



Zylight LLC

F8

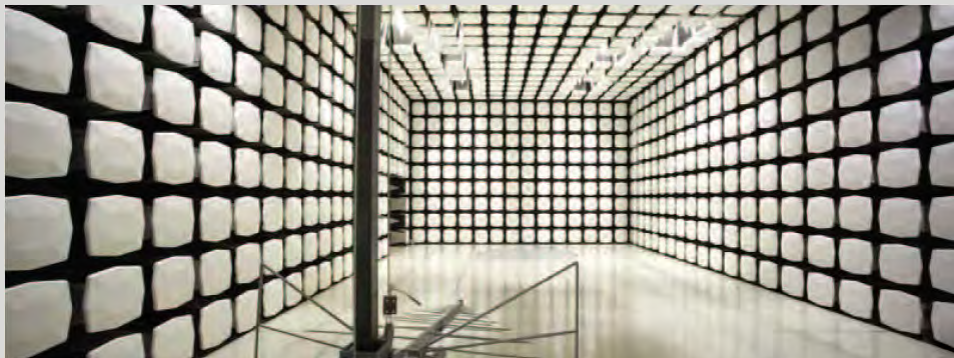
FCC 15.247:2014

FCC 15.207:2014

RSS-210:2010

RSS-Gen:2010

Report #: ZYLI0008



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: March 6, 2014
Zylight LLC
Model: F8

Emissions

Test Description	Specification	Test Method	Pass/Fail
Duty Cycle	FCC 15.247:2014	ANSI C63.10:2009	Pass
Duty Cycle	RSS-210:2010	RSS-Gen:2010	Pass
Output Power	FCC 15.247:2014	ANSI C63.10:2009	Pass
Output Power	RSS-210:2010	RSS-Gen:2010	Pass
Power Spectral Density	FCC 15.247:2014	ANSI C63.10:2009	Pass
Power Spectral Density	RSS-210:2010	RSS-Gen:2010	Pass
Occupied Bandwidth	FCC 15.247:2014	ANSI C63.10:2009	Pass
Occupied Bandwidth	RSS-210:2010	RSS-Gen:2010	Pass
Spurious Conducted Emissions	FCC 15.247:2014	ANSI C63.10:2009	Pass
Spurious Conducted Emissions	RSS-210:2010	RSS-Gen:2010	Pass
Band Edge Compliance	FCC 15.247:2014	ANSI C63.10:2009	Pass
Band Edge Compliance	RSS-210:2010	RSS-Gen:2010	Pass
Spurious Radiated Emissions	FCC 15.247:2014	ANSI C63.10:2009	Pass
Spurious Radiated Emissions	RSS-210:2010	RSS-Gen:2010	Pass
Power Line Conducted Emissions	FCC 15.207:2014	ANSI C63.10:2009	Pass
Power Line Conducted Emissions	RSS-Gen:20120	RSS-Gen:2010	Pass

Deviations From Test Standards

None

Approved By:



Kyle Holgate, Operations Manager



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.

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.

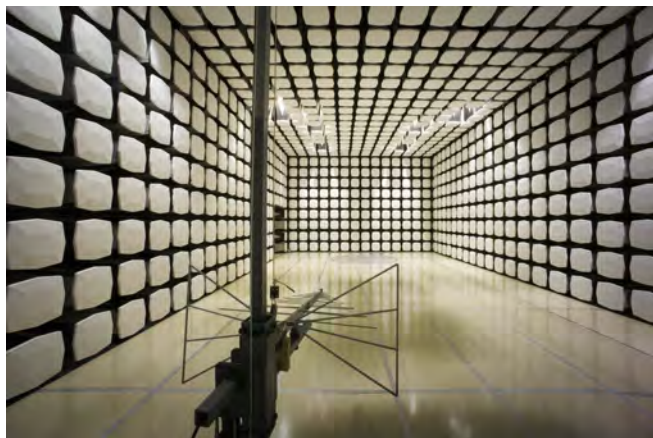
A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. Our measurement 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 16-4-1 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)	4.00	-4.00
AC Powerline Conducted Emissions (dB)	2.70	-2.70



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:	Zylight LLC
Address:	10718 McCune Avenue
City, State, Zip:	Los Angeles, CA 90034
Test Requested By:	Jim Collias
Model:	F8
First Date of Test:	November 18, 2013
Last Date of Test:	March 6, 2014
Receipt Date of Samples:	November 18, 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):
Portable LED light with wireless control capabilities.
Testing Objective:
To demonstrate compliance to FCC 15.247 requirements.

Configuration ZYLI0007- 1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Light	Zylight LLC	F8	332071
AC/DC Adapter	V-INFINITY	ETS150830U	ETS150830UC-P51-ET

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	Yes	1.5m	No	AC mains	AC/DC Power Adapter
DC Power Cable	PA	.3m	PA	AC/DC Power Adapter	Light
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration ZYLI0007- 3

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Light	Zylight LLC	F8	332071
AC/DC Adapter	V-INFINITY	ETS150830U	ETS150830UC-P51-ET

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	Yes	1.5m	No	AC mains	AC/DC Power Adapter
DC Power Cable	PA	.3m	PA	AC/DC Power Adapter	Light
5 PIN XLR	Yes		No	Light	Un-Term
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration ZYLI0009- 3

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Light	Zylight LLC	F8	332071
AC/DC Adapter	V-INFINITY	ETS150830U	A1R00124300173

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power Cable	Yes	1.5m	No	AC mains	AC/DC Power Adapter
DC Power Cable	PA	0.3m	PA	AC/DC Power Adapter	Light
5 PIN XLR	Yes	0.9m	No	Light	Un-Term
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	11/18/2013	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.
2	11/18/2013	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.
3	11/18/2013	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.
4	11/18/2013	Spurious Conducted 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.
5	11/18/2013	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.
6	11/18/2013	Duty Cycle	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.
7	11/19/2013	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.
8	3/6/2014	Power Line Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

DUTY CYCLE

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 DESCRIPTION

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.

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24

TEST DESCRIPTION

The transmit frequency was set to the required channels in each band. 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 reference level offset on the spectrum analyzer was adjusted to compensate for cable loss and the external attenuation used between the RF output and the spectrum analyzer input.

Method Option 1 found in KDB 558074 DTS D01 Measurement Section 9.1.1 was used because the RBW on the analyzer was greater than the Emission Bandwidth of the radio.

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



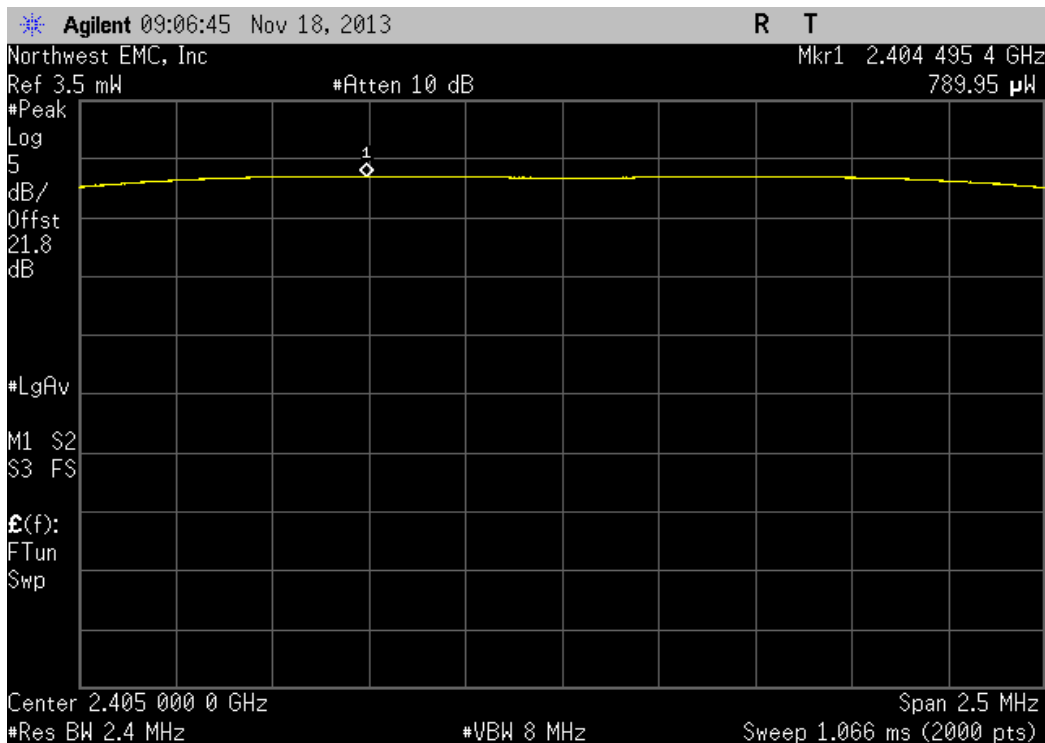
OUTPUT POWER

XMit 2013.08.15
PsaTx 2013.10.23

EUT: F8		Work Order: ZYL10007	
Serial Number: 332071		Date: 11/18/13	
Customer: Zylight LLC		Temperature: 22.1°C	
Attendees: Jim Collias, Miguel Higgins-Moy		Humidity: 41%	
Project: None		Barometric Pres.: 1003	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: EV06	
TEST SPECIFICATIONS			
FCC 15.247:2014		Test Method	
RSS-210:2010		ANSI C63.10:2009	
COMMENTS		RSS-Gen:2010	
The device is operating at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
Configuration #	1	Signature 	
		Value	Limit
2400 MHz - 2483.5 MHz Band			Result
OQPSK			
Low Channel, 2405 MHz		789.951 uW	< 1 W
Mid Channel, 2425 MHz		825.848 uW	< 1 W
High Channel, 2450 MHz		833.873 uW	< 1 W

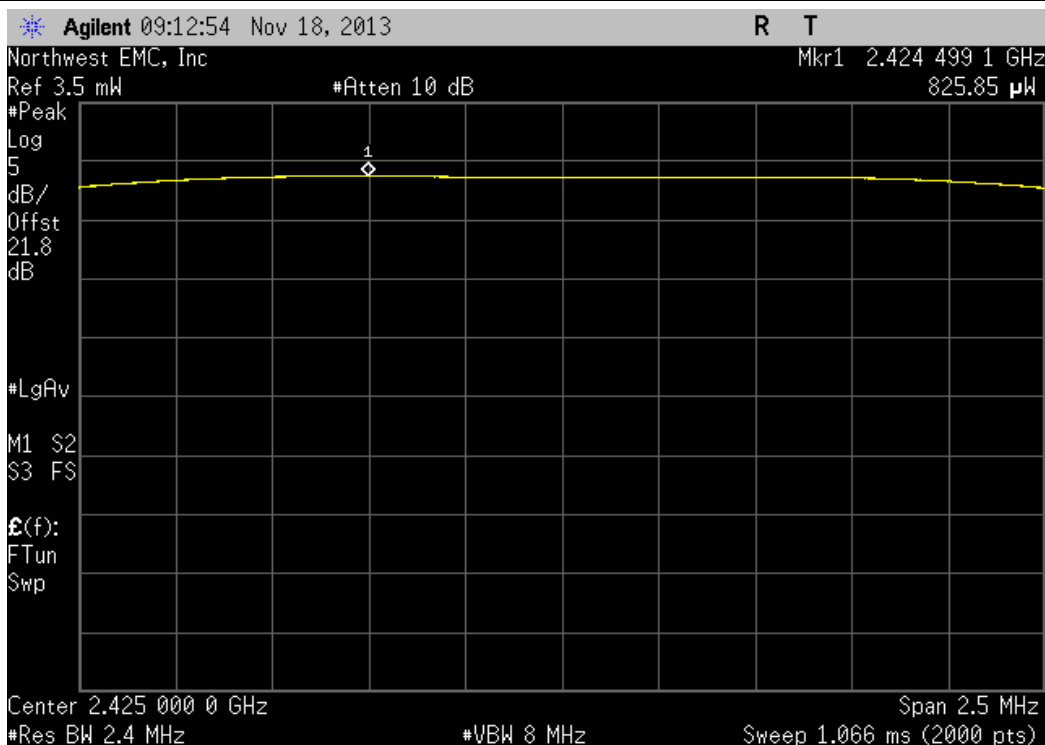
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel, 2405 MHz

