

# NORTHWEST EMC

**Preco, Inc.**

**Wireless WorkSight Preview Display Model: WD7102**

**FCC 15.247:2015**

**Report # PRCO0071.1**



NVLAP Lab Code: 200630-0

*This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America. This Report may only be duplicated in its entirety*

# CERTIFICATE OF TEST



Last Date of Test: April 28, 2015  
Preco, Inc.  
Wireless WorkSight Preview Display Model: WD7102

## Radio Equipment Testing

### Standards

Specification	Method
FCC 15.247:2015	ANSI C63.10:2009

### Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	No	N/A	Not required for vehicle mounted devices.
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
6.7	Band Edge Compliance	Yes	Pass	
6.7	Out of Band Emissions	Yes	Pass	
6.9.1	Occupied Bandwidth	Yes	Pass	
6.10.2	Output Power	Yes	Pass	
6.11.2	Power Spectral Density	Yes	Pass	
7.5	Duty Cycle	Yes	N/A	Characterization of radio operation.

### Deviations From Test Standards

None

### Approved By:

Kyle Holgate, 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.*

# REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

# ACCREDITATIONS AND AUTHORIZATIONS

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## United States

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**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 Northwest EMC to certify transmitters to FCC and IC specifications.

**NVLAP** - Each laboratory is accredited by NVLAP to ISO 17025

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## Canada

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**IC** - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

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## European Union

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**European Commission** – Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

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## Australia/New Zealand

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

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## Korea

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

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## Japan

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

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## Taiwan

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**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.

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## Singapore

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

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## Israel

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

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## Hong Kong

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

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## Vietnam

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

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## SCOPE

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

<http://www.nwemc.com/accreditations/>

<http://gsi.nist.gov/global/docs/cabs/designations.html>

# 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.

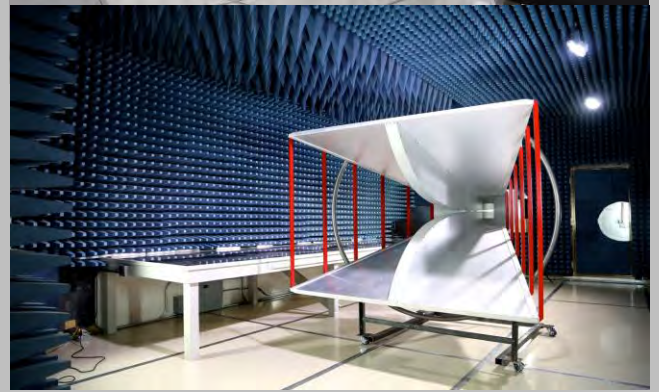
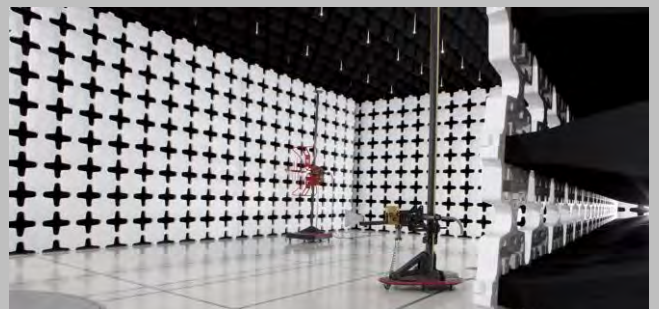
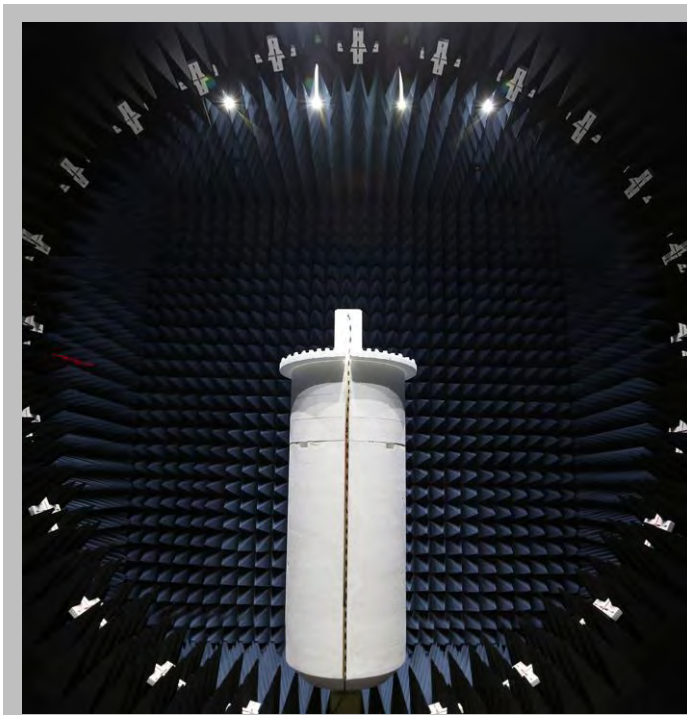
The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

<b>Test</b>	<b>+ MU</b>	<b>- MU</b>
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)	2.9 dB	-2.9 dB

# FACILITIES



<b>California</b> Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	<b>Minnesota</b> Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	<b>New York</b> Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	<b>Oregon</b> Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	<b>Texas</b> Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	<b>Washington</b> Labs NC01-05 19201 120 <sup>th</sup> Ave NE Bothell, WA 9801 (425)984-6600
<b>NVLAP</b>					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
<b>Industry Canada</b>					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
<b>BSMI</b>					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
<b>VCCI</b>					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
<b>Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRR, MIC, MOC, NCC, OFCA</b>					
US0158	US0175	N/A	US0017	US0191	US0157



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

<b>Company Name:</b>	Preco, Inc.
<b>Address:</b>	10335 W Emerald St
<b>City, State, Zip:</b>	Boise, ID 83704
<b>Test Requested By:</b>	John Fadgen
<b>Model:</b>	Wireless WorkSight Preview Display Model: WD7102
<b>First Date of Test:</b>	April 28, 2015
<b>Last Date of Test:</b>	April 29, 2015
<b>Receipt Date of Samples:</b>	April 28, 2015
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

## Information Provided by the Party Requesting the Test

<b>Functional Description of the EUT:</b>
LCD Display with a 2.4GHz radio
<b>Testing Objective:</b>
To demonstrate compliance of the 2.4 GHz ISM radio to FCC 15.247 requirements.

# CONFIGURATIONS

## Configuration PRCO0071- 1

Software/Firmware Running during test	
Description	Version
Firmware	1.9

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Display	Preco, Inc.	WD7102	3

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC and I/O Cable	No	1.6m	No	DC Power Supply	Display



# MODIFICATIONS

## Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	4/28/2015	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	4/28/2015	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	4/28/2015	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	4/28/2015	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	4/29/2015	Out of Band Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	4/29/2015	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

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 Continuous OQPSK

## CHANNELS OF OPERATION

Ch.11 2405MHz, Low Channel

Ch.18 2440MHz, Mid Channel

Ch.25 2475MHz, High Channel

## POWER SETTINGS INVESTIGATED

12 VDC

## CONFIGURATIONS INVESTIGATED

PRCO0071 - 1

## FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz

Stop Frequency 26500 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
Cable	ESM Cable Corp.	KMKM-72	EVY	11/9/2014	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	11/9/2014	12 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	4/16/2015	12 mo
Antenna, Horn	ETS	3160-08	AHV	NCR	0 mo
Cable	None	Standard Gain Horns Cable	EVF	4/20/2015	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	4/20/2015	12 mo
Antenna, Horn	ETS	3160-07	AHU	NCR	0 mo
Cable	N/A	Double Ridge Horn Cables	EVB	4/16/2015	12 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	4/16/2015	12 mo
Antenna, Horn	ETS	3115	AIZ	1/27/2014	24 mo
Low Pass Filter, 0 - 1000 MHz	Micro-Tronics	LPM50004	LFD	6/18/2014	12 mo
High Pass Filter, 2.8 - 18 GHz	Micro-Tronics	HPM50111	HFO	3/31/2015	12 mo
Attenuator - 20dB, HF (1000MHz - 18000MHz)	Coaxicom	3910-20	AXZ	6/19/2014	12 mo
Signal Analyzer	Keysight	KT-N9010A	AFN	2/10/2015	12 mo

