

ThinkEco, Inc.

Modlet TE1010

Report No. THKE0005

Report Prepared By



www.nwemc.com
1-888-EMI-CERT

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EMC Test Report



22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

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

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.

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.

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*)

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.

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).



Accreditations and Authorizations

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.*)

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).

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

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*)

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.

SCOPE

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

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



Northwest EMC Locations



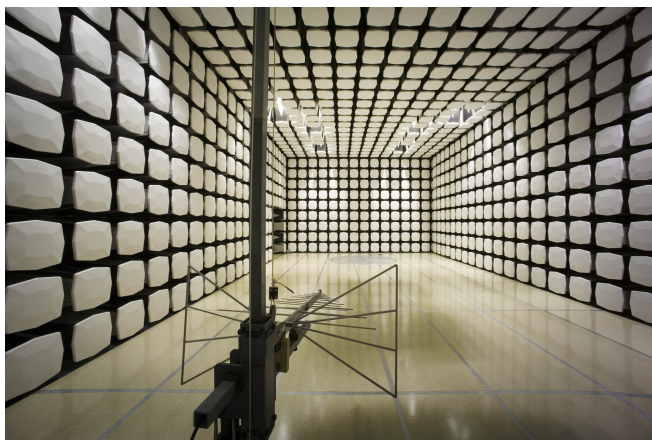
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

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 339th 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

| | |
|---------------------------------|----------------------------|
| Company Name: | ThinkEco, Inc. |
| Address: | 148 Madison Ave, 8th Floor |
| City, State, Zip: | New York, NY 10016 |
| Test Requested By: | Ben Burns |
| Model: | Modlet TE1010 |
| First Date of Test: | 8/18/2011 |
| Last Date of Test: | 8/22/2011 |
| Receipt Date of Samples: | 8/18/2011 |
| Equipment Design Stage: | Production |
| Equipment Condition: | 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

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

| Remote Equipment Outside of Test Setup Boundary | | | |
|--|---------------------|--------------------------|----------------------|
| Description | Manufacturer | Model/Part Number | Serial Number |
| PC for USB power | IBM | Thinkpad A21m | IS108 |

| Cables | | | | | |
|--|---------------|-------------------|----------------|---------------------|---------------------|
| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
| 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

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

| Cables | | | | | |
|--|---------------|-------------------|----------------|---------------------|---------------------|
| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
| 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. |

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:

$$20 \cdot \log[(9 \times 2.625) / 100] = -12.5 \text{ dB}$$

Duty Cycle

EMC

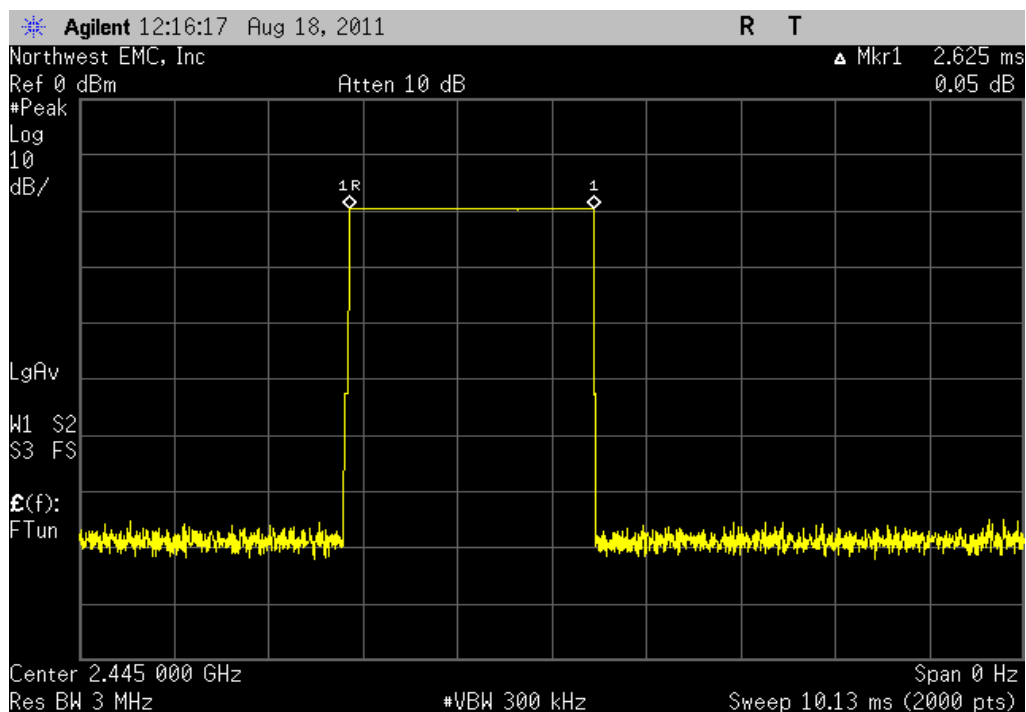
| | | | |
|--|---|---|-------|
| EUT: Modlet TE1010 | | Work Order: THKE0005 | |
| Serial Number: 804F580000100A19 | | Date: 08/18/11 | |
| Customer: ThinkEco, Inc. | | Temperature: 22.6°C | |
| Attendees: Bryan Takata | | Humidity: 48% | |
| Project: None | | Barometric Pres.: 30.3 in | |
| Tested by: 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  | |
| | | Value | Limit |
| Typical pulse width | | 6.25 ms | N/A |
| 100 ms Period | | 9 Pulses | N/A |
| | | Results | N/A |

Typical pulse width

Result: N/A

Value: 6.25 ms

Limit: N/A

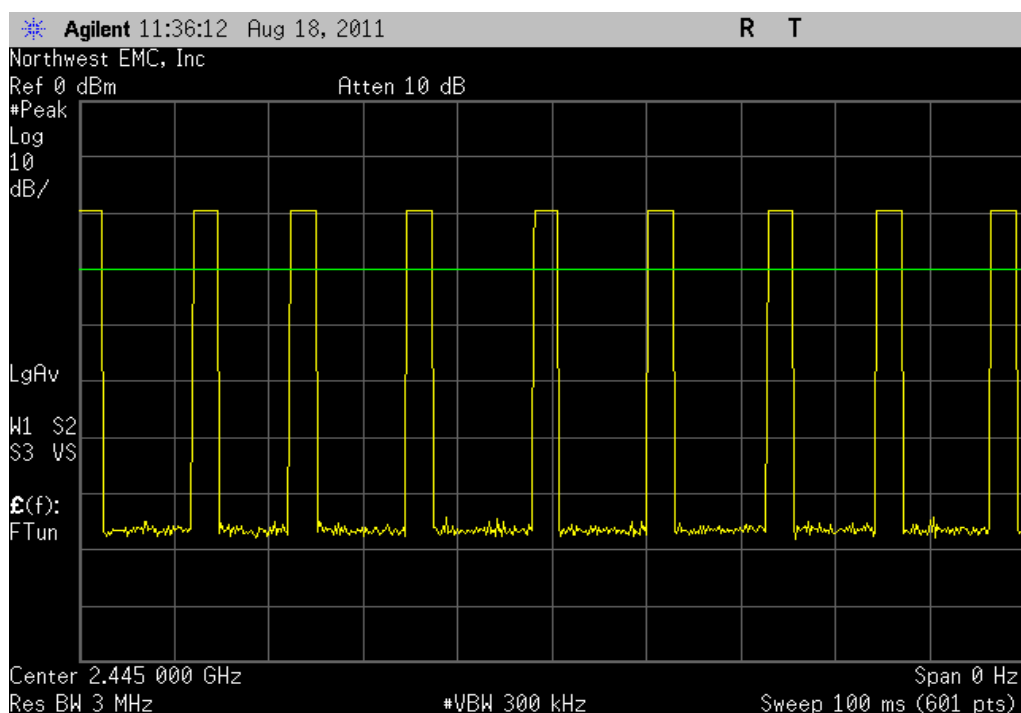


100 ms Period

Result: N/A

Value: 9 Pulses

Limit: N/A



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.

