

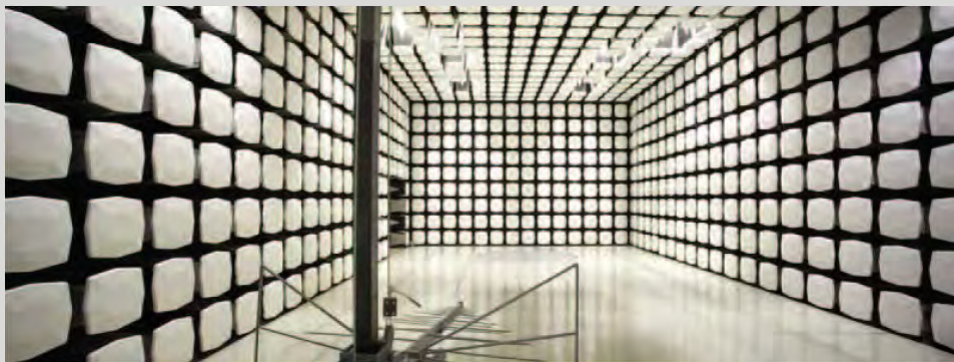


Care Innovations

PIR

FCC 15.247:2013

Report #: CARE0015



Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

CERTIFICATE OF TEST

Last Date of Test: April 22, 2013
Care Innovations
Model: PIR

Emissions

Test Description	Specification	Test Method	Pass/Fail
Occupied Bandwidth	FCC 15.247:2013	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2013	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2013	ANSI C63.10:2009	Pass
Power Spectral Density	FCC 15.247:2013	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	FCC 15.247:2013	ANSI C63.10:2009	Pass

Deviations From Test Standards

None

Approved By:



Tim O'Shea, Operations Manager



NVLAP Lab Code: 200630-0

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-1).

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.

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. This Report may only be duplicated in its entirety. 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		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

United States

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

A2LA - Accredited by A2LA to ISO / IEC Guide 65 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

Canada

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

European Union

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.

Australia/New Zealand

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

Korea

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

Japan

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

Taiwan

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

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

Singapore

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

Hong Kong

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

Vietnam

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

Russia

GOST – Accredited by Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC to perform EMC and Hygienic testing for Information Technology products to GOST standards.

SCOPE

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

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

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.

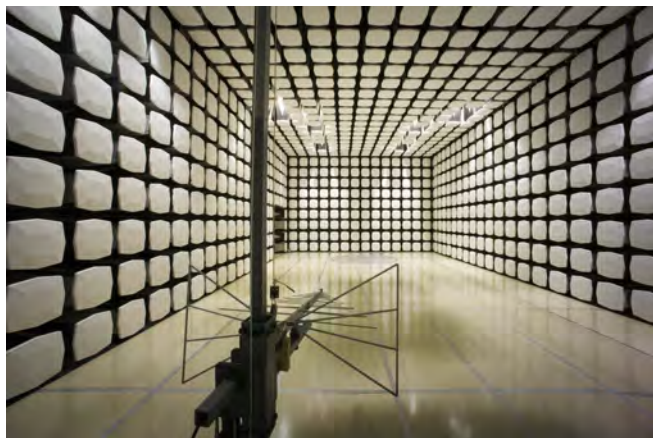
A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is listed below. Our measurement 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 16-4-1 as applicable), and are available upon request.

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

Test	+ MU	- MU
Frequency Accuracy (Hz)	0.12	-0.01
Amplitude Accuracy (dB)	0.49	-0.49
Conducted Power (dB)	0.41	-0.41
Radiated Power via Substitution (dB)	0.69	-0.68
Temperature (degrees C)	0.81	-0.81
Humidity (% RH)	2.89	-2.89
Field Strength (dB)	3.80	-3.80
AC Powerline Conducted Emissions (dB)	2.94	-2.94



Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	California Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 685-0796	Minnesota Labs MN01-08 9349 W Broadway Ave. Brooklyn Park, MN 55445 (763) 425-2281	Washington Labs NC01-05, SU02, SU07 19201 120 th Ave. NE Bothell, WA 98011 (425) 984-6600
VCCI				
A-0108	A-0029		A-0109	A-0110
Industry Canada				
2834D-1, 2834D-2	2834B-1, 2834B-2, 2834B-3		2834E-1	2834C-1
NVLAP				
NVLAP Lab Code: 200630-0	NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200629-0





PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Care Innovations
Address:	20270 NW Amberglen Court
City, State, Zip:	Beaverton, OR 97006
Test Requested By:	Bill Morse
Model:	PIR
First Date of Test:	April 19, 2013
Last Date of Test:	April 22, 2013
Receipt Date of Samples:	April 17, 2013
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
Wireless monitoring technology that uses a 2.4 GHz ISM radio module, 802.15.4 compliant with 1 antenna. In actual use it is powered by a removable battery.
Testing Objective:
To demonstrate compliance to FCC 15.247 requirements.

Configuration CARE0015- 4

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
PIR	Care Innovations	QC1010000-01	001D4000000103C2

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Dell	Latitude 2100	00196-063-869-320

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB to Radio Programmer	No	.5	No	Laptop	Coor/Router/Door
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	4/19/2013	Spurious Radiated 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.
2	4/19/2013	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.
3	4/22/2013	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.
4	4/22/2013	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.
5	4/22/2013	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Duty Cycle

TEST DESCRIPTION

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

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

The EUT operates at 100% Duty Cycle.

Occupied Bandwidth

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
DC Block, 18GHz, 'N'	Fairview Microwave	SD3074	AMF	NCR	13
Near Field Probe	EMCO	7405	IPD	NCR	0
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	24

TEST DESCRIPTION

The occupied bandwidth was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a near field probe between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode.