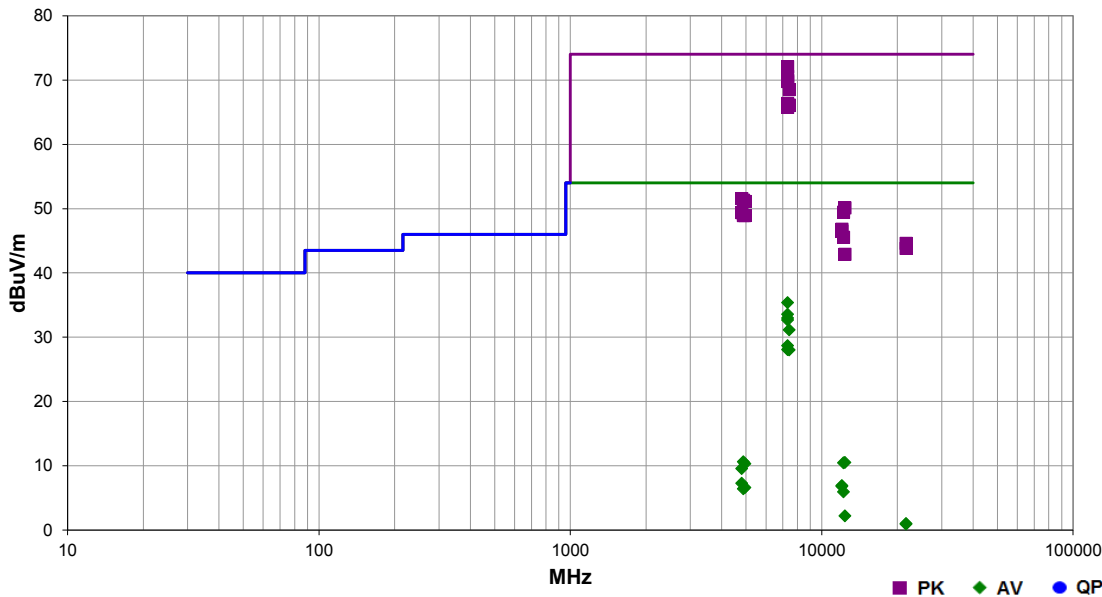
## TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

Work Order:	PRCO0071	Date:	04/29/15	
Project:	None	Temperature:	20.9 °C	
Job Site:	EV01	Humidity:	41% RH	
Serial Number:	3	Barometric Pres.:	1025.7 mbar	
EUT:	Wireless WorkSight Preview Display Model: WD7102			
Configuration:	1			
Customer:	Preco, Inc.			
Attendees:	Jon Fix			
EUT Power:	12 VDC			
Operating Mode:	Tx Continuous OQPSK			
Deviations:	None			
Comments:	Please reference the data comments for EUT orientation, frequency, channel and power level.			

Test Specifications	FCC 15.247:2015	Test Method	ANSI C63.10:2009
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Run #	14	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)	Duty Cycle Correction Factor (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7321.250	56.9	15.2	1.8	247.0	0.0	0.0	Horz	PK	0.0	72.1	74.0	-1.9	Ch.18 2440MHz, Pwr 17, EUT Vert
7321.225	55.4	15.2	1.6	254.0	0.0	0.0	Horz	PK	0.0	70.6	74.0	-3.4	Ch.18 2440MHz, Pwr 17, EUT On Side
7321.233	54.8	15.2	3.1	201.0	0.0	0.0	Vert	PK	0.0	70.0	74.0	-4.0	Ch.18 2440MHz, Pwr 17, EUT Vert
7321.242	54.6	15.2	3.2	213.0	0.0	0.0	Vert	PK	0.0	69.8	74.0	-4.2	Ch.18 2440MHz, Pwr 17, EUT On Side
7426.117	53.1	15.4	1.7	254.0	0.0	0.0	Horz	PK	0.0	68.5	74.0	-5.5	Ch.25 2475MHz, Pwr 17, EUT Vert
7321.275	51.2	15.2	2.2	34.0	0.0	0.0	Horz	PK	0.0	66.4	74.0	-7.6	Ch.18 2440MHz, Pwr 17, EUT Horz
7423.417	50.7	15.4	1.5	198.0	0.0	0.0	Vert	PK	0.0	66.1	74.0	-7.9	Ch.25 2475MHz, Pwr 17, EUT Vert
7318.533	50.6	15.2	1.4	299.0	0.0	0.0	Vert	PK	0.0	65.8	74.0	-8.2	Ch.18 2440MHz, Pwr 17, EUT Horz
7321.183	51.9	15.2	1.8	247.0	-31.7	0.0	Horz	AV	0.0	35.4	54.0	-18.6	Ch.18 2440MHz, Pwr 17, EUT Horz
7321.133	50.1	15.2	1.6	254.0	-31.7	0.0	Horz	AV	0.0	33.6	54.0	-20.4	Ch.18 2440MHz, Pwr 17, EUT On Side
7318.325	49.5	15.2	3.1	201.0	-31.7	0.0	Vert	AV	0.0	33.0	54.0	-21.0	Ch.18 2440MHz, Pwr 17, EUT Vert
7321.167	49.2	15.2	3.2	213.0	-31.7	0.0	Vert	AV	0.0	32.7	54.0	-21.3	Ch.18 2440MHz, Pwr 17, EUT On Side
4808.692	44.2	7.4	1.0	228.0	0.0	0.0	Horz	PK	0.0	51.6	74.0	-22.4	Ch.11 2405MHz, Pwr 17, EUT Vert
4880.833	43.9	7.4	1.7	248.0	0.0	0.0	Horz	PK	0.0	51.3	74.0	-22.7	Ch.18 2440MHz, Pwr 17, EUT Vert
7423.458	47.4	15.4	1.7	254.0	-31.7	0.0	Horz	AV	0.0	31.1	54.0	-22.9	Ch.25 2475MHz, Pwr 17, EUT Vert
4950.667	43.6	7.5	1.0	249.0	0.0	0.0	Horz	PK	0.0	51.1	74.0	-22.9	Ch.25 2475MHz, Pwr 17, EUT Vert
12377.210	48.3	1.8	1.3	275.0	0.0	0.0	Horz	PK	0.0	50.1	74.0	-23.9	Ch.25 2475MHz, Pwr 17, EUT Vert
12202.110	48.3	1.1	1.3	275.0	0.0	0.0	Horz	PK	0.0	49.4	74.0	-24.6	Ch.18 2440MHz, Pwr 17, EUT Vert
4811.175	42.0	7.4	1.0	143.0	0.0	0.0	Vert	PK	0.0	49.4	74.0	-24.6	Ch.11 2405MHz, Pwr 17, EUT Vert
4947.675	41.4	7.5	1.2	156.0	0.0	0.0	Vert	PK	0.0	48.9	74.0	-25.1	Ch.25 2475MHz, Pwr 17, EUT Vert
4878.942	41.5	7.4	1.0	141.0	0.0	0.0	Vert	PK	0.0	48.9	74.0	-25.1	Ch.18 2440MHz, Pwr 17, EUT Vert
7321.200	45.2	15.2	2.2	34.0	-31.7	0.0	Horz	AV	0.0	28.7	54.0	-25.3	Ch.18 2440MHz, Pwr 17, EUT Horz
7318.350	44.6	15.2	1.4	299.0	-31.7	0.0	Vert	AV	0.0	28.1	54.0	-25.9	Ch.18 2440MHz, Pwr 17, EUT Horz
7423.417	44.3	15.4	1.5	198.0	-31.7	0.0	Vert	AV	0.0	28.0	54.0	-26.0	Ch.25 2475MHz, Pwr 17, EUT Vert
12027.350	46.6	0.2	1.2	309.0	0.0	0.0	Horz	PK	0.0	46.8	74.0	-27.2	Ch.11 2405MHz, Pwr 17, EUT Vert
12027.090	46.3	0.2	1.0	140.0	0.0	0.0	Vert	PK	0.0	46.5	74.0	-27.5	Ch.11 2405MHz, Pwr 17, EUT Vert
12201.930	44.4	1.1	1.1	151.0	0.0	0.0	Vert	PK	0.0	45.5	74.0	-28.5	Ch.18 2440MHz, Pwr 17, EUT Vert
21642.900	44.6	0.0	1.2	297.0	0.0	0.0	Horz	PK	0.0	44.6	74.0	-29.4	Ch.11 2405MHz, Pwr 17, EUT Vert

