

**Class II Permissive Change
Test Report**

For

**Mini PCI Type 3A Single Band 802.11b WLAN Adapter
Model Number: WM3A2100**

*MEASUREMENTS PERFORMED IN ACCORDANCE WITH THE
FOLLOWING EMISSIONS STANDARD*

47 CFR Part 15, Subpart C (Section 15.247)

Test Method:

ANSI C63.4: 1992 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz



CERTIFICATE NUMBER: 1111.01

To view a copy of the Scope of Accreditation visit www.A2LA2.net

PREPARED FOR:

Intel Corporation
2300 Corporate Center Drive
Thousand Oaks, California 91320

Contact(s): Jim Baer

PREPARED BY:

Aegis Labs, Inc.
22431 Antonio Parkway B160-417
Rancho S. Margarita, CA 92688

Agent(s): Mr. Steve Kuiper
Mr. Rick Candelas

Test Report #: INTEL-030205F
Test Date: February 5-6, 2003

	REPORT BODY	APPENDICES <i>I</i>	TOTAL
PAGES	13	29	42

The contents of this report shall not be reproduced except in full, without the written approval of Aegis Labs, Inc.

AEGIS LABS, INC 22431 Antonio Parkway B160-417, Rancho Santa Margarita, CA 92688
949-459-7886 TEL 949-459-7869 FAX www.aegislabsinc.com

TABLE OF CONTENTS

SECTION	TITLE	PAGE
	COVER SHEET.....	01
	TABLE OF CONTENTS.....	02
1.0	CERTIFICATION OF TEST DATA.....	03
2.0	ADMINISTRATIVE DATA AND TEST DESCRIPTION.....	04
3.0	DESCRIPTION OF EUT CONFIGURATION.....	05
3.1	EUT Description.....	05
3.1.1	Channel Number and Frequencies.....	06
3.2	EUT Configuration.....	07
3.3	EUT and Sub-Assemblies List.....	08
3.4	Accessory / Host Equipment List.....	08
3.5	Cabling Diagram and Description.....	09
4.0	TEST EQUIPMENT SETTINGS AND TEST SETUPS.....	10
4.1	Maximum Peak Output Power Measurement.....	10
4.1.1	Maximum Peak Output Power Measurement– Test Setup.....	10
4.2	Spurious Radiated Emissions.....	11
4.2.1	Spurious Radiated Emissions – Test Setup.....	12
5.0	MODIFICATIONS AND RECOMMENDATIO.....	13
APPENDICES		
I	Data Sheets	

1.0 CERTIFICATION OF TEST DATA

Aegis Labs, Inc. operates as both a Nevada and California Corporation with no organizational or financial relationship with any company, institution, or private individual.

Testing and engineering functions provided by Aegis Labs are furnished through the use of part-time, full-time or consulting engineers with the appropriate qualifications to carry out their duties. The intended purpose of this test report is to describe the measurement procedure and to determine whether the equipment under test “EUT” complies with the radiated emissions limits. Limits for emissions testing are described under 47 CFR Part 15, Subpart C (Section 15.247).


The data, data evaluation and equipment configuration represented herein are a true and accurate representation of the Equipment Under Test (EUT) under the requirements specified in the emissions standard as described below. The test results contained in this report are only representative of the test sample tested as described in Section 2.0 of this report.

The test results provided within this report, indicate that the information technology equipment has been found to be in **COMPLIANCE** with the test specifications based upon the following RF compliance standards:

Pass/Fail determination is based upon the nominal values of the test data.


EMISSIONS STANDARDS	DESCRIPTION	TEST RESULTS
FCC 47 CFR, Part 15.247(b)	Maximum Peak Output Power Measurement	PASSED
FCC 47 CFR, Part 15.247(c), 15.209	Spurious Radiated Emissions (1-26.5 GHz)	PASSED

Prepared By:



Rick Candelas **02/10/03**
Staff Engineer **Date:**
Aegis Labs, Inc.

Report Approved By:



Steve J. Kuiper **02/10/03**
Q/A Manager **Date:**
Aegis Labs, Inc.

2.0 ADMINISTRATIVE DATA AND TEST DESCRIPTION

DEVICE TESTED: Trade Name: Mini PCI Type 3A Single Band 802.11b WLAN Adapter
 Model Number: WM3A2100
 Serial Number: 000423468014
 FCC ID: PD9WM3A2100

TEST DATE(S): February 5-6, 2003
DATE EUT RECEIVED: February 4, 2003

ORIGIN OF TEST

SAMPLE(S): Production

RESPONSIBLE PARTY:	Intel Corporation 2300 Corporate Center Drive Thousand Oaks, California 91320
CLIENT CONTACT:	Mr. Jim Baer
MANUFACTURER:	Intel Corporation

TEST LOCATION: Aegis Labs, Inc.
 32231 Trabuco Creek Road
 Trabuco Canyon, CA 92678
 Conducted Site #2
 Radiated Site #2

A2LA CERTIFICATE:	1111.01, Valid until February 28, 2004
--------------------------	--

PURPOSE OF TEST: To demonstrate compliance with the relevant standards described in Section 1.0 of this report.

TEST(S) PERFORMED: Refer to Table in Section 1 of this report.

All calibration vendors were responsible for certifying Aegis Labs, Inc. test equipment as per the manufacturer's specifications and that the equipment is calibrated using instruments and standards where the accuracy is traceable to the National Institute of Standards and Technology (NIST). Calibration of all test equipment conforms to ANSI/NCSL Z540-1 and ISO 10012-1 and/or ISO/IEC Guide 17025 compliance (Additionally, other pertinent test equipment will carry MIL-STD-45662A). All calibration documents are on file with Aegis Labs, Inc., with copies provided upon request.

3.0 DESCRIPTION OF EUT

3.1 EUT Description

Equipment Under Test (EUT)	
Trade Name:	Mini PCI Type 3A Single Band 802.11b WLAN Adapter
Model Number:	WM3A2100
Frequency Range:	2.412 – 2.462 GHz
Type of Transmission:	Direct Sequence Spread Spectrum
Transfer Rate:	1/2/5.5/11 Mbps
Number of Channels:	11
Modulation Type:	DBPSK, DQPSK, CCK
Antenna Type:	Hirose U.FL-R-SMT mates with cable connector U.FL-LP-066
Antenna Gain (See Note 2):	WLAN PIFA Antenna = 3.0dBi CF-73 802.11b Antenna = 3.3dBi
Transmit Output Power:	16 dBm (Typical) Please see Appendix I (Data Sheets) for actual output power.
Power Supply:	3.3VDC from computer MPCIE slot.
Number of External Test Ports Exercised:	2 Antenna Ports (1 Main & 1 Auxiliary)

The Mini PCI Type 3A Single Band 802.11b WLAN Adapter is an embedded 2.4 GHz Wireless Local Area Network Mini-PCI adapter. The Mini-PCI Type 3A form factor is designed for notebook computer systems where overall thickness must be kept to an absolute minimum. It is capable of a data rate of up to 11 Mbps at 2.4 GHz. Please refer to Section 3.2 of this report for a further description of the configuration tested.

This report is submitted as a Class II Permissive Change for the currently certified Mini PCI Type 3B Single Band 802.11b WLAN Adapter, FCC ID Number: PD9WM3A2100. Two new antenna types were tested (WLAN PIFA and CF-73 antenna types).

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

NOTE 2: The EUT was tested separately with two different sets of antennas (WLAN PIFA antennas and CF-73 80.211b antennas). Refer to each antenna specifications.

3.1.1 Channel Number and Frequencies

Eleven channels are provided for the EUT.

Channel	Frequency (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

3.2 EUT Configuration

The EUT was set-up according to the ANSI C63.4: 1992 guidelines for emissions testing. For emissions testing the EUT (Mini PCI Type 3A Single Band 802.11b WLAN Adapter, Model Number: WM3A2100) had a loaded antenna connected to both its main and auxiliary ports. All the appropriate test ports were exercised during both the pre-qualification and final evaluation scans.

