	-3.1 dB

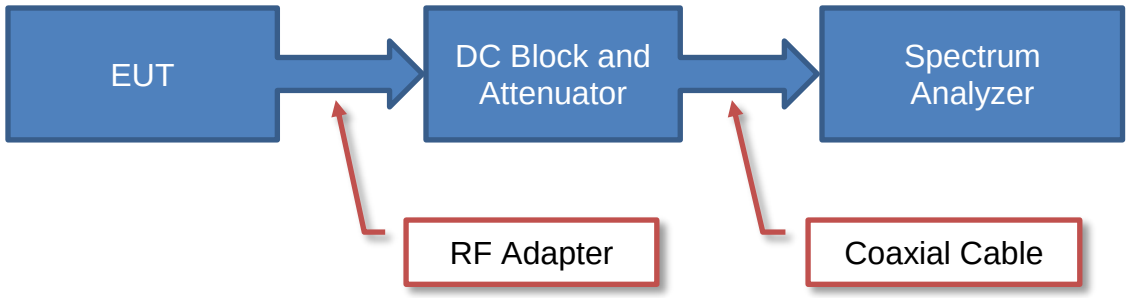
TEST SETUP BLOCK DIAGRAMS

Measurement Bandwidths

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Unless otherwise stated, measurements were made using the bandwidths and detectors specified. No video filter was used.

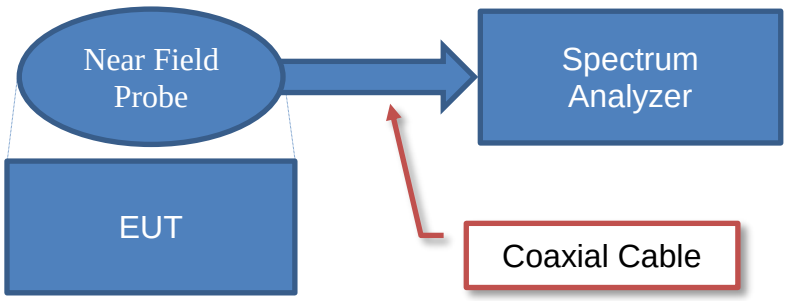
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

Measured Value		Measured Level		Reference Level Offset
71.2	=	42.6	+	28.6

Near Field Test Fixture Measurements

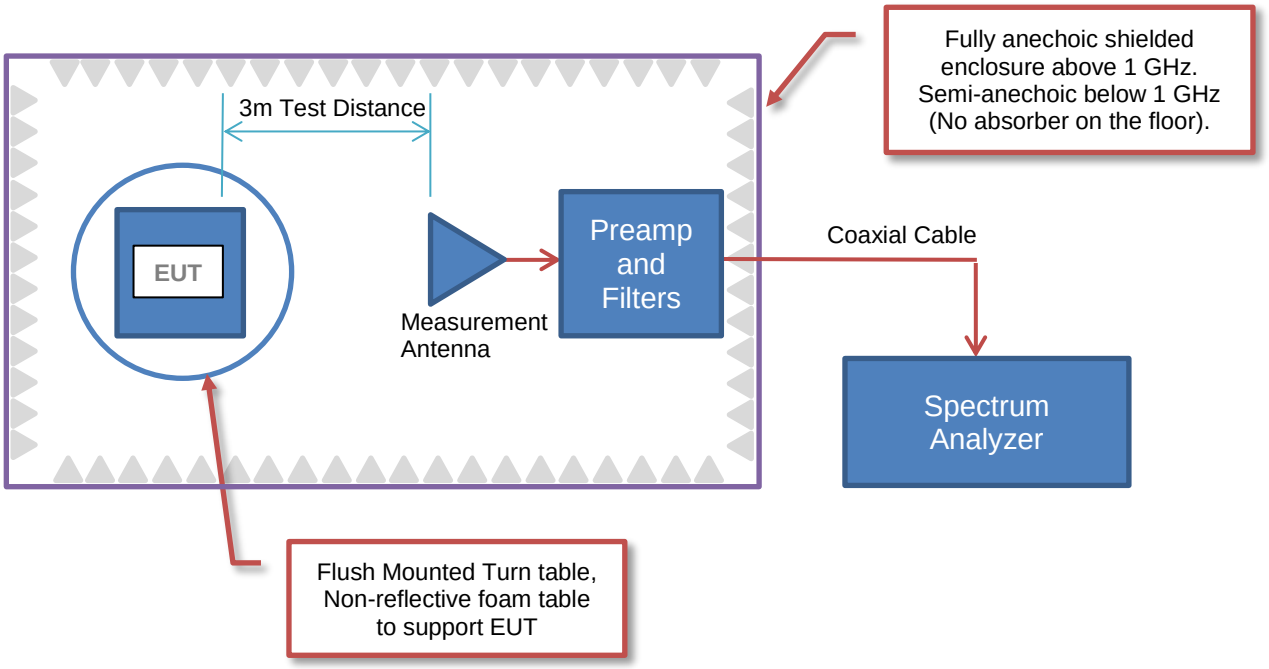


Sample Calculation (logarithmic units)

Measured Value		Measured Level		Reference Level Offset
71.2	=	42.6	+	28.6

TEST SETUP BLOCK DIAGRAMS

Emissions Measurements



Sample Calculation (logarithmic units)

Radiated Emissions:

Measured Level (Amplitude)		Factor: Antenna Factor		Factor: Cable Factor		Factor: Amplifier Gain		Distance Adjustment Factor		External Attenuation		Field Strength
42.6	+	28.6	+	3.1	-	40.8	+	0.0	+	0.0	=	**33.5**

Conducted Emissions:

Measured Level (Amplitude)		Factor: Transducer Factor		Factor: Cable Factor		External Attenuation		Adjusted Level
26.7	+	0.3	+	0.1	+	20.0	=	**47.1**

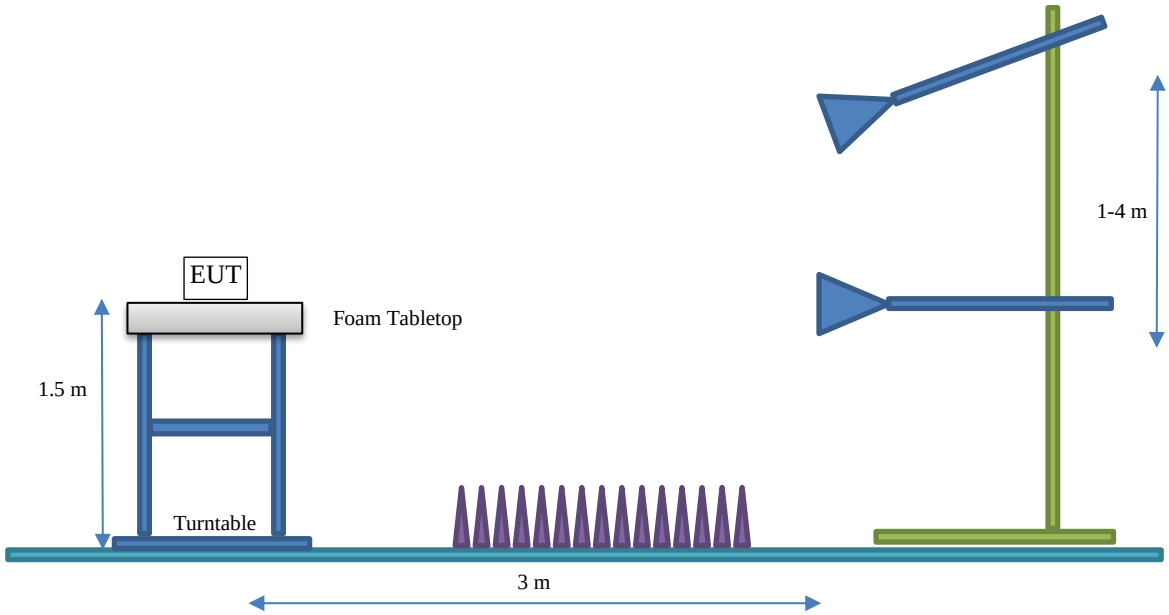
Radiated Power (ERP/EIRP) – Substitution Method:

Measured Level into Substitution Antenna (Amplitude dBm)		Substitution Antenna Factor (dBi)		EIRP to ERP (if applicable)		Measured power (dBm ERP/EIRP)
10.0	+	6.0	-	2.15	=	**13.9/16.0**

TEST SETUP BLOCK DIAGRAMS

Bore Sighting (>1GHz)

The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.



PRODUCT DESCRIPTION

Client and Equipment under Test (EUT) Information

Company Name:	Paycom Software, Inc.
Address:	125 E. John Carpenter Fwy Suite 1000
City, State, Zip:	Las Colinas, TX 75062
Test Requested By:	Dennis English
EUT:	PMF-002NP Microfence BLE Beacon
First Date of Test:	August 25, 2022
Last Date of Test:	September 27, 2022
Receipt Date of Samples:	August 25, 2022
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Microfence is a geolocation clock-in technology. This is BL product based on TI's CC2640R2F BLE radio chip. It also has a Real time clock. The RF section is a copy of the TI launchXL-CC2640R@ evaluation board.

Testing Objective:
To demonstrate compliance of the Bluetooth radio to FCC 15.247/RSS-247 requirements.

POWER SETTINGS AND ANTENNAS

The power settings, antenna gain value(s) and cable loss (if applicable) used for the testing contained in this report were provided by the customer and will affect the validity of the results. Element assumes no responsibility for the accuracy of this information. The power settings below reflect the maximum power that the EUT is allowed to transmit at during normal operation.

ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
Inverted F Antenna	Texas Instruments	2402-2480	3.3

The EUT was tested using the power settings provided by the manufacturer which were based upon:

Test software/firmware installed on EUT: 2021.06.27

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types / Data Rates	Type	Channel	Frequency (MHz)	Power Setting
GFSK, 1 Mbps	DTS	0 or 37	2402	5 dBm
		20 or 18	2442	5 dBm
		39	2480	5 dBm

CONFIGURATIONS

Configuration PAYC0009- 1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
PMF-002NP Microfence BLE Beacon	Paycom Software, Inc.	921-1001-000	001

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
USB Power Supply	VL27005853A3	Phihong USA Corporation	PSAA05A-05QL6

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB Cable	Yes	1.4m	No	EUT	USB Power Supply

Configuration PAYC0009- 3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
PMF-002NP Microfence BLE Beacon	Paycom Software, Inc.	921-1001-000	003

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
USB Power Supply	VL27005853A3	Phihong USA Corporation	PSAA05A-05QL6

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
USB Cable	Yes	1.4m	No	EUT	USB Power Supply

Configuration PAYC0009- 5

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
PMF-002NP Microfence BLE Beacon	Paycom Software, Inc.	921-1001-000	003

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2022-08-25	DTS Bandwidth (6 dB)	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	2022-08-25	Occupied Bandwidth (99%)	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	2022-08-25	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.
4	2022-09-27	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.
5	2022-09-27	Equivalent Isotropic Radiated 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	2022-09-27	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	2022-09-27	Spurious Conducted 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.
8	2022-09-27	Powerline Conducted 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.
9	2022-09-27	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWERLINE CONDUCTED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
LISN	Solar Electronics	9252-50-R-24-BNC	LJK	2022-08-08	2023-08-08
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR
Receiver	Rohde & Schwarz	ESCI	ARF	2022-09-26	2023-09-26
Cable - Conducted Cable Assembly	Northwest EMC	TXA, HFC, TQU	TXAA	2022-01-24	2023-01-24

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	3.1 dB	-3.1 dB

CONFIGURATIONS INVESTIGATED

PAYC0009-3

MODES INVESTIGATED

BLE, 1 Mbps

POWERLINE CONDUCTED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

EUT:	PMF-002 Microfence BLE Beacon	Work Order:	PAYC0009
Serial Number:	003	Date:	2022-09-27
Customer:	Paycom Software, Inc.	Temperature:	20.3°C
Attendees:	Mike Pearson	Relative Humidity:	59.1%
Customer Project:	None	Bar. Pressure (PMSL):	1018 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	110VAC/60Hz	Configuration:	PAYC0009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013
RSS-Gen Issue 5:2018 +A1:2019 +A2:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	5	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

Continuous Tx, 100% Duty Cycle. Mid Channel, 2442 MHz.

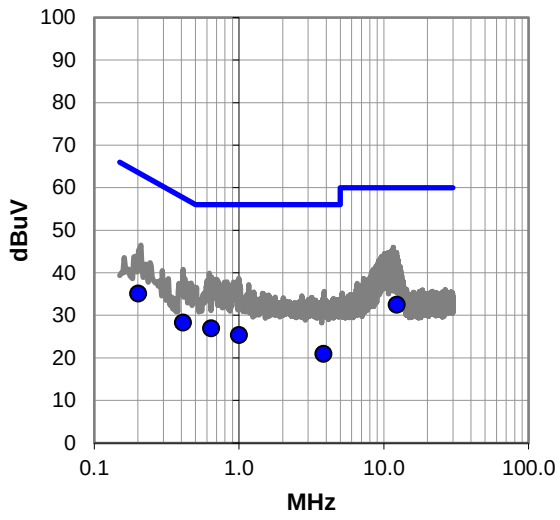
EUT OPERATING MODES

BLE, 1 Mbps

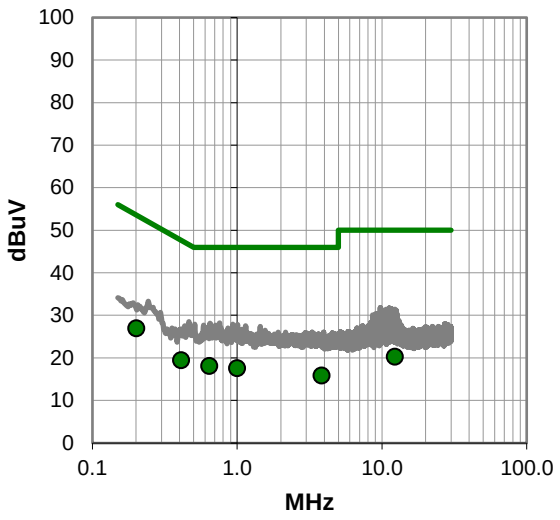
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #5

Quasi Peak Data - vs - Quasi Peak Limit

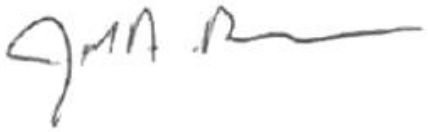
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
12.241	12.0	20.5	32.5	60.0	-27.5
0.201	14.5	20.6	35.1	63.6	-28.5
0.642	6.8	20.2	27.0	56.0	-29.0
0.410	8.0	20.3	28.3	57.7	-29.4
0.997	5.3	20.1	25.4	56.0	-30.6
3.832	0.8	20.2	21.0	56.0	-35.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.201	6.4	20.6	27.0	53.6	-26.6
0.642	-2.1	20.2	18.1	46.0	-27.9
0.410	-0.8	20.3	19.5	47.7	-28.2
0.997	-2.5	20.1	17.6	46.0	-28.4
12.241	-0.2	20.5	20.3	50.0	-29.7
3.832	-4.3	20.2	15.9	46.0	-30.1

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

EUT:	PMF-002 Microfence BLE Beacon	Work Order:	PAYC0009
Serial Number:	003	Date:	2022-09-27
Customer:	Paycom Software, Inc.	Temperature:	20.3°C
Attendees:	Mike Pearson	Relative Humidity:	59.1%
Customer Project:	None	Bar. Pressure (PMSL):	1018 mb
Tested By:	Jarrod Brenden	Job Site:	TX01
Power:	110VAC/60Hz	Configuration:	PAYC0009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013
RSS-Gen Issue 5:2018 +A1:2019 +A2:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	4	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

Continuous Tx, 100% Duty Cycle. Mid Channel, 2442 MHz.

