



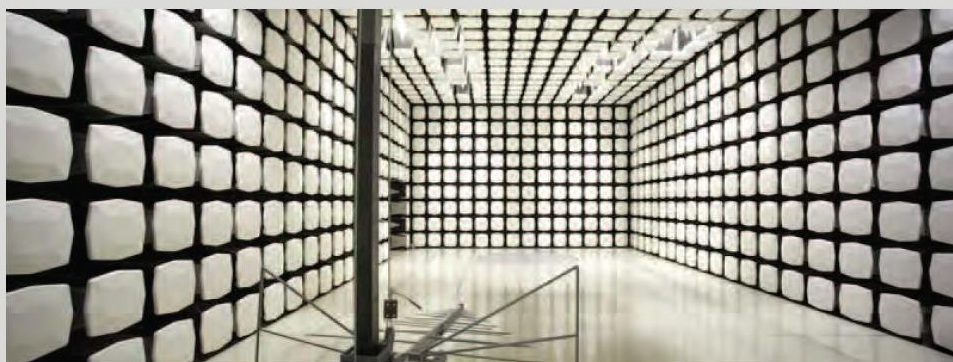
Emerson Process Management

Rosemount Wireless Pressure Gauge

FCC 15.247:2019

DTS Radio

Report # EMPM0060



NVLAP LAB CODE: 200881-0



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CERTIFICATE OF TEST

Last Date of Test: March 14, 2019
Emerson Process Management
Model: Rosemount Wireless Pressure Gauge (WPG)

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2019	ANSI C63.10:2013, KDB 558074

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	No	N/A	Not required for a battery powered EUT.
11.6	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:



Matt Nuernberg, 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
00	None		

ACCREDITATIONS AND AUTHORIZATIONS



United States

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

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

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

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

European Union

European Commission – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

Australia/New Zealand

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

Korea

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

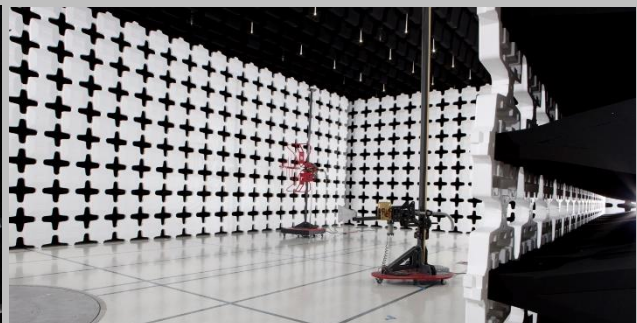
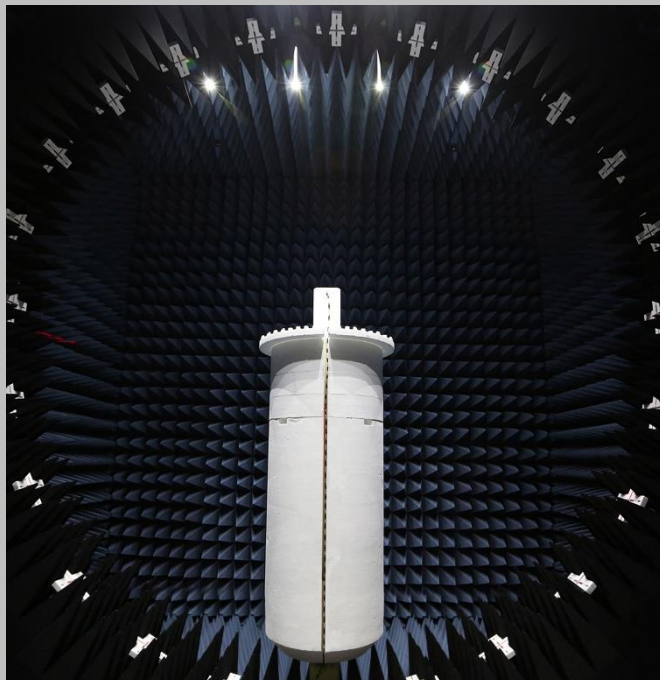
For details on the Scopes of our Accreditations, please visit:

<https://www.nwemc.com/emc-testing-accreditations>

FACILITIES



California Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-10 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/RRR, 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.

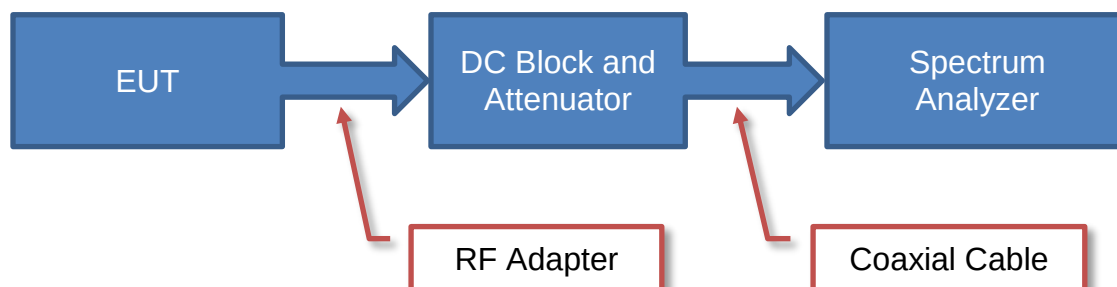
A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

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

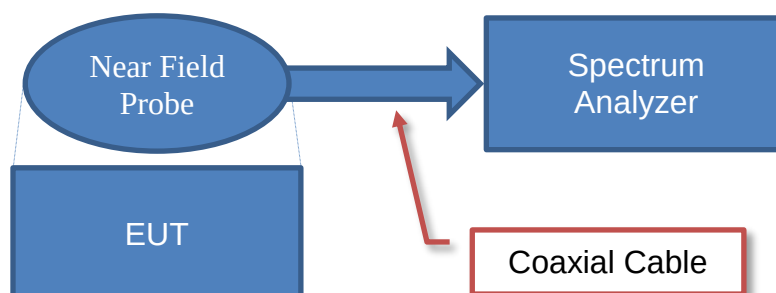
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%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

Test Setup Block Diagrams

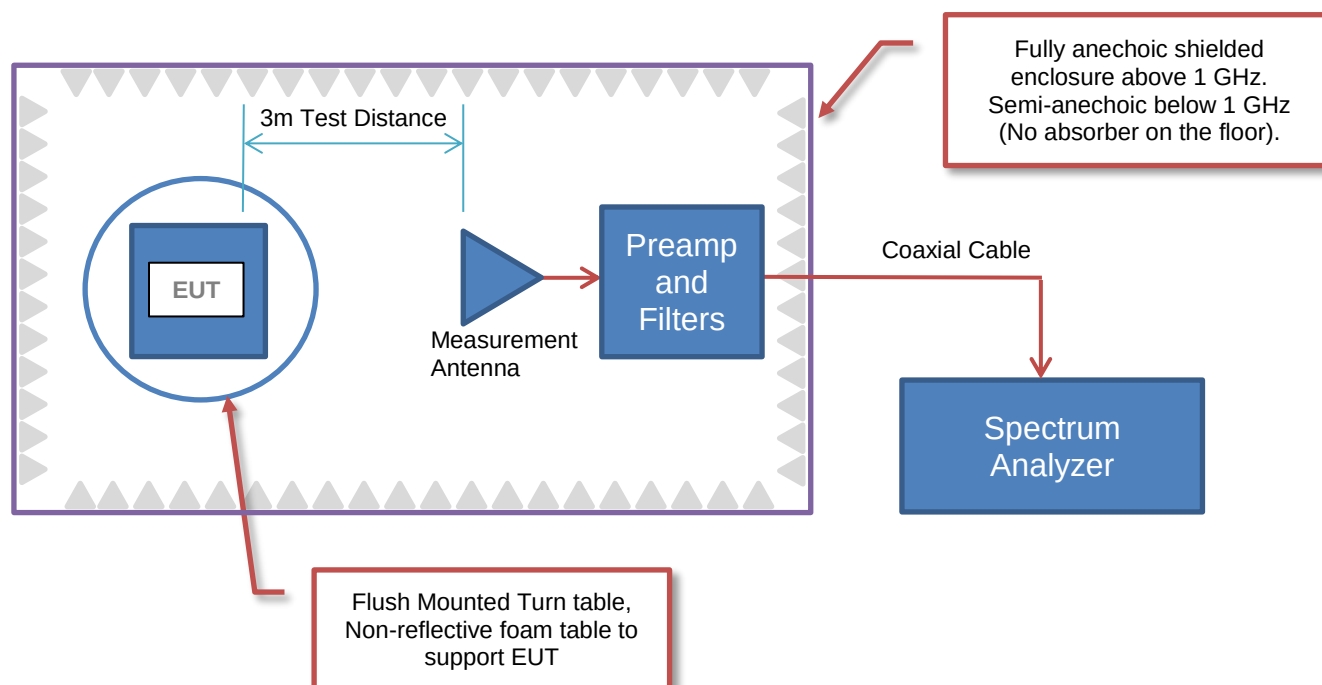
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION



Client and Equipment Under Test (EUT) Information

Company Name:	Emerson Process Management, Rosemount Inc.
Address:	8200 Market Blvd
City, State, Zip:	Chanhassen, MN 55317
Test Requested By:	Elizabeth Reiersen
Model:	Rosemount Wireless Pressure Gauge
First Date of Test:	March 12, 2019
Last Date of Test:	March 14, 2019
Receipt Date of Samples:	March 12, 2019
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Wireless Pressure Gauge Transmitter
Testing Objective:
To demonstrate compliance of the 2.4 GHz DTS radio to FCC 15.247 requirements.

CONFIGURATIONS



Configuration EMPM0060- 1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wireless Pressure Gauge	Rosemount	WPG45XNAG11A004000	19CHIPM0008245

Configuration EMPM0060- 2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wireless Pressure Gauge	Rosemount	WPG45XNAG11A004000	19CHPM0008241

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2019-03-12	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2019-03-14	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2019-03-14	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2019-03-14	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.
5	2019-03-14	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.
6	2019-03-14	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.
7	2019-03-14	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.
8	2019-03-14	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

DUTY CYCLE



XMIT 2019.02.26

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	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-19	13-Feb-20
Block - DC	Fairview Microwave	SD3379	AMI	7-Sep-18	7-Sep-19
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	26-Mar-18	26-Mar-19

