

Modular Approval
Test Report
And Application for Grant of Equipment Authorization

TEST REPORT PERTAINING TO:

| Equipment Under Test | Model Number(s) FCC ID | |
|-----------------------------|------------------------|-------------|
| Wireless Device Server | Matchport B/G | R68MTCHDRCT |

CONFIGURATION

802.11b & 802.11g module with a U.S. Robotics 5dBi Reverse SMA Antenna (MN: USR5481)

MEASUREMENTS PERFORMED IN ACCORDANCE WITH THE FOLLOWING STANDARD (S)

Regulatory Standard(s)

47 CFR Part 15, Subpart C Section 15.247

Test Method:

ANSI C63.4: 2003 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz



Certificate Number: 1111.01

PREPARED FOR:

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Test Report #: LANTR-070125F

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1.0 REGULATORY COMPLIANCE GUIDELINES

Aegis Labs, Inc. operates as both a Nevada and California Corporation with no organizational or financial relationship with any company, institution, or private individual. Testing and engineering functions provided by Aegis Labs were furnished by RF technicians and engineers with accredited qualifications and training credentials to carry out their duties.

The object of this report was to publish verifiable test results of an EUT subjected to the tests outlined in the standard listed on the cover page of this report.

1.1 Guidelines For Testing To Emissions Standards

This standard for EMC emission requirements apply to electrical equipment for Information Technology Equipment (ITE). Compliance to these standards and in combination with the other standards listed in this test report can be used to demonstrate presumption of compliance with the protection requirements of the appropriate agency standard.

The purpose of this standard is to specify minimum requirements for emissions regarding electromagnetic compatibility (EMC) and protect the radio frequency spectrum 9 kHz. – 400 GHz. from unwanted interference generated from electrical/digital systems that intentionally or unintentionally generated RF energy. The emissions standards, normative documents and/or publications were used to conduct all tests performed on the equipment herein referred to as "Equipment Under Test".



2.0 **SUMMARY OF TEST RESULTS**

802.11b Mode (2400-2483.5 MHz)

| | EMISSIONS STANDARD | | |
|--------------|--|---------|---|
| FCC Part 15 | Description | Results | Comments |
| Section | | | |
| 15.247(a)(2) | The minimum 6dB bandwidth shall be at least 500 kHz. | PASSED | 2412 MHz = 10.08 MHz 2437 MHz = 10.17 MHz 2462 MHz = 10.33 MHz |
| 15.247(b)(3) | The maximum peak output power of the intentional radiator shall not exceed 1 watt. | PASSED | 2412 MHz = 16.80 dBm = 47.86 mW 2437 MHz = 16.40 dBm = 43.65 mW 2462 MHz = 16.64 dBm = 46.13 mW |
| 15.247(b)(5) | The intentional radiator shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the FCC guidelines per Section 1.1307(b)(1). | PASSED | Refer to MPE Calculations Exhibit |
| 15.247(c) | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. | PASSED | See Data Sheets |
| 15.247(c) | Radiated emissions, which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a). All others must be < -20dBc. | PASSED | See Data Sheets |
| 15.247(d) | The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. | PASSED | 2412 MHz = -14.67 dB 2437 MHz = -20.67 dB 2462 MHz = -18.83 dB |
| 15.207 | AC Conducted Emissions | PASSED | See Data Sheets |
| 15.209 | Radiated Emissions (30-1000 MHz) | PASSED | See Data Sheets |



2.0 Summary of Test Results (Continued)

802.11g Mode (2400-2483.5 MHz)

| | EMISSIONS STANDARD | | | | |
|------------------------|--|---------|---|--|--|
| FCC Part 15 Section | Description | Results | Comments | | |
| 15.247(a)(2) | The minimum 6dB bandwidth shall be at least 500 kHz. | PASSED | 2412 MHz = 16.58 MHz 2437 MHz = 16.67 MHz 2462 MHz = 16.83 MHz | | |
| 15.247(b)(3) | The maximum peak output power of the intentional radiator shall not exceed 1 watt. | PASSED | 2412 MHz = 19.83 dBm = 95.94 mW 2437 MHz = 19.60 dBm = 91.20 mW 2462 MHz = 19.70 dBm = 93.33 mW | | |
| 15.247(b)(5) | The intentional radiator shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the FCC guidelines per Section 1.1307(b)(1). | PASSED | Refer to MPE Calculations Exhibit | | |
| 15.247(c) | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. | PASSED | See Data Sheets | | |
| 15.247(c) | Radiated emissions, which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a). All others must be < -20dBc. | PASSED | See Data Sheets | | |
| 15.247(d) | The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. | PASSED | 2412 MHz = -16.83 dB 2437 MHz = -18.83 dB 2462 MHz = -17.67 dB | | |
| 15.207 | AC Conducted Emissions | PASSED | See Data Sheets | | |
| 15.209 | Radiated Emissions (30-1000 MHz) | PASSED | See Data Sheets | | |

ANALYSIS AND CONCLUSIONS

Based upon the measurement results we find that this equipment is within the limits of the standard listed on the cover page of this test report. All results are based on a test of one sample. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.

Approval Signatories

Test and Report Completed By: Report Reviewed By:

05/10/07

Brian Mueller Test Technician

Aegis Labs, Inc.

Johnny Candelas

Test Technician

Aegis Labs, Inc.

Report Approved By:

Date:

05/29/07

Rick Candelas

Date:

Quality Assurance & EMC Lab Manager

Aegis Labs, Inc.

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05/23/07

Date:

Report Number: LANTR-070125F Revision Number: NONE FCC ID: R68MTCHDRCT



3.0 ADMINISTRATIVE DATA AND TEST DESCRIPTION

| DEVICE TESTED: | ITE Type: Wireless Device Server Model Number(s): Matchport B/G Serial Number: None MAC ID: 00:20:4A:9E:00:A8 FCC ID: R68MTCHDRCT |
|-------------------------------|--|
| DATE EUT RECEIVED: | April 26 th , 2007 |
| TEST DATE(S): | April 26 th , May 3 rd – 4 th , May 07, 2007 |
| ORIGIN OF TEST SAMPLE(S): | Production |
| EQUIPMENT CLASS: | EUT tested as CLASS B device |
| RESPONSIBLE PARTY: | Lantronix Inc. 15353 Barranca Parkway Irvine, CA 92618 |
| CLIENT CONTACT: | Mr. Michael Simonsen |
| MANUFACTURER: | Lantronix Inc. |
| TEST LOCATION: | Aegis Labs, Inc. 32231 Trabuco Creek Road Trabuco Canyon, CA 92678 Open Area Test Site: #1 & #2 |
| ACCREDITATION CERTIFICATE(s): | A2LA Certificate Number: 1111.01, Valid through February 28, 2008 |
| PURPOSE OF TEST: | To demonstrate compliance with the standards as described in Sections 1.0 & 2.0 of this report. |
| UNCERTAINTY BUDGET: | Proficiency Testing and Uncertainty Calculations for all tests indicated in this report have been conducted in accordance with ISO 17025: 2005 requirements Section 5.4.6, and 5.9. Uncertainty Budgets and Proficiency Test results available upon request. |
| STATEMENT OF CALIBRATION: | All accredited equipment calibrations were performed by Liberty Labs, Inc. and World Cal. with typical calibration uncertainty estimates derived from ISO Guide to the determination of uncertainties with a Coverage Factor of k=2 for 95% level of confidence. |



4.0 DESCRIPTION OF EUT CONFIGURATION

4.1 EUT Description

| Equipment Under Test (EUT) | | | |
|---|---|--|--|
| Trade Name: | Wireless Device Server | | |
| Model Number: | Matchport B/G | | |
| Frequency Range: | 802.11b/g = 2400 - 2483.5 MHz | | |
| Type of Transmission: | Direct Sequence Spread Spectrum | | |
| Transfer Rate: | 1/5.5/11 Mbps for 802.11b mode 6/36/54 Mbps for 802.11g mode | | |
| Number of Channels: | 802.11b mode (2400-2483.5 MHz) = 11 802.11g mode (2400-2483.5 MHz) = 11 | | |
| Modulation Type: | DBPSK, DQPSK, CCK, OFDM | | |
| Antenna Type: | External Swivel Antenna with Reverse SMA connector | | |
| Antenna Gain (See Note 2): | 2.4 GHz = 5.00 dBi | | |
| Transmit Output Power: | Ch. 1-11 14dBm Average (Typical) for 802.11b mode Ch. 1-11: 12dBm Average (Typical) for 802.11g mode Please see Appendix A (Data Sheets) for actual output power. | | |
| Power Supply: | 3.3VDC input from external 120VAC Adapter | | |
| Number of External Test Ports Exercised: | 1 Antenna Port, 1 Ethernet Port, 2 Serial Ports | | |

The Wireless Device Server provides a network-enabling solution based on the IEEE 802.11b/g wireless standard.

It was tested as a standalone device with a U.S. Robotics (MN: USR5481) antenna continuously transmitting and receiving form the antenna port.

NOTE 1: For a more detailed description, please refer to the manufacture's specifications or User's Manual.

NOTE 2: The EUT was tested with a U.S. Robotics antenna. (Refer to the antenna specifications exhibits).



4.2 EUT Configuration

The EUT was tested as a standalone device connected to a remotely located Dell computer via its serial port 1 & 1 Ethernet port. The Dell computer was then connected to a Dell monitor, a Dell keyboard and Logitech mouse via its video, keyboard and mouse ports respectively. A U.S. Robotics external antenna (MN: USR5481) was connected to the EUT's antenna ports via its reverse SMA antenna connector. Data for the U.S. Robotics antenna can be found in Appendix A (Data Sheets).

The low, middle, and high channels were tested in 802.11b/g mode. The EUT was placed in either continuous transmit or continuous receive mode by a program provided by the manufacturer (*Linktest*).



4.3 List of EUT, Sub-Assemblies and Host Equipment

| Equipment Under Test | | | | | |
|-----------------------------|---------------------------|-------------------------|------------------|-------------------|--|
| Manufacturer | Equipment Name | Model or Part Number | Serial Number | MAC ID | |
| Lantronix Inc. | Wireless Device Server | Matchport B/G | None | 00:20:4A:9E:00:A8 | |

| EUT Sub Assemblies | | | | |
|--|------------------|--------------|--------------|--|
| Manufacturer Equipment Name Model or Part Number Serial Number | | | | |
| U.S. Robotics | External Antenna | USR5481 | 1WBVX5LF0224 | |
| Group West | Power Supply | 8UR-3.6-1000 | N/A | |

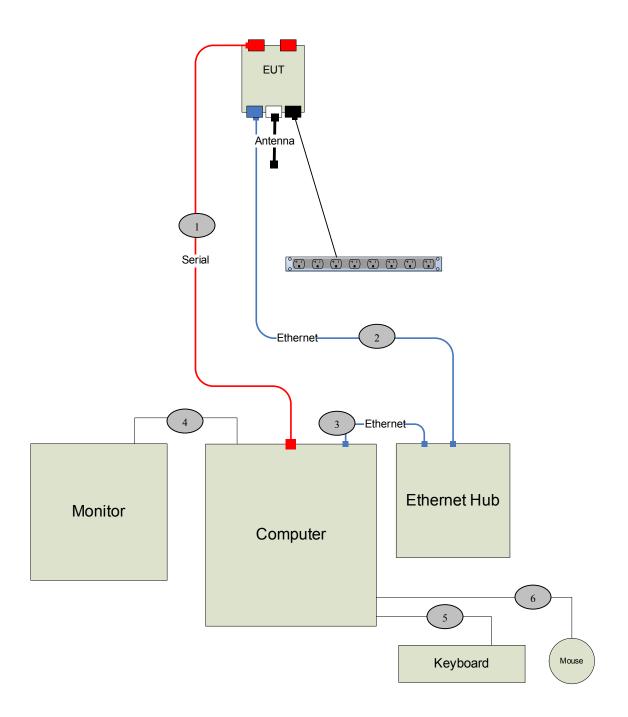
| Remotely Located Support Equipment | | | | | |
|------------------------------------|----------------|-------------------------|------------------------------|--|--|
| Manufacturer | Equipment Name | Model or Part Number | Serial Number | | |
| Dell | Host Computer | XPS T450 | 4ZFAW | | |
| Dell | Monitor | E550 | MY-07753T-46632- 9BR-23D1 | | |
| Dell | Keyboard | RT7D5JTW | 37171 03H S341 | | |
| Logitech | Mouse | M-S3S | LZK13810013 | | |
| Linksys | Router | WRTS4G5 V.2 | CGN30E436355 | | |

NOTE: All the power cords of the above support equipment are standard and non-shielded.