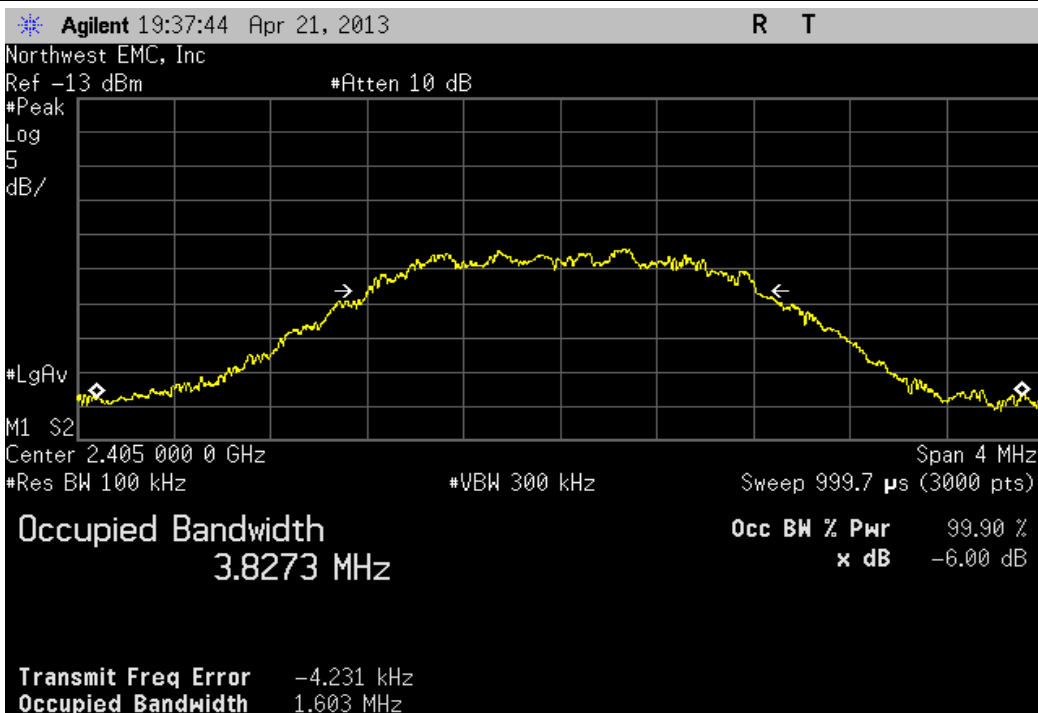
Occupied Bandwidth

XMit 2013.02.28
PsaTx 2013.01.10

EUT: PIR		Work Order: CARE0015	
Serial Number: 001D400000103C2		Date: 04/22/13	
Customer: Care Innovations		Temperature: 23°C	
Attendees: Bill Morse		Humidity: 29%	
Project: None		Barometric Pres.: 1032	
Tested by: Brandon Hobbs, Rod Peloquin		Power: 3VDC	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2013		ANSI C63.10:2009	
COMMENTS			
The EUT was operating at 100% duty cycle while under test.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	4	Signature <i>Brandon Hobbs</i>	
		Value	Limit
2400 MHz - 2483.5 MHz Band			Result
OQPSK			
Low Channel 2405 MHz		1.603 MHz	> 500 kHz
Mid Channel 2445 MHz		1.642 MHz	> 500 kHz
High Channel 2480 MHz		1.641 MHz	> 500 kHz

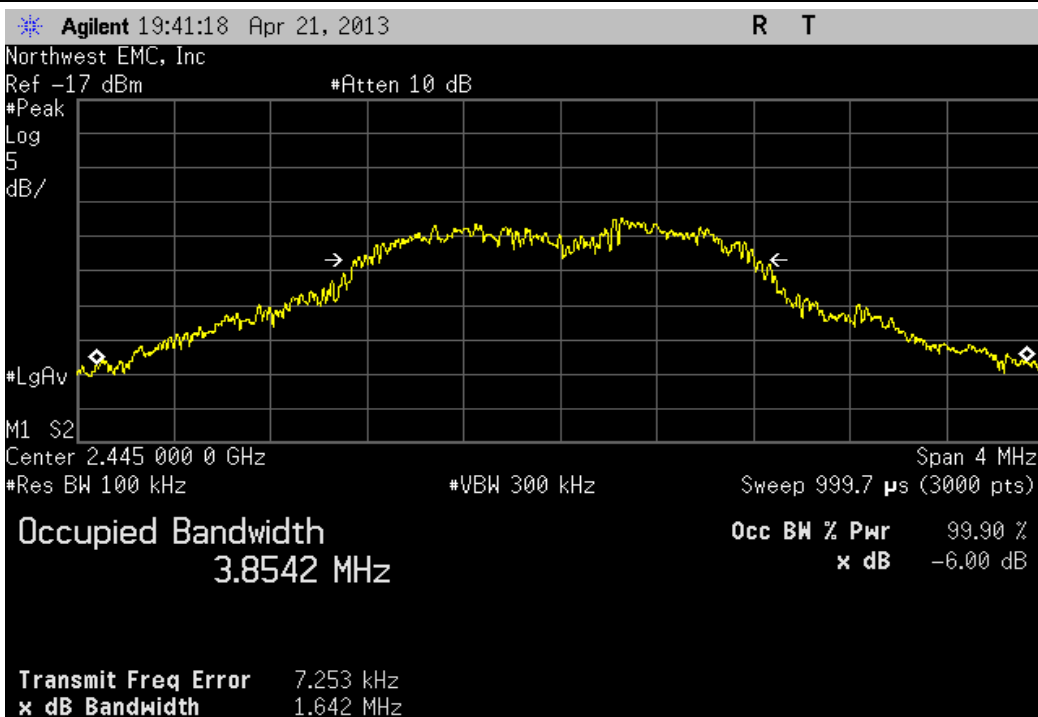
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel 2405 MHz

Value	Limit	Result
1.603 MHz	> 500 kHz	Pass



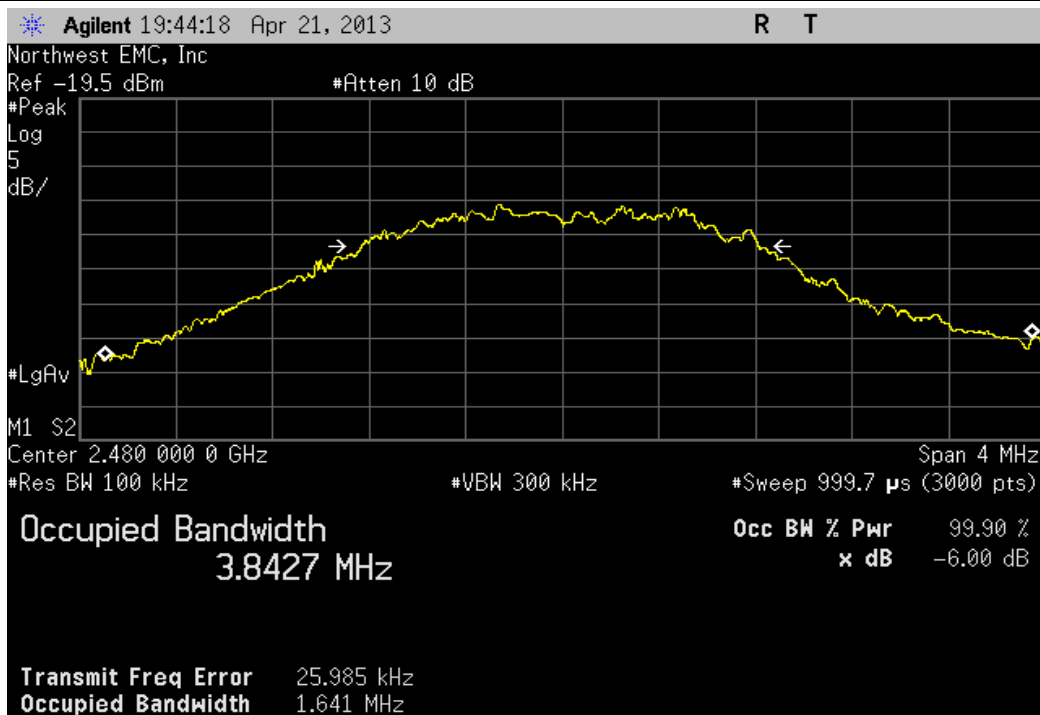
2400 MHz - 2483.5 MHz Band, OQPSK, Mid Channel 2445 MHz

Value	Limit	Result
1.642 MHz	> 500 kHz	Pass



2400 MHz - 2483.5 MHz Band, OQPSK, High Channel 2480 MHz

Value	Limit	Result
1.641 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

On transmitting 802.11 Zigbee Low 2405 MHz, Mid 2445 MHz and High 2480 MHz

POWER SETTINGS INVESTIGATED

3 VDC

CONFIGURATIONS INVESTIGATED

CARE0015 - 4

FREQUENCY RANGE INVESTIGATED

Start Frequency	1 GHz	Stop Frequency	3 GHz
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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
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/27/2012	12 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24 mo
Antenna, Horn	ETS	3115	AIZ	1/24/2011	36 mo

MEASUREMENT BANDWIDTHS

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


TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The radiated power was measured using a spectrum analyzer and horn antenna in a semi-anechoic chamber. The resolution bandwidth was set to 3 MHz and the video bandwidth was set to 8 MHz. A peak detector was used. The EUT was transmitting at its maximum data rate. The level of fundamental emission was maximized by rotating the turntable and moving the measurement antenna from 1 – 4 meters in height.

