Project 20267-15

Hubbell Control Solutions

NXOFM-1R1D-UNV

Wireless Certification Report

Prepared for:

Hubbell Control Solutions
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Austin, TX 78754

By

Professional Testing (EMI), Inc.
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18 Sep 2018

Reviewed by

Larry Finn
Chief Technical Officer

Written by

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EMC Engineer

Revision History

Revision Number	Description	Date
DRAFT 01	Draft for review.	18 Sep 2018
Final	Final, no changes.	21 Sep 2018

Errata:

None.

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Compliance Certificate

Applicant	Device & Test Identification	
Hubbell Control Solutions 1812 Centre Creek Dr Suite 240 Austin, TX 78754-3962 Certificate Date: 18 Sep 2018	FCC ID: Industry Canada ID: Model(s): Laboratory Project ID:	YH9NXOFM1R1D 9044A-NXOFM1R1D NXOFM-1R1D-UNV 20267-15

The device named above was tested utilizing the following documents and found to be in compliance with the required criteria:

Requirement	Reference	Detail
FCC 47 CFR Part 15 C	15.247	Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
FCC 47 CFR Part 15 C	15.209	Radiated emission limits; general requirements.
FCC 47 CFR Part 15 C	15.107, 15.207	Conducted emission limits.
FCC 47 CFR Part 15 C	15.205	Restricted Bands of Operation
KDB 558074 D01	DR01	DTS Measurement Guidance v03r02
KDB 412172	D01	Guidelines for Determining the ERP and EIRP of an RF Transmitting System
OET Bulletin 65*	Edition 97-01, and Supplement C, Ed. 01-01	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
RSS-247	Issue 2	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
RSS-Gen	Issue 4	General Requirements and Information for the Certification of Radio Apparatus
RSS-102	Issue 5	Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

*MPE is reported separately from this document. **Corresponding RSS references are listed in the body of the report.

I, Eric Lifsey, for Professional Testing (EMI), Inc., being familiar with the above requirements and test procedures have reviewed the test setup, measured data, and this report. I believe them to be true and accurate.

Eric Lifsey
EMC Engineer

This report has been reviewed and accepted by the Applicant**.** The undersigned is responsible for ensuring that this device will continue to comply with the requirements listed above.

_____

Representative of Applicant

1.0 Introduction

1.1 Scope

This report describes the extent to which the equipment under test (EUT) conformed to the intentional radiator requirements of the United States and Canada.

Professional Testing (EMI), Inc., (PTI) follows the guidelines of National Institute of Standards and Technology (NIST) for all uncertainty calculations, estimates, and expressions thereof for electromagnetic compatibility testing.

1.2 EUT Description

Table 1.2.1: Equipment Under Test

Manufacturer / Model	Serial #	Description
Hubbell Building Automation / NXOFM-1R1D-UNV	None	2400-2483.5 MHz FHSS transceiver; using Bluetooth Low Energy radio protocols.

Table 1.2.2: Support Equipment

Manufacturer / Model	Serial #	Description
none		none

The EUT is a sensor board in support of a lighting control system. It is cylindrical and measures approximately 13.5 cm x 8 cm.

1.3 EUT Operation

The EUT was exercised in a manner consistent with normal operations.

The EUT was tested as a DTS device as its bandwidth satisfies the DTS minimum bandwidth requirements. In the final application it will be also hopping per the Bluetooth Low Energy protocol.

1.4 Modifications to Equipment

No modifications were made to the EUT during the performance of the test program.

1.5 Test Site

Measurements were made at the PTI semi-anechoic facility designated Site 45 (FCC 459644, IC 3036B-1) in Austin, Texas. The site is registered with the FCC under Section 2.948 and Industry Canada per RSS-GEN, and is subsequently confirmed by laboratory accreditation (NVLAP). The test site is located at 11400 Burnet Road, Austin, Texas 78758, while the main office is located at 1601 North A.W. Grimes Boulevard, Suite B, Round Rock, Texas, 78665.

1.6 Radiated Measurements

Radiated levels are determined as follows:

Raw Measured Level + Antenna Factor + Cable Losses – Amplifier Gain = Corrected Level

Conducted RF levels are determined as follows:

Raw Measured Level + Attenuator Factor + Cable Losses = Corrected Level

Conducted mains levels are determined as follows:

Raw Measured Level + LISN Factor + Cable/Filter/Limiter Losses = Corrected Level

Additionally, measurement distance extrapolation factors are applied and documented where used.

1.7 Applicable Documents and Clauses

Table 1.7.1: Applicable Documents

Document	Title
47 CFR	Part 15 – Radio Frequency Devices Subpart C -Intentional Radiators
RSS-247 Issue 1	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
RSS-Gen Issue 4	General Requirements and Information for the Certification of Radio Apparatus
ANSI C63.10 2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

Table 1.7.2: Applicable Clauses

Parameter	FCC Part 15 Rule Paragraphs	IC RSS References
Transmitter Characteristics	15.247	RSS-247 5.2 (DTS) & 5.4, RSS-Gen
Bandwidth	15.247(a)(1), 2.1049, KDB 558074 D01	RSS-Gen 4.6
Spurious Emission	15.247, 15.209, 15.205	RSS-247 5.5, RSS-GEN 4.9, 4.10
Band Edge	15.247, 15.205	RSS-247 5.5, RSS-Gen 4.9
Antenna Requirement	15.203	RSS-Gen 8.3
Conducted Emissions, Mains	15.207	RSS-Gen 8.8

2.0 Fundamental Power and Duty Cycle

2.1 Test Procedure

Peak power is measured using radiated means. The transmitter hopping sequence is disabled to operate on a single channel for the measurement.

Duty cycle measurement is taken based on intervals not to exceed 100 msec. Maximum transmitter on time is divided by the lesser of 100 msec or the actual measured minimum transmitter interval time. The result is converted to dB and applied as needed to peak measurements of transmitter artifacts to determine average power. This is not a pass/fail measurement.

2.2 Test Criteria

47 CFR (USA) // IC (Canada)		
Section Reference	Parameter	Date
15.247(a)(3) // RSS-247 5.2	Fundamental Power Conducted Limits 1 W Limit Restated as Field: 125.23 dBµV/m @ 3 m	31 Jul 2018 3 Aug 2018

2.3 Test Results, Peak Power

The EUT was measured for radiated power in normal upright orientation. It is not operated hand-held.

Table 2.3.1 Power, Peak, Radiated			
Frequency MHz	**Measured Peak Power dBµV/m @ 3 m Vertical Polarity**	**Measured Peak Power dBµV/m @ 3 m Horizontal Polarity**	**Maximum Measured Peak Power Restated as EIRP dBm**
2402	92.6	92.5	-2.63
2440	91.9	93.8	-1.43
2480	89.1	92.2	-3.03

Measured in 1 MHz RBW, 3 MHz VBW.

The EUT was found to be in compliance with the applicable criteria.

2.4 Test Results, Duty Cycle

Measurement is based on intervals not to exceed 100 msec. Maximum transmitter on time is divided by the lesser of 100 msec or the actual measured minimum transmitter interval time. The result is converted to dB and applied as needed to peak measurements of transmitter artifacts to determine average power. This is not a pass/fail measurement.

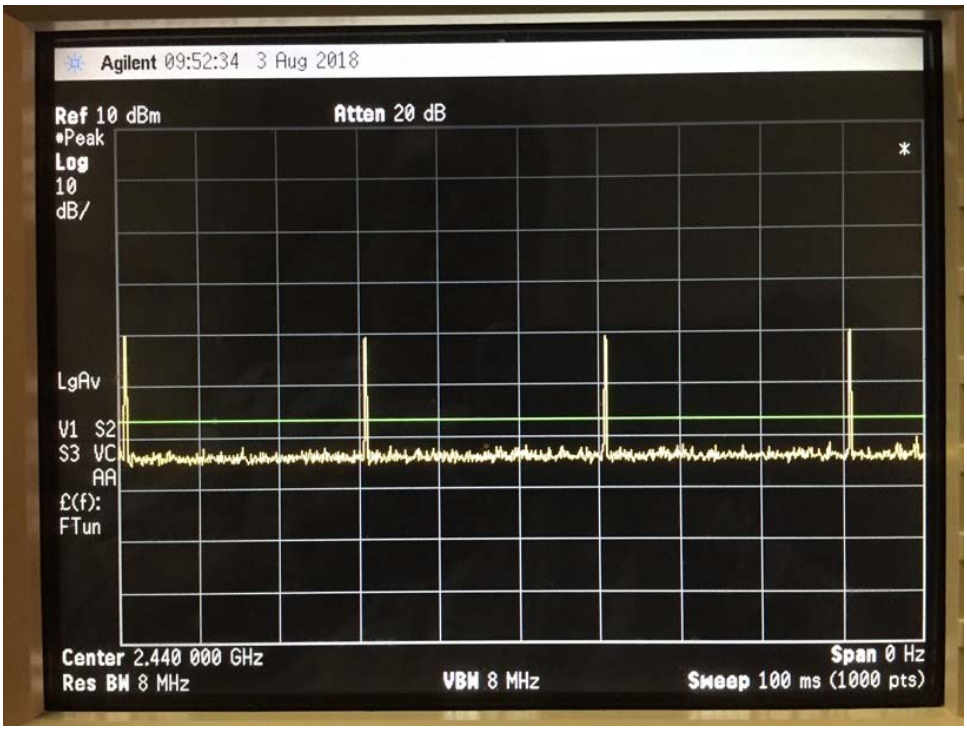
The EUT was set into normal operation and using the manufacturer's mobile smart phone application a constant query of light level was used as maximum activity. A sense antenna was placed next to the EUT and the mobile phone was located 2 meters away to minimize effect on measurement. The spectrum analyzer was set to the center channel in time domain mode and triggered on video. The time base was set to 100 ms to count the number of events, then the transmit time itself was measured.

Events in 100 ms: 4
Transmit time: 0.095 ms * 4 = 0.38 ms

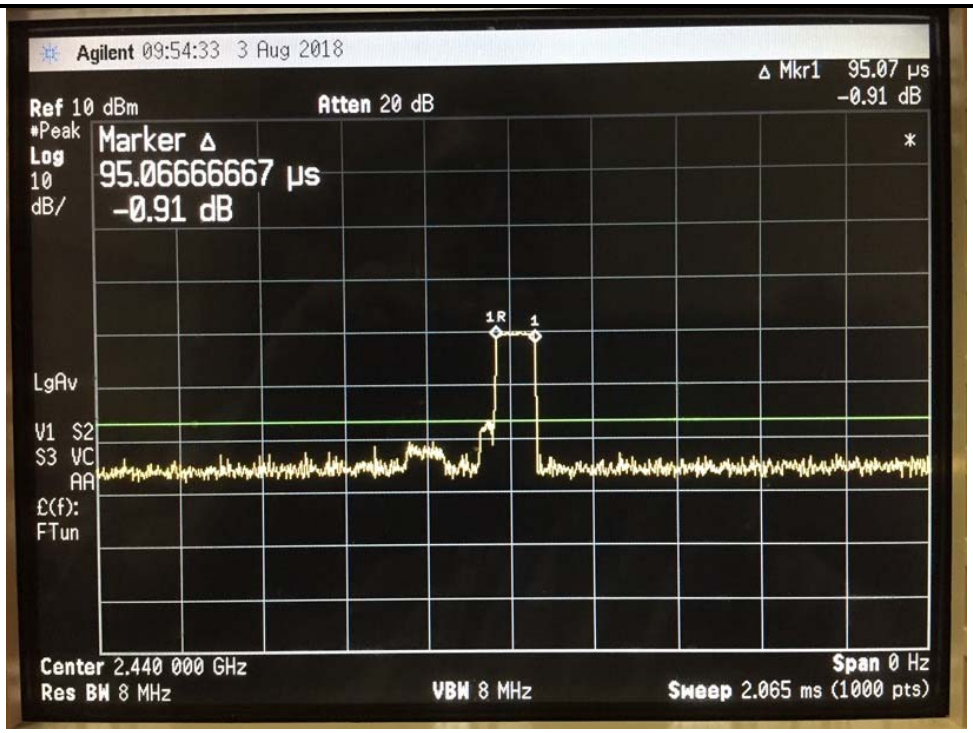
Duty cycle: 0.38 / 100 = 0.38 %
Duty cycle factor: 20 log (0.0038) = -48 dB; allowed -20 dB

Factor for exposure = -24 dB

2.4.1 Timings, Duty Cycle



Transmit events in 100 ms



Transmit event

3.0 Power Spectral Density

3.1 Test Procedure

A spectrum analyzer is either connected directly to the EUT or used by radiated means to measure the fundamental emission. It is adjusted to measure the power spectral density in the prescribed resolution bandwidth.

3.2 Test Criteria

47 CFR (USA) // IC (Canada)		
Section Reference	Parameter	Date
15.247(e) // RSS-247, 5.2	Power Spectral Density, Conducted Limit: 8 dBm / 3 kHz	31 Jul 2018

3.3 Test Results

The fundamental peak power measured below the 8 dBm limit for this test; the EUT satisfies the criteria without additional measurement.

4.0 Occupied Bandwidth

4.1 Test Procedure

Bandwidth is measured by radiated means. A recording of the results is included.

4.2 Test Criteria

47 CFR (USA) // IC (Canada)		
Section Reference	Parameter	Date(s)
14.247(a)(2), 2.1049, KDB 558074 D01 // RSS-Gen 4.6	Bandwidth, 6 dB, 20 dB, 99%	19 Jun 2017

4.3 Test Results

The bandwidth measurement is used to verify DTS characteristics and/or for general reporting for agency application.

The EUT was found to be in compliance with applicable requirements.