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4.4 I/O Cabling Diagram and Description





4.4 I/O Cabling Diagram and Description (continued)

| | | | Signal Line Cab | le Description | | | |
|-------|--------|--|--|---------------------------------|-------------------|---------------------|------|
| Cable | Length | Construction | Source Connector | Destination Connector | Bundled Length | Ferrite Attached | Note |
| 1 | 10.0m | Serial Cable | EUT's Port 1: Metallic DB-9 | Host Computer: Metallic DB-9 | N/A | N/A | N/A |
| 2 | 10.0m | Round, Un- Shielded Twisted Pair (CAT 5) | EUT's Ethernet Port: Plastic RJ-45 | Lantronix Hub: Plastic RJ-45 | N/A | N/A | N/A |
| 3 | 1.5m | Round, Un- Shielded Twisted Pair (CAT 5) | Lantronix Hub: Plastic RJ-45 | Host Computer: Plastic RJ-45 | N/A | N/A | N/A |
| 4 | 1.5m | Round, Braid & Foil Shielded | Host Computer: Metallic DB-15 | Monitor: Hardwired | N/A | N/A | N/A |
| 5 | 1.5m | Round, Braid & Foil Shielded | Host Computer: Metallic 8-pin Mini DIN | Keyboard: Hardwired | N/A | N/A | N/A |
| 6 | 1.5m | Round, Braid & Foil Shielded | Host Computer: Metallic 8-pin Mini DIN | Mouse: Hardwired | N/A | N/A | N/A |



4.5 EMC Test Hardware and Software Measurement Equipment

| TEST EQUIPMENT LIST - Emissions | | | | | | | | | |
|--|------------------|--------------------------|---------------|-------------------------|-------------------------------------|--|--|--|--|
| Equipment Name | Manufacturer | Model Number | Serial Number | Calibration Due Date | Maintenance Calibration Cycle | | | | |
| Spectrum Analyzer | Agilent | 8565EC | 3946A00245 | 07/24/07 | 1 Year | | | | |
| Antenna - Horn | EMCO | 3115 | 2230 | 05/15/07 | 1 Year | | | | |
| Preamp | Miteq | JS42-01001800-25- 10P | 815980 | 09/21/07 | 1 Year | | | | |
| 28 Foot Coax | Semflex | S1L29BFS1348 | 608 | 07/26/07 | 1 Year | | | | |
| 2.4 GHz Notch Filter | Micro-Tronics | BRM50702-02 | 003 | NCR | NCR | | | | |
| Antenna - 18-26.5 GHz Pre-amplified Horn | Aegis Labs, Inc. | H042 | SLK-35-3W | 02/08/08 | 1 Year | | | | |
| Antenna - 26.5-40 GHz Pre-amplified Horn | Aegis Labs, Inc. | H028 | GM1260-10 | 02/08/08 | 1 Year | | | | |
| EMI Receiver - RF Section | Hewlett Packard | 8546A | 3325A00137 | 04/26/08 | 1 Year | | | | |
| EMI Receiver - RF Filter Section | Hewlett Packard | 85460A | 3325A00138 | 04/26/08 | 1 Year | | | | |
| Antenna - Biconical | EMCO | 3110 | 9108-1421 | 07/25/07 | 1 Year | | | | |
| Antenna - Log Periodic | ETS | 3148 | 4947 | 07/25/07 | 1 Year | | | | |
| Power Meter | Anritsu | ML2487A | 6K00001785 | 05/30/07 | 1 Year | | | | |
| Wide Bandwidth Sensor | Anritsu | MA2491A | 31193 | 05/30/07 | 1 Year | | | | |
| 12dB Attenuator | Narda | 4779-12 | 203 | 07/09/07 | 2 Years | | | | |
| Temperature/Humidity Monitor | Dickson | TH550 | 7255185 | 04/13/08 | 1 Year | | | | |



5.0 CONDITIONS DURING EMISSIONS MEASUREMENTS

5.1 General

All measurements were made according to the procedures defined in or referred to by the standard listed on the cover page of this report. The measurements were made in the operating mode producing the largest emissions consistent with normal operation and connected to the minimum configuration of auxiliary devices.

5.2 Conducted Emissions Test Setup

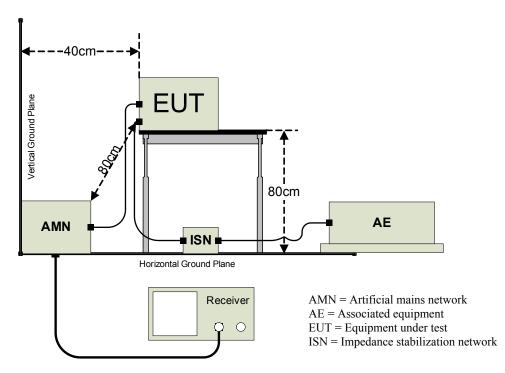
The following was the test configuration.

EUT signal cables that hung closer than 40 cm to the horizontal metal ground plane were folded back and forth forming a bundle 30 cm to 40 cm long. The power cord of the EUT was also bundled in the center and plugged into one of the artificial mains network (AMN). All peripheral equipment was powered from a second AMN via a multiple outlet strip placed at a distance on 10cm from each other. The AMN and ISN were positioned 80cm from the EUT. Signal cables that were not connected to an AE were terminated using the correct termination. If applicable, the current probe was placed at 0.1 m from the ISN.

Peak, quasi-peak and/or average detectors were used for testing performed between 150 kHz and 30 MHz. A swept frequency scan was performed for both Line 1 and Line 2. The six highest readings were compared against the limit and recorded in the data sheet along with a snapshot image of the sweep scan. The graphical scans in Appendix A only reflect peak readings while the tabulated data sheets reflect peak, average, and/or quasi-peak measurements.

Climatic Conditions:

The EUT was tested within its intended operating and climatic conditions.





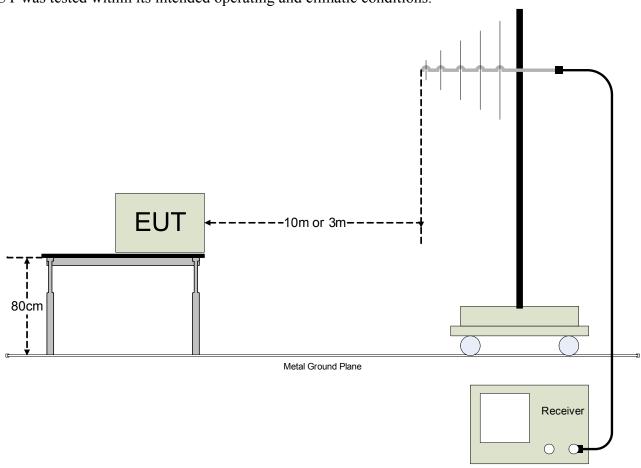
5.3 Radiated Emissions Test Setup

The Open Area Test Site (OATS) was used for radiated emission testing. The receiving (Rx) antenna(s) was placed 10m from the nearest side of the EUT facing the Rx antenna. The EUT (if floor-standing) was placed directly on the flush-mounted 360 degree rotating turntable. The EUT (if table-top) was placed directly on an 80cm high non-metallic table, and the table was placed on the rotating turntable. During the initial EMI scan, all the suspect frequencies, i.e.; harmonics, broadband signals were checked with the Rx broadband antennas in both vertical and horizontal polarities. The biconical Rx, log periodic Rx, and horn Rx antennas were used from 30MHz – 299.99MHz, 300MHz – 1000MHz, and 1GHz – 18GHz respectively.

Upon completion of all harmonic and broadband measurements, the balance of any remaining frequencies was checked between 30MHz – 18GHz. Any signals appearing within 20 dB of the classification limit was measured. Each signal was maximized by first rotating the turntable at least 360 degrees and recording the azimuth in the data sheet. Lastly, the Rx antenna was raised and/or lowered to maximize the signal elevation. If the measured signal was obtained using the peak detector and that signal appeared within 3 dB of the regulatory limit line, then the same signal was re-measured using the quasi-peak detector on the EMI receiver. Both meter readings if necessary were recorded on the data sheet.

Climatic Conditions:

The EUT was tested within its intended operating and climatic conditions.



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APPENDIX A

TEST DATA



AC POWER PORT - CONDUCTED EMISSIONS TEST RESULTS

| CLIENT: | Lantronix Inc. | DATE: | 04/26/07 |
|-----------------------|---|------------------------|--------------|
| EUT: | Wireless Device Server | PROJECT NUMBER: | LANTR-070125 |
| MODEL NUMBER: | Matchport B/G | TEST ENGINEER: | RC |
| SERIAL NUMBER: | None | SITE #: | 1 |
| CONFIGURATION: | T 1 1 1 C W | TEMPERATURE: | 24 deg. C |
| | Tested with Group West Power Adaptor | HUMIDITY: | 40% |
| | | TIME: | 2:30 PM |

| Description: | Conducted Power RF Emissions (150 kHz – 30 MHz) | | | | | | | |
|---------------------|---|--|--|--|--|--|--|--|
| Results: | PASSED Limits | | | | | | | |
| Note: | Conducted Emissions Measurements were performed on the EUT with the power | | | | | | | |
| | source set at the following voltage. | | | | | | | |
| | • 120VAC / 60Hz | | | | | | | |

| Conducted Limits | | | | | | | | |
|--|-----------|-----------|--|--|--|--|--|--|
| Frequency (MHz) Quasi-Peak Limit (dBuV) Average Limit (dBuV) | | | | | | | | |
| 0.15-0.5 | 66 to 56* | 56 to 46* | | | | | | |
| 0.5-5 | 56 | 46 | | | | | | |
| 5-30 | 60 | 50 | | | | | | |

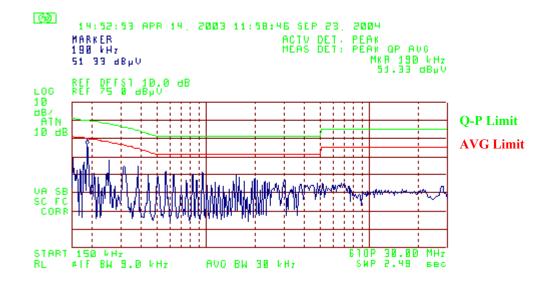
^{*}Decreases with the logarithm of the frequency.



