



TROY GROUP, INC. TEST REPORT

FOR THE

WINDCONNECT II - PRINT SERVER, WNDCTII-U & WNDCTII-P

FCC PART 15 SUBPART B SECTIONS 15.107 AND 15.109 CLASS B
AND SUBPART C SECTIONS 15.207, 15.209 AND 15.247

COMPLIANCE

DATE OF ISSUE: DECEMBER 15, 2003

PREPARED FOR:

Troy Group, Inc.
2331 South Pullman Street
Santa Ana, CA 92705

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

P.O. No.: 71773

W.O. No.: 81560

Date of test: September 15 –
December 12, 2003

Report No.: FC03-072

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ADMINISTRATIVE INFORMATION

DATE OF TEST: September 15 – December 12, 2003

DATE OF RECEIPT: September 15, 2003

PURPOSE OF TEST: To demonstrate the compliance of the WindConnect II - Print Server, WNDCTII-U & WNDCTII-P with the requirements for FCC Part 15 Subpart B Sections 15.107 and 15.109 and Subpart C Sections 15.207, 15.209 and 15.247 devices.

TEST METHOD: ANSI C63.4 (1992)

MANUFACTURER: Troy Group, Inc.
2331 South Pullman Street
Santa Ana, CA 92705

REPRESENTATIVE: Ron Tozaki

TEST LOCATION: CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92621

SUMMARY OF RESULTS

As received, the Troy Group, Inc. WindConnect II - Print Server, WNDCTII-U & WNDCTII-P was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 15 Subpart B Sections 15.107 and 15.109 Class B
- FCC Part 15 Subpart C Sections 15.207, 15.209 and 15.247
- ANSI C63.4 (1992) method
FCC Site No. 100638

Canada

RSS-210 using:

- FCC Part 15 Subpart B Sections 15.107 and 15.109 Class B
- FCC Part 15 Subpart C Sections 15.207, 15.209 and 15.247
- ANSI C63.4 (1992) method
Industry of Canada File No. IC 3172-D

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative Manager

TEST PERSONNEL:



Monika Brandle, EMC Test Engineer



Eddie Wong, EMC Engineer



Stuart Yamamoto, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The EUT tested by CKC Laboratories was representative of a production unit.

FCC 15.31(e) Voltage Variations

For intentional radiators, measurements of radiated signal level of the fundamental frequency component of the emission was performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. No significant variation in the signal level was observed.

FCC 15.31(m) Number Of Channels

This device was tested on three channels.

FCC 15.33(a) Frequency Ranges Tested

15.107 Conducted Emissions: 150 kHz – 30 MHz

15.109 Radiated Emissions: 30 MHz – 26 GHz

15.207 Conducted: 150 kHz – 30 MHz

15.247/15.209 Radiated: 9 kHz – 26 GHz

FCC 15.203 Antenna Requirements

The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

FCC 15.205 Restricted Bands

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

Eut Operating Frequency

The EUT was operating at 2401.7 – 2480.1 MHz.

The EUT is a frequency hopping device operating in the 2400 – 2483.5 MHz.

This EUT was previously tested. This report is comprised of data from the old testing and the new testing. Modifications were made only to the digital portion of the product. As a result of these changes, new model names of WNDCTII-U and WNDCTII-P have been established for these units.

EQUIPMENT UNDER TEST

Power Supply

Manuf: Potrans Electrical Corporation
 Model: UP00031050
 Serial: NA
 FCC ID: NA

WindConnect II - Print Server

Manuf: Troy Group, Inc.
 Model: WNDCTII-P
 Serial: 629873
 FCC ID: pending

WindConnect II - Print Server

Manuf: Troy Group, Inc.
 Model: WNDCTII-U
 Serial: 0E:F6
 FCC ID: pending

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

HP 5550 Printer

Manuf: HP
 Model: C6487C
 Serial: MY2BE1N3B3
 FCC ID: DoC

MEASUREMENT UNCERTAINTY

TEST	HIGHEST UNCERTAINTY
Radiated Emissions	+/- 2.94 dB
Conducted Emissions	+/- 1.56 dB

Note: Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Statements of compliance are based on the nominal values only.

REPORT OF MEASUREMENTS

The following tables report the six highest worst case levels recorded during the tests performed on the EUT. All readings taken are peak readings unless otherwise noted. The data sheets from which these tables were compiled are contained in Appendix C.

Table 1: FCC 15.107 Six Highest Conducted Emission Levels									
FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V	SPEC LIMIT dB μ V	MARGIN dB	NOTES
		Lisn dB	dB	Cable dB	dB				
0.150000	48.1	0.0		0.1		48.2	56.0	-7.8	W-U
0.152182	49.6	0.0		0.1		49.7	55.9	-6.2	B-U
0.152182	48.4	0.0		0.1		48.5	55.9	-7.4	W-P
0.153636	49.2	0.0		0.1		49.3	55.8	-6.5	B-P
0.877000	38.7	0.0		0.1		38.8	46.0	-7.2	B-P
0.877000	38.3	0.0		0.1		38.4	46.0	-7.6	B-U

Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart B Section 15.107 Class B

NOTES:
B = Black Lead
W = White Lead
U = USB
P = Parallel

COMMENTS: The EUT and support printer are placed on the wooden tabletop. All ports are the EUT are filled. The centronix port of the EUT is directly connected to the support printer. The USB port of the EUT is connected to the support printer via a two meter USB cable. The EUT is configured in receive mode. Temperature: 21°C, Humidity: 47%, Pressure: 100kPa.

Table 2: FCC 15.109 Six Highest Radiated Emission Levels

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB					
66.002	46.9	6.4	-27.0	1.9		28.2	40.0	-11.8	V-U
192.060	46.9	9.0	-26.5	3.0		32.4	43.5	-11.1	V-P
287.970	43.6	13.2	-26.3	3.8		34.3	46.0	-11.7	H-P
330.011	43.2	14.4	-26.5	4.2		35.3	46.0	-10.7	H-U
330.018	44.3	14.4	-26.5	4.2		36.4	46.0	-9.6	H-P
383.965	44.4	15.9	-26.9	4.5		37.9	46.0	-8.1	V-P

Test Method: ANSI C63.4 (1992)
 Spec Limit: FCC Part 15 Subpart B Section 15.109 Class B
 Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
 V = Vertical Polarization
 U = USB
 P = Parallel

COMMENTS: The EUT and support printer are placed on the wooden tabletop. All ports are the EUT are filled. The centronix port of the EUT is directly connected to the support printer. The USB port of the EUT is connected to the support printer via a two meter USB cable. The EUT is configured in receive mode. Frequency range scanned and maximized is 30-1000 MHz. Test performed on mid channel. Worst case emissions reported. Temperature: 20°C, Humidity: 40%, Pressure: 100kPa. No testing above 1 GHz is required since the EUT highest clock frequency is 66 MHz.

Table 3: FCC 15.207 Six Highest Conducted Emission Levels

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V	SPEC LIMIT dB μ V	MARGIN dB	NOTES
		Lisn dB		Cable dB					
0.509980	40.3	0.0		0.1		40.4	48.0	-7.6	BA
0.511006	39.1	0.0		0.1		39.2	48.0	-8.8	WA
0.540340	42.1	0.0		0.1		42.2	48.0	-5.8	WA
0.680832	38.9	0.0		0.1		39.0	48.0	-9.0	W
0.719304	38.7	0.0		0.1		38.8	48.0	-9.2	W
0.737166	39.2	0.0		0.1		39.3	48.0	-8.7	W

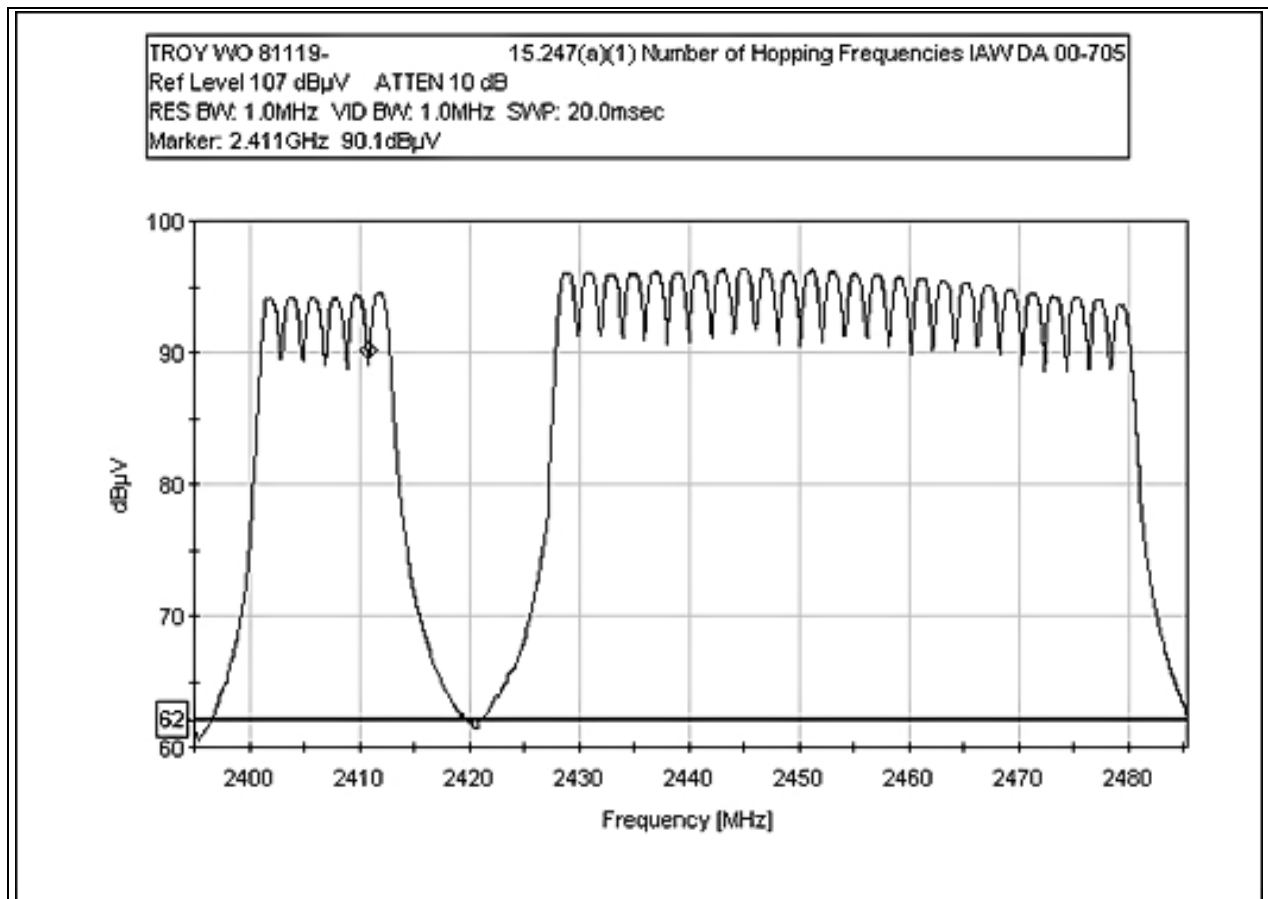
Test Method: ANSI C63.4 (1992)
Spec Limit: FCC Part 15 Subpart C Section 15.207

NOTES: A = Average Reading
B = Black Lead
W = White Lead

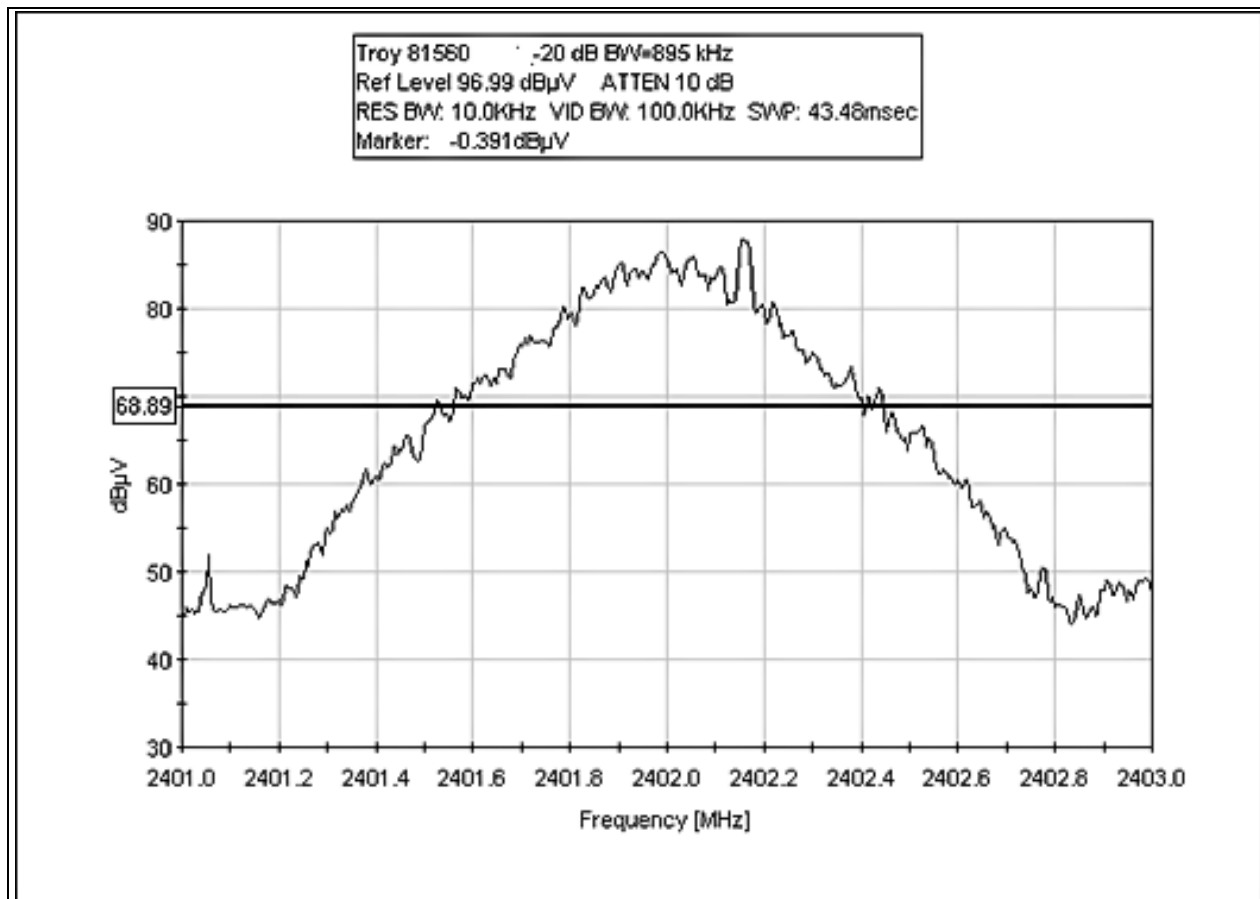
COMMENTS: EUT is placed on the edge of the table. All ports are filled, the USB port is terminated via a USB cable to the printer and the parallel port is terminated via a cable to the printer. The EUT is configured to transmit at full power, no hopping, maximum duty cycle, typical modulation. This equipment does not employ digital modulation techniques. It is strictly frequency hopping. Frequency Range Investigated: 150 kHz-30 MHz.

