CERTIFICATION TEST REPORT

FOR THE

ADVANCED WIRELESS ETHERNET BRIDGE, WI-LAN AWE 120-58

FCC PART 15 SUBPART C SECTION 15.247

COMPLIANCE

DATE OF ISSUE: APRIL 12, 2001

PREPARED FOR:

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P.O. No: 102084
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Date of test: March 13-April 4, 2001

Report No.: FC01-024

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CKC Laboratories, Inc. has Letters of Acceptance through an MRA for the following agencies:
ACA/NATA (Australia); SABS (South Africa); SWEDAC (Sweden); TUV Rheinland-Germany; TUV Rheinland-Korea; TUV Rheinland-Russia; Radio Communications Agency (RA); NEMKO (Norway).

ADMINISTRATIVE INFORMATION

DATE OF TEST:	March 13-21, 2001
DATE OF RECEIPT:	March 13, 2001
PURPOSE OF TEST:	To demonstrate the compliance of the Advanced Wireless Ethernet Bridge, Wi-LAN AWE 120-58, with the requirements for FCC Part 15 Subpart C Section 15.247 devices.
TEST METHOD:	ANSI C63.4 1992
MANUFACTURER:	Wi-LAN Inc. 300, 801 Manning Rd NE Calgary, AB T2E 8J5
REPRESENTATIVE:	Jeffery Taylor
TEST LOCATION:	CKC Laboratories, Inc. 5473A Clouds Rest Mariposa, CA 95338

SUMMARY OF RESULTS

As received, the Wi-LAN Inc. Advanced Wireless Ethernet Bridge, Wi-LAN AWE 120-58 was found to be fully compliant with the following standards and specifications:

United States

- FCC Part 15 Subpart C Section 15.247
- ANSI C63.4 (1992) method

The results in this report apply only to the items tested, as identified herein.

15.33 FREQUENCY RANGE TESTED

15.247 Radiated:	5 MHz – 40 GHz
15.207 Conducted:	450 kHz – 30 MHz

MEASUREMENT UNCERTAINTY

Associated with data in this report is a ±4dB measurement uncertainty.

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

MODIFICATIONS REQUIRED FOR COMPLIANCE

None.

APPROVALS

QUALITY ASSURANCE:

Dennis Ward, Quality Manager

Chuck Kendall, EMC/Lab Manager

TEST PERSONNEL:

Randy Clark, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

5.8 GHz Wireless DSSS Ethernet Bridge.

Spread Spectrum Method:	Direct Sequence
Tx/Rx Frequency Range:	5725.0-5850.0 MHz
Number of Channels:	7
Channel Seperation:	15.3 MHz
Type of Antenna:	Removable
Modulation Type:	Qam
Measured Max RF Output Power:	18.4 dBu
[1]Manufacture's Stated RF Output Power:	21 dBm

[1]Manufacture's Justification for Stated RF Output Power:

This is to confirm that whenever a sectoral antenna (meant for point-to-multipoint application) of greater gain that 15 dBi, and up to the maximum allowed of 17 dBi (as per CKC's testing), is supplied with the equipment, subject of this certification process, a cable of enough length will be supplied along with the antenna to assure compliance with E.I.R.P limit specified in clause 15.247(b)(3).
The following table shows the length of cable necessary to provide 2 dB of loss. This table is also found on page 120 of the user manual.

Cable Type	Minimum Length (m)
LMR 400	6
LMR 600	9
LMR 900	13
LDF4-50A	10
LDF4.5-50	13

CALCULATION EXAMPLE:

An example of the cable that can be used is `LDF4.5-50` which has losses of 0.156dB/m at 5.8 GHz.
Length required to assure compliance = **2(dB)** / 0.156(dB/m) = 12.82m
E.I.R.P = Power output + Antenna assembly gain
E.I.R.P = Power output - Cable loss + Antenna gain
E.I.R.P = 21dBm - 2dB + 17 dBi
E.I.R.P = 36 dBm

EQUIPMENT UNDER TEST:

Antenna
Manuf: European Antennas LTD.
Model: SA17-55H/449
Serial: Not Serialized
FCC ID:

Transmitter
Manuf: Wi-LAN
Model: AWE 120-58
Serial: BETA017
FCC ID: Pending

Antenna
Manuf: European Antennas LTD.
Model: SA17-55V/450
Serial: Not Serialized
FCC ID:

Dish Assembly
Manuf: Gabriel Electronics
Model: 118046
Serial: 91218
FCC ID:

6' Parabolic Dish
Manuf: Gabriel Electronics
Model: SSP6-52A
Serial: 693387
FCC ID:

Power Supply
Manuf: Sceptre
Model: SPU50A-3
Serial: 141668
FCC ID: UL, TUV, CE

PERIPHERAL DEVICES

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

Computer
Manuf: Toshiba
Model: PAS206C-A
Serial: 89022327
FCC ID: Doc

Power Supply
Manuf: Toshiba
Model: PA24400
Serial: 0946209
FCC ID: UL,CE

REPORT OF MEASUREMENTS

The following tables report the levels recorded during the tests performed on the Advanced Wireless Ethernet Bridge, Wi-LAN AWE 120-58. All readings taken are peak readings unless otherwise noted. The data sheets from which these tables were compiled are contained in Appendix B.

Table 1: Peak Power Output Levels

FREQUENCY MHz	METER READING dBµV	CORRECTION FACTORS Ant dB	Amp dB	Cable dB	Dist dB	CORRECTED READING dBµV/m	SPEC LIMIT dBµV/m	MARGIN dB	NOTES
5739.100	82.8	40.0		2.6		125.4	126.0	-0.6	N
5789.400	79.1	39.9		2.8		121.8	126.0	-4.2	N
5835.400	78.4	39.9		3.0		121.3	126.0	-4.7	N

Test Method: ANSI C63.4 1992 N = No Polarization
Spec Limit: FCC Part 15 Section 15.247(b)(1) & 15.247(b)(3)
Test Distance: No Distance

COMMENTS: EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(b)(1) Limit is 1Watt for DSSS systems. 1Watt = 30dBm = 137dBuV. For 17dBi directional gain antennae: RF power must be attenuated by 17dBi-6dBi = 11dB below the stated limit in 15.247(b)(1). Therefore, the limit is 137dBuV-11dB = 126dBuV. Bandwidths Used: RBW=3MHz, VBW=3MHz.

Table 2: 15.247 (c) Highest Antenna Conducted Spurious Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	Dist dB	READING dBµV/m	LIMIT dBµV/m	MARGIN dB	NOTES
916.362	24.4	0.3				24.7	104.0	-79.3	N
4872.422	27.8	0.0				27.8	104.0	-76.2	N
4918.817	29.0	0.0				29.0	104.0	-75.0	N
11577.300	25.0	0.0				25.0	104.0	-79.0	N
11665.600	23.3	0.0				23.3	104.0	-80.7	N
23335.180	23.5	0.0				23.5	104.0	-80.5	N

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part 15 Section 15.247(c)
Test Distance: No Distance

N = No Polarization

COMMENTS: EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(c) limit is derived from peak power output on channel 1: 124dBuV - 20dBc=104dBuV. EUT is connected directly to the spectrum analyzer.EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(c) limit is derived from peak power output on channel 1: 124dBuV - 20dBc=104dBuV. EUT is operating on channel 1.

Table 3: 15.247(c) Antenna Conducted Bandedge Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	Dist dB	READING dBµV/m	LIMIT dBµV/m	MARGIN dB	NOTES
5723.150	83.9	8.5		2.5		94.9	104.0	-9.1	N
5850.250	75.4	8.6		3.1		87.1	104.0	-16.9	N
5851.600	74.0	8.6		3.1		85.7	104.0	-18.3	N

Test Method: ANSI C63.4 1992/LP042008 N = No Polarization
Spec Limit: FCC Part 15 Section 15.247(c)
Test Distance: No Distance

COMMENTS: EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(b)(1) Limit is 1Watt for DSSS systems. 1Watt = 30dBm = 137dBuV. For 17dBi directional gain antenna: RF power must be attenuated by 17dBi-6dBi = 11dB below the stated limit in 15.247(b)(1). Therefore the limit is 137dBuV-11dB = 126dBuV. 15.247(c) limit is derived from peak power output on channel 1: 124dBuV - 20dBc=104dBuV. The method used here is the "Delta" method applicable only to the frequency range 5723 - 5852MHz. Tested in accordance with CKC LP042008.

Table 4: 15.247(d) Peak Power Spectral Density Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	Dist dB	READING dBµV/m	LIMIT dBµV/m	MARGIN dB	NOTES
5746.400	107.8	0.0		2.6		110.4	115.0	-4.6	N
5782.950	101.5	0.0		2.8		104.3	115.0	-10.7	N
5838.200	102.3	0.0		3.0		105.3	115.0	-9.7	N

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part 15 Section 15.247(d)
Test Distance: No Distance

N = No Polarization

COMMENTS: EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(d) limit is 8dBm per 3kHz. 8dBm = 115dBuV.

Table 5: 15.247(c)/15.209 Highest Radiated Spurious Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY MHz	READING dBµV	Ant dB	Amp dB	Cable dB	Dist dB	READING dBµV/m	LIMIT dBµV/m	MARGIN dB	NOTES
245.836	46.2	15.9	-24.6	3.1		40.6	46.0	-5.4	H
400.010	49.6	16.4	-25.5	4.1		44.6	46.0	-1.4	HQ
11482.840	44.1	20.2	-34.8	19.3		48.8	54.0	-5.2	H
11484.240	46.2	20.2	-34.8	19.3		50.9	54.0	-3.1	VA
11571.640	44.7	20.5	-34.6	19.1		49.7	54.0	-4.3	V
11669.990	43.3	20.6	-34.3	18.7		48.3	54.0	-5.7	V

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part 15 Section 15.247(c)/15.209
Test Distance: 3 & 10 Meters

H = Horizontal Polarization
V = Vertical Polarization
Q = Quasi Peak Reading
A = Average Reading

COMMENTS: The EUT was tested with three different types of antennas. Please see data sheets for specific conditions during testing.

There were no radiated emissions found above 18 GHz.

Table 6: 15.247(c)/15.207 Six Highest Mains Conducted Emission Levels									
	METER	CORRECTION FACTORS				CORRECTED	SPEC		
FREQUENCY	READING	Lisn		Cable		READING	LIMIT	MARGIN	NOTES
MHz	dBµV	dB	dB	dB	dB	dBµV	dBµV	dB	
0.463373	34.5	0.6		0.1		35.2	48.0	-12.8	W
0.573698	39.1	0.6		0.1		39.8	48.0	-8.2	W
1.730168	37.6	0.4		0.1		38.1	48.0	-9.9	W
1.844792	35.4	0.4		0.1		35.9	48.0	-12.1	W
21.122950	34.4	0.2		0.3		34.9	48.0	-13.1	W
22.508160	34.4	0.3		0.3		35.0	48.0	-13.0	W

Test Method: ANSI C63.4 1992 W = White Lead
Spec Limit: FCC Part 15 Section 15.247(c)/15.207

COMMENTS: EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. EUT is operating on channel 1; antenna port is terminated in a 50 ohm load. EUT is powered by 120VAC/60Hz.

Table 7: 15.215 Additional Provisions To The General Radiated Emissions Limitiations					
Measured Lower Frequency	**Lower Band Limit**	**Lower 80% Limit**	**Pass/Fail**	**Center of Band**	**80% of Band**
5739.4736 MHz	5725 MHz	5737.5 MHz	Pass	5787.5 MHz	100 MHz
Measured Upper Frequency	**Upper Band Limit**	**Upper 80% Limit**	**Pass/Fail**		
5832.2899 MHz	5850 MHz	5837.5 MHz	Pass		

Test Method: ANSI C63.4 1992
Spec Limit: FCC Part 15 Section 15.215

COMMENTS: Measurement taken with 100 kHz RBW and 100 kHz VBW.

EUT SETUP: Radiated and Conducted Emissions

The equipment under test (EUT) and the peripheral(s) listed were set up in a manner that represented their normal use. Any special conditions required for the EUT to operate normally are identified in the comments that accompany Table 1 for peak output power emissions, Table 2 for antenna conducted spurious emissions, Table 3 for antenna conducted bandedge emissions, Table 4 for peak power spectral density, Table 5 for radiated spurious emissions, Table 6 for mains conducted emissions and Table 7 for additional provisions to the general radiated emissions limitations. Additionally, a complete description of all the ports and I/O cables is included on the information sheets contained in Appendix A.

During radiated emissions testing, 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. This configuration is typical for radiated emissions testing of table top devices.

During mains conducted emissions testing, the EUT was located 80 centimeters above the conducting ground plane on the same nonconducting table as was used for radiated testing. The metal plane was grounded to the earth through the green wire safety ground. Power to the EUT was provided via 3 meters of shielded power cable from a filter grounded to the metal plane to a LISN. The LISN was also grounded to the plane and attached to the LISN was a 4 ganged grounded outlet whose source was also shielded and 60 cm in length. All other objects were kept a minimum of 1 meter away from the EUT during the conducted test.

During antenna conducted emissions, the EUT was directly connected to the spectrum analyzer.

I/O cables were connected to the EUT and peripherals in the manner required for normal operation of the system. Excess cabling was bundled in the center in a serpentine fashion using 30-40 centimeter lengths.

TESTING: Radiated Emissions

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. The frequency range of 30 MHz - 88 MHz was then scanned with the biconical antenna located about 1.5 meter above the ground plane in the vertical configuration. During this scan, the turntable was rotated and all peaks which were at or near the limit were recorded. The frequency range of 100 - 300 MHz was scanned with the biconical antenna in the same manner, and the peaks recorded. Lastly, a scan of the FM band from 88 - 110 MHz was made, using a reduced resolution bandwidth and a reduced frequency span. The biconical antenna was changed to the horizontal polarity and the above steps were repeated. After changing to the log periodic antenna in the horizontal configuration, the frequency range of 300 - 1000 MHz was scanned. The log periodic antenna was changed to the vertical polarity and the frequency range of 300 - 1000 MHz was again scanned. The horn antenna was used for frequencies above 1000 MHz. 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.

For the final radiated scan, the equipment was again positioned with its I/O and power cables facing the antenna. A thorough scan of all frequencies was manually made using a small frequency span, rotating the turntable as needed. Comparison with the previously recorded measurements was then made.

Using the peak readings from both scans as a guide, the test engineer then maximized the readings with respect to the table rotation, antenna height and configuration of the peripheral(s) and cables. Maximizing of the cables was achieved by monitoring the spectrum analyzer on a closed circuit television monitor while the EUT cables were being moved and rearranged on the EUT table for maximum emissions. Photographs showing the final worst case configuration of the EUT are contained in Appendix A.

Mains Conducted Emissions

For mains conducted emissions testing, a 30 to 50 second sweep time was used for automated measurements in the frequency bands of 450 kHz to 1.705 MHz, 1.705 MHz to 3 MHz, and 3 MHz to 30 MHz. All readings within 20 dB of the limit were recorded. At frequencies where the recorded emissions were close to the limit, further investigation was performed manually at a slower sweep rate.

Antenna Conducted Emissions

For measuring the signal strength on the RF output port of the EUT, the spectrum analyzer was connected directly to the EUT. The sweep time of the analyzer was adjusted so that the spectrum analyzer readings were always in a calibrated range. All readings within 20 dB of the limit were recorded.

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 Advanced Wireless Ethernet Bridge, Wi-LAN AWE 120-58. Below 30 MHz, the magnetic loop antenna was used. For radiated measurements 30 MHz - 300 MHz, the biconical antenna was used. For frequencies from 300 to 1000 MHz, the log periodic antenna was used. The horn antenna was used for frequencies above 1000 MHz. Conducted emissions tests required the use of the FCC type LISN's.

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 dBµV, and a vertical scale of 10 dB per division.

FCC SECTION 15.35:
TABLE B - ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE

TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
*RADIATED EMISSIONS	5 MHz	30 MHz	9 kHz
*RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
*RADIATED EMISSIONS	1000 MHz	40 GHz	1 MHz

*Spurious antenna conducted emissions measurements were taken using the same bandwidth settings as were used for radiated emissions measurements.