AC Power Port – Conducted Emissions Test Results (Continued)

Group West Power Adapter @ 120VAC / 60Hz (LANTR-070125-04)

| | FCC Part 15 CLASS B CONDUCTED EMISSIONS – LINE 1 | | | | | | | | |
|----------------|--|------------------------|-------------------------|----------------------|----------------------------|-------------------------|--|--|--|
| Freq. (MHz) | Meter Reading (dBuV) | Detector (PK/QP/AV) | Average Limit (dBuV) | Average Delta(dB) | Quasi-Peak Limit (dBuV) | Quasi-Peak Delta(dB) | | | |
| 0.1500 | 43.68 | PK | 56.00 | -12.32 | 66.00 | -22.32 | | | |
| 0.1800 | 41.93 | PK | 55.14 | -13.21 | 65.14 | -23.21 | | | |
| 0.1900 | 51.33 | PK | 54.86 | -3.53 | 64.86 | -13.53 | | | |
| 0.2600 | 42.42 | PK | 52.86 | -10.44 | 62.86 | -20.44 | | | |
| 0.3200 | 39.26 | PK | 51.14 | -11.88 | 61.14 | -21.88 | | | |
| 0.3800 | 39.28 | PK | 49.43 | -10.15 | 59.43 | -20.15 | | | |

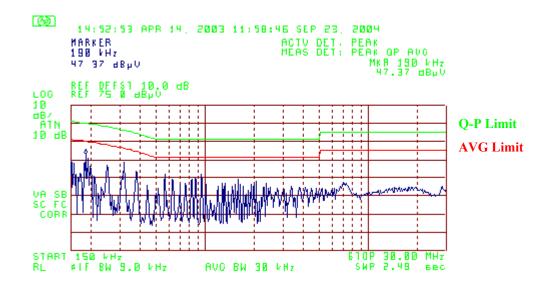




AC Power Port – Conducted Emissions Test Results (Continued)

Group West Power Adapter @ 120VAC / 60Hz (LANTR-070125-04)

| | FCC Part 15 CLASS B CONDUCTED EMISSIONS – LINE 2 | | | | | | | | |
|----------------|--|------------------------|-------------------------|----------------------|----------------------------|-------------------------|--|--|--|
| Freq. (MHz) | Meter Reading (dBuV) | Detector (PK/QP/AV) | Average Limit (dBuV) | Average Delta(dB) | Quasi-Peak Limit (dBuV) | Quasi-Peak Delta(dB) | | | |
| 0.1500 | 43.31 | PK | 56.00 | -12.69 | 66.00 | -22.69 | | | |
| 0.1600 | 42.68 | PK | 55.71 | -13.03 | 65.71 | -23.03 | | | |
| 0.1900 | 47.37 | PK | 54.86 | -7.49 | 64.86 | -17.49 | | | |
| 0.2000 | 45.51 | PK | 54.57 | -9.06 | 64.57 | -19.06 | | | |
| 0.2500 | 41.46 | PK | 53.14 | -11.68 | 63.14 | -21.68 | | | |
| 0.3200 | 43.14 | PK | 51.14 | -8.00 | 61.14 | -18.00 | | | |





RADIATED EMISSIONS TEST RESULTS

| CLIENT: | Lantronix Inc. | DATE: | 05/07/07 |
|-----------------------|---|------------------|--------------|
| EUT: | Wireless Device Server | PROJECT NUMBER: | LANTR-070125 |
| MODEL NUMBER: | Matchport B/G | TEST ENGINEER: | BM |
| SERIAL NUMBER: | None | SITE #: | 2 |
| CONFIGURATION: | T-4-1-4-4-11C D-1-4 | TEMPERATURE: | 13 deg. C |
| | Tested with a U.S. Robotics 5 dBi antenna | HUMIDITY: | 62% RH |
| | | TIME: | 9:00 PM |

| Description: | Radiated RF Emissions (30 MHz – 1000 MHz) |
|---------------------|--|
| Results: | PASSED Horizontal and Vertical Antenna Polarizations Class B Limits |
| Note: | During preliminary scans, there wasn't any difference which channel or data rate was |
| | used with the EUT; therefore only 802.11b mode at Channel 1 with a data rate of 1 |
| | Mbps was used for final testing. |

| Radiated Limits | | | | | | |
|-----------------|-------------------------|--|--|--|--|--|
| Frequency (MHz) | Quasi-Peak Limit (dBuV) | | | | | |
| 30-88 | 40 | | | | | |
| 88-216 | 43.52 | | | | | |
| 216-960 | 46.02 | | | | | |
| 960-1000 | 54 | | | | | |

Radiated Emissions Sample Calculations

Corrected Meter Reading = Meter Reading + F +C - D

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

CML = Specification Limit - F - C + D



U.S. Robotics @ 120VAC/60Hz (LANTR-070125-13)

| | RADIATED EMISSIONS - Horizontal Antenna Polarization | | | | | | | | | | |
|--------|--|---------|-----------|----------|------|--------|--------|----------|-----------|--------|-----------|
| Freq. | Meter | Antenna | Azimuth | Quasi pk | k or | Cable | Ant. | 10 Meter | Corrected | Limits | Diff (dB) |
| (MHz) | Reading | Height | (degrees) | AVG | | Factor | Factor | Distance | Reading | (dBuV) | +=FAIL |
| | (dBuV) | (cm) | | (dBuV |) | (dB) | (dB) | Factor | (dBuV) | | |
| | | | | | | | | (dB) | | | |
| 125.00 | 11.17 | 400 | 180 | | | 2.46 | 11.35 | 10.46 | 35.44 | 43.50 | -8.06 |
| 150.00 | 8.56 | 400 | 180 | | | 2.53 | 12.20 | 10.46 | 33.75 | 43.50 | -9.75 |
| 225.01 | 6.74 | 400 | 45 | | | 2.75 | 16.30 | 10.46 | 36.25 | 46.00 | -9.75 |
| 250.00 | 16.13 | 400 | 315 | 11.46 | Q | 2.91 | 17.30 | 10.46 | 42.13 | 46.00 | -3.87 |
| 319.98 | 12.78 | 300 | 315 | | | 3.13 | 14.94 | 10.46 | 41.30 | 46.00 | -4.70 |
| 375.00 | 6.37 | 400 | 180 | | | 3.35 | 14.90 | 10.46 | 35.08 | 46.00 | -10.93 |
| 385.00 | 8.87 | 400 | 0 | | | 3.39 | 15.02 | 10.46 | 37.74 | 46.00 | -8.26 |
| 500.03 | 7.81 | 400 | 0 | | | 3.84 | 19.00 | 10.46 | 41.11 | 46.00 | -4.89 |
| 630.00 | 5.66 | 400 | 135 | | | 4.30 | 19.44 | 10.46 | 39.86 | 46.00 | -6.14 |

| RADIATED EMISSIONS - Vertical Antenna Polarization | | | | | | | | | | | |
|--|---------|---------|-----------|----------|-----|--------|--------|----------|-----------|--------|----------|
| Freq. | Meter | Antenna | Azimuth | Quasi pl | ror | Cable | Ant. | 10 Meter | Corrected | Limits | Diff(dB) |
| (MHz) | Reading | Height | (degrees) | AVG | | Factor | Factor | Distance | Reading | (dBuV) | +=FAIL |
| | (dBuV) | (cm) | | (dBuV |) | (dB) | (dB) | Factor | (dBuV) | | |
| | | | | | | | | (dB) | | | |
| 30.01 | 12.07 | 100 | 180 | 9.57 | Q | 2.81 | 12.80 | 10.46 | 35.64 | 40.00 | -4.36 |
| 34.99 | 10.00 | 100 | 180 | | | 2.75 | 11.65 | 10.46 | 34.86 | 40.00 | -5.14 |
| 125.00 | 11.51 | 100 | 180 | | | 2.46 | 11.30 | 10.46 | 35.73 | 43.50 | -7.77 |
| 149.98 | 8.81 | 100 | 135 | | | 2.53 | 11.70 | 10.46 | 33.50 | 43.50 | -10.00 |
| 200.00 | 6.84 | 100 | 225 | | | 2.68 | 15.60 | 10.46 | 35.58 | 43.50 | -7.92 |
| 220.02 | 6.31 | 100 | 90 | | | 2.74 | 16.96 | 10.46 | 36.47 | 46.00 | -9.53 |
| 250.00 | 14.12 | 100 | 90 | 11.90 | Q | 2.91 | 18.40 | 10.46 | 43.67 | 46.00 | -2.33 |
| 300.01 | 7.14 | 100 | 315 | | | 3.05 | 14.20 | 10.46 | 34.85 | 46.00 | -11.15 |
| 320.00 | 6.42 | 100 | 45 | | | 3.13 | 15.64 | 10.46 | 35.65 | 46.00 | -10.35 |
| 375.04 | 7.98 | 100 | 90 | | | 3.35 | 15.20 | 10.46 | 36.99 | 46.00 | -9.01 |
| 385.01 | 8.08 | 100 | 45 | | | 3.39 | 15.52 | 10.46 | 37.45 | 46.00 | -8.55 |
| 479.97 | 6.82 | 100 | 180 | | | 3.77 | 18.06 | 10.46 | 39.11 | 46.00 | -6.89 |
| 500.04 | 8.61 | 100 | 45 | | | 3.84 | 17.90 | 10.46 | 40.81 | 46.00 | -5.19 |
| 505.20 | 10.22 | 200 | 90 | | | 3.86 | 18.15 | 10.46 | 42.69 | 46.00 | -3.31 |
| 625.03 | 7.15 | 100 | 135 | | | 4.28 | 19.70 | 10.46 | 41.59 | 46.00 | -4.41 |

NOTE: The measurements were taken at 3 meters and extrapolated to 10 meters.



RADIATED EMISSIONS TEST RESULTS

| CLIENT: | Lantronix Inc. | DATE: | 05/03/07 |
|-----------------------|--|------------------|--------------|
| EUT: | Wireless Device Server | PROJECT NUMBER: | LANTR-070125 |
| MODEL NUMBER: | Matchport B/G | TEST ENGINEER: | BM |
| SERIAL NUMBER: | None | SITE #: | 2 |
| CONFIGURATION: | Tested in 802.11b (2400 - | TEMPERATURE: | 17 deg. C |
| | 2483.5 MHz) mode with a | HUMIDITY: | 40% RH |
| | U.S. Robotics 5dBi antenna. | TIME: | 5:00 PM |

| Description: | Radiated RF Emissions (1 GHz – 18 GHz) |
|---------------------|---|
| Results: | PASSED Horizontal and Vertical Antenna Polarizations Class B Limits |
| Note: | Radiated Emissions Measurements were performed on the EUT with power supply set |
| | at the following voltage and frequency. |
| | • 120VAC / 60 Hz. |

| | | Unwanted Spurious Emissions | Limits |
|-----------------|-----------------------|--|---|
| Frequency (MHz) | Field Strength (uV/m) | Field Strength (dBuV/m) (Emissions in the restricted bands) | Field Strength (dBm/MHz) (Emissions outside the restricted bands) |
| Above 960 | 500 | 54.00 (Average) 74.00 (Peak) | < -20 dBc |

Radiated Emissions Sample Calculations

Corrected Meter Reading = Meter Reading + F +C - D

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

CML = Specification Limit - F - C + D



Fundamental Measurements in **802.11b mode (2400-2483.5 MHz)**Channels 1, 6, & 11

Continuous TX at MAIN Antenna port with U.S. Robotics Antenna
Aegis Labs, Inc. File #: LANTR-070125-08

| | RADIATED EMISSIONS - Horizontal Antenna Polarization | | | | | | | | | | | |
|---------|--|---------|-----------|----------|-----|--------|--------|-----------|--------|-----------|----------|--|
| Freq. | Meter | Antenna | Azimuth | Quasi pk | or | Cable | Ant. | Corrected | Limits | Diff (dB) | Comments | |
| (MHz) | Reading | Height | (degrees) | AVG (dBı | ιV) | Factor | Factor | Reading | (dBuV) | +=FAIL | | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dBuV) | | | | |
| 2412.00 | 64.83 | 100 | 225 | | | 1.99 | 31.31 | 98.13 | | | Ch. 1 | |
| 2412.00 | | | | 61.09 | A | 1.99 | 31.31 | 94.39 | | | | |
| 2437.00 | 61.83 | 100 | 225 | | | 2.00 | 31.36 | 95.19 | | | Ch. 6 | |
| 2437.00 | | | | 58.28 | A | 2.00 | 31.36 | 91.64 | | | | |
| 2462.00 | 63.50 | 125 | 225 | | | 2.01 | 31.42 | 96.93 | | | Ch. 11 | |
| 2462.00 | | | | 55.99 | A | 2.01 | 31.42 | 89.42 | | | | |

| | RADIATED EMISSIONS – Vertical Antenna Polarization | | | | | | | | | | | |
|---------|--|-------------|-----------|------------|-------------|----------------|-------------|-------------------|--------|-----------|----------|--|
| Freq. | Meter | Antenna | Azimuth | Quasi pk | Quasi pk or | | Ant. | Corrected | Limits | Diff (dB) | Comments | |
| (MHz) | Reading (dBuV) | Height (cm) | (degrees) | ÃVG (dBuV) | | Factor (dB) | Factor (dB) | Reading (dBuV) | (dBuV) | +=FAIL | | |
| 2412.00 | 77.50 | 100 | 225 | | | 1.99 | 30.19 | 109.68 | | | Ch. 1 | |
| 2412.00 | | | | 69.64 | A | 1.99 | 30.19 | 101.82 | | | | |
| 2437.00 | 78.33 | 100 | 270 | | | 2.00 | 30.22 | 110.56 | | | Ch. 6 | |
| 2437.00 | | | | 74.62 | A | 2.00 | 30.22 | 106.85 | | | | |
| 2462.00 | 77.17 | 100 | 270 | | | 2.01 | 30.25 | 109.44 | | | Ch. 11 | |
| 2462.00 | | | | 73.63 | A | 2.01 | 30.25 | 105.90 | | | | |

NOTE: Fundamental signals measured to calculate the band edge field strengths using the "Marker Delta Method".