Table 4.3.1 Bandwidth 6 dB, Minimum 500 kHz in 100 kHz RBW			
Low Channel Measured BW (kHz)	Mid Channel Measured BW (kHz)	High Channel Measured BW (kHz)	**Reported Minimum BW (kHz)**
630	628	624	**624**

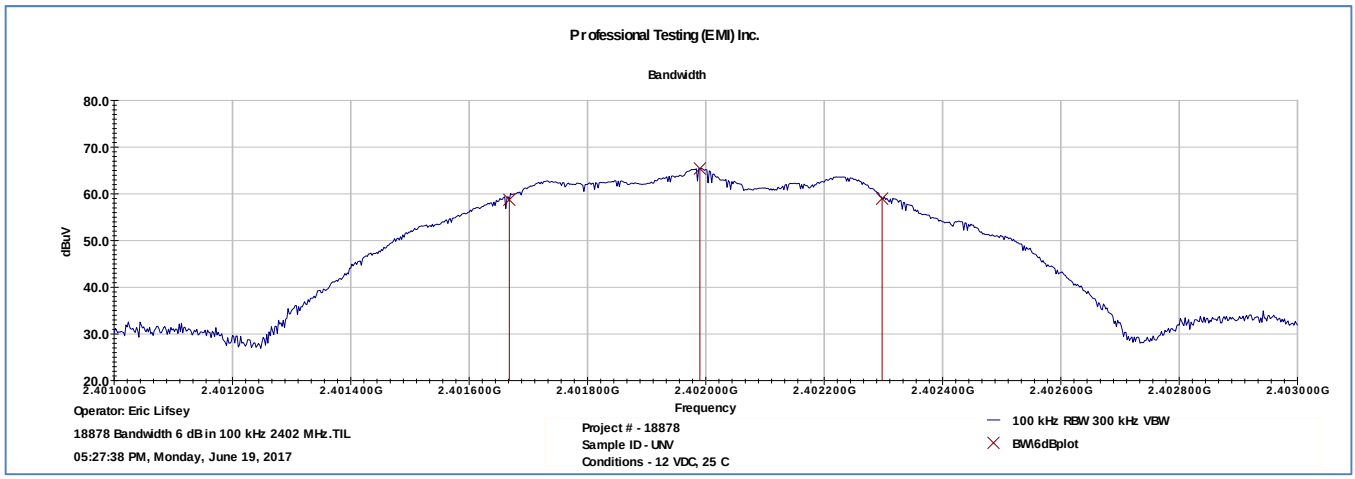
Table 4.3.2 Bandwidth 20 dB, Measure and Report			
Low Channel Measured BW (kHz)	Mid Channel Measured BW (kHz)	High Channel Measured BW (kHz)	**Reported Maximum BW (kHz)**
972	1076	1088	**1088**

Table 4.3.3 Bandwidth OBW 99%, Measure and Report			
Low Channel Measured BW (kHz)	Mid Channel Measured BW (kHz)	High Channel Measured BW (kHz)	**Reported Maximum BW (kHz)**
1018	1019	1015	**1019**

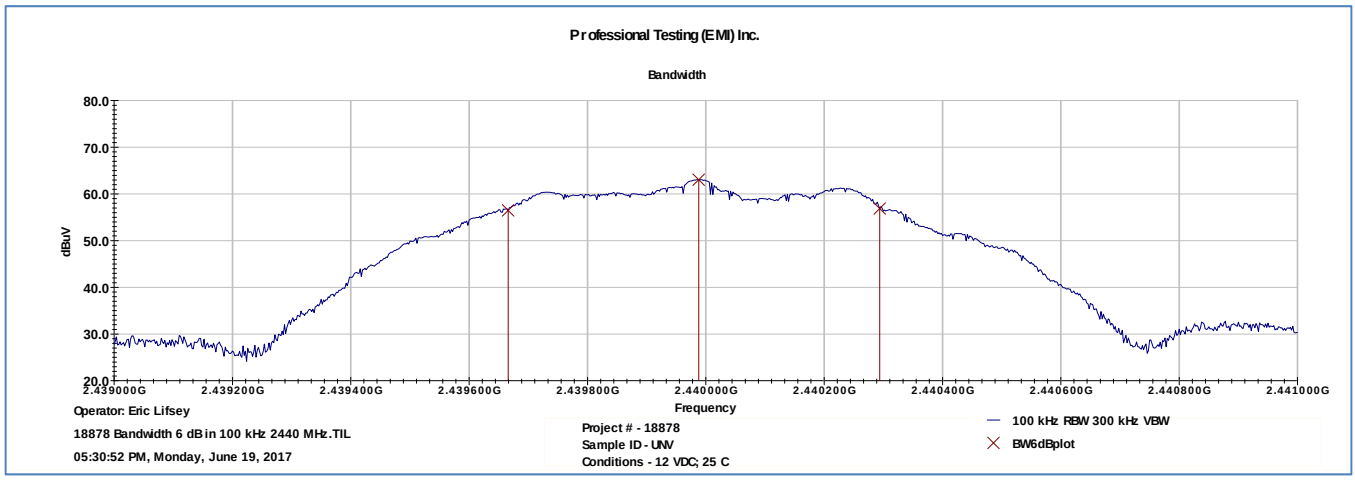
Plotted measurements appear on the following pages.

Note that the test results for a previous certification apply in that the transmitter is the same sample with only an antenna change involved.

