

The Watt Stopper, Inc.

MRP6/MRP7

June 16, 2003

Report No. WATT0011

Report Prepared By:



1-888-EMI-CERT

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Test Report



22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: June 16, 2003

The Wattstopper, Inc.
Models : MRP6/MRP7
Report No: WATT0011

Emissions

| Description | Pass | Fail |
|---|-------------------------------------|--------------------------|
| FCC 15.247, Spurious Radiated Emissions | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| FCC 15.247, Output Power | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| FCC 15.247, Band Edge Compliance | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| FCC 15.247, Spurious Conducted Emissions | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| FCC 15.247, Power Spectral Density | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| FCC 15.247, Occupied Bandwidth | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| FCC 15.247, Dwell Time | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| FCC 15.247, Number of Hopping Frequencies | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| FCC 15.247, Channel Spacing | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| FCC 15.207, Powerline Conducted Emissions | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

The equipment was tested in the configuration and mode(s) of operation provided by the client. The specific tests and test levels were specified by the client. Any additional tests, or product configurations that should be tested are the responsibility of the client. Product compliance is the responsibility of the client.

List of Modifications to equipment under test required to meet the requirements:

- See the modifications page of the report.

Deviations to the test standard

- No deviations were made to the test standard

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 the FCC (Federal Communications Commission), and accepted by the FCC in a letter maintained in our files.

Approved By:

Greg Kiemel, Director of Engineering

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 | | |

FCC: The Open Area Test Sites, 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.



TCB: 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.

A2LA: Accreditation has been granted to Northwest EMC, Inc. to perform the Electromagnetic Compatibility (EMC) tests described in the Scope of Accreditation. Assessment performed to ISO/IEC 17025. Certificate Number: 1936-01, Certificate Number: 1936-02, Certificate Number 1936-03



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. (A2LA)



TÜV Product Service: Included in TÜV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TÜV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TÜV's current Listing of CARAT Laboratories available from TÜV. A certificate was issued to represent that this laboratory continues to meet TÜV's CARAT Program requirements. Certificate No. USA0302C



TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.



NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).



Technology International: Assessed in accordance with ISO Guide 25 defining the general international requirements for the competence of calibration and testing laboratories and with ITI assessment criteria LACO196. Based upon that assessment Interference Technology International, Ltd., has granted approval for specifications implementing the EU Directive on EMC (89/336/EEC and amendments). The scope of the approval was provided on a Schedule of Assessment supplied with the certificate and is available upon request.



Industry Canada: Accredited by Industry Canada for performance of radiated measurements. Our open area test sites comply with RSP 100, Issue 7, section 3.3.



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 Nos. - Evergreen: C-1071 and R-1025, Trails End: C-694 and R-677, Sultan: C-905, R-871 and R-1172, North Sioux City C-1246, R-1185 and R-1217*)



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. License No.SL2-IN-E-1017.



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



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



SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999

NORTHWEST EMC
Evergreen Facility
22975 NW Evergreen Pkwy #400
Hillsboro, OR 97124
David Tolman Phone: 503 844 4066

ELECTRICAL (EMC)

Valid until: July 31, 2004

Certificate Number: 1936-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following Electromagnetic Compatibility (EMC) tests:

EMC StandardsTitle*Radiated & Conducted Emissions*

CFR 47, FCC Part 15 using ANSI C63.4

American National Standard for methods of measurement of radio-noise emissions for low-voltage electrical and electronic equipment in the range of 9 kHz to 40GHz.

CISPR 22

Limits and methods of measurement of radio disturbance characteristics of information technology equipment.

CNS 13438

Limits and methods of measurement of radio interference characteristics of information technology equipment.

EN 55022

Limits and methods of measurement of radio disturbance characteristics of information technology equipment.

Canada ICES-003

Digital apparatus

AS/NZS 3548

Australian/New Zealand Standard Limits and methods of measurement of radio disturbance characteristics of information technology equipment

Canada ICES-001

Industrial, scientific and medical radio frequency generators

CNS 13803

Industrial, Scientific and Medical Instrument

| | |
|--|--|
| AS/NZS 2064 | Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment. |
| EN 61000-6-3 | Electromagnetic capability – Generic emission standard. Part 1: Residential, commercial and light industry. (I.S.) |
| EN 61000-6-4 | Electromagnetic compatibility – Generic emission standard. Part 2: Industrial environment |
| VCCI V-3/99.05 | Technical Requirements |
| VCCI V-4/99.05 | Instruction for Test Conditions for Requirement under Test |
| CISPR 11 | Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment. |
| EN 55011 | Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment. |
| EN 55103-1 | Electromagnetic Compatibility – Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1: Emission |
| EN 61000-3-2 | Electromagnetic compatibility (EMC). Part 3: Limits Section 2: Limits for harmonic current emissions |
| EN 61000-3-3 | Electromagnetic compatibility (EMC). Part 3: Limits Section 2: Limitation of voltage fluctuations and flicker in low-voltage supply systems. |
| GR-1089 Section 3 (excluding analog voice band) | Bellcore electromagnetic compatibility and electrical safety – Generic criteria for network telecommunications equipment. |
| <i>Immunity</i> | |
| EN 61000-4-2 AS/NZS 61000-4-2 | Electromagnetic compatibility (EMC). Part 4: Testing and measurement techniques. Section 2: Electrostatic discharge immunity test – Basic EMC Publication |
| EN 61000-4-3 AS/NZS 61000-4-3 | Electromagnetic compatibility (EMC). Part 4: Testing and measurement techniques. Section 3: Radiated, radio-frequency, electromagnetic field immunity test |
| EN 61000-4-4 AS/NZS 61000-4-4 | Electromagnetic compatibility (EMC). Part 4: Testing and measurement techniques. Section 4: Electrical fast transient/burst immunity test – Basic EMC publication |

| | |
|---|---|
| EN 61000-4-5 AS/NZS 61000-4-5 | Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques. Section 5: Surge immunity test. |
| EN 61000-4-6 AS/NZS 61000-4-6 | Electromagnetic compatibility (EMC). Part 4: Testing and measurement techniques. Section 6: Immunity to conducted disturbances, induce by radio-frequency fields. |
| EN 61000-4-8 | Electromagnetic compatibility (EMC). Part 4: Testing and measurement techniques. Section 8: Power frequency magnetic field immunity test. |
| EN 61000-4-11 | Electromagnetic Compatibility (EMC) Part 4: Testing and measurement techniques. Section 11: Voltage dips, short interruptions and voltage. Variations immunity tests. |
| EN 61000-6-1 | Electromagnetic Compatibility (EMC)- Part 6: Generic standards- Section 1: Immunity for residential, commercial and light-industrial environments |
| EN 61000-6-2 | Electromagnetic Compatibility (EMC)- Part 6: Generic standards- Section 2: Immunity for industrial environments |
| IEEE/ANSI C62.41 | IEEE recommended practice on surge voltages in low-voltage AC power circuits |
| <i>Product Standards</i> | |
| GR-1089 Section 3 (excluding voice band) | Bellcore electromagnetic compatibility and electrical safety – Generic criteria for network telecommunications equipment. |
| EN 61326 | Electrical equipment for measurement, control and laboratory use – EMC requirements |
| EN 60601-1-2 | Medical electrical equipment Part 1: general requirements for safety Section 2: Collateral standard: Electromagnetic compatibility – requirements and tests |
| EN 50130-4 | Alarm Systems. Part 4: Electromagnetic compatibility. Product family standard: Immunity requirements for components of fire, intruder and social alarm systems. |
| EN 55103-2 | Electromagnetic Compatibility – Product family standard for audio, video, audio-visual and entertainment lighting control professional use. Part 2: Immunity |
| EN 55024 | Immunity Requirements for Information Technology Equipment – ITE Immunity |

Other Standards

| | |
|------------------|---|
| ETS 300 220 | Electromagnetic compatibility and Radio spectrum matters (ERM); Short range devices; Technical characteristics and test methods for radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW; Part 1: Parameters intended for regulatory purposes; Part 2: Supplementary parameters not intended for regulatory Purposes |
| ETS 300 224 | Electro Magnetic Compatability and Radio Spectrum Matters; Paging Services; Technical characteristics and test methods for on site paging service devices. |
| ETS 300 328 | Radio Equipment and Systems (RES); Wideband transmission systems; Technical characteristics and test conditions for data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques |
| ETS 300 489-1 | Electro Magnetic Compatability and Radio Spectrum Matters; Common Technical Requirements |
| ETS 300 489-2 | Specific conditions for radio paging equipment |
| ETS 300 489-3 | Specific conditions for Short Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz |
| Canadian RSS-102 | Evaluation Procedure for Mobile and Portable Radio Transmitters with respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields |
| Canadian RSS-119 | Land Mobile and Fixed Radio Transmitters and Receivers, 27.41 to 960 MHz |
| Canadian RSS-123 | Low Power Licensed Radiocommunication Devices |
| Canadian RSS-139 | Licensed Radiocommunications Devices in the Band 2400- 2483.5 MHz |
| Canadian RSS-210 | Industry Canada – Low power license-exempt radio communication devices |
| SAE J1113-41 | Radiated and conducted emissions. |
| SAE J1113-21 | Radiated immunity absorber lined chamber (200 MHz – 1 GHz) |
| SAE J1113-23 | Radiated immunity stripline method (only 10 kHz – 200 MHz @ 80 V/m) |

SAE J1113-4
(only substitution method)

Conducted immunity Bulk Current Injection

SAE J1113-13

ESD

FCC 47 Parts 22
(Cellular), 24, 25, 26 & 27

TCB Scope B1 (Excluding SAR testing)

FCC 47 Parts 22
(Non-Cellular), 73,74,90,95 & 97

TCB Scope B2 (Excluding SAR testing)

FCC 47 Parts 80 & 87

TCB Scope B3 (Excluding SAR testing)

FCC 47 Parts 21, 74, 101

TCB Scope B4 (Excluding SAR testing)

Onsite Testing

EN61000-6-2

Generic Immunity Standard for Industrial Applications

EN61000-6-4

Generic Emissions Standard for Industrial Applications

What is measurement uncertainty?

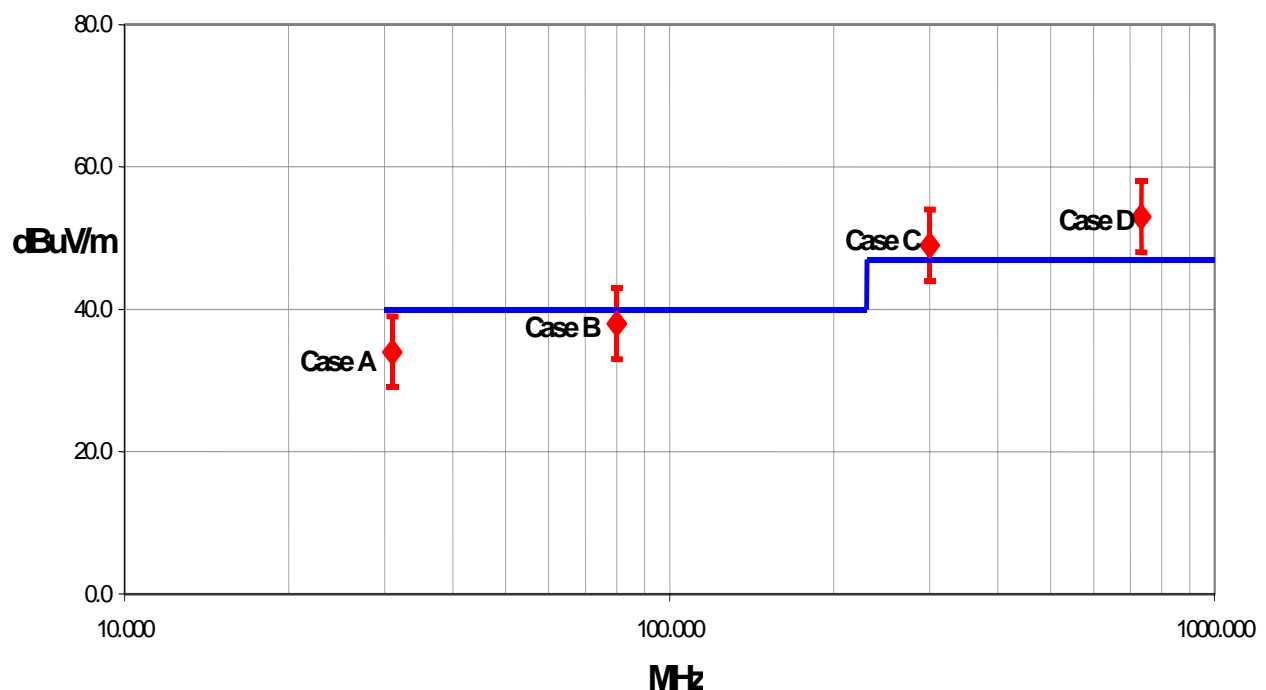
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following statement of measurement uncertainty is used to reflect the accuracy of the measured result as compared with its “true” value. In the case of transient tests (ESD, EFT, Surge, Voltage Dips and Interruptions), the test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements.

The following documents were the basis for determining the uncertainty levels of our measurements:

- “ISO Guide to the Expression of Uncertainty in Measurements”, October 1993
- “NIS81: The Treatment of Uncertainty in EMC Measurements”, May 1994
- “IEC CISPR 16-3 A1 f1 Ed.1: Radio-interference measurements and statistical techniques”, December 2000

How might measurement uncertainty be applied to test results?

If the diamond marks the measured value for the test and the vertical bars bracket the range of + and – measurement uncertainty, then test results can be interpreted from the diagram below.

**Test Result Scenarios:**

Case A: Product complies.

Case B: Product conditionally complies. It is not possible to say with 95% confidence that the product complies.

Case C: Product conditionally does not comply. It is not possible to say with 95% confidence that the product does not comply.

Case D: Product does not comply.

Radiated Emissions ≤ 1 GHz

Value (dB)

| Test Distance | Probability Distribution | Biconical Antenna | | Log Periodic Antenna | | Dipole Antenna | |
|---|--------------------------|-------------------|------------------|----------------------|------------------|------------------|------------------|
| | | 3m | 10m | 3m | 10m | 3m | 10m |
| Combined standard uncertainty $u_c(y)$ | normal | + 1.86 - 1.88 | + 1.82 - 1.87 | + 2.23 - 1.41 | + 1.29 - 1.26 | + 1.31 - 1.27 | + 1.25 - 1.25 |
| Expanded uncertainty U (level of confidence $\approx 95\%$) | normal (k=2) | + 3.72 - 3.77 | + 3.64 - 3.73 | + 4.46 - 2.81 | + 2.59 - 2.52 | + 2.61 - 2.55 | + 2.49 - 2.49 |

Radiated Emissions > 1 GHz

Value (dB)

| Test Distance | Probability Distribution | Without High Pass Filter | | With High Pass Filter | |
|---|--------------------------|--------------------------|------------------|-----------------------|------------------|
| | | 3m | 10m | 3m | 10m |
| Combined standard uncertainty $u_c(y)$ | normal | + 1.29 - 1.25 | + 1.38 - 1.35 | + 1.29 - 1.25 | + 1.38 - 1.35 |
| Expanded uncertainty U (level of confidence $\approx 95\%$) | normal (k=2) | + 2.57 - 2.51 | + 2.76 - 2.70 | + 2.57 - 2.51 | + 2.76 - 2.70 |

Conducted Emissions

| Test Distance | Probability Distribution | Value (+/- dB) |
|---|--------------------------|----------------|
| Combined standard uncertainty $u_c(y)$ | normal | 1.48 |
| Expanded uncertainty U (level of confidence $\approx 95\%$) | normal (k = 2) | 2.97 |

Radiated Immunity

| Test Distance | Probability Distribution | Value (+/- dB) |
|---|--------------------------|----------------|
| Combined standard uncertainty $u_c(y)$ | normal | 1.05 |
| Expanded uncertainty U (level of confidence $\approx 95\%$) | normal (k = 2) | 2.11 |

Conducted Immunity

| Test Distance | Probability Distribution | Value (+/- dB) |
|---|--------------------------|----------------|
| Combined standard uncertainty $u_c(y)$ | normal | 1.05 |
| Expanded uncertainty U (level of confidence $\approx 95\%$) | normal (k = 2) | 2.10 |

Legend

$u_c(y)$ = square root of the sum of squares of the individual standard uncertainties

U = combined standard uncertainty multiplied by the coverage factor: k . This defines an interval about the measured result that will encompass the true value with a confidence level of approximately 95%. If a higher level of confidence is required, then $k=3$ (CL of 99.7%) can be used. Please note that with a coverage factor of one, $u_c(y)$ yields a confidence level of only 68%.

**California****Orange County Facility**

41 Tesla Ave.
Irvine, CA 92618
(888) 364-2378
FAX (503) 844-3826

**Oregon****Evergreen Facility**

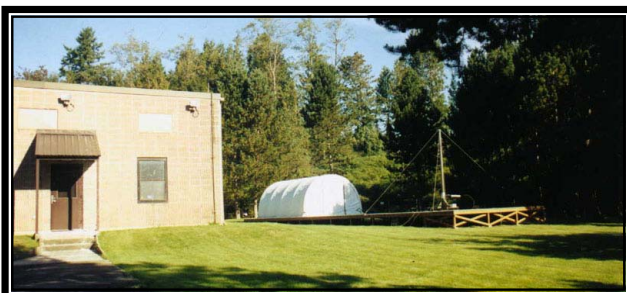
22975 NW Evergreen Pkwy.,
Suite 400
Hillsboro, OR 97124
(503) 844-4066
FAX (503) 844-3826

**Oregon****Trails End Facility**

30475 NE Trails End Lane
Newberg, OR 97132
(503) 844-4066
FAX (503) 537-0735

**South Dakota****North Sioux City Facility**

745 N. Derby Lane
P.O. Box 217
North Sioux City, SD 57049
(605) 232-5267
FAX (605) 232-3873

**Washington****Sultan Facility**

14128 339th Ave. SE
Sultan, WA 98294
(888) 364-2378
FAX (360) 793-2536

Party Requesting the Test

| | |
|---------------------------------|---------------------------------|
| Company Name: | The Watt Stopper Inc. |
| Address: | 6120 Paseo Del Norte, Suite 1-2 |
| City, State, Zip: | Carlsbad, CA 92009 |
| Test Requested By: | Bertrand Debever |
| Model: | MRP6/ MRP7 |
| First Date of Test: | 5/28/03 |
| Last Date of Test: | 6/13/03 |
| Receipt Date of Samples: | 5/28/03 |
| Equipment Design Stage: | Pre-Production |
| Equipment Condition: | No visual damage. |

Information Provided by the Party Requesting the Test

| | |
|----------------------------|-------------------------------|
| Clocks/Oscillators: | Not provided at time of test. |
| Ports: | DC, AC (x2). |

Functional Description of the EUT (Equipment Under Test):

Plug in lamp module operating in the 902-928MHz band as a 15.247(f) hybrid system.

Client Justification for EUT Selection:

The product is an engineering sample, representative of the final product.

Client Justification for Test Selection

These tests satisfy the requirements for FCC Certification of the radio transmitter.

| Equipment modifications | | | | |
|--------------------------------|----------------------------------|------------------------|---|---|
| Item # | Test | Date | Modification | Note |
| 1 | Spurious Radiated Emissions | 05-28-2003, 05-29-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as delivered. |
| 2 | AC Powerline Conducted Emissions | 06-02-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as in previous test. |
| 3 | Output Power | 06-06-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as in previous test. |
| 4 | Occupied Bandwidth | 06-09-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as in previous test. |
| 5 | Band Edge Compliance | 06-09-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as in previous test. |
| 6 | Spurious Conducted Emissions | 06-10-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as in previous test. |
| 7 | Channel Spacing | 06-12-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as in previous test. |
| 8 | Number Hopping Frequencies | 06-12-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as in previous test. |
| 9 | Power Spectral Density | 06-12-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as in previous test. |
| 10 | Dwell Time | 06-13-2003 | No EMI suppression devices were added or modified during this test. | Same configuration as in previous test. |

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

All

Operating Modes Investigated:

Typical

Data Rates Investigated:

Maximum

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Software\Firmware Applied During Test

| | | | |
|----------------------------|------------------------------|---------|---------|
| Exercise software | Standard Production Software | Version | Unknown |
| Description | | | |
| Transmits at all channels. | | | |

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|--------------------|------------------------|--------------------------|----------------------|
| AC Adapter | N/A | A35-U0900 | N/A |
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |
| EUT | The Watt Stopper, Inc. | MRP7 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|-------------------|---------------|-------------------|----------------|---------------------|---------------------|
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|-------------------|--------------|-------|------------|------------|----------|
| Spectrum Analyzer | Tektronix | 2784 | AAO | 02/26/2003 | 24 mo |

Test Description

Requirement: Per 47 CFR 15.247(a)(1), the hopping channel carrier frequencies must be separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel. The measurement is made with the spectrum analyzer's resolution bandwidth set to greater than or equal to 1% of the span, and the video bandwidth set to greater than or equal to the resolution bandwidth.

Configuration: The carrier frequency separation was measured between each of 5 hopping channels in the middle of the authorized band. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The hopping function of the EUT was enabled.

Completed by:



NORTHWEST
EMC**EMISSIONS DATA SHEET**Rev BETA
01/30/01

| | | | | | |
|----------------------------------|--|--|---------------------------|--|--|
| EUT: MRP6 / MRP7 | | | Work Order: WATT0014 | | |
| Serial Number: N/A | | | Date: 06/12/03 | | |
| Customer: The Watt Stopper, Inc. | | | Temperature: 23 degrees C | | |
| Attendees: N/A | | | Humidity: 38% RH | | |
| Customer Ref. No.: N/A | | | Job Site: EV06 | | |
| Tested by: Rod Peloquin | | | Power: 120VAC/60Hz | | |

TEST SPECIFICATIONS

| | | | |
|---|------------|-------------------------------|------------|
| Specification: CFR 47 Part 15.247(a)(1) | Year: 2003 | Method: DA 00-705, ANSI C63.4 | Year: 1992 |
|---|------------|-------------------------------|------------|

SAMPLE CALCULATIONS**COMMENTS****EUT OPERATING MODES**

Modulated by PRBS at maximum data rate. Hopping carrier.

DEVIATIONS FROM TEST STANDARD

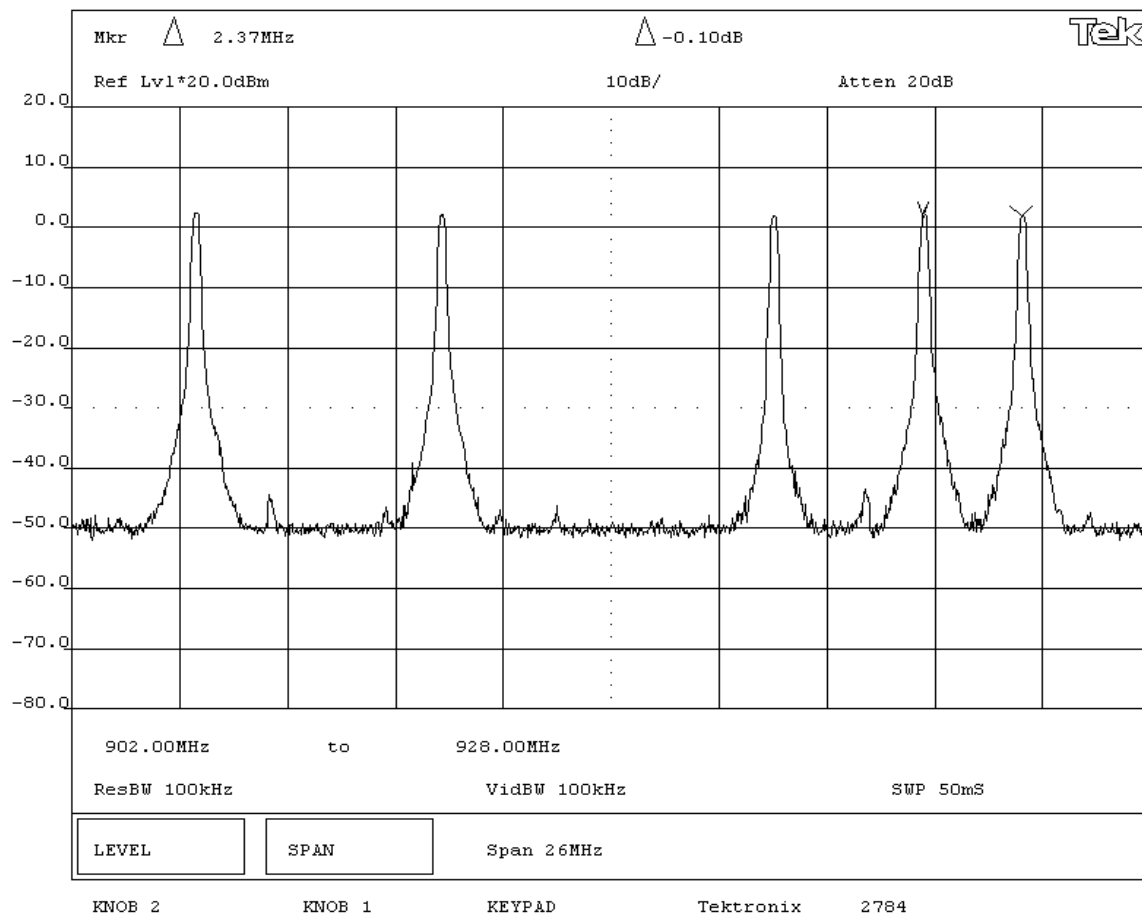
None

REQUIREMENTS

The hopping channel carrier frequencies shall be separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

RESULTS**CHANNEL SPACING**

Pass 2.37MHz

SIGNATURETested By: **DESCRIPTION OF TEST****Carrier Frequency Separation**

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

Mid

Operating Modes Investigated:

Typical

Data Rates Investigated:

Maximum

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Software\Firmware Applied During Test

| | | | |
|-------------------------|------------------------------|---------|---------|
| Exercise software | Standard Production Software | Version | Unknown |
| Description | | | |
| Transmits all channels. | | | |

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| AC Adapter | N/A | A35-U0900 | N/A |
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |
| EUT | The Watt Stopper, Inc. | MRP7 | |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|-------------------|--------------|-------|------------|------------|----------|
| Spectrum Analyzer | Tektronix | 2784 | AAO | 02/26/2003 | 24 mo |

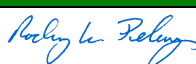
Test Description

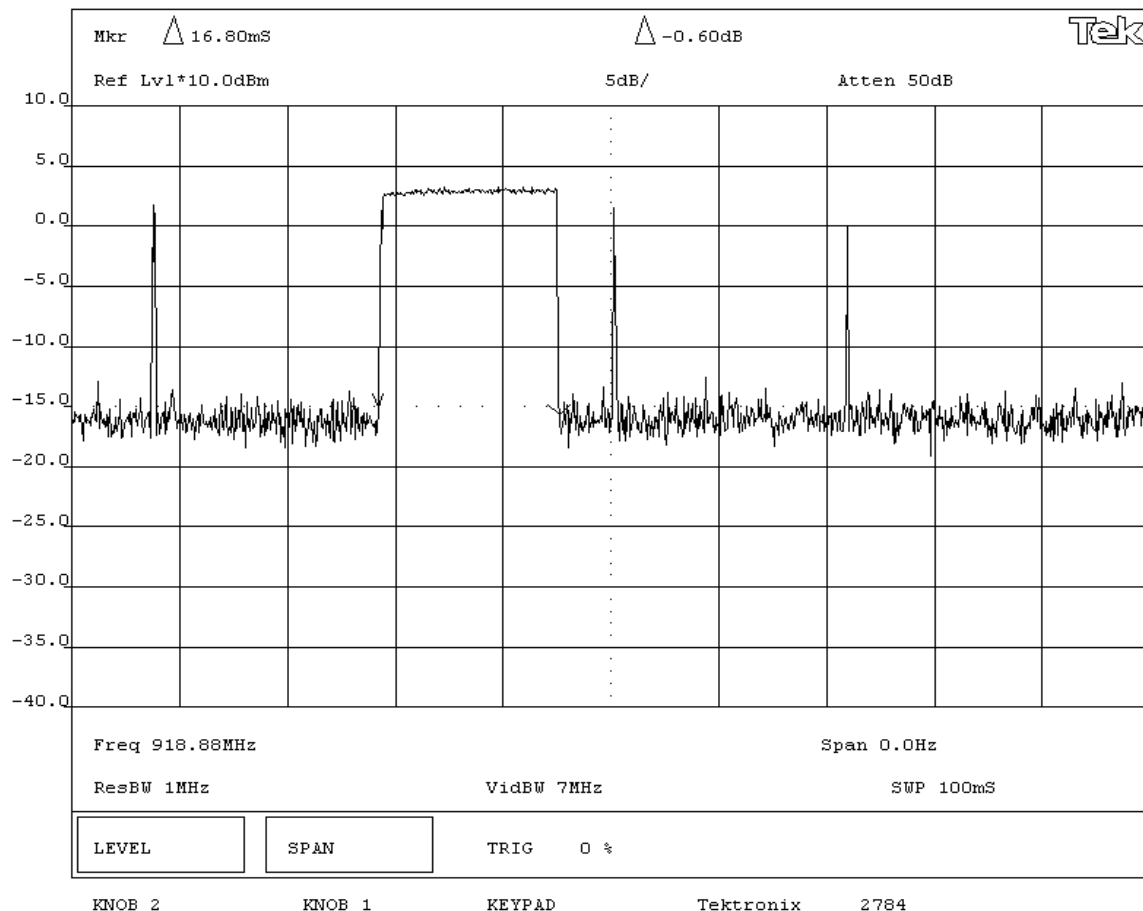
Requirement: Per 47 CFR 15.247(f), The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period in seconds equal to the number of hopping channels employed multiplied by 0.4. The measurement is made with the spectrum analyzer's span set to zero, the resolution bandwidth set to 1 MHz, and the video bandwidth set to 7 MHz. The measurement is made in two steps. First, the sweep speed is adjusted to capture the pulse width or dwell time of a single transmission. Then, the sweep speed is set to 2 seconds to count the number of transmissions during that period. The dwell time of a single transmission multiplied by the number of transmissions during a 2 second period equals the average time of occupancy during a 2 second period.

Configuration: The average dwell time per hopping channel was measured at one hopping channel in the middle of the authorized band. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The hopping function of the EUT was enabled.

Completed by:



| NORTHWEST EMC | | | | EMISSIONS DATA SHEET | | | | Rev BETA 01/30/01 | |
|---|--|-------------------------------------|------------|----------------------|-------------------------------|---|------------|-------------------|--|
| EUT: MRP6 / MRP7 | | | | | | Work Order: WATT0011 | | | |
| Serial Number: N/A | | | | | | Date: 06/16/03 | | | |
| Customer: The Watt Stopper, Inc. | | | | | | Temperature: 25 °C | | | |
| Attendees: None | | | | | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | | | | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | | | Power: 120VAC/60Hz | | Job Site: EV06 | | | |
| Specification: 47 CFR 15.247(f) | | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| Total Dwell time = (Dwell Time during a single transmission) X (Number of transmissions during a 2 second period) | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| Modulated by PRBS at maximum data rate. Hopping carrier. | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| None | | | | | | | | | |
| REQUIREMENTS | | | | | | | | | |
| The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period in seconds equal to the number of hopping channels employed multiplied by 0.4. | | | | | | | | | |
| RESULTS | | TOTAL DWELL TIME IN 2 SECOND PERIOD | | | | DWELL TIME DURING A SINGLE TRANSMISSION | | | |
| Pass | | 67.2mS | | | | 16.8mS | | | |
| SIGNATURE | | | | | | | | | |
|  Tested By: _____ | | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | | |
| Time of Occupancy (Dwell Time) - Single Transmission | | | | | | | | | |



NORTHWEST
EMC**EMISSIONS DATA SHEET**BETA
01/30/

| | | | |
|----------------------------------|------------|-------------------------------|----------------------|
| EUT: MRP6 / MRP7 | | | Work Order: WATT0011 |
| Serial Number: N/A | | | Date: 06/16/03 |
| Customer: The Watt Stopper, Inc. | | | Temperature: 25 °C |
| Attendees: None | | | Humidity: 34% |
| Customer Ref. No.: N/A | | | Bar. Pressure: 30.15 |
| Tested by: Rod Peloquin | | Power: 120VAC/60Hz | Job Site: EV06 |
| Specification: 47 CFR 15.247(f) | Year: 2003 | Method: DA 00-705, ANSI C63.4 | Year: 1992 |

SAMPLE CALCULATIONS

Total Dwell time = (Dwell Time during a single transmission) X (Number of transmissions during a 2 second period)

COMMENTS

5 hopping channels

EUT OPERATING MODES

Modulated by PRBS at maximum data rate. Hopping carrier.