TEST DESCRIPTION

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

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

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

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

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

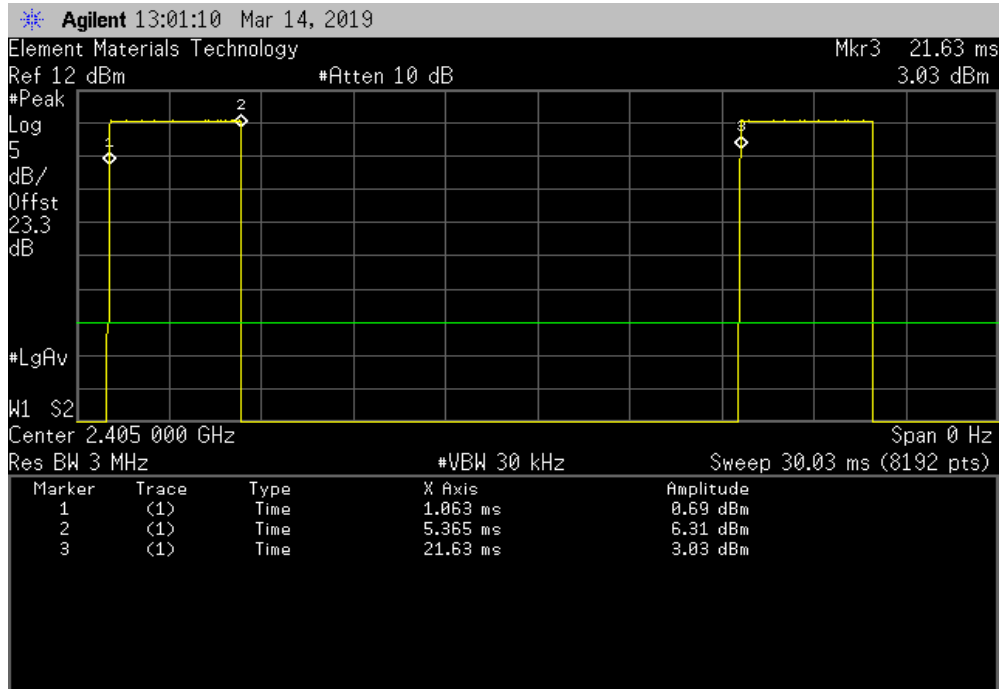
ThiTx 2018.09.13 XMIT 2019.02.26

DUTY CYCLE

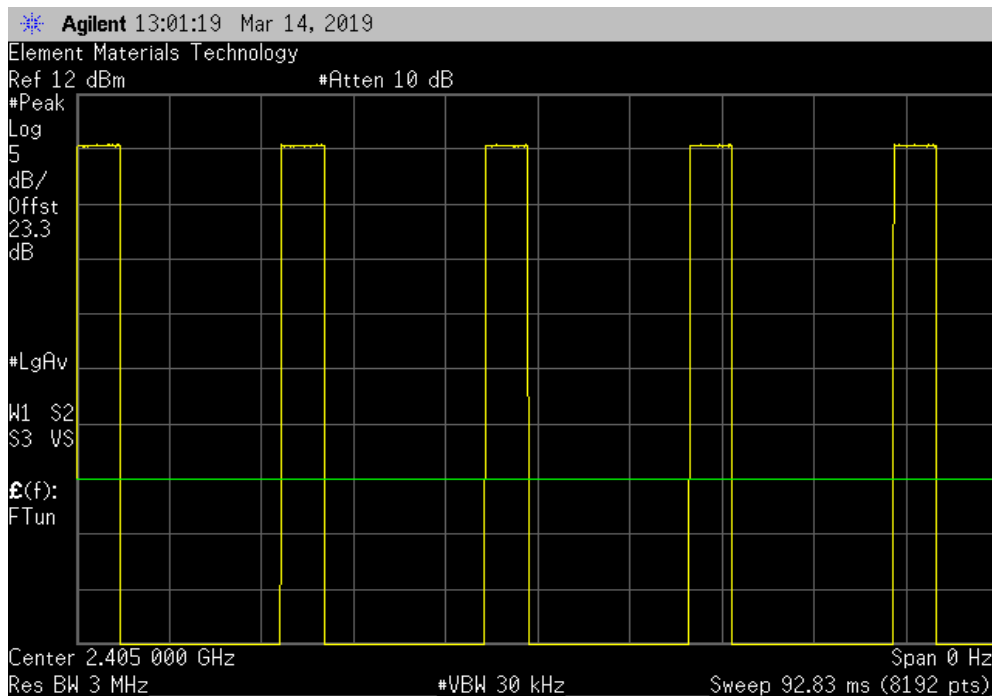


TMTx 2018.09.13 XMI 2019.02.26

Low Channel (Channel 0), 2405 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	4.302 ms	20.57 ms	1	20.9	N/A	N/A



Low Channel (Channel 0), 2405 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	6	N/A	N/A	N/A

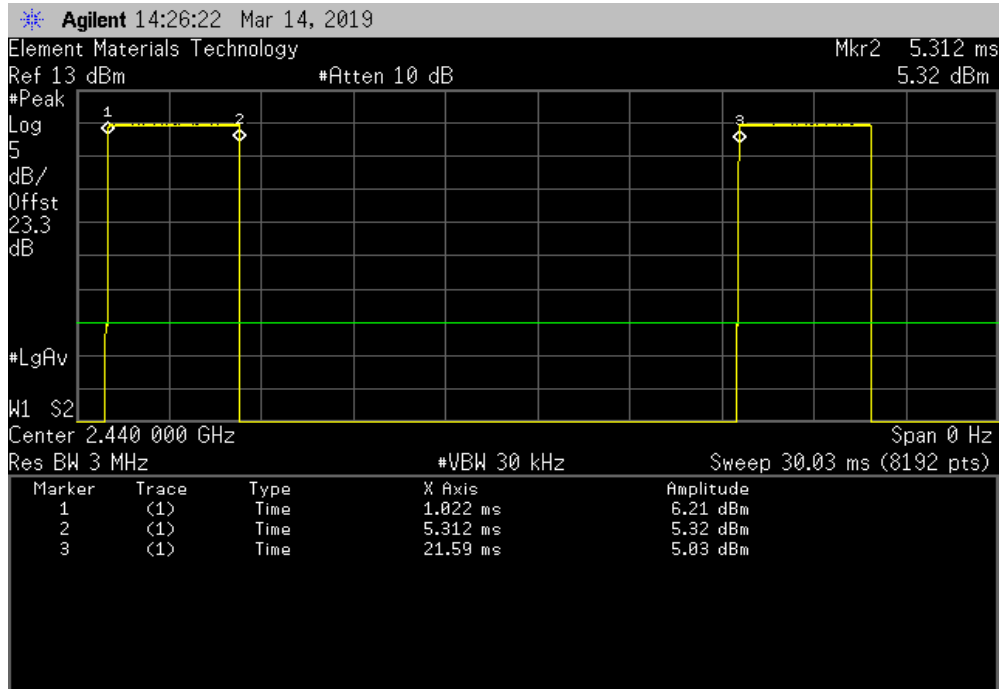


DUTY CYCLE

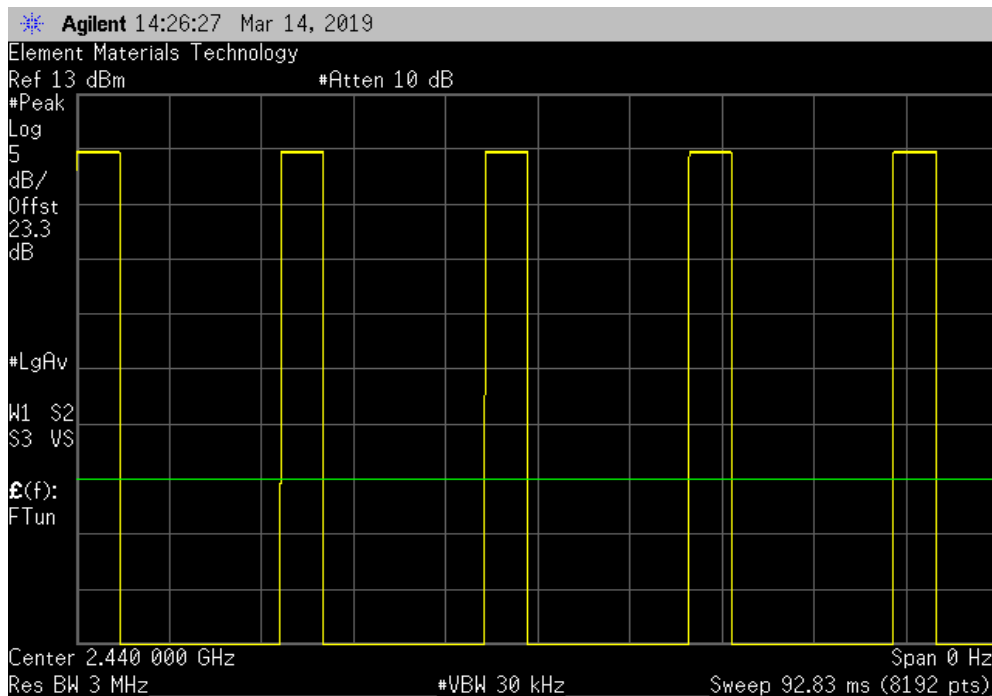


TMTx 2018.09.13 XMI 2019.02.26

Mid Channel (Channel 7), 2440 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	4.29 ms	20.564 ms	1	20.9	N/A	N/A



Mid Channel (Channel 7), 2440 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

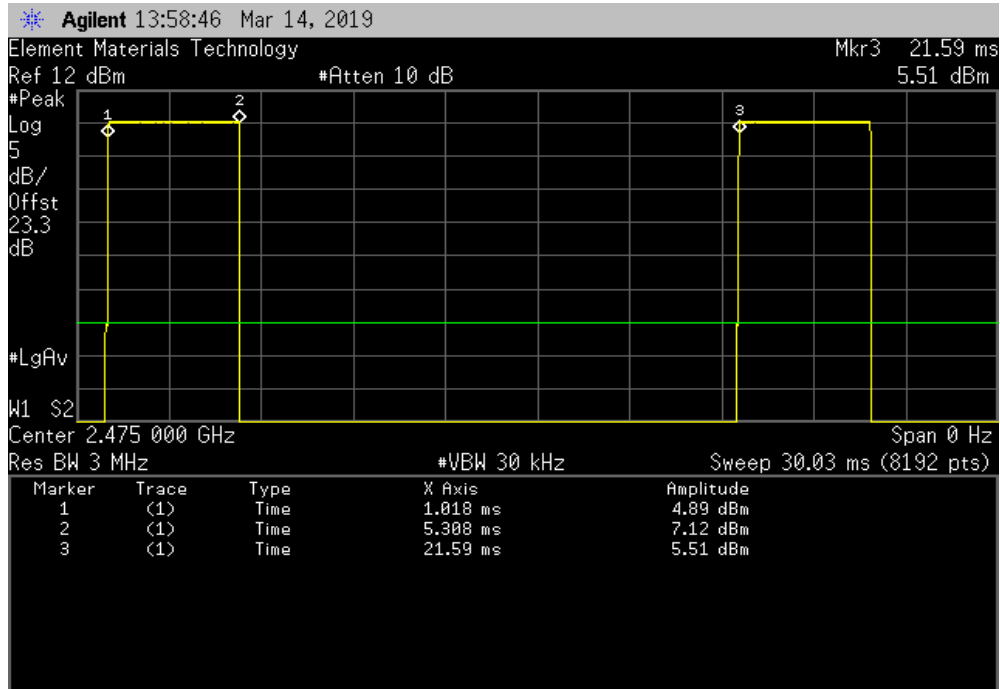


DUTY CYCLE

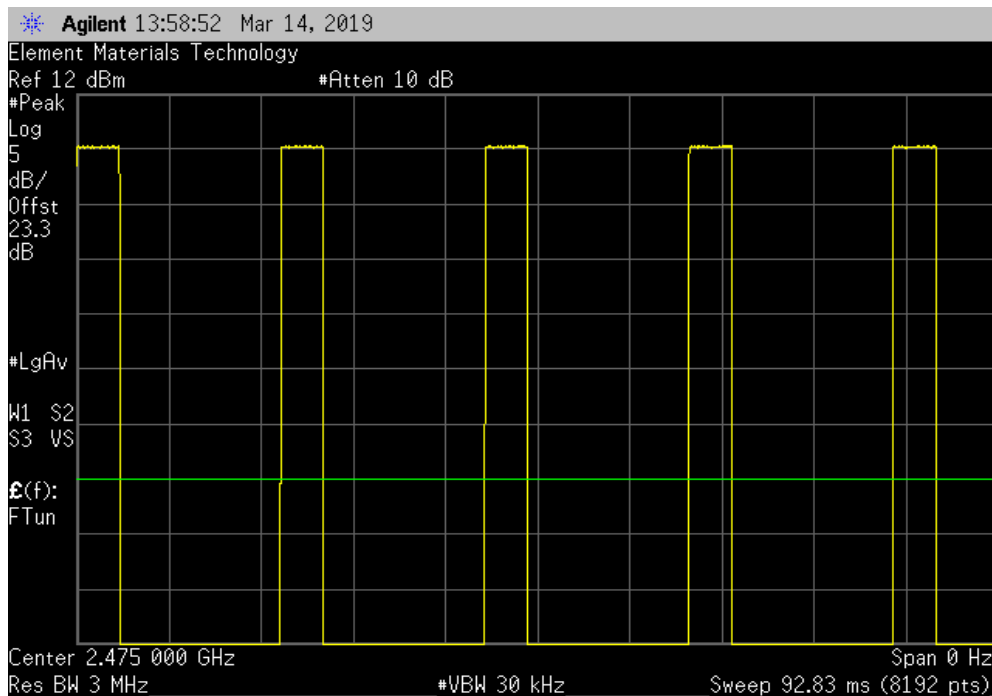


TMTx 2018.09.13 XMI 2019.02.26

High Channel (Channel 14), 2475 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	4.29 ms	20.571 ms	1	20.9	N/A	N/A



High Channel (Channel 14), 2475 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



OCCUPIED BANDWIDTH



XMIT 2019.02.26

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	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-19	13-Feb-20
Block - DC	Fairview Microwave	SD3379	AMI	7-Sep-18	7-Sep-19
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	26-Mar-18	26-Mar-19