				Value	Limit	Result
				789.951 uW	< 1 W	Pass



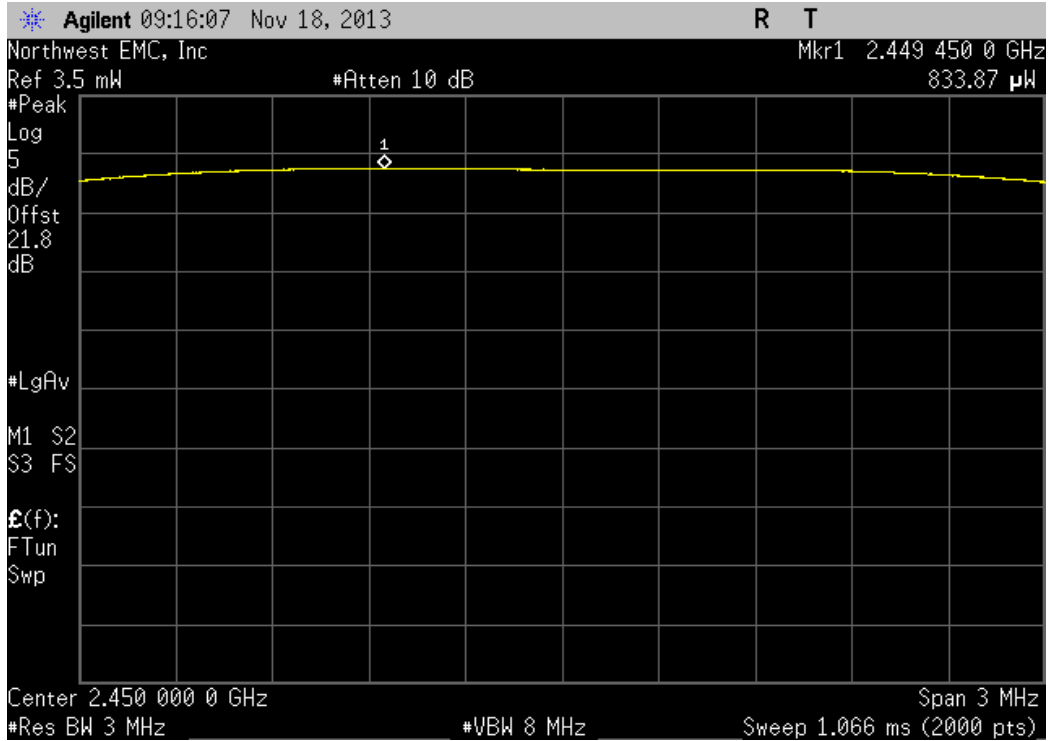
2400 MHz - 2483.5 MHz Band, OQPSK, Mid Channel, 2425 MHz

				Value	Limit	Result
				825.848 uW	< 1 W	Pass



2400 MHz - 2483.5 MHz Band, OQPSK, High Channel, 2450 MHz

Value	Limit	Result
833.873 uW	< 1 W	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
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24

TEST DESCRIPTION

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

Per the procedure outlined in FCC KDB 558074 D01 DTS Measurement Section 10.2, 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:

$$BWCF = 10 \cdot \log(3 \text{ kHz} / 100 \text{ kHz}) = -15.2 \text{ dB}$$

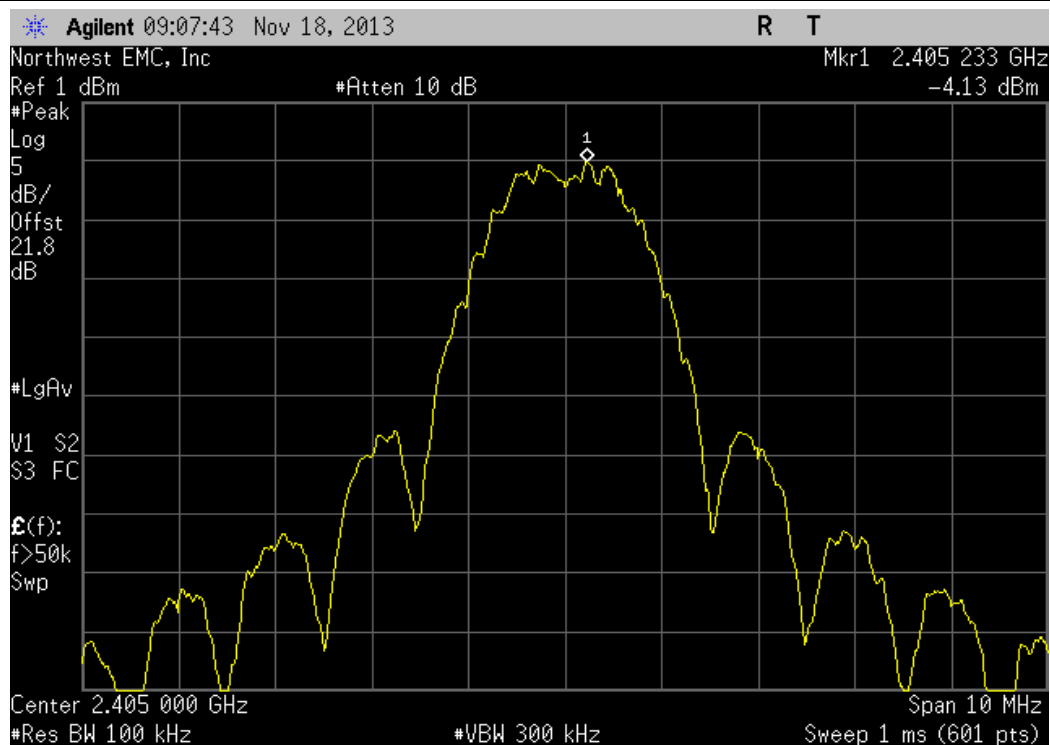


POWER SPECTRAL DENSITY

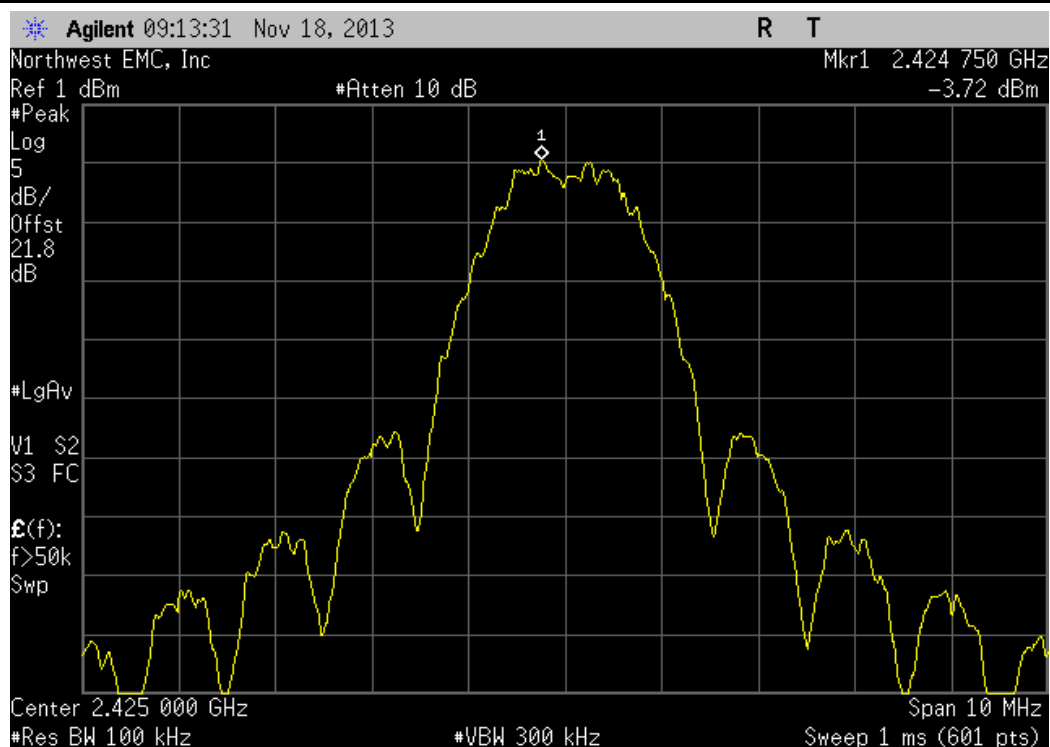
XMit 2013.08.15
PsaTx 2013.10.23

EUT: F8		Work Order: ZYL10007				
Serial Number: 332071		Date: 11/18/13				
Customer: Zylight LLC		Temperature: 22.1°C				
Attendees: Jim Collias, Miguel Higgins-Moy		Humidity: 41%				
Project: None		Barometric Pres.: 1003				
Tested by: Brandon Hobbs		Power: 110VAC/60Hz				
		Job Site: EV06				
TEST SPECIFICATIONS		Test Method				
FCC 15.247:2014		ANSI C63.10:2009				
RSS-210:2010		RSS-Gen:2010				
COMMENTS						
The device is operating at 100% duty cycle.						
DEVIATIONS FROM TEST STANDARD						
Configuration #	1	Signature 				
		Value dBm/100kHz	dBm/100kHz To dBm/3kHz	Value dBm/3kHz	Limit dBm/3kHz	Result
2400 MHz - 2483.5 MHz Band						
OQPSK						
Low Channel, 2405 MHz		-4.134	-15.2	-19.334	8	Pass
Mid Channel, 2425 MHz		-3.72	-15.2	-18.92	8	Pass
High Channel, 2450 MHz		-4	-15.2	-19.2	8	Pass

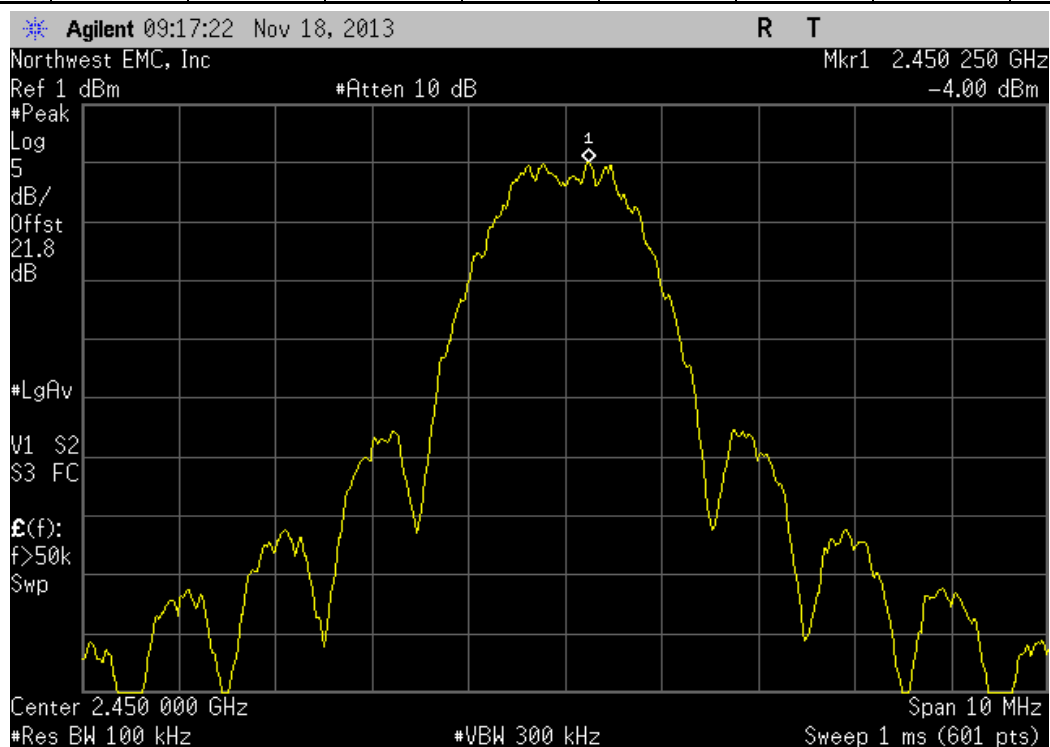
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel, 2405 MHz						
Value		dBm/100kHz		Value		Limit
		To dBm/3kHz		dBm/3kHz		Result
		-4.134	-15.2	-19.334	8	Pass



2400 MHz - 2483.5 MHz Band, OQPSK, Mid Channel, 2425 MHz					
Value	dBm/100kHz	Value	Limit		
	dBm/100kHz	To dBm/3kHz	dBm/3kHz	Result	
	-3.72	-15.2	-18.92	8	Pass



2400 MHz - 2483.5 MHz Band, OQPSK, High Channel, 2450 MHz						
Value		dBm/100kHz	Value		Limit	Result
		dBm/100kHz	To dBm/3kHz	dBm/3kHz	dBm/3kHz	
		-4	-15.2	-19.2	8	Pass



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
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24

TEST DESCRIPTION

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.9% (approximate 26 dB) 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 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.



