

TEST REPORT

Report Number: 3100969ATL-003c

October 25, 2006

Product Designation: EW 40 - Repeater (FCCID: UL5-EW40US)

Standard: FCC Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz.
RSS-210 Issue 6 September 2005: Annex 2.9

Tested by:

Intertek Testing Services NA Inc.
1950 Evergreen Blvd., Suite 100
Duluth, GA 30096

Client:

Exhausto, Inc.
1200 Northmeadow Pkwy. Suite 180
Roswell, GA 30076
Contact: Steen Hagensen
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Tests performed by:



Richard Bianco
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Report reviewed by:



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1.0 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 3.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested complies with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested.

2.0 Test Summary

| Section | Test Full Name | Test Date | Result |
|---------|--|------------|--------|
| 4.0 | System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup) | | |
| 5.0 | Overview of EUT (Low Power Transmitters) (FCC 15C - EUT Overview) | | |
| 6.0 | Conducted emissions on AC power lines (Conducted Emissions) | 07/26/2006 | PASS |
| NA | Duty Cycle Determination (FCC 15A - 15.35(c)) was waived due to The Carrier Frequency Power is below the limit of 15.249 | | |
| 7.0 | Radiated emissions (E-field) (Radiated Emissions) | 08/07/2006 | PASS |
| NA | 15.249(b): Requirements for fixed, point-to-point operation (FCC 15C - 15.249(b)) was waived due to EUT is not for fixed, point-to-point operation | | |

3.0 Description of Equipment Under Test

| Equipment Under Test | | | |
|--|--------------|--------------|--------------------|
| Description | Manufacturer | Model Number | Serial Number |
| EW 40 Wireless Control System - Repeater | Exhausto | EW40 | Engineering Sample |

| | |
|------------------------|---------------|
| EUT receive date: | July 12, 2006 |
| EUT receive condition: | Production |

Description of EUT provided by Client:

The EW40 is a wireless control that can be used to operate and control an Exhausto chimney fan or power venter. It is designed for use with fireplaces and stoves. The use is not restricted to any type of fuel.

The unit allows the user to stop and start and control the speed of a chimney fan from a wireless Control Unit. It can be installed with or without a temperature sensor. For gas-fired appliances, a safety system in the form of a PDS (Proven Draft Switch), must be installed.

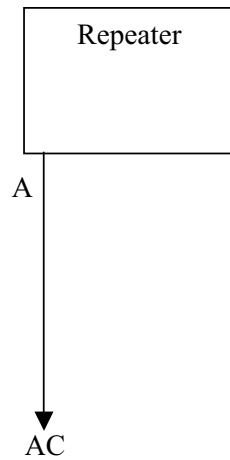
Description of EUT exercising:

The Control Unit, Repeater, and Power Unit were each tested individually.

4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)

Method:

Record the details of EUT cabling, document the support equipment, and show the interconnections in a block diagram.

Drawing:

System Block Diagram

4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)

Data:

| EUT Cabling | | | | | | |
|-------------|-------------|--------|-----------|----------|------------|----------|
| ID | Description | Length | Shielding | Ferrites | Connection | |
| | | | | | From | To |
| A | Power Cord | 1.5m | No | No | EUT | AC Mains |

| Support Equipment | | | |
|-------------------|--------------|--------------|---------------|
| Description | Manufacturer | Model Number | Serial Number |
| None Required | | | |

5.0 Overview of EUT (Low Power Transmitters) (FCC 15C - EUT Overview)**Method:**

Complete the overview spreadsheet.

Related Submittal(s) Grants: This report is for use with an application for certification of a low power transmitter. One transmitter is included in the application.