The field strength measurement was converted to effective radiated power (EIRP) using the Friis transmission equation. A simplified version is found in ANSI C63.10:2009, Equation 5.

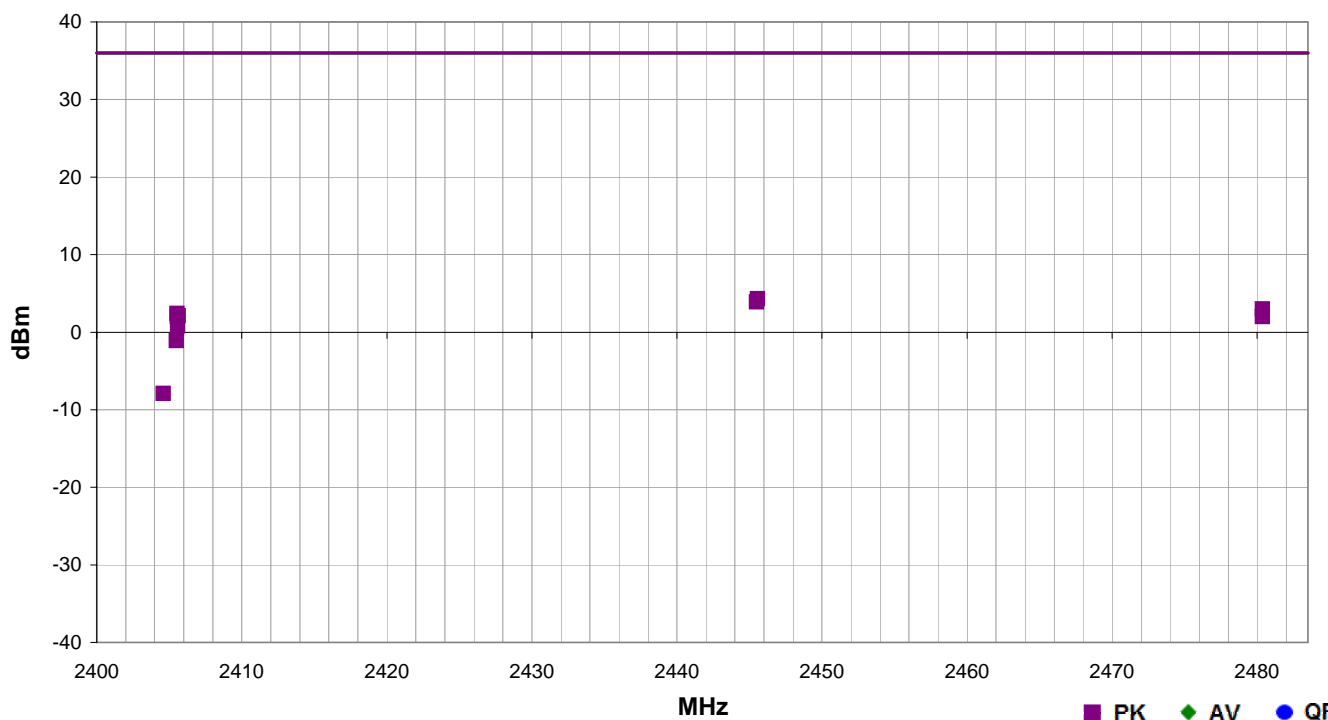
De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

Output Power

Work Order:	CARE0015	Date:	04/19/13	
Project:	None	Temperature:	23.4 °C	
Job Site:	EV01	Humidity:	38.4% RH	
Serial Number:	001D400000103C2	Barometric Pres.:	1021 mbar	
EUT:	PIR			
Configuration:	4			
Customer:	Care Innovations			
Attendees:	Bill Morse Stan Telson			
EUT Power:	3 VDC			
Operating Mode:	On transmitting 802.11 Zigbee Low 2405 MHz, Mid 2445 MHz and High 2480 MHz			
Deviations:	None			
Comments:	Please reference the data comments for frequency and EUT orientation. The duty cycle is operating at 100% duty cycle while under test.			

Test Specifications	Test Method
FCC 15.247:2013	ANSI C63.10:2009

Run #	37	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	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
	2445.560	1.0	300.0	Horz	PK	2.69E-03	4.3	36.0	-31.7	EUT Horz
	2445.480	1.0	105.0	Vert	PK	2.46E-03	3.9	36.0	-32.1	EUT Vert
	2480.373	1.0	103.0	Vert	PK	1.99E-03	3.0	36.0	-33.0	EUT Vert
	2405.540	1.0	93.0	Vert	PK	1.74E-03	2.4	36.0	-33.6	EUT Vert
	2405.633	1.0	112.0	Horz	PK	1.63E-03	2.1	36.0	-33.9	EUT Horz
	2405.567	1.0	106.0	Vert	PK	1.59E-03	2.0	36.0	-34.0	EUT On Side
	2480.360	1.0	270.0	Horz	PK	1.58E-03	2.0	36.0	-34.0	EUT Horz
	2405.587	1.0	258.0	Horz	PK	1.21E-03	0.8	36.0	-35.2	EUT Horz
	2405.500	2.1	237.0	Vert	PK	7.78E-04	-1.1	36.0	-37.1	EUT On Side
	2404.580	1.5	172.0	Horz	PK	1.63E-04	-7.9	36.0	-43.9	EUT Vert

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
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/27/2012	12
Antenna, Horn	ETS	3115	AIZ	1/24/2011	36
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24

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 radiated measurement. The EUT was transmitting at the maximum data rate available.

The spectrum was scanned across each band edge from at least 10 MHz below the band edge to 10 MHz above the band edge.