| | | | | | | | | | | | |
|--|--|---------------------|--|---|--|-------------------------------------|--|-----------|--|--------|--|
| NORTHWEST | | EMC | | Occupied Bandwidth | | XMit 2011.08.04 PsaTx 2011.08.04 | | | | | |
| EUT: Modlet TE1010 | | | | Work Order: THKE0005 | | | | | | | |
| Serial Number: 804F580000100A19 | | | | Date: 08/18/11 | | | | | | | |
| Customer: ThinkEco, Inc. | | | | Temperature: 22.6°C | | | | | | | |
| Attendees: Bryan Takata | | | | HuMid, 19, 2445 MHzity: 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 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 | | | | | | 1.468 MHz | | > 500 kHz | | Pass | |
| Mid, 19, 2445 MHz | | | | | | 1.454 MHz | | > 500 kHz | | Pass | |
| High, 26, 2480 MHz | | | | | | 1.473 MHz | | > 500 kHz | | Pass | |

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

| | Value | Limit | Result |
|--|-----------|-----------|--------|
| | 1.473 MHz | > 500 kHz | 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.

| 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

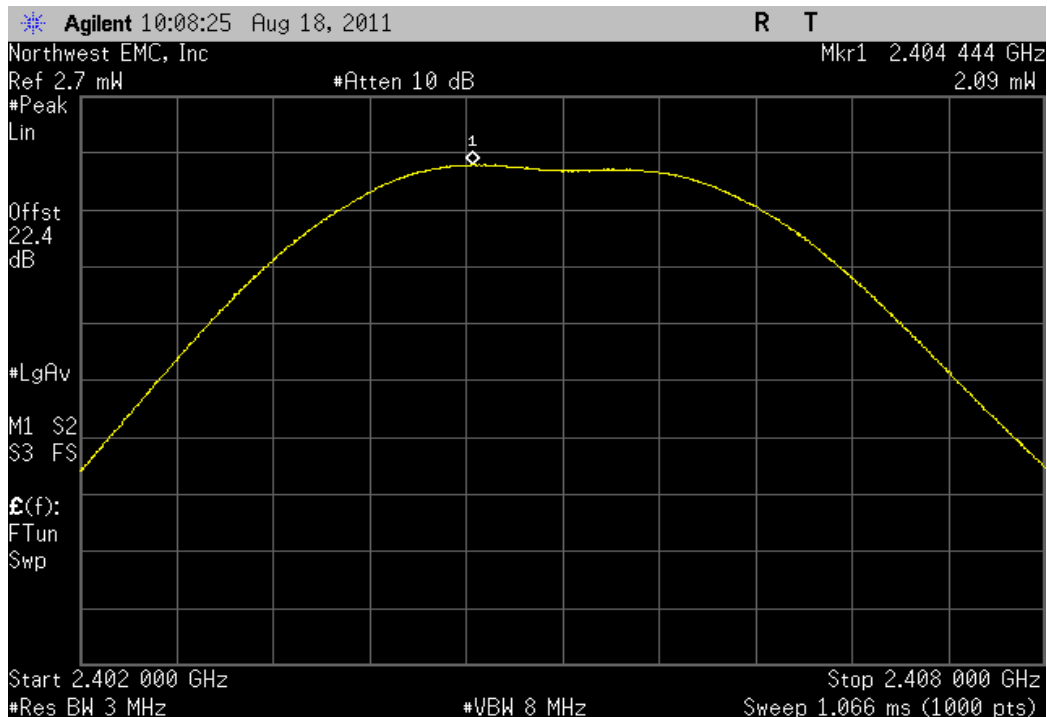
The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting at its only data rate available in a no hop mode.

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

| | | | | | |
|--|---|--|-------|-------------------------------------|--|
| NORTHWEST | | Output Power | | XMit 2011.08.04 PsaTx 2011.08.04 | |
| EMC | | | | | |
| 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 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 | |

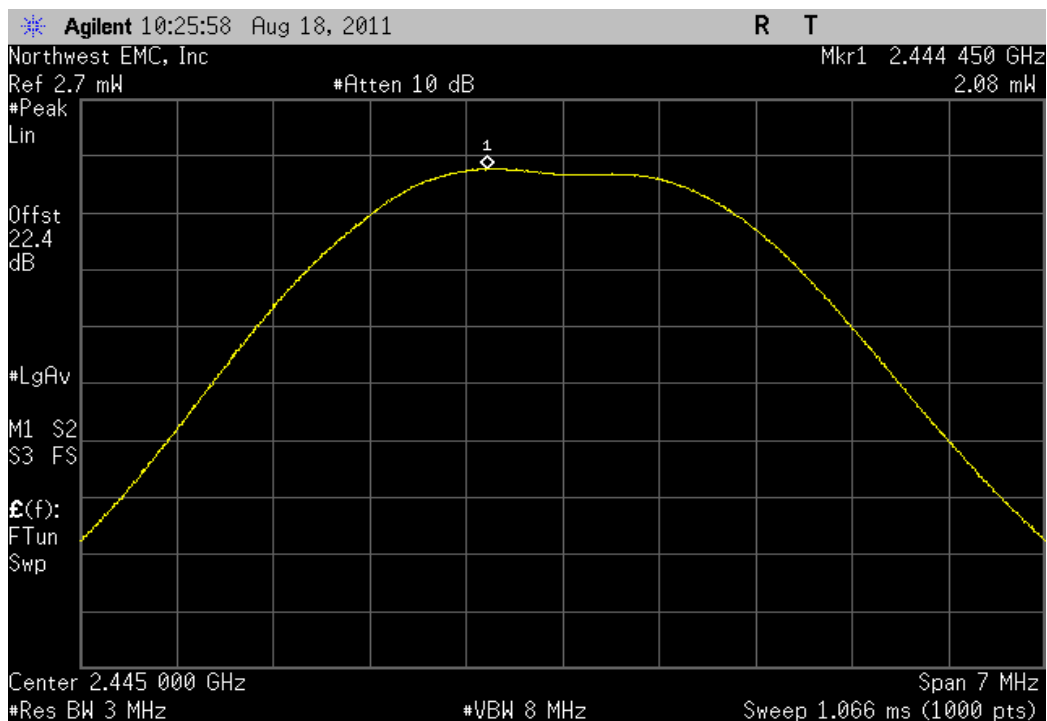
Low, 11, 2405 MHz

| | | | | Value | Limit | Result |
|--|--|--|--|----------|-------|--------|
| | | | | 2.087 mW | < 1 W | Pass |



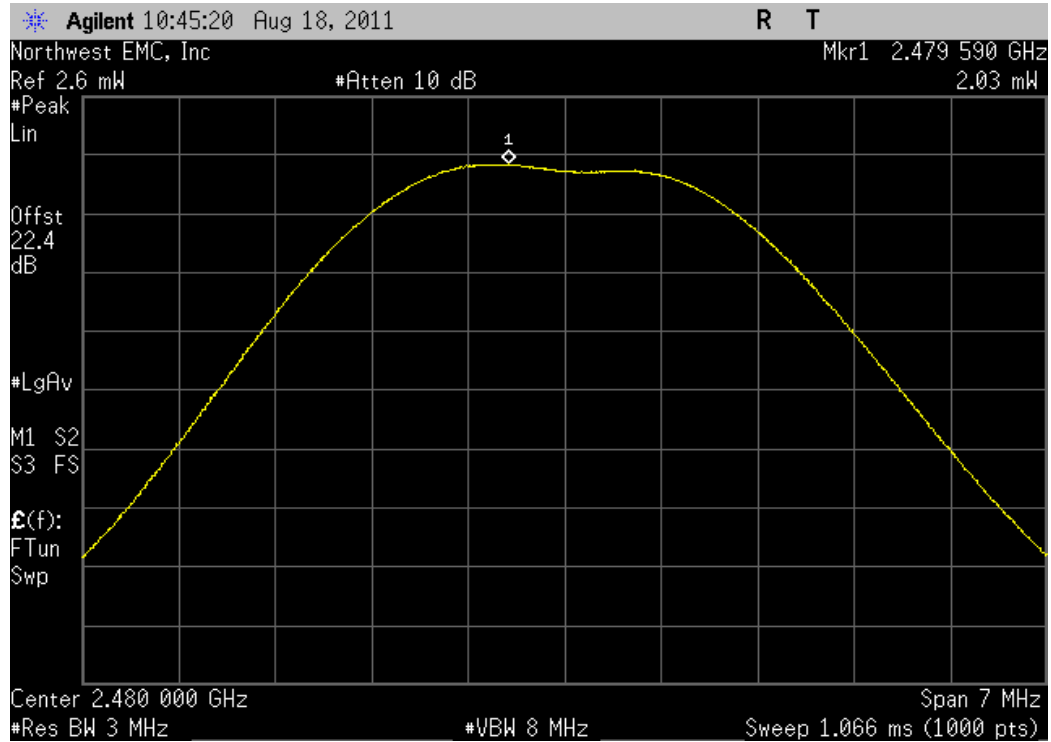
Mid, 19, 2445 MHz

| | | | | Value | Limit | Result |
|--|--|--|--|----------|-------|--------|
| | | | | 2.081 mW | < 1 W | Pass |



