



element

Paycom Software, Inc.

Microfence

FCC 15.247:2021

Report: PAYC0001.1 Rev. 1, Issue Date: August 10, 2021



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CERTIFICATE OF TEST



Last Date of Test: June 24, 2021
Paycom Software, Inc.
EUT: Microfence

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2021	ANSI C63.10:2013
FCC 15.247:2021	ANSI C63.10:2013, KDB 558074

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
11.6	Duty Cycle	Yes	Pass	
11.8.2	Occupied Bandwidth	Yes	Pass	
11.9.1.1	Output Power	Yes	Pass	
11.9.1.1	Equivalent Isotropic Radiated Power	Yes	Pass	
11.10.2	Power Spectral Density	Yes	Pass	
11.11	Band Edge Compliance	Yes	Pass	
11.11	Spurious Conducted Emissions	Yes	Pass	
11.12.1, 11.13.2, 6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	

Deviations From Test Standards

None

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	Listed serial number consistently throughout report	2021-08-10	10, 14, 16, 20, 24, 28, 32, 36, 39, 46, 47 and 50
	Added an explanation for the different operating modes during testing	2021-08-10	14
	Created separate equipment list for testing on 6/24/2021	2021-08-10	49
	The client has indicated that the power setting is 0 dBm. Added this to the power settings and antenna page.	2021-08-10	12

ACCREDITATIONS AND AUTHORIZATIONS



United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

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

European Union

European Commission – 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.

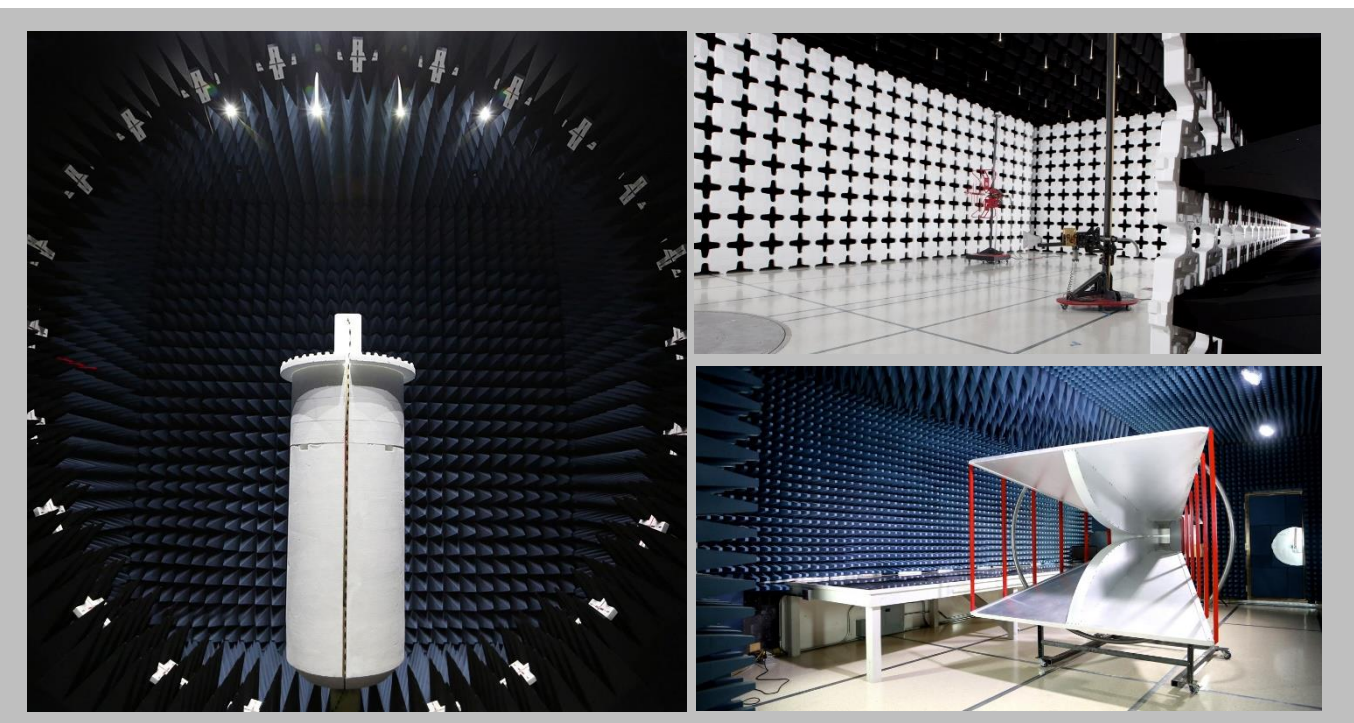
SCOPE

For details on the Scopes of our Accreditations, please visit:
<https://www.nwemc.com/emc-testing-accreditations>

FACILITIES



California Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-11 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Oregon Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP				
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157



MEASUREMENT UNCERTAINTY



Measurement Uncertainty

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

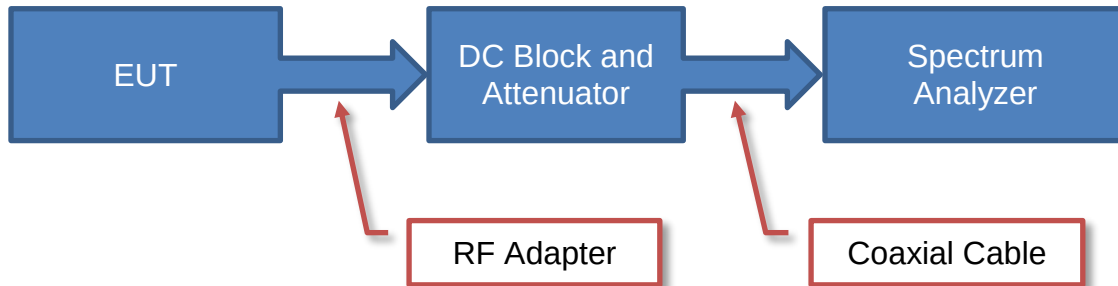
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found in the table below. A lab specific 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.

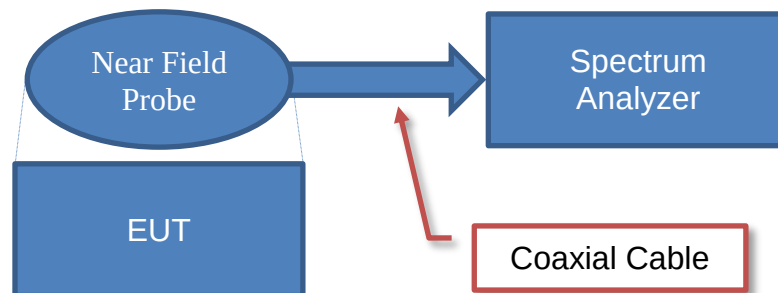
Test	+ MU	- MU
Frequency Accuracy	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.6 dB	-2.6 dB

Test Setup Block Diagrams

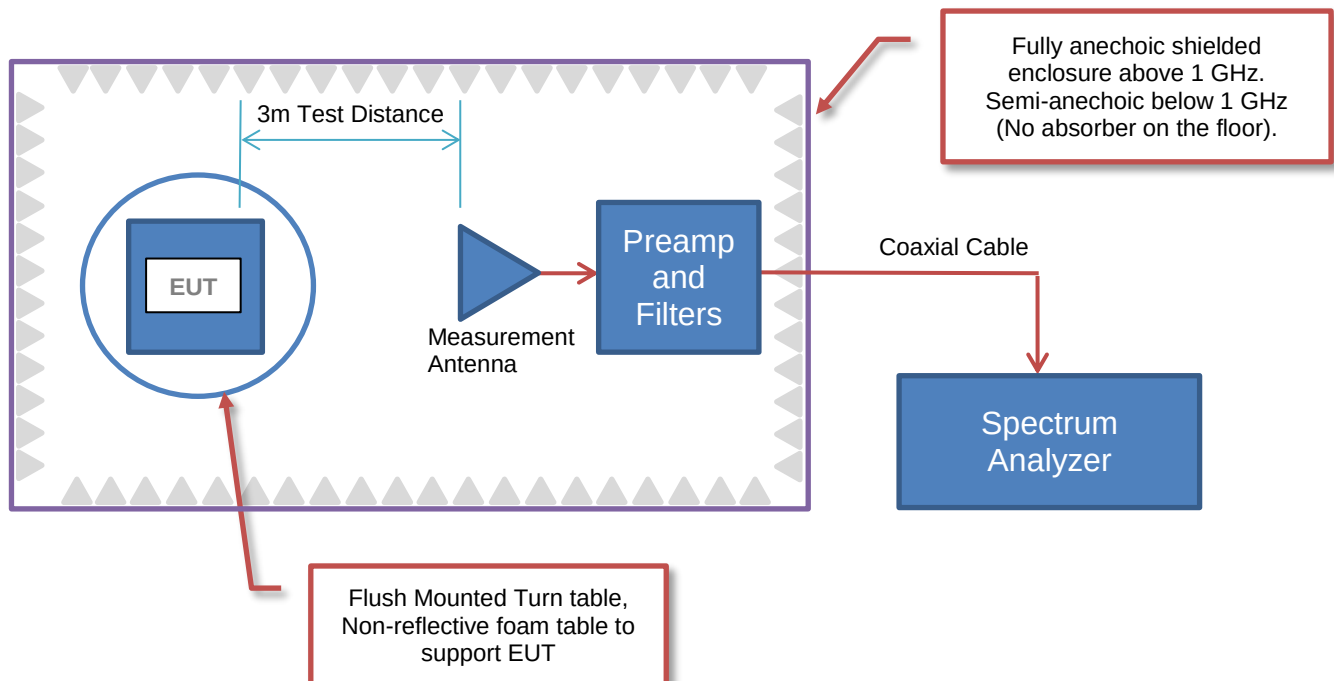
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



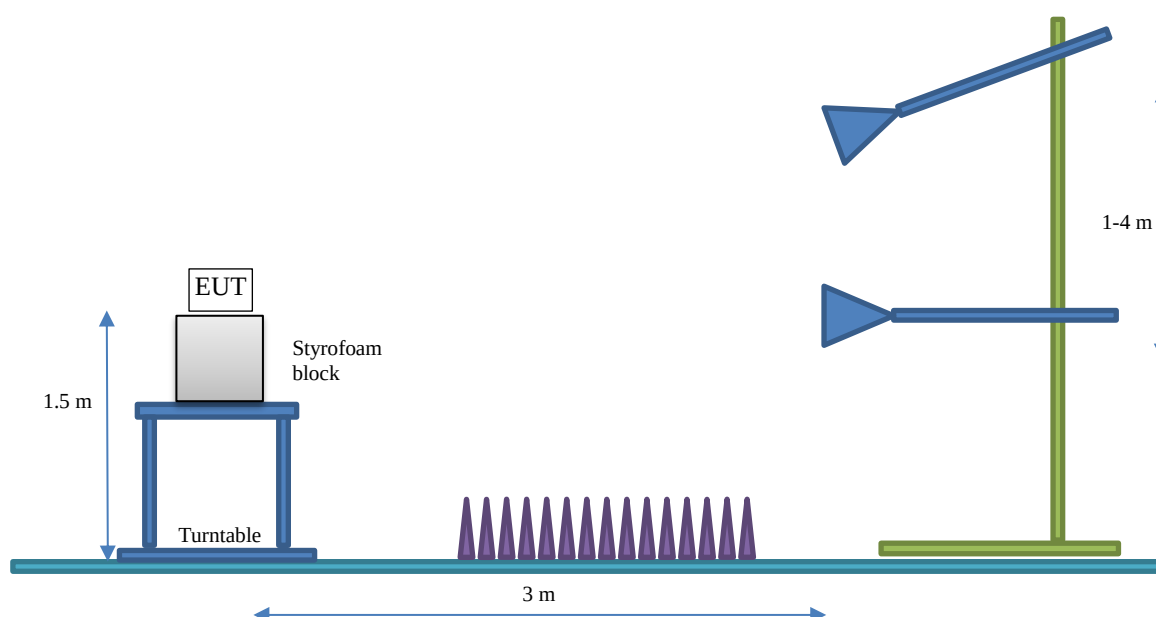
Spurious Radiated Emissions



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:	7501 W. Memorial Rd
City, State, Zip:	Oklahoma City, Ok 73142
Test Requested By:	Dennis English
EUT:	Microfence
First Date of Test:	May 4, 2021
Last Date of Test:	June 24, 2021
Receipt Date of Samples:	May 4, 2021
Equipment Design Stage:	Pre-production
Equipment Condition:	No damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

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 requirements.

CONFIGURATIONS



Configuration PAYC0001- 1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Microfence	Paycom Software, Inc.	PMF-001A	4
USB Power Supply	Phihong USA Corporation	PSAA05A-05QL6	VL27005853A3

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable	Yes	2.0m	No	EUT	USB Power Supply

Configuration PAYC0001- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Microfence	Paycom Software, Inc.	PMF-001A	6

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Coax Patch Cable	Yes	7.0cm	No	EUT	RF Test Cable

Configuration PAYC0004- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Microfence	Paycom Software, Inc.	PMF-001A	4
USB Power Supply	Phihong USA Corporation	PSAA05A-05QL6	VL27005853A3

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable	Yes	2.0m	No	EUT	USB Power Supply

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2021-05-04	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.
2	2021-05-05	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2021-05-06	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2021-05-06	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	2021-05-06	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	2021-05-06	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	2021-05-06	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.
8	2021-05-10	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.
9	2021-06-24	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

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.