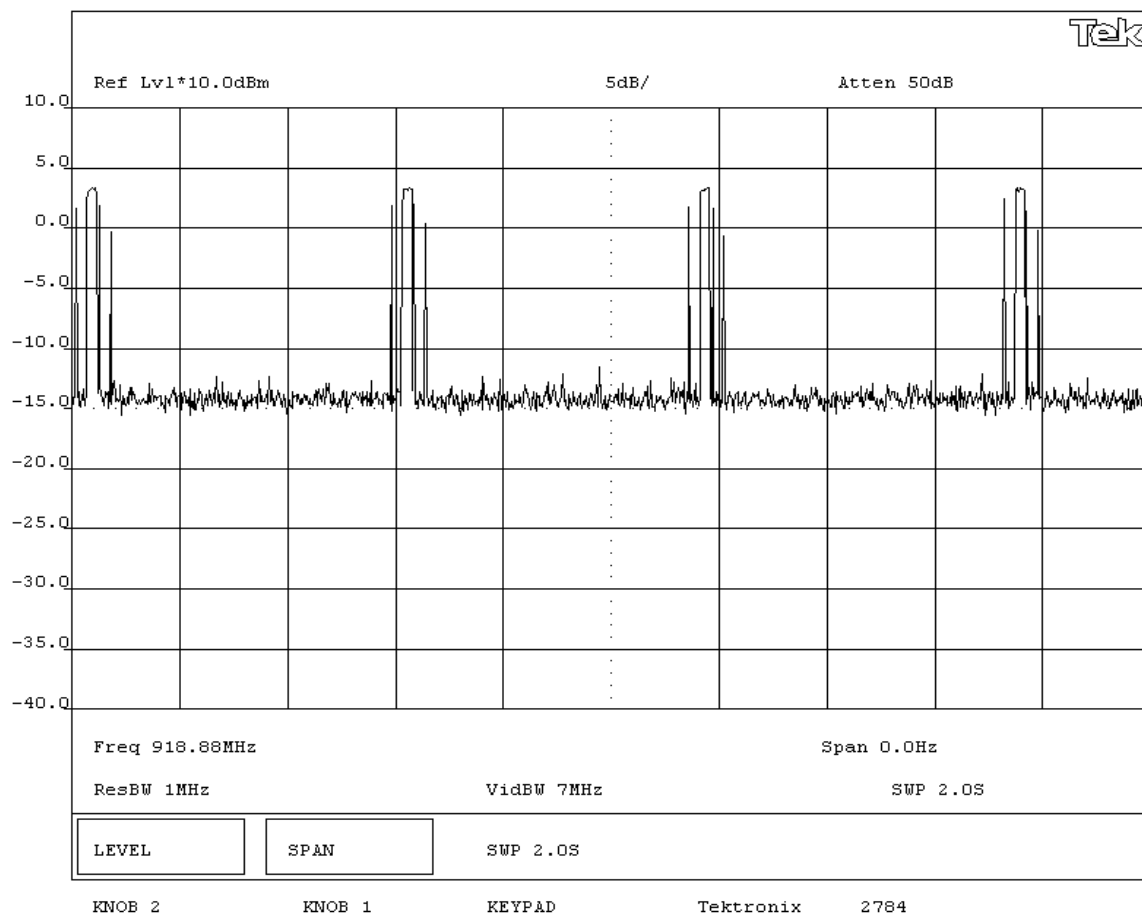
DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period in seconds equal to the number of hopping channels employed multiplied by 0.4.

| RESULTS | TOTAL DWELL TIME IN 2 SECOND PERIOD | NUMBER OF TRANSMISSIONS DURING A 2 SECOND PERIOD |
|---------|-------------------------------------|--|
| Pass | 67.2mS | 4 |

SIGNATURETested By: **DESCRIPTION OF TEST****Time of Occupancy (Dwell Time) - Number of transmissions during a 2 second period**

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

All

Operating Modes Investigated:

Typical

Data Rates Investigated:

Maximum

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Software\Firmware Applied During Test

| | | | |
|----------------------------|------------------------------|---------|---------|
| Exercise software | Standard Production Software | Version | Unknown |
| Description | | | |
| Transmits at all channels. | | | |

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| AC Adapter | N/A | A35-U0900 | N/A |
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |
| EUT | The Watt Stopper, Inc. | MRP7 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|-------------------|--------------|-------|------------|------------|----------|
| Spectrum Analyzer | Tektronix | 2784 | AAO | 02/26/2003 | 24 mo |


Test Description

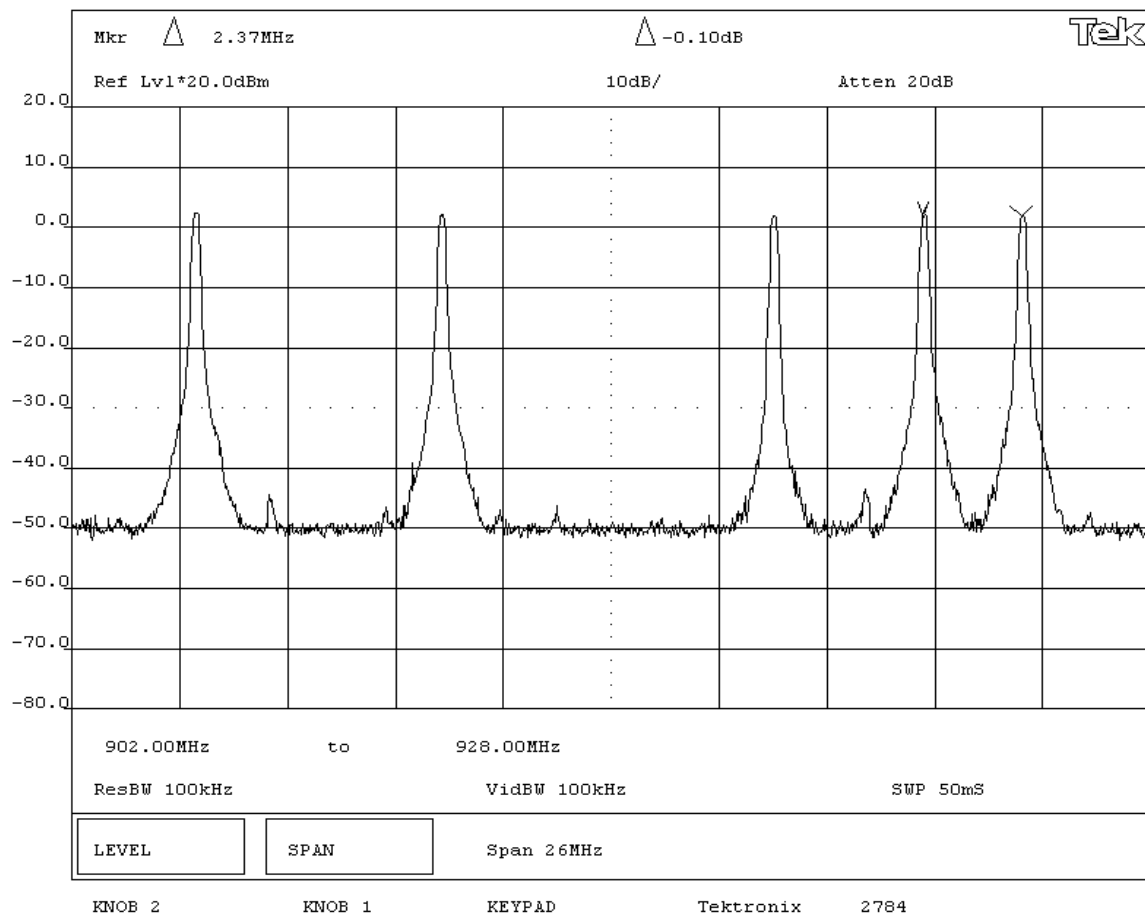
Requirement: The number of hopping channels is required to be measured to allow calculation of total dwell time per 47 CFR 15.247(f). The measurement is made with the spectrum analyzer's resolution bandwidth set to 100 kHz, and the video bandwidth set to greater than or equal to the resolution bandwidth.

Configuration: The number of hopping frequencies was measured across the authorized band. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer.

Completed by:



| NORTHWEST EMC | | | | EMISSIONS DATA SHEET | | Rev BETA 01/30/01 | |
|---|--|-------------------------|--|-------------------------------|--|----------------------|--|
| EUT: MRP6 / MRP7 | | | | Work Order: WATT0014 | | | |
| Serial Number: N/A | | | | Date: 06/12/03 | | | |
| Customer: The Watt Stopper, Inc. | | | | Temperature: 23 degrees C | | | |
| Attendees: N/A | | Tested by: Rod Peloquin | | Humidity: 38% RH | | | |
| Customer Ref. No.: N/A | | Power: 120VAC/60Hz | | Job Site: EV06 | | | |
| TEST SPECIFICATIONS | | | | | | | |
| Specification: CFR 47 Part15.247(f) | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | | | |
| | | | | | | | |
| COMMENTS | | | | | | | |
| | | | | | | | |
| EUT OPERATING MODES | | | | | | | |
| Modulated by PRBS at maximum data rate. Hopping carrier. | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | |
| None | | | | | | | |
| REQUIREMENTS | | | | | | | |
| To determine dwell time per 15.247(f) the total number of hopping frequencies must be determined | | | | | | | |
| RESULTS | | | | NUMBER OF HOPPING FREQUENCIES | | | |
| Pass | | | | 5 | | | |
| SIGNATURE | | | | | | | |
|  Tested By: _____ | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | |
| HOPPING CHANNELS | | | | | | | |



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Mid

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120VAC/60Hz

Software\Firmware Applied During Test

| | | | |
|---|------------------------------|---------|---------|
| Exercise software | Standard Production Software | Version | Unknown |
| Description | | | |
| Transmits at low, mid, and high channels. | | | |

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| AC Adapter | N/A | A35-U0900 | N/A |
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |
| EUT | The Watt Stopper, Inc. | MRP7 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|-------------------|--------------|-------|------------|------------|----------|
| Spectrum Analyzer | Tektronix | 2784 | AAO | 02/26/2003 | 24 mo |


Test Description

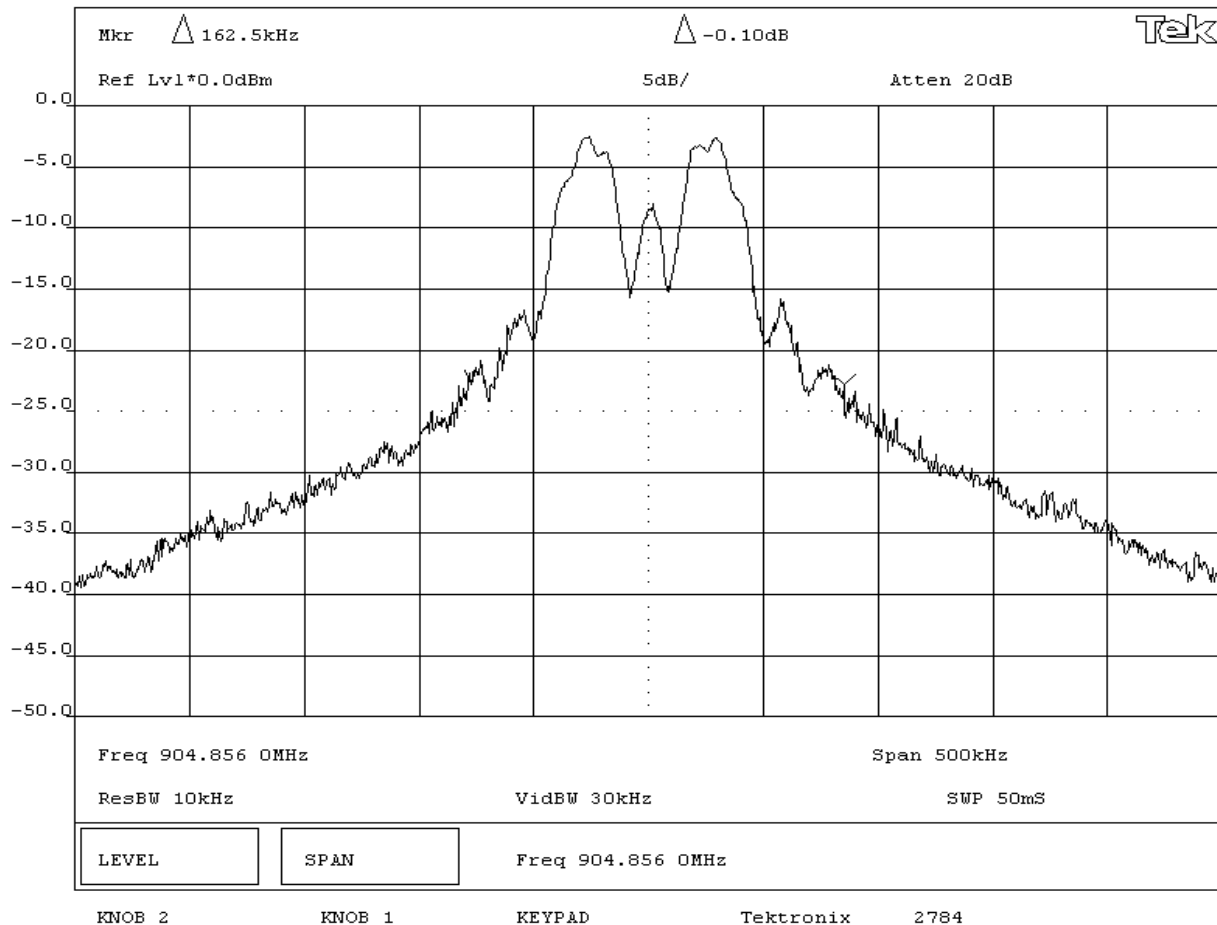
Requirement: Per 47 CFR 15.247(a)(1)(i), the 20 dB bandwidth of a hopping channel must be less than 500 kHz. The measurement is made with the spectrum analyzer's resolution bandwidth set to $\geq 1\%$ of the 20dB bandwidth, and the video bandwidth set to greater than or equal to the resolution bandwidth.


Configuration: The 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 maximum data rate in a no hop mode.

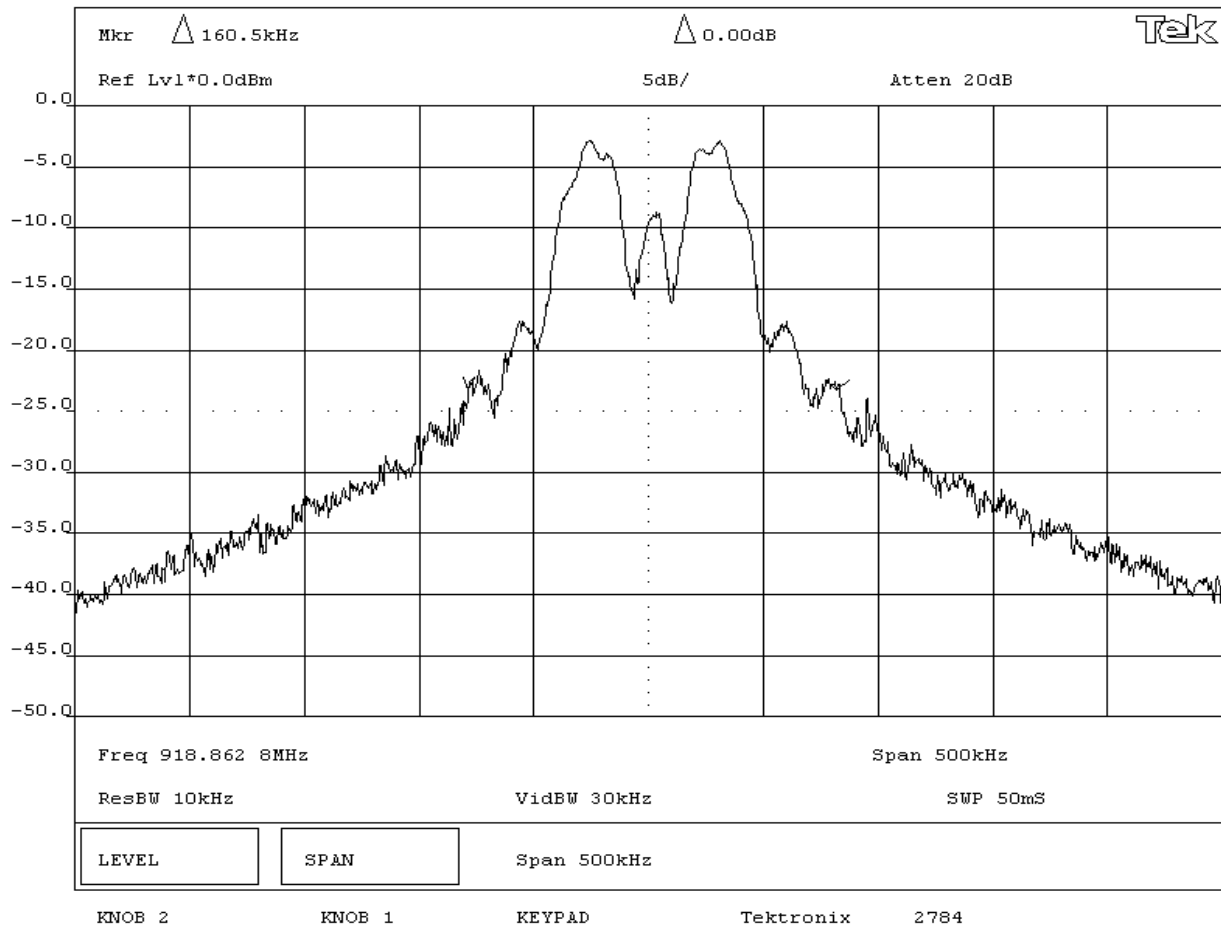
Completed by:




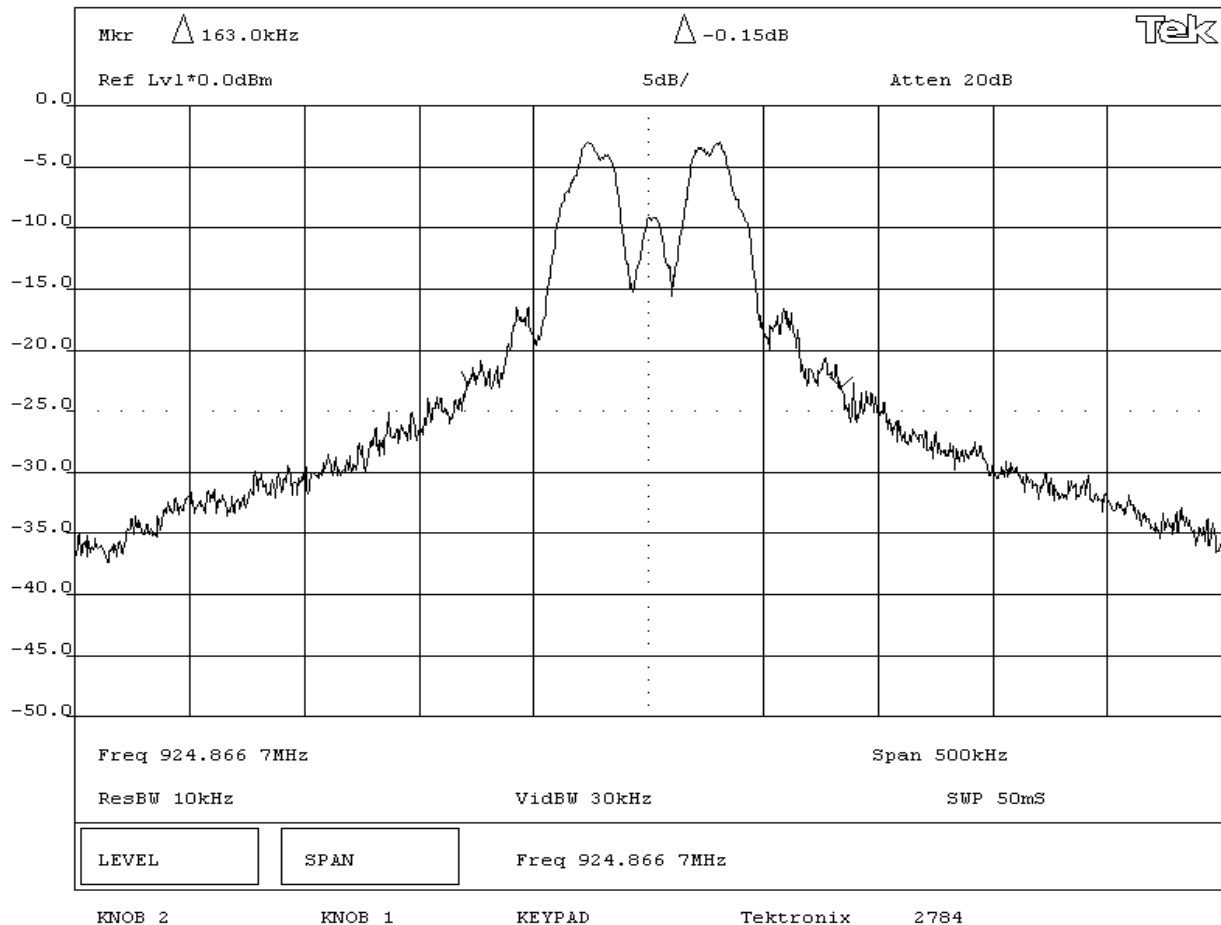
| NORTHWEST EMC | | EMISSIONS DATA SHEET Occupied Bandwidth | | Transmitters Rev dt11/15/02 | |
|--|--------------------------|---|-----------------------|--------------------------------|-----------------------|
| EUT: | MRP6 / MRP7 | Work Order: | WATT0011 | | |
| Serial Number: | N/A | Date: | 06/09/03 | | |
| Customer: | The Watt Stopper, Inc. | Temperature: | 25 °C | | |
| Attendees: | None | Humidity: | 34% | | |
| Customer Ref. No.: | N/A | Bar. Pressure: | 29.89 | | |
| Tested by: | Rod Peloquin | Power: | 120VAC/60Hz | Job Site: | EV06 |
| TEST SPECIFICATIONS | | | | | |
| Specification: | CFR 47 Part 15.247(a)(1) | Year: | 2003 | Method: | DA 00-705, ANSI C63.4 |
| | | Year: | 1992 | | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | BANDWIDTH 162.5KHz | | |
| SIGNATURE | | | | | |
| <div style="text-align: center;">  Tested By: _____ </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| Low Channel | | | | | |



| NORTHWEST | | EMISSIONS DATA SHEET | | Transmitters | |
|---|--------------------------|----------------------|-------------|----------------|-----------------------|
| EMC | | Occupied Bandwidth | | | |
| | | Rev dt11/15/02 | | | |
| EUT: | MRP6 / MRP7 | | | Work Order: | WATT0011 |
| Serial Number: | N/A | | | Date: | 06/09/03 |
| Customer: | The Watt Stopper, Inc. | | | Temperature: | 25 °C |
| Attendees: | None | | | Humidity: | 34% |
| Customer Ref. No.: | N/A | | | Bar. Pressure: | 29.89 |
| Tested by: | Rod Peloquin | Power: | 120VAC/60Hz | Job Site: | EV06 |
| TEST SPECIFICATIONS | | | | | |
| Specification: | CFR 47 Part 15.247(a)(1) | Year: | 2003 | Method: | DA 00-705, ANSI C63.4 |
| | | Year: | 1992 | | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | BANDWIDTH | | | |
| Pass | | 160.5KHz | | | |
| SIGNATURE | | | | | |
|  Tested By: _____ | | | | | |
| DESCRIPTION OF TEST | | | | | |
| Mid Channel | | | | | |



| NORTHWEST EMC | | EMISSIONS DATA SHEET Occupied Bandwidth | | Transmitters Rev dt11/15/02 | |
|--|--------------------------|---|---------------------|--------------------------------|-----------------------|
| EUT: | MRP6 / MRP7 | Work Order: | WATT0011 | | |
| Serial Number: | N/A | Date: | 06/09/03 | | |
| Customer: | The Watt Stopper, Inc. | Temperature: | 25 °C | | |
| Attendees: | None | Humidity: | 34% | | |
| Customer Ref. No.: | N/A | Bar. Pressure: | 29.89 | | |
| Tested by: | Rod Peloquin | Power: | 120VAC/60Hz | Job Site: | EV06 |
| TEST SPECIFICATIONS | | | | | |
| Specification: | CFR 47 Part 15.247(a)(1) | Year: | 2003 | Method: | DA 00-705, ANSI C63.4 |
| | | Year: | 1992 | | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | BANDWIDTH 163KHz | | |
| SIGNATURE | | | | | |
| <div style="text-align: center;">  Tested By: _____ </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| High Channel | | | | | |



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Mid

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120VAC/60Hz

Software\Firmware Applied During Test

| | | | |
|---|------------------------------|---------|---------|
| Exercise software | Standard Production Software | Version | Unknown |
| Description | | | |
| Transmits at low, mid, and high channels. | | | |

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| AC Adapter | N/A | A35-U0900 | N/A |
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |
| EUT | The Watt Stopper, Inc. | MRP7 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|-------------------|--------------|-------|------------|------------|----------|
| Spectrum Analyzer | Tektronix | 2784 | AAO | 02/26/2003 | 24 mo |

Test Description

Requirement: Per 47 CFR 15.247(b)(3), the maximum peak output power must not exceed 1 Watt. The measurement is made using either a peak power meter, or a spectrum analyzer using the following settings:


- Resolution bandwidth set to greater than the 6 dB bandwidth of the modulated carrier, and
- The video bandwidth set to greater than or equal to the resolution bandwidth.

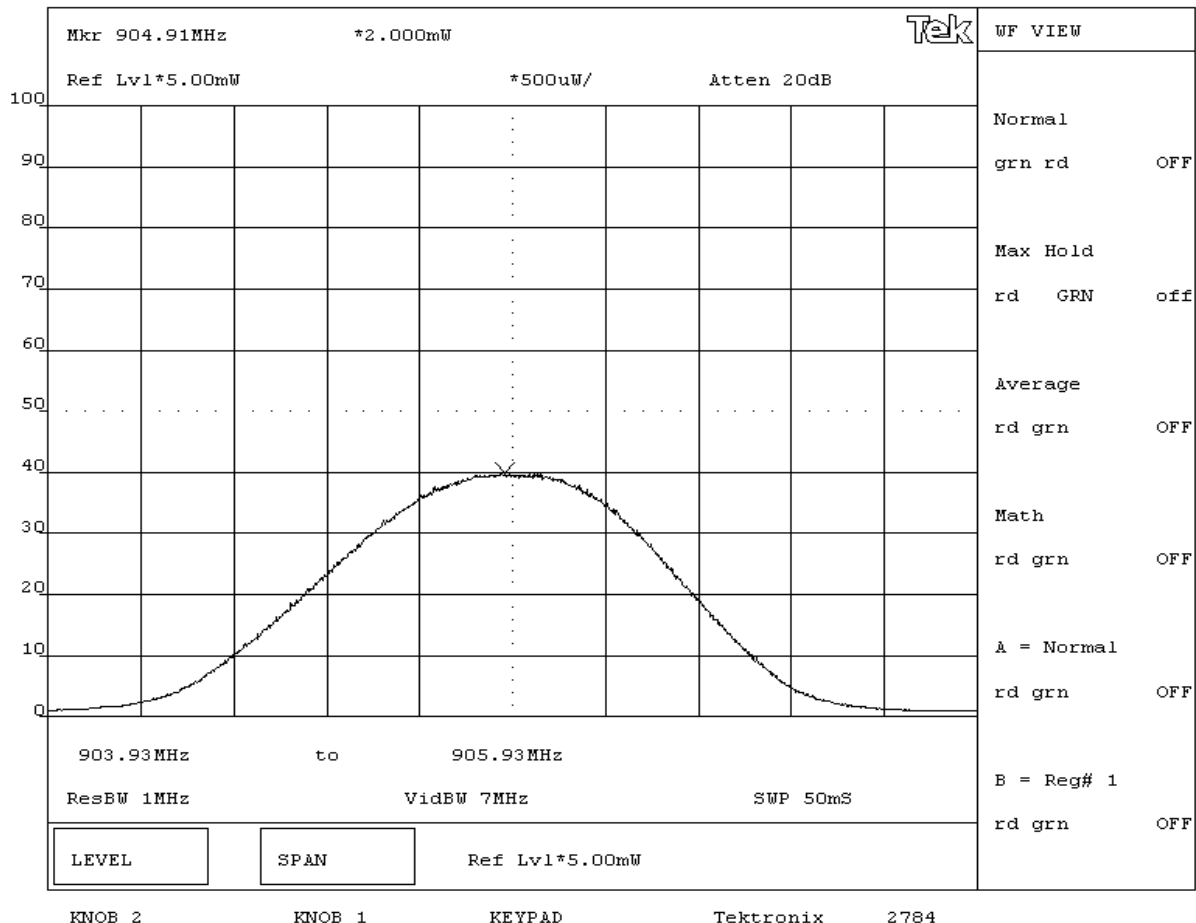
Configuration: The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode.


De Facto EIRP Limit: Per 47 CFR 15.247 (b)(4), the EUT meets the de facto EIRP limit of +36dBm.