High, 26, 2480 MHz

| Value | Limit | Result |
|----------|-------|--------|
| 2.031 mW | < 1 W | 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.

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 |

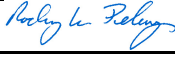
MEASUREMENT UNCERTAINTY

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

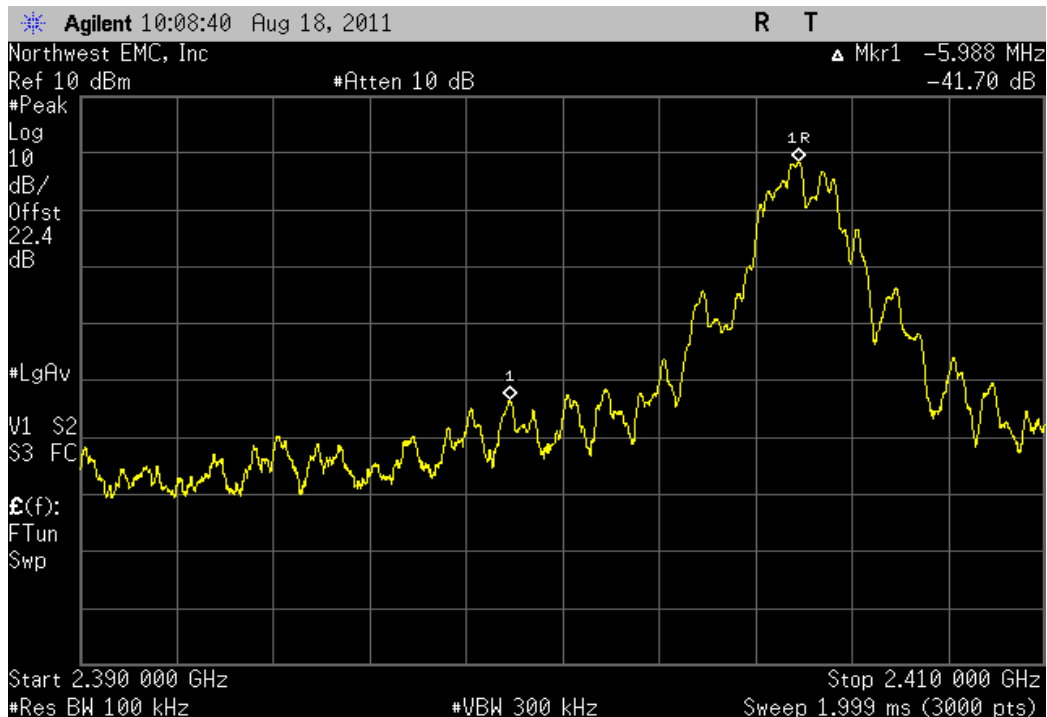
The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The measurement was made using a direct connection between the RF output of the EUT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

| | | | | | | | | |
|--|---|---|--|---------------------------|--|-------------------------------------|-----------|--------|
| NORTHWEST | | EMC | | Band Edge Compliance | | XMit 2011.08.04 PsaTx 2011.08.04 | | |
| 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 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 | | | | | | -41.7 dBc | ≤ -20 dBc | Pass |
| High, 26, 2480 MHz | | | | | | -39.66 dBc | ≤ -20 dBc | Pass |

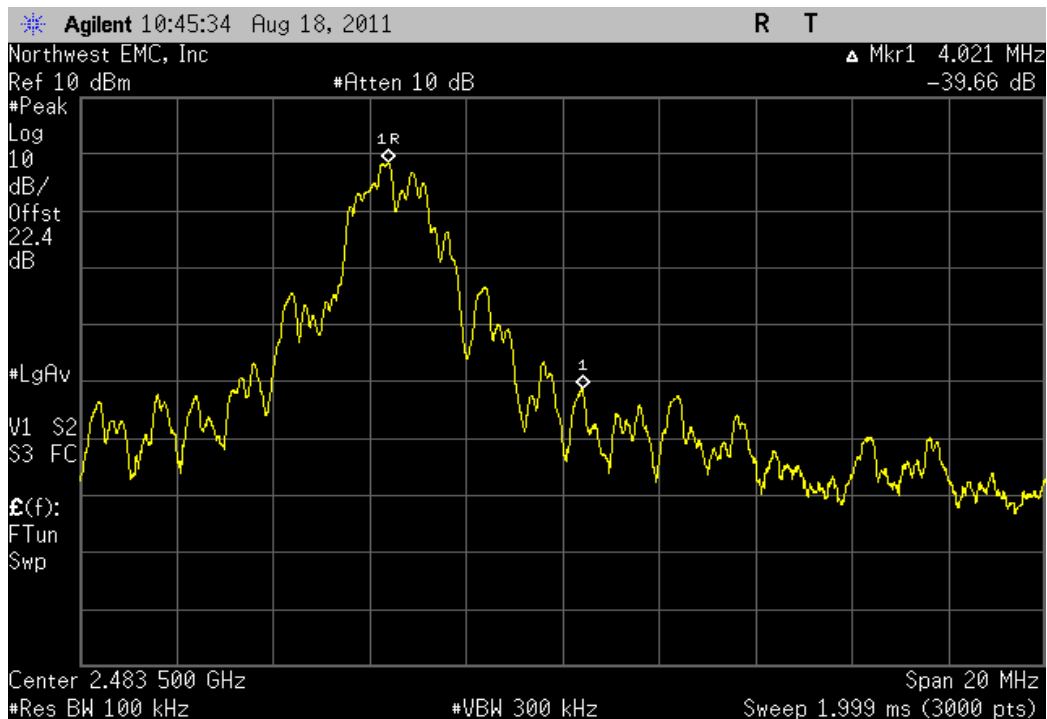
Low, 11, 2405 MHz

| | | | | Value | Limit | Result |
|--|--|--|--|-----------|-----------|--------|
| | | | | -41.7 dBc | ≤ -20 dBc | Pass |



High, 26, 2480 MHz

| | | | | Value | Limit | Result |
|--|--|--|--|------------|-----------|--------|
| | | | | -39.66 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.


| 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.