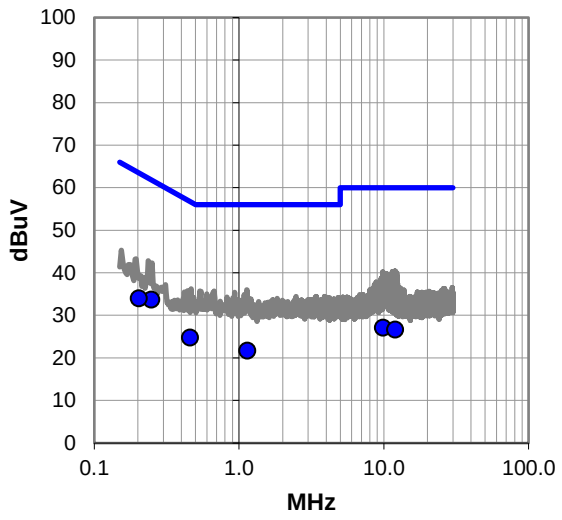
EUT OPERATING MODES

BLE, 1 Mbps

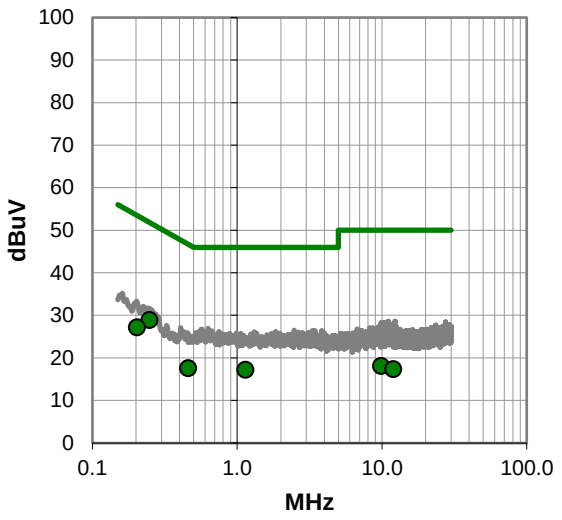
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #4

Quasi Peak Data - vs - Quasi Peak Limit

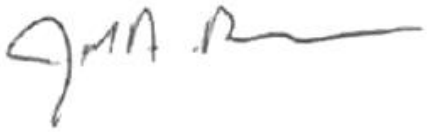
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.247	13.1	20.6	33.7	61.8	-28.1
0.203	13.4	20.6	34.0	63.5	-29.5
0.457	4.6	20.2	24.8	56.7	-31.9
9.832	6.8	20.3	27.1	60.0	-32.9
11.968	6.2	20.5	26.7	60.0	-33.3
1.139	1.7	20.0	21.7	56.0	-34.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.247	8.3	20.6	28.9	51.8	-22.9
0.203	6.6	20.6	27.2	53.5	-26.3
1.139	-2.8	20.0	17.2	46.0	-28.8
0.457	-2.6	20.2	17.6	46.7	-29.1
9.832	-2.2	20.3	18.1	50.0	-31.9
11.968	-3.1	20.5	17.4	50.0	-32.6

CONCLUSION

Pass



Tested By

OCCUPIED BANDWIDTH (99%)

XMit 2022.02.07.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2021-12-10	2022-12-10
Generator - Signal	Keysight	N5182B	TEV	2021-04-27	2024-04-27

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The 99% occupied bandwidth was measured with the EUT configured for continuous modulated operation.

Per ANSI C63.10:2013, 6.9.3, the spectrum analyzer was configured as follows:

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

The resolution bandwidth (RBW) of the spectrum analyzer was set to the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) bandwidth was set to at least 3 times the resolution bandwidth. The analyzer sweep time was set to auto to prevent video filtering or averaging. A sample detector was used unless the device was not able to be operated in a continuous transmit mode, in which case a peak detector was used.

The spectrum analyzer occupied bandwidth measurement function was used to sum the power of the transmission in linear terms to obtain the 99% bandwidth.

OCCUPIED BANDWIDTH (99%)

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	**PMF-002 Microfence BLE Beacon**			**Work Order:**	**PAYC0009**
Serial Number:	**001**			**Date:**	**25-Aug-22**
Customer:	**Paycom Software, Inc.**			**Temperature:**	**20.6 °C**
Attendees:	**Mike Pearson**			**Humidity:**	**55% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Jarrod Brenden**	**Power:**	**110VAC/60Hz**	**Job Site:**	**TX07**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013
RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013

COMMENTS

All loses down the measurment path were accounted for: DC Block, attenuator, and cable.

DEVIATIONS FROM TEST STANDARD

None

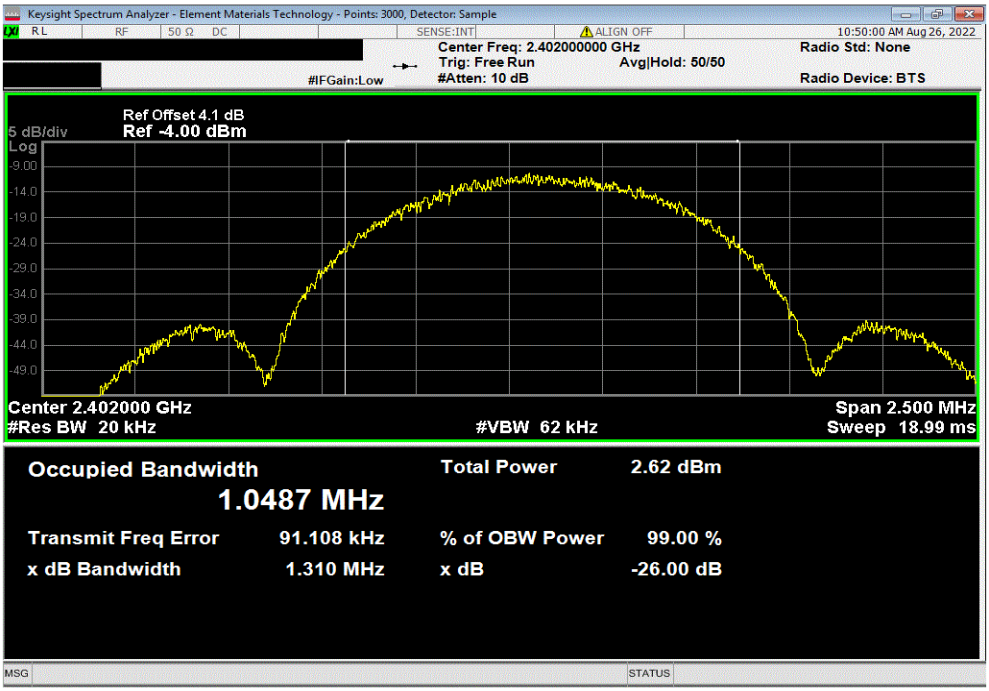
Configuration #	**1**	*Signature*

		Value	**Limit**	**Result**
BLE/GFSK				
1 Mbps				
	Low Channel, 2402 MHz	1.049 MHz	N/A	N/A
	Mid Channel, 2442 MHz	1.06 MHz	N/A	N/A
	High Channel, 2480 MHz	1.066 MHz	N/A	N/A

OCCUPIED BANDWIDTH (99%)

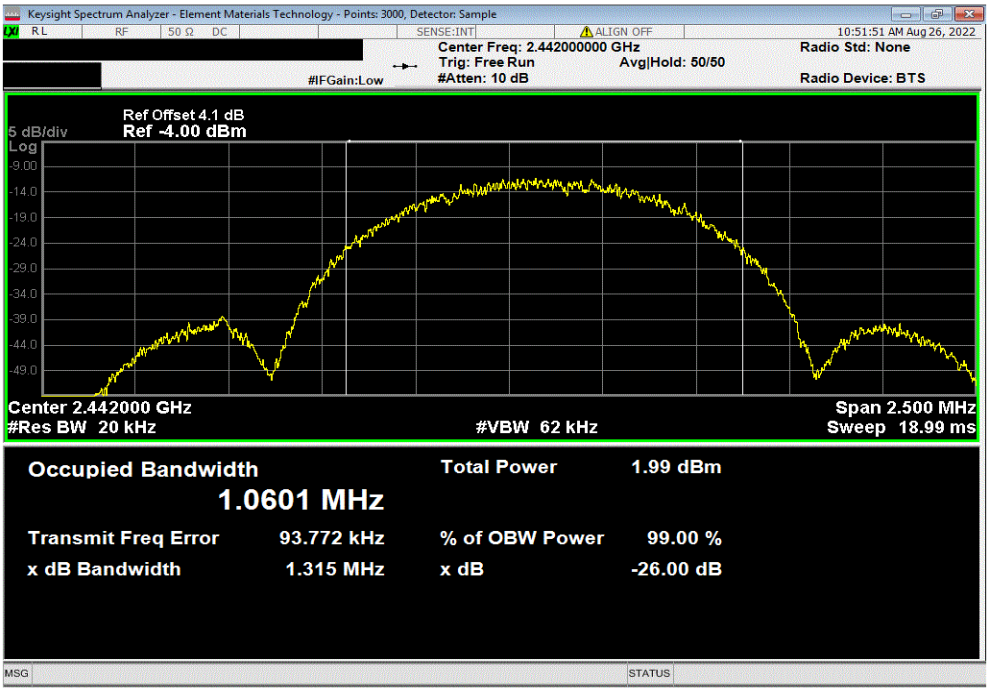
BLE/GFSK, 1 Mbps, Low Channel, 2402 MHz

				Value	Limit	Result
				1.049 MHz	N/A	N/A



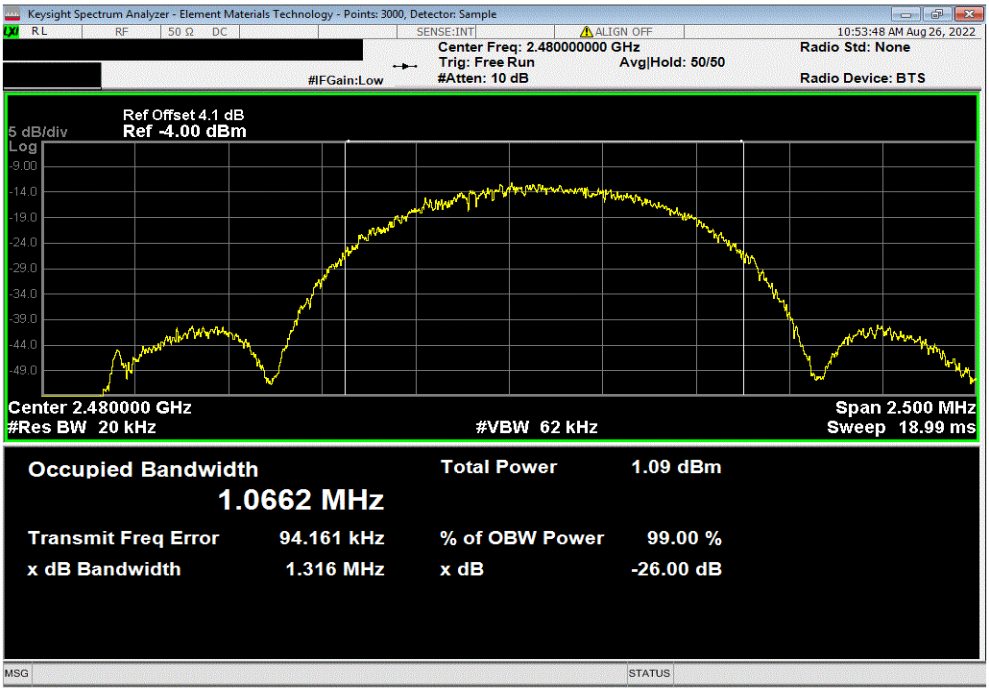
BLE/GFSK, 1 Mbps, Mid Channel, 2442 MHz

				Value	Limit	Result
				1.06 MHz	N/A	N/A



OCCUPIED BANDWIDTH (99%)

BLE/GFSK, 1 Mbps, High Channel, 2480 MHz						
				Value	Limit	Result
				1.066 MHz	N/A	N/A



DUTY CYCLE

XMit 2022.02.07.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2021-12-10	2022-12-10
Generator - Signal	Keysight	N5182B	TEV	2021-04-27	2024-04-27

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The Duty Cycle 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 test software provided for operation in a fixed, single channel mode allows the EUT to operate continuously at 100% Duty Cycle.

DTS BANDWIDTH (6 dB)

XMit 2022.02.07.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2021-12-10	2022-12-10
Generator - Signal	Keysight	N5182B	TEV	2021-04-27	2024-04-27

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 DTS bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

DTS BANDWIDTH (6 dB)

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	**PMF-002 Microfence BLE Beacon**			**Work Order:**	**PAYC0009**
Serial Number:	**001**			**Date:**	**25-Aug-22**
Customer:	**Paycom Software, Inc.**			**Temperature:**	**20.8 °C**
Attendees:	**Mike Pearson**			**Humidity:**	**56.2% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jarrod Brenden**	**Power:**	**110VAC/60Hz**	**Job Site:**	**TX07**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

COMMENTS

All loses down the measurment path were accounted for: DC Block, attenuator, and cable.