FCC 15.247(a)(1) NUMBER OF HOPPING FREQUENCIES

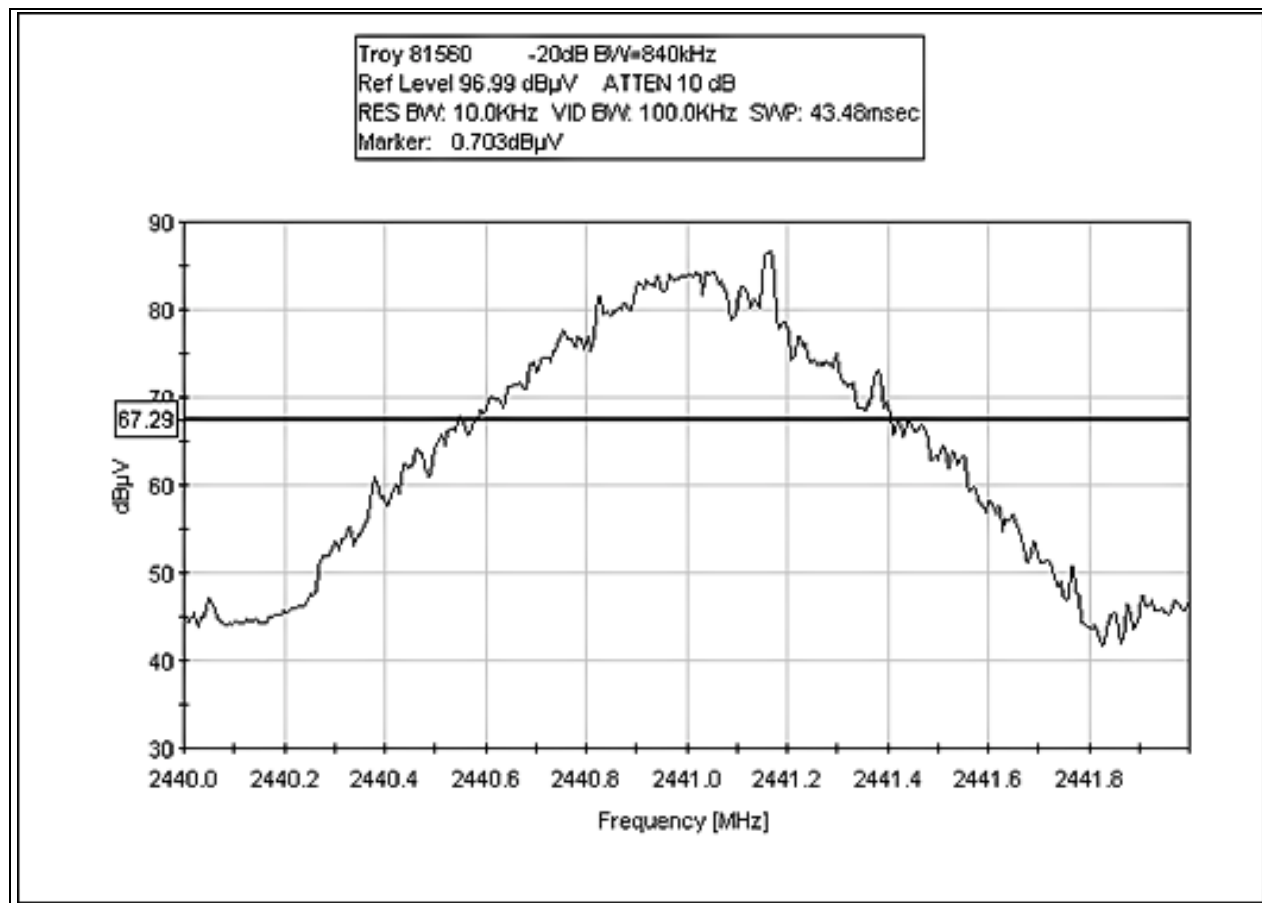
Test Conditions: EUT is placed on the edge of the table. All ports are filled, the USB port is terminated via a USB cable to the printer and the parallel port is terminated via a cable to the printer. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation. This equipment does not employ digital modulation techniques. It is strictly frequency hopping.



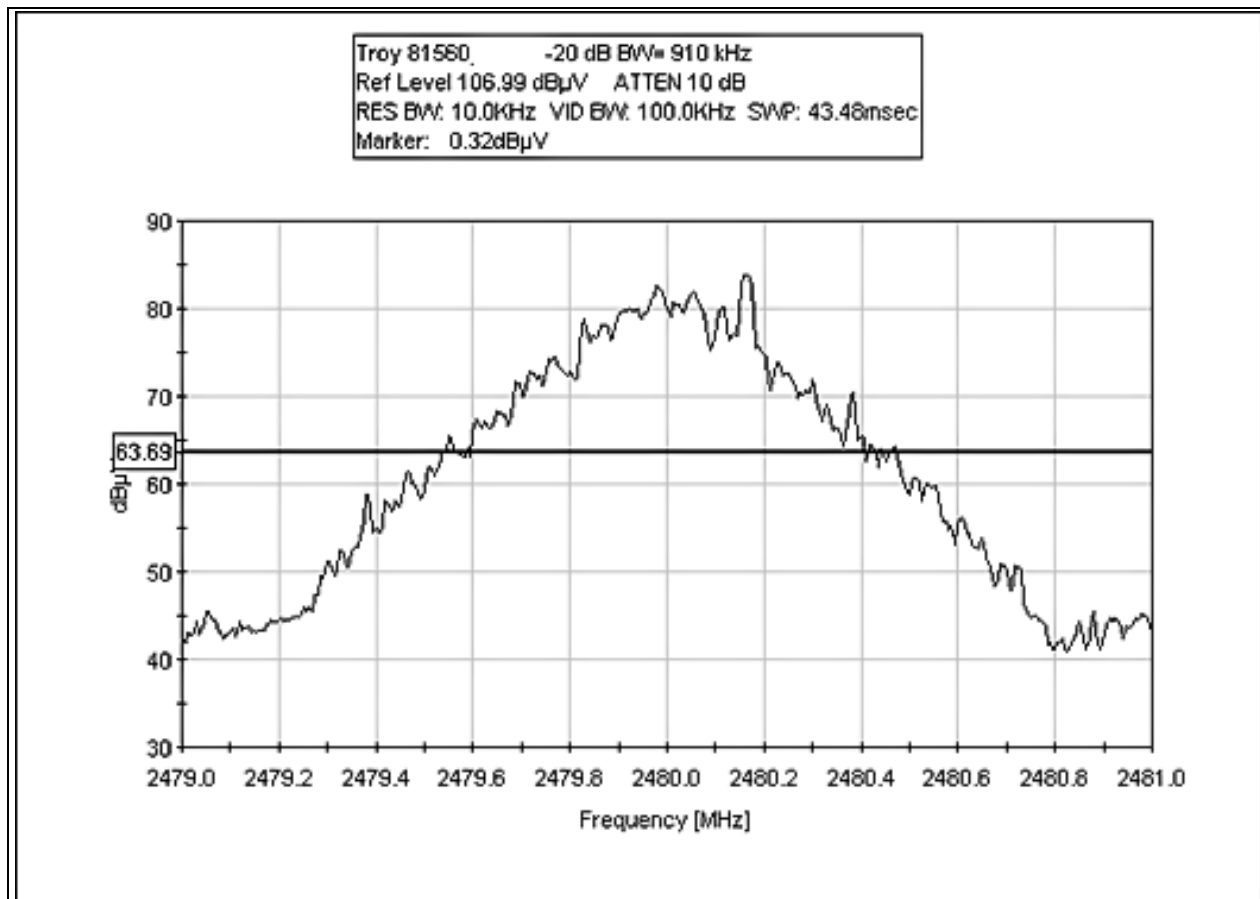
FCC 15.247(a)(1) 20 dB BANDWIDTH PLOT LOW



FCC 15.247(a)(1) 20 dB BANDWIDTH PLOT MIDDLE

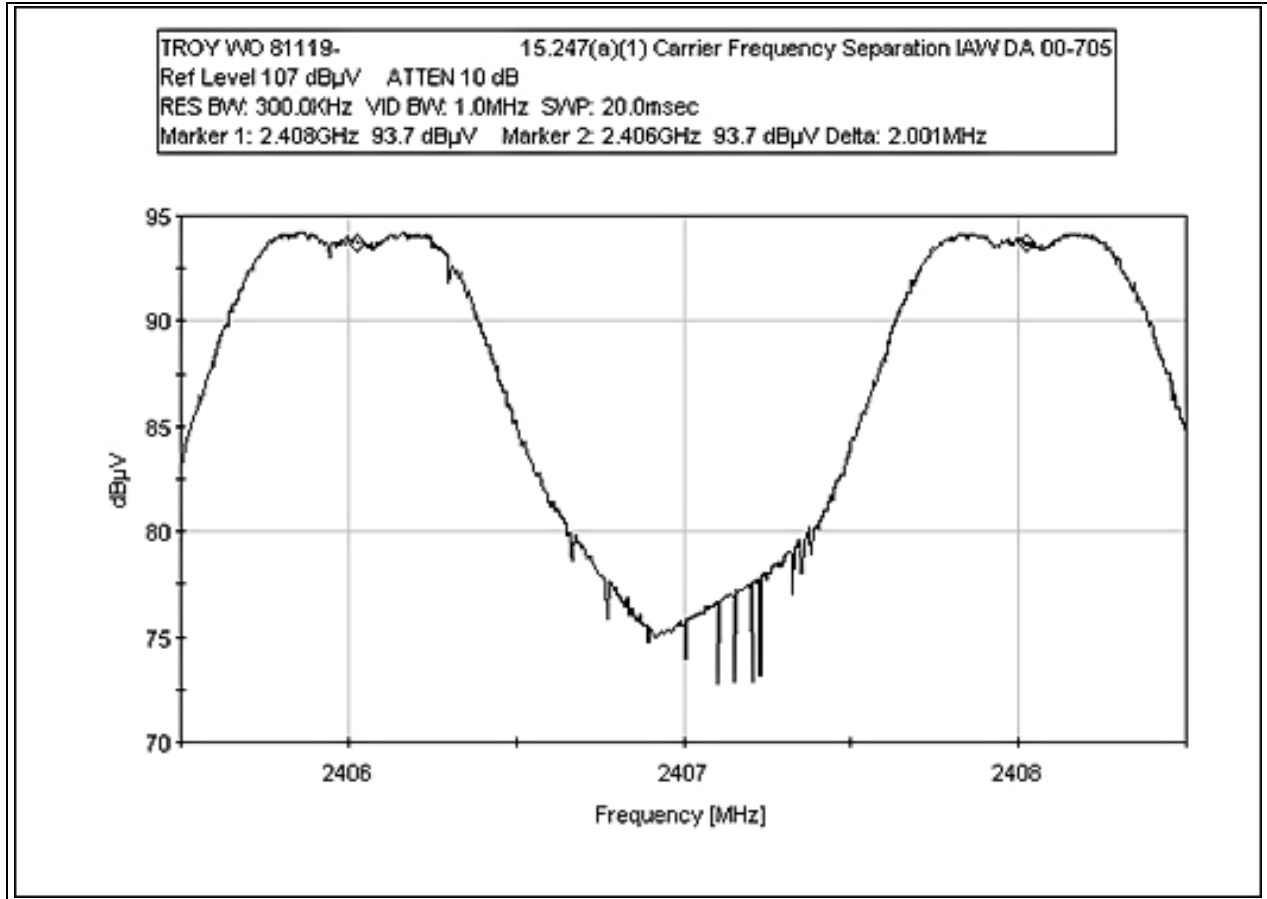


FCC 15.247(a)(1) 20 dB BANDWIDTH PLOT HIGH



FCC 15.247(a)(1) CARRIER FREQUENCY SEPARATION

Test Conditions: EUT is placed on the edge of the table. All ports are filled, the USB port is terminated via a USB cable to the printer and the parallel port is terminated via a cable to the printer. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation. This equipment does not employ digital modulation techniques. It is strictly frequency hopping.



FCC 15.247(a)(1)(iii) DWELL TIME PLOT 1

Test Conditions: EUT is placed on the edge of the table. All ports are filled, the USB port is terminated via a USB cable to the printer and the parallel port is terminated via a cable to the printer. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation. This equipment does not employ digital modulation techniques. It is strictly frequency hopping.

Averaging Time of Channel Occupancy:

Pulse timing calculations are as follows:

The pulse timing requirements of FCC 15.247(a)(1)(iii) require no more than 0.4 seconds of transmission time on a channel in a period defined by the number of hopping channels (in this case, 79) multiplied by 0.4; $79 * 0.4 = 31.6$ seconds.

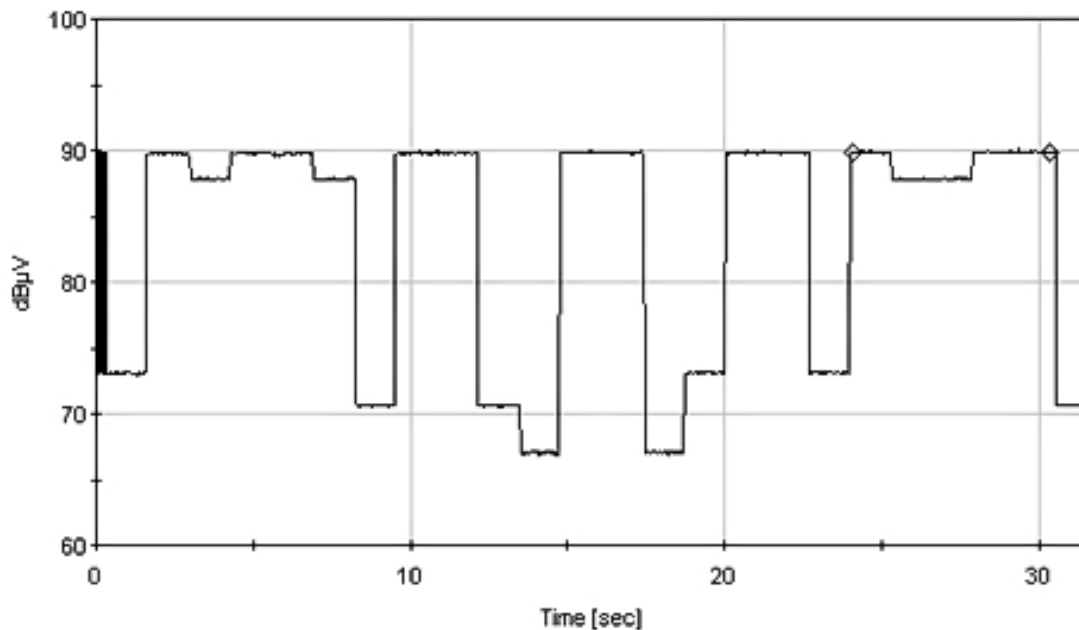
In 31.6 seconds, there are 2, 6.32 second transmit blocks and 3, 2.465 second transmit blocks. Within the transmit block, the EUT is transmitting approximately 100uSec per 20mSec period. There are 10 100uSec pulses in any 100mSec period. Therefore, there are 878.5 pulses per any 31.6 second period such that;

$$10/0.1=X/20.035 \quad (20.035 = (2*6.32)=(3*2.465))$$

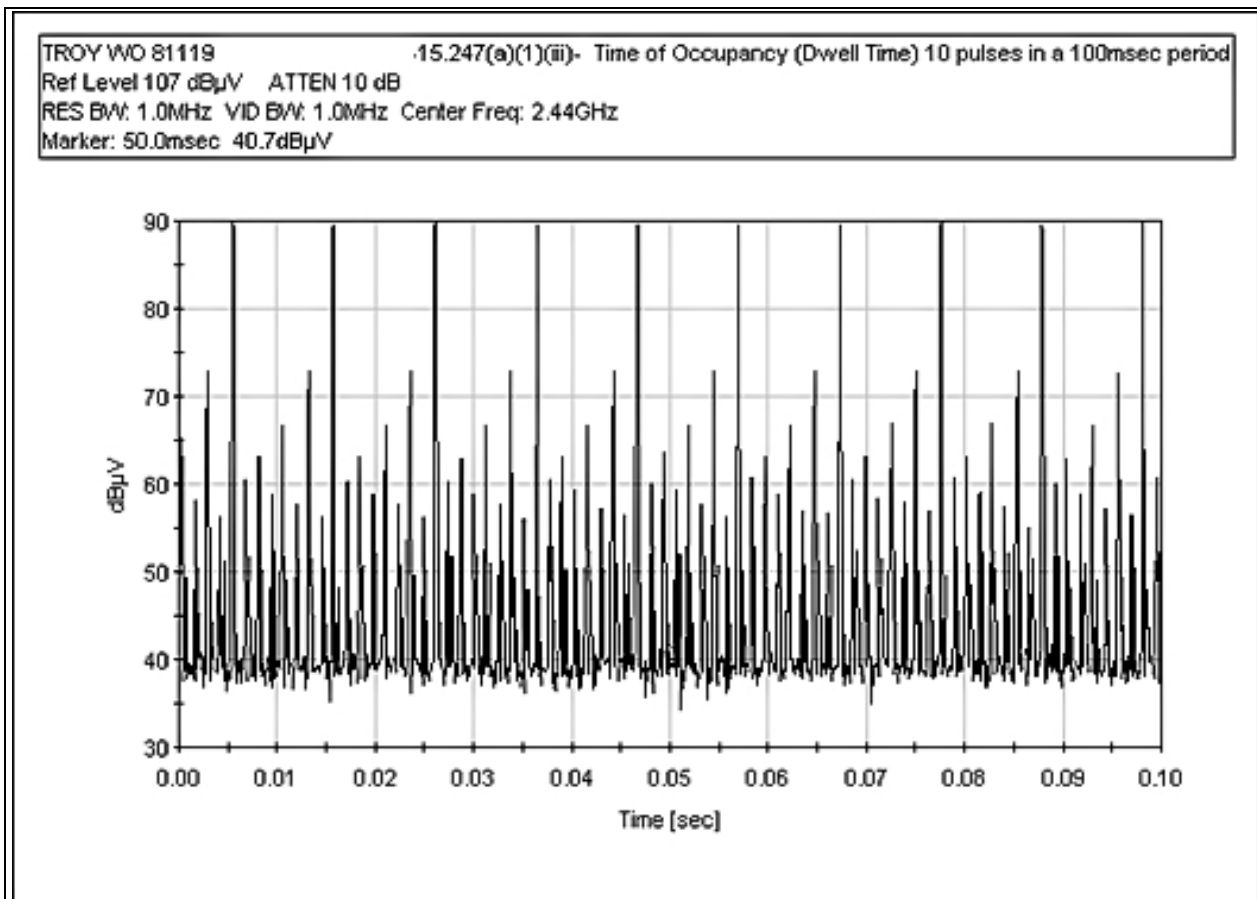
$$X = 2003.5\mu S;$$

$2003.5 * 100\mu Sec = 2003.5 \mu Sec$ in any 31.6 second period or rather; .20035 seconds per any 31.6 second period which passes the criteria set forth in 15.247(a)(1)(iii)