Data:

| | |
|---|--|
| Applicant | Exhausto Incorporated |
| | 1200 Northmeadow Parkway Ste. 180 |
| | Roswell, GA 30076, USA |
| Trade Name & Model No. | EW 40 Wireless Control System |
| FCC Identifier | UL5-EW40US |
| Use of product | Chimney Fan and Power Vent Wireless Controller (repeater) |
| Transmitter activation | <input checked="" type="checkbox"/> Automatically activated |
| | <input type="checkbox"/> Periodic transmissions |
| Frequency Range (MHz) | 908MHz |
| Antenna Type (15.203) | Permanently Attached |
| Manufacturer name & address | Exhausto Incorporated |
| | 1200 Northmeadow Parkway Ste. 180 |
| | Roswell, GA 30076, USA |
| Related Submittals and Grants: | This report is for use with an application for certification of a low power transmitter. One transmitter is included in the application. |
| Additions, deviations and exclusions from standards | None |

6.0 Conducted emissions on AC power lines (Conducted Emissions)

Method:

Equipment setup for conducted disturbance tests shall follow the guidelines of ANSI C63.4:2003, EN 55022:1998 +A1:2000 +A2:2003, AS/NZS CISPR22: 2002 and VCCI V-3 / 2000.04.

Measurements in the frequency range of 150kHz to 30 MHz shall be performed with a quasi-peak or average detector instrument that meets the requirements of Section One of CISPR 16. An AMN shall be used to provide a defined impedance at high frequencies across the power feed at the point of measurement of terminal voltage and also to provide isolation of the circuit under test from the ambient noise on the power lines. An AMN defined in CISPR 16 shall be used.

In the frequency range of 150 kHz to 30 MHz, a resolution/video bandwidth of 9kHz/30kHz or greater shall be used.

The EUT shall be located so that the distance between the boundary of the EUT and the closest surface of the AMN is 0.8m.

If a flexible mains cord is provided by the manufacturer that is in excess of 1m, the excess cable shall be folded back and forth as far as possible to form a bundle not exceeding 0.4m in length.

The EUT shall be arranged and connected with cables terminated in accordance with the product specification.

Conducted disturbance shall be measured between each current carrying conductor and the reference ground. Each measured values shall be reported.

If EUT is intended for tabletop use, the EUT shall be placed on a table whose top is 0.8m above the ground plane. A vertical, metal reference plane is be placed 0.4m from the EUT. The vertical metal reference-plane is at least 2m by 2m. The EUT shall be kept at least 0.8m from any other metal surface or other ground plane not being part of the EUT. The table shall be constructed of non-conductive materials. Its dimensions are at least 1m by 1.5m, but may be extended for larger EUT.

If EUT is floor standing, the floor standing EUT shall be placed on a horizontal metal ground plane and isolated from the ground plane by up to 12 mm of insulating material. The metal ground plane shall extend at least 0.5m beyond the boundaries of the EUT and had minimum dimensions of 2m by 2m.

TEST SITE

The test site for radiated emissions is located at 1950 Evergreen Blvd, Suite 100, Duluth, Georgia 30096.

MEASUREMENT UNCERTAINTY

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes. The values given are the measurement uncertainty values with an expanded uncertainty of k=2.

150 kHz to 30 MHz: +/- 2.8 dB

Test Equipment Used:

| Description: | Manufacturer: | Model: | Asset Number: | Cal Date: | Cal Due: |
|--|-----------------|--------------|---------------|------------|------------|
| Cable TT4 | Andrews | Cable TT4 | 211404 | 05/11/2006 | 05/11/2007 |
| Coaxial Cable, 6ft, N(Male) to N(Male) | Mini-Circuits | CBL-6FT-NMNM | TT1 | 05/11/2006 | 05/11/2007 |
| EMI Receiver | Hewlett Packard | 8546A | 211505 | 02/13/2006 | 02/13/2007 |
| EMI Receiver, Preselector section | Hewlett Packard | 85460A | 211506 | 02/13/2006 | 02/13/2007 |
| Spectrum Analyzer, 20 Hz to 40 GHz | Rohde & Schwarz | FSEK30 | 200062 | 01/12/2006 | 01/12/2007 |
| Transient Limiter | Hewlett Packard | 11947A | 213100 | 07/12/2006 | 07/12/2007 |

Results: The sample tested was found to Comply.