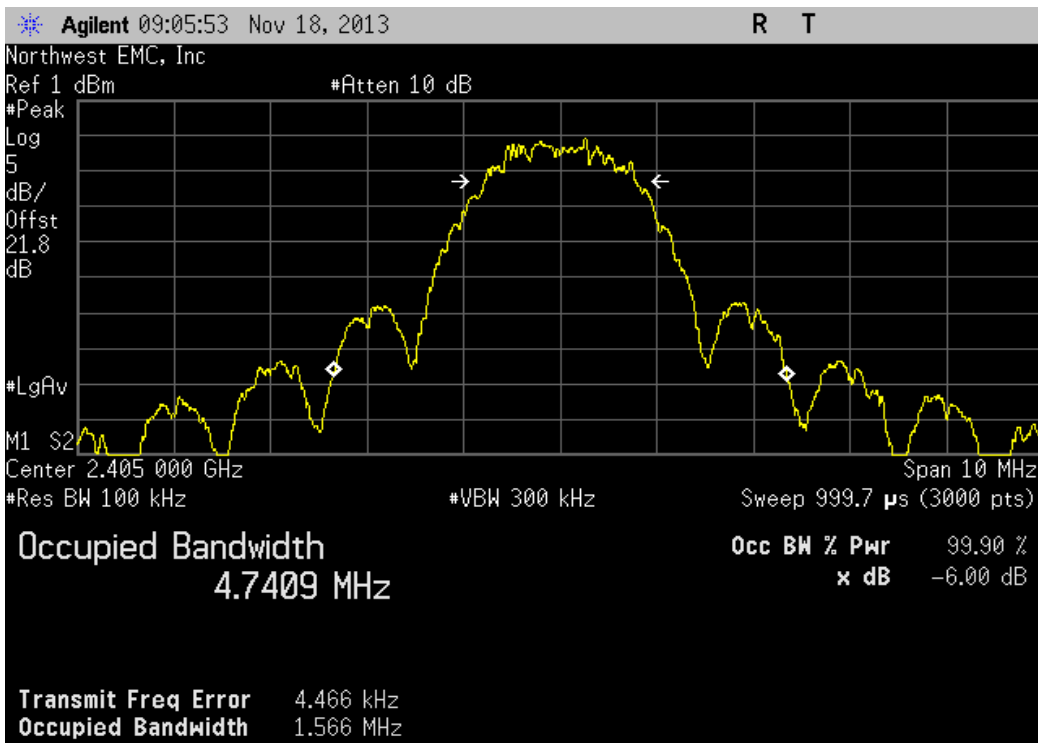
OCCUPIED BANDWIDTH

XMit 2013.08.15
PsaTx 2013.10.23

EUT: F8		Work Order: ZYL10007	
Serial Number: 332071		Date: 11/18/13	
Customer: Zylight LLC		Temperature: 22.1°C	
Attendees: Jim Collias, Miguel Higgins-Moy		Humidity: 41%	
Project: None		Barometric Pres.: 1003	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2014		ANSI C63.10:2009	
RSS-210:2010		RSS-Gen:2010	
COMMENTS			
The device is operating at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
Configuration #	1	Signature 	
		Value	Limit
2400 MHz - 2483.5 MHz Band			Result
OQPSK			
Low Channel, 2405 MHz		1.566 MHz	> 500 kHz
Mid Channel, 2425 MHz		1.597 MHz	> 500 kHz
High Channel, 2450 MHz		1.603 MHz	> 500 kHz

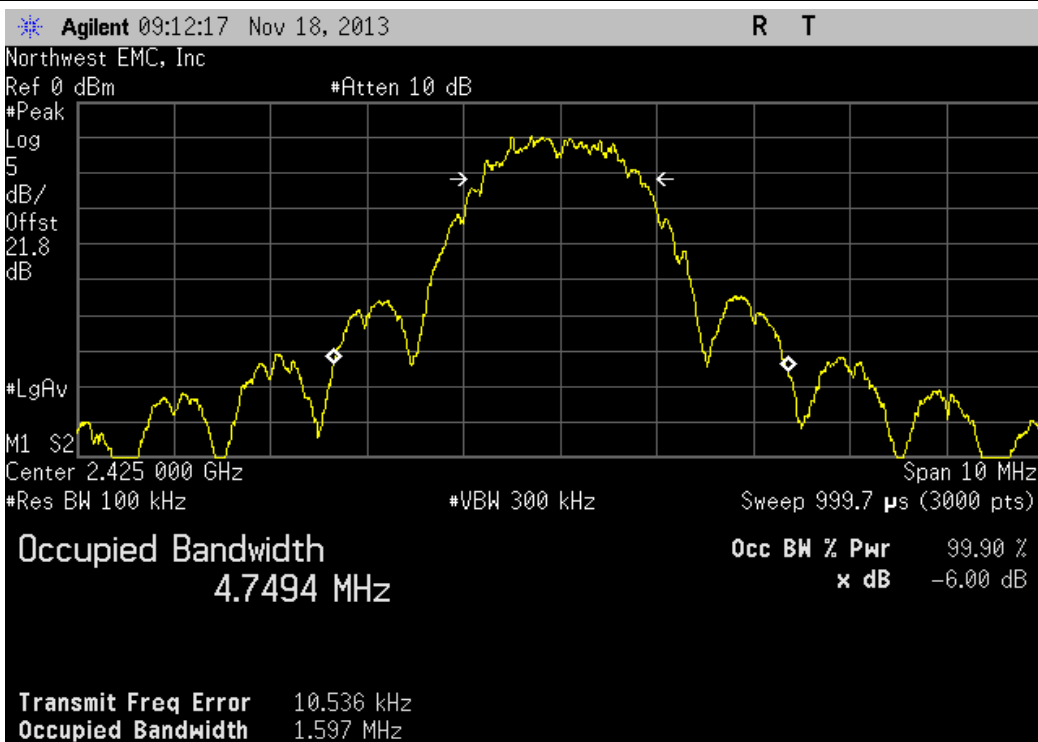
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel, 2405 MHz

				Value	Limit	Result
				1.566 MHz	> 500 kHz	Pass



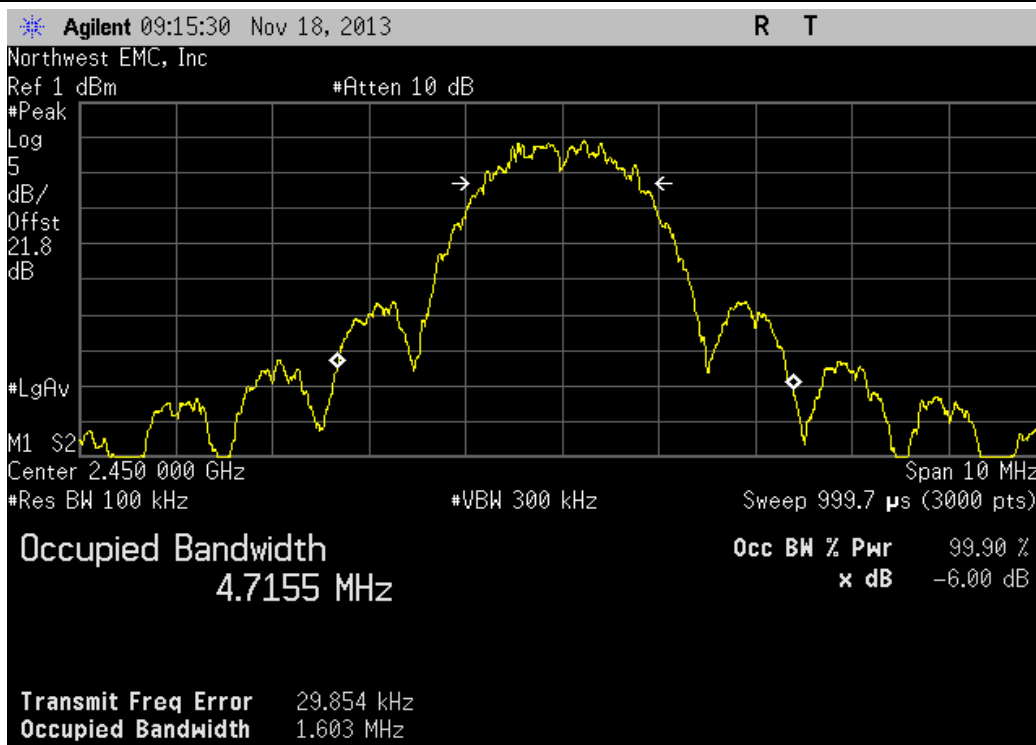
2400 MHz - 2483.5 MHz Band, OQPSK, Mid Channel, 2425 MHz

				Value	Limit	Result
				1.597 MHz	> 500 kHz	Pass



2400 MHz - 2483.5 MHz Band, OQPSK, High Channel, 2450 MHz

				Value	Limit	Result
				1.603 MHz	> 500 kHz	Pass



SPURIOUS CONDUCTED 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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
Spectrum Analyzer	Agilent	E4446A	AAQ	2/7/2012	24

TEST DESCRIPTION

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

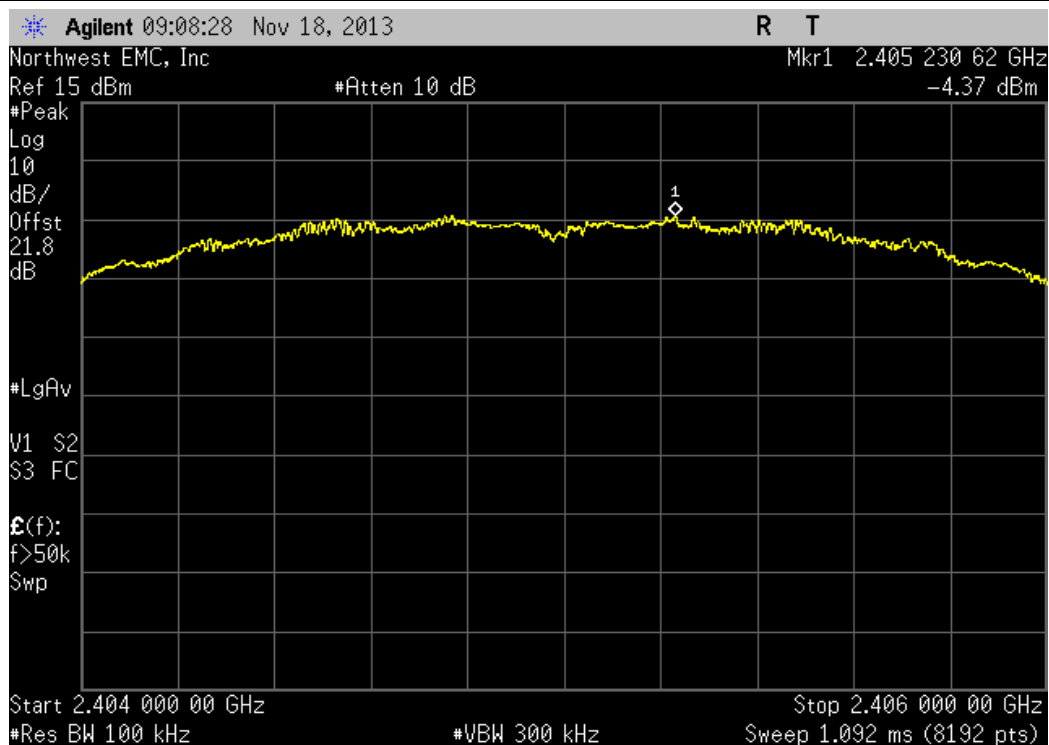


SPURIOUS CONDUCTED EMISSIONS

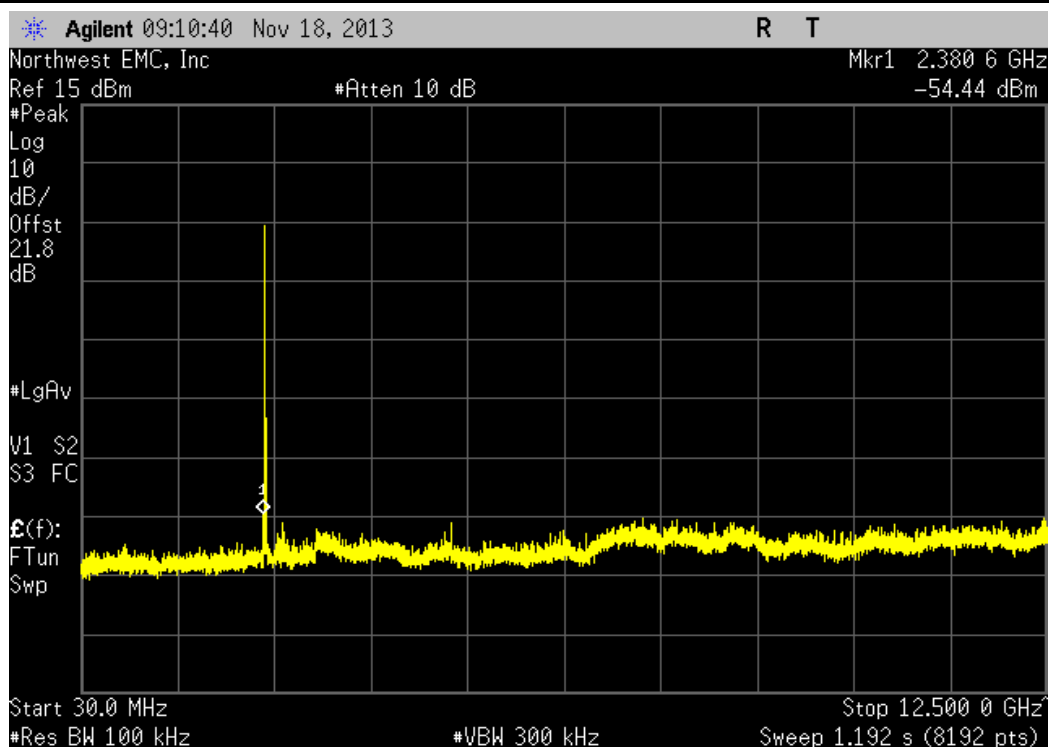
XMit 2013.08.15
PsaTx 2013.10.23

EUT: F8		Work Order: ZYL10007			
Serial Number: 332071		Date: 11/18/13			
Customer: Zylight LLC		Temperature: 22.1°C			
Attendees: Jim Collias, Miguel Higgins-Moy		Humidity: 41%			
Project: None		Barometric Pres.: 1003			
Tested by: Brandon Hobbs		Power: 110VAC/60Hz			
		Job Site: EV06			
TEST SPECIFICATIONS					
FCC 15.247:2014		ANSI C63.10:2009			
RSS-210:2010		RSS-Gen:2010			
COMMENTS					
The device is operating at 100% duty cycle.					
DEVIATIONS FROM TEST STANDARD					
Configuration #	1	Signature 			
		Frequency Range	Value	Limit	Result
2400 MHz - 2483.5 MHz Band					
OQPSK					
Low Channel, 2405 MHz		Fundamental	N/A	N/A	N/A
Low Channel, 2405 MHz		30 MHz - 12.5 GHz	-50.07 dBc	≤ -20 dBc	Pass
Low Channel, 2405 MHz		12.5 GHz - 25 GHz	-42.89 dBc	≤ -20 dBc	Pass
Mid Channel, 2425 MHz		Fundamental	N/A	N/A	N/A
Mid Channel, 2425 MHz		30 MHz - 12.5 GHz	-50.89 dBc	≤ -20 dBc	Pass
Mid Channel, 2425 MHz		12.5 GHz - 25 GHz	-43.14 dBc	≤ -20 dBc	Pass
High Channel, 2450 MHz		Fundamental	N/A	N/A	N/A
High Channel, 2450 MHz		30 MHz - 12.5 GHz	-50.28 dBc	≤ -20 dBc	Pass
High Channel, 2450 MHz		12.5 GHz - 25 GHz	-42.78 dBc	≤ -20 dBc	Pass

