

# ThinkEco, Inc.

## Modlet TE1010

Report No. THKE0005

Report Prepared By



[www.nwemc.com](http://www.nwemc.com)  
1-888-EMI-CERT

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EMC Test Report

**Certificate of Test**

**Last Date of Test: August 22, 2011**

**ThinkEco, Inc.**

**Model: Modlet TE1010**

Emissions			
Test Description	Specification	Test Method	Pass/Fail
Spurious Radiated Emissions	FCC 15.247:2010	ANSI C63.10:2009	Pass
AC Powerline Conducted Emissions	FCC 15.207:2011	ANSI C63.10:2009	Pass
Spurious Conducted Emissions	FCC 15.247:2010	ANSI C63.10:2009	Pass
Power Spectral Density	FCC 15.247:2010	ANSI C63.10:2009	Pass
Occupied Bandwidth	FCC 15.247:2010	ANSI C63.10:2009	Pass
Output Power	FCC 15.247:2010	ANSI C63.10:2009	Pass
Band Edge Compliance	FCC 15.247:2010	ANSI C63.10:2009	Pass
Duty Cycle	FCC 15.247:2010	ANSI C63.10:2009	Pass

**Modifications made to the product**

See the Modifications section of this report

**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).

**Approved By:**



Tim O'Shea, 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 Number	Description	Date	Page Number
00	None		

**Barometric Pressure**

The recorded barometric pressure has been normalized to sea level.



# Accreditations and Authorizations

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## FCC

Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

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## NVLAP

Northwest EMC, Inc. is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. NVLAP is administered by the National Institute of Standards and Technology (NIST), an agency of the U.S. Commerce Department. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

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## Industry Canada

Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2, Brooklyn Park: 2834E-1)

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## CAB

Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.

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## Australia/New Zealand

The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).

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# Accreditations and Authorizations

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## VCCI

Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (*Registration Numbers. - Hillsboro: C-1071, R-1025, G-84, C-2687, T-1658, and R-2318, Irvine: R-1943, G-85, C-2766, and T-1659, Sultan: R-871, G-83, C-3265, and T-1511, Brooklyn Park: R-3125, G-86, G-141, C-3464, and T-1634*).

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## BSMI

Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017).

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## GOST

Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification

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## KCC

Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157, Brooklyn Park: US0175*)

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## VIETNAM

Vietnam MIC has approved Northwest EMC as an accredited test lab. Per Decision No. 194/QD-QLCL (dated December 15, 2009), Northwest EMC test reports can be used for Vietnam approval submissions.

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## SCOPE

For details on the Scopes of our Accreditations, please visit:  
<http://www.nwemc.com/accreditations/>



## Northwest EMC Locations



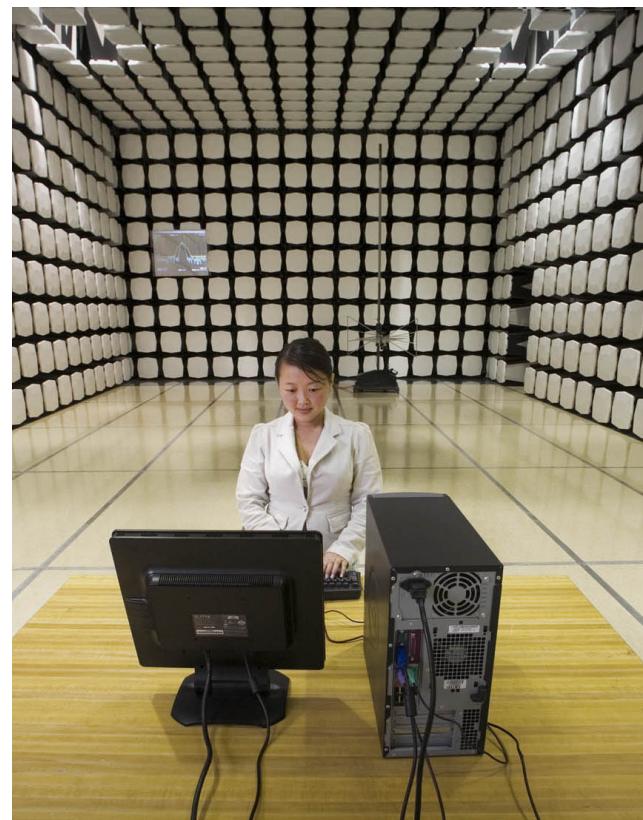
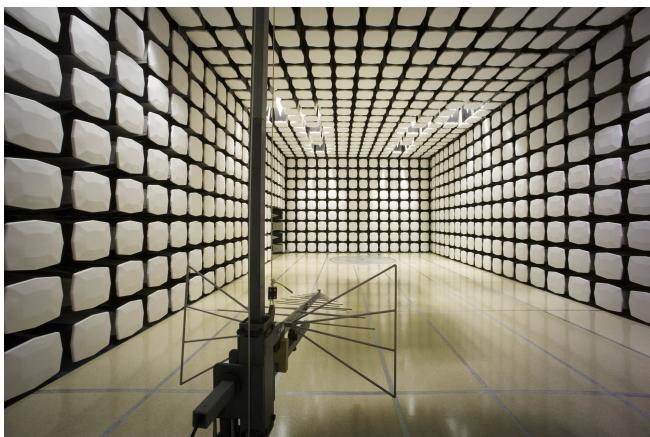
Oregon  
Labs EV01-EV12  
22975 NW Evergreen Pkwy  
Suite 400  
Hillsboro, OR 97124  
(503) 844-4066

California  
Labs OC01-OC13  
41 Tesla  
Irvine, CA 92618  
(949) 861-8918

Minnesota  
Labs MN01-MN08  
9349 W Broadway Ave.  
Brooklyn Park,  
MN 55445  
(763) 425-2281

Washington  
Labs SU01-SU07  
14128 339<sup>th</sup> Ave. SE  
Sultan, WA 98294  
(360) 793-8675

New York  
Labs WA01-WA04  
4939 Jordan Rd.  
Elbridge, NY 13060  
(315) 685-0796



**Party Requesting the Test**

<b>Company Name:</b>	ThinkEco, Inc.
<b>Address:</b>	148 Madison Ave, 8th Floor
<b>City, State, Zip:</b>	New York, NY 10016
<b>Test Requested By:</b>	Ben Burns
<b>Model:</b>	Modlet TE1010
<b>First Date of Test:</b>	8/18/2011
<b>Last Date of Test:</b>	8/22/2011
<b>Receipt Date of Samples:</b>	8/18/2011
<b>Equipment Design Stage:</b>	Production
<b>Equipment Condition:</b>	No Damage

**Information Provided by the Party Requesting the Test****Functional Description of the EUT (Equipment Under Test):**

2.4 GHz ISM radio, 802.15.4

**Testing Objective:**

To demonstrate compliance to FCC Part 15 requirements

**CONFIGURATION 1 THKE0005**

<b>EUT</b>					
<b>Description</b>	<b>Manufacturer</b>	<b>Model/Part Number</b>	<b>Serial Number</b>		
2.4 GHz ISM radio	ThinkEco, Inc.	Modlet TE1010	804F580000100A19		

**Remote Equipment Outside of Test Setup Boundary**

<b>Description</b>	<b>Manufacturer</b>	<b>Model/Part Number</b>	<b>Serial Number</b>
PC for USB power	IBM	Thinkpad A21m	IS108

**Cables**

<b>Cable Type</b>	<b>Shield</b>	<b>Length (m)</b>	<b>Ferrite</b>	<b>Connection 1</b>	<b>Connection 2</b>
DC Power	No	0.5m	No	PC	2.4 GHz ISM radio

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

**CONFIGURATION 2 THKE0005**

<b>EUT</b>					
<b>Description</b>	<b>Manufacturer</b>	<b>Model/Part Number</b>	<b>Serial Number</b>		
2.4 GHz ISM radio	ThinkEco, Inc.	Modlet TE1010	804F580000100A15		

**Cables**

<b>Cable Type</b>	<b>Shield</b>	<b>Length (m)</b>	<b>Ferrite</b>	<b>Connection 1</b>	<b>Connection 2</b>
AC Power	No	2.0m	No	2.4 GHz ISM radio	AC Mains
AC Power	No	1.8m	No	2.4 GHz ISM radio	Unterminated
AC Power	No	1.8m	No	2.4 GHz ISM radio	Unterminated

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	8/18/2011	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	8/18/2011	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	8/18/2011	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.
4	8/18/2011	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	8/18/2011	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.
6	8/18/2011	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	8/19/2011	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	8/22/2011	AC Powerline 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 EQUIPMENT						
Description	Manufacturer	Model	ID	Last Cal.	Interval	
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2011	12	
40GHz DC Block	Miteq	DCB4000	AMD	8/12/2011	12	
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2011	12	
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0	
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0	

## MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

## TEST DESCRIPTION

The test firmware was provided with a "Duty Cycle Demonstration" mode, called "Test 5". The following description was included in the test instructions by the manufacturer about this mode:

"...sending 92-byte PRBS9 packets over the air on the selected channel at a rate of approximately 75 packets per second, which corresponds to the highest duty cycle the modlet can produce in real world use"

For the purposes of taking radiated spurious emissions data in the Average detector, the duty cycle was measured in its worst case mode of 9 pulses of 2.625 ms duration. The following value was calculated in dB to apply to the Average readings:

$$20 \times \log_{10} \left( \frac{9 \times 2.625}{100} \right) = -12.5 \text{ dB}$$

## EMC

## Duty Cycle

EUT: Modlet TE1010

Work Order: THKE0005

Serial Number: 804F580000100A19

Date: 08/18/11

Customer: ThinkEco, Inc.

Temperature: 22.6°C

Attendees: Bryan Takata

Humidity: 48%

Project: None

Barometric Pres.: 30.3 in

Tested by: Rod Peloquin

Power: 5VDC via USB

Job Site: EV06

## TEST SPECIFICATIONS

## TEST METHOD

FCC 15.247:2011

ANSI C63.10:2009

## COMMENTS

Transmitting 'Duty Cycle Demonstration' mode with modulation on mid channel.