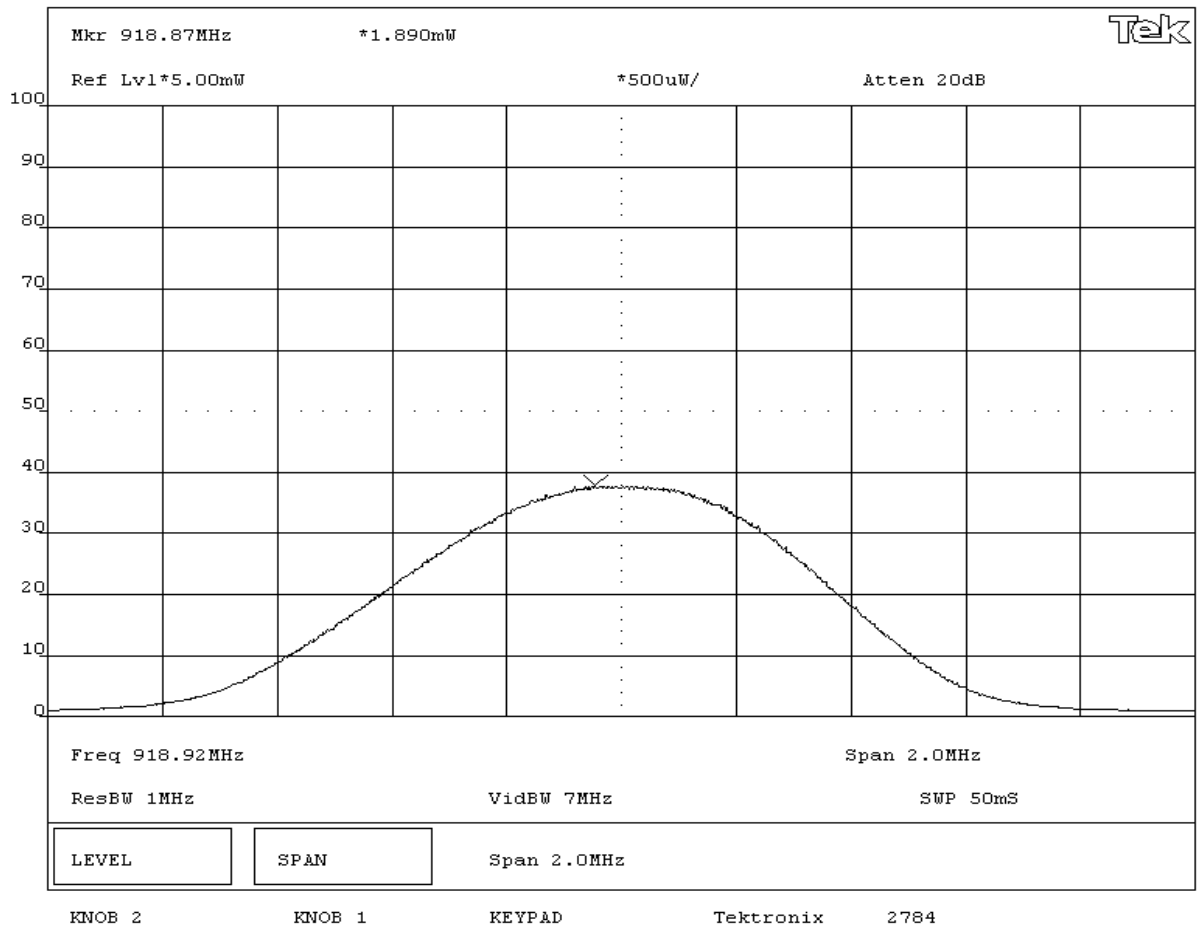
Completed by:




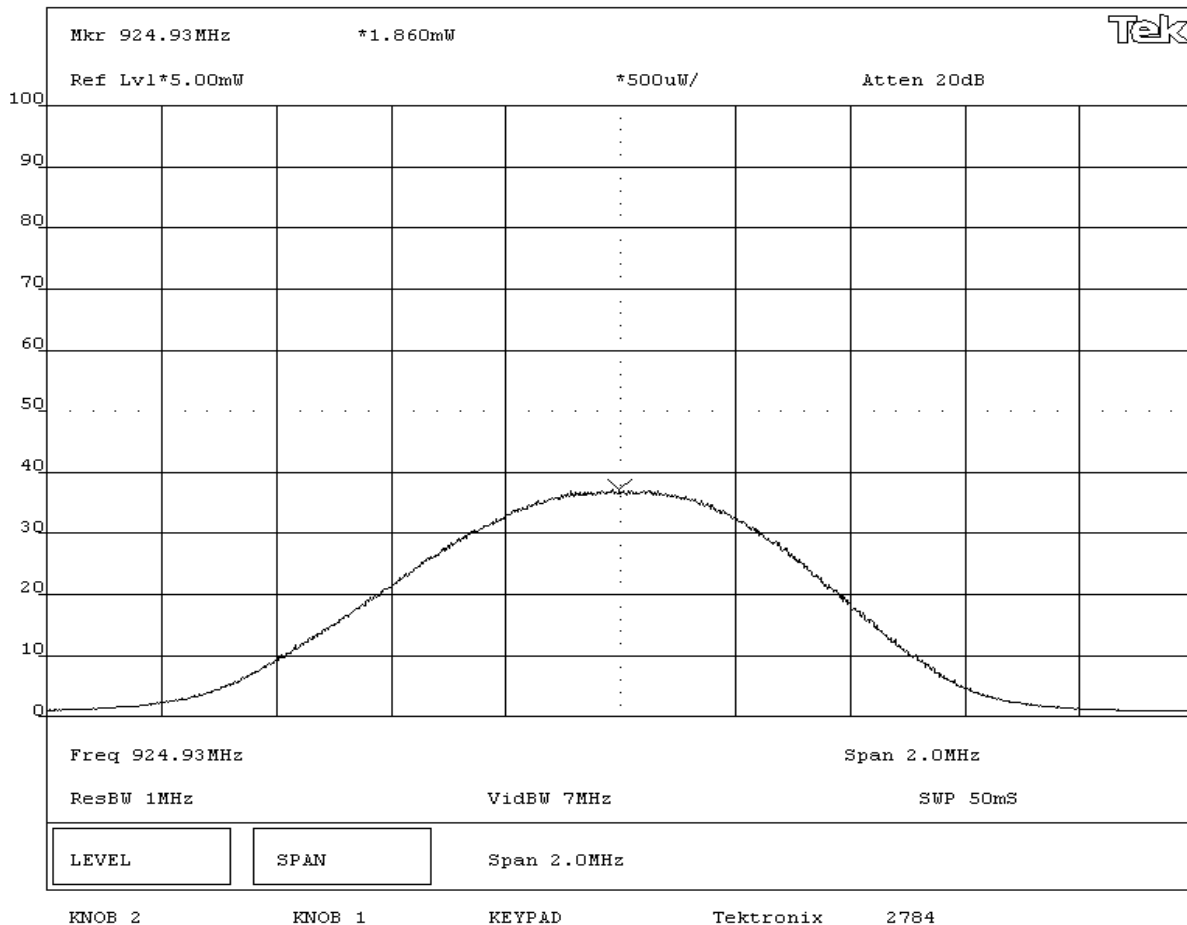
| NORTHWEST EMC | | | | EMISSIONS DATA SHEET | | | | Transmitters | |
|---|--|--|--|-----------------------------|--|-------------------------------|--|----------------|--|
| | | | | Output Power | | | | Rev dt11/15/02 | |
| EUT: MRP6/ MRP7 | | | | Work Order: WATT0011 | | | | | |
| Serial Number: N/A | | | | Date: 06/06/03 | | | | | |
| Customer: The Watt Stopper, Inc. | | | | Temperature: 25 °C | | | | | |
| Attendees: None | | | | Humidity: 34% | | | | | |
| Customer Ref. No.: N/A | | | | Bar. Pressure: 29.89 | | | | | |
| Tested by: Rod Peloquin | | | | Power: 120VAC/60Hz | | | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | | | | | |
| Specification: CFR 47 Part15.247(b)(3) | | | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| None | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| No hop mode | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| None | | | | | | | | | |
| REQUIREMENTS | | | | | | | | | |
| Peak Output Power cannot exceed .25 Watt | | | | | | | | | |
| RESULTS | | | | | | | | | |
| Pass | | | | | | | | | |
| AMPLITUDE | | | | | | | | | |
| 2.0mW | | | | | | | | | |
| SIGNATURE | | | | | | | | | |
|  Tested By: _____ | | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | | |
| Low Channel | | | | | | | | | |



| | | | | | |
|---|--|----------------------|--|-------------------------------|--|
| NORTHWEST | | EMISSIONS DATA SHEET | | Transmitters | |
| EMC | | Output Power | | | |
| EUT: MRP6/ MRP7 | | | | Work Order: WATT0011 | |
| Serial Number: N/A | | | | Date: 06/06/03 | |
| Customer: The Watt Stopper, Inc. | | | | Temperature: 25 °C | |
| Attendees: None | | | | Humidity: 34% | |
| Customer Ref. No.: N/A | | | | Bar. Pressure: 29.89 | |
| Tested by: Rod Peloquin | | Power: 120VAC/60Hz | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | |
| Specification: CFR 47 Part15.247(b)(3) | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | |
| | | | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| None | | | | | |
| REQUIREMENTS | | | | | |
| Peak Output Power cannot exceed .25 Watt | | | | | |
| RESULTS | | | | | |
| AMPLITUDE | | | | | |
| Pass 1.89mW | | | | | |
| SIGNATURE | | | | | |
| <div>Tested By: </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| Mid Channel | | | | | |



| NORTHWEST EMC | | | | EMISSIONS DATA SHEET | | | | Transmitters | |
|--|--|--|--|-----------------------------|------------------|-------------------------------|--|----------------|--|
| | | | | Output Power | | | | Rev df11/15/02 | |
| EUT: MRP6/ MRP7 | | | | Work Order: WATT0011 | | | | | |
| Serial Number: N/A | | | | Date: 06/06/03 | | | | | |
| Customer: The Watt Stopper, Inc. | | | | Temperature: 25 °C | | | | | |
| Attendees: None | | | | Humidity: 34% | | | | | |
| Customer Ref. No.: N/A | | | | Bar. Pressure: 29.89 | | | | | |
| Tested by: Rod Peloquin | | | | Power: 120VAC/60Hz | | | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | | | | | |
| Specification: CFR 47 Part15.247(b)(3) | | | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| None | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| No hop mode | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| None | | | | | | | | | |
| REQUIREMENTS | | | | | | | | | |
| Peak Output Power cannot exceed .25 Watt | | | | | | | | | |
| RESULTS | | | | | AMPLITUDE | | | | |
| Pass | | | | | 1.86mW | | | | |
| SIGNATURE | | | | | | | | | |
| <div style="text-align: center;">  Tested By: _____ </div> | | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | | |
| High Channel | | | | | | | | | |



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Software\Firmware Applied During Test

| | | | |
|---|------------------------------|---------|---------|
| Exercise software | Standard Production Software | Version | Unknown |
| Description | | | |
| Transmits at low, mid, and high channels. | | | |

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| AC Adapter | N/A | A35-U0900 | N/A |
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |
| EUT | The Watt Stopper, Inc. | MRP7 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|-------------------|--------------|-------|------------|------------|----------|
| Spectrum Analyzer | Tektronix | 2784 | AAO | 02/26/2003 | 24 mo |


Test Description

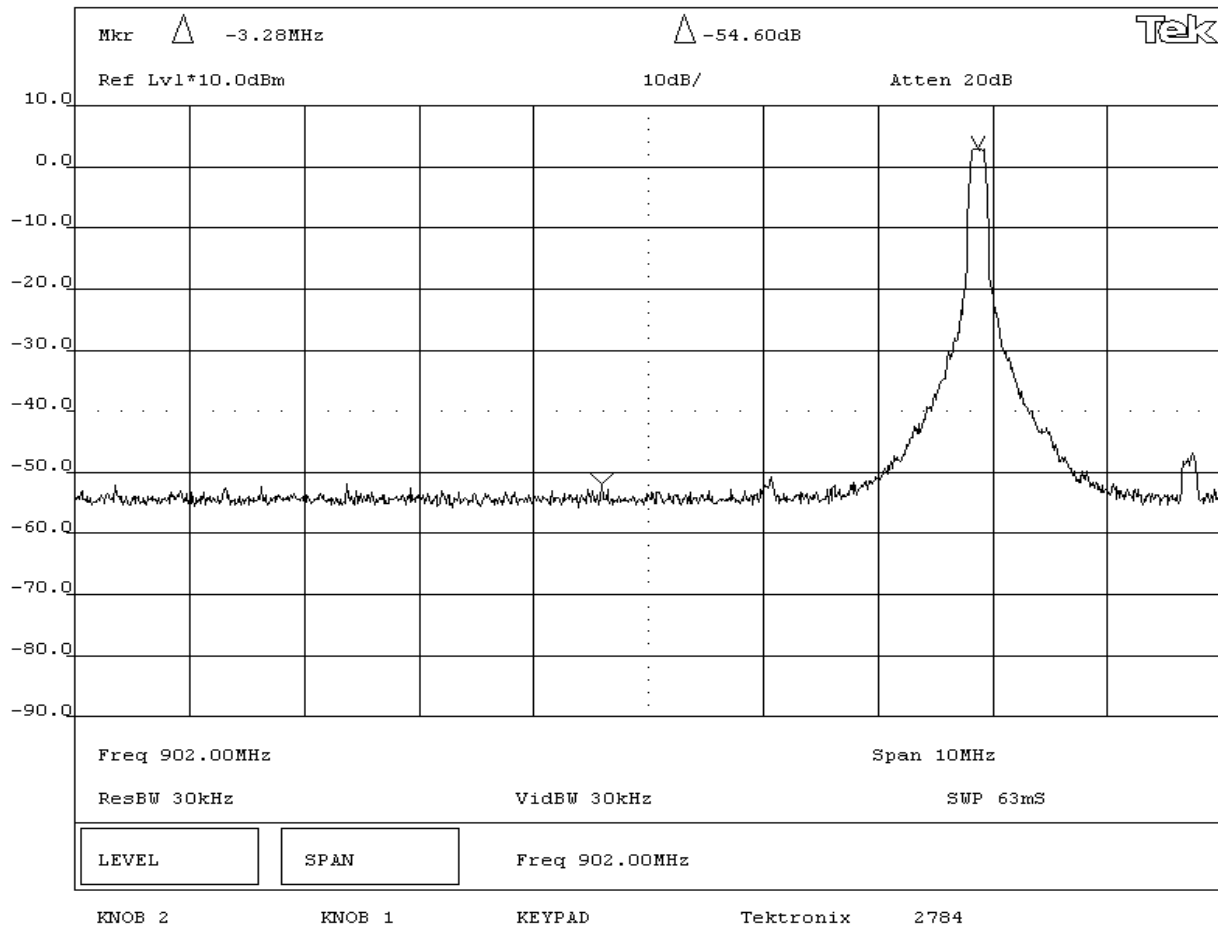
Requirement: Per 47 CFR 15.247(c), in any 100 kHz bandwidth outside the authorized band, the maximum level of radio frequency power must be at least 20dB down from the highest emission level within the authorized band. The measurement is made with the spectrum analyzer's resolution bandwidth set to 100 kHz, and the video bandwidth set to greater than or equal to the resolution bandwidth.


Configuration: The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to low 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 maximum data rate in a no hop mode. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 5 MHz below the band edge to 5 MHz above the band edge.

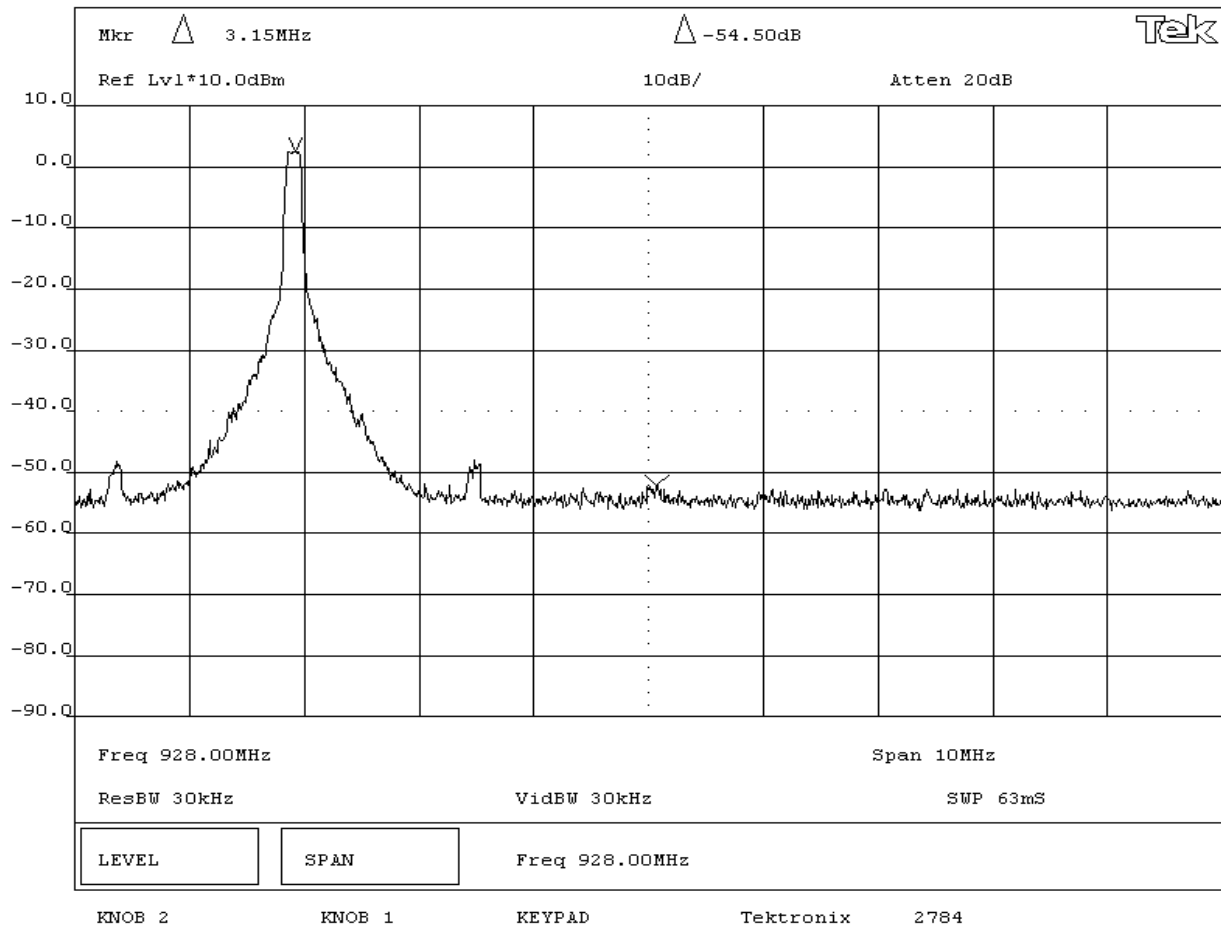
Completed by:



| EMISSIONS DATA SHEET | | | | Transmitters | |
|---|--|----------------------------------|-----------|-------------------------------|--|
| Band Edge Compliance | | | | Rev dt11/15/02 | |
| NORTHWEST | | EUT: MRP6 / MRP7 | | Work Order: WATT0011 | |
| EMC | | Serial Number: N/A | | Date: 06/09/03 | |
| | | Customer: The Watt Stopper, Inc. | | Temperature: 25 °C | |
| | | Attendees: None | | Humidity: 34% | |
| | | Customer Ref. No.: N/A | | Bar. Pressure: 30.15 | |
| | | Tested by: Rod Peloquin | | Power: 120VAC/60Hz | |
| | | | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | |
| Specification: CFR 47 Part 15.247(c) | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | |
| | | | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | AMPLITUDE | | |
| | | | -54.6db | | |
| SIGNATURE | | | | | |
|  Tested By: _____ | | | | | |
| DESCRIPTION OF TEST | | | | | |
| Low Channel | | | | | |



| NORTHWEST EMC | | | | EMISSIONS DATA SHEET Band Edge Compliance | | | | Transmitters Rev dt11/15/02 | |
|--|--|--|--|---|--|-------------------------------|--|--------------------------------|--|
| EUT: MRP6 / MRP7 | | | | Work Order: WATT0011 | | | | | |
| Serial Number: N/A | | | | Date: 06/09/03 | | | | | |
| Customer: The Watt Stopper, Inc. | | | | Temperature: 25 °C | | | | | |
| Attendees: None | | | | Humidity: 34% | | | | | |
| Customer Ref. No.: N/A | | | | Bar. Pressure: 30.15 | | | | | |
| Tested by: Rod Peloquin | | | | Power: 120VAC/60Hz | | | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | | | | | |
| Specification: CFR 47 Part 15.247(c) | | | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| None | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| No hop mode | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| | | | | | | | | | |
| REQUIREMENTS | | | | | | | | | |
| | | | | | | | | | |
| RESULTS | | | | | | | | | |
| Pass | | | | AMPLITUDE -54.5dB | | | | | |
| SIGNATURE | | | | | | | | | |
| <div style="text-align: center;">  Tested By: _____ </div> | | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | | |
| High Channel | | | | | | | | | |



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Mid

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Maximum

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Frequency Range Investigated

Start Frequency

0 MHz

Stop Frequency

10 GHz

Software\Firmware Applied During Test

Exercise software

Standard Production
Software

Version

Unknown

Description

Transmits at low, mid, and high channels.

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| AC Adapter | N/A | A35-U0900 | N/A |
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |
| EUT | The Watt Stopper, Inc. | MRP7 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|-------------------|--------------|-------|------------|------------|----------|
| Spectrum Analyzer | Tektronix | 2784 | AAO | 02/26/2003 | 24 mo |


Test Description

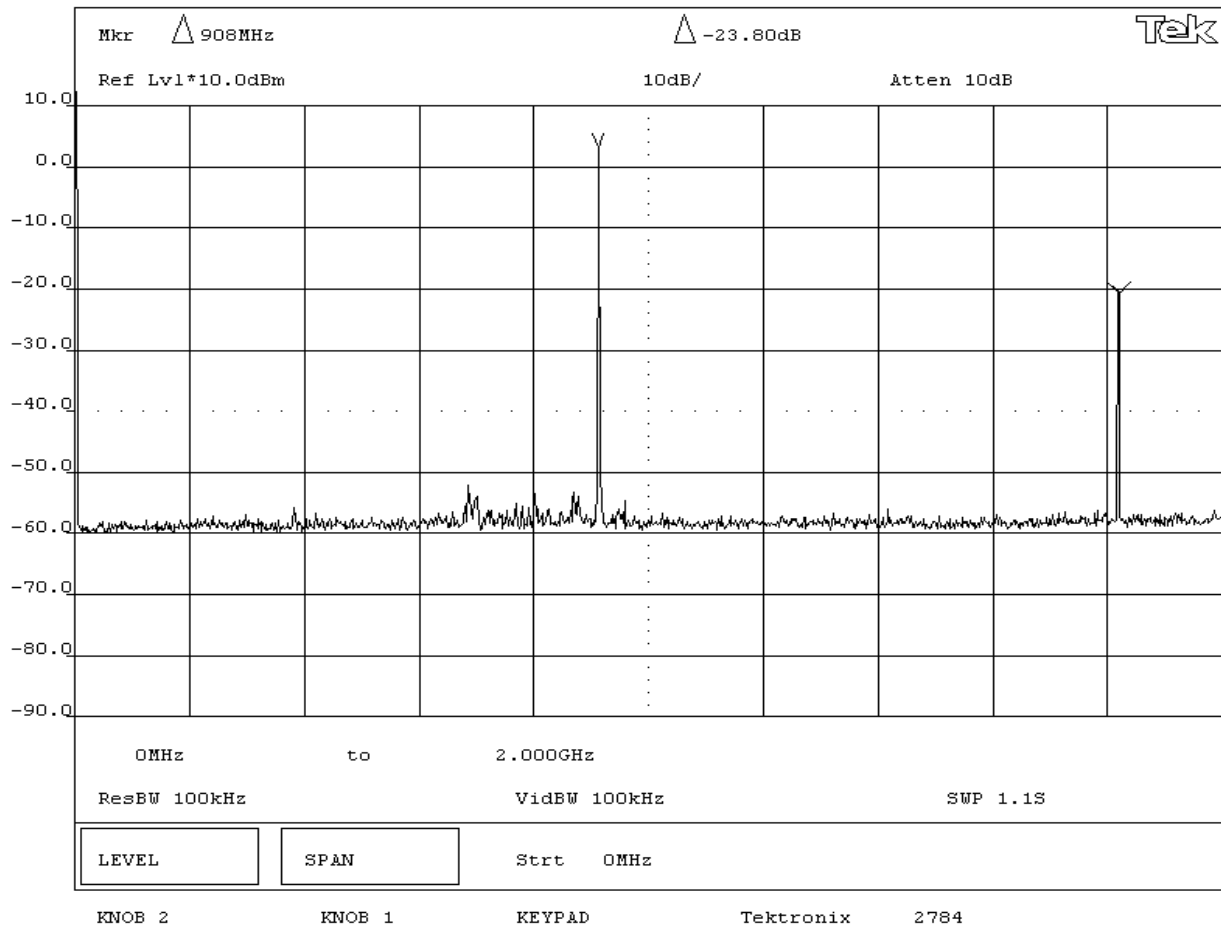
Requirement: Per 47 CFR 15.247(c), in any 100 kHz bandwidth outside the authorized band, the maximum level of radio frequency power must be at least 20dB down from the highest emission level within the authorized band. The measurement is made with the spectrum analyzer's resolution bandwidth set to 100 kHz, and the video bandwidth set to greater than or equal to the resolution bandwidth.


Configuration: 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 maximum data rate in a no hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency.

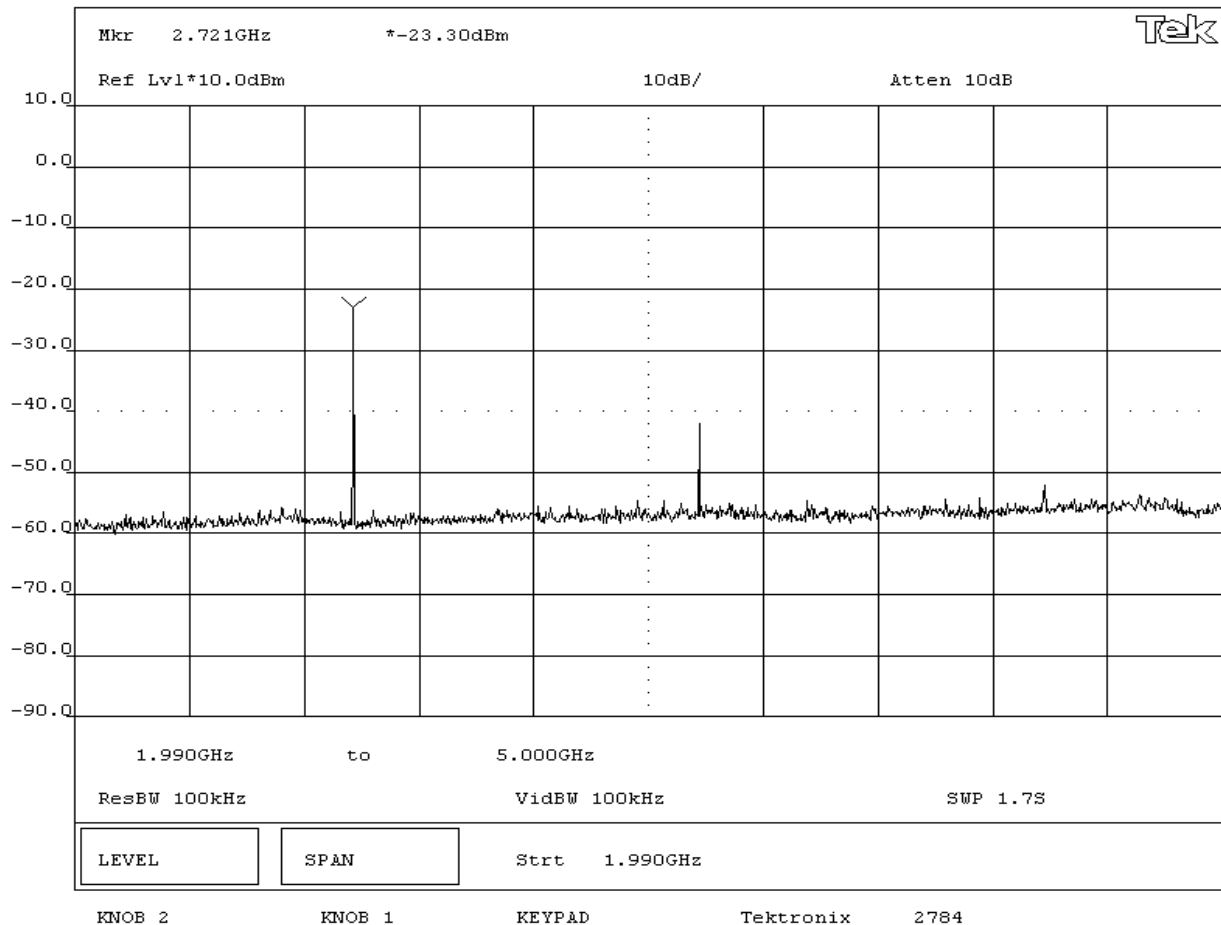
Completed by:




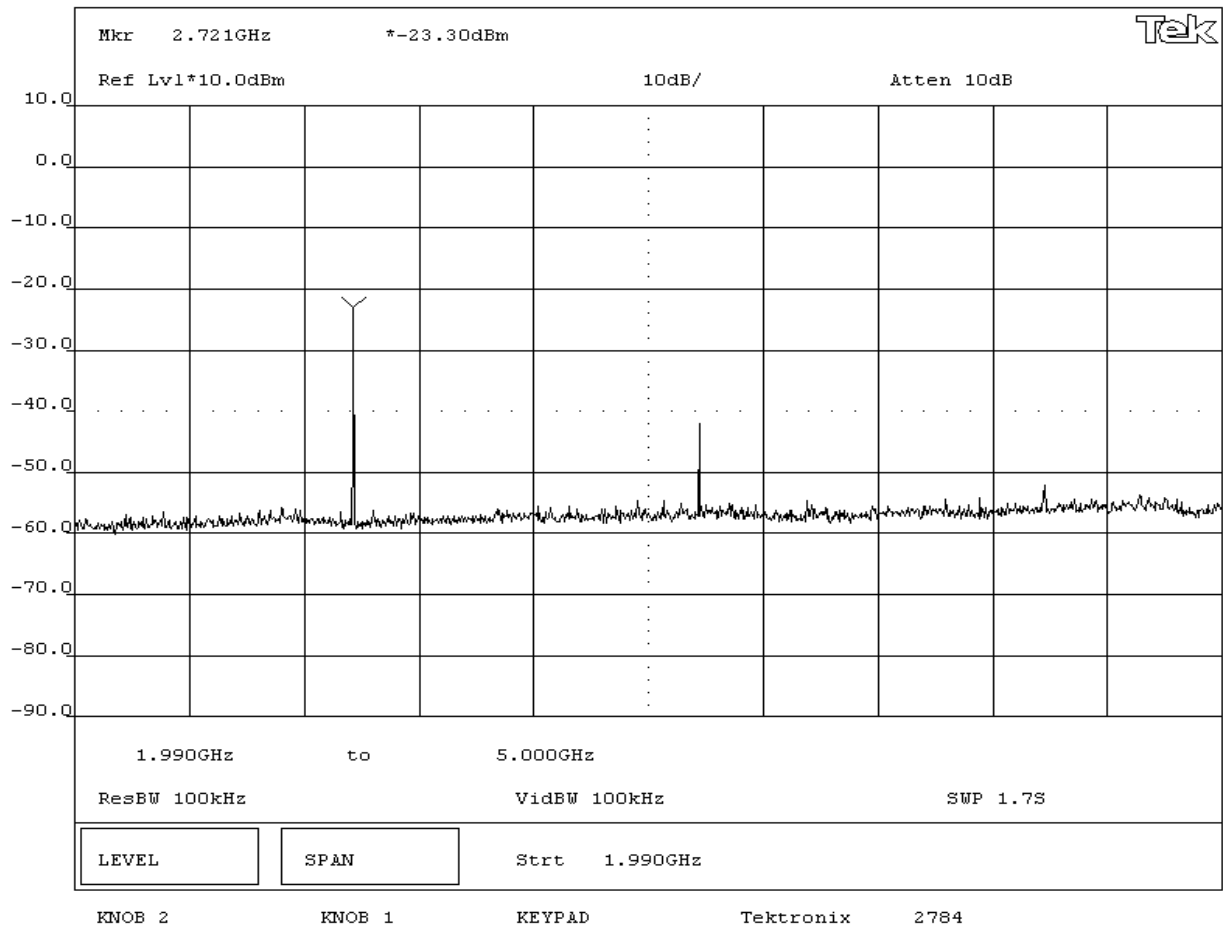
| NORTHWEST EMC | | EMISSIONS DATA SHEET Antenna Conducted Spurious | | Transmitters Rev dt11/15/02 | |
|---|------------------------|---|-------------|--------------------------------|-----------------------|
| EUT: | MRP6 / MRP 7 | Work Order: | WATT0011 | | |
| Serial Number: | N/A | Date: | 06/10/03 | | |
| Customer: | The Watt Stopper, Inc. | Temperature: | 25 °C | | |
| Attendees: | None | Humidity: | 34% | | |
| Customer Ref. No.: | N/A | Bar. Pressure: | 30.15 | | |
| Tested by: | Rod Peloquin | Power: | 120VAC/60Hz | Job Site: | EV06 |
| TEST SPECIFICATIONS | | | | | |
| Specification: | CFR 47 Part 15.247(c) | Year: | 2003 | Method: | DA 00-705, ANSI C63.4 |
| Year: | | 1992 | | | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | | | |
| SIGNATURE | | | | | |
|  Tested By: _____ | | | | | |
| DESCRIPTION OF TEST | | | | | |
| Low Channel 0MHz-2GHz | | | | | |