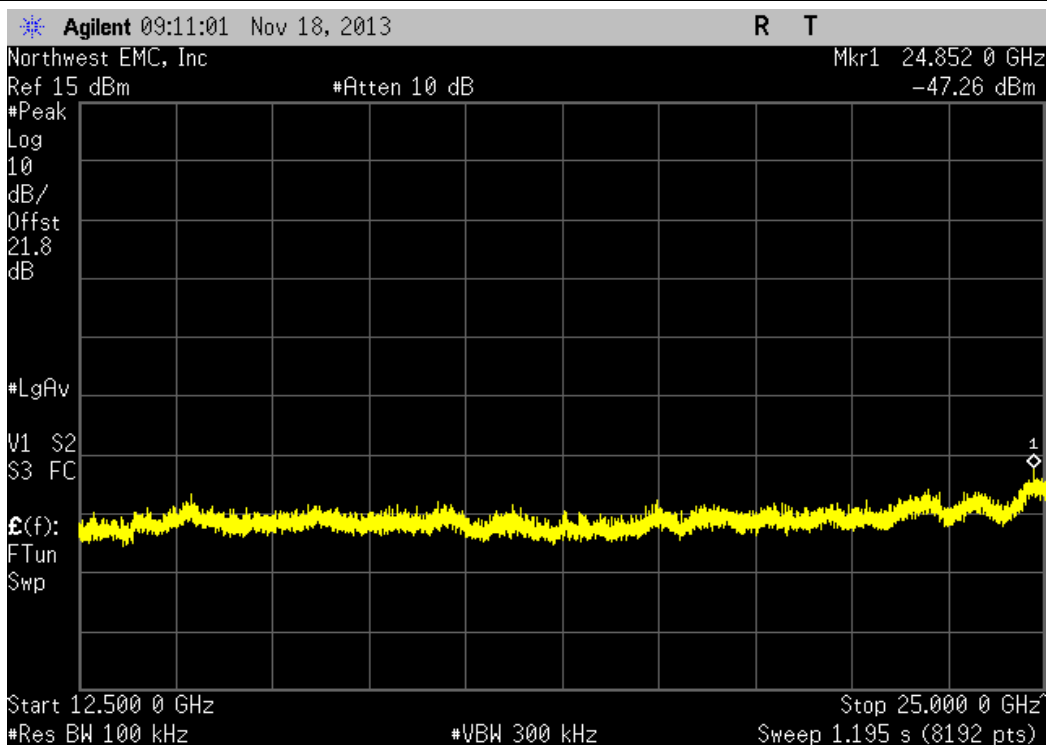
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel, 2405 MHz						
Frequency Range		Value		Limit	Result	
	Fundamental		N/A	N/A	N/A	



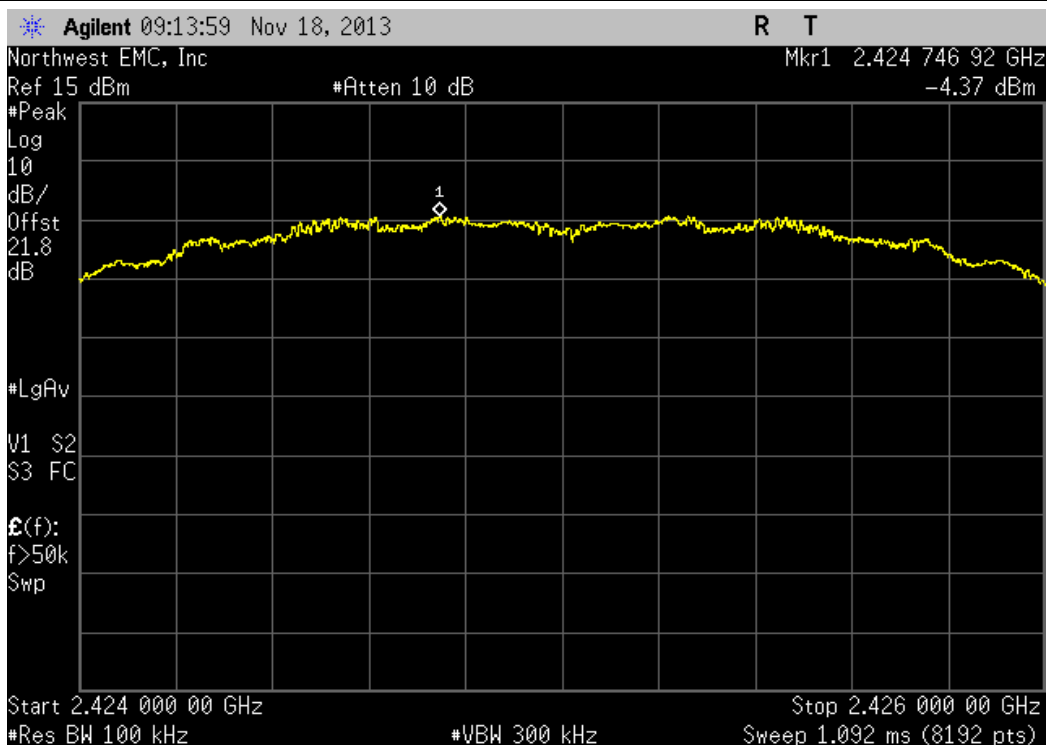
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel, 2405 MHz						
Frequency Range		Value		Limit	Result	
	30 MHz - 12.5 GHz		-50.07 dBc	≤ -20 dBc	Pass	



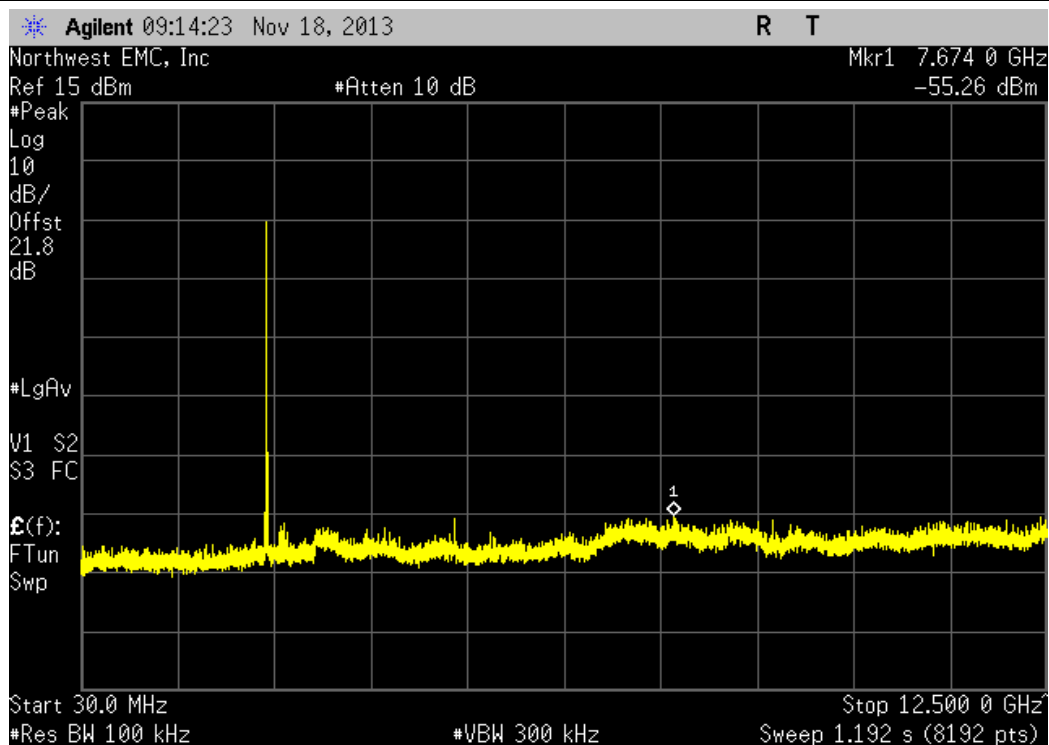
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel, 2405 MHz						
Frequency Range		Value		Limit	Result	
12.5 GHz - 25 GHz		-42.89 dBc		≤ -20 dBc	Pass	



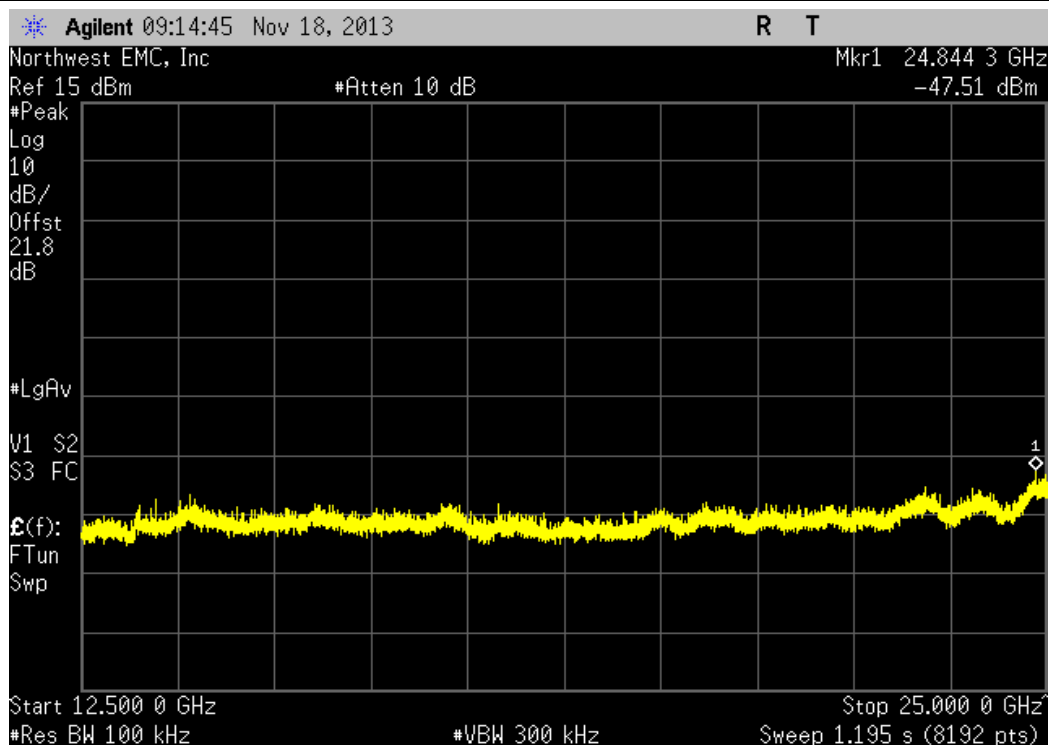
2400 MHz - 2483.5 MHz Band, OQPSK, Mid Channel, 2425 MHz						
Frequency Range		Value		Limit	Result	
Fundamental		N/A		N/A	N/A	



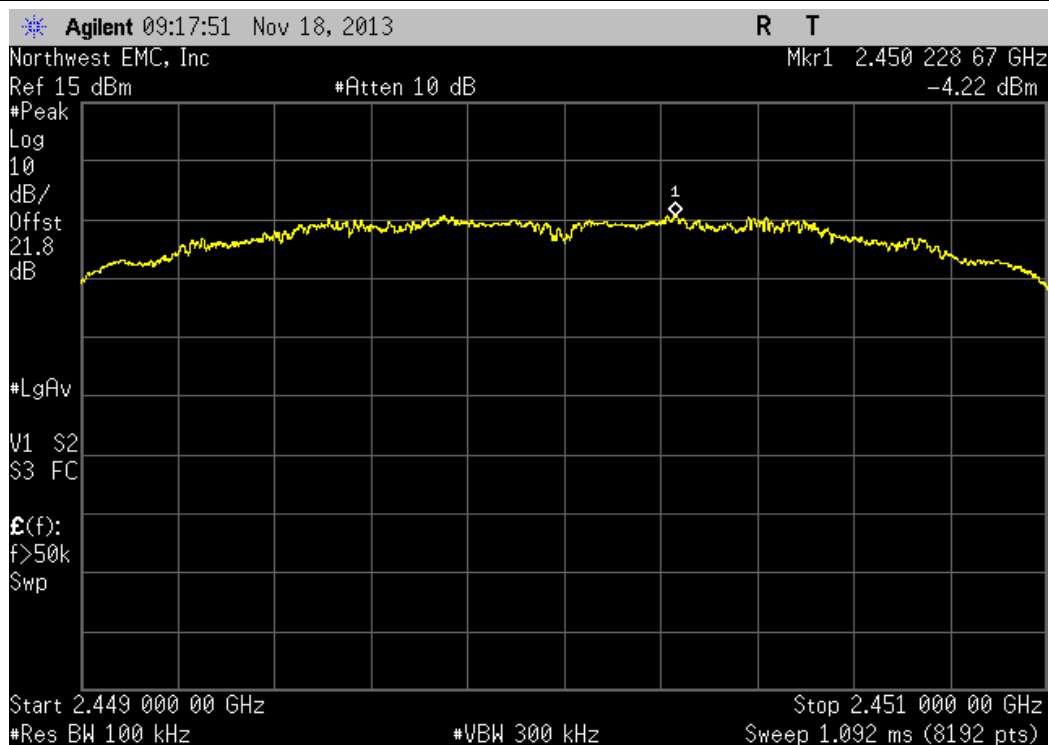
2400 MHz - 2483.5 MHz Band, OQPSK, Mid Channel, 2425 MHz				
Frequency Range	Value	Limit	Result	
30 MHz - 12.5 GHz	-50.89 dBc	≤ -20 dBc	Pass	