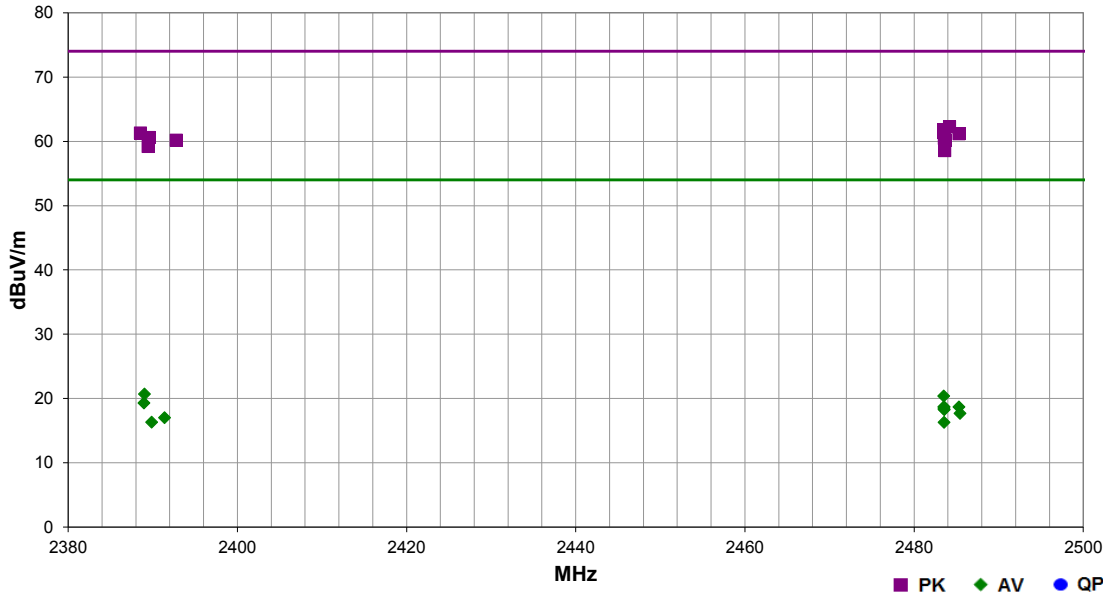
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
21642.530	43.8	0.0	1.2	96.0	0.0	0.0	Vert	PK	0.0	43.8	74.0	-30.2	Ch.11 2405MHz, Pwr 17, EUT Vert
12372.550	41.1	1.8	1.0	153.0	0.0	0.0	Vert	PK	0.0	42.9	74.0	-31.1	Ch.25 2475MHz, Pwr 17, EUT Vert
4878.858	34.9	7.4	1.7	248.0	-31.7	0.0	Horz	AV	0.0	10.6	54.0	-43.4	Ch.18 2440MHz, Pwr 17, EUT Vert
12377.120	40.4	1.8	1.3	275.0	-31.7	0.0	Horz	AV	0.0	10.5	54.0	-43.5	Ch.25 2475MHz, Pwr 17, EUT Vert
12202.080	41.0	1.1	1.3	275.0	-31.7	0.0	Horz	AV	0.0	10.4	54.0	-43.6	Ch.18 2440MHz, Pwr 17, EUT Vert
4948.917	34.5	7.5	1.0	249.0	-31.7	0.0	Horz	AV	0.0	10.3	54.0	-43.7	Ch.25 2475MHz, Pwr 17, EUT Vert
4808.908	33.9	7.4	1.0	228.0	-31.7	0.0	Horz	AV	0.0	9.6	54.0	-44.4	Ch.11 2405MHz, Pwr 17, EUT Vert
4808.933	31.6	7.4	1.0	143.0	-31.7	0.0	Vert	AV	0.0	7.3	54.0	-46.7	Ch.11 2405MHz, Pwr 17, EUT Vert
12027.120	38.4	0.2	1.0	140.0	-31.7	0.0	Vert	AV	0.0	6.9	54.0	-47.1	Ch.11 2405MHz, Pwr 17, EUT Vert
12027.110	38.3	0.2	1.2	309.0	-31.7	0.0	Horz	AV	0.0	6.8	54.0	-47.2	Ch.11 2405MHz, Pwr 17, EUT Vert
4948.933	30.8	7.5	1.2	156.0	-31.7	0.0	Vert	AV	0.0	6.6	54.0	-47.4	Ch.25 2475MHz, Pwr 17, EUT Vert
4878.842	30.7	7.4	1.0	141.0	-31.7	0.0	Vert	AV	0.0	6.4	54.0	-47.6	Ch.18 2440MHz, Pwr 17, EUT Vert
12202.160	36.5	1.1	1.1	151.0	-31.7	0.0	Vert	AV	0.0	5.9	54.0	-48.1	Ch.18 2440MHz, Pwr 17, EUT Vert
12377.000	32.1	1.8	1.0	153.0	-31.7	0.0	Vert	AV	0.0	2.2	54.0	-51.8	Ch.25 2475MHz, Pwr 17, EUT Vert
21642.740	32.7	0.0	1.2	297.0	-31.7	0.0	Horz	AV	0.0	1.0	54.0	-53.0	Ch.11 2405MHz, Pwr 17, EUT Vert
21643.960	32.6	0.0	1.2	96.0	-31.7	0.0	Vert	AV	0.0	0.9	54.0	-53.1	Ch.11 2405MHz, Pwr 17, EUT Vert

### SPURIOUS RADIATED EMISSIONS

<b>Work Order:</b>	PRCO0071	<b>Date:</b>	04/29/15	
<b>Project:</b>	None	<b>Temperature:</b>	20.9 °C	
<b>Job Site:</b>	EV01	<b>Humidity:</b>	41% RH	
<b>Serial Number:</b>	3	<b>Barometric Pres.:</b>	1025.7 mbar	
<b>EUT:</b>	Wireless WorkSight Preview Display Model: WD7102			
<b>Configuration:</b>	1			
<b>Customer:</b>	Preco, Inc.			
<b>Attendees:</b>	Jon Fix			
<b>EUT Power:</b>	12 VDC			
<b>Operating Mode:</b>	Tx Continuous OQPSK			
<b>Deviations:</b>	None			
<b>Comments:</b>	Please reference the data comments for EUT orientation, frequency, channel and power level.			