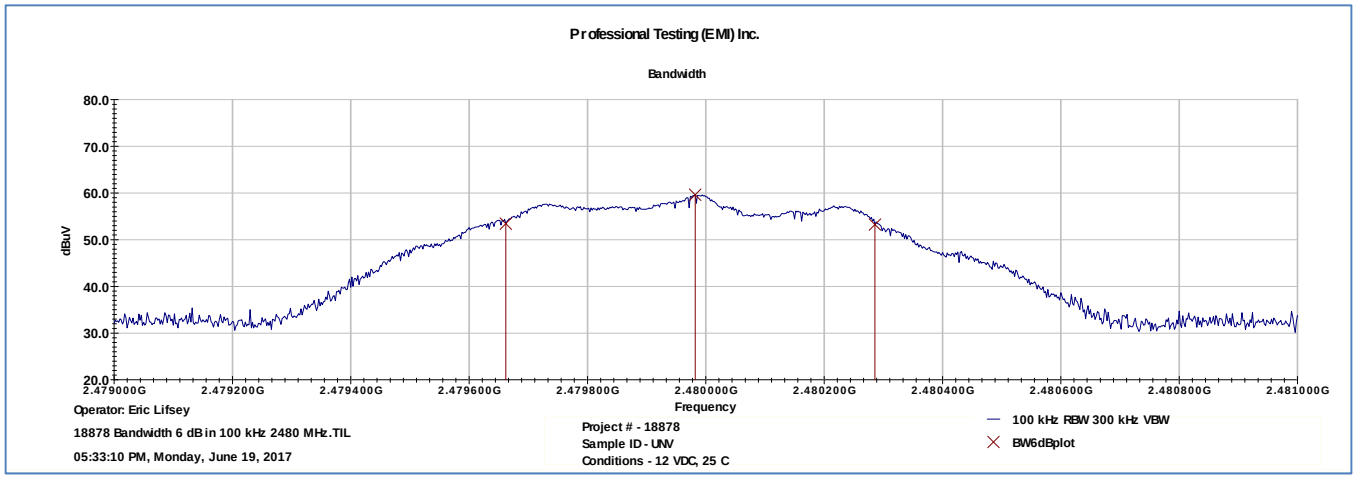
4.3.1 Bandwidth Plots, 6 dB



6 dB, Low Channel

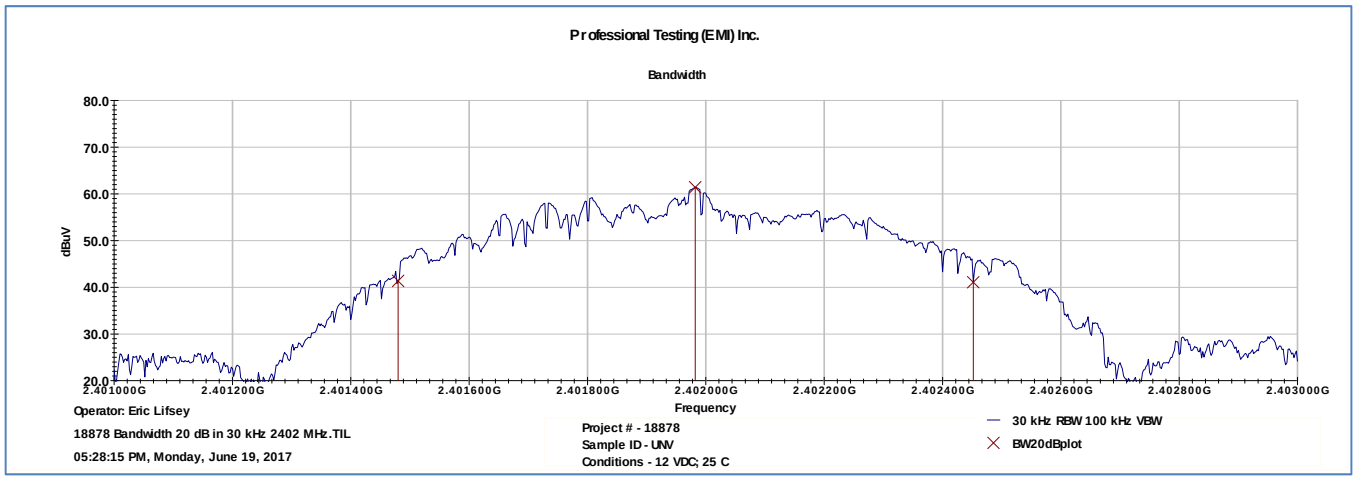


6 dB, Middle Channel

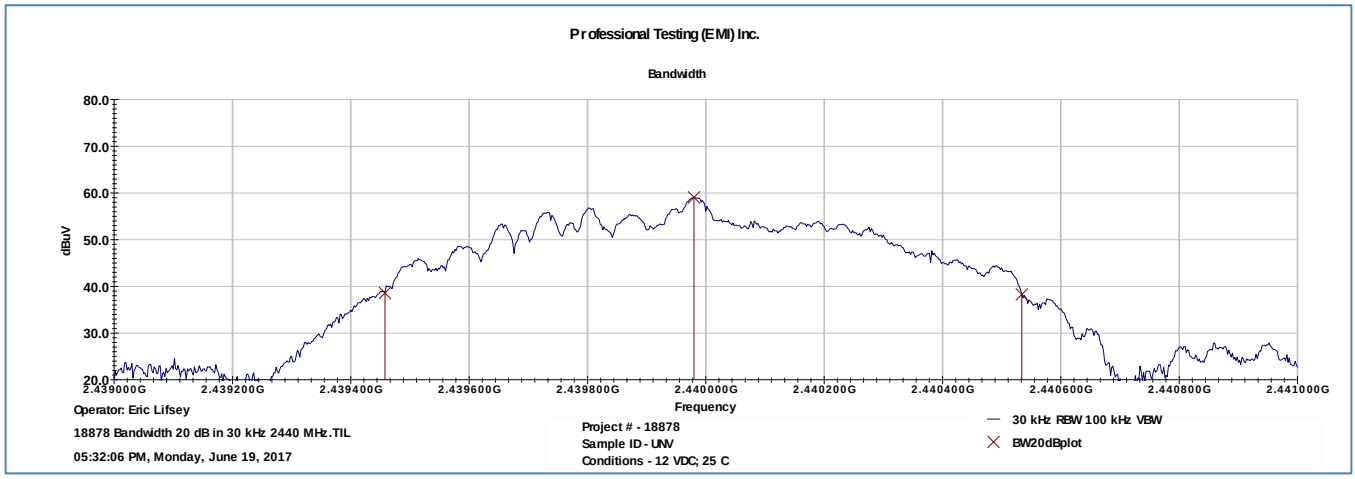


6 dB, High Channel

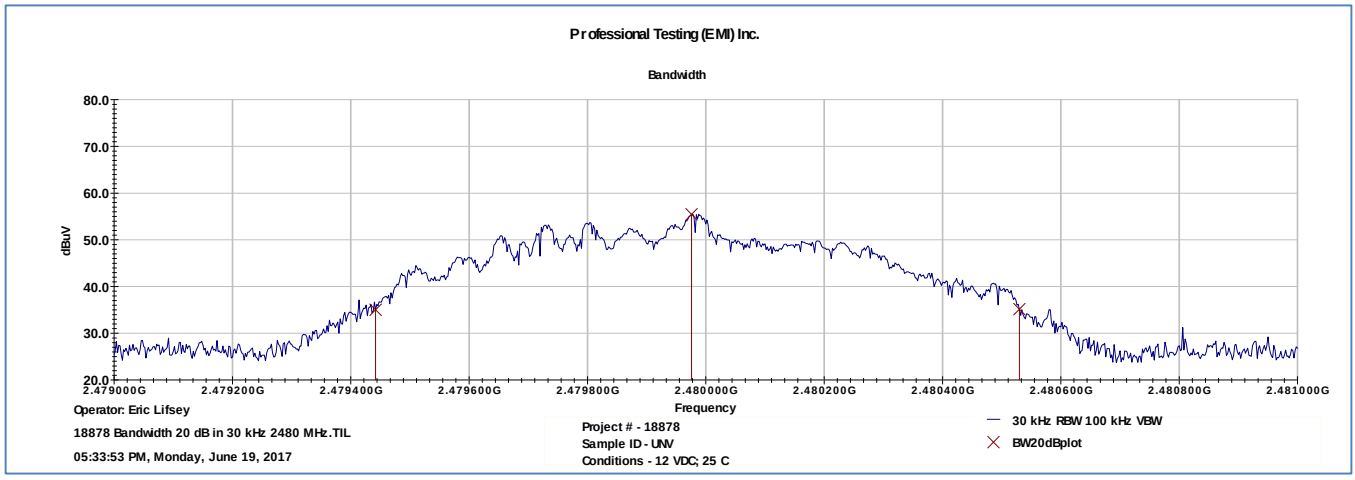
4.3.2 Bandwidth Plots, 20 dB



20 dB, Low Channel

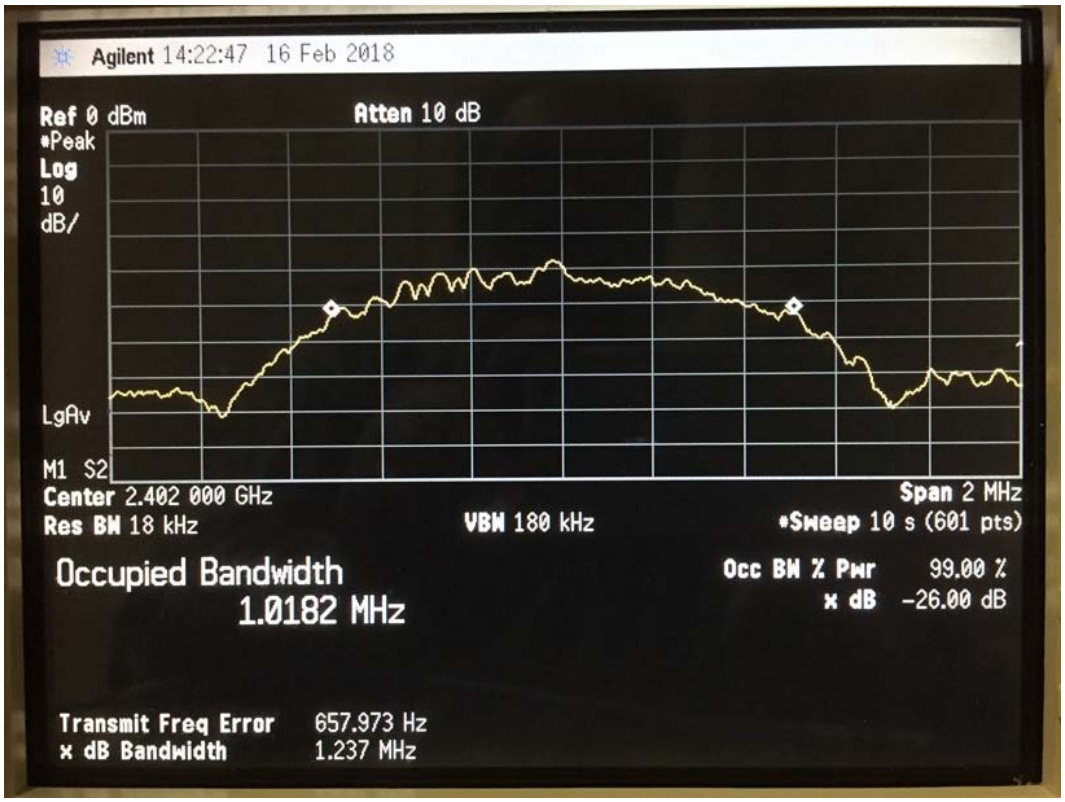


20 dB, Middle Channel

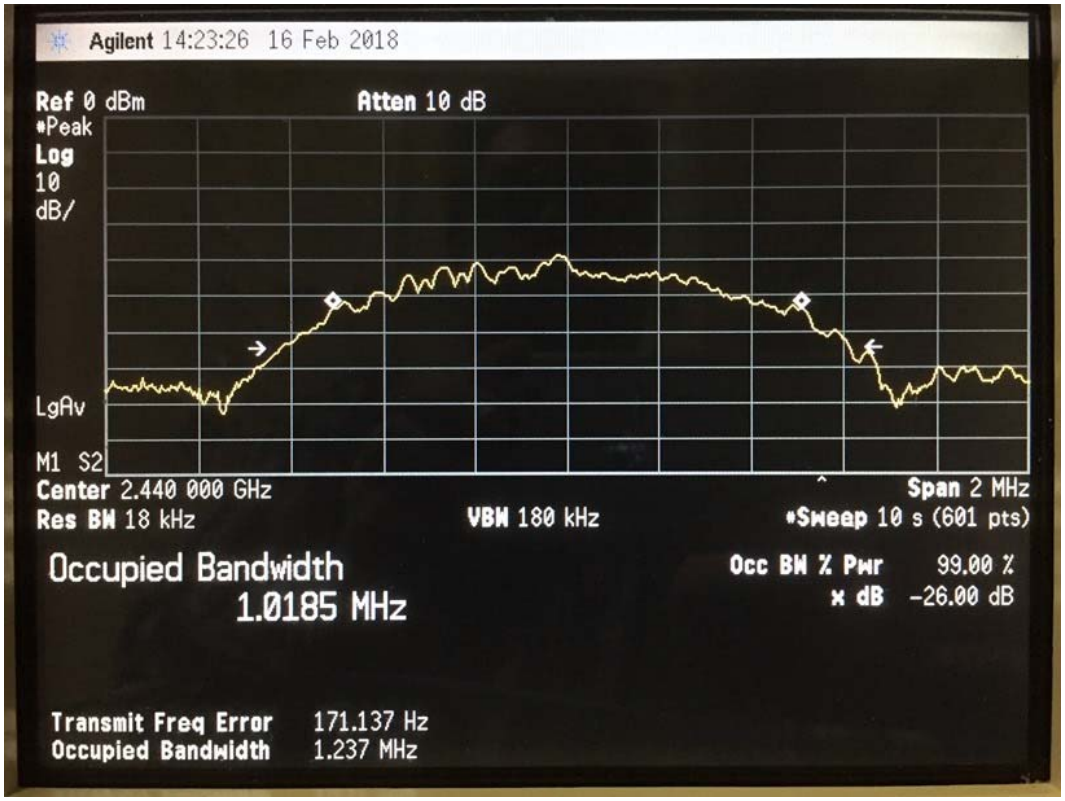


20 dB, High Channel

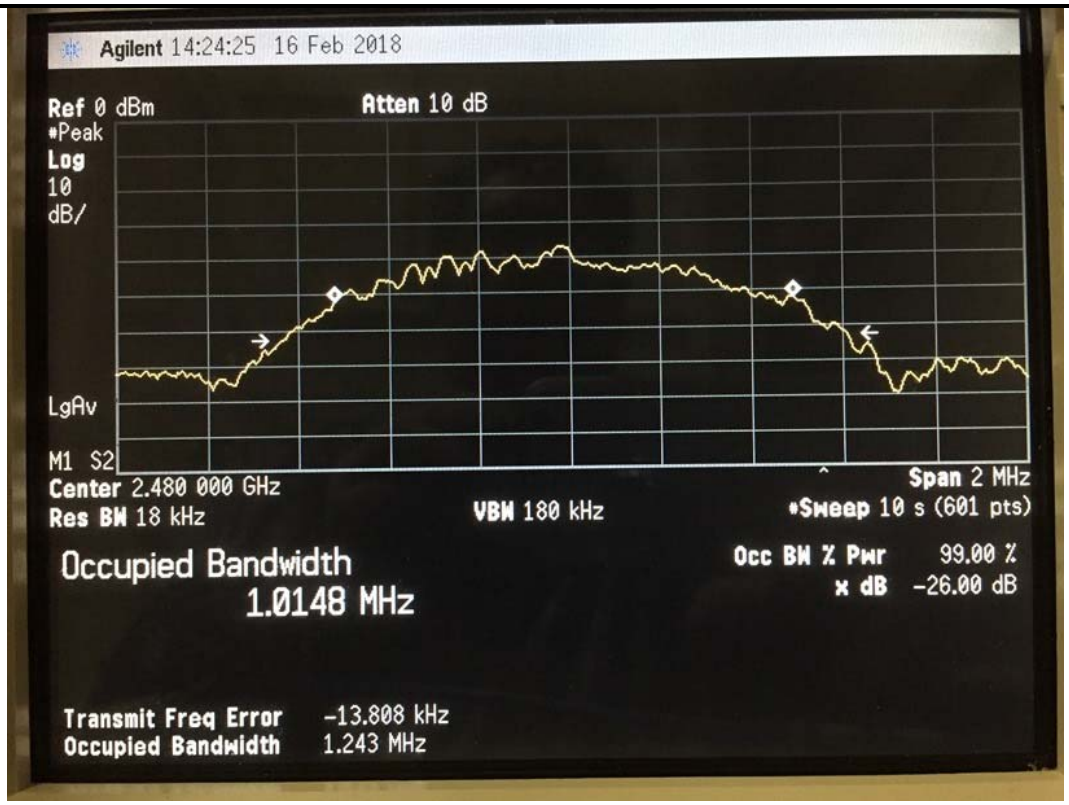
4.3.3 Bandwidth Plots, OBW 99%



Low Channel



Low Channel



High Channel

5.0 Band Edge

5.1 Test Procedure

EUT is placed into normal transmit operation on the nearest band edge channel. The spectrum analyzer is approximately centered on the band edge frequency with span sufficient to include the peak of the adjacent fundamental signal. Measurement includes at least two standard bandwidths from the respective band edge. If required, the band-edge marker-delta method of C63.4 is utilized.

5.2 Test Criteria

47 CFR (USA) // IC (Canada)		
Section Reference	Parameter	Date(s)
15.247, 15.205 // RSS-247 5.5, RSS-Gen 4.9	Unwanted Emissions Adjacent to Authorized Band, Radiated	2 Aug 2018

5.3 Test Results

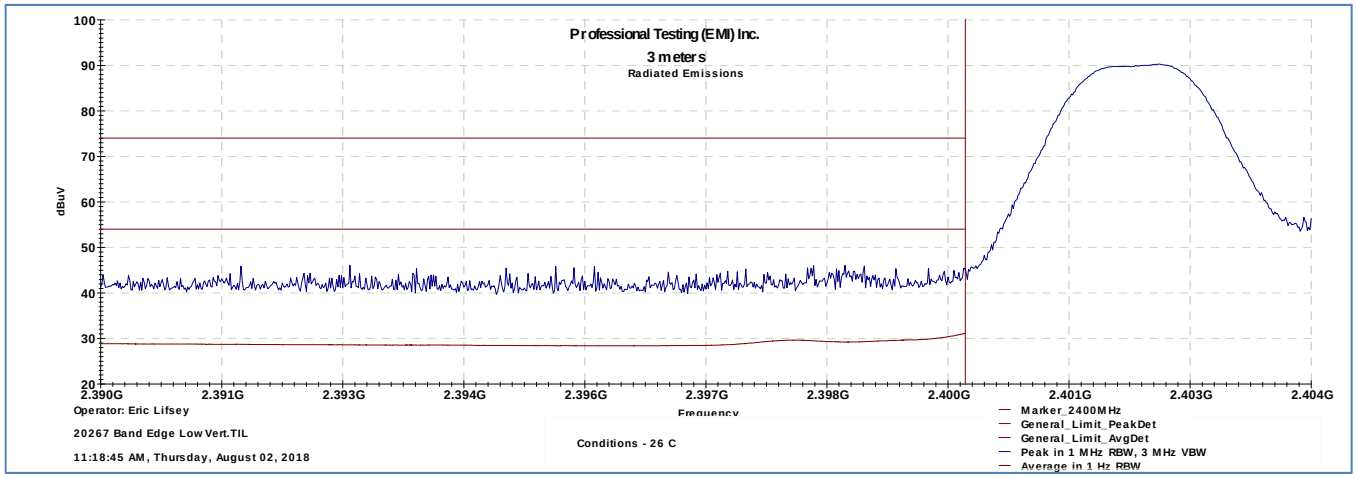
Measurements included more than 2 standard bandwidths (standard bandwidth 1 MHz) from the band edges to provide a clear view of the fundamental and the declining emission levels. Peak detection and average detection with max-hold was employed.

Peak detection of emissions at both band edges were below the general emission average limit levels.

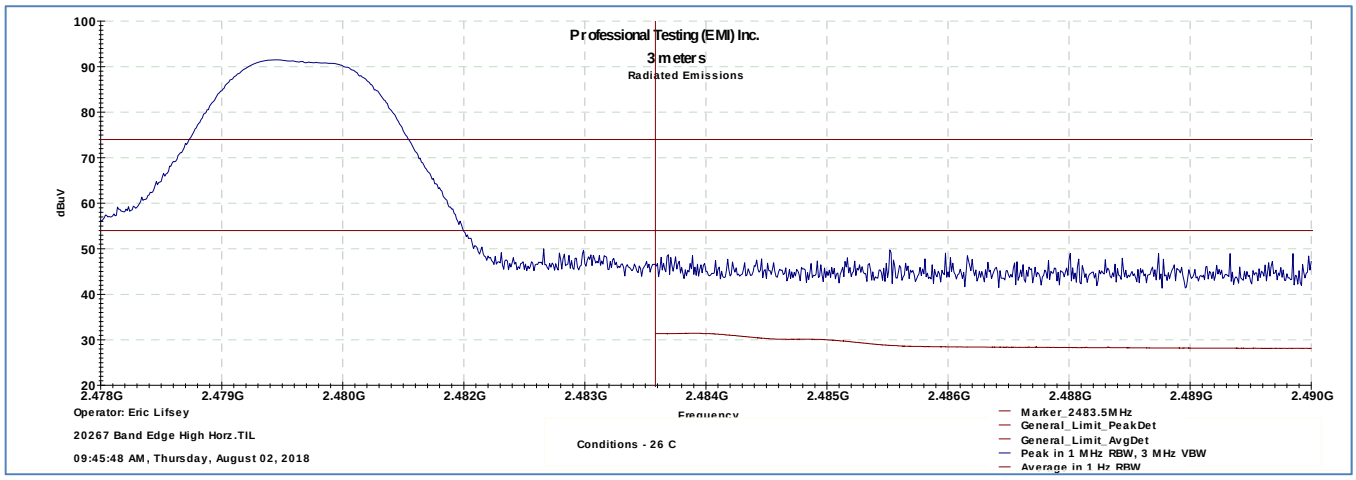
The polarity with highest recorded output power is presented for the given edge.

The EUT satisfied the criteria. Plotted results appears on the following pages.

5.3.1 Low Channel Band Edge



5.3.2 High Channel Band Edge

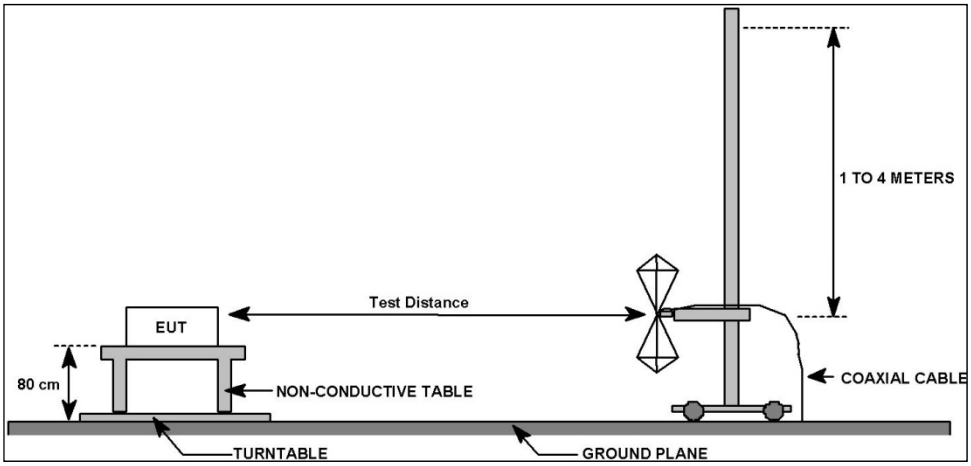


6.0 Radiated Spurious Emissions, Receive Mode

6.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the ground plane. The EUT was centered on a rotating turntable. Measurements below 1 GHz were taken at a test distance of 10 meters from the measurement antenna. Above 1 GHz the measurement distance was 3 meters.

Spurious emissions below 1 GHz were measured with quasi-peak detection with a resolution bandwidth of 120 kHz. Above 1 GHz peak measurements were taken and average measured where appropriate and 1 MHz resolution bandwidth. A diagram showing the test setup appears below.



6.2 Test Criteria

47 CFR (USA) // IC (Canada)		
Section Reference	Parameter	Date(s)
15.247, 15.209 // RSS-247 5.5, RSS-Gen 4.9 & 4.10	Field Strength of Radiated Spurious/Harmonic Emissions Receive Mode	22 Aug 2018

6.3 Test Results

The EUT was tuned to the middle channel and placed in receive mode.

The EUT satisfied the criteria. Recorded data is presented below.

Emissions below 1 GHz in transmit mode satisfied the receive mode limits.