## DEVIATIONS FROM TEST STANDARD

None

Configuration #

1

Signature



Typical pulse width

Value

Limit

Results

100 ms Period

6.25 ms

N/A

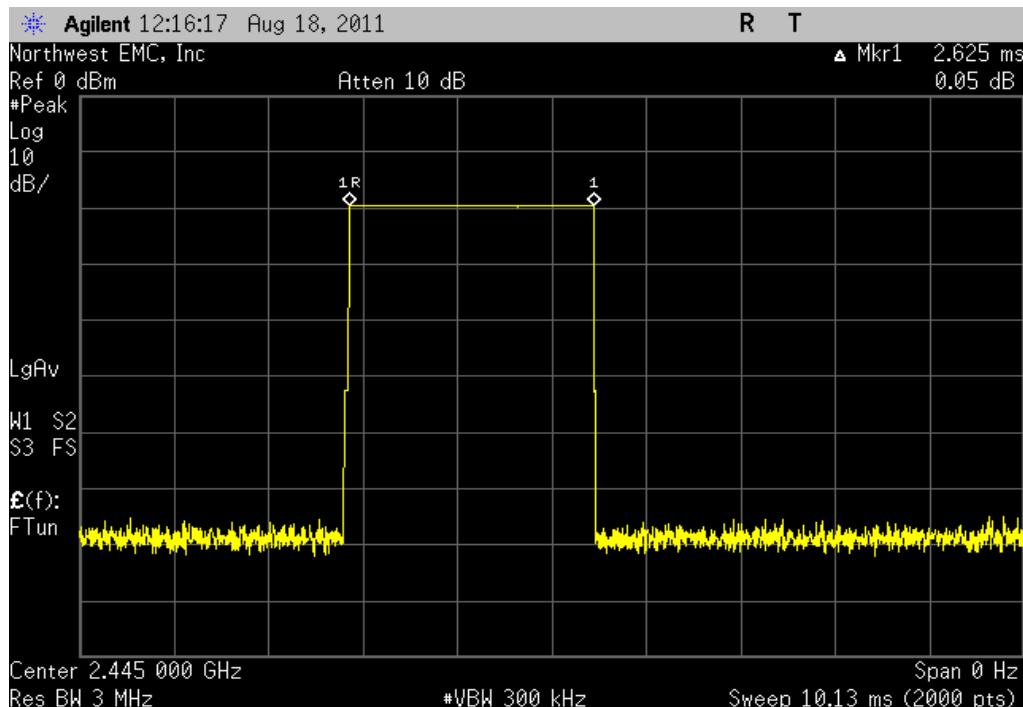
N/A

9 Pulses

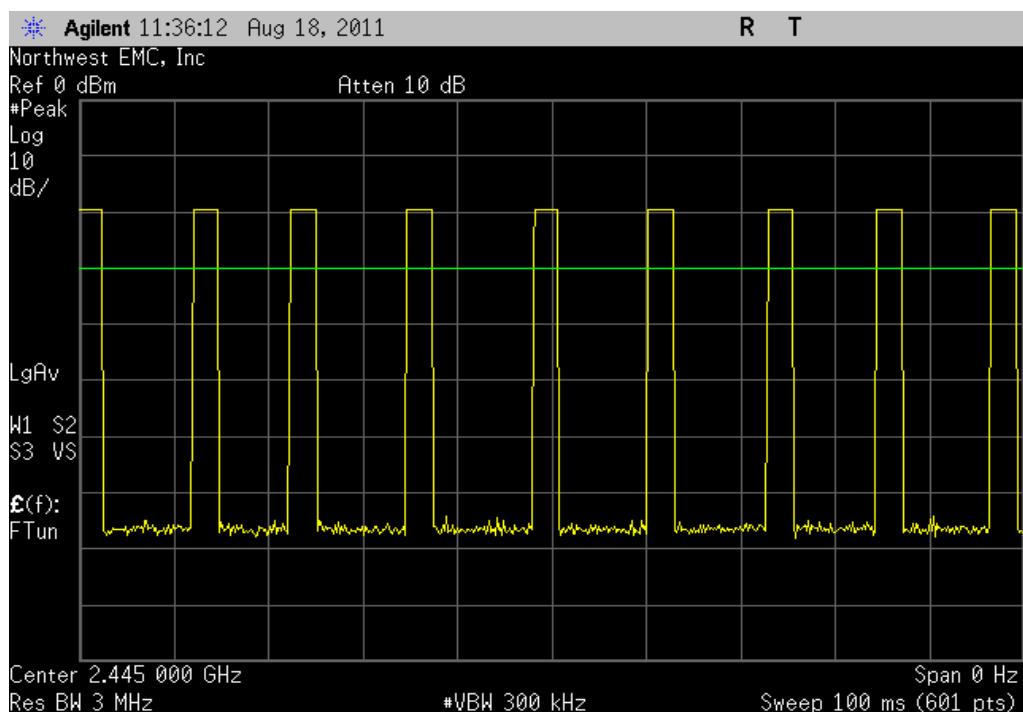
N/A

N/A

Typical pulse width		
<b>Result:</b> N/A	<b>Value:</b> 6.25 ms	<b>Limit:</b> N/A



100 ms Period		
<b>Result:</b> N/A	<b>Value:</b> 9 Pulses	<b>Limit:</b> N/A



# 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
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2011	12
40GHz DC Block	Miteq	DCB4000	AMD	8/12/2011	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2011	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0

## MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

## TEST DESCRIPTION

The 6 dB occupied bandwidth was measured with the EUT 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 its only data rate available with the typical modulation.

Occupied Bandwidth			XMit 2011.08.04 PsaTx 2011.08.04
NORTHWEST <b>EMC</b>			
EUT: Modlet TE1010 Serial Number: 804F580000100A19 Customer: ThinkEco, Inc. Attendees: Bryan Takata Project: None Tested by: Rod Peloquin		Work Order: THKE0005 Date: 08/18/11 Temperature: 22.6°C HuMid, 19, 2445 MHz: 48% Barometric Pres.: 30.3 in Job Site: EV06	
<b>TEST SPECIFICATIONS</b>		<b>TEST METHOD</b>	
FCC 15.247:2011		ANSI C63.10:2009	
<b>COMMENTS</b>			
Transmitting continuous mode with modulation. 0.4 dB added to reference level offset for antenna port adapter cable.			
<b>DEVIATIONS FROM TEST STANDARD</b>			
None			
Configuration #	1	 Signature	
Channel		Value	Limit
Low, 11, 2405 MHz		1.468 MHz	> 500 kHz
Mid, 19, 2445 MHz		1.454 MHz	> 500 kHz
High, 26, 2480 MHz		1.473 MHz	> 500 kHz

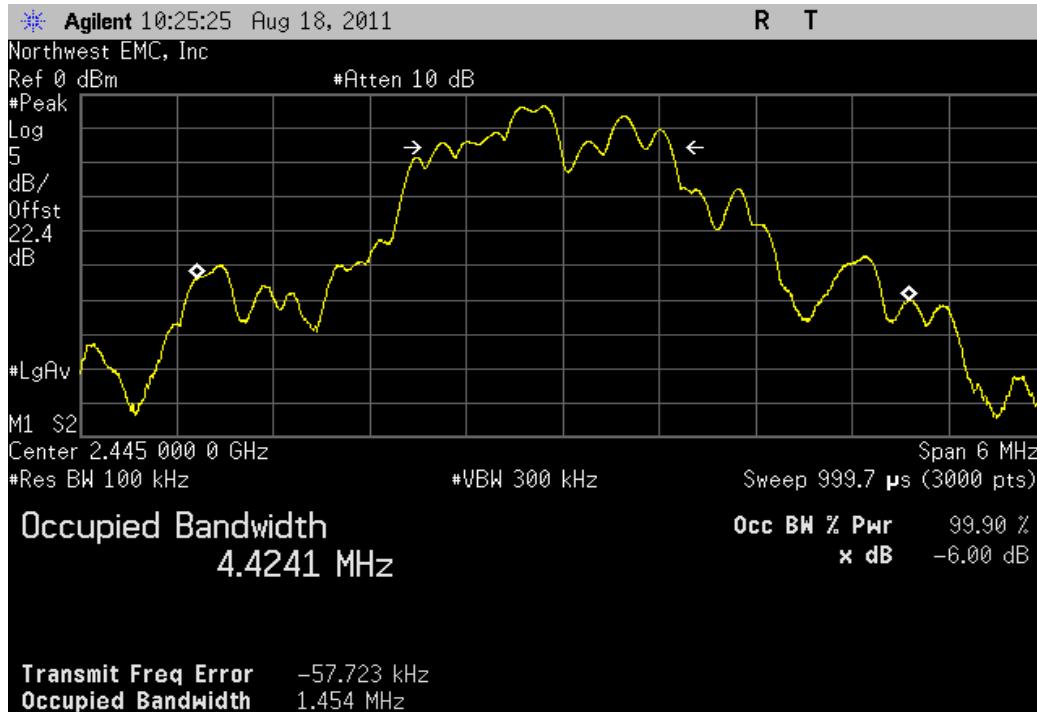
Low, 11, 2405 MHz

	Value	Limit	Result
	1.468 MHz	> 500 kHz	Pass

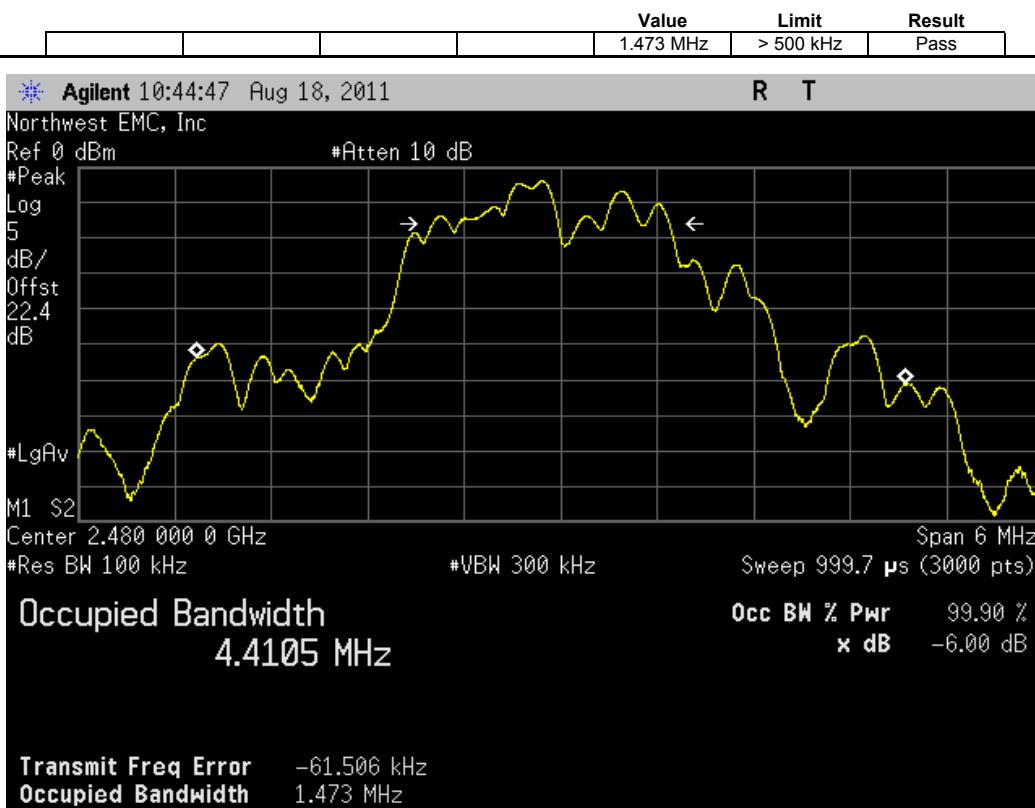


Mid, 19, 2445 MHz

	Value	Limit	Result
	1.454 MHz	> 500 kHz	Pass



High, 26, 2480 MHz



# 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	
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2011	12	
40GHz DC Block	Miteq	DCB4000	AMD	8/12/2011	12	
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2011	12	
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0	
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0	

## MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

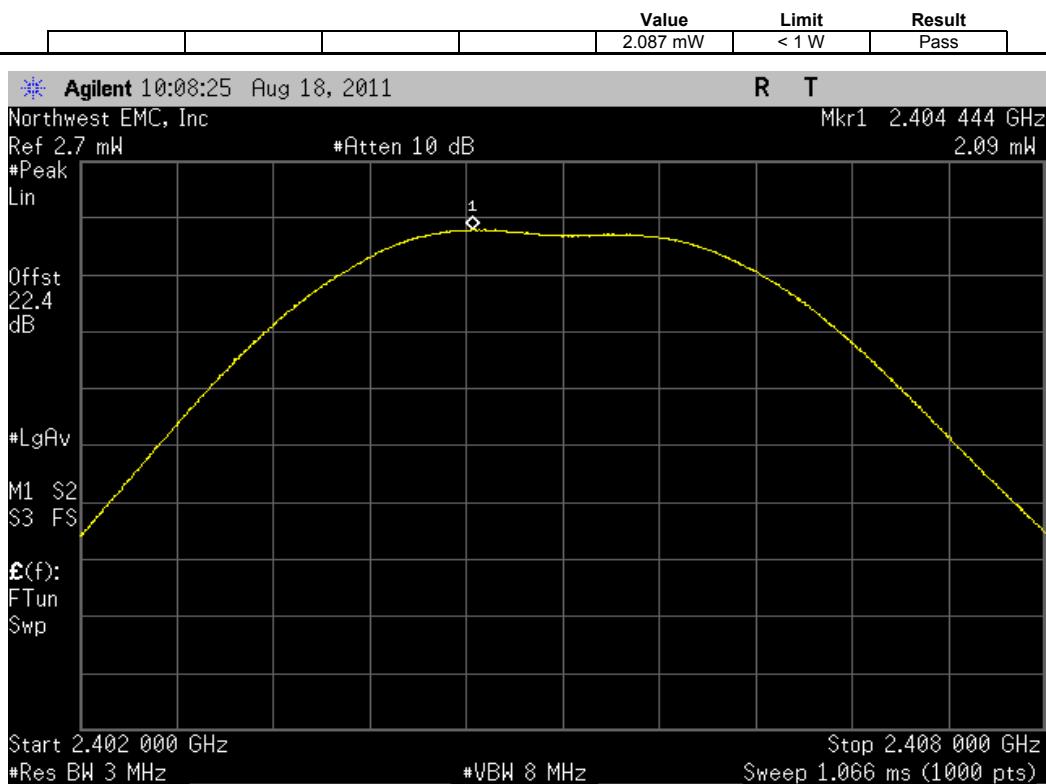
## TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting at its only data rate available in a no hop mode.