The EUT was tested installed in the Mini-PCI slot of the IBM host computer as a modular device using a PCI extender board to extend the EUT outside the computer chassis. The EUT was then connected to a set of antennas via its main and auxiliary Hirose U.FL-R-SMT ports. Data for a set of WLAN PIFA and CF-73 80.211b antennas can be found in Appendix I (Data Sheets)

The IBM host computer was connected to an NEC monitor, IBM keyboard, and IBM mouse via its video, keyboard, and mouse ports respectively.

The low (channel 1), middle (channel 6, and high (channel 11) were tested. The EUT was transmitting and receiving on a continuous basis.

The final data was taken in this mode of operation. The external cables were bundled and routed as shown in the photographs in Appendix I (Data Sheets).

3.3 EUT and Sub-Assemblies List

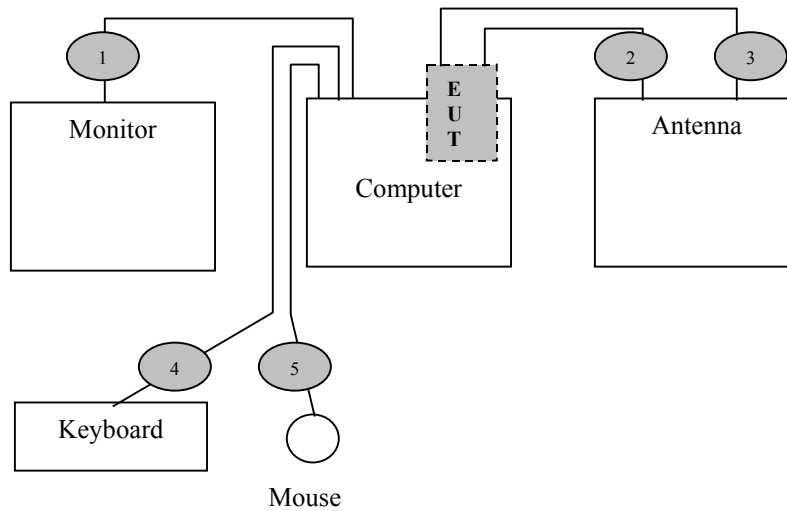
EUT and Sub-Assemblies List			
Manufacturer	Equipment Name	Model Number	Serial Number
Intel Corporation	Mini PCI Type 3A Single Band 802.11b WLAN Adapter	WM3A2100	000423468014
Sub-Assemblies			
N/A	WLAN PIFA Antenna	Aquila	None
N/A	CF-73 802.11b Antenna	None	None

3.4 Accessory / Host Equipment List

Accessory / Host Equipment List			
Manufacturer	Equipment Name	Model Number	Serial Number
NetVista Computer	IBM	21U	KAOL42K
Monitor	NEC	JC-1575VMA	2Y785821
Keyboard	IBM	SK-8811	1922408
Mouse	IBM	MU295	23-161493

NOTE: All the power cords of the above support equipment are standard non-shielded, 1.8 meters long.

3.5 Cabling Diagram and Description



- Cable 1: This is a 6-foot braid and foil shielded round cable connecting the host IBM computer with the NEC monitor. It has metallic DB-15 type connector at the computer end and is hardwired to the monitor. The cable is bundled to a length of one meter and the shield of the cable is grounded to the chassis of both devices via the connector shells.
- Cables 2-3: These are rolled copper with Kapton tape on both sides round coax cables connecting the EUT main and auxiliary antenna ports to the loaded antennas. They have a metallic Hirose U.FL-LP-006 type of connectors at the EUT end and are hardwired to the loaded antennas.
- Cable 4: This is a 1-meter foil shielded round cable connecting the IBM host computer to the IBM keyboard. It has a metallic 6 pin Mini DIN type connector at the computer end and is hardwired at the keyboard end. The shield of the cable is grounded to the chassis via the connector shell.
- Cable 5: This is a 1-meter foil shielded round cable connecting the IBM host computer to the IBM mouse. It has a metallic 6 pin Mini DIN type connector at the computer end and is hardwired at the mouse end. The shield of the cable is grounded to the chassis via the connector shell.

4.0 TEST EQUIPMENT AND TEST SETUPS

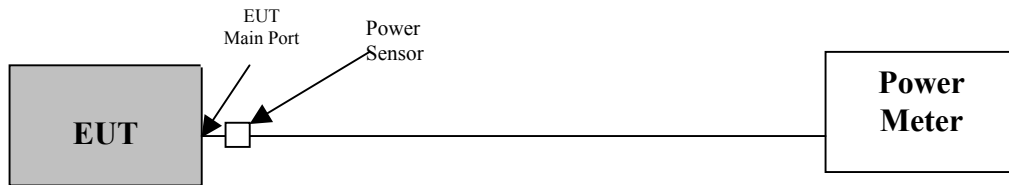
The test equipment settings and functions are selected using the guidance of ANSI C63.4-1992. All test equipment setups and operations during testing are in accordance with this reference document.

4.1 Maximum Peak Output Power Measurement

A power meter along with a power sensor was used to measure the maximum peak output power. The low (channel 1), middle (channel 6), and high (channel 11) were measured as well as data rates 1, 5.5, and 11 Mbps.

The EUT maximum peak output power is less than 1 Watt. Please refer to Appendix I for the data sheets.