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in Tables 1 - 7 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 for the Advanced Wireless Ethernet Bridge, Wi-LAN AWE 120-58.

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.

TEST METHODS

The radiated and conducted emissions data of the Advanced Wireless Ethernet Bridge, Wi-LAN AWE 120-58, 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 the "Sample Calculations". The corrected data was then compared to the FCC Part 15, Subpart C, Sections 15.247, 15.207, 15.209 & 15.215 emissions limits to determine compliance.

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

TRANSMITTER CHARACTERISTICS

15.247(a)(2) Bandwidth Measurements (Direct Sequence)

The fundamental frequency was kept within the permitted band 5725-5850 MHz. The minimum 6dB bandwidth shall be at least 500 kHz. Refer to the bandwidth plots located in Appendix B.

List of Test Equipment Used for Bandwidth Test:

Device	Manufacturer	Model	S/N	Cal Date	Cal Due Date
Spectrum Analyzer-RF Section	HP	8566B	2209A01404	07/07/2000	07/07/2001
Spectrum Analyzer Display Section	HP	8566B	2209A01404	07/07/2000	07/07/2001
QP Adapter	HP	85650A	2811A01267	07/07/2000	07/07/2001

15.247(b) Peak Output Power

Frequency of Transmitter: 5725-5850 MHz

The RF conducted test, was measured using a direct connection between the antenna port of the transmitter and the spectrum analyzer, through suitable attenuation. The resolution bandwidth was adjusted to greater than the 6 dB bandwidth of the emissions.

- **15.247(b)(1)** The maximum peak output power of frequency hopping systems operating in the 2400-2483.5 or 5725-5850 band and for all direct sequences, shall not exceed 1 watt.

- **15.247(b)(3)** If the transmitting antenna of directional gain greater than 6 dBi was used, except as shown in sections 15.247(b)(3)(i), (ii) & (iii), the peak output power shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of section 15.247, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

List of Test Equipment Used for Peak Output Power Test:

Device	Manufacturer	Model	S/N	Cal Date	Cal Due Date
Spectrum Analyzer-RF Section	HP	8566B	2209A01404	07/07/2000	07/07/2001
Spectrum Analyzer Display Section	HP	8566B	2209A01404	07/07/2000	07/07/2001
QP Adapter	HP	85650A	2811A01267	07/07/2000	07/07/2001

15.247 (c) Spurious Emissions

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator (EUT) was operating, the radio frequency power that was produced by the EUT was at least 20 dB below that in the 100 kHz bandwidth within the band that contained the highest level of the desired power. This is based on both RF conducted and radiated measurements.

Spurious emissions were taken on the OATS and by direct connection to the analyzer. The bandedge measurements were taken in accordance with CKC procedure LP042008, for FCC rule parts 15.247 and 15.249. This procedure was taken verbatim from the FCC interpretation database.

The data sheets are located in Appendix B.

List of Test Equipment Used for Spurious Emissions:

Device	Manufacturer	Model	S/N	Cal Date	Cal Due Date
Spectrum Analyzer-RF Section	HP	8566B	2209A01404	07/07/2000	07/07/2001
Spectrum Analyzer Display Section	HP	8566B	2209A01404	07/07/2000	07/07/2001
QP Adapter	HP	85650A	2811A01267	07/07/2000	07/07/2001
Magloop Antenna	EMCO	6502	1074	07/03/2000	07/03/2001
Horn Antenna	EMCO	3115	4085	2/28/2001	2/28/2002
Pre-Amp (1-18 GHz)	HP	8449B	3008A00301	10/27/1999	10/27/2001
Log Periodic Antenna	A & H	SAS-200/510	154	05/08/2000	05/08/2001
Biconical Antenna	A & H	SAS-200/542	06/04/1900	05/08/2000	05/08/2001
Spectrum Analyzer	HP	8564E	3623A00539	12/12/2000	12/12/2001
LISN Set (EUT)	Solar	8028-50-TS-24-BNC	814493 & 814474	06/05/2000	06/05/2001

15.247(d) Peak Power Spectral Density

The peak power spectral density conducted from the EUT to the antenna was not greater than 8 dm in any 3 kHz band during any time interval of continuous transmission. Refer to the Peak Power Spectral Density Plots and data sheet in Appendix B.

List of Test Equipment Used for Peak Power Spectral Density Test:

Device	Manufacturer	Model	S/N	Cal Date	Cal Due Date
Spectrum Analyzer-RF Section	HP	8566B	2209A01404	07/07/2000	07/07/2001
Spectrum Analyzer Display Section	HP	8566B	2209A01404	07/07/2000	07/07/2001
QP Adapter	HP	85650A	2811A01267	07/07/2000	07/07/2001

15.247(e) Processing Gain – Direct Sequence

This Information has been provided by Wi-LAN Inc.

15.215 Additional Provisions To The General Radiated Emission Limitations

The fundamental frequency was kept within at least the central 80% of the permitted band. See Table 7 in the Report of Measurements section.

SAMPLE CALCULATIONS

The basic spectrum analyzer reading was converted using correction factors as shown in the six highest emissions readings in Tables 1 - 7. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula:

Meter reading (dBµV)
+ Antenna Factor (dB)
+ Cable Loss (dB)
- Distance Correction (dB)
- Pre-amplifier Gain (dB)

= Corrected Reading(dBµV/m)

This reading was then compared to the applicable specification limit to determine compliance.

A typical data sheet will display the following in column format:

#	Freq MHz	Rdng dBuV	Cable	Amp	Mag	Bicon	LISN	Horn	Log 1	Dist	Corr dBuV/m	Spec	Margin	Polar Ant

15.35	RBW 3	Filte

#	Reading number, order of frequencies listed by margin.
Freq MHz	Frequency in MHz of the obtained reading.
Rdng dBuV	Reading obtained on the spectrum analyzer in dBµV.
Amp.	Preamplifier factor or gain in dB.
Mag.	Magnetic loop antenna factor in dB
Bicon	Biconical antenna factor in dB.
Log1	Log periodic antenna factor in dB.
Horn	Horn antenna factor in dB.
Cable	Cable loss in dB of the coaxial cable on the OATS.
Dist	Distance factor in dB. It is used when testing at a different test distance than otherwise stated in the spec.
Corr dBµV/m	Corrected reading which is now in dBµV/m (field strength).
Spec	Specification limit (dB) stated in the appropriate standard.
Margin	Closeness to the specified limit in dB; + is over and - is under the limit.
15.35	Duty Cycle correction factor included IAW FCC 15.35.
Filte	2.4 GHz low pass filter
Polar	Polarity of the antenna with respect to earth.
RBW 3	RBW Delta Factor (30kHz & 1MHz RBW Delta), IAW LP042008

APPENDIX A

INFORMATION ABOUT THE EQUIPMENT UNDER TEST

INFORMATION ABOUT THE EQUIPMENT UNDER TEST	
Test Software/Firmware:	**210 T2**
CRT was displaying:	**N/A**
Power Supply Manufacturer:	**Sceptre**
Power Supply Part Number:	**PS-1240APLC**
AC Line Filter Manufacturer:	**N/A**
AC Line Filter Part Number:	**N/A**
Line voltage used during testing:	**110 V AC**

I/O PORTS	
Type	#
RS-232 (only used for maintenance)	1
10/100 Base T	1
RF I/O	1
12 V Input	1

CRYSTAL OSCILLATORS	
Type	Freq In MHz
Digital Board crystal	5
Digital Board TCXO	16.384
Digital Board crystal	25
RF Board TCXO	20

PRINTED CIRCUIT BOARDS				
Function	Model & Rev	Clocks, MHz	Layers	Location
Digital engine	WEB-II Digital CR Rev: 05	5, 16.384, 25, 32.768, 50	6	Bottom
RF transever	5.7G 33M RF Section Rev: C,	20, 915 IF, 4877 LO	4	Top

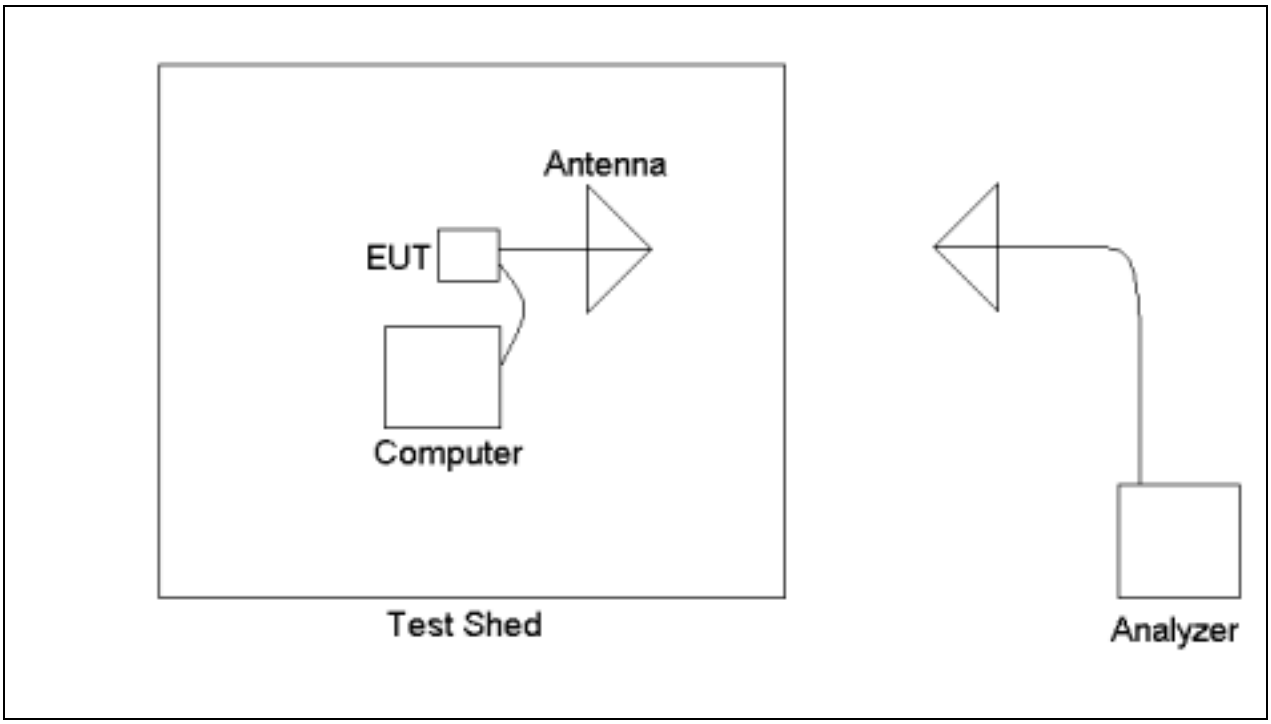
CABLE INFORMATION

Cable #:	1	Cable(s) of this type:	1
Cable Type:	Category 5	Shield Type:	N/A
Construction:	4 Twisted Pairs	Length In Meters:	3
Connected To End (1):	RJ 45 jack	Connected To End (2):	N/A
Connector At End (1):	RJ 45	Connector At End (2):	RJ 45
Shield Grounded At (1):	N/A	Shield Grounded At (2):	N/A
Part Number:	N/A	Number of Conductors:	8
Notes and/or description:	Typical Cable		

Cable #:		Cable(s) of this type:	
Cable Type:	Power Cable	Shield Type:	Foil
Construction:	18 WG insulated	Length In Meters:	1
Connected To End (1):	Power Input	Connected To End (2):	AC/DC Power Adapter
Connector At End (1):	Kycon KPJ-3S	Connector At End (2):	Permanently Attached
Shield Grounded At (1):	Chassis	Shield Grounded At (2):	Protective Ground
Part Number:	#4000-0004	Number of Conductors:	3
Notes and/or description:	Permanently attached to Sceptre PS-1240APLC		

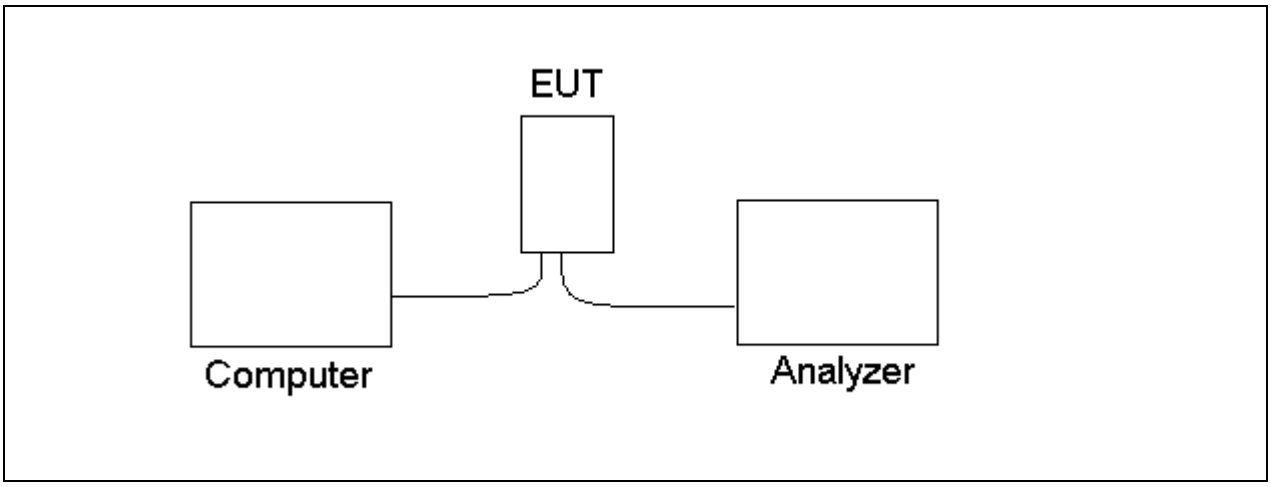
Cable #:		Cable(s) of this type:	1
Cable Type:	Coax	Shield Type:	The bonded aluminum tape outer conductor is overlapped to provide 100 % coverage
Construction:	LMR-400	Length In Meters:	10
Connected To End (1):	RF I/O	Connected To End (2):	Antenna
Connector At End (1):	N type	Connector At End (2):	N type
Shield Grounded At (1):	Chassis	Shield Grounded At (2):	Antenna Ground
Part Number:	N/A	Number of Conductors:	1
Notes and/or description:	Typical Cable		

EQUIPMENT CONFIGURATION BLOCK DIAGRAM - RADIATED EMISSIONS



Radiated Emissions Block Diagram

EQUIPMENT CONFIGURATION BLOCK DIAGRAM - ANTENNA CONDUCTED



Antenna Conducted Block Diagram

PHOTOGRAPH SHOWING RADIATED EMISSIONS 15.247(c)

Radiated Emissions Front View (Antenna 1)

PHOTOGRAPH SHOWING RADIATED EMISSIONS 15.247(c)

Radiated Emissions Back View (Antenna 1)

PHOTOGRAPH SHOWING RADIATED EMISSIONS 15.247(c)

Radiated Emissions Front View (Antenna 2)

PHOTOGRAPH SHOWING RADIATED EMISSIONS 15.247(c)

Radiated Emissions Back View (Antenna 2)