<b>Test Specifications</b>	<b>Test Method</b>
FCC 15.247:2015	ANSI C63.10:2009

<b>Run #</b>	16	<b>Test Distance (m)</b>	3	<b>Antenna Height(s)</b>	1 to 4(m)	<b>Results</b>	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2376.425	49.1	-3.3	4.0	94.0	0.0	20.0	Vert	PK	0.0	65.8	74.0	-8.2	Ch.18 2440MHz, Pwr 17, EUT Vert
2376.400	48.7	-3.3	1.0	37.0	0.0	20.0	Horz	PK	0.0	65.4	74.0	-8.6	Ch.18 2440MHz, Pwr 17, EUT Horz
2340.967	48.2	-3.2	4.0	296.0	0.0	20.0	Vert	PK	0.0	65.0	74.0	-9.0	Ch.11 2405MHz, Pwr 17, EUT Vert
2350.358	47.6	-3.2	1.0	61.0	0.0	20.0	Horz	PK	0.0	64.4	74.0	-9.6	Ch.11 2405MHz, Pwr 17, EUT Horz
2341.433	47.3	-3.2	1.0	19.0	0.0	20.0	Horz	PK	0.0	64.1	74.0	-9.9	Ch.11 2405MHz, Pwr 17, EUT Vert
2351.367	46.3	-3.2	1.0	80.0	0.0	20.0	Vert	PK	0.0	63.1	74.0	-10.9	Ch.11 2405MHz, Pwr 17, EUT Vert
2484.193	45.3	-3.0	1.0	44.0	0.0	20.0	Horz	PK	0.0	62.3	74.0	-11.7	Ch.18 2440MHz, Pwr 17, EUT Horz
2483.503	44.8	-3.0	1.0	41.0	0.0	20.0	Horz	PK	0.0	61.8	74.0	-12.2	Ch.25 2475MHz, Pwr 17, EUT Horz
2483.510	44.4	-3.0	1.0	352.0	0.0	20.0	Horz	PK	0.0	61.4	74.0	-12.6	Ch.25 2475MHz, Pwr 17, EUT On side
2388.533	44.6	-3.3	1.0	35.0	0.0	20.0	Horz	PK	0.0	61.3	74.0	-12.7	Ch.25 2475MHz, Pwr 17, EUT Horz
2485.317	44.2	-3.0	1.0	91.0	0.0	20.0	Vert	PK	0.0	61.2	74.0	-12.8	Ch.18 2440MHz, Pwr 17, EUT Vert
2389.550	43.9	-3.3	1.0	291.0	0.0	20.0	Vert	PK	0.0	60.6	74.0	-13.4	Ch.25 2475MHz, Pwr 17, EUT Vert
2483.573	43.5	-3.0	1.0	87.0	0.0	20.0	Vert	PK	0.0	60.5	74.0	-13.5	Ch.25 2475MHz, Pwr 17, EUT Vert
2392.783	43.5	-3.3	1.0	324.0	0.0	20.0	Horz	PK	0.0	60.2	74.0	-13.8	Ch.11 2405MHz, Pwr 17, EUT Horz
2483.707	43.2	-3.0	1.0	98.0	0.0	20.0	Vert	PK	0.0	60.2	74.0	-13.8	Ch.25 2475MHz, Pwr 17, EUT On side
2483.653	43.2	-3.0	1.0	354.0	0.0	20.0	Horz	PK	0.0	60.2	74.0	-13.8	Ch.25 2475MHz, Pwr 17, EUT Vert
2389.443	42.5	-3.3	1.0	269.0	0.0	20.0	Vert	PK	0.0	59.2	74.0	-14.8	Ch.11 2405MHz, Pwr 17, EUT Vert
2483.613	41.6	-3.0	1.0	322.0	0.0	20.0	Vert	PK	0.0	58.6	74.0	-15.4	Ch.25 2475MHz, Pwr 17, EUT Horz
2376.167	41.3	-3.3	4.0	94.0	-31.7	20.0	Vert	AV	0.0	26.3	54.0	-27.7	Ch.18 2440MHz, Pwr 17, EUT Vert
2376.183	40.6	-3.3	1.0	37.0	-31.7	20.0	Horz	AV	0.0	25.6	54.0	-28.4	Ch.18 2440MHz, Pwr 17, EUT Horz
2341.092	40.3	-3.2	4.0	296.0	-31.7	20.0	Vert	AV	0.0	25.4	54.0	-28.6	Ch.11 2405MHz, Pwr 17, EUT Vert
2341.242	38.8	-3.2	1.0	19.0	-31.7	20.0	Horz	AV	0.0	23.9	54.0	-30.1	Ch.11 2405MHz, Pwr 17, EUT Horz
2351.150	37.9	-3.2	1.0	61.0	-31.7	20.0	Horz	AV	0.0	23.0	54.0	-31.0	Ch.11 2405MHz, Pwr 17, EUT Horz
2350.983	36.7	-3.2	1.0	80.0	-31.7	20.0	Vert	AV	0.0	21.8	54.0	-32.2	Ch.11 2405MHz, Pwr 17, EUT Vert
2389.017	35.7	-3.3	1.0	35.0	-31.7	20.0	Horz	AV	0.0	20.7	54.0	-33.3	Ch.25 2475MHz, Pwr 17, EUT Horz
2483.517	35.1	-3.0	1.0	41.0	-31.7	20.0	Horz	AV	0.0	20.4	54.0	-33.6	Ch.25 2475MHz, Pwr 17, EUT Horz
2388.967	34.3	-3.3	1.0	291.0	-31.7	20.0	Vert	AV	0.0	19.3	54.0	-34.7	Ch.25 2475MHz, Pwr 17, EUT Vert
2485.310	33.4	-3.0	1.0	44.0	-31.7	20.0	Horz	AV	0.0	18.7	54.0	-35.3	Ch.18 2440MHz, Pwr 17, EUT Horz

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.530	33.4	-3.0	1.0	87.0	-31.7	20.0	Vert	AV	0.0	18.7	54.0	-35.3	Ch.25 2475MHz, Pwr 17, EUT Vert
2483.550	33.4	-3.0	1.0	352.0	-31.7	20.0	Horz	AV	0.0	18.7	54.0	-35.3	Ch.25 2475MHz, Pwr 17, EUT On side
2483.537	33.1	-3.0	1.0	354.0	-31.7	20.0	Horz	AV	0.0	18.4	54.0	-35.6	Ch.25 2475MHz, Pwr 17, EUT Vert
2483.563	33.0	-3.0	1.0	98.0	-31.7	20.0	Vert	AV	0.0	18.3	54.0	-35.7	Ch.25 2475MHz, Pwr 17, EUT On side
2485.430	32.4	-3.0	1.0	91.0	-31.7	20.0	Vert	AV	0.0	17.7	54.0	-36.3	Ch.18 2440MHz, Pwr 17, EUT Vert
2391.400	32.0	-3.3	1.0	324.0	-31.7	20.0	Horz	AV	0.0	17.0	54.0	-37.0	Ch.11 2405MHz, Pwr 17, EUT Horz
2389.870	31.3	-3.3	1.0	269.0	-31.7	20.0	Vert	AV	0.0	16.3	54.0	-37.7	Ch.11 2405MHz, Pwr 17, EUT Vert
2483.557	31.0	-3.0	1.0	322.0	-31.7	20.0	Vert	AV	0.0	16.3	54.0	-37.7	Ch.25 2475MHz, Pwr 17, EUT Horz

# BAND EDGE COMPLIANCE

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.	Interval
Cable	N/A	Double Ridge Horn Cables	EVB	4/16/2015	12
Antenna, Horn	ETS	3115	AIZ	1/27/2014	24
Signal Analyzer	Keysight	KT-N9010A	AFN	2/10/2015	12

## TEST DESCRIPTION


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



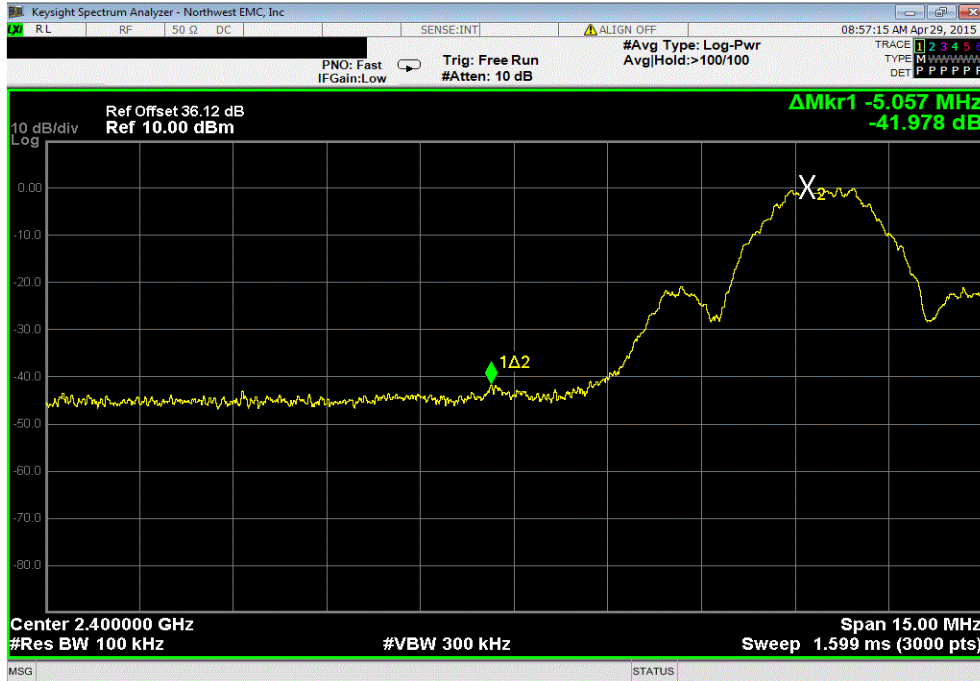
XMR 2015.01.14

EUT: Wireless WorkSight Preview Display Model: WD7102		Work Order: PRCO0071	
Serial Number: 3		Date: 04/28/15	
Customer: Preco, Inc.		Temperature: 23°C	
Attendees: Jon Fix		Humidity: 46%	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Brandon Hobbs		Power: 12 VDC	Job Site: EV01
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
The EUT was operating at 100% duty cycle. The antenna and cable losses where accounted for while under test.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value (dBc)	Limit ≤ (dBc) Result
OQPSK	Low Channel 11, 2405 MHz	-41.98	-20 Pass
	High Channel 25, 2475 MHz	-42.08	-20 Pass