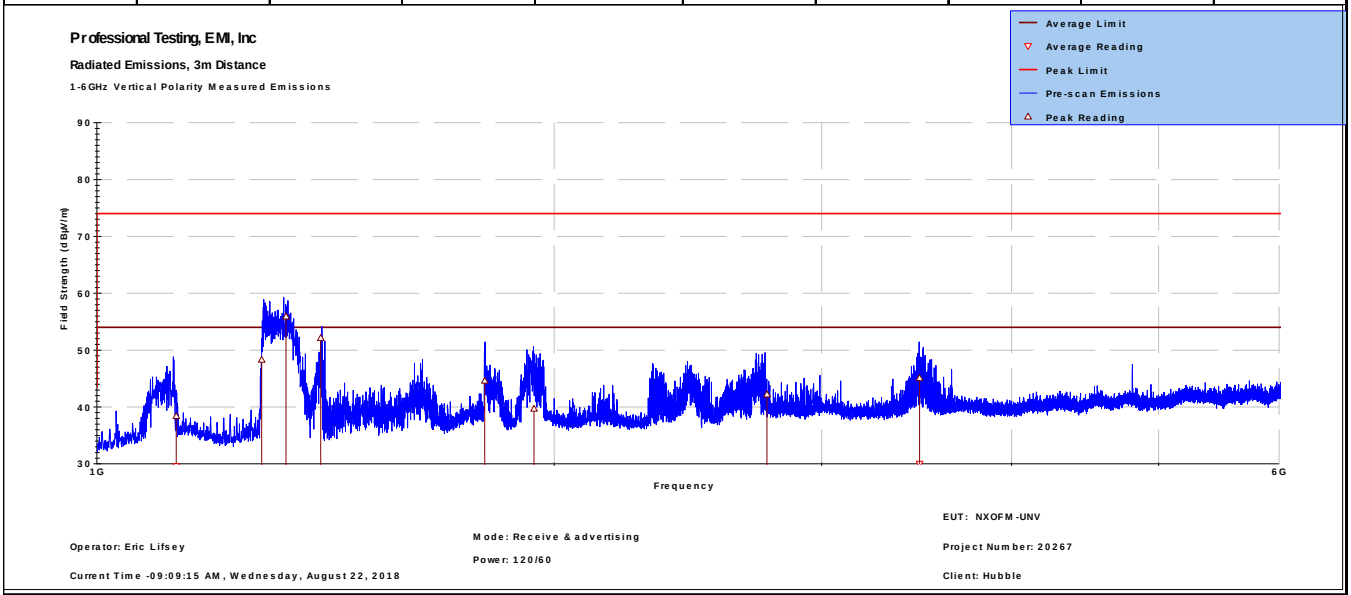
6.3.1 Above 1 GHz

Professional Testing, EMI, Inc.			
Test Method:	ANSI C63.4: 2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		
In accordance with:	FCC Part 15.109 - Code of Federal Regulations Part 47, Subpart B - Unintentional Radiators, Radiated Emissions Limits		
Section:	15.109		
Test Date(s):	8/22/2018	**EUT Serial #:**	None
Customer:	Hubble Control Solutions	**EUT Part #:**	None
Project Number:	20267	**Test Technician:**	Eric Lifsey
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-UNV	**Witness' Name:**	None

Radiated Emissions Test Results Data Sheet — **Page: 1 of 1**

EUT Line Voltage:	120 VAC	**EUT Power Frequency:**	60 Hz
Antenna Orientation:	Vertical	**Frequency Range:**	Above 1GHz
EUT Mode of Operation:		Receive & advertising	

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Results
1127.92	3	123	2.1	Average	42.1	29.58	54.0	-24.4	Pass
1283.95	3	76	1.83	Average	39.6	27.831	54.0	-26.1	Pass
1332.08	3	47	1.79	Average	40.1	28.245	54.0	-25.7	Pass
1404.09	3	77	2.86	Average	38.2	26.326	54.0	-27.6	Pass
1800.29	3	47	1.92	Average	37.3	27.625	54.0	-26.3	Pass
1939.75	3	86	2.83	Average	37.3	28.017	54.0	-25.9	Pass
2761.13	3	311	1.49	Average	36.4	28.718	54.0	-25.2	Pass
3479.49	3	52	1.56	Average	36.9	30.003	54.0	-24.0	Pass



> 1GHz Vertical Antenna Polarity Measured Emissions

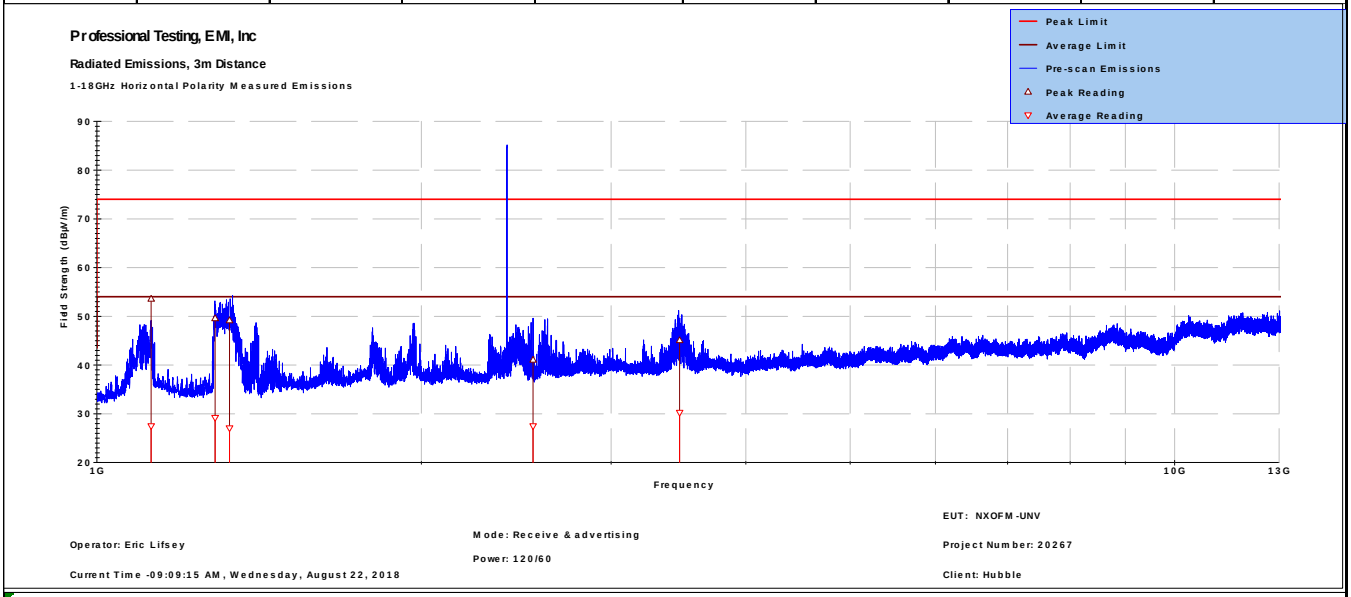
Professional Testing, EMI, Inc.

Test Method:	ANSI C63.4: 2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		
In accordance with:	FCC Part 15.109 - Code of Federal Regulations Part 47, Subpart B - Unintentional Radiators, Radiated Emissions Limits		
Section:	15.109		
Test Date(s):	8/22/2018	**EUT Serial #:**	None
Customer:	Hubble Control Solutions	**EUT Part #:**	None
Project Number:	20267	**Test Technician:**	Eric Lifsey
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-UNV	**Witness' Name:**	None

Radiated Emissions Test Results Data Sheet — **Page: 1 of 1**

EUT Line Voltage:	120 VAC	**EUT Power Frequency:**	60 Hz
Antenna Orientation:	Horizontal	**Frequency Range:**	Above 1GHz
EUT Mode of Operation:		Receive & advertising	

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Results
1122.95	3	56	3.72	Average	40	27.453	54.0	-26.5	Pass
1287.59	3	4	1.55	Average	40.9	29.133	54.0	-24.8	Pass
1327.54	3	114	1.84	Average	38.8	27.025	54.0	-26.9	Pass
2539.46	3	77	1.61	Average	36.1	27.436	54.0	-26.5	Pass
3473.19	3	102	3.46	Average	37.1	30.198	54.0	-23.8	Pass



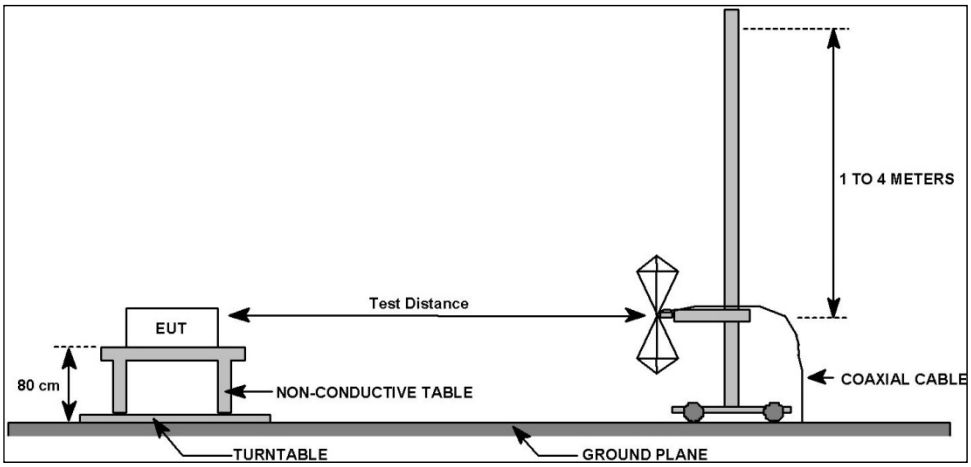
> 1GHz Horizontal Antenna Polarity Measured Emissions

7.0 Radiated Spurious Emissions, Transmit Mode

7.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the ground plane. The EUT was centered on a rotating turntable. Measurements below 1 GHz were taken at a test distance of 10 meters from the measurement antenna. Above 1 GHz the measurement distance was 3 meters.

Spurious emissions below 1 GHz were measured with quasi-peak detection with a resolution bandwidth of 120 kHz. Above 1 GHz peak measurements were taken and average measured where appropriate using 1 MHz resolution bandwidth. A diagram showing the test setup appears below.



7.2 Test Criteria

47 CFR (USA) // IC (Canada)		
Section Reference	Parameter	Date(s)
15.247, 15.209 // RSS-247 5.5, RSS-Gen 4.9 & 4.10	Field Strength of Radiated Spurious/Harmonic Emissions Transmit Mode	31 Jul 2018 1 Aug 2018

7.3 Test Results

Below 1 GHz measurements were taken for the middle channel. Above 1 GHz measurements were taken for the three standard channels of the band.

All measurements used peak detection.

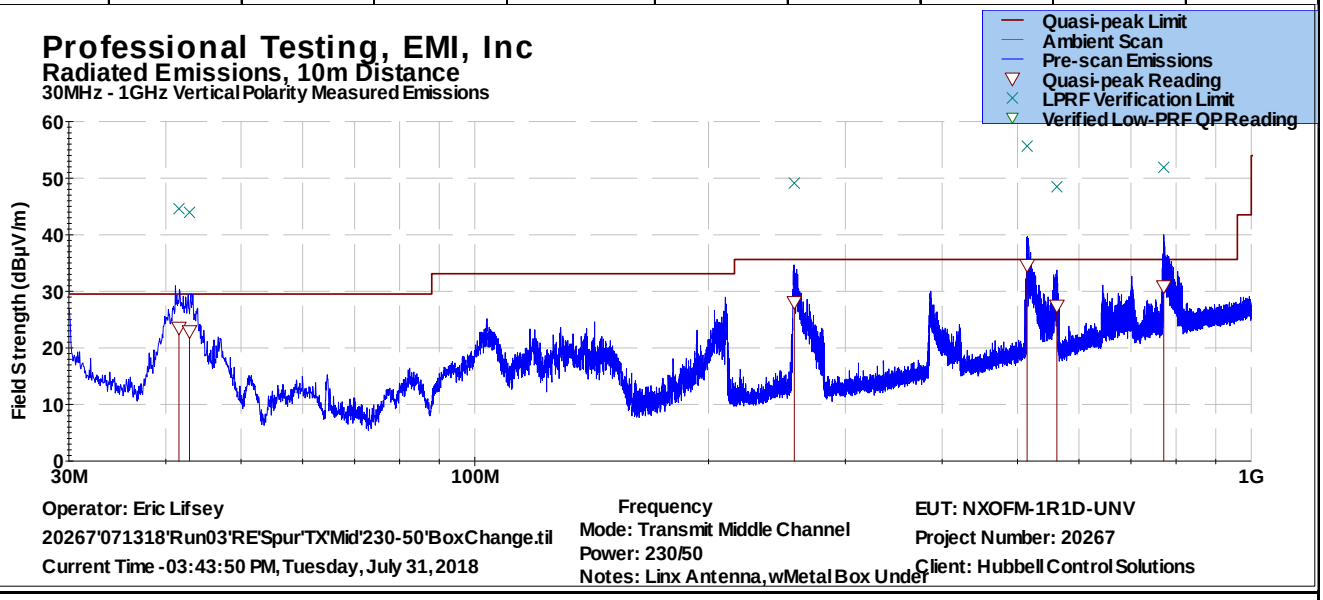
The applicable averaging factor for harmonic spurious emissions is -20 dB and can be applied to any harmonic peaks appearing above the average limit.

7.3.1 Up to 1 GHz, Middle Channel

Professional Testing, EMI, Inc.			
Test Method:	ANSI C63.10: 2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
In accordance with:	FCC Part 15.209 - Code of Federal Regulations Part 47, Subpart C - Intentional Radiators, Radiated Emissions Limits		
Section:	15.209		
Test Date(s):	7/31/2018	EUT Serial #:	none
Customer:	Hubbell Control Solutions	EUT Part #:	NXOFM-R1D1
Project Number:	20267	Test Technician:	Eric Lifsey
Purchase Order #:	0	Supervisor:	Lisa Arndt
Equip. Under Test:	NXOFM-R1D1	Witness' Name:	none

Radiated Emissions Test Results Data Sheet		Page: 1 of 1	
EUT Line Voltage:	230 VAC	EUT Power Frequency:	50 Hz
Antenna Orientation:	Vertical	Frequency Range:	30MHz to 1GHz
EUT Mode of Operation:		Transmit 2440 MHz	

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Results
41.583	10	80	1.28	Quasi-peak	39.452	23.585	29.5	-5.9	Pass
42.907	10	139	1.56	Quasi-peak	39.287	22.954	29.5	-6.5	Pass
257.959	10	92	1.27	Quasi-peak	39.553	28.105	35.6	-7.5	Pass
514.672	10	131	3.67	Quasi-peak	39.304	34.657	35.6	-0.9	Pass
562.113	10	234	2.95	Quasi-peak	31.696	27.471	35.6	-8.1	Pass
771.791	10	102	4.06	Quasi-peak	30.203	30.892	35.6	-4.7	Pass



≤ 1GHz Vertical Antenna Polarity Measured Emissions

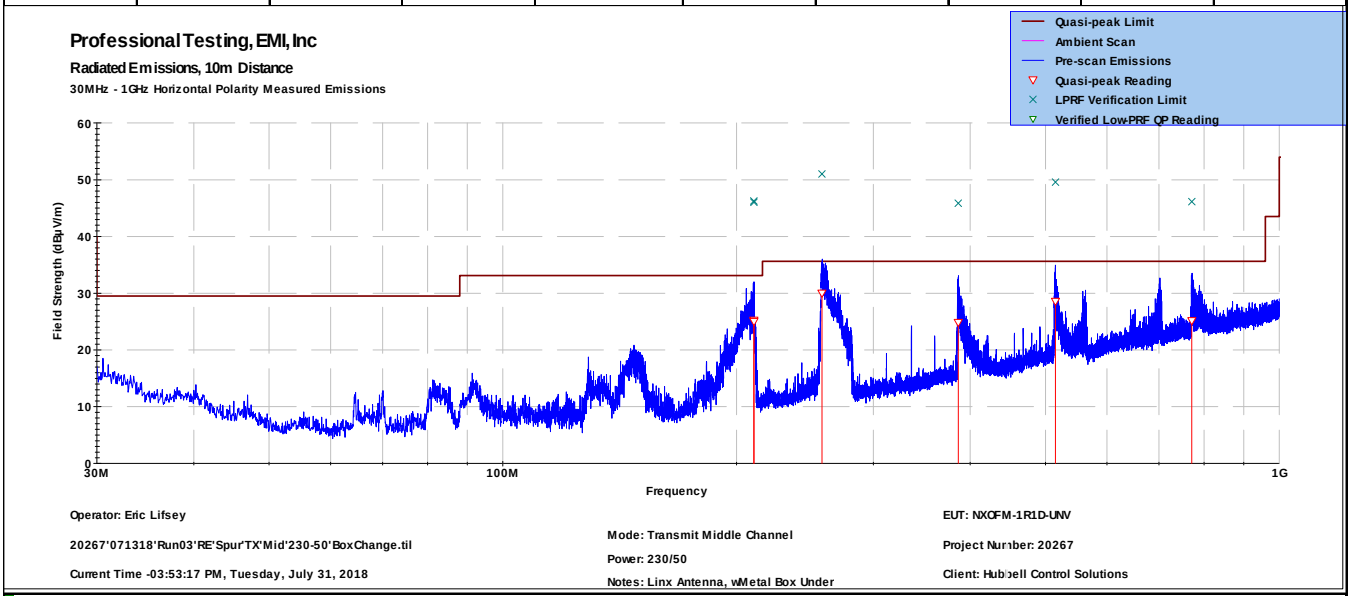
Professional Testing, EMI, Inc.