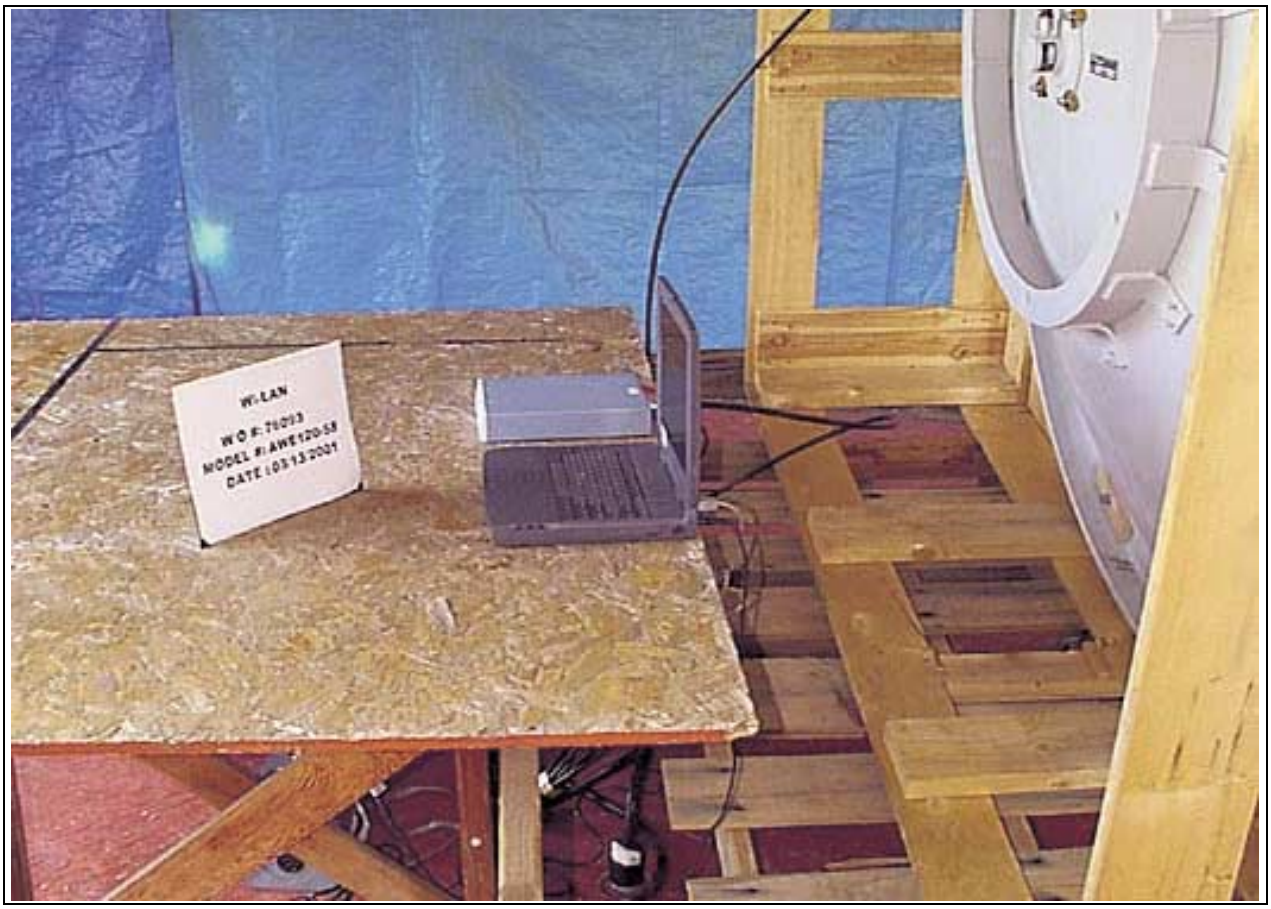
PHOTOGRAPH SHOWING RADIATED EMISSIONS 15.247(c)

Radiated Emissions Front View (Antenna 3)

PHOTOGRAPH SHOWING RADIATED EMISSIONS 15.247(c)

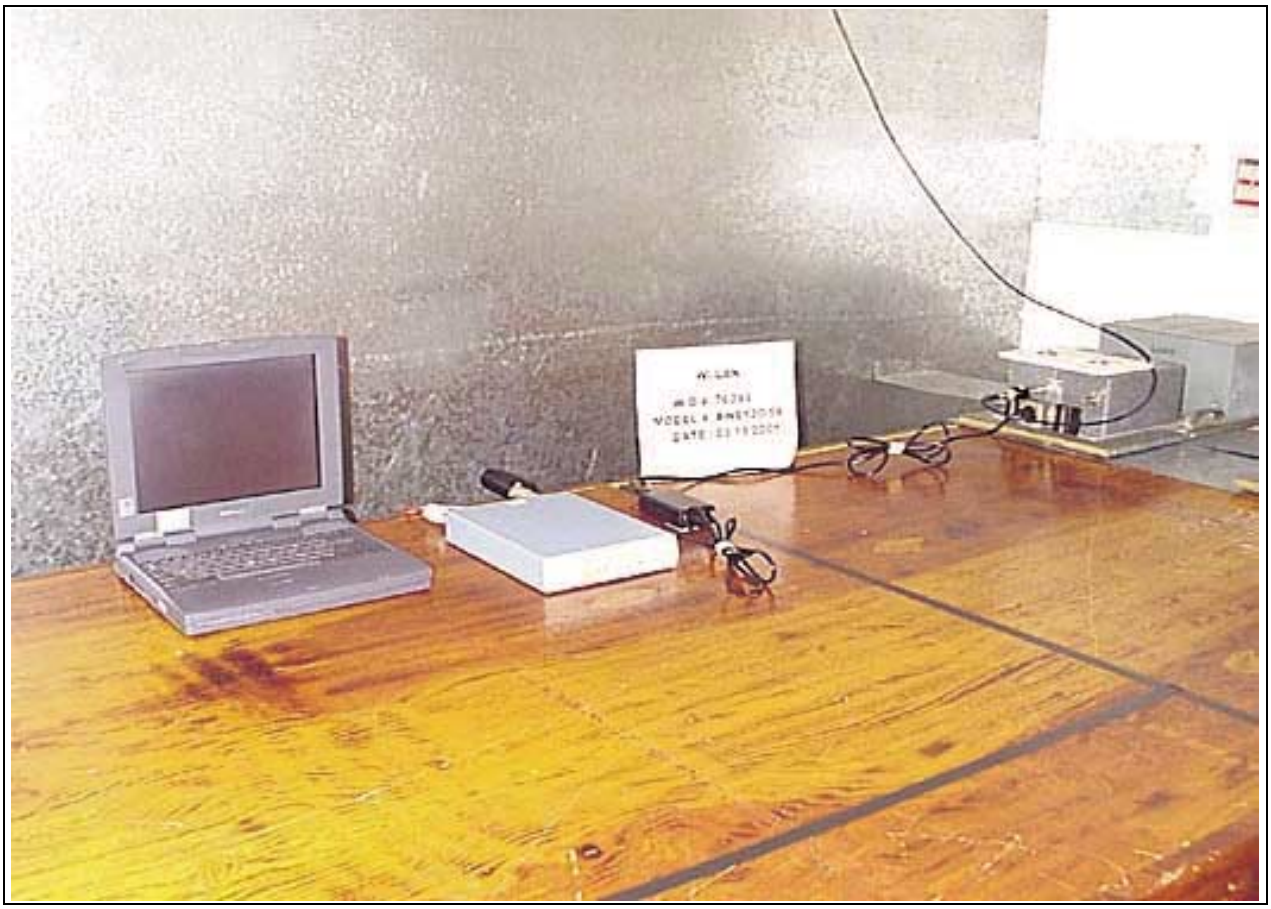
Radiated Emissions Back View (Antenna 3)

PHOTOGRAPH SHOWING RADIATED EMISSIONS 15.247(c)



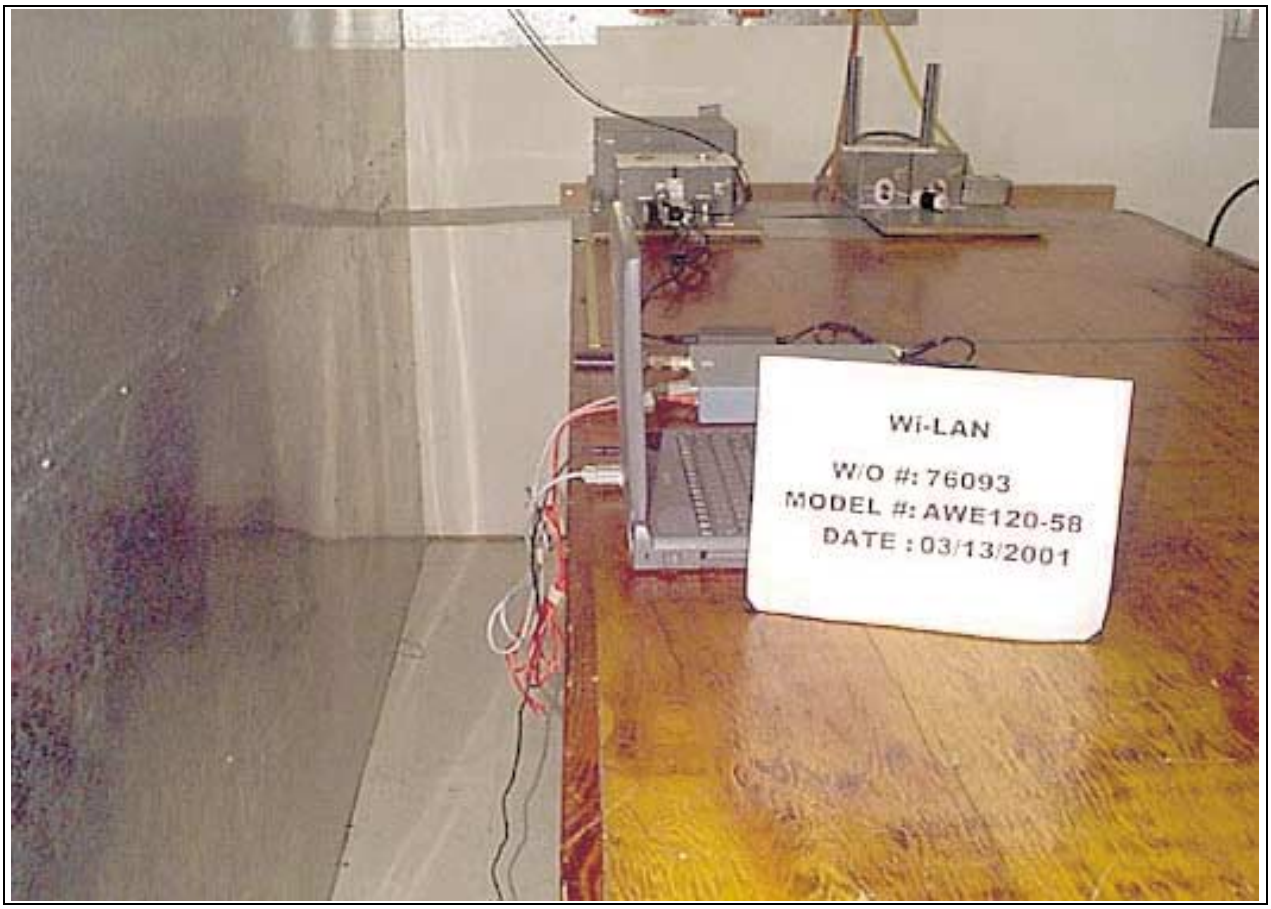
Radiated Emissions Side View (Antenna 3)

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS 15.247(c)



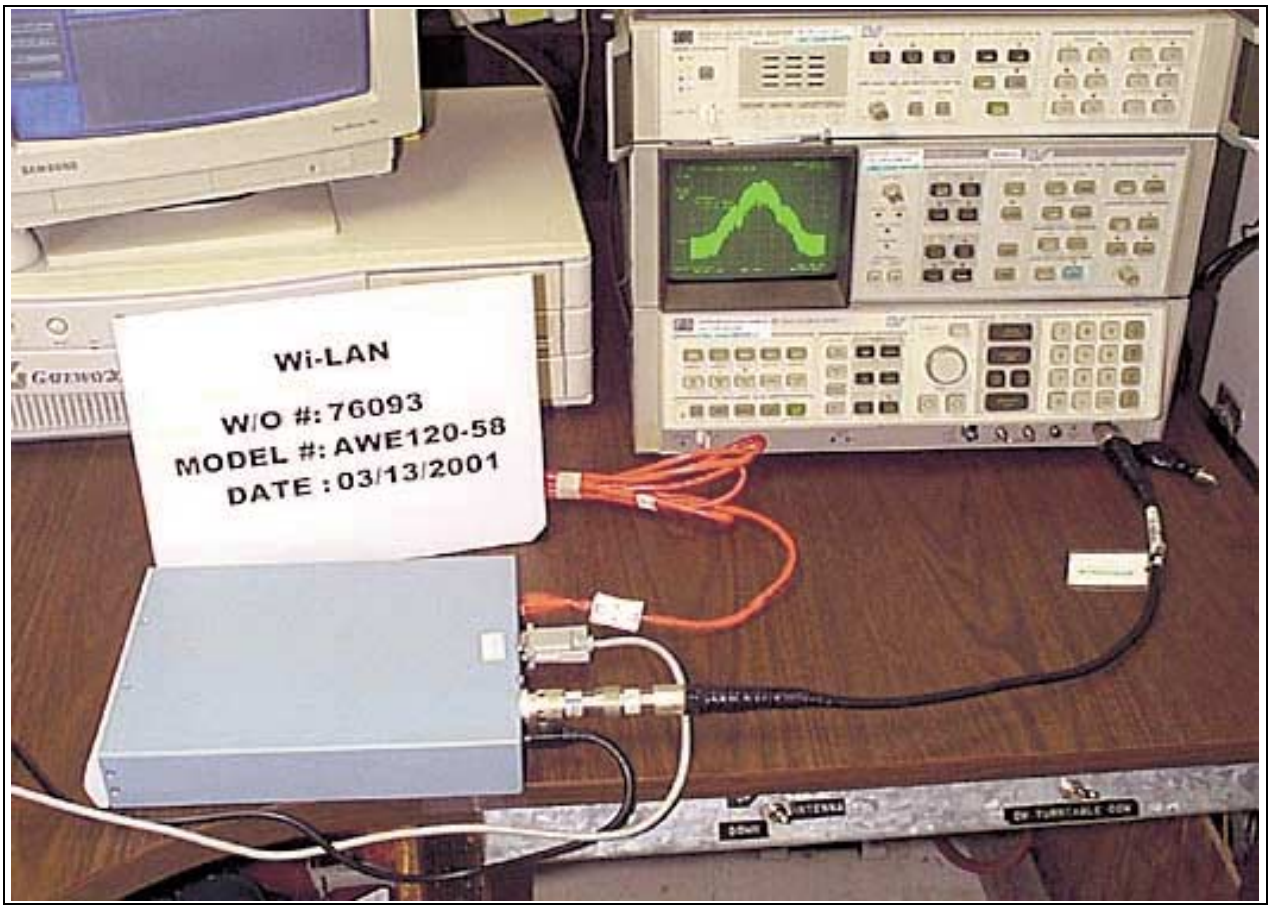
Mains Conducted Emissions - Front View

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS 15.247(c)