ANTENNA GAIN (dBi)

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

SETTINGS FOR ALL TESTS IN THIS REPORT

Frequency Range	Power Setting
2402-2480	0 dBm

AC POWERLINE CONDUCTED EMISSIONS

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	2020-08-25	2021-08-25
Power Source/Analyzer	Hewlett Packard	6841A	THC	NCR	NCR
Cable - Conducted Cable Assembly	Northwest EMC	TXA, HFC, TQU	TXAA	2021-01-26	2022-01-26
Receiver	Rohde & Schwarz	ESCI	ARF	2020-08-18	2021-08-18

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.6 dB	-2.6 dB

CONFIGURATIONS INVESTIGATED

PAYC0001-1

MODES INVESTIGATED

Transmitting Bluetooth LE at Mid Ch 39 (2442 MHz)

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Microfence	Work Order:	PAYC0001
Serial Number:	6	Date:	2021-05-04
Customer:	Paycom Software, Inc.	Temperature:	21.1°C
Attendees:	None	Relative Humidity:	49.7%
Customer Project:	None	Bar. Pressure:	1016 mb
Tested By:	Mark Baytan	Job Site:	TX01
Power:	110VAC/60Hz	Configuration:	PAYC0001-1

TEST SPECIFICATIONS

Specification: Equipment Class B FCC 15.207:2021	Method: ANSI C63.10:2013
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TEST PARAMETERS

Run #:	10	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

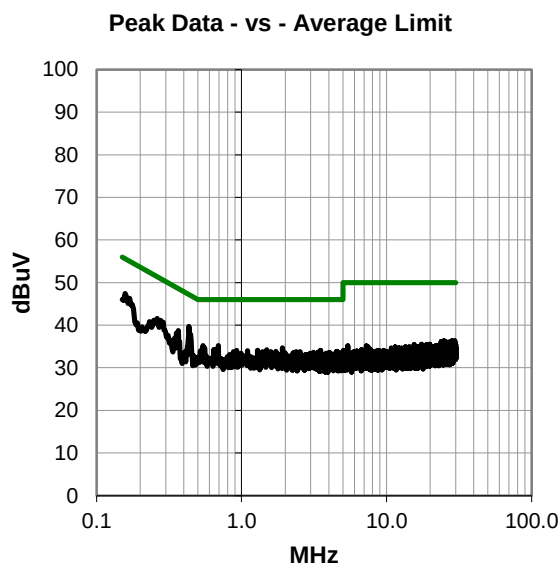
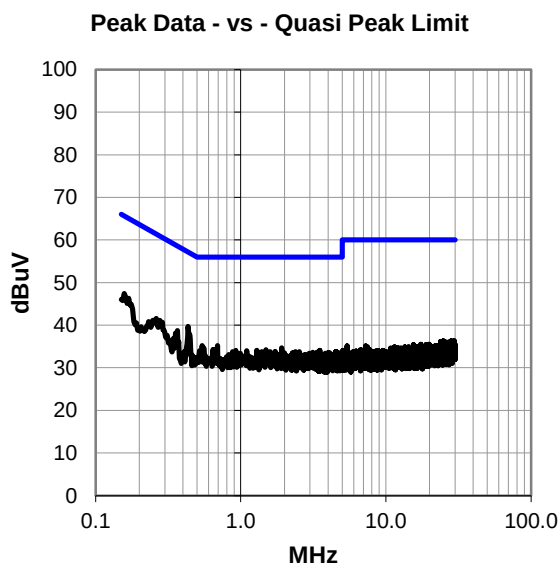
None

EUT OPERATING MODES

Transmitting Bluetooth LE at Mid Ch 39 (2442 MHz)

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #10

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.434	19.5	20.2	39.7	57.2	-17.5
0.157	27.0	20.4	47.4	65.6	-18.2
0.262	21.2	20.4	41.6	61.4	-19.8
0.366	18.5	20.2	38.7	58.6	-19.9
0.542	15.0	20.2	35.2	56.0	-20.8
0.691	15.0	20.2	35.2	56.0	-20.8
1.915	14.4	20.3	34.7	56.0	-21.3
0.643	14.1	20.2	34.3	56.0	-21.7
1.493	13.9	20.3	34.2	56.0	-21.8
0.922	13.8	20.3	34.1	56.0	-21.9
1.288	13.8	20.3	34.1	56.0	-21.9
3.501	13.8	20.3	34.1	56.0	-21.9
1.101	13.8	20.2	34.0	56.0	-22.0
0.878	13.5	20.3	33.8	56.0	-22.2
1.393	13.5	20.3	33.8	56.0	-22.2
1.590	13.5	20.3	33.8	56.0	-22.2
1.717	13.5	20.3	33.8	56.0	-22.2
2.378	13.5	20.3	33.8	56.0	-22.2
2.527	13.5	20.3	33.8	56.0	-22.2
4.519	13.5	20.3	33.8	56.0	-22.2
4.572	13.5	20.3	33.8	56.0	-22.2
4.504	13.4	20.3	33.7	56.0	-22.3
3.128	13.3	20.3	33.6	56.0	-22.4
3.363	13.3	20.3	33.6	56.0	-22.4
4.892	13.3	20.3	33.6	56.0	-22.4

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.434	19.5	20.2	39.7	47.2	-7.5
0.157	27.0	20.4	47.4	55.6	-8.2
0.262	21.2	20.4	41.6	51.4	-9.8
0.366	18.5	20.2	38.7	48.6	-9.9
0.542	15.0	20.2	35.2	46.0	-10.8
0.691	15.0	20.2	35.2	46.0	-10.8
1.915	14.4	20.3	34.7	46.0	-11.3
0.643	14.1	20.2	34.3	46.0	-11.7
1.493	13.9	20.3	34.2	46.0	-11.8
0.922	13.8	20.3	34.1	46.0	-11.9
1.288	13.8	20.3	34.1	46.0	-11.9
3.501	13.8	20.3	34.1	46.0	-11.9
1.101	13.8	20.2	34.0	46.0	-12.0
0.878	13.5	20.3	33.8	46.0	-12.2
1.393	13.5	20.3	33.8	46.0	-12.2
1.590	13.5	20.3	33.8	46.0	-12.2
1.717	13.5	20.3	33.8	46.0	-12.2
2.378	13.5	20.3	33.8	46.0	-12.2
2.527	13.5	20.3	33.8	46.0	-12.2
4.519	13.5	20.3	33.8	46.0	-12.2
4.572	13.5	20.3	33.8	46.0	-12.2
4.504	13.4	20.3	33.7	46.0	-12.3
3.128	13.3	20.3	33.6	46.0	-12.4
3.363	13.3	20.3	33.6	46.0	-12.4
4.892	13.3	20.3	33.6	46.0	-12.4

CONCLUSION

Pass



Tested By

AC POWERLINE CONDUCTED EMISSIONS

EUT:	Microfence	Work Order:	PAYC0001
Serial Number:	6	Date:	2021-05-04
Customer:	Paycom Software, Inc.	Temperature:	21.1°C
Attendees:	None	Relative Humidity:	49.7%
Customer Project:	None	Bar. Pressure:	1016 mb
Tested By:	Mark Baytan	Job Site:	TX01
Power:	110VAC/60Hz	Configuration:	PAYC0001-1

TEST SPECIFICATIONS

Specification: Equipment Class B	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	11	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

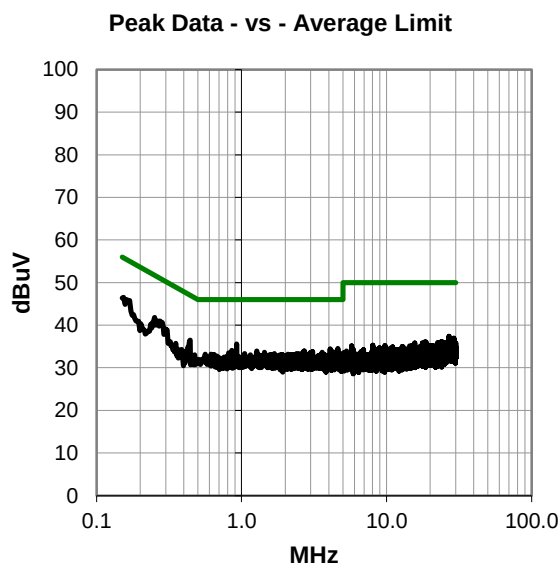
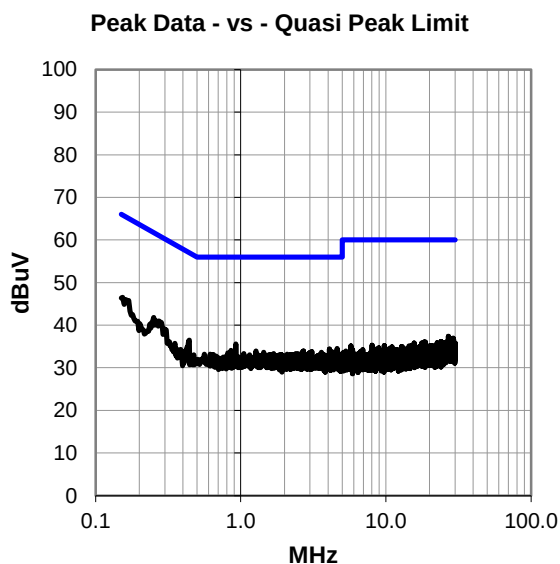
None

EUT OPERATING MODES

Transmitting Bluetooth LE at Mid Ch 39 (2442 MHz)

DEVIATIONS FROM TEST STANDARD

None



AC POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #11

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	26.1	20.4	46.5	65.8	-19.3
0.251	21.4	20.4	41.8	61.7	-19.9
0.922	15.3	20.3	35.6	56.0	-20.4
0.441	16.3	20.2	36.5	57.0	-20.5
4.624	14.2	20.3	34.5	56.0	-21.5
4.079	14.1	20.3	34.4	56.0	-21.6
0.855	13.9	20.2	34.1	56.0	-21.9
1.273	13.6	20.3	33.9	56.0	-22.1
2.706	13.6	20.3	33.9	56.0	-22.1
2.657	13.5	20.3	33.8	56.0	-22.2
3.090	13.5	20.3	33.8	56.0	-22.2
4.228	13.4	20.3	33.7	56.0	-22.3
1.441	13.3	20.3	33.6	56.0	-22.4
3.601	13.3	20.3	33.6	56.0	-22.4
4.344	13.3	20.3	33.6	56.0	-22.4
0.814	13.3	20.2	33.5	56.0	-22.5
2.960	13.2	20.3	33.5	56.0	-22.5
4.452	13.2	20.3	33.5	56.0	-22.5
27.008	15.0	22.4	37.4	60.0	-22.6
1.049	13.1	20.2	33.3	56.0	-22.7
1.684	13.0	20.3	33.3	56.0	-22.7
2.396	13.0	20.3	33.3	56.0	-22.7
2.471	13.0	20.3	33.3	56.0	-22.7
4.657	13.0	20.3	33.3	56.0	-22.7
2.090	12.9	20.3	33.2	56.0	-22.8

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.154	26.1	20.4	46.5	55.8	-9.3
0.251	21.4	20.4	41.8	51.7	-9.9
0.922	15.3	20.3	35.6	46.0	-10.4
0.441	16.3	20.2	36.5	47.0	-10.5
4.624	14.2	20.3	34.5	46.0	-11.5
4.079	14.1	20.3	34.4	46.0	-11.6
0.855	13.9	20.2	34.1	46.0	-11.9
1.273	13.6	20.3	33.9	46.0	-12.1
2.706	13.6	20.3	33.9	46.0	-12.1
2.657	13.5	20.3	33.8	46.0	-12.2
3.090	13.5	20.3	33.8	46.0	-12.2
4.228	13.4	20.3	33.7	46.0	-12.3
1.441	13.3	20.3	33.6	46.0	-12.4
3.601	13.3	20.3	33.6	46.0	-12.4
4.344	13.3	20.3	33.6	46.0	-12.4
0.814	13.3	20.2	33.5	46.0	-12.5
2.960	13.2	20.3	33.5	46.0	-12.5
4.452	13.2	20.3	33.5	46.0	-12.5
27.008	15.0	22.4	37.4	50.0	-12.6
1.049	13.1	20.2	33.3	46.0	-12.7
1.684	13.0	20.3	33.3	46.0	-12.7
2.396	13.0	20.3	33.3	46.0	-12.7
2.471	13.0	20.3	33.3	46.0	-12.7
4.657	13.0	20.3	33.3	46.0	-12.7
2.090	12.9	20.3	33.2	46.0	-12.8

CONCLUSION

Pass



Tested By

DUTY CYCLE



TEST DESCRIPTION

The Duty Cycle (x) were measured for each of the EUT operating modes. The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum.

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

The EUT operates at 100% Duty Cycle.

OCCUPIED BANDWIDTH



XMIT 2020.12.30.0

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
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2020-09-18	2021-09-18
Attenuator	Fairview Microwave	SA18E 1913	TZV	2020-09-22	2021-09-22
Block - DC	Fairview Microwave	SD3379	AMM	2020-09-21	2021-09-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2021-03-11	2022-03-11

TEST DESCRIPTION

The EUT was set to the channels and modes listed in the datasheet.