6.0 Conducted emissions on AC power lines (Conducted Emissions)**Photo:**

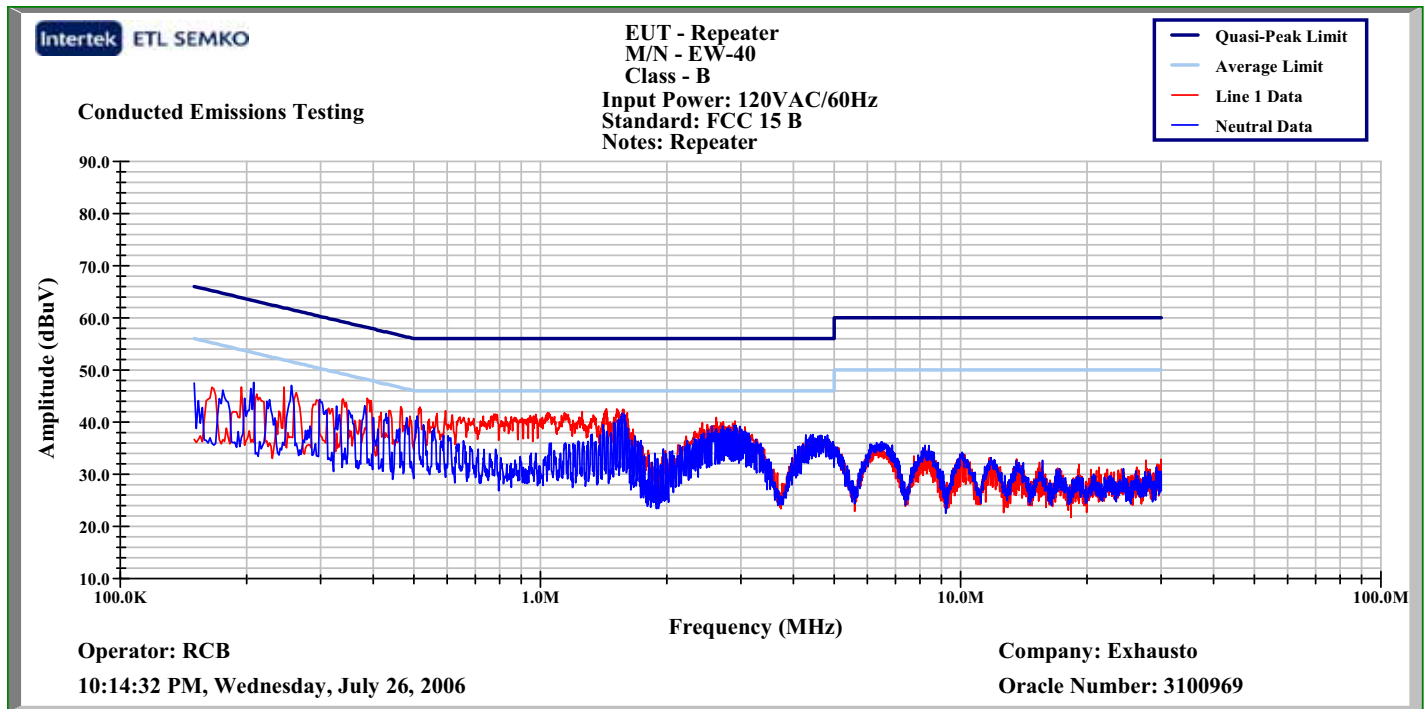
Conducted Emissions Front View

6.0 Conducted emissions on AC power lines (Conducted Emissions)**Photo:**

Conducted Emissions Rear View

6.0 Conducted emissions on AC power lines (Conducted Emissions)

Plot:



Conducted Emissions Test Plot

6.0 Conducted emissions on AC power lines (Conducted Emissions)

Data:

Date: 07-26-2006

Frequency Range (MHz): .150-30

Limit: CISPR Class B

Input power: 120/60

Modifications for compliance (y/n): No

| A | B | C | D | E | F | G | H | I |
|-----------------------|-----------------------|------------------|-----------------|---------------------|-------------------------|-------------|---------------|--------------|
| LISN Number 1,2 | Detector (P,QP, A) | Frequency MHz | Reading dBuV | Cable Loss dB | LISN Ins. Loss dB | Net dBuV | Limit dBuV | Margin dB |
| 1 | P | 0.260 | 37.8 | 0.6 | 6.1 | 44.4 | 51.4 | -7.0 |
| 1 | P | 0.390 | 36.8 | 0.6 | 6.1 | 43.4 | 48.1 | -4.7 |
| 1 | P | 0.428 | 34.9 | 0.6 | 6.0 | 41.5 | 47.3 | -5.8 |
| 1 | P | 0.511 | 35.0 | 0.6 | 6.0 | 41.5 | 46.0 | -4.5 |
| 1 | P | 1.413 | 34.2 | 0.6 | 6.0 | 40.8 | 46.0 | -5.2 |
| 1 | P | 1.573 | 34.2 | 0.6 | 6.0 | 40.8 | 46.0 | -5.2 |
| 2 | P | 0.258 | 36.3 | 0.6 | 6.1 | 43.0 | 51.6 | -8.7 |
| 2 | P | 0.292 | 34.3 | 0.6 | 6.1 | 41.0 | 50.5 | -9.5 |
| 2 | P | 0.381 | 33.8 | 0.6 | 6.1 | 40.5 | 48.3 | -7.8 |
| 2 | P | 0.422 | 32.6 | 0.6 | 6.0 | 39.2 | 47.4 | -8.2 |
| 2 | P | 1.421 | 32.2 | 0.6 | 6.0 | 38.8 | 46.0 | -7.2 |
| 2 | P | 1.588 | 34.4 | 0.6 | 6.0 | 40.9 | 46.0 | -5.1 |
| Calculations | | G=D+E+F | | I=G-H | | | | |

Note: Peak measurements are compared to the average limit.

7.0 Radiated emissions (E-field) (Radiated Emissions)

Method:

Measurements in the frequency range of 30 MHz to 1000 MHz shall be performed with a quasi-peak detector instrument that meets the requirements of Section One of CISPR 16. The measuring antenna shall correlate to a balanced dipole. Above 1 GHz, average measurements are made. When peak detectors are used, it shall be clearly indicated in the test data.

Bandwidths:

30 MHz to 1000 MHz: RBW=120 kHz, VBW=1MHz

Above 1GHz: RBW=1MHz, VBW=3MHz

Measurements of the radiated field are made with the antenna located at a distance of 3 or 10 meters from the EUT. The limit applied to the measurement shall be appropriate for the test distance. The test distance shall be indicated in the results section.

The EUT shall be arranged and connected with cables terminated in accordance with the product specification.

Exploratory tests should be carried out while varying the cable positions to determine the maximum or near-maximum emission level. During manipulation, cables shall not be placed under or on top of the system test components unless such placement is required by the inherent equipment design.

The antenna shall be adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency.

The antenna-to-EUT azimuth shall be varied during the measurement to find the maximum field-strength readings.

The antenna-to-EUT polarization (horizontal and vertical) shall be varied during the measurements to find the maximum field-strength readings.

If the EUT is intended for tabletop use, it shall be placed on a table whose top is 0.8m above the ground plane. The table shall be constructed of non-conductive materials. Its dimensions are at least 1m by 1.5m, but may be extended for larger EUT.

If EUT is floor standing, the EUT was placed on a horizontal metal ground plane and isolated from the ground plane by up to 12 mm of insulating material.

Equipment setup for radiated disturbance tests shall follow the guidelines of ANSI C63.4:2003, RSS-210, RSS-GEN.