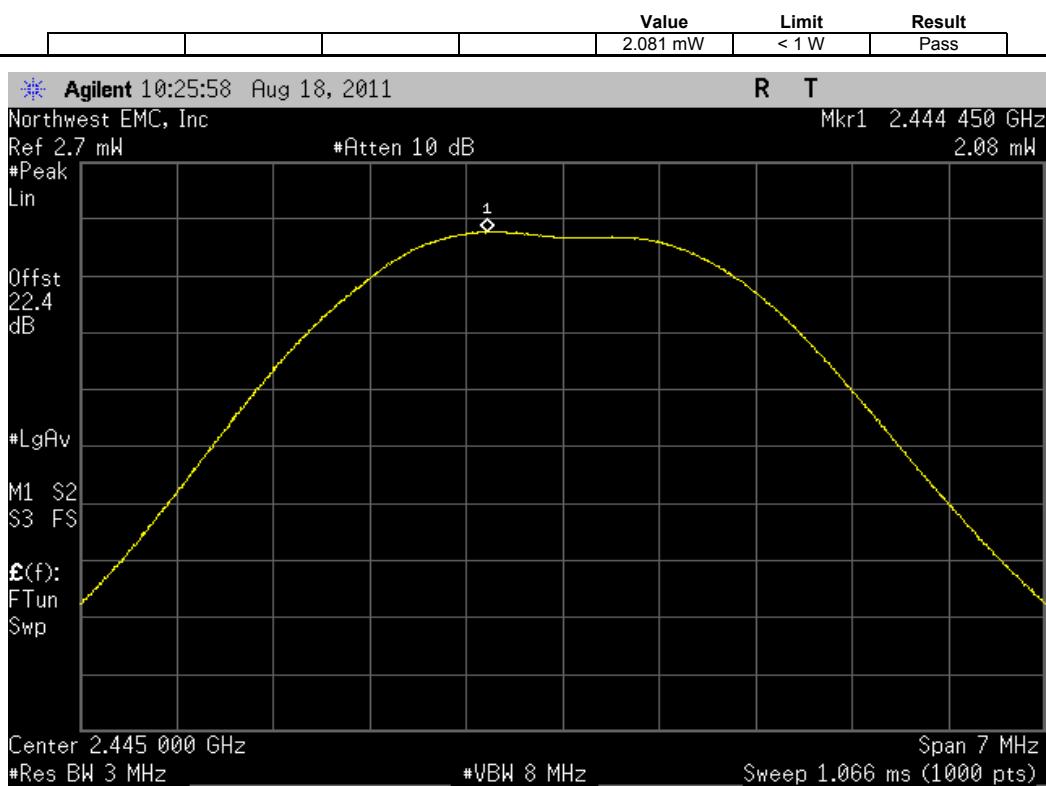
**De Facto EIRP Limit:** Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

Output Power			XMit 2011.08.04 PsaTx 2011.08.04		
EMC EUT: Modlet TE1010 Serial Number: 804F580000100A19 Customer: ThinkEco, Inc. Attendees: Bryan Takata Project: None Tested by: Rod Peloquin			Work Order: THKE0005 Date: 08/18/11 Temperature: 22.6°C Humidity: 48% Barometric Pres.: 30.3 in Job Site: EV06		
TEST SPECIFICATIONS			TEST METHOD		
FCC 15.247:2011			ANSI C63.10:2009		
COMMENTS					
Transmitting continuous mode with modulation. 0.4 dB added to reference level offset for antenna port adapter cable.					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	1	 Signature			
Channel		Value	Limit	Result	
Low, 11, 2405 MHz		2.087 mW	< 1 W	Pass	
Mid, 19, 2445 MHz		2.081 mW	< 1 W	Pass	
High, 26, 2480 MHz		2.031 mW	< 1 W	Pass	

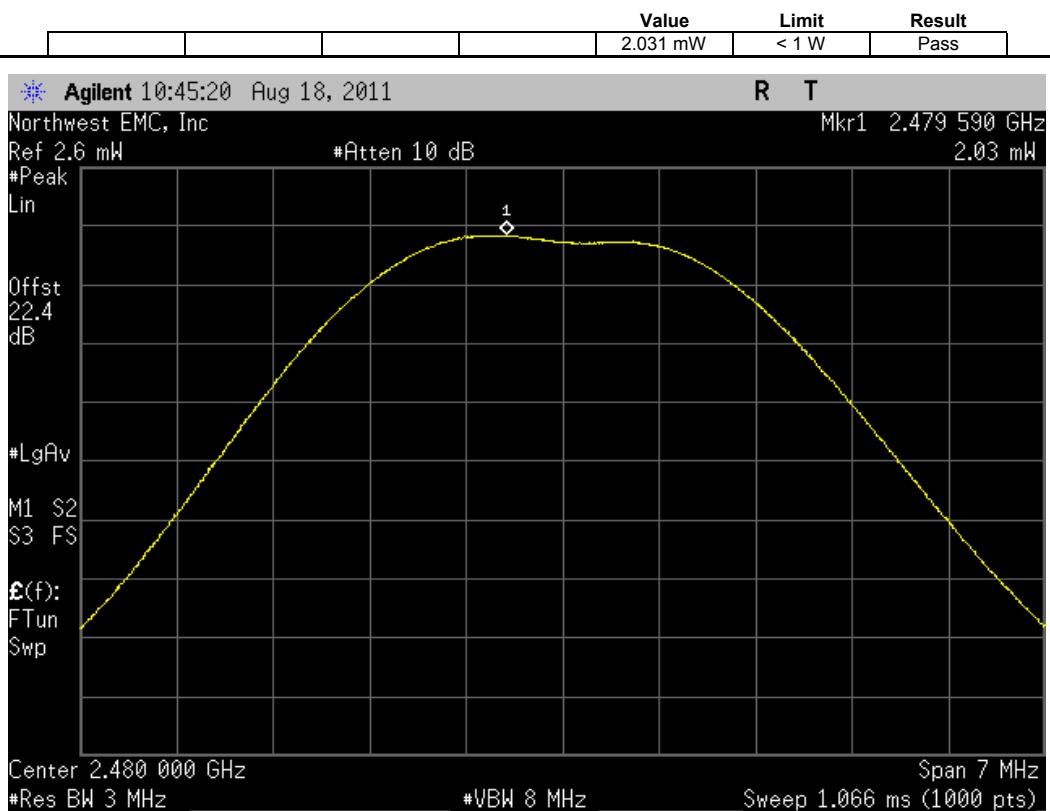
Low, 11, 2405 MHz



Mid, 19, 2445 MHz



High, 26, 2480 MHz



# 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	
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2011	12	
40GHz DC Block	Miteq	DCB4000	AMD	8/12/2011	12	
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2011	12	
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0	
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0	

## MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

## 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 its only 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

EUT: Modlet TE1010

Work Order: THKE0005

Date: 08/18/11

Serial Number: 804F580000100A19

Temperature: 22.6°C

Customer: ThinkEco, Inc.

Humidity: 48%

Attendees: Bryan Takata

Barometric Pres.: 30.3 in

Project: None

Job Site: EV06

Tested by: Rod Peloquin

Power: 5VDC via USB

## TEST SPECIFICATIONS

## TEST METHOD

FCC 15.247:2011

ANSI C63.10:2009

## COMMENTS

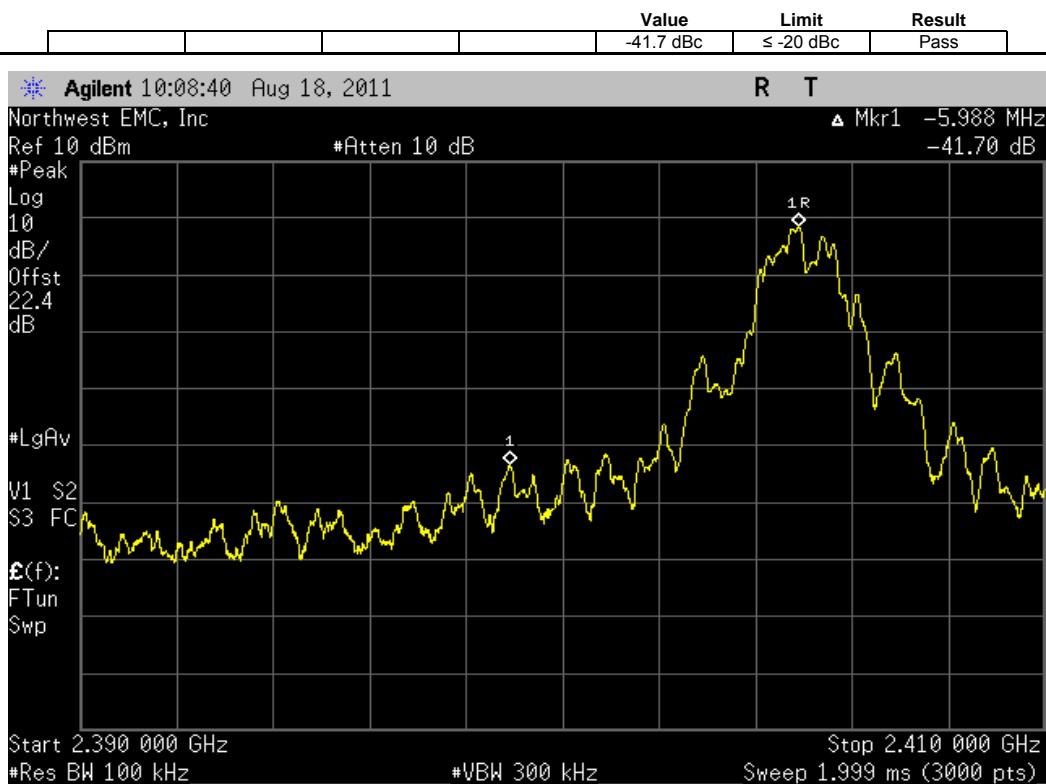
Transmitting continuous mode with modulation. 0.4 dB added to reference level offset for antenna port adapter cable.