TEST DESCRIPTION

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

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

OCCUPIED BANDWIDTH



TbTx 2018.09.13 XMt 2019.02.26

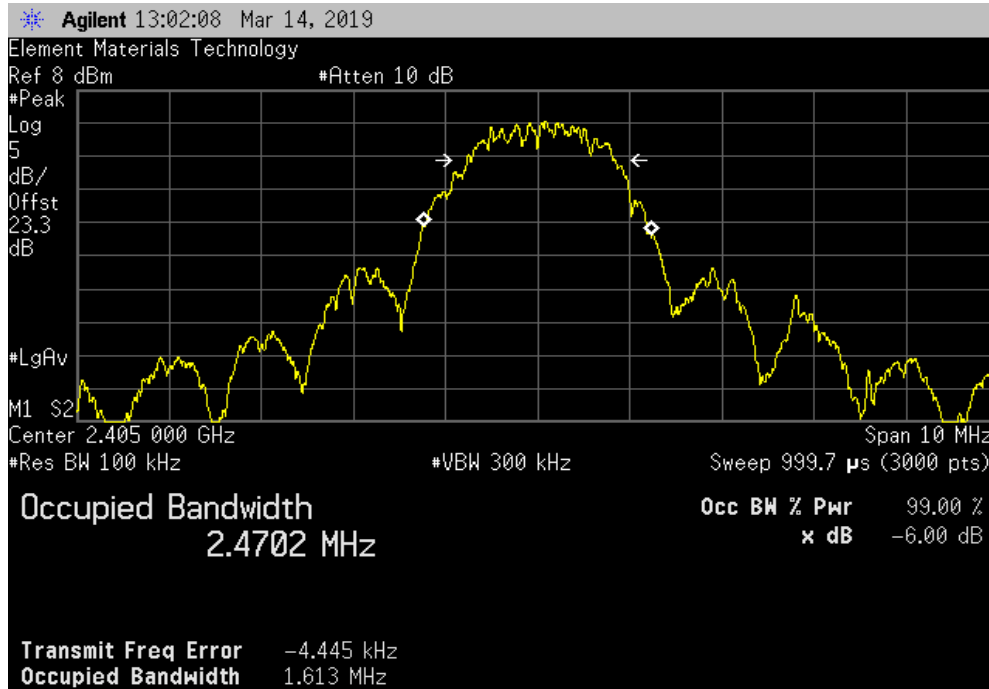
EUT: Wireless Pressure Gauge		Work Order: EMPM0060	
Serial Number: 19CHPM0008241		Date: 14-Mar-19	
Customer: Emerson Process Management		Temperature: 22.5 °C	
Attendees: Elizabeth Reiersen		Humidity: 33.4% RH	
Project: None		Barometric Pres.: 992 mbar	
Tested by: Dustin Sparks	Power: Battery	Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2019		ANSI C63.10:2013	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Dustin Sparks</i>	
		Value	Limit (>)
Low Channel (Channel 0), 2405 MHz		1.613 MHz	500 kHz
Mid Channel (Channel 7), 2440 MHz		1.542 MHz	500 kHz
High Channel (Channel 14), 2475 MHz		1.573 MHz	500 kHz
			Result
			Pass
			Pass
			Pass

OCCUPIED BANDWIDTH

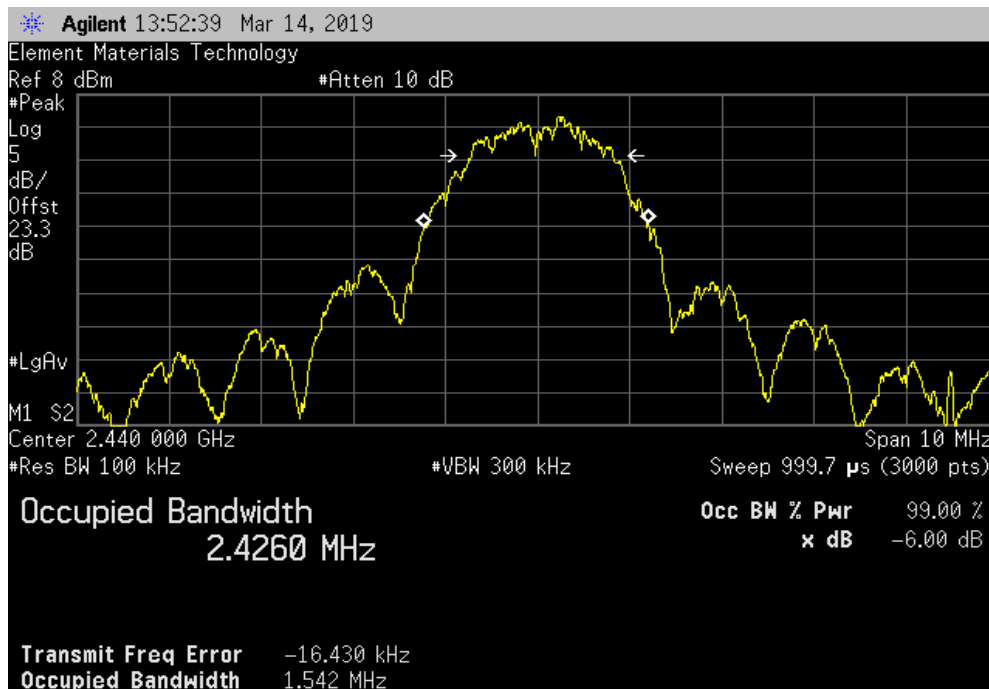


TMTx 2018.09.13 XMI 2019.02.26

Low Channel (Channel 0), 2405 MHz						
				Value	Limit (>)	Result
				1.613 MHz	500 kHz	Pass



Mid Channel (Channel 7), 2440 MHz						
				Value	Limit (>)	Result
				1.542 MHz	500 kHz	Pass

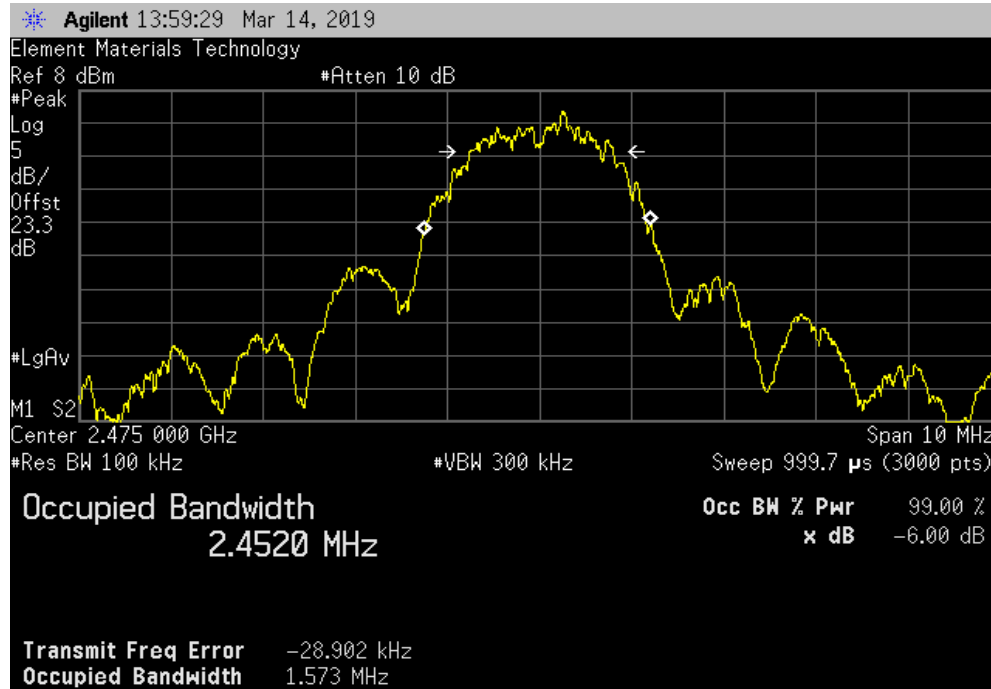


OCCUPIED BANDWIDTH



TMTx 2018.09.13 XMI 2019.02.26

High Channel (Channel 14), 2475 MHz						
				Value	Limit (>)	Result
				1.573 MHz	500 kHz	Pass



OUTPUT POWER



XMI 2019.02.26

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	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-19	13-Feb-20
Block - DC	Fairview Microwave	SD3379	AMI	7-Sep-18	7-Sep-19
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	26-Mar-18	26-Mar-19

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



TbTx 2018.09.13 XMt 2019.02.26

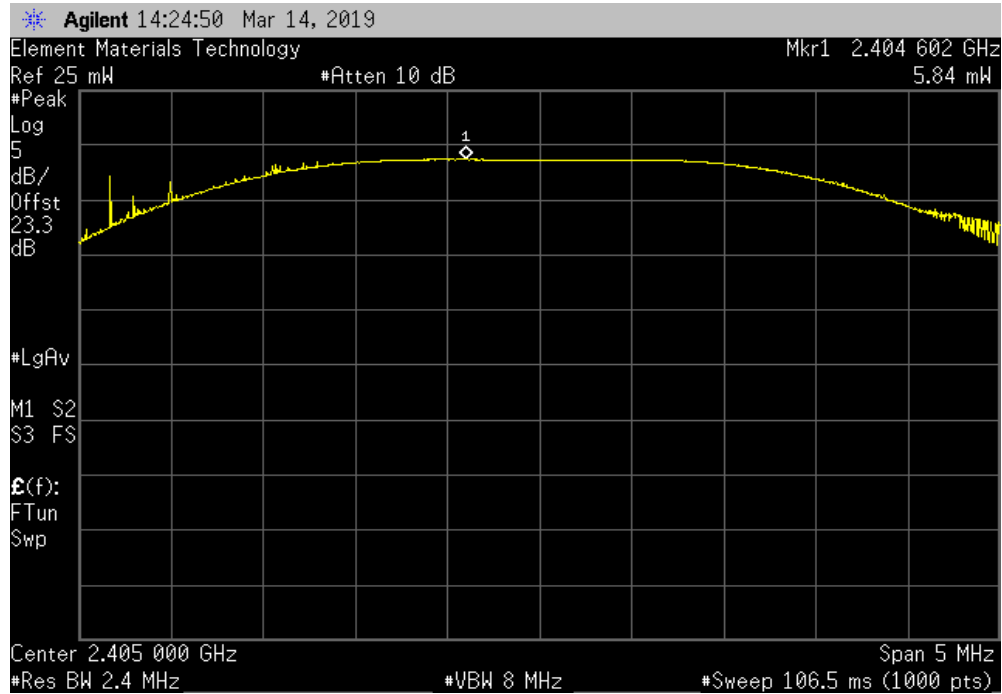
EUT: Wireless Pressure Gauge		Work Order: EMPM0060	
Serial Number: 19CHPM0008241		Date: 14-Mar-19	
Customer: Emerson Process Management		Temperature: 22.5 °C	
Attendees: Elizabeth Reiersen		Humidity: 33.4% RH	
Project: None		Barometric Pres.: 992 mbar	
Tested by: Dustin Sparks	Power: Battery	Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2019		ANSI C63.10:2013	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Dustin Sparks</i>	
		Value	Limit (<) Result
Low Channel (Channel 0), 2405 MHz		5.838 mW	1 W Pass
Mid Channel (Channel 7), 2440 MHz		6.574 mW	1 W Pass
High Channel (Channel 14), 2475 MHz		5.849 mW	1 W Pass

OUTPUT POWER

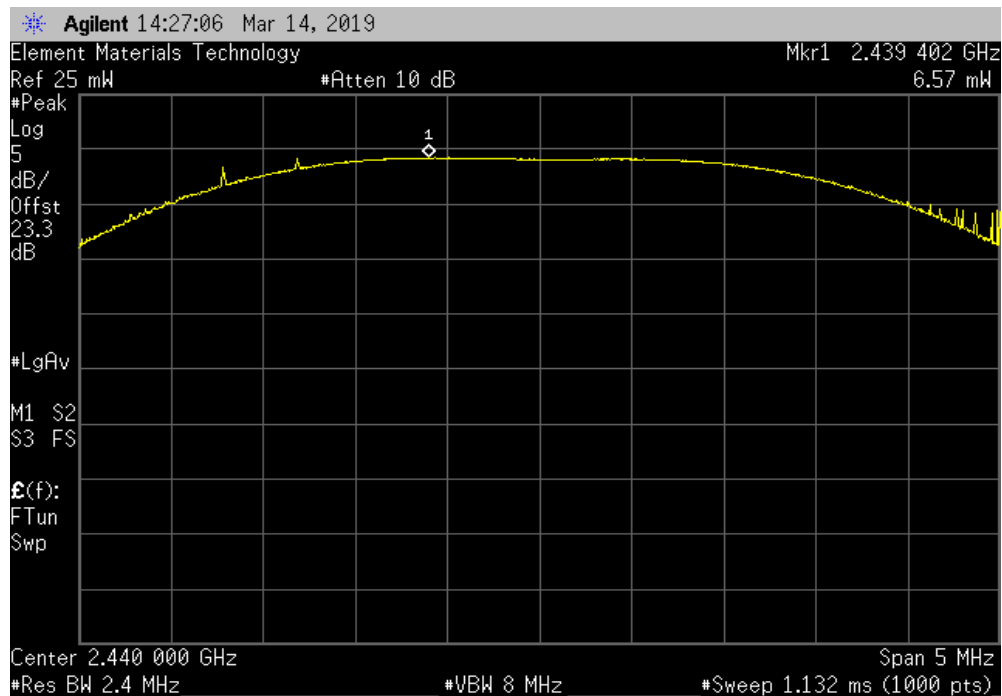


TMTx 2018.09.13 XMI 2019.02.26

Low Channel (Channel 0), 2405 MHz						
				Value	Limit (<)	Result
				5.838 mW	1 W	Pass