DEVIATIONS FROM TEST STANDARD

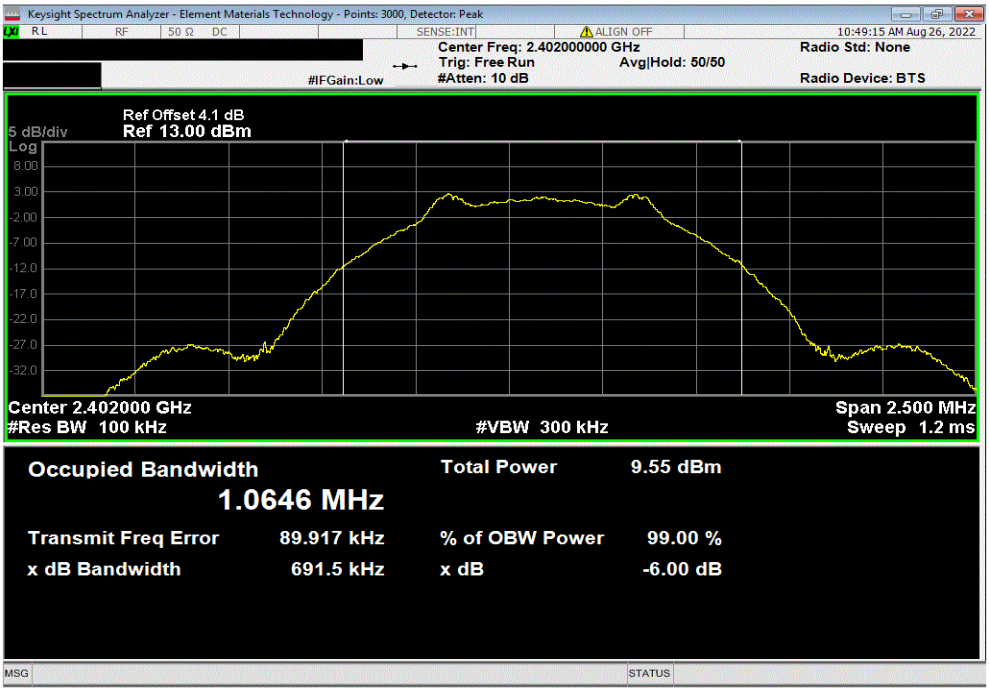
None

Configuration #	**1**	*Signature*

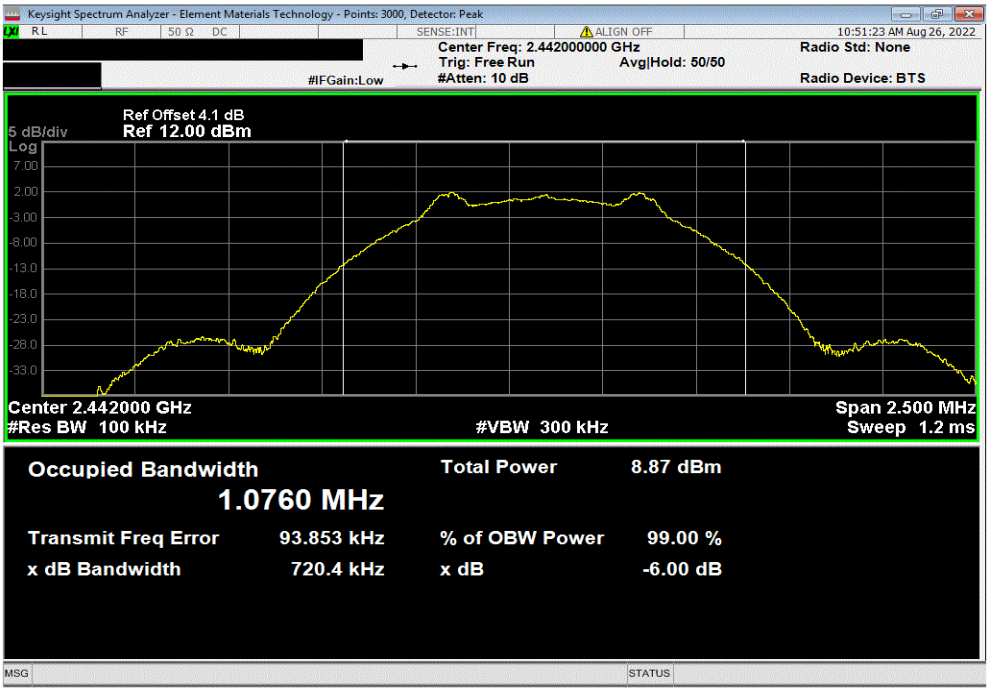
		Value	**Limit (≥)**	**Result**
BLE/GFSK				
1 Mbps				
	Low Channel, 2402 MHz	691.465 kHz	500 kHz	Pass
	Mid Channel, 2442 MHz	720.403 kHz	500 kHz	Pass
	High Channel, 2480 MHz	726.065 kHz	500 kHz	Pass

DTS BANDWIDTH (6 dB)

BLE/GFSK, 1 Mbps, Low Channel, 2402 MHz							
					Value	Limit (≥)	Result
					691.465 kHz	500 kHz	Pass

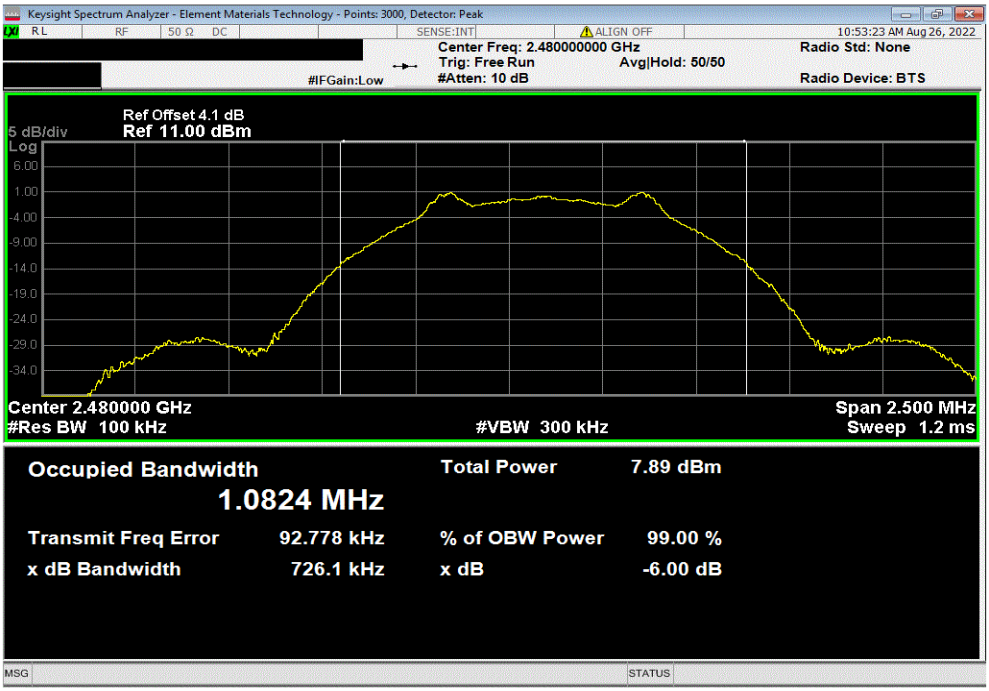


BLE/GFSK, 1 Mbps, Mid Channel, 2442 MHz							
					Value	Limit (≥)	Result
					720.403 kHz	500 kHz	Pass



DTS BANDWIDTH (6 dB)

BLE/GFSK, 1 Mbps, High Channel, 2480 MHz							
					Value	Limit (≥)	Result
					726.065 kHz	500 kHz	Pass



OUTPUT POWER

XMit 2022.02.07.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Attenuator	Fairview Microwave	SA4018-20	TYW	2022-03-01	2023-03-01
Cable	Micro-Coax	D150A-1-0720-200	TXG	2021-12-10	2022-12-10
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

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.

OUTPUT POWER

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	PMF-002 Microfence BLE Beacon			**Work Order:**	PAYC0009
Serial Number:	001			**Date:**	27-Sep-22
Customer:	Paycom Software, Inc.			**Temperature:**	21.8 °C
Attendees:	Mike Pearson			**Humidity:**	37.2% RH
Project:	None			**Barometric Pres.:**	1024 mbar
Tested by:	Jarrod Brenden	**Power:**	3VDC via Battery	**Job Site:**	TX07

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

COMMENTS

Continuous Tx, 100% Duty Cycle.

DEVIATIONS FROM TEST STANDARD

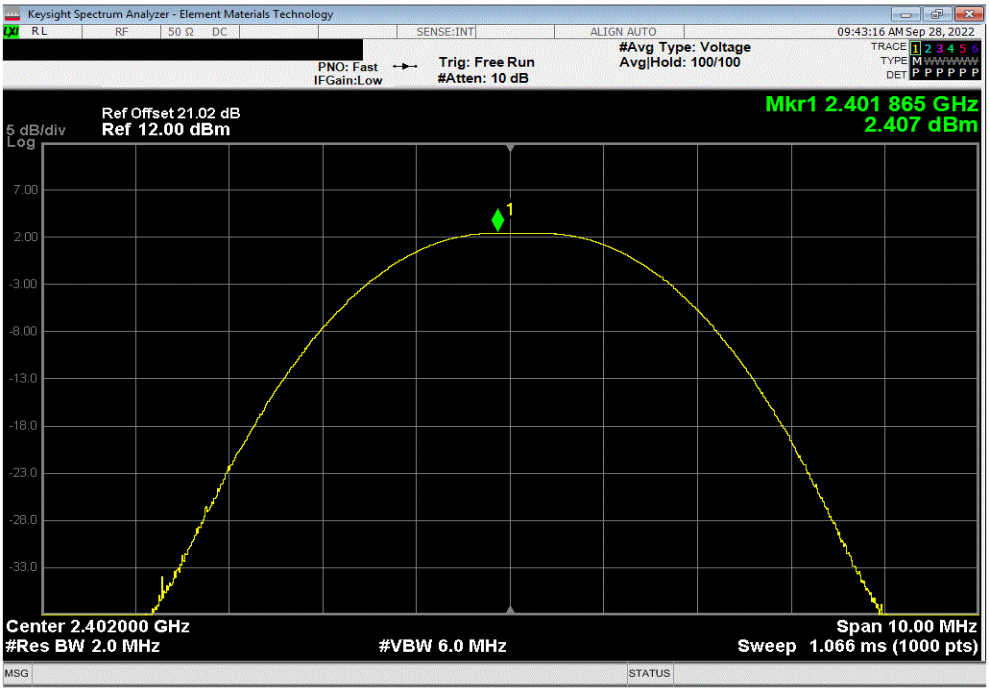
None

Configuration #	**1**	*Signature*

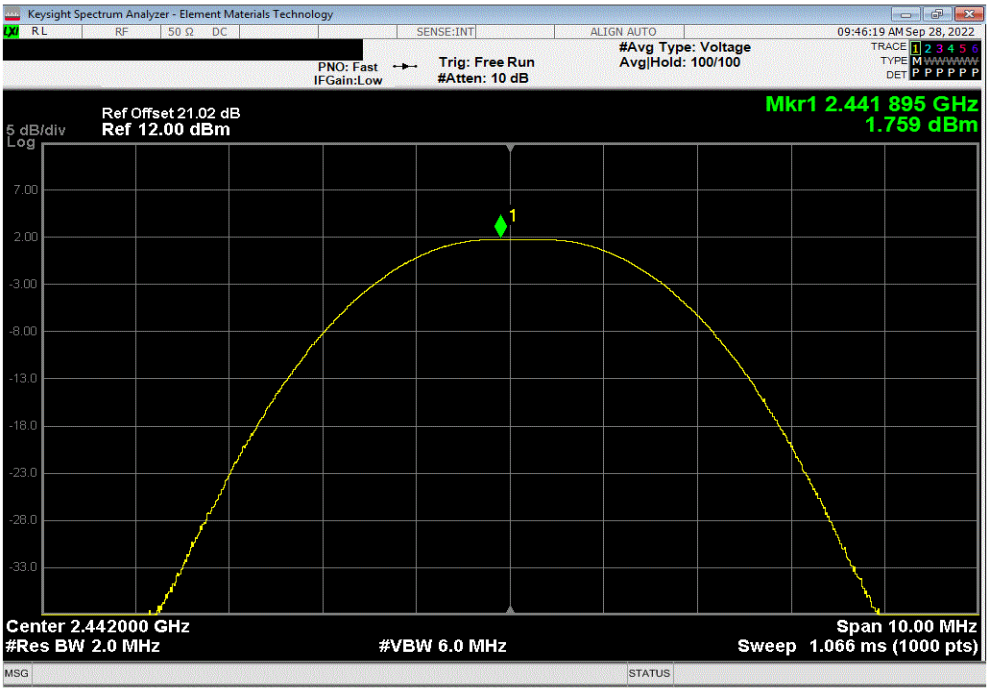
		Out Pwr (dBm)	**Limit (dBm)**	**Result**
BLE/GFSK				
1 Mbps				
	Low Channel, 2402 MHz	2.407	30	Pass
	Mid Channel, 2442 MHz	1.759	30	Pass
	High Channel, 2480 MHz	0.982	30	Pass

OUTPUT POWER

BLE/GFSK, 1 Mbps, Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				2.407	30	Pass

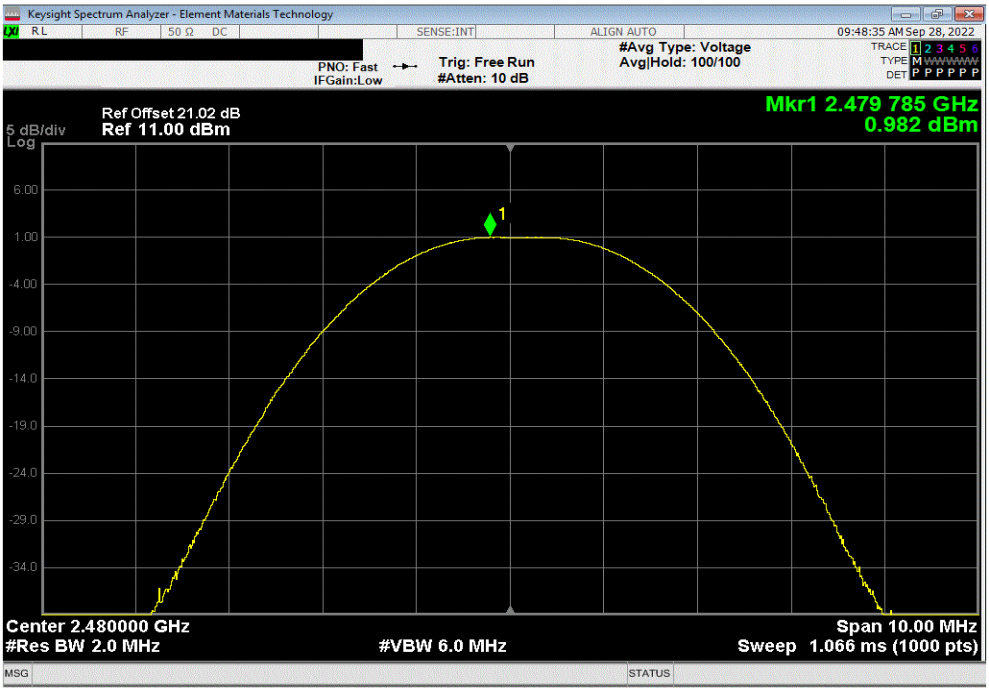


BLE/GFSK, 1 Mbps, Mid Channel, 2442 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				1.759	30	Pass



OUTPUT POWER

BLE/GFSK, 1 Mbps, High Channel, 2480 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				0.982	30	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

XMit 2022.02.07.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Attenuator	Fairview Microwave	SA4018-20	TYW	2022-03-01	2023-03-01
Cable	Micro-Coax	D150A-1-0720-200	TXG	2021-12-10	2022-12-10
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

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.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi)

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

element

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	PMF-002 Microfence BLE Beacon			**Work Order:**	PAYC0009
Serial Number:	001			**Date:**	27-Sep-22
Customer:	Paycom Software, Inc.			**Temperature:**	20.8 °C
Attendees:	Mike Pearson			**Humidity:**	38.9% RH
Project:	None			**Barometric Pres.:**	1024 mbar
Tested by:	Jarrod Brenden	**Power:**	3VDC via Battery	**Job Site:**	TX07

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

COMMENTS

Continuous Tx, 100% Duty Cycle.