## DEVIATIONS FROM TEST STANDARD

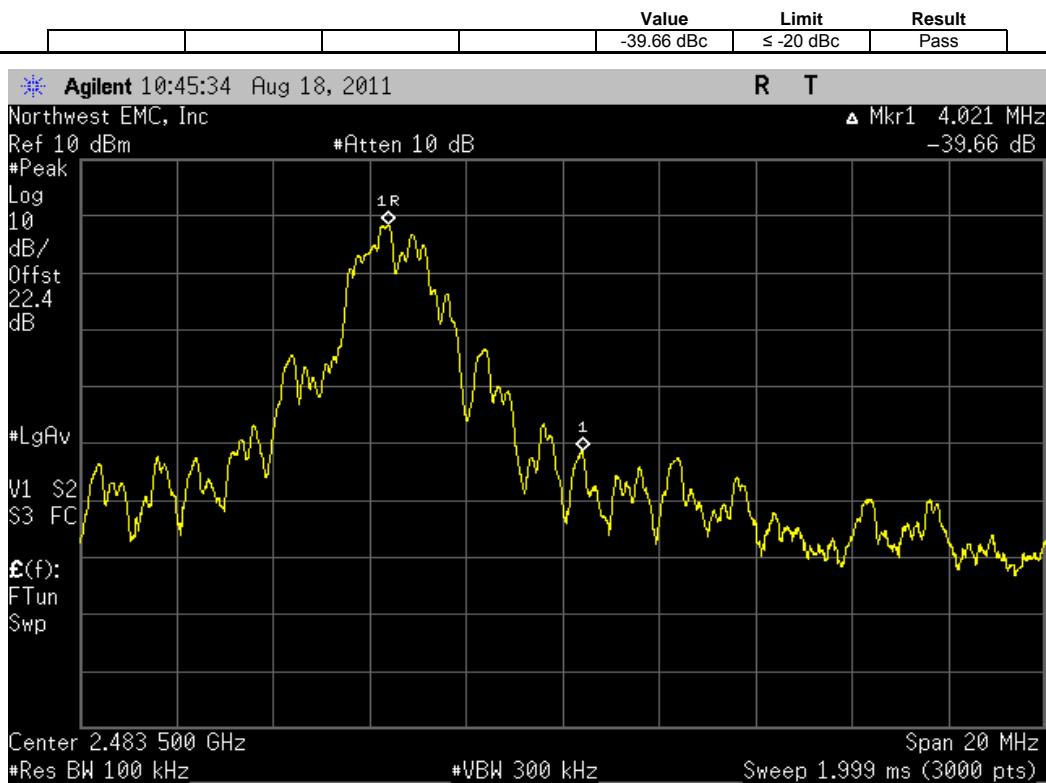
None

Configuration #	1	Signature	Value	Limit	Result
Low, 11, 2405 MHz			-41.7 dBc	≤ -20 dBc	Pass
High, 26, 2480 MHz			-39.66 dBc	≤ -20 dBc	Pass

Low, 11, 2405 MHz



High, 26, 2480 MHz



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	
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2011	12	
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0	
40GHz DC Block	Miteq	DCB4000	AMD	8/12/2011	12	
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2011	12	
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0	

#### MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

#### 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 its only data rate available using direct sequence modulation. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

## Spurious Conducted Emissions

EUT: Modlet TE1010

Work Order: THKE0005

Date: 08/18/11

Serial Number: 804F580000100A19

Temperature: 22.6°C

Customer: ThinkEco, Inc.

Humidity: 48%

Attendees: Bryan Takata

Barometric Pres.: 30.3 in

Project: None

Job Site: EV06

Tested by: Rod Peloquin

Power: 5VDC via USB

## TEST SPECIFICATIONS

## TEST METHOD

FCC 15.247:2011

ANSI C63.10:2009

## COMMENTS

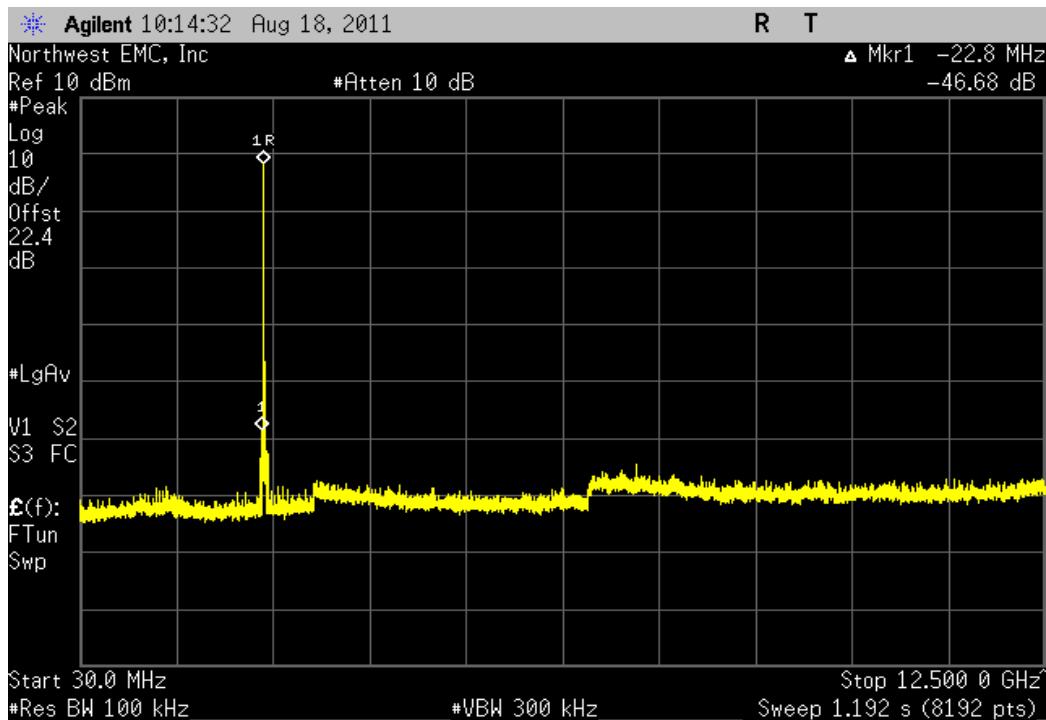
Transmitting continuous mode with modulation. 0.4 dB added to reference level offset for antenna port adapter cable.

## DEVIATIONS FROM TEST STANDARD

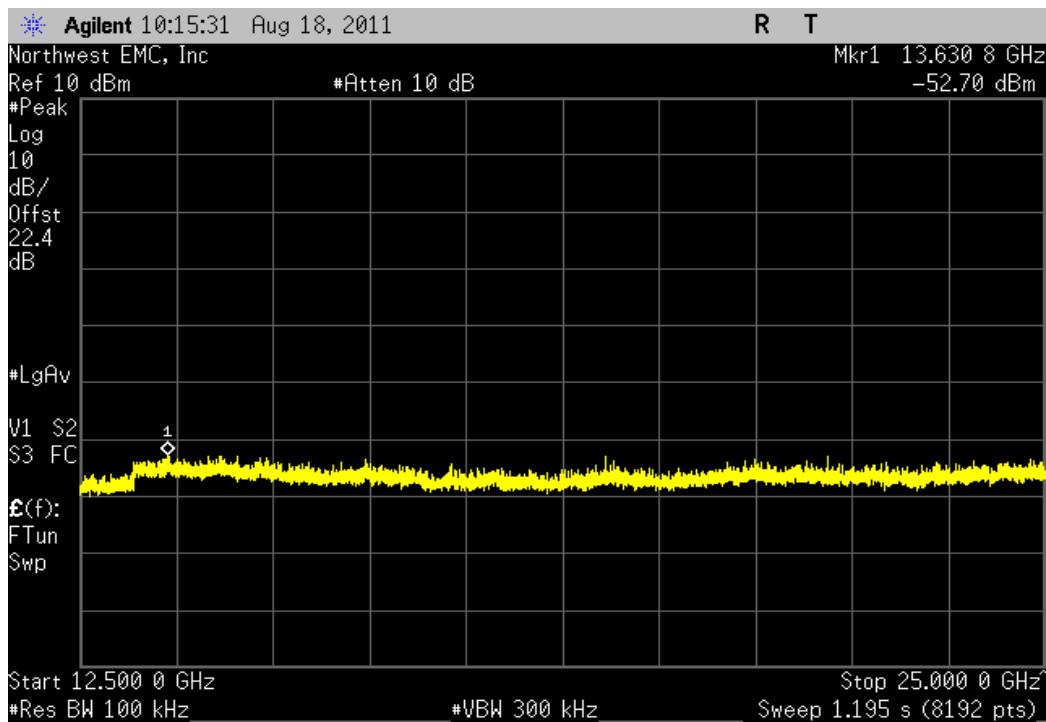
None

Configuration #	1	Signature	Frequency Range	Value	Limit	Result
Channel						
Low, 11, 2405 MHz			30 MHz - 12.5 GHz	-46.68 dBc	≤ -20 dBc	Pass
Low, 11, 2405 MHz			12.5 GHz - 25 GHz	-51 dBc	≤ -20 dBc	Pass
Mid, 19, 2445 MHz			30 MHz - 12.5 GHz	-53.98 dBc	≤ -20 dBc	Pass
Mid, 19, 2445 MHz			12.5 GHz - 25 GHz	-51.27 dBc	≤ -20 dBc	Pass
High, 26, 2480 MHz			30 MHz - 12.5 GHz	-44.99 dBc	≤ -20 dBc	Pass
High, 26, 2480 MHz			12.5 GHz - 25 GHz	-51.06 dBc	≤ -20 dBc	Pass

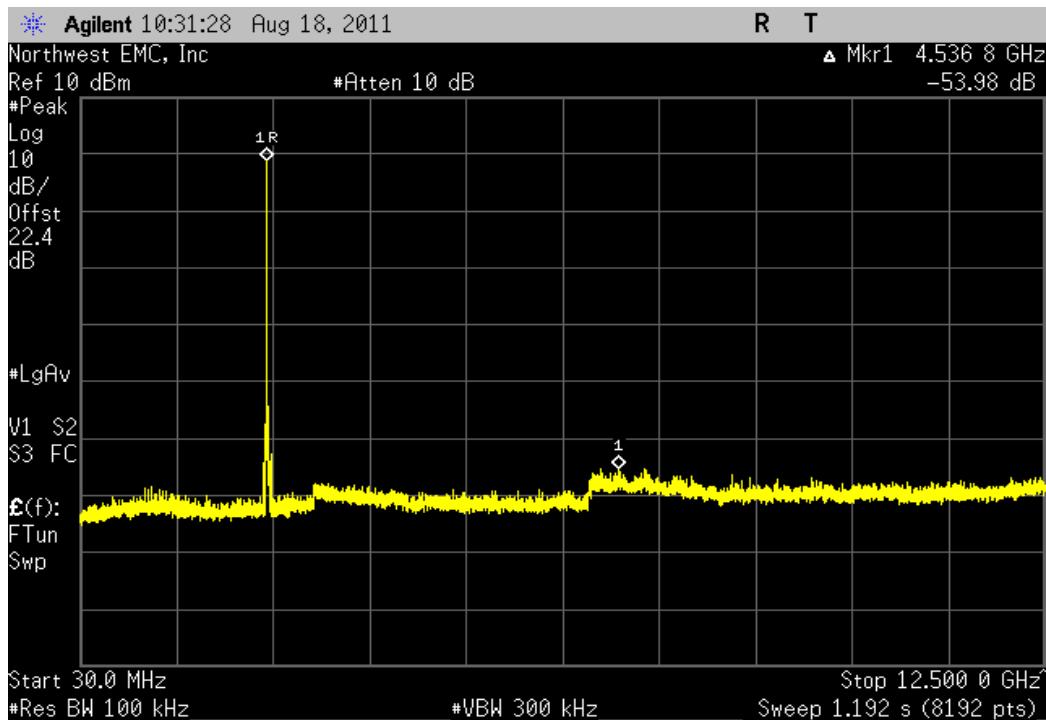
Low, 11, 2405 MHz				
Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-46.68 dBc	≤ -20 dBc	Pass