Mid Channel (Channel 7), 2440 MHz						
				Value	Limit (<)	Result
				6.574 mW	1 W	Pass

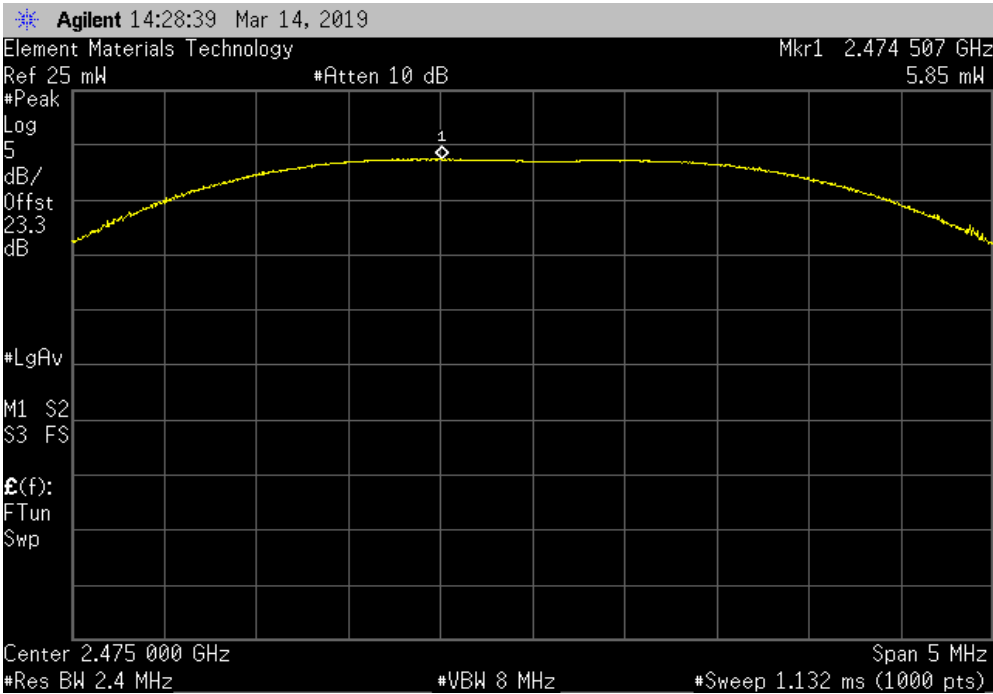


OUTPUT POWER



TMTx 2018.09.13 XMI 2019.02.26

High Channel (Channel 14), 2475 MHz						
				Value	Limit (<)	Result
				5.849 mW	1 W	Pass



EQUIVALENT ISOTROPIC RADIATED POWER



XMIT 2019.02.26

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	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-19	13-Feb-20
Block - DC	Fairview Microwave	SD3379	AMI	7-Sep-18	7-Sep-19
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	26-Mar-18	26-Mar-19

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.

The measured results were converted into dBm and added to the EUT's antenna gain to obtain the EIRP.

EQUIVALENT ISOTROPIC RADIATED POWER



TkTx 2018.09.13 XMt 2019.02.26

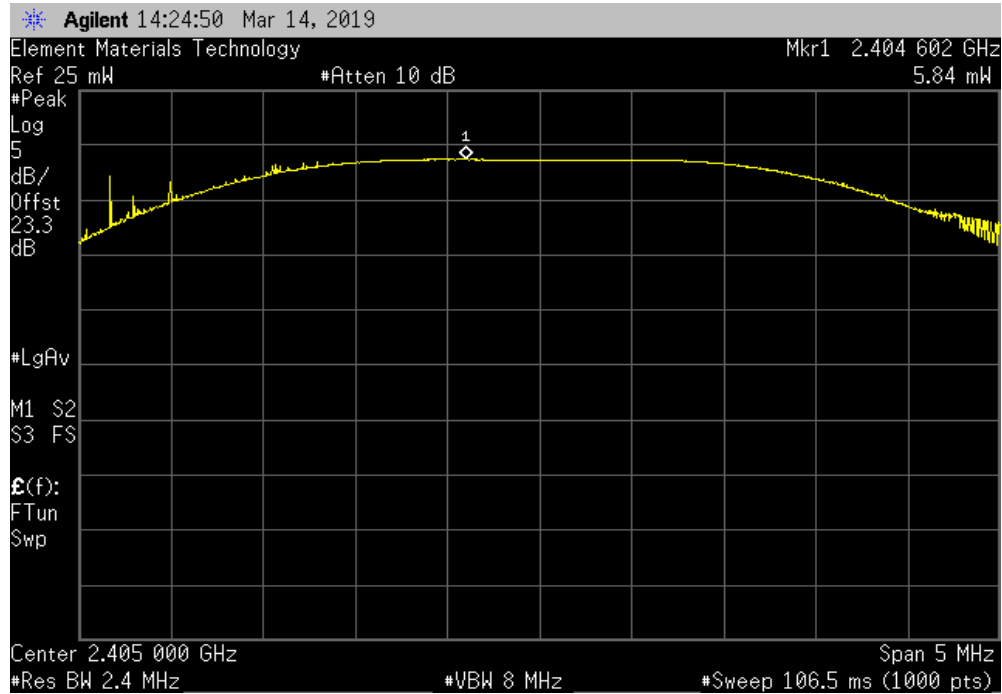
EUT: Wireless Pressure Gauge		Work Order: EMPM0060	
Serial Number: 19CHPM0008241		Date: 14-Mar-19	
Customer: Emerson Process Management		Temperature: 22.5 °C	
Attendees: Elizabeth Reiersen		Humidity: 33.4% RH	
Project: None		Barometric Pres.: 992 mbar	
Tested by: Dustin Sparks	Power: Battery	Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2019		ANSI C63.10:2013	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Dustin Sparks</i>	
		Value (mW)	Value (dBm)
Low Channel (Channel 0), 2405 MHz		5.838	7.66
Mid Channel (Channel 7), 2440 MHz		6.57	8.18
High Channel (Channel 14), 2475 MHz		5.849	7.67
		Antenna Gain (dBi)	EIRP (dBm)
		2	9.66
		2	10.18
		2	9.67
		Limit (< dBm)	Result
		36	Pass
		36	Pass
		36	Pass

EQUIVALENT ISOTROPIC RADIATED POWER

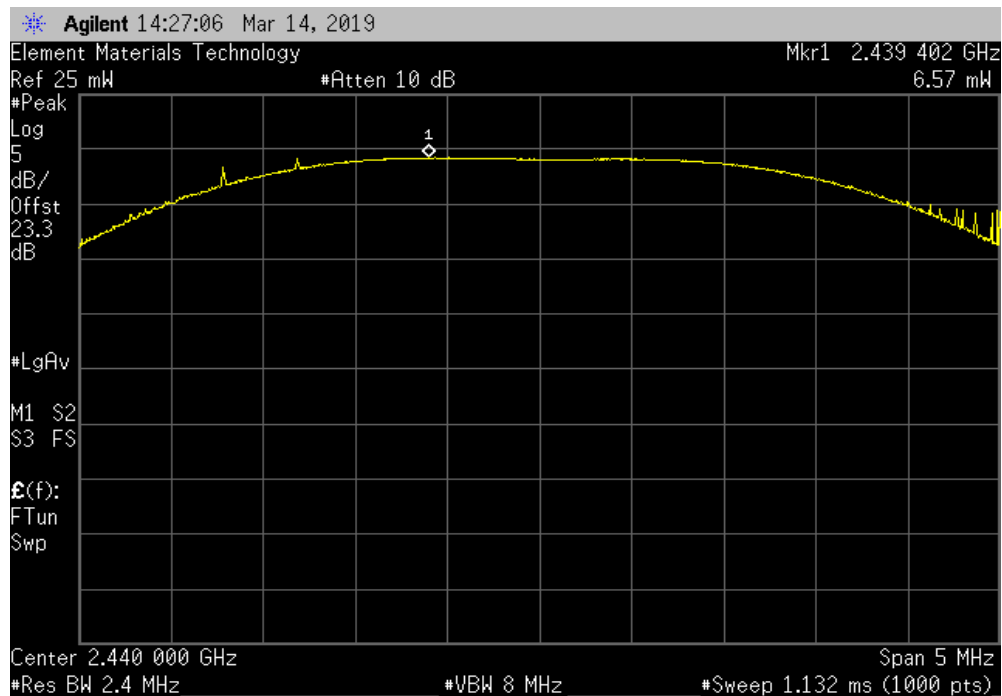


TMTx 2018.09.13 XMI 2019.02.26

Low Channel (Channel 0), 2405 MHz						
	Value (mW)	Value (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (< dBm)	Result
	5.838	7.66	2	9.66	36	Pass



Mid Channel (Channel 7), 2440 MHz						
	Value (mW)	Value (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (< dBm)	Result
	6.57	8.18	2	10.18	36	Pass

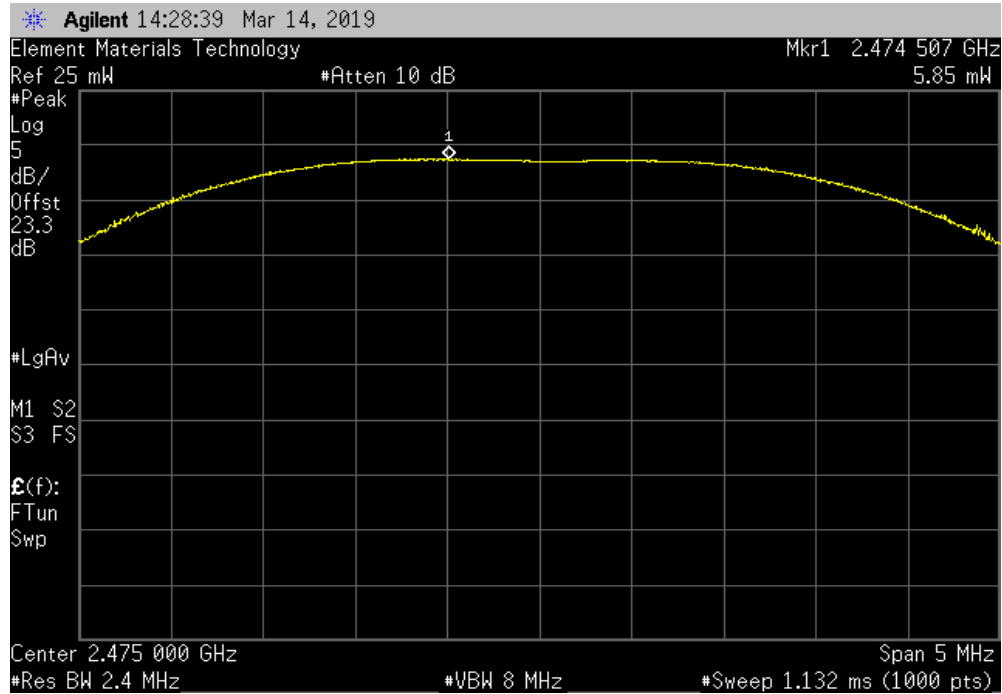


EQUIVALENT ISOTROPIC RADIATED POWER



TMTx 2018.09.13 XMM 2019.02.26

High Channel (Channel 14), 2475 MHz						
	Value (mW)	Value (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (< dBm)	Result
	5.849	7.67	2	9.67	36	Pass