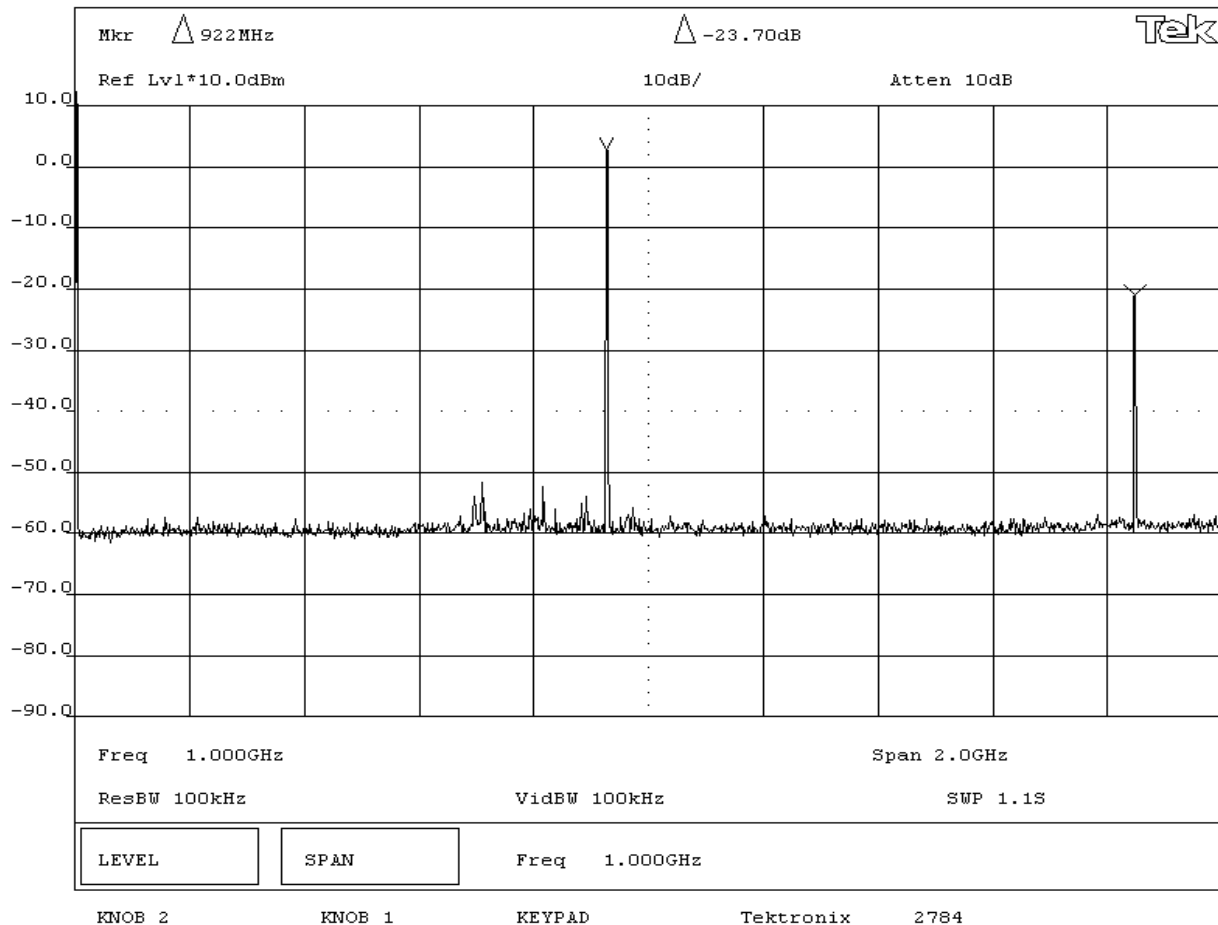
| | | | | | |
|---|--|-----------------------------------|--|-------------------------------|--|
| NORTHWEST | | EMISSIONS DATA SHEET | | Transmitters | |
| EMC | | Antenna Conducted Spurious | | Rev dt11/15/02 | |
| EUT: MRP6 / MRP 7 | | Work Order: WATT0011 | | | |
| Serial Number: N/A | | Date: 06/10/03 | | | |
| Customer: The Watt Stopper, Inc. | | Temperature: 25 °C | | | |
| Attendees: None | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | Power: 120VAC/60Hz | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | |
| Specification: CFR 47 Part 15.247(c) | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | |
| | | | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | | | |
| SIGNATURE | | | | | |
| <div>Tested By: </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| Low Channel 2GHz-5GHz | | | | | |




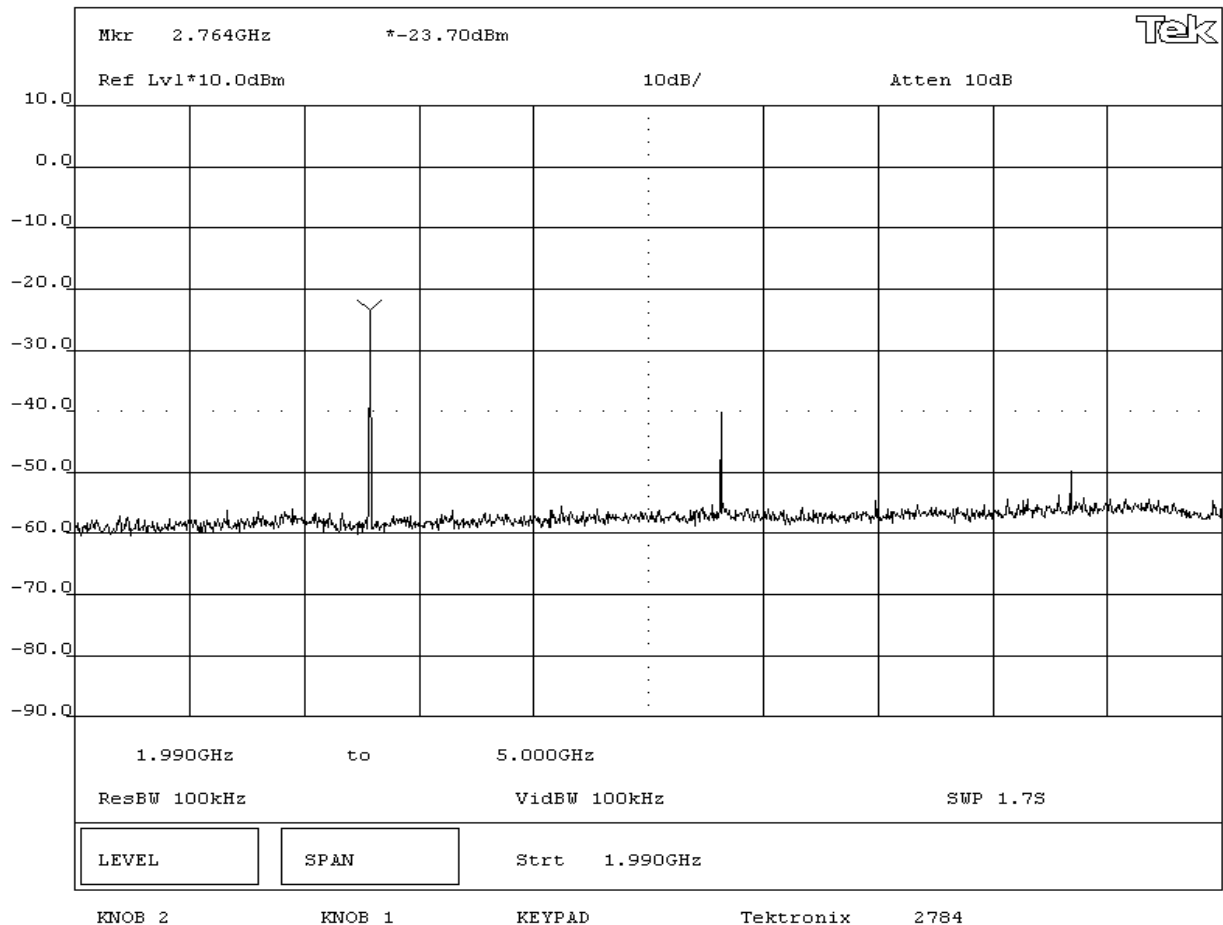
| NORTHWEST EMC | | | | EMISSIONS DATA SHEET Antenna Conducted Spurious | | | | Transmitters Rev dt11/15/02 | |
|--|--|--|--|---|--|-------------------------------|--|--------------------------------|--|
| EUT: MRP6 / MRP 7 | | | | Work Order: WATT0011 | | | | | |
| Serial Number: N/A | | | | Date: 06/10/03 | | | | | |
| Customer: The Watt Stopper, Inc. | | | | Temperature: 25 °C | | | | | |
| Attendees: None | | | | Humidity: 34% | | | | | |
| Customer Ref. No.: N/A | | | | Bar. Pressure: 30.15 | | | | | |
| Tested by: Rod Peloquin | | | | Power: 120VAC/60Hz | | | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | | | | | |
| Specification: CFR 47 Part 15.247(c) | | | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| None | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| No hop mode | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| | | | | | | | | | |
| REQUIREMENTS | | | | | | | | | |
| | | | | | | | | | |
| RESULTS | | | | | | | | | |
| Pass | | | | | | | | | |
| SIGNATURE | | | | | | | | | |
| <div style="text-align: center;">  Tested By: _____ </div> | | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | | |
| Low Channel 5GHz-10GHz | | | | | | | | | |




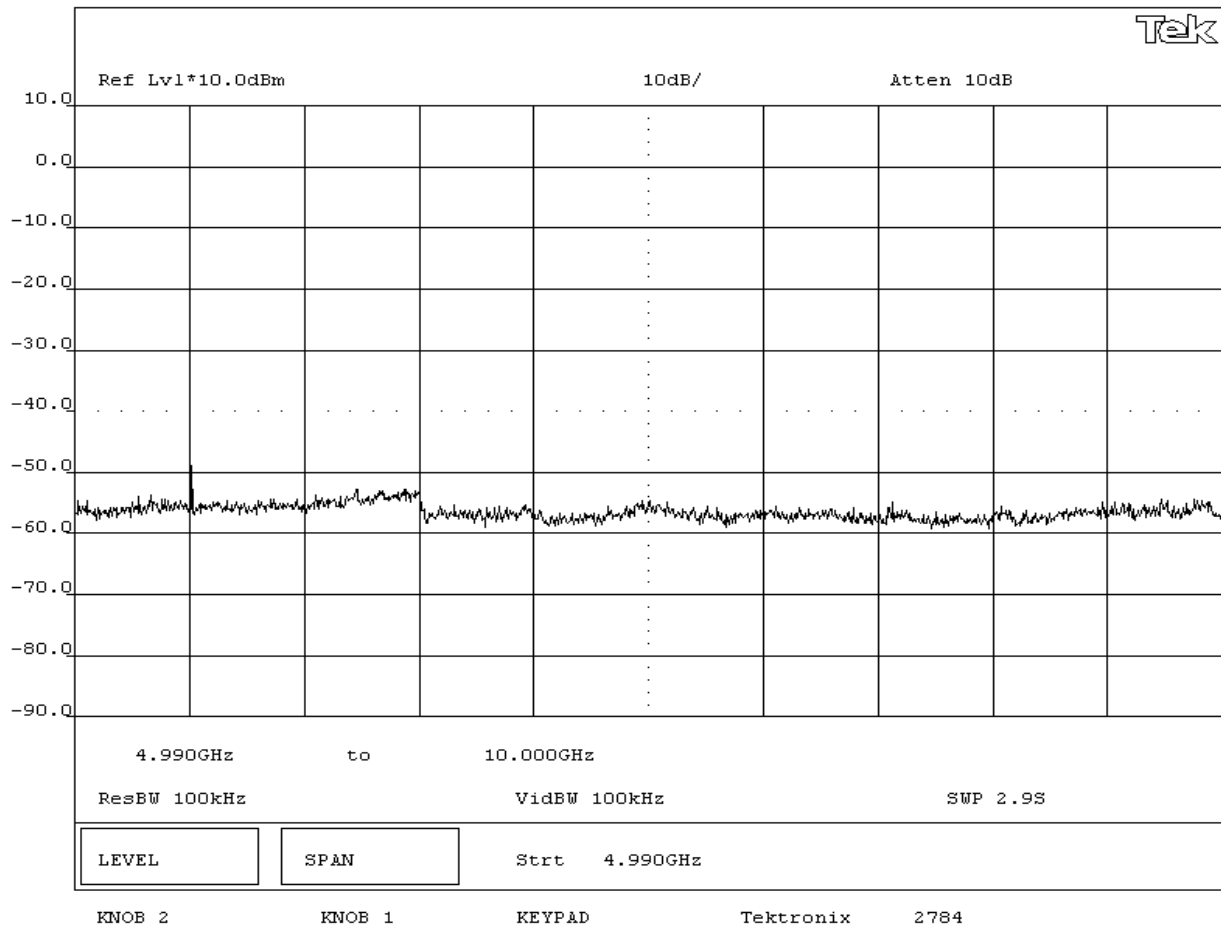
| NORTHWEST EMC | | EMISSIONS DATA SHEET Antenna Conducted Spurious | | Transmitters Rev dt11/15/02 | |
|--|------------------------|---|-------------|--------------------------------|-----------------------|
| EUT: | MRP6 / MRP 7 | Work Order: | WATT0011 | | |
| Serial Number: | N/A | Date: | 06/10/03 | | |
| Customer: | The Watt Stopper, Inc. | Temperature: | 25 °C | | |
| Attendees: | None | Humidity: | 34% | | |
| Customer Ref. No.: | N/A | Bar. Pressure: | 30.15 | | |
| Tested by: | Rod Peloquin | Power: | 120VAC/60Hz | Job Site: | EV06 |
| TEST SPECIFICATIONS | | | | | |
| Specification: | CFR 47 Part 15.247(c) | Year: | 2003 | Method: | DA 00-705, ANSI C63.4 |
| Year: | | 1992 | | | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | | | |
| SIGNATURE | | | | | |
| <div style="text-align: center;">  Tested By: _____ </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| Mid Channel 0MHz-2GHz | | | | | |




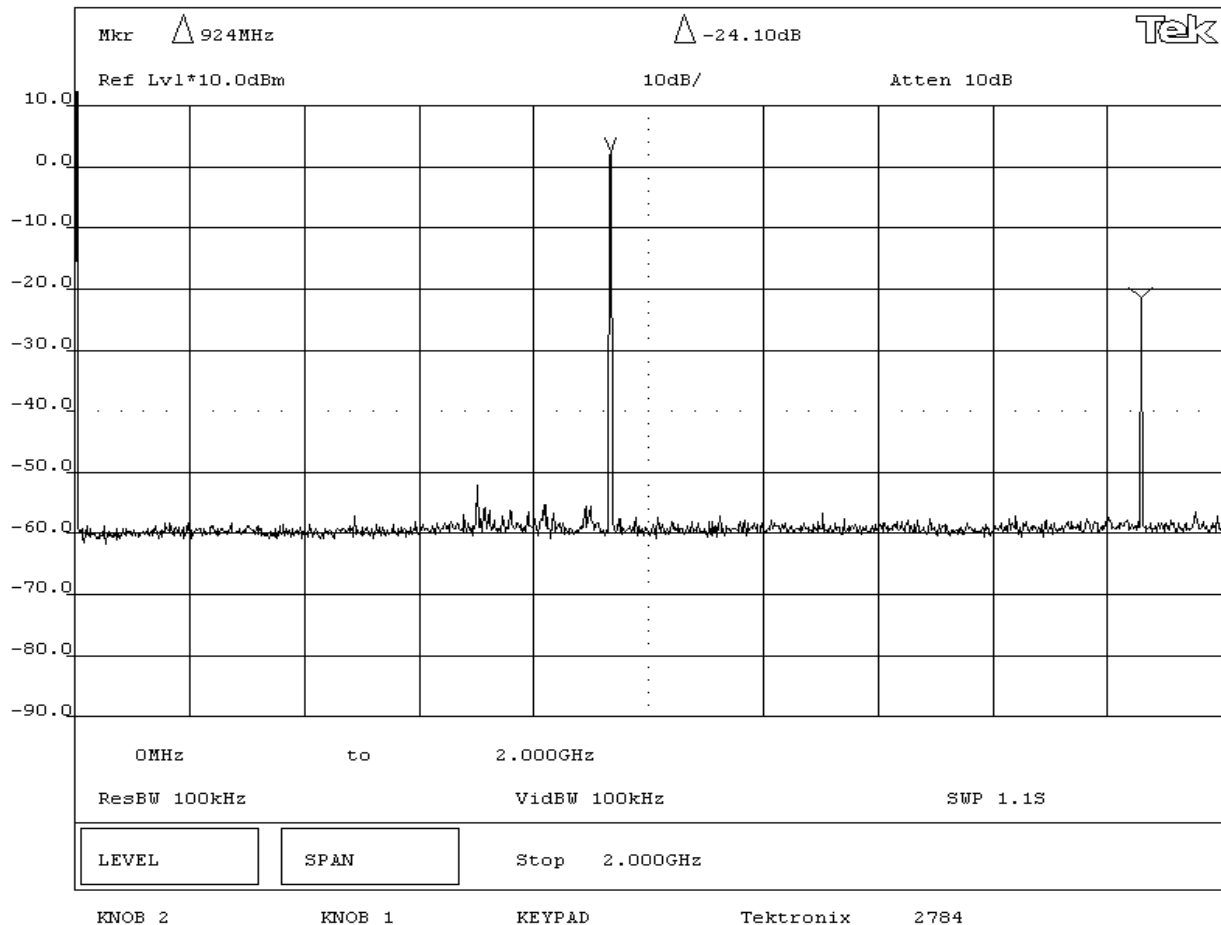
| | | | | | |
|---|--|-----------------------------------|--|-------------------------------|--|
| NORTHWEST | | EMISSIONS DATA SHEET | | Transmitters | |
| EMC | | Antenna Conducted Spurious | | Rev dt11/15/02 | |
| EUT: MRP6 / MRP 7 | | Work Order: WATT0011 | | | |
| Serial Number: N/A | | Date: 06/10/03 | | | |
| Customer: The Watt Stopper, Inc. | | Temperature: 25 °C | | | |
| Attendees: None | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | Power: 120VAC/60Hz | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | |
| Specification: CFR 47 Part 15.247(c) | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | |
| | | | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | | | |
| SIGNATURE | | | | | |
| <div>Tested By: </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| Mid Channel 2GHz-5GHz | | | | | |




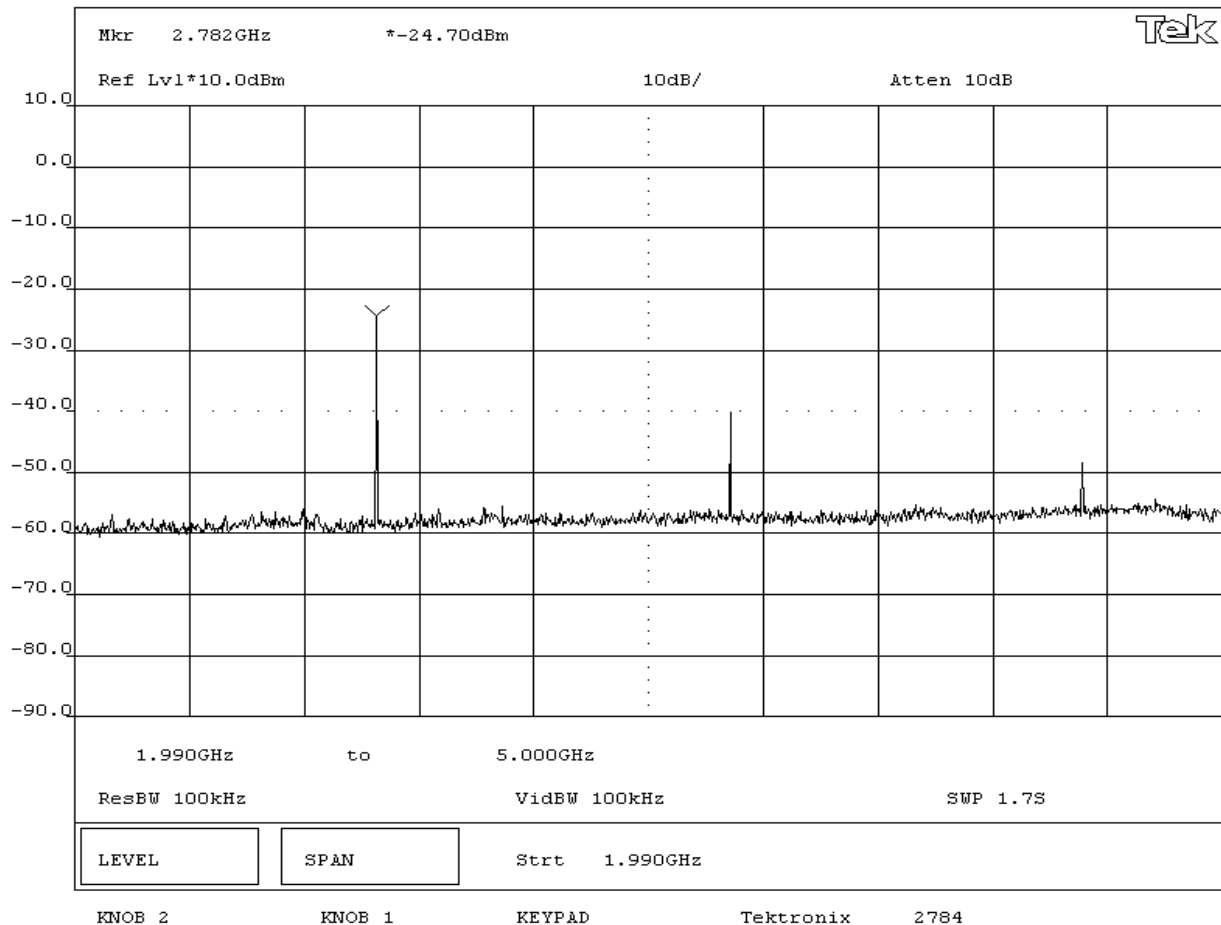
| | | | | | |
|---|--|-----------------------------------|--|-------------------------------|--|
| NORTHWEST | | EMISSIONS DATA SHEET | | Transmitters | |
| EMC | | Antenna Conducted Spurious | | Rev dt11/15/02 | |
| EUT: MRP6 / MRP 7 | | Work Order: WATT0011 | | | |
| Serial Number: N/A | | Date: 06/10/03 | | | |
| Customer: The Watt Stopper, Inc. | | Temperature: 25 °C | | | |
| Attendees: None | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | Power: 120VAC/60Hz | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | |
| Specification: CFR 47 Part 15.247(c) | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | |
| | | | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | | | |
| SIGNATURE | | | | | |
| <div>Tested By: </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| Mid Channel 5GHz-10GHz | | | | | |




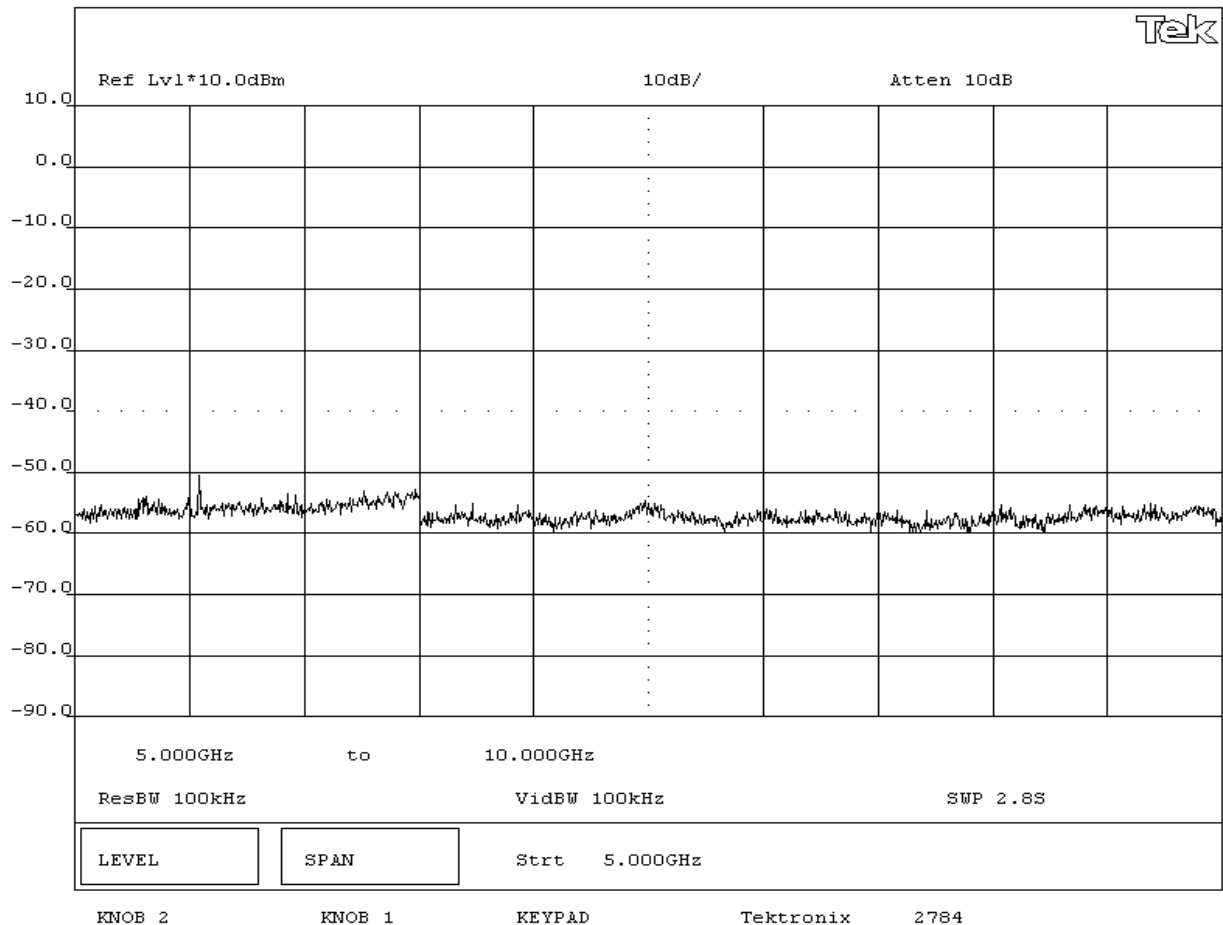
| NORTHWEST EMC | | EMISSIONS DATA SHEET Antenna Conducted Spurious | | Transmitters Rev dt11/15/02 | |
|--|------------------------|---|-------------|--------------------------------|-----------------------|
| EUT: | MRP6 / MRP 7 | Work Order: | WATT0011 | | |
| Serial Number: | N/A | Date: | 06/10/03 | | |
| Customer: | The Watt Stopper, Inc. | Temperature: | 25 °C | | |
| Attendees: | None | Humidity: | 34% | | |
| Customer Ref. No.: | N/A | Bar. Pressure: | 30.15 | | |
| Tested by: | Rod Peloquin | Power: | 120VAC/60Hz | Job Site: | EV06 |
| TEST SPECIFICATIONS | | | | | |
| Specification: | CFR 47 Part 15.247(c) | Year: | 2003 | Method: | DA 00-705, ANSI C63.4 |
| Year: | | 1992 | | | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | | | |
| SIGNATURE | | | | | |
| <div style="text-align: center;">  Tested By: _____ </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| High Channel 0MHz-2GHz | | | | | |



| | | | | | |
|---|--|-----------------------------------|--|-------------------------------|--|
| NORTHWEST | | EMISSIONS DATA SHEET | | Transmitters | |
| EMC | | Antenna Conducted Spurious | | Rev dt11/15/02 | |
| EUT: MRP6 / MRP 7 | | Work Order: WATT0011 | | | |
| Serial Number: N/A | | Date: 06/10/03 | | | |
| Customer: The Watt Stopper, Inc. | | Temperature: 25 °C | | | |
| Attendees: None | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | Power: 120VAC/60Hz | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | |
| Specification: CFR 47 Part 15.247(c) | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | |
| | | | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | | | |
| SIGNATURE | | | | | |
| <div>Tested By: </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| High Channel 2GHz-5GHz | | | | | |



| | | | | | |
|---|--|-----------------------------------|--|-------------------------------|--|
| NORTHWEST | | EMISSIONS DATA SHEET | | Transmitters | |
| EMC | | Antenna Conducted Spurious | | Rev dt11/15/02 | |
| EUT: MRP6 / MRP 7 | | Work Order: WATT0011 | | | |
| Serial Number: N/A | | Date: 06/10/03 | | | |
| Customer: The Watt Stopper, Inc. | | Temperature: 25 °C | | | |
| Attendees: None | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | Power: 120VAC/60Hz | | Job Site: EV06 | |
| TEST SPECIFICATIONS | | | | | |
| Specification: CFR 47 Part 15.247(c) | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | |
| | | | | Year: 1992 | |
| SAMPLE CALCULATIONS | | | | | |
| | | | | | |
| COMMENTS | | | | | |
| None | | | | | |
| EUT OPERATING MODES | | | | | |
| No hop mode | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | |
| | | | | | |
| REQUIREMENTS | | | | | |
| | | | | | |
| RESULTS | | | | | |
| Pass | | | | | |
| SIGNATURE | | | | | |
| <div>Tested By: </div> | | | | | |
| DESCRIPTION OF TEST | | | | | |
| High Channel 5GHz-10GHz | | | | | |



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Mid

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120VAC, 60 Hz

Software\Firmware Applied During Test

| | | | |
|---|------------------------------|---------|---------|
| Exercise software | Standard Production Software | Version | Unknown |
| Description | | | |
| Transmits at low, mid, and high channels. | | | |

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |
| EUT | The Watt Stopper, Inc. | MRP7 | N/A |
| AC Adapter | N/A | A35-U0900 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| DC Leads | PA | 1.2 | PA | EUT | AC Mains |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|-------------------|--------------|-------|------------|------------|----------|
| Spectrum Analyzer | Tektronix | 2784 | AAO | 02/26/2003 | 24 mo |

Test Description

Requirement: Per 47 CFR 15.247(d), the peak power spectral density conducted from the antenna port of a direct sequence transmitter must not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission.

Configuration: The peak 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 maximum data rate using direct sequence modulation. Per the procedure outlined in FCC 97-114, the spectrum analyzer was used as follows:

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

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 34.8 dB for correction to 3 kHz."