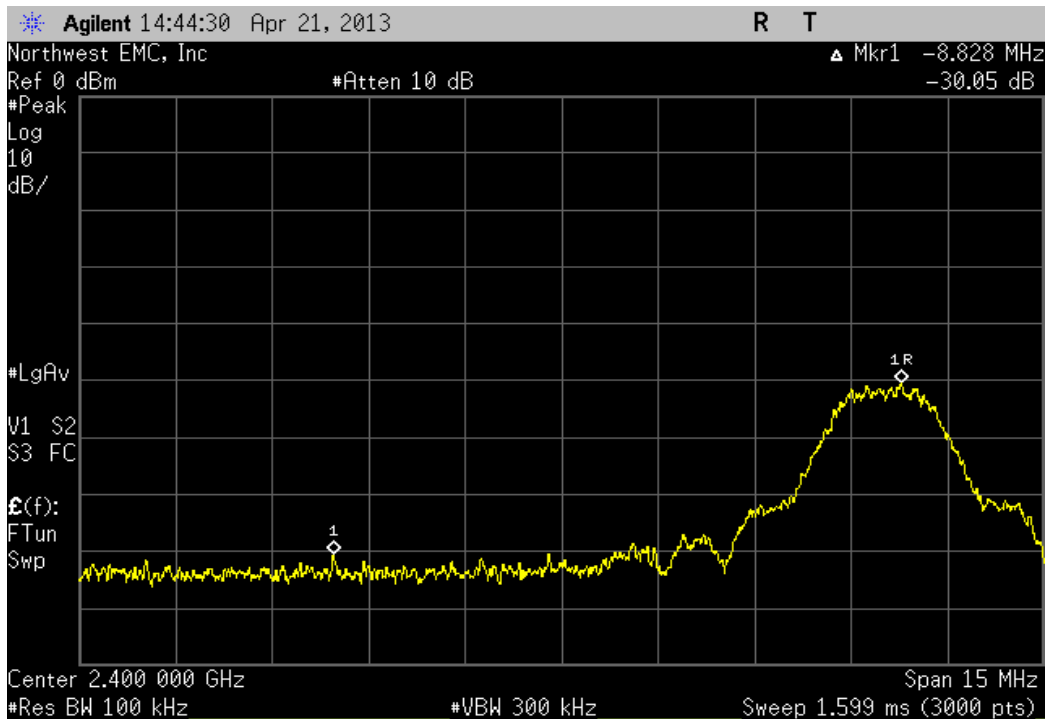
Band Edge Compliance

XMit 2013.02.28
PsaTx 2012.11.16

EUT: PIR		Work Order: CARE0015	
Serial Number: 001D400000103C2		Date: 04/22/13	
Customer: Care Innovations		Temperature: 23°C	
Attendees: Bill Morse		Humidity: 29%	
Project: None		Barometric Pres.: 1032	
Tested by: Brandon Hobbs, Rod Peloquin		Power: 3VDC	
		Job Site: EV01	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2013		ANSI C63.10:2009	
COMMENTS			
The EUT was operating at 100% duty cycle while under test.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	4	Signature <i>Rodry Le Pellego</i>	
		Value	Limit
2400 MHz - 2483.5 MHz Band			Result
OQPSK			
Low Channel 2405 MHz		-30.05 dBc	≤ -20 dBc
High Channel 2480 MHz		-27.42 dBc	≤ -20 dBc
			Pass
			Pass

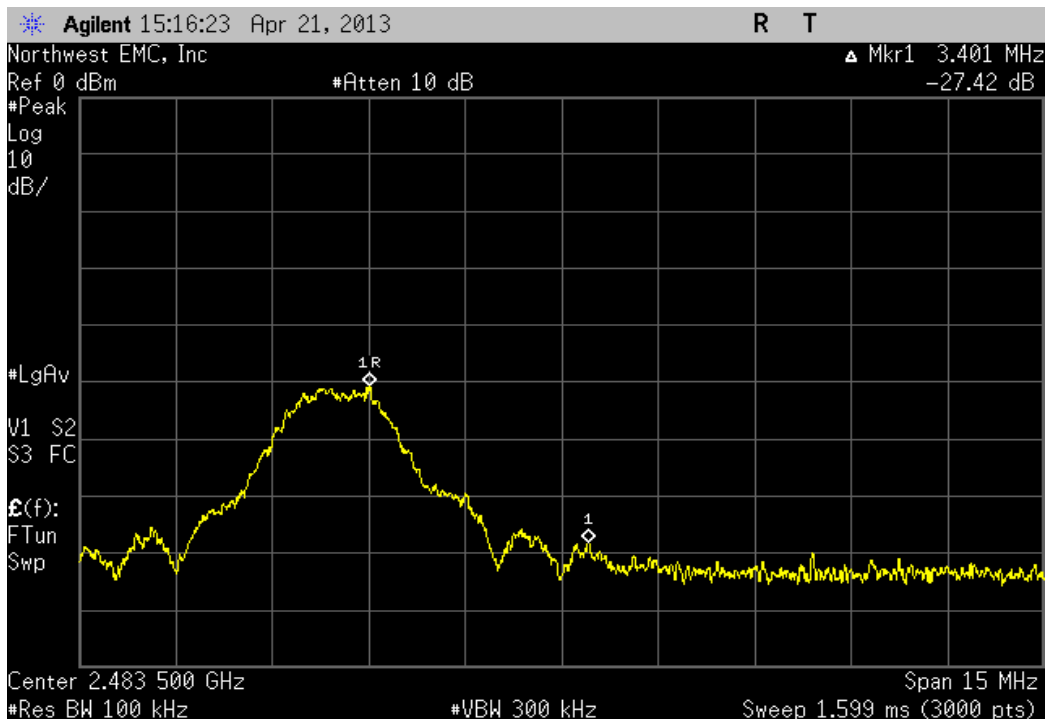
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel 2405 MHz

Value	Limit	Result
-30.05 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, OQPSK, High Channel 2480 MHz

Value	Limit	Result
-27.42 dBc	≤ -20 dBc	Pass



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
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/27/2012	12
Antenna, Horn	ETS	3115	AIZ	1/24/2011	36
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24


TEST DESCRIPTION

The peak power spectral density was measured with the EUT set to low, medium, and high transmit frequencies. The radiated power spectral density was measured using a spectrum analyzer and horn antenna in a semi-anechoic chamber. The EUT was transmitting at its maximum data rate for each modulation type available. The level of fundamental emission was maximized by rotating the turntable and moving the measurement antenna from 1 – 4 meters in height. Per the procedure outlined in ANSI C63.10:2009, the spectrum analyzer was used as follows:

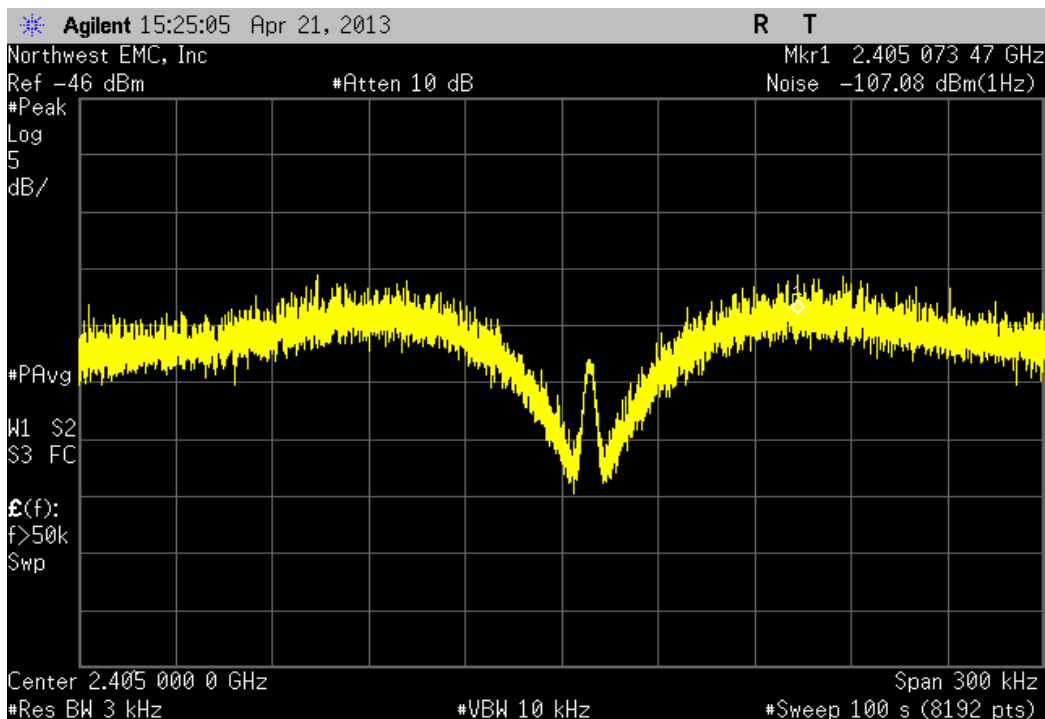
The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = (SPAN/3 kHz)). For example, given a span of 1.5 MHz, the sweep should be $1.5 \times 10^6 \div 3 \times 10^3 = 500$ seconds. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 35 dB for correction to 3 kHz."