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

OCCUPIED BANDWIDTH



TSTx 2019.08.30.0 XMR 2020.12.30.0

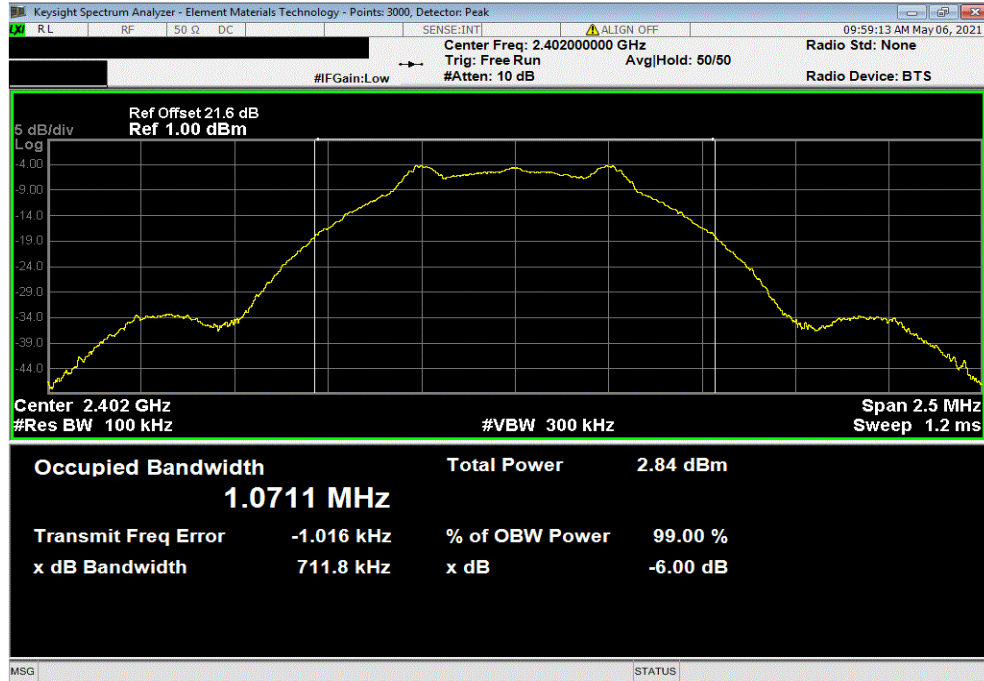
EUT: Microfence		Work Order: PAYC0001	
Serial Number: 6		Date: 6-May-21	
Customer: Paycom Software, Inc.		Temperature: 22.7 °C	
Attendees: None		Humidity: 45.9% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Mark Baytan		Power: Battery	
		Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2021		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes Patch Cable, RF Test Cable, 20dB Attenuator, and DC Block.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		Value	Limit (±) Result
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		711.779 kHz	500 kHz Pass
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		716.483 kHz	500 kHz Pass
BLE/GFSK 1 Mbps High Channel, 2480 MHz		729.501 kHz	500 kHz Pass

OCCUPIED BANDWIDTH

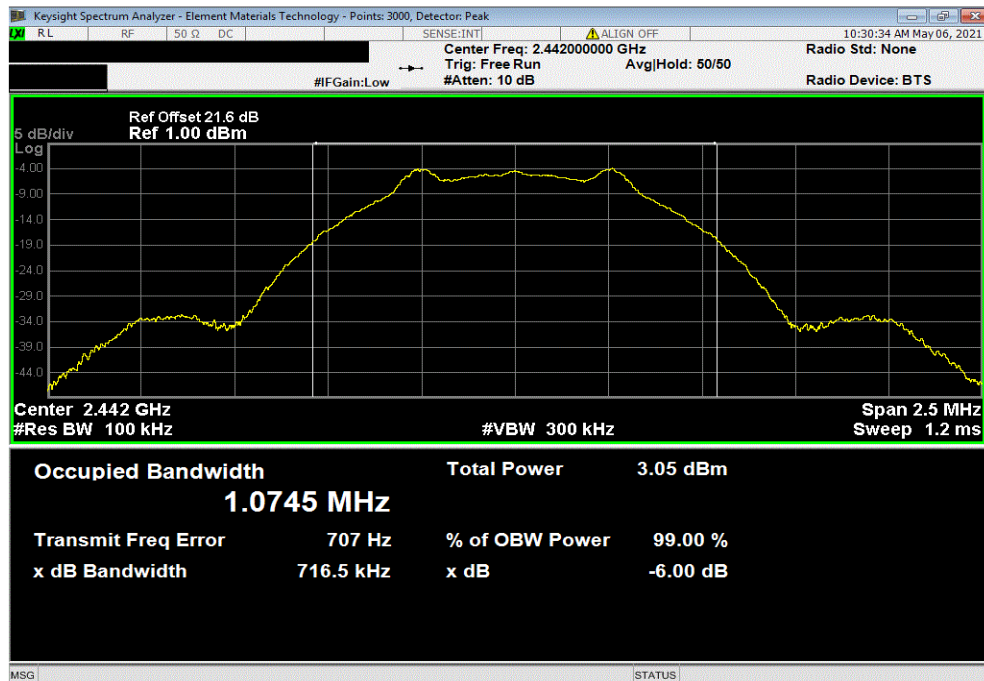


TbTx 2019.08.30.0 XbTx 2020.12.30.0

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



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

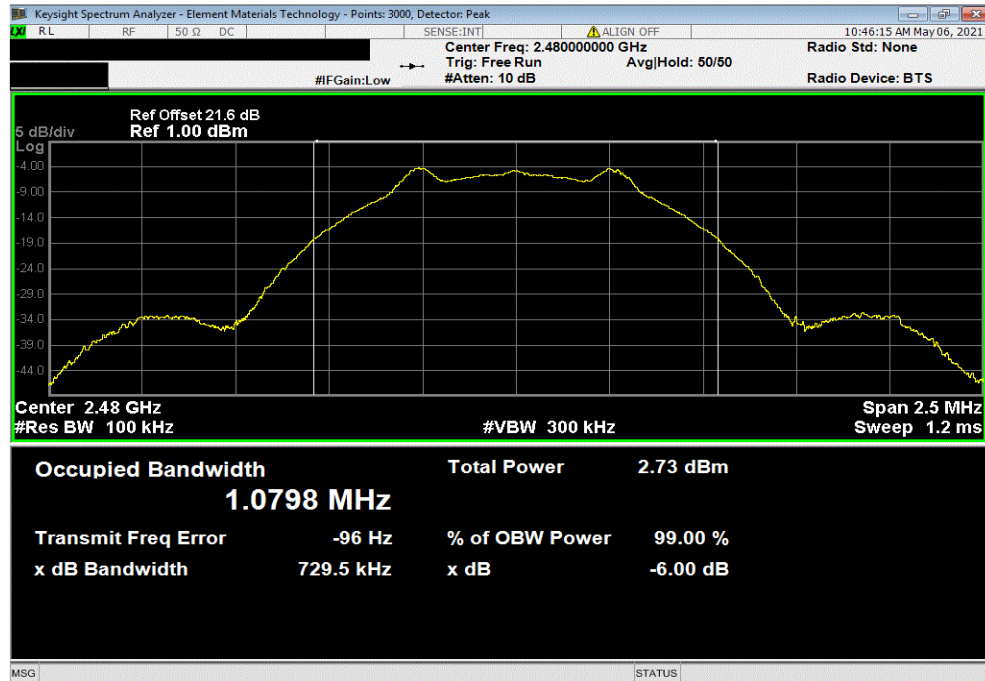


OCCUPIED BANDWIDTH



TbTx 2019.08.30.0 XbTx 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz						
Value				Limit	Result	
729.501 kHz				500 kHz	Pass	



OUTPUT POWER



XMIT 2020.12.30.0

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
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2020-09-18	2021-09-18
Attenuator	Fairview Microwave	SA18E 1913	TZV	2020-09-22	2021-09-22
Block - DC	Fairview Microwave	SD3379	AMM	2020-09-21	2021-09-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2021-03-11	2022-03-11

TEST DESCRIPTION

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



TSTx 2019.08.30.0 XMR 2020.12.30.0

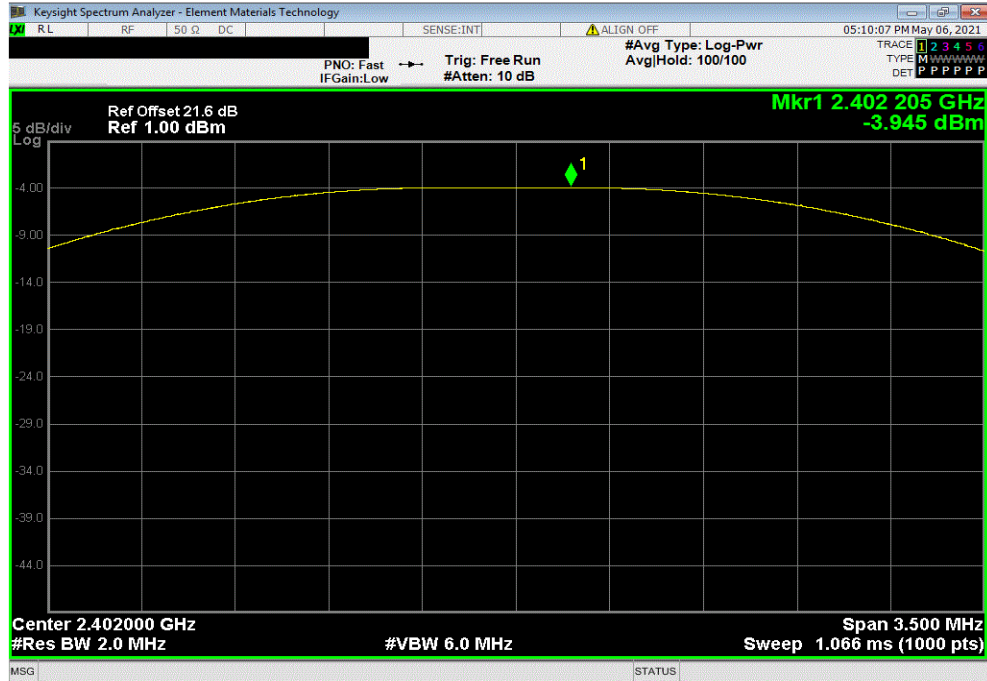
EUT: Microfence		Work Order: PAYC0001	
Serial Number: 6		Date: 6-May-21	
Customer: Paycom Software, Inc.		Temperature: 22.7 °C	
Attendees: None		Humidity: 45.9% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Mark Baytan		Power: Battery	
		Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2021		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes Patch Cable, RF Test Cable, 20dB Attenuator, and DC Block.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		Out Pwr (dBm)	Limit (dBm)
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		-3.945	30
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		-3.927	30
BLE/GFSK 1 Mbps High Channel, 2480 MHz		-3.978	30
			Result
			Pass
			Pass
			Pass

OUTPUT POWER

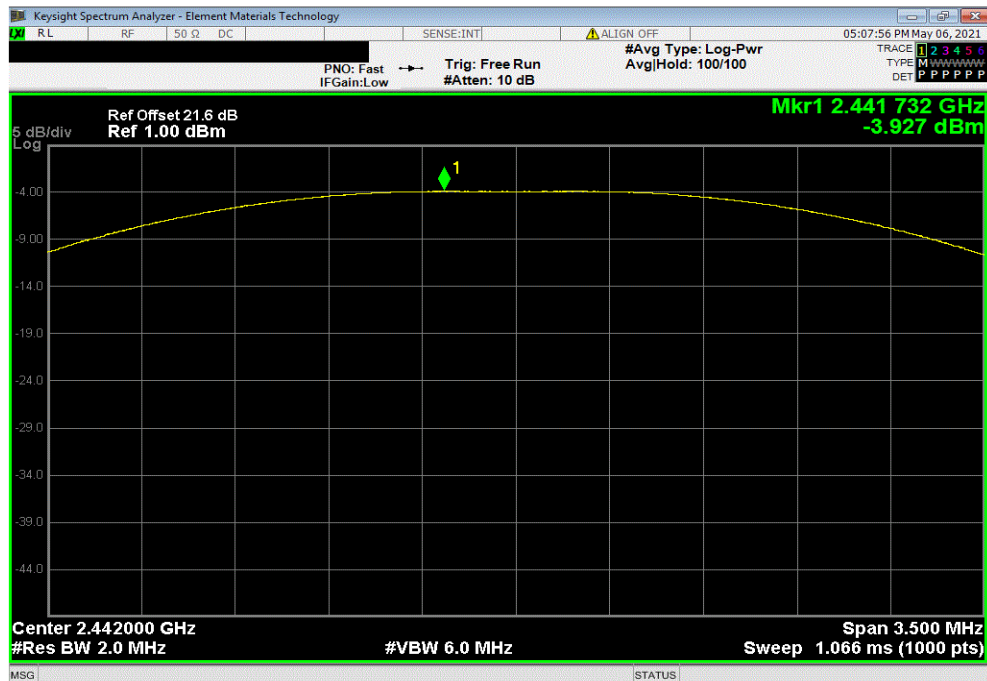


TbTx 2019.08.30.0 XMt 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				-3.945	30	Pass



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				-3.927	30	Pass

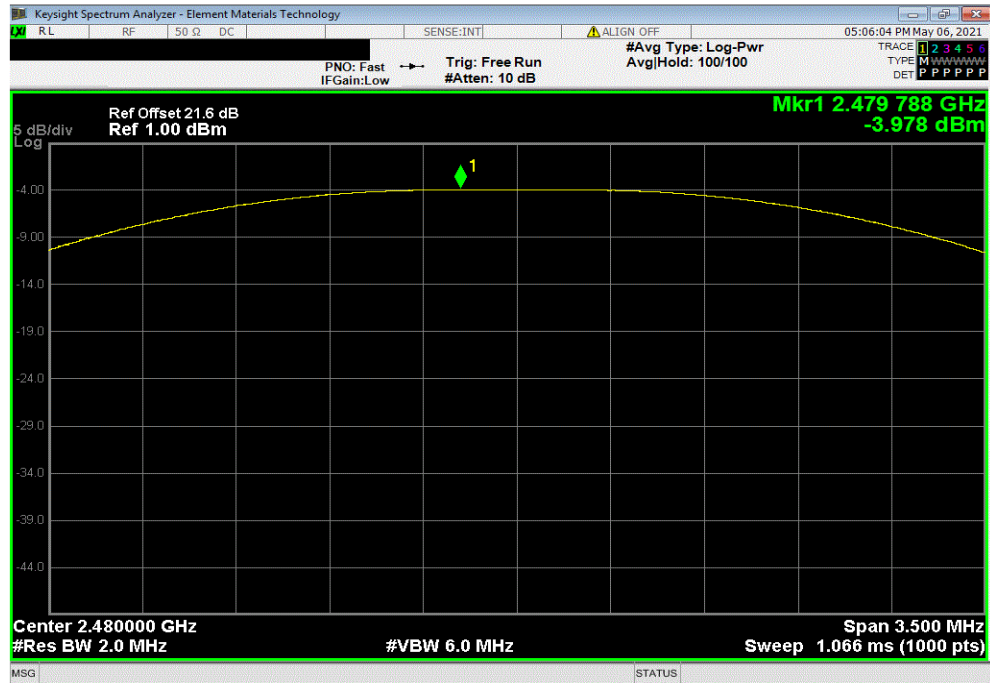


OUTPUT POWER



TbTx 2019.08.30.0 XMt 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				-3.978	30	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