Band Edge Field Strength Measurements in 802.11b mode (2400-2483.5 MHz)
Channels 1 & 11
Continuous TX at MAIN Antenna port with U.S. Robotics Antenna
Aegis Labs, Inc. File #: LANTR-070125-08

| | RADIATED EMISSIONS - Horizontal Antenna Polarization | | | | | | | | | | | |
|---------|--|---------|-----------|------------|----|--------|--------|-----------|--------|----------|----------|--|
| Freq. | Meter | Antenna | Azimuth | Quasi pk o | or | Cable | Ant. | Corrected | Limits | Diff(dB) | Comments | |
| (MHz) | Reading | Height | (degrees) | AVG (dBu | V) | Factor | Factor | Reading | (dBuV) | +=FAIL | | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dBuV) | | | | |
| 2390.00 | | | | | | | | 45.63 | 74.00 | -28.37 | Ch. 1 | |
| 2390.00 | | | | | A | | | 32.39 | 54.00 | -21.61 | | |
| 2400.00 | 30.67 | 100 | 225 | | | 1.98 | 31.28 | 63.93 | 78.13 | -14.19 | | |
| 2483.50 | | | | | | | | 44.27 | 74.00 | -29.73 | Ch. 11 | |
| 2483.50 | | | | | Α | | | 33.42 | 54.00 | -20.58 | | |

| | RADIATED EMISSIONS – Vertical Antenna Polarization | | | | | | | | | | | |
|----------------|--|---------------------------|-------------------|---------------------------|---|-------------------------|------------------------|--------------------------------|------------------|---------------------|----------|--|
| Freq. (MHz) | Meter Reading (dBuV) | Antenna Height (cm) | Azimuth (degrees) | Quasi pk or AVG (dBuV) | | Cable Factor (dB) | Ant. Factor (dB) | Corrected Reading (dBuV) | Limits (dBuV) | Diff (dB) +=FAIL | Comments | |
| 2390.00 | | | | | | | | 57.18 | 74.00 | -16.82 | Ch. 1 | |
| 2390.00 | | | | l A | A | | | 39.82 | 54.00 | -14.18 | | |
| 2400.00 | 33.00 | 100 | 225 | | | 1.98 | 30.18 | 65.16 | 89.68 | -24.52 | | |
| 2483.50 | | | | | | | | 56.78 | 74.00 | -17.22 | Ch. 11 | |
| 2483.50 | | | | l A | A | | | 49.90 | 54.00 | -4.10 | | |

NOTE: The "Band Edge Field Strength" was calculated using the "Fundamental" and "Conducted Band Edge" measurements per the "Marker-Delta Method" with the following formula:

 $BE = Fm - \Delta m$

Where

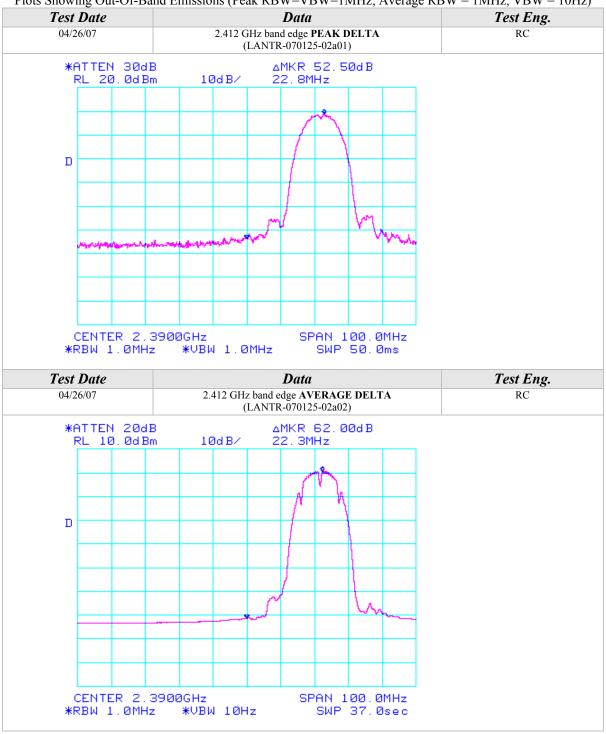
BE = Band Edge Field Strength

Fm = Measured Fundamental (Peak or Average)

 Δm = Measured Conducted Band Edge Delta (Peak or Average)

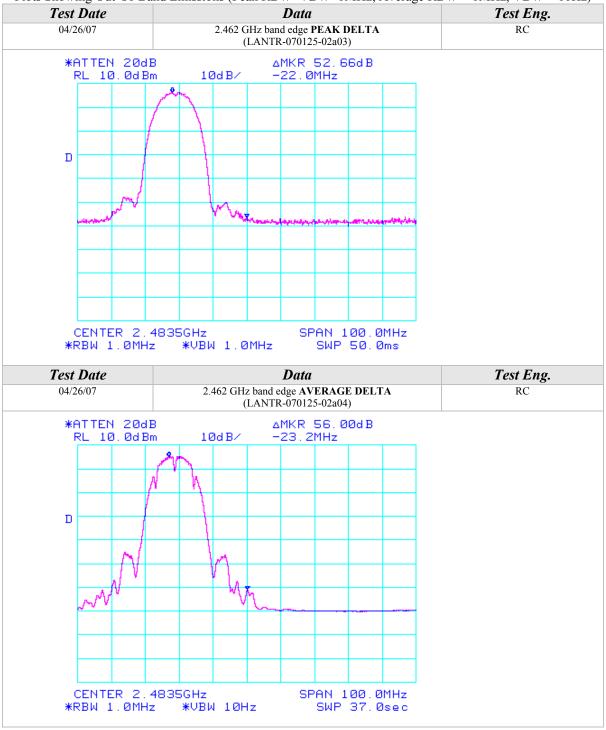


Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)





Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)





Spurious Emissions Measurements in **802.11b mode (2400-2483.5 MHz)**Channels 1, 6, & 11

Continuous TX at MAIN Antenna port with U.S. Robotics Antenna
Aegis Labs, Inc. File #: LANTR-070125-09

| | RADIATED EMISSIONS - Horizontal Antenna Polarization | | | | | | | | | | | |
|-------------|--|---------|-----------|----------|-----|--------|--------|--------|-----------|--------|----------|----------|
| Freq. (MHz) | Meter | Antenna | Azimuth | Quasi pk | or | Preamp | Cable | Ant. | Corrected | Limits | Diff(dB) | Comments |
| | Reading | Height | (degrees) | AVG (dB | uV) | Factor | Factor | Factor | Reading | (dBuV) | +=FAIL | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dB) | (dBuV) | | | |
| 4824.00 | 53.00 | 100 | 180 | | | 46.31 | 2.87 | 33.66 | 43.22 | 74.00 | -30.78 | Ch. 1 |
| 4824.00 | | | | 40.47 | Α | 46.31 | 2.87 | 33.66 | 30.69 | 54.00 | -23.31 | |
| 4873.99 | 60.83 | 100 | 225 | | | 46.31 | 2.89 | 33.70 | 51.11 | 74.00 | -22.89 | Ch. 6 |
| 4873.99 | | | | 55.14 | Α | 46.31 | 2.89 | 33.70 | 45.42 | 54.00 | -8.58 | |
| 4924.00 | 59.67 | 100 | 225 | | | 46.31 | 2.90 | 33.74 | 50.00 | 74.00 | -24.00 | Ch. 11 |
| 4924.00 | | | | 53.94 | Α | 46.31 | 2.90 | 33.74 | 44.27 | 54.00 | -9.73 | |

| | RADIATED EMISSIONS - Vertical Antenna Polarization | | | | | | | | | | | |
|-------------|--|---------|-----------|----------|-----|--------|--------|--------|-----------|--------|-----------|----------|
| Freq. (MHz) | Meter | Antenna | Azimuth | Quasi pk | or | Preamp | Cable | Ant. | Corrected | Limits | Diff (dB) | Comments |
| | Reading | Height | (degrees) | AVG (dB | uV) | Factor | Factor | Factor | Reading | (dBuV) | +=FAIL | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dB) | (dBuV) | | | |
| 4824.01 | 53.00 | 100 | 180 | | | 46.31 | 2.87 | 32.52 | 42.09 | 74.00 | -31.91 | Ch. 1 |
| 4824.01 | | | | 41.37 | Α | 46.31 | 2.87 | 32.52 | 30.46 | 54.00 | -23.54 | |
| 9648.01 | 51.33 | 100 | 225 | | | 44.57 | 4.15 | 35.01 | 45.91 | 56.99 | -11.08 | |
| 4873.99 | 61.33 | 100 | 135 | | | 46.31 | 2.89 | 32.57 | 50.48 | 74.00 | -23.52 | Ch. 6 |
| 4873.99 | | | | 53.48 | Α | 46.31 | 2.89 | 32.57 | 42.63 | 54.00 | -11.37 | |
| 4924.05 | 59.00 | 100 | 135 | | | 46.31 | 2.90 | 32.62 | 48.21 | 74.00 | -25.79 | Ch. 11 |
| 4924.05 | | | | 52.49 | Α | 46.31 | 2.90 | 32.62 | 41.70 | 54.00 | -12.30 | |



Spurious Emissions Measurements in **802.11b mode (2400-2483.5 MHz)**Channels 1, 6, & 11

Continuous RX at MAIN Antenna port with U.S. Robotics Antenna
Aegis Labs, Inc. File #: LANTR-070125-09

| | | RAD | IATED | EMISSI | ON | S - Horiz | zontal A | Antenna | Polarizat | ion | | |
|-------------|---------|---------|-----------|----------|-----|-----------|----------|---------|-----------|--------|----------|----------|
| Freq. (MHz) | Meter | Antenna | Azimuth | Quasi pk | or | Preamp | Cable | Ant. | Corrected | Limits | Diff(dB) | Comments |
| | Reading | Height | (degrees) | AVG (dB | uV) | Factor | Factor | Factor | Reading | (dBuV) | +=FAIL | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dB) | (dBuV) | | | |
| 4824.00 | 52.83 | 100 | 180 | | | 46.31 | 2.87 | 33.66 | 43.05 | 74.00 | -30.95 | Ch. 1 |
| 4824.00 | | | | 40.47 | Α | 46.31 | 2.87 | 33.66 | 30.69 | 54.00 | -23.31 | |
| 4874.00 | 52.00 | 100 | 180 | | | 46.31 | 2.89 | 33.70 | 42.28 | 74.00 | -31.72 | Ch. 6 |
| 4874.00 | | | | 39.74 | Α | 46.31 | 2.89 | 33.70 | 30.02 | 54.00 | -23.98 | |
| 4924.00 | 53.17 | 100 | 180 | | | 46.31 | 2.90 | 33.74 | 43.50 | 74.00 | -30.50 | Ch. 11 |
| 4924.00 | | | | 40.25 | Α | 46.31 | 2.90 | 33.74 | 30.58 | 54.00 | -23.42 | |

| | RADIATED EMISSIONS - Vertical Antenna Polarization | | | | | | | | | | | |
|-------------|--|---------|-----------|----------|------|--------|--------|--------|-----------|--------|-----------|----------|
| Freq. (MHz) | Meter | Antenna | Azimuth | Quasi pl | k or | Preamp | Cable | Ant. | Corrected | Limits | Diff (dB) | Comments |
| | Reading | Height | (degrees) | AVG (dB | uV) | Factor | Factor | Factor | Reading | (dBuV) | +=FAIL | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dB) | (dBuV) | | | |
| 4824.00 | 52.17 | 100 | 180 | | | 46.31 | 2.87 | 32.52 | 41.26 | 74.00 | -32.74 | Ch. 1 |
| 4824.00 | | | | 40.38 | Α | 46.31 | 2.87 | 32.52 | 29.47 | 54.00 | -24.53 | |
| 4874.00 | 51.67 | 100 | 180 | | | 46.31 | 2.89 | 32.57 | 40.82 | 74.00 | -33.18 | Ch. 6 |
| 4874.00 | | | | 39.60 | Α | 46.31 | 2.89 | 32.57 | 28.75 | 54.00 | -25.25 | |
| 4924.00 | 52.83 | 100 | 180 | | | 46.31 | 2.90 | 32.62 | 42.04 | 74.00 | -31.96 | Ch. 11 |
| 4924.00 | | | | 40.19 | Α | 46.31 | 2.90 | 32.62 | 29.40 | 54.00 | -24.60 | |