Test Method:	ANSI C63.10: 2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
In accordance with:	FCC Part 15.209 - Code of Federal Regulations Part 47, Subpart C - Intentional Radiators, Radiated Emissions Limits		
Section:	15.209		
Test Date(s):	7/31/2018	**EUT Serial #:**	none
Customer:	Hubbell Control Solutions	**EUT Part #:**	NXOFM-R1D1
Project Number:	20267	**Test Technician:**	Eric Lifsey
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-R1D1	**Witness' Name:**	none

Radiated Emissions Test Results Data Sheet — **Page: 1 of 1**

EUT Line Voltage:	230 VAC	**EUT Power Frequency:**	50 Hz
Antenna Orientation:	Horizontal	**Frequency Range:**	30MHz to 1GHz
EUT Mode of Operation:		Transmit 2440 MHz	

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Results
210.524	10	86	3.89	Quasi-peak	39.05	25.236	33.1	-7.9	Pass
210.559	10	88	3.9	Quasi-peak	38.821	25.009	33.1	-8.1	Pass
257.661	10	233	3.58	Quasi-peak	41.453	30.008	35.6	-5.6	Pass
386.048	10	28	2.49	Quasi-peak	33.051	24.845	35.6	-10.8	Pass
515.111	10	54	1.68	Quasi-peak	33.197	28.56	35.6	-7.0	Pass
771.741	10	306	3.22	Quasi-peak	24.453	25.142	35.6	-10.5	Pass

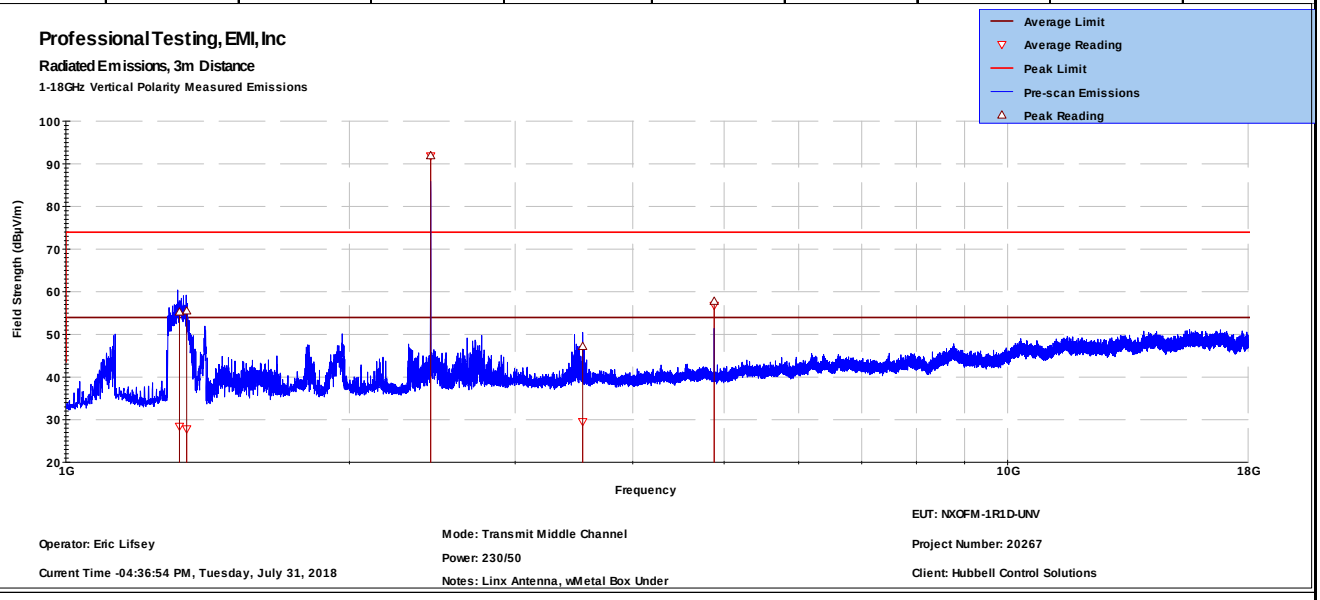


≤ 1GHz Horizontal Antenna Polarity Measured Emissions

7.3.2 1 GHz to 18 GHz, Middle Channel

Professional Testing, EMI, Inc.			
Test Method:	ANSI C63.10: 2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
In accordance with:	FCC Part 15.209 - Code of Federal Regulations Part 47, Subpart C - Intentional Radiators, Radiated Emissions Limits		
Section:	15.209		
Test Date(s):	7/31/2018	**EUT Serial #:**	none
Customer:	Hubbell Control Solutions	**EUT Part #:**	NXOFM-R1D1
Project Number:	20267	**Test Technician:**	Eric Lifsey
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-R1D1	**Witness' Name:**	none

Radiated Emissions Test Results Data Sheet								Page: 1 of 1	
EUT Line Voltage:	230 VAC			**EUT Power Frequency:**	50 Hz				
Antenna Orientation:	Vertical			**Frequency Range:**	Above 1GHz				
EUT Mode of Operation:				Transmit 2440 MHz					
Frequency Measured (MHz)	**Test Distance (Meters)**	**EUT Direction (Degrees)**	**Antenna Height (Meters)**	**Detector Function**	**Recorded Amplitude (dBµV)**	**Corrected Level (dBµV/m)**	**Limit Level (dBµV/m)**	**Margin (dB)**	**Test Results**
1320.16	3	210	1.61	Average	40.3	28.448	54.0	-25.5	Pass
1343.87	3	237	1.01	Average	39.7	27.822	54.0	-26.1	Pass
2440.01	3	267	3.46	Peak	100.9	91.902			Funamental
3537.91	3	107	2.22	Average	36.4	29.536	54.0	-24.4	Pass
4879.93	3	301	2.58	Peak	61.7	57.758	74.0	-16.2	Pass



> 1GHz Vertical Antenna Polarity Measured Emissions

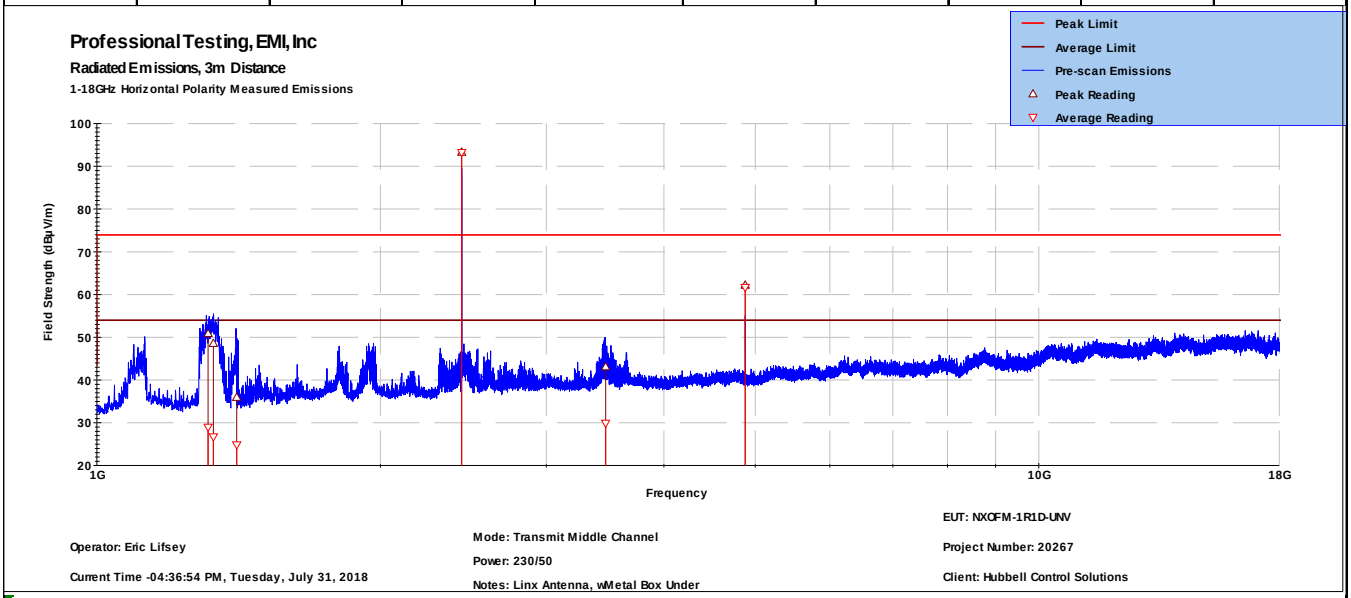
Professional Testing, EMI, Inc.

Test Method:	ANSI C63.10: 2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
In accordance with:	FCC Part 15.209 - Code of Federal Regulations Part 47, Subpart C - Intentional Radiators, Radiated Emissions Limits		
Section:	15.209		
Test Date(s):	7/31/2018	**EUT Serial #:**	none
Customer:	Hubbell Control Solutions	**EUT Part #:**	NXOFM-R1D1
Project Number:	20267	**Test Technician:**	Eric Lifsey
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-R1D1	**Witness' Name:**	none

Radiated Emissions Test Results Data Sheet — **Page: 1 of 1**

EUT Line Voltage:	230 VAC	**EUT Power Frequency:**	50 Hz
Antenna Orientation:	Horizontal	**Frequency Range:**	Above 1GHz
EUT Mode of Operation:		Transmit 2440 MHz	

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Results
1312.57	3	312	2.85	Average	40.7	28.95	54.0	-25.0	Pass
1329.73	3	310	2.1	Average	38.5	26.686	54.0	-27.3	Pass
1407.61	3	115	3.36	Average	36.7	24.847	54.0	-29.1	Pass
2439.99	3	54	3.08	Peak	102.2	93.278			Fundamental
3468.07	3	133	1.51	Average	36.8	29.863	54.0	-24.1	Pass
4879.96	3	11	1.85	Peak	66.2	62.202	74.0	-11.8	Pass

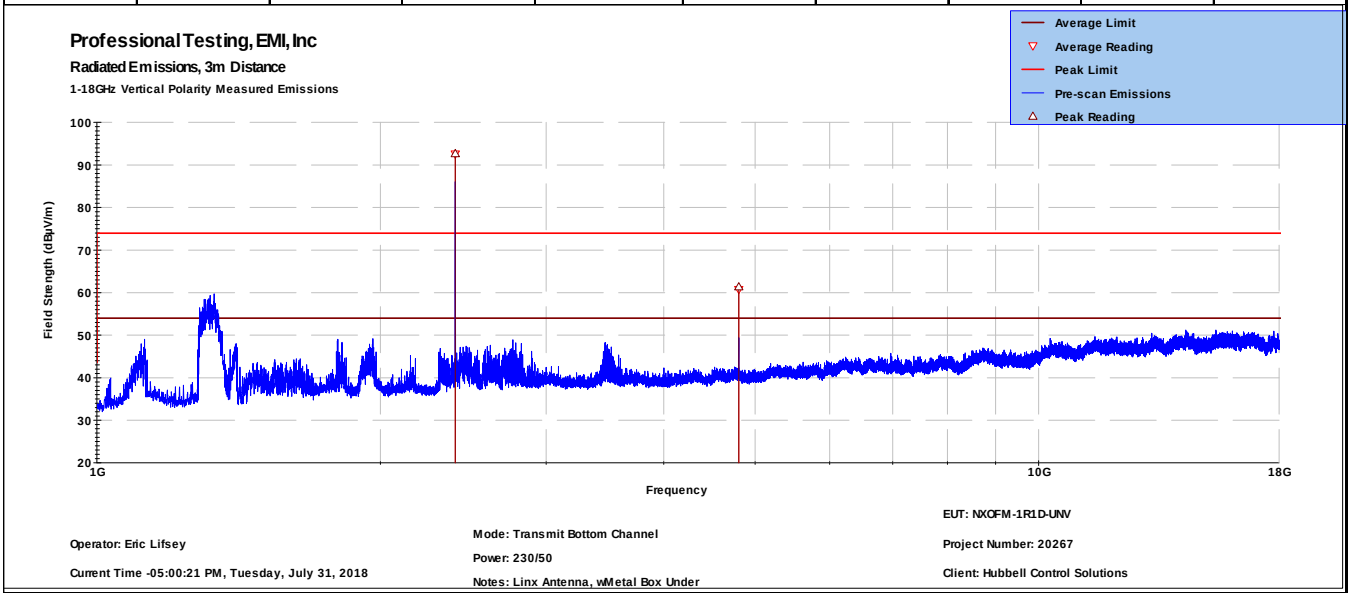


> 1GHz Horizontal Antenna Polarity Measured Emissions

7.3.3 1 GHz to 18 GHz, Bottom Channel

Professional Testing, EMI, Inc.			
Test Method:	ANSI C63.10: 2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
In accordance with:	FCC Part 15.209 - Code of Federal Regulations Part 47, Subpart C - Intentional Radiators, Radiated Emissions Limits		
Section:	15.209		
Test Date(s):	7/31/2018	**EUT Serial #:**	none
Customer:	Hubbell Control Solutions	**EUT Part #:**	NXOFM-R1D1
Project Number:	20267	**Test Technician:**	Eric Lifsey
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-R1D1	**Witness' Name:**	none

Radiated Emissions Test Results Data Sheet								Page: 1 of 1	
EUT Line Voltage:	230 VAC			**EUT Power Frequency:**	50 Hz				
Antenna Orientation:	Vertical			**Frequency Range:**	Above 1GHz				
EUT Mode of Operation:				Transmit 2402 MHz					
Frequency Measured (MHz)	**Test Distance (Meters)**	**EUT Direction (Degrees)**	**Antenna Height (Meters)**	**Detector Function**	**Recorded Amplitude (dBµV)**	**Corrected Level (dBµV/m)**	**Limit Level (dBµV/m)**	**Margin (dB)**	**Test Results**
2401.98	3	259	3.48	Peak	101.6	92.632			Fundamental
4803.95	3	263	3.29	Peak	65.3	61.347	74.0	-12.6	Pass



> 1GHz Vertical Antenna Polarity Measured Emissions

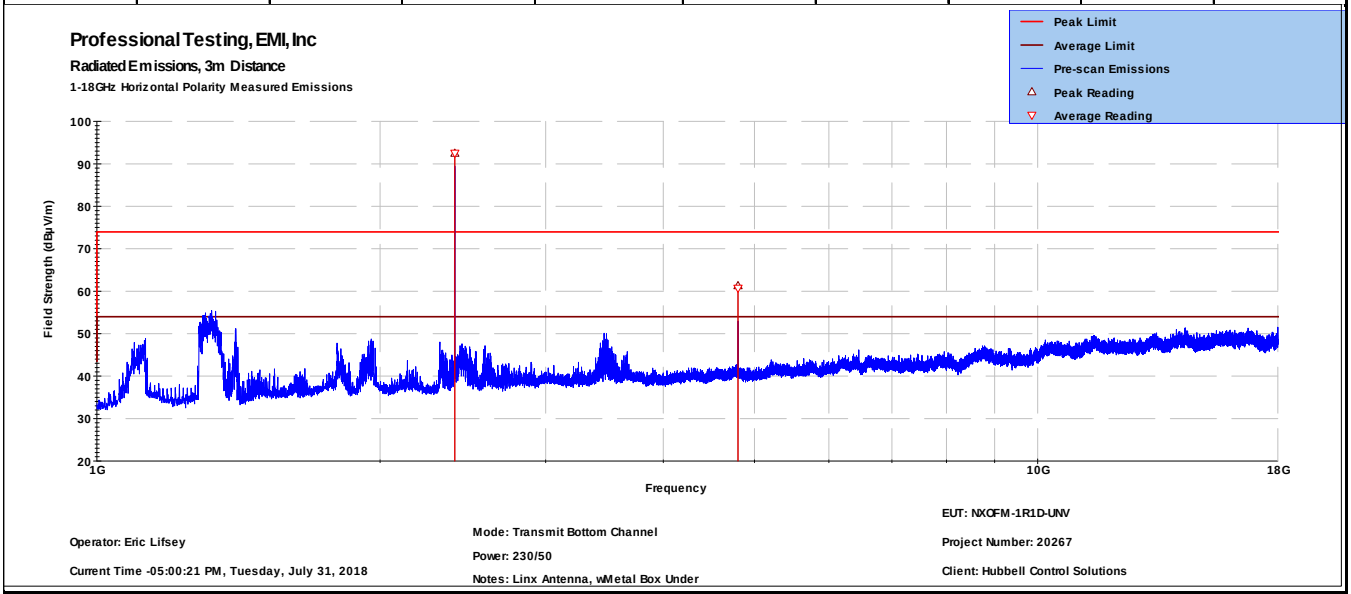
Professional Testing, EMI, Inc.