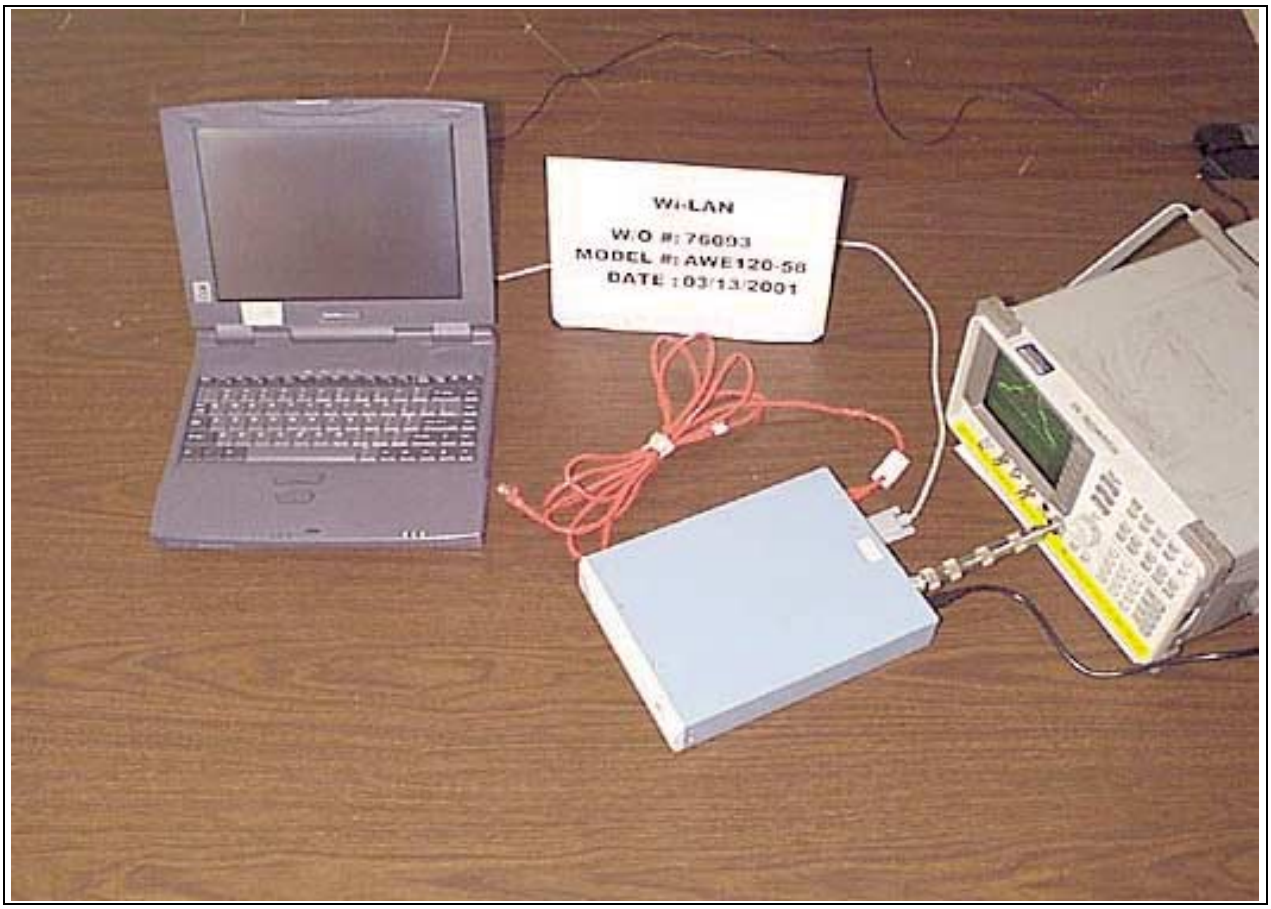
Mains Conducted Emissions - Back View

PHOTOGRAPH SHOWING ANTENNA CONDUCTED SPURIOUS EMISSIONS
15.247(c)



Antenna Conducted - 5MHz - 1GHz and Fundamental

PHOTOGRAPH SHOWING ANTENNA CONDUCTED SPURIOUS EMISSIONS
15.247(c)

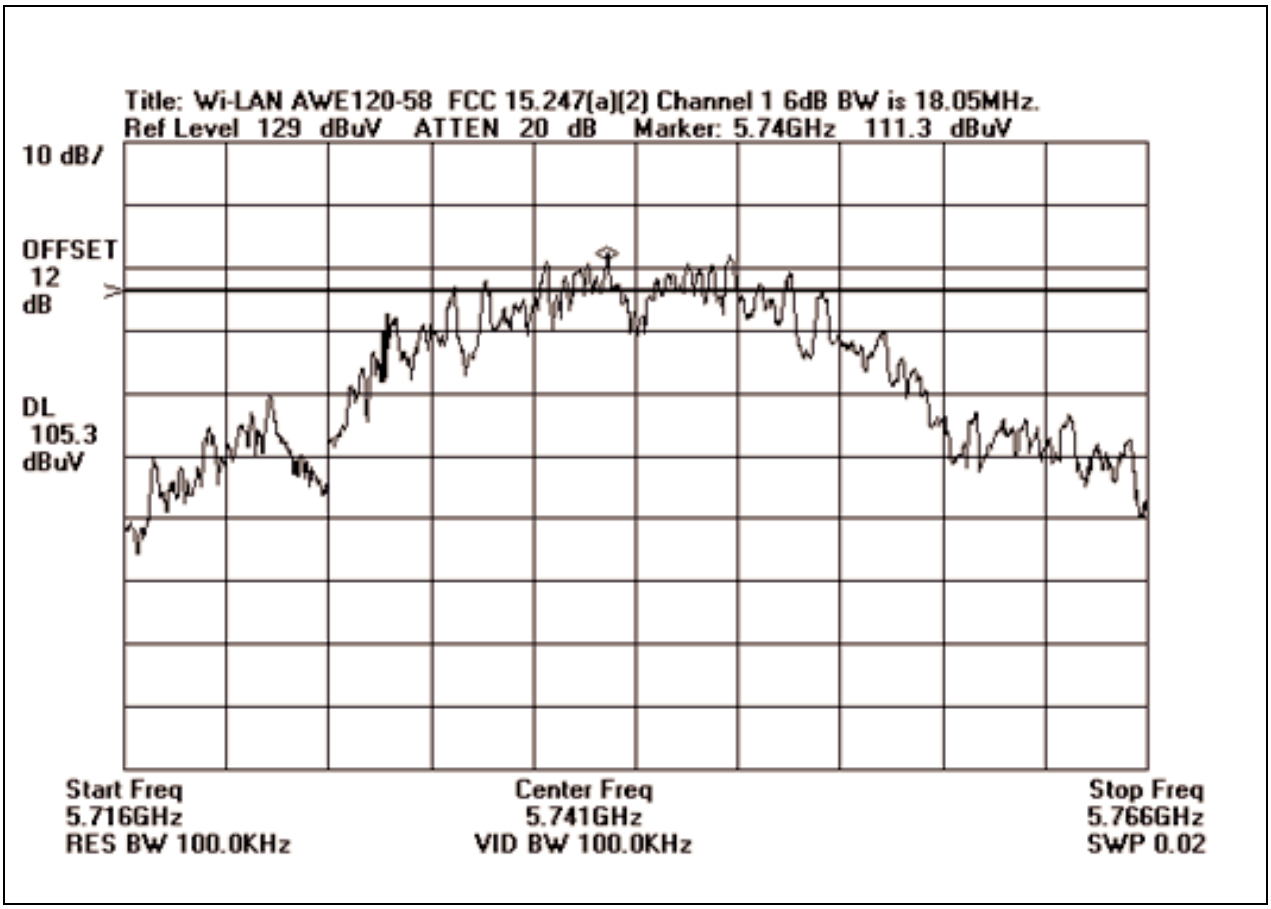


Antenna Conducted Spurious Emissions - 1-40 GHz

APPENDIX B

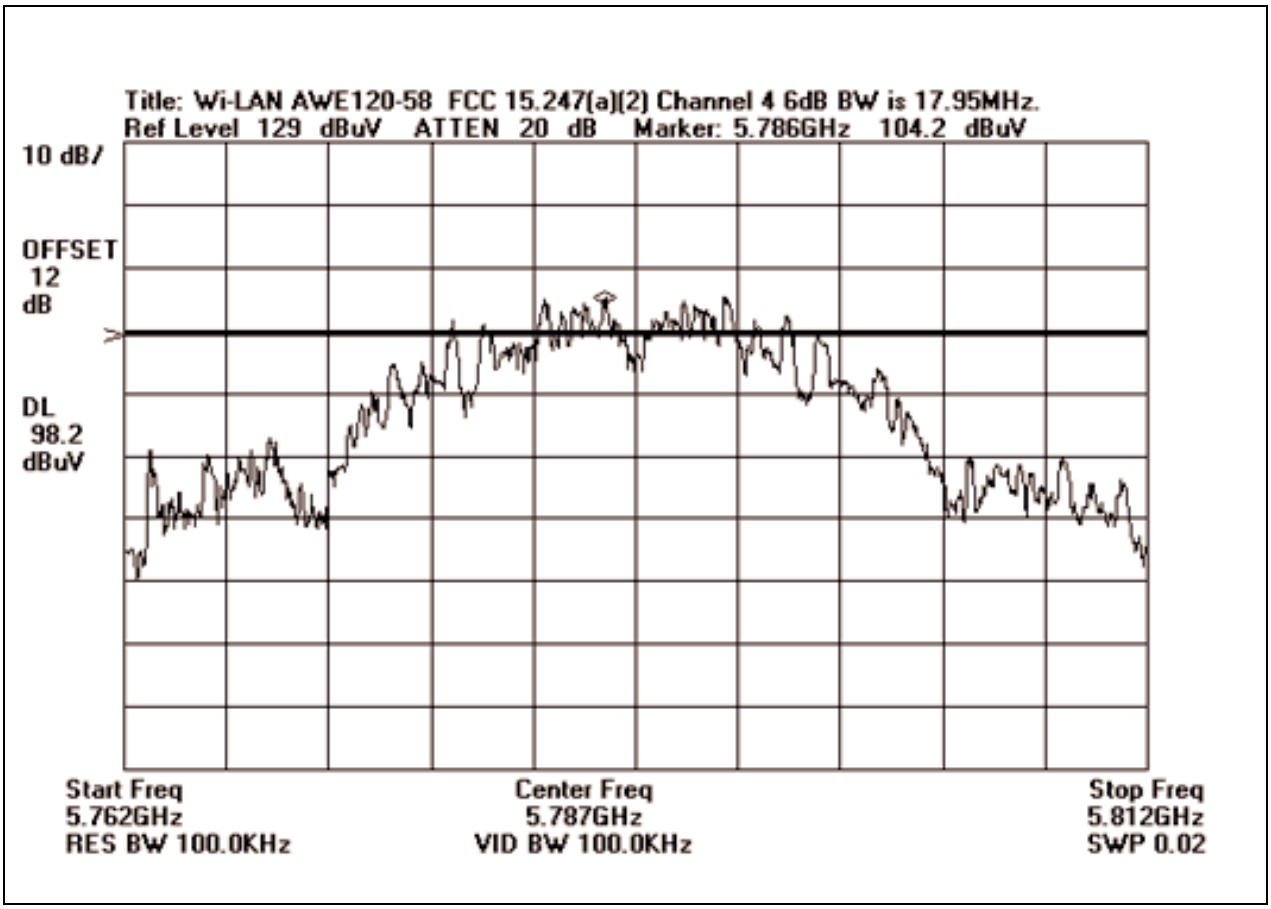
15.247(a)(2), (b)(1), (b)(3), (c) & (d) DATA SHEETS

FCC Part 15.247(a)(2) Bandwidth Plot – Direct Sequence



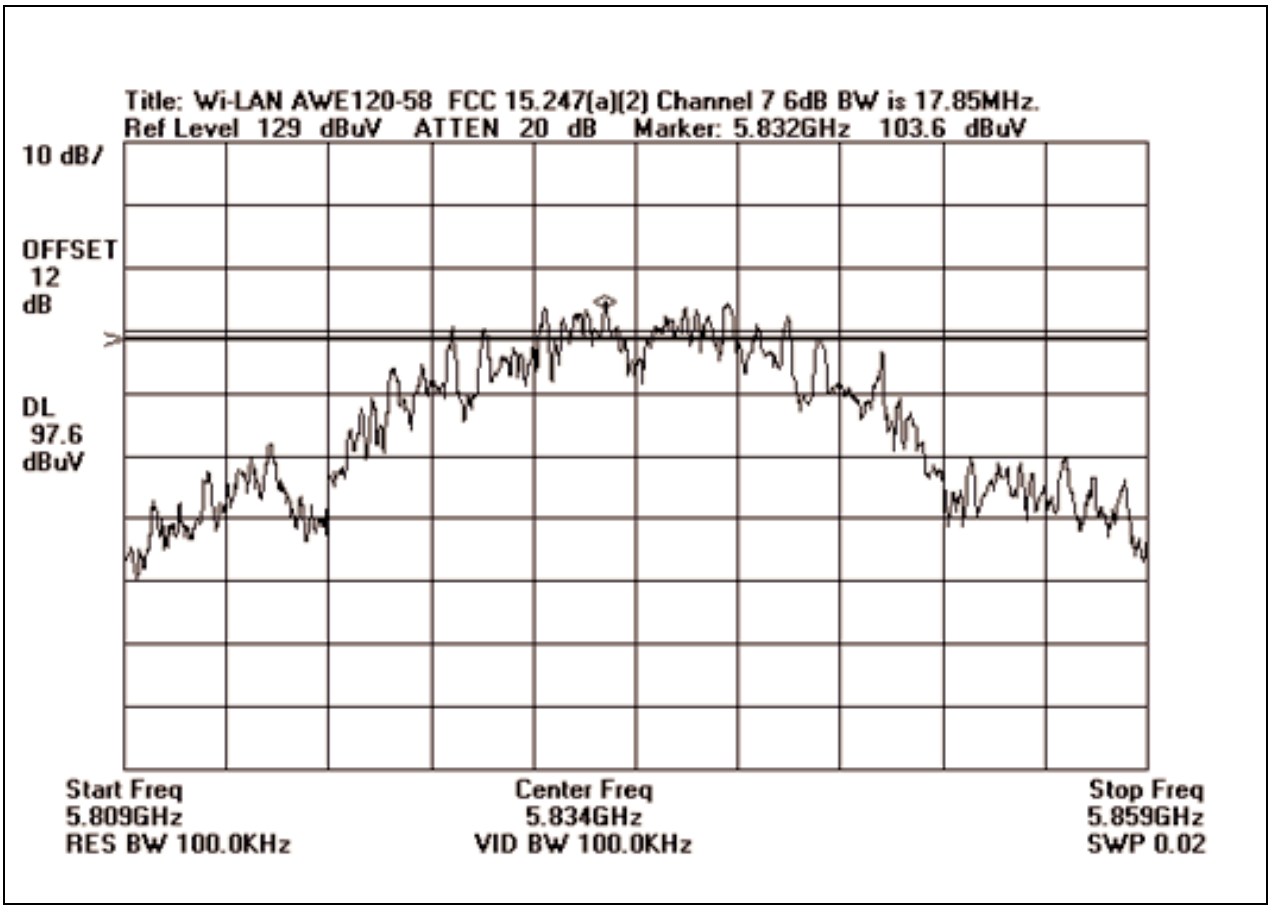
6 dB Bandwidth is 18.05 MHz - Channel 1

FCC Part 15.247(a)(2) Bandwidth Plot – Direct Sequence



6 dB bandwidth is 17.95 MHz - Channel 4

FCC Part 15.247(a)(2) Bandwidth Plot – Direct Sequence



6 dB Bandwidth is 17.85 MHz - Channel 7

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **15.247(b)(1) & (b)(3)**
Work Order #: **76093** Date: 03/13/2001
Test Type: **Maximized Emissions** Time: 13:14:57
Equipment: **Transmitter** Sequence#: 2
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(b)(1) Limit is 1Watt for DSSS systems. 1Watt = 30dBm = 137dBuV. For 17dBi directional gain antenna: RF power must be attenuated by 17dBi-6dBi = 11dB below the stated limit in 15.247(b)(1). Therefore the limit is 137dBuV-11dB = 126dBuV. Bandwidths Used: RBW=3MHz, VBW=3MHz.

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBµV	Cable dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	5738.300M	121.4	+2.6				+0.0	124.0	126.0 Channel 1	-2.0	None
2	5784.000M	116.0	+2.8				+0.0	118.8	126.0 Channel 4	-7.2	None
3	5830.800M	115.5	+3.0				+0.0	118.5	126.0 Channel 7	-7.5	None

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **15.247(c) Antenna Conducted**
Work Order #: **76093** Date: 03/13/2001
Test Type: **Maximized Emissions** Time: 16:41:40
Equipment: **Transmitter** Sequence#: 4
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(c) limit is derived from peak power output on channel 1: 124dBuV - 20dBc=104dBuV. EUT is operating on channel 1.

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBµV	Cable dB	Filte dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	916.362M	24.4	+0.0	+0.3			+0.0	24.7	104.0	-79.3	None

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **15.247(c) Antenna Conducted**
Work Order #: **76093** Date: 03/19/2001
Test Type: **Maximized Emissions** Time: 13:01:28
Equipment: **Transmitter** Sequence#: 10
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(c) limit is derived from peak power output on channel 1: 124dBuV - 20dBc=104dBuV. EUT is connected directly to the spectrum analyzer.