RADIATED EMISSIONS TEST RESULTS

| CLIENT: | Lantronix Inc. | DATE: | 05/03/07 |
|-----------------------|----------------------------------|------------------|--------------|
| EUT: | Wireless Device Server | PROJECT NUMBER: | LANTR-070125 |
| MODEL NUMBER: | Matchport B/G | TEST ENGINEER: | BM |
| SERIAL NUMBER: | None | SITE #: | 2 |
| | Tested in 802.11g (2400 - | TEMPERATURE: | 17 deg. C |
| CONFIGURATION: | 2483.5 MHz) mode with a | HUMIDITY: | 40% RH |
| | U.S. Robotics 5dBi antenna. | TIME: | 5:00 PM |

| Description: | Radiated RF Emissions (1 GHz – 18 GHz) |
|---------------------|---|
| Results: | PASSED Horizontal and Vertical Antenna Polarizations Class B Limits |
| Note: | Radiated Emissions Measurements were performed on the EUT with power supply set |
| | at the following voltage and frequency. |
| | • 120VAC / 60 Hz. |

| | Unwanted Spurious Emissions Limits | | | | | | | | |
|-----------------|------------------------------------|--|---|--|--|--|--|--|--|
| Frequency (MHz) | Field Strength (uV/m) | Field Strength (dBuV/m) (Emissions in the restricted bands) | Field Strength (dBm/MHz) (Emissions outside the restricted bands) | | | | | | |
| Above 960 | 500 | 54.00 (Average) 74.00 (Peak) | < -20 dBc | | | | | | |

Radiated Emissions Sample Calculations

Corrected Meter Reading = Meter Reading + F +C - D

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

CML = Specification Limit - F - C + D



Fundamental Measurements in **802.11g mode (2400-2483.5 MHz)**Channels 1, 6, & 11

Continuous TX at MAIN Antenna port with U.S. Robotics Antenna
Aegis Labs, Inc. File #: LANTR-070125-08

| | | RADI | ATED E | MISSIC |)NS | S - Horiz | zontal A | Antenna P | olarizati | on | |
|---------|-------------------|-------------|-----------|----------|-----|----------------|-------------|-------------------|-----------|-----------|----------|
| Freq. | Meter | Antenna | Azimuth | Quasi pk | or | Cable | Ant. | Corrected | Limits | Diff (dB) | Comments |
| (MHz) | Reading (dBuV) | Height (cm) | (degrees) | AVG (dBı | ıV) | Factor (dB) | Factor (dB) | Reading (dBuV) | (dBuV) | +=FAIL | |
| 2412.00 | 62.33 | 100 | 225 | | | 1.99 | 31.31 | 95.63 | | | Ch. 1 |
| 2412.00 | | | | 54.04 | A | 1.99 | 31.31 | 87.34 | | | |
| 2437.00 | 60.50 | 100 | 225 | | | 2.00 | 31.36 | 93.86 | | | Ch. 6 |
| 2437.00 | | | | 52.51 | Α | 2.00 | 31.36 | 85.87 | | | |
| 2462.00 | 61.17 | 100 | 225 | | | 2.01 | 31.42 | 94.60 | | | Ch. 11 |
| 2462.00 | | | | 52.04 | Α | 2.01 | 31.42 | 85.47 | | | |

| | | RAD | IATED | EMISSI | ON | IS – Ver | tical A | ntenna Po | larizatio | n | |
|---------|-------------------|-------------|-----------|----------|-----|----------------|-------------|-------------------|-----------|-----------|----------|
| Freq. | Meter | Antenna | Azimuth | Quasi pk | or | Cable | Ant. | Corrected | Limits | Diff (dB) | Comments |
| (MHz) | Reading (dBuV) | Height (cm) | (degrees) | AVG (dBı | ıV) | Factor (dB) | Factor (dB) | Reading (dBuV) | (dBuV) | +=FAIL | |
| 2412.00 | 75.33 | 100 | 225 | | | 1.99 | 30.19 | 107.51 | | | Ch. 1 |
| 2412.00 | | | | 67.63 | Α | 1.99 | 30.19 | 99.81 | | | |
| 2437.00 | 76.00 | 100 | 225 | | | 2.00 | 30.22 | 108.23 | | | Ch. 6 |
| 2437.00 | | | | 67.01 | Α | 2.00 | 30.22 | 99.24 | | | |
| 2462.00 | 75.00 | 100 | 225 | | | 2.01 | 30.25 | 107.27 | | | Ch. 11 |
| 2462.00 | | | | 66.12 | A | 2.01 | 30.25 | 98.39 | | | |

NOTE: Fundamental signals measured to calculate the band edge field strengths using the "Marker Delta Method".



Band Edge Field Strength Measurements in 802.11g mode (2400-2483.5 MHz)
Channels 1 & 11
Continuous TX at MAIN Antenna port with U.S. Robotics Antenna
Aegis Labs, Inc. File #: LANTR-070125-08

| | RADIATED EMISSIONS - Horizontal Antenna Polarization | | | | | | | | | | |
|---------|--|---------|-----------|----------|----|--------|--------|-----------|--------|-----------|----------|
| Freq. | Meter | Antenna | Azimuth | Quasi pk | or | Cable | Ant. | Corrected | Limits | Diff (dB) | Comments |
| (MHz) | Reading | Height | (degrees) | AVG (dBu | V) | Factor | Factor | Reading | (dBuV) | +=FAIL | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dBuV) | | | |
| 2390.00 | | | | | | | | 51.80 | 74.00 | -22.20 | Ch. 1 |
| 2390.00 | | | | | A | | | 38.01 | 54.00 | -15.99 | |
| 2400.00 | 38.00 | 100 | 225 | | | 1.98 | 31.28 | 71.26 | 75.63 | -4.36 | |
| 2483.50 | | | | | | | | 57.26 | 74.00 | -16.74 | Ch. 11 |
| 2483.50 | | | | | Α | | | 34.81 | 54.00 | -19.19 | |

| | | RAD | IATED | EMISSI | ON | S – Ver | tical A | ntenna Po | olarizatio | n | |
|----------------|----------------------------|---------------------------|----------------------|----------------------|----|-------------------------|------------------------|--------------------------------|------------------|-----------------------|----------|
| Freq. (MHz) | Meter Reading (dBuV) | Antenna Height (cm) | Azimuth (degrees) | Quasi pk AVG (dBu | | Cable Factor (dB) | Ant. Factor (dB) | Corrected Reading (dBuV) | Limits (dBuV) | Diff(dB) += $FAIL$ | Comments |
| 2390.00 | | | | | | | | 63.68 | 74.00 | -10.32 | Ch. 1 |
| 2390.00 | | | | | Α | | | 50.48 | 54.00 | -3.52 | |
| 2400.00 | 48.67 | 100 | 225 | | | 1.98 | 30.18 | 80.83 | 87.51 | -6.68 | |
| 2483.50 | | | | | | | | 69.93 | 74.00 | -4.07 | Ch. 11 |
| 2483.50 | | | | | Α | | | 47.73 | 54.00 | -6.27 | - |

NOTE: The "Band Edge Field Strength" was calculated using the "Fundamental" and "Conducted Band Edge" measurements per the "Marker-Delta Method" with the following formula:

 $BE = Fm - \Delta m$

Where

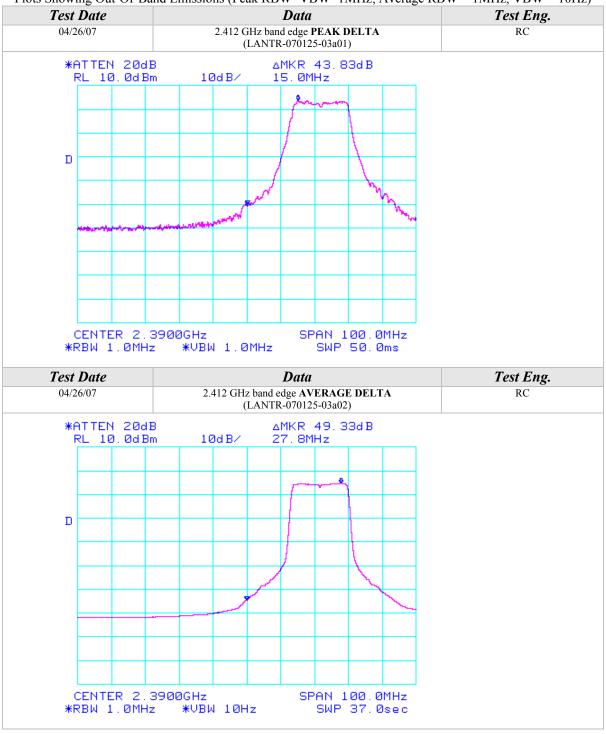
BE = Band Edge Field Strength

Fm = Measured Fundamental (Peak or Average)

 Δm = Measured Conducted Band Edge Delta (Peak or Average)

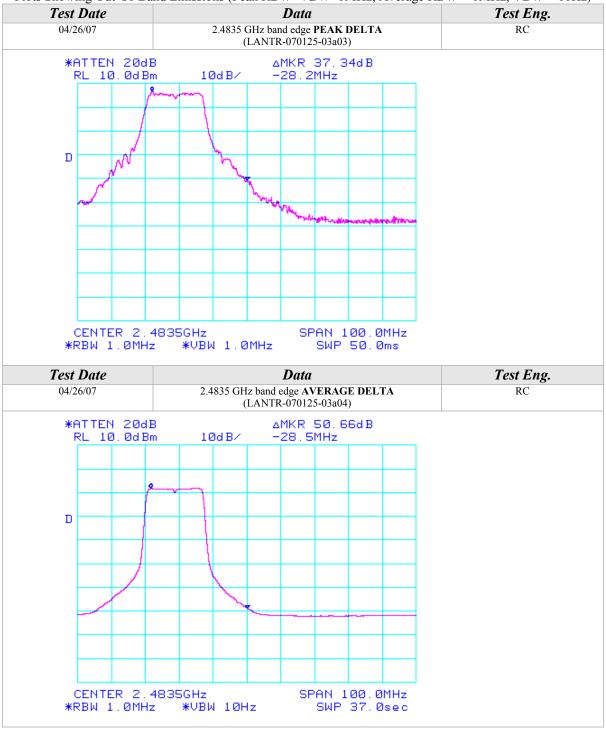


Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)





Plots Showing Out-Of-Band Emissions (Peak RBW=VBW=1MHz; Average RBW = 1MHz, VBW = 10Hz)





Spurious Emissions Measurements in **802.11g mode (2400-2483.5 MHz)**Channels 1, 6, & 11

Continuous TX at MAIN Antenna port with U.S. Robotics Antenna
Aegis Labs, Inc. File #: LANTR-070125-09

| | | RAD | IATED 1 | EMISSI | ON | S - Horiz | zontal A | Antenna | Polarizat | ion | | |
|-------------|---------|---------|-----------|----------|----|-----------|----------|---------|-----------|--------|----------|----------|
| Freq. (MHz) | Meter | Antenna | Azimuth | Quasi pl | or | Preamp | Cable | Ant. | Corrected | Limits | Diff(dB) | Comments |
| | Reading | Height | (degrees) | AVG (dB | uV | Factor | Factor | Factor | Reading | (dBuV) | +=FAIL | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dB) | (dBuV) | | | |
| 4824.00 | 59.83 | 100 | 225 | | | 46.31 | 2.87 | 33.66 | 50.05 | 74.00 | -23.95 | Ch. 1 |
| 4824.00 | | | | 46.79 | Α | 46.31 | 2.87 | 33.66 | 37.01 | 54.00 | -16.99 | |
| 4873.99 | 59.00 | 100 | 225 | | | 46.31 | 2.89 | 33.70 | 49.28 | 74.00 | -24.72 | Ch. 6 |
| 4873.99 | | | | 46.16 | Α | 46.31 | 2.89 | 33.70 | 36.44 | 54.00 | -17.56 | |
| 4924.00 | 60.67 | 100 | 225 | | | 46.31 | 2.90 | 33.74 | 51.00 | 74.00 | -23.00 | Ch. 11 |
| 4924.00 | | | | 47.52 | Α | 46.31 | 2.90 | 33.74 | 37.85 | 54.00 | -16.15 | |

| | RADIATED EMISSIONS - Vertical Antenna Polarization | | | | | | | | | | | |
|-------------|--|---------|-----------|----------|----|--------|--------|--------|-----------|--------|----------|----------|
| Freq. (MHz) | Meter | Antenna | Azimuth | Quasi pl | or | Preamp | Cable | Ant. | Corrected | Limits | Diff(dB) | Comments |
| | Reading | Height | (degrees) | AVG (dB | uV | Factor | Factor | Factor | Reading | (dBuV) | +=FAIL | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dB) | (dBuV) | | | |
| 4824.01 | 57.83 | 100 | 135 | | | 46.31 | 2.87 | 32.52 | 46.92 | 74.00 | -27.08 | Ch. 1 |
| 4824.01 | | | | 44.58 | Α | 46.31 | 2.87 | 32.52 | 33.67 | 54.00 | -20.33 | |
| 4873.99 | 59.00 | 100 | 135 | | | 46.31 | 2.89 | 32.57 | 48.15 | 74.00 | -25.85 | Ch. 6 |
| 4873.99 | | | | 45.79 | Α | 46.31 | 2.89 | 32.57 | 34.94 | 54.00 | -19.06 | |
| 4924.05 | 57.17 | 100 | 135 | | | 46.31 | 2.90 | 32.62 | 46.38 | 74.00 | -27.62 | Ch. 11 |
| 4924.05 | | | | 43.83 | Α | 46.31 | 2.90 | 32.62 | 33.04 | 54.00 | -20.96 | |