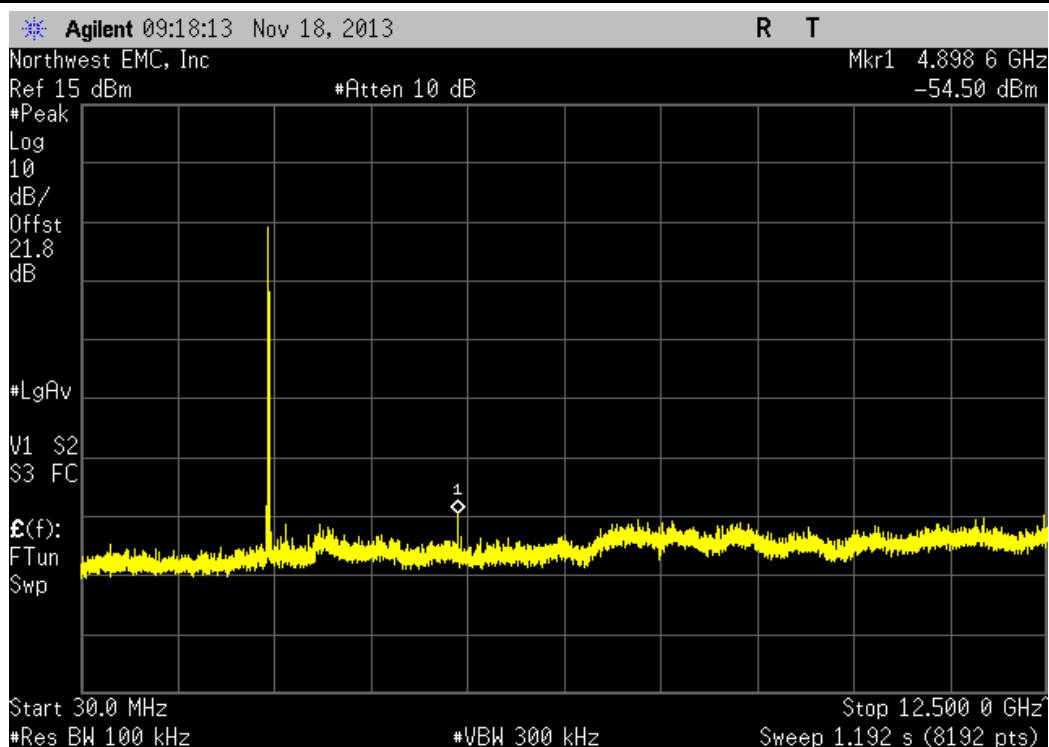
2400 MHz - 2483.5 MHz Band, OQPSK, Mid Channel, 2425 MHz				
Frequency Range	Value	Limit	Result	
12.5 GHz - 25 GHz	-43.14 dBc	≤ -20 dBc	Pass	



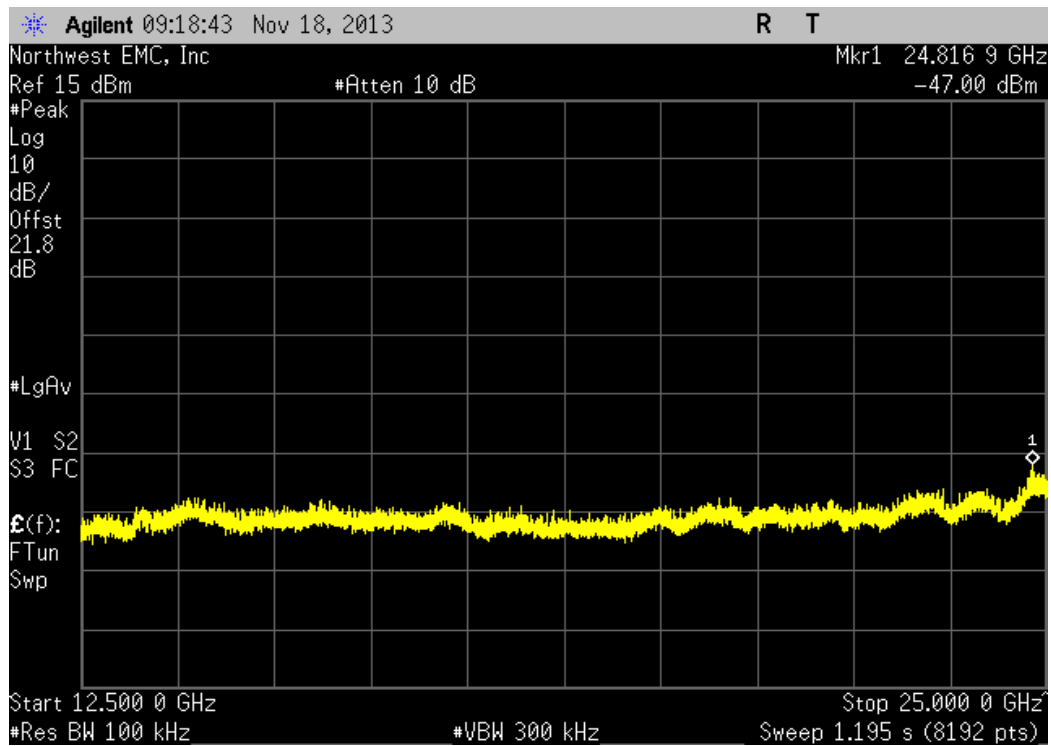
2400 MHz - 2483.5 MHz Band, OQPSK, High Channel, 2450 MHz						
Frequency Range		Value	Limit	Result		
	Fundamental	N/A	N/A	N/A		



2400 MHz - 2483.5 MHz Band, OQPSK, High Channel, 2450 MHz						
Frequency Range		Value	Limit	Result		
	30 MHz - 12.5 GHz	-50.28 dBc	≤ -20 dBc	Pass		



2400 MHz - 2483.5 MHz Band, OQPSK, High Channel, 2450 MHz				
Frequency Range	Value	Limit	Result	
12.5 GHz - 25 GHz	-42.78 dBc	≤ -20 dBc	Pass	



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
Attenuator, 'Precision N'	S.M. Electronics	SA18N-06/SM4032	REE	12/11/2012	12
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	36
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	7/30/2013	12
40GHz DC Block	Miteq	DCB4000	AMD	5/16/2013	12
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 direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at the modulation listed in the datasheet.

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



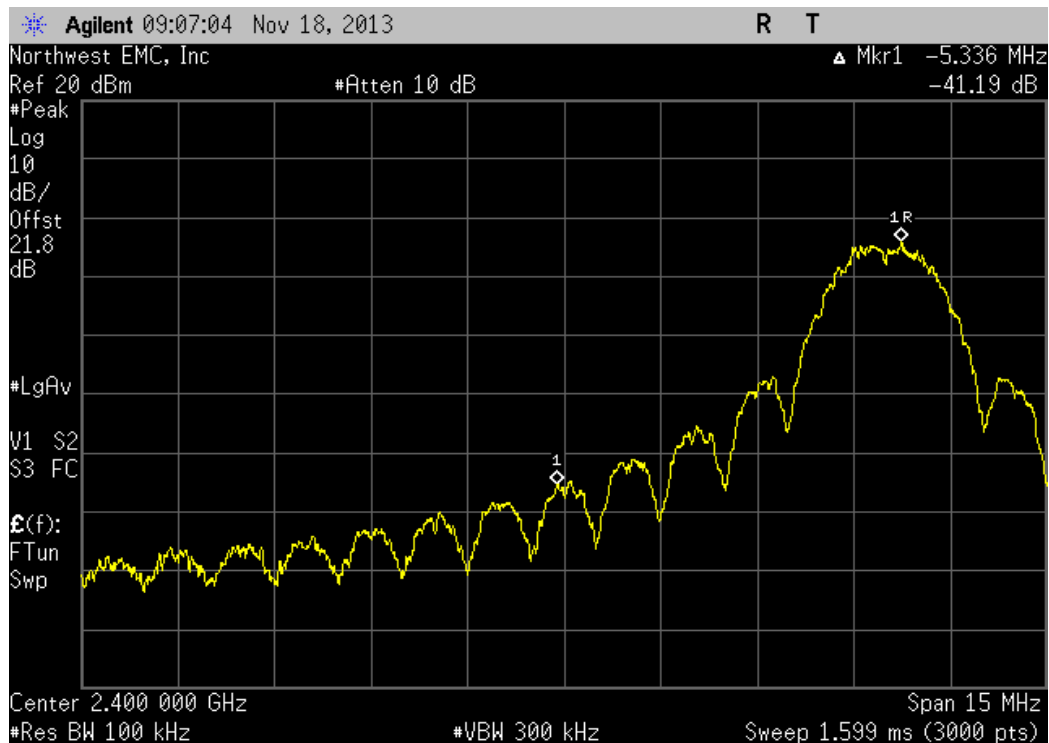
BAND EDGE COMPLIANCE

XMit 2013.08.15
PsaTx 2013.10.23

EUT: F8		Work Order: ZYL10007	
Serial Number: 332071		Date: 11/18/13	
Customer: Zylight LLC		Temperature: 22.1°C	
Attendees: Jim Collias, Miguel Higgins-Moy		Humidity: 41%	
Project: None		Barometric Pres.: 1003	
Tested by: Brandon Hobbs		Power: 110VAC/60Hz	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2014		ANSI C63.10:2009	
RSS-210:2010		RSS-Gen:2010	
COMMENTS			
The device is operating at 100% duty cycle.			
DEVIATIONS FROM TEST STANDARD			
Configuration #	1	Signature 	
		Value	Limit
2400 MHz - 2483.5 MHz Band			Result
OQPSK			
Low Channel, 2405 MHz		-41.19 dBc	≤ -20 dBc
High Channel, 2450 MHz		-55.49 dBc	≤ -20 dBc
			Pass
			Pass

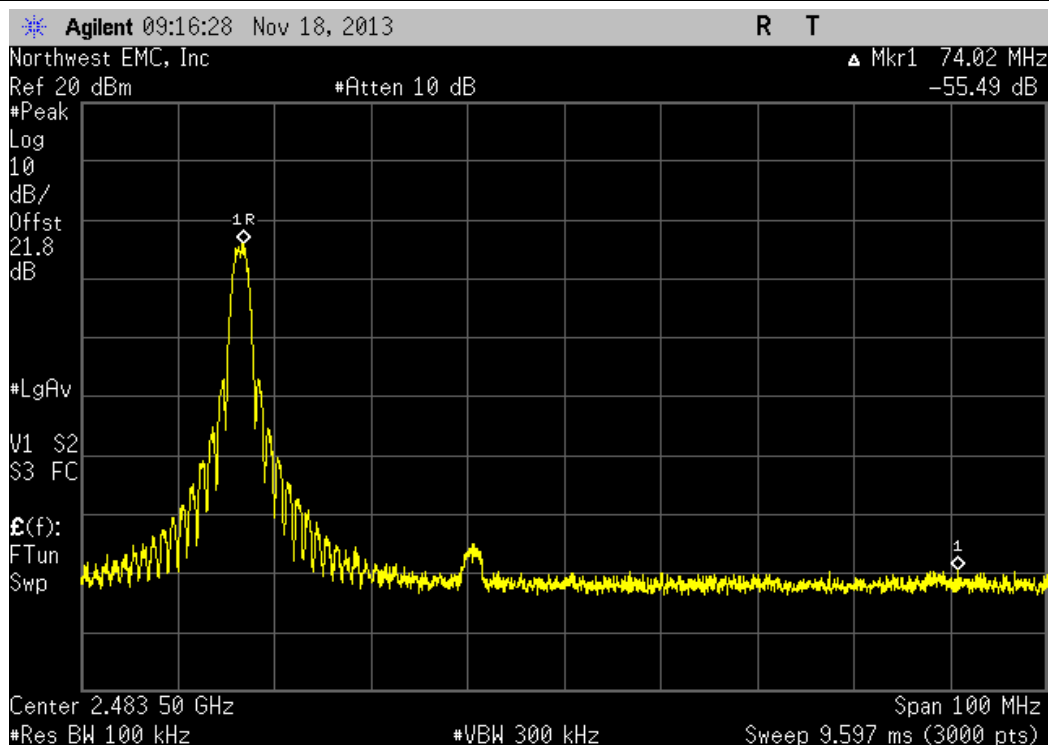
2400 MHz - 2483.5 MHz Band, OQPSK, Low Channel, 2405 MHz

				Value	Limit	Result
				-41.19 dBc	≤ -20 dBc	Pass



2400 MHz - 2483.5 MHz Band, OQPSK, High Channel, 2450 MHz

				Value	Limit	Result
				-55.49 dBc	≤ -20 dBc	Pass



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, Tx OQPSK, Low Ch. 2405 MHz

On, Tx OQPSK, Mid Ch. 2425 MHz

On, Tx OQPSK, High Ch. 2450 MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

ZYL10007 - 3

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26.5 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
HP Filter	Micro-Tronics	HPM50111	HFO	7/6/2013	24 mo
LP Filter	Micro-Tronics	LPM50004	LFD	7/6/2012	24 mo
Attenuator - 20dB, HF (1000MHz - 18000MHz)	Coaxicom	3910-20	AXZ	6/20/2013	12 mo
Cable	ESM Cable Corp.	KMKM-72	EVY	9/10/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/10/2013	12 mo
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	10/21/2013	12 mo
Antenna, Horn	ETS	3160-08	AHV	NCR	0 mo
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	10/21/2013	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	10/21/2013	12 mo
Antenna, Horn	ETS	3160-07	AHU	NCR	0 mo
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	9/2/2013	12 mo
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	6/20/2013	12 mo
Antenna, Horn	ETS	3115	AIZ	1/24/2011	36 mo
EV01 Cables	N/A	Bilog Cables	EVA	6/20/2013	12 mo
Pre-Amplifier	Miteq	AM-1616-1000	AOL	6/20/2013	12 mo
Antenna, Biconilog	EMCO	3141	AXG	4/10/2012	36 mo
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2012	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.