Measurement Data: Reading listed by margin. Test Distance: None

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	4918.817M	29.0					+0.0	29.0	104.0 Channel 7	-75.0	None
2	4872.422M	27.8					+0.0	27.8	104.0 Channel 4	-76.2	None
3	11577.300 M	25.0					+0.0	25.0	104.0 Channel 4	-79.0	None
4	23335.180 M	23.5					+0.0	23.5	104.0 Channel 7	-80.5	None
5	11665.600 M	23.3					+0.0	23.3	104.0 Channel 7	-80.7	None
6	23149.500 M	22.5					+0.0	22.5	104.0 Channel 4	-81.5	None
7	17217.500 M	22.5					+0.0	22.5	104.0 Channel 1	-81.5	None
8	11484.330 M	21.8					+0.0	21.8	104.0 Channel 1	-82.2	None
9	4826.058M	21.2					+0.0	21.2	104.0 Channel 1	-82.8	None

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **15.247(c) Antenna Conducted**
Work Order #: **76093** Date: 03/13/2001
Test Type: **Maximized Emissions** Time: 15:01:22
Equipment: **Transmitter** Sequence#: 3
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

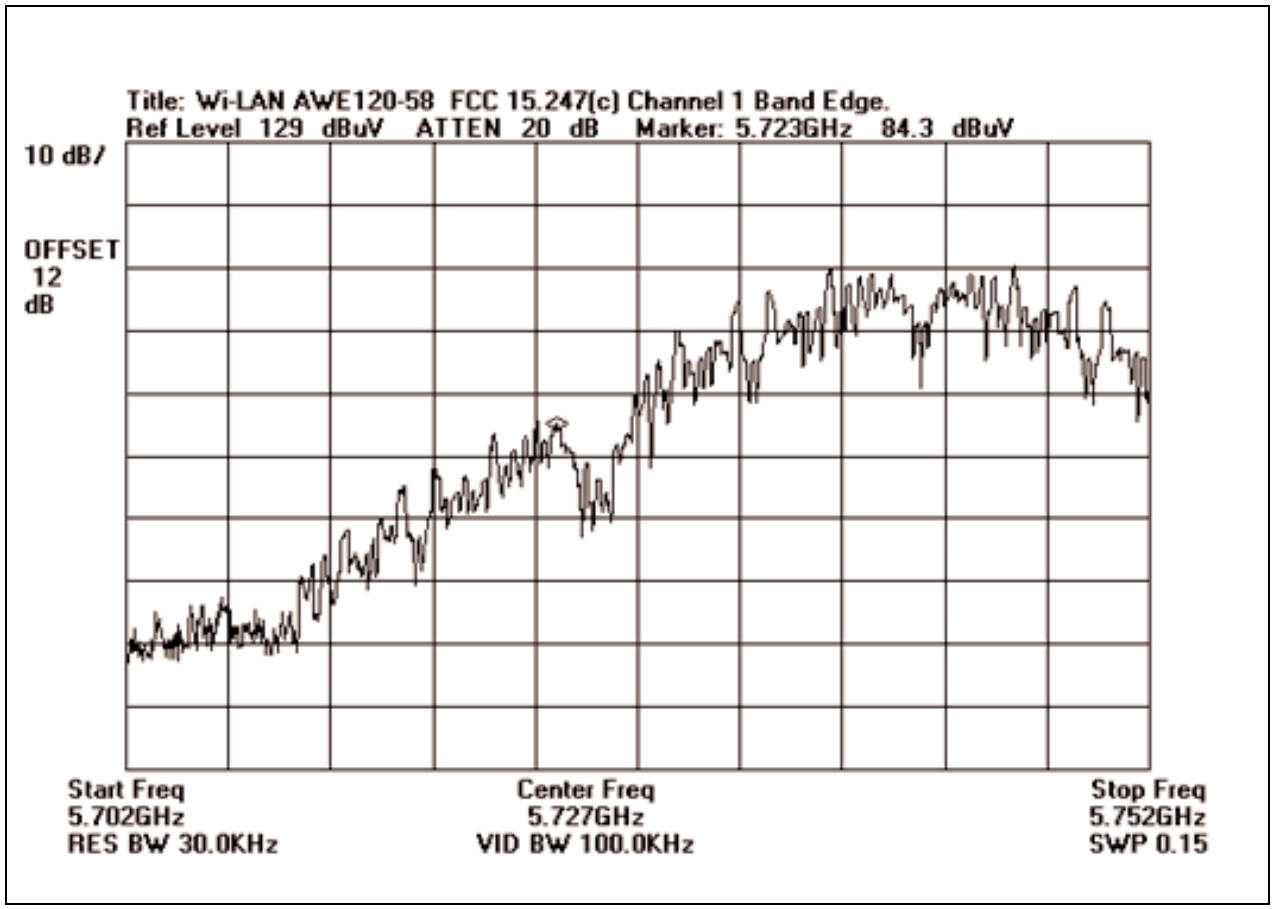
Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(b)(1) Limit is 1Watt for DSSS systems. 1Watt = 30dBm = 137dBuV. For 17dBi directional gain antenna: RF power must be attenuated by 17dBi-6dBi = 11dB below the stated limit in 15.247(b)(1). Therefore the limit is 137dBuV-11dB = 126dBuV. 15.247(c) limit is derived from peak power output on channel 1: 124dBuV - 20dBc=104dBuV. The method used here is the "Delta" method applicable only to the frequency range 5723 - 5852MHz. Tested in accordance with LP042008.

Measurement Data: Reading listed by margin. Test Distance: None

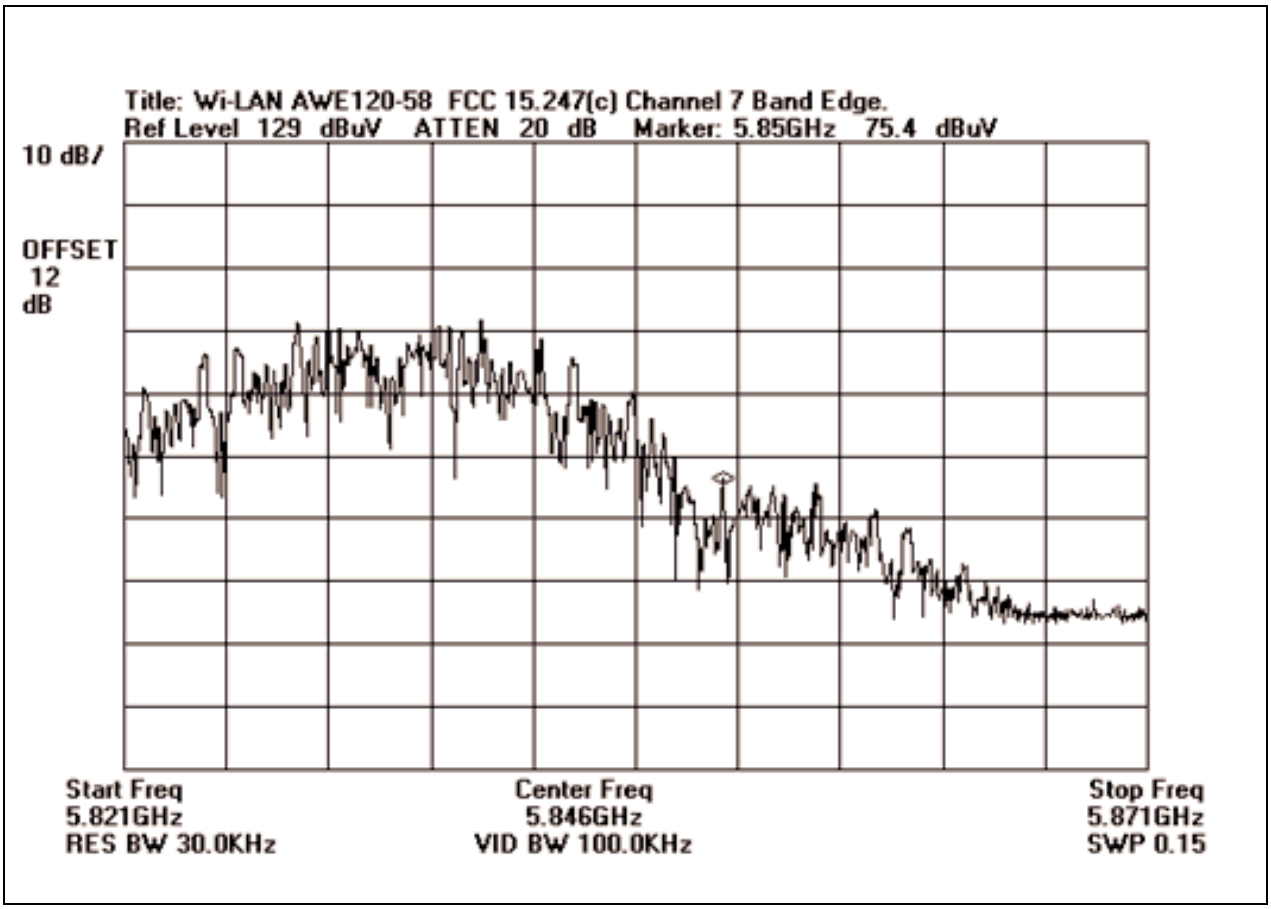
#	Freq MHz	Rdng dBµV	Cable dB	RBW 3 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	5723.150M	83.9	+2.5	+8.5			+0.0	94.9	104.0 RBW Delta Factor (30kHz & 1MHz RBW Delta)	-9.1	None
2	5850.250M	75.4	+3.1	+8.6			+0.0	87.1	104.0	-16.9	None
3	5851.600M	74.0	+3.1	+8.6			+0.0	85.7	104.0	-18.3	None

15.247(c) Bandedge Plot, Channel 1



Bandedge Plot - Channel 1

15.247 (c) Bandedge Plot - Channel 7



Bandedge Plot - Channel 7

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **FCC 15.247 / 15.209**
Work Order #: **76093** Date: 03/20/2001
Test Type: **Maximized Emissions** Time: 12:54:10
Equipment: **Transmitter** Sequence#: 8
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017
Antenna	European Antennas LTD.	SA17-55H/449	Not Serialized

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. EUT is operating at maximum power output with the horizontally polarized sectoral antenna. EUT is on center of turntable, antenna is mounted on an antenna mast at approximately 1.5 meters in height. Duty Cycle correction factor included IAW FCC 15.35.

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

#	Freq MHz	Rdng dBµV	Amp Cable dB	Horn 15.35 dB	Cable dB	Cable dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	11669.990 M	43.3	-34.3 +1.2	+38.1 -17.5	+11.4	+6.1	+0.0	48.3	54.0 Channel 7	-5.7	Vert
2	1149.950M	71.8	-35.9 +0.3	+24.8 -17.5	+3.1	+1.6	+0.0	48.2	54.0	-5.8	Vert
3	4872.569M	51.7	-35.6 +2.5	+33.1 -17.5	+8.1	+4.7	+0.0	47.0	54.0 Channel 4	-7.0	Vert
4	4826.010M	51.7	-35.5 +2.4	+33.1 -17.5	+8.0	+4.7	+0.0	46.9	54.0 Channel 1	-7.1	Horiz
5	11574.680 M	41.0	-34.6 +1.3	+38.0 -17.5	+11.5	+6.3	+0.0	46.0	54.0 Channel 4	-8.0	Vert
6	11574.900 M	40.5	-34.6 +1.3	+38.0 -17.5	+11.5	+6.3	+0.0	45.5	54.0 Channel 4	-8.5	Horiz
7	11482.170 M	40.6	-34.8 +1.4	+37.7 -17.5	+11.5	+6.4	+0.0	45.3	54.0 Channel 1	-8.7	Horiz
8	11479.760 M	40.3	-34.8 +1.4	+37.7 -17.5	+11.5	+6.4	+0.0	45.0	54.0 Channel 1	-9.0	Vert

9	4872.389M	48.8	-35.6 +2.5	+33.1 -17.5	+8.1	+4.7	+0.0	44.1	54.0 Channel 4	-9.9	Horiz
10	4825.980M	47.9	-35.5 +2.4	+33.1 -17.5	+8.0	+4.7	+0.0	43.1	54.0 Channel 1	-10.9	Vert
11	1099.830M	64.7	-35.9 +0.3	+24.5 -17.5	+3.1	+1.6	+0.0	40.8	54.0	-13.2	Vert
12	4918.670M	44.3	-35.6 +2.6	+33.2 -17.5	+8.2	+4.6	+0.0	39.8	54.0 Channel 7	-14.2	Vert
13	1099.890M	63.6	-35.9 +0.3	+24.5 -17.5	+3.1	+1.6	+0.0	39.7	54.0	-14.3	Horiz
14	11667.490 M	34.5	-34.3 +1.2	+38.1 -17.5	+11.4	+6.1	+0.0	39.5	54.0 Channel 7	-14.5	Horiz
15	4918.950M	41.8	-35.6 +2.6	+33.2 -17.5	+8.2	+4.6	+0.0	37.3	54.0 Channel 7	-16.7	Horiz
16	1149.970M	59.4	-35.9 +0.3	+24.8 -17.5	+3.1	+1.6	+0.0	35.8	54.0	-18.2	Horiz
17	1951.250M	46.4	-35.3 +0.2	+27.6 -17.5	+4.1	+2.2	+0.0	27.7	54.0	-26.3	Horiz
18	1199.900M	48.4	-35.9 +0.3	+25.0 -17.5	+3.2	+1.7	+0.0	25.2	54.0	-28.8	Vert
19	1399.810M	47.1	-35.8 +0.2	+25.1 -17.5	+3.5	+1.8	+0.0	24.4	54.0	-29.6	Vert
20	1200.150M	46.7	-35.9 +0.3	+25.0 -17.5	+3.2	+1.7	+0.0	23.5	54.0	-30.5	Horiz
21	1000.260M	47.0	-36.0 +0.3	+24.2 -17.5	+2.9	+1.5	+0.0	22.4	54.0	-31.6	Horiz

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **FCC 15.247 / 15.209**
Work Order #: **76093** Date: 03/20/2001
Test Type: **Maximized Emissions** Time: 12:54:47
Equipment: **Transmitter** Sequence#: 7
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017
Antenna	European Antennas LTD.	SA17-55V/450	Not Serialized

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. EUT is operating at maximum power output with the vertically polarized sectoral antenna. EUT is on center of turntable, antenna is mounted on an antenna mast at approximately 1.5 meters in height. Duty Cycle correction factor included IAW FCC 15.35.