POWER SPECTRAL DENSITY



XMit 2019.02.26

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	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-19	13-Feb-20
Block - DC	Fairview Microwave	SD3379	AMI	7-Sep-18	7-Sep-19
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	26-Mar-18	26-Mar-19

TEST DESCRIPTION

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

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

POWER SPECTRAL DENSITY



TbTx 2018.09.13 XMt 2019.02.26

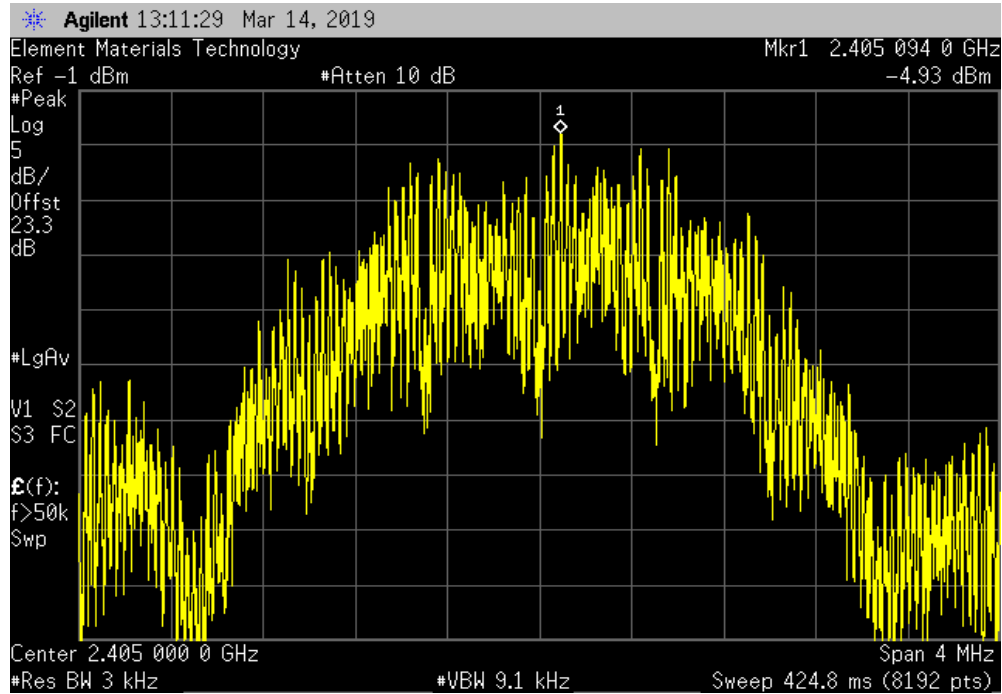
EUT: Wireless Pressure Gauge		Work Order: EMPM0060	
Serial Number: 19CHPM0008241		Date: 14-Mar-19	
Customer: Emerson Process Management		Temperature: 22.5 °C	
Attendees: Elizabeth Reiersen		Humidity: 33.4% RH	
Project: None		Barometric Pres.: 992 mbar	
Tested by: Dustin Sparks	Power: Battery	Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2019		ANSI C63.10:2013	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Dustin Sparks</i>	
		Value dBm/3kHz	Limit < dBm/3kHz
Low Channel (Channel 0), 2405 MHz		-4.929	8
Mid Channel (Channel 7), 2440 MHz		-5.241	8
High Channel (Channel 14), 2475 MHz		-5.617	8
			Results
			Pass
			Pass
			Pass

POWER SPECTRAL DENSITY

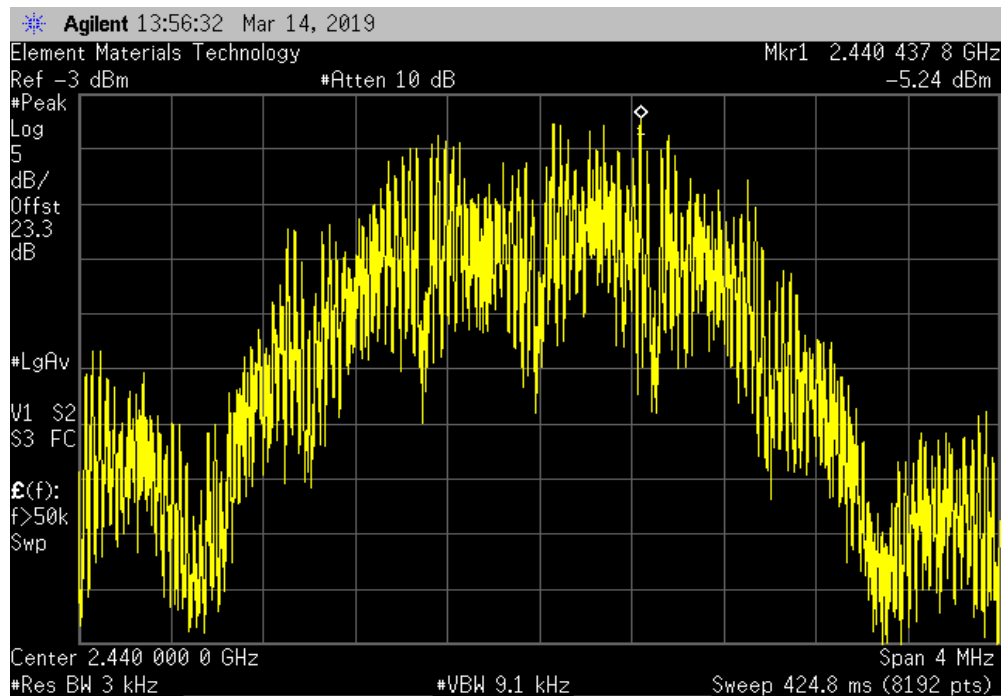


TMTx 2018.09.13 XMI 2019.02.26

Low Channel (Channel 0), 2405 MHz						
	Value	Limit	Results			
	dBm/3kHz	< dBm/3kHz				
	-4.929	8	Pass			



Mid Channel (Channel 7), 2440 MHz						
	Value	Limit	Results			
	dBm/3kHz	< dBm/3kHz				
	-5.241	8	Pass			

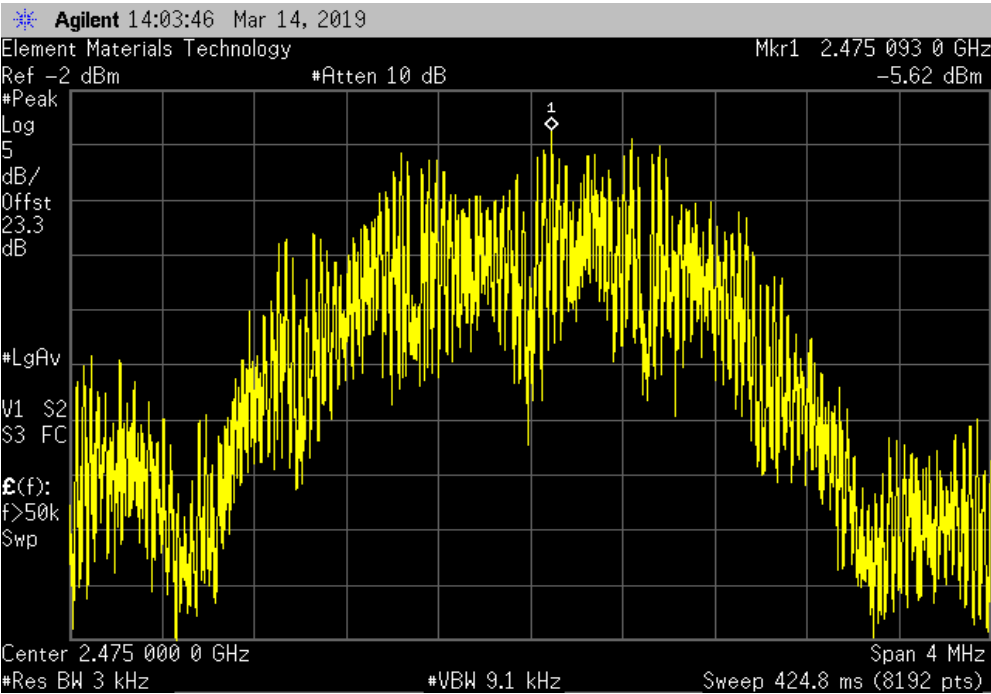


POWER SPECTRAL DENSITY



TMTx 2018.09.13 XMI 2019.02.26

High Channel (Channel 14), 2475 MHz						
				Value	Limit	Results
				dBm/3kHz	< dBm/3kHz	
				-5.617	8	Pass



BAND EDGE COMPLIANCE



XMIT 2019.02.26

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	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-19	13-Feb-20
Block - DC	Fairview Microwave	SD3379	AMI	7-Sep-18	7-Sep-19
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	26-Mar-18	26-Mar-19

TEST DESCRIPTION

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

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

BAND EDGE COMPLIANCE



TbTx 2018.09.13 XMt 2019.02.26

EUT: Wireless Pressure Gauge		Work Order: EMPM0060	
Serial Number: 19CHPM0008241		Date: 14-Mar-19	
Customer: Emerson Process Management		Temperature: 22.5 °C	
Attendees: Elizabeth Reiersen		Humidity: 33.7% RH	
Project: None		Barometric Pres.: 992 mbar	
Tested by: Dustin Sparks	Power: Battery	Job Site: MN08	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2019		ANSI C63.10:2013	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature <i>Dustin Sparks</i>	
		Value (dBc)	Limit ≤ (dBc) Result
Low Channel (Channel 0), 2405 MHz		-41.37	-20 Pass
High Channel (Channel 14), 2475 MHz		-51	-20 Pass

BAND EDGE COMPLIANCE

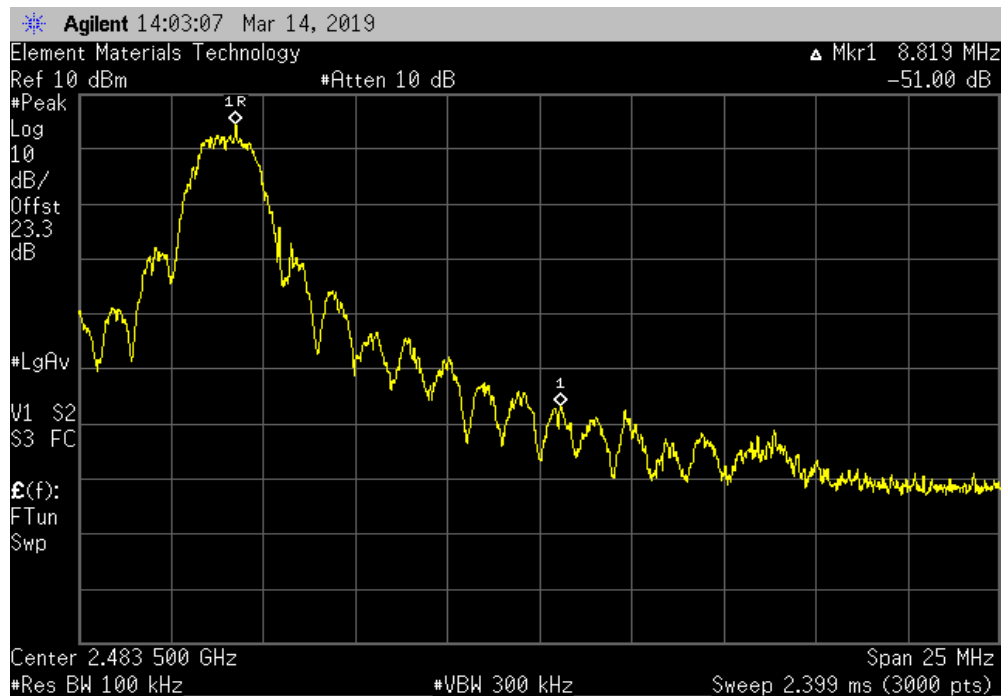


TMTx 2018.09.13 XMI 2019.02.26

Low Channel (Channel 0), 2405 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-41.37	-20	Pass



High Channel (Channel 14), 2475 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-51	-20	Pass



SPURIOUS CONDUCTED EMISSIONS



XMIT 2019.02.26

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	5-Jul-17	5-Jul-20
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-19	13-Feb-20
Block - DC	Fairview Microwave	SD3379	AMI	7-Sep-18	7-Sep-19
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	26-Mar-18	26-Mar-19