Test Method:	ANSI C63.10: 2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
In accordance with:	FCC Part 15.209 - Code of Federal Regulations Part 47, Subpart C - Intentional Radiators, Radiated Emissions Limits		
Section:	15.209		
Test Date(s):	7/31/2018	**EUT Serial #:**	none
Customer:	Hubbell Control Solutions	**EUT Part #:**	NXOFM-R1D1
Project Number:	20267	**Test Technician:**	Eric Lifsey
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-R1D1	**Witness' Name:**	none

Radiated Emissions Test Results Data Sheet — **Page: 1 of 1**

EUT Line Voltage:	230 VAC	**EUT Power Frequency:**	50 Hz
Antenna Orientation:	Horizontal	**Frequency Range:**	Above 1GHz
EUT Mode of Operation:		Transmit 2402 MHz	

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Results
2401.97	3	192	1.48	Peak	101.5	92.478			Fundamental
4804.09	3	179	2.04	Peak	65.2	61.263	74.0	-12.7	Pass



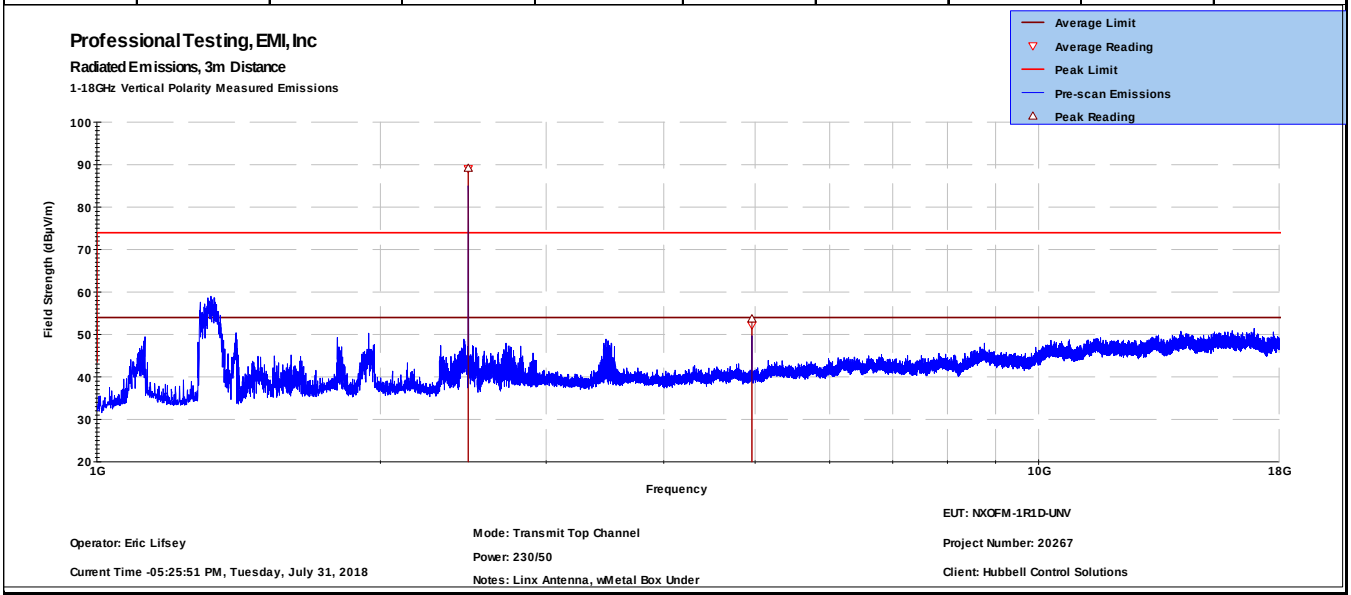
> 1GHz Horizontal Antenna Polarity Measured Emissions

7.3.4 1 GHz to 18 GHz, Top Channel

Professional Testing, EMI, Inc.			
Test Method:	ANSI C63.10: 2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
In accordance with:	FCC Part 15.209 - Code of Federal Regulations Part 47, Subpart C - Intentional Radiators, Radiated Emissions Limits		
Section:	15.209		
Test Date(s):	7/31/2018	**EUT Serial #:**	none
Customer:	Hubbell Control Solutions	**EUT Part #:**	NXOFM-R1D1
Project Number:	20267	**Test Technician:**	Eric Lifsey
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-R1D1	**Witness' Name:**	none

Radiated Emissions Test Results Data Sheet			Page: 1 of 1
EUT Line Voltage:	230 VAC	**EUT Power Frequency:**	50 Hz
Antenna Orientation:	Vertical	**Frequency Range:**	Above 1GHz
EUT Mode of Operation:		Transmit 2480 MHz	

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Results
2480	3	318	2.46	Peak	98.1	89.141			Fundamental
4960.03	3	310	2.37	Peak	57.6	53.644	74.0	-20.3	Pass



> 1GHz Vertical Antenna Polarity Measured Emissions

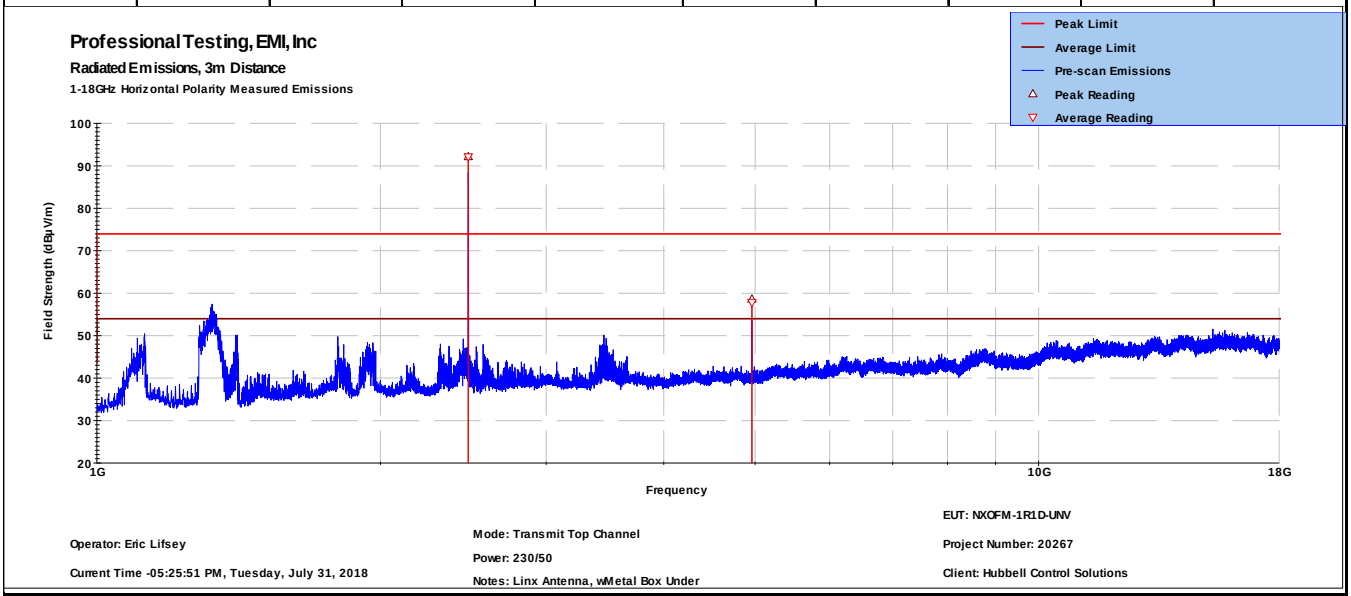
Professional Testing, EMI, Inc.

Test Method:	ANSI C63.10: 2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices		
In accordance with:	FCC Part 15.209 - Code of Federal Regulations Part 47, Subpart C - Intentional Radiators, Radiated Emissions Limits		
Section:	15.209		
Test Date(s):	7/31/2018	**EUT Serial #:**	none
Customer:	Hubbell Control Solutions	**EUT Part #:**	NXOFM-R1D1
Project Number:	20267	**Test Technician:**	Eric Lifsey
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-R1D1	**Witness' Name:**	none

Radiated Emissions Test Results Data Sheet — **Page: 1 of 1**

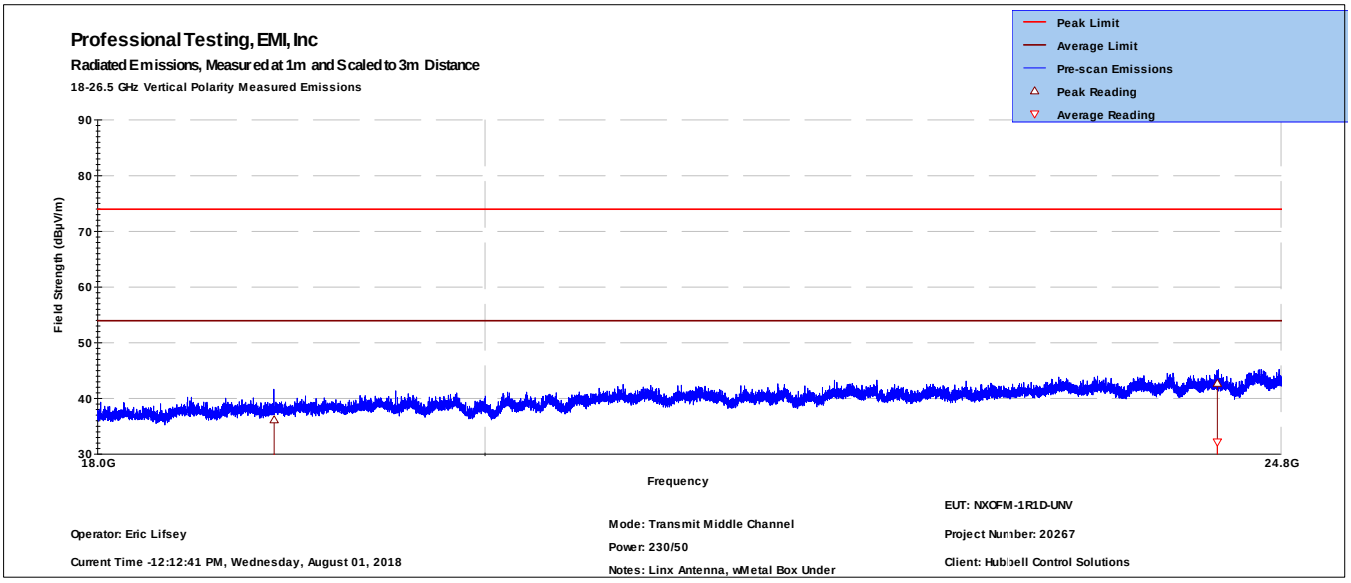
EUT Line Voltage:	230 VAC	**EUT Power Frequency:**	50 Hz
Antenna Orientation:	Horizontal	**Frequency Range:**	Above 1GHz
EUT Mode of Operation:		Transmit 2480 MHz	

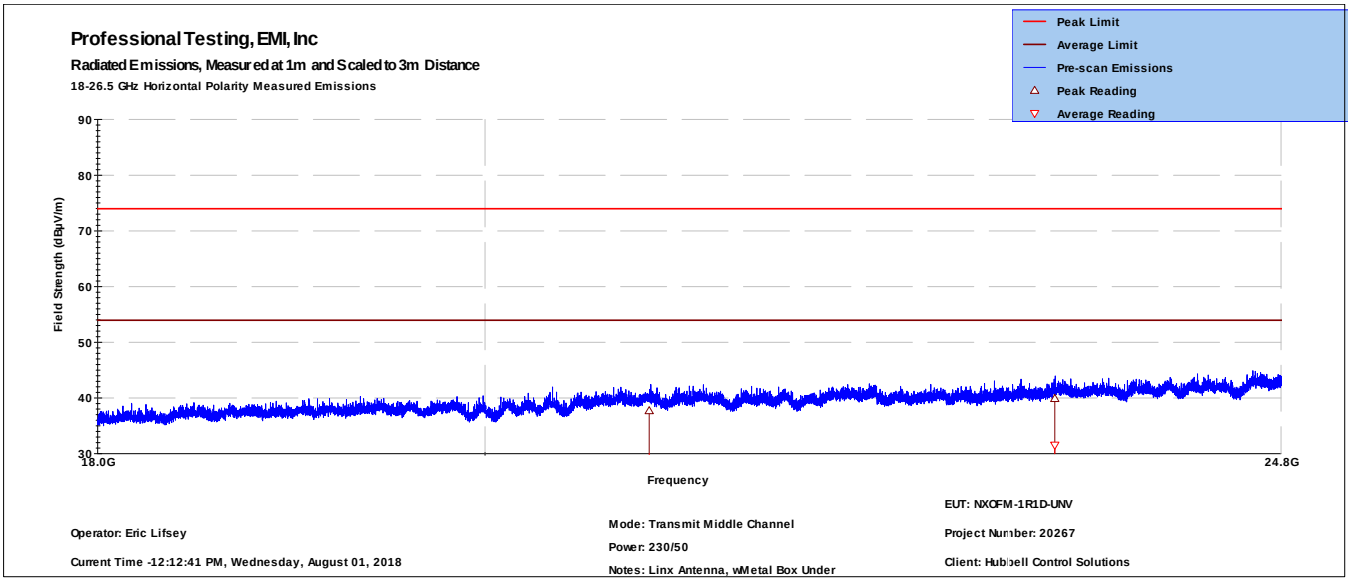
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Test Results
2479.99	3	66	3.03	Peak	101.1	92.158			Fundamental
4959.91	3	54	2.83	Peak	62.5	58.589	74.0	-15.4	Pass