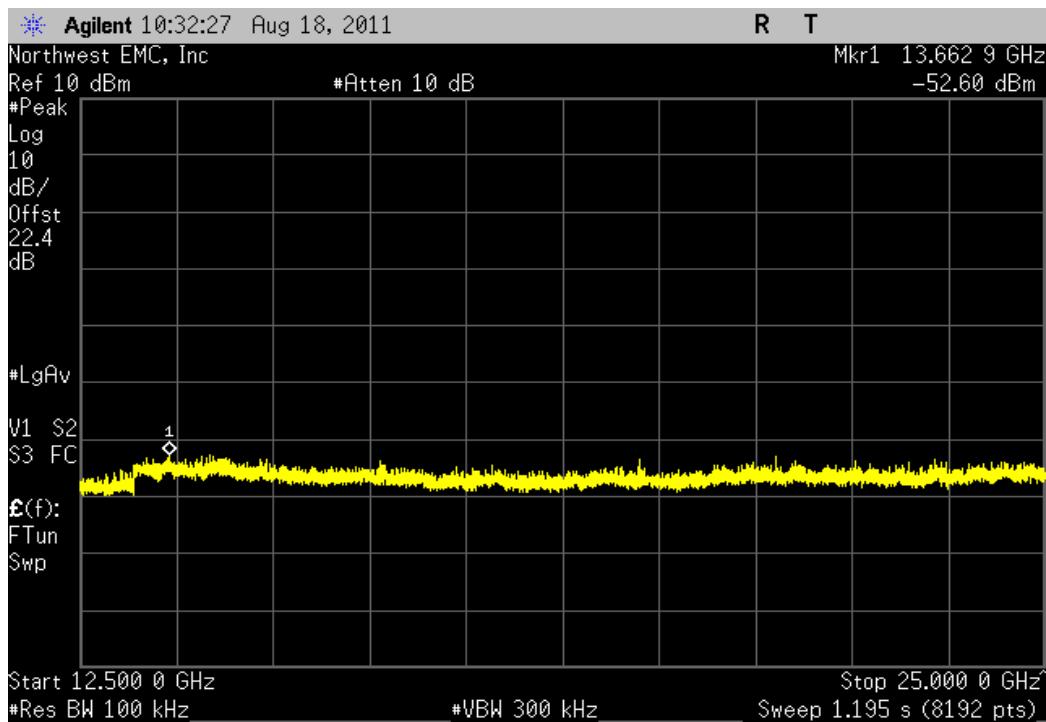
Low, 11, 2405 MHz				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-51 dBc	≤ -20 dBc	Pass



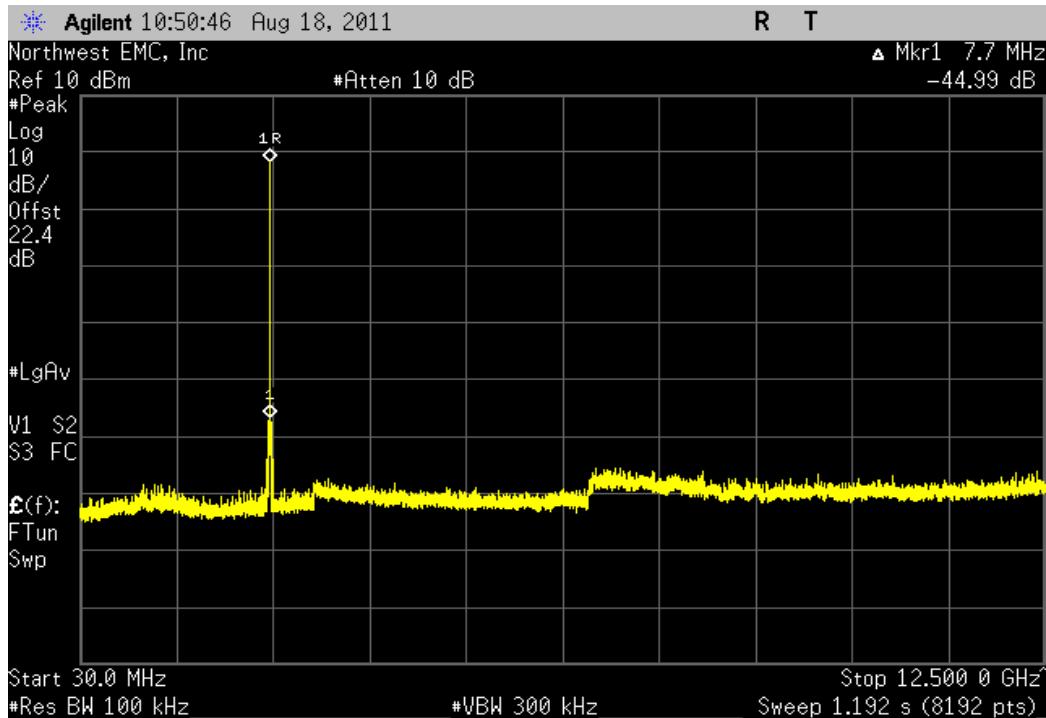
Mid, 19, 2445 MHz				
Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-53.98 dBc	≤ -20 dBc	Pass



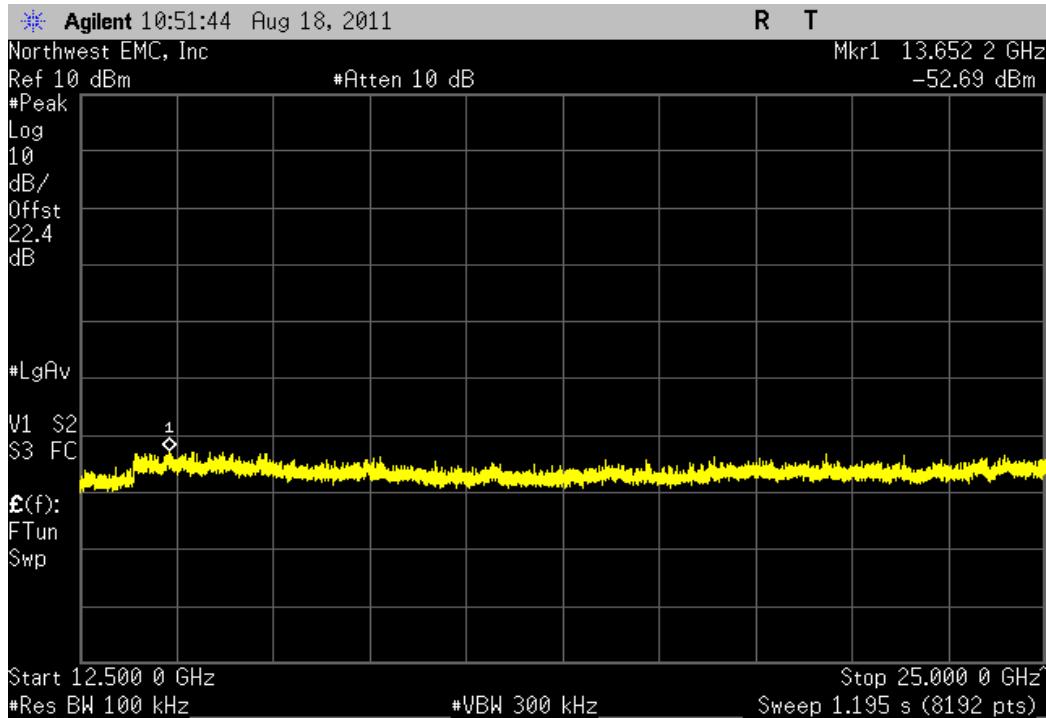
Mid, 19, 2445 MHz				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-51.27 dBc	≤ -20 dBc	Pass



High, 26, 2480 MHz				
Frequency Range		Value	Limit	Result
30 MHz - 12.5 GHz		-44.99 dBc	≤ -20 dBc	Pass



High, 26, 2480 MHz				
Frequency Range		Value	Limit	Result
12.5 GHz - 25 GHz		-51.06 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
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2011	12
40GHz DC Block	Miteq	DCB4000	AMD	8/12/2011	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	8/2/2011	12
EV06 Direct Connect Cable	ESM Cable Corp.	TT	ECA	NCR	0
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0

## MEASUREMENT UNCERTAINTY

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

## TEST DESCRIPTION

The power spectral density measurements were measured with the EUT set to low, mid, 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 its only data rate available for each modulation type available. ANSI C63.10:2009, Section 6.11.2.3 was followed. The spectrum analyzer was set as follows:

- The emission peak was located and zoomed in on within the passband.
- a) RBW = 3 kHz
- b) VBW = 10 kHz
- c) Span = 300 kHz
- d) Sweep time = 100s
- e) Trace set to MAX
- f) The 1 hz Marker Noise function on the analyzer was used. The data was corrected to 3 kHz by adding 34.8 dB to the reading.

## Power Spectral Density

EUT: Modlet TE1010

Work Order: THKE0005

Date: 08/18/11

Temperature: 22.6°C

Serial Number: 804F580000100A19

HuMid, 19, 2445 MHz

Frequency: 48%

Customer: ThinkEco, Inc.

Barometric Pres.: 30.3 in

Attendees: Bryan Takata

Job Site: EV06

Project: None

Tested by: Rod Peloquin

Power: 5VDC via USB

## TEST SPECIFICATIONS

## TEST METHOD

FCC 15.247:2011

ANSI C63.10:2009

## COMMENTS

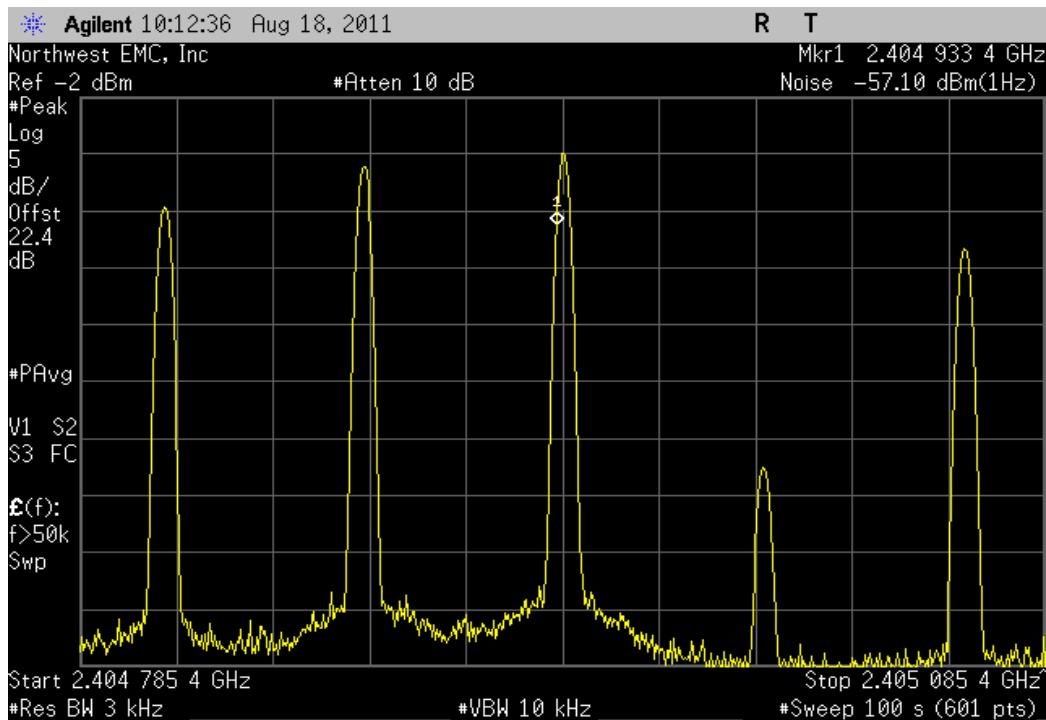
Transmitting continuous mode with modulation. 0.4 dB added to reference level offset for antenna port adapter cable.