TEST DESCRIPTION

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

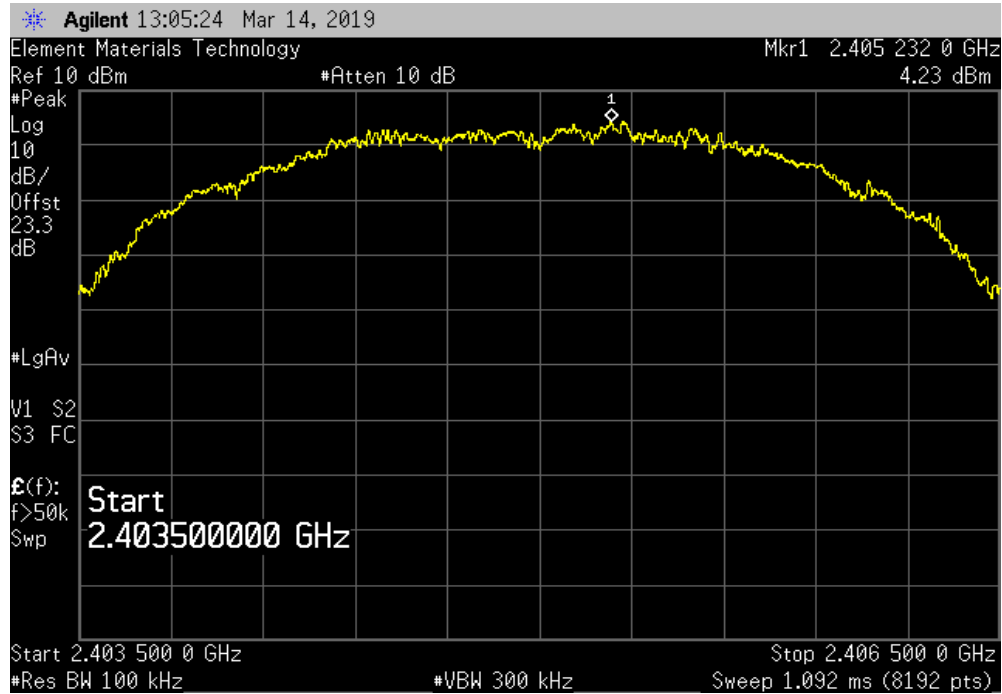
ThiTx 2018.09.13 XMIT 2019.02.26

SPURIOUS CONDUCTED EMISSIONS

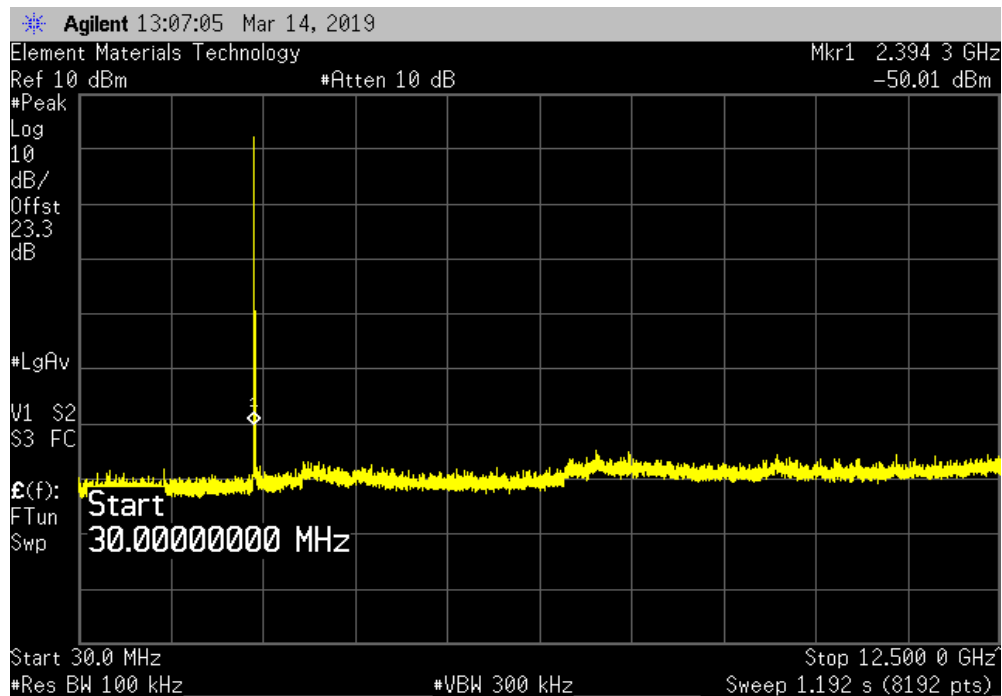


TMTx 2018.09.13 XMI 2019.02.26

Low Channel (Channel 0), 2405 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	2405.23	N/A	N/A	N/A	



Low Channel (Channel 0), 2405 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	2394.3	-54.24	-20	Pass	

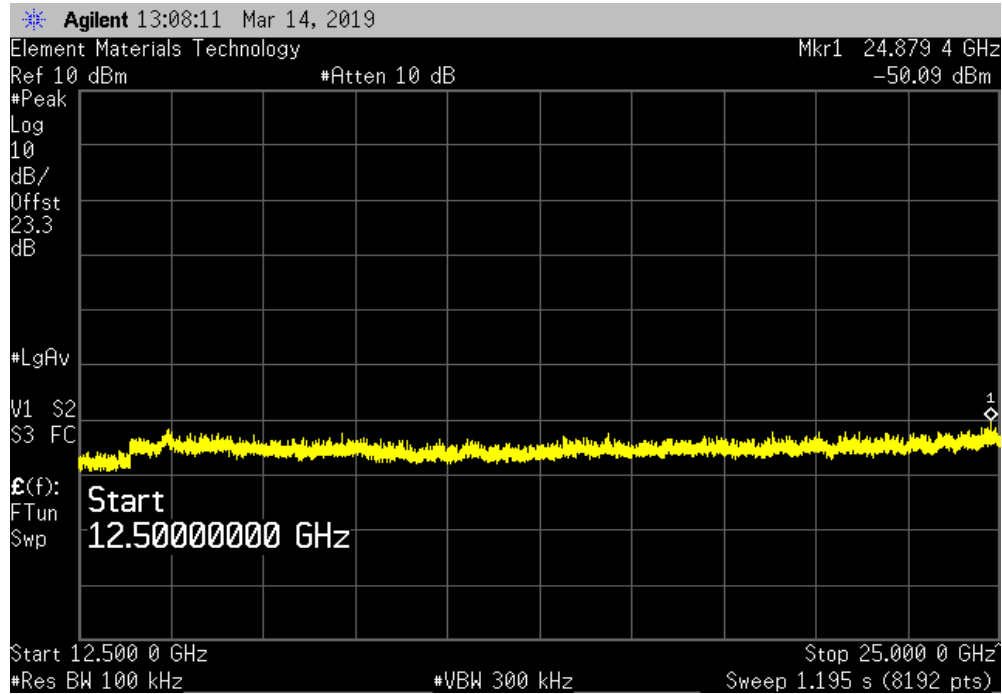


SPURIOUS CONDUCTED EMISSIONS

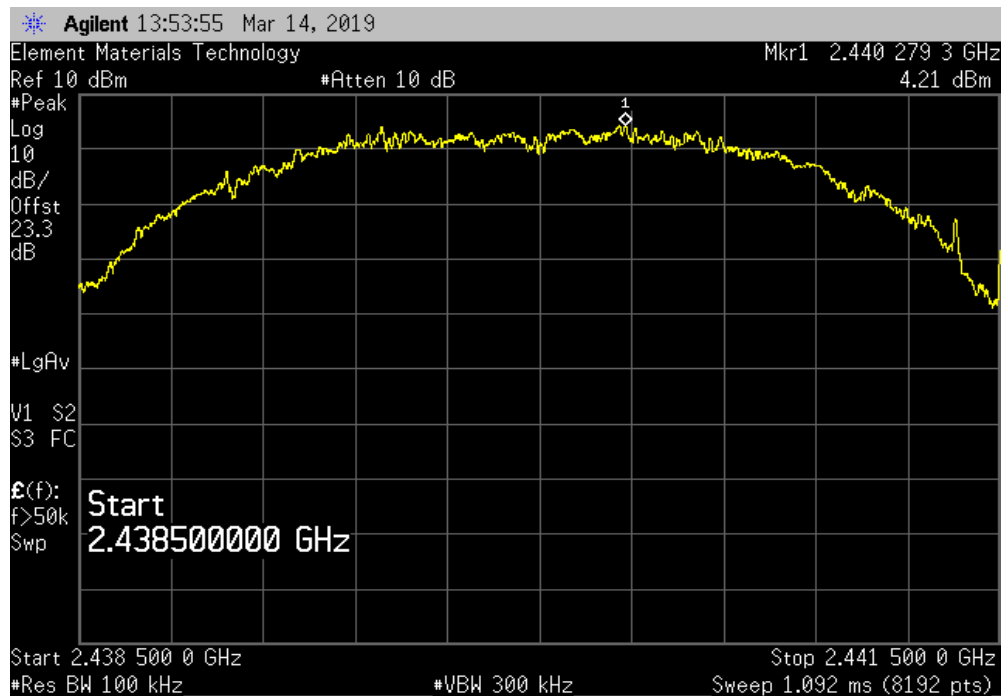


TMTx 2018.09.13 XMI 2019.02.26

Low Channel (Channel 0), 2405 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	24879.4	-54.32	-20	Pass	



Mid Channel (Channel 7), 2440 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	2440.28	N/A	N/A	N/A	

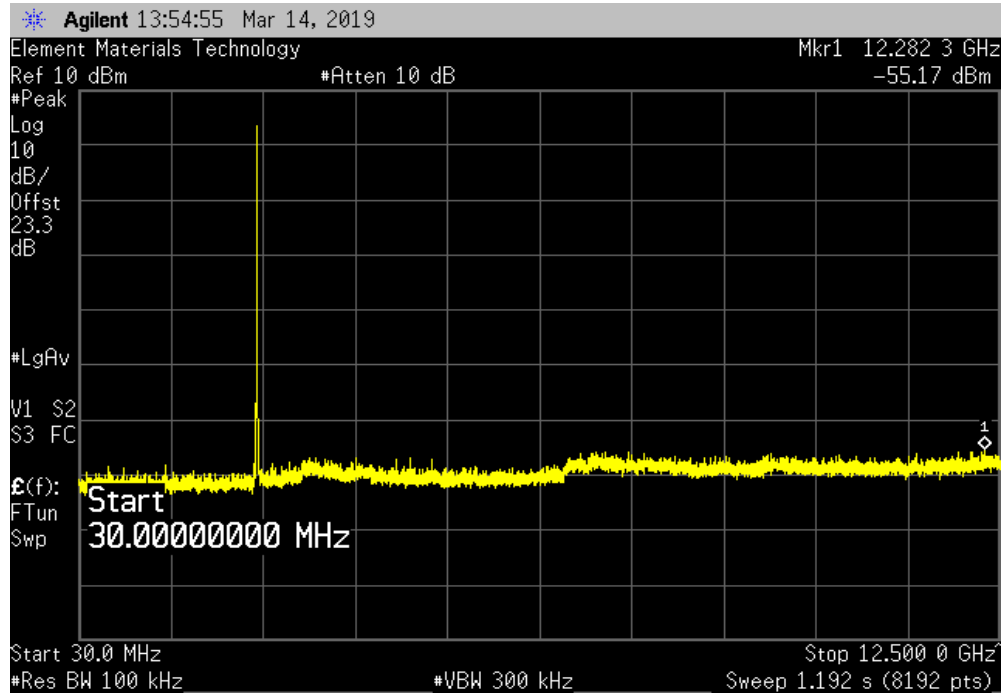


SPURIOUS CONDUCTED EMISSIONS

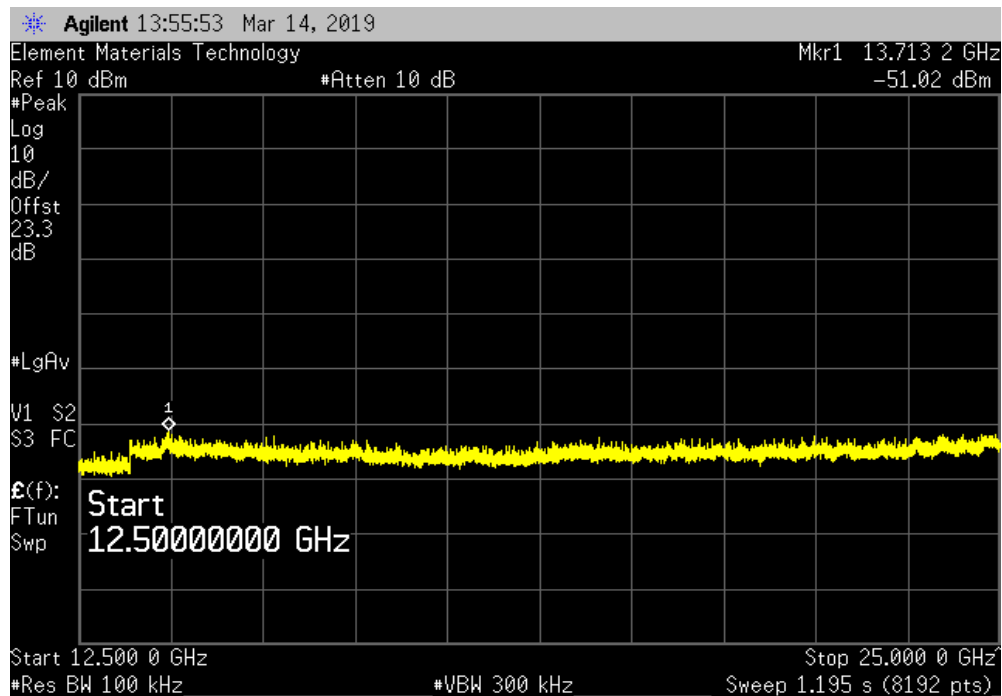


TMTx 2018.09.13 XMt 2019.02.26

Mid Channel (Channel 7), 2440 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	12282.3	-59.38	-20	Pass	