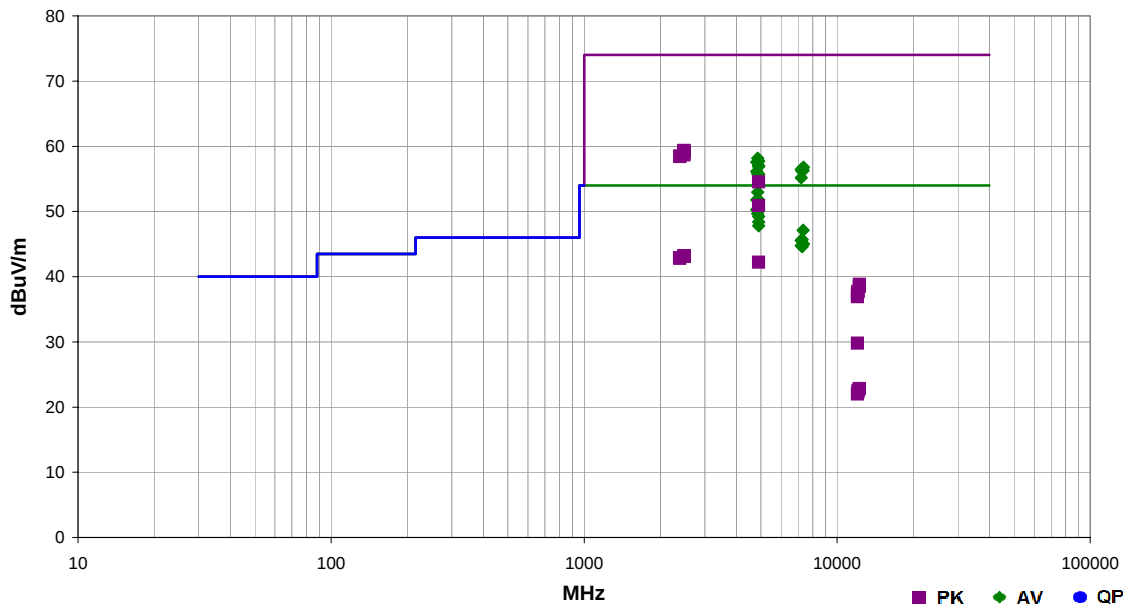
SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2012.12.14
EmiR5 2013.08.26

Work Order:	ZYLI0007	Date:	11/19/13		
Project:	None	Temperature:	21.8 °C		
Job Site:	EV01	Humidity:	44.6% RH		
Serial Number:	322071	Barometric Pres.:	1007.5 mbar	Tested by:	Brandon Hobbs, Jared Ison
EUT:	F8				
Configuration:	3				
Customer:	Zylight LLC				
Attendees:	Jim Collias				
EUT Power:	110VAC/60Hz				
Operating Mode:	On, Tx OQPSK, Light On				
Deviations:	None				
Comments:	Please Reference the data comments for EUT orientation and frequency. RC modification made to auxiliary output pins.				

Test Specifications	Test Method
FCC 15.247:2014 RSS-210:2010	ANSI C63.10:2009 RSS-Gen:2010

Run #	12	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)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4849.050	42.4	10.6	1.0	71.0	3.0	0.0	Horz	AV	0.0	53.0	54.0	-1.0	Mid Ch. 2425 MHz, EUT On Side
4899.050	41.1	10.7	1.0	69.0	3.0	0.0	Horz	AV	0.0	51.8	54.0	-2.2	High Ch. 2450 MHz, EUT On Side
4810.958	41.3	10.5	1.0	75.0	3.0	0.0	Horz	AV	0.0	51.8	54.0	-2.2	Low Ch. 2405 MHz, EUT On Side
4900.950	39.6	10.7	1.2	0.0	3.0	0.0	Vert	AV	0.0	50.3	54.0	-3.7	High Ch. 2450 MHz, EUT Vert
4809.092	39.8	10.5	1.0	159.0	3.0	0.0	Vert	AV	0.0	50.3	54.0	-3.7	Low Ch. 2405 MHz, EUT Vert
4850.950	39.1	10.6	1.0	167.0	3.0	0.0	Vert	AV	0.0	49.7	54.0	-4.3	Mid Ch. 2425 MHz, EUT Vert
4900.850	38.5	10.7	1.2	56.0	3.0	0.0	Horz	AV	0.0	49.2	54.0	-4.8	High Ch. 2450 MHz, EUT Vert
4898.992	37.7	10.7	1.5	292.0	3.0	0.0	Vert	AV	0.0	48.4	54.0	-5.6	High Ch. 2450 MHz, EUT Horz
4899.075	37.1	10.7	1.5	99.0	3.0	0.0	Horz	AV	0.0	47.8	54.0	-6.2	High Ch. 2450 MHz, EUT Horz
7348.458	28.1	19.0	1.4	352.0	3.0	0.0	Horz	AV	0.0	47.1	54.0	-6.9	High Ch. 2450 MHz, EUT On Side
7273.592	27.0	18.7	1.0	35.0	3.0	0.0	Horz	AV	0.0	45.7	54.0	-8.3	Mid Ch. 2425 MHz, EUT On Side
7213.425	27.2	18.4	1.0	24.0	3.0	0.0	Vert	AV	0.0	45.6	54.0	-8.4	Low Ch. 2405 MHz, EUT On Side
7351.433	26.0	19.0	1.0	68.0	3.0	0.0	Vert	AV	0.0	45.0	54.0	-9.0	High Ch. 2450 MHz, EUT Vert
7216.483	26.4	18.4	1.0	328.0	3.0	0.0	Horz	AV	0.0	44.8	54.0	-9.2	Low Ch. 2405 MHz, EUT On Side
7276.283	25.9	18.7	1.0	318.0	3.0	0.0	Vert	AV	0.0	44.6	54.0	-9.4	Mid Ch. 2425 MHz, EUT Vert
2484.527	21.4	1.9	1.0	244.0	3.0	20.0	Horz	AV	0.0	43.3	54.0	-10.7	High Ch. 2450 MHz, EUT On Side
2485.493	21.3	1.9	1.1	174.0	3.0	20.0	Horz	AV	0.0	43.2	54.0	-10.8	High Ch. 2450 MHz, EUT On Side
2485.420	21.3	1.9	1.0	244.0	3.0	20.0	Vert	AV	0.0	43.2	54.0	-10.8	High Ch. 2450 MHz, EUT Vert
2485.397	21.3	1.9	1.0	244.0	3.0	20.0	Vert	AV	0.0	43.2	54.0	-10.8	High Ch. 2450 MHz, EUT Horz
2485.107	21.3	1.9	1.0	246.0	3.0	20.0	Vert	AV	0.0	43.2	54.0	-10.8	High Ch. 2450 MHz, EUT Vert
2484.123	21.3	1.8	1.0	244.0	3.0	20.0	Horz	AV	0.0	43.1	54.0	-10.9	High Ch. 2450 MHz, EUT Horz
2388.290	21.4	1.5	1.0	96.0	3.0	20.0	Vert	AV	0.0	42.9	54.0	-11.1	Low Ch. 2405 MHz, EUT On Side
2388.960	21.3	1.5	1.0	96.0	3.0	20.0	Vert	AV	0.0	42.8	54.0	-11.2	Low Ch. 2405 MHz, EUT Vert
4900.958	31.5	10.7	1.0	315.0	3.0	0.0	Vert	AV	0.0	42.2	54.0	-11.8	High Ch. 2450 MHz, EUT On Side
2484.477	37.5	1.9	1.0	244.0	3.0	20.0	Horz	PK	0.0	59.4	74.0	-14.6	High Ch. 2450 MHz, EUT Horz
2484.407	37.5	1.9	1.0	244.0	3.0	20.0	Vert	PK	0.0	59.4	74.0	-14.6	High Ch. 2450 MHz, EUT Vert
2483.767	37.4	1.8	1.1	174.0	3.0	20.0	Horz	PK	0.0	59.2	74.0	-14.8	High Ch. 2450 MHz, EUT On Side

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2484.143	37.3	1.8	1.0	244.0	3.0	20.0	Vert	PK	0.0	59.1	74.0	-14.9	High Ch. 2450 MHz, EUT Horz
2485.453	37.0	1.9	1.0	246.0	3.0	20.0	Vert	PK	0.0	58.9	74.0	-15.1	High Ch. 2450 MHz, EUT Vert
2484.423	36.8	1.9	1.0	244.0	3.0	20.0	Horz	PK	0.0	58.7	74.0	-15.3	High Ch. 2450 MHz, EUT On Side
2389.550	37.0	1.5	1.0	96.0	3.0	20.0	Vert	PK	0.0	58.5	74.0	-15.5	Low Ch. 2405 MHz, EUT Vert
2389.177	36.9	1.5	1.0	96.0	3.0	20.0	Vert	PK	0.0	58.4	74.0	-15.6	Low Ch. 2405 MHz, EUT On Side
4849.083	47.6	10.6	1.0	71.0	3.0	0.0	Horz	PK	0.0	58.2	74.0	-15.8	Mid Ch. 2425 MHz, EUT On Side
4900.850	47.0	10.7	1.0	69.0	3.0	0.0	Horz	PK	0.0	57.7	74.0	-16.3	High Ch. 2450 MHz, EUT On Side
4810.942	47.1	10.5	1.0	75.0	3.0	0.0	Horz	PK	0.0	57.6	74.0	-16.4	Low Ch. 2405 MHz, EUT On Side
4901.050	46.3	10.7	1.2	0.0	3.0	0.0	Vert	PK	0.0	57.0	74.0	-17.0	High Ch. 2450 MHz, EUT Vert
4900.817	46.2	10.7	1.5	292.0	3.0	0.0	Vert	PK	0.0	56.9	74.0	-17.1	High Ch. 2450 MHz, EUT Horz
7351.467	37.8	19.0	1.4	352.0	3.0	0.0	Horz	PK	0.0	56.8	74.0	-17.2	High Ch. 2450 MHz, EUT On Side
7213.658	38.1	18.4	1.0	24.0	3.0	0.0	Vert	PK	0.0	56.5	74.0	-17.5	Low Ch. 2405 MHz, EUT On Side
7275.758	37.6	18.7	1.0	35.0	3.0	0.0	Horz	PK	0.0	56.3	74.0	-17.7	Mid Ch. 2425 MHz, EUT On Side
7348.317	37.3	19.0	1.0	68.0	3.0	0.0	Vert	PK	0.0	56.3	74.0	-17.7	High Ch. 2450 MHz, EUT Vert
4809.150	45.7	10.5	1.0	159.0	3.0	0.0	Vert	PK	0.0	56.2	74.0	-17.8	Low Ch. 2405 MHz, EUT Vert
7276.692	37.4	18.7	1.0	318.0	3.0	0.0	Vert	PK	0.0	56.1	74.0	-17.9	Mid Ch. 2425 MHz, EUT Vert
4850.975	45.2	10.6	1.0	167.0	3.0	0.0	Vert	PK	0.0	55.8	74.0	-18.2	Mid Ch. 2425 MHz, EUT Vert
4898.900	45.0	10.7	1.2	56.0	3.0	0.0	Horz	PK	0.0	55.7	74.0	-18.3	High Ch. 2450 MHz, EUT Vert
7216.108	36.8	18.4	1.0	328.0	3.0	0.0	Horz	PK	0.0	55.2	74.0	-18.8	Low Ch. 2405 MHz, EUT On Side
4900.842	43.8	10.7	1.5	99.0	3.0	0.0	Horz	PK	0.0	54.5	74.0	-19.5	High Ch. 2450 MHz, EUT Horz
4900.642	40.2	10.7	1.0	315.0	3.0	0.0	Vert	PK	0.0	50.9	74.0	-23.1	High Ch. 2450 MHz, EUT On Side
12027.470	36.4	-6.6	1.0	59.0	3.0	0.0	Horz	AV	0.0	29.8	54.0	-24.2	Low Ch. 2405 MHz, EUT On Side
12252.450	27.0	-4.2	1.0	90.0	3.0	0.0	Vert	AV	0.0	22.8	54.0	-31.2	High Ch. 2450 MHz, EUT Vert
12251.990	27.0	-4.2	1.0	360.0	3.0	0.0	Horz	AV	0.0	22.8	54.0	-31.2	High Ch. 2450 MHz, EUT On Side
12127.500	28.1	-5.5	1.0	303.0	3.0	0.0	Vert	AV	0.0	22.6	54.0	-31.4	Mid Ch. 2425 MHz, EUT Vert
12123.680	27.9	-5.6	1.5	304.0	3.0	0.0	Horz	AV	0.0	22.3	54.0	-31.7	Mid Ch. 2425 MHz, EUT On Side
12027.150	28.6	-6.6	1.0	120.0	3.0	0.0	Vert	AV	0.0	22.0	54.0	-32.0	Low Ch. 2405 MHz, EUT Vert
12252.080	43.0	-4.2	1.0	90.0	3.0	0.0	Vert	PK	0.0	38.8	74.0	-35.2	High Ch. 2450 MHz, EUT On Side
12251.270	42.7	-4.2	1.0	360.0	3.0	0.0	Horz	PK	0.0	38.5	74.0	-35.5	High Ch. 2450 MHz, EUT Vert
12126.800	43.3	-5.6	1.5	304.0	3.0	0.0	Horz	PK	0.0	37.7	74.0	-36.3	Mid Ch. 2425 MHz, EUT On Side
12122.730	43.3	-5.6	1.0	303.0	3.0	0.0	Vert	PK	0.0	37.7	74.0	-36.3	Mid Ch. 2425 MHz, EUT Vert
12026.600	44.1	-6.6	1.0	59.0	3.0	0.0	Horz	PK	0.0	37.5	74.0	-36.5	Low Ch. 2405 MHz, EUT On Side
12023.030	43.6	-6.7	1.0	120.0	3.0	0.0	Vert	PK	0.0	36.9	74.0	-37.1	Low Ch. 2405 MHz, EUT Vert

POWER LINE CONDUCTED EMISSIONS

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50 Ω measuring port is terminated by a 50 Ω EMI meter or a 50 Ω resistive load. All 50 Ω measuring ports of the LISN are terminated by 50 Ω .