Completed by:



NORTHWEST
EMC**EMISSIONS DATA SHEET**Rev BETA
01/30/01

| | | | | | |
|--------------------------------------|--|------------|--------------------------------|--|----------------|
| EUT: MRP6 / MRP7 | | | Work Order: WATT0011 | | |
| Serial Number: N/A | | | Date: 06/12/03 | | |
| Customer: The Watt Stopper, Inc. | | | Temperature: 25 °C | | |
| Attendees: None | | | Humidity: 34% | | |
| Customer Ref. No.: N/A | | | Bar. Pressure: 29.89 | | |
| Tested by: Rod Peloquin | | | Power: 120VAC/60Hz | | Job Site: EV06 |
| Specification: CFR 47 Part 15.247(d) | | Year: 2003 | Method: FCC 97-114, ANSI C63.4 | | Year: 1992 |

SAMPLE CALCULATIONS

Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation.

Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.

Bandwidth Correction Factor = $10 \cdot \log(3\text{kHz}/1\text{Hz})$ **COMMENTS****EUT OPERATING MODES**

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

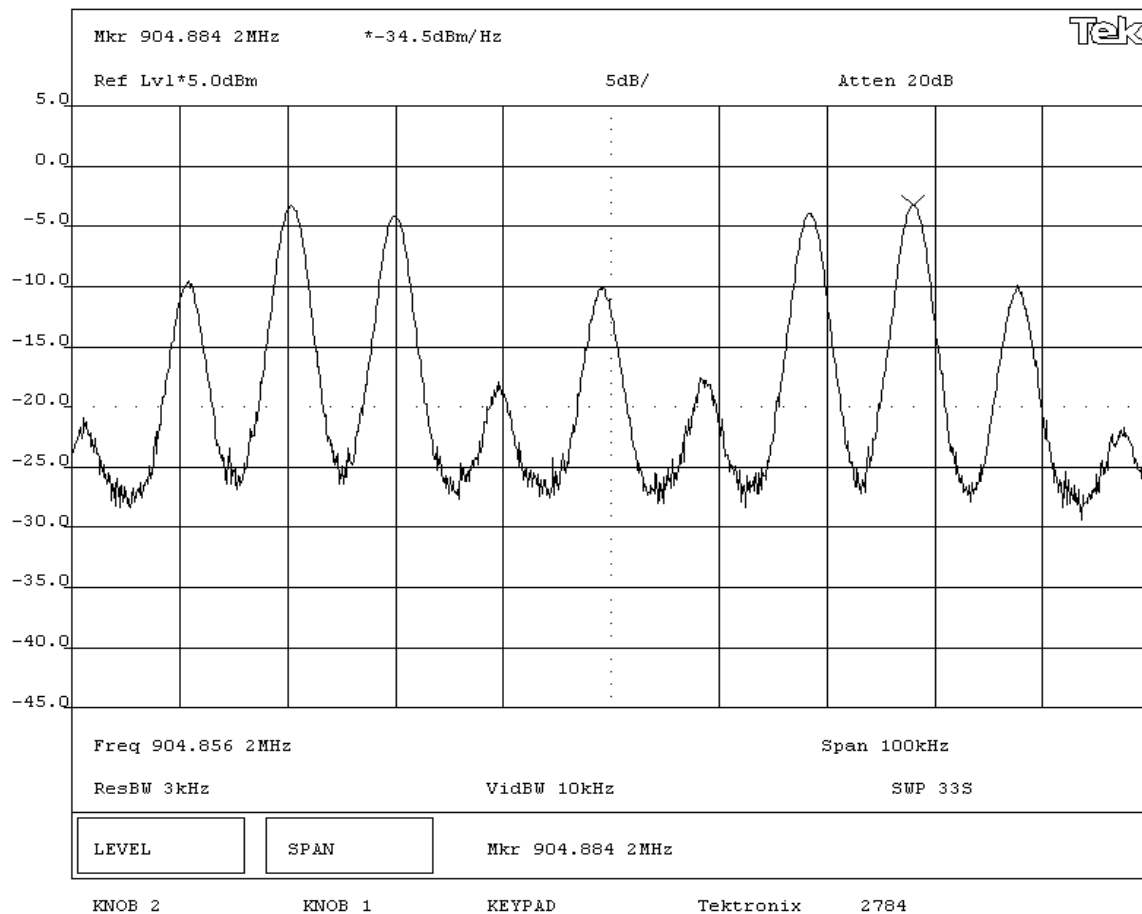
REQUIREMENTS

Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

RESULTS**AMPLITUDE**

Pass

Power Spectral Density = 0.3 dBm / 3kHz

SIGNATURETested By: **DESCRIPTION OF TEST****Power Spectral Density - Low Channel**

EMISSIONS DATA SHEET

Rev BETA
01/30/01

| | | | | | |
|--------------------------------------|--|------------|--------------------------------|--|----------------|
| EUT: MRP6 / MRP7 | | | Work Order: WATT0011 | | |
| Serial Number: N/A | | | Date: 06/12/03 | | |
| Customer: The Watt Stopper, Inc. | | | Temperature: 25 °C | | |
| Attendees: None | | | Humidity: 34% | | |
| Customer Ref. No.: N/A | | | Bar. Pressure: 29.89 | | |
| Tested by: Rod Peloquin | | | Power: 120VAC/60Hz | | Job Site: EV06 |
| Specification: CFR 47 Part 15.247(d) | | Year: 2003 | Method: FCC 97-114, ANSI C63.4 | | Year: 1992 |

SAMPLE CALCULATIONS

Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation

Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.

Bandwidth Correction Factor = $10 \cdot \log(3\text{kHz}/1\text{Hz})$

COMMENTS

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

RESULTS

AMPLITUDE

Pass

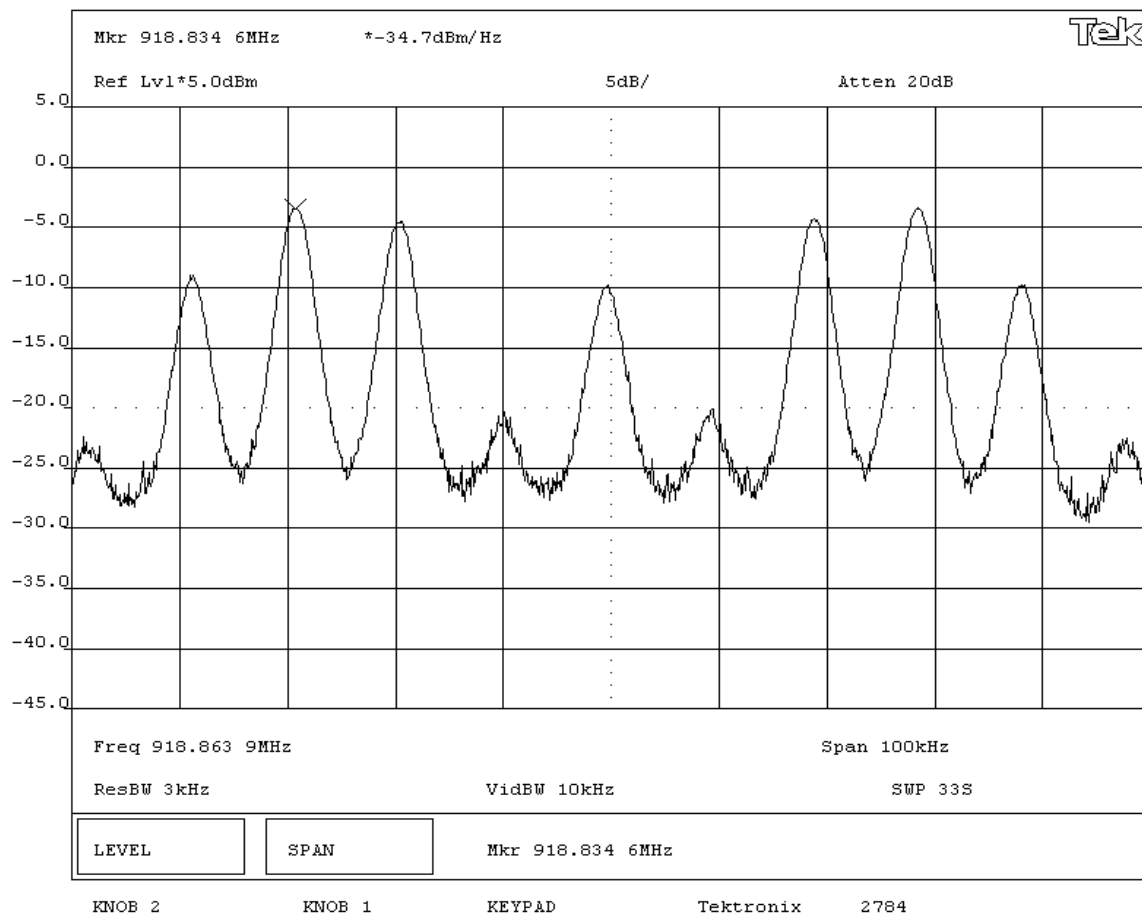
Power Spectral Density = 0.1 dBm / 3kHz

SIGNATURE

Tested By: 

DESCRIPTION OF TEST

Power Spectral Density - Mid Channel



NORTHWEST
EMC**EMISSIONS DATA SHEET**Rev BETA
01/30/01

| | | | | | |
|--------------------------------------|--|------------|--------------------------------|--|----------------|
| EUT: MRP6 / MRP7 | | | Work Order: WATT0011 | | |
| Serial Number: N/A | | | Date: 06/12/03 | | |
| Customer: The Watt Stopper, Inc. | | | Temperature: 25 °C | | |
| Attendees: None | | | Humidity: 34% | | |
| Customer Ref. No.: N/A | | | Bar. Pressure: 29.89 | | |
| Tested by: Rod Peloquin | | | Power: 120VAC/60Hz | | Job Site: EV06 |
| Specification: CFR 47 Part 15.247(d) | | Year: 2003 | Method: FCC 97-114, ANSI C63.4 | | Year: 1992 |

SAMPLE CALCULATIONS

Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation

Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.

Bandwidth Correction Factor = $10 \cdot \log(3\text{kHz}/1\text{Hz})$ **COMMENTS****EUT OPERATING MODES**

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

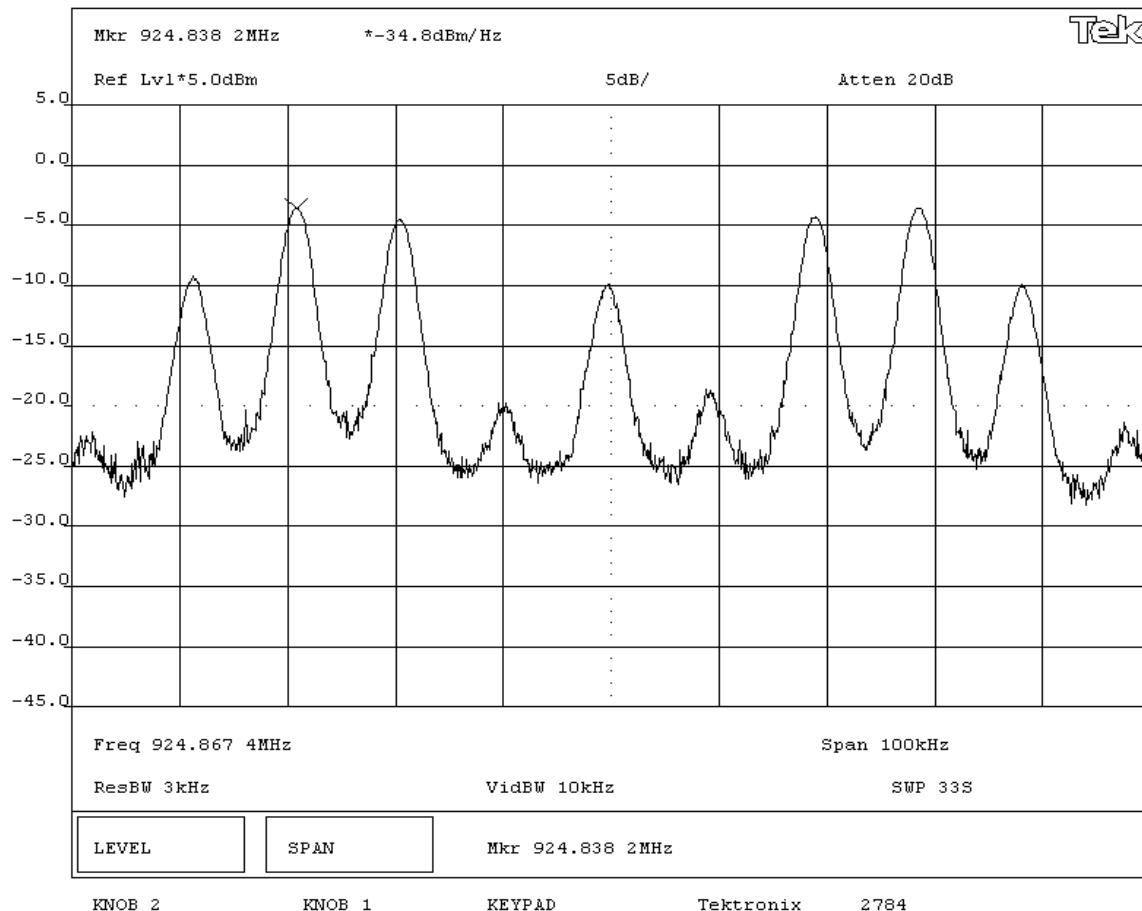
REQUIREMENTS

Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

RESULTS**AMPLITUDE**

Pass

Power Spectral Density = 0.0 dBm / 3kHz

SIGNATURETested By: **DESCRIPTION OF TEST****Power Spectral Density - High Channel**

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Mid

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Frequency Range Investigated

| | | | |
|-----------------|--------|----------------|--------|
| Start Frequency | 30 MHz | Stop Frequency | 10 GHz |
|-----------------|--------|----------------|--------|

Software\Firmware Applied During Test

| | | | |
|-------------------|------------------------------|---------|---------|
| Exercise software | Standard Production software | Version | Unknown |
|-------------------|------------------------------|---------|---------|

Description

Transmits at low, mid, and high channels.

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| EUT | The Watt Stopper, Inc. | MRP7 | N/A |
| AC Adapter | N/A | A35-U0900 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| AC Power | No | 1.8 | No | EUT | Unterminated |
| AC Power | No | 1.0 | No | EUT | Unterminated |
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|--------------------|--------------------|----------------------|------------|------------|----------|
| Spectrum Analyzer | Hewlett-Packard | 8566B | AAL | 01/07/2003 | 12 mo |
| Quasi-Peak Adapter | Hewlett-Packard | 85650A | AQF | 01/07/2003 | 12 mo |
| Pre-Amplifier | Amplifier Research | LN1000A | APS | 01/06/2003 | 12 mo |
| Pre-Amplifier | Miteq | AMF-4D-005180-24-10P | APJ | 01/06/2003 | 12 mo |
| Antenna, Biconilog | EMCO | 3141 | AXE | 12/31/2001 | 36 mo |
| Antenna, Horn | EMCO | 3115 | AHC | 08/12/2002 | 12 mo |
| High Pass Filter | Hewlett Packard | 84300-80037 | HFE | 05/01/2003 | 12 mo |

Test Description

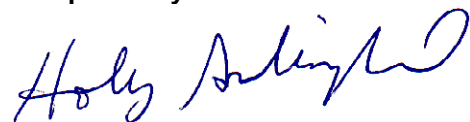
Requirement: The field strength of any spurious emissions or modulation products that fall in a restricted band, as defined in 47 CFR 15.205, is measured. The peak level must comply with the limits specified in 47 CFR 15.35(b). The average level (taken with a 10Hz VBW) must comply with the limits specified in 15.209.

Configuration: The only type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. The EUT was transmitting at its maximum data rate in a no hop mode. For each configuration, the spectrum was scanned from 30 MHz to 10 GHz. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:1992). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity. Since the dwell time per channel of the hopping signal was less than 100 ms, the readings obtained with the 10 Hz VBW were further reduced by a "duty cycle correction factor" of 15.5 dB, derived from $20\log(\text{dwell time}/100\text{ms})$, where the EUT's maximum dwell time in any 100ms period was measured to be 16.8 ms.

Bandwidths Used for Measurements

| 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 |
| <i>Measurements were made using the bandwidths and detectors specified. No video filter was used.</i> | | | |

Completed by:



NORTHWEST

REV
df3.10
03/10/2003

EMC

OATS DATA SHEET

| | | | | | | | |
|---------------------------------|--|---------------------|--|------------------------|--|--|--|
| EUT: MRP7 | | | | Work Order: WATT0012 | | | |
| Serial Number: | | | | Date: 05/27/03 | | | |
| Customer: The Watt Stopper Inc. | | | | Temperature: 73 | | | |
| Attendees: | | | | Humidity: 44% | | | |
| Cust. Ref. No.: | | | | Barometric Pressure 30 | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | |

TEST SPECIFICATIONS

Specification: FCC Part 15.247(c)

Method: ANSI C63.4

Year: 2001

Year: 1992

SAMPLE CALCULATIONS

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

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

COMMENTS

EUT OPERATING MODES

Transmitting low, mid, high channel

DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS

Run #

Pass

2

Other

Holly Ashkannejhad

Tested By:

dBuV/m

80.0

70.0

60.0

50.0

40.0

30.0

20.0

10.0

0.0

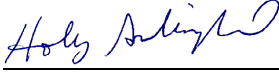
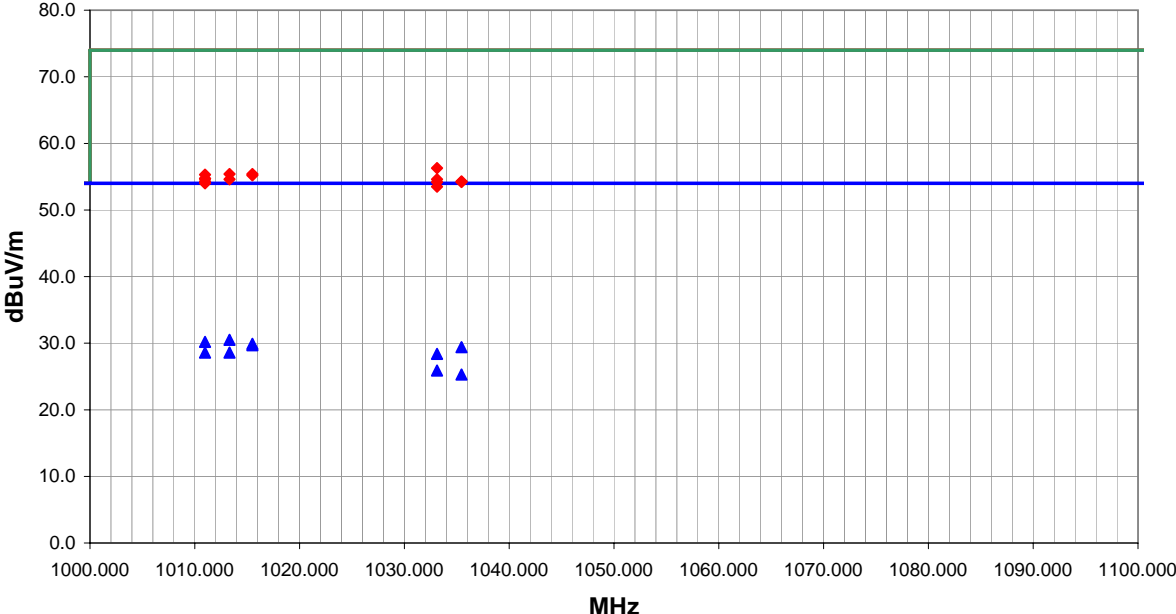
10.000

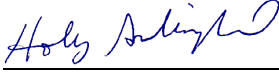
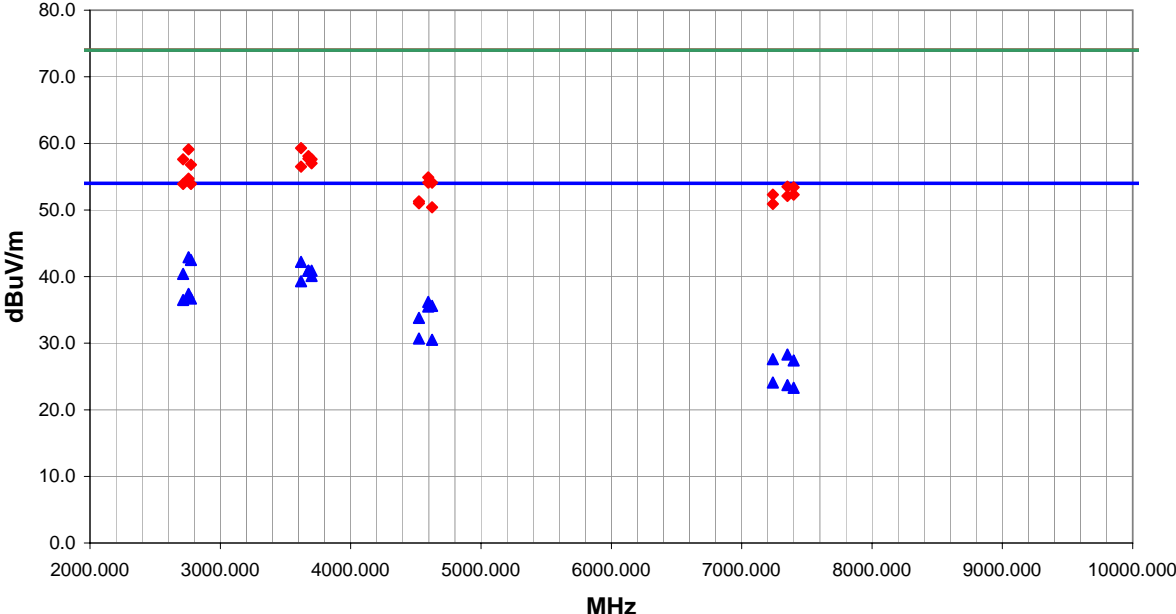
100.000

1000.000

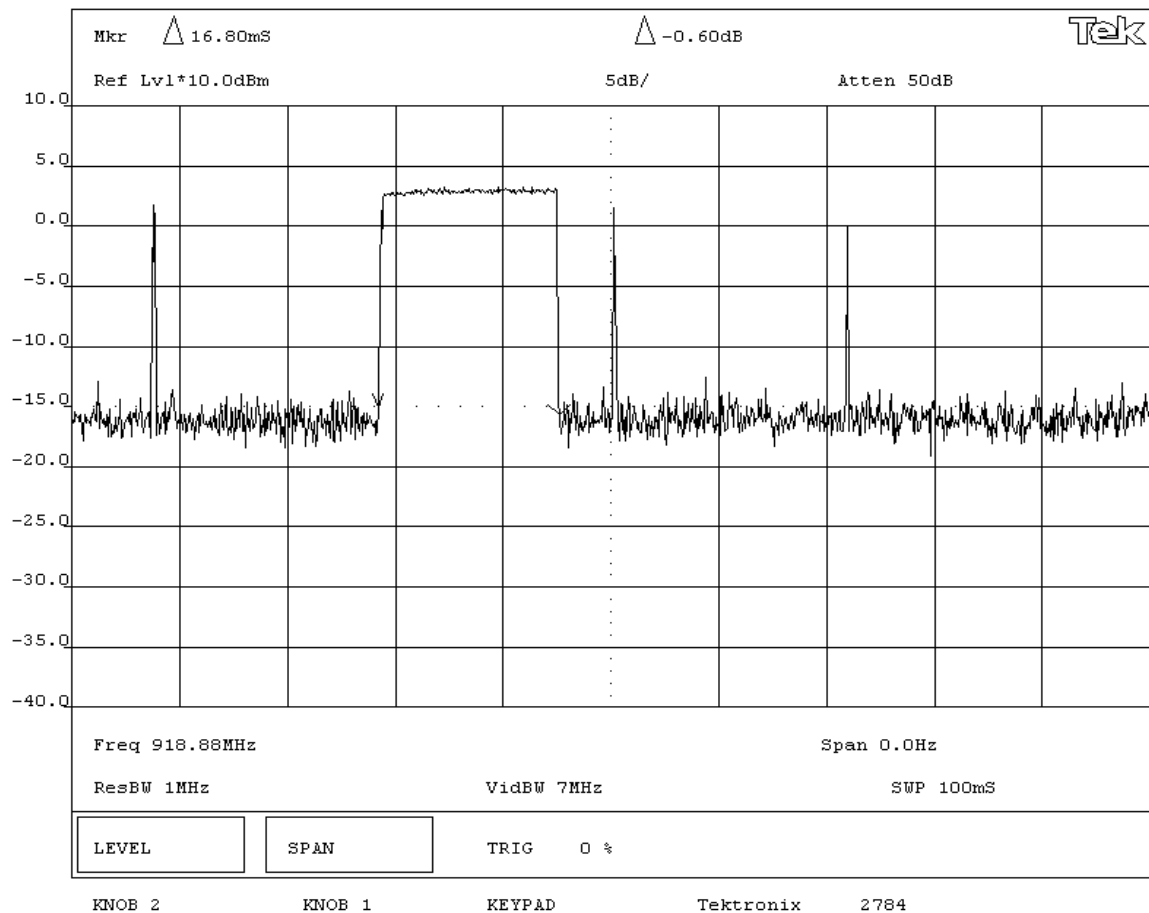
MHz

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Azimuth (degrees) | Height (meters) | Distance (meters) | External Attenuation (dB) | Polarity | Detector | Distance Adjustment (dB) | Adjusted dBuV/m | Spec. Limit dBuV/m | Compared to Spec. (dB) | Comments |
|------------|------------------|-------------|-------------------|-----------------|-------------------|---------------------------|----------|----------|--------------------------|-----------------|--------------------|------------------------|--------------|
| 110.621 | 38.2 | -19.4 | 163.0 | 3.1 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 38.8 | 43.0 | -4.2 | High channel |
| 110.621 | 37.0 | -19.4 | 152.0 | 2.2 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 37.6 | 43.0 | -5.4 | Mid channel |
| 110.621 | 36.5 | -19.4 | 10.0 | 2.8 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 37.1 | 43.0 | -5.9 | Low channel |
| 993.338 | 29.4 | -2.7 | 35.0 | 1.2 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 46.7 | 54.0 | -7.3 | Low channel |
| 993.337 | 29.3 | -2.7 | 137.0 | 1.6 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 46.6 | 54.0 | -7.4 | Low channel |
| 110.622 | 34.7 | -19.4 | 292.0 | 1.0 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 35.3 | 43.0 | -7.7 | Mid channel |
| 110.623 | 34.4 | -19.4 | 312.0 | 1.0 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 35.0 | 43.0 | -8.0 | High channel |
| 110.622 | 33.8 | -19.4 | 238.0 | 1.0 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 34.4 | 43.0 | -8.6 | Low channel |
| 985.228 | 28.0 | -2.8 | 59.0 | 1.3 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 45.2 | 54.0 | -8.8 | Mid channel |
| 985.232 | 27.8 | -2.8 | 115.0 | 1.5 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 45.0 | 54.0 | -9.0 | Mid channel |
| 994.381 | 23.3 | -2.7 | 274.0 | 1.2 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 40.6 | 54.0 | -13.4 | High channel |
| 993.858 | 23.2 | -2.7 | 128.0 | 1.0 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 40.5 | 54.0 | -13.5 | High channel |