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

#	Freq MHz	Rdng dBµV	Amp Cable dB	Horn 15.35 dB	Cable dB	Cable dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	11484.930 M	43.8	-34.8	+37.7	+11.5	+6.4	+0.0	48.5	54.0	-5.5	Vert
	Ave		+1.4	-17.5					Channel 1		
^	11484.930 M	52.6	-34.8	+37.7	+11.5	+6.4	+0.0	57.3	54.0	+3.3	Vert
			+1.4	-17.5					Channel 1		
3	4872.569M	51.7	-35.6	+33.1	+8.1	+4.7	+0.0	47.0	54.0	-7.0	Vert
			+2.5	-17.5					Channel 4		
4	1053.960M	70.4	-36.0	+24.4	+3.0	+1.6	+0.0	46.2	54.0	-7.8	Vert
			+0.3	-17.5							
5	4826.080M	50.6	-35.5	+33.1	+8.0	+4.7	+0.0	45.8	54.0	-8.2	Horiz
			+2.4	-17.5					Channel 1		
6	1099.820M	68.7	-35.9	+24.5	+3.1	+1.6	+0.0	44.8	54.0	-9.2	Vert
			+0.3	-17.5							
7	11574.900 M	39.6	-34.6	+38.0	+11.5	+6.3	+0.0	44.6	54.0	-9.4	Horiz
			+1.3	-17.5					Channel 4		
8	11572.300 M	39.0	-34.6	+38.0	+11.5	+6.3	+0.0	44.0	54.0	-10.0	Vert
	Ave		+1.3	-17.5					Channel 4		

^	11572.300 M	48.9	-34.6 +1.3	+38.0 -17.5	+11.5	+6.3	+0.0	53.9	54.0 Channel 4	-0.1	Vert
10	4872.269M	48.6	-35.6 +2.5	+33.1 -17.5	+8.1	+4.7	+0.0	43.9	54.0 Channel 4	-10.1	Vert
11	11670.040 M Ave	37.3	-34.3 +1.2	+38.1 -17.5	+11.4	+6.1	+0.0	42.3	54.0 Channel 7	-11.7	Vert
^	11670.040 M	47.7	-34.3 +1.2	+38.1 -17.5	+11.4	+6.1	+0.0	52.7	54.0 Channel 7	-1.3	Vert
13	4826.010M	45.2	-35.5 +2.4	+33.1 -17.5	+8.0	+4.7	+0.0	40.4	54.0 Channel 1	-13.6	Vert
14	4918.890M	44.6	-35.6 +2.6	+33.2 -17.5	+8.2	+4.6	+0.0	40.1	54.0 Channel 7	-13.9	Vert
15	11666.790 M	34.8	-34.3 +1.2	+38.1 -17.5	+11.4	+6.1	+0.0	39.8	54.0 Channel 7	-14.2	Horiz
16	4918.850M	42.9	-35.6 +2.6	+33.2 -17.5	+8.2	+4.6	+0.0	38.4	54.0 Channel 7	-15.6	Horiz
17	1149.880M	61.4	-35.9 +0.3	+24.8 -17.5	+3.1	+1.6	+0.0	37.8	54.0	-16.2	Horiz
18	1958.780M	50.9	-35.3 +0.2	+27.6 -17.5	+4.2	+2.2	+0.0	32.3	54.0	-21.7	Vert
19	1099.810M	55.5	-35.9 +0.3	+24.5 -17.5	+3.1	+1.6	+0.0	31.6	54.0	-22.4	Horiz
20	1149.820M	49.2	-35.9 +0.3	+24.8 -17.5	+3.1	+1.6	+0.0	25.6	54.0	-28.4	Vert
21	1200.080M	48.0	-35.9 +0.3	+25.0 -17.5	+3.2	+1.7	+0.0	24.8	54.0	-29.2	Vert
22	1399.780M	46.8	-35.8 +0.2	+25.1 -17.5	+3.5	+1.8	+0.0	24.1	54.0	-29.9	Vert
23	1200.020M	47.2	-35.9 +0.3	+25.0 -17.5	+3.2	+1.7	+0.0	24.0	54.0	-30.0	Horiz
24	1349.840M	46.3	-35.8 +0.2	+25.1 -17.5	+3.4	+1.8	+0.0	23.5	54.0	-30.5	Horiz

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **FCC 15.247 / 15.209**
Work Order #: **76093** Date: 03/20/2001
Test Type: **Maximized Emissions** Time: 15:03:54
Equipment: **Transmitter** Sequence#: 9
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017
Transmit Section	Gabriel Electronics	118046	91218
6' Parabolic Dish	Gabriel Electronics	SSP6-52A	693387

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

Test Conditions / Notes:

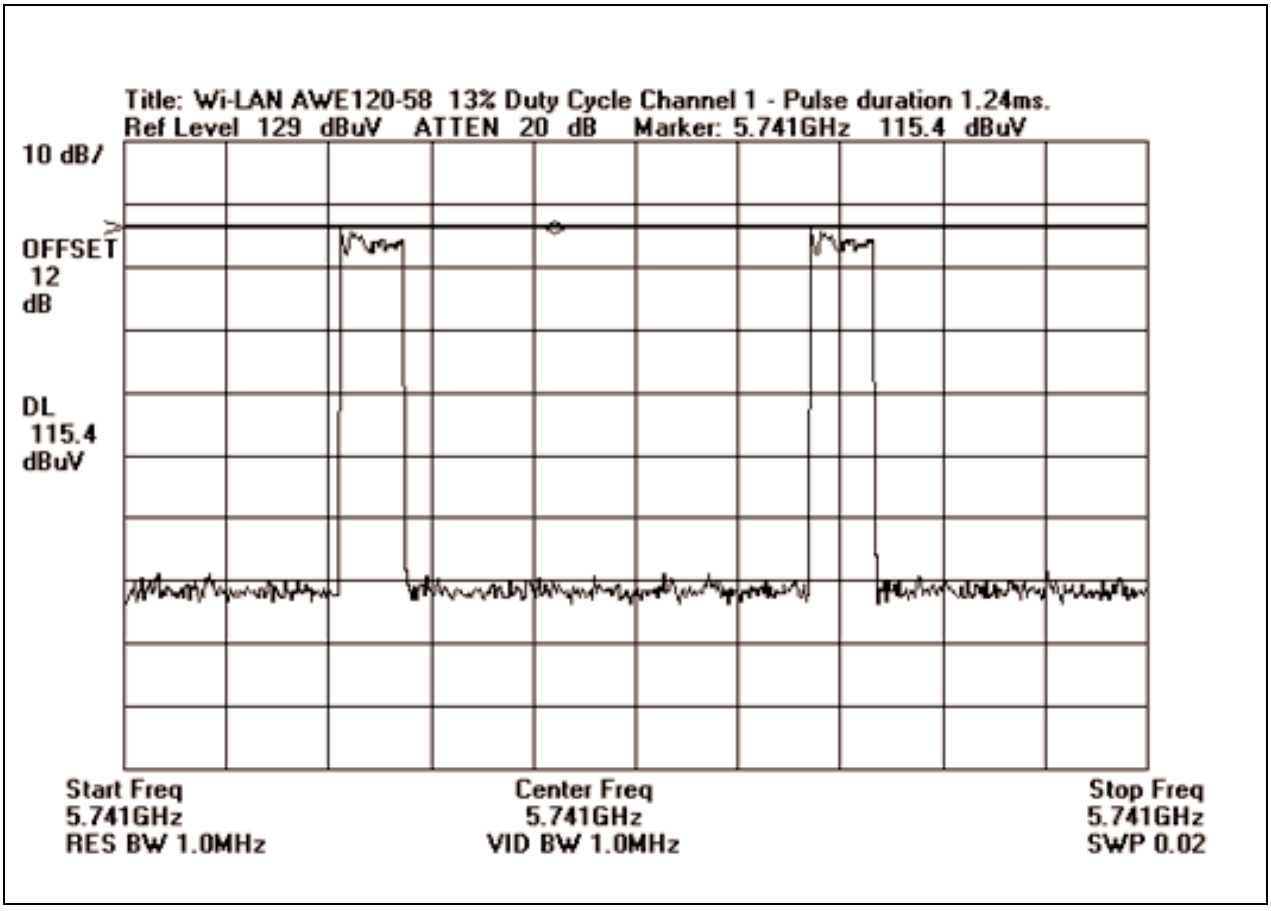
EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. EUT is transmitting at maximum output power with the 6' parabolic dish antenna. Duty Cycle correction factor included IAW FCC 15.35.

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

#	Freq MHz	Rdng dBµV	Amp Cable dB	Horn 15.35 dB	Cable dB	Cable dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	11484.240 M	46.2	-34.8	+37.7	+11.5	+6.4	+0.0	50.9	54.0	-3.1	Vert
	Ave		+1.4	-17.5					Channel 1		
^	11484.240 M	53.0	-34.8	+37.7	+11.5	+6.4	+0.0	57.7	54.0	+3.7	Vert
			+1.4	-17.5					Channel 1		
3	11571.640 M	44.7	-34.6	+38.0	+11.5	+6.3	+0.0	49.7	54.0	-4.3	Vert
			+1.3	-17.5					Channel 4		
4	11482.840 M	44.1	-34.8	+37.7	+11.5	+6.4	+0.0	48.8	54.0	-5.2	Horiz
			+1.4	-17.5					Channel 1		
5	1150.340M	71.8	-35.9	+24.8	+3.1	+1.6	+0.0	48.2	54.0	-5.8	Vert
			+0.3	-17.5							
6	1099.940M	71.5	-35.9	+24.5	+3.1	+1.6	+0.0	47.6	54.0	-6.4	Vert
			+0.3	-17.5							
7	11665.000 M	42.2	-34.3	+38.1	+11.4	+6.1	+0.0	47.2	54.0	-6.8	Vert
	Ave		+1.2	-17.5					Channel 7		
^	11665.000 M	50.6	-34.3	+38.1	+11.4	+6.1	+0.0	55.6	54.0	+1.6	Vert
			+1.2	-17.5					Channel 7		

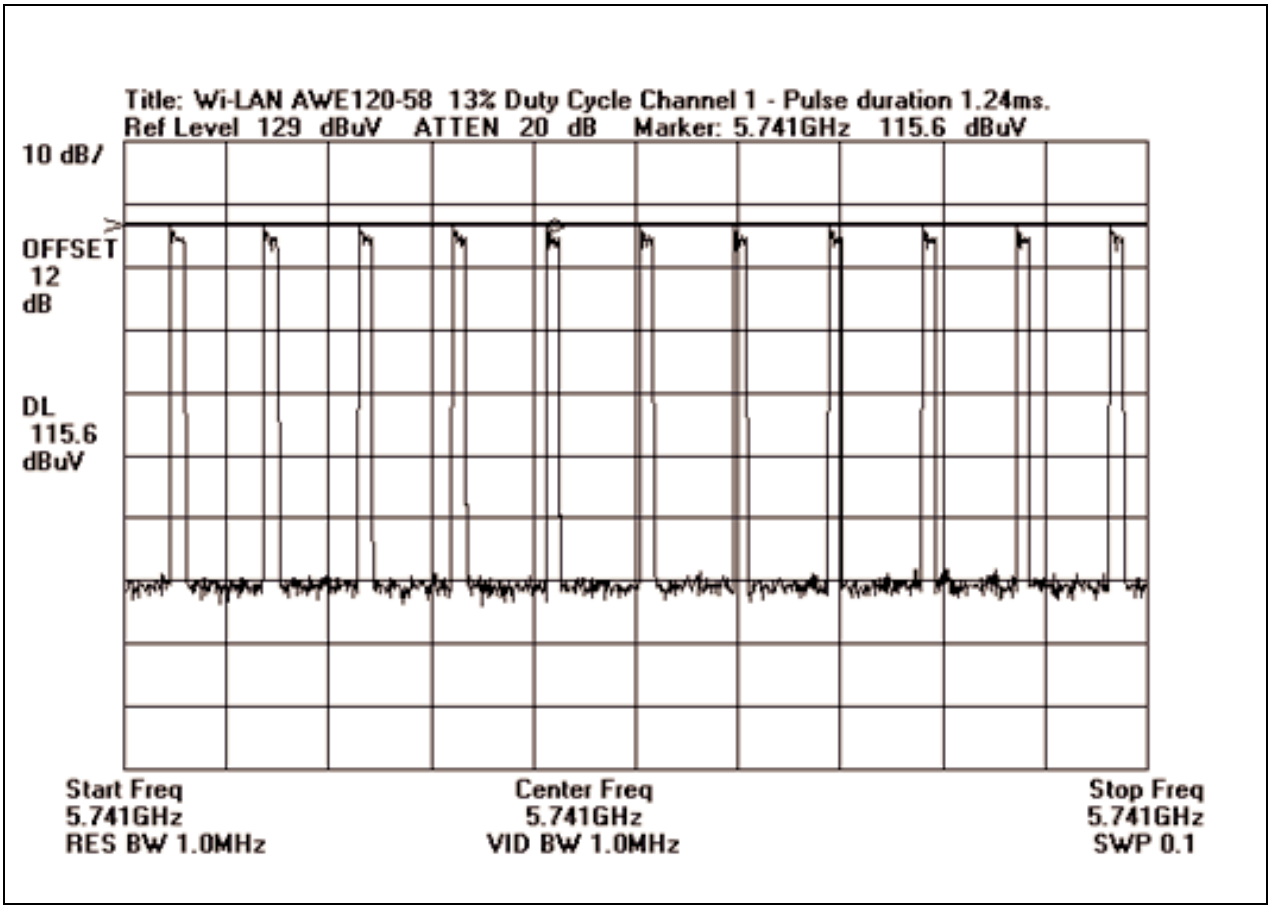
9	4825.830M	50.0	-35.5 +2.4	+33.1 -17.5	+8.0	+4.7	+0.0	45.2	54.0 Channel 1	-8.8	Vert
10	4825.985M	48.8	-35.5 +2.4	+33.1 -17.5	+8.0	+4.7	+0.0	44.0	54.0 Channel 1	-10.0	Vert
11	4918.950M	43.5	-35.6 +2.6	+33.2 -17.5	+8.2	+4.6	+0.0	39.0	54.0 Channel 7	-15.0	Vert
12	11482.470 M Ave	34.3	-34.8 +1.4	+37.7 -17.5	+11.5	+6.4	+0.0	39.0	54.0 Channel 1	-15.0	Horiz
^	11482.470 M	46.0	-34.8 +1.4	+37.7 -17.5	+11.5	+6.4	+0.0	50.7	54.0 Channel 1	-3.3	Horiz
14	4918.670M	41.8	-35.6 +2.6	+33.2 -17.5	+8.2	+4.6	+0.0	37.3	54.0 Channel 7	-16.7	Horiz
15	1102.600M	59.4	-35.9 +0.3	+24.5 -17.5	+3.1	+1.6	+0.0	35.5	54.0	-18.5	Vert
16	1950.800M	47.7	-35.3 +0.2	+27.6 -17.5	+4.1	+2.2	+0.0	29.0	54.0	-25.0	Vert

Duty Cycle Plot @ 20ms - Channel 1



13% Duty Cycle @ 20ms - Pulse Duration 1.24 ms - Channel 1

Duty Cycle Plot @ 100ms - Channel 1



13% Duty Cycle @ 100ms - Pulse Duration 1.24 ms - Channel 1

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **FCC 15.247 / 15.209**
Work Order #: **76093** Date: 03/20/2001
Test Type: **Maximized Emissions** Time: 11:24:47
Equipment: **Transmitter** Sequence#: 11
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017
Antenna	European Antennas LTD.	SA17-55V/450	Not Serialized

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. EUT is operating at maximum power output with the vertically polarized sectoral antenna. EUT is on center of turntable, antenna is mounted on an antenna mast at approximately 1.5 meters in height. Measurements below 30MHz taken at 10 meters with correction factor IAW 15.31.

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

#	Freq	Rdng	Amp	Bicon	Log 1	Cable	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	400.010M	46.3	-25.5	+0.0	+16.4	+4.1	+0.0	41.3	46.0	-4.7	Vert
2	400.022M	44.3	-25.5	+0.0	+16.4	+4.1	+0.0	39.3	46.0	-6.7	Horiz
3	240.158M	43.7	-24.6	+16.1	+0.0	+3.1	+0.0	38.3	46.0	-7.7	Vert
4	409.620M	40.9	-25.5	+0.0	+16.5	+4.2	+0.0	36.1	46.0	-9.9	Horiz
5	278.155M	37.6	-24.7	+19.2	+0.0	+3.4	+0.0	35.5	46.0	-10.5	Vert
6	327.758M	35.9	-24.9	+0.0	+19.9	+3.8	+0.0	34.7	46.0	-11.3	Horiz
7	409.574M	38.7	-25.5	+0.0	+16.5	+4.2	+0.0	33.9	46.0	-12.1	Vert
8	245.801M	39.2	-24.6	+15.9	+0.0	+3.1	+0.0	33.6	46.0	-12.4	Horiz
9	999.825M	34.6	-25.3	+0.0	+25.1	+7.0	+0.0	41.4	54.0	-12.6	Vert
10	280.184M	34.1	-24.7	+19.5	+0.0	+3.4	+0.0	32.3	46.0	-13.7	Vert
11	327.772M	33.3	-24.9	+0.0	+19.9	+3.8	+0.0	32.1	46.0	-13.9	Vert

12	983.110M	33.6	-25.4	+0.0	+24.9	+6.9	+0.0	40.0	54.0	-14.0	Vert
13	250.306M	37.5	-24.6	+15.7	+0.0	+3.1	+0.0	31.7	46.0	-14.3	Horiz
14	120.003M	37.7	-25.0	+14.2	+0.0	+2.2	+0.0	29.1	43.5	-14.4	Vert
15	250.080M	37.4	-24.6	+15.7	+0.0	+3.1	+0.0	31.6	46.0	-14.4	Vert
16	262.178M	34.9	-24.6	+17.3	+0.0	+3.2	+0.0	30.8	46.0	-15.2	Horiz
17	999.798M	31.8	-25.3	+0.0	+25.1	+7.0	+0.0	38.6	54.0	-15.4	Horiz
18	983.081M	31.8	-25.4	+0.0	+24.9	+6.9	+0.0	38.2	54.0	-15.8	Horiz
19	999.858M	31.2	-25.3	+0.0	+25.1	+7.0	+0.0	38.0	54.0	-16.0	Horiz
20	250.068M	35.8	-24.6	+15.7	+0.0	+3.1	+0.0	30.0	46.0	-16.0	Horiz
21	120.051M	36.0	-25.0	+14.2	+0.0	+2.2	+0.0	27.4	43.5	-16.1	Horiz
22	114.621M	35.8	-25.0	+13.7	+0.0	+2.1	+0.0	26.6	43.5	-16.9	Horiz
23	966.708M	30.8	-25.5	+0.0	+24.6	+6.7	+0.0	36.6	54.0	-17.4	Horiz
24	240.098M	34.0	-24.6	+16.1	+0.0	+3.1	+0.0	28.6	46.0	-17.4	Horiz
25	260.086M	32.8	-24.6	+17.0	+0.0	+3.2	+0.0	28.4	46.0	-17.6	Vert

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **FCC 15.247 / 15.209**
Work Order #: **76093** Date: 03/20/2001
Test Type: **Maximized Emissions** Time: 12:06:32
Equipment: **Transmitter** Sequence#: 12
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017
Antenna	European Antennas LTD.	SA17-55H/449	Not Serialized

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. EUT is operating at maximum power output with the horizontally polarized sectoral antenna. EUT is on center of turntable, antenna is mounted on an antenna mast at approximately 1.5 meters in height. Measurements below 30MHz taken at 10 meters with correction factor IAW 15.31.