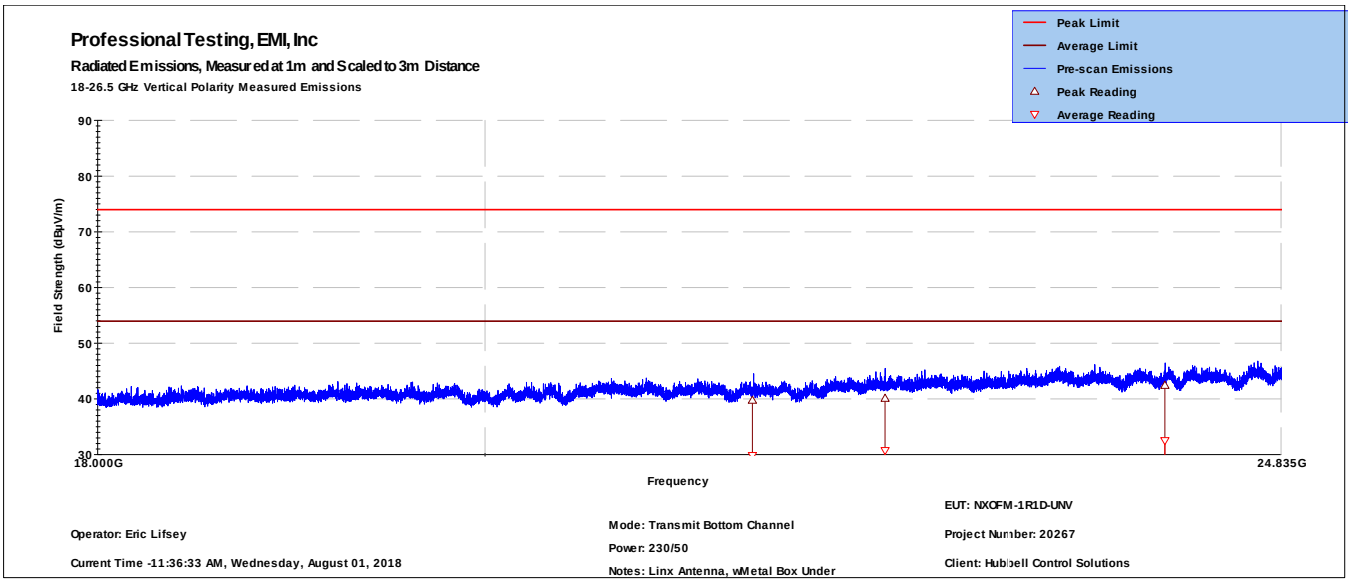
> 1GHz Horizontal Antenna Polarity Measured Emissions

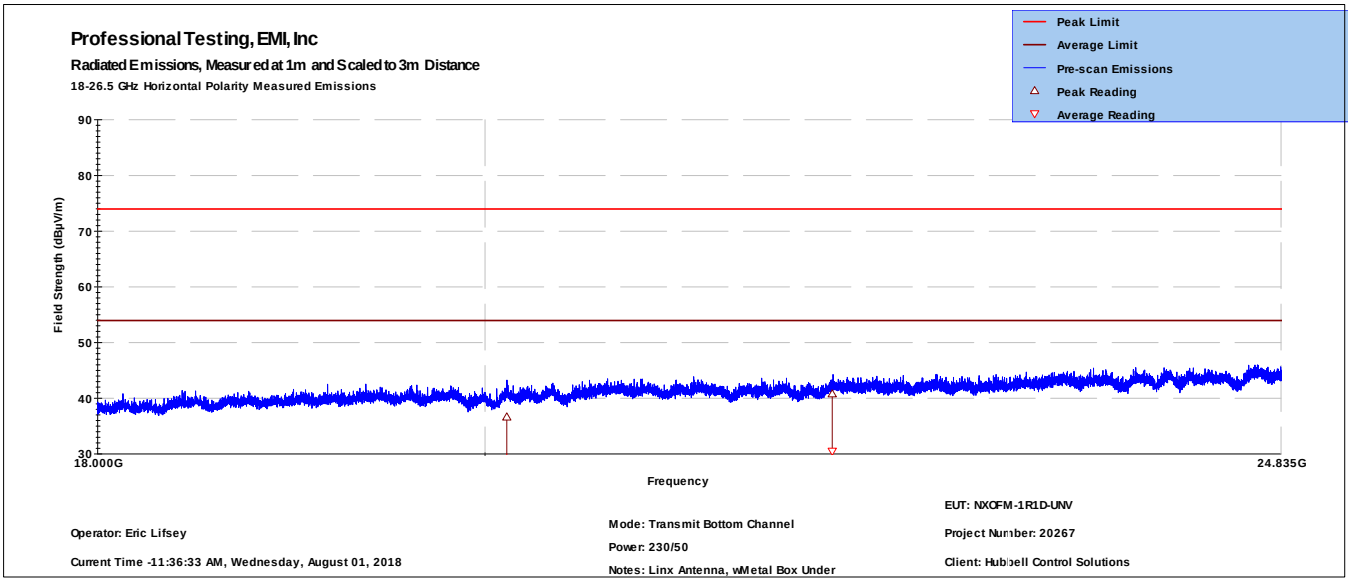
7.3.5 18 GHz to 25 GHz, Middle Channel



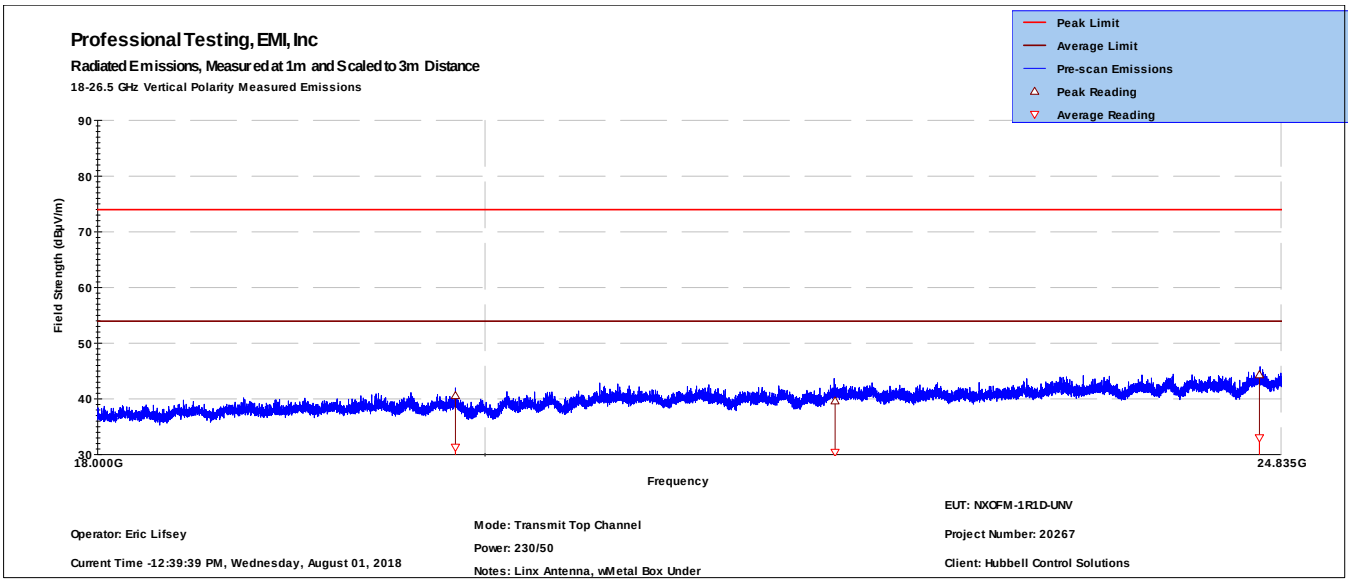


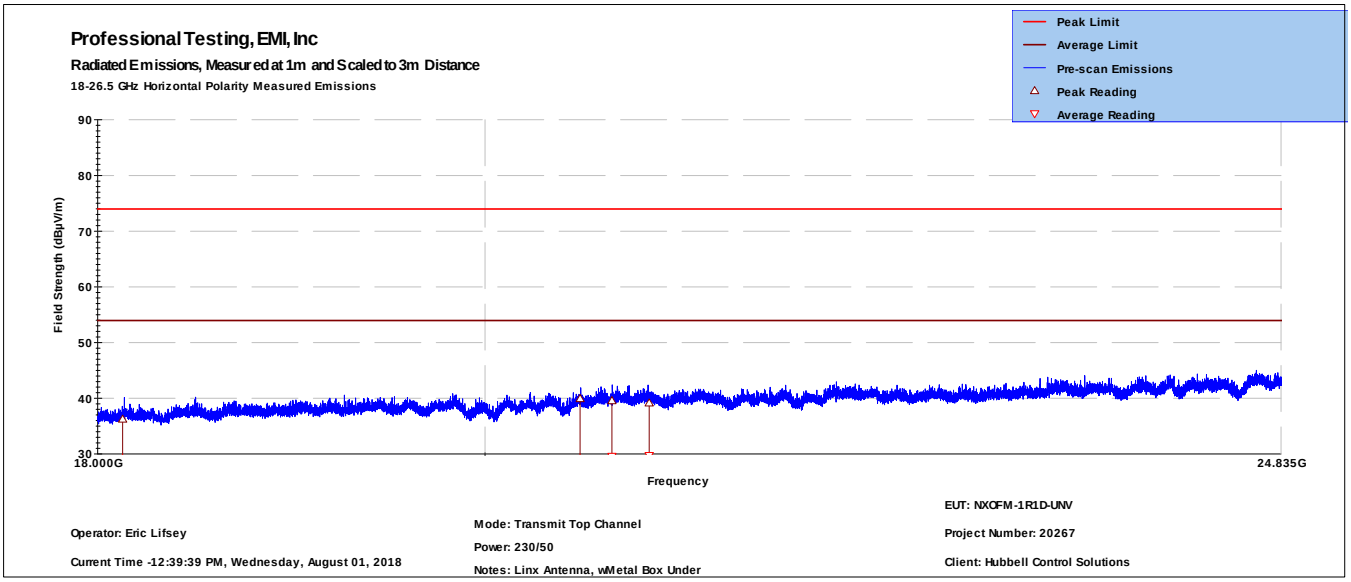
7.3.6 18 GHz to 25 GHz, Bottom Channel





7.3.7 18 GHz to 25 GHz, Top Channel





8.0 Antenna Construction

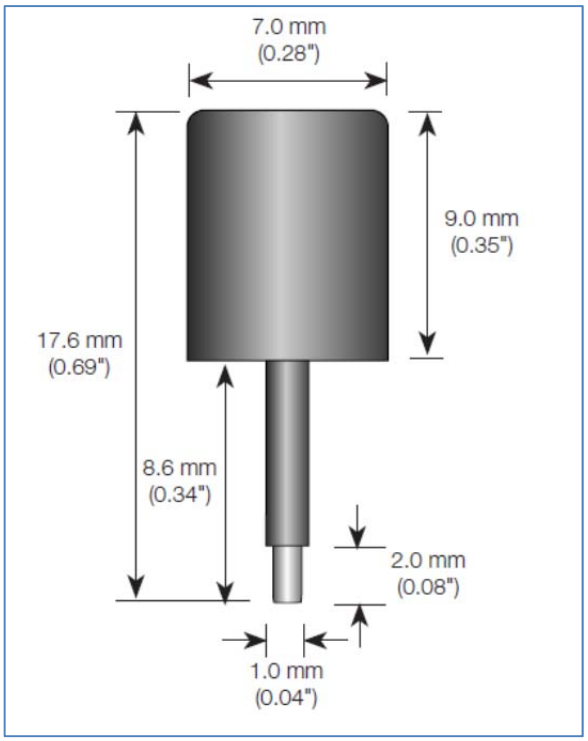
8.1 Procedure

A direct examination of the antenna construction is performed and compared to rule criteria that prevent wireless device antennas from being modified by end users in ways that would void their authorization to use the device.

8.2 Criteria

47 CFR (USA) // IC (Canada)		
Section Reference	Parameter	Date(s)
15.203 // RSS-Gen 8.3	Antenna Construction	18 Sep 2018

8.3 Results



Antenna Appearance and Dimensions

- Manufacturer: Linx
- Manufacturer Part Number: ANT-2.4-JJB
- Antenna Type: ¼ wave monopole
- Manufacturer Reported Antenna Gain: 3.3 dBi (This is the highest reported gain of the two supported mounting schemes.)
- Antenna is an upright monopole component soldered to the circuit board.
- There is no external antenna connector.

The antenna design satisfies the requirements of the rules.

9.0 Conducted Emissions, Mains

9.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the floor and 0.4 meters from the conductive reference plane (wall). The EUT is powered through a line impedance stabilization network (LISN) that provides a measurement tap and a termination approximating 50 Ohms in the measurement range of 150 kHz to 30 MHz. A spectrum analyzer is connected, in turn, to each mains line measurement tap and the measurement is taken.

9.2 Test Criteria

47 CFR (USA) // IC (Canada)		
Section Reference	Parameter	Date(s)
15.107, 15.207 // RSS-Gen	Mains conducted emissions	18 May 2017

9.3 Test Results

The EUT satisfied the criteria.

Measurements from previous certification project are applicable as the 2.4 GHz antenna change has no impact on mains conducted emissions.

Tabular and plotted measurements appear on the following pages.

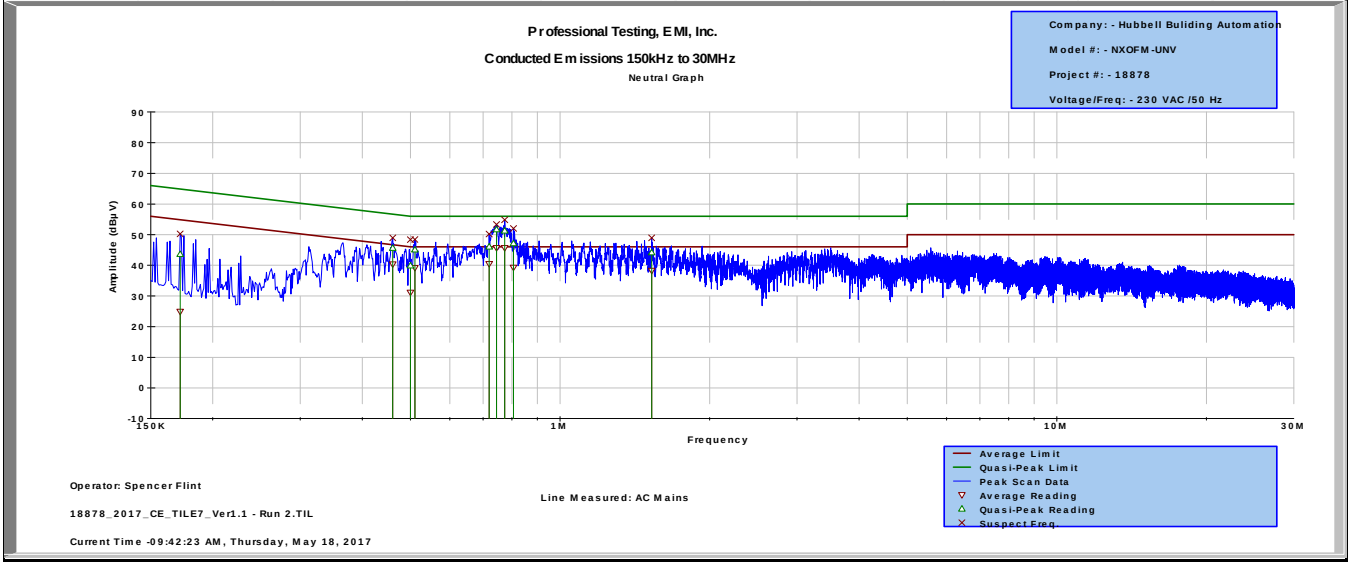
9.3.1 Mains, Neutral

Professional Testing, EMI, Inc.			
Test Method:	ANSI C63.4: 2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		
In accordance with:	FCC Part 15.107 - Code of Federal Regulations Part 47, Subpart B - Unintentional Radiators, Conducted Limits		
Section:	15.107		
Test Date(s):	5/18/2017	**EUT Serial #:**	0
Customer:	Hubbell Building Automation	**EUT Part #:**	NXOFM-UNV
Project Number:	18878	**Test Technician:**	Spencer Flint
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-UNV	**Witness' Name:**	Tom Hartnagel