Spurious Emissions Measurements in **802.11g mode (2400-2483.5 MHz)**Channels 1, 6, & 11

Continuous RX at MAIN Antenna port with U.S. Robotics Antenna
Aegis Labs, Inc. File #: LANTR-070125-09

| | | RAD | IATED 1 | EMISSI | ON | S - Horiz | zontal A | Antenna | Polarizat | ion | | |
|-------------|---------|---------|-----------|----------|-----|-----------|----------|---------|-----------|--------|----------|----------|
| Freq. (MHz) | Meter | Antenna | Azimuth | Quasi pk | or | Preamp | Cable | Ant. | Corrected | Limits | Diff(dB) | Comments |
| | Reading | Height | (degrees) | AVG (dB | uV) | Factor | Factor | Factor | Reading | (dBuV) | +=FAIL | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dB) | (dBuV) | | | |
| 4824.00 | 53.00 | 100 | 180 | | | 46.31 | 2.87 | 33.66 | 43.22 | 74.00 | -30.78 | Ch. 1 |
| 4824.00 | | | | 40.16 | Α | 46.31 | 2.87 | 33.66 | 30.38 | 54.00 | -23.62 | |
| 4874.00 | 52.50 | 100 | 180 | | | 46.31 | 2.89 | 33.70 | 42.78 | 74.00 | -31.22 | Ch. 6 |
| 4874.00 | | | | 39.46 | Α | 46.31 | 2.89 | 33.70 | 29.74 | 54.00 | -24.26 | |
| 4924.00 | 52.17 | 100 | 180 | | | 46.31 | 2.90 | 33.74 | 42.50 | 74.00 | -31.50 | Ch. 11 |
| 4924.00 | | | | 40.00 | Α | 46.31 | 2.90 | 33.74 | 30.33 | 54.00 | -23.67 | |

| | RADIATED EMISSIONS - Vertical Antenna Polarization | | | | | | | | | | | |
|-------------|--|---------|-----------|----------|-----|--------|--------|--------|-----------|--------|----------|----------|
| Freq. (MHz) | Meter | Antenna | Azimuth | Quasi pk | or | Preamp | Cable | Ant. | Corrected | Limits | Diff(dB) | Comments |
| | Reading | Height | (degrees) | AVG (dB | uV) | Factor | Factor | Factor | Reading | (dBuV) | +=FAIL | |
| | (dBuV) | (cm) | | | | (dB) | (dB) | (dB) | (dBuV) | | | |
| 4824.00 | 52.00 | 100 | 180 | | | 46.31 | 2.87 | 32.52 | 41.09 | 74.00 | -32.91 | Ch. 1 |
| 4824.00 | | | | 40.19 | Α | 46.31 | 2.87 | 32.52 | 29.28 | 54.00 | -24.72 | |
| 4874.00 | 51.67 | 100 | 180 | | | 46.31 | 2.89 | 32.57 | 40.82 | 74.00 | -33.18 | Ch. 6 |
| 4874.00 | | | | 39.53 | Α | 46.31 | 2.89 | 32.57 | 28.68 | 54.00 | -25.32 | |
| 4924.00 | 52.83 | 100 | 180 | | | 46.31 | 2.90 | 32.62 | 42.04 | 74.00 | -31.96 | Ch. 11 |
| 4924.00 | | | | 40.06 | Α | 46.31 | 2.90 | 32.62 | 29.27 | 54.00 | -24.73 | |



PEAK TRANSMIT POWER

| CLIENT: | Lantronix Inc. | DATE: | 04/26/07 |
|-----------------------|--|------------------|--------------|
| EUT: | Wireless Device Server | PROJECT NUMBER: | LANTR-070125 |
| MODEL NUMBER: | Matchport B/G | TEST ENGINEER: | JC |
| SERIAL NUMBER: | None | SITE #: | 1 |
| | T4-1 | TEMPERATURE: | 18 deg C |
| CONFIGURATION: | Tested with a U.S. Robotics 5 dBi antenna. | HUMIDITY: | 46% |
| | 3 dBi antenna. | TIME: | 8:30AM |

| Description: | The maximum peak output power of the intentional radiator shall not exceed 1 watt. |
|---------------------|--|
| Results: | See Data Sheet |
| Note: | Conducted Emissions Measurements were performed on the EUT with power supply |
| | set at the following voltage and frequency. |
| | • 120VAC / 60 Hz. |

| Peak Transmit Power Limits | | | | | | | |
|----------------------------|------------------|--|--|--|--|--|--|
| Frequency (MHz) | Output Power (W) | | | | | | |
| 2412-2462 | 1 | | | | | | |



Peak Transmit Power (Continued)

| Mode | Channel | Frequency (MHz) | Rate (Mbps) | Average Power (dBm) | Average Power (mW) | Peak Power (dBm) | Peak Power (mW) |
|---------|---------|--------------------|----------------|---------------------------|--------------------------|------------------------|-----------------------|
| 802.11b | 1 | 2412 | 1 | 14.46 | 27.93 | 16.80 | 47.86 |
| 802.11b | 1 | 2412 | 5.5 | 14.43 | 27.73 | 16.29 | 42.56 |
| 802.11b | 1 | 2412 | 11 | 14.36 | 27.29 | 16.75 | 47.32 |
| 802.11b | 6 | 2437 | 1 | 14.00 | 25.12 | 16.40 | 43.65 |
| 802.11b | 6 | 2437 | 5.5 | 13.92 | 24.66 | 15.83 | 38.28 |
| 802.11b | 6 | 2437 | 11 | 13.95 | 24.83 | 16.32 | 42.85 |
| 802.11b | 11 | 2462 | 1 | 14.25 | 26.61 | 16.64 | 46.13 |
| 802.11b | 11 | 2462 | 5.5 | 14.25 | 26.61 | 16.09 | 40.64 |
| 802.11b | 11 | 2462 | 11 | 14.16 | 26.06 | 16.56 | 45.29 |
| | | | | | | | |
| 802.11g | 1 | 2412 | 6 | 12.56 | 18.03 | 19.82 | 95.94 |
| 802.11g | 1 | 2412 | 36 | 12.50 | 17.78 | 19.80 | 95.50 |
| 802.11g | 1 | 2412 | 54 | 12.60 | 18.20 | 19.65 | 92.26 |
| 802.11g | 6 | 2437 | 6 | 12.00 | 15.85 | 19.60 | 91.20 |
| 802.11g | 6 | 2437 | 36 | 11.90 | 15.49 | 19.50 | 89.13 |
| 802.11g | 6 | 2437 | 54 | 11.90 | 15.49 | 19.30 | 85.11 |
| 802.11g | 11 | 2462 | 6 | 12.30 | 16.98 | 19.70 | 93.33 |
| 802.11g | 11 | 2462 | 36 | 12.20 | 16.60 | 19.60 | 91.20 |
| 802.11g | 11 | 2462 | 54 | 12.30 | 16.98 | 19.49 | 88.92 |

NOTE: The output power measurement is conducted.



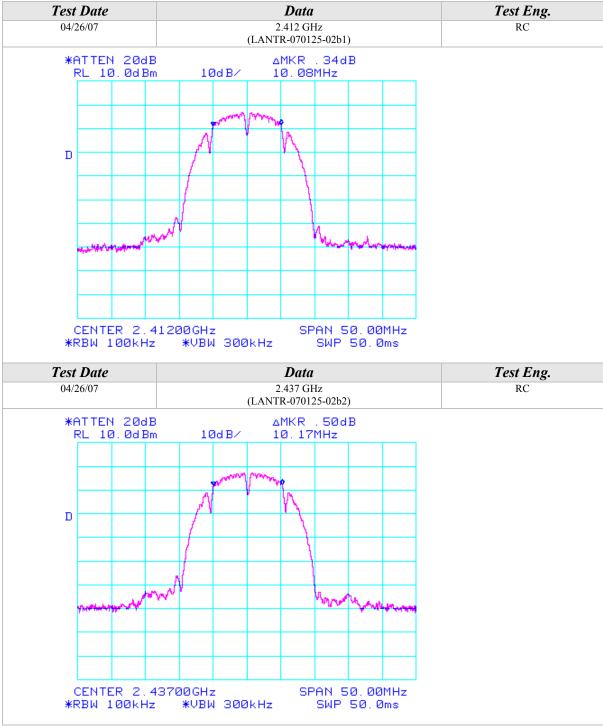
6dB EMISSIONS BANDWIDTH

| CLIENT: | Lantronix Inc. | DATE: | 04/26/07 |
|-----------------------|--|------------------|--------------|
| EUT: | Wireless Device Server | PROJECT NUMBER: | LANTR-070125 |
| MODEL NUMBER: | Matchport B/G | TEST ENGINEER: | RC |
| SERIAL NUMBER: | None | SITE #: | Chamber |
| CONFIGURATION: | Tested with a U.S. Robotics 5 dBi antenna. | TEMPERATURE: | N/A |
| | | HUMIDITY: | N/A |
| | | TIME: | N/A |

| Description: | The minimum 6 dB bandwidth shall be at least 500 kHz. | |
|---------------------|--|--|
| Results: | See Data Sheet | |
| Note: | Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. | |
| | • 120VAC / 60 Hz. | |