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
LISN	Solar	9252-50-R-24-BNC	LIP	02/16/2014	12 mo
EV07 Cables	N/A	Conducted Cables	EVG	04/25/2013	12 mo
High Pass Filter	TTE	H97-100K-50-720B	HHD	01/22/2014	12 mo
Attenuator	Fairview Microwave	SA6B10W-20	RKA	10/24/2013	12 mo
Receiver	Rohde & Schwarz	ESCI	ARH	02/05/2014	12 mo

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.94 dB	-2.94 dB

CONFIGURATIONS INVESTIGATED

ZYLI0009-3

MODES INVESTIGATED

ON, Continuous Tx, High channel 2450MHz
 ON, Continuous Tx, Low channel 2405MHz
 ON, Continuous Tx, Mid channel 2425MHz

POWER LINE CONDUCTED EMISSIONS

EUT:	F8	Work Order:	ZYLI0009
Serial Number:	322071	Date:	03/06/2014
Customer:	Zylight LLC	Temperature:	22.7°C
Attendees:	Jim Collias	Relative Humidity:	42.2%
Customer Project:	None	Bar. Pressure:	1010.9 mb
Tested By:	Dan Haas	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	ZYLI0009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009
RSS-Gen:20120	RSS-Gen:2010

TEST PARAMETERS

Run #:	5	Line:	High Line	Ext. Attenuation (dB):	20
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COMMENTS

EUT light on.

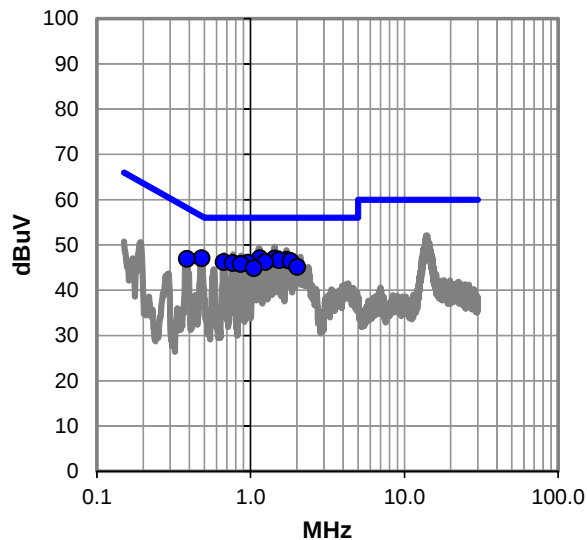
EUT OPERATING MODES

ON, Continuous Tx, Low channel 2405MHz

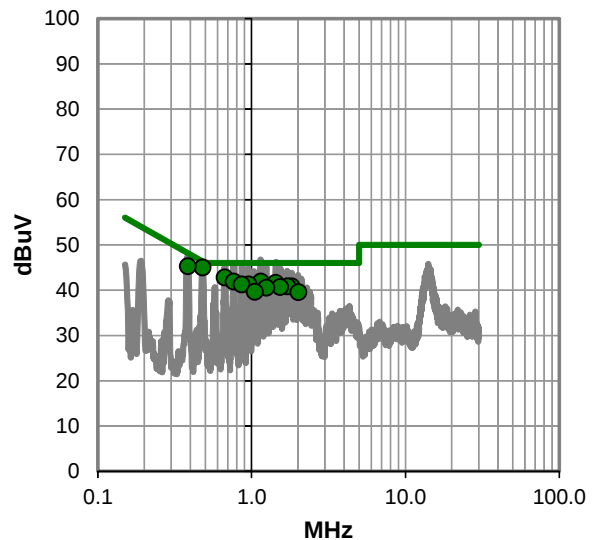
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWER LINE CONDUCTED EMISSIONS

RESULTS - Run #5

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.152	26.7	20.4	47.1	56.0	-8.9
1.436	26.6	20.4	47.0	56.0	-9.0
0.480	26.8	20.3	47.1	56.3	-9.3
1.716	26.3	20.4	46.7	56.0	-9.3
1.536	26.2	20.4	46.6	56.0	-9.4
1.820	26.0	20.4	46.4	56.0	-9.6
0.670	25.9	20.3	46.2	56.0	-9.8
1.248	25.8	20.4	46.2	56.0	-9.8
0.959	25.7	20.3	46.0	56.0	-10.0
0.766	25.7	20.3	46.0	56.0	-10.0
0.861	25.4	20.3	45.7	56.0	-10.3
2.012	24.7	20.4	45.1	56.0	-10.9
1.052	24.5	20.3	44.8	56.0	-11.2
0.385	26.6	20.3	46.9	58.2	-11.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.480	24.7	20.3	45.0	46.3	-1.4
0.385	25.0	20.3	45.3	48.2	-2.9
0.670	22.5	20.3	42.8	46.0	-3.2
0.766	21.6	20.3	41.9	46.0	-4.1
1.152	21.5	20.4	41.9	46.0	-4.1
1.436	21.2	20.4	41.6	46.0	-4.4
0.959	20.9	20.3	41.2	46.0	-4.8
0.861	20.9	20.3	41.2	46.0	-4.8
1.820	20.4	20.4	40.8	46.0	-5.2
1.716	20.4	20.4	40.8	46.0	-5.2
1.536	20.3	20.4	40.7	46.0	-5.3
1.248	20.2	20.4	40.6	46.0	-5.4
1.052	19.3	20.3	39.6	46.0	-6.4
2.012	19.1	20.4	39.5	46.0	-6.5

CONCLUSION

Pass



Tested By

POWER LINE CONDUCTED EMISSIONS

EUT:	F8	Work Order:	ZYLI0009
Serial Number:	322071	Date:	03/06/2014
Customer:	Zylight LLC	Temperature:	22.7°C
Attendees:	Jim Collias	Relative Humidity:	42.2%
Customer Project:	None	Bar. Pressure:	1010.9 mb
Tested By:	Dan Haas	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	ZYLI0009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009
RSS-Gen:20120	RSS-Gen:2010

TEST PARAMETERS

Run #:	6	Line:	Neutral	Ext. Attenuation (dB):	20
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COMMENTS

EUT light on.

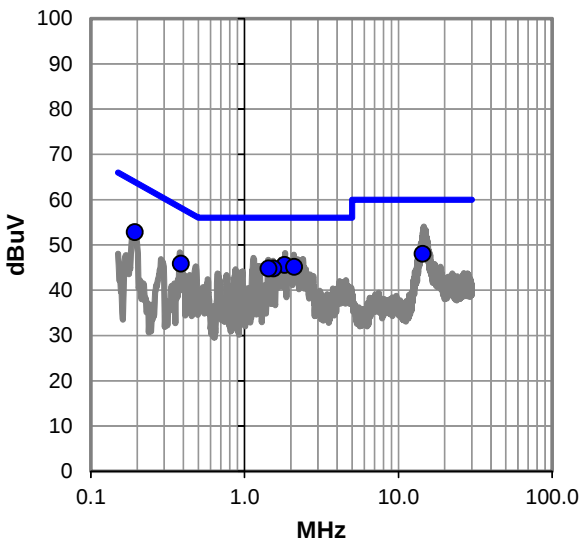
EUT OPERATING MODES

ON, Continuous Tx, Low channel 2405MHz

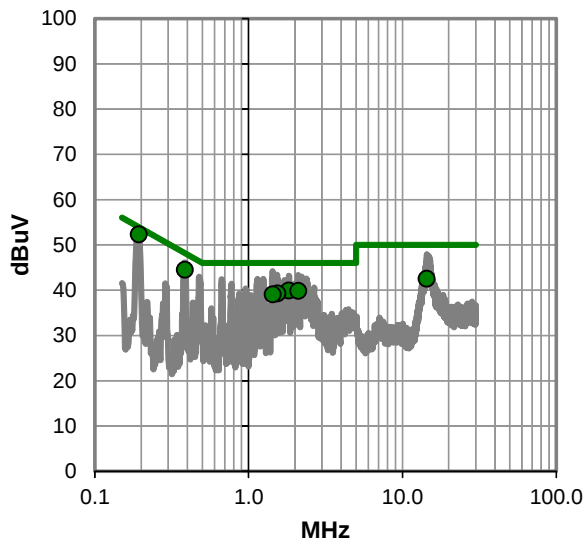
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWER LINE CONDUCTED EMISSIONS

RESULTS - Run #6

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.824	25.1	20.4	45.5	56.0	-10.5
2.108	24.7	20.4	45.1	56.0	-10.9
0.193	32.5	20.3	52.8	63.9	-11.1
1.540	24.4	20.4	44.8	56.0	-11.2
1.436	24.4	20.4	44.8	56.0	-11.2
14.422	26.8	21.2	48.0	60.0	-12.0
0.385	25.6	20.3	45.9	58.2	-12.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.193	32.0	20.3	52.3	53.9	-1.6
0.385	24.2	20.3	44.5	48.2	-3.7
1.824	19.5	20.4	39.9	46.0	-6.1
2.108	19.4	20.4	39.8	46.0	-6.2
1.540	18.9	20.4	39.3	46.0	-6.7
1.436	18.7	20.4	39.1	46.0	-6.9
14.422	21.3	21.2	42.5	50.0	-7.5

CONCLUSION

Pass



Tested By

POWER LINE CONDUCTED EMISSIONS

EUT:	F8	Work Order:	ZYLI0009
Serial Number:	322071	Date:	03/06/2014
Customer:	Zylight LLC	Temperature:	22.7°C
Attendees:	Jim Collias	Relative Humidity:	42.2%
Customer Project:	None	Bar. Pressure:	1010.9 mb
Tested By:	Dan Haas	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	ZYLI0009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009
RSS-Gen:20120	RSS-Gen:2010

TEST PARAMETERS

Run #:	7	Line:	High Line	Ext. Attenuation (dB):	20
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COMMENTS

EUT light on.

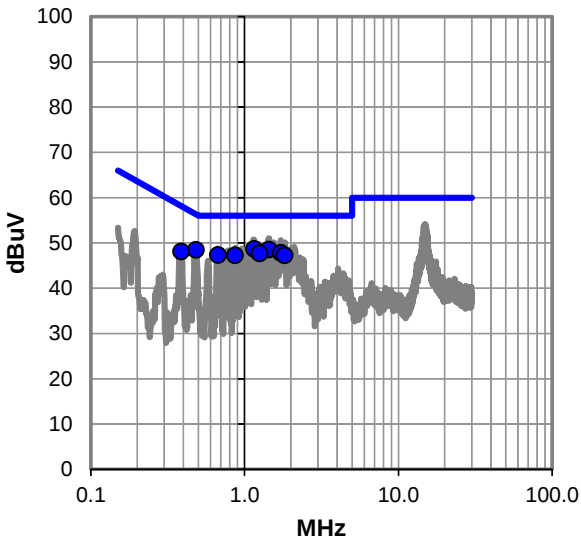
EUT OPERATING MODES

ON, Continuous Tx, Mid channel 2425MHz

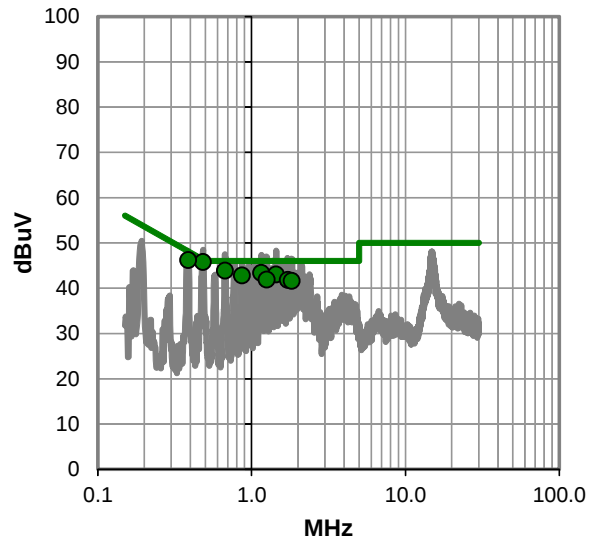
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWER LINE CONDUCTED EMISSIONS

RESULTS - Run #7

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.156	28.3	20.4	48.7	56.0	-7.3
1.440	28.1	20.4	48.5	56.0	-7.5
0.483	28.2	20.3	48.5	56.3	-7.8
1.724	27.4	20.4	47.8	56.0	-8.2
1.252	27.3	20.4	47.7	56.0	-8.3
0.674	27.0	20.3	47.3	56.0	-8.7
0.867	26.9	20.3	47.2	56.0	-8.8
1.820	26.8	20.4	47.2	56.0	-8.8
0.387	27.8	20.3	48.1	58.1	-10.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.483	25.5	20.3	45.8	46.3	-0.5
0.387	25.9	20.3	46.2	48.1	-2.0
0.674	23.6	20.3	43.9	46.0	-2.1
1.156	23.0	20.4	43.4	46.0	-2.6
1.440	22.6	20.4	43.0	46.0	-3.0
0.867	22.5	20.3	42.8	46.0	-3.2
1.252	21.5	20.4	41.9	46.0	-4.1
1.724	21.4	20.4	41.8	46.0	-4.2
1.820	21.2	20.4	41.6	46.0	-4.4

CONCLUSION

Pass



Tested By

POWER LINE CONDUCTED EMISSIONS

EUT:	F8	Work Order:	ZYL10009
Serial Number:	322071	Date:	03/06/2014
Customer:	Zylight LLC	Temperature:	22.7°C
Attendees:	Jim Collias	Relative Humidity:	42.2%
Customer Project:	None	Bar. Pressure:	1010.9 mb
Tested By:	Dan Haas	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	ZYL10009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009
RSS-Gen:20120	RSS-Gen:2010

TEST PARAMETERS

Run #:	8	Line:	Neutral	Ext. Attenuation (dB):	20
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COMMENTS

EUT light on.