4.1.1 Maximum Peak Output Power Measurement – Test Setup



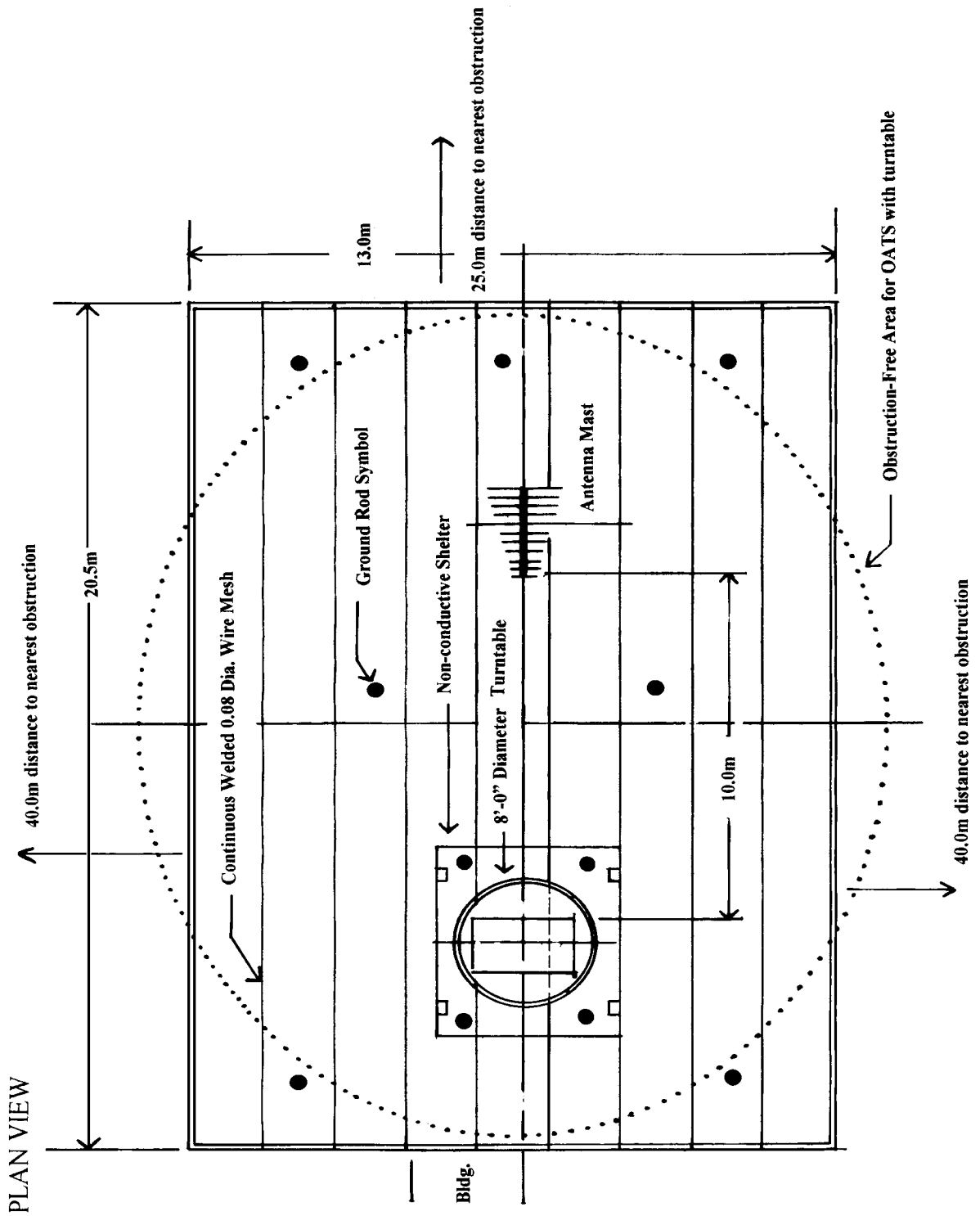
4.2 Spurious Radiated Emissions

A spectrum analyzer was used as the measuring instrumentation. The pre-amplifiers were used to increase the sensitivity of the instrument. The spectrum analyzer was used in the peak detector mode with the “max-hold” feature activated and in Positive Peak mode. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps. The average detector was used only for those readings, which are marked accordingly in the data sheet. These measurement readings were taken with the transducer placed at a 3-meter test distance from the EUT.

The Open Area Test Sites (OATS) was used for radiated emission testing. The test site is designed according to ANSI C63.4: 1992 and ANSI C63.7: 1992 guidelines. The Measurements were conducted in accordance with ANSI C63.4: 1992 and ANSI C63.7: 1992 requirements.

Broadband antennas were used as transducers during the measurement reading phase. The six highest emission readings in both horizontal and vertical polarities are highlighted on the data sheets in Appendix I.

4.2.1 Spurious Radiated Emissions – Test Setup



5.0 MODIFICATIONS AND RECOMMENDATIONS

There were no modifications done to the EUT.

APPENDIX I

DATA SHEETS

MAXIMUM PEAK OUTPUT POWER MEASUREMENT

CLIENT:	Intel Corporation	DATE:	02/06/03
EUT:	Mini PCI Type 3A Single Band 802.11b WLAN Adapter	PROJECT NUMBER:	INTEL-030205-01
MODEL NUMBER:	WM3A2100	TEST ENGINEER:	Rick Candelas
SERIAL NUMBER:	000423468014	SITE #:	2
CONFIGUARTION: Installed outside of IBM NetVista Desktop Computer, SN: KAOL42K		TEMPERATURE:	17 C
		HUMIDITY:	26% RH
		TIME:	7:00 PM

Standard:	FCC CFR 47, Part 15, 15.247(b)
Description:	Peak Output Power – Conducted
Results:	Maximum Peak Output Power is less than 1 W. 44.77 mW @ Channel 1 at a data rate of 1 Mbps

Frequency (MHz)	Rate (Mbps)	Power (dBm)	Cable Factor (dB)	Power Corrected (dBm)	Power (mW)
2412.00	1	16.36	0.15	16.51	44.77
2412.00	5.5	16.08	0.15	16.23	41.98
2412.00	11	15.99	0.15	16.14	41.11
2437.00	1	16.35	0.15	16.50	44.67
2437.00	5.5	16.00	0.15	16.15	41.21
2437.00	11	15.95	0.15	16.10	40.74
2462.00	1	16.30	0.15	16.45	44.16
2462.00	5.5	16.00	0.15	16.15	41.21
2462.00	11	15.89	0.15	16.04	40.18

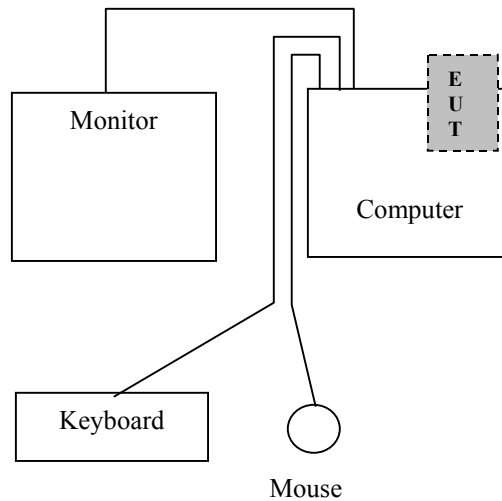
NOTE: Using CRTU Ver. 1.1.7 software provided by Intel Corporation to set power limits.

MAXIMUM PEAK OUTPUT POWER MEASUREMENT (Continued)

TEST EQUIPMENT USED					
Equipment Name	Manufacturer	Model Number	Serial Number	Calibration Due Date	Calibration Cycle
Power Meter	Rohde & Schwarz	NRVS	DE30863	11/24/03	1 Year
Power Sensor	Leistungsmesskoph	NRV-Z5	844855/012	11/24/03	1 Year
Temperature / Humidity Monitor	Dickson	TH550	7255185	01/18/04	1 Year

EUT ACCESSORIES			
Equipment Name	Manufacturer	Model Number	Serial Number
NetVista Computer	IBM	21U	KAOL42K
Monitor	NEC	JC-1575VMA	2Y785821
Keyboard	IBM	SK-8811	1922408
Mouse	IBM	MU295	23-161493

BLOCK DIAGRAM



MAXIMUM PEAK OUTPUT POWER MEASUREMENT (Continued)

PHOTOGRAPHS



SPURIOUS RADIATED EMISSIONS

CLIENT:	Intel Corporation	DATE:	02/06/03
EUT:	Mini PCI Type 3A Single Band 802.11b WLAN Adapter	PROJECT NUMBER:	INTEL-030205
MODEL NUMBER:	WM3A2100	TEST ENGINEER:	Rick Candelas
SERIAL NUMBER:	000423468014	SITE #:	2
CONFIGUARTION: Installed outside of IBM NetVista Desktop Computer, SN: KAOL42K		TEMPERATURE:	12 C
		HUMIDITY:	11% RH
		TIME:	6:00 PM

Standard:	FCC CFR 47, Part 15, 15.247(c), 15.209
Description:	Spurious Emissions Measurements - Radiated
Results:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

SPURIOUS RADIATED EMISSIONS (Continued)