## DEVIATIONS FROM TEST STANDARD

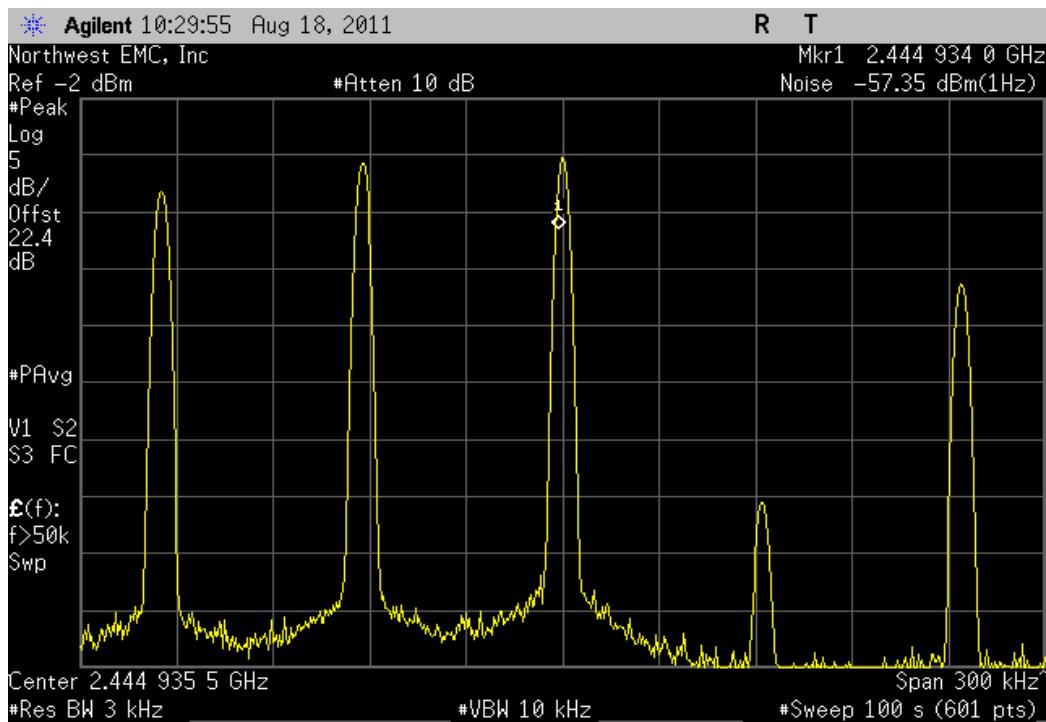
None

Configuration #	1	Signature	Value (dBm / Hz)	(dBm / Hz) To (dBm / 3 kHz)	Value (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Result
Channel							
Low, 11, 2405 MHz			-57.096	34.8	-22.296	8	Pass
Mid, 19, 2445 MHz			-57.347	34.8	-22.547	8	Pass
High, 26, 2480 MHz			-57.453	34.8	-22.653	8	Pass

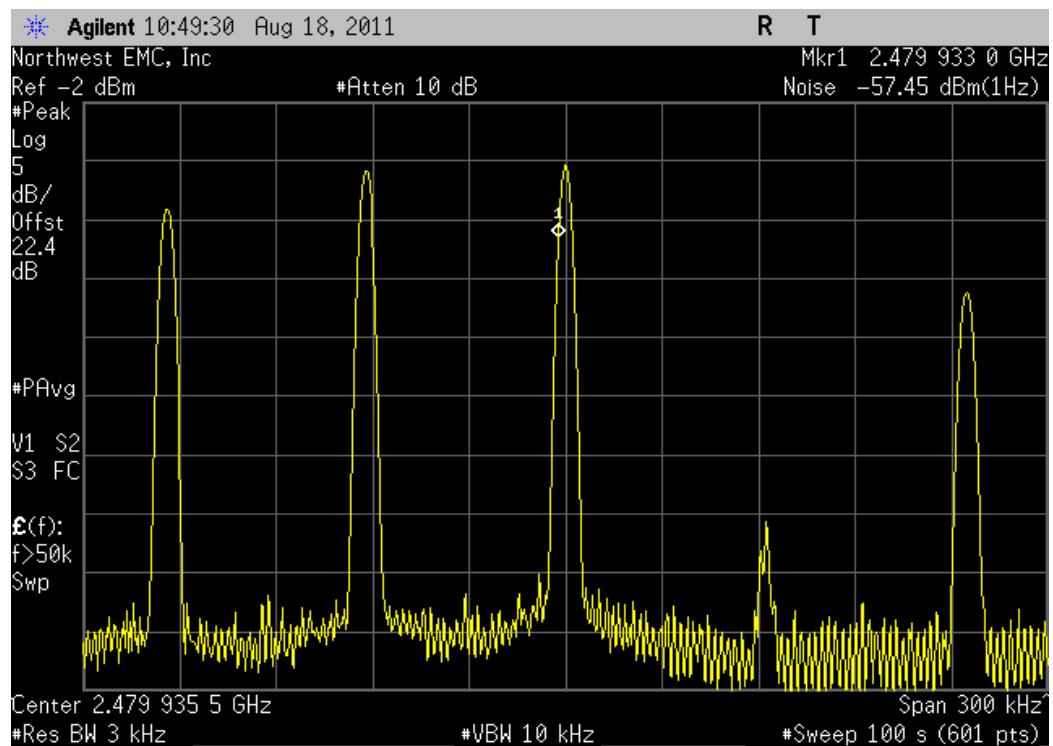
Low, 11, 2405 MHz					
	Value (dBm / Hz)	(dBm / Hz) To (dBm / 3 kHz)	Value (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Result
	-57.096	34.8	-22.296	8	Pass



Mid, 19, 2445 MHz					
	Value (dBm / Hz)	(dBm / Hz) To (dBm / 3 kHz)	Value (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Result
	-57.347	34.8	-22.547	8	Pass



High, 26, 2480 MHz					
Value (dBm / Hz)	(dBm / Hz) To (dBm / 3 kHz)	Value (dBm / 3 kHz)	Limit (dBm / 3 kHz)	Result	
-57.453	34.8	-22.653	8	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.

#### MODES OF OPERATION

Transmitting 'Continous' mode with modulation

#### CHANNELS TESTED

Low, Channel 11 = 2405MHz  
Mid, Channel 19 = 2445MHz  
High, Channel 26 = 2480MHz

#### POWER SETTINGS INVESTIGATED

120VAC/60Hz

#### FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	25 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
Spectrum Analyzer	Agilent	E4446A	AAQ	6/24/2011	12
High Pass Filter	Micro-Tronics	HPM50111	HFO	8/9/2010	24
Pre-Amplifier	Miteq	AM-1616-1000	AOL	6/28/2011	12
Antenna, Bilog	Teseq	CBL 6141B	AXR	11/29/2010	12
EV01 Cables	N/A	Bilog Cables	EVA	6/28/2011	12
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	6/28/2011	12
Antenna, Horn	ETS	3115	AIZ	1/24/2011	24
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/28/2011	12
EV01 Cables	N/A	Standard Gain Horns Cables	EVF	3/2/2011	12
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	3/2/2011	12
Antenna, Horn	ETS	3160-07	AHU	NCR	0
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	3/2/2011	12
Antenna, Horn	ETS	3160-08	AHV	NCR	0
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/15/2010	12
Cable	ESM Cable Corp.	KMKG-72	EVY	9/15/2010	12

#### 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

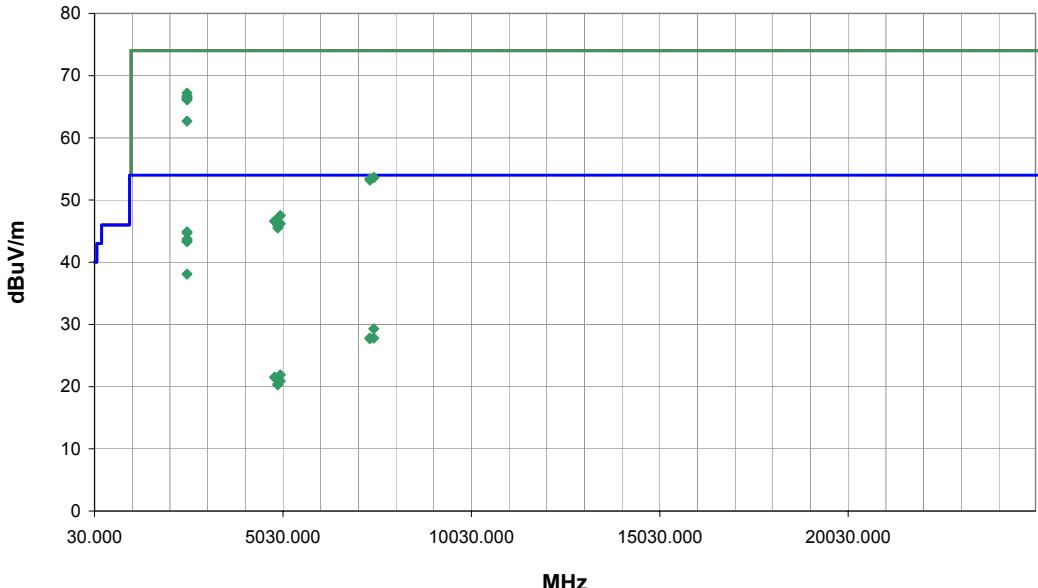
Measurements were made using the bandwidths and detectors specified. No video filter was used.

#### MEASUREMENT UNCERTAINTY

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. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

#### 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, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.10:2009). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

Spurious Radiated Emissions												PSA 2011.05.11 EMI 2008.1.9			
EMC						TEST SPECIFICATIONS						TEST METHOD			
EUT: Modlet TE1010 Serial Number: 804F580000100A15 Customer: ThinkEco, Inc. Attendees: None Project: None Tested by: Rod Peloquin						Work Order: THKE0005 Date: 08/19/11 Temperature: 24°C Humidity: 45% Barometric Pres.: 30.3 in						Job Site: EV01			
FCC 15.247:2011						ANSI C63.10:2009									
TEST PARAMETERS															
Antenna Height(s) (m)			1 - 4			Test Distance (m)			3						
COMMENTS															
None															
EUT OPERATING MODES															
Transmitting 'Continuous' mode with modulation															
DEVIATIONS FROM TEST STANDARD															
No deviations.															
Run #	1														
Configuration #	2														
Results	Pass														
															