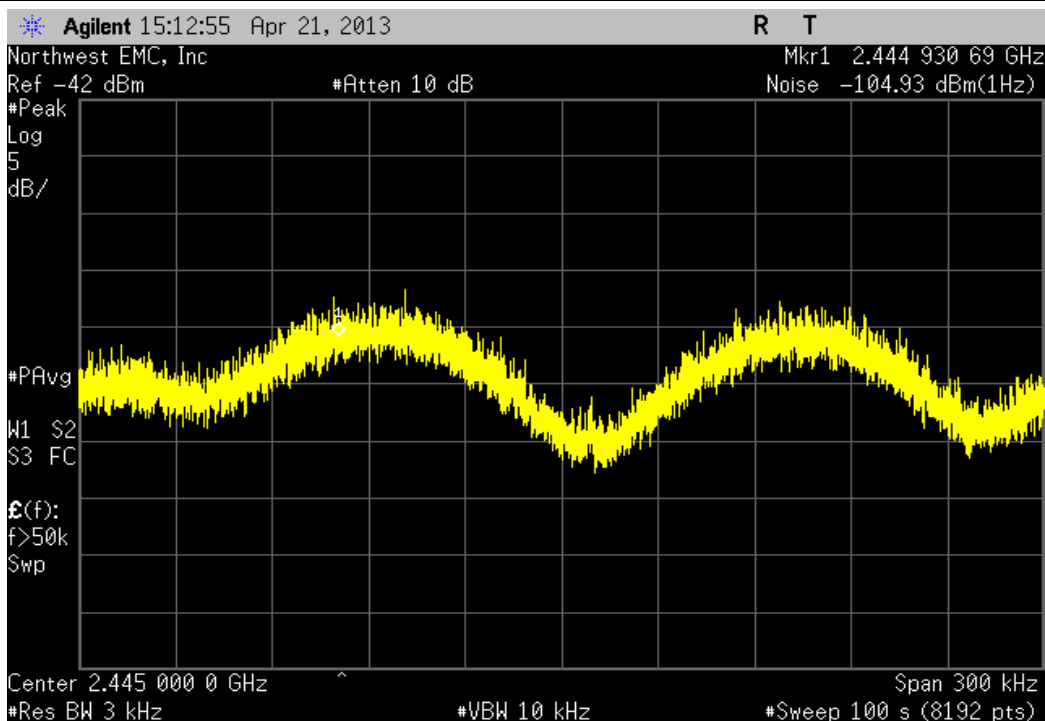
The field strength measurement of power spectral density was converted to effective radiated power spectral density (dBm/3kHz) (EIRP) using the Friis transmission equation. A simplified version is found in ANSI C63.10:2009, Equation 6.

EUT: PIR				Work Order: CARE0015			
Serial Number: 001D400000103C2				Date: 04/22/13			
Customer: Care Innovations				Temperature: 23°C			
Attendees: Bill Morse				Humidity: 29%			
Project: None				Barometric Pres.: 1032			
Tested by: Brandon Hobbs, Rod Peloquin				Power: 3VDC		Job Site: EV01	
TEST SPECIFICATIONS				Test Method			
FCC 15.247:2013				ANSI C63.10:2009			
COMMENTS							
The EUT was operating at 100% duty cycle while under test.							
DEVIATIONS FROM TEST STANDARD							
None							
Configuration #		4		Signature 			
		dBm/1Hz To dBm/3kHz	Value dBm/1Hz	Factor (dBm)	Value dBm/3kHz	Limit dBm/3kHz	Result
2400 MHz - 2483.5 MHz Band							
QPSK							
Low Channel 2405 MHz		35	-107.081	34.4	-37.681	8	Pass
Mid Channel 2445 MHz		35	-104.934	34.4	-35.534	8	Pass
High Channel 2480 MHz		35	-107.467	34.4	-38.067	8	Pass

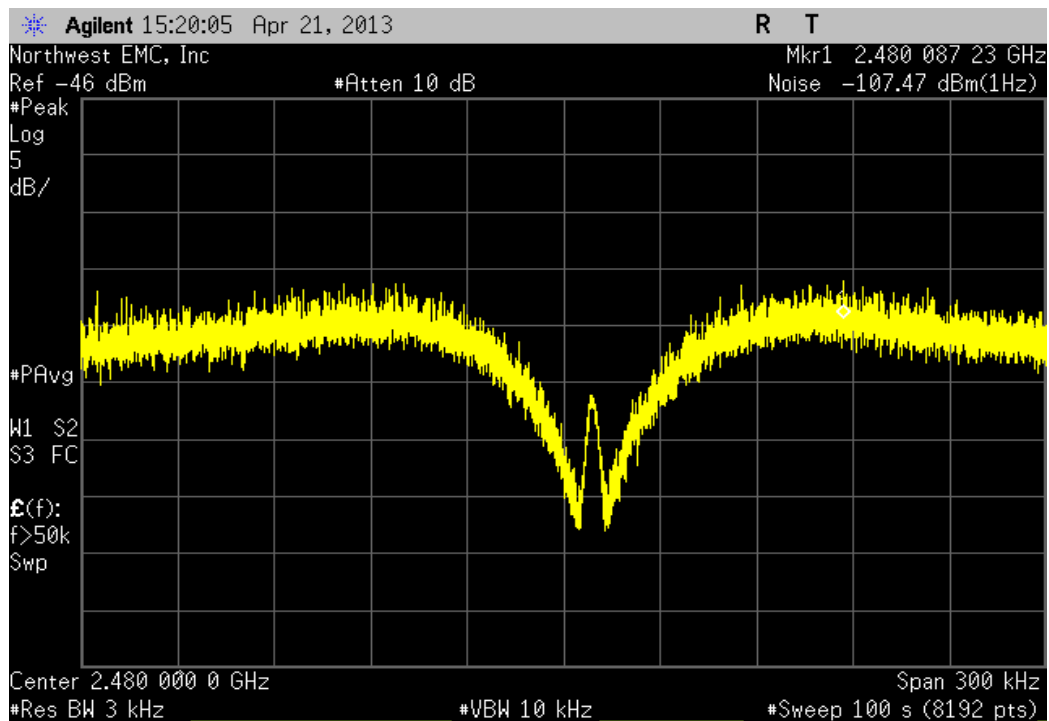
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel 2405 MHz						
	dBm/1Hz To dBm/3kHz	Value dBm/1Hz	Factor (dBm)	Value dBm/3kHz	Limit dBm/3kHz	Result
	35	-107.081	34.4	-37.681	8	Pass