DEVIATIONS FROM TEST STANDARD

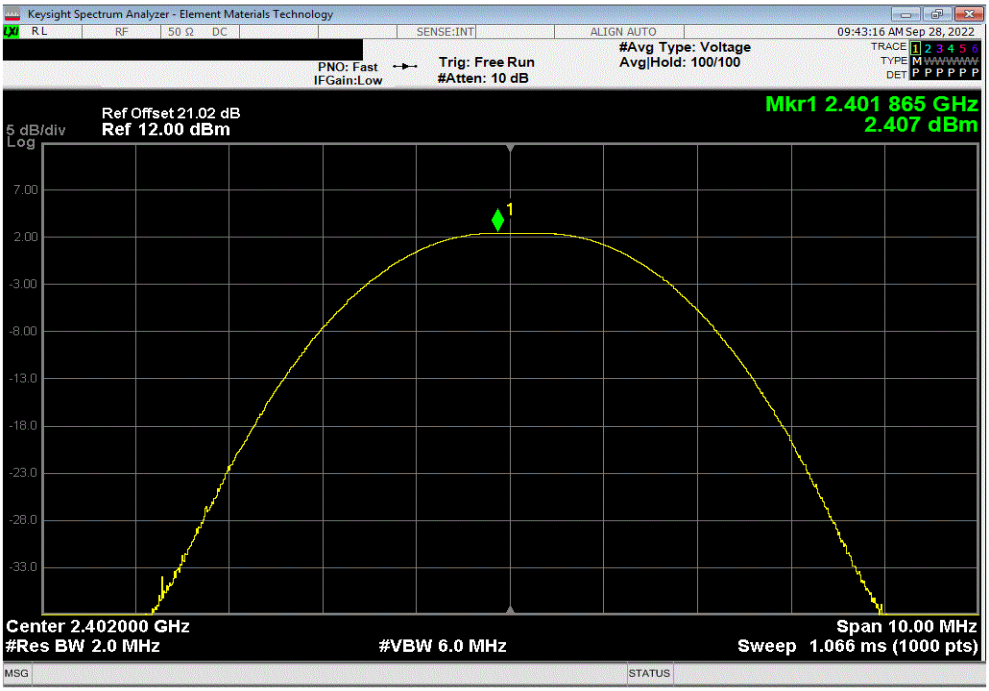
None

Configuration #	**1**	*Signature*

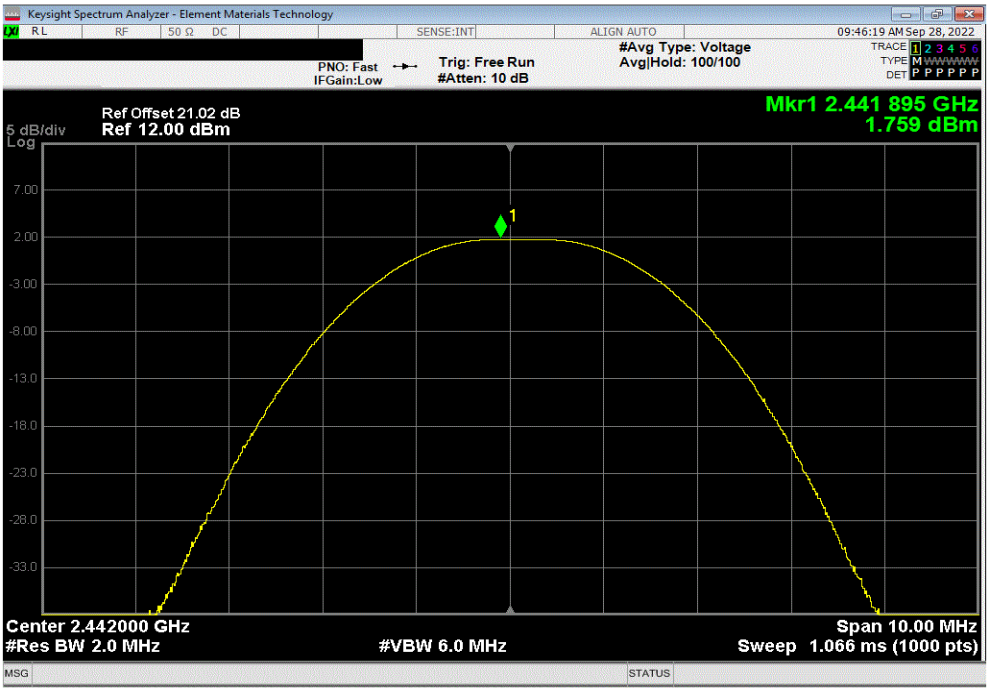
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
BLE/GFSK						
	1 Mbps					
	Low Channel, 2402 MHz	2.407	3.3	5.707	36	Pass
	Mid Channel, 2442 MHz	1.759	3.3	5.059	36	Pass
	High Channel, 2480 MHz	0.982	3.3	4.282	36	Pass

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

BLE/GFSK, 1 Mbps, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		2.407	3.3	5.707	36	Pass



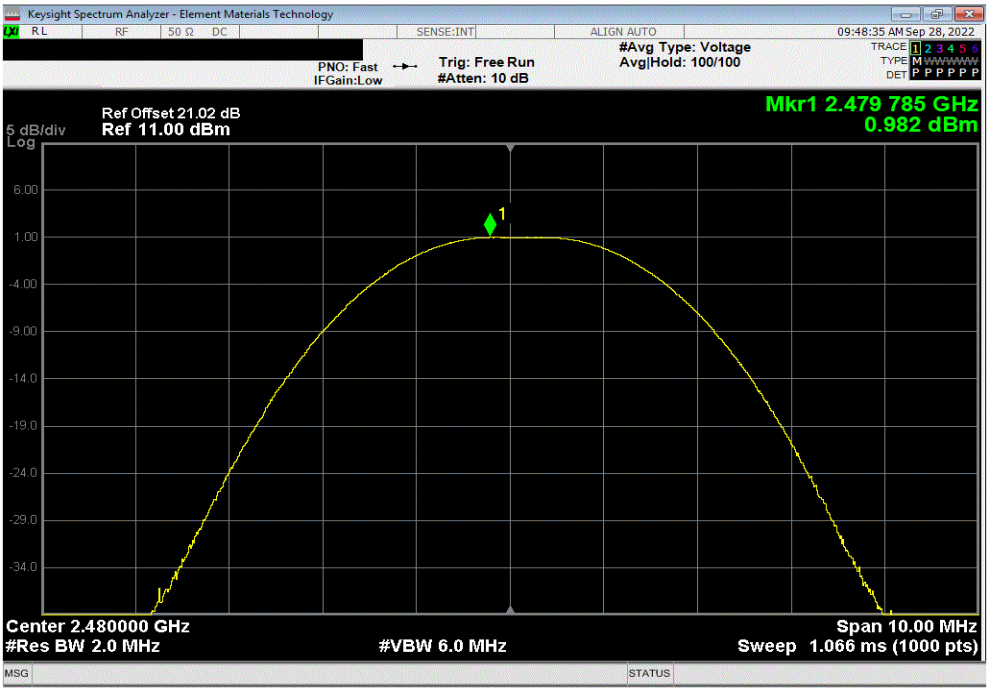
BLE/GFSK, 1 Mbps, Mid Channel, 2442 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		1.759	3.3	5.059	36	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

TbtTx 2022.06.03.0 XMit 2022.02.07.0

BLE/GFSK, 1 Mbps, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		0.982	3.3	4.282	36	Pass



POWER SPECTRAL DENSITY

XMit 2022.02.07.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Attenuator	Fairview Microwave	SA4018-20	TYW	2022-03-01	2023-03-01
Cable	Micro-Coax	D150A-1-0720-200	TXG	2021-12-10	2022-12-10
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

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

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	**PMF-002 Microfence BLE Beacon**			**Work Order:**	**PAYC0009**
Serial Number:	**001**			**Date:**	**27-Sep-22**
Customer:	**Paycom Software, Inc.**			**Temperature:**	**20.5 °C**
Attendees:	**Mike Pearson**			**Humidity:**	**39.8% RH**
Project:	**None**			**Barometric Pres.:**	**1024 mbar**
Tested by:	**Jarrod Brenden**	**Power:**	**3VDC via Battery**	**Job Site:**	**TX07**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

COMMENTS

Continuous Tx, 100% Duty Cycle.

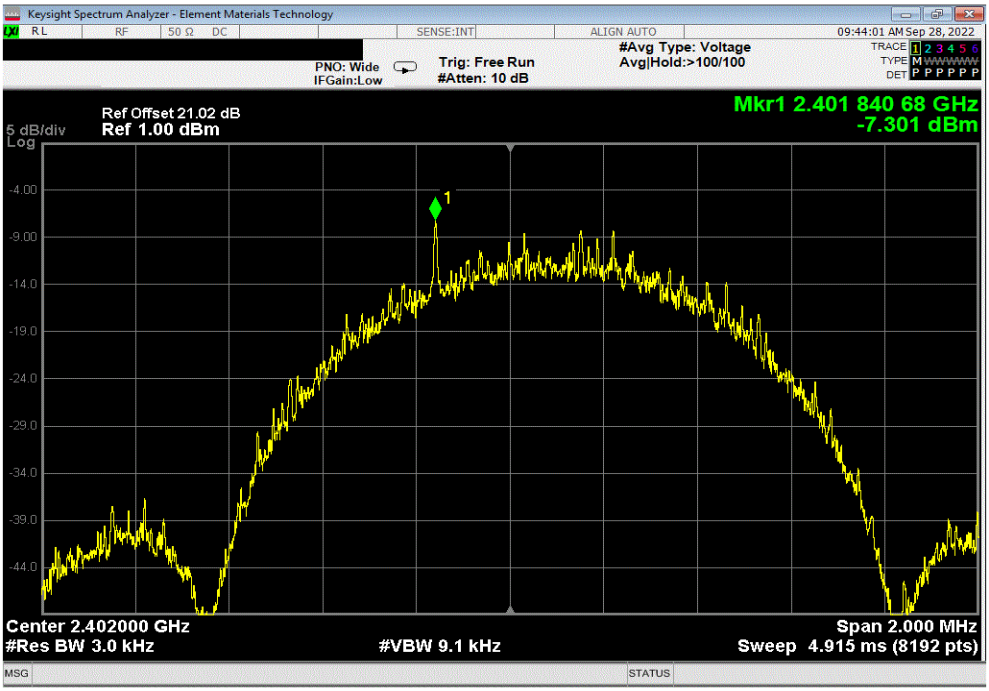
DEVIATIONS FROM TEST STANDARD

None

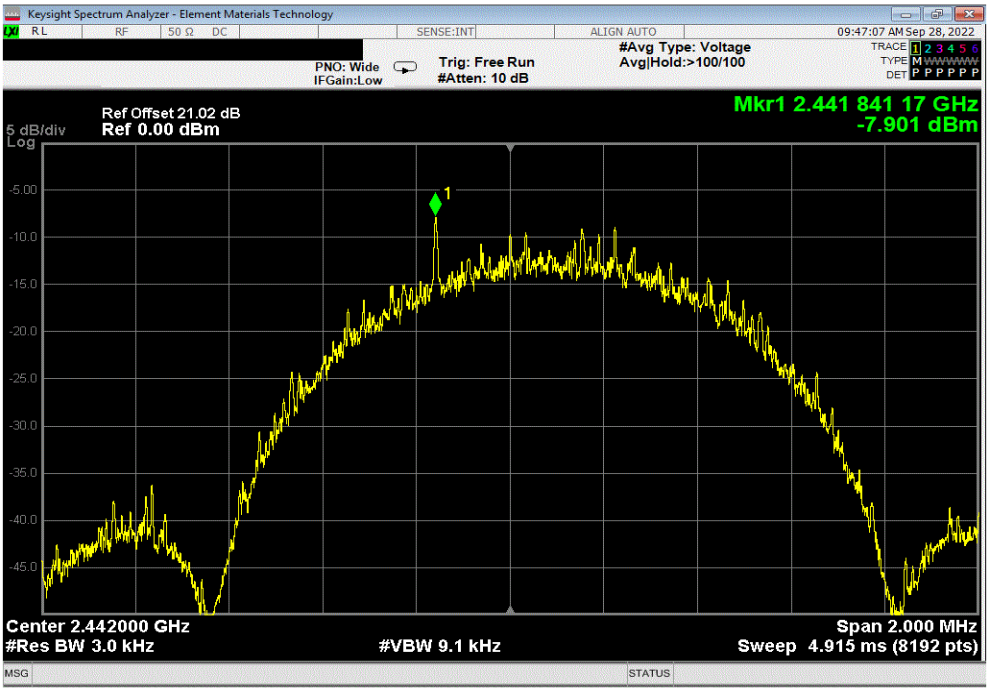
Configuration #	**1**	*Signature*

		Value dBm/3kHz	**Limit < dBm/3kHz**	**Results**
BLE/GFSK				
1 Mbps				
	Low Channel, 2402 MHz	-7.301	8	Pass
	Mid Channel, 2442 MHz	-7.901	8	Pass
	High Channel, 2480 MHz	-8.570	8	Pass

BLE/GFSK, 1 Mbps, Low Channel, 2402 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-7.301	8	Pass