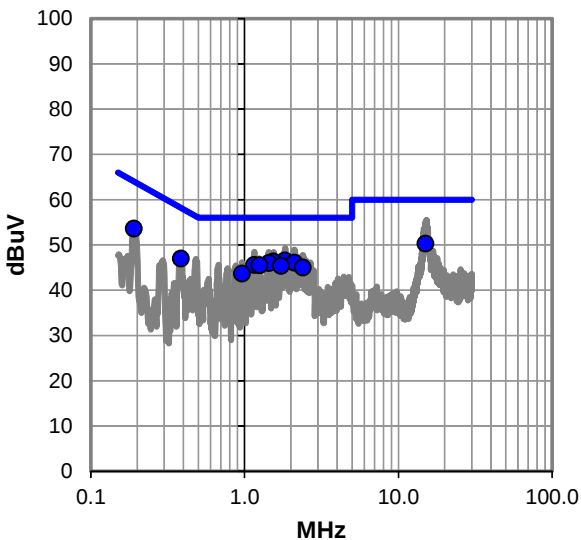
EUT OPERATING MODES

ON, Continuous Tx, Mid channel 2425MHz

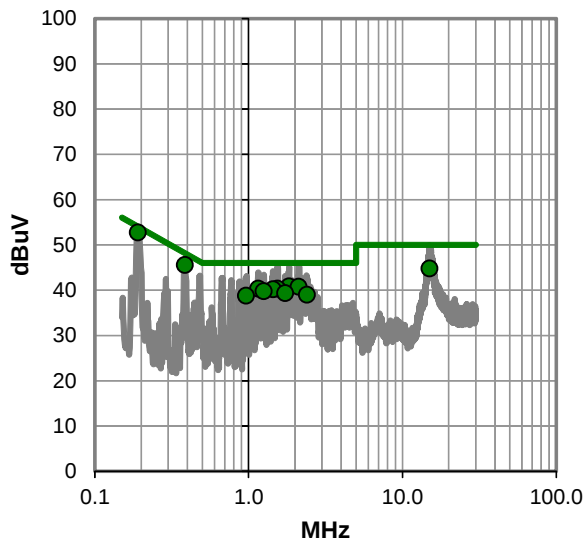
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWER LINE CONDUCTED EMISSIONS

RESULTS - Run #8

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.832	26.1	20.4	46.5	56.0	-9.5
1.544	25.9	20.4	46.3	56.0	-9.7
15.002	29.0	21.3	50.3	60.0	-9.7
2.116	25.6	20.4	46.0	56.0	-10.0
1.444	25.6	20.4	46.0	56.0	-10.0
0.191	33.3	20.3	53.6	64.0	-10.4
1.156	25.2	20.4	45.6	56.0	-10.4
1.252	25.1	20.4	45.5	56.0	-10.5
1.732	24.9	20.4	45.3	56.0	-10.7
2.396	24.5	20.5	45.0	56.0	-11.0
0.385	26.7	20.3	47.0	58.2	-11.2
0.963	23.3	20.3	43.6	56.0	-12.4

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.191	32.4	20.3	52.7	54.0	-1.3
0.385	25.3	20.3	45.6	48.2	-2.6
1.832	20.4	20.4	40.8	46.0	-5.2
15.002	23.5	21.3	44.8	50.0	-5.2
2.116	20.3	20.4	40.7	46.0	-5.3
1.156	20.0	20.4	40.4	46.0	-5.6
1.544	19.9	20.4	40.3	46.0	-5.7
1.444	19.8	20.4	40.2	46.0	-5.8
1.252	19.4	20.4	39.8	46.0	-6.2
1.732	18.9	20.4	39.3	46.0	-6.7
2.396	18.5	20.5	39.0	46.0	-7.0
0.963	18.4	20.3	38.7	46.0	-7.3

CONCLUSION

Pass



Tested By

POWER LINE CONDUCTED EMISSIONS

EUT:	F8	Work Order:	ZYLI0009
Serial Number:	322071	Date:	03/06/2014
Customer:	Zylight LLC	Temperature:	22.7°C
Attendees:	Jim Collias	Relative Humidity:	42.2%
Customer Project:	None	Bar. Pressure:	1010.9 mb
Tested By:	Dan Haas	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	ZYLI0009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009
RSS-Gen:20120	RSS-Gen:2010

TEST PARAMETERS

Run #:	10	Line:	High Line	Ext. Attenuation (dB):	20
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COMMENTS

EUT light on.

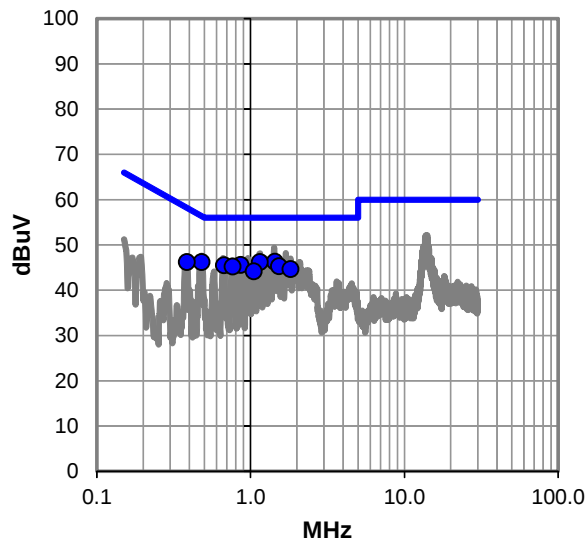
EUT OPERATING MODES

ON, Continuous Tx, High channel 2450MHz

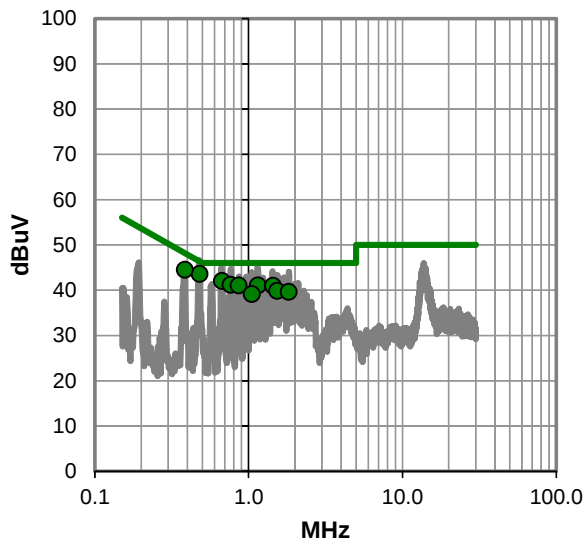
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWER LINE CONDUCTED EMISSIONS

RESULTS - Run #10

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
1.440	25.9	20.4	46.3	56.0	-9.7
1.152	25.8	20.4	46.2	56.0	-9.8
0.480	25.9	20.3	46.2	56.3	-10.2
0.863	25.2	20.3	45.5	56.0	-10.5
0.671	25.2	20.3	45.5	56.0	-10.5
1.532	24.9	20.4	45.3	56.0	-10.7
0.765	24.9	20.3	45.2	56.0	-10.8
1.820	24.2	20.4	44.6	56.0	-11.4
1.052	23.8	20.3	44.1	56.0	-11.9
0.385	25.9	20.3	46.2	58.2	-12.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.480	23.3	20.3	43.6	46.3	-2.8
0.385	24.2	20.3	44.5	48.2	-3.7
0.671	21.7	20.3	42.0	46.0	-4.0
0.765	20.9	20.3	41.2	46.0	-4.8
1.152	20.7	20.4	41.1	46.0	-4.9
0.863	20.7	20.3	41.0	46.0	-5.0
1.440	20.6	20.4	41.0	46.0	-5.0
1.532	19.4	20.4	39.8	46.0	-6.2
1.820	19.2	20.4	39.6	46.0	-6.4
1.052	18.8	20.3	39.1	46.0	-6.9

CONCLUSION

Pass



Tested By

POWER LINE CONDUCTED EMISSIONS

EUT:	F8	Work Order:	ZYLI0009
Serial Number:	322071	Date:	03/06/2014
Customer:	Zylight LLC	Temperature:	22.7°C
Attendees:	Jim Collias	Relative Humidity:	42.2%
Customer Project:	None	Bar. Pressure:	1010.9 mb
Tested By:	Dan Haas	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	ZYLI0009-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2014	ANSI C63.10:2009
RSS-Gen:20120	RSS-Gen:2010

TEST PARAMETERS

Run #:	11	Line:	Neutral	Ext. Attenuation (dB):	20
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COMMENTS

EUT light on.

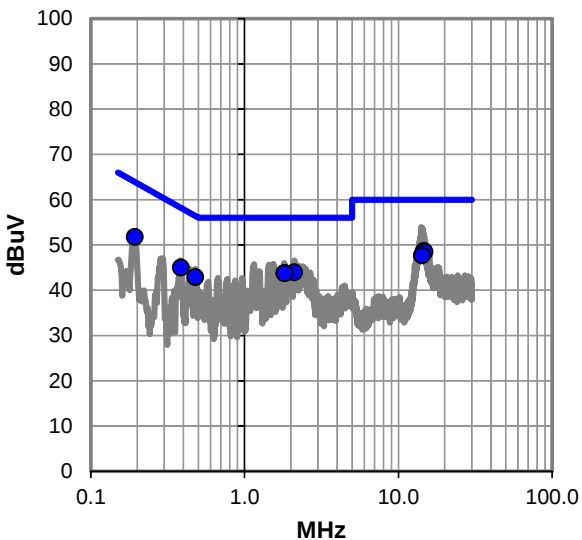
EUT OPERATING MODES

ON, Continuous Tx, High channel 2450MHz

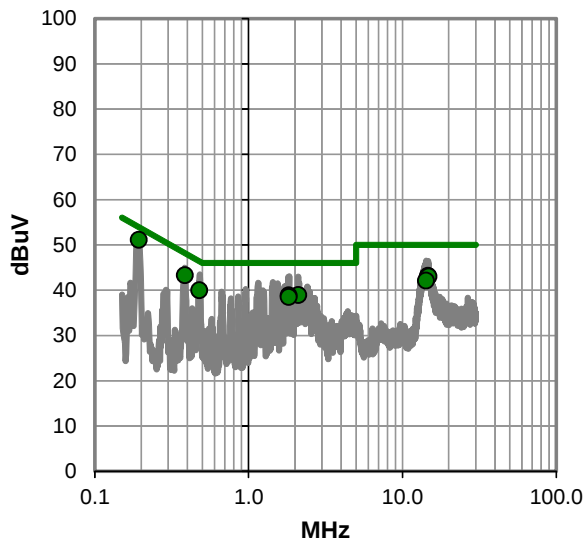
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWER LINE CONDUCTED EMISSIONS

RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
14.688	27.4	21.2	48.6	60.0	-11.4
14.786	27.2	21.2	48.4	60.0	-11.6
2.108	23.5	20.4	43.9	56.0	-12.1
0.193	31.4	20.3	51.7	63.9	-12.2
1.820	23.4	20.4	43.8	56.0	-12.2
1.820	23.3	20.4	43.7	56.0	-12.3
14.272	26.5	21.2	47.7	60.0	-12.3
0.385	24.7	20.3	45.0	58.2	-13.2
0.478	22.6	20.3	42.9	56.4	-13.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.193	30.8	20.3	51.1	53.9	-2.8
0.385	23.0	20.3	43.3	48.2	-4.9
0.478	19.7	20.3	40.0	46.4	-6.4
14.688	21.9	21.2	43.1	50.0	-6.9
14.786	21.8	21.2	43.0	50.0	-7.0
2.108	18.5	20.4	38.9	46.0	-7.1
1.820	18.4	20.4	38.8	46.0	-7.2
1.820	18.1	20.4	38.5	46.0	-7.5
14.272	20.9	21.2	42.1	50.0	-7.9

CONCLUSION

Pass



Tested By