2400 MHz - 2483.5 MHz Band, OQPSK, Mid Channel 2445 MHz						
	dBm/1Hz To dBm/3kHz	Value dBm/1Hz	Factor (dBm)	Value dBm/3kHz	Limit dBm/3kHz	Result
	35	-104.934	34.4	-35.534	8	Pass



2400 MHz - 2483.5 MHz Band, OQPSK, High Channel 2480 MHz						
	dBm/1Hz To dBm/3kHz	Value dBm/1Hz	Factor (dBm)	Value dBm/3kHz	Limit dBm/3kHz	Result
	35	-107.467	34.4	-38.067	8	Pass



Spurious Radiated 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

On transmitting 802.11 Zigbee Low 2405 MHz, Mid 2445 MHz, High 2480 MHz

POWER SETTINGS INVESTIGATED

3 VDC

CONFIGURATIONS INVESTIGATED

CARE0015 - 4

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 26 GHz

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	9/11/2012	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/11/2012	12 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	2/27/2013	12 mo
Antenna, Horn	ETS	3160-08	AHV	NCR	0 mo
EV01 Cables	N/A	Bilog Cables	EVA	6/26/2012	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	6/26/2012	12 mo
Antenna, Biconilog	EMCO	3141	AXG	4/10/2012	36 mo
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	2/27/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	2/27/2013	12 mo
Antenna, Horn	ETS	3160-07	AHU	NCR	0 mo
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/27/2012	12 mo
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	6/27/2012	12 mo
Antenna, Horn	ETS	3115	AIZ	1/24/2011	36 mo
LP Filter	Micro-Tronics	LPM50004	LFD	7/6/2012	24 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24 mo
High Pass Filter	Micro-Tronics	HPM50111	HFO	7/6/2012	24 mo

MEASUREMENT BANDWIDTHS


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

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.

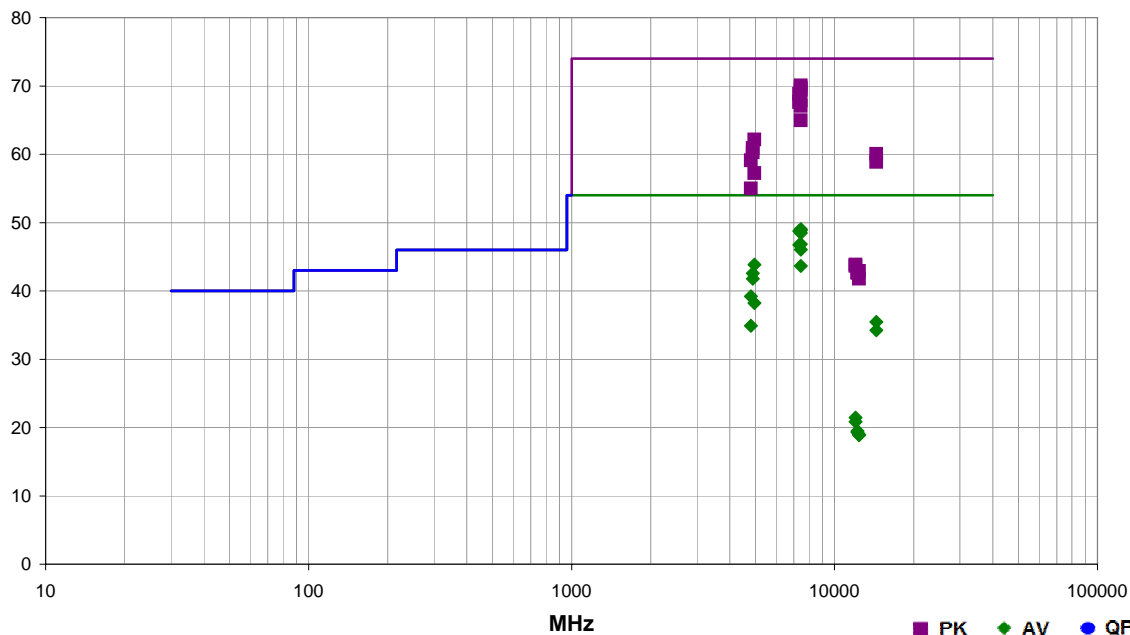
All radiated emissions were measured. The emissions that fell in the restricted bands of 15.205 were measured to the 15.209 limits and all other emissions were compared to the -20dBc limit of 15.247(b)

Spurious Radiated Emissions

Work Order:	CARE0015	Date:	04/19/13		
Project:	None	Temperature:	23.4 °C		
Job Site:	EV01	Humidity:	36.1% RH		
Serial Number:	001D400000103C2	Barometric Pres.:	1021 mbar	Tested by:	Brandon Hobbs
EUT:	PIR				
Configuration:	4				
Customer:	Care Innovations				
Attendees:	Bill Morse Stan Telson				
EUT Power:	3 VDC				
Operating Mode:	On transmitting 802.11 Zigbee Low 2405 MHz, Mid 2445 MHz, High 2480 MHz				
Deviations:	None				
Comments:	Please reference the data comments for frequency and EUT orientation. The duty cycle is operating at 100% duty cycle while under test. 10Hz VBW was used during the video averaging measurements as noted under the data comments.				