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments		
2483.515	44.9	2.3	177.0	1.2	0.0	20.0	H-Horn	PK	0.0	67.2	74.0	-6.8	High Channel, EUT vertical		
2483.590	44.4	2.3	343.0	1.2	0.0	20.0	H-Horn	PK	0.0	66.7	74.0	-7.3	High Channel, EUT on back		
2483.527	44.2	2.3	188.0	1.0	0.0	20.0	H-Horn	PK	0.0	66.5	74.0	-7.5	High Channel, EUT on side		
2483.520	44.0	2.3	320.0	1.2	0.0	20.0	V-Horn	PK	0.0	66.3	74.0	-7.7	High Channel, EUT vertical		
2483.608	43.8	2.3	34.0	1.0	0.0	20.0	V-Horn	PK	0.0	66.1	74.0	-7.9	High Channel, EUT on side		
2483.500	35.1	2.3	345.0	1.2	-12.5	20.0	H-Horn	AV	0.0	44.9	54.0	-9.1	High Channel, EUT on back		
2483.500	34.9	2.3	177.0	1.2	-12.5	20.0	H-Horn	AV	0.0	44.7	54.0	-9.3	High Channel, EUT vertical		
2483.500	33.9	2.3	188.0	1.0	-12.5	20.0	H-Horn	AV	0.0	43.7	54.0	-10.3	High Channel, EUT on side		
2483.500	33.6	2.3	320.0	1.2	-12.5	20.0	V-Horn	AV	0.0	43.4	54.0	-10.6	High Channel, EUT vertical		
2483.500	33.5	2.3	34.0	1.0	-12.5	20.0	V-Horn	AV	0.0	43.3	54.0	-10.7	High Channel, EUT on side		
2483.708	40.4	2.3	283.0	1.0	0.0	20.0	V-Horn	PK	0.0	62.7	74.0	-11.3	High Channel, EUT on back		
2483.500	28.3	2.3	283.0	1.0	-12.5	20.0	V-Horn	AV	0.0	38.1	54.0	-15.9	High Channel, EUT on back		
7439.007	36.9	16.7	286.0	1.0	0.0	0.0	H-Horn	PK	0.0	53.6	74.0	-20.4	High Channel, EUT vertical		
7439.613	36.9	16.7	201.0	1.4	0.0	0.0	H-Horn	PK	0.0	53.6	74.0	-20.4	High Channel, EUT vertical		
7334.553	36.8	16.6	91.0	2.1	0.0	0.0	H-Horn	PK	0.0	53.4	74.0	-20.6	Mid Channel, EUT vertical		
7336.000	36.6	16.6	137.0	1.0	0.0	0.0	V-Horn	PK	0.0	53.2	74.0	-20.8	Mid Channel, EUT vertical		
7438.550	25.1	16.7	286.0	1.0	-12.5	0.0	V-Horn	AV	0.0	29.3	54.0	-24.7	High Channel, EUT vertical		
7333.943	23.7	16.6	137.0	1.0	-12.5	0.0	V-Horn	AV	0.0	27.8	54.0	-26.2	Mid Channel, EUT vertical		
7440.567	23.6	16.7	201.0	1.4	-12.5	0.0	H-Horn	AV	0.0	27.8	54.0	-26.2	High Channel, EUT vertical		
7335.503	23.6	16.6	91.0	2.1	-12.5	0.0	H-Horn	AV	0.0	27.7	54.0	-26.3	Mid Channel, EUT vertical		
4959.653	38.0	9.5	199.0	1.0	0.0	0.0	H-Horn	PK	0.0	47.5	74.0	-26.5	High Channel, EUT vertical		
4809.503	37.2	9.4	214.0	1.0	0.0	0.0	H-Horn	PK	0.0	46.6	74.0	-27.4	Low Channel, EUT vertical		
4809.967	37.2	9.4	360.0	1.5	0.0	0.0	V-Horn	PK	0.0	46.6	74.0	-27.4	Low Channel, EUT vertical		
4960.037	36.7	9.5	146.0	1.0	0.0	0.0	V-Horn	PK	0.0	46.2	74.0	-27.8	High Channel, EUT vertical		
4889.370	36.6	9.4	7.0	1.0	0.0	0.0	H-Horn	PK	0.0	46.0	74.0	-28.0	Mid Channel, EUT vertical		
4890.663	36.1	9.4	7.0	1.0	0.0	0.0	V-Horn	PK	0.0	45.5	74.0	-28.5	Mid Channel, EUT vertical		
4959.777	24.9	9.5	199.0	1.0	-12.5	0.0	H-Horn	AV	0.0	21.9	54.0	-32.1	High Channel, EUT vertical		
4809.950	24.6	9.4	214.0	1.0	-12.5	0.0	H-Horn	AV	0.0	21.5	54.0	-32.5	Low Channel, EUT vertical		
4810.020	24.6	9.4	360.0	1.5	-12.5	0.0	V-Horn	AV	0.0	21.5	54.0	-32.5	Low Channel, EUT vertical		
4959.890	23.9	9.5	146.0	1.0	-12.5	0.0	V-Horn	AV	0.0	20.9	54.0	-33.1	High Channel, EUT vertical		
4891.640	23.5	9.4	7.0	1.0	-12.5	0.0	H-Horn	AV	0.0	20.4	54.0	-33.6	Mid Channel, EUT vertical		
4890.140	23.4	9.4	7.0	1.0	-12.5	0.0	V-Horn	AV	0.0	20.3	54.0	-33.7	Mid Channel, EUT vertical		

**EMC****AC Powerline 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.

**MODES OF OPERATION**

Transmitting 'Continous' mode with modulation, high channel

Transmitting 'Continous' mode with modulation, mid channel

Transmitting 'Continous' mode with modulation, low channel

**POWER SETTINGS INVESTIGATED**

120VAC/60Hz

**CONFIGURATIONS INVESTIGATED**

THKE0005 - 2

**SAMPLE CALCULATIONS**

Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

**TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Interval
High Pass Filter	TTE	H97-100K-50-720B	HFX	2/9/2011	24 mo
Attenuator	Coaxicom	66702 2910-20	ATO	7/20/2011	12 mo
EV07 Cables	N/A	Conducted Cables	EVG	6/17/2011	12 mo
LISN	Solar	9252-50-R-24-BNC	LIR	2/17/2011	12 mo
Receiver	Rohde & Schwarz	ESCI	ARH	3/30/2011	12 mo

**MEASUREMENT BANDWIDTHS**

	Frequency Range	Peak Data	Quasi-Peak Data	Average Data
	(MHz)	(kHz)	(kHz)	(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

Measurements were made using the bandwidths and detectors specified. No video filter was used.

**MEASUREMENT UNCERTAINTY**

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 for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are available upon request.

**TEST DESCRIPTION**

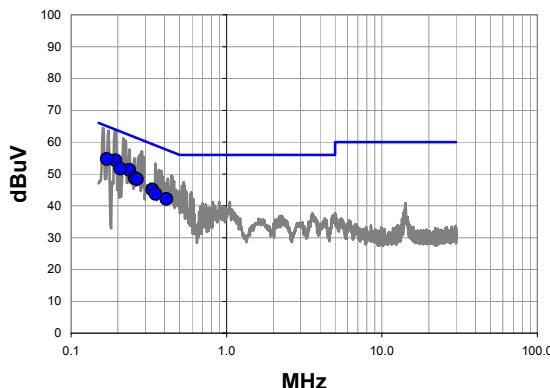
The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band. The EUT was transmitting at its only data rate available. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.10-2009.

Work Order:	THKE0005	Date:	08/22/11	
Project:	None	Temperature:	24.34 °C	
Job Site:	EV07	Humidity:	47.58% RH	
Serial Number:	804F580000100A15	Barometric Pres.:	1016 mbar	
				<i>Kyle Holgate</i>
EUT:	Modlet TE1010			Tested by: Kyle Holgate
Configuration:	2			
Customer:	ThinkEco, Inc.			
Attendees:	None			
EUT Power:	120VAC/60Hz			
Operating Mode:	Transmitting 'Continous' mode with modulation, low channel			
Deviations:	None			
Comments:	None			

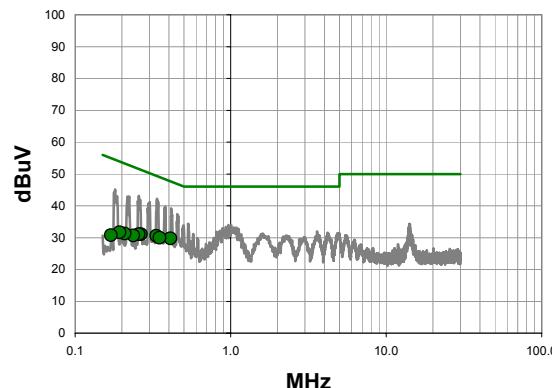
Test Specifications  
FCC 15.207:2011Test Method  
ANSI C63.10:2009

Run # 1 Line: High Line Ext. Attenuation: 20 Results: Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

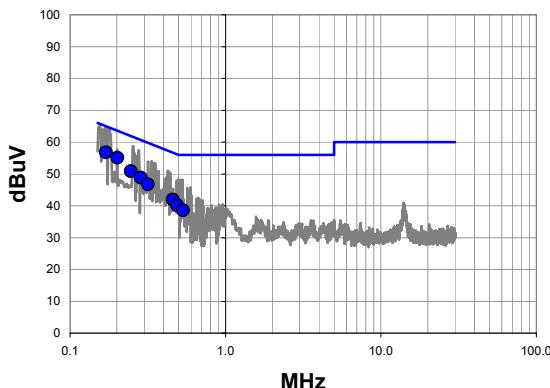
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.193	34.2	20.1	54.3	63.9	-9.6
0.170	34.6	20.1	54.7	65.0	-10.3
0.237	31.2	20.1	51.3	62.2	-10.9
0.208	31.6	20.1	51.7	63.3	-11.6
0.257	28.6	20.1	48.7	61.5	-12.8
0.266	28.2	20.1	48.3	61.2	-12.9
0.333	24.9	20.1	45.0	59.4	-14.4
0.349	23.6	20.1	43.7	59.0	-15.3
0.411	22.0	20.1	42.1	57.6	-15.5

Average Data - vs - Average Limit

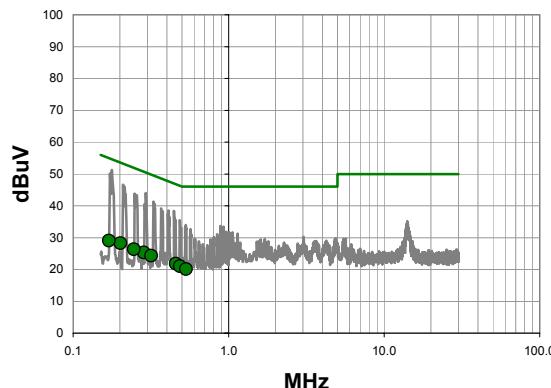
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.411	9.6	20.1	29.7	47.6	-17.9
0.333	10.5	20.1	30.6	49.4	-18.8
0.349	9.8	20.1	29.9	49.0	-19.1
0.266	11.0	20.1	31.1	51.2	-20.1
0.257	11.0	20.1	31.1	51.5	-20.4
0.237	10.6	20.1	30.7	52.2	-21.5
0.208	11.2	20.1	31.3	53.3	-22.0
0.193	11.6	20.1	31.7	53.9	-22.2
0.170	10.7	20.1	30.8	55.0	-24.2

Work Order:	THKE0005	Date:	08/22/11	
Project:	None	Temperature:	24.34 °C	
Job Site:	EV07	Humidity:	47.58% RH	
Serial Number:	804F580000100A15	Barometric Pres.:	1016 mbar	
EUT:	Modlet TE1010			<i>Kyle Holgate</i>
Configuration:	2			
Customer:	ThinkEco, Inc.			
Attendees:	None			
EUT Power:	120VAC/60Hz			
Operating Mode:	Transmitting 'Continous' mode with modulation, low channel			
Deviations:	None			
Comments:	None			
Test Specifications	FCC 15.207:2011	Test Method	ANSI C63.10:2009	
Run #	2	Line:	Neutral	Ext. Attenuation: 20
				Results: Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.170	36.7	20.1	56.8	65.0	-8.2
0.202	35.0	20.1	55.1	63.5	-8.4
0.246	30.8	20.1	50.9	61.9	-11.0
0.285	28.7	20.1	48.8	60.7	-11.9
0.317	26.6	20.1	46.7	59.8	-13.1
0.458	21.8	20.1	41.9	56.7	-14.8
0.487	20.1	20.1	40.2	56.2	-16.0
0.533	18.5	20.1	38.6	56.0	-17.4

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.458	1.7	20.1	21.8	46.7	-24.9
0.487	0.9	20.1	21.0	46.2	-25.2
0.202	8.1	20.1	28.2	53.5	-25.3
0.285	5.2	20.1	25.3	50.7	-25.4
0.317	4.2	20.1	24.3	49.8	-25.5
0.246	6.2	20.1	26.3	51.9	-25.6
0.533	0.0	20.1	20.1	46.0	-25.9
0.170	8.9	20.1	29.0	55.0	-26.0