XMIT 2020.12.30.0

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
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2020-09-18	2021-09-18
Attenuator	Fairview Microwave	SA18E 1913	TZV	2020-09-22	2021-09-22
Block - DC	Fairview Microwave	SD3379	AMM	2020-09-21	2021-09-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2021-03-11	2022-03-11

TEST DESCRIPTION

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)



TSTx 2019.08.30.0 XMR 2020.12.30.0

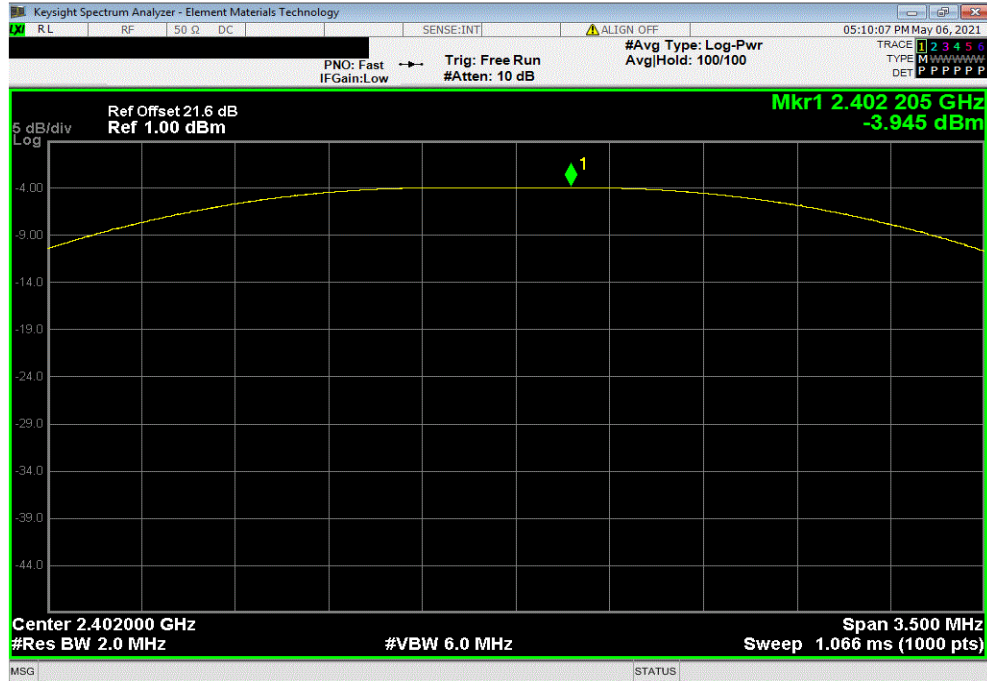
EUT: Microfence		Work Order: PAYC0001	
Serial Number: 6		Date: 6-May-21	
Customer: Paycom Software, Inc.		Temperature: 22.7 °C	
Attendees: None		Humidity: 45.9% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Mark Baytan	Power: Battery	Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2021		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes Patch Cable, RF Test Cable, 20dB Attenuator, and DC Block.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		Out Pwr (dBm)	Antenna Gain (dBi)
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		-3.945	3.3
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		-3.927	3.3
BLE/GFSK 1 Mbps High Channel, 2480 MHz		-3.978	3.3
		EIRP (dBm)	EIRP Limit (dBm)
		-0.645	36
		-0.627	36
		-0.678	36
			Result
			Pass
			Pass
			Pass

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

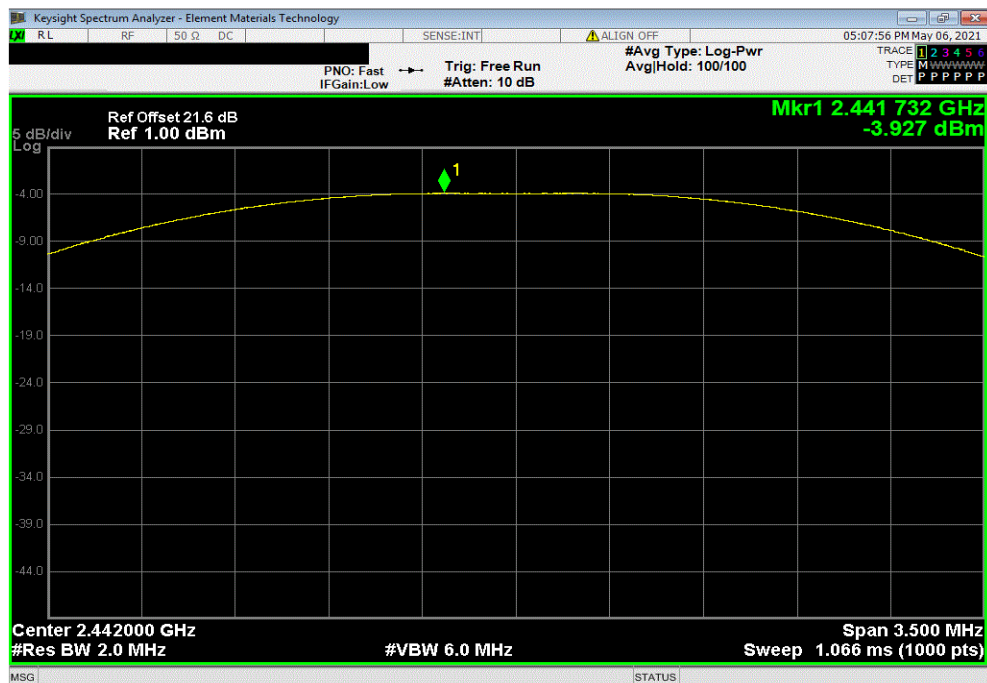


TbTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result		
-3.945	3.3	-0.645	36	Pass		



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz						
Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result		
-3.927	3.3	-0.627	36	Pass		

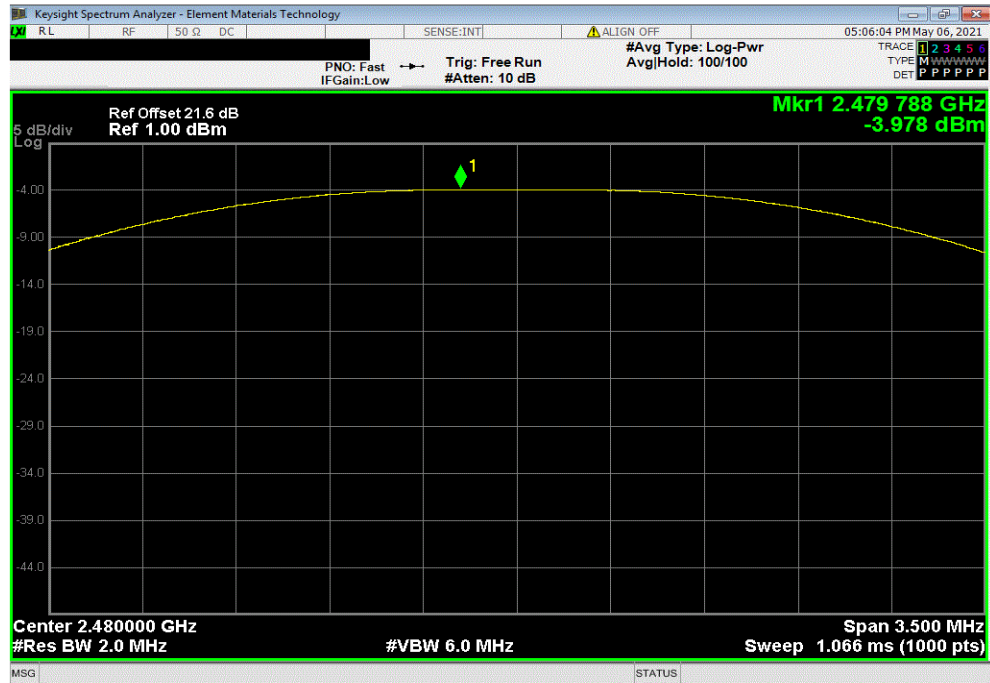


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TbTx 2019.08.30.0 XMt 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz					
Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result	
-3.978	3.3	-0.678	36	Pass	



POWER SPECTRAL DENSITY



XMIT 2020.12.30.0

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
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2020-09-18	2021-09-18
Attenuator	Fairview Microwave	SA18E 1913	TZV	2020-09-22	2021-09-22
Block - DC	Fairview Microwave	SD3379	AMM	2020-09-21	2021-09-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2021-03-11	2022-03-11

TEST DESCRIPTION

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



TSTx 2019.08.30.0 XMR 2020.12.30.0

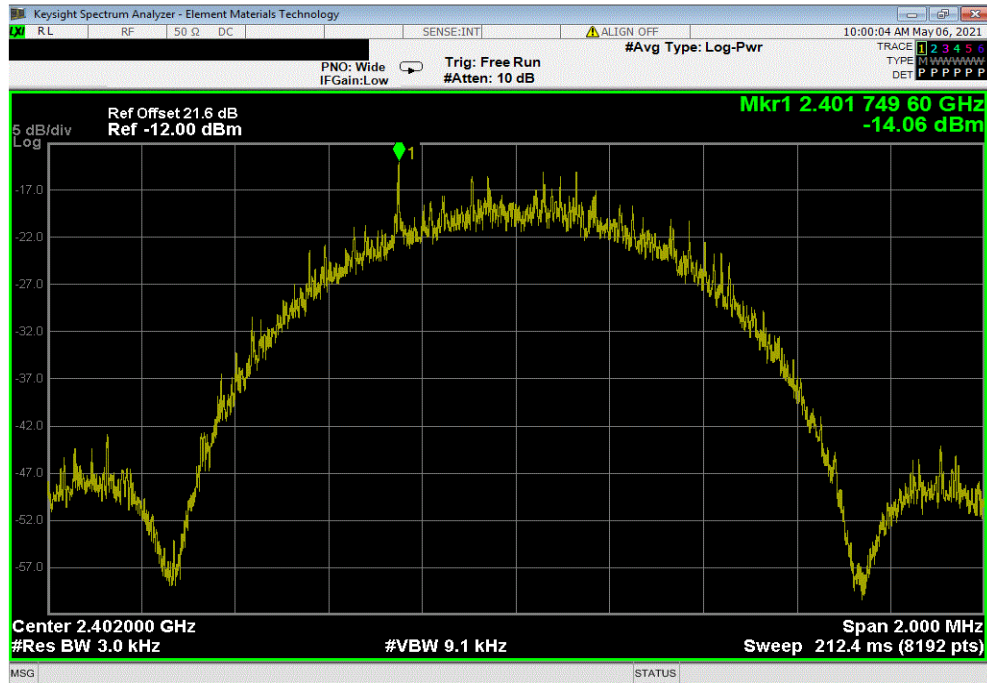
EUT: Microfence		Work Order: PAYC0001	
Serial Number: 6		Date: 6-May-21	
Customer: Paycom Software, Inc.		Temperature: 22.7 °C	
Attendees: None		Humidity: 45.9% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Mark Baytan		Power: Battery	
Job Site: TX05			
TEST SPECIFICATIONS			
FCC 15.247:2021		Test Method	
		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes Patch Cable, RF Test Cable, 20dB Attenuator, and DC Block.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		Value dBm/3kHz	Limit < dBm/3kHz
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		-14.057	8
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		-15.75	8
BLE/GFSK 1 Mbps High Channel, 2480 MHz		-15.463	8
			Results
			Pass
			Pass
			Pass

POWER SPECTRAL DENSITY

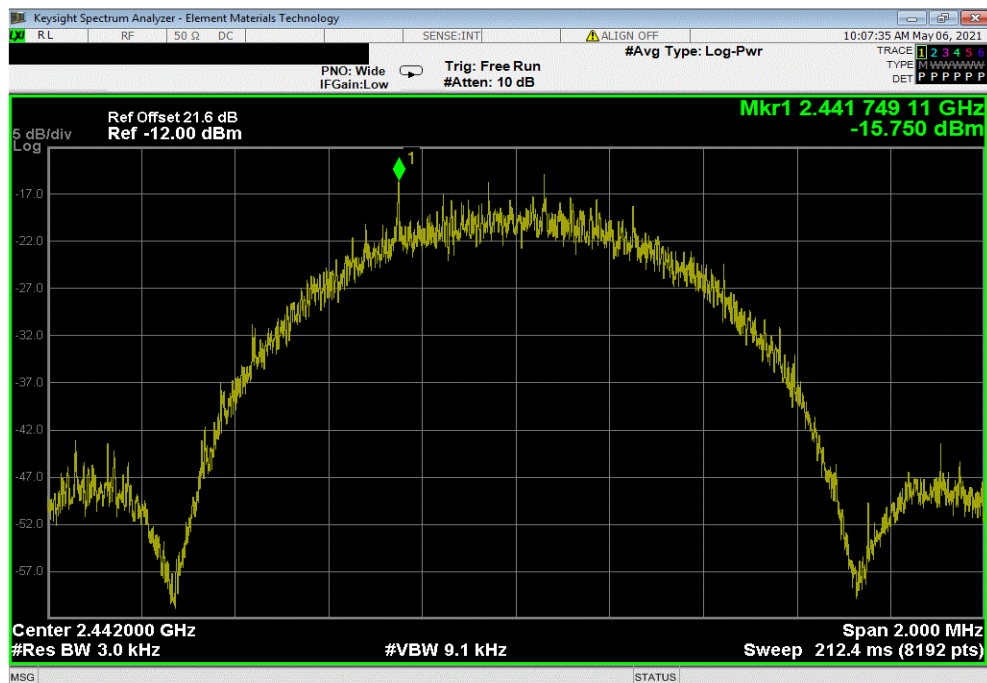


TbTtX 2019.08.30.0 XMt 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
				Value	Limit	Results
				dBm/3kHz	< dBm/3kHz	
				-14.057	8	Pass