Test Specifications	Test Method
FCC 15.247:2013	ANSI C63.10:2009

Run #	34	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	Pass
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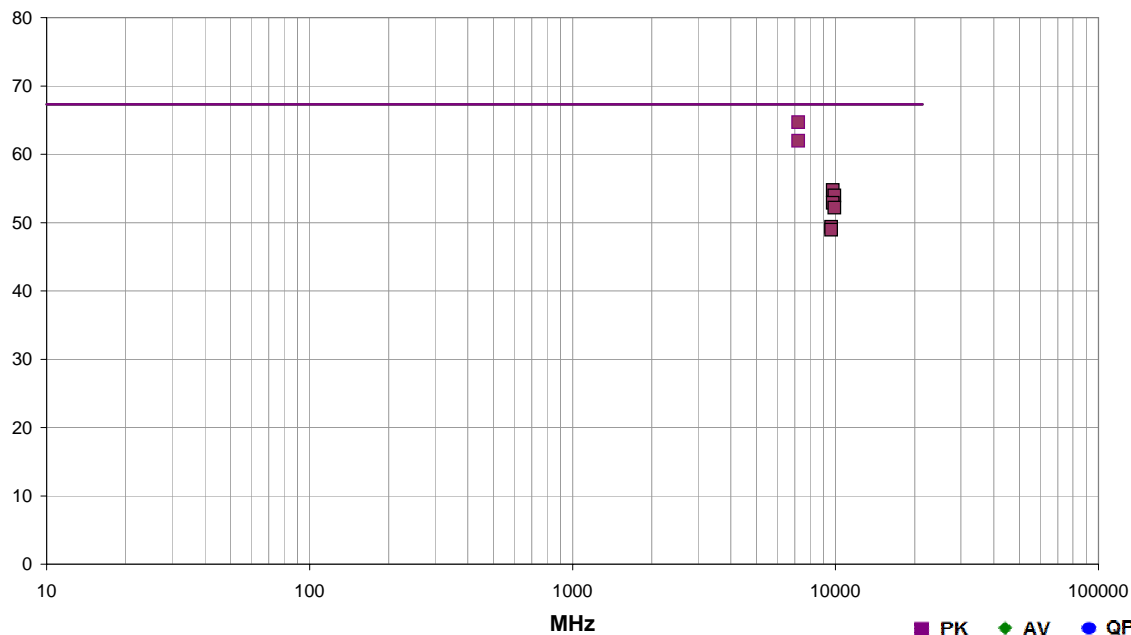
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7438.111	50.6	19.5	2.1	173.0	0.0	0.0	Horz	PK	0.0	70.1	74.0	-3.9	EUT Horz
7438.081	50.3	19.5	2.4	203.0	0.0	0.0	Vert	PK	0.0	69.8	74.0	-4.2	EUT On Side
7438.028	50.0	19.5	2.3	16.0	0.0	0.0	Vert	PK	0.0	69.5	74.0	-4.5	EUT Horz
7438.974	40.4	19.5	2.1	173.0	-10.8	0.0	Horz	AV	0.0	49.1	54.0	-4.9	(10Hz), EUT Horz
7438.958	40.2	19.5	2.4	203.0	-10.8	0.0	Vert	AV	0.0	48.9	54.0	-5.1	(10Hz), EUT On Side
7333.925	49.8	19.1	1.6	166.0	0.0	0.0	Horz	PK	0.0	68.9	74.0	-5.1	EUT Horz
7335.246	40.5	19.1	1.6	166.0	-10.8	0.0	Horz	AV	0.0	48.8	54.0	-5.2	(10Hz), EUT Horz
7438.963	39.8	19.5	2.3	16.0	-10.8	0.0	Vert	AV	0.0	48.5	54.0	-5.5	(10Hz), EUT Horz
7438.159	48.4	19.5	2.1	348.0	0.0	0.0	Horz	PK	0.0	67.9	74.0	-6.1	EUT On Side
7333.649	48.6	19.1	2.7	207.0	0.0	0.0	Vert	PK	0.0	67.7	74.0	-6.3	EUT On Side
7438.125	47.6	19.5	2.5	94.0	0.0	0.0	Vert	PK	0.0	67.1	74.0	-6.9	EUT Vert Up
7438.909	38.2	19.5	2.1	348.0	-10.8	0.0	Horz	AV	0.0	46.9	54.0	-7.1	(10Hz), EUT On Side
7335.258	38.5	19.1	2.7	207.0	-10.8	0.0	Vert	AV	0.0	46.8	54.0	-7.2	(10Hz), EUT On Side
7438.910	37.4	19.5	2.5	94.0	-10.8	0.0	Vert	AV	0.0	46.1	54.0	-7.9	(10Hz), EUT Vert Up
7438.305	45.5	19.5	1.0	159.0	0.0	0.0	Horz	PK	0.0	65.0	74.0	-9.0	EUT Vert Up
4959.276	43.9	10.7	1.6	87.0	-10.8	0.0	Horz	AV	0.0	43.8	54.0	-10.2	(10Hz), EUT Horz
7438.866	35.0	19.5	1.0	159.0	-10.8	0.0	Horz	AV	0.0	43.7	54.0	-10.3	(10Hz), EUT Vert Up
4889.548	42.9	10.5	1.0	168.0	-10.8	0.0	Horz	AV	0.0	42.6	54.0	-11.4	(10Hz), EUT Horz
4958.926	51.4	10.7	1.6	87.0	0.0	0.0	Horz	PK	0.0	62.1	74.0	-11.9	EUT Horz
4889.551	42.1	10.5	3.6	201.0	-10.8	0.0	Vert	AV	0.0	41.8	54.0	-12.2	(10Hz), EUT On Side
4890.743	50.4	10.5	1.0	168.0	0.0	0.0	Horz	PK	0.0	60.9	74.0	-13.1	EUT Horz
4888.545	49.8	10.5	3.6	201.0	0.0	0.0	Vert	PK	0.0	60.3	74.0	-13.7	EUT On Side

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
14428.010	42.2	17.9	1.3	286.0	0.0	0.0	Vert	PK	0.0	60.1	74.0	-13.9	EUT On Side
4809.194	39.8	10.2	1.0	153.0	-10.8	0.0	Horz	AV	0.0	39.2	54.0	-14.8	(10Hz), EUT Horz
4809.281	48.9	10.2	1.0	153.0	0.0	0.0	Horz	PK	0.0	59.1	74.0	-14.9	EUT Horz
14428.350	41.0	17.9	1.0	214.0	0.0	0.0	Horz	PK	0.0	58.9	74.0	-15.1	EUT Horz
4959.245	38.3	10.7	3.5	201.0	-10.8	0.0	Vert	AV	0.0	38.2	54.0	-15.8	(10Hz), EUT On Side
4958.907	46.5	10.7	3.5	201.0	0.0	0.0	Vert	PK	0.0	57.2	74.0	-16.8	EUT On Side
14428.000	28.4	17.9	1.3	286.0	-10.8	0.0	Vert	AV	0.0	35.5	54.0	-18.5	(10Hz), EUT On Side
4809.439	44.8	10.2	1.0	291.0	0.0	0.0	Vert	PK	0.0	55.0	74.0	-19.0	EUT On Side
4809.251	35.5	10.2	1.0	291.0	-10.8	0.0	Vert	AV	0.0	34.9	54.0	-19.1	(10Hz), EUT On Side
14428.060	27.2	17.9	1.0	214.0	-10.8	0.0	Horz	AV	0.0	34.3	54.0	-19.7	(10Hz), EUT Horz
12026.990	48.2	-4.3	1.0	205.0	0.0	0.0	Horz	PK	0.0	43.9	74.0	-30.1	EUT Horz
12023.310	48.0	-4.4	1.7	185.0	0.0	0.0	Vert	PK	0.0	43.6	74.0	-30.4	EUT On Side
12401.210	46.0	-3.1	1.5	339.0	0.0	0.0	Horz	PK	0.0	42.9	74.0	-31.1	EUT Horz
12223.470	46.4	-3.7	1.0	180.0	0.0	0.0	Vert	PK	0.0	42.7	74.0	-31.3	EUT On Side
12226.180	46.3	-3.7	1.2	223.0	0.0	0.0	Horz	PK	0.0	42.6	74.0	-31.4	EUT Horz
12398.290	44.9	-3.1	1.0	182.0	0.0	0.0	Vert	PK	0.0	41.8	74.0	-32.2	EUT On Side
12027.000	36.6	-4.3	1.7	185.0	-10.8	0.0	Vert	AV	0.0	21.5	54.0	-32.5	(10Hz), EUT On Side
12027.000	36.0	-4.3	1.0	205.0	-10.8	0.0	Horz	AV	0.0	20.9	54.0	-33.1	(10Hz), EUT Horz
12223.390	34.0	-3.7	1.0	180.0	-10.8	0.0	Vert	AV	0.0	19.5	54.0	-34.5	(10Hz), EUT On Side
12223.320	33.8	-3.7	1.2	223.0	-10.8	0.0	Horz	AV	0.0	19.3	54.0	-34.7	(10Hz), EUT Horz
12398.250	32.9	-3.1	1.5	339.0	-10.8	0.0	Horz	AV	0.0	19.0	54.0	-35.0	(10Hz), EUT Horz
12398.290	32.8	-3.1	1.0	182.0	-10.8	0.0	Vert	AV	0.0	18.9	54.0	-35.1	(10Hz), EUT On Side