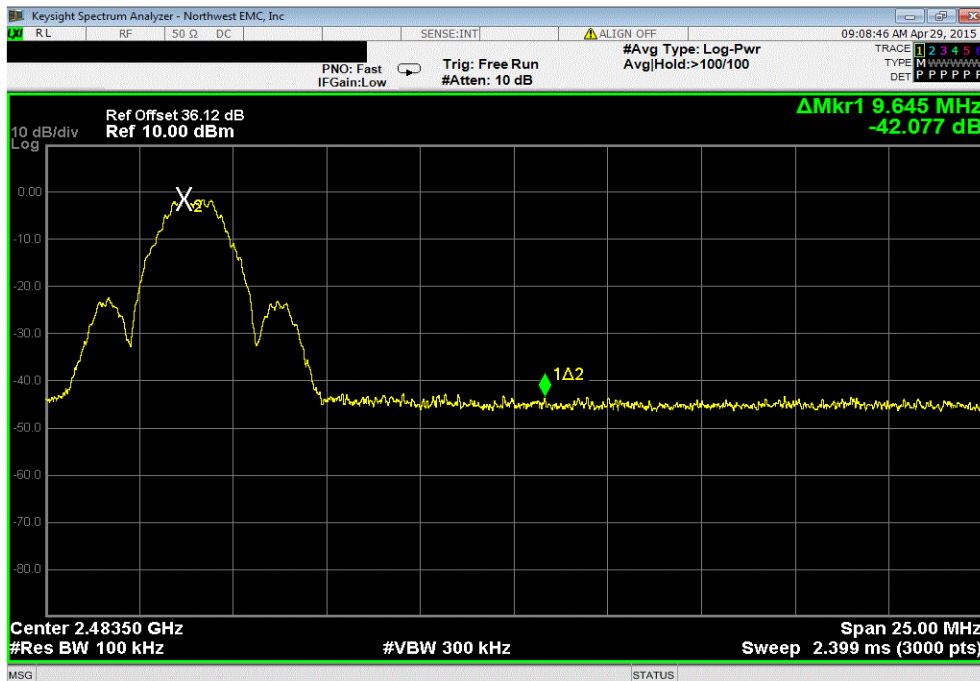


# BAND EDGE COMPLIANCE

OQPSK, Low Channel 11, 2405 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-41.98	-20	Pass



OQPSK, High Channel 25, 2475 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-42.08	-20	Pass



# OUT OF BAND EMISSIONS

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 Continuous OQPSK

## POWER SETTINGS INVESTIGATED

12 VDC

## CONFIGURATIONS INVESTIGATED

PRCO0071 - 1

## FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26500 MHz
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## SAMPLE CALCULATIONS

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

## TEST EQUIPMENT


Description	Manufacturer	Model	ID	Last Cal.	Interval
Cable	ESM Cable Corp.	KMKM-72	EVY	11/9/2014	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	11/9/2014	12 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
Signal Analyzer	Keysight	KT-N9010A	AFN	2/10/2015	12 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	4/16/2015	12 mo
Antenna, Horn	ETS	3160-08	AHV	NCR	0 mo
Cable	None	Standard Gain Horns Cable	EVF	4/20/2015	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	4/20/2015	12 mo
Antenna, Horn	ETS	3160-07	AHU	NCR	0 mo
Low Pass Filter, 0 - 1000 MHz	Micro-Tronics	LPM50004	LFD	6/18/2014	12 mo
High Pass Filter, 2.8 - 18 GHz	Micro-Tronics	HPM50111	HFO	3/31/2015	12 mo
Attenuator - 20dB, HF (1000MHz - 18000MHz)	Coaxicom	3910-20	AXZ	6/19/2014	12 mo
Cable	N/A	Double Ridge Horn Cables	EVB	4/16/2015	12 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	4/16/2015	12 mo
Antenna, Horn	ETS	3115	AIZ	1/27/2014	24 mo
Cable	N/A	Bilog Cables	EVA	2/10/2015	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	2/10/2015	12 mo
Antenna, Biconilog	EMCO	3141	AXE	8/29/2014	24 mo

## TEST DESCRIPTION

The out of band emissions were measured with the EUT set to low, mid, and high transmit frequencies. The measurements were made using a radiated setup using an antenna and spectrum analyzer with various filters and preamps to sustain an adequate sensitivity and accuracy. 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. The frequencies outside of the restricted band that were measured where applicable and compared to the highest radiated EIRP fundamental reading.

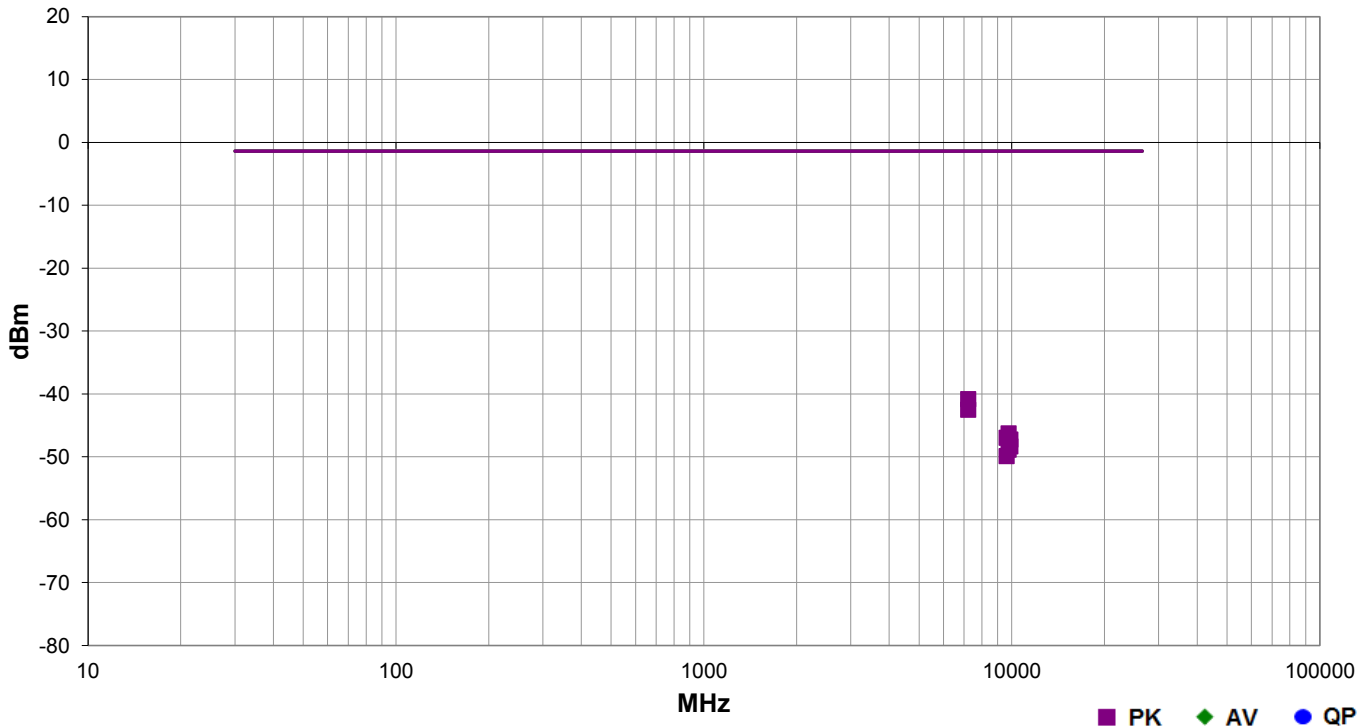
Fundamental EIRP measurement: 18.6dBm, out of band emissions limit: 20dBc from the EIRP limit. The Limit Calculation: 18.6dBm - 20dBc = -1.4dBm. All measurements were made with a 100kHz RBW, 300kHz VBW.