TROY W0 81119 -15.247(a)(1)(ii)- 2 Blocks 6.32 seconds, 3 Blocks 2.65 seconds
Ref Level 107 dB μ V ATTEN 10 dB
RES BW: 1.0MHz VID BW: 1.0MHz Center Freq: 2.44GHz
Marker 1: 24.05sec 89.8 dB μ V Marker 2: 30.37sec 89.8 dB μ V Delta: 6.32sec



FCC 15.247(a)(1)(iii) DWELL TIME PLOT 2



FCC 15.247(a)(1)(iii) DWELL TIME PLOT 3

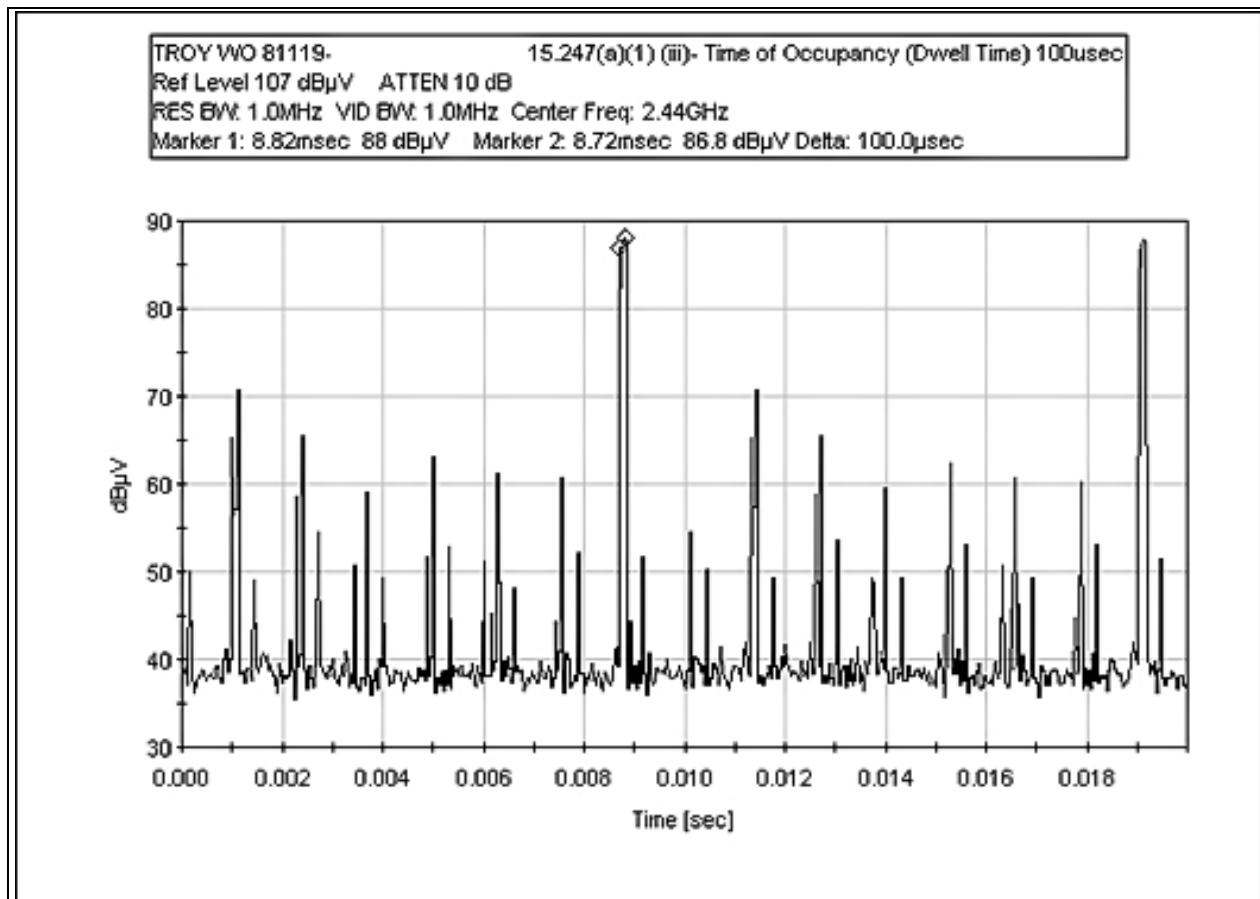


Table 5: FCC 15.247(b) Six Highest RF Power Output Levels

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V/m	SPEC LIMIT dB μ V/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
2401.975	85.1	28.2	-37.7	6.1		81.7	117.0	-35.3	VA
2402.200	93.3	28.2	-37.7	6.1		89.9	117.0	-27.1	V
2441.050	87.4	28.3	-37.7	5.9		83.9	117.0	-33.1	HA
2441.050	86.0	28.3	-37.7	5.9		82.5	117.0	-34.5	VA
2480.000	89.9	28.2	-37.8	5.9		86.3	117.0	-30.7	HA
2480.000	88.5	28.3	-37.8	5.9		84.9	117.0	-32.1	VA

Test Method: ANSI C63.4 (1992)
 Spec Limit: FCC Part 15 Subpart C Section 15.247(b)
 Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
 V = Vertical Polarization
 A = Average Reading

COMMENTS: The EUT is plugged into parallel printer placed on the edge of the table. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation FHSS. RBW=VBW=3 MHz. 110Vac, 60Hz, 20°C, 25% relative humidity. Freq= 2402 MHz, 2440 MHz, 2480 MHz This table represents testing of both the USB and Parallel ports, but all the highest readings came from the Parallel port data sheets. Testing was done from 9 kHz – 30 MHz, but no emissions were found.

15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

(b) The maximum peak output power of the intentional radiator shall not exceed the following:

(1) For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 Watt. For all other frequency hopping systems in the 2400-2483.5 band: 0.125 Watt. (125mW)

Setup:

Windconnect II USB

The EUT is placed on the edge of the table. All ports are filled, the USB port is terminated via a USB cable to the printer The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation.

Result

Freq	Max peak Power
2402 MHz	0.53 mW
2442 MHz	0.26 mW
2480 MHz	0.11 mW

Windconnect II Parallel

The EUT is plugged into a parallel printer placed on the edge of the table. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation FHSS.

Result

Freq	Max peak Power
2402 MHz	0.31 mW
2442 MHz	0.52 mW
2480 MHz	0.68 mW

From the above result, the maximum measured peak power for both models are below the 0.125 W limit.

FCC 15.247(b)(5)

Calculations prepared for:

*Troy Group, Inc. Wireless & Connectivity
Division
2331 South Pullman Street
Santa Ana, CA 92705*

Calculations prepared by:

*Eddie Wong
CKC Laboratories, Inc.
110 North Olinda Place
Brea, CA 92823*

Model Number: **WindConnect II USB**

Fundamental Operating Frequency: 2401MHz-2481MHz

Typical Rated Output Power: .0025W (ERP)
Measured Output Power: .00053W (ERP)
Antenna Gain: EUT has an integral antenna – Antenna Gain from manufacturer is 2dBi = 1.5 numerical

MPE Limit in accordance with 1.1310(b): Limits for general population/uncontrolled exposure

MPE Limit = 1

EIRP (mW)	Distance (Centi-Meters)	Power Density (mW/cm²)	Result
0.84	0.345	0.56	Pass

Note: Worse case power reported.

$$PowerDensity(mW / cm^2) = \frac{EIRP}{4\pi d^2} \quad \text{Given: } \mathbf{EIRP} \text{ in } mW \text{ and } \mathbf{d} \text{ in } cm$$

Under normal operating conditions, the antenna is designed to maintain a separation distance of at least 20cm from all persons. As can be seen from the MPE results, this device passes the limits specified in 1.1310 at a distance of less than 20cm and at a output power of .00053W(ERP).

Maximum Permissible Exposure Calculations

Calculations prepared for:

Troy Group, Inc. Wireless & Connectivity Division
 2331 South Pullman Street
 Santa Ana, CA 92705

Calculations prepared by:

Eddie Wong
 CKC Laboratories, Inc.
 110 North Olinda Place
 Brea, CA 92823

Model Number: **WindConnect II Parallel**

Fundamental Operating Frequency: 2401MHz-2481MHz

Typical Rated Output Power: .0025W (ERP)

Measured Output Power: .00068W (ERP)

Antenna Gain: EUT has an integral antenna – Antenna Gain from manufacturer is 2dBi = 1.5 numerical

MPE Limit in accordance with 1.1310(b): Limits for general population/uncontrolled exposure

MPE Limit = 1

EIRP (mW)	Distance (Centi-Meters)	Power Density (mW/cm ²)	Result
1.08	0.345	0.72	Pass

Note: Worse case power reported.

$$PowerDensity(mW / cm^2) = \frac{EIRP}{4\pi d^2} \quad \text{Given: EIRP in } mW \text{ and } d \text{ in } cm$$

Under normal operating conditions, the antenna is designed to maintain a separation distance of at least 20cm from all persons. As can be seen from the MPE results, this device passes the limits specified in 1.1310 at a distance of less than 20cm and at a output power of .00068W(ERP).

Table 6: FCC 15.247(c) Six Highest Radiated Emission Levels

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS				CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Dist dB				
4881.600	47.6	33.4	-38.5	8.2		50.7	54.0	-3.3	V-P
4882.600	45.4	33.4	-38.5	8.2		48.5	54.0	-5.5	H-P
4959.950	47.1	33.4	-38.2	8.1		50.4	54.0	-3.6	V-P
7206.280	43.7	35.4	-39.1	11.3		51.3	54.0	-2.7	H-U
7206.550	42.0	35.4	-39.1	11.3		49.6	54.0	-4.4	VA-P
7439.850	42.9	36.0	-39.0	11.1		51.0	54.0	-3.0	H-U

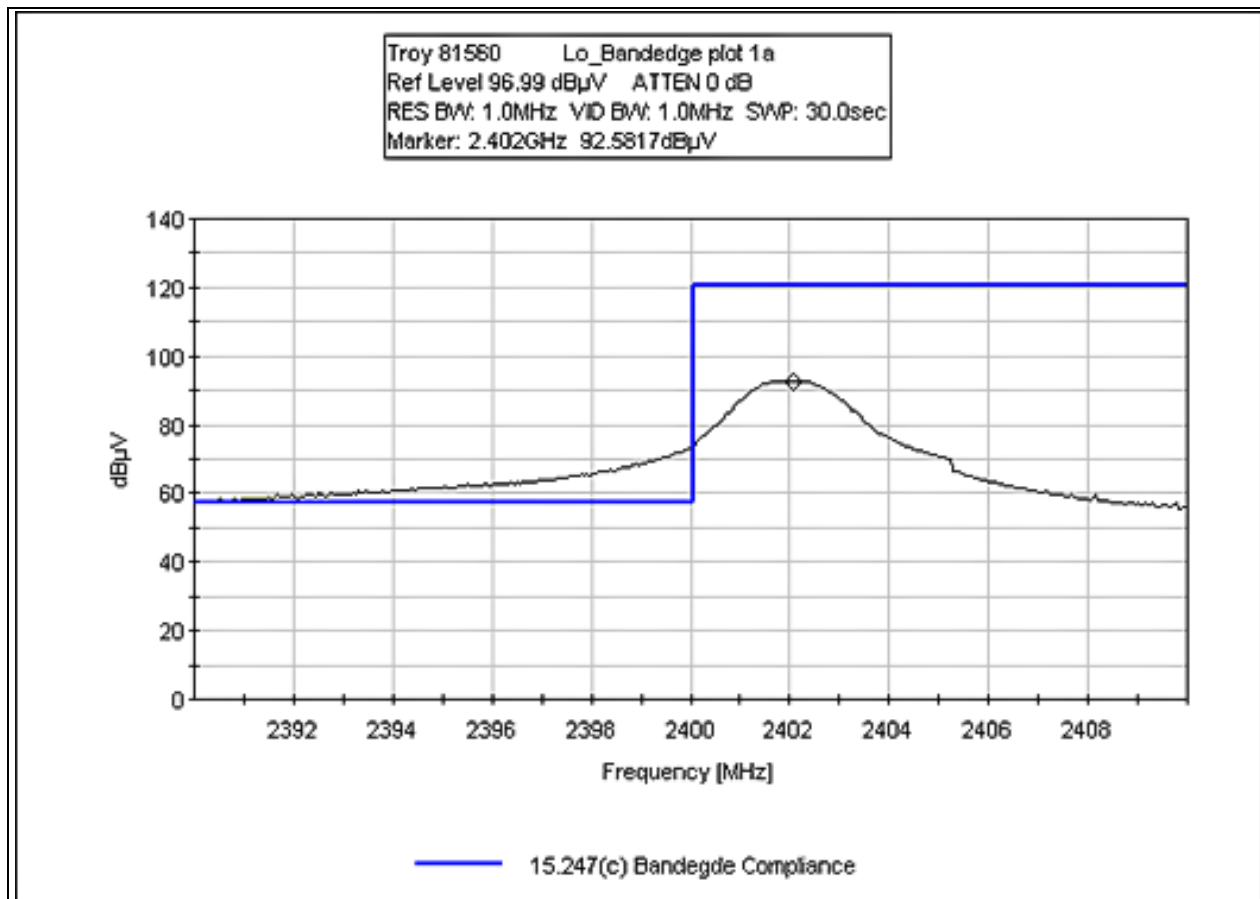
Test Method: ANSI C63.4 (1992)
 Spec Limit: FCC Part 15 Subpart B Section 15.1247(c)
 Test Distance: 3 Meters

NOTES:
 H = Horizontal Polarization
 V = Vertical Polarization
 A = Average Reading
 U = USB
 P = Parallel

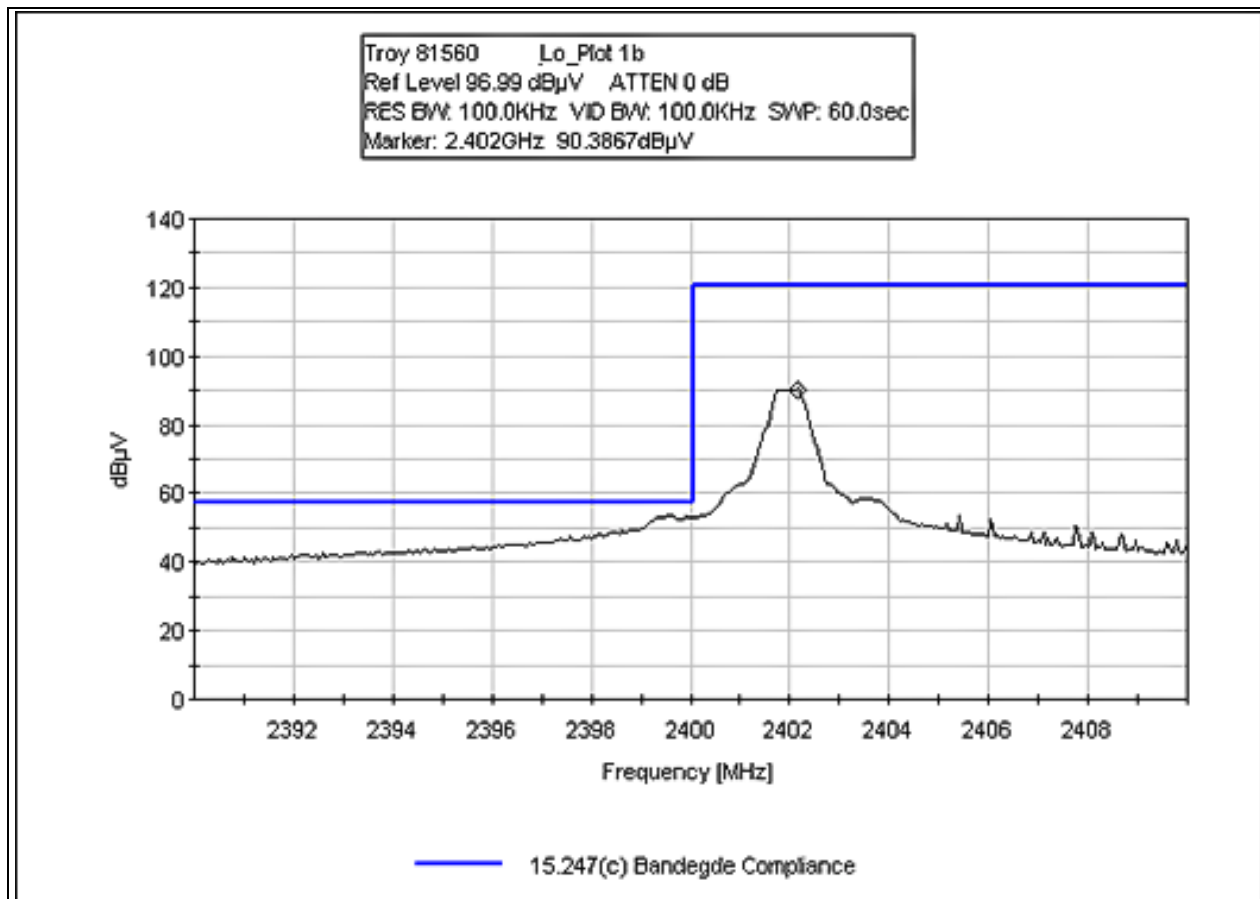
COMMENTS: USB - The EUT is placed on the edge of the table. All ports are filled, the USB port is terminated via a USB cable to the printer. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation FHSS. 110Vac, 60Hz, 20°C, 25% relative humidity. Freq= 2402 MHz, 2440 MHz, 2480 MHz.