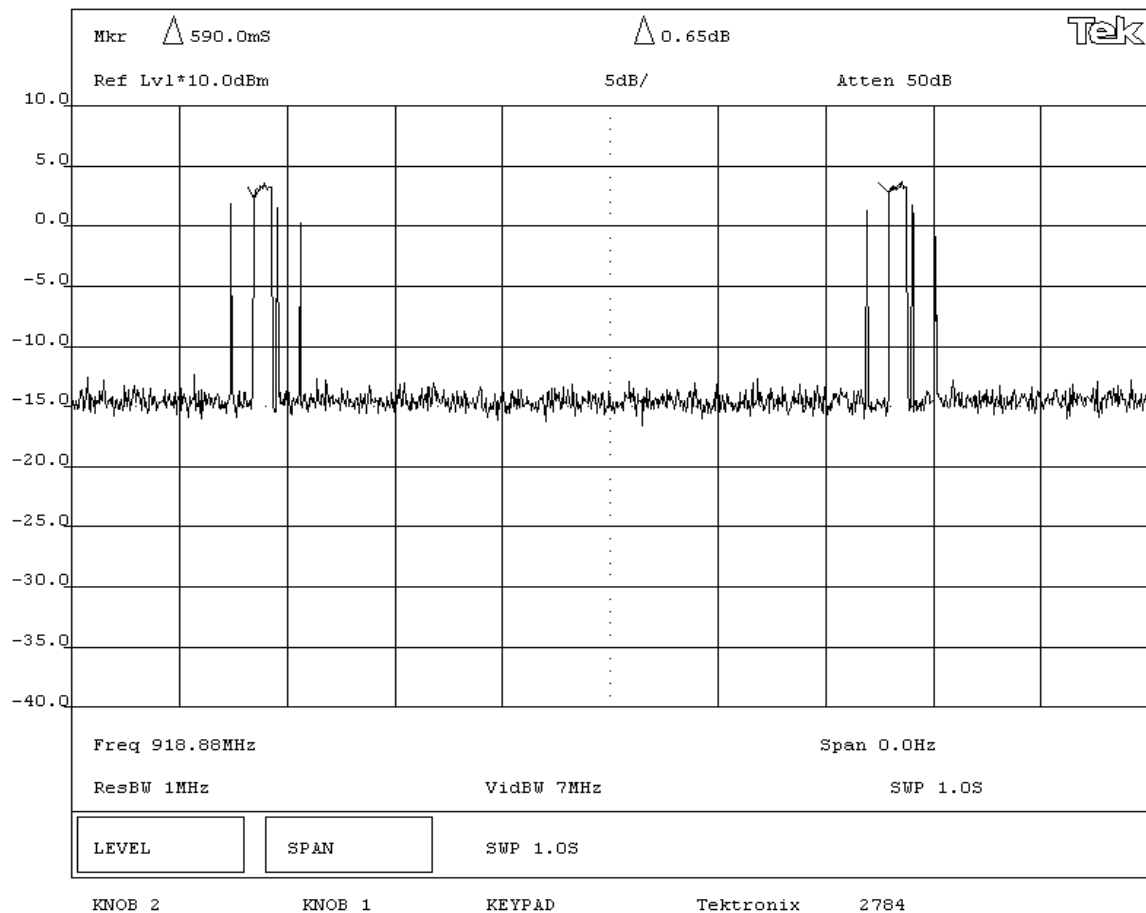
| NORTHWEST EMC | | | | | | | | | | OATS DATA SHEET | | | | REV df3.10 03/10/2003 | |
|--|------------------|-------------|----------------------------|-----------------|-------------------------------|---------------------------|----------|----------|--------------------------|------------------------|--------------------|------------------------|--------------|-----------------------------|--|
| EUT: MRP7 | | | | | Work Order: WATT0012 | | | | | | | | | | |
| Serial Number: | | | | | Date: 05/27/03 | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | | | | Temperature: 73 | | | | | | | | | | |
| Attendees: | | | | | Humidity: 44% | | | | | | | | | | |
| Cust. Ref. No.: | | | | | Barometric Pressure 30 | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | | | | |
| Specification: FCC Part 15.247(c) | | | | | | | | | | Year: 2001 | | | | | |
| Method: ANSI C63.4 | | | | | | | | | | Year: 1992 | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | | | | | | |
| Transmitting low, mid, high channels | | | | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | | | | |
| RESULTS | | | | | | | | | | | | | | | |
| Pass | | | | | | | | | | | | Run # | | | |
| | | | | | | | | | | | | 4 | | | |
| Other | | | | | | | | | | | | | | | |
| <div style="text-align: right;">  Tested By: _____ </div> | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
| 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 | | |
| 1013.307 | 33.8 | -7.8 | 41.0 | 1.3 | 15.5 | 20.0 | V-Horn | AV | 0.0 | 30.5 | 54.0 | -23.5 | High channel | | |
| 1010.982 | 33.6 | -7.9 | 27.0 | 1.2 | 15.5 | 20.0 | V-Horn | AV | 0.0 | 30.2 | 54.0 | -23.8 | Mid channel | | |
| 1015.495 | 33.2 | -7.8 | 109.0 | 1.1 | 15.5 | 20.0 | H-Horn | AV | 0.0 | 29.9 | 54.0 | -24.1 | Low channel | | |
| 1015.495 | 33.0 | -7.8 | 19.0 | 1.2 | 15.5 | 20.0 | V-Horn | AV | 0.0 | 29.7 | 54.0 | -24.3 | Low channel | | |
| 1035.454 | 32.7 | -7.8 | 52.0 | 1.2 | 15.5 | 20.0 | V-Horn | AV | 0.0 | 29.4 | 54.0 | -24.6 | High channel | | |
| 1010.982 | 32.0 | -7.9 | 132.0 | 1.2 | 15.5 | 20.0 | H-Horn | AV | 0.0 | 28.6 | 54.0 | -25.4 | Mid channel | | |
| 1013.307 | 31.9 | -7.8 | 325.0 | 1.9 | 15.5 | 20.0 | H-Horn | AV | 0.0 | 28.6 | 54.0 | -25.4 | High channel | | |
| 1033.114 | 31.7 | -7.8 | 20.0 | 1.2 | 15.5 | 20.0 | V-Horn | AV | 0.0 | 28.4 | 54.0 | -25.6 | Mid channel | | |
| 1033.114 | 29.2 | -7.8 | 133.0 | 1.3 | 15.5 | 20.0 | H-Horn | AV | 0.0 | 25.9 | 54.0 | -28.1 | Mid channel | | |
| 1035.454 | 28.6 | -7.8 | 197.0 | 1.3 | 15.5 | 20.0 | H-Horn | AV | 0.0 | 25.3 | 54.0 | -28.7 | High channel | | |
| 1033.114 | 44.1 | -7.8 | 77.0 | 3.1 | 0.0 | 20.0 | H-Horn | PK | 0.0 | 56.3 | 74.0 | -17.7 | Mid channel | | |
| 1013.307 | 43.2 | -7.8 | 41.0 | 1.3 | 0.0 | 20.0 | V-Horn | PK | 0.0 | 55.4 | 74.0 | -18.6 | High channel | | |
| 1015.495 | 43.2 | -7.8 | 19.0 | 1.2 | 0.0 | 20.0 | V-Horn | PK | 0.0 | 55.4 | 74.0 | -18.6 | Low channel | | |
| 1010.982 | 43.2 | -7.9 | 44.0 | 1.3 | 0.0 | 20.0 | V-Horn | PK | 0.0 | 55.3 | 74.0 | -18.7 | Mid channel | | |
| 1015.495 | 43.0 | -7.8 | 109.0 | 1.1 | 0.0 | 20.0 | H-Horn | PK | 0.0 | 55.2 | 74.0 | -18.8 | Low channel | | |
| 1010.982 | 42.6 | -7.9 | 132.0 | 1.2 | 0.0 | 20.0 | H-Horn | PK | 0.0 | 54.7 | 74.0 | -19.3 | Mid channel | | |
| 1010.982 | 42.6 | -7.9 | 27.0 | 1.2 | 0.0 | 20.0 | V-Horn | PK | 0.0 | 54.7 | 74.0 | -19.3 | Mid channel | | |
| 1013.307 | 42.4 | -7.8 | 325.0 | 1.9 | 0.0 | 20.0 | H-Horn | PK | 0.0 | 54.6 | 74.0 | -19.4 | High channel | | |
| 1033.114 | 42.4 | -7.8 | 23.0 | 1.2 | 0.0 | 20.0 | V-Horn | PK | 0.0 | 54.6 | 74.0 | -19.4 | Mid channel | | |
| 1010.982 | 42.2 | -7.9 | 308.0 | 1.3 | 0.0 | 20.0 | H-Horn | PK | 0.0 | 54.3 | 74.0 | -19.7 | Mid channel | | |

| NORTHWEST EMC | | | | | | | | | | OATS DATA SHEET | | | | REV df3.10 03/10/2003 | |
|--|------------------|-------------|----------------------------|-----------------|-------------------------------|---------------------------|----------|----------|--------------------------|------------------------|--------------------|------------------------|--------------|-----------------------------|--|
| EUT: MRP7 | | | | | Work Order: WATT0012 | | | | | | | | | | |
| Serial Number: | | | | | Date: 05/27/03 | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | | | | Temperature: 73 | | | | | | | | | | |
| Attendees: | | | | | Humidity: 44% | | | | | | | | | | |
| Cust. Ref. No.: | | | | | Barometric Pressure 30 | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | | | | |
| Specification: FCC Part 15.247(c) | | | | | Year: 2001 | | | | | | | | | | |
| Method: ANSI C63.4 | | | | | Year: 1992 | | | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | | | | | | |
| Transmitting low, mid, high channels | | | | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | | | | |
| RESULTS | | | | | | | | | | | | Run # | | | |
| Pass | | | | | | | | | | | | 8 | | | |
| Other | | | | | | | | | | | | | | | |
| <div style="text-align: right;">  Tested By: _____ </div> | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | |
| 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 | | |
| 2756.524 | 56.5 | 1.9 | 67.0 | 1.1 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 42.9 | 54.0 | -11.1 | Mid channel | | |
| 2774.535 | 56.1 | 1.9 | 119.0 | 1.4 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 42.5 | 54.0 | -11.5 | High channel | | |
| 3619.542 | 54.1 | 3.6 | 106.0 | 1.6 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 42.2 | 54.0 | -11.8 | Low channel | | |
| 3675.354 | 52.6 | 3.8 | 161.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 40.9 | 54.0 | -13.1 | Mid channel | | |
| 3675.354 | 52.6 | 3.8 | 77.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 40.9 | 54.0 | -13.1 | Mid channel | | |
| 3699.602 | 52.5 | 3.9 | 206.0 | 1.7 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 40.9 | 54.0 | -13.1 | High channel | | |
| 2714.477 | 54.1 | 1.8 | 88.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 40.4 | 54.0 | -13.6 | Low channel | | |
| 3699.602 | 51.7 | 3.9 | 88.0 | 1.4 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 40.1 | 54.0 | -13.9 | High channel | | |
| 3619.542 | 51.2 | 3.6 | 43.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 39.3 | 54.0 | -14.7 | Low channel | | |
| 2756.524 | 51.0 | 1.9 | 255.0 | 2.2 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 37.4 | 54.0 | -16.6 | Mid channel | | |
| 2774.535 | 50.3 | 1.9 | 121.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 36.7 | 54.0 | -17.3 | High channel | | |
| 2714.477 | 50.2 | 1.8 | 304.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 36.5 | 54.0 | -17.5 | Low channel | | |
| 4594.473 | 46.4 | 5.3 | 121.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 36.2 | 54.0 | -17.8 | Mid channel | | |
| 4624.214 | 45.7 | 5.4 | 348.0 | 1.3 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 35.6 | 54.0 | -18.4 | High channel | | |
| 4594.473 | 45.7 | 5.3 | 102.0 | 1.7 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 35.5 | 54.0 | -18.5 | Mid channel | | |
| 4524.166 | 44.2 | 5.1 | 306.0 | 1.1 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 33.8 | 54.0 | -20.2 | Low channel | | |
| 4524.214 | 41.1 | 5.1 | 259.0 | 1.2 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 30.7 | 54.0 | -23.3 | Low channel | | |
| 4624.214 | 40.6 | 5.4 | 93.0 | 1.4 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 30.5 | 54.0 | -23.5 | High channel | | |
| 7351.154 | 32.7 | 11.1 | 17.0 | 1.7 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 28.3 | 54.0 | -25.7 | Mid channel | | |
| 7239.104 | 32.4 | 10.7 | 50.0 | 1.7 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 27.6 | 54.0 | -26.4 | Low channel | | |

| NORTHWEST EMC | | | | EMISSIONS DATA SHEET | | | | Rev BETA 01/30/01 | |
|--|--|--|------------|-----------------------------|-------------------------------|--|------------|----------------------|--|
| EUT: MRP6 / MRP7 | | | | | | Work Order: WATT0012 | | | |
| Serial Number: N/A | | | | | | Date: 06/16/03 | | | |
| Customer: The Watt Stopper, Inc. | | | | | | Temperature: 25 °C | | | |
| Attendees: None | | | | | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | | | | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | | | Power: 120VAC/60Hz | | Job Site: EV06 | | | |
| Specification: 47 CFR 15.235(c) | | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| Duty cycle correction factor (dB) = 20*log (worst case high time / any 100mS period) | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| Modulated by PRBS at maximum data rate. Hopping carrier. | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| None | | | | | | | | | |
| REQUIREMENTS | | | | | | | | | |
| The average value of radiated emissions can be reduced by a duty cycle correction factor for comparison to the limit. The duty cycle correction factor is calculated as shown above: | | | | | | | | | |
| RESULTS | | | | | | | | | |
| | | | | | | DWELL TIME DURING A SINGLE TRANSMISSION | | | |
| Pass | | | | | | 16.8mS | | | |
| SIGNATURE | | | | | | | | | |
| <div style="border: 1px solid black; height: 40px; width: 100%;"></div> | | | | | | | | | |
| Tested By: _____ | | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | | |
| Time of Occupancy (Dwell Time) - Single Transmission | | | | | | | | | |



| NORTHWEST EMC | | | | EMISSIONS DATA SHEET | | | | BETA 01/30/0 | |
|--|--|--|------------|-----------------------------|-------------------------------|--|------------|-----------------|--|
| EUT: MRP6 / MRP7 | | | | | | Work Order: WATT0012 | | | |
| Serial Number: N/A | | | | | | Date: 06/16/03 | | | |
| Customer: The Watt Stopper, Inc. | | | | | | Temperature: 25 °C | | | |
| Attendees: None | | | | | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | | | | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | | | Power: 120VAC/60Hz | | Job Site: EV06 | | | |
| Specification: 47 CFR 15.235(c) | | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| Duty cycle correction factor (dB) = 20*log (worst case high time/ any 100mS period) | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| Modulated by PRBS at maximum data rate. Hopping carrier. | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| None | | | | | | | | | |
| REQUIREMENTS | | | | | | | | | |
| The average value of radiated emissions can be reduced by a duty cycle correction factor for comparison to the limit. The duty cycle correction factor is calculated as shown above: | | | | | | | | | |
| RESULTS | | | | | | | | | |
| Pass | | | | | | NUMBER OF TRANSMISSIONS DURING A 100mS PERIOD 1 | | | |
| SIGNATURE | | | | | | | | | |
| Tested By: _____ | | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | | |
| Maximum high time during a 100mS period | | | | | | | | | |



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Mid

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Frequency Range Investigated

Start Frequency

30 MHz

Stop Frequency

10 GHz

Software\Firmware Applied During Test

Exercise software

Standard Production
Software

Version

Unknown

Description

Transmits at low, mid, and high channels.

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| AC Adapter | N/A | A35-U0900 | N/A |
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| AC Power | No | 1.8 | No | EUT | Unterminated |
| AC Power | No | 1.0 | No | EUT | Unterminated |
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|--------------------|--------------------|----------------------|------------|------------|----------|
| Spectrum Analyzer | Hewlett-Packard | 8566B | AAL | 01/07/2003 | 12 mo |
| Quasi-Peak Adapter | Hewlett-Packard | 85650A | AQF | 01/07/2003 | 12 mo |
| Pre-Amplifier | Amplifier Research | LN1000A | APS | 01/06/2003 | 12 mo |
| Pre-Amplifier | Miteq | AMF-4D-005180-24-10P | APJ | 01/06/2003 | 12 mo |
| Antenna, Biconilog | EMCO | 3141 | AXE | 12/31/2001 | 36 mo |
| Antenna, Horn | EMCO | 3115 | AHC | 08/12/2002 | 12 mo |
| High Pass Filter | Hewlett Packard | 84300-80037 | HFE | 05/01/2003 | 12 mo |

Test Description

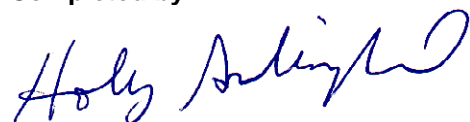
Requirement: The field strength of any spurious emissions or modulation products that fall in a restricted band, as defined in 47 CFR 15.205, is measured. The peak level must comply with the limits specified in 47 CFR 15.35(b). The average level (taken with a 10Hz VBW) must comply with the limits specified in 15.209.

Configuration: The only type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. The EUT was transmitting at its maximum data rate in a no hop mode. For each configuration, the spectrum was scanned from 30 MHz to 10 GHz. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:1992). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity. Since the dwell time per channel of the hopping signal was less than 100 ms, the readings obtained with the 10 Hz VBW were further reduced by a "duty cycle correction factor" of 15.5 dB, derived from $20\log(\text{dwell time}/100\text{ms})$, where the EUT's maximum dwell time in any 100mS period was measured to be 16.8 mS.

Bandwidths Used for Measurements

| 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 |
| <i>Measurements were made using the bandwidths and detectors specified. No video filter was used.</i> | | | |

Completed by:



NORTHWEST

EMC

OATS DATA SHEET

REV
df3.10
03/10/2003

| | | | | | | | |
|--|--|---------------------|--|----------------------------------|--|-------|--|
| EUT: MRP6 | | | | Work Order: WATT0011 | | | |
| Serial Number: | | | | Date: 05/28/03 | | | |
| Customer: The Watt Stopper Inc. | | | | Temperature: 75 | | | |
| Attendees: | | | | Humidity: 44% | | | |
| Cust. Ref. No.: | | | | Barometric Pressure 30.08 | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | |
| TEST SPECIFICATIONS | | | | | | | |
| Specification: FCC Part 15.247(c) | | | | Year: 2001 | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | |
| SAMPLE CALCULATIONS | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | |
| COMMENTS | | | | | | | |
| | | | | | | | |
| EUT OPERATING MODES | | | | | | | |
| Transmitting low, mid, high channels | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | |
| No deviations. | | | | | | | |
| RESULTS | | | | | | Run # | |
| Pass | | | | | | 2 | |
| Other | | | | | | | |
| | | | | Holly Ashkannejhad Tested By: | | | |

80.0

70.0

60.0

50.0

40.0

30.0

20.0

10.0

0.0

10.000

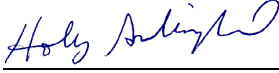
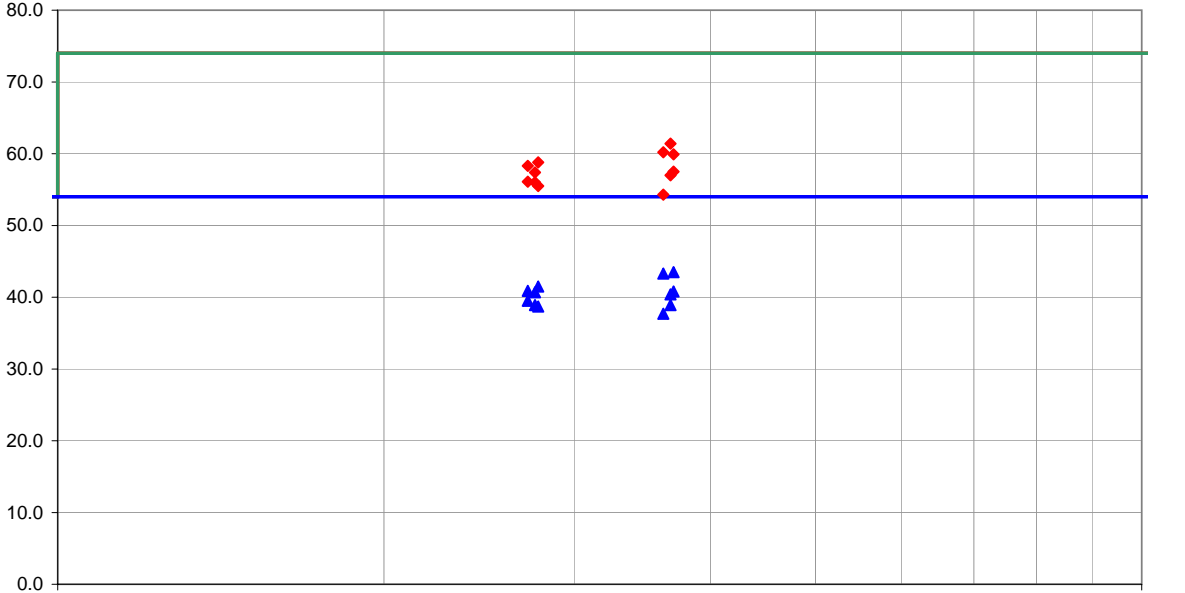
100.000

1000.000

dBuV/m

MHz

| Freq (MHz) | Amplitude (dBuV) | Factor (dB) | Azimuth (degrees) | Height (meters) | Distance (meters) | External Attenuation (dB) | Polarity | Detector | Distance Adjustment (dB) | Adjusted dBuV/m | Spec. Limit dBuV/m | Compared to Spec. (dB) | Comments |
|------------|------------------|-------------|-------------------|-----------------|-------------------|---------------------------|----------|----------|--------------------------|-----------------|--------------------|------------------------|--------------|
| 959.612 | 23.4 | -3.2 | 283.0 | 1.2 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 40.2 | 46.0 | -5.8 | High channel |
| 959.072 | 23.3 | -3.2 | 246.0 | 1.0 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 40.1 | 46.0 | -5.9 | Mid channel |
| 959.866 | 23.3 | -3.2 | 20.0 | 1.2 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 40.1 | 46.0 | -5.9 | High channel |
| 610.310 | 23.0 | -7.1 | 145.0 | 1.7 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 35.9 | 46.0 | -10.1 | Mid channel |
| 611.104 | 23.0 | -7.1 | 312.0 | 2.5 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 35.9 | 46.0 | -10.1 | Mid channel |
| 110.620 | 30.5 | -19.4 | 205.0 | 3.0 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 31.1 | 43.0 | -11.9 | Low channel |
| 110.622 | 30.3 | -19.4 | 321.0 | 1.2 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 30.9 | 43.0 | -12.1 | Low channel |
| 110.621 | 29.9 | -19.4 | 0.0 | 1.0 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 30.5 | 43.0 | -12.5 | High channel |
| 967.862 | 23.2 | -3.0 | 181.0 | 1.0 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 40.2 | 54.0 | -13.8 | Low channel |
| 968.265 | 23.2 | -3.0 | 349.0 | 1.2 | 3.0 | 20.0 | V-Bilog | QP | 0.0 | 40.2 | 54.0 | -13.8 | Low channel |
| 960.146 | 23.3 | -3.2 | 350.0 | 1.0 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 40.1 | 54.0 | -13.9 | Mid channel |
| 110.617 | 28.2 | -19.4 | 163.0 | 2.2 | 3.0 | 20.0 | H-Bilog | QP | 0.0 | 28.8 | 43.0 | -14.2 | High channel |

| NORTHWEST EMC | | | | | | | | | | OATS DATA SHEET | | | | | | | | | | REV df3.10 03/10/2003 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------------|-------------|-------------------|-----------------|------------------------------|---------------------------|----------|----------|--------------------------|----------------------------|--------------------|------------------------|--------------|------------|------------------|-------------|-------------------|-----------------|------------------------------|-----------------------------|----------|----------|--------------------------|-----------------|--------------------|------------------------|----------|----------|------|-----|-------|-----|------|-----|--------|----|-----|------|------|-------|--------------|----------|------|-----|-------|-----|------|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|------|-----|------|-----|--------|----|-----|------|------|-------|--------------|----------|------|-----|------|-----|------|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|------|-----|--------|----|-----|------|------|-------|--------------|----------|------|-----|------|-----|------|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|------|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|------|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|------|-----|------|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|------|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|------|-----|--------|----|-----|------|------|-------|--------------|----------|------|-----|-------|-----|------|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|-----|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|-----|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|-----|-----|--------|----|-----|------|------|-------|--------------|----------|------|-----|------|-----|-----|-----|--------|----|-----|------|------|-------|--------------|----------|------|-----|------|-----|-----|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|-----|-----|--------|----|-----|------|------|-------|--------------|----------|------|-----|------|-----|-----|-----|--------|----|-----|------|------|-------|-------------|----------|------|-----|-------|-----|-----|-----|--------|----|-----|------|------|-------|-------------|--|--|
| EUT: MRP6 | | | | | | | | | | Work Order: WATT0011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Serial Number: | | | | | | | | | | Date: 05/29/03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | | | | | | | | | Temperature: 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Attendees: | | | | | | | | | | Humidity: 44% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cust. Ref. No.: | | | | | | | | | | Barometric Pressure: 30.08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | | | | Power: 120VAC, 60Hz | | | | | Job Site: EV01 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Specification: FCC Part 15.247(c) | | | | | | | | | | Year: 2001 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Method: ANSI C63.4 | | | | | | | | | | Year: 1992 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| EUT OPERATING MODES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Transmitting low, mid, high channels | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RESULTS | | | | | | | | | | | | Run # | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Other | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Tested By: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <table border="1"> <thead> <tr> <th>Freq (MHz)</th> <th>Amplitude (dBuV)</th> <th>Factor (dB)</th> <th>Azimuth (degrees)</th> <th>Height (meters)</th> <th>Duty Cycle Correction Factor</th> <th>External Attenuation (dB)</th> <th>Polarity</th> <th>Detector</th> <th>Distance Adjustment (dB)</th> <th>Adjusted dBuV/m</th> <th>Spec. Limit dBuV/m</th> <th>Compared to Spec. (dB)</th> <th>Comments</th> </tr> </thead> <tbody> <tr><td>3699.349</td><td>55.1</td><td>3.9</td><td>223.0</td><td>1.3</td><td>15.5</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>43.5</td><td>54.0</td><td>-10.5</td><td>High channel</td></tr> <tr><td>3619.300</td><td>55.2</td><td>3.6</td><td>225.0</td><td>1.3</td><td>15.5</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>43.3</td><td>54.0</td><td>-10.7</td><td>Low channel</td></tr> <tr><td>2774.518</td><td>55.1</td><td>1.9</td><td>92.0</td><td>1.1</td><td>15.5</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>41.5</td><td>54.0</td><td>-12.5</td><td>High channel</td></tr> <tr><td>2714.626</td><td>54.6</td><td>1.8</td><td>85.0</td><td>2.1</td><td>15.5</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>40.9</td><td>54.0</td><td>-13.1</td><td>Low channel</td></tr> <tr><td>3699.349</td><td>52.4</td><td>3.9</td><td>133.0</td><td>1.2</td><td>15.5</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>40.8</td><td>54.0</td><td>-13.2</td><td>High channel</td></tr> <tr><td>2756.492</td><td>54.3</td><td>1.9</td><td>95.0</td><td>1.2</td><td>15.5</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>40.7</td><td>54.0</td><td>-13.3</td><td>Mid channel</td></tr> <tr><td>3675.330</td><td>52.1</td><td>3.8</td><td>121.0</td><td>1.5</td><td>15.5</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>40.4</td><td>54.0</td><td>-13.6</td><td>Mid channel</td></tr> <tr><td>2714.626</td><td>53.2</td><td>1.8</td><td>248.0</td><td>1.2</td><td>15.5</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>39.5</td><td>54.0</td><td>-14.5</td><td>Low channel</td></tr> <tr><td>2756.492</td><td>52.5</td><td>1.9</td><td>84.0</td><td>1.3</td><td>15.5</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>38.9</td><td>54.0</td><td>-15.1</td><td>Mid channel</td></tr> <tr><td>3675.330</td><td>50.6</td><td>3.8</td><td>234.0</td><td>2.2</td><td>15.5</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>38.9</td><td>54.0</td><td>-15.1</td><td>Mid channel</td></tr> <tr><td>2774.518</td><td>52.3</td><td>1.9</td><td>144.0</td><td>1.2</td><td>15.5</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>38.7</td><td>54.0</td><td>-15.3</td><td>High channel</td></tr> <tr><td>3619.300</td><td>49.6</td><td>3.6</td><td>333.0</td><td>1.2</td><td>15.5</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>37.7</td><td>54.0</td><td>-16.3</td><td>Low channel</td></tr> <tr><td>3675.330</td><td>57.6</td><td>3.8</td><td>234.0</td><td>2.2</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>61.4</td><td>74.0</td><td>-12.6</td><td>Mid channel</td></tr> <tr><td>3619.300</td><td>56.6</td><td>3.6</td><td>225.0</td><td>1.3</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>60.2</td><td>74.0</td><td>-13.8</td><td>Low channel</td></tr> <tr><td>3699.349</td><td>56.0</td><td>3.9</td><td>223.0</td><td>1.3</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>59.9</td><td>74.0</td><td>-14.1</td><td>High channel</td></tr> <tr><td>2774.518</td><td>56.9</td><td>1.9</td><td>92.0</td><td>1.1</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>58.8</td><td>74.0</td><td>-15.2</td><td>High channel</td></tr> <tr><td>2714.626</td><td>56.5</td><td>1.8</td><td>85.0</td><td>2.1</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>58.3</td><td>74.0</td><td>-15.7</td><td>Low channel</td></tr> <tr><td>3699.349</td><td>53.6</td><td>3.9</td><td>133.0</td><td>1.2</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>57.5</td><td>74.0</td><td>-16.5</td><td>High channel</td></tr> <tr><td>2756.492</td><td>55.5</td><td>1.9</td><td>95.0</td><td>1.2</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>57.4</td><td>74.0</td><td>-16.6</td><td>Mid channel</td></tr> <tr><td>3675.330</td><td>53.2</td><td>3.8</td><td>121.0</td><td>1.5</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>57.0</td><td>74.0</td><td>-17.0</td><td>Mid channel</td></tr> </tbody> </table> | | | | | | | | | | | | | | 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 | 3699.349 | 55.1 | 3.9 | 223.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 43.5 | 54.0 | -10.5 | High channel | 3619.300 | 55.2 | 3.6 | 225.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 43.3 | 54.0 | -10.7 | Low channel | 2774.518 | 55.1 | 1.9 | 92.0 | 1.1 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 41.5 | 54.0 | -12.5 | High channel | 2714.626 | 54.6 | 1.8 | 85.0 | 2.1 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 40.9 | 54.0 | -13.1 | Low channel | 3699.349 | 52.4 | 3.9 | 133.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 40.8 | 54.0 | -13.2 | High channel | 2756.492 | 54.3 | 1.9 | 95.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 40.7 | 54.0 | -13.3 | Mid channel | 3675.330 | 52.1 | 3.8 | 121.0 | 1.5 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 40.4 | 54.0 | -13.6 | Mid channel | 2714.626 | 53.2 | 1.8 | 248.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 39.5 | 54.0 | -14.5 | Low channel | 2756.492 | 52.5 | 1.9 | 84.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 38.9 | 54.0 | -15.1 | Mid channel | 3675.330 | 50.6 | 3.8 | 234.0 | 2.2 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 38.9 | 54.0 | -15.1 | Mid channel | 2774.518 | 52.3 | 1.9 | 144.0 | 1.2 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 38.7 | 54.0 | -15.3 | High channel | 3619.300 | 49.6 | 3.6 | 333.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 37.7 | 54.0 | -16.3 | Low channel | 3675.330 | 57.6 | 3.8 | 234.0 | 2.2 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 61.4 | 74.0 | -12.6 | Mid channel | 3619.300 | 56.6 | 3.6 | 225.0 | 1.3 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 60.2 | 74.0 | -13.8 | Low channel | 3699.349 | 56.0 | 3.9 | 223.0 | 1.3 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 59.9 | 74.0 | -14.1 | High channel | 2774.518 | 56.9 | 1.9 | 92.0 | 1.1 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 58.8 | 74.0 | -15.2 | High channel | 2714.626 | 56.5 | 1.8 | 85.0 | 2.1 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 58.3 | 74.0 | -15.7 | Low channel | 3699.349 | 53.6 | 3.9 | 133.0 | 1.2 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 57.5 | 74.0 | -16.5 | High channel | 2756.492 | 55.5 | 1.9 | 95.0 | 1.2 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 57.4 | 74.0 | -16.6 | Mid channel | 3675.330 | 53.2 | 3.8 | 121.0 | 1.5 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 57.0 | 74.0 | -17.0 | Mid channel | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3699.349 | 55.1 | 3.9 | 223.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 43.5 | 54.0 | -10.5 | High channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3619.300 | 55.2 | 3.6 | 225.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 43.3 | 54.0 | -10.7 | Low channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2774.518 | 55.1 | 1.9 | 92.0 | 1.1 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 41.5 | 54.0 | -12.5 | High channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2714.626 | 54.6 | 1.8 | 85.0 | 2.1 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 40.9 | 54.0 | -13.1 | Low channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3699.349 | 52.4 | 3.9 | 133.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 40.8 | 54.0 | -13.2 | High channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2756.492 | 54.3 | 1.9 | 95.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 40.7 | 54.0 | -13.3 | Mid channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3675.330 | 52.1 | 3.8 | 121.0 | 1.5 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 40.4 | 54.0 | -13.6 | Mid channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2714.626 | 53.2 | 1.8 | 248.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 39.5 | 54.0 | -14.5 | Low channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2756.492 | 52.5 | 1.9 | 84.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 38.9 | 54.0 | -15.1 | Mid channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3675.330 | 50.6 | 3.8 | 234.0 | 2.2 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 38.9 | 54.0 | -15.1 | Mid channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2774.518 | 52.3 | 1.9 | 144.0 | 1.2 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 38.7 | 54.0 | -15.3 | High channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3619.300 | 49.6 | 3.6 | 333.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 37.7 | 54.0 | -16.3 | Low channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3675.330 | 57.6 | 3.8 | 234.0 | 2.2 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 61.4 | 74.0 | -12.6 | Mid channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3619.300 | 56.6 | 3.6 | 225.0 | 1.3 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 60.2 | 74.0 | -13.8 | Low channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3699.349 | 56.0 | 3.9 | 223.0 | 1.3 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 59.9 | 74.0 | -14.1 | High channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2774.518 | 56.9 | 1.9 | 92.0 | 1.1 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 58.8 | 74.0 | -15.2 | High channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2714.626 | 56.5 | 1.8 | 85.0 | 2.1 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 58.3 | 74.0 | -15.7 | Low channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3699.349 | 53.6 | 3.9 | 133.0 | 1.2 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 57.5 | 74.0 | -16.5 | High channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2756.492 | 55.5 | 1.9 | 95.0 | 1.2 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 57.4 | 74.0 | -16.6 | Mid channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3675.330 | 53.2 | 3.8 | 121.0 | 1.5 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 57.0 | 74.0 | -17.0 | Mid channel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

NORTHWEST

REV
df3.10
03/10/2003

EMC

OATS DATA SHEET

| | | | | | | | |
|---------------------------------|--|---------------------|--|---------------------------|--|--|--|
| EUT: MRP6 | | | | Work Order: WATT0011 | | | |
| Serial Number: | | | | Date: 05/29/03 | | | |
| Customer: The Watt Stopper Inc. | | | | Temperature: 75 | | | |
| Attendees: | | | | Humidity: 44% | | | |
| Cust. Ref. No.: | | | | Barometric Pressure 30.08 | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | |

