360 Herndon Parkway
Suite 1400
Herndon, VA 20170
http://www.rheintech.com

RTL Work Order: 2001336
RTL Quote Number: QRTL01-382H
Date of Tests: 1-7-2002 to 1-11-2002

CERTIFICATE OF COMPLIANCE
FCC PART 15.247 CERTIFICATION & INDUSTRY CANADA CERTIFICATION

Test Lab:	Applicant Information:
Rhein Tech Laboratories, Inc. 360 Herndon Parkway Suite 1400 Herndon, VA 20170 Phone: 703-689-0368 Fax: 703-689-2056 Web Site: www.rheintech.com	ICOM Incorporated 1-6-19 Kamikurazukuri Hirano-ku Osaka, Japan 547 Contact: Masaaki Takahashi Phone: 425-454-8155 E-Mail: MasaakiTakahashi@IcomAmerica.com

FCC ID:	AFJ SB-110	**FRN NUMBER:**	0005-8553-90
EQUIPMENT TYPE:	Access Point	**MODEL(S):**	SB-110
RTL WORK ORDER NUMBER:	2001336	**RTL QUOTE NUMBER:**	QRTL01-382H
DATE OF TEST REPORT:	1-11-2002		

FCC Classification:	☐ DSS – Spread Spectrum Transmitter ☒ DTS – Digital Transmission System
FCC Rule Part(s):	Part 15.247: Operation within the bands 920-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz ☐ Frequency Hopping System ☒ Direct Sequence System ☐ Hybrid System
Industry Canada Standard:	RSS-210: Low Power License-Exempt Radiocommunication Devices (All Frequency Bands) RSS-210 Section 6.2.2(o): 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz

Frequency Range (MHz)	Conducted Output Power (W)	Freq. Tolerance (ppm, %, or Hz)	Emission Designator
2410-2462	.015	N/A	N/A

We, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards.

Furthermore, there was no deviation from, additions to or exclusions from the FCC Part 2, FCC Part 15, Industry Canada RSS-210 and RSS 139, and ANSI C63.4.

Signature: 

Date: January 25, 2002

Typed/Printed Name: Bruno Clavier

Position: Vice President of Operations
(NVLAP Signatory)

NVLAP *Accredited by the National Voluntary Accreditation Program for the specific scope of accreditation under Lab Code 200061-0.*

Note: This report may not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

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1 GENERAL INFORMATION

1.1 SCOPE

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.

IC RSS-210 Section 6.2.2(o): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.

A direct sequence (DS) system is a spread spectrum (SS) system in which the carrier has been modulated by a high speed spreading code and an information data stream. The high speed code sequence dominates the "modulating function" and is the direct cause of the wide spreading of the transmitted signal.

1.2 TEST FACILITY

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communication Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4 1992).

1.3 RELATED SUBMITAL(S)/GRANT(S)

This is an original application for Certification. A DoC report is on file for the receiver section and digital interface for the EUT. The IF, LO and up to the 2nd LO were investigated.

2 EQUIPMENT INFORMATION

2.1 APPLICANT AND EQUIPMENT INFORMATION

Test Lab:	Applicant Information:
Rhein Tech Laboratories, Inc. 360 Herndon Parkway Suite 1400 Herndon, VA 20170 Phone: 703-689-0368 Fax: 703-689-2056 Web Site: www.rheintech.com	ICOM Incorporated 1-6-19 Kamikurazukuri Hirano-ku Osaka, Japan 547 Contact: Masaaki Takahashi Phone: 425-454-8155 E-Mail: MasaakiTakahashi@IcomAmerica.com

FCC ID:	AFJ SB-110	**FRN NUMBER:**	0005-8553-90
EQUIPMENT TYPE:	Access Point	**MODEL(S):**	SB-110
RTL WORK ORDER NUMBER:	2001336	**RTL QUOTE NUMBER:**	QRTL01-382H
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FCC Classification:	☐ DSS – Spread Spectrum Transmitter ☒ DTS – Digital Transmission System
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Industry Canada Standard:	RSS-210: Low Power License-Exempt Radiocommunication Devices (All Frequency Bands) RSS-210 Section 6.2.2(o): 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz

Frequency Range (MHz)	Conducted Output Power (W)	Freq. Tolerance (ppm, %, or Hz)	Emission Designator
2410-2462	.015	N/A	N/A

2.2 JUSTIFICATION

The EUT was tested in all three orthogonal planes in order to determine worst-case emissions. Channel 1 at 2.410 GHz, Channel 6 at 2.437 GHz and channel 11 at 2.462 GHz were tested and investigated from 9 kHz to 24.620 GHz. Data for all three channels is presented in this report.