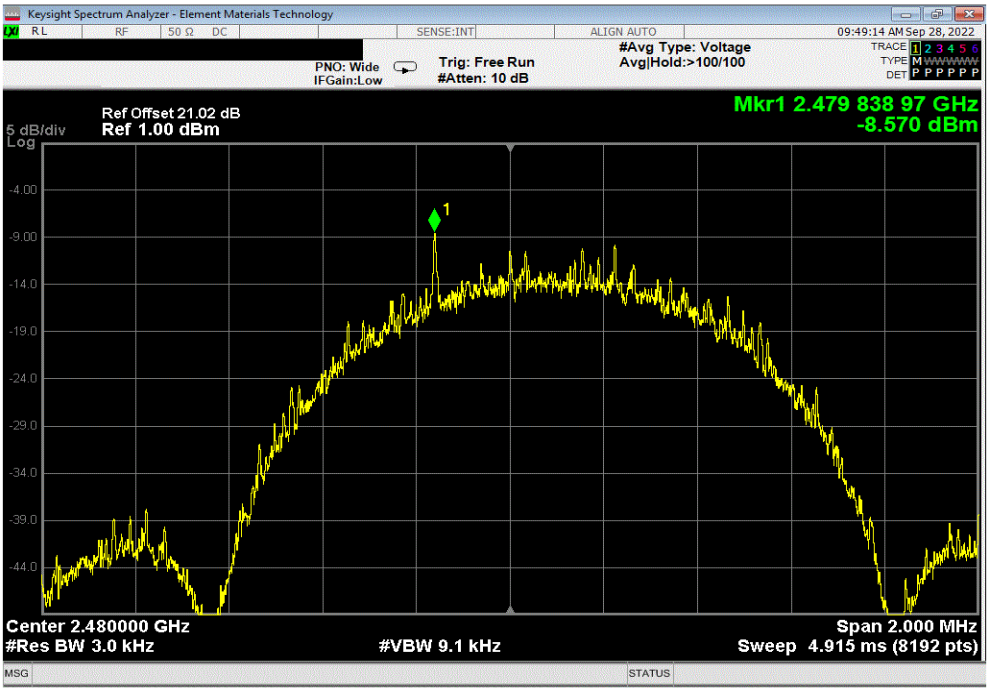
BLE/GFSK, 1 Mbps, Mid Channel, 2442 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-7.901	8	Pass



POWER SPECTRAL DENSITY

TbtTx 2022.06.03.0 XMit 2022.02.07.0

BLE/GFSK, 1 Mbps, High Channel, 2480 MHz							
					Value dBm/3kHz	Limit < dBm/3kHz	Results
					-8.57	8	Pass



BAND EDGE COMPLIANCE

XMit 2022.02.07.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2021-12-10	2022-12-10
Generator - Signal	Keysight	N5182B	TEV	2021-04-27	2024-04-27

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

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	PMF-002 Microfence BLE Beacon			**Work Order:**	PAYC0009
Serial Number:	001			**Date:**	25-Aug-22
Customer:	Paycom Software, Inc.			**Temperature:**	20.4 °C
Attendees:	Mike Pearson			**Humidity:**	54.9% RH
Project:	None			**Barometric Pres.:**	1018 mbar
Tested by:	Jarrod Brenden	**Power:**	110VAC/60Hz	**Job Site:**	TX07

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

COMMENTS

All loses down the measurment path were accounted for: DC Block, attenuator, and cable.

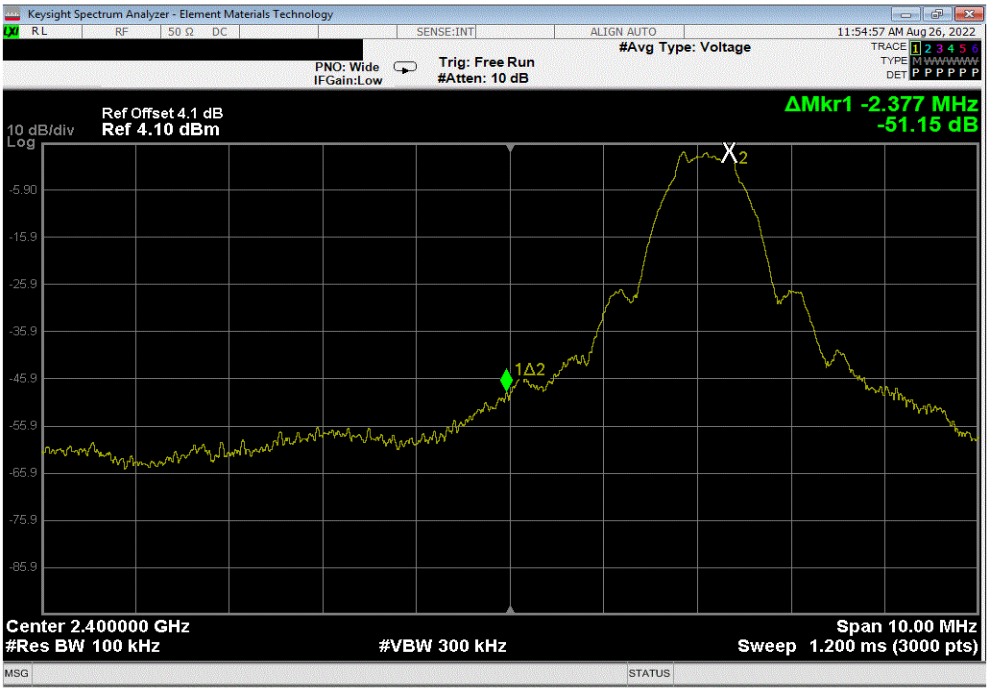
DEVIATIONS FROM TEST STANDARD

None

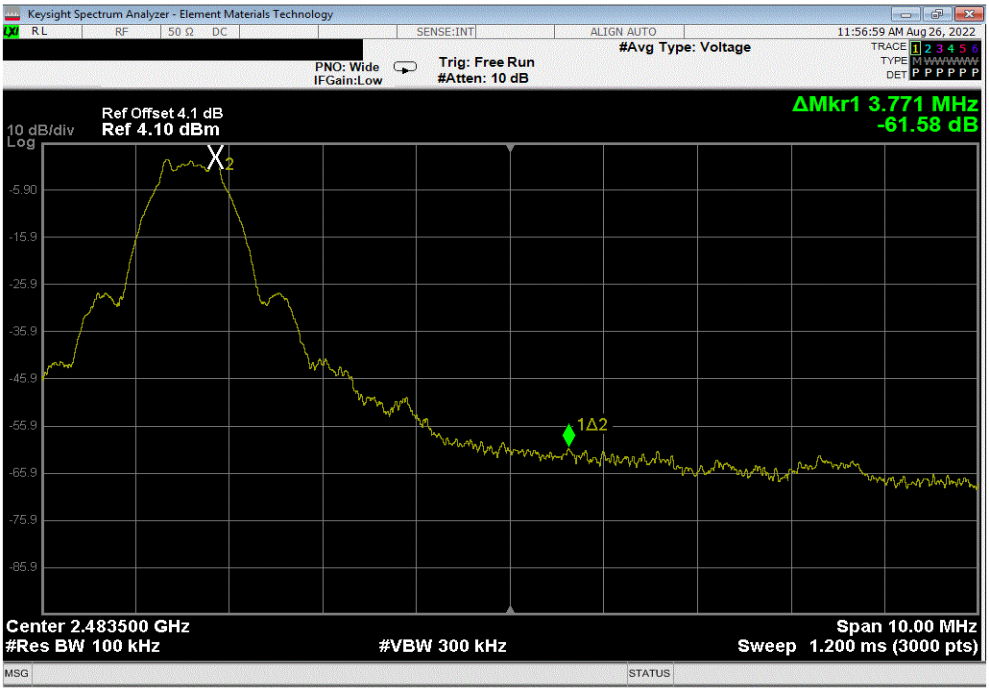
Configuration #	**1**	*Signature*

		Value (dBc)	**Limit ≤ (dBc)**	**Result**
BLE/GFSK				
1 Mbps				
	Low Channel, 2402 MHz	-51.15	-20	Pass
	High Channel, 2480 MHz	-61.58	-20	Pass

BLE/GFSK, 1 Mbps, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-51.15	-20	Pass



BLE/GFSK, 1 Mbps, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-61.58	-20	Pass



SPURIOUS CONDUCTED EMISSIONS

XMit 2022.02.07.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Attenuator	Fairview Microwave	SA4018-20	TYW	2022-03-01	2023-03-01
Cable	Micro-Coax	D150A-1-0720-200	TXG	2021-12-10	2022-12-10
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

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 fundamental was measured with a 100 kHz resolution bandwidth and the highest value was recorded. The rest of the spectrum was then measured with a 100 kHz resolution bandwidth and the highest value was found. The difference between the value found on the fundamental and the rest of the spectrum was compared against the limit to determine compliance.

The reference level offset for the fundamental screen capture was based on a measured value of the loss between the spectrum analyzer and the EUT which was verified at the time of test. The remaining screen capture(s) use an internal transducer factor on the analyzer to correct the displayed trace based on the cable loss over frequency. The reference level offset for the additional screen capture(s) is then based on the expected attenuator value and any other losses.

Fundamental Offset = Ref Lvl Offset showing measured composite factor of all losses

Remaining Screen capture(s) Offset = “Internal” cable loss factor not shown on screen capture + Ref Lvl Offset showing expected attenuator value and any other losses

SPURIOUS CONDUCTED EMISSIONS

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	**PMF-002 Microfence BLE Beacon**			**Work Order:**	**PAYC0009**
Serial Number:	**001**			**Date:**	**27-Sep-22**
Customer:	**Paycom Software, Inc.**			**Temperature:**	**21.5 °C**
Attendees:	**Mike Pearson**			**Humidity:**	**38.6% RH**
Project:	**None**			**Barometric Pres.:**	**1025 mbar**
Tested by:	**Jarrod Brenden**	**Power:**	**3VDC via Battery**	**Job Site:**	**TX07**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

COMMENTS

Continuous Tx, 100% Duty Cycle.

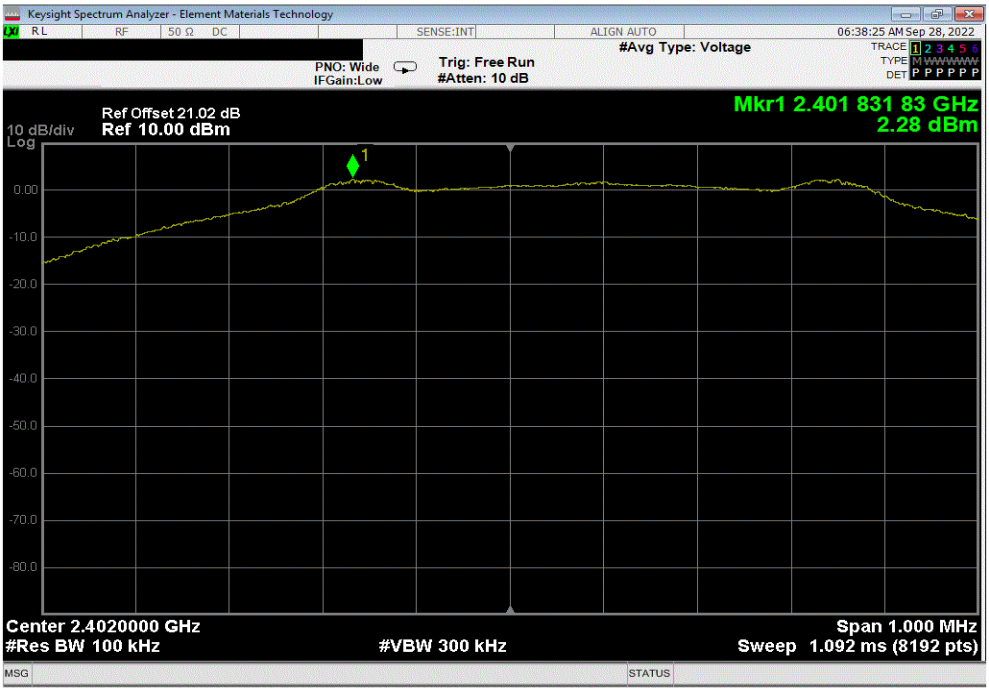
DEVIATIONS FROM TEST STANDARD

None

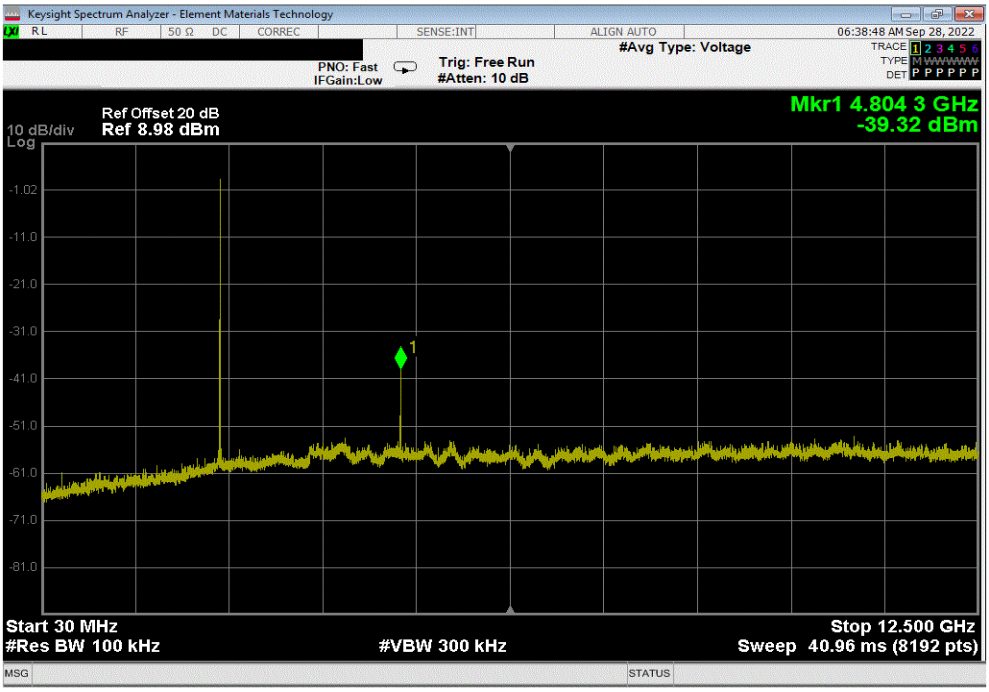
Configuration #	**1**	*Signature*

		Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
BLE/GFSK						
	1 Mbps					
	Low Channel, 2402 MHz	Fundamental	2401.83	N/A	N/A	N/A
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	4804.25	-41.6	-20	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	24420.1	-50.8	-20	Pass
	Mid Channel, 2442 MHz	Fundamental	2441.84	N/A	N/A	N/A
	Mid Channel, 2442 MHz	30 MHz - 12.5 GHz	4883.42	-44.17	-20	Pass
	Mid Channel, 2442 MHz	12.5 GHz - 25 GHz	24908.44	-49.61	-20	Pass
	High Channel, 2480 MHz	Fundamental	2480.36	N/A	N/A	N/A
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	4959.54	-48.53	-20	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	24441.46	-48.01	-20	Pass