Mid Channel (Channel 7), 2440 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	13713.2	-55.23	-20	Pass	

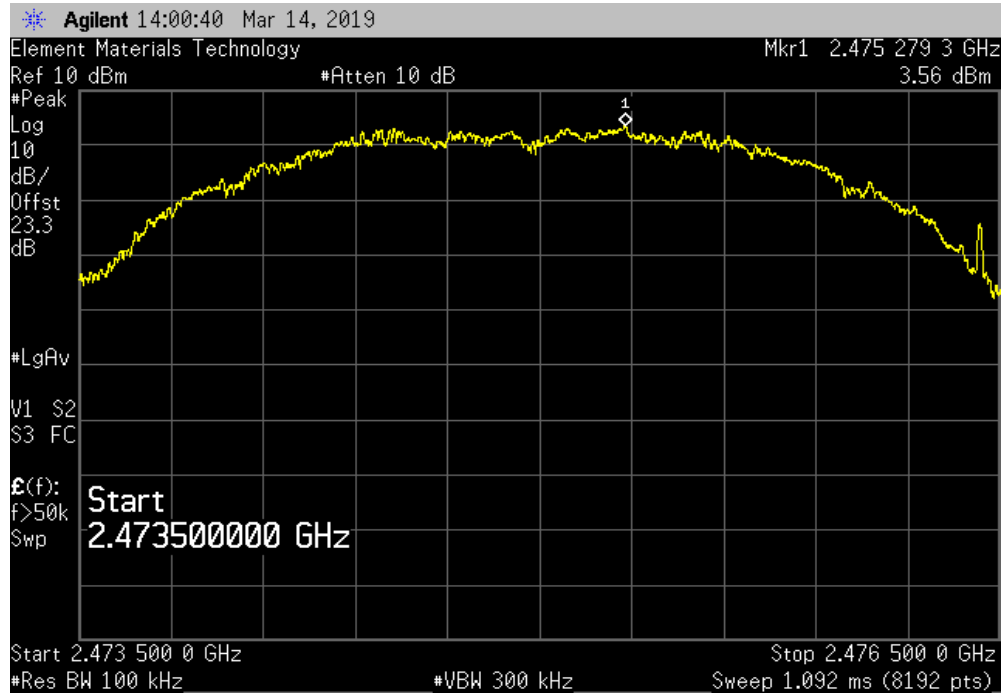


SPURIOUS CONDUCTED EMISSIONS

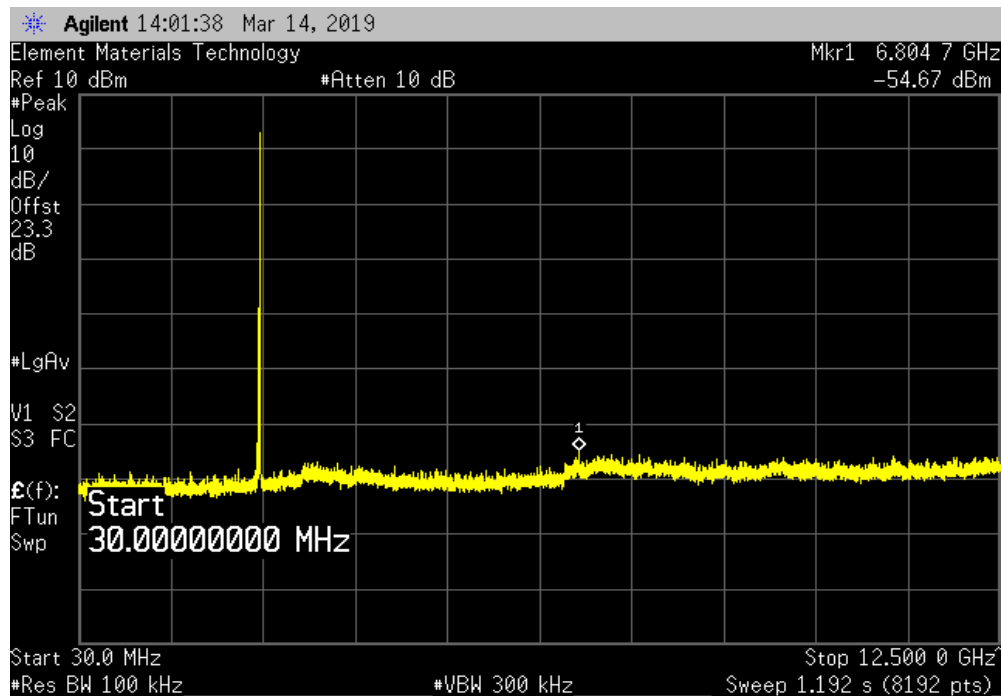


TMTx 2018.09.13 XMI 2019.02.26

High Channel (Channel 14), 2475 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	2475.28	N/A	N/A	N/A	



High Channel (Channel 14), 2475 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	6804.7	-58.23	-20	Pass	

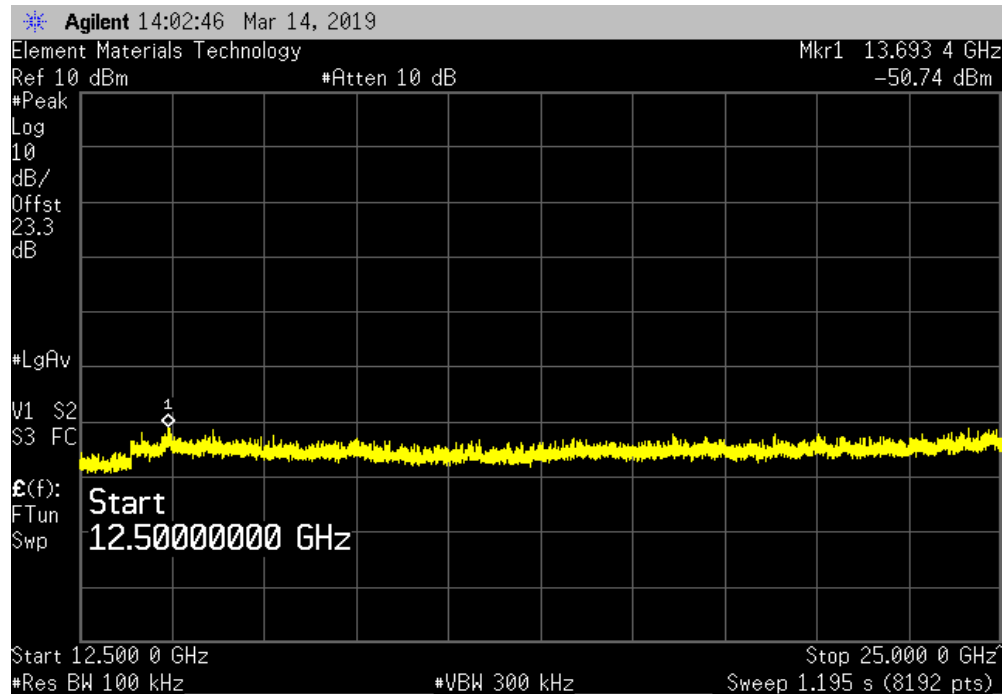


SPURIOUS CONDUCTED EMISSIONS



TMTx 2018.09.13 XMI 2019.02.26

High Channel (Channel 14), 2475 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	13693.4	-54.3	-20	Pass	



SPURIOUS RADIATED EMISSIONS



PSA-ESCI 2019.02.26

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

Tx at Low Ch 2405 MHz, ch 0; Mid Ch, 2440 MHz, Ch 7; High Ch, 2475 MHz, Ch 14, Modulated

POWER SETTINGS INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

EMPM0060 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 26000 MHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	27-Apr-2018	12 mo
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	13-Sep-2018	12 mo
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-2018	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AHG	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	8-Feb-2019	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	8-Feb-2019	12 mo
Cable	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	8-Mar-2019	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	0 mo
Filter - High Pass	Micro-Tronics	HPM50111	LFN	24-Sep-2018	12 mo
Attenuator	Fairview Microwave	SA18E-20	TWZ	24-Sep-2018	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	8-Feb-2019	12 mo
Cable	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	24-Sep-2018	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AJA	27-Jun-2018	24 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AVO	2-Nov-2018	12 mo
Cable	ESM Cable Corp.	Bilog Cables	MNH	2-Nov-2018	12 mo
Antenna - Biconilog	Teseq	CBL 6141B	AYD	25-Jan-2018	24 mo

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

SPURIOUS RADIATED EMISSIONS



PSA-ESCI 2019.02.26

TEST DESCRIPTION

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

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

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

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

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

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

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

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

SPURIOUS RADIATED EMISSIONS



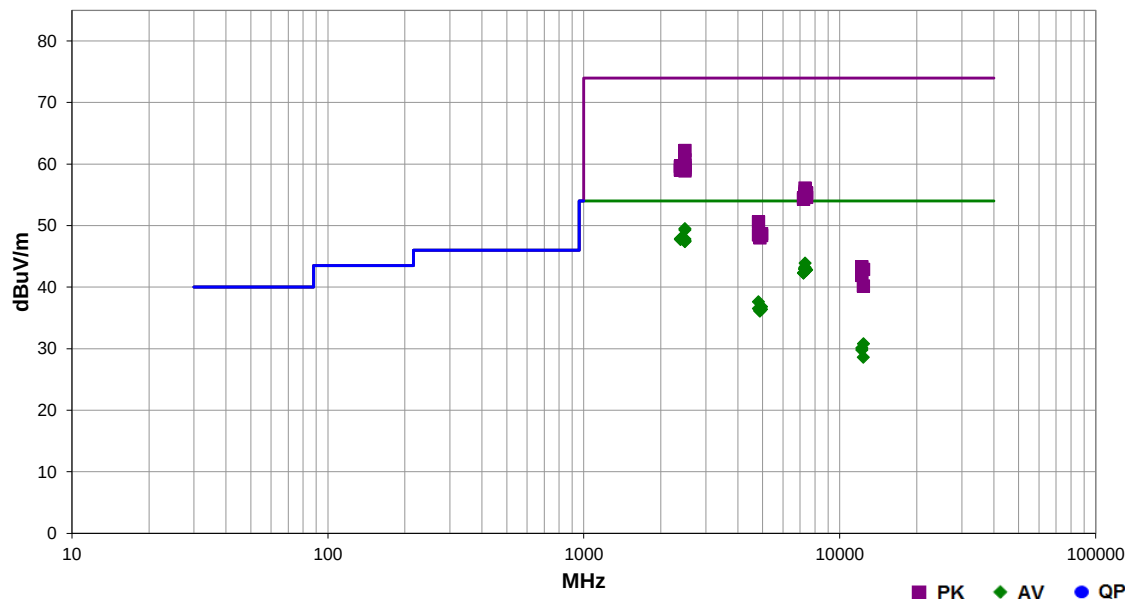
EmIRS 2018.09.26

PSA-ESCI 2019.02.26

Work Order:	EMPM0060	Date:	12-Mar-2019	
Project:	None	Temperature:	22.4 C	
Job Site:	MN05	Humidity:	28.60%	
Serial Number:	19CHIPM0008245	Barometric Pres.:		Tested by: Chris Patterson
EUT:	Wireless Pressure Gauge			
Configuration:	EMPM0060 - 1			
Customer:	Emerson Process Management			
Attendees:	Elizabeth Reiersen			
EUT Power:	Battery			
Operating Mode:	Tx at Low Ch 2405 MHz, ch 0; Mid Ch, 2440 MHz, Ch 7; High Ch, 2475 MHz, Ch 14, Modulated			
Deviations:	None			
Comments:	None			