## OUT OF BAND EMISSIONS

<b>Work Order:</b>	PRCO071	<b>Date:</b>	04/29/15	
<b>Project:</b>	None	<b>Temperature:</b>	22.7 °C	
<b>Job Site:</b>	EV01	<b>Humidity:</b>	40.9% RH	
<b>Serial Number:</b>	3	<b>Barometric Pres.:</b>	1025.7 mbar	
<b>EUT:</b>	Wireless WorkSight Preview Display Model: WD7102			
<b>Configuration:</b>	1			
<b>Customer:</b>	Preco, Inc.			
<b>Attendees:</b>	Jon Fix			
<b>EUT Power:</b>	12 VDC			
<b>Operating Mode:</b>	Tx Continuous OQPSK			
<b>Deviations:</b>	None			
<b>Comments:</b>	Please reference the data comments for EUT orientation, frequency, channel and power level. Limit was derived by measuring 20dBc from the maximum peak EIRP measurement. All measurements made with a 100kHz RBW			

<b>Test Specifications</b>	<b>Test Method</b>
FCC 15.247:2015	ANSI C63.10:2009

<b>Run #</b>	20	<b>Test Distance (m)</b>	3	<b>Antenna Height(s)</b>	1 to 4(m)	<b>Results</b>	Pass
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Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7216.283	1.6	255.0	Horz	PK	8.26E-08	-40.8	-30.0	-10.8	Ch.11 2440MHz, Pwr 17, EUT Vert
7216.258	1.5	206.0	Vert	PK	5.59E-08	-42.5	-30.0	-12.5	Ch.11 2440MHz, Pwr 17, EUT Vert
9761.708	1.5	227.0	Horz	PK	2.35E-08	-46.3	-30.0	-16.3	Ch.18 2440MHz, Pwr 17, EUT Vert
9617.717	1.6	228.0	Horz	PK	2.01E-08	-47.0	-30.0	-17.0	Ch.11 2440MHz, Pwr 17, EUT Vert
9901.708	1.4	235.0	Horz	PK	1.88E-08	-47.3	-30.0	-17.3	Ch.25 2475MHz, Pwr 17, EUT Vert
9901.700	2.5	209.0	Vert	PK	1.46E-08	-48.4	-30.0	-18.4	Ch.25 2475MHz, Pwr 17, EUT Vert
9761.717	1.1	99.0	Vert	PK	1.29E-08	-48.9	-30.0	-18.9	Ch.18 2440MHz, Pwr 17, EUT Vert
9621.683	1.0	206.0	Vert	PK	1.03E-08	-49.9	-30.0	-19.9	Ch.11 2440MHz, Pwr 17, EUT Vert

All other spurious frequencies were greater than -40 dBc from fundamental

# OCCUPIED BANDWIDTH

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.	Interval
Cable	N/A	Double Ridge Horn Cables	EVB	4/16/2015	12
Antenna, Horn	ETS	3115	AIZ	1/27/2014	24
Signal Analyzer	Keysight	KT-N9010A	AFN	2/10/2015	12

## TEST DESCRIPTION


The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 26 dB (99.9%) emission bandwidth (EBW) was also measured at the same time.

The EUT was set to low, medium and high transmit frequencies. The measurement was made in a radiated configuration in a semi-anechoic chamber with the fundamental of the carrier full maximized for its highest radiated power. The EUT was transmitting at the data rate(s) listed in the datasheet.

# OCCUPIED BANDWIDTH

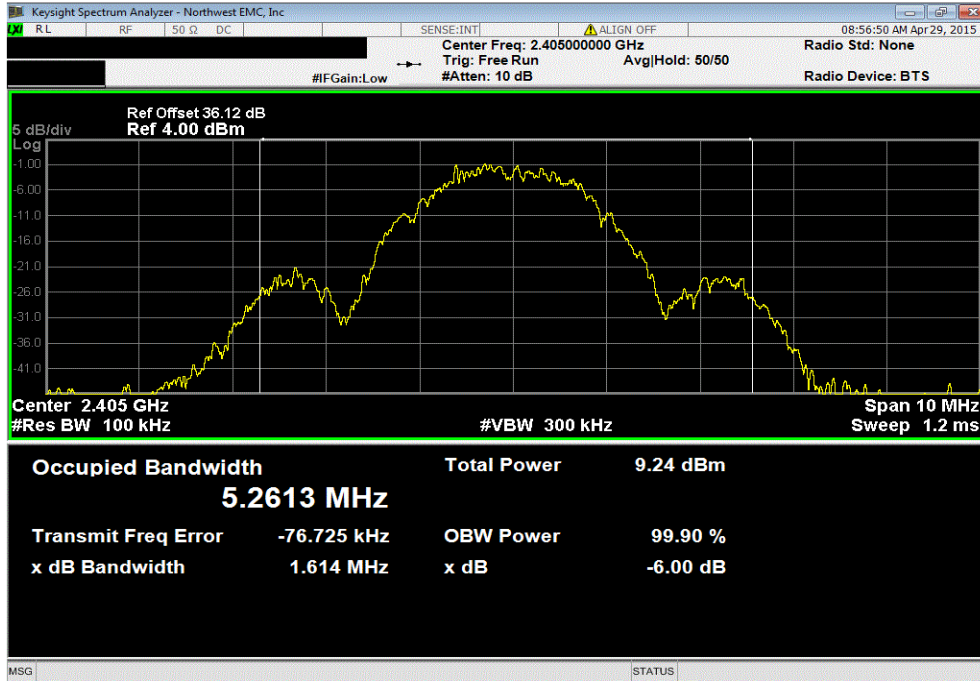


XMR 2015.01.14

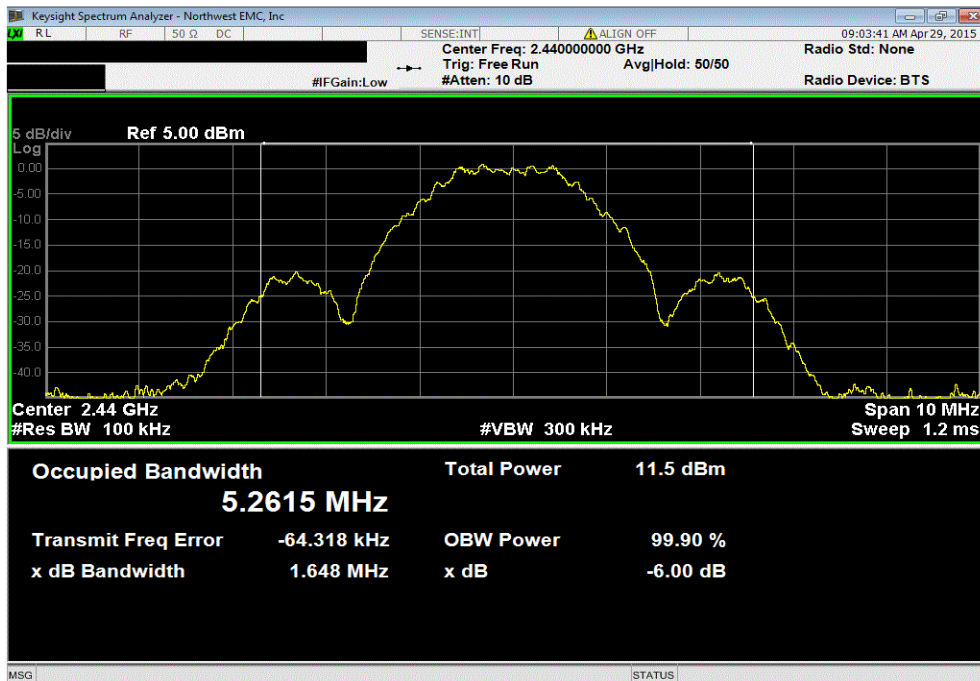
EUT: Wireless WorkSight Preview Display Model: WD7102		Work Order: PRCO0071	
Serial Number: 3		Date: 04/28/15	
Customer: Preco, Inc.		Temperature: 23°C	
Attendees: Jon Fix		Humidity: 46%	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Brandon Hobbs	Power: 12 VDC	Job Site: EV01	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
The EUT was operating at 100% duty cycle. The antenna and cable losses where accounted for while under test.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value Limit (>) Result	
OQPSK	Low Channel 11, 2405 MHz	1.614 MHz 500 kHz	Pass
	Mid Channel 18, 2440 MHz	1.648 MHz 500 kHz	Pass
	High Channel 25, 2475 MHz	1.64 MHz 500 kHz	Pass

# OCCUPIED BANDWIDTH

OQPSK, Low Channel 11, 2405 MHz						
				Value	Limit	Result
					(>)	
				1.614 MHz	500 kHz	Pass