TEST SITE

The test site for radiated emissions is located at 1950 Evergreen Blvd, Suite 100, Duluth, Georgia 30096.

MEASUREMENT UNCERTAINTY

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes. The values given are the measurement uncertainty values with an expanded uncertainty of k=2.

30 MHz to 1000 MHz at 3 meters: +/- 3.9 dB

30 MHz to 1000 MHz at 10 meters: +/- 3.6 dB

1 GHz to 18 GHz at 3 meters: +/- 4.2 dB

Test Equipment Used:

| Description: | Manufacturer: | Model: | Asset Number: | Cal Date: | Cal Due: |
|--|-----------------|-----------------|---------------|------------|------------|
| Antenna, Horn, 1-18 GHz | EMCO | 3115 | 213061 | 03/28/2006 | 03/28/2007 |
| Cable E01 (Formerly PE7000N-N2 or N2) | Pasternack | RG214/U | E01 | 05/11/2006 | 05/11/2007 |
| Cable E05 (Formerly HS 1500 N-N) | Huber-Suhner | Sucoflex 104PEA | E05 | 05/11/2006 | 05/11/2007 |
| Cable E06 (Formerly HS 1500 N-SMA) | Huber-Suhner | Sucoflex 104PEA | E06 211268 | 05/11/2006 | 05/11/2007 |
| Cable E11 (Formerly HS 7000 N-SMA) | Huber-Suhner | Sucoflex 104PEA | E11 211266 | 05/11/2006 | 05/11/2007 |
| Cable, 18 GHz, N, 394 inches | Megaphase | G919-NKNK-394 | MP3 | 05/11/2006 | 05/11/2007 |
| Coaxial Cable, 6ft, N(Male) to N(Male) | Mini-Circuits | CBL-6FT-NMNM | TT1 | 05/11/2006 | 05/11/2007 |
| EMI Receiver | Hewlett Packard | 8546A | 211505 | 02/13/2006 | 02/13/2007 |
| EMI Receiver, Preselector section | Hewlett Packard | 85460A | 211506 | 02/13/2006 | 02/13/2007 |
| Preamplifier, 1-26 GHz | Hewlett Packard | 8449B | 213191 | 05/04/2006 | 05/04/2007 |
| Preamplifier, 26 dB gain, 100kHz to 1300 MHz | Hewlett Packard | 8447D | 213075 | 12/08/2005 | 12/08/2006 |
| Spectrum Analyzer, 20 Hz to 40 GHz | Rohde & Schwarz | FSEK30 | 200062 | 01/12/2006 | 01/12/2007 |

Results: The sample tested was found to Comply.