Work Order:	THKE0005	Date:	08/22/11	
Project:	None	Temperature:	24.34 °C	
Job Site:	EV07	Humidity:	47.58% RH	
Serial Number:	804F580000100A15	Barometric Pres.:	1016 mbar	
EUT:	Modlet TE1010			<i>Kyle Holgate</i>
Configuration:	2			
Customer:	ThinkEco, Inc.			
Attendees:	None			
EUT Power:	120VAC/60Hz			
Operating Mode:	Transmitting 'Continous' mode with modulation, mid channel			
Deviations:	None			
Comments:	None			

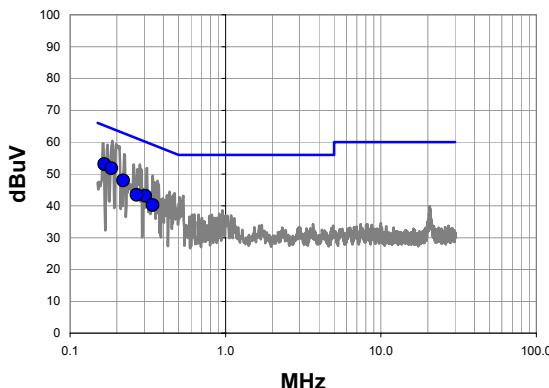
  

Test Specifications	Test Method
FCC 15.207:2011	ANSI C63.10:2009

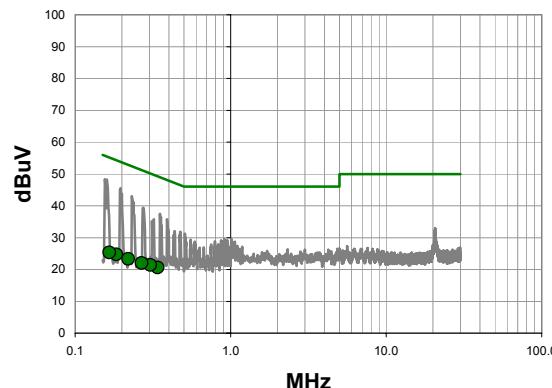
  

Run #	3	Line:	Neutral	Ext. Attenuation:	20	Results	Pass
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Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.166	33.0	20.1	53.1	65.2	-12.1
0.184	31.7	20.1	51.8	64.3	-12.5
0.220	27.8	20.1	47.9	62.8	-14.9
0.304	23.0	20.1	43.1	60.1	-17.0
0.268	23.3	20.1	43.4	61.2	-17.8
0.339	20.1	20.1	40.2	59.2	-19.0

Average Data - vs - Average Limit

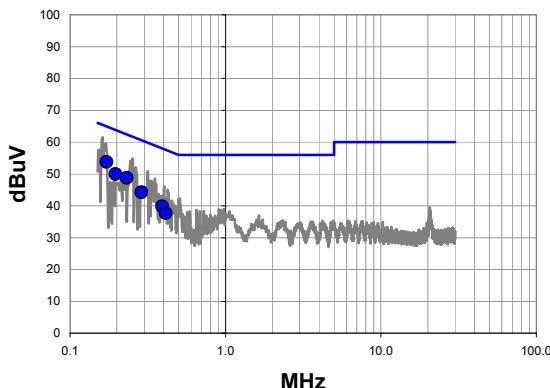
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.339	0.5	20.1	20.6	49.2	-28.6
0.304	1.3	20.1	21.4	50.1	-28.7
0.268	1.9	20.1	22.0	51.2	-29.2
0.220	3.2	20.1	23.3	52.8	-29.5
0.184	4.6	20.1	24.7	54.3	-29.6
0.166	5.2	20.1	25.3	55.2	-29.9

Work Order:	THKE0005	Date:	08/22/11	
Project:	None	Temperature:	24.34 °C	
Job Site:	EV07	Humidity:	47.58% RH	
Serial Number:	804F580000100A15	Barometric Pres.:	1016 mbar	Tested by: Kyle Holgate
EUT:	Modlet TE1010			
Configuration:	2			
Customer:	ThinkEco, Inc.			
Attendees:	None			
EUT Power:	120VAC/60Hz			
Operating Mode:	Transmitting 'Continous' mode with modulation, mid channel			
Deviations:	None			
Comments:	None			

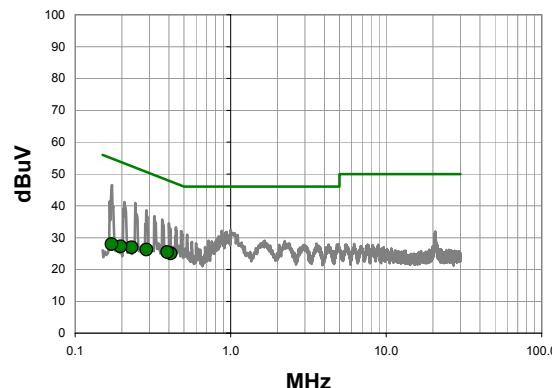
Test Specifications  
FCC 15.207:2011Test Method  
ANSI C63.10:2009

Run # 4 Line: High Line Ext. Attenuation: 20 Results: Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.172	33.7	20.1	53.8	64.9	-11.1
0.231	28.6	20.1	48.7	62.4	-13.7
0.196	29.8	20.1	49.9	63.8	-13.9
0.288	24.1	20.1	44.2	60.6	-16.4
0.391	19.7	20.1	39.8	58.0	-18.2
0.412	17.6	20.1	37.7	57.6	-19.9

Average Data - vs - Average Limit

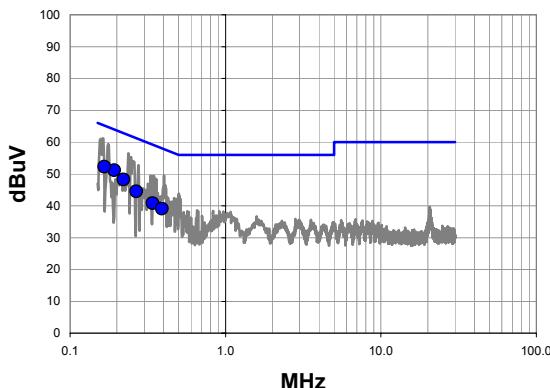
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.412	4.9	20.1	25.0	47.6	-22.6
0.391	5.3	20.1	25.4	48.0	-22.6
0.288	6.1	20.1	26.2	50.6	-24.4
0.231	6.8	20.1	26.9	52.4	-25.5
0.196	7.1	20.1	27.2	53.8	-26.6
0.172	7.8	20.1	27.9	54.9	-27.0

Work Order:	THKE0005	Date:	08/22/11	
Project:	None	Temperature:	24.34 °C	
Job Site:	EV07	Humidity:	47.58% RH	
Serial Number:	804F580000100A15	Barometric Pres.:	1016 mbar	Tested by: Kyle Holgate
EUT:	Modlet TE1010			
Configuration:	2			
Customer:	ThinkEco, Inc.			
Attendees:	None			
EUT Power:	120VAC/60Hz			
Operating Mode:	Transmitting 'Continous' mode with modulation, high channel			
Deviations:	None			
Comments:	None			

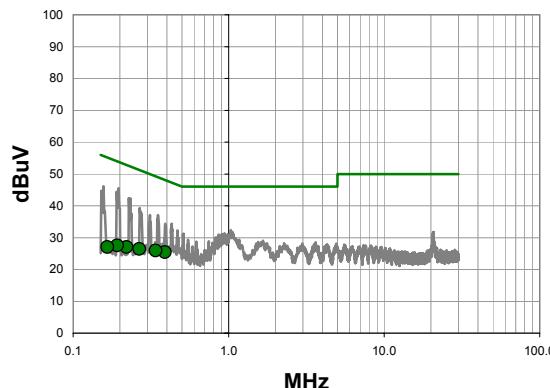
Test Specifications  
FCC 15.207:2011Test Method  
ANSI C63.10:2009

Run # 5 Line: High Line Ext. Attenuation: 20 Results: Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

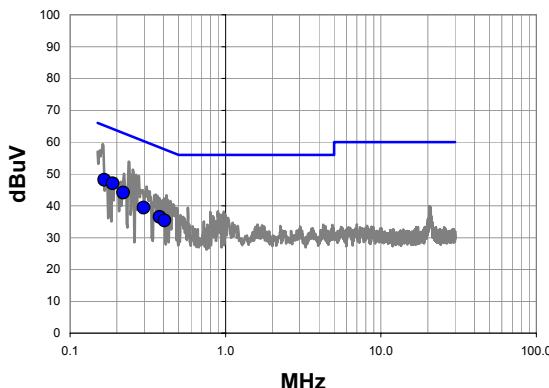
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.192	31.1	20.1	51.2	63.9	-12.7
0.166	32.2	20.1	52.3	65.2	-12.9
0.221	28.1	20.1	48.2	62.8	-14.6
0.267	24.4	20.1	44.5	61.2	-16.7
0.339	20.7	20.1	40.8	59.2	-18.4
0.390	19.0	20.1	39.1	58.1	-19.0

Average Data - vs - Average Limit

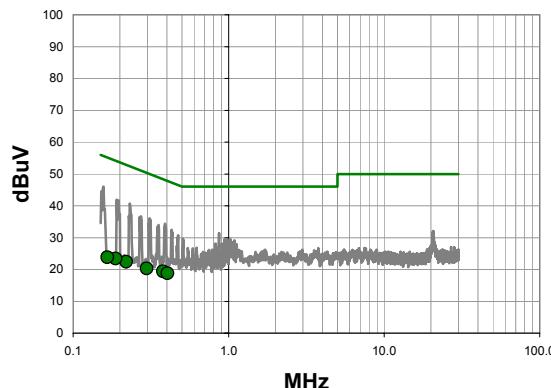
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.390	5.3	20.1	25.4	48.1	-22.7
0.339	5.8	20.1	25.9	49.2	-23.3
0.267	6.3	20.1	26.4	51.2	-24.8
0.221	6.9	20.1	27.0	52.8	-25.8
0.192	7.4	20.1	27.5	53.9	-26.4
0.166	6.9	20.1	27.0	55.2	-28.2

Work Order:	THKE0005	Date:	08/22/11	
Project:	None	Temperature:	24.34 °C	
Job Site:	EV07	Humidity:	47.58% RH	
Serial Number:	804F580000100A15	Barometric Pres.:	1016 mbar	Tested by: Kyle Holgate
EUT:	Modlet TE1010			
Configuration:	2			
Customer:	ThinkEco, Inc.			
Attendees:	None			
EUT Power:	120VAC/60Hz			
Operating Mode:	Transmitting 'Continous' mode with modulation, high channel			
Deviations:	None			
Comments:	None			
Test Specifications		Test Method		
FCC 15.207:2011		ANSI C63.10:2009		
Run #	6	Line:	Neutral	Ext. Attenuation: 20
				Results: Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.166	28.0	20.1	48.1	65.2	-17.1
0.188	26.9	20.1	47.0	64.1	-17.1
0.220	24.0	20.1	44.1	62.8	-18.7
0.298	19.3	20.1	39.4	60.3	-20.9
0.378	16.4	20.1	36.5	58.3	-21.8
0.405	15.3	20.1	35.4	57.8	-22.4

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.378	-0.7	20.1	19.4	48.3	-28.9
0.405	-1.3	20.1	18.8	47.8	-29.0
0.298	0.2	20.1	20.3	50.3	-30.0
0.220	2.3	20.1	22.4	52.8	-30.4
0.188	3.3	20.1	23.4	54.1	-30.7
0.166	3.7	20.1	23.8	55.2	-31.4