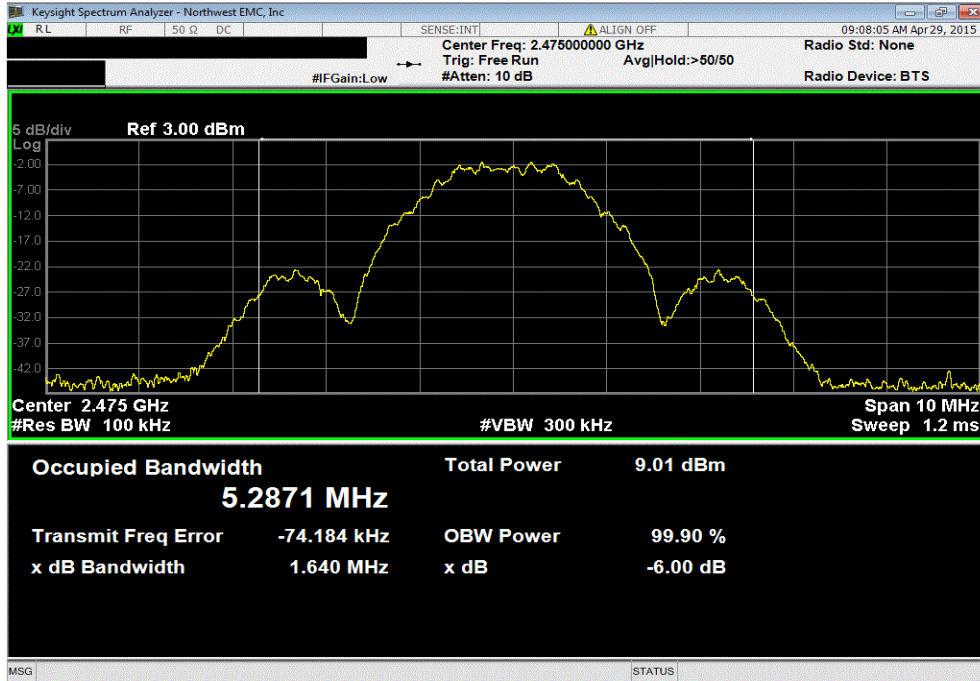


OQPSK, Mid Channel 18, 2440 MHz						
				Value	Limit	Result
					(>)	
				1.648 MHz	500 kHz	Pass



# OCCUPIED BANDWIDTH

OQPSK, High Channel 25, 2475 MHz				Limit	Result
Value		(>)			
1.64 MHz		500 kHz		Pass	



# OUTPUT POWER

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 Continuous OQPSK

### CHANNELS OF OPERATION

Ch.11, 2405 MHz, Low Channel

Ch.18, 2440 MHz, Mid Channel

Ch. 25, 2475 MHz, High Channel

### POWER SETTINGS INVESTIGATED

12 VDC

### CONFIGURATIONS INVESTIGATED

PRCO0071 - 1

### FREQUENCY RANGE INVESTIGATED

Start Frequency	2400 MHz	Stop Frequency	2483.5 MHz
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### SAMPLE CALCULATIONS

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


### TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Horn	EMCO	3115	AHC	6/13/2014	24 mo
Power Meter	Gigatronics	8651A	SPM	9/17/2014	12 mo
Power Sensor	Gigatronics	80701A	SPL	5/28/2014	12 mo
MXG Analog Signal Generator	Agilent	N5181A	TIG	3/28/2014	36 mo
Cable	N/A	Double Ridge Horn Cables	EVB	4/16/2015	12 mo
Antenna, Horn	ETS	3115	AIZ	1/27/2014	24 mo
Signal Analyzer	Keysight	KT-N9010A	AFN	2/10/2015	12 mo

### TEST DESCRIPTION

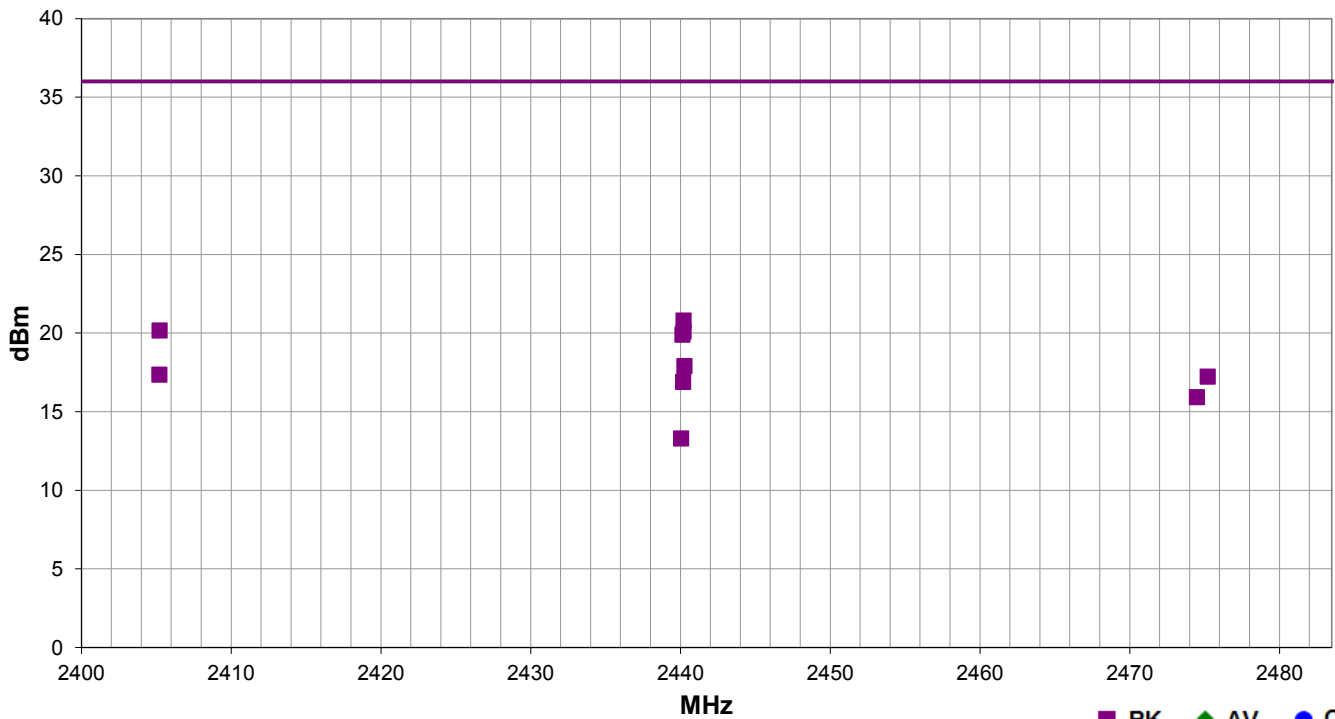
The EUT was configured for low, mid, and high band transmit frequencies While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. The amplitude and frequency of the highest emissions were noted. The EUT was then replaced with a horn antenna. A signal generator was connected to the horn antenna and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded, and by factoring in the cable loss to the horn antenna and its gain (dBi) the EIRP for the fundamental emission was determined.



<b>Work Order:</b>	PRCO0071	<b>Date:</b>	04/28/15	
<b>Project:</b>	None	<b>Temperature:</b>	23 °C	
<b>Job Site:</b>	EV01	<b>Humidity:</b>	47.1% RH	
<b>Serial Number:</b>	3	<b>Barometric Pres.:</b>	1019.5 mbar	
<b>EUT:</b>	Wireless WorkSight Preview Display Model: WD7102			
<b>Configuration:</b>	1			
<b>Customer:</b>	Preco, Inc.			
<b>Attendees:</b>	Jon Fix			
<b>EUT Power:</b>	12 VDC			
<b>Operating Mode:</b>	Tx Continuous OQPSK			
<b>Deviations:</b>	None			
<b>Comments:</b>	Please reference the data comments for EUT orientation, channel, frequency and power level.			