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz						
				Value	Limit	Results
				dBm/3kHz	< dBm/3kHz	
				-15.75	8	Pass

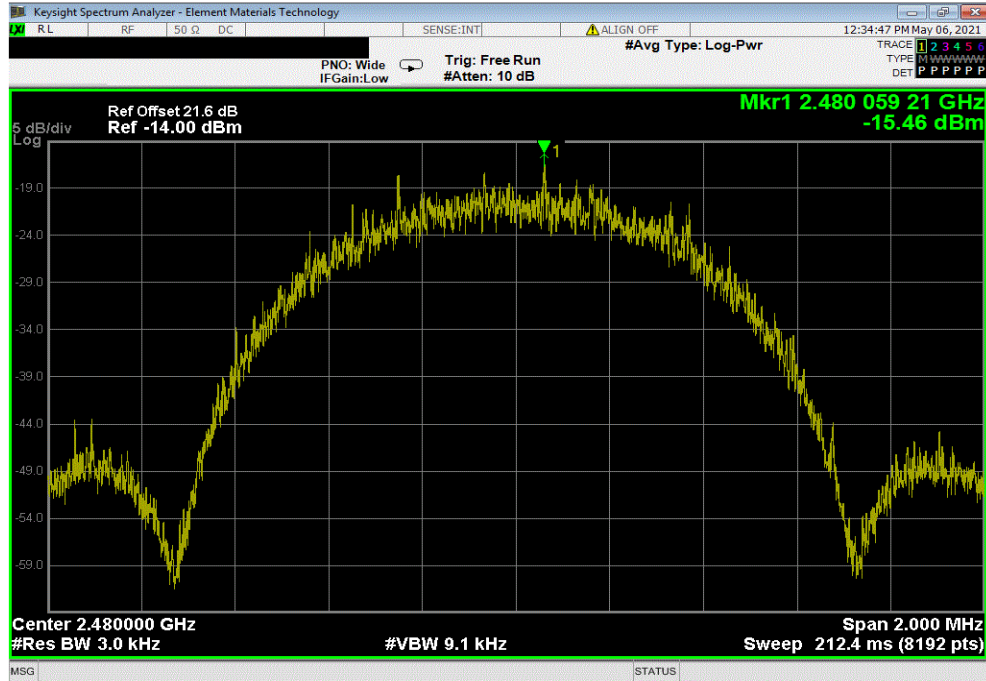


POWER SPECTRAL DENSITY



TbTtx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz						
				Value	Limit	Results
				dBm/3kHz	< dBm/3kHz	
				-15.463	8	Pass



BAND EDGE COMPLIANCE



element

XMIT 2020.12.30.0

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
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2020-09-18	2021-09-18
Attenuator	Fairview Microwave	SA18E 1913	TZV	2020-09-22	2021-09-22
Block - DC	Fairview Microwave	SD3379	AMM	2020-09-21	2021-09-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2021-03-11	2022-03-11

TEST DESCRIPTION

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



TSTx 2019.08.30.0 XMR 2020.12.30.0

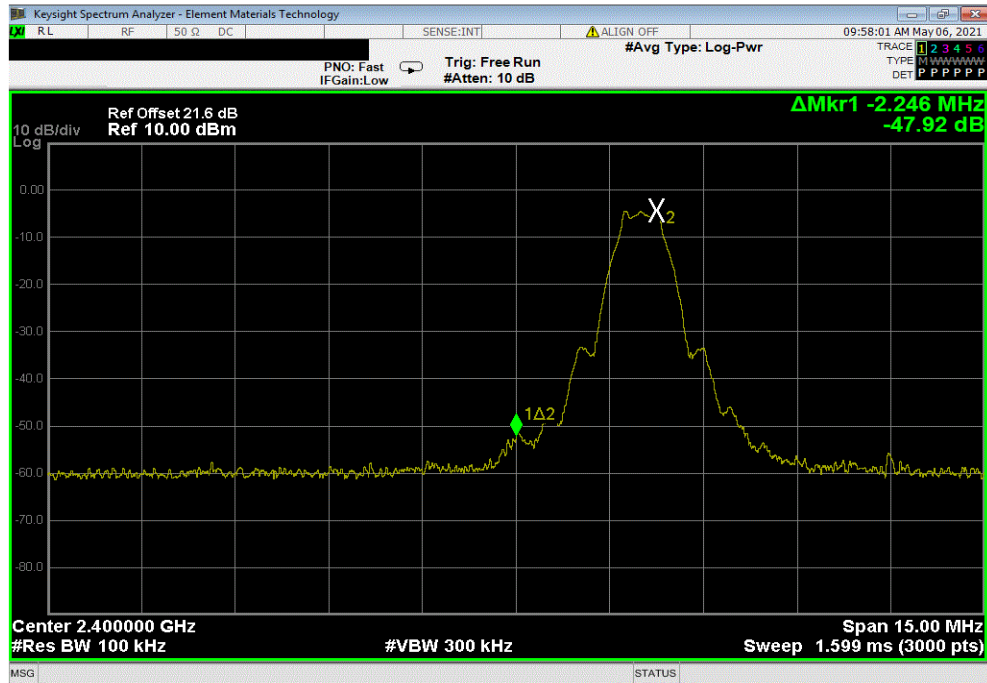
EUT: Microfence		Work Order: PAYC0001	
Serial Number: 6		Date: 6-May-21	
Customer: Paycom Software, Inc.		Temperature: 22.7 °C	
Attendees: None		Humidity: 45.9% RH	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Mark Baytan		Power: Battery	
		Job Site: TX05	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2021		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes Patch Cable, RF Test Cable, 20dB Attenuator, and DC Block.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		Value (dBc)	Limit ≤ (dBc) Result
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		-47.92	-20 Pass
BLE/GFSK 1 Mbps High Channel, 2480 MHz		-53.32	-20 Pass

BAND EDGE COMPLIANCE

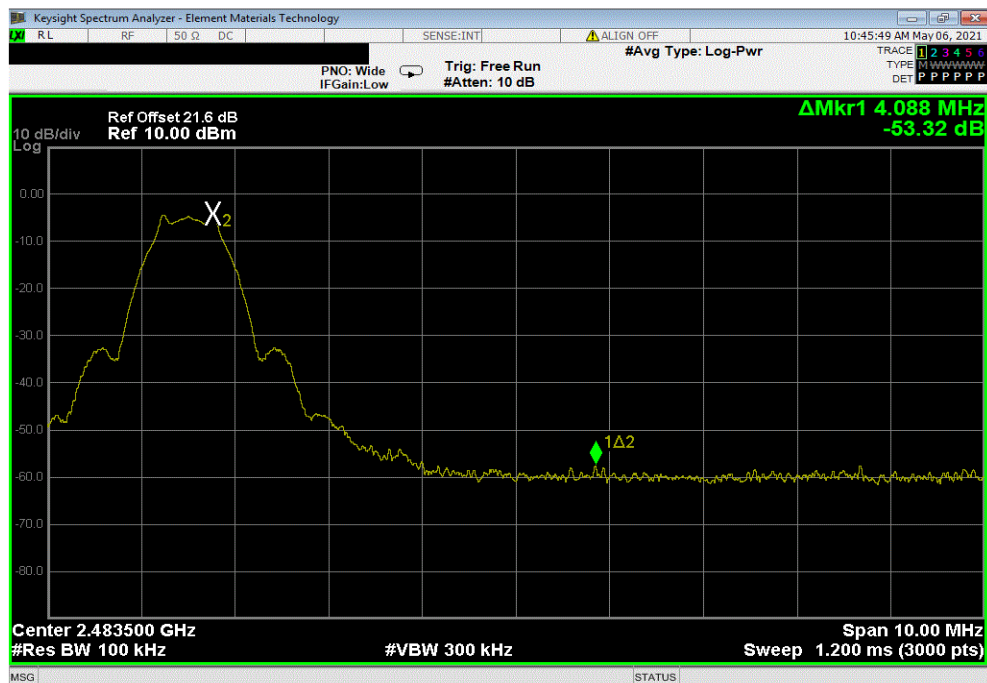


TbTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-47.92	-20	Pass



BLE/GFSK 1 Mbps High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-53.32	-20	Pass



SPURIOUS CONDUCTED EMISSIONS



XMIT 2020.12.30.0

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
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2020-09-18	2021-09-18
Attenuator	Fairview Microwave	SA18E 1913	TZV	2020-09-22	2021-09-22
Block - DC	Fairview Microwave	SD3379	AMM	2020-09-21	2021-09-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2021-03-11	2022-03-11

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

SPURIOUS CONDUCTED EMISSIONS



TSTx 2019.08.30.0 XMR 2020.12.30.0

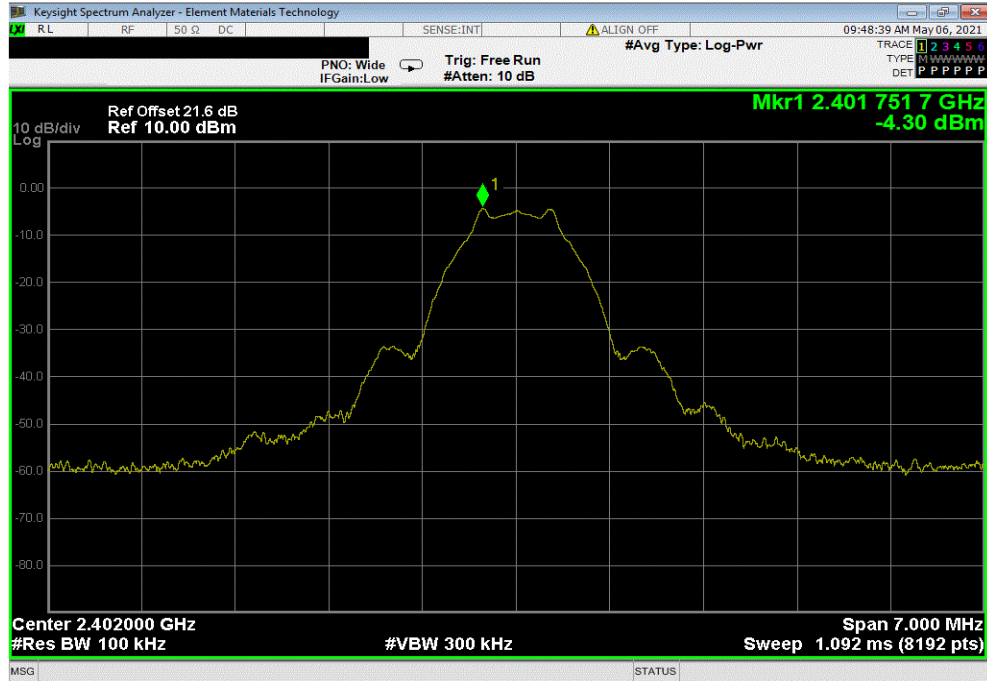
EUT: Microfence		Work Order: PAYC0001				
Serial Number: 6		Date: 10-May-21				
Customer: Paycom Software, Inc.		Temperature: 22.7 °C				
Attendees: None		Humidity: 45.9% RH				
Project: None		Barometric Pres.: 1019 mbar				
Tested by: Mark Baytan		Power: Battery				
		Job Site: TX05				
TEST SPECIFICATIONS		Test Method				
FCC 15.247:2021		ANSI C63.10:2013				
COMMENTS						
Reference level offset includes Patch Cable, RF Test Cable, 20dB Attenuator, and DC Block.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	2	Signature 				
		Frequency Range	Measured Freq (MHz)			
			Max Value (dBc)			
			Limit ≤ (dBc)			
			Result			
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		Fundamental	2401.75	N/A	N/A	
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		30 MHz - 12.5 GHz	3746.18	-47.72	-20	Pass
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		12.5 GHz - 25 GHz	23620.44	-47.55	-20	Pass
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		Fundamental	2442.26	N/A	N/A	N/A
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		30 MHz - 12.5 GHz	1920.82	-40.21	-20	Pass
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		12.5 GHz - 25 GHz	24020.27	-47.42	-20	Pass
BLE/GFSK 1 Mbps High Channel, 2480 MHz		Fundamental	2479.74	N/A	N/A	N/A
BLE/GFSK 1 Mbps High Channel, 2480 MHz		30 MHz - 12.5 GHz	637.44	-44.64	-20	Pass
BLE/GFSK 1 Mbps High Channel, 2480 MHz		12.5 GHz - 25 GHz	23992.8	-47.22	-20	Pass