Work Order:	CARE0015	Date:	04/19/13	
Project:	None	Temperature:	23.4 °C	
Job Site:	EV01	Humidity:	36.1% RH	
Serial Number:	001D400000103C2	Barometric Pres.:	1021 mbar	
EUT:	PIR			
Configuration:	4			
Customer:	Care Innovations			
Attendees:	Bill Morse Stan Telson			
EUT Power:	3 VDC			
Operating Mode:	On transmitting 802.11 Zigbee Low 2405 MHz, Mid 2445 MHz, High 2480 MHz			
Deviations:	None			
Comments:	Please reference the data comments for frequency and EUT orientation. The duty cycle is operating at 100% duty cycle while under test. The Limit = the lowest radiated output power - 20dBc, Calculated => 87.33 - 20 = 67.33 dB			

Test Specifications	Test Method
FCC 15.247:2013	ANSI C63.10:2009

Run #	34	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	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
7216.697	46.3	18.4	1.3	168.0	3.0	0.0	Horz	PK	0.0	64.7	67.3	-2.7	EUT Horz
7216.899	43.6	18.4	1.0	223.0	3.0	0.0	Vert	PK	0.0	62.0	67.3	-5.4	EUT On Side
9781.352	67.1	-12.3	1.5	72.0	3.0	0.0	Horz	PK	0.0	54.8	67.3	-12.6	EUT Horz
9917.625	66.3	-12.3	1.0	163.0	3.0	0.0	Horz	PK	0.0	54.0	67.3	-13.4	EUT Horz



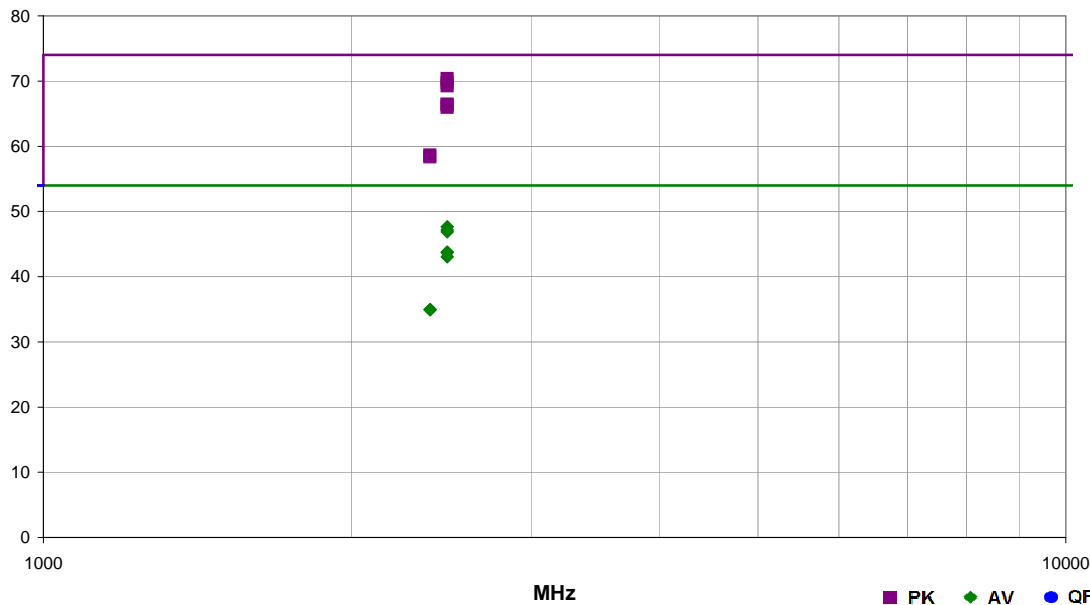
Spurious Radiated Emissions

PSA-ESCI 2012.12.14
PSA-ESCI Version 2013.2.20

Work Order:	CARE0015	Date:	04/19/13	
Project:	None	Temperature:	23.4 °C	
Job Site:	EV01	Humidity:	36.1% RH	
Serial Number:	001D40000103C2	Barometric Pres.:	1021 mbar	
Tested by: Brandon Hobbs				
EUT:	PIR			
Configuration:	4			
Customer:	Care Innovations			
Attendees:	Bill Morse Stan Telson			
EUT Power:	3 VDC			
Operating Mode:	On transmitting 802.11 Zigbee Low 2405 MHz, Mid 2445 MHz, High 2480 MHz			
Deviations:	None			
Comments:	Please reference the data comments for frequency and EUT orientation. The duty cycle is operating at 100% duty cycle while under test. 10Hz VBW was used during the video averaging measurements as noted under the data comments.			

Test Specifications	Test Method
FCC 15.247:2013	ANSI C63.10:2009

Run #	36	Test Distance (m)	3	Antenna Height(s)	1-4m	Results	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
2483.500	48.5	1.9	1.0	105.0	0.0	20.0	Vert	PK	0.0	70.4	74.0	-3.6	Band Edge EUT Vert
2483.500	47.9	1.9	1.0	304.0	0.0	20.0	Horz	PK	0.0	69.8	74.0	-4.2	Band Edge EUT On Side
2483.573	47.4	1.9	1.0	126.0	0.0	20.0	Horz	PK	0.0	69.3	74.0	-4.7	Band Edge EUT Horz
2483.500	36.6	1.9	1.0	105.0	-10.8	20.0	Vert	AV	0.0	47.7	54.0	-6.3	Band Edge (10Hz)EUT Vert
2483.500	36.1	1.9	1.0	126.0	-10.8	20.0	Horz	AV	0.0	47.2	54.0	-6.8	Band Edge (10Hz)EUT Horz
2483.500	35.8	1.9	1.0	304.0	-10.8	20.0	Horz	AV	0.0	46.9	54.0	-7.1	Band Edge (10Hz)EUT On Side
2483.673	44.6	1.9	1.9	232.0	0.0	20.0	Vert	PK	0.0	66.5	74.0	-7.5	Band Edge EUT On Side
2483.507	44.5	1.9	1.0	191.0	0.0	20.0	Horz	PK	0.0	66.4	74.0	-7.6	Band Edge EUT Vert
2483.507	44.1	1.9	1.0	170.0	0.0	20.0	Vert	PK	0.0	66.0	74.0	-8.0	Band Edge EUT Horz
2483.500	32.7	1.9	1.9	232.0	-10.8	20.0	Vert	AV	0.0	43.8	54.0	-10.2	Band Edge (10Hz)EUT On Side
2483.500	32.6	1.9	1.0	191.0	-10.8	20.0	Horz	AV	0.0	43.7	54.0	-10.3	Band Edge (10Hz)EUT Vert
2483.500	32.0	1.9	1.0	170.0	-10.8	20.0	Vert	AV	0.0	43.1	54.0	-10.9	Band Edge (10Hz)EUT Horz
2388.623	37.1	1.6	2.7	77.0	0.0	20.0	Vert	PK	0.0	58.7	74.0	-15.3	Band Edge EUT Vert
2388.017	36.8	1.6	1.0	181.0	0.0	20.0	Horz	PK	0.0	58.4	74.0	-15.6	Band Edge EUT Horz
2388.960	24.2	1.5	1.0	181.0	-10.8	20.0	Horz	AV	0.0	35.0	54.0	-19.0	Band Edge (10Hz)EUT Horz
2389.790	24.2	1.5	2.7	77.0	-10.8	20.0	Vert	AV	0.0	35.0	54.0	-19.0	Band Edge (10Hz)EUT Vert