Parallel - The EUT is plugged into parallel printer placed on the edge of the table. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation FHSS. 110Vac, 60Hz, 20°C, 25% relative humidity. Freq= 2402 MHz, 2440 MHz, 2480 MHz. Dwell time correction in accordance with DA 00-705 $20 \times \log(27 \times 2.48 \text{ ms} / 100 \text{ ms}) = -3.48$ Average time of occupancy correction: Measuring average time of occupancy. Centered at 2442 MHz, in hopping mode, sweep at 10 Sec. 10 single sweep. Count each event in the 10 sec time frame. 37, 33, 31, 37, 36, 39, 31, 33, 33, 34 average 31 events in 10 sec. Each "event" is 2.65 ms wide. Therefore $(31 \times 2.65 \text{ ms})$ in 10 Sec 82.15 ms in 10 sec. Reduction: $20 \log(0.08215 / 0.4) = -13.7 \text{ dB}$.

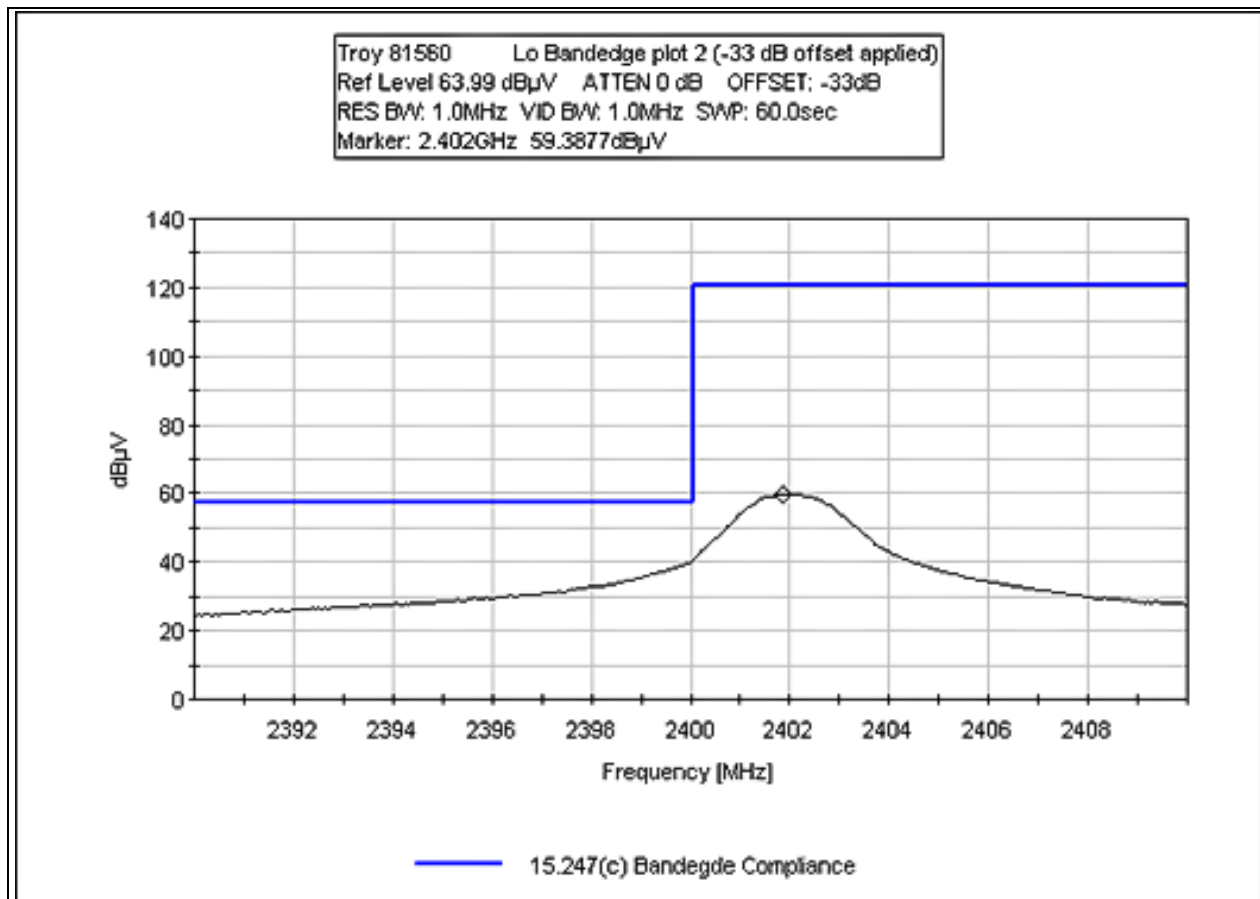
FCC 15.247(c) BANDEDGE LOW PLOT 1A



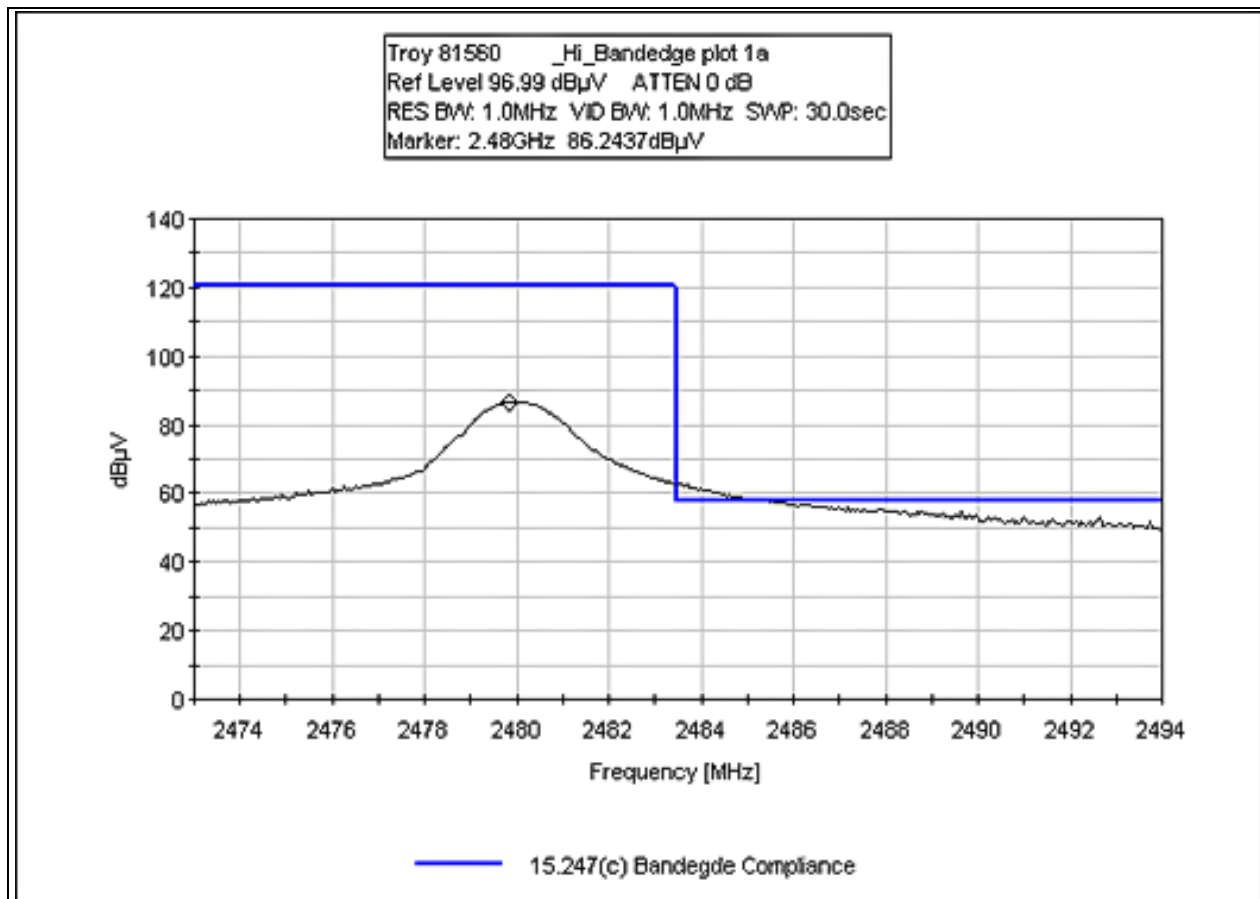
FCC 15.247(c) BANDEDGE LOW PLOT 1B



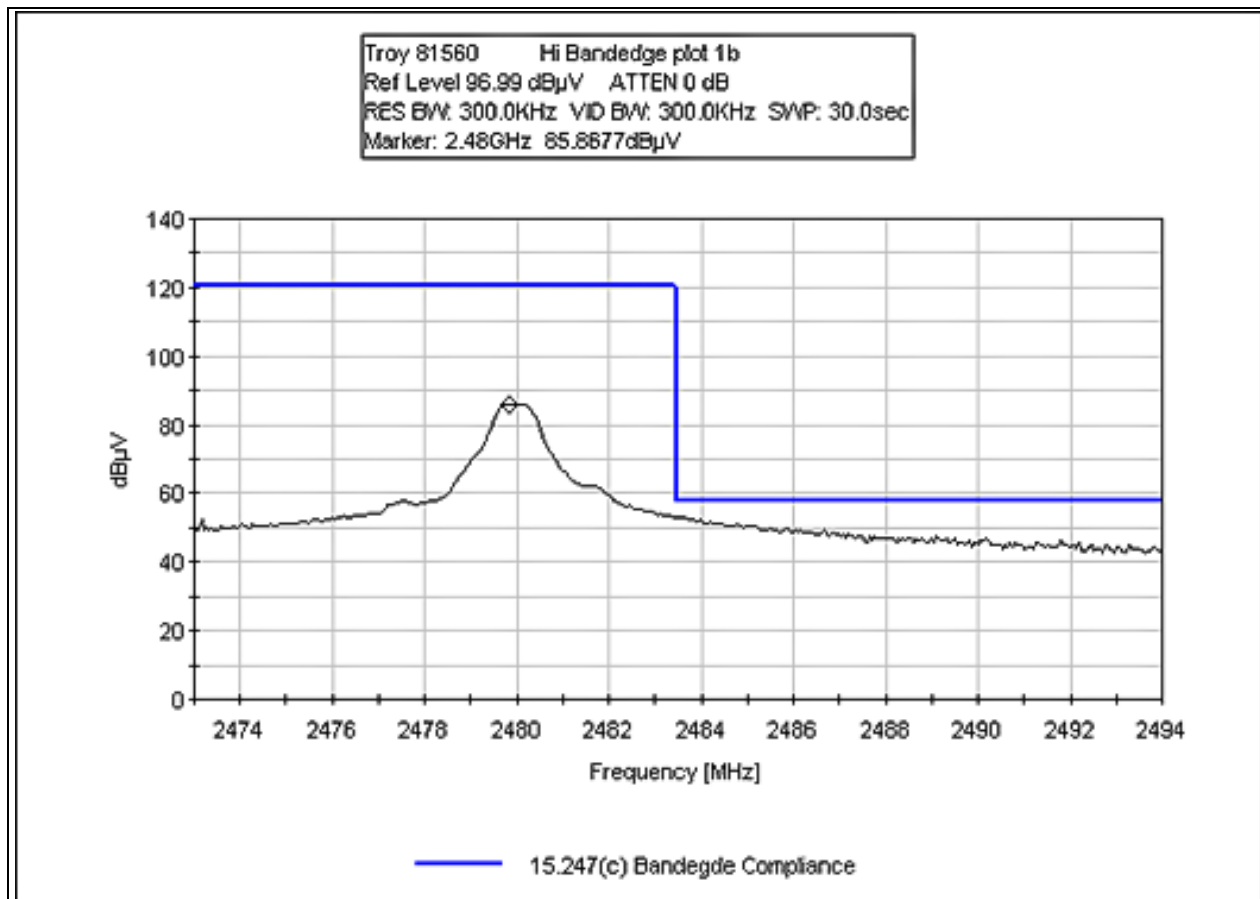
FCC 15.247(c) BANDEDGE LOW PLOT 2



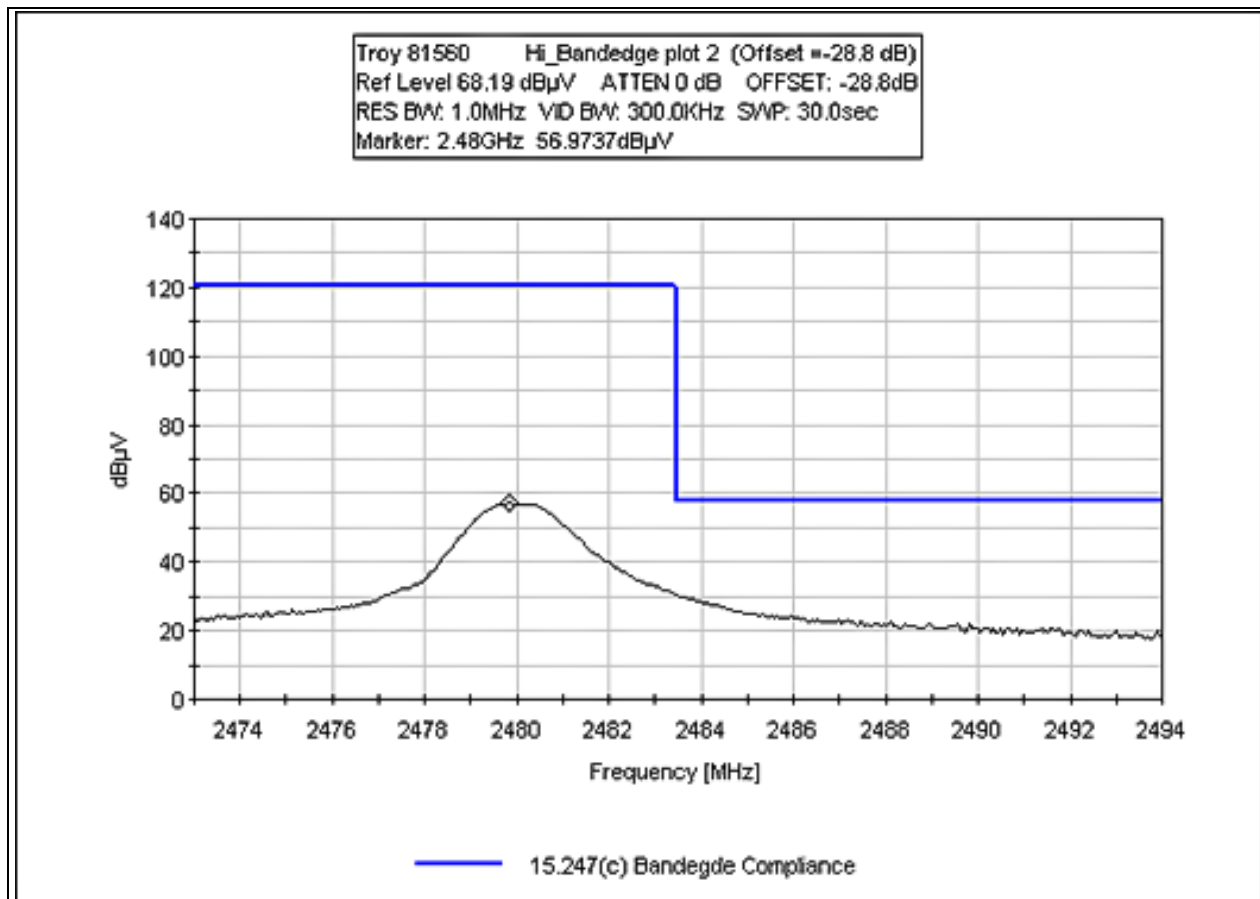
FCC 15.247(c) BANDEDGE HIGH PLOT 1A



FCC 15.247(c) BANDEDGE HIGH PLOT 1B



FCC 15.247(c) BANDEDGE HIGH PLOT 2



TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.