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

#	Freq MHz	Rdng dBµV	Amp dB	Bicon dB	Log 1 dB	Cable dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	400.010M QP	49.6	-25.5	+0.0	+16.4	+4.1	+0.0	44.6	46.0	-1.4	Horiz
^	400.003M	52.4	-25.5	+0.0	+16.4	+4.1	+0.0	47.4	46.0	+1.4	Horiz
3	245.836M	46.2	-24.6	+15.9	+0.0	+3.1	+0.0	40.6	46.0	-5.4	Horiz
4	408.768M	44.0	-25.5	+0.0	+16.5	+4.2	+0.0	39.2	46.0	-6.8	Horiz
5	400.021M	43.7	-25.5	+0.0	+16.4	+4.1	+0.0	38.7	46.0	-7.3	Vert
6	240.134M	43.3	-24.6	+16.1	+0.0	+3.1	+0.0	37.9	46.0	-8.1	Vert
7	327.768M	39.0	-24.9	+0.0	+19.9	+3.8	+0.0	37.8	46.0	-8.2	Horiz
8	250.259M	41.6	-24.6	+15.7	+0.0	+3.1	+0.0	35.8	46.0	-10.2	Horiz
9	245.813M	41.0	-24.6	+15.9	+0.0	+3.1	+0.0	35.4	46.0	-10.6	Vert
10	262.213M	39.2	-24.7	+17.3	+0.0	+3.2	+0.0	35.0	46.0	-11.0	Horiz
11	262.215M	38.6	-24.7	+17.3	+0.0	+3.2	+0.0	34.4	46.0	-11.6	Vert

12	327.767M	35.3	-24.9	+0.0	+19.9	+3.8	+0.0	34.1	46.0	-11.9	Vert
13	250.071M	39.4	-24.6	+15.7	+0.0	+3.1	+0.0	33.6	46.0	-12.4	Vert
14	120.117M	39.1	-25.0	+14.2	+0.0	+2.2	+0.0	30.5	43.5	-13.0	Vert
15	278.164M	34.8	-24.7	+19.2	+0.0	+3.4	+0.0	32.7	46.0	-13.3	Vert
16	999.810M	33.5	-25.3	+0.0	+25.1	+7.0	+0.0	40.3	54.0	-13.7	Vert
17	114.745M	38.6	-25.0	+13.7	+0.0	+2.1	+0.0	29.4	43.5	-14.1	Vert
18	409.628M	34.9	-25.5	+0.0	+16.5	+4.2	+0.0	30.1	46.0	-15.9	Vert
19	983.012M	31.2	-25.4	+0.0	+24.9	+6.9	+0.0	37.6	54.0	-16.4	Vert
20	240.121M	35.0	-24.6	+16.1	+0.0	+3.1	+0.0	29.6	46.0	-16.4	Horiz
21	280.174M	31.4	-24.7	+19.4	+0.0	+3.4	+0.0	29.5	46.0	-16.5	Vert
22	120.052M	35.5	-25.0	+14.2	+0.0	+2.2	+0.0	26.9	43.5	-16.6	Horiz
23	114.730M	35.2	-25.0	+13.7	+0.0	+2.1	+0.0	26.0	43.5	-17.5	Horiz
24	260.130M	31.3	-24.6	+17.0	+0.0	+3.2	+0.0	26.9	46.0	-19.1	Vert

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **FCC 15.247 / 15.209**
Work Order #: **76093** Date: 03/20/2001
Test Type: **Maximized Emissions** Time: 16:21:28
Equipment: **Transmitter** Sequence#: 13
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017
Transmit Section	Gabriel Electronics	118046	91218
6' Parabolic Dish	Gabriel Electronics	SSP6-52A	693387

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. EUT is operating at maximum power output with the 6 foot parabolic dish antenna. EUT and antenna are located in the center of the turntable. Measurements below 30MHz taken at 10 meters with correction factor IAW 15.31.

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

#	Freq MHz	Rdng dBµV	Amp dB	Bicon dB	Log 1 dB	Cable dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	613.500M	40.8	-26.1	+0.0	+19.7	+5.3	+0.0	39.7	46.0	-6.3	Vert
2	400.019M	43.8	-25.5	+0.0	+16.4	+4.1	+0.0	38.8	46.0	-7.2	Horiz
3	327.770M	39.4	-24.9	+0.0	+19.9	+3.8	+0.0	38.2	46.0	-7.8	Horiz
4	163.910M	43.7	-24.8	+14.0	+0.0	+2.5	+0.0	35.4	43.5	-8.1	Horiz
5	245.833M	43.4	-24.6	+15.9	+0.0	+3.1	+0.0	37.8	46.0	-8.2	Vert
6	163.922M	42.0	-24.8	+14.0	+0.0	+2.5	+0.0	33.7	43.5	-9.8	Vert
7	119.192M	42.0	-25.0	+14.1	+0.0	+2.2	+0.0	33.3	43.5	-10.2	Vert
8	114.776M	42.4	-25.0	+13.7	+0.0	+2.1	+0.0	33.2	43.5	-10.3	Vert
9	150.084M	43.2	-24.9	+12.6	+0.0	+2.3	+0.0	33.2	43.5	-10.3	Vert
10	114.722M	41.1	-25.0	+13.7	+0.0	+2.1	+0.0	31.9	43.5	-11.6	Horiz

11	278.583M	36.3	-24.7	+19.3	+0.0	+3.4	+0.0	34.3	46.0	-11.7	Vert
12	262.218M	38.1	-24.7	+17.3	+0.0	+3.2	+0.0	33.9	46.0	-12.1	Vert
13	262.229M	37.8	-24.7	+17.3	+0.0	+3.2	+0.0	33.6	46.0	-12.4	Horiz
14	240.128M	37.9	-24.6	+16.1	+0.0	+3.1	+0.0	32.5	46.0	-13.5	Vert
15	278.598M	33.9	-24.7	+19.3	+0.0	+3.4	+0.0	31.9	46.0	-14.1	Horiz
16	409.628M	35.4	-25.5	+0.0	+16.5	+4.2	+0.0	30.6	46.0	-15.4	Horiz
17	250.078M	35.7	-24.6	+15.7	+0.0	+3.1	+0.0	29.9	46.0	-16.1	Vert
18	399.990M	34.8	-25.5	+0.0	+16.4	+4.1	+0.0	29.8	46.0	-16.2	Vert
19	150.077M	36.6	-24.9	+12.6	+0.0	+2.3	+0.0	26.6	43.5	-16.9	Horiz
20	131.160M	34.7	-25.0	+13.9	+0.0	+2.3	+0.0	25.9	43.5	-17.6	Horiz
21	250.070M	33.8	-24.6	+15.7	+0.0	+3.1	+0.0	28.0	46.0	-18.0	Horiz
22	245.808M	33.5	-24.6	+15.9	+0.0	+3.1	+0.0	27.9	46.0	-18.1	Horiz

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **FCC 15.207**
Work Order #: **76093** Date: 03/21/2001
Test Type: **Conducted Emissions** Time: 3:13:54 PM
Equipment: **Transmitter** Sequence#: 5
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Transmitter*	Wi-LAN	AWE 120-58	BETA017
Power Supply	Sceptre	SPU50A-3	141668

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

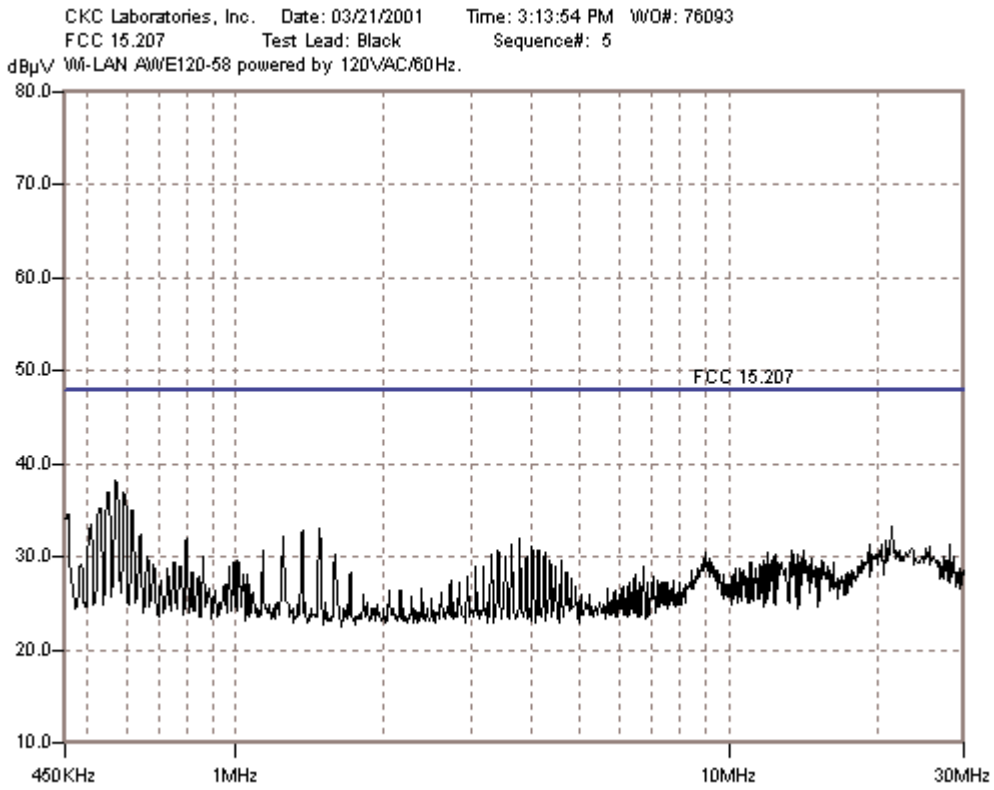
Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. EUT is operating on channel 1; antenna port is terminated in a 50 ohm load. EUT is powered by 120VAC/60Hz.

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

#	Freq MHz	Rdng dBµV	Cable dB	LISN dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	570.355k	37.8	+0.1	+0.4			+0.0	38.3	48.0	-9.7	Black
2	577.042k	37.5	+0.1	+0.4			+0.0	38.0	48.0	-10.0	Black
3	593.758k	36.4	+0.1	+0.4			+0.0	36.9	48.0	-11.1	Black
4	551.132k	36.4	+0.1	+0.4			+0.0	36.9	48.0	-11.1	Black
5	528.565k	34.7	+0.1	+0.5			+0.0	35.3	48.0	-12.7	Black
6	614.653k	34.4	+0.1	+0.4			+0.0	34.9	48.0	-13.1	Black
7	455.851k	33.9	+0.1	+0.5			+0.0	34.5	48.0	-13.5	Black
8	508.506k	32.8	+0.1	+0.5			+0.0	33.4	48.0	-14.6	Black
9	21.474M	32.6	+0.3	+0.3			+0.0	33.2	48.0	-14.8	Black
10	1.479M	32.7	+0.1	+0.3			+0.0	33.1	48.0	-14.9	Black
11	1.372M	32.4	+0.1	+0.4			+0.0	32.9	48.0	-15.1	Black
12	642.234k	32.0	+0.1	+0.4			+0.0	32.5	48.0	-15.5	Black

13	1.251M	31.7	+0.1	+0.4	+0.0	32.2	48.0	-15.8	Black
14	796.021k	31.5	+0.1	+0.4	+0.0	32.0	48.0	-16.0	Black
15	3.783M	31.4	+0.1	+0.4	+0.0	31.9	48.0	-16.1	Black
16	20.908M	31.2	+0.3	+0.3	+0.0	31.8	48.0	-16.2	Black
17	20.440M	30.8	+0.3	+0.3	+0.0	31.4	48.0	-16.6	Black
18	19.426M	30.7	+0.3	+0.4	+0.0	31.4	48.0	-16.6	Black
19	3.645M	30.9	+0.1	+0.4	+0.0	31.4	48.0	-16.6	Black
20	28.225M	30.5	+0.4	+0.4	+0.0	31.3	48.0	-16.7	Black


CKC Laboratories, Inc. Date: 03/21/2001 Time: 3:13:54 PM WO#: 76093
FCC 15.207 Test Lead: Black Sequence#: 5
dBµV WM-LAN AWE120-58 powered by 120VAC/60Hz.
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **FCC 15.207**
Work Order #: **76093** Date: 03/21/2001
Test Type: **Conducted Emissions** Time: 3:20:20 PM
Equipment: **Transmitter** Sequence#: 6
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Transmitter*	Wi-LAN	AWE 120-58	BETA017
Power Supply	Sceptre	SPU50A-3	141668

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

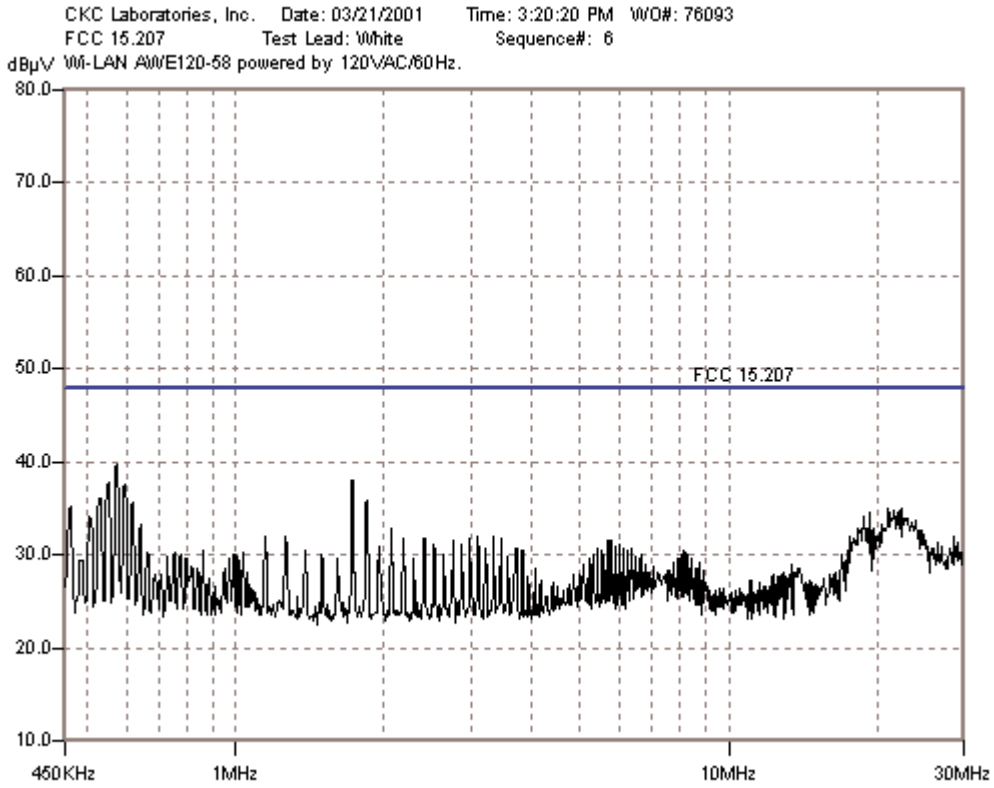
Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. EUT is operating on channel 1; antenna port is terminated in a 50 ohm load. EUT is powered by 120VAC/60Hz.