<b>Test Specifications</b>	<b>Test Method</b>
FCC 15.247:2015	ANSI C63.10:2009

<b>Run #</b>	0	<b>Test Distance (m)</b>	3	<b>Antenna Height(s)</b>	1 to 4(m)	<b>Results</b>	Pass
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Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2440.208	3.0	303.0	Vert	PK	1.20E-01	20.8	36.0	-15.2	Ch.18 2440MHz, Pwr 17, EUT On Side
2405.225	3.8	295.0	Vert	PK	1.04E-01	20.2	36.0	-15.8	Ch.11 2405MHz, Pwr 17, EUT On Side
2440.208	3.0	87.0	Vert	PK	1.02E-01	20.1	36.0	-15.9	Ch.18 2440MHz, Pwr 17, EUT Vert
2440.133	2.0	68.0	Horz	PK	9.76E-02	19.9	36.0	-16.1	Ch.18 2440MHz, Pwr 17, EUT Horz
2440.267	1.5	213.0	Horz	PK	6.16E-02	17.9	36.0	-18.1	Ch.18 2440MHz, Pwr 17, EUT On Side
2405.208	1.6	34.0	Horz	PK	5.44E-02	17.4	36.0	-18.6	Ch.11 2405MHz, Pwr 17, EUT Horz
2475.208	2.0	81.0	Vert	PK	5.29E-02	17.2	36.0	-18.8	Ch.25 2475MHz, Pwr 17, EUT On Side
2440.183	1.6	32.0	Horz	PK	4.89E-02	16.9	36.0	-19.1	Ch.18 2440MHz, Pwr 17, EUT Vert
2474.483	1.1	159.0	Horz	PK	3.92E-02	15.9	36.0	-20.1	Ch.25 2475MHz, Pwr 17, EUT Horz
2440.042	1.2	221.0	Vert	PK	2.13E-02	13.3	36.0	-22.7	Ch.18 2440MHz, Pwr 17, EUT Horz

# POWER SPECTRAL DENSITY

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.	Interval
Cable	N/A	Double Ridge Horn Cables	EVB	4/16/2015	12
Antenna, Horn	ETS	3115	AIZ	1/27/2014	24
Signal Analyzer	Keysight	KT-N9010A	AFN	2/10/2015	12

## TEST DESCRIPTION

The maximum power spectral density measurements were measured with the EUT set to the required transmit frequencies in each band. The EUT was transmitting at the lowest, middle, and maximum data rate for each modulation type available.

The final data was converted from a field strength to a radiated power value. Equation 5 found in ANSI C63.10:2009, was used to derive this conversion formula:

$$\text{dBm/m (field strength)} + 11.77 = \text{dBm EIRP}$$

Per the procedure outlined in FCC KDB 558074 D01 DTS Measurement Section 5.3.1, the spectrum analyzer was used as follows:


- RBW = 100 kHz
- VBW = 300 kHz
- Detector = Peak (to match method used for power measurement)
- Trace = Max hold

The observed power level is then scaled to an equivalent value in 3 kHz by adding a Bandwidth Correction Factor (BWCF) where:

# POWER SPECTRAL DENSITY

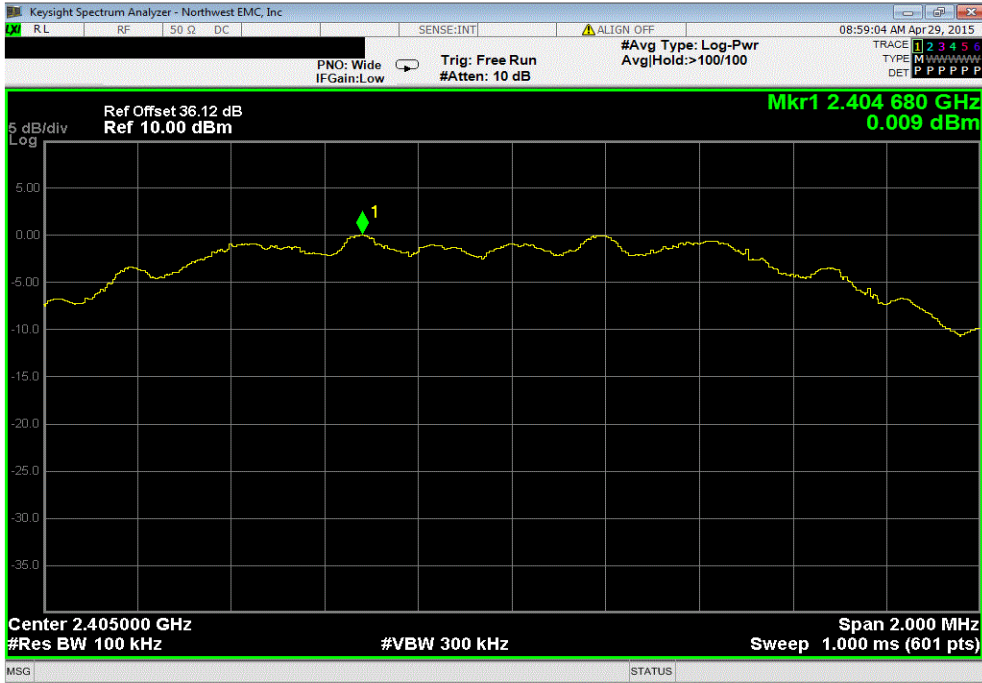


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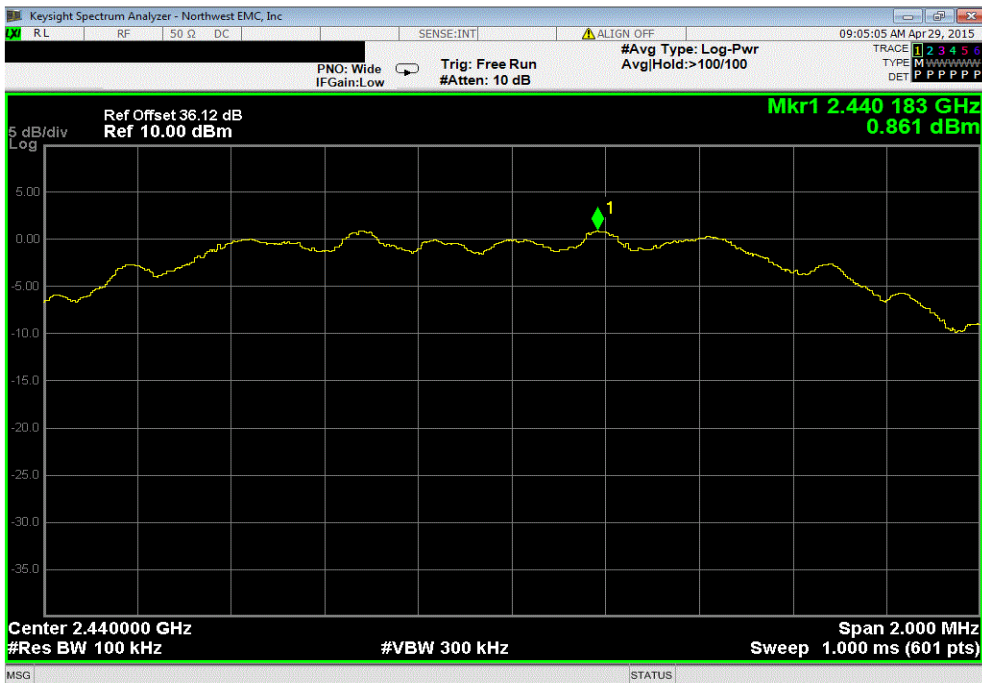
EUT: Wireless WorkSight Preview Display Model: WD7102		Work Order: PRCO0071	
Serial Number: 3		Date: 04/28/15	
Customer: Preco, Inc.		Temperature: 23°C	
Attendees: Jon Fix		Humidity: 46%	
Project: None		Barometric Pres.: 1019 mbar	
Tested by: Brandon Hobbs		Power: 12 VDC	
		Job Site: EV01	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2015		ANSI C63.10:2009	
COMMENTS			
The EUT was operating at 100% duty cycle. The antenna and cable losses were accounted for while under test.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1	Signature 	
		Value dBm/100kHz	dBm/m to dBm
		dBm/100kHz To dBm/3kHz	Value dBm/3kHz
			Limit dBm/3kHz
			Results
OQPSK	Low Channel 11, 2405 MHz	0.009	11.77
	Mid Channel 18, 2440 MHz	0.861	11.77
	High Channel 25, 2475 MHz	-1.581	11.77
			-15.2
			-15.2
			-15.2
			-3.421
			-2.569
			-5.011
			8
			8
			8
			Pass
			Pass
			Pass

# POWER SPECTRAL DENSITY

OQPSK, Low Channel 11, 2405 MHz						
Value	dBm/m to	dBm/100kHz	Value	Limit	Results	
dBm/100kHz	dBm	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
0.009	11.77	-15.2	-3.421	8	Pass	



OQPSK, Mid Channel 18, 2440 MHz						
Value	dBm/m to	dBm/100kHz	Value	Limit	Results	
dBm/100kHz	dBm	To dBm/3kHz	dBm/3kHz	dBm/3kHz		
0.861	11.77	-15.2	-2.569	8	Pass	





# DUTY CYCLE

## TEST DESCRIPTION

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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.

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. A direct connection was made between the RF output of the EUT and a spectrum analyzer. Attenuation and a DC block were used

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