TEST SPECIFICATIONS

Specification: FCC Part 15.247(c)

Method: ANSI C63.4

Year: 2001

Year: 1992

SAMPLE CALCULATIONS

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

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

COMMENTS

EUT OPERATING MODES

Transmitting low, mid, high channel

DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS

Run #

Pass

6

Other

Holly Ashkannejhad

Tested By:

dBuV/m

80.0

70.0

60.0

50.0

40.0

30.0

20.0

10.0

0.0

4000.000

5000.000

6000.000

7000.000

8000.000

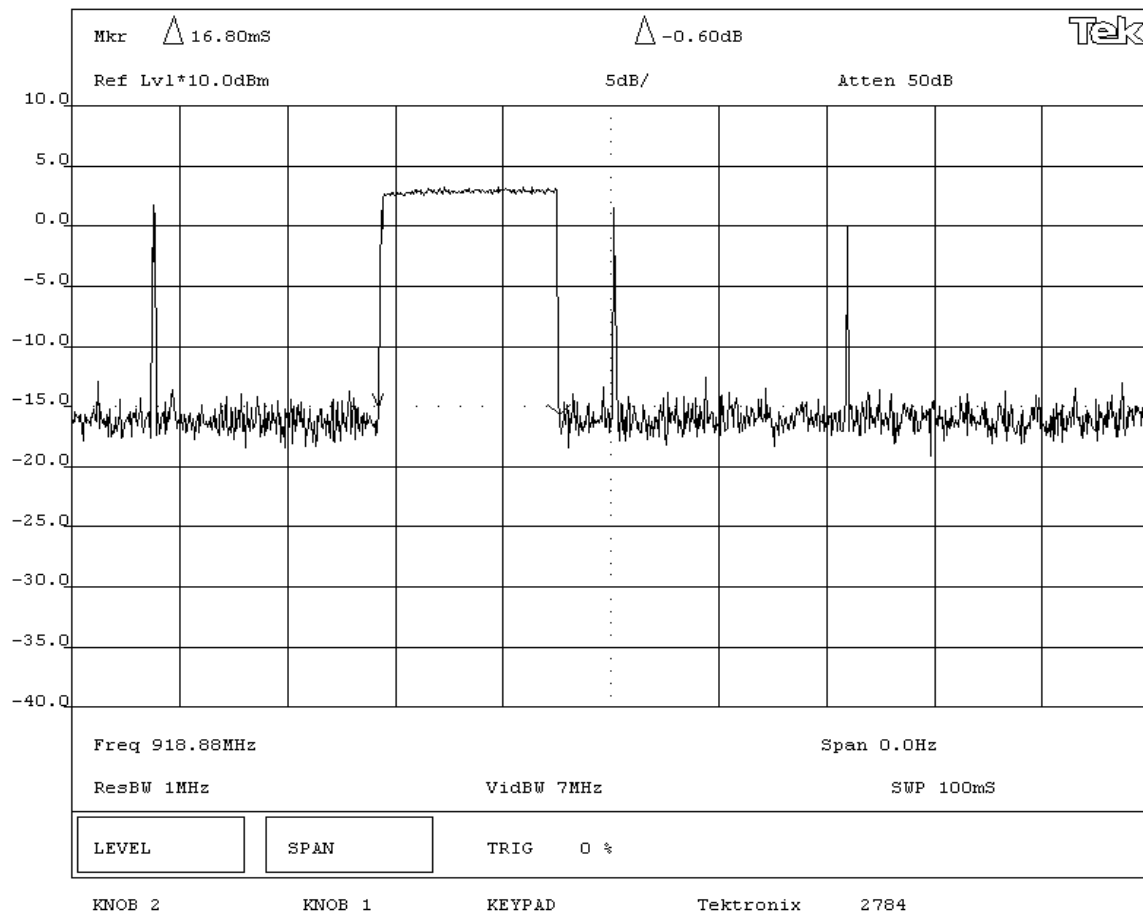
9000.000

10000.000

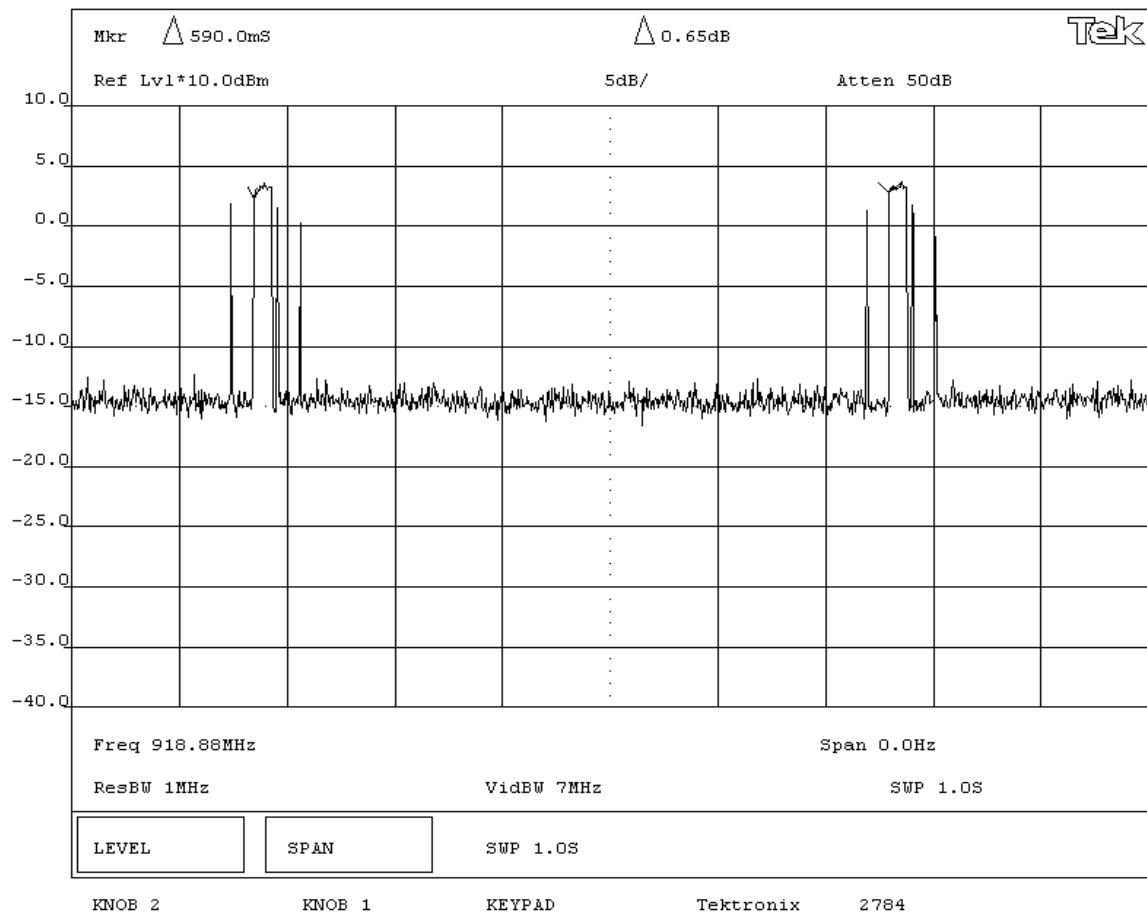
MHz

| 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 |
|------------|------------------|-------------|-------------------|-----------------|------------------------------|---------------------------|----------|----------|--------------------------|-----------------|--------------------|------------------------|--------------|
| 4624.167 | 48.2 | 5.4 | 260.0 | 1.2 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 38.1 | 54.0 | -15.9 | High channel |
| 4594.219 | 47.7 | 5.3 | 190.0 | 1.1 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 37.5 | 54.0 | -16.5 | Mid channel |
| 4624.167 | 47.6 | 5.4 | 125.0 | 1.1 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 37.5 | 54.0 | -16.5 | High channel |
| 4524.400 | 46.7 | 5.1 | 87.0 | 1.2 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 36.3 | 54.0 | -17.7 | Low channel |
| 4594.219 | 45.8 | 5.3 | 278.0 | 1.3 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 35.6 | 54.0 | -18.4 | Mid channel |
| 4524.400 | 44.8 | 5.1 | 13.0 | 1.2 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 34.4 | 54.0 | -19.6 | Low channel |
| 7398.682 | 33.9 | 11.3 | 42.0 | 1.8 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 29.7 | 54.0 | -24.3 | High channel |
| 7351.037 | 33.8 | 11.1 | 26.0 | 2.1 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 29.4 | 54.0 | -24.6 | Mid channel |
| 7398.682 | 32.8 | 11.3 | 24.0 | 2.1 | 15.5 | 0.0 | V-Horn | AV | 0.0 | 28.6 | 54.0 | -25.4 | High channel |
| 7351.037 | 32.6 | 11.1 | 35.0 | 1.5 | 15.5 | 0.0 | H-Horn | AV | 0.0 | 28.2 | 54.0 | -25.8 | Mid channel |
| 4524.400 | 50.8 | 5.1 | 87.0 | 1.2 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 55.9 | 74.0 | -18.1 | Low channel |
| 4594.219 | 50.4 | 5.3 | 190.0 | 1.1 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 55.7 | 74.0 | -18.3 | Mid channel |
| 4624.167 | 50.3 | 5.4 | 260.0 | 1.2 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 55.7 | 74.0 | -18.3 | High channel |
| 4624.167 | 50.2 | 5.4 | 125.0 | 1.1 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 55.6 | 74.0 | -18.4 | High channel |
| 4594.219 | 49.0 | 5.3 | 278.0 | 1.3 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 54.3 | 74.0 | -19.7 | Mid channel |
| 7351.037 | 43.2 | 11.1 | 26.0 | 2.1 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 54.3 | 74.0 | -19.7 | Mid channel |
| 7398.682 | 42.5 | 11.3 | 42.0 | 1.8 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 53.8 | 74.0 | -20.2 | High channel |
| 7398.682 | 42.3 | 11.3 | 24.0 | 2.1 | 0.0 | 0.0 | V-Horn | PK | 0.0 | 53.6 | 74.0 | -20.4 | High channel |
| 7351.037 | 42.1 | 11.1 | 35.0 | 1.5 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 53.2 | 74.0 | -20.8 | Mid channel |
| 4524.400 | 47.3 | 5.1 | 13.0 | 1.2 | 0.0 | 0.0 | H-Horn | PK | 0.0 | 52.4 | 74.0 | -21.6 | Low channel |

| NORTHWEST EMC | | | | EMISSIONS DATA SHEET | | | | Rev BETA 01/30/01 | |
|--|--|--|------------|-----------------------------|-------------------------------|--|------------|----------------------|--|
| EUT: MRP6 / MRP7 | | | | | | Work Order: WATT0011 | | | |
| Serial Number: N/A | | | | | | Date: 06/16/03 | | | |
| Customer: The Watt Stopper, Inc. | | | | | | Temperature: 25 °C | | | |
| Attendees: None | | | | | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | | | | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | | | Power: 120VAC/60Hz | | Job Site: EV06 | | | |
| Specification: 47 CFR 15.235(c) | | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| Duty cycle correction factor (dB) = 20*log (worst case high time / any 100mS period) | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| Modulated by PRBS at maximum data rate. Hopping carrier. | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| None | | | | | | | | | |
| REQUIREMENTS | | | | | | | | | |
| The average value of radiated emissions can be reduced by a duty cycle correction factor for comparison to the limit. The duty cycle correction factor is calculated as shown above: | | | | | | | | | |
| RESULTS | | | | | | | | | |
| | | | | | | DWELL TIME DURING A SINGLE TRANSMISSION | | | |
| Pass | | | | | | 16.8mS | | | |
| SIGNATURE | | | | | | | | | |
| <div style="border: 1px solid black; height: 40px; width: 100%;"></div> | | | | | | | | | |
| Tested By: _____ | | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | | |
| Time of Occupancy (Dwell Time) - Single Transmission | | | | | | | | | |



| NORTHWEST EMC | | | | EMISSIONS DATA SHEET | | | | BETA 01/30/0 | |
|--|--|--|------------|-----------------------------|-------------------------------|--|------------|-----------------|--|
| EUT: MRP6 / MRP7 | | | | | | Work Order: WATT0011 | | | |
| Serial Number: N/A | | | | | | Date: 06/16/03 | | | |
| Customer: The Watt Stopper, Inc. | | | | | | Temperature: 25 °C | | | |
| Attendees: None | | | | | | Humidity: 34% | | | |
| Customer Ref. No.: N/A | | | | | | Bar. Pressure: 30.15 | | | |
| Tested by: Rod Peloquin | | | | Power: 120VAC/60Hz | | Job Site: EV06 | | | |
| Specification: 47 CFR 15.235(c) | | | Year: 2003 | | Method: DA 00-705, ANSI C63.4 | | Year: 1992 | | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| Duty cycle correction factor (dB) = 20*log (worst case high time/ any 100mS period) | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| Modulated by PRBS at maximum data rate. Hopping carrier. | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| None | | | | | | | | | |
| REQUIREMENTS | | | | | | | | | |
| The average value of radiated emissions can be reduced by a duty cycle correction factor for comparison to the limit. The duty cycle correction factor is calculated as shown above: | | | | | | | | | |
| RESULTS | | | | | | | | | |
| Pass | | | | | | NUMBER OF TRANSMISSIONS DURING A 100mS PERIOD 1 | | | |
| SIGNATURE | | | | | | | | | |
| Tested By: _____ | | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | | |
| Maximum high time during a 100mS period | | | | | | | | | |



Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Mid

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120VAC, 60Hz

Software\Firmware Applied During Test

| | | | |
|---|------------------------------|---------|---------|
| Exercise software | Standard Production software | Version | Unknown |
| Description | | | |
| Transmits at low, mid, and high channels. | | | |

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| EUT | The Watt Stopper, Inc. | MRP7 | N/A |
| AC Adapter | N/A | A35-U0900 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| AC Power | No | 1.8 | No | EUT | Unterminated |
| AC Power | No | 1.0 | No | EUT | Unterminated |
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

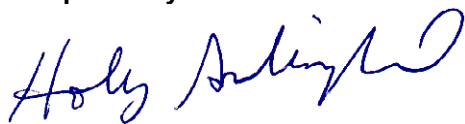
| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|--------------------|-----------------|------------------|------------|------------|----------|
| Spectrum Analyzer | Hewlett-Packard | 8566B | AAL | 01/07/2003 | 12 mo |
| Quasi-Peak Adapter | Hewlett-Packard | 85650A | AQF | 01/07/2003 | 12 mo |
| High Pass Filter | TTE | H97-100k-50-720B | HFC | 01/02/2003 | 12 mo |
| LISN | Solar | 9252-50-R-24-BNC | LIN | 12/12/2002 | 12 mo |


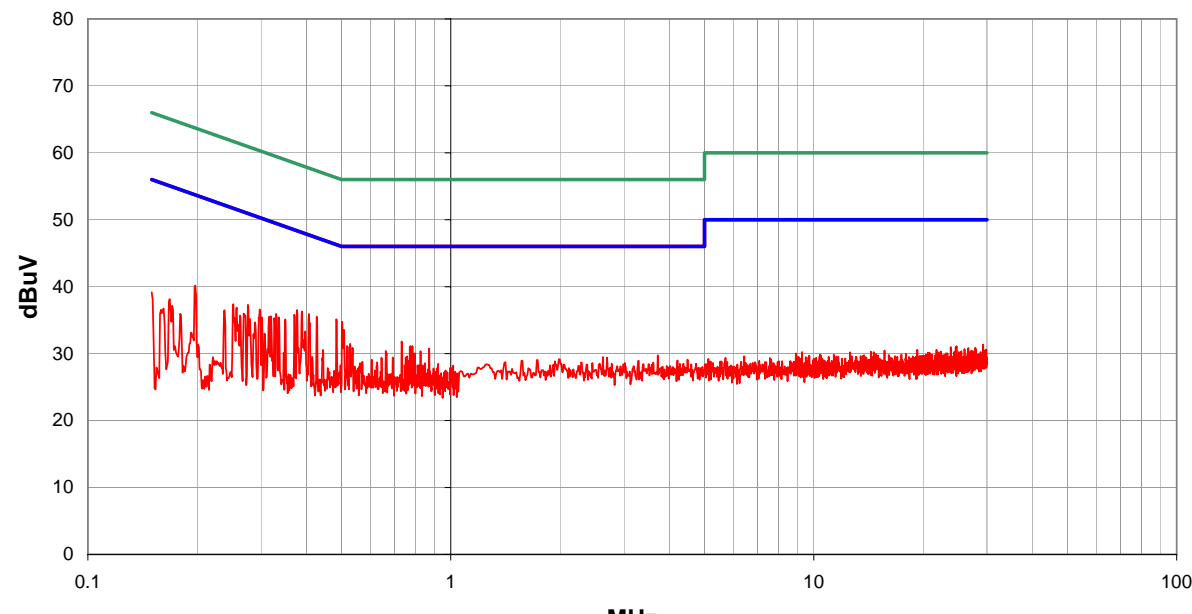
Test Description

Requirement: Per 47 15.207(d), if the EUT is connected to the AC power line indirectly, obtaining its power from another device that is connected to the AC power line, then it should be tested to demonstrate compliance with the conducted limits of 15.207.

Configuration: The EUT will be powered from a host device that is connected to the AC power line. Therefore, the measurements were made using a wall-bug transformer to power the EUT. The transformer contained no EMC suppression devices. 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 maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.4-1992.


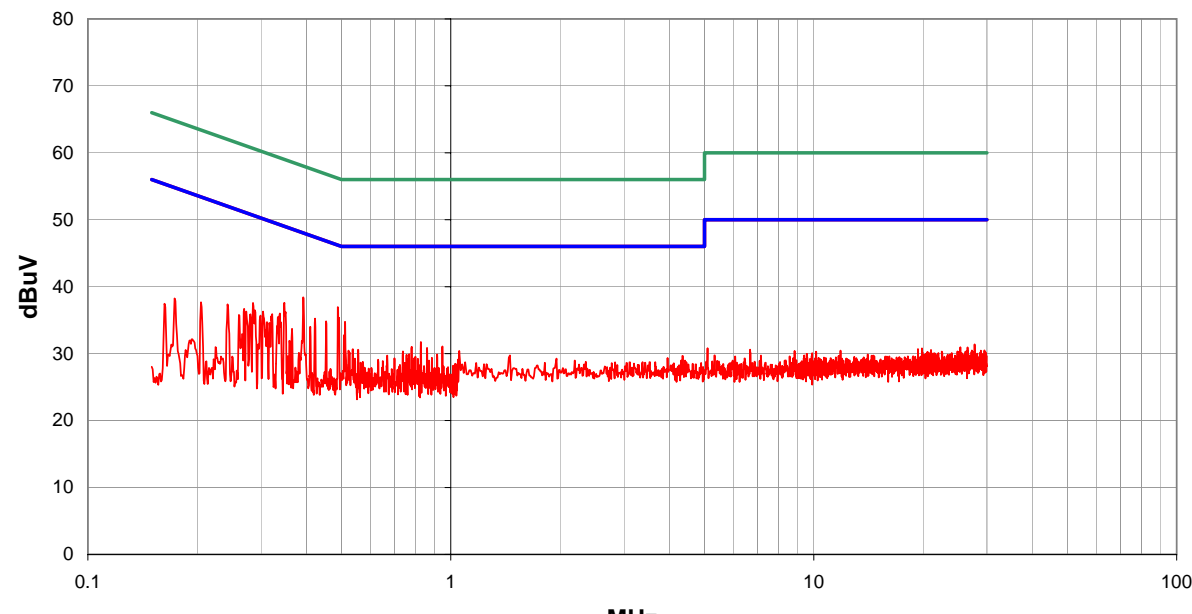
Completed by:


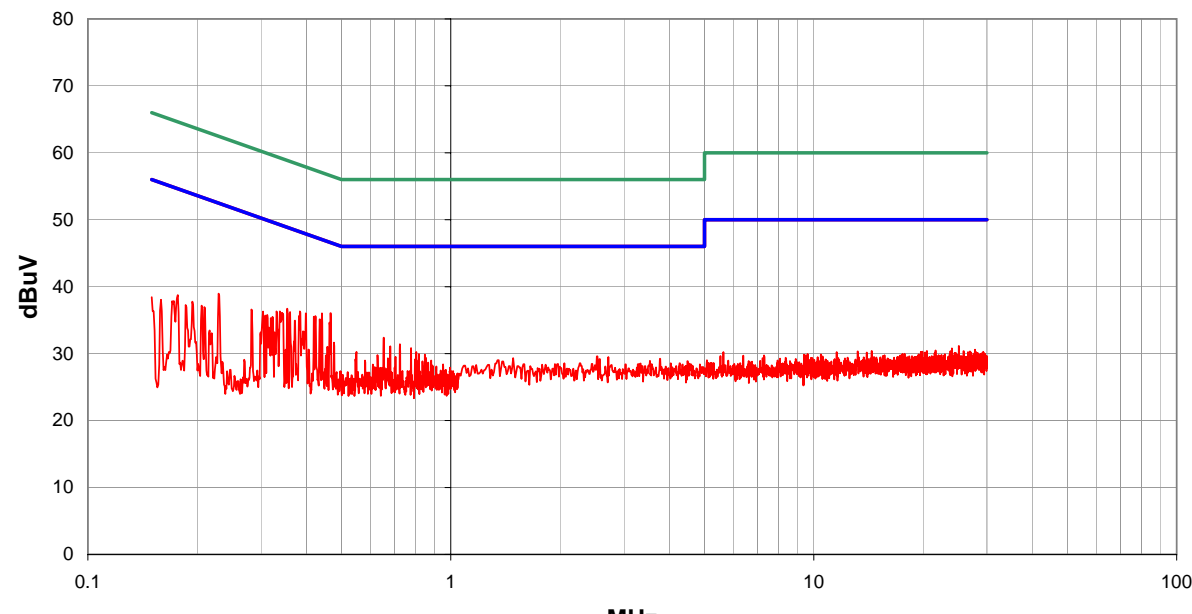


| NORTHWEST EMC | | CONDUCTED EMISSIONS DATA SHEET | | | | REV d3.10 03/10/2003 | | | | | | |
|--|------------------|--|--|-----------------|------------|----------------------------|--|---|--|---------------|------------------|------------------------|
| EUT: MRP7 | | Work Order: WATT0012 | | | | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 73 | | | | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30 | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | |
| Specification: FCC Part 15.207 | | Year: 2003 | | | | | | | | | | |
| Method: ANSI C63.4 | | Year: 1992 | | | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | | | |
| Transmitting low channel | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | |
| RESULTS | | Line | | Run # | | | | | | | | |
| Pass | | L1 | | 1 | | | | | | | | |
| Other | |  Tested By: | | | | | | | | | | |
|  | | | | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | | Detector (blank equal peaks [PK] from scan) | | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.484 | 14.9 | | | 0.0 | 0.2 | 20.0 | | | | 35.1 | 46.3 | -11.1 |
| 0.502 | 14.5 | | | 0.0 | 0.2 | 20.0 | | | | 34.7 | 46.0 | -11.3 |
| 0.427 | 15.3 | | | 0.0 | 0.2 | 20.0 | | | | 35.5 | 47.3 | -11.8 |
| 0.389 | 16.1 | | | 0.0 | 0.2 | 20.0 | | | | 36.3 | 48.1 | -11.8 |
| 0.407 | 15.7 | | | 0.0 | 0.2 | 20.0 | | | | 35.9 | 47.7 | -11.8 |
| 0.377 | 16.3 | | | 0.0 | 0.2 | 20.0 | | | | 36.5 | 48.3 | -11.8 |
| 0.507 | 13.3 | | | 0.0 | 0.3 | 20.0 | | | | 33.6 | 46.0 | -12.4 |
| 0.371 | 15.6 | | | 0.0 | 0.2 | 20.0 | | | | 35.8 | 48.5 | -12.7 |
| 0.198 | 20.0 | | | 0.0 | 0.2 | 20.0 | | | | 40.2 | 53.7 | -13.5 |
| 0.330 | 15.7 | | | 0.0 | 0.2 | 20.0 | | | | 35.9 | 49.5 | -13.6 |
| 0.276 | 17.1 | | | 0.0 | 0.2 | 20.0 | | | | 37.3 | 50.9 | -13.7 |
| 0.298 | 16.4 | | | 0.0 | 0.2 | 20.0 | | | | 36.6 | 50.3 | -13.7 |
| 0.350 | 14.9 | | | 0.0 | 0.2 | 20.0 | | | | 35.1 | 49.0 | -13.9 |
| 0.336 | 15.2 | | | 0.0 | 0.2 | 20.0 | | | | 35.4 | 49.3 | -13.9 |
| 0.319 | 15.4 | | | 0.0 | 0.2 | 20.0 | | | | 35.6 | 49.7 | -14.1 |
| 0.732 | 11.5 | | | 0.0 | 0.3 | 20.0 | | | | 31.8 | 46.0 | -14.2 |
| 0.326 | 15.1 | | | 0.0 | 0.2 | 20.0 | | | | 35.3 | 49.5 | -14.2 |
| 0.252 | 17.2 | | | 0.0 | 0.2 | 20.0 | | | | 37.4 | 51.7 | -14.3 |
| 0.316 | 15.3 | | | 0.0 | 0.2 | 20.0 | | | | 35.5 | 49.8 | -14.3 |
| 0.528 | 11.2 | | | 0.0 | 0.3 | 20.0 | | | | 31.5 | 46.0 | -14.5 |

| | | | | | | | | | | | | |
|---|------------------|--------------------------------|--|---|------------|----------------------------|--|---|--|---------------|------------------|------------------------|
| NORTHWEST | | CONDUCTED EMISSIONS DATA SHEET | | | | REV d3.10 03/10/2003 | | | | | | |
| EMC | | | | | | | | | | | | |
| EUT: MRP7 | | Work Order: WATT0012 | | | | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 73 | | | | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30 | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | |
| Specification: FCC Part 15.207 | | | | Year: 2003 | | | | | | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | | | |
| Transmitting low channel | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | |
| RESULTS | | | | Line | | Run # | | | | | | |
| Pass | | | | N | | 2 | | | | | | |
| Other | | | | | | | | | | | | |
| | | | | <div>Holly Ashkannejhad</div> <div>Tested By:</div> | | | | | | | | |
| <div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div> <div><div>0.1</div><div>1</div><div>10</div><div>100</div></div> <div>MHz</div> <div>dBuV</div> | | | | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | | Detector (blank equal peaks [PK] from scan) | | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.481 | 13.5 | | | 0.0 | 0.2 | 20.0 | | | | 33.7 | 46.3 | -12.6 |
| 0.388 | 15.1 | | | 0.0 | 0.2 | 20.0 | | | | 35.3 | 48.1 | -12.8 |
| 0.500 | 12.2 | | | 0.0 | 0.2 | 20.0 | | | | 32.4 | 46.0 | -13.6 |
| 0.453 | 12.5 | | | 0.0 | 0.2 | 20.0 | | | | 32.7 | 46.8 | -14.1 |
| 0.362 | 14.2 | | | 0.0 | 0.2 | 20.0 | | | | 34.4 | 48.7 | -14.3 |
| 0.413 | 13.0 | | | 0.0 | 0.2 | 20.0 | | | | 33.2 | 47.6 | -14.4 |
| 0.444 | 11.9 | | | 0.0 | 0.2 | 20.0 | | | | 32.1 | 47.0 | -14.8 |
| 0.379 | 13.1 | | | 0.0 | 0.2 | 20.0 | | | | 33.3 | 48.3 | -15.0 |
| 0.313 | 14.7 | | | 0.0 | 0.2 | 20.0 | | | | 34.9 | 49.9 | -15.0 |
| 0.392 | 12.8 | | | 0.0 | 0.2 | 20.0 | | | | 33.0 | 48.0 | -15.0 |
| 0.462 | 11.2 | | | 0.0 | 0.2 | 20.0 | | | | 31.4 | 46.7 | -15.2 |
| 0.197 | 18.3 | | | 0.0 | 0.2 | 20.0 | | | | 38.5 | 53.7 | -15.3 |
| 0.320 | 14.2 | | | 0.0 | 0.2 | 20.0 | | | | 34.4 | 49.7 | -15.3 |
| 0.252 | 16.1 | | | 0.0 | 0.2 | 20.0 | | | | 36.3 | 51.7 | -15.4 |
| 0.518 | 10.2 | | | 0.0 | 0.3 | 20.0 | | | | 30.5 | 46.0 | -15.5 |
| 0.323 | 13.7 | | | 0.0 | 0.2 | 20.0 | | | | 33.9 | 49.6 | -15.7 |
| 0.423 | 11.4 | | | 0.0 | 0.2 | 20.0 | | | | 31.6 | 47.4 | -15.8 |
| 0.371 | 12.3 | | | 0.0 | 0.2 | 20.0 | | | | 32.5 | 48.5 | -16.0 |
| 4.717 | 9.4 | | | 0.0 | 0.6 | 20.0 | | | | 30.0 | 46.0 | -16.0 |
| 0.290 | 14.3 | | | 0.0 | 0.2 | 20.0 | | | | 34.5 | 50.5 | -16.1 |

| | | | | | | | | | | | | |
|---|------------------|--------------------------------|--|---|------------|----------------------------|--|---|--|---------------|------------------|------------------------|
| NORTHWEST | | CONDUCTED EMISSIONS DATA SHEET | | | | REV d3.10 03/10/2003 | | | | | | |
| EMC | | | | | | | | | | | | |
| EUT: MRP7 | | Work Order: WATT0012 | | | | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 73 | | | | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30 | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | |
| Specification: FCC Part 15.207 | | | | Year: 2003 | | | | | | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | | | |
| Transmitting mid channel | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | |
| RESULTS | | | | Line | | Run # | | | | | | |
| Pass | | | | N | | 3 | | | | | | |
| Other | | | | | | | | | | | | |
| | | | | <div>Holly Ashkannejhad</div> <div>Tested By:</div> | | | | | | | | |
| <div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div> <div><div>0.1</div><div>1</div><div>10</div><div>100</div></div> <div>MHz</div> <div>dBuV</div> | | | | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | | Detector (blank equal peaks [PK] from scan) | | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.457 | 15.6 | | | 0.0 | 0.2 | 20.0 | | | | 35.8 | 46.7 | -10.9 |
| 0.477 | 15.0 | | | 0.0 | 0.2 | 20.0 | | | | 35.2 | 46.4 | -11.2 |
| 0.495 | 13.2 | | | 0.0 | 0.2 | 20.0 | | | | 33.4 | 46.1 | -12.6 |
| 0.488 | 13.2 | | | 0.0 | 0.2 | 20.0 | | | | 33.4 | 46.2 | -12.7 |
| 0.445 | 13.8 | | | 0.0 | 0.2 | 20.0 | | | | 34.0 | 47.0 | -12.9 |
| 0.368 | 14.6 | | | 0.0 | 0.2 | 20.0 | | | | 34.8 | 48.6 | -13.7 |
| 0.384 | 14.1 | | | 0.0 | 0.2 | 20.0 | | | | 34.3 | 48.2 | -13.9 |
| 0.410 | 13.5 | | | 0.0 | 0.2 | 20.0 | | | | 33.7 | 47.6 | -13.9 |
| 0.430 | 13.1 | | | 0.0 | 0.2 | 20.0 | | | | 33.3 | 47.3 | -13.9 |
| 0.354 | 14.4 | | | 0.0 | 0.2 | 20.0 | | | | 34.6 | 48.9 | -14.3 |
| 0.335 | 13.9 | | | 0.0 | 0.2 | 20.0 | | | | 34.1 | 49.3 | -15.2 |
| 0.508 | 10.2 | | | 0.0 | 0.3 | 20.0 | | | | 30.5 | 46.0 | -15.5 |
| 0.220 | 17.0 | | | 0.0 | 0.2 | 20.0 | | | | 37.2 | 52.8 | -15.6 |
| 0.379 | 12.3 | | | 0.0 | 0.2 | 20.0 | | | | 32.5 | 48.3 | -15.8 |
| 0.419 | 11.3 | | | 0.0 | 0.2 | 20.0 | | | | 31.5 | 47.5 | -15.9 |
| 0.395 | 11.8 | | | 0.0 | 0.2 | 20.0 | | | | 32.0 | 48.0 | -15.9 |
| 0.197 | 17.6 | | | 0.0 | 0.2 | 20.0 | | | | 37.8 | 53.7 | -16.0 |
| 0.256 | 15.3 | | | 0.0 | 0.2 | 20.0 | | | | 35.5 | 51.6 | -16.1 |
| 0.192 | 17.7 | | | 0.0 | 0.2 | 20.0 | | | | 37.9 | 53.9 | -16.1 |
| 0.440 | 10.7 | | | 0.0 | 0.2 | 20.0 | | | | 30.9 | 47.1 | -16.1 |