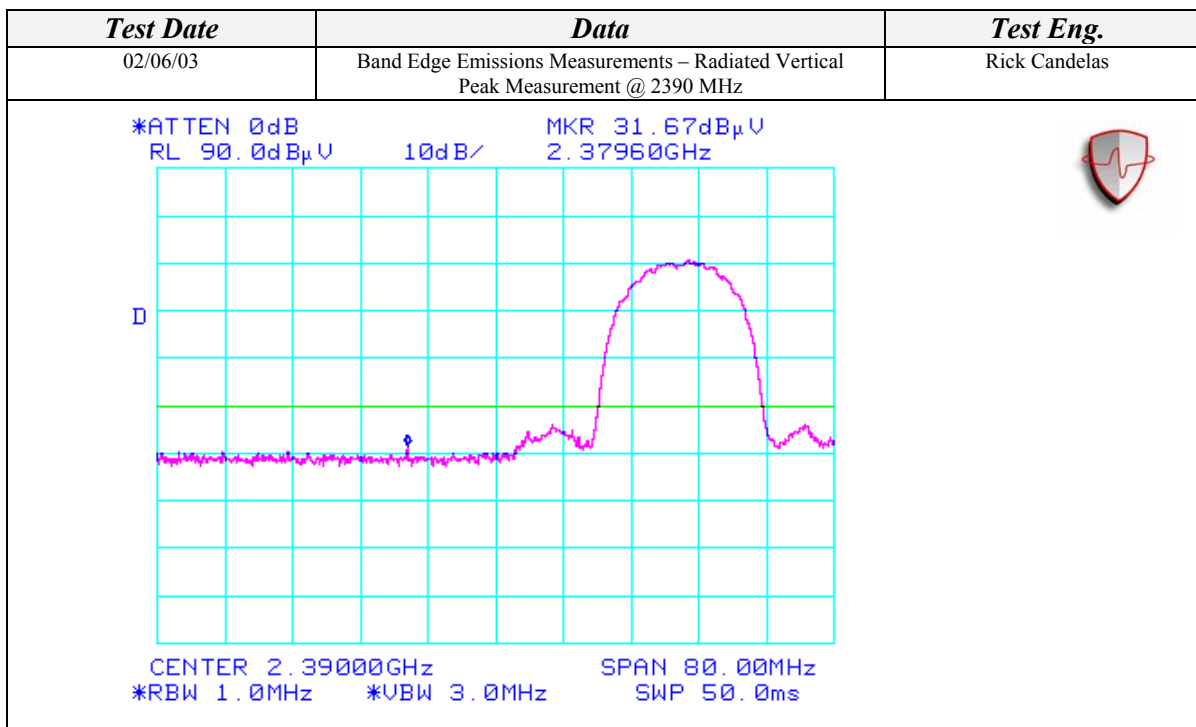
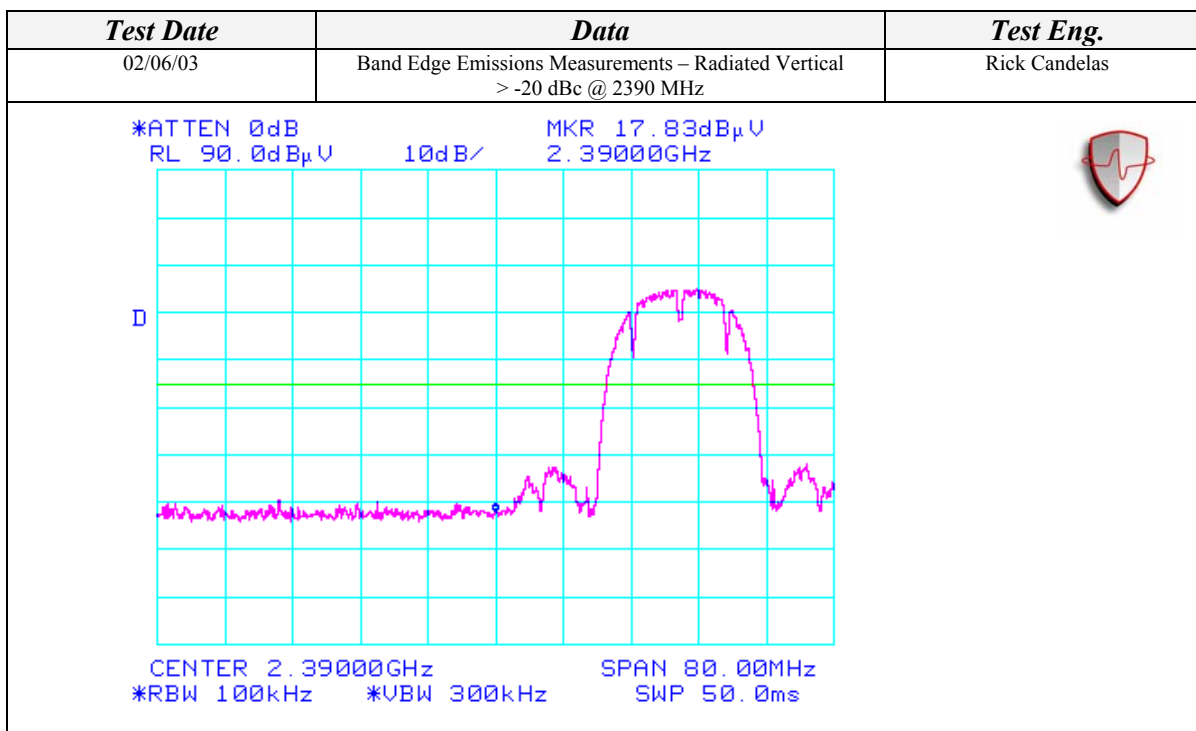
*Fundamental and Band Edge Measurements at Channels 1, 6, & 11
USING CF-73 802.11b ANTENNAS
 Aegis Labs, Inc. File #: INTEL-030205-02*

Horizontal Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>
2412.85	70.33	100	225			104.38		
2390.00	30.17	100	225			64.26	74.00	-9.74
2387.87				16.83	A	50.92	54.00	-3.08
2435.96	70.67	100	225			104.68		
2460.98	70.67	100	90			104.64		
2483.50	30.00	100	90			63.93	74.00	-10.07
2483.50				17.67	A	51.60	54.00	-2.40

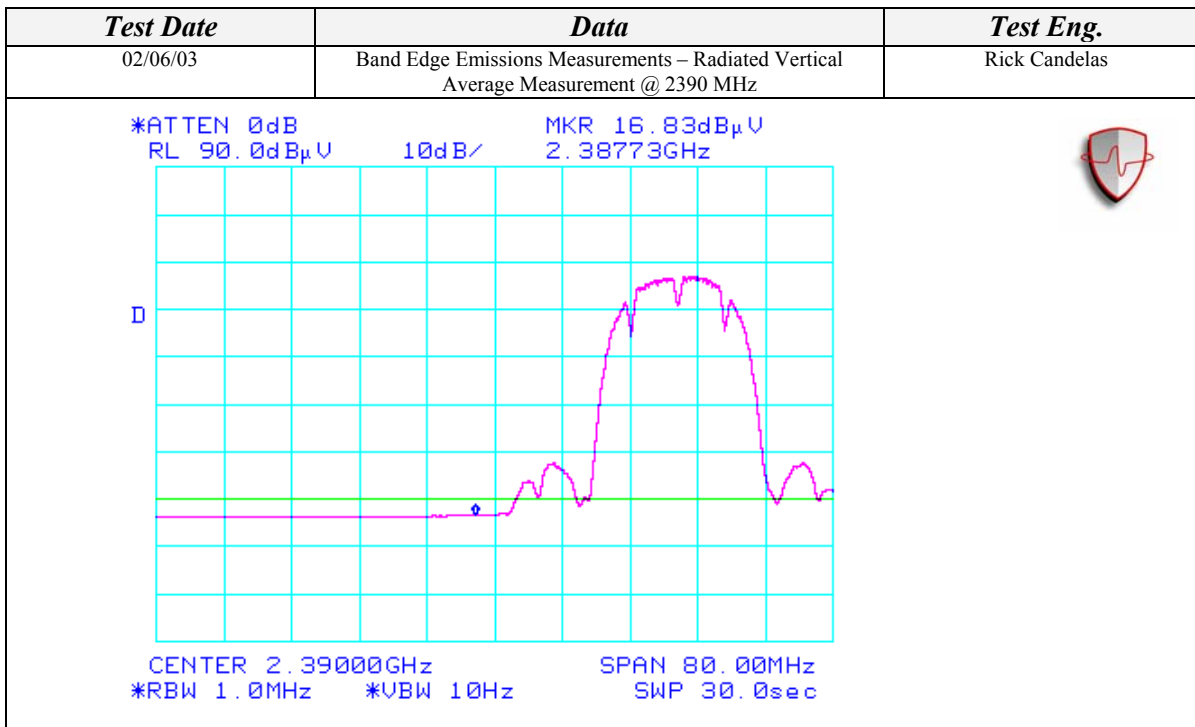
Vertical Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>
2412.85	70.00	100	180			104.05		
2379.60	31.67	100	180			65.78	74.00	-8.22
2387.73				16.83	A	50.92	54.00	-3.08
2435.98	70.83	125	315			104.84		
2461.09	70.33	125	315			104.30		
2486.43	32.50	125	315			66.42	74.00	-7.58
2483.50				17.83	A	51.76	54.00	-2.24

SPURIOUS RADIATED EMISSIONS (Continued)