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

#	Freq MHz	Rdng dBµV	Cable dB	dB	LISN dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	573.698k	39.1	+0.1		+0.6		+0.0	39.8	48.0	-8.2	White
2	1.730M	37.6	+0.1		+0.4		+0.0	38.1	48.0	-9.9	White
3	553.639k	37.0	+0.1		+0.6		+0.0	37.7	48.0	-10.3	White
4	597.101k	36.9	+0.1		+0.6		+0.0	37.6	48.0	-10.4	White
5	531.073k	35.3	+0.1		+0.6		+0.0	36.0	48.0	-12.0	White
6	1.845M	35.4	+0.1		+0.4		+0.0	35.9	48.0	-12.1	White
7	619.667k	34.9	+0.1		+0.6		+0.0	35.6	48.0	-12.4	White
8	463.373k	34.5	+0.1		+0.6		+0.0	35.2	48.0	-12.8	White
9	22.508M	34.4	+0.3		+0.3		+0.0	35.0	48.0	-13.0	White
10	21.123M	34.4	+0.3		+0.2		+0.0	34.9	48.0	-13.1	White
11	22.274M	34.2	+0.3		+0.3		+0.0	34.8	48.0	-13.2	White
12	21.728M	34.2	+0.3		+0.2		+0.0	34.7	48.0	-13.3	White

13	19.270M	34.1	+0.3	+0.2	+0.0	34.6	48.0	-13.4	White
14	18.840M	33.7	+0.3	+0.2	+0.0	34.2	48.0	-13.8	White
15	506.834k	33.5	+0.1	+0.6	+0.0	34.2	48.0	-13.8	White
16	23.074M	33.2	+0.4	+0.3	+0.0	33.9	48.0	-14.1	White
17	24.147M	33.1	+0.4	+0.3	+0.0	33.8	48.0	-14.2	White
18	23.562M	32.8	+0.4	+0.3	+0.0	33.5	48.0	-14.5	White
19	20.557M	32.8	+0.3	+0.2	+0.0	33.3	48.0	-14.7	White
20	640.562k	32.5	+0.1	+0.6	+0.0	33.2	48.0	-14.8	White


CKC Laboratories, Inc. Date: 03/21/2001 Time: 3:20:20 PM WO#: 76093
FCC 15.207 Test Lead: White Sequence#: 6
dBµV W-LAN AWE120-58 powered by 120VAC/60Hz.
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
FCC 15.207
450KHz
1MHz
10MHz
30MHz

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest • Mariposa, CA 95338 • 800-500-4362

Customer: **Wi-LAN**
Specification: **15.247(b)(1) & (b)(3)**
Work Order #: **76093** Date: 04/04/2001
Test Type: **Maximized Emissions** Time: 11:19:34
Equipment: **Transmitter** Sequence#: 2
Manufacturer: Wi-LAN Tested By: Randal Clark
Model: AWE 120-58
S/N: BETA017

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Power Supply	Acbel Polytech Inc.	API-9601A-820	000225
Transmitter*	Wi-LAN	AWE 120-58	BETA017

Support Devices:

Function	Manufacturer	Model #	S/N
Computer	Toshiba	PAS206C-A	89022327
Power Supply	Toshiba	PA24400	0946209

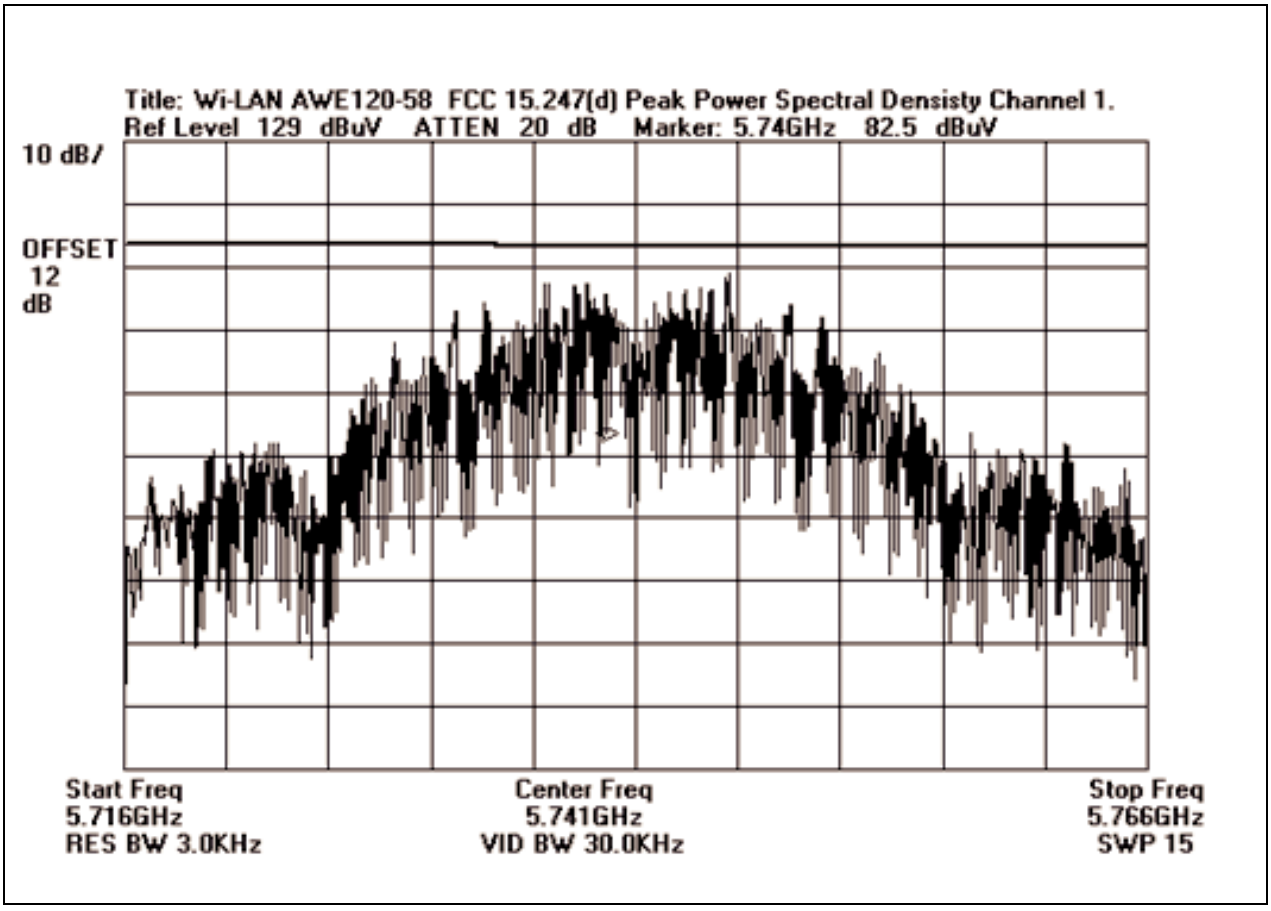
Test Conditions / Notes:

EUT is a transceiver operating on 5741.0 - 5833.8 MHz. EUT is powered by an external 12VDC power supply. Computer is not a necessary part of the EUT. 15.247(b)(1) Limit is 1Watt for DSSS systems. 1Watt = 30dBm = 137dBuV. For 17dBi directional gain antennae: RF power must be attenuated by 17dBi-6dBi = 11dB below the stated limit in 15.247(b)(1). Therefore the limit is 137dBuV-11dB = 126dBuV. Bandwidths Used: RBW=3MHz, VBW=3MHz.

Measurement Data: Reading listed by margin. Test Distance: None

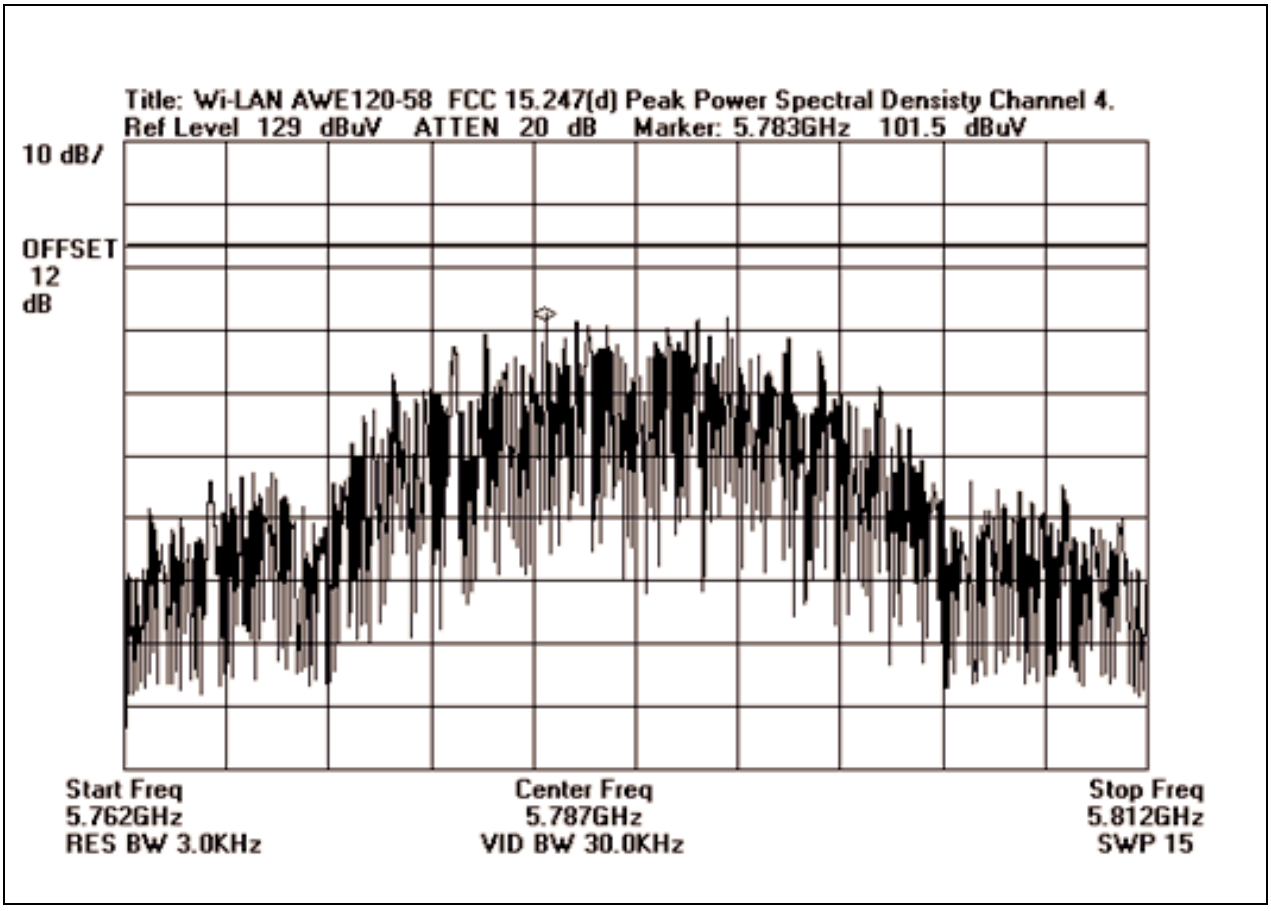
#	Freq MHz	Rdng dBµV	Cable dB	Pad dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	5739.100M	82.8	+2.6	+40.0			+0.0	125.4	126.0	-0.6	None
2	5789.400M	79.1	+2.8	+39.9			+0.0	121.8	126.0	-4.2	None
3	5835.400M	78.4	+3.0	+39.9			+0.0	121.3	126.0	-4.7	None

15.247 (d) Peak Power Spectral Density - Channel 1



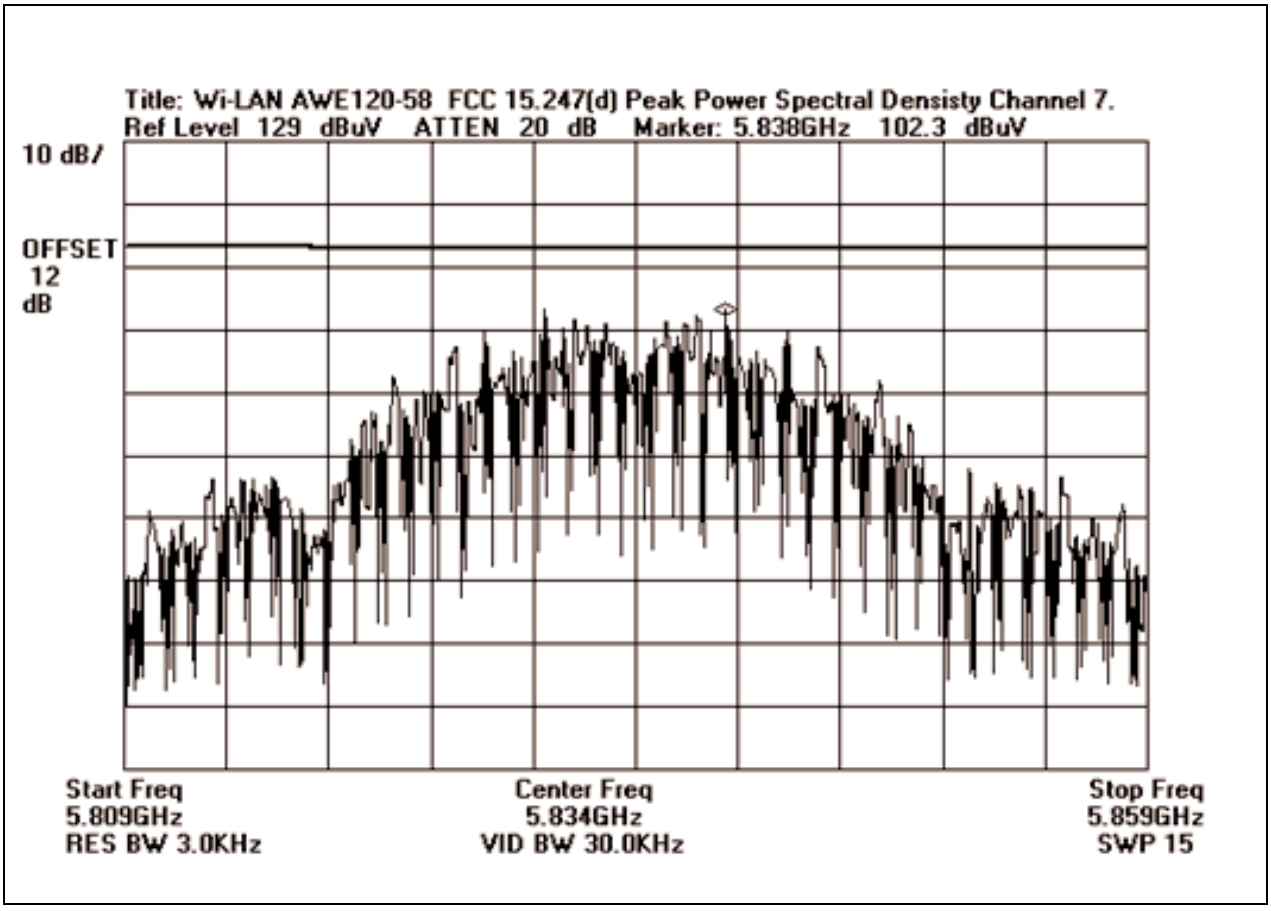
Peak Power Spectral Density - Channel 1

15.247 (d) Peak Power Spectral Density - Channel 4



Peak Power Spectral Density - Channel 4

15.247 (d) Peak Power Spectral Density - Channel 7



Peak Power Spectral Density - Channel 7