| NORTHWEST EMC | | CONDUCTED EMISSIONS DATA SHEET | | | | REV d3.10 03/10/2003 | | | | |
|--|------------------|--|--|-----------------|------------|----------------------------|---|---------------|------------------|------------------------|
| EUT: MRP7 | | Work Order: WATT0012 | | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 73 | | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30 | | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | |
| Specification: FCC Part 15.207 | | Year: 2003 | | | | | | | | |
| Method: ANSI C63.4 | | Year: 1992 | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | |
| COMMENTS | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | |
| Transmitting mid channel | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | |
| No deviations. | | | | | | | | | | |
| RESULTS | | | | | | | | | | |
| Pass | | Line L1 | | Run # 4 | | | | | | |
| Other | |  Tested By: | | | | | | | | |
|  | | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | Detector (blank equal peaks [PK] from scan) | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.488 | 16.7 | | | 0.0 | 0.2 | 20.0 | | 36.9 | 46.2 | -9.2 |
| 0.392 | 18.2 | | | 0.0 | 0.2 | 20.0 | | 38.4 | 48.0 | -9.6 |
| 0.492 | 15.1 | | | 0.0 | 0.2 | 20.0 | | 35.3 | 46.1 | -10.8 |
| 0.511 | 14.5 | | | 0.0 | 0.3 | 20.0 | | 34.8 | 46.0 | -11.2 |
| 0.348 | 17.4 | | | 0.0 | 0.2 | 20.0 | | 37.6 | 49.0 | -11.4 |
| 0.453 | 14.6 | | | 0.0 | 0.2 | 20.0 | | 34.8 | 46.8 | -12.0 |
| 0.423 | 15.0 | | | 0.0 | 0.2 | 20.0 | | 35.2 | 47.4 | -12.2 |
| 0.285 | 17.4 | | | 0.0 | 0.2 | 20.0 | | 37.6 | 50.7 | -13.1 |
| 0.507 | 12.5 | | | 0.0 | 0.3 | 20.0 | | 32.8 | 46.0 | -13.2 |
| 0.338 | 15.8 | | | 0.0 | 0.2 | 20.0 | | 36.0 | 49.2 | -13.3 |
| 0.410 | 13.8 | | | 0.0 | 0.2 | 20.0 | | 34.0 | 47.6 | -13.6 |
| 0.322 | 15.7 | | | 0.0 | 0.2 | 20.0 | | 35.9 | 49.7 | -13.8 |
| 0.335 | 15.3 | | | 0.0 | 0.2 | 20.0 | | 35.5 | 49.3 | -13.8 |
| 0.304 | 16.1 | | | 0.0 | 0.2 | 20.0 | | 36.3 | 50.1 | -13.8 |
| 0.289 | 16.3 | | | 0.0 | 0.2 | 20.0 | | 36.5 | 50.6 | -14.1 |
| 0.827 | 11.4 | | | 0.0 | 0.3 | 20.0 | | 31.7 | 46.0 | -14.3 |
| 0.270 | 16.5 | | | 0.0 | 0.2 | 20.0 | | 36.7 | 51.1 | -14.4 |
| 0.299 | 15.5 | | | 0.0 | 0.2 | 20.0 | | 35.7 | 50.3 | -14.6 |
| 0.243 | 17.2 | | | 0.0 | 0.2 | 20.0 | | 37.4 | 52.0 | -14.6 |
| 0.273 | 16.1 | | | 0.0 | 0.2 | 20.0 | | 36.3 | 51.0 | -14.7 |

| NORTHWEST EMC | | CONDUCTED EMISSIONS DATA SHEET | | | | REV d3.10 03/10/2003 | | | | |
|--|------------------|--|--|-----------------|------------|----------------------------|---|---------------|------------------|------------------------|
| EUT: MRP7 | | Work Order: WATT0012 | | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 73 | | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30 | | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | |
| Specification: FCC Part 15.207 | | Year: 2003 | | | | | | | | |
| Method: ANSI C63.4 | | Year: 1992 | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | |
| COMMENTS | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | |
| Transmitting high channel | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | |
| No deviations. | | | | | | | | | | |
| RESULTS | | | | | | | | | | |
| Pass | | Line L1 | | Run # 5 | | | | | | |
| Other | |  Tested By: | | | | | | | | |
|  | | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | Detector (blank equal peaks [PK] from scan) | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.467 | 15.8 | | | 0.0 | 0.2 | 20.0 | | 36.0 | 46.6 | -10.5 |
| 0.442 | 15.8 | | | 0.0 | 0.2 | 20.0 | | 36.0 | 47.0 | -11.0 |
| 0.424 | 15.4 | | | 0.0 | 0.2 | 20.0 | | 35.6 | 47.4 | -11.8 |
| 0.398 | 15.8 | | | 0.0 | 0.2 | 20.0 | | 36.0 | 47.9 | -11.9 |
| 0.384 | 16.1 | | | 0.0 | 0.2 | 20.0 | | 36.3 | 48.2 | -11.9 |
| 0.419 | 15.3 | | | 0.0 | 0.2 | 20.0 | | 35.5 | 47.5 | -11.9 |
| 0.463 | 14.4 | | | 0.0 | 0.2 | 20.0 | | 34.6 | 46.6 | -12.0 |
| 0.435 | 14.9 | | | 0.0 | 0.2 | 20.0 | | 35.1 | 47.2 | -12.0 |
| 0.354 | 16.5 | | | 0.0 | 0.2 | 20.0 | | 36.7 | 48.9 | -12.2 |
| 0.361 | 16.0 | | | 0.0 | 0.2 | 20.0 | | 36.2 | 48.7 | -12.5 |
| 0.338 | 16.1 | | | 0.0 | 0.2 | 20.0 | | 36.3 | 49.2 | -13.0 |
| 0.331 | 16.1 | | | 0.0 | 0.2 | 20.0 | | 36.3 | 49.4 | -13.1 |
| 0.229 | 18.8 | | | 0.0 | 0.2 | 20.0 | | 39.0 | 52.5 | -13.5 |
| 0.372 | 14.7 | | | 0.0 | 0.2 | 20.0 | | 34.9 | 48.4 | -13.5 |
| 0.653 | 12.1 | | | 0.0 | 0.3 | 20.0 | | 32.4 | 46.0 | -13.6 |
| 0.304 | 16.1 | | | 0.0 | 0.2 | 20.0 | | 36.3 | 50.1 | -13.8 |
| 0.312 | 15.6 | | | 0.0 | 0.2 | 20.0 | | 35.8 | 49.9 | -14.1 |
| 0.323 | 15.3 | | | 0.0 | 0.2 | 20.0 | | 35.5 | 49.6 | -14.1 |
| 0.282 | 16.4 | | | 0.0 | 0.2 | 20.0 | | 36.6 | 50.7 | -14.2 |
| 0.308 | 15.5 | | | 0.0 | 0.2 | 20.0 | | 35.7 | 50.0 | -14.3 |

| | | | | | | | | | | | | |
|---|------------------|--------------------------------|--|-----------------|---|---------------------------|----------------------------|---|--|---------------|------------------|------------------------|
| NORTHWEST | | CONDUCTED EMISSIONS DATA SHEET | | | | | REV d3.10 03/10/2003 | | | | | |
| EMC | | | | | | | | | | | | |
| EUT: MRP7 | | Work Order: WATT0012 | | | | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 73 | | | | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30 | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | |
| Specification: FCC Part 15.207 | | | | Year: 2003 | | | | | | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | | | |
| Transmitting high channel | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | |
| RESULTS | | | | | | | | | | | | |
| Pass | | | | | Line | Run # | | | | | | |
| | | | | | N | 6 | | | | | | |
| Other | | | | | | | | | | | | |
| | | | | | <div>Holly Ashkannejhad</div> <div>Tested By:</div> | | | | | | | |
| <div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div> <div><div>0.1</div><div>1</div><div>10</div><div>100</div></div> <div><div>dBuV</div><div>MHz</div></div> | | | | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | | Detector (blank equal peaks [PK] from scan) | | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.389 | 16.9 | | | 0.0 | 0.2 | 20.0 | | | | 37.1 | 48.1 | -11.0 |
| 0.392 | 16.1 | | | 0.0 | 0.2 | 20.0 | | | | 36.3 | 48.0 | -11.7 |
| 0.404 | 13.8 | | | 0.0 | 0.2 | 20.0 | | | | 34.0 | 47.8 | -13.8 |
| 0.369 | 14.5 | | | 0.0 | 0.2 | 20.0 | | | | 34.7 | 48.5 | -13.8 |
| 0.425 | 13.0 | | | 0.0 | 0.2 | 20.0 | | | | 33.2 | 47.4 | -14.1 |
| 0.416 | 12.9 | | | 0.0 | 0.2 | 20.0 | | | | 33.1 | 47.5 | -14.4 |
| 0.349 | 14.3 | | | 0.0 | 0.2 | 20.0 | | | | 34.5 | 49.0 | -14.5 |
| 0.178 | 19.8 | | | 0.0 | 0.2 | 20.0 | | | | 40.0 | 54.6 | -14.6 |
| 0.383 | 13.3 | | | 0.0 | 0.2 | 20.0 | | | | 33.5 | 48.2 | -14.7 |
| 0.360 | 13.8 | | | 0.0 | 0.2 | 20.0 | | | | 34.0 | 48.7 | -14.7 |
| 0.376 | 13.4 | | | 0.0 | 0.2 | 20.0 | | | | 33.6 | 48.4 | -14.8 |
| 0.340 | 14.0 | | | 0.0 | 0.2 | 20.0 | | | | 34.2 | 49.2 | -15.0 |
| 0.421 | 12.2 | | | 0.0 | 0.2 | 20.0 | | | | 32.4 | 47.4 | -15.0 |
| 0.302 | 14.2 | | | 0.0 | 0.2 | 20.0 | | | | 34.4 | 50.2 | -15.8 |
| 0.419 | 11.4 | | | 0.0 | 0.2 | 20.0 | | | | 31.6 | 47.5 | -15.8 |
| 4.637 | 9.5 | | | 0.0 | 0.6 | 20.0 | | | | 30.1 | 46.0 | -15.9 |
| 0.356 | 12.4 | | | 0.0 | 0.2 | 20.0 | | | | 32.6 | 48.8 | -16.2 |
| 0.321 | 13.2 | | | 0.0 | 0.2 | 20.0 | | | | 33.4 | 49.7 | -16.3 |
| 0.620 | 9.1 | | | 0.0 | 0.3 | 20.0 | | | | 29.4 | 46.0 | -16.6 |
| 0.652 | 9.0 | | | 0.0 | 0.3 | 20.0 | | | | 29.3 | 46.0 | -16.7 |

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Mid

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Typical

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120VAC, 60Hz

Software\Firmware Applied During Test

| | | | |
|--|------------------------------|---------|---------|
| Exercise software | Standard Production Software | Version | Unknown |
| Description | | | |
| Transmits at low, mid, and high channels | | | |

EUT and Peripherals

| Description | Manufacturer | Model/Part Number | Serial Number |
|-------------|------------------------|-------------------|---------------|
| AC Adapter | N/A | A35-U0900 | N/A |
| EUT | The Watt Stopper, Inc. | MRP6 | N/A |

Cables

| Cable Type | Shield | Length (m) | Ferrite | Connection 1 | Connection 2 |
|------------|--------|------------|---------|--------------|--------------|
| AC Power | No | 1.8 | No | EUT | Unterminated |
| AC Power | No | 1.0 | No | EUT | Unterminated |
| DC Leads | PA | 2.2 | PA | EUT | AC Adapter |

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

Measurement Equipment

| Description | Manufacturer | Model | Identifier | Last Cal | Interval |
|--------------------|-----------------|------------------|------------|------------|----------|
| Spectrum Analyzer | Hewlett-Packard | 8566B | AAL | 01/07/2003 | 12 mo |
| Quasi-Peak Adapter | Hewlett-Packard | 85650A | AQF | 01/07/2003 | 12 mo |
| LISN | Solar | 9252-50-R-24-BNC | LIN | 12/12/2002 | 12 mo |
| High Pass Filter | TTE | H97-100k-50-720B | HFC | 01/02/2003 | 12 mo |

Test Description

Requirement: Per 47 15.207(d), if the EUT is connected to the AC power line indirectly, obtaining its power from another device that is connected to the AC power line, then it should be tested to demonstrate compliance with the conducted limits of 15.207.

Configuration: The EUT will be powered from a host device that is connected to the AC power line. Therefore, the measurements were made using a wall-bug transformer to power the EUT. The transformer contained no EMC suppression devices. 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 maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.4-1992.

Completed by:



| | | | | | | | | | |
|---|------------------|--------------------------------|-----------------|---|---------------------------|---|----------------------------|------------------|------------------------|
| NORTHWEST | | CONDUCTED EMISSIONS DATA SHEET | | | | | REV d3.10 03/10/2003 | | |
| EMC | | | | | | | | | |
| EUT: MRP6 | | Work Order: WATT0011 | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 75 | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30.08 | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | |
| Specification: FCC Part 15.207 | | | | Year: 2003 | | | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | |
| COMMENTS | | | | | | | | | |
| | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | |
| Transmitting low channel | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | |
| No deviations. | | | | | | | | | |
| RESULTS | | | | | | | | | |
| Pass | | | | Line N | | Run # 1 | | | |
| Other | | | | | | | | | |
| | | | | <div>Holly Ashkannejhad</div> <div>Tested By:</div> | | | | | |
| <div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div> <div><div>0.1</div><div>1</div><div>10</div><div>100</div></div> <div><div>dBuV</div><div>MHz</div></div> | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | Detector (blank equal peaks [PK] from scan) | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.490 | 14.2 | | 0.0 | 0.2 | 20.0 | | 34.4 | 46.2 | -11.7 |
| 0.442 | 14.2 | | 0.0 | 0.2 | 20.0 | | 34.4 | 47.0 | -12.6 |
| 0.458 | 13.7 | | 0.0 | 0.2 | 20.0 | | 33.9 | 46.7 | -12.8 |
| 0.479 | 13.3 | | 0.0 | 0.2 | 20.0 | | 33.5 | 46.4 | -12.8 |
| 0.447 | 13.3 | | 0.0 | 0.2 | 20.0 | | 33.5 | 46.9 | -13.4 |
| 0.461 | 13.0 | | 0.0 | 0.2 | 20.0 | | 33.2 | 46.7 | -13.4 |
| 0.474 | 12.7 | | 0.0 | 0.2 | 20.0 | | 32.9 | 46.4 | -13.5 |
| 0.454 | 13.0 | | 0.0 | 0.2 | 20.0 | | 33.2 | 46.8 | -13.6 |
| 0.470 | 12.6 | | 0.0 | 0.2 | 20.0 | | 32.8 | 46.5 | -13.7 |
| 0.321 | 15.6 | | 0.0 | 0.2 | 20.0 | | 35.8 | 49.7 | -13.9 |
| 0.497 | 11.7 | | 0.0 | 0.2 | 20.0 | | 31.9 | 46.1 | -14.1 |
| 0.509 | 11.1 | | 0.0 | 0.3 | 20.0 | | 31.4 | 46.0 | -14.6 |
| 0.531 | 10.7 | | 0.0 | 0.3 | 20.0 | | 31.0 | 46.0 | -15.0 |
| 0.376 | 13.1 | | 0.0 | 0.2 | 20.0 | | 33.3 | 48.4 | -15.1 |
| 0.231 | 17.0 | | 0.0 | 0.2 | 20.0 | | 37.2 | 52.4 | -15.2 |
| 0.392 | 12.5 | | 0.0 | 0.2 | 20.0 | | 32.7 | 48.0 | -15.3 |
| 0.194 | 18.3 | | 0.0 | 0.2 | 20.0 | | 38.5 | 53.9 | -15.4 |
| 0.251 | 15.9 | | 0.0 | 0.2 | 20.0 | | 36.1 | 51.7 | -15.7 |
| 0.522 | 10.0 | | 0.0 | 0.3 | 20.0 | | 30.3 | 46.0 | -15.7 |
| 0.425 | 11.1 | | 0.0 | 0.2 | 20.0 | | 31.3 | 47.3 | -16.0 |

| | | | | | | | | |
|---|--|--------------------------------|--|---|--|---------|----------------------------|--|
| NORTHWEST | | CONDUCTED EMISSIONS DATA SHEET | | | | | REV d3.10 03/10/2003 | |
| EMC | | | | | | | | |
| EUT: MRP6 | | Work Order: WATT0011 | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 75 | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30.08 | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | |
| TEST SPECIFICATIONS | | | | | | | | |
| Specification: FCC Part 15.207 | | | | Year: 2003 | | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | | |
| SAMPLE CALCULATIONS | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | |
| COMMENTS | | | | | | | | |
| | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | |
| Transmitting low channel | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | |
| No deviations. | | | | | | | | |
| RESULTS | | | | | | | | |
| Pass | | | | Line L1 | | Run # 2 | | |
| Other | | | | | | | | |
| | | | | <div>Holly Ashkannejhad</div> <div>Tested By:</div> | | | | |
| <div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div><div>dBuV</div></div> <div><div>0.1</div><div>1</div><div>10</div><div>100</div><div>MHz</div></div> <div></div> | | | | | | | | |

| | | | | | | | | | | | | |
|---|------------------|--------------------------------|--|-----------------|---|---------------------------|----------------------------|---|--|---------------|------------------|------------------------|
| NORTHWEST | | CONDUCTED EMISSIONS DATA SHEET | | | | | REV d3.10 03/10/2003 | | | | | |
| EMC | | | | | | | | | | | | |
| EUT: MRP6 | | Work Order: WATT0011 | | | | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 75 | | | | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30.08 | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | |
| Specification: FCC Part 15.207 | | | | Year: 2003 | | | | | | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | | | |
| Transmitting mid channel | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | |
| RESULTS | | | | | | | | | | | | |
| Pass | | | | | Line | Run # | | | | | | |
| | | | | | L1 | 3 | | | | | | |
| Other | | | | | | | | | | | | |
| | | | | | <div>Holly Ashkannejhad</div> <div>Tested By:</div> | | | | | | | |
| <div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div> <div><div>0.1</div><div>1</div><div>10</div><div>100</div></div> <div><div>dBuV</div><div>MHz</div></div> | | | | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | | Detector (blank equal peaks [PK] from scan) | | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.493 | 16.4 | | | 0.0 | 0.2 | 20.0 | | | | 36.6 | 46.1 | -9.5 |
| 0.390 | 18.1 | | | 0.0 | 0.2 | 20.0 | | | | 38.3 | 48.1 | -9.7 |
| 0.461 | 16.5 | | | 0.0 | 0.2 | 20.0 | | | | 36.7 | 46.7 | -9.9 |
| 0.479 | 15.9 | | | 0.0 | 0.2 | 20.0 | | | | 36.1 | 46.3 | -10.2 |
| 0.486 | 15.2 | | | 0.0 | 0.2 | 20.0 | | | | 35.4 | 46.2 | -10.8 |
| 0.464 | 15.5 | | | 0.0 | 0.2 | 20.0 | | | | 35.7 | 46.6 | -10.9 |
| 0.412 | 16.4 | | | 0.0 | 0.2 | 20.0 | | | | 36.6 | 47.6 | -11.0 |
| 0.420 | 16.1 | | | 0.0 | 0.2 | 20.0 | | | | 36.3 | 47.4 | -11.1 |
| 0.470 | 15.1 | | | 0.0 | 0.2 | 20.0 | | | | 35.3 | 46.5 | -11.2 |
| 0.451 | 15.3 | | | 0.0 | 0.2 | 20.0 | | | | 35.5 | 46.9 | -11.3 |
| 0.503 | 14.4 | | | 0.0 | 0.2 | 20.0 | | | | 34.6 | 46.0 | -11.4 |
| 0.447 | 14.7 | | | 0.0 | 0.2 | 20.0 | | | | 34.9 | 46.9 | -12.0 |
| 0.468 | 14.3 | | | 0.0 | 0.2 | 20.0 | | | | 34.5 | 46.6 | -12.0 |
| 0.496 | 13.8 | | | 0.0 | 0.2 | 20.0 | | | | 34.0 | 46.1 | -12.0 |
| 0.442 | 14.6 | | | 0.0 | 0.2 | 20.0 | | | | 34.8 | 47.0 | -12.2 |
| 0.288 | 17.9 | | | 0.0 | 0.2 | 20.0 | | | | 38.1 | 50.6 | -12.5 |
| 0.707 | 13.1 | | | 0.0 | 0.3 | 20.0 | | | | 33.4 | 46.0 | -12.6 |
| 0.402 | 15.0 | | | 0.0 | 0.2 | 20.0 | | | | 35.2 | 47.8 | -12.6 |
| 0.527 | 13.1 | | | 0.0 | 0.3 | 20.0 | | | | 33.4 | 46.0 | -12.6 |
| 0.513 | 13.0 | | | 0.0 | 0.3 | 20.0 | | | | 33.3 | 46.0 | -12.7 |

| | | | | | | | | |
|---|--|--------------------------------|--|----------------|---|-------|----------------------------|--|
| NORTHWEST | | CONDUCTED EMISSIONS DATA SHEET | | | | | REV d3.10 03/10/2003 | |
| EMC | | | | | | | | |
| EUT: MRP6 | | Work Order: WATT0011 | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 75 | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30.08 | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | |
| TEST SPECIFICATIONS | | | | | | | | |
| Specification: FCC Part 15.207 | | | | Year: 2003 | | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | | |
| SAMPLE CALCULATIONS | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | |
| COMMENTS | | | | | | | | |
| | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | |
| Transmitting mid channel | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | |
| No deviations. | | | | | | | | |
| RESULTS | | | | | | | | |
| Pass | | | | | Line | Run # | | |
| | | | | | N | 4 | | |
| Other | | | | | | | | |
| | | | | | <div>Holly Ashkannejhad</div> <div>Tested By:</div> | | | |
| <div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div> <div><div>0.1</div><div>1</div><div>10</div><div>100</div></div> <div>MHz</div> <div>dBuV</div> | | | | | | | | |

| | | | | | | | | | | | | |
|---|------------------|--------------------------------|--|---|------------|----------------------------|--|---|--|---------------|------------------|------------------------|
| NORTHWEST | | CONDUCTED EMISSIONS DATA SHEET | | | | REV d3.10 03/10/2003 | | | | | | |
| EMC | | | | | | | | | | | | |
| EUT: MRP6 | | Work Order: WATT0011 | | | | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 75 | | | | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30.08 | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | |
| Specification: FCC Part 15.207 | | | | Year: 2003 | | | | | | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | | | |
| Transmitting high channel | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | |
| RESULTS | | | | | | | | | | | | |
| Pass | | | | Line N | | Run # 5 | | | | | | |
| Other | | | | | | | | | | | | |
| | | | | <div>Holly Ashkannejhad</div> <div>Tested By:</div> | | | | | | | | |
| <div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div><div>0.1</div><div>1</div><div>10</div><div>100</div><div>MHz</div><div>dBuV</div></div> | | | | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | | Detector (blank equal peaks [PK] from scan) | | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.487 | 14.5 | | | 0.0 | 0.2 | 20.0 | | | | 34.7 | 46.2 | -11.5 |
| 0.479 | 13.0 | | | 0.0 | 0.2 | 20.0 | | | | 33.2 | 46.4 | -13.1 |
| 0.508 | 11.4 | | | 0.0 | 0.3 | 20.0 | | | | 31.7 | 46.0 | -14.3 |
| 0.416 | 12.7 | | | 0.0 | 0.2 | 20.0 | | | | 32.9 | 47.5 | -14.6 |
| 0.317 | 15.0 | | | 0.0 | 0.2 | 20.0 | | | | 35.2 | 49.8 | -14.6 |
| 0.399 | 13.0 | | | 0.0 | 0.2 | 20.0 | | | | 33.2 | 47.9 | -14.6 |
| 0.328 | 14.5 | | | 0.0 | 0.2 | 20.0 | | | | 34.7 | 49.5 | -14.8 |
| 0.279 | 15.8 | | | 0.0 | 0.2 | 20.0 | | | | 36.0 | 50.9 | -14.9 |
| 0.497 | 10.9 | | | 0.0 | 0.2 | 20.0 | | | | 31.1 | 46.1 | -14.9 |
| 0.340 | 14.0 | | | 0.0 | 0.2 | 20.0 | | | | 34.2 | 49.2 | -15.0 |
| 0.309 | 14.7 | | | 0.0 | 0.2 | 20.0 | | | | 34.9 | 50.0 | -15.1 |
| 0.254 | 16.2 | | | 0.0 | 0.2 | 20.0 | | | | 36.4 | 51.6 | -15.2 |
| 0.300 | 14.7 | | | 0.0 | 0.2 | 20.0 | | | | 34.9 | 50.2 | -15.3 |
| 0.304 | 14.5 | | | 0.0 | 0.2 | 20.0 | | | | 34.7 | 50.1 | -15.4 |
| 0.377 | 12.5 | | | 0.0 | 0.2 | 20.0 | | | | 32.7 | 48.3 | -15.6 |
| 0.502 | 10.1 | | | 0.0 | 0.2 | 20.0 | | | | 30.3 | 46.0 | -15.7 |
| 0.738 | 10.0 | | | 0.0 | 0.3 | 20.0 | | | | 30.3 | 46.0 | -15.7 |
| 0.238 | 16.3 | | | 0.0 | 0.2 | 20.0 | | | | 36.5 | 52.2 | -15.7 |
| 0.686 | 10.0 | | | 0.0 | 0.3 | 20.0 | | | | 30.3 | 46.0 | -15.7 |
| 0.356 | 12.8 | | | 0.0 | 0.2 | 20.0 | | | | 33.0 | 48.8 | -15.8 |

| | | | | | | | | | | | | |
|---|------------------|--------------------------------|--|---|------------|----------------------------|--|---|--|---------------|------------------|------------------------|
| NORTHWEST | | CONDUCTED EMISSIONS DATA SHEET | | | | REV d3.10 03/10/2003 | | | | | | |
| EMC | | | | | | | | | | | | |
| EUT: MRP6 | | Work Order: WATT0011 | | | | | | | | | | |
| Serial Number: N/A | | Date: 06/02/03 | | | | | | | | | | |
| Customer: The Watt Stopper Inc. | | Temperature: 75 | | | | | | | | | | |
| Attendees: | | Humidity: 44% | | | | | | | | | | |
| Cust. Ref. No.: | | Barometric Pressure: 30.08 | | | | | | | | | | |
| Tested by: Holly Ashkannejhad | | Power: 120VAC, 60Hz | | Job Site: EV01 | | | | | | | | |
| TEST SPECIFICATIONS | | | | | | | | | | | | |
| Specification: FCC Part 15.207 | | | | Year: 2003 | | | | | | | | |
| Method: ANSI C63.4 | | | | Year: 1992 | | | | | | | | |
| SAMPLE CALCULATIONS | | | | | | | | | | | | |
| Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation | | | | | | | | | | | | |
| Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | | | | | |
| Transmitting high channel | | | | | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | | | | | |
| No deviations. | | | | | | | | | | | | |
| RESULTS | | | | | | | | | | | | |
| Pass | | | | Line L1 | | Run # 6 | | | | | | |
| Other | | | | | | | | | | | | |
| | | | | <div>Holly Ashkannejhad</div> <div>Tested By:</div> | | | | | | | | |
| <div><div>80</div><div>70</div><div>60</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div><div>0.1</div><div>1</div><div>10</div><div>100</div><div>MHz</div><div>dBuV</div></div> | | | | | | | | | | | | |
| Freq (MHz) | Amplitude (dBuV) | | | Transducer (dB) | Cable (dB) | External Attenuation (dB) | | Detector (blank equal peaks [PK] from scan) | | Adjusted dBuV | Spec. Limit dBuV | Compared to Spec. (dB) |
| 0.491 | 16.0 | | | 0.0 | 0.2 | 20.0 | | | | 36.2 | 46.1 | -9.9 |
| 0.461 | 16.2 | | | 0.0 | 0.2 | 20.0 | | | | 36.4 | 46.7 | -10.2 |
| 0.486 | 15.6 | | | 0.0 | 0.2 | 20.0 | | | | 35.8 | 46.2 | -10.4 |
| 0.430 | 16.6 | | | 0.0 | 0.2 | 20.0 | | | | 36.8 | 47.3 | -10.4 |
| 0.507 | 15.3 | | | 0.0 | 0.3 | 20.0 | | | | 35.6 | 46.0 | -10.4 |
| 0.443 | 16.2 | | | 0.0 | 0.2 | 20.0 | | | | 36.4 | 47.0 | -10.6 |
| 0.501 | 14.9 | | | 0.0 | 0.2 | 20.0 | | | | 35.1 | 46.0 | -10.9 |
| 0.474 | 15.3 | | | 0.0 | 0.2 | 20.0 | | | | 35.5 | 46.4 | -10.9 |
| 0.449 | 15.6 | | | 0.0 | 0.2 | 20.0 | | | | 35.8 | 46.9 | -11.1 |
| 0.453 | 15.5 | | | 0.0 | 0.2 | 20.0 | | | | 35.7 | 46.8 | -11.1 |
| 0.458 | 15.3 | | | 0.0 | 0.2 | 20.0 | | | | 35.5 | 46.7 | -11.2 |
| 0.470 | 15.0 | | | 0.0 | 0.2 | 20.0 | | | | 35.2 | 46.5 | -11.3 |
| 0.416 | 15.7 | | | 0.0 | 0.2 | 20.0 | | | | 35.9 | 47.5 | -11.6 |
| 0.438 | 14.5 | | | 0.0 | 0.2 | 20.0 | | | | 34.7 | 47.1 | -12.4 |
| 0.690 | 12.9 | | | 0.0 | 0.3 | 20.0 | | | | 33.2 | 46.0 | -12.8 |
| 0.722 | 12.6 | | | 0.0 | 0.3 | 20.0 | | | | 32.9 | 46.0 | -13.1 |
| 0.421 | 14.0 | | | 0.0 | 0.2 | 20.0 | | | | 34.2 | 47.4 | -13.2 |
| 0.414 | 14.1 | | | 0.0 | 0.2 | 20.0 | | | | 34.3 | 47.6 | -13.3 |
| 0.738 | 12.4 | | | 0.0 | 0.3 | 20.0 | | | | 32.7 | 46.0 | -13.3 |
| 0.231 | 18.4 | | | 0.0 | 0.2 | 20.0 | | | | 38.6 | 52.4 | -13.8 |