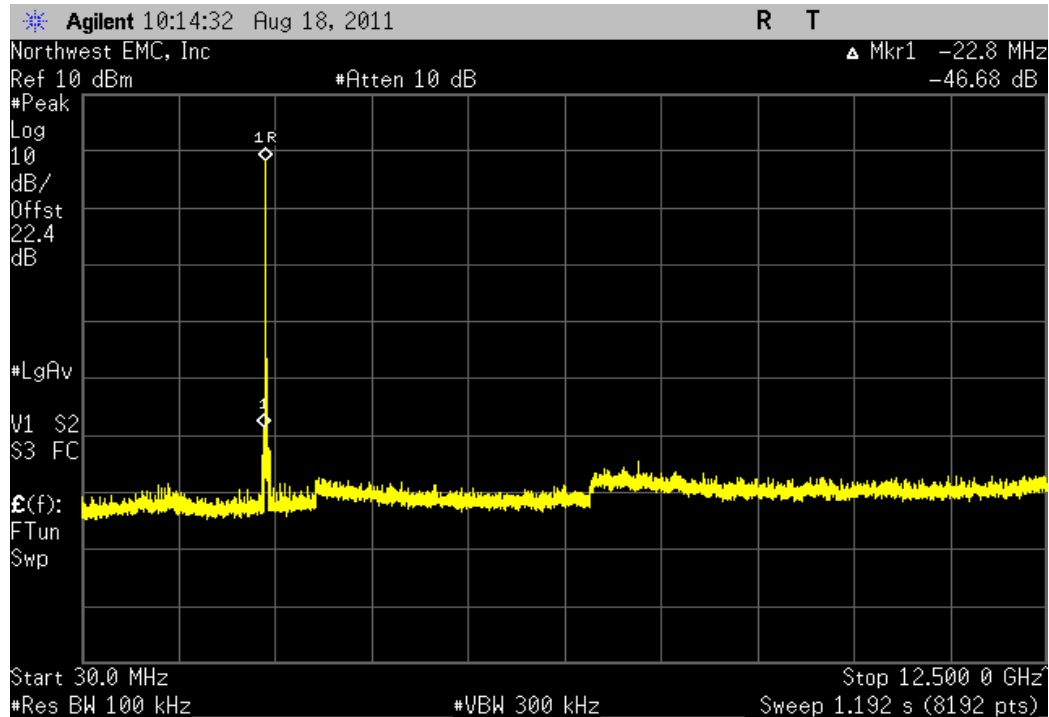
TEST DESCRIPTION

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.

| | | | | |
|--|-------------------|---|-----------|--------|
| NORTHWEST | | XMit 2011.08.04 | | |
| EMC | | Spurious Conducted Emissions | | |
| 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 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 | Frequency Range | Value | Limit | Result |
| 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 |

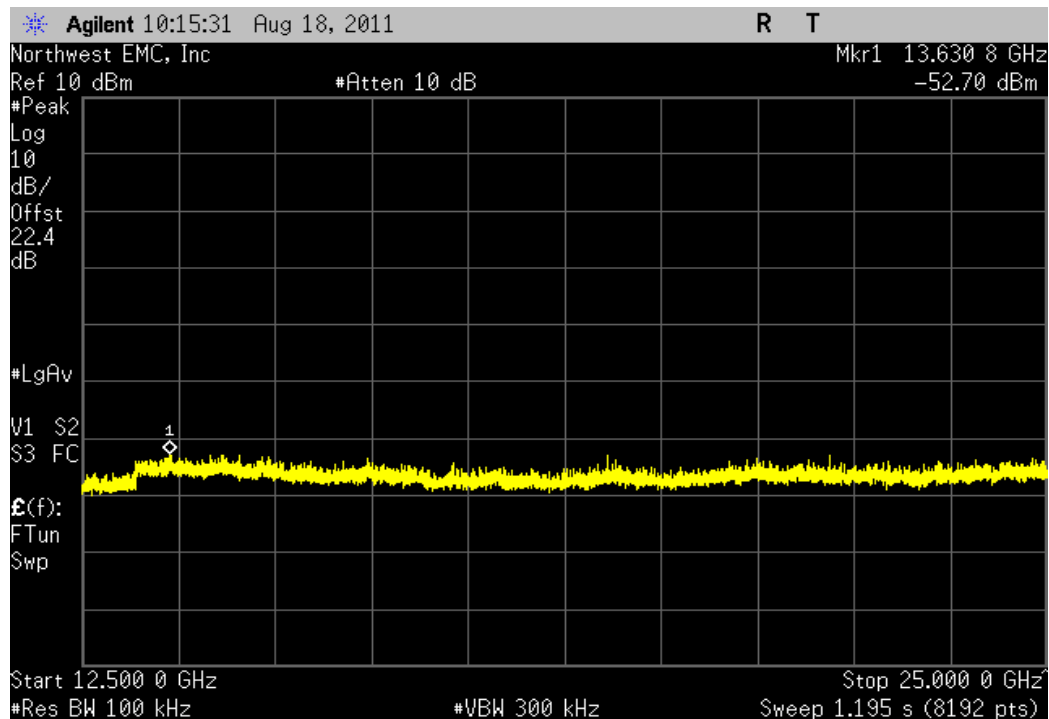
Low, 11, 2405 MHz

| Frequency Range | Value | Limit | Result |
|-------------------|------------|-----------|--------|
| 30 MHz - 12.5 GHz | -46.68 dBc | ≤ -20 dBc | Pass |



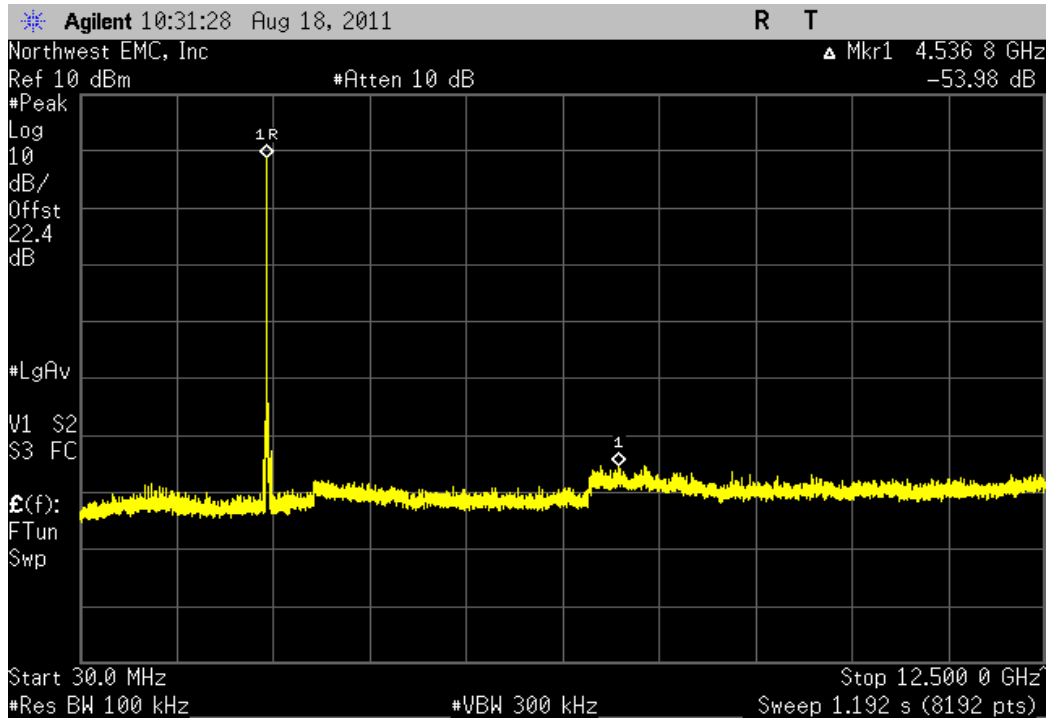
Low, 11, 2405 MHz

| Frequency Range | Value | Limit | Result |
|-------------------|---------|-----------|--------|
| 12.5 GHz - 25 GHz | -51 dBc | ≤ -20 dBc | Pass |