SPURIOUS CONDUCTED EMISSIONS

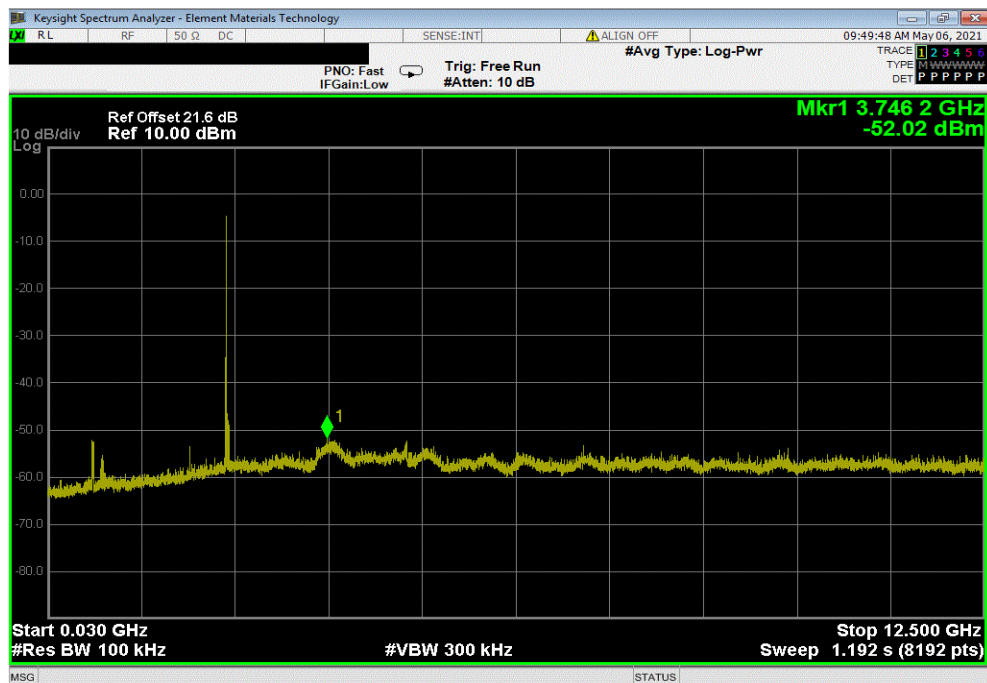


TbTx 2019.08.30.0 XMt 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental	2401.75	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	3746.18	-47.72	-20	Pass		

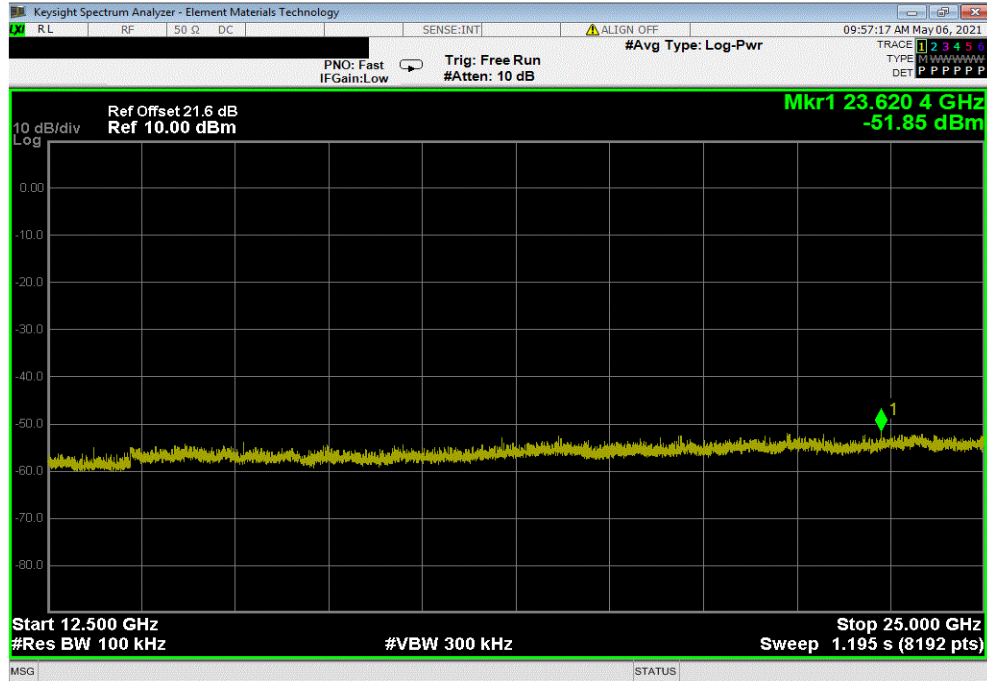


SPURIOUS CONDUCTED EMISSIONS

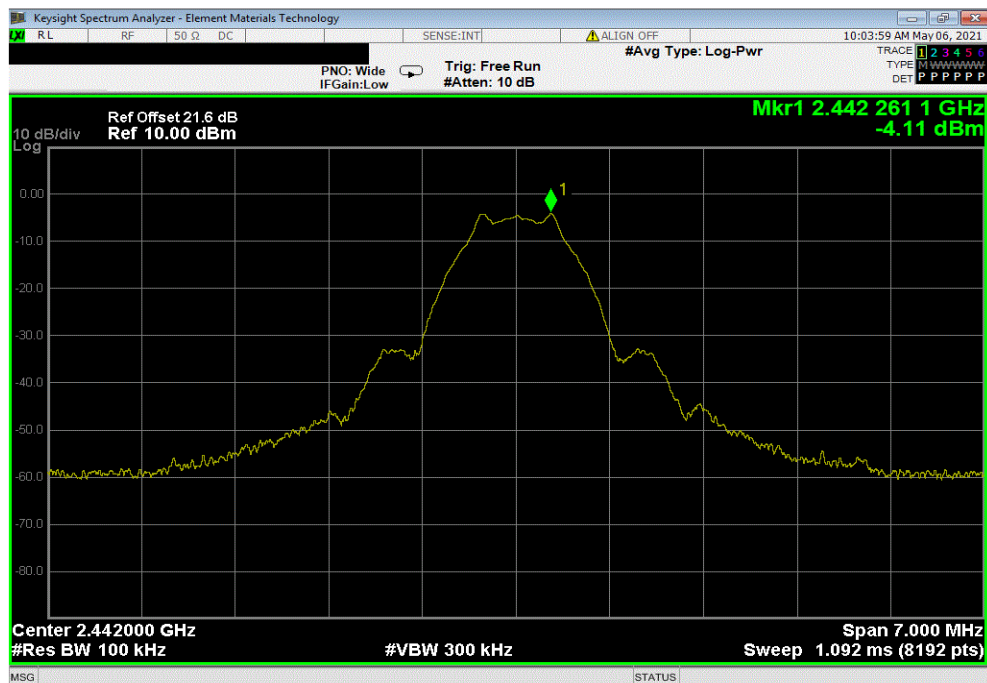


TbTx 2019.08.30.0 XMt 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	23620.44	-47.55	-20	Pass	



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	2442.26	N/A	N/A	N/A	

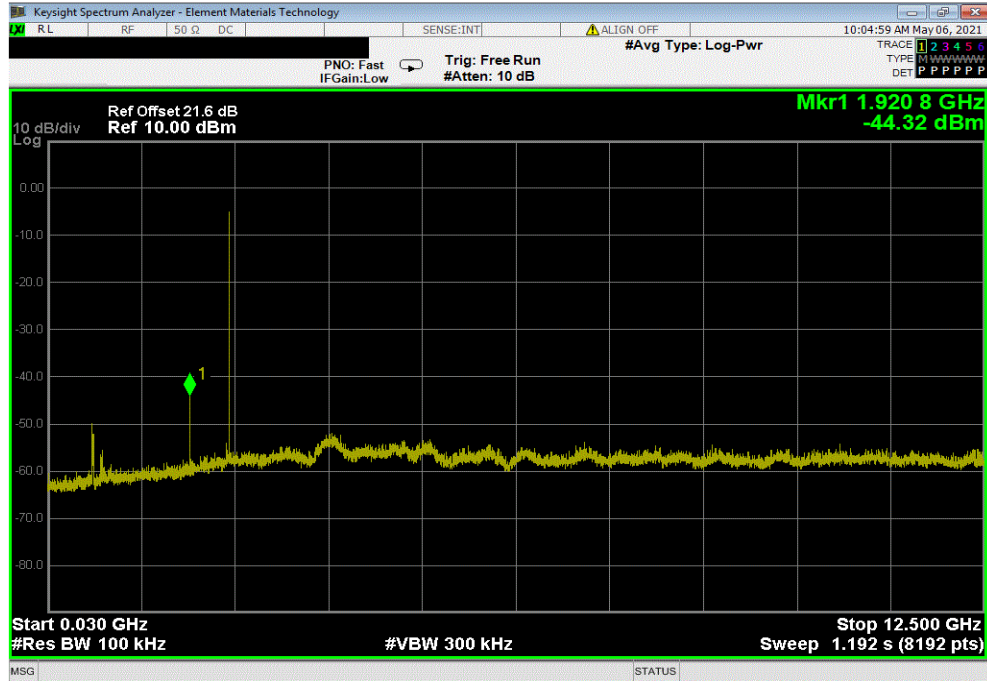


SPURIOUS CONDUCTED EMISSIONS

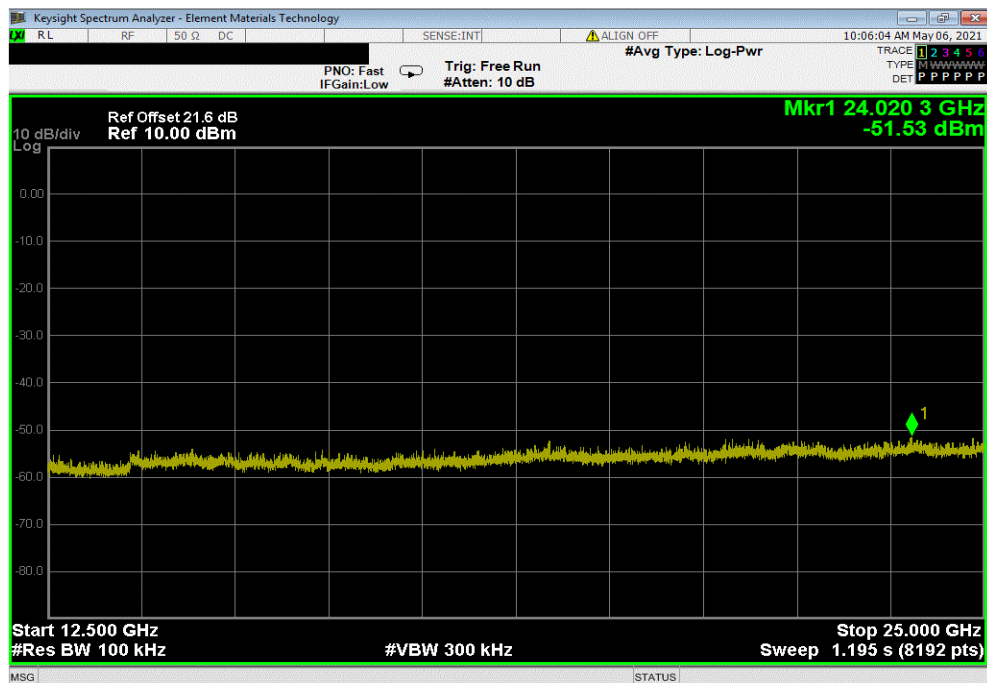


TbTx 2019.08.30.0 XMt 2020.12.30.0

BLE/GFSK 1 Mbps Mid Channel, 2442 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	1920.82	-40.21	-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	24020.27	-47.42	-20	Pass	

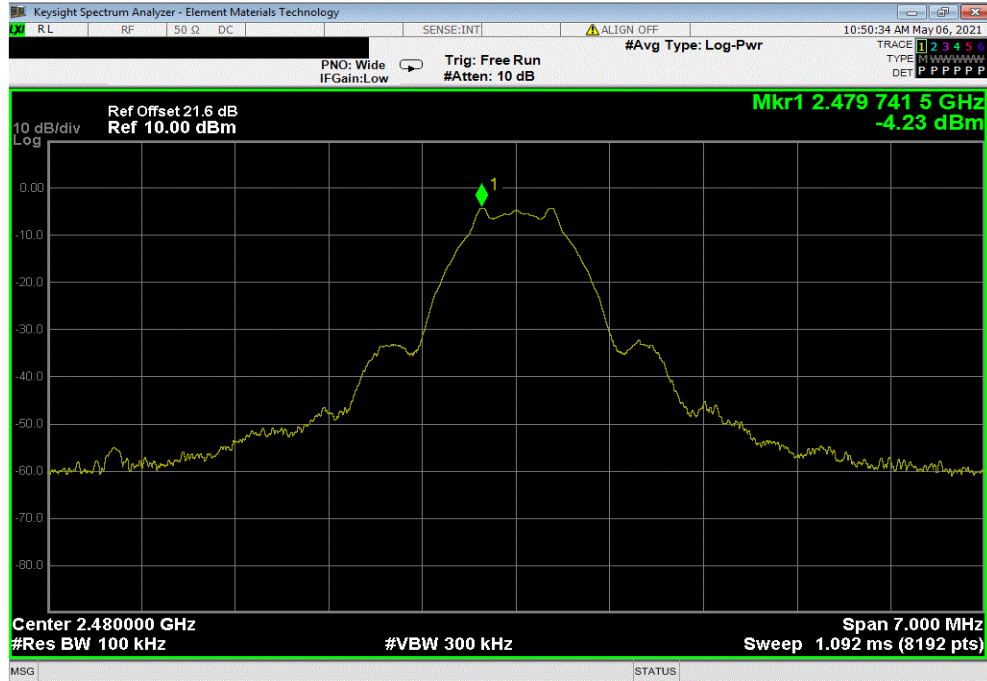


SPURIOUS CONDUCTED EMISSIONS

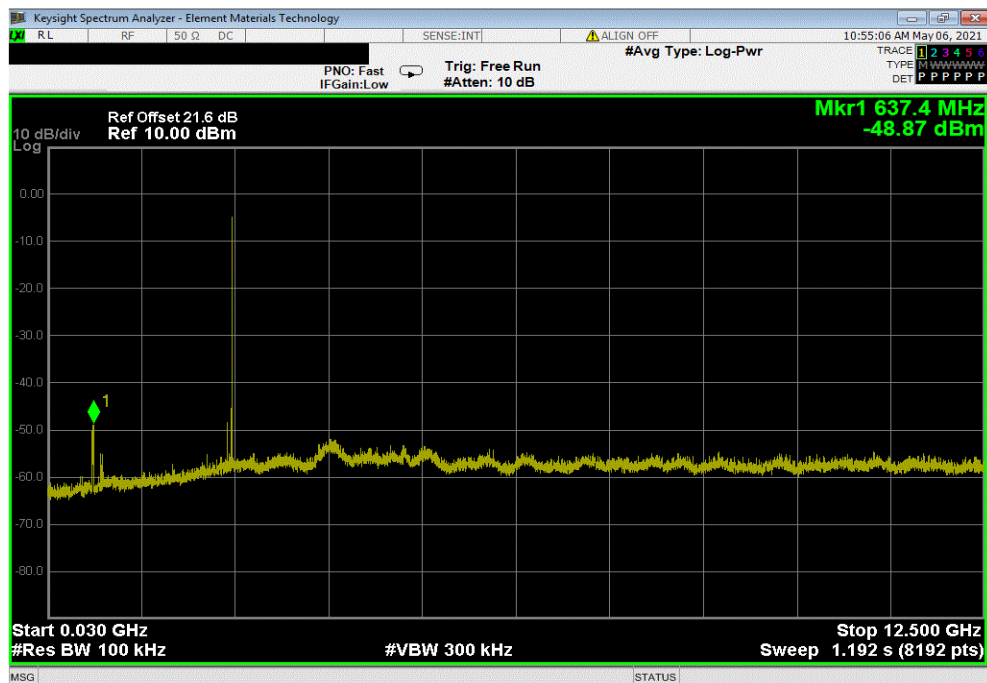


TbTx 2019.08.30.0 XMt 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz						
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result		
Fundamental	2479.74	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	637.44	-44.64	-20	Pass		