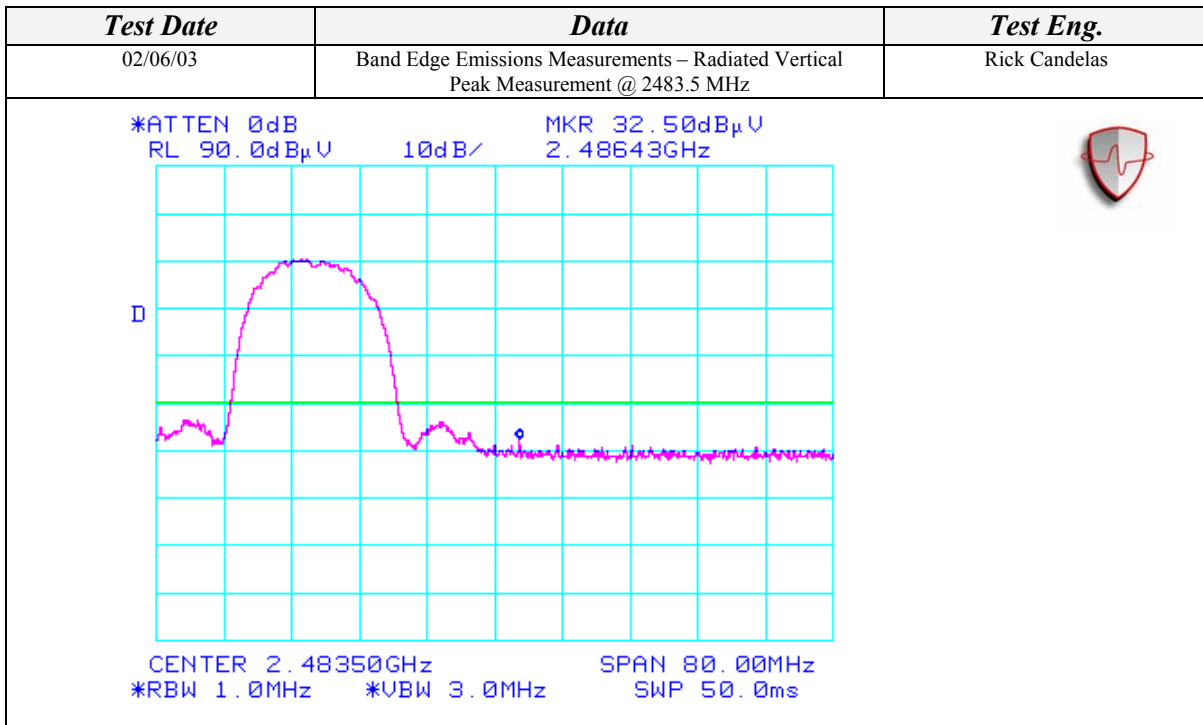
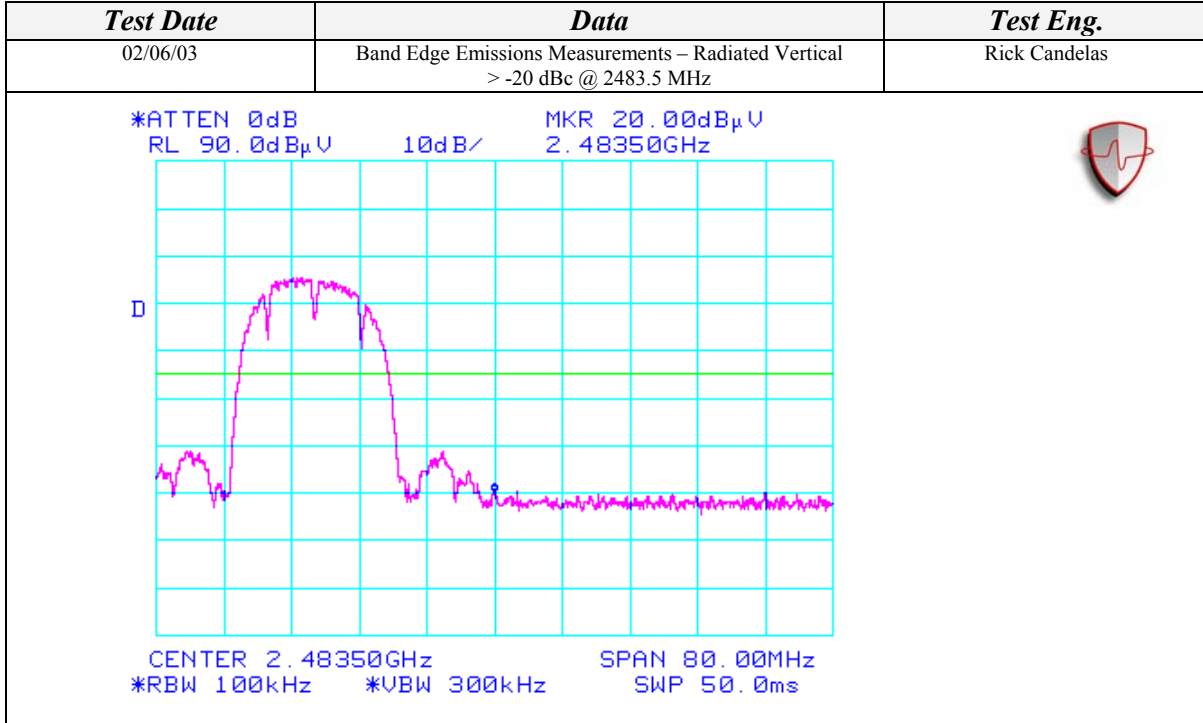
Band Edge Measurement Plots at Channels 1 & 11



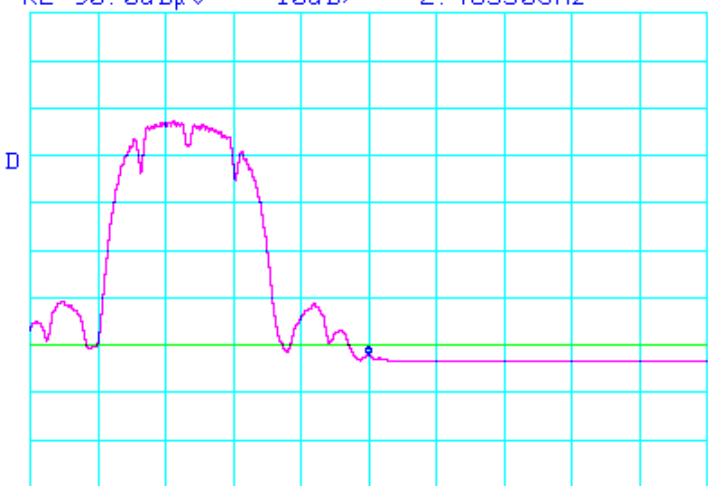
SPURIOUS RADIATED EMISSIONS (Continued)



SPURIOUS RADIATED EMISSIONS (Continued)

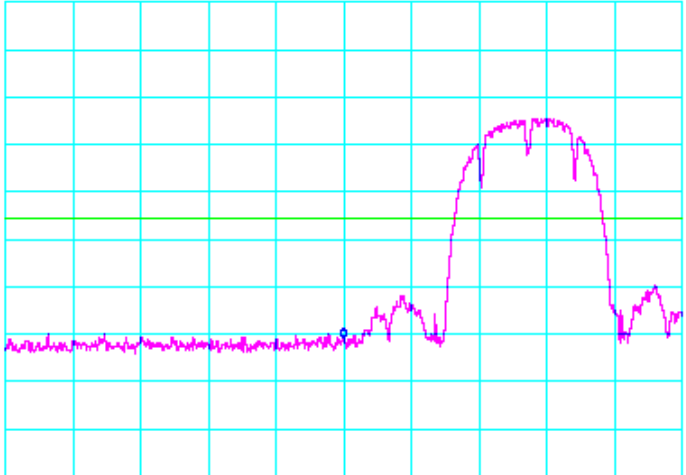


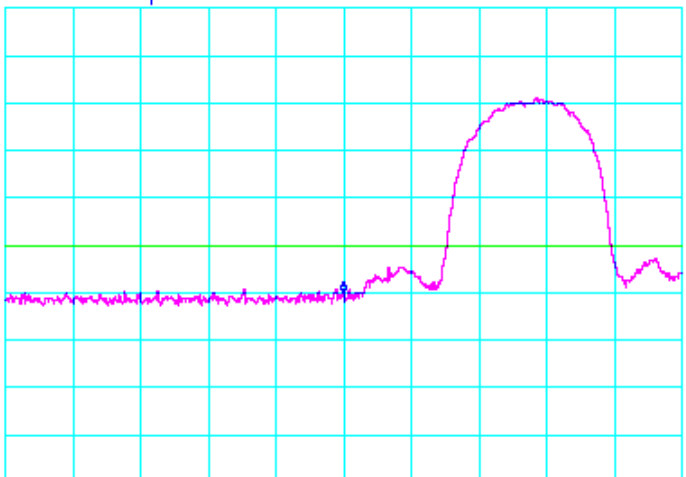
SPURIOUS RADIATED EMISSIONS (Continued)