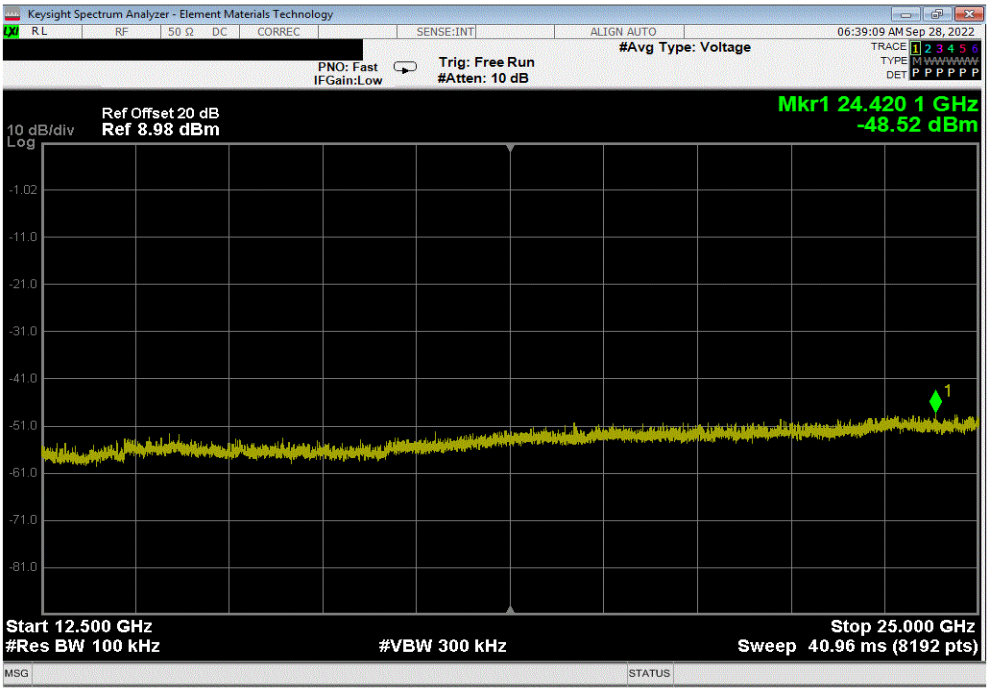
BLE/GFSK, 1 Mbps, Low Channel, 2402 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2401.83	N/A	N/A	N/A



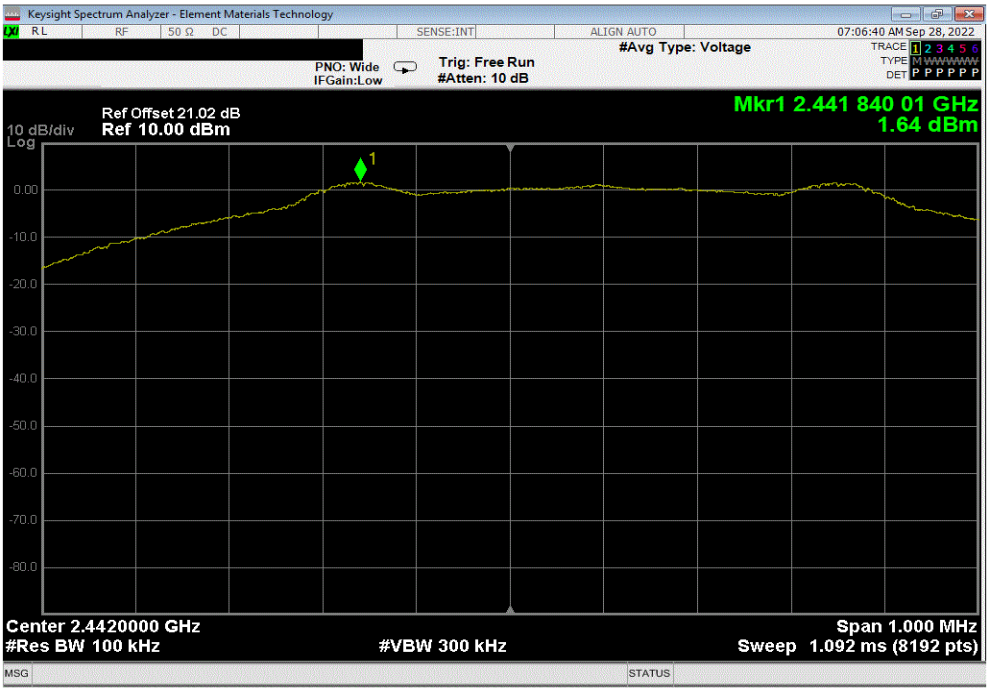
BLE/GFSK, 1 Mbps, Low Channel, 2402 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	4804.25	-41.6	-20	Pass



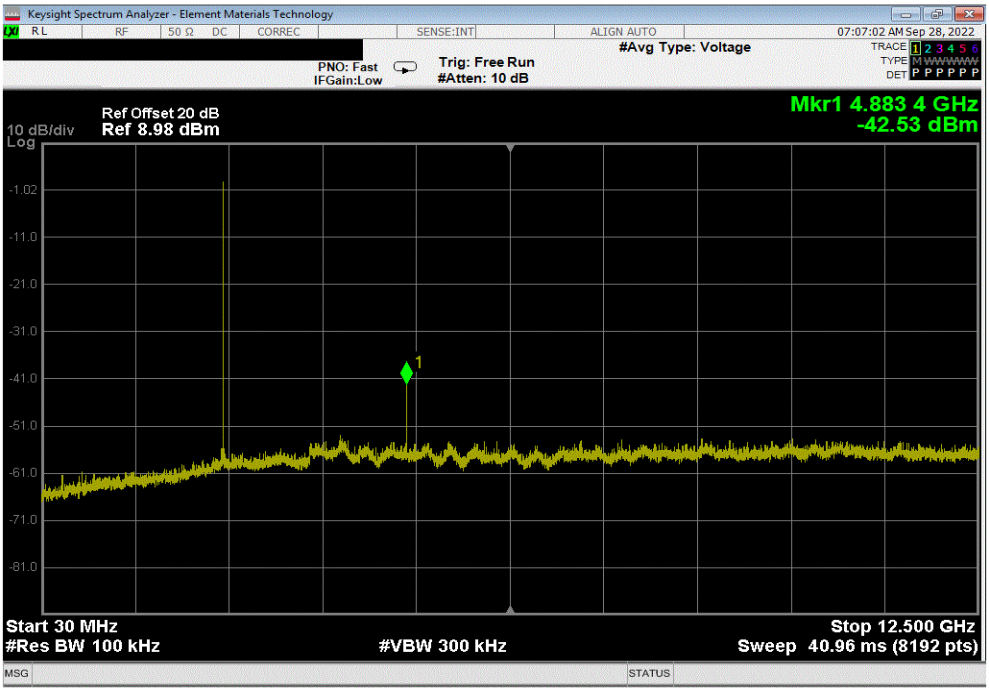
BLE/GFSK, 1 Mbps, Low Channel, 2402 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	24420.1	-50.8	-20	Pass



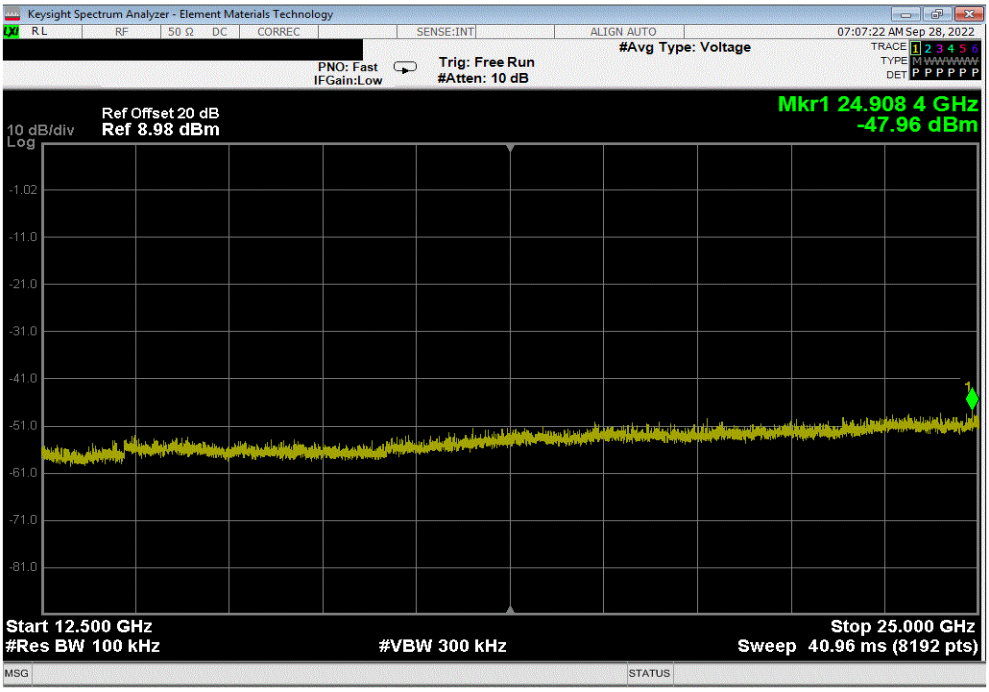
BLE/GFSK, 1 Mbps, Mid Channel, 2442 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2441.84	N/A	N/A	N/A



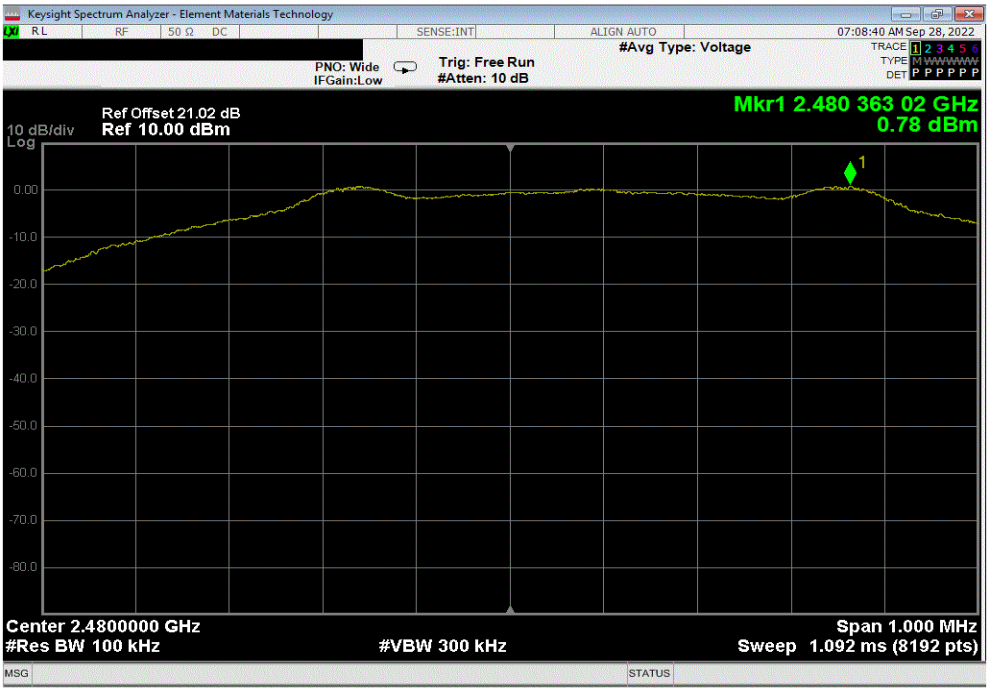
BLE/GFSK, 1 Mbps, Mid Channel, 2442 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	4883.42	-44.17	-20	Pass



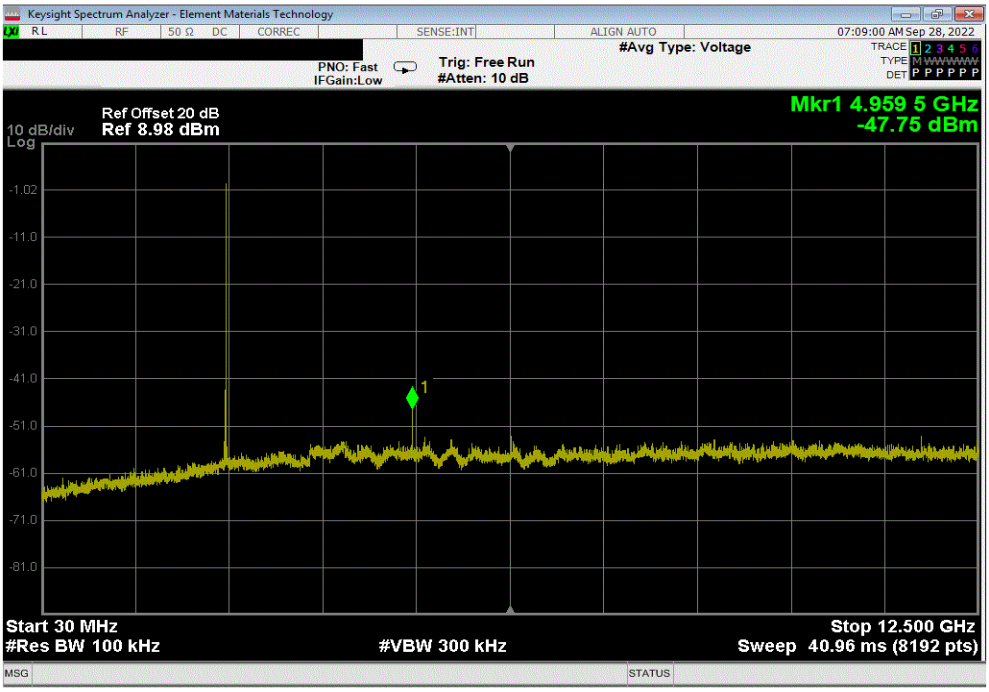
BLE/GFSK, 1 Mbps, Mid Channel, 2442 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	24908.44	-49.61	-20	Pass



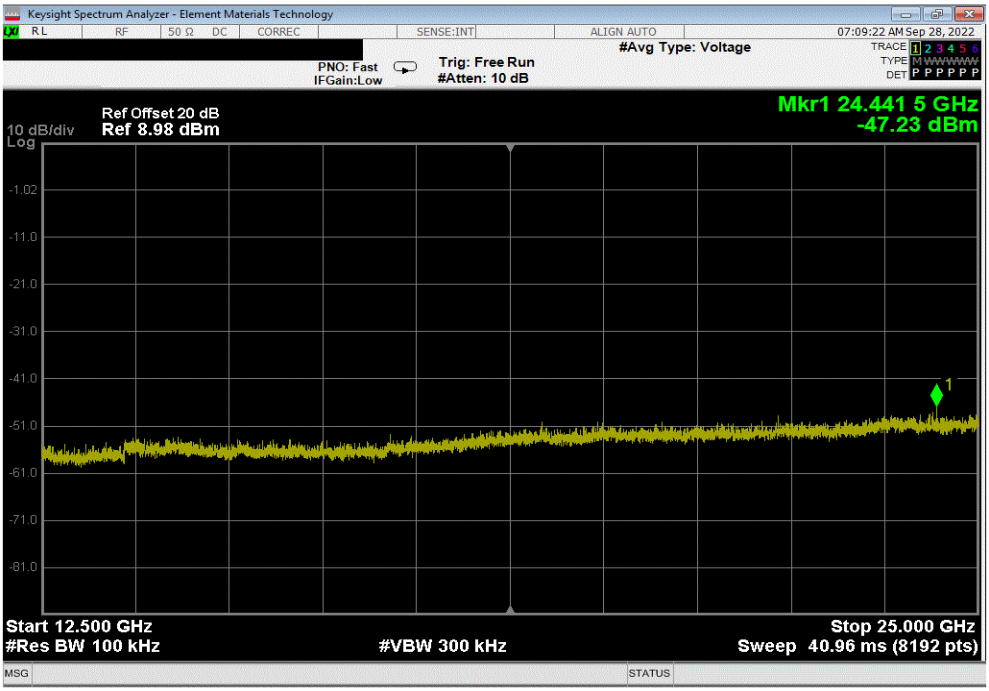
BLE/GFSK, 1 Mbps, High Channel, 2480 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2480.36	N/A	N/A	N/A



BLE/GFSK, 1 Mbps, High Channel, 2480 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	4959.54	-48.53	-20	Pass



BLE/GFSK, 1 Mbps, High Channel, 2480 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	24441.46	-48.01	-20	Pass



SPURIOUS RADIATED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

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 = CISPR Average 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 within 2 MHz of the allowable band may have been taken using the integration method from ANSI C63.10 clause 11.13.3. This procedure uses the channel power feature of the spectrum analyzer to integrate the power of the emission within a 1 MHz bandwidth.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the CISPR Average measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of 20*log(1/dc).