The relative humidity was between 20% and 75%.

EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated and conducted emissions data of the EUT was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS		
	Meter reading	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the EUT. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For frequencies from 30 to 1000 MHz, the biconilog antenna was used. The horn antenna was used for frequencies above 1000 MHz. All antennas were located at a distance of 3 meters from the edge of the EUT. Conducted emissions tests required the use of the FCC type LISNs.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB μ V, and a vertical scale of 10 dB per division.

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

EUT TESTING

Mains Conducted Emissions

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT was located has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test.

The LISNs used were 50 μH +/-50 ohms. Above 150 kHz, a 0.15 μF series capacitor was added in-line prior to connecting the analyzer to restore the proper impedance for the range. A 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz to 500 kHz, and 500 kHz to 30 MHz. All readings within 20 dB of the limit were recorded, and those within 6 dB of the limit were examined with additional measurements using a slower sweep time.

Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. For frequencies exceeding 1000 MHz, the horn antenna was used. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable as needed. The test engineer maximized the readings with respect to the table rotation and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

APPENDIX A

TEST SETUP PHOTOGRAPHS

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View USB

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View Parallel

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Back View USB

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Back View Parallel

PHOTOGRAPH SHOWING RADIATED EMISSIONS



11/24/03 Radiated Emissions - Front View USB

PHOTOGRAPH SHOWING RADIATED EMISSIONS



11/24/03 Radiated Emissions - Front View Parallel

PHOTOGRAPH SHOWING RADIATED EMISSIONS



11/24/03 Radiated Emissions - Back View USB

PHOTOGRAPH SHOWING RADIATED EMISSIONS



11/24/03 Radiated Emissions - Back View Parallel

PHOTOGRAPH SHOWING RADIATED EMISSIONS



12/10/03 Radiated Emissions - Front View USB

PHOTOGRAPH SHOWING RADIATED EMISSIONS



12/10/03 Radiated Emissions - Front View Parallel

PHOTOGRAPH SHOWING RADIATED EMISSIONS



12/10/03 Radiated Emissions - Back View USB

PHOTOGRAPH SHOWING RADIATED EMISSIONS



12/10/03 Radiated Emissions - Back View Parallel

APPENDIX B

TEST EQUIPMENT LIST

15.209 - 11/24/03

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	00312	HP	8568A	2049A01287	073102	073104
Spectrum Analyzer Display Section	00312	HP	85662A	2106A02109	073102	073104
Quasi Peak Adapter	02325	HP	85650A	2521A00932	073102	073104
Bilog Antenna	00851	Schaffner- Chase EMC	CBL6111C	2629	062603	062604
Antenna cable (10 meter site D)	NA	Andrew	LDF1-50	Cable#17	100703	100704
Antenna cable from bulkhead to antenna	N/A	Belden	9268	Cable #6	05/12/03	051204
Preamp to SA Cable (3 feet)	NA	Pasternack	E100316-I	Cable #22	100603	100604
Pre-amp	00010	HP	8447D	2727A05392	071602	071604

15.207

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer Display	00489	HP	8566BA	2403A08241	022603	022604
Spectrum Analyzer	00490	HP	8566B	2209A01404	022603	022604
QP Adapter	00478	HP	85650A	2811A01267	022603	022604
LISN	00848	EMCO	3816/2	1102	010403	010404

12/9/03 Radiated Emissions RF Verification.

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	02462	HP	8568B	2928A04874	031103	031104
Spectrum Analyzer Display Section	02472	HP	85662A	3001A18430	031103	031104
QP Adapter	01437	HP	85650A	3303A01884	092702	092704
Spectrum Analyzer	02467	Agilent	E7405A	US40240225	033103	033104

FCC14.247(c) Radiated Spurious emission 30-100MHz

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Bicon Antenna	306	AH	SAS200/540	220	092302	092304
Log Periodic Antenna	300	AH	SAS 00/516	331	092302	092304
Pre-amp	00309	HP	8447D	1937A02548	082303	082304
Antenna cable	NA	NA	RG214	Cable#15	123002	123003
Pre-amp to SA cable	NA	Harbour	RG223/U	Cable#10	070802	070804

FCC15.247 (a)(1) 20 dB BW

FCC15.247 (b)(1) RF power output

FCC15.247 (c) Radiated Spurious emission 1 – 18 GHz

Bandedge plots

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Horn Antenna	0849	EMCO	3115	6246	091002	091004
Microwave Pre-amp	00786	HP	83017A	3123A00281	091102	091104
¼” Heliac Coaxial Cable	NA	Andrew	FSJ-50A-4	Cable#7 (6 ft)	073103	073104
Heliac Antenna cable	NA	Andrew	LDF1-50	Cable#20	101303	101304
11’ SMA Cable	P01510	W.L.Gore	3825510-75	244910	012103	012104

FCC 15.247(c) Radiated Spurious emission 18-25GHz

Horn Antenna	2112	HP	84125- 80008	3643A00027	070103	070105
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FCC 15.247(a)(1) , 15.247(a)(1)(iii)

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	00494	HP	8566B	2209A01404	022603	022604

APPENDIX C
MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Troy Group, Inc. Wireless & Connectivity Division**
 Specification: **FCC 15.107 Class B COND [AVE]**
 Work Order #: **81560** Date: 11/21/2003
 Test Type: **Conducted Emissions** Time: 16:49:52
 Equipment: **Wireless Print Server** Sequence#: 8
 Manufacturer: Troy Group, Inc. Wireless & Connectivity Division Tested By: Stuart Yamamoto
 Model: WindConnect II USB 110Vac 60 Hz
 S/N: 0E:F6

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II USB	0E:F6
Power Supply	Potrans Electrical Corporation	WR410500500	

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT and support printer are placed on the wooden tabletop. All ports on the EUT are filled. The USB port of the EUT is connected to the support printer via a two meter USB cable. The EUT is configured in receive mode. Temperature: 21°C, Humidity: 47%, Pressure: 100kPa.

Transducer Legend:

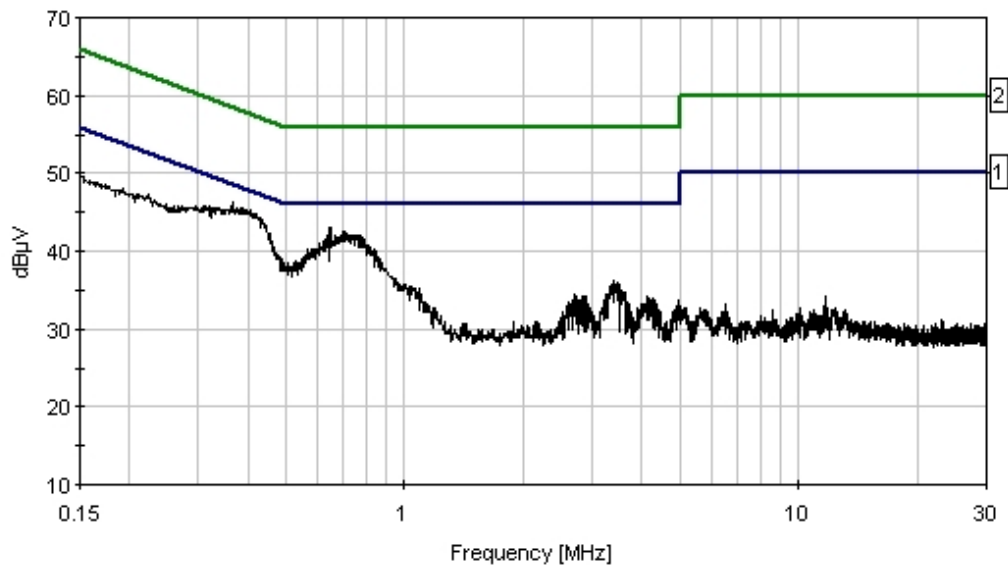
T1=Cable #8 072804

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dB μ V	T1 dB	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	152.182k	49.6	+0.1				+0.0	49.7	55.9	-6.2	Black
2	877.000k	38.3	+0.1				+0.0	38.4	46.0	-7.6	Black
3	3.386M	36.1	+0.1				+0.0	36.2	46.0	-9.8	Black
4	3.556M	34.8	+0.1				+0.0	34.9	46.0	-11.1	Black
5	2.702M	34.4	+0.1				+0.0	34.5	46.0	-11.5	Black
6	2.821M	34.2	+0.1				+0.0	34.3	46.0	-11.7	Black
7	2.872M	34.0	+0.1				+0.0	34.1	46.0	-11.9	Black
8	2.744M	33.6	+0.1				+0.0	33.7	46.0	-12.3	Black
9	2.893M	33.4	+0.1				+0.0	33.5	46.0	-12.5	Black
10	11.743M	34.0	+0.2				+0.0	34.2	50.0	-15.8	Black

11	6.517M	33.0	+0.1	+0.0	33.1	50.0	-16.9	Black
12	5.157M	32.7	+0.1	+0.0	32.8	50.0	-17.2	Black
13	8.571M	32.3	+0.2	+0.0	32.5	50.0	-17.5	Black
14	643.000k	27.7	+0.1	+0.0	27.8	46.0	-18.2	Black
	Ave							
^	643.042k	43.0	+0.1	+0.0	43.1	46.0	-2.9	Black
16	23.058M	30.7	+0.4	+0.0	31.1	50.0	-18.9	Black
17	23.244M	30.4	+0.4	+0.0	30.8	50.0	-19.2	Black

CKC Laboratories Inc. Date: 11/21/2003 Time: 16:49:52 Troy Group, Inc. Wireless & Connectivity Division WO#: 81560
 FCC 15.107 Class B COND [AVE] Test Lead: Black 110Vac 60 Hz Sequence#: 8
 Troy Group, Inc. Wireless and Connectivity Division, WindConnect II USB



1 - FCC 15.107 Class B COND [AVE] 2 - FCC 15.107 Class B COND [QP]

Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Troy Group, Inc. Wireless & Connectivity Division**
 Specification: **FCC 15.107 Class B COND [AVE]**
 Work Order #: **81560** Date: 11/21/2003
 Test Type: **Conducted Emissions** Time: 4:50:19 PM
 Equipment: **Wireless Print Server** Sequence#: 9
 Manufacturer: Troy Group, Inc. Wireless & Connectivity Division Tested By: Stuart Yamamoto
 Model: WindConnect II USB 110Vac 60 Hz
 S/N: 0E:F6

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II USB	0E:F6
Power Supply	Potrans Electrical Corporation	WR410500500	

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT and support printer are placed on the wooden table top. All ports on the EUT are filled. The USB port of the EUT is connected to the support printer via a two meter USB cable. The EUT is configured in receive mode. Temperature: 21°C, Humidity: 47%, Pressure: 100kPa.

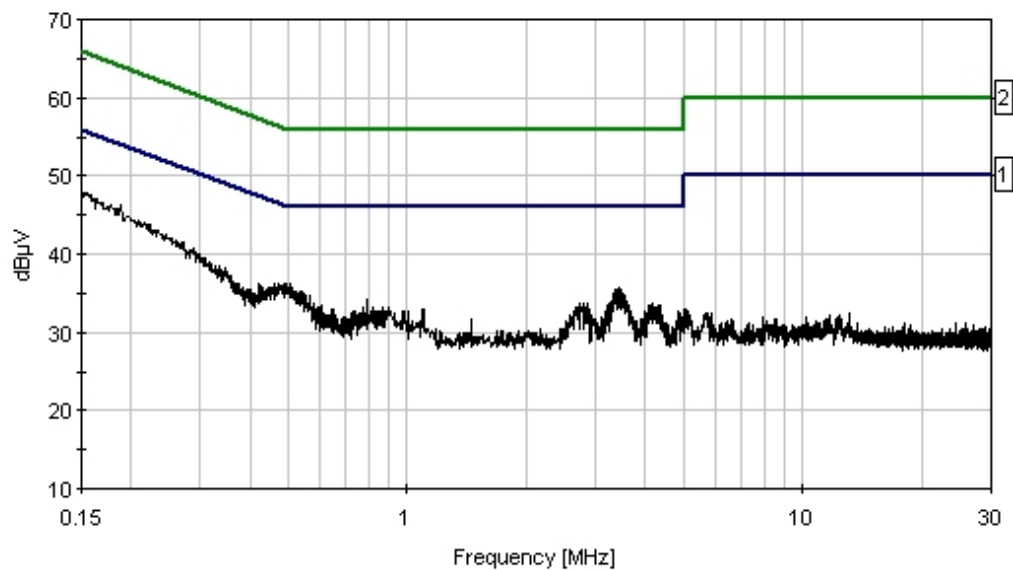
Transducer Legend:

T1=Cable #8 072804

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dB μ V	T1 dB	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	150.000k	48.1	+0.1				+0.0	48.2	56.0	-7.8	White
2	3.433M	35.5	+0.1				+0.0	35.6	46.0	-10.4	White
3	787.754k	34.2	+0.1				+0.0	34.3	46.0	-11.7	White
4	898.265k	33.2	+0.1				+0.0	33.3	46.0	-12.7	White
5	1.455M	31.7	+0.1				+0.0	31.8	46.0	-14.2	White
6	13.193M	32.2	+0.3				+0.0	32.5	50.0	-17.5	White
7	18.031M	30.9	+0.4				+0.0	31.3	50.0	-18.7	White
8	24.333M	30.7	+0.4				+0.0	31.1	50.0	-18.9	White

CKC Laboratories Inc. Date: 11/21/2003 Time: 4:50:19 PM Troy Group, Inc. Wireless & Connectivity Division WVO#: 8156
 FCC 15.107 Class B COND [AVE] Test Lead: White 110Vac 60 Hz Sequence#: 9
 Troy Group, Inc. Wireless and Connectivity Division, WindConnect II USB



——— 1 - FCC 15.107 Class B COND [AVE] ——— 2 - FCC 15.107 Class B COND [QP]

Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Troy Group, Inc. Wireless & Connectivity Division**
 Specification: **FCC 15.107 Class B COND [AVE]**
 Work Order #: **81560** Date: 11/21/2003
 Test Type: **Conducted Emissions** Time: 15:49:39
 Equipment: **Wireless Print Server** Sequence#: 6
 Manufacturer: Troy Group, Inc. Wireless & Connectivity Division Tested By: Stuart Yamamoto
 Model: WindConnect II Parallel 110Vac 60 Hz
 S/N: 09:E0

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II Parallel	09:E0
Power Supply	Potrans Electrical Corporation	WR410500500	

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT and support printer are placed on the wooden table top. All ports on the EUT are filled. The centronix port of the EUT is directly connected to the support printer. The EUT is configured in receive mode. Temperature: 21°C, Humidity: 47%, Pressure: 100kPa.