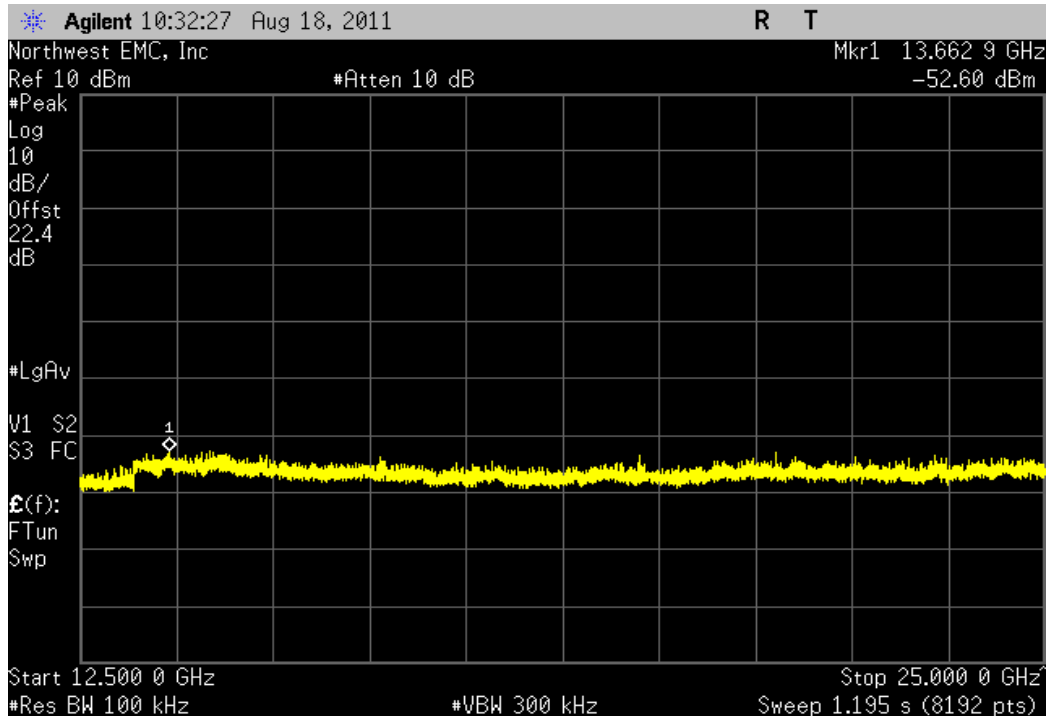
Mid, 19, 2445 MHz

| Frequency Range | Value | Limit | Result |
|-------------------|------------|-----------|--------|
| 30 MHz - 12.5 GHz | -53.98 dBc | ≤ -20 dBc | Pass |



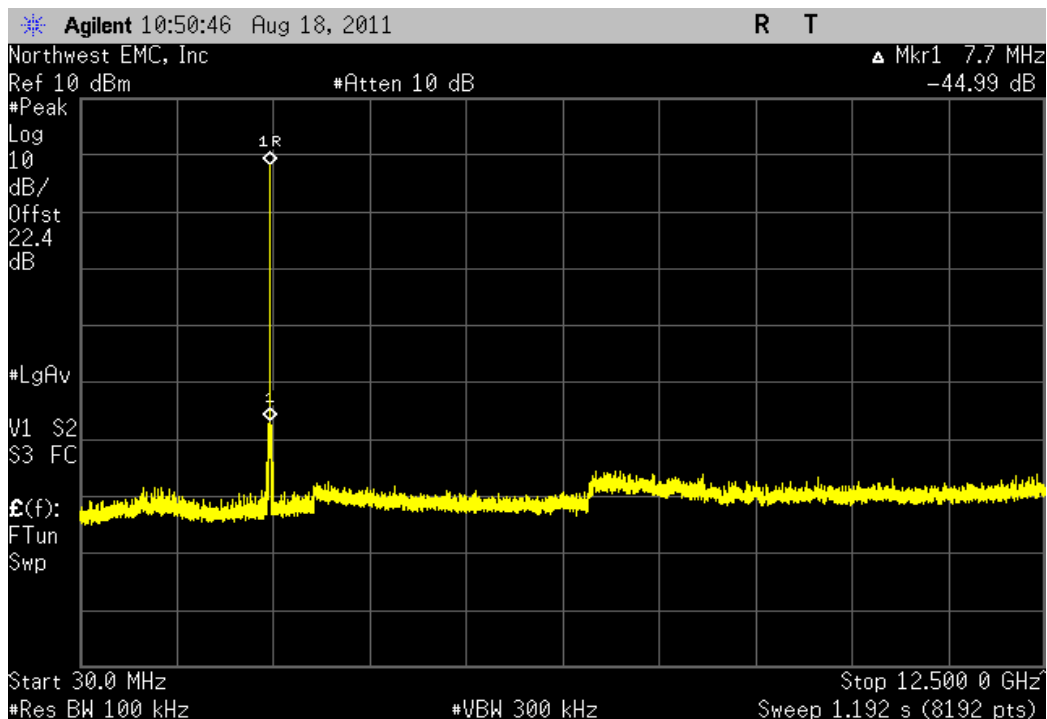
Mid, 19, 2445 MHz

| Frequency Range | Value | Limit | Result |
|-------------------|------------|-----------|--------|
| 12.5 GHz - 25 GHz | -51.27 dBc | ≤ -20 dBc | Pass |