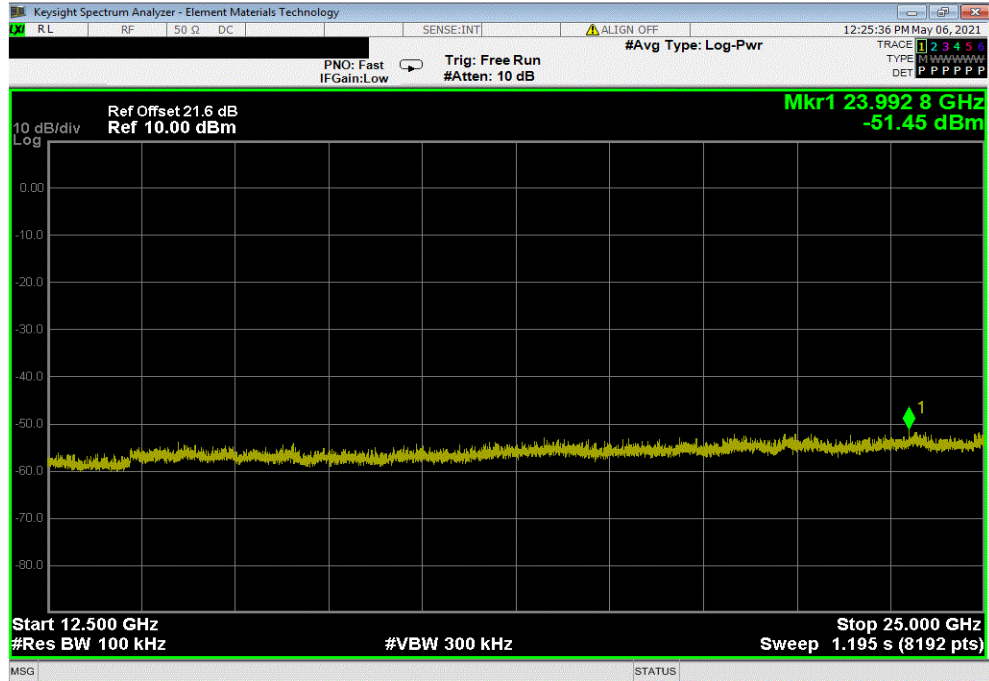


SPURIOUS CONDUCTED EMISSIONS



TbTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	23992.8	-47.22	-20	Pass	



SPURIOUS RADIATED EMISSIONS



PSA-ESCI 2021.03.17.0

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

MODES OF OPERATION

Transmitting BLE: Low Ch 0 (2402 MHz), Mid Ch 20 (2442 MHz), High Ch (2480 MHz); 1Mbps

Transmitting BLE: Low Ch 0 (2402 MHz), High Ch (2480 MHz); 1Mbps

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

PAYC0001 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26500 MHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Amplifier - Pre-Amplifier	Miteq	JSDWK42-18004000-60-5P	PAM	2020-09-18	2021-09-18
Cable	Northwest EMC	18-40GHz	TXE	2020-09-18	2021-09-18
Antenna - Double Ridge	A.H. Systems, Inc.	SAS-574	AXW	2020-09-02	2022-09-02
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	PAL	2020-09-17	2021-09-17
Antenna - Standard Gain	ETS Lindgren	3160-08	AJG	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	PAK	2020-09-17	2021-09-17
Cable	Northwest EMC	8-18GHz	TXD	2021-04-30	2022-04-30
Antenna - Double Ridge	ETS Lindgren	3117	AJK	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAJ	2020-06-02	2021-06-02
Antenna - Double Ridge	ETS Lindgren	3115	AJL	2020-10-20	2022-10-20
Cable	Northwest EMC	1-8.2 GHz	TXC	2020-06-02	2021-06-02
Attenuator	Weinschel Corp	4H-10	AWA	2021-03-09	2022-03-09
Filter - Low Pass	Micro-Tronics	LPM50004	HHV	2020-08-04	2021-08-04
Filter - High Pass	Micro-Tronics	HPM50111	HGC	2021-03-09	2022-03-09
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	2020-05-07	2021-05-07

TEST DESCRIPTION

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

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

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

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

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

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

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

Measurements 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 RMS (power 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 $10 \cdot \log(1/dc)$.

SPURIOUS RADIATED EMISSIONS

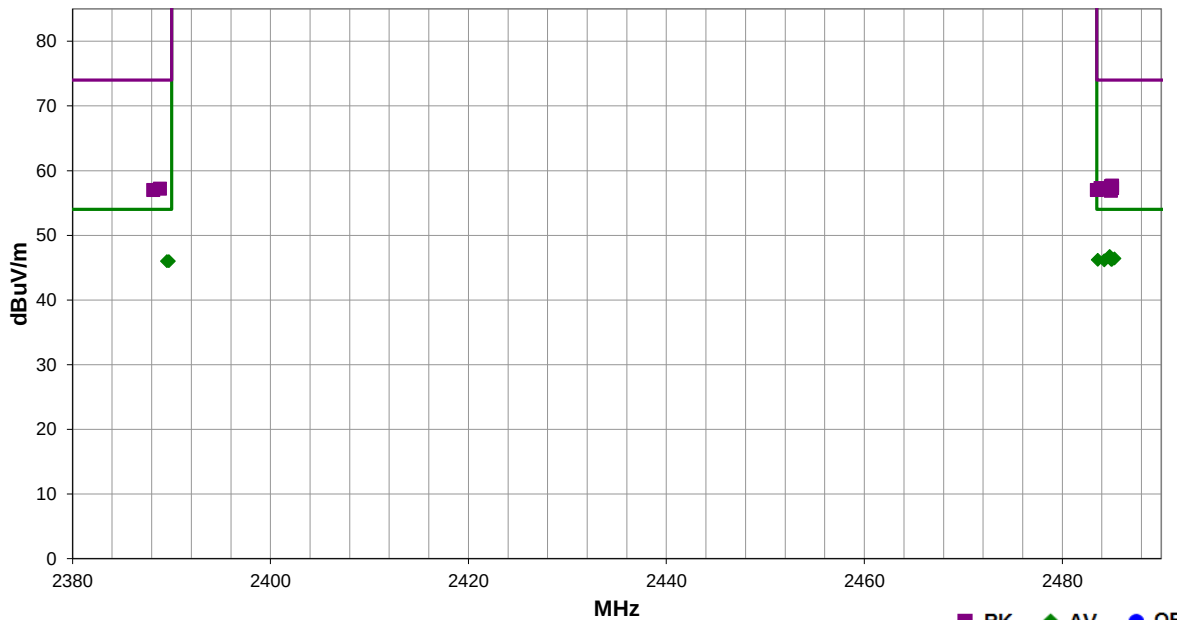


EmiR5 2021.01.08.0 PSA-ESCI 2021.03.17.0

Work Order:	PAYC0001	Date:	2021-05-05		
Project:	None	Temperature:	21.9 °C		
Job Site:	TX02	Humidity:	45.6% RH		
Serial Number:	4	Barometric Pres.:	1025 mbar	Tested by:	Mark Baytan
EUT:	Microfence				
Configuration:	1				
Customer:	Paycom Software, Inc.				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting BLE: Low Ch 0 (2402 MHz), High Ch (2480 MHz); 1Mbps				
Deviations:	None				
Comments:	None				

Test Specifications	Test Method
FCC 15.247:2021	ANSI C63.10:2013

Run #	12	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2484.793	32.9	-6.1	1.5	16.9	3.0	20.0	Horz	AV	0.0	46.8	54.0	-7.2	High Ch, EUT Horz
2485.273	32.5	-6.1	1.5	18.0	3.0	20.0	Vert	AV	0.0	46.4	54.0	-7.6	High Ch, EUT Horz
2483.587	32.3	-6.1	1.5	274.9	3.0	20.0	Vert	AV	0.0	46.2	54.0	-7.8	High Ch, EUT Vert
2484.957	32.3	-6.1	1.5	189.0	3.0	20.0	Horz	AV	0.0	46.2	54.0	-7.8	High Ch, EUT on Side
2485.027	32.3	-6.1	1.5	3.9	3.0	20.0	Vert	AV	0.0	46.2	54.0	-7.8	High Ch, EUT on Side
2484.253	32.2	-6.1	3.91	346.9	3.0	20.0	Horz	AV	0.0	46.1	54.0	-7.9	High Ch, EUT Vert
2389.733	32.4	-6.4	1.5	27.0	3.0	20.0	Horz	AV	0.0	46.0	54.0	-8.0	Low Ch, EUT Horz
2389.543	32.4	-6.4	1.5	62.0	3.0	20.0	Vert	AV	0.0	46.0	54.0	-8.0	Low Ch, EUT Horz
2485.020	43.8	-6.1	1.5	189.0	3.0	20.0	Horz	PK	0.0	57.7	74.0	-16.3	High Ch, EUT on Side
2484.903	43.7	-6.1	1.5	16.9	3.0	20.0	Horz	PK	0.0	57.6	74.0	-16.4	High Ch, EUT Horz
2485.027	43.4	-6.1	1.5	18.0	3.0	20.0	Vert	PK	0.0	57.3	74.0	-16.7	High Ch, EUT Horz
2483.863	43.4	-6.1	1.5	3.9	3.0	20.0	Vert	PK	0.0	57.3	74.0	-16.7	High Ch, EUT on Side
2388.833	43.6	-6.4	1.5	62.0	3.0	20.0	Vert	PK	0.0	57.2	74.0	-16.8	Low Ch, EUT Horz
2483.503	43.1	-6.1	3.91	346.9	3.0	20.0	Horz	PK	0.0	57.0	74.0	-17.0	High Ch, EUT Vert
2388.157	43.4	-6.4	1.5	27.0	3.0	20.0	Horz	PK	0.0	57.0	74.0	-17.0	Low Ch, EUT Horz
2484.907	43.0	-6.1	1.5	274.9	3.0	20.0	Vert	PK	0.0	56.9	74.0	-17.1	High Ch, EUT Vert

SPURIOUS RADIATED EMISSIONS

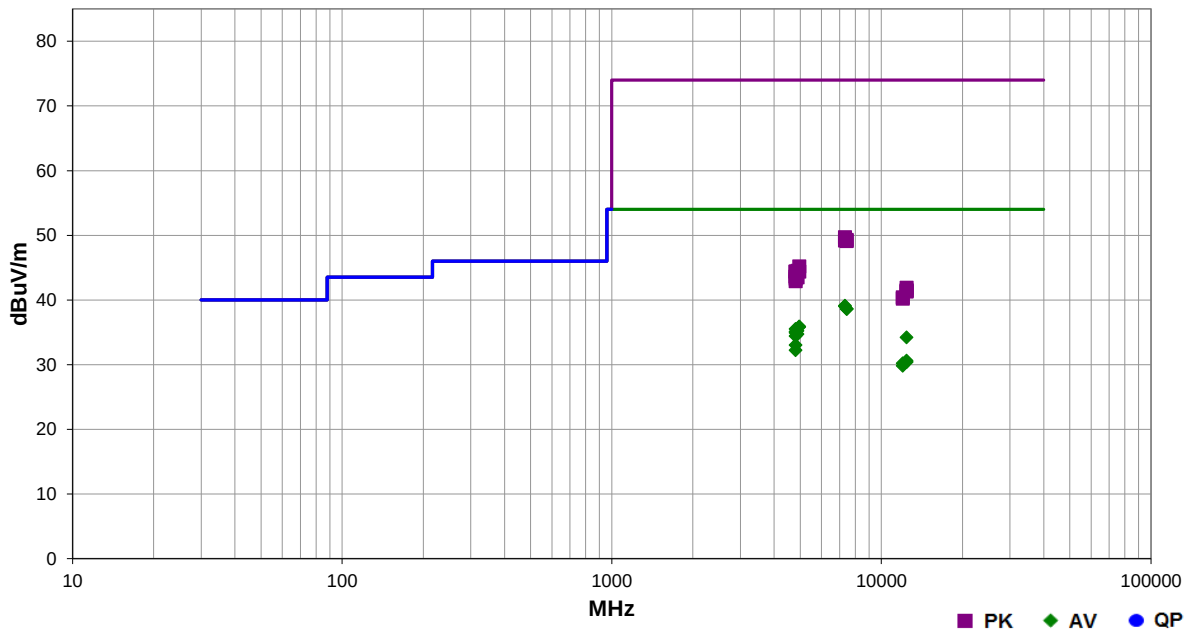


EmiR5 2021.01.08.0 PSA-ESCI 2021.03.17.0

Work Order:	PAYC0001	Date:	2021-05-05	
Project:	None	Temperature:	21.9 °C	
Job Site:	TX02	Humidity:	45.6% RH	
Serial Number:	4	Barometric Pres.:	1025 mbar	
EUT:	Microfence			
Configuration:	1			
Customer:	Paycom Software, Inc.			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting BLE: Low Ch 0 (2402 MHz), Mid Ch 20 (2442 MHz), High Ch (2480 MHz); 1Mbps			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.247:2021	ANSI C63.10:2013