Transducer Legend:

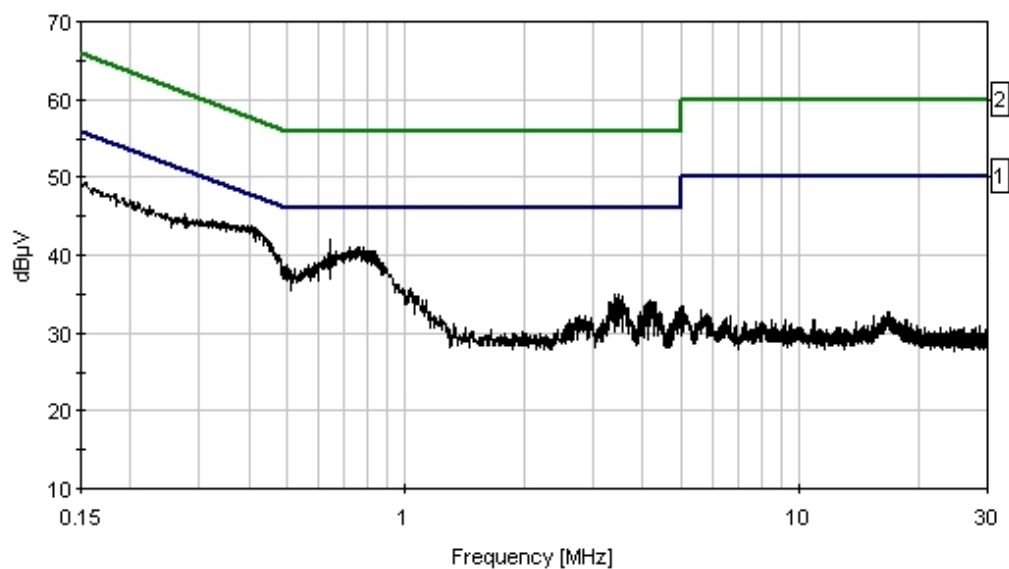
T1=Cable #8 072804

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dB μ V	T1 dB	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	153.636k	49.2	+0.1				+0.0	49.3	55.8	-6.5	Black
2	877.000k	38.7	+0.1				+0.0	38.8	46.0	-7.2	Black
3	3.480M	34.9	+0.1				+0.0	35.0	46.0	-11.0	Black
4	3.399M	34.8	+0.1				+0.0	34.9	46.0	-11.1	Black
5	3.535M	34.6	+0.1				+0.0	34.7	46.0	-11.3	Black
6	4.156M	34.1	+0.1				+0.0	34.2	46.0	-11.8	Black
7	4.292M	33.9	+0.1				+0.0	34.0	46.0	-12.0	Black
8	4.131M	33.8	+0.1				+0.0	33.9	46.0	-12.1	Black
9	3.556M	33.7	+0.1				+0.0	33.8	46.0	-12.2	Black
10	4.947M	33.2	+0.1				+0.0	33.3	46.0	-12.7	Black

11	2.867M	32.2	+0.1	+0.0	32.3	46.0	-13.7	Black
12	5.045M	33.4	+0.1	+0.0	33.5	50.0	-16.5	Black
13	5.015M	33.3	+0.1	+0.0	33.4	50.0	-16.6	Black
14	5.616M	32.8	+0.1	+0.0	32.9	50.0	-17.1	Black
15	16.977M	32.5	+0.3	+0.0	32.8	50.0	-17.2	Black
16	5.797M	32.4	+0.1	+0.0	32.5	50.0	-17.5	Black
17	5.148M	32.1	+0.1	+0.0	32.2	50.0	-17.8	Black
18	28.808M	30.6	+0.4	+0.0	31.0	50.0	-19.0	Black
19	644.000k Ave	25.2	+0.1	+0.0	25.3	46.0	-20.7	Black
^	643.769k	42.0	+0.1	+0.0	42.1	46.0	-3.9	Black

CKC Laboratories Inc. Date: 11/21/2003 Time: 15:49:39 Troy Group, Inc. Wireless & Connectivity Division WO#: 81560
 FCC 15.107 Class B COND [AVE] Test Lead: Black 110Vac 60 Hz Sequence#: 6
 Troy Group, Inc. Wireless and Connectivity Division, WindConnect II Parallel



— 1 - FCC 15.107 Class B COND [AVE] — 2 - FCC 15.107 Class B COND [QP]

Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Troy Group, Inc. Wireless & Connectivity Division**
 Specification: **FCC 15.107 Class B COND [AVE]**
 Work Order #: **81560** Date: 11/21/2003
 Test Type: **Conducted Emissions** Time: 3:51:05 PM
 Equipment: **Wireless Print Server** Sequence#: 7
 Manufacturer: Troy Group, Inc. Wireless & Connectivity Division Tested By: Stuart Yamamoto
 Model: WindConnect II Parallel 110Vac 60 Hz
 S/N: 09:E0

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II Parallel	09:E0
Power Supply	Potrans Electrical Corporation	WR410500500	

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT and support printer are placed on the wooden table top. All ports on the EUT are filled. The centronix port of the EUT is directly connected to the support printer. The EUT is configured in receive mode. Temperature: 21C Humidity: 47%, Pressure: 100kPa

Transducer Legend:

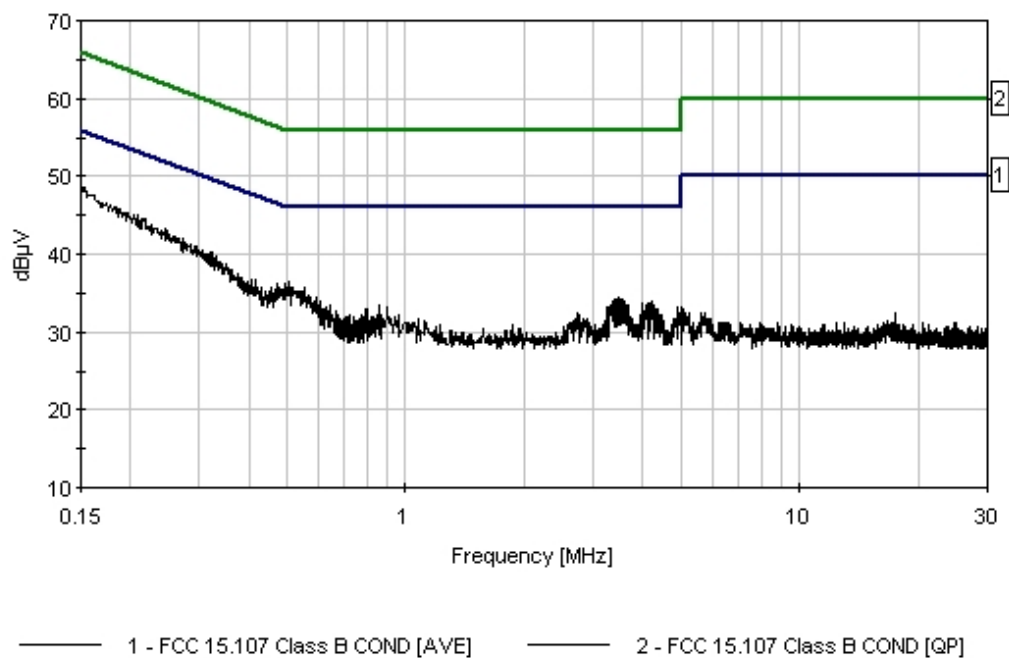
T1=Cable #8 072804

Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dB μ V	T1 dB	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	152.182k	48.4	+0.1				+0.0	48.5	55.9	-7.4	White
2	3.484M	34.4	+0.1				+0.0	34.5	46.0	-11.5	White
3	3.403M	34.2	+0.1				+0.0	34.3	46.0	-11.7	White
4	4.216M	33.8	+0.1				+0.0	33.9	46.0	-12.1	White
5	855.384k	33.3	+0.1				+0.0	33.4	46.0	-12.6	White
6	898.265k	33.0	+0.1				+0.0	33.1	46.0	-12.9	White
7	795.026k	32.9	+0.1				+0.0	33.0	46.0	-13.0	White
8	717.943k	32.2	+0.1				+0.0	32.3	46.0	-13.7	White
9	770.302k	32.1	+0.1				+0.0	32.2	46.0	-13.8	White

10	5.725M	32.4	+0.1	+0.0	32.5	50.0	-17.5	White
11	5.220M	32.3	+0.1	+0.0	32.4	50.0	-17.6	White
12	17.490M	32.0	+0.4	+0.0	32.4	50.0	-17.6	White
13	24.827M	30.8	+0.4	+0.0	31.2	50.0	-18.8	White

CKC Laboratories Inc. Date: 11/21/2003 Time: 3:51:05 PM Troy Group, Inc. Wireless & Connectivity Division WVO#: 8156(FCC 15.107 Class B COND [AVE] Test Lead: White 110Vac 60 Hz Sequence#: 7
Troy Group, Inc. Wireless and Connectivity Division, WindConnect II Parallel



Test Location: CKC Laboratories Inc. • 180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Troy Group, Inc. Wireless & Connectivity Division**
 Specification: **FCC 15.109 Class B**
 Work Order #: **81560** Date: 11/24/2003
 Test Type: **Maximized Emissions** Time: 13:59:15
 Equipment: **Wireless Print Server** Sequence#: 18
 Manufacturer: Troy Group, Inc. Wireless & Connectivity Division Tested By: Stuart Yamamoto
 Model: WindConnect II USB
 S/N: 0E:F6

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II USB	0E:F6
Power Supply	Potrans Electrical Corporation	WR410500500	

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT and support printer are placed on the wooden table top. All ports on the EUT are filled. The USB port of the EUT is connected to the support printer via a two meter USB cable. The EUT is configured in receive mode. Frequency range scanned and maximized is 30-1000 MHz. Test performed on mid channel. Worst case emissions reported. Temperature: 20°C, Humidity: 40%, Pressure: 100kPa.

Transducer Legend:

T1=Bilog SN2629 062604	T2=Cable Heliax #17 84ft(10 meter)
T3=Cable#22 BNC (preamp to SA)	T4=Cable #6 (Ant to Bulkhead) 100204
T5=Pre Amp 8447D AN 0010_071604	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	330.011M	43.2	+14.4 -26.5	+2.0	+0.4	+1.8	+0.0	35.3	46.0	-10.7	Horiz
2	66.002M	46.9	+6.4 -27.0	+0.9	+0.2	+0.8	+0.0	28.2	40.0	-11.8	Vert
3	324.088M	41.8	+14.2 -26.5	+2.0	+0.4	+1.8	+0.0	33.7	46.0	-12.3	Horiz
4	594.000M	35.2	+19.8 -27.7	+2.6	+0.5	+2.5	+0.0	32.9	46.0	-13.1	Horiz
5	383.999M	38.3	+15.9 -26.9	+2.2	+0.4	+1.9	+0.0	31.8	46.0	-14.2	Vert
6	420.008M	37.3	+16.7 -27.2	+2.2	+0.4	+2.0	+0.0	31.4	46.0	-14.6	Horiz
7	192.043M	43.3	+9.0 -26.5	+1.5	+0.2	+1.3	+0.0	28.8	43.5	-14.7	Vert
8	312.021M	39.9	+13.8 -26.4	+1.9	+0.4	+1.7	+0.0	31.3	46.0	-14.7	Horiz

9	395.989M	37.2	+16.2 -27.0	+2.2	+0.4	+2.0	+0.0	31.0	46.0	-15.0	Horiz
10	144.067M	40.8	+11.6 -26.7	+1.4	+0.2	+1.1	+0.0	28.4	43.5	-15.1	Vert
11	287.962M	39.7	+13.2 -26.3	+1.8	+0.4	+1.6	+0.0	30.4	46.0	-15.6	Horiz
12	462.028M	35.1	+17.5 -27.5	+2.3	+0.4	+2.1	+0.0	29.9	46.0	-16.1	Horiz
13	527.975M	33.5	+18.7 -27.7	+2.5	+0.5	+2.3	+0.0	29.8	46.0	-16.2	Vert
14	396.036M	35.7	+16.2 -27.0	+2.2	+0.4	+2.0	+0.0	29.5	46.0	-16.5	Horiz
15	480.003M	33.7	+17.9 -27.6	+2.4	+0.4	+2.2	+0.0	29.0	46.0	-17.0	Vert
16	450.244M	34.3	+17.3 -27.5	+2.3	+0.4	+2.1	+0.0	28.9	46.0	-17.1	Vert
17	132.027M	38.8	+11.7 -26.8	+1.3	+0.2	+1.0	+0.0	26.2	43.5	-17.3	Vert
18	126.026M	38.8	+11.7 -26.8	+1.2	+0.2	+1.0	+0.0	26.1	43.5	-17.4	Vert
19	528.002M	32.2	+18.7 -27.7	+2.5	+0.5	+2.3	+0.0	28.5	46.0	-17.5	Horiz
20	726.000M	28.5	+21.2 -27.6	+3.0	+0.6	+2.8	+0.0	28.5	46.0	-17.5	Horiz
21	195.211M	40.0	+9.0 -26.5	+1.5	+0.2	+1.4	+0.0	25.6	43.5	-17.9	Vert
22	168.043M	39.1	+10.0 -26.6	+1.4	+0.3	+1.2	+0.0	25.4	43.5	-18.1	Vert
^	168.052M	44.2	+10.0 -26.6	+1.4	+0.3	+1.2	+0.0	30.5	43.5	-13.0	Vert
24	300.067M	36.8	+13.4 -26.3	+1.8	+0.4	+1.7	+0.0	27.8	46.0	-18.2	Horiz
25	264.001M	36.9	+12.9 -26.2	+1.8	+0.3	+1.5	+0.0	27.2	46.0	-18.8	Horiz
26	240.041M	37.9	+12.0 -26.3	+1.7	+0.3	+1.5	+0.0	27.1	46.0	-18.9	Horiz
27	263.988M	36.1	+12.9 -26.2	+1.8	+0.3	+1.5	+0.0	26.4	46.0	-19.6	Horiz
28	228.049M	38.2	+11.2 -26.4	+1.6	+0.3	+1.4	+0.0	26.3	46.0	-19.7	Vert
29	299.923M	35.3	+13.4 -26.3	+1.8	+0.4	+1.7	+0.0	26.3	46.0	-19.7	Vert
30	288.000M	35.6	+13.2 -26.3	+1.8	+0.4	+1.6	+0.0	26.3	46.0	-19.7	Vert
31	169.603M	37.4	+9.9 -26.6	+1.4	+0.3	+1.2	+0.0	23.6	43.5	-19.9	Vert
32	288.014M	35.3	+13.2 -26.3	+1.8	+0.4	+1.6	+0.0	26.0	46.0	-20.0	Vert
33	144.031M	35.2	+11.6 -26.7	+1.4	+0.2	+1.1	+0.0	22.8	43.5	-20.7	Horiz

34	276.131M	34.8	+13.1 -26.2	+1.8	+0.3	+1.5	+0.0	25.3	46.0	-20.7	Horiz
35	132.001M	32.3	+11.7 -26.8	+1.3	+0.2	+1.0	+0.0	19.7	43.5	-23.8	Horiz
36	132.026M	29.1	+11.7 -26.8	+1.3	+0.2	+1.0	+0.0	16.5	43.5	-27.0	Horiz

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Troy Group, Inc. Wireless & Connectivity Division**
 Specification: **FCC 15.109 Class B**
 Work Order #: **81560** Date: 11/24/2003
 Test Type: **Maximized Emissions** Time: 15:24:54
 Equipment: **Wireless Print Server** Sequence#: 19
 Manufacturer: Troy Group, Inc. Wireless & Connectivity Division Tested By: Stuart Yamamoto
 Model: WindConnect II Parallel
 S/N: 09:E0

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II Parallel	09:E0
Power Supply	Potrans Electrical Corporation	WR410500500	

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT and support printer are placed on the wooden table top. All ports on the EUT are filled. The centronix port of the EUT is directly connected to the support printer. The EUT is configured in receive mode. Frequency range scanned and maximized is 30-1000 MHz. Test performed on mid channel. Worst case emissions reported. Temperature: 20°C, Humidity: 40%, Pressure: 100kPa.