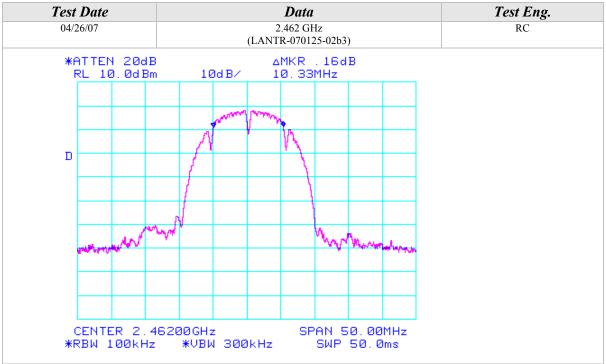




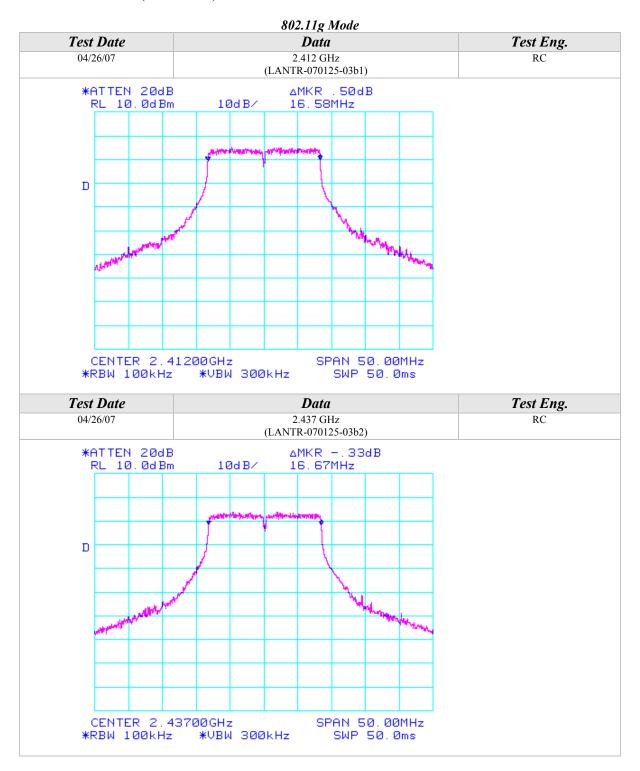










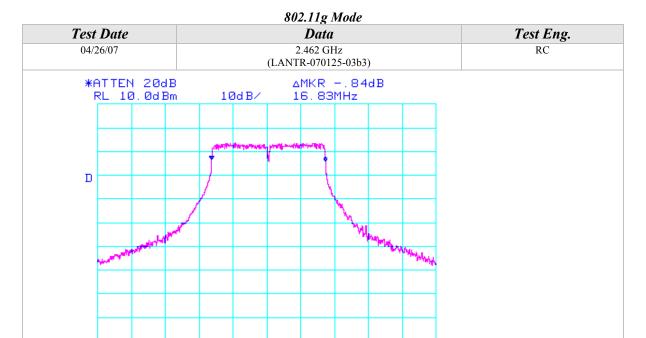




CENTER 2.46200GHz

*RBW 100kHz

*VBW 300kHz



SPAN 50.00MHz

SWP 50.0ms



PEAK POWER SPECTRAL DENSITY

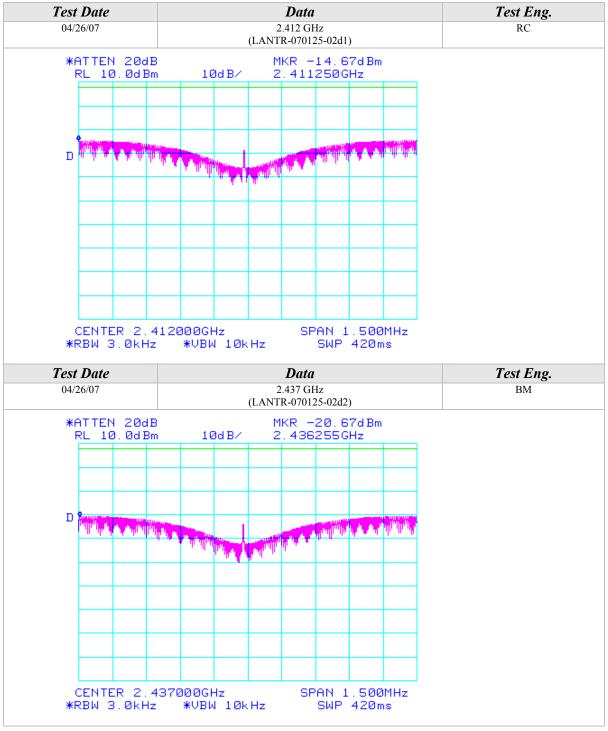
| CLIENT: | Lantronix Inc. | DATE: | 04/26/07 |
|-----------------------|--|------------------|--------------|
| EUT: | Wireless Device Server | PROJECT NUMBER: | LANTR-070125 |
| MODEL NUMBER: | Matchport B/G | TEST ENGINEER: | RC |
| SERIAL NUMBER: | None | SITE #: | Chamber |
| CONFIGURATION: | Tested with a U.S. Robotics 5 dBi antenna. | TEMPERATURE: | N/A |
| | | HUMIDITY: | N/A |
| | | TIME: | N/A |

| Description: | The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. |
|-----------------|---|
| Results: | See Data Sheet |
| Note: | Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. • 120VAC / 60 Hz. |

| Peak Power Spectral Density Limits | |
|------------------------------------|-------------|
| Frequency (MHz) | Limit (dBm) |
| 2412-2462 | 8 |

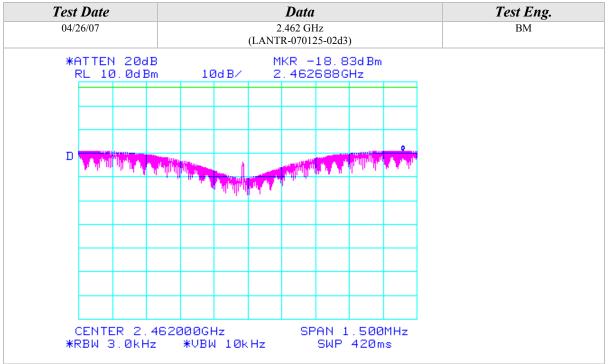




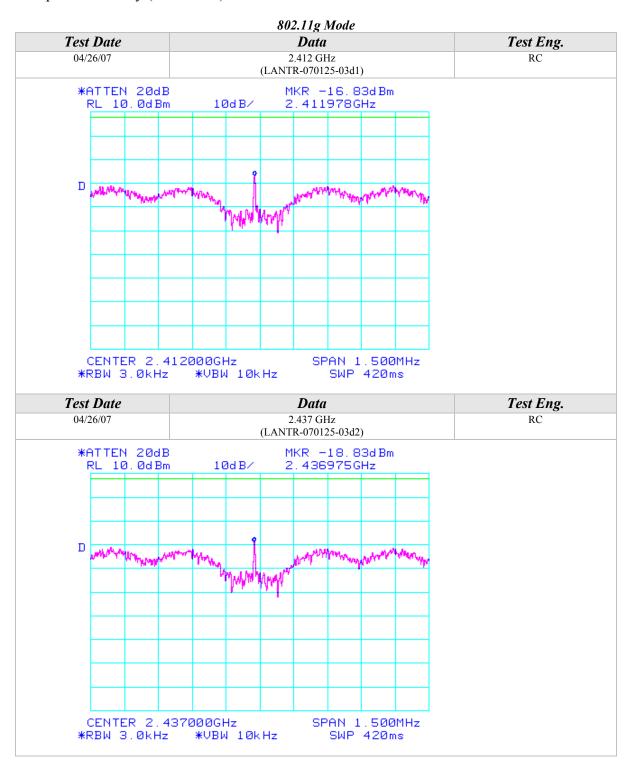








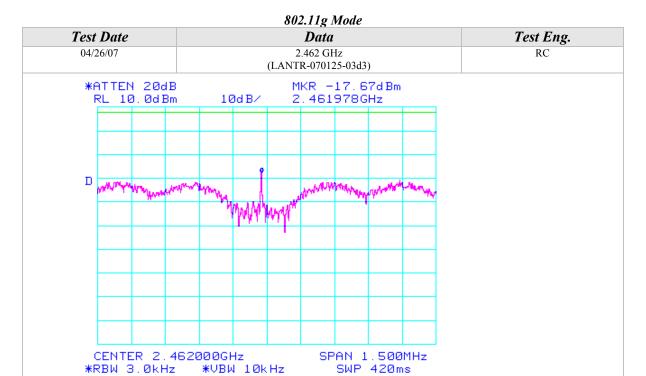






*RBW 3.0kHz

*VBW 10kHz





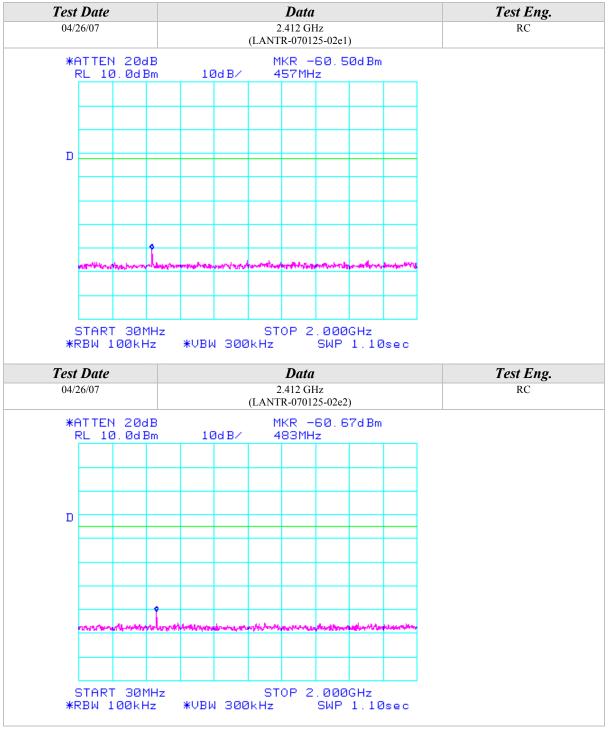
CONDUCTED OUT OF BAND EMISSIONS

| CLIENT: | Lantronix Inc. | DATE: | 04/26/07 |
|-----------------------|--|------------------|--------------|
| EUT: | Wireless Device Server | PROJECT NUMBER: | LANTR-070125 |
| MODEL NUMBER: | Matchport B/G | TEST ENGINEER: | RC |
| SERIAL NUMBER: | None | SITE #: | Chamber |
| CONFIGURATION: | Tested with a U.S. Robotics 5 dBi antenna. | TEMPERATURE: | N/A |
| | | HUMIDITY: | N/A |
| | | TIME: | N/A |

| Description: | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. |
|-----------------|--|
| Results: | See Data Sheet |
| Note: | Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. • 120VAC / 60 Hz. |