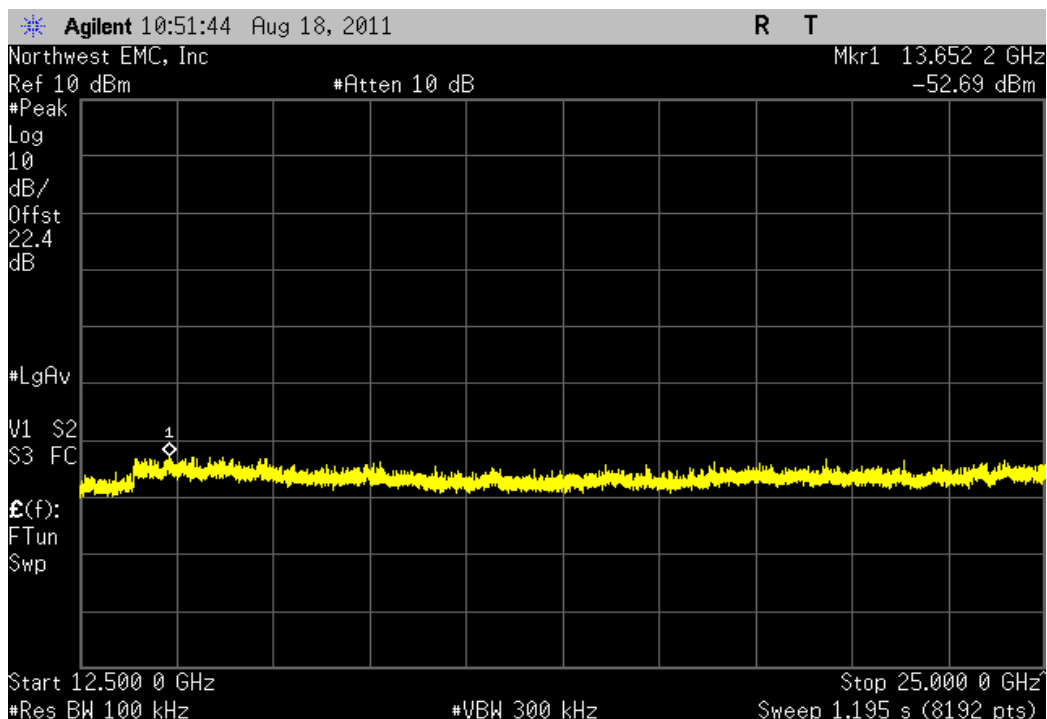
High, 26, 2480 MHz

| 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 |



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

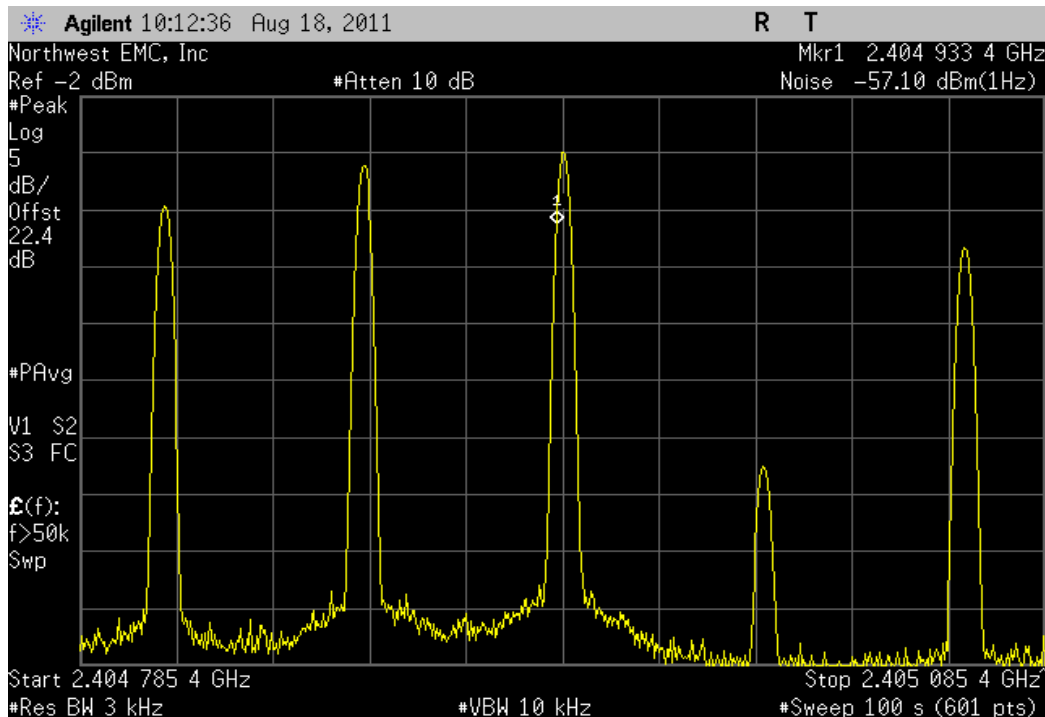
e) Trace set to MAX

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.

| | | | | | | |
|--|---|---|--------------------------------|-------------------------------------|------------------------|--------|
| NORTHWEST | | Power Spectral Density | | XMit 2011.08.04 PsaTx 2011.08.04 | | |
| EMC | | | | | | |
| EUT: Modlet TE1010 | | Work Order: THKE0005 | | | | |
| Serial Number: 804F580000100A19 | | Date: 08/18/11 | | | | |
| Customer: ThinkEco, Inc. | | Temperature: 22.6°C | | | | |
| Attendees: Bryan Takata | | HuMid, 19, 2445 MHzity: 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 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 (dBm / Hz) | (dBm / Hz) To (dBm / 3 kHz) | Value (dBm / 3 kHz) | Limit (dBm / 3 kHz) | Result |
| 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 |

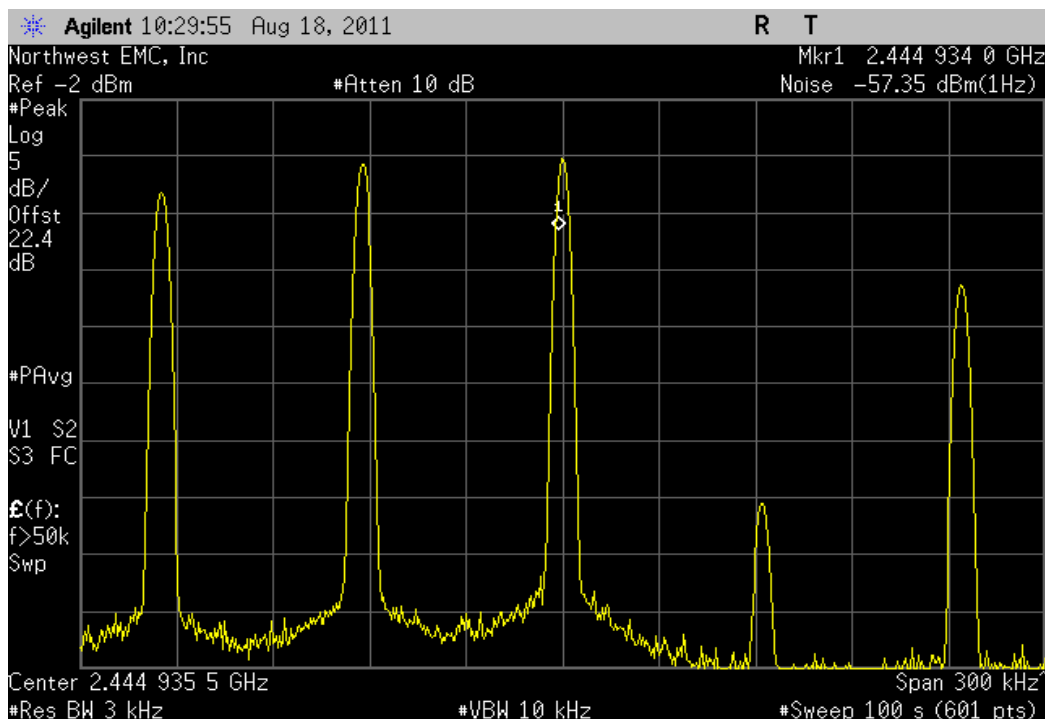
Low, 11, 2405 MHz

| Value (dBm / Hz) | To (dBm / 3 kHz) | Value (dBm / 3 kHz) | Limit (dBm / 3 kHz) | Result |
|---------------------|---------------------|------------------------|------------------------|--------|
| -57.096 | 34.8 | -22.296 | 8 | Pass |



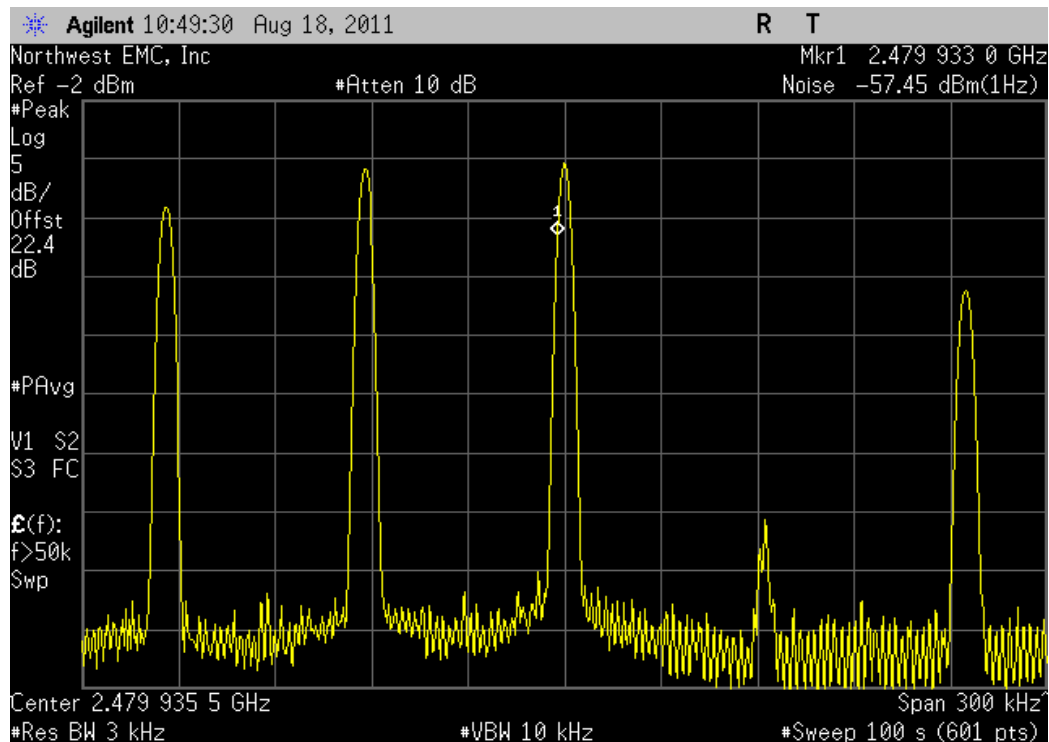
Mid, 19, 2445 MHz

| Value (dBm / Hz) | 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) | To | Value | Limit | Result |
|------------|---------------|---------------|---------------|---------------|--------|
| (dBm / Hz) | (dBm / 3 kHz) | (dBm / 3 kHz) | (dBm / 3 kHz) | (dBm / 3 kHz) | |
| -57.453 | 34.8 | -22.653 | 8 | Pass | |



Spurious Radiated Emissions

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Transmitting 'Continuous' 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 |
|-----------------|--------|----------------|--------|

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. | KMKM-72 | EVY | 9/15/2010 | 12 |