Transducer Legend:

T1=Bilog SN2629 062604	T2=Cable Heliac #17 84ft(10 meter)
T3=Cable#22 BNC (preamp to SA)	T4=Cable #6 (Ant to Bulkhead) 100204
T5=Pre Amp 8447D AN 0010_071604	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	383.965M	44.4	+15.9 -26.9	+2.2	+0.4	+1.9	+0.0	37.9	46.0	-8.1	Vert
2	330.018M	44.3	+14.4 -26.5	+2.0	+0.4	+1.8	+0.0	36.4	46.0	-9.6	Horiz
3	192.060M	46.9	+9.0 -26.5	+1.5	+0.2	+1.3	+0.0	32.4	43.5	-11.1	Vert
4	287.970M	43.6	+13.2 -26.3	+1.8	+0.4	+1.6	+0.0	34.3	46.0	-11.7	Horiz
5	195.171M	45.6	+9.0 -26.5	+1.5	+0.2	+1.4	+0.0	31.2	43.5	-12.3	Vert
6	527.957M	37.2	+18.7 -27.7	+2.5	+0.5	+2.3	+0.0	33.5	46.0	-12.5	Vert
7	528.017M	36.8	+18.7 -27.7	+2.5	+0.5	+2.3	+0.0	33.1	46.0	-12.9	Horiz
8	395.979M	39.1	+16.2 -27.0	+2.2	+0.4	+2.0	+0.0	32.9	46.0	-13.1	Horiz

9	324.107M	41.0	+14.2 -26.5	+2.0	+0.4	+1.8	+0.0	32.9	46.0	-13.1	Horiz
10	239.977M	43.0	+12.0 -26.3	+1.7	+0.3	+1.5	+0.0	32.2	46.0	-13.8	Horiz
11	480.002M	36.6	+17.9 -27.6	+2.4	+0.4	+2.2	+0.0	31.9	46.0	-14.1	Vert
12	395.991M	37.8	+16.2 -27.0	+2.2	+0.4	+2.0	+0.0	31.6	46.0	-14.4	Horiz
13	450.222M	36.0	+17.3 -27.5	+2.3	+0.4	+2.1	+0.0	30.6	46.0	-15.4	Vert
14	312.068M	39.0	+13.8 -26.4	+1.9	+0.4	+1.7	+0.0	30.4	46.0	-15.6	Horiz
15	594.003M	32.4	+19.8 -27.7	+2.6	+0.5	+2.5	+0.0	30.1	46.0	-15.9	Horiz
16	228.038M	42.0	+11.2 -26.4	+1.6	+0.3	+1.4	+0.0	30.1	46.0	-15.9	Vert
17	169.602M	41.0	+9.9 -26.6	+1.4	+0.3	+1.2	+0.0	27.2	43.5	-16.3	Vert
18	461.966M	34.8	+17.5 -27.5	+2.3	+0.4	+2.1	+0.0	29.6	46.0	-16.4	Horiz
19	726.000M	29.6	+21.2 -27.6	+3.0	+0.6	+2.8	+0.0	29.6	46.0	-16.4	Horiz
20	168.059M	40.6	+10.0 -26.6	+1.4	+0.3	+1.2	+0.0	26.9	43.5	-16.6	Vert
21	132.005M	39.5	+11.7 -26.8	+1.3	+0.2	+1.0	+0.0	26.9	43.5	-16.6	Vert
22	300.066M	38.2	+13.4 -26.3	+1.8	+0.4	+1.7	+0.0	29.2	46.0	-16.8	Horiz
23	287.978M	38.2	+13.2 -26.3	+1.8	+0.4	+1.6	+0.0	28.9	46.0	-17.1	Vert
24	287.968M	38.0	+13.2 -26.3	+1.8	+0.4	+1.6	+0.0	28.7	46.0	-17.3	Vert
25	132.045M	38.6	+11.7 -26.8	+1.3	+0.2	+1.0	+0.0	26.0	43.5	-17.5	Horiz
26	263.988M	38.1	+12.9 -26.2	+1.8	+0.3	+1.5	+0.0	28.4	46.0	-17.6	Horiz
27	264.007M	37.9	+12.9 -26.2	+1.8	+0.3	+1.5	+0.0	28.2	46.0	-17.8	Horiz
28	66.009M	40.8	+6.4 -27.0	+0.9	+0.2	+0.8	+0.0	22.1	40.0	-17.9	Vert
29	420.007M	33.4	+16.7 -27.2	+2.2	+0.4	+2.0	+0.0	27.5	46.0	-18.5	Horiz
30	144.001M	37.3	+11.6 -26.7	+1.4	+0.2	+1.1	+0.0	24.9	43.5	-18.6	Horiz
31	276.127M	36.8	+13.1 -26.2	+1.8	+0.3	+1.5	+0.0	27.3	46.0	-18.7	Horiz
32	144.078M	36.9	+11.6 -26.7	+1.4	+0.2	+1.1	+0.0	24.5	43.5	-19.0	Vert

33	132.012M	36.6	+11.7 -26.8	+1.3	+0.2	+1.0	+0.0	24.0	43.5	-19.5	Horiz
34	125.988M	36.1	+11.7 -26.8	+1.2	+0.2	+1.0	+0.0	23.4	43.5	-20.1	Vert
35	299.930M	33.3	+13.4 -26.3	+1.8	+0.4	+1.7	+0.0	24.3	46.0	-21.7	Vert

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Troy Group, Inc. Wireless & Connectivity Division**
 Specification: **FCC 15.207**
 Work Order #: **81119** Date: 09/15/2003
 Test Type: **Conducted Emissions** Time: 08:33:47
 Equipment: **Wireless Print Server** Sequence#: 10
 Manufacturer: Troy Group, Inc. Wireless & Connectivity Division Tested By: Monika Brandle
 Model: WindConnect II USB & WindConnect II Parallel 120V 60Hz
 S/N: 0E:F6 & 09:E0

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II USB	0E:F6
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II Parallel	09:E0
Power Supply	Potrans Electrical Corporation	WR410500500	

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT and support printer are placed on the wooden table top. All ports of the EUT are filled. The USB port of the EUT is connected to the support printer via a two meter USB cable. Temperature: 21°C Humidity: 47%, Pressure: 100kPa. The EUT is configured to transmit at full power, no hopping, maximum duty cycle, typical modulation. This equipment does not employ digital modulation techniques. It is strictly frequency hopping. Frequency Range Investigated: 150 kHz - 30 MHz.

Transducer Legend:

T1=Cable #8 072804

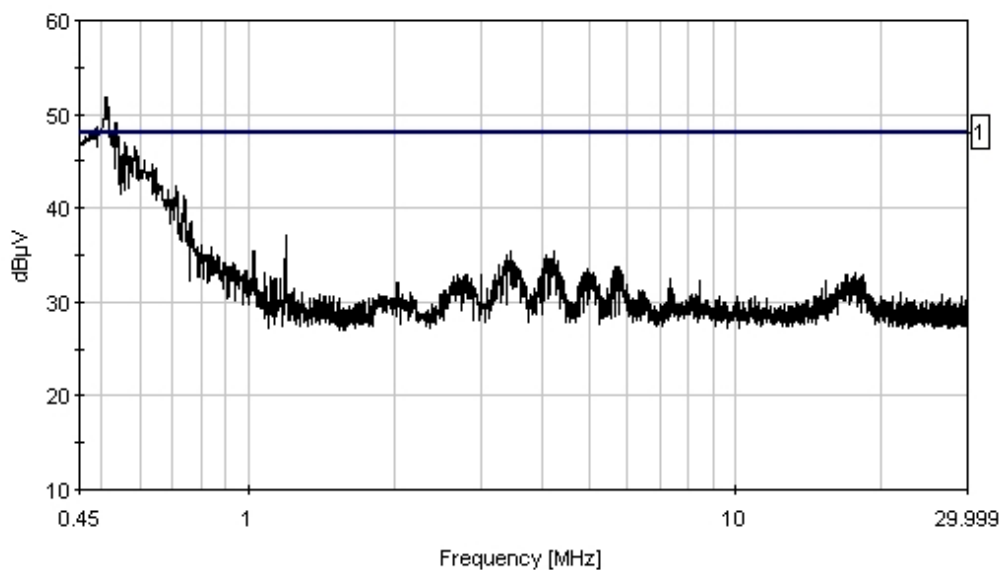
Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dB μ V	T1 dB	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	509.980k	40.3	+0.1				+0.0	40.4	48.0	-7.6	Black
	Ave										
^	509.082k	51.7	+0.1				+0.0	51.8	48.0	+3.8	Black
3	761.898k	38.5	+0.1				+0.0	38.6	48.0	-9.4	Black
4	1.195M	37.1	+0.1				+0.0	37.2	48.0	-10.8	Black
5	3.446M	35.4	+0.1				+0.0	35.5	48.0	-12.5	Black
6	1.026M	35.3	+0.1				+0.0	35.4	48.0	-12.6	Black
7	4.232M	35.3	+0.1				+0.0	35.4	48.0	-12.6	Black

8	3.379M	34.8	+0.1	+0.0	34.9	48.0	-13.1	Black
9	4.310M	34.3	+0.1	+0.0	34.4	48.0	-13.6	Black
10	5.648M	33.6	+0.1	+0.0	33.7	48.0	-14.3	Black
11	5.743M	33.6	+0.1	+0.0	33.7	48.0	-14.3	Black
12	4.990M	33.4	+0.1	+0.0	33.5	48.0	-14.5	Black
13	5.809M	33.3	+0.1	+0.0	33.4	48.0	-14.6	Black
14	17.596M	32.8	+0.4	+0.0	33.2	48.0	-14.8	Black
15	1.114M	32.6	+0.1	+0.0	32.7	48.0	-15.3	Black
16	3.981M	32.6	+0.1	+0.0	32.7	48.0	-15.3	Black
17	4.382M	32.5	+0.1	+0.0	32.6	48.0	-15.4	Black
18	1.163M	32.4	+0.1	+0.0	32.5	48.0	-15.5	Black
19	7.381M	32.3	+0.2	+0.0	32.5	48.0	-15.5	Black
20	1.136M	32.3	+0.1	+0.0	32.4	48.0	-15.6	Black
21	15.362M	32.0	+0.3	+0.0	32.3	48.0	-15.7	Black
22	2.019M	32.0	+0.1	+0.0	32.1	48.0	-15.9	Black
23	16.290M	31.6	+0.3	+0.0	31.9	48.0	-16.1	Black
24	5.536M	31.5	+0.1	+0.0	31.6	48.0	-16.4	Black
25	2.147M	31.0	+0.1	+0.0	31.1	48.0	-16.9	Black
26	21.912M	30.7	+0.4	+0.0	31.1	48.0	-16.9	Black
27	26.558M	30.4	+0.4	+0.0	30.8	48.0	-17.2	Black
28	715.842k	29.8	+0.1	+0.0	29.9	48.0	-18.1	Black
	Ave							
^	715.000k	42.3	+0.1	+0.0	42.4	48.0	-5.6	Black

30	554.500k	28.9	+0.1	+0.0	29.0	48.0	-19.0	Black
	Ave							
^	550.302k	45.7	+0.1	+0.0	45.8	48.0	-2.2	Black
32	578.660k	25.2	+0.1	+0.0	25.3	48.0	-22.7	Black
	Ave							
^	581.904k	46.4	+0.1	+0.0	46.5	48.0	-1.5	Black

CKC Laboratories Inc. Date: 09/15/2003 Time: 08:33:47 Troy Group, Inc. Wireless & Connectivity Division WVO#: 81119
 FCC 15.207 Test Lead: Black 120V 60Hz Sequence#: 10
 Troy Group, Inc. Wireless and Connectivity Division, WindConnect II USB



— Sweep Data — 1 - FCC 15.207

Test Location: CKC Laboratories Inc. •180 N Olinda Place • Brea CA, 92823 • 714-993-6112

Customer: **Troy Group, Inc. Wireless & Connectivity Division**
 Specification: **FCC 15.207**
 Work Order #: **81119** Date: 09/15/2003
 Test Type: **Conducted Emissions** Time: 08:28:24
 Equipment: **Wireless Print Server** Sequence#: 10
 Manufacturer: Troy Group, Inc. Wireless & Connectivity Division Tested By: Monika Brandle
 Model: WindConnect II USB & WindConnect II Parallel 120V 60Hz
 S/N: 0E:F6 & 09:E0

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II USB	0E:F6
Wireless Print Server*	Troy Group, Inc. Wireless & Connectivity Division	WindConnect II Parallel	09:E0
Power Supply	Potrans Electrical Corporation	WR410500500	

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT and support printer are placed on the wooden table top. All ports of the EUT are filled. The USB port of the EUT is connected to the support printer via a two meter USB cable. Temperature: 21°C, Humidity: 47%, Pressure: 100kPa. The EUT is configured to transmit at full power, no hopping, maximum duty cycle, typical modulation. This equipment does not employ digital modulation techniques. It is strictly frequency hopping. Frequency Range Investigated: 150 kHz – 30 MHz.

Transducer Legend:

T1=Cable #8 072804

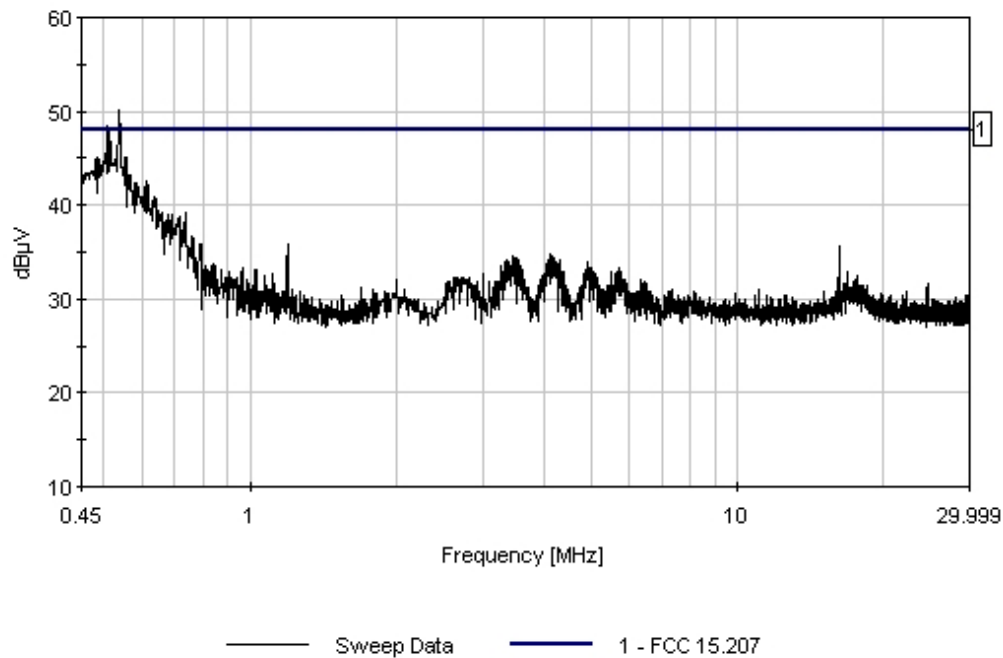
Measurement Data: Reading listed by margin. Test Lead: White

#	Freq MHz	Rdng dB μ V	T1 dB	dB	dB	dB	Dist Table	Corr dB μ V	Spec dB μ V	Margin dB	Polar Ant
1	540.340k	42.1	+0.1				+0.0	42.2	48.0	-5.8	White
	Ave										
^	536.562k	50.0	+0.1				+0.0	50.1	48.0	+2.1	White
3	737.166k	39.2	+0.1				+0.0	39.3	48.0	-8.7	White
4	511.006k	39.1	+0.1				+0.0	39.2	48.0	-8.8	White
	Ave										
^	507.708k	48.3	+0.1				+0.0	48.4	48.0	+0.4	White
6	680.832k	38.9	+0.1				+0.0	39.0	48.0	-9.0	White
7	719.304k	38.7	+0.1				+0.0	38.8	48.0	-9.2	White

8	786.630k	35.8	+0.1	+0.0	35.9	48.0	-12.1	White
9	1.193M	35.8	+0.1	+0.0	35.9	48.0	-12.1	White
10	16.155M	35.3	+0.3	+0.0	35.6	48.0	-12.4	White
11	4.132M	34.6	+0.1	+0.0	34.7	48.0	-13.3	White
12	3.474M	34.4	+0.1	+0.0	34.5	48.0	-13.5	White
13	4.304M	34.1	+0.1	+0.0	34.2	48.0	-13.8	White
14	3.563M	34.0	+0.1	+0.0	34.1	48.0	-13.9	White
15	4.934M	33.8	+0.1	+0.0	33.9	48.0	-14.1	White
16	4.282M	33.7	+0.1	+0.0	33.8	48.0	-14.2	White
17	836.094k	33.6	+0.1	+0.0	33.7	48.0	-14.3	White
18	962.502k	33.2	+0.1	+0.0	33.3	48.0	-14.7	White
19	5.698M	33.2	+0.1	+0.0	33.3	48.0	-14.7	White
20	1.022M	33.1	+0.1	+0.0	33.2	48.0	-14.8	White
21	873.192k	33.0	+0.1	+0.0	33.1	48.0	-14.9	White
22	907.542k	32.9	+0.1	+0.0	33.0	48.0	-15.0	White
23	16.848M	32.6	+0.3	+0.0	32.9	48.0	-15.1	White
24	4.382M	32.7	+0.1	+0.0	32.8	48.0	-15.2	White
25	4.416M	32.7	+0.1	+0.0	32.8	48.0	-15.2	White
26	5.525M	32.7	+0.1	+0.0	32.8	48.0	-15.2	White
27	3.000M	32.6	+0.1	+0.0	32.7	48.0	-15.3	White
28	1.114M	32.5	+0.1	+0.0	32.6	48.0	-15.4	White
29	1.074M	32.3	+0.1	+0.0	32.4	48.0	-15.6	White
30	2.627M	32.2	+0.1	+0.0	32.3	48.0	-15.7	White
31	5.163M	32.1	+0.1	+0.0	32.2	48.0	-15.8	White
32	985.860k	32.0	+0.1	+0.0	32.1	48.0	-15.9	White

33	1.997M	32.0	+0.1	+0.0	32.1	48.0	-15.9	White
34	6.333M	32.0	+0.1	+0.0	32.1	48.0	-15.9	White
35	2.928M	31.8	+0.1	+0.0	31.9	48.0	-16.1	White
36	6.445M	31.8	+0.1	+0.0	31.9	48.0	-16.1	White
37	3.095M	31.7	+0.1	+0.0	31.8	48.0	-16.2	White
38	6.489M	31.5	+0.1	+0.0	31.6	48.0	-16.4	White
39	7.376M	30.9	+0.2	+0.0	31.1	48.0	-16.9	White
40	6.601M	30.8	+0.1	+0.0	30.9	48.0	-17.1	White
41	29.545M	30.0	+0.4	+0.0	30.4	48.0	-17.6	White
42	608.793k Ave	28.4	+0.1	+0.0	28.5	48.0	-19.5	White
^	612.132k	42.5	+0.1	+0.0	42.6	48.0	-5.4	White
44	522.663k Ave	25.5	+0.1	+0.0	25.6	48.0	-22.4	White
^	522.000k	46.7	+0.1	+0.0	46.8	48.0	-1.2	White

CKC Laboratories Inc. Date: 09/15/2003 Time: 08:28:24 Troy Group, Inc. Wireless & Connectivity Division WVO#: 81119
FCC 15.207 Test Lead: White 120V 60Hz Sequence#: 10
Troy Group, Inc. Wireless and Connectivity Division, WindConnect II USB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **TROY Group, Inc**
 Specification: **15.247(b)(1) - .125Watts**
 Work Order #: **81560** Date: 12/10/2003
 Test Type: **Maximized emission** Time: 12:15:25
 Equipment: **Blue Tooth Wireless Print Server** Sequence#: 5
 Manufacturer: Troy Group, Inc. Tested By: Eddie Wong
 Model: Windconnect II Parallel
 S/N: 629873

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Power Supply	Potran	UP00031050	NA
Blue Tooth Wireless Print Server*	Troy Group, Inc.	Windconnect II Parallel	629873

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT is plugged into parallel printer placed on the edge of the table. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation FHSS RBW=VBW=3 MHz 110Vac, 60Hz, 20°C, 25% relative humidity. Freq= 2402 MHz, 2440 MHz, 2480 MHz.