SPURIOUS RADIATED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2022-03-22	2023-03-22
Antenna - Biconilog	ETS Lindgren	3143B	AYF	2022-09-02	2024-09-02
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2022-06-10	2023-06-10
Amplifier - Pre-Amplifier	Fairview Microwave	FMAM63001	PAS	2022-04-19	2023-04-19
Filter - Low Pass	Micro-Tronics	LPM50004	HHV	2022-07-22	2023-07-22
Antenna - Double Ridge	ETS Lindgren	3115	AJL	2020-10-20	2022-10-20
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAJ	2022-04-19	2023-04-19
Cable	Northwest EMC	1-8.2 GHz	TXC	2022-04-19	2023-04-19
Antenna - Standard Gain	ETS Lindgren	3160-07	AJF	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	PAK	2022-09-09	2023-09-09
Cable	Northwest EMC	8-18GHz	TXD	2022-04-12	2023-04-12
Antenna - Standard Gain	ETS Lindgren	3160-08	AJG	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	PAL	2022-09-09	2023-09-09
Antenna - Double Ridge	A.H. Systems, Inc.	SAS-574	AXW	2022-09-09	2024-09-09
Amplifier - Pre-Amplifier	Miteq	JSDWK42-18004000-60-5P	PAM	2022-09-14	2023-09-14
Cable	Northwest EMC	18-40GHz	TXE	2022-09-09	2023-09-09

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	5.1 dB	-5.1 dB

FREQUENCY RANGE INVESTIGATED

30 MHz TO 26 GHz

POWER INVESTIGATED

110VAC/60Hz
3VDC via Battery

CONFIGURATIONS INVESTIGATED

PAYC0009-3
PAYC0009-5

MODES INVESTIGATED

BLE, 1 Mbps

SPURIOUS RADIATED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

EUT:	PMF-002 Microfence BLE Beacon	Work Order:	PAYC0009
Serial Number:	003	Date:	2022-08-26
Customer:	Paycom Software, Inc.	Temperature:	21.3°C
Attendees:	Mike Pearson	Relative Humidity:	55.9%
Customer Project:	None	Bar. Pressure (PMSL):	1019 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	110VAC/60Hz	Configuration:	PAYC0009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	12	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)

COMMENTS

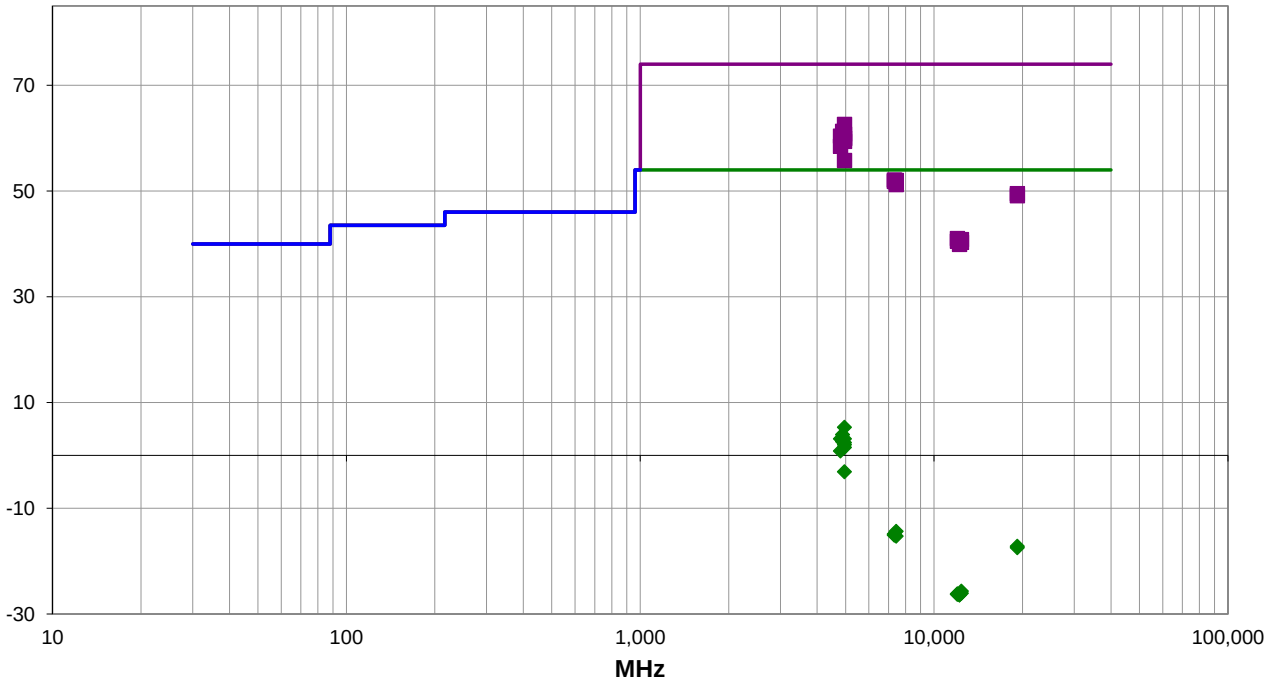
Using a client provided on-time, a downward correction was applied per FCC part 15.35 sections c and KDB 558074 Q&A (3) using the following calculation: 20*log(0.248mSec/100mSec) = -52.1dB. This correction factor was applied to all average values.

EUT OPERATING MODES

BLE, 1 Mbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 12 ■ PK ◆ AV ● QP

SPURIOUS RADIATED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #12

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4960.580	57.6	5.0	2.3	82.9	0.0	0.0	Horz	PK	0.0	62.6	74.0	-11.4	EUT vert, high ch, 1 Mbps
4883.665	56.3	5.0	2.7	58.9	0.0	0.0	Horz	PK	0.0	61.3	74.0	-12.7	EUT vert, mid ch, 1 Mbps
4960.595	55.8	5.0	2.0	183.9	0.0	0.0	Horz	PK	0.0	60.8	74.0	-13.2	EUT horz, high ch, 1 Mbps
4803.735	55.2	5.2	1.6	84.0	0.0	0.0	Horz	PK	0.0	60.4	74.0	-13.6	EUT vert, low ch, 1 Mbps
4883.685	55.3	5.0	1.8	78.0	0.0	0.0	Vert	PK	0.0	60.3	74.0	-13.7	EUT side, mid ch, 1 Mbps
4959.790	55.0	5.0	1.7	82.9	0.0	0.0	Vert	PK	0.0	60.0	74.0	-14.0	EUT side, high ch, 1 Mbps
4959.735	54.9	5.0	1.5	118.9	0.0	0.0	Vert	PK	0.0	59.9	74.0	-14.1	EUT vert, high ch, 1 Mbps
4959.600	54.4	5.0	1.6	246.0	0.0	0.0	Horz	PK	0.0	59.4	74.0	-14.6	EUT side, high ch, 1 Mbps
4804.620	53.3	5.2	1.9	76.9	0.0	0.0	Vert	PK	0.0	58.5	74.0	-15.5	EUT side, low ch, 1 Mbps
4959.650	50.8	5.0	1.6	264.0	0.0	0.0	Vert	PK	0.0	55.8	74.0	-18.2	EUT horz, high ch, 1 Mbps
7326.600	40.8	11.3	1.5	2.0	0.0	0.0	Vert	PK	0.0	52.1	74.0	-21.9	EUT side, mid ch, 1 Mbps
7440.955	40.6	11.4	1.5	16.9	0.0	0.0	Vert	PK	0.0	52.0	74.0	-22.0	EUT side, high ch, 1 Mbps
7326.970	40.5	11.3	1.5	144.0	0.0	0.0	Horz	PK	0.0	51.8	74.0	-22.2	EUT vert, mid ch, 1 Mbps
7440.170	39.8	11.4	1.5	111.0	0.0	0.0	Horz	PK	0.0	51.2	74.0	-22.8	EUT vert, high ch, 1 Mbps
19214.780	57.1	-7.6	1.5	202.9	0.0	0.0	Horz	PK	0.0	49.5	74.0	-24.5	EUT vert, low ch, 1 Mbps
19214.100	56.7	-7.6	1.5	313.0	0.0	0.0	Vert	PK	0.0	49.1	74.0	-24.9	EUT side, low ch, 1 Mbps
12010.230	45.5	-4.5	1.5	355.0	0.0	0.0	Vert	PK	0.0	41.0	74.0	-33.0	EUT side, low ch, 1 Mbps
12399.770	43.8	-3.0	3.5	253.0	0.0	0.0	Horz	PK	0.0	40.8	74.0	-33.2	EUT vert, high ch, 1 Mbps
12011.520	45.0	-4.5	1.5	208.9	0.0	0.0	Horz	PK	0.0	40.5	74.0	-33.5	EUT vert, low ch, 1 Mbps
12212.420	43.9	-3.5	2.4	298.9	0.0	0.0	Horz	PK	0.0	40.4	74.0	-33.6	EUT vert, mid ch, 1 Mbps
12399.100	43.3	-3.0	1.5	115.0	0.0	0.0	Vert	PK	0.0	40.3	74.0	-33.7	EUT side, high ch, 1 Mbps
12211.140	43.4	-3.5	1.5	237.9	0.0	0.0	Vert	PK	0.0	39.9	74.0	-34.1	EUT side, mid ch, 1 Mbps
4960.190	52.4	5.0	2.3	82.9	-52.1	0.0	Horz	AV	0.0	5.3	54.0	-48.7	EUT vert, high ch, 1 Mbps
4884.185	51.0	5.0	2.7	58.9	-52.1	0.0	Horz	AV	0.0	3.9	54.0	-50.1	EUT vert, mid ch, 1 Mbps
4960.190	50.2	5.0	2.0	183.9	-52.1	0.0	Horz	AV	0.0	3.1	54.0	-50.9	EUT horz, high ch, 1 Mbps
4804.190	50.0	5.2	1.6	84.0	-52.1	0.0	Horz	AV	0.0	3.1	54.0	-50.9	EUT vert, low ch, 1 Mbps
4884.195	49.7	5.0	1.8	78.0	-52.1	0.0	Vert	AV	0.0	2.6	54.0	-51.4	EUT side, mid ch, 1 Mbps
4960.210	49.5	5.0	1.7	82.9	-52.1	0.0	Vert	AV	0.0	2.4	54.0	-51.6	EUT side, high ch, 1 Mbps
4960.195	49.1	5.0	1.5	118.9	-52.1	0.0	Vert	AV	0.0	2.0	54.0	-52.0	EUT vert, high ch, 1 Mbps
4960.190	48.6	5.0	1.6	246.0	-52.1	0.0	Horz	AV	0.0	1.5	54.0	-52.5	EUT side, high ch, 1 Mbps
4804.180	47.7	5.2	1.9	76.9	-52.1	0.0	Vert	AV	0.0	0.8	54.0	-53.2	EUT side, low ch, 1 Mbps
4960.195	44.0	5.0	1.6	264.0	-52.1	0.0	Vert	AV	0.0	-3.1	54.0	-57.1	EUT horz, high ch, 1 Mbps
7439.595	26.3	11.4	1.5	16.9	-52.1	0.0	Vert	AV	0.0	-14.4	54.0	-68.4	EUT side, high ch, 1 Mbps
7325.580	25.9	11.3	1.5	2.0	-52.1	0.0	Vert	AV	0.0	-14.9	54.0	-68.9	EUT side, mid ch, 1 Mbps
7324.500	25.7	11.3	1.5	144.0	-52.1	0.0	Horz	AV	0.0	-15.1	54.0	-69.1	EUT vert, mid ch, 1 Mbps
7439.175	25.4	11.4	1.5	111.0	-52.1	0.0	Horz	AV	0.0	-15.3	54.0	-69.3	EUT vert, high ch, 1 Mbps
19218.310	42.4	-7.5	1.5	202.9	-52.1	0.0	Horz	AV	0.0	-17.2	54.0	-71.2	EUT vert, low ch, 1 Mbps
19218.460	42.1	-7.5	1.5	313.0	-52.1	0.0	Vert	AV	0.0	-17.5	54.0	-71.5	EUT side, low ch, 1 Mbps
12399.230	29.4	-3.0	3.5	253.0	-52.1	0.0	Horz	AV	0.0	-25.7	54.0	-79.7	EUT vert, high ch, 1 Mbps
12399.360	29.0	-3.0	1.5	115.0	-52.1	0.0	Vert	AV	0.0	-26.1	54.0	-80.1	EUT side, high ch, 1 Mbps