7.0 Radiated emissions (E-field) (Radiated Emissions)**Photo:**

Radiated Emissions Front View

7.0 Radiated emissions (E-field) (Radiated Emissions)

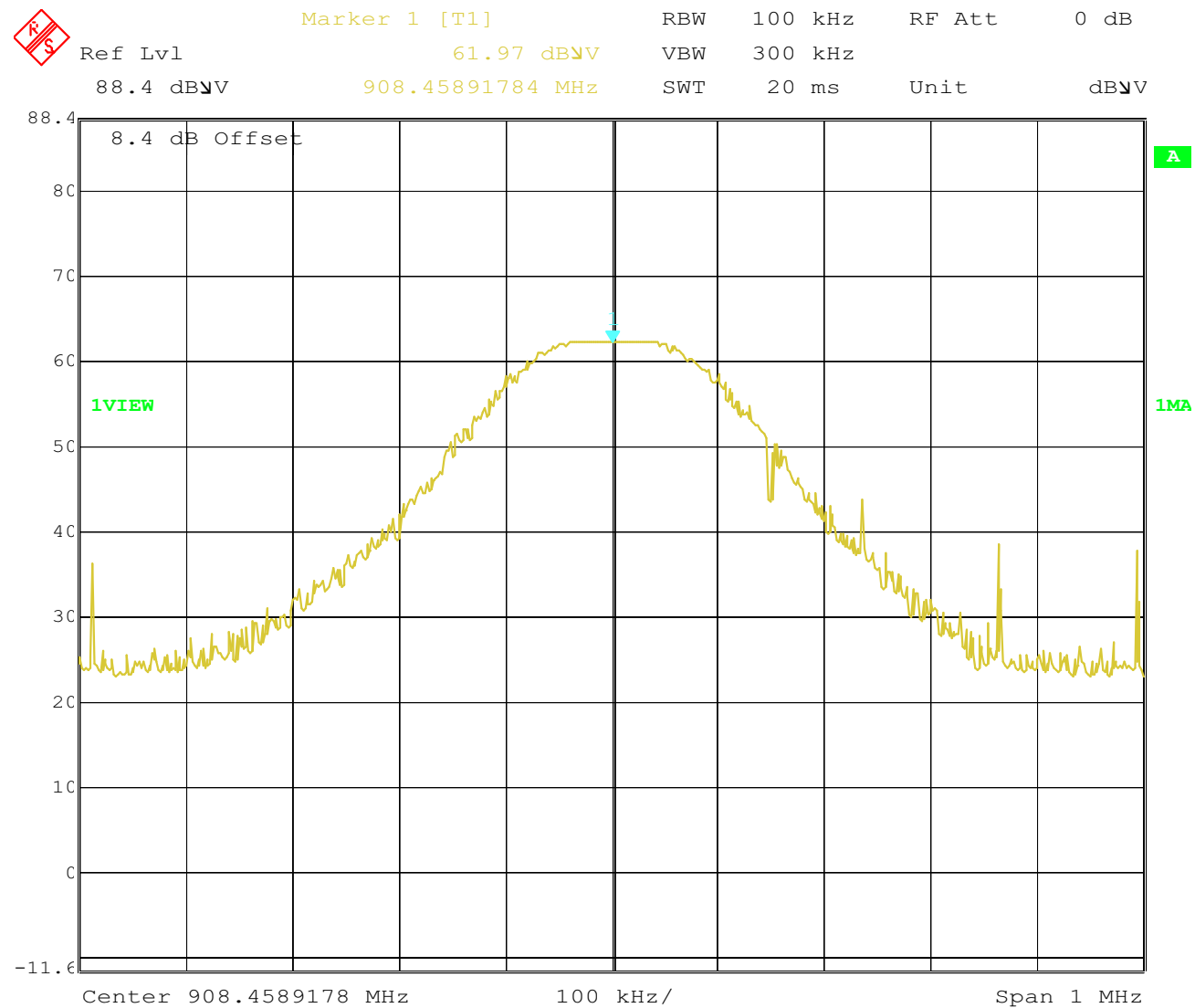
Photo:



Radiated Emissions Rear View

7.0 Radiated emissions (E-field) (Radiated Emissions)

Photo:

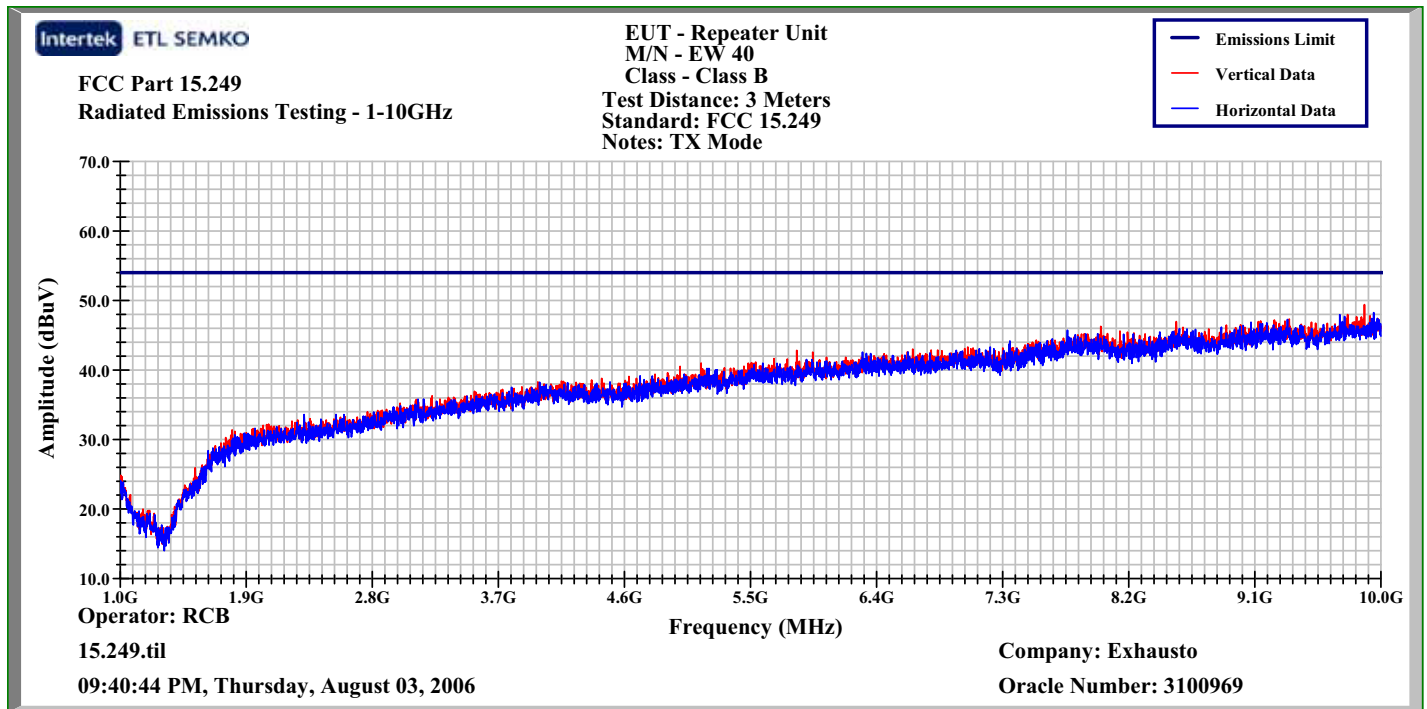


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Fundamental Frequency Plot

7.0 Radiated emissions (E-field) (Radiated Emissions)

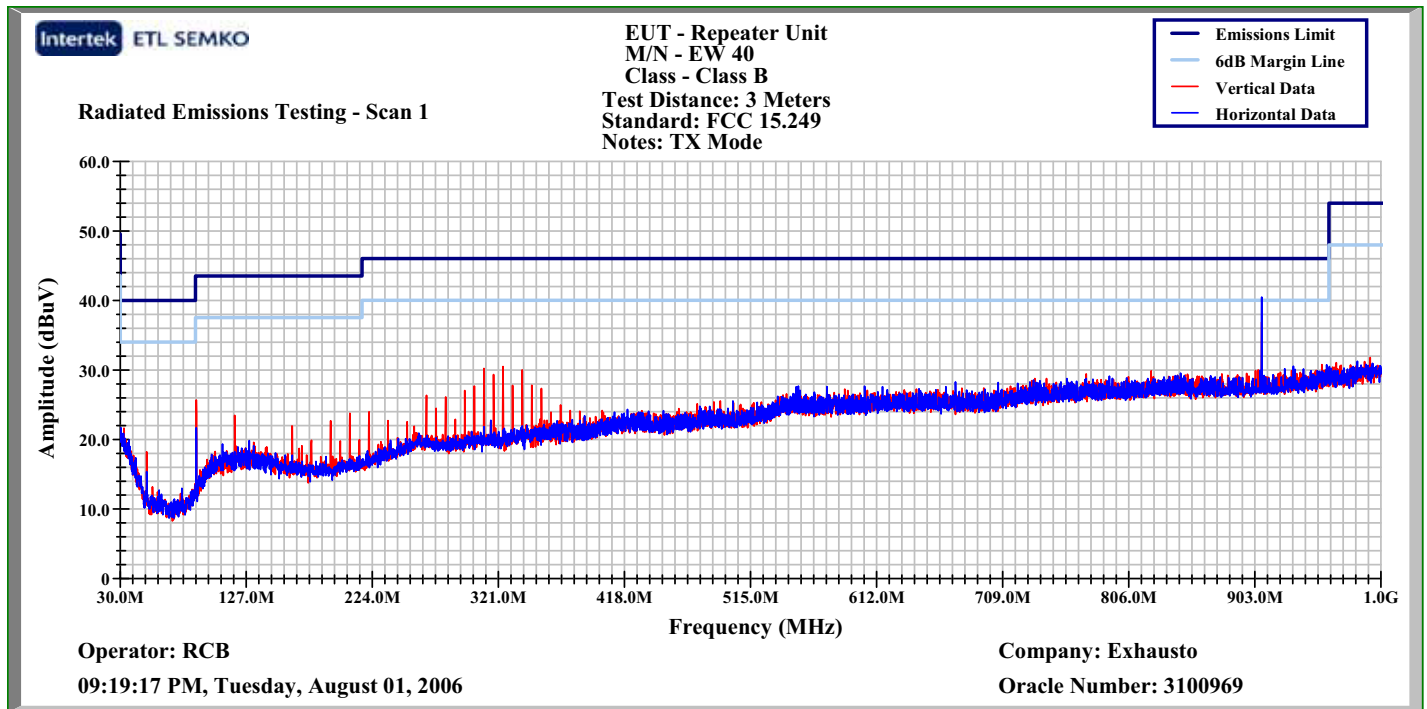
Plot:



Radiated Emissions Plot 1000MHz-10000MHz

7.0 Radiated emissions (E-field) (Radiated Emissions)

Plot:



Radiated Emissions Plot 30MHz-1000MHz

7.0 Radiated emissions (E-field) (Radiated Emissions)

Data:

Date: 07-26-2006

Limit: FCC Part15.249

Frequency Range (MHz): 30 to 10,000

Test Distance (m): 3

Input power: 120/60

Modifications for compliance (y/n): No

| A | B | C | D | E | F | G | H | I | J |
|-----------------------|------------------|-------------------|------------------------------|---------------------|-------------------------|-----------------|-------------------------|--------------|-------|