Transducer Legend:

T1=Horn 6246_091004	T2=12' SMA Gore cable #1337 121603
T3=HP83017A Preamp 091104	T4=Cable#20 Heliac 48ft 101304

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	2402.200M	93.3	+28.2	+2.3	-37.7	+3.8	+0.0	89.9	117.0	-27.1	Vert
2	2480.000M	89.9	+28.3	+2.4	-37.8	+3.5	+0.0	86.3	117.0	-30.7	Horiz
	Ave								rbw=100kHz		
^	2480.000M	97.2	+28.3	+2.4	-37.8	+3.5	+0.0	93.6	117.0	-23.4	Horiz
^	2480.000M	96.3	+28.3	+2.4	-37.8	+3.5	+0.0	92.7	117.0	-24.3	Horiz
									rbw=100kHz		
5	2480.000M	88.5	+28.3	+2.4	-37.8	+3.5	+0.0	84.9	117.0	-32.1	Vert
	Ave								rbw=100kHz		
^	2480.000M	96.0	+28.3	+2.4	-37.8	+3.5	+0.0	92.4	117.0	-24.6	Vert
^	2480.000M	94.5	+28.3	+2.4	-37.8	+3.5	+0.0	90.9	117.0	-26.1	Vert
									rbw=100kHz		
8	2441.050M	87.4	+28.3	+2.3	-37.7	+3.6	+0.0	83.9	117.0	-33.1	Horiz
	Ave								rbw=100kHz		
^	2441.050M	95.9	+28.3	+2.3	-37.7	+3.6	+0.0	92.4	117.0	-24.6	Horiz
^	2441.050M	94.6	+28.3	+2.3	-37.7	+3.6	+0.0	91.1	117.0	-25.9	Horiz
									rbw=100kHz		

11	2441.050M Ave	86.0	+28.3	+2.3	-37.7	+3.6	+0.0	82.5	117.0	-34.5	Vert
									rbw=100kHz		
^	2441.050M	94.4	+28.3	+2.3	-37.7	+3.6	+0.0	90.9	117.0	-26.1	Vert
^	2441.050M	92.9	+28.3	+2.3	-37.7	+3.6	+0.0	89.4	117.0	-27.6	Vert
									rbw=100kHz		
14	2401.975M Ave	85.1	+28.2	+2.3	-37.7	+3.8	+0.0	81.7	117.0	-35.3	Vert
									rbw=100kHz		
^	2401.975M	92.2	+28.2	+2.3	-37.7	+3.8	+0.0	88.8	117.0	-28.2	Vert
									rbw=100kHz		
16	2401.975M Ave	85.0	+28.2	+2.3	-37.7	+3.8	+0.0	81.6	117.0	-35.4	Horiz
									rbw=100kHz		
^	2401.975M	93.6	+28.2	+2.3	-37.7	+3.8	+0.0	90.2	117.0	-26.8	Horiz
^	2401.975M	92.0	+28.2	+2.3	-37.7	+3.8	+0.0	88.6	117.0	-28.4	Horiz
									rbw=100kHz		

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **TROY Group, Inc**
 Specification: **15.247(c) Bandedge Compliance**
 Work Order #: **81560** Date: 12/09/2003
 Test Type: **Maximized emission** Time: 11:40:53
 Equipment: **Blue Tooth Wireless Print Server** Sequence#: 1
 Manufacturer: Troy Group, Inc. Tested By: Eddie Wong
 Model: Windconnect II USB
 S/N: 629829

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Power Supply	Potran	UP00031050	NA
Blue Tooth Wireless Print Server*	Troy Group, Inc.	Windconnect II USB	629829

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT is placed on the edge of the table. All ports are filled, the USB port is terminated via a USB cable to the printer. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation FHSS RBW=VBW=3 MHz 110Vac, 60Hz, 20°C, 25% relative humidity. Calculation: Limit = 0.125 W ERP Highest measured Fundamental = 92.5 dBuV/m = 0.04217 V/m. G = 2 dBi = 1.58 Numeric gain ERP = (Ed)² / 30 G = (0.04217 x 3)² / (30 x 1.58) = 0.000337 W = 0.34 mW.

Transducer Legend:

T1=Horn 6246_091004	T2=12' SMA Gore cable #1337 121603
T3=HP83017A Preamp 091104	T4=Cable#20 Heliac 48ft 101304

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	2402.000M	95.9	+28.2	+2.3	-37.7	+3.8	+0.0	92.5	137.0	-44.5	Horiz
2	2402.000M	95.2	+28.2	+2.3	-37.7	+3.8	+0.0	91.8	137.0	-45.2	Vert
3	2441.100M	92.8	+28.3	+2.3	-37.7	+3.6	+0.0	89.3	137.0	-47.7	Horiz
4	2441.100M	92.2	+28.3	+2.3	-37.7	+3.6	+0.0	88.7	137.0	-48.3	Vert
5	2480.140M	89.3	+28.3	+2.4	-37.8	+3.5	+0.0	85.7	137.0	-51.3	Horiz
6	2479.800M	88.9	+28.3	+2.4	-37.8	+3.5	+0.0	85.3	137.0	-51.7	Vert

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **TROY Group, Inc**
 Specification: **FCC 15.247(c)**
 Work Order #: **81560** Date: 12/10/2003
 Test Type: **Maximized emission** Time: 15:29:45
 Equipment: **Blue Tooth Wireless Print Server** Sequence#: 3
 Manufacturer: Troy Group, Inc. Tested By: Eddie Wong
 Model: Windconnect II USB
 S/N: 629829

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Power Supply	Potran	UP00031050	NA
Blue Tooth Wireless Print Server*	Troy Group, Inc.	Windconnect II USB	629829

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT is placed on the edge of the table. All ports are filled, the USB port is terminated via a USB cable to the printer. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation FHSS. 110Vac, 60Hz, 20°C, 25% relative humidity. Freq= 2402 MHz, 2440 MHz, 2480 MHz.

Transducer Legend:

T1=Horn 6246_091004	T2=12' SMA Gore cable #1337 121603
T3=HP83017A Preamp 091104	T4=Cable#20 Heliac 48ft 101304
T5=-----	T6=Log antenna, SN331 092304
T7=Bicon SN220 092304	T8=Cable #10 070804
T9=Cable# 15 123003	T10=Preamp 8447D 082304

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	Reading listed by margin				Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
			T1 dB	T2 dB	T3 dB	T4 dB					
1	7206.280M	43.7	+35.4	+5.1	-39.1	+6.2	+0.0	51.3	54.0	-2.7	Horiz
2	7439.850M	42.9	+36.0	+4.8	-39.0	+6.3	+0.0	51.0	54.0	-3.0	Horiz
3	7440.000M Ave	38.9	+36.0	+4.8	-39.0	+6.3	+0.0	47.0	54.0	-7.0	Vert
^	7440.000M	48.0	+36.0	+4.8	-39.0	+6.3	+0.0	56.1	54.0	+2.1	Vert

5	7206.000M Ave	39.3	+35.4	+5.1	-39.1	+6.2	+0.0	46.9	54.0	-7.1	Vert
^	7206.000M	46.4	+35.4	+5.1	-39.1	+6.2	+0.0	54.0	54.0	+0.0	Vert
7	4959.800M	39.9	+33.4	+3.0	-38.2	+5.1	+0.0	43.2	54.0	-10.8	Vert
8	4881.980M	39.5	+33.4	+3.0	-38.5	+5.2	+0.0	42.6	54.0	-11.4	Vert
9	7323.000M Ave	34.8	+35.7	+4.9	-39.0	+6.2	+0.0	42.6	54.0	-11.4	Horiz
^	7323.000M	45.2	+35.7	+4.9	-39.0	+6.2	+0.0	53.0	54.0	-1.0	Horiz
11	7440.000M Ave	34.1	+36.0	+4.8	-39.0	+6.3	+0.0	42.2	54.0	-11.8	Horiz
12	7323.000M Ave	34.3	+35.7	+4.9	-39.0	+6.2	+0.0	42.1	54.0	-11.9	Vert
^	7323.000M	45.2	+35.7	+4.9	-39.0	+6.2	+0.0	53.0	54.0	-1.0	Vert
14	4804.630M	38.7	+33.3	+3.0	-38.7	+5.3	+0.0	41.6	54.0	-12.4	Vert
15	4881.980M	38.4	+33.4	+3.0	-38.5	+5.2	+0.0	41.5	54.0	-12.5	Horiz
16	7206.000M Ave	31.3	+35.4	+5.1	-39.1	+6.2	+0.0	38.9	54.0	-15.1	Horiz
^	7206.000M	43.6	+35.4	+5.1	-39.1	+6.2	+0.0	51.2	54.0	-2.8	Horiz
18	943.600M	25.2	+0.0 +0.0 +6.0	+0.0 +24.3 -27.5	+0.0 +0.0	+0.0 +0.7	+0.0	28.7	46.0	-17.3	Horiz
19	137.900M	32.1	+0.0 +0.0 +2.1	+0.0 +0.0 -28.4	+0.0 +17.1	+0.0 +0.2	+0.0	23.1	43.5	-20.4	Horiz

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **TROY Group, Inc**
 Specification: **FCC 15.247(c)**
 Work Order #: **81560** Date: 12/10/2003
 Test Type: **Maximized emission** Time: 16:02:41
 Equipment: **Blue Tooth Wireless Print Server** Sequence#: 4
 Manufacturer: Troy Group, Inc. Tested By: Eddie Wong
 Model: Windconnect II Parallel
 S/N: 629873

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Power Supply	Potran	UP00031050	NA
Blue Tooth Wireless Print Server*	Troy Group, Inc.	Windconnect II Parallel	629873

Support Devices:

Function	Manufacturer	Model #	S/N
Printer	HP	C6487C	MY2BE1N3B3

Test Conditions / Notes:

The EUT is plugged into parallel printer placed on the edge of the table. The EUT is configured to transmit at full power, with hopping function enabled, maximum duty cycle, typical modulation FHSS 110Vac, 60Hz, 20°C, 25% relative humidity. Freq= 2402 MHz, 2440 MHz, 2480 MHz. Dwell time correction in accordance with DA 00-705 $20 \times \log(27 \times 2.48 \text{ ms} / 100 \text{ ms}) = -3.48$ Average time of occupancy correction: Measuring average time of occupancy. Centered at 2442 MHz, in hopping mode, sweep at 10 Sec. 10 single sweep. Count each event in the 10 sec time frame. 37, 33, 31, 37, 36, 39, 31, 33, 33, 34 average 31 events in 10 sec. Each "event" is 2.65 ms wide. Therefore $(31 \times 2.65\text{ms})$ in 10 Sec 82.15 ms in 10 sec. Reduction: $20 \log(0.08215 / 0.4) = -13.7 \text{ dB}$.

Transducer Legend:

T1=Horn 6246_091004	T2=12' SMA Gore cable #1337 121603
T3=HP83017A Preamp 091104	T4=Cable#20 Helix 48ft 101304
T5=HPF 2.4GHz High Pass 022004	T6=-----
T7=Log antenna, SN331 092304	T8=Bicon SN220 092304
T9=Cable #10 070804	T10=Cable# 15 123003
T11=Preamp 8447D 082304	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	Reading listed by margin.			Test Distance: 3 Meters		Dist	Corr	Spec	Margin	Polar
			T1	T2	T3	T4	Table					
	MHz	dBµV	T5	T6	T7	T8						
			T9	T10	T11							Ant
			dB	dB	dB	dB					dB	
1	4881.600M	47.6	+33.4 +0.0	+3.0	-38.5	+5.2	+0.0	50.7	54.0	-3.3	Vert	
2	4959.950M	47.1	+33.4 +0.0	+3.0	-38.2	+5.1	+0.0	50.4	54.0	-3.6	Vert	

3	7206.550M Ave	42.0	+35.4 +0.0	+5.1	-39.1	+6.2	+0.0	49.6	54.0 vbw=30Hz, dwell time corr of -3.5 added	-4.4	Vert
^	7206.550M	55.6	+35.4 +0.0	+5.1	-39.1	+6.2	+0.0	63.2	54.0	+9.2	Vert
5	4882.600M	45.4	+33.4 +0.0	+3.0	-38.5	+5.2	+0.0	48.5	54.0	-5.5	Horiz
6	4959.800M	44.5	+33.4 +0.0	+3.0	-38.2	+5.1	+0.0	47.8	54.0	-6.2	Horiz
7	259.690M	42.8	+0.0 +0.0 +0.2	+0.0 +0.0 +2.9	+0.0 +0.0 -28.3	+0.0 +19.6	+0.0	37.2	46.0	-8.8	Horiz
8	4804.300M	42.3	+33.3 +0.0	+3.0	-38.7	+5.3	+0.0	45.2	54.0	-8.8	Vert
9	4882.050M Ave	40.7	+33.4 +0.0	+3.0	-38.5	+5.2	+0.0	43.8	54.0	-10.2	Vert
10	4803.550M	40.3	+33.3	+3.0	-38.7	+5.3	+0.0	43.2	54.0	-10.8	Horiz
11	368.636M	40.8	+0.0 +0.0 +0.4	+0.0 +0.0 +3.5	+0.0 +18.5 -28.3	+0.0 +0.0	+0.0	34.9	46.0	-11.1	Vert
12	619.800M	36.7	+0.0 +0.0 +0.5	+0.0 +0.0 +4.6	+0.0 +20.5 -27.6	+0.0 +0.0	+0.0	34.7	46.0	-11.3	Vert
13	7440.000M Ave	34.4	+36.0 +0.0	+4.8	-39.0	+6.3	+0.0	42.5	54.0 vbw=30Hz, -3.5 dB dwell time corr added, occupancy time average corr added -13.7	-11.5	Vert
^	7439.950M	56.8	+36.0 +0.0	+4.8	-39.0	+6.3	+0.0	64.9	54.0	+10.9	Vert
15	9607.999M Ave	28.5	+38.0 +0.0	+4.3	-36.4	+7.9	+0.0	42.3	54.0	-11.7	Vert
16	7322.850M Ave	33.6	+35.7 +0.0	+4.9	-39.0	+6.2	+0.0	41.4	54.0 vbw=30Hz, -3.5 dwell time corr added, occupancy time average corre added -13.7	-12.6	Horiz
^	7322.850M	57.6	+35.7 +0.0	+4.9	-39.0	+6.2	+0.0	65.4	54.0	+11.4	Horiz

18	7440.000M Ave	32.3	+36.0 +0.0	+4.8	-39.0	+6.3	+0.0	40.4	54.0	-13.6	Horiz
vbw=30Hz, -3.5 dwell time corr added, occupancy time average corre added -13.7 dB											
^	7440.000M	55.9	+36.0 +0.0	+4.8	-39.0	+6.3	+0.0	64.0	54.0	+10.0	Horiz
20	7322.850M Ave	32.5	+35.7 +0.0	+4.9	-39.0	+6.2	+0.0	40.3	54.0	-13.7	Vert
VBW=30 Hz, dwell time of -3.5 dB added, occupancy time average corre added -13.7											
^	7322.850M	57.4	+35.7 +0.0	+4.9	-39.0	+6.2	+0.0	65.2	54.0	+11.2	Vert
22	7206.400M Ave	31.6	+35.4 +0.0	+5.1	-39.1	+6.2	+0.0	39.2	54.0	-14.8	Horiz
sampling average, occupancy time average corre added -13.7											
^	7206.400M	55.1	+35.4 +0.0	+5.1	-39.1	+6.2	+0.0	62.7	54.0	+8.7	Horiz
24	222.190M	37.8	+0.0 +0.0 +0.2	+0.0 +0.0 +2.7	+0.0 +0.0 -28.3	+0.0 +18.2	+0.0	30.6	46.0	-15.4	Vert