<i>Test Date</i>	<i>Data</i>	<i>Test Eng.</i>
02/06/03	Band Edge Emissions Measurements – Radiated Vertical Average Measurement @ 2483.5 MHz	Rick Candelas
<p>*ATTEN 0dB MKR 17.83dBμV RL 90.0dBμV 10dB/ 2.48350GHz</p>  <p>CENTER 2.48350GHz SPAN 80.00MHz *RBW 1.0MHz *VBW 10Hz SWP 30.0sec</p>		

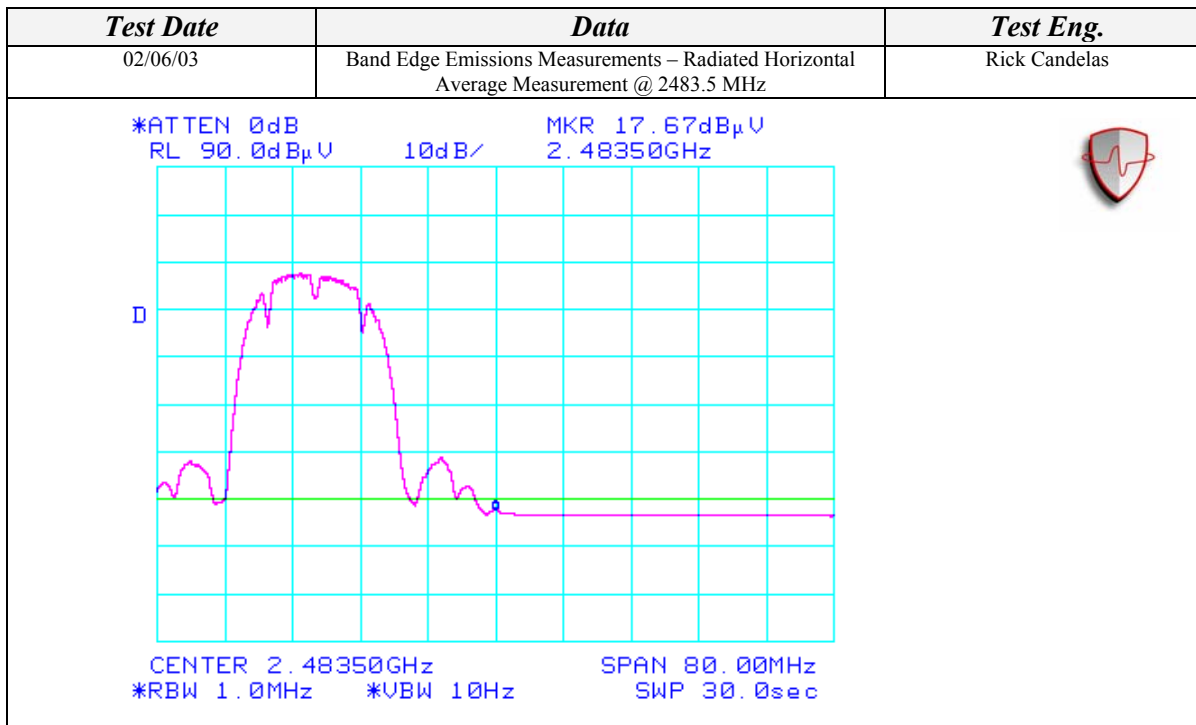


SPURIOUS RADIATED EMISSIONS (Continued)

<i>Test Date</i>	<i>Data</i>	<i>Test Eng.</i>
02/06/03	Band Edge Emissions Measurements – Radiated Horizontal > -20 dBc @ 2390 MHz	Rick Candelas
<div style="display: flex; justify-content: space-between;"> <div style="font-family: monospace;"> *ATTEN 0dB RL 90.0dBµV 10dB/ MKR 19.17dBµV 2.39000GHz </div> <div style="text-align: right;"> </div> </div>  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="font-family: monospace;"> CENTER 2.39000GHz *RBW 100kHz *VBW 300kHz </div> <div style="font-family: monospace;"> SPAN 80.00MHz SWP 50.0ms </div> </div>		

<i>Test Date</i>	<i>Data</i>	<i>Test Eng.</i>
02/06/03	Band Edge Emissions Measurements – Radiated Horizontal Peak Measurement @ 2390 MHz	Rick Candelas
<div style="display: flex; justify-content: space-between;"> <div style="font-family: monospace;"> *ATTEN 0dB RL 90.0dBµV 10dB/ MKR 30.17dBµV 2.39000GHz </div> <div style="text-align: right;"> </div> </div>  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="font-family: monospace;"> CENTER 2.39000GHz *RBW 1.0MHz *VBW 3.0MHz </div> <div style="font-family: monospace;"> SPAN 80.00MHz SWP 50.0ms </div> </div>		

SPURIOUS RADIATED EMISSIONS (Continued)



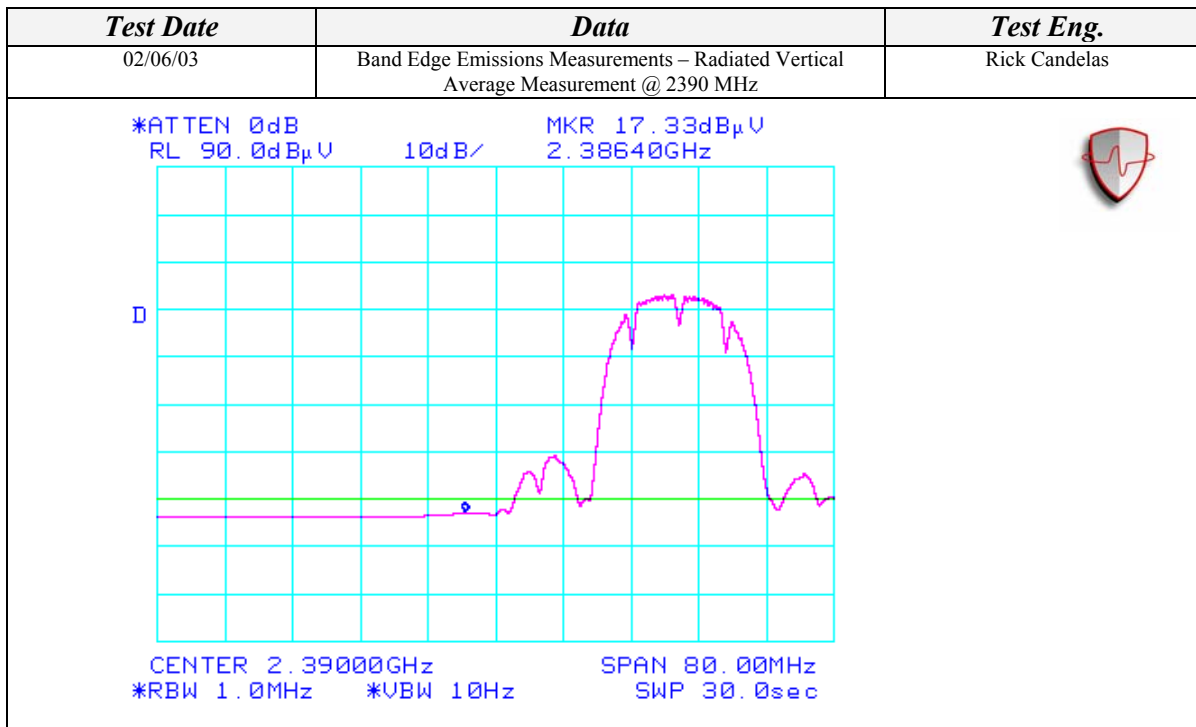
SPURIOUS RADIATED EMISSIONS (Continued)

*Fundamental and Band Edge Measurements at Channels 1, 6, & 11
USING WLAN PIFA ANTENNAS
 Aegis Labs, Inc. File #: INTEL-030205-02*