| Ant. Pol. (V/H) | Frequency MHz | Reading dB(uV) | Antenna Factor dB(1/m) | Cable Loss dB | Pre-amp Factor dB | Net dB(uV/m) | 3m Limit dB(uV/m) | Margin dB | Notes |
| V | 40.950 | 50.1 | 12.7 | 1.6 | 28.1 | 36.4 | 40.0 | -3.7 | 1 |
| V | 44.210 | 50.1 | 10.5 | 1.6 | 28.1 | 34.2 | 40.0 | -5.8 | 1 |
| V | 139.750 | 42.0 | 13.2 | 1.8 | 28.0 | 29.0 | 43.5 | -14.5 | 1 |
| V | 213.925 | 44.5 | 10.6 | 2.6 | 28.0 | 29.7 | 43.5 | -13.8 | 1 |
| V | 229.375 | 41.7 | 11.0 | 2.6 | 28.0 | 27.3 | 46.0 | -18.7 | 1 |
| V | 340.000 | 36.4 | 14.7 | 3.2 | 28.0 | 26.3 | 46.0 | -19.7 | 1 |
| H | 908.458 | 52.5 | 21.7 | 15.5 | 27.6 | 62.0 | 94.0 | -32.0 | 1,2 |
| Calculations | | G=C+D+E-F | | I=G-H | | | | | |

Note 1: Quasi-peak measurement

Note 2: Fundamental