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. 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

| | |
|---------------------------------|---------------------------|
| EUT: Modlet TE1010 | Work Order: THKE0005 |
| Serial Number: 804F580000100A15 | Date: 08/19/11 |
| Customer: ThinkEco, Inc. | Temperature: 24°C |
| Attendees: None | Humidity: 45% |
| Project: None | Barometric Pres.: 30.3 in |
| Tested by: Rod Peloquin | Power: 120VAC/60Hz |
| | Job Site: EV01 |

TEST SPECIFICATIONS

FCC 15.247:2011

TEST METHOD

ANSI C63.10:2009

TEST PARAMETERS

| | | | |
|-----------------------|-------|-------------------|---|
| Antenna Height(s) (m) | 1 - 4 | Test Distance (m) | 3 |
|-----------------------|-------|-------------------|---|

COMMENTS

None

EUT OPERATING MODES

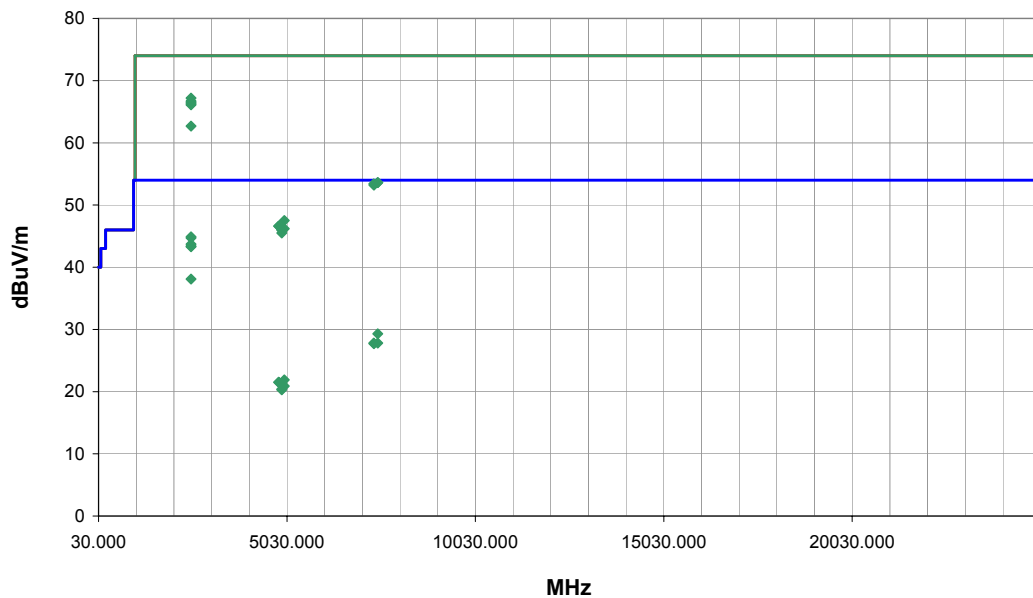
Transmitting 'Continuous' mode with modulation

DEVIATIONS FROM TEST STANDARD

No deviations.

| | |
|-----------------|------|
| Run # | 1 |
| Configuration # | 2 |
| Results | Pass |

Signature

| 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 | V-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 |

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 'Continuous' mode with modulation, high channel |
| Transmitting 'Continuous' mode with modulation, mid channel |
| Transmitting 'Continuous' 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

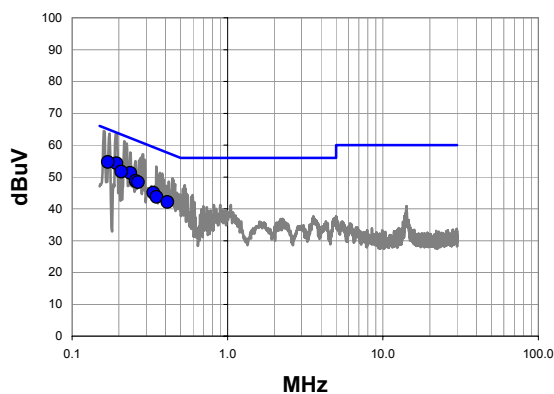
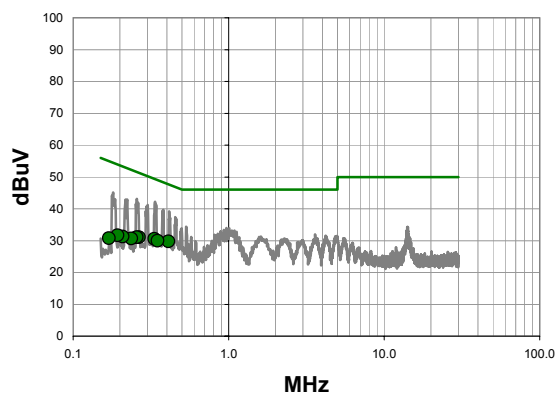
The EUT will be powered either directly or indirectly from the AC power line. Therefore, conducted emissions measurements were made on the AC input of the EUT, or on the AC input of the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the lowest, 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.

EMC**AC Powerline Conducted Emissions**

| | | | | |
|------------------------|---|--------------------------|-----------|---|
| 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 | | | |
| Configuration: | 2 | | | |
| Customer: | ThinkEco, Inc. | | | |
| Attendees: | None | | | |
| EUT Power: | 120VAC/60Hz | | | |
| Operating Mode: | Transmitting 'Continuous' mode with modulation, low channel | | | |
| Deviations: | None | | | |
| Comments: | None | | | |

Test Specifications
FCC 15.207:2011**Test 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

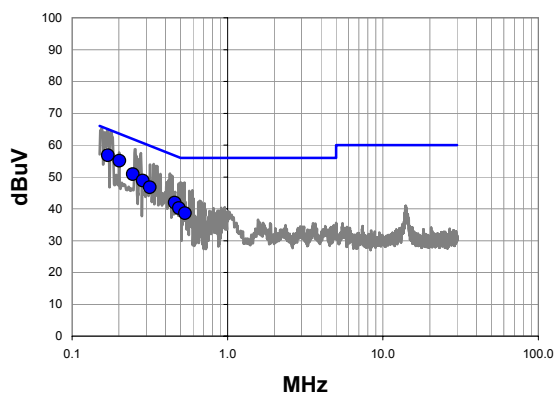
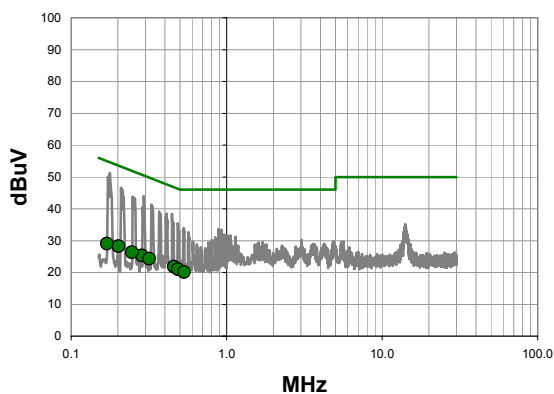
| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|------------|------------------|-------------|-----------------|--------------------|------------------------|
| 0.411 | 9.6 | 20.1 | 29.7 | 47.6 | -17.9 |
| 0.333 | 10.5 | 20.1 | 30.6 | 49.4 | -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 |

EMC**AC Powerline Conducted Emissions**

| | | | | |
|------------------------|---|--------------------------|-----------|---|
| 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 | | | |
| Configuration: | 2 | | | |
| Customer: | ThinkEco, Inc. | | | |
| Attendees: | None | | | |
| EUT Power: | 120VAC/60Hz | | | |
| Operating Mode: | Transmitting 'Continuous' 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