Horizontal Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>
2411.09	61.00	100	135			95.05		
2389.87	30.17	100	135			64.26	74.00	-9.74
2386.80				16.67	A	50.76	54.00	-3.24
2435.96	61.83	125	225			95.84		
2461.00	63.00	125	180			96.97		
2483.50	29.50	125	180			63.43	74.00	-10.57
2483.50				17.00	A	50.93	54.00	-3.07

Vertical Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>
2410.97	66.17	125	270			100.22		
2389.87	32.50	125	270			66.59	74.00	-7.41
2386.64				17.33	A	51.42	54.00	-2.58
2436.00	64.33	100	270			98.34		
2461.01	64.17	125	270			98.14		
2483.50	29.17	125	270			63.10	74.00	-10.90
2483.50				17.00	A	50.93	54.00	-3.07

SPURIOUS RADIATED EMISSIONS (Continued)




SPURIOUS RADIATED EMISSIONS (Continued)

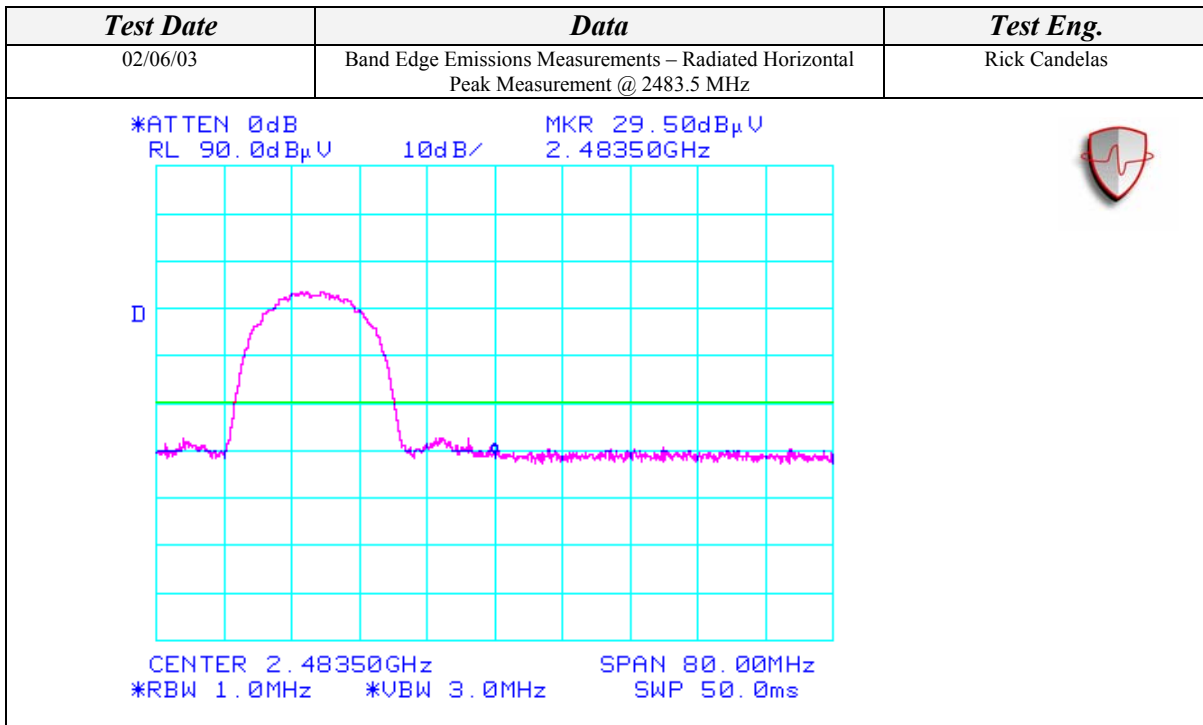
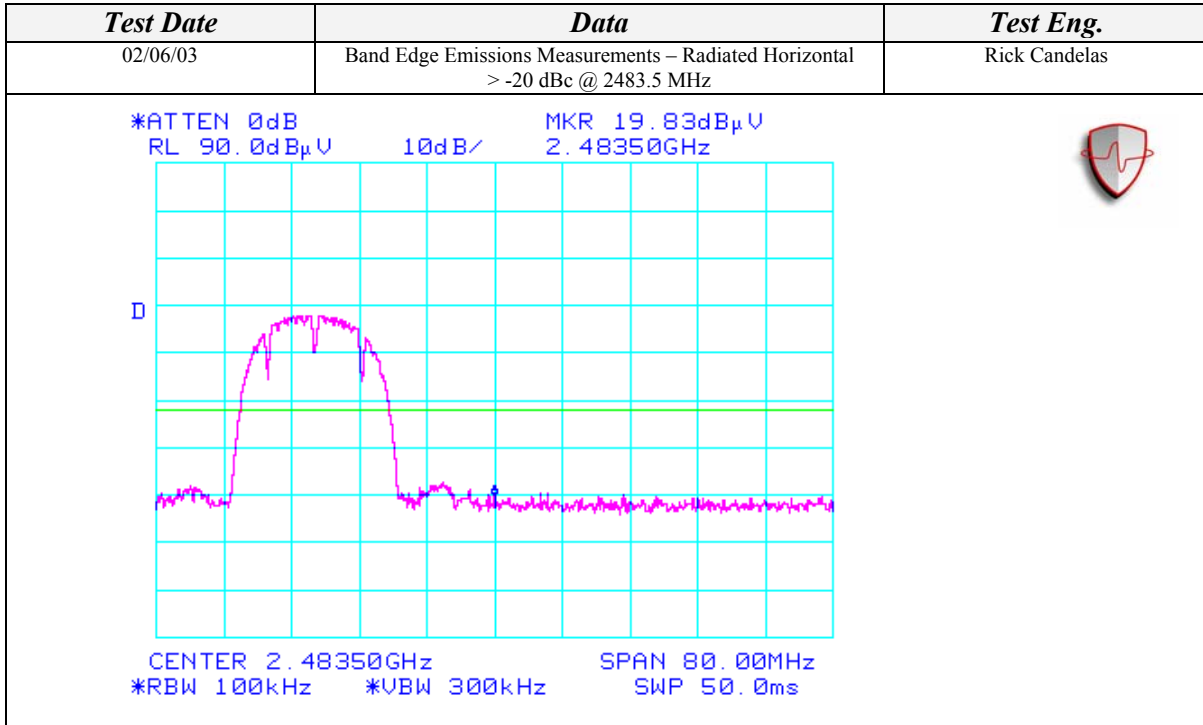
<i>Test Date</i>	<i>Data</i>	<i>Test Eng.</i>
02/06/03	Band Edge Emissions Measurements – Radiated Horizontal Average Measurement @ 2390 MHz	Rick Candelas

*ATTEN 0dB	MKR 16.67dBμV	
RL 90.0dBμV	10dB/	2.38680GHz

CENTER 2.39000GHz SPAN 80.00MHz
*RBW 1.0MHz *VBW 10Hz SWP 30.0sec



SPURIOUS RADIATED EMISSIONS (Continued)



SPURIOUS RADIATED EMISSIONS (Continued)

*Harmonic Measurements at Channels 1, 6, & 11@ 1Mbps Data Rate
USING CF-73 802.11b ANTENNAS
 Aegis Labs, Inc. File #: INTEL-030205-03*