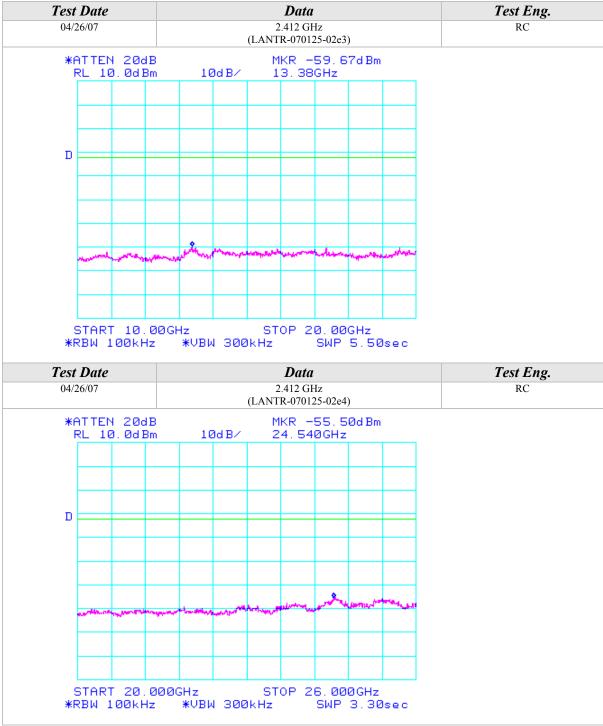


802.11b Mode



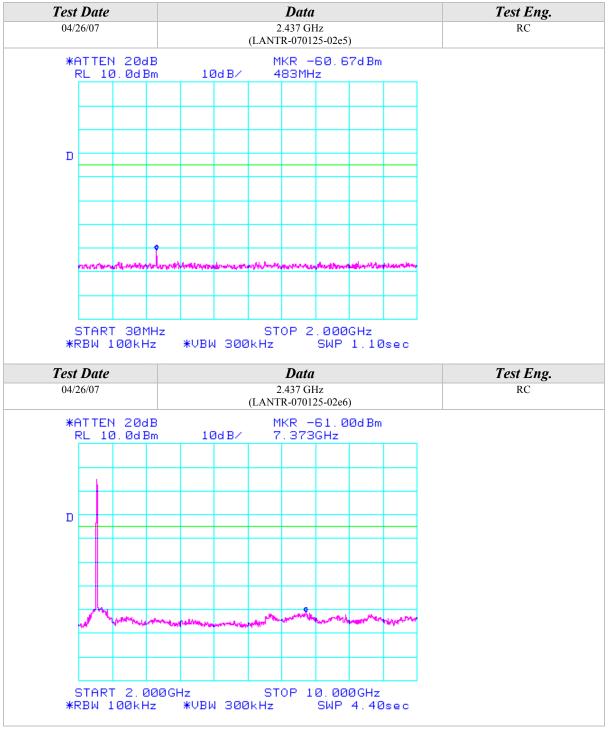


802.11b Mode



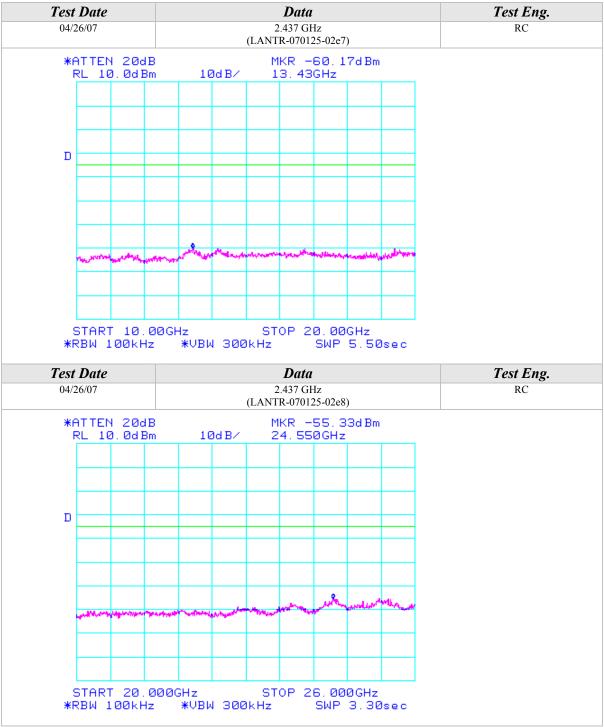


802.11b Mode



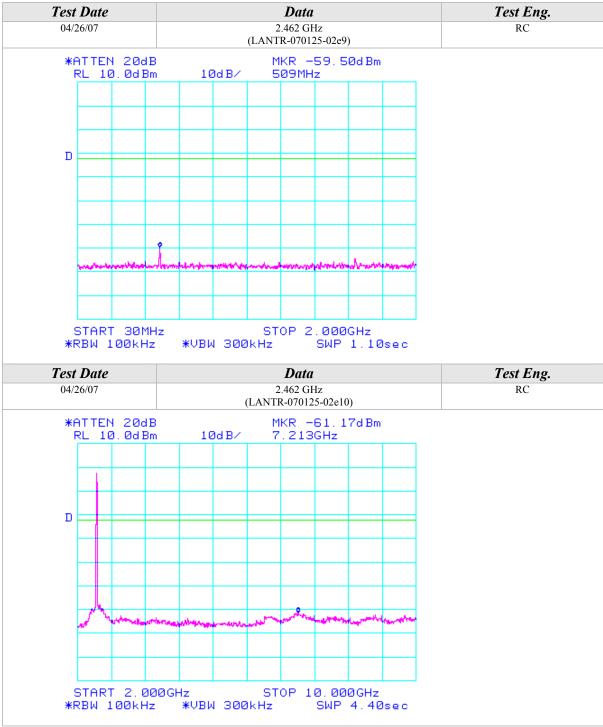






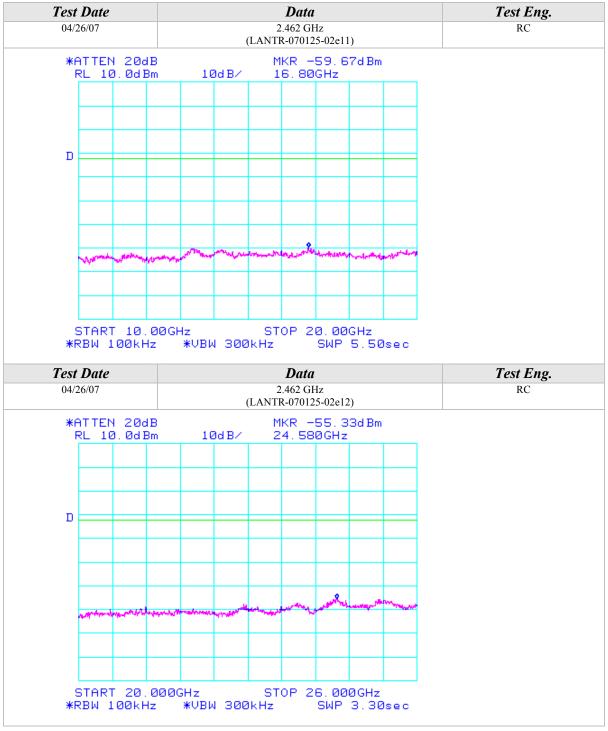




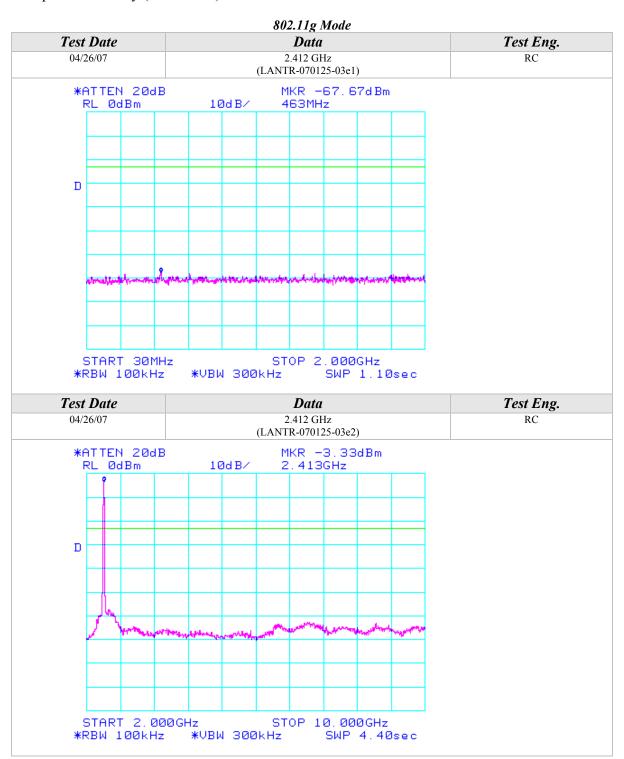




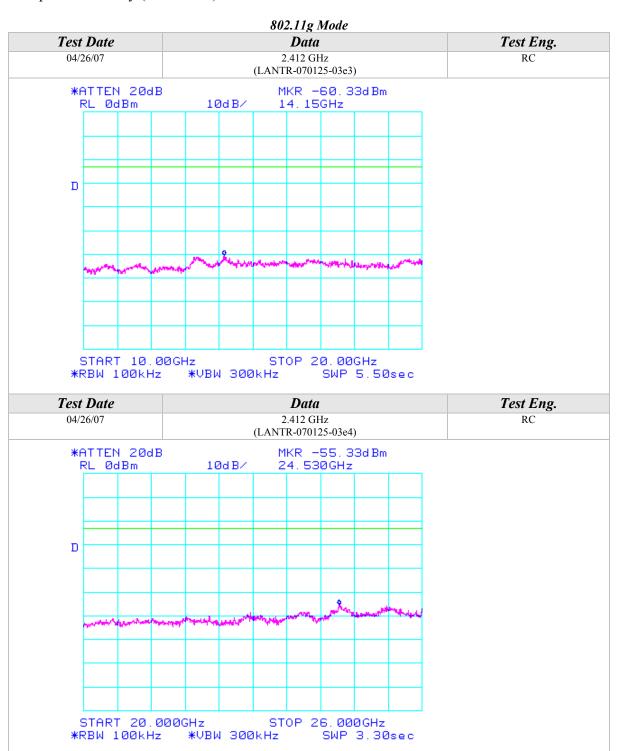




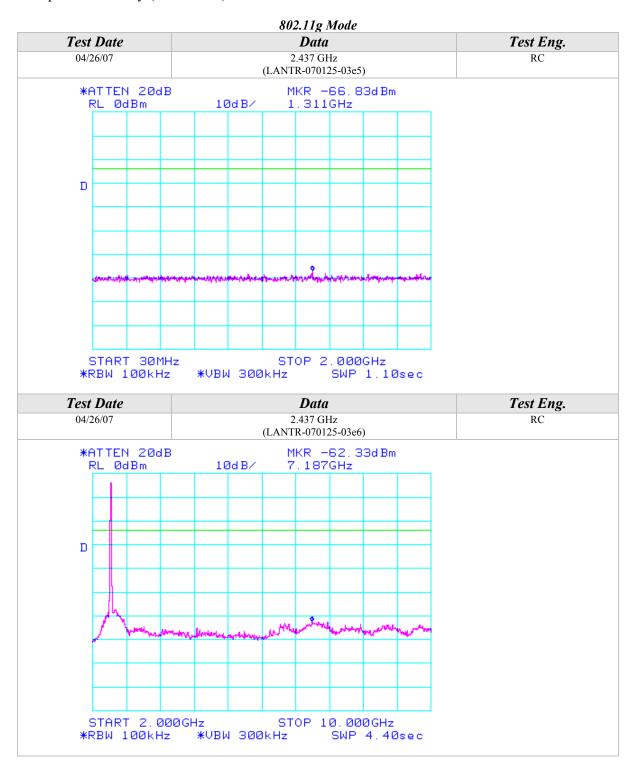








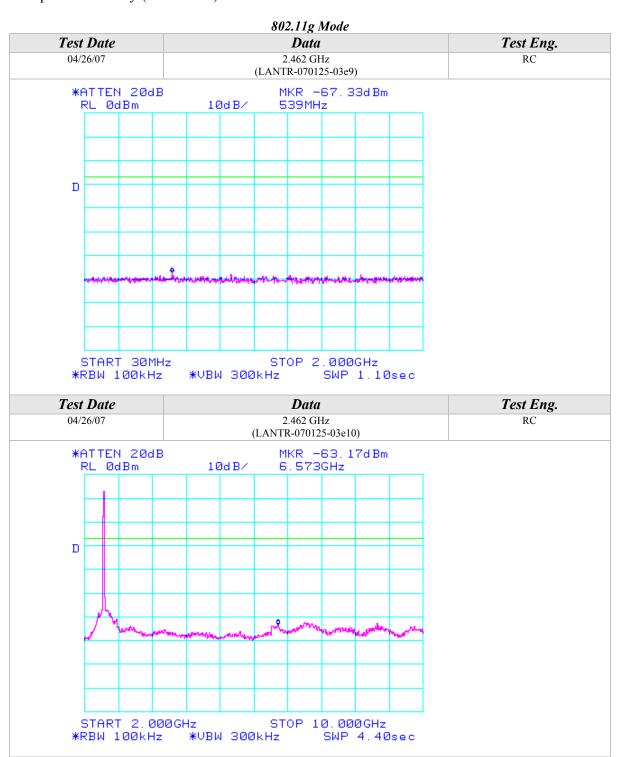




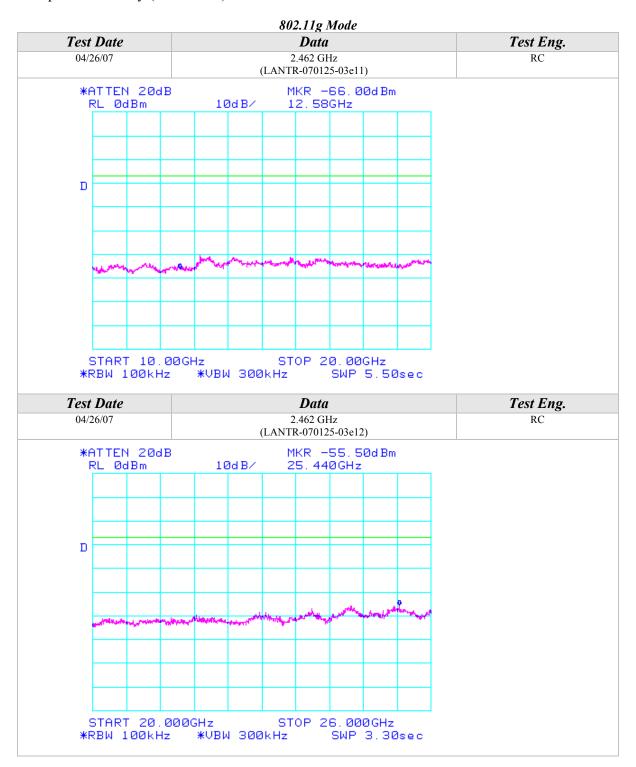














APPENDIX B

MODIFICATIONS AND RECOMMENDATIONS

| 1.0 | NONE |
|-----|------|
| | |