Run #	13	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7324.175	29.3	9.8	1.5	9.0	3.0	0.0	Vert	AV	0.0	39.1	54.0	-14.9	Mid Ch, EUT Vert
7323.792	29.2	9.8	1.5	278.0	3.0	0.0	Horz	AV	0.0	39.0	54.0	-15.0	Mid Ch, EUT on Side
7440.708	28.8	9.8	1.5	345.0	3.0	0.0	Horz	AV	0.0	38.6	54.0	-15.4	High Ch, EUT on Side
7442.225	28.8	9.8	3.0	201.9	3.0	0.0	Vert	AV	0.0	38.6	54.0	-15.4	High Ch, EUT Vert
4960.000	32.0	3.9	3.0	207.0	3.0	0.0	Vert	AV	0.0	35.9	54.0	-18.1	High Ch, EUT Vert
4960.108	31.9	3.9	1.5	157.0	3.0	0.0	Horz	AV	0.0	35.8	54.0	-18.2	High Ch, EUT on Side
4804.158	31.8	3.7	1.5	184.9	3.0	0.0	Horz	AV	0.0	35.5	54.0	-18.5	Low Ch, EUT on Side
4884.000	31.4	3.8	1.5	160.9	3.0	0.0	Horz	AV	0.0	35.2	54.0	-18.8	Mid Ch, EUT on Side
4803.858	31.4	3.7	1.4	80.0	3.0	0.0	Vert	AV	0.0	35.1	54.0	-18.9	Low Ch, EUT Vert
4804.050	31.2	3.7	2.9	145.0	3.0	0.0	Horz	AV	0.0	34.9	54.0	-19.1	Low Ch, EUT Horz
4884.183	30.9	3.8	3.2	199.0	3.0	0.0	Vert	AV	0.0	34.7	54.0	-19.3	Mid Ch, EUT Vert
4803.750	30.7	3.7	1.5	334.9	3.0	0.0	Vert	AV	0.0	34.4	54.0	-19.6	Low Ch, EUT on Side
12398.590	36.2	-2.0	1.5	320.0	3.0	0.0	Vert	AV	0.0	34.2	54.0	-19.8	High Ch, EUT Vert
4803.875	29.3	3.7	1.5	266.0	3.0	0.0	Horz	AV	0.0	33.0	54.0	-21.0	Low Ch, EUT Vert
4803.950	28.5	3.7	1.5	141.0	3.0	0.0	Vert	AV	0.0	32.2	54.0	-21.8	Low Ch, EUT Horz
12399.120	32.6	-2.0	1.5	315.0	3.0	0.0	Horz	AV	0.0	30.6	54.0	-23.4	High Ch, EUT on Side
12398.820	32.4	-2.0	1.5	312.0	3.0	0.0	Vert	AV	0.0	30.4	54.0	-23.6	Mid Ch, EUT Vert
12399.380	32.4	-2.0	1.5	111.9	3.0	0.0	Horz	AV	0.0	30.4	54.0	-23.6	Mid Ch, EUT on Side

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
12011.280	33.5	-3.3	1.5	259.0	3.0	0.0	Horz	AV	0.0	30.2	54.0	-23.8	Low Ch, EUT on Side
12012.020	33.1	-3.3	1.5	63.0	3.0	0.0	Vert	AV	0.0	29.8	54.0	-24.2	Low Ch, EUT Vert
7324.958	39.9	9.8	1.5	278.0	3.0	0.0	Horz	PK	0.0	49.7	74.0	-24.3	Mid Ch, EUT on Side
7441.475	39.5	9.8	1.5	345.0	3.0	0.0	Horz	PK	0.0	49.3	74.0	-24.7	High Ch, EUT on Side
7325.617	39.4	9.8	1.5	9.0	3.0	0.0	Vert	PK	0.0	49.2	74.0	-24.8	Mid Ch, EUT Vert
7441.183	39.3	9.8	3.0	201.9	3.0	0.0	Vert	PK	0.0	49.1	74.0	-24.9	High Ch, EUT Vert
4960.450	41.3	3.9	3.0	207.0	3.0	0.0	Vert	PK	0.0	45.2	74.0	-28.8	High Ch, EUT Vert
4884.433	40.7	3.8	1.5	160.9	3.0	0.0	Horz	PK	0.0	44.5	74.0	-29.5	Mid Ch, EUT on Side
4804.517	40.7	3.7	1.4	80.0	3.0	0.0	Vert	PK	0.0	44.4	74.0	-29.6	Low Ch, EUT Vert
4803.308	40.7	3.7	1.5	184.9	3.0	0.0	Horz	PK	0.0	44.4	74.0	-29.6	Low Ch, EUT on Side
4959.517	40.5	3.9	1.5	157.0	3.0	0.0	Horz	PK	0.0	44.4	74.0	-29.6	High Ch, EUT on Side
4803.600	39.9	3.7	2.9	145.0	3.0	0.0	Horz	PK	0.0	43.6	74.0	-30.4	Low Ch, EUT Horz
4804.450	39.9	3.7	1.5	334.9	3.0	0.0	Vert	PK	0.0	43.6	74.0	-30.4	Low Ch, EUT on Side
4884.033	39.7	3.8	3.2	199.0	3.0	0.0	Vert	PK	0.0	43.5	74.0	-30.5	Mid Ch, EUT Vert
4803.575	39.6	3.7	1.5	266.0	3.0	0.0	Horz	PK	0.0	43.3	74.0	-30.7	Low Ch, EUT Vert
4804.300	39.2	3.7	1.5	141.0	3.0	0.0	Vert	PK	0.0	42.9	74.0	-31.1	Low Ch, EUT Horz
12398.970	43.9	-2.0	1.5	320.0	3.0	0.0	Vert	PK	0.0	41.9	74.0	-32.1	High Ch, EUT Vert
12398.360	43.5	-2.0	1.5	111.9	3.0	0.0	Horz	PK	0.0	41.5	74.0	-32.5	Mid Ch, EUT on Side
12399.440	43.4	-2.0	1.5	315.0	3.0	0.0	Horz	PK	0.0	41.4	74.0	-32.6	High Ch, EUT on Side
12399.370	43.3	-2.0	1.5	312.0	3.0	0.0	Vert	PK	0.0	41.3	74.0	-32.7	Mid Ch, EUT Vert
12009.810	43.7	-3.3	1.5	63.0	3.0	0.0	Vert	PK	0.0	40.4	74.0	-33.6	Low Ch, EUT Vert
12011.030	43.5	-3.3	1.5	259.0	3.0	0.0	Horz	PK	0.0	40.2	74.0	-33.8	Low Ch, EUT on Side

SPURIOUS RADIATED EMISSIONS



PSA-ESCI 2021.03.17.0

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

MODES OF OPERATION

Transmitting BLE: Mid Ch (2442 MHz) and High Ch (2480 MHz); 1Mbps

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

PAYC0004 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26500 MHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Amplifier - Pre-Amplifier	Miteq	JSDWK42-18004000-60-5P	PAM	2020-09-18	2021-09-18
Cable	Northwest EMC	18-40GHz	TXE	2020-09-18	2021-09-18
Antenna - Double Ridge	A.H. Systems, Inc.	SAS-574	AXW	2020-09-02	2022-09-02
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	PAL	2020-09-17	2021-09-17
Antenna - Standard Gain	ETS Lindgren	3160-08	AJG	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	PAK	2020-09-17	2021-09-17
Cable	Northwest EMC	8-18GHz	TXD	2021-04-30	2022-04-30
Antenna - Double Ridge	ETS Lindgren	3117	AJK	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAJ	2021-06-02	2022-06-02
Antenna - Double Ridge	ETS Lindgren	3115	AJL	2020-10-20	2022-10-20
Cable	Northwest EMC	1-8.2 GHz	TXC	2021-06-02	2022-06-02
Attenuator	Weinschel Corp	4H-10	AWA	2021-03-09	2022-03-09
Filter - Low Pass	Micro-Tronics	LPM50004	HHV	2020-08-04	2021-08-04
Filter - High Pass	Micro-Tronics	HPM50111	HGC	2021-03-09	2022-03-09
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	2020-05-07	2021-05-07

TEST DESCRIPTION

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

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

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

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

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

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

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

Measurements 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 RMS (power 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 $10 \cdot \log(1/dc)$.

SPURIOUS RADIATED EMISSIONS

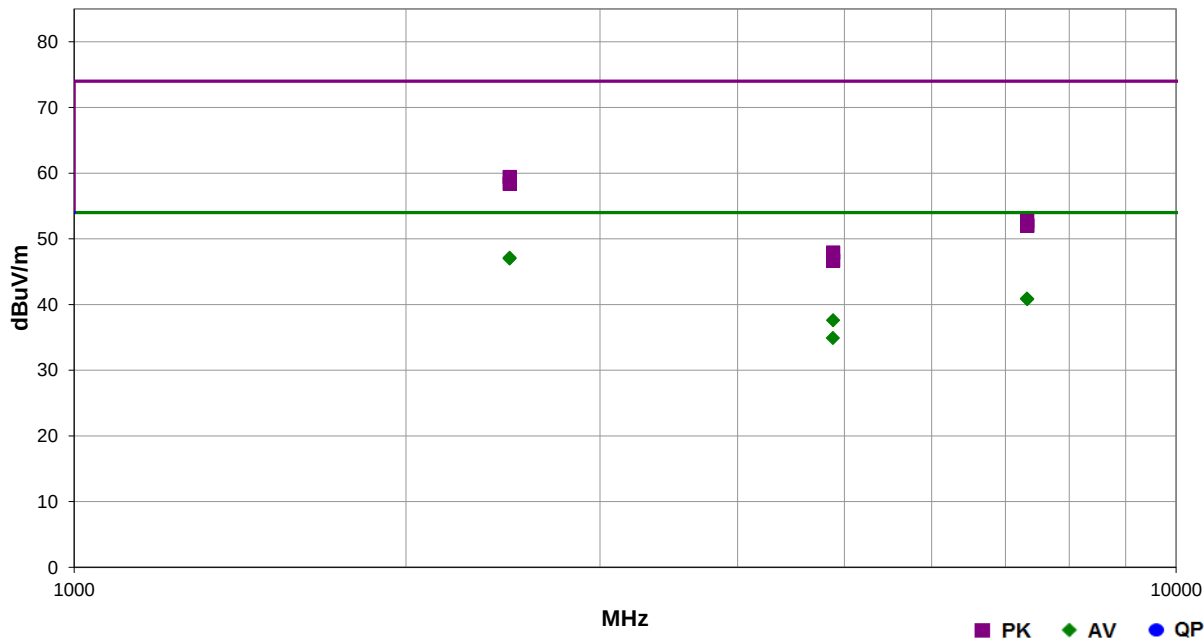


EmiRS 2021.05.14.0 PSA-ESCI 2021.03.17.0

Work Order:	PAYC0004	Date:	2021-06-24		
Project:	None	Temperature:	20.6 °C		
Job Site:	TX02	Humidity:	57.3% RH		
Serial Number:	4	Barometric Pres.:	1015 mbar		
EUT:	Microfence			Tested by:	Mark Baytan
Configuration:	2				
Customer:	Paycom Software, Inc.				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting BLE: Mid Ch (2442 MHz) and High Ch (2480 MHz); 1Mbps				
Deviations:	None				
Comments:	Enclosure installed. Data taken on highest emissions found during testing on the EUT without an enclosure.				

Test Specifications	Test Method
FCC 15.247:2021	ANSI C63.10:2013

Run #	6	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2484.990	32.5	-5.4	1.5	93.9	3.0	20.0	Horz	AV	0.0	47.1	54.0	-6.9	High Ch, EUT Horz
2484.540	32.4	-5.4	1.5	96.0	3.0	20.0	Vert	AV	0.0	47.0	54.0	-7.0	High Ch, EUT Vert
7323.700	29.0	11.9	1.5	249.0	3.0	0.0	Horz	AV	0.0	40.9	54.0	-13.1	Mid Ch, EUT Vert
7327.633	28.9	11.9	3.5	69.9	3.0	0.0	Vert	AV	0.0	40.8	54.0	-13.2	Mid Ch, EUT on Side
2483.997	44.8	-5.4	1.5	96.0	3.0	20.0	Vert	PK	0.0	59.4	74.0	-14.6	High Ch, EUT Vert
2484.653	43.8	-5.4	1.5	93.9	3.0	20.0	Horz	PK	0.0	58.4	74.0	-15.6	High Ch, EUT Horz
4883.892	31.8	5.8	2.0	343.0	3.0	0.0	Horz	AV	0.0	37.6	54.0	-16.4	Mid Ch, EUT Vert
4881.658	29.1	5.8	1.5	184.9	3.0	0.0	Vert	AV	0.0	34.9	54.0	-19.1	Mid Ch, EUT on Side
7326.208	40.8	11.9	3.5	69.9	3.0	0.0	Vert	PK	0.0	52.7	74.0	-21.3	Mid Ch, EUT on Side
7328.333	40.1	11.9	1.5	249.0	3.0	0.0	Horz	PK	0.0	52.0	74.0	-22.0	Mid Ch, EUT Vert
4883.608	42.1	5.8	2.0	343.0	3.0	0.0	Horz	PK	0.0	47.9	74.0	-26.1	Mid Ch, EUT Vert
4884.783	40.9	5.8	1.5	184.9	3.0	0.0	Vert	PK	0.0	46.7	74.0	-27.3	Mid Ch, EUT on Side

End of Test Report