Horizontal Open Field Maximized Data								
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
4824.00	45.67	100	135			48.78	74.00	-25.22
4824.00				37.37	A	40.48	54.00	-13.52
7236.38	43.67	100	180			53.18	74.00	-20.82
7236.38				31.45	A	40.96	54.00	-13.04
9648.16	45.17	100	135			54.02	84.38	-30.36
4873.91	43.17	100	135			46.46	74.00	-27.54
4873.91				32.06	A	35.35	54.00	-18.65
7311.34	43.83	100	225			53.22	74.00	-20.78
7311.34				31.01	A	40.40	54.00	-13.60
9747.81	45.67	100	135			54.75	84.68	-29.93
4923.89	45.33	100	135			48.81	74.00	-25.19
4923.89				36.04	A	39.52	54.00	-14.48
7372.83	45.67	100	180			54.97	74.00	-19.03
7372.83				31.98	A	41.28	54.00	-12.72
9830.67	45.17	100				54.45	84.64	-30.19
Vertical Open Field Maximized Data								
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL
4823.86	45.17	100	225			48.27	74.00	-25.73
4823.86				35.67	A	38.77	54.00	-15.23
7235.74	43.50	100	180			53.01	74.00	-20.99
7235.74				31.66	A	41.17	54.00	-12.83
9647.86	44.50	100	180			53.34	84.05	-30.71
4873.91	44.17	100	225			47.46	74.00	-26.54
4873.91				35.27	A	38.56	54.00	-15.44
7310.54	43.50	100	135			52.89	74.00	-21.11
7310.54				30.52	A	39.91	54.00	-14.09
9748.11	45.50	100	135			54.59	84.84	-30.25
4924.16	44.67	100	225			48.15	74.00	-25.85
4924.16				34.36	A	37.84	54.00	-16.16
7386.16	44.67	100	225			53.95	74.00	-20.05
7386.16				32.01	A	41.29	54.00	-12.71
9848.03	45.17	100	180			54.50	84.30	-29.80

SPURIOUS RADIATED EMISSIONS (Continued)

*Harmonic Measurements at Channels 1, 6, & 11@ 1Mbps Data Rate
USING WLAN PIFA ANTENNAS
Aegis Labs, Inc. File #: INTEL-030205-03*

Horizontal Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	
4824.12	45.33	100	225		48.44	74.00	-25.56	
4824.12				36.58	A	39.69	54.00	-14.31
7236.46	44.67	100	225		54.18	74.00	-19.82	
7236.46				31.56	A	41.07	54.00	-12.93
9648.03	45.17	100	180		54.02	75.05	-21.03	
4874.07	43.67	100	225		46.96	74.00	-27.04	
4874.07				32.31	A	35.60	54.00	-18.40
7311.13	44.00	100	135		53.39	74.00	-20.61	
7311.13				32.54	A	41.93	54.00	-12.07
9748.24	45.33	100	180		54.42	75.84	-21.42	
4923.97	46.67	100	225		50.15	74.00	-23.85	
4923.97				37.56	A	41.04	54.00	-12.96
7385.86	45.17	100	180		54.45	74.00	-19.55	
7385.86				32.51	A	41.79	54.00	-12.21
9847.88	45.50	100	180		54.82	76.97	-22.15	
Vertical Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	
4824.02	45.17	100	180		48.28	74.00	-25.72	
4824.02				34.25	A	37.36	54.00	-16.64
7236.45	44.00	100	135		53.51	74.00	-20.49	
7236.45				34.18	A	43.69	54.00	-10.31
9647.61	44.67	100	135		53.51	80.22	-26.71	
4873.88	44.67	100	225		47.96	74.00	-26.04	
4873.88				35.21	A	38.50	54.00	-15.50
7311.41	44.50	100	180		53.89	74.00	-20.11	
7311.41				32.41	A	41.80	54.00	-12.20
9747.72	45.67	100	180		54.75	78.34	-23.59	
4923.98	46.00	100	225		49.48	74.00	-24.52	
4923.98				38.87	A	42.35	54.00	-11.65
7385.99	44.50	100	225		53.78	74.00	-20.22	
7385.99				32.58	A	41.86	54.00	-12.14
9848.23	45.50	100	135		54.83	78.14	-23.31	

SPURIOUS RADIATED EMISSIONS (Continued)

*Spurious Emissions Measurements on Ch. 1 @ 1Mbps Data Rate
USING CF-73 802.11b ANTENNAS
 Aegis Labs, Inc. File #: INTEL-030205-04*

Horizontal Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) + = FAIL</i>
1125.49	56.67	100	135			48.38	74.00	-25.62
1125.49				44.58	A	36.29	54.00	-17.71
1347.70	53.83	100	180			46.89	74.00	-27.11
1347.70				40.01	A	33.07	54.00	-20.93
1461.25	57.00	100	180			51.17	74.00	-22.83
1461.25				40.25	A	34.42	54.00	-19.58
1596.68	51.83	100	180			46.64	74.00	-27.36
1596.68				37.13	A	31.94	54.00	-22.06
1723.10	57.83	100	225			54.12	84.38	-30.26

Vertical Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) + = FAIL</i>
1125.22	51.67	100	180			43.37	74.00	-30.63
1125.22				41.25	A	32.95	54.00	-21.05
1464.43	54.67	100	180			48.86	74.00	-25.14
1464.43				36.03	A	30.22	54.00	-23.78
1542.68	53.00	100	180			47.77	74.00	-26.23
1542.68				39.52	A	34.29	54.00	-19.71

SPURIOUS RADIATED EMISSIONS (Continued)

*Spurious Emissions Measurements on Ch. 1 @ 1Mbps Data Rate
USING WLAN PIFA ANTENNAS
 Aegis Labs, Inc. File #: INTEL-030205-04*

Horizontal Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +/-FAIL</i>
1123.37	55.50	100	135			47.18	74.00	-26.82
1123.37				44.12	A	35.80	54.00	-18.20
1348.34	53.83	100	180			46.90	74.00	-27.10
1348.34				40.25	A	33.32	54.00	-20.68
1461.46	56.83	100	180			51.00	74.00	-23.00
1461.46				42.52	A	36.69	54.00	-17.31
1594.74	52.17	100	180			46.98	74.00	-27.02
1594.74				39.42	A	34.23	54.00	-19.77
1729.64	55.00	100	135			51.38	75.05	-23.67

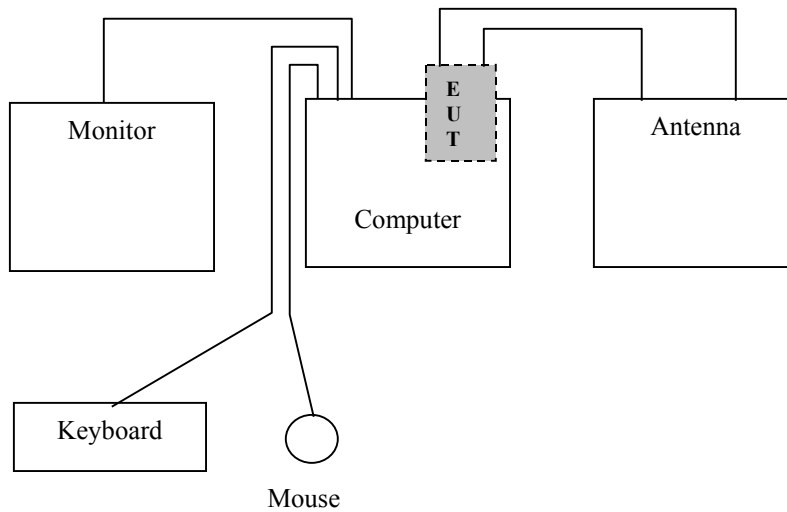
Vertical Open Field Maximized Data								
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +/-FAIL</i>
1125.32	51.17	100	225			42.87	74.00	-31.13
1125.32				39.52	A	31.22	54.00	-22.78
1460.89	55.67	100	180			49.84	74.00	-24.16
1460.89				38.65	A	32.82	54.00	-21.18
1591.26	49.67	100	180			44.48	74.00	-29.52
1591.26				33.14	A	27.95	54.00	-26.05

SPURIOUS RADIATED EMISSIONS (Continued)

TEST EQUIPMENT USED					
Equipment Name	Manufacturer	Model Number	Serial Number	Calibration Due Date	Calibration Cycle
Spectrum Analyzer	Agilent	8564EC	4046A00387	02/28/04	2 Years
Preamplifier	Agilent	8449B	3008A01573	04/29/03	1 Year
Antenna - Horn	Com-Power	AH-118	10069	12/09/03	1 Year
Temperature/Humidity Monitor	Dickson	TH550	7255185	01/18/04	1 Year

EUT ACCESSORIES			
Equipment Name	Manufacturer	Model Number	Serial Number
NetVista Computer	IBM	21U	KAOL42K
Monitor	NEC	JC-1575VMA	2Y785821
Keyboard	IBM	SK-8811	1922408
Mouse	IBM	MU295	23-161493

BLOCK DIAGRAM



SPURIOUS RADIATED EMISSIONS (Continued)

PHOTOGRAPHS