Test Specifications	Test Method
FCC 15.247:2019	ANSI C63.10:2013

Run #	28	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.958	33.2	-3.7	1.0	81.9	3.0	20.0	Vert	AV	0.0	49.5	54.0	-4.5	EUT On Side, High Ch, Modulated
2483.958	33.0	-3.7	3.2	37.9	3.0	20.0	Horz	AV	0.0	49.3	54.0	-4.7	EUT Horz, High Ch, Modulated
2483.983	31.5	-3.7	1.0	206.0	3.0	20.0	Horz	AV	0.0	47.8	54.0	-6.2	EUT On Side, High Ch, Modulated
2387.030	30.9	-3.1	1.0	324.0	3.0	20.0	Horz	AV	0.0	47.8	54.0	-6.2	EUT On Side, Low Ch, Modulated
2389.980	30.9	-3.1	1.0	210.9	3.0	20.0	Vert	AV	0.0	47.8	54.0	-6.2	EUT On Side, Low Ch, Modulated
2389.030	30.9	-3.1	1.0	77.0	3.0	20.0	Horz	AV	0.0	47.8	54.0	-6.2	EUT Vert, Low Ch, Modulated
2387.880	30.9	-3.1	2.3	252.0	3.0	20.0	Vert	AV	0.0	47.8	54.0	-6.2	EUT Vert, Low Ch, Modulated
2389.990	30.9	-3.1	1.0	335.0	3.0	20.0	Horz	AV	0.0	47.8	54.0	-6.2	EUT Horz, Low Ch, Modulated
2384.980	30.9	-3.1	1.0	306.0	3.0	20.0	Vert	AV	0.0	47.8	54.0	-6.2	EUT Horz, Low Ch, Modulated
2483.975	31.2	-3.7	1.0	113.0	3.0	20.0	Horz	AV	0.0	47.5	54.0	-6.5	EUT Vert, High Ch, Modulated
2483.925	31.2	-3.7	1.0	239.0	3.0	20.0	Vert	AV	0.0	47.5	54.0	-6.5	EUT Vert, High Ch, Modulated
2483.683	31.1	-3.7	1.0	141.1	3.0	20.0	Vert	AV	0.0	47.4	54.0	-6.6	EUT Horz, High Ch, Modulated
7321.250	32.1	11.8	1.9	142.0	3.0	0.0	Horz	AV	0.0	43.9	54.0	-10.1	EUT On Side, Mid Ch, Modulated
7318.625	31.4	11.8	1.0	91.0	3.0	0.0	Horz	AV	0.0	43.2	54.0	-10.8	EUT Horz, Mid Ch, Modulated
7318.517	31.3	11.8	1.0	29.0	3.0	0.0	Horz	AV	0.0	43.1	54.0	-10.9	EUT On Side, Mid Ch, Modulated
7318.592	31.2	11.8	1.0	354.0	3.0	0.0	Vert	AV	0.0	43.0	54.0	-11.0	EUT Horz, Mid Ch, Modulated
7318.292	31.2	11.8	1.0	41.0	3.0	0.0	Horz	AV	0.0	43.0	54.0	-11.0	EUT Vert, Mid Ch, Modulated
7318.683	31.1	11.8	1.0	221.0	3.0	0.0	Vert	AV	0.0	42.9	54.0	-11.1	EUT On Side, Mid Ch, Modulated
7317.767	31.1	11.8	1.0	145.0	3.0	0.0	Vert	AV	0.0	42.9	54.0	-11.1	EUT Vert, Mid Ch, Modulated
7317.800	31.1	11.8	1.0	296.0	3.0	0.0	Vert	AV	0.0	42.9	54.0	-11.1	EUT On Side, Mid Ch, Modulated
7422.900	30.8	12.0	1.0	59.0	3.0	0.0	Horz	AV	0.0	42.8	54.0	-11.2	EUT Horz, High Ch, Modulated
7423.708	30.8	12.0	1.0	250.9	3.0	0.0	Vert	AV	0.0	42.8	54.0	-11.2	EUT Horz, High Ch, Modulated
7217.250	30.5	11.8	3.6	307.0	3.0	0.0	Vert	AV	0.0	42.3	54.0	-11.7	EUT Horz, Low Ch, Modulated

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7217.192	30.5	11.8	3.5	34.0	3.0	0.0	Horz	AV	0.0	42.3	54.0	-11.7	EUT Horz, Low Ch, Modulated
2484.242	45.9	-3.7	1.0	81.9	3.0	20.0	Vert	PK	0.0	62.2	74.0	-11.8	EUT On Side, High Ch, Modulated
2483.883	44.4	-3.7	3.2	37.9	3.0	20.0	Horz	PK	0.0	60.7	74.0	-13.3	EUT Horz, High Ch, Modulated
2484.908	43.5	-3.7	1.0	239.0	3.0	20.0	Vert	PK	0.0	59.8	74.0	-14.2	EUT Vert, High Ch, Modulated
2388.720	42.8	-3.1	1.0	306.0	3.0	20.0	Vert	PK	0.0	59.7	74.0	-14.3	EUT Horz, Low Ch, Modulated
2386.000	42.7	-3.1	1.0	210.9	3.0	20.0	Vert	PK	0.0	59.6	74.0	-14.4	EUT On Side, Low Ch, Modulated
2389.300	42.6	-3.1	1.0	324.0	3.0	20.0	Horz	PK	0.0	59.5	74.0	-14.5	EUT On Side, Low Ch, Modulated
2483.533	43.1	-3.7	1.0	206.0	3.0	20.0	Horz	PK	0.0	59.4	74.0	-14.6	EUT On Side, High Ch, Modulated
2484.083	42.8	-3.7	1.0	141.1	3.0	20.0	Vert	PK	0.0	59.1	74.0	-14.9	EUT Horz, High Ch, Modulated
2387.150	42.2	-3.1	2.3	252.0	3.0	20.0	Vert	PK	0.0	59.1	74.0	-14.9	EUT Vert, Low Ch, Modulated
2387.450	42.2	-3.1	1.0	335.0	3.0	20.0	Horz	PK	0.0	59.1	74.0	-14.9	EUT Horz, Low Ch, Modulated
2385.820	42.1	-3.1	1.0	77.0	3.0	20.0	Horz	PK	0.0	59.0	74.0	-15.0	EUT Vert, Low Ch, Modulated
2483.558	42.6	-3.7	1.0	113.0	3.0	20.0	Horz	PK	0.0	58.9	74.0	-15.1	EUT Vert, High Ch, Modulated
4811.092	33.2	4.4	1.0	88.0	3.0	0.0	Vert	AV	0.0	37.6	54.0	-16.4	EUT Horz, Low Ch, Modulated
4950.808	32.1	4.7	1.0	106.0	3.0	0.0	Vert	AV	0.0	36.8	54.0	-17.2	EUT Horz, High Ch, Modulated
4811.000	32.1	4.4	2.0	318.9	3.0	0.0	Horz	AV	0.0	36.5	54.0	-17.5	EUT Horz, Low Ch, Modulated
4950.983	31.7	4.7	1.0	275.0	3.0	0.0	Horz	AV	0.0	36.4	54.0	-17.6	EUT Horz, High Ch, Modulated
4878.708	31.7	4.5	1.0	239.0	3.0	0.0	Horz	AV	0.0	36.2	54.0	-17.8	EUT Horz, Mid Ch, Modulated
4877.850	31.6	4.5	3.6	225.9	3.0	0.0	Vert	AV	0.0	36.1	54.0	-17.9	EUT Horz, Mid Ch, Modulated
7320.858	44.3	11.8	1.9	142.0	3.0	0.0	Horz	PK	0.0	56.1	74.0	-17.9	EUT On Side, Mid Ch, Modulated
7321.892	43.8	11.8	1.0	145.0	3.0	0.0	Vert	PK	0.0	55.6	74.0	-18.4	EUT Vert, Mid Ch, Modulated
7320.808	43.5	11.8	1.0	296.0	3.0	0.0	Vert	PK	0.0	55.3	74.0	-18.7	EUT On Side, Mid Ch, Modulated
7422.542	43.3	12.0	1.0	59.0	3.0	0.0	Horz	PK	0.0	55.3	74.0	-18.7	EUT Horz, High Ch, Modulated
7319.617	43.3	11.8	1.0	91.0	3.0	0.0	Horz	PK	0.0	55.1	74.0	-18.9	EUT Horz, Mid Ch, Modulated
7318.617	43.3	11.8	1.0	29.0	3.0	0.0	Horz	PK	0.0	55.1	74.0	-18.9	EUT On Side, Mid Ch, Modulated
7321.317	43.1	11.8	1.0	41.0	3.0	0.0	Horz	PK	0.0	54.9	74.0	-19.1	EUT Vert, Mid Ch, Modulated
7320.192	43.0	11.8	1.0	354.0	3.0	0.0	Vert	PK	0.0	54.8	74.0	-19.2	EUT Horz, Mid Ch, Modulated
7318.208	42.9	11.8	1.0	221.0	3.0	0.0	Vert	PK	0.0	54.7	74.0	-19.3	EUT On Side, Mid Ch, Modulated
7424.850	42.6	12.0	1.0	250.9	3.0	0.0	Vert	PK	0.0	54.6	74.0	-19.4	EUT Horz, High Ch, Modulated
7214.108	42.7	11.8	3.6	307.0	3.0	0.0	Vert	PK	0.0	54.5	74.0	-19.5	EUT Horz, Low Ch, Modulated
7214.733	42.5	11.8	3.5	34.0	3.0	0.0	Horz	PK	0.0	54.3	74.0	-19.7	EUT Horz, Low Ch, Modulated
12377.370	31.5	-0.7	1.0	178.0	3.0	0.0	Vert	AV	0.0	30.8	54.0	-23.2	EUT Horz, High Ch, Modulated
4810.683	46.2	4.4	1.0	88.0	3.0	0.0	Vert	PK	0.0	50.6	74.0	-23.4	EUT Horz, Low Ch, Modulated
12197.560	31.9	-1.8	1.0	37.9	3.0	0.0	Horz	AV	0.0	30.1	54.0	-23.9	EUT Horz, Mid Ch, Modulated
12197.630	31.6	-1.8	3.6	95.9	3.0	0.0	Vert	AV	0.0	29.8	54.0	-24.2	EUT Horz, Mid Ch, Modulated
4951.442	44.0	4.7	1.0	275.0	3.0	0.0	Horz	PK	0.0	48.7	74.0	-25.3	EUT Horz, High Ch, Modulated
12372.540	29.3	-0.7	1.0	325.9	3.0	0.0	Horz	AV	0.0	28.6	54.0	-25.4	EUT Horz, High Ch, Modulated
4810.558	44.1	4.4	2.0	318.9	3.0	0.0	Horz	PK	0.0	48.5	74.0	-25.5	EUT Horz, Low Ch, Modulated
4949.283	43.7	4.7	1.0	106.0	3.0	0.0	Vert	PK	0.0	48.4	74.0	-25.6	EUT Horz, High Ch, Modulated
4879.758	43.9	4.5	1.0	239.0	3.0	0.0	Horz	PK	0.0	48.4	74.0	-25.6	EUT Horz, Mid Ch, Modulated
4881.092	43.5	4.5	3.6	225.9	3.0	0.0	Vert	PK	0.0	48.0	74.0	-26.0	EUT Horz, Mid Ch, Modulated
12197.650	45.1	-1.8	1.0	37.9	3.0	0.0	Horz	PK	0.0	43.3	74.0	-30.7	EUT Horz, Mid Ch, Modulated
12377.410	43.6	-0.7	1.0	178.0	3.0	0.0	Vert	PK	0.0	42.9	74.0	-31.1	EUT Horz, High Ch, Modulated
12198.080	43.7	-1.8	3.6	95.9	3.0	0.0	Vert	PK	0.0	41.9	74.0	-32.1	EUT Horz, Mid Ch, Modulated
12376.670	40.9	-0.7	1.0	325.9	3.0	0.0	Horz	PK	0.0	40.2	74.0	-33.8	EUT Horz, High Ch, Modulated