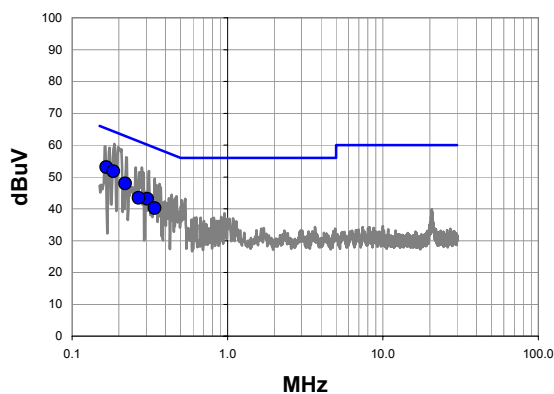
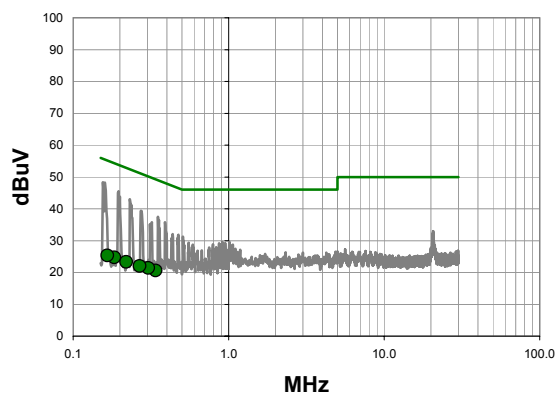
| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|------------|------------------|-------------|-----------------|--------------------|------------------------|
| 0.458 | 1.7 | 20.1 | 21.8 | 46.7 | -24.9 |
| 0.487 | 0.9 | 20.1 | 21.0 | 46.2 | -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 |

EMC**AC Powerline Conducted Emissions**

| | | | | |
|------------------------|---|--------------------------------|-----------|---|
| 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 'Continuous' mode with modulation, mid channel | | | |
| Deviations: | None | | | |
| Comments: | None | | | |

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

| | | | | | | | |
|--------------|---|--------------|---------|--------------------------|----|----------------|------|
| Run # | 3 | 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 | 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

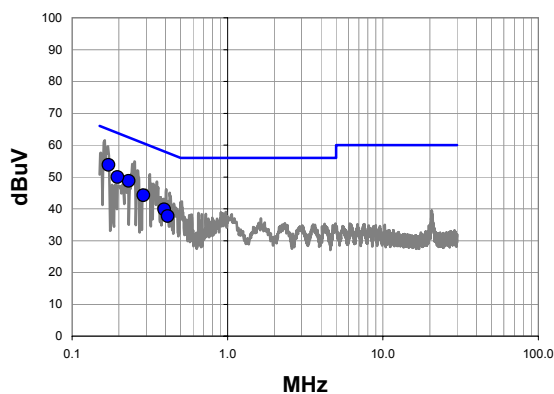
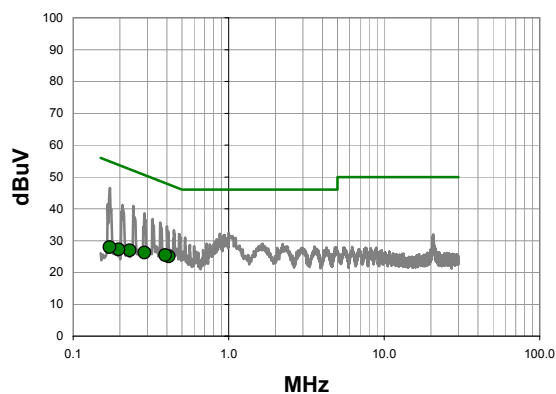
| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|------------|------------------|-------------|-----------------|--------------------|------------------------|
| 0.339 | 0.5 | 20.1 | 20.6 | 49.2 | -28.6 |
| 0.304 | 1.3 | 20.1 | 21.4 | 50.1 | -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 |

EMC**AC Powerline Conducted Emissions**

| | | | | |
|------------------------|---|--------------------------|-----------|---|
| 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 | | | |
| Configuration: | 2 | | | |
| Customer: | ThinkEco, Inc. | | | |
| Attendees: | None | | | |
| EUT Power: | 120VAC/60Hz | | | |
| Operating Mode: | Transmitting 'Continuous' mode with modulation, mid channel | | | |
| Deviations: | None | | | |
| Comments: | None | | | |

Test Specifications
FCC 15.207:2011**Test 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

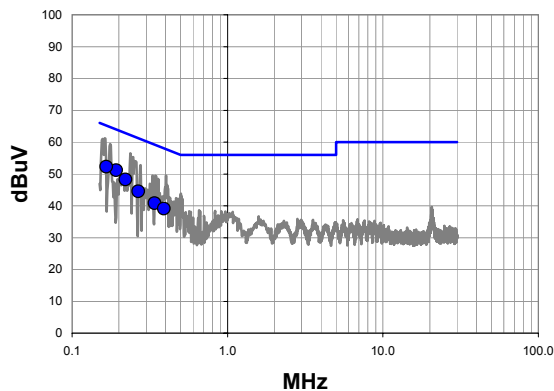
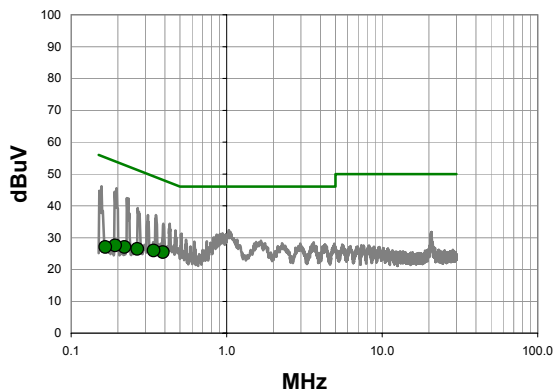
| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|------------|------------------|-------------|-----------------|--------------------|------------------------|
| 0.412 | 4.9 | 20.1 | 25.0 | 47.6 | -22.6 |
| 0.391 | 5.3 | 20.1 | 25.4 | 48.0 | -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 |

EMC**AC Powerline Conducted Emissions**

| | | | | | |
|------------------------|--|--------------------------|-----------|---|--------------|
| 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 'Continuous' mode with modulation, high channel | | | | |
| Deviations: | None | | | | |
| Comments: | None | | | | |

Test Specifications
FCC 15.207:2011**Test 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

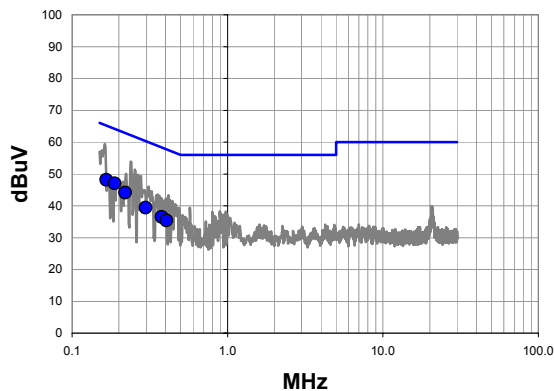
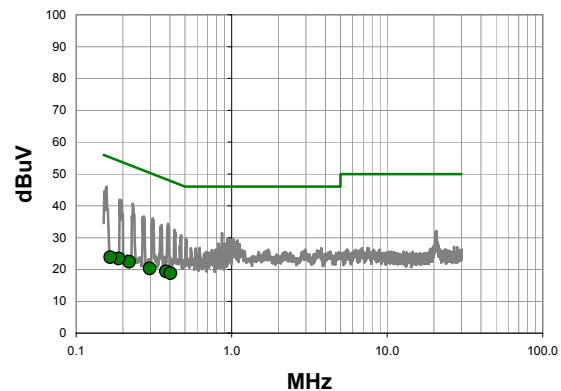
| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Adjusted (dBuV) | Spec. Limit (dBuV) | Compared to Spec. (dB) |
|------------|------------------|-------------|-----------------|--------------------|------------------------|
| 0.390 | 5.3 | 20.1 | 25.4 | 48.1 | -22.7 |
| 0.339 | 5.8 | 20.1 | 25.9 | 49.2 | -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 |

EMC**AC Powerline Conducted Emissions**

| | | | | |
|------------------------|--|--------------------------|-----------|---|
| 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 'Continuous' mode with modulation, high channel | | | |
| Deviations: | None | | | |
| Comments: | None | | | |

Test Specifications
FCC 15.207:2011**Test Method**
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 |