SPURIOUS RADIATED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
12011.730	30.4	-4.5	1.5	355.0	-52.1	0.0	Vert	AV	0.0	-26.2	54.0	-80.2	EUT side, low ch, 1 Mbps
12011.610	30.3	-4.5	1.5	208.9	-52.1	0.0	Horz	AV	0.0	-26.3	54.0	-80.3	EUT vert, low ch, 1 Mbps
12211.730	29.2	-3.5	2.4	298.9	-52.1	0.0	Horz	AV	0.0	-26.4	54.0	-80.4	EUT vert, mid ch, 1 Mbps
12212.330	29.2	-3.5	1.5	237.9	-52.1	0.0	Vert	AV	0.0	-26.4	54.0	-80.4	EUT side, mid ch, 1 Mbps

CONCLUSION

Pass

Tested By

SPURIOUS RADIATED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

EUT:	PMF-002 Microfence BLE Beacon	Work Order:	PAYC0009
Serial Number:	003	Date:	2022-08-29
Customer:	Paycom Software, Inc.	Temperature:	22.4°C
Attendees:	Mike Pearson	Relative Humidity:	51.9%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	110VAC/60Hz	Configuration:	PAYC0009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	17	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)

COMMENTS

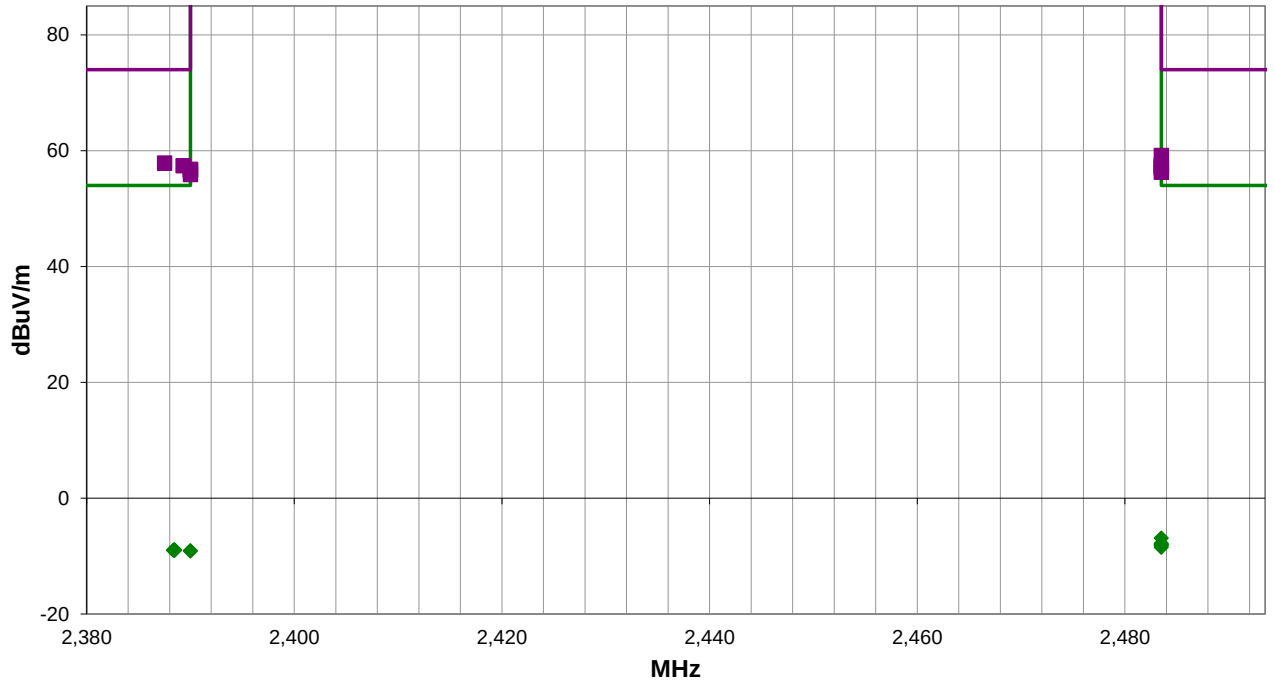
Using a client provided on-time, a downward correction was applied per FCC part 15.35 sections c and KDB 558074 Q&A (3) using the following calculation: 20*log(0.248mSec/100mSec) = -52.1dB. This correction factor was applied to all average values.

EUT OPERATING MODES

BLE, 1 Mbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 17 ■ PK ◆ AV ● QP

SPURIOUS RADIATED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #17

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.500	45.2	-6.0	3.4	325.0	0.0	20.0	Horz	PK	0.0	59.2	74.0	-14.8	EUT horz, high ch, 1 Mbps
2387.517	44.2	-6.3	1.5	355.0	0.0	20.0	Vert	PK	0.0	57.9	74.0	-16.1	EUT side, low ch, 1 Mbps
2483.500	43.6	-6.0	2.9	177.0	0.0	20.0	Horz	PK	0.0	57.6	74.0	-16.4	EUT vert, high ch, 1 Mbps
2483.500	43.4	-6.0	2.3	177.9	0.0	20.0	Vert	PK	0.0	57.4	74.0	-16.6	EUT vert, high ch, 1 Mbps
2389.300	43.7	-6.3	1.5	96.0	0.0	20.0	Horz	PK	0.0	57.4	74.0	-16.6	EUT side, low ch, 1 Mbps
2483.500	43.1	-6.0	3.4	45.0	0.0	20.0	Horz	PK	0.0	57.1	74.0	-16.9	EUT side, high ch, 1 Mbps
2483.500	43.0	-6.0	3.7	129.9	0.0	20.0	Vert	PK	0.0	57.0	74.0	-17.0	EUT horz, high ch, 1 Mbps
2390.000	43.1	-6.3	3.7	118.9	0.0	20.0	Vert	PK	0.0	56.8	74.0	-17.2	EUT horz, low ch, 1 Mbps
2390.000	43.0	-6.3	1.5	92.0	0.0	20.0	Horz	PK	0.0	56.7	74.0	-17.3	EUT vert, low ch, 1 Mbps
2390.000	42.9	-6.3	1.5	355.0	0.0	20.0	Vert	PK	0.0	56.6	74.0	-17.4	EUT side, low ch, 1 Mbps
2483.500	42.3	-6.0	1.5	296.0	0.0	20.0	Vert	PK	0.0	56.3	74.0	-17.7	EUT side, high ch, 1 Mbps
2390.000	42.2	-6.3	1.5	116.0	0.0	20.0	Horz	PK	0.0	55.9	74.0	-18.1	EUT horz, low ch, 1 Mbps
2483.500	31.2	-6.0	3.4	325.0	-52.1	20.0	Horz	AV	0.0	-6.9	54.0	-60.9	EUT horz, high ch, 1 Mbps
2483.500	30.3	-6.0	2.9	177.0	-52.1	20.0	Horz	AV	0.0	-7.8	54.0	-61.8	EUT vert, high ch, 1 Mbps
2483.500	30.1	-6.0	3.4	45.0	-52.1	20.0	Horz	AV	0.0	-8.0	54.0	-62.0	EUT side, high ch, 1 Mbps
2483.500	30.0	-6.0	3.7	129.9	-52.1	20.0	Vert	AV	0.0	-8.1	54.0	-62.1	EUT horz, high ch, 1 Mbps
2483.500	29.9	-6.0	2.3	177.9	-52.1	20.0	Vert	AV	0.0	-8.2	54.0	-62.2	EUT vert, high ch, 1 Mbps
2483.500	29.6	-6.0	1.5	296.0	-52.1	20.0	Vert	AV	0.0	-8.5	54.0	-62.5	EUT side, high ch, 1 Mbps
2388.467	29.5	-6.3	1.5	357.0	-52.1	20.0	Vert	AV	0.0	-8.9	54.0	-62.9	EUT vert, low ch, 1 Mbps
2388.358	29.4	-6.3	1.5	96.0	-52.1	20.0	Horz	AV	0.0	-9.0	54.0	-63.0	EUT side, low ch, 1 Mbps
2388.475	29.4	-6.3	1.5	355.0	-52.1	20.0	Vert	AV	0.0	-9.0	54.0	-63.0	EUT side, low ch, 1 Mbps
2388.467	29.4	-6.3	1.5	116.0	-52.1	20.0	Horz	AV	0.0	-9.0	54.0	-63.0	EUT horz, low ch, 1 Mbps
2390.000	29.3	-6.3	1.5	92.0	-52.1	20.0	Horz	AV	0.0	-9.1	54.0	-63.1	EUT vert, low ch, 1 Mbps
2390.000	29.3	-6.3	3.7	118.9	-52.1	20.0	Vert	AV	0.0	-9.1	54.0	-63.1	EUT horz, low ch, 1 Mbps

CONCLUSION

Pass

Tested By

SPURIOUS RADIATED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

EUT:	PMF-002 Microfence BLE Beacon	Work Order:	PAYC0009
Serial Number:	003	Date:	2022-09-02
Customer:	Paycom Software, Inc.	Temperature:	21.2°C
Attendees:	Mike Pearson	Relative Humidity:	57.8%
Customer Project:	None	Bar. Pressure (PMSL):	1019 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	3VDC via Battery	Configuration:	PAYC0009-5

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2022	ANSI C63.10:2013
RSS-247 Issue 2:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	43	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)

COMMENTS

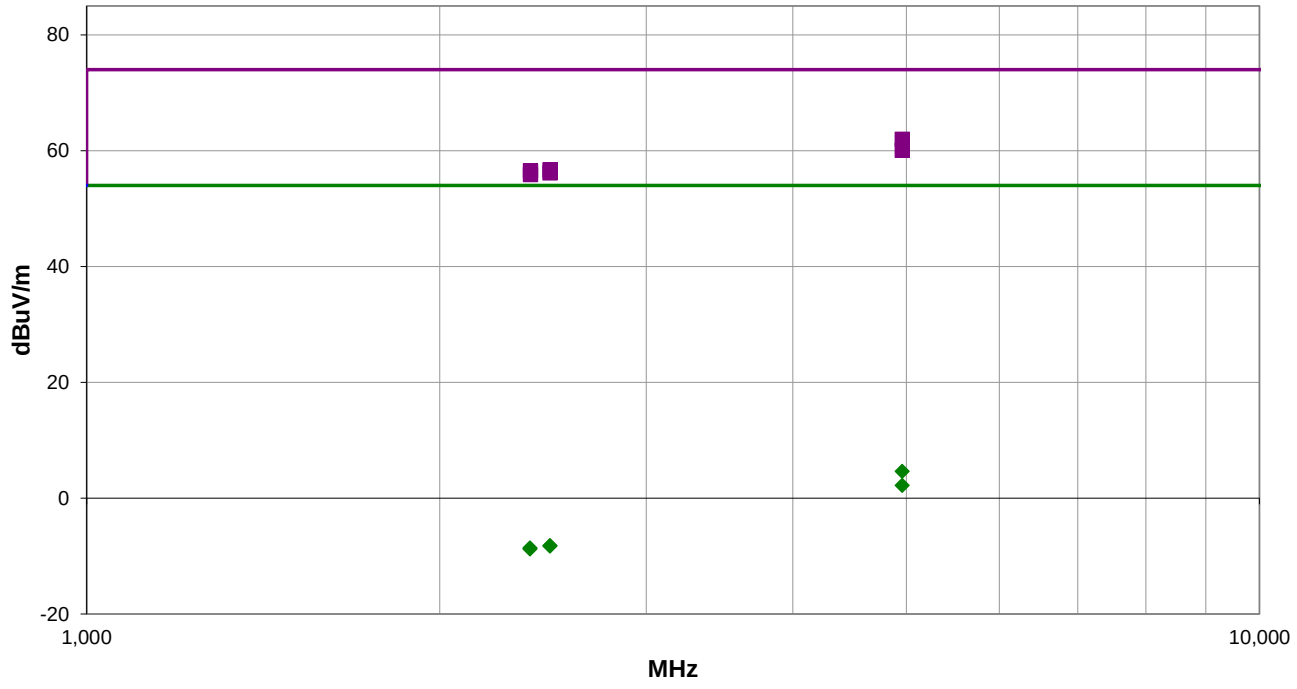
Battery Spot Check. Using a client provided on-time, a downward correction was applied per FCC part 15.35 sections c and KDB 558074 Q&A (3) using the following calculation: 20*log(0.248mSec/100mSec) = -52.1dB. This correction factor was applied to all average values.

EUT OPERATING MODES

BLE, 1 Mbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 43 ■ PK ◆ AV ● QP

SPURIOUS RADIATED EMISSIONS

element
WTD.2022.02.22.0
EmiR5 2022.07.06.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #43

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4959.700	57.0	5.0	2.3	51.0	0.0	0.0	Horz	PK	0.0	62.0	74.0	-12.0	EUT vert, high ch, 1 Mbps, Batt Mode
4959.700	55.1	5.0	1.5	330.0	0.0	0.0	Vert	PK	0.0	60.1	74.0	-13.9	EUT side, high ch, 1 Mbps, Batt Mode
2483.500	42.7	-6.0	2.0	57.9	0.0	20.0	Horz	PK	0.0	56.7	74.0	-17.3	EUT vert, high ch, 1 Mbps, Batt Mode
2390.000	42.8	-6.3	3.0	193.0	0.0	20.0	Vert	PK	0.0	56.5	74.0	-17.5	EUT vert, low ch, 1 Mbps, Batt Mode
2483.500	42.2	-6.0	3.6	64.9	0.0	20.0	Vert	PK	0.0	56.2	74.0	-17.8	EUT side, high ch, 1 Mbps, Batt Mode
2390.000	42.2	-6.3	2.8	189.9	0.0	20.0	Horz	PK	0.0	55.9	74.0	-18.1	EUT vert, low ch, 1 Mbps, Batt Mode
4960.192	51.7	5.0	2.3	51.0	-52.1	0.0	Horz	AV	0.0	4.6	54.0	-49.4	EUT vert, high ch, 1 Mbps, Batt Mode
4960.200	49.3	5.0	1.5	330.0	-52.1	0.0	Vert	AV	0.0	2.2	54.0	-51.8	EUT side, high ch, 1 Mbps, Batt Mode
2483.500	29.9	-6.0	3.6	64.9	-52.1	20.0	Vert	AV	0.0	-8.2	54.0	-62.2	EUT side, high ch, 1 Mbps, Batt Mode
2483.500	29.8	-6.0	2.0	57.9	-52.1	20.0	Horz	AV	0.0	-8.3	54.0	-62.3	EUT vert, high ch, 1 Mbps, Batt Mode
2388.400	29.8	-6.3	3.0	193.0	-52.1	20.0	Vert	AV	0.0	-8.6	54.0	-62.6	EUT vert, low ch, 1 Mbps, Batt Mode
2388.375	29.6	-6.3	2.8	189.9	-52.1	20.0	Horz	AV	0.0	-8.8	54.0	-62.8	EUT vert, low ch, 1 Mbps, Batt Mode

CONCLUSION

Pass

Tested By

End of Test Report