Conducted Emissions Test Results Data Sheet - Neutral Lead **Page: 1 of 2**

EUT Line Voltage:	230	VAC	EUT Line Frequency:	50	Hz

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.1719	50.3	43.6	64.9	-21.2	PASS	24.9	54.9	-30	PASS
0.4604	50.4	45.6	56.7	-11.1	PASS	40.3	46.7	-6.4	PASS
0.5	49.6	39.9	56	-16.1	PASS	31.1	46	-14.9	PASS
0.5102	49.4	45.1	56	-10.9	PASS	39.2	46	-6.8	PASS
0.7201	52.5	46	56	-10	PASS	40.5	46	-5.5	PASS
0.745	55.7	51.6	56	-4.4	PASS	45.6	46	-0.4	PASS
0.7739	56.1	51.3	56	-4.7	PASS	45.6	46	-0.4	PASS
0.8057	55	47.1	56	-8.9	PASS	39.3	46	-6.7	PASS
1.5291	49.3	44.1	56	-11.9	PASS	38.2	46	-7.8	PASS



Measured Conducted Emissions - Neutral Lead

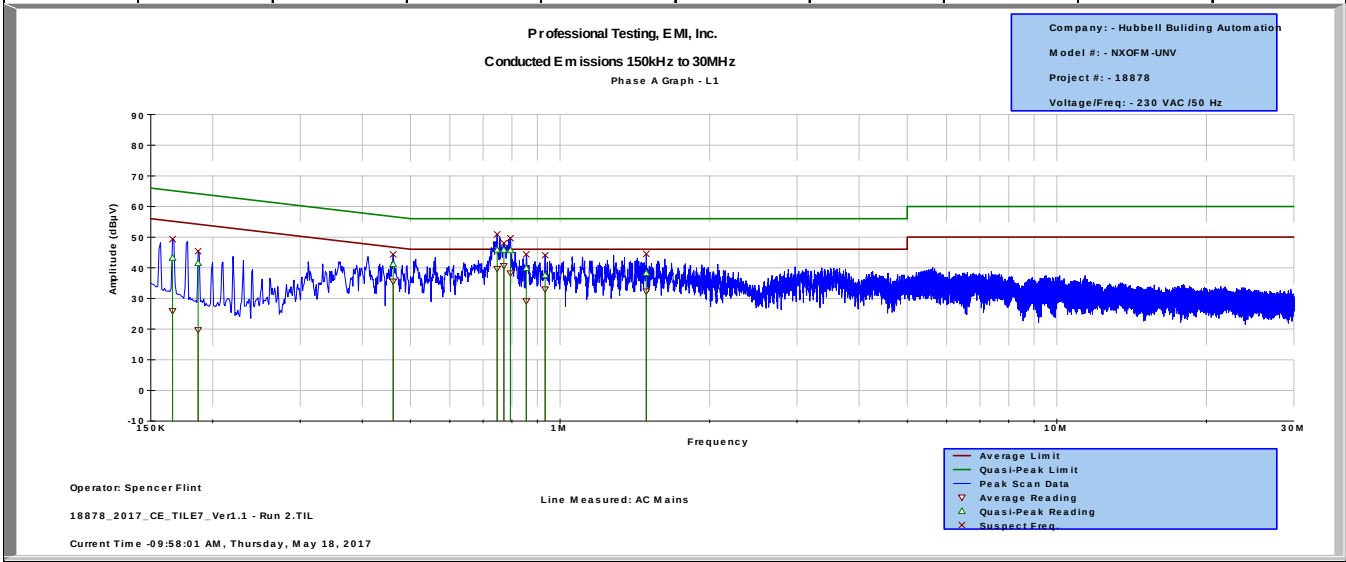
9.3.2 Mains, Phase

Professional Testing, EMI, Inc.			
Test Method:	ANSI C63.4: 2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		
In accordance with:	FCC Part 15.107 - Code of Federal Regulations Part 47, Subpart B - Unintentional Radiators, Conducted Limits		
Section:	15.107		
Test Date(s):	5/18/2017	**EUT Serial #:**	0
Customer:	Hubbell Building Automation	**EUT Part #:**	NXOFM-UNV
Project Number:	18878	**Test Technician:**	Spencer Flint
Purchase Order #:	0	**Supervisor:**	Lisa Arndt
Equip. Under Test:	NXOFM-UNV	**Witness' Name:**	Tom Hartnagel

Conducted Emissions Test Results Data Sheet - Phase Lead (Line 1) **Page: 2 of 2**

EUT Line Voltage:	230	VAC	EUT Line Frequency:	50	Hz

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.1659	51.3	43.2	65.2	-22	PASS	26	55.2	-29.2	PASS
0.1868	50	41.4	64.2	-22.7	PASS	19.7	54.2	-34.5	PASS
0.4614	44.9	41.1	56.7	-15.5	PASS	35.6	46.7	-11.1	PASS
0.747	51.1	45.8	56	-10.2	PASS	39.7	46	-6.3	PASS
0.7709	51.9	45.8	56	-10.2	PASS	40.6	46	-5.4	PASS
0.7948	52.1	45.6	56	-10.4	PASS	38.3	46	-7.7	PASS
0.8555	45.6	39.9	56	-16.1	PASS	29.2	46	-16.8	PASS
0.9331	43.9	37.6	56	-18.4	PASS	33	46	-13	PASS
1.4913	44.9	38.2	56	-17.8	PASS	32.3	46	-13.7	PASS



Measured Conducted Emissions - Phase Lead (Line 1)

10.0 Equipment

10.1 Spurious Radiated Emissions 30 MHz to 25 GHz

Radiated Emissions Test Equipment List					
Tile! Software Version:			**Version: 7.1.2.17 (Jan 08, 2016 - 02:12:48 PM) or 4.1.A.0, April 14, 2009, 11:01:00PM**		
Test Profile:			**2018_Radiated Emissions_TILE7_v1EL.til**		
Asset #	**Manufacturer**	**Model**	**Equipment Nomenclature**	**Serial Number**	**Calibration Due Date**
1509A	Braden	TDK 10M	TDK 10M Chamber, NSA < 1 GHz	DAC-012915-005	7/10/2019
1890	HP	8447F-H64	Preamp/Amp, 9kHz-1300MHz, 28/25dB	3313A05298	1/10/2020
1937	Agilent	E4440A	Spectrum Analyzer, 3 Hz - 26.5 GHz, Opt. AYZ	MY44808298	11/7/2018
1926	ETS-Lindgren	3142D	Antenna, Biconilog, 26 MHz - 6 GHz	135454	3/7/2019
C027D	NAD	NAD 2400	Amplifier, 100W, 3Hz-100kHz	11524464	N/A
1327	EMCO	1050	Controller, Antenna Mast	none	N/A
0942	EMCO	11968D	Turntable, 4ft.	9510-1835	N/A
1969	HP	11713A	Attenuator/Switch Driver	3748A04113	N/A
1509B	Braden	TDK 10M	TDK 10M Chamber,sVSWR > 1 GHz	DAC-012915-005	11/16/2019
2004	Miteq	AFS44-00101800-2S-10P-44	Amplifier, 40dB, .1-18GHz	0	1/10/2020
C030	none	none	Cable Coax, N-N, 30m, 30 MHz - 18GHz	none	9/28/2018
1325	EMCO	1050	Controller, Antenna Mast	9003-1461	N/A
1780	ETS-Lindgren	3117	Antenna, Double Ridged Guide Horn, 1 - 18 GHz	110313	3/15/2019
1973	Agilent	83017A	Amplifier, Microwave 0.5-26.5 GHz	MY39500497	11/17/2018
1735	Pasternack	PE9850-20	Antenna, horn, WR28	N/A	N/A

10.2 Bandwidth and Duty Cycle

Asset #	Manufacturer	Model #	Description	Calibration Due
2295	Agilent	E4440A	Spectrum Analyzer	18 Sep 2018
1831	HP	6622A	Power Supply	CIU
C241	Pasternack	PE300-120	RG type cable	CNR
None	ETS	5211	Shielded Enclosure	CIU
None	PTI	None	2 GHz Sleeve Sense Antenna	CIU
0463	Fluke	77	DMM	10 Jul 2019

10.3 Mains Conducted Emissions

Professional Testing, EMI, Inc.			
Test Method:	**ANSI C63.4: 2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz**		
In accordance with:	**FCC Part 15.107 - Code of Federal Regulations Part 47, Subpart B - Unintentional Radiators, Conducted Limits**		
Section:	**15.107**		
Test Date(s):	**5/18/2017**	**EUT Serial #:**	**0**
Customer:	**Hubbell Building Automation**	**EUT Part #:**	**NXOFM-UNV**
Project Number:	**18878**	**Test Technician:**	**Spencer Flint**
Purchase Order #:	**0**	**Supervisor:**	**Lisa Arndt**
Equip. Under Test:	**NXOFM-UNV**	**Witness' Name:**	**Tom Hartnagel**

Conducted Emissions Test Equipment List

Tile! Software Version:	**Version: 7.1.2.17 (Jan 08, 2016 - 02:12:48 PM) or 4.1.A.0, April 14, 2009, 11:01:00PM**
Test Profile:	**2017_CE_TILE7_Ver1.1.TIL or CE_Marine_100616.TIL**

Asset #	Manufacturer	Model	Equipment Nomenclature	Serial Number	Calibration Due Date
1145	HP	8568B	Spectrum Analyzer 100Hz-1.5GHz	2517A01821	7/20/2017
1834	HP	85662A	Spec Anal Dsply, use with A/N 1145	2349A06182	N/A
0990	HP	85685A	RF Preselector	3010A01119	7/20/2017
0085	HP	85650A	Quasi-Peak Adapter CISPR	3033A01458	7/20/2017
1173	PTI	100k HPF	Filter, High Pass, 100kHz	none	2/2/2018
1088	PTI	PTI-ALF4	Attenuator Limiter Filter	none	10/6/2017
C171	HP	08444-60018	Cable, RF, BNC-BNC, 18", Grey	none	6/13/2018
C303	Coleman Cable	RG-58A/U	Cable, BNC-BNC, 36" Black	None	3/25/2018
C107	Pomona	RG-223	Cable 9 ft BNC RG-223 (black)	none	8/4/2018
1185	EMCO	3825/2	LISN, 10kHz-100MHz	1235	8/1/2017
1132	AilTech	91550-1M	Probe, Current, 10kHz-100MHz	1856	2/9/2018
1683	Teseq	ISN T800	ISN-T8, Impedance Stabilization Network	27091	6/15/2017
0027	EMCO	3825/2	LISN, 10kHz-100MHz	9010-1708	10/5/2017
0586	HP	8447D	Preamp, 0.1-1300MHz, 26dB	1726A01364	2/12/2018

11.0 Measurement Bandwidths

Radiated Emissions Spectrum Analyzer Bandwidth and Measurement Time - Peak Scan				
Frequency Band Start (MHz)	**Frequency Band Stop (MHz)**	**6 dB Bandwidth (kHz)**	**Number of Ranges Used**	**Measurement Time per Range**
0.009	0.15	0.3	2	Multiple Sweeps
0.15	30	9	6	Multiple Sweeps
30	1000	120	2	Multiple 800 mS Sweeps
1000	6000	1000	2	Multiple Sweeps
6000	18000	1000	2	Multiple Sweeps
18000	26500	1000	2	Multiple Sweeps

*Notes:
1. The settings above are specifically calculated for the E4440A series of spectrum analyzers, which have 8,000 data points per range.
2. The measurement receiver resolution bandwidth setting was 300 Hz for quasi-peak measurements from 9-150 kHz.
3. The measurement receiver resolution bandwidth setting was 9 kHz for quasi-peak measurements from 0.15-30 MHz.
4. The measurement receiver resolution bandwidth setting was 120 kHz for quasi-peak measurements from 30-1000 MHz.
5. The measurement receiver resolution bandwidth setting was 1 MHz for average measurements from 1-18 GHz.

Conducted Emissions Spectrum Analyzer Bandwidth and Measurement Time				
Frequency Band Start (MHz)	**Frequency Band Stop (MHz)**	**6 dB Bandwidth (kHz)**	**Number of Ranges Used**	**Measurement Time per Range**
0.01	0.15	0.3	7	Five 1 second sweeps
0.15	30	9	20	Five 1 second sweeps

*Notes:
1. The settings above are specifically calculated for the HP856X series of spectrum analyzers, which have 1,000 data points per range.
2. The measurement receiver resolution bandwidth setting was 300 Hz for quasi-peak measurements from 10-150 kHz.
3. The measurement receiver resolution bandwidth setting was 9 kHz for quasi-peak measurements from 0.15-30 MHz.

Appendix: Policy, Rationale, and Evaluation of EMC Measurement Uncertainty

All uncertainty calculations, estimates and expressions thereof shall be in accordance with NIST policy. Since PTI operates in accordance with NIST (NVLAP) Handbook 150-11: 2007, all instrumentation having an effect on the accuracy or validity of tests shall be periodically calibrated or verified traceable to national standards by a competent calibration laboratory. The certificates of calibration or verification on this instrumentation shall include estimates of uncertainty as required by NIST Handbook 150-11.

1. Rationale and Summary of Expanded Uncertainty.

Each piece of instrumentation at PTI that is used in making measurements for determining conformance to a standard (or limit), shall be assessed to evaluate its contribution to the overall uncertainty of the measurement in which it is used. The assessment of each item will be based on either a type A evaluation or a type B evaluation. Most of the evaluations will be type B, since they will be based on the manufacturer's statements or specifications of the calibration tolerances, or uncertainty will be stated along with a brief rationale for the type of evaluation and the resulting stated uncertainties.

The individual uncertainties included in the combined standard uncertainty for a specific test result will depend on the configuration in which the item of instrumentation is used. The combination will always be based on the law of propagation of uncertainty. Any systematic effects will be accommodated by including their uncertainties, in the calculation of the combined standard uncertainty; except that if the direction and amount of the systematic effect cannot be determined and separated from its uncertainty, the whole effect will be treated as uncertainty and combined along with the other elements of the test setup.

Type A evaluations of standard uncertainty will usually be based on calculating the standard deviation of the mean of a series of independent observations, but may be based on a least-squares curve fit or the analysis of variance for unusual situations. Type B evaluations of standard uncertainty will usually be based on manufacturer's specifications, data provided in calibration reports, and experience. The type of probability distribution used (normal, rectangular, a priori, or u-shaped) will be stated for each Type B evaluation.

In the evaluation of the uncertainty of each type of measurement, the uncertainty caused by the operator will be estimated. One notable operator contribution to measurement uncertainty is the manipulation of cables to maximize the measured values of radiated emissions. The operator contribution to measurement uncertainty is evaluated by having several operators independently repeat the same test. This results in a Type A evaluation of operator-contributed measurement uncertainty.

A summary of the expanded uncertainties of PTI measurements is shown as Table 1. These are the worst-case uncertainties considering all operative influence factors.

Table 1: Summary of Measurement Uncertainties for Site 45

Type of Measurement	Frequency Range	Meas. Dist.	Expanded Uncertainty U, dB (k=2)
Mains Conducted Emissions	150 kHz to 30 MHz	N/A	2.9
Telecom Conducted Emissions	150 kHz to 30 MHz	N/A	2.8
Radiated Emissions	30 to 1,000 MHz	10 m	4.8
	1 to 18 GHz	3 m	5.7

End of Report