The EUT was investigated with the external antenna. The worst-case data taken in this report represents the highest data rate at 11 Mbps. Data rates of 5.5 Mbps, 2 Mbps and 1 Mbps were investigated and found to be in compliance. The change in envelope did not cause the EUT to be non-compliant in any of the aforementioned modes.

2.3 EXERCISING THE EUT

The EUT was provided with the software to continuously transmit during testing. The carrier was also checked to verify that the information was being transmitted.

2.4 TEST SYSTEM DETAILS

The FCC Identifiers for all equipment, plus descriptions of all cables used in the tested system are:

TABLE 2-1: EQUIPMENT UNDER TEST (EUT)

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Description	RTL Bar Code
Wireless LAN Bridge	ICOM America	SB-110	000004	AFJSB-110	Unshielded CAT5 IO	013979
AC/DC Converter	DVE	DSA-0151F-12	3872F215	N/A	Unshielded	013983

TABLE 2-2: EXTERNAL COMPONENTS IN TEST CONFIGURATION

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Description	RTL Bar Code
Ethernet Hub	Phoebe	OCTOPUS5TX	1040017893	N/A	Unshielded CAT5 IO Unshielded Power	901216

2.5 CONFIGURATION OF TESTED SYSTEM

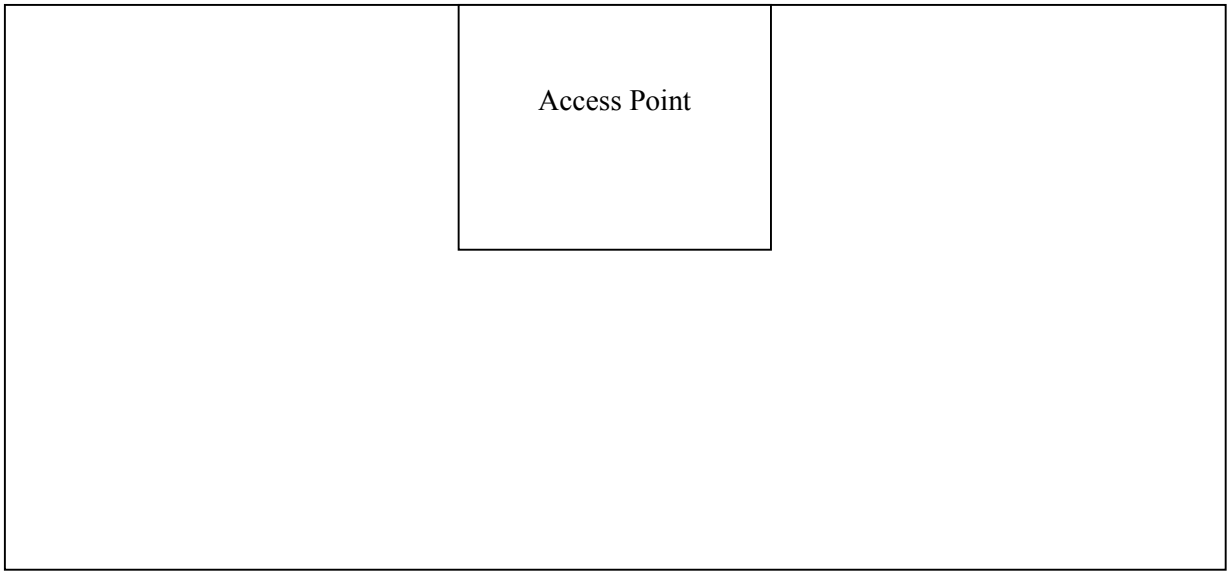


FIGURE 2-1: TEST CONFIGURATION

3 COMPLIANCE WITH THE RESTRICTED BAND EDGE - §15.205

3.1 TEST PROCEDURE

Compliance with the band edges was performed using the FCC's "Radiated Measurement at a Band Edge" guidance document. The final data derived below were from radiated measurements only. The data taken in this report represents the worst case at 11 Mbps. Data rates of 5.5Mbps, 2 Mbps and 1 Mbps were investigated and found to be in compliance.

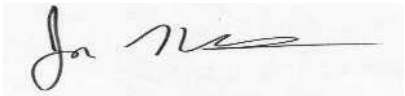
3.2 COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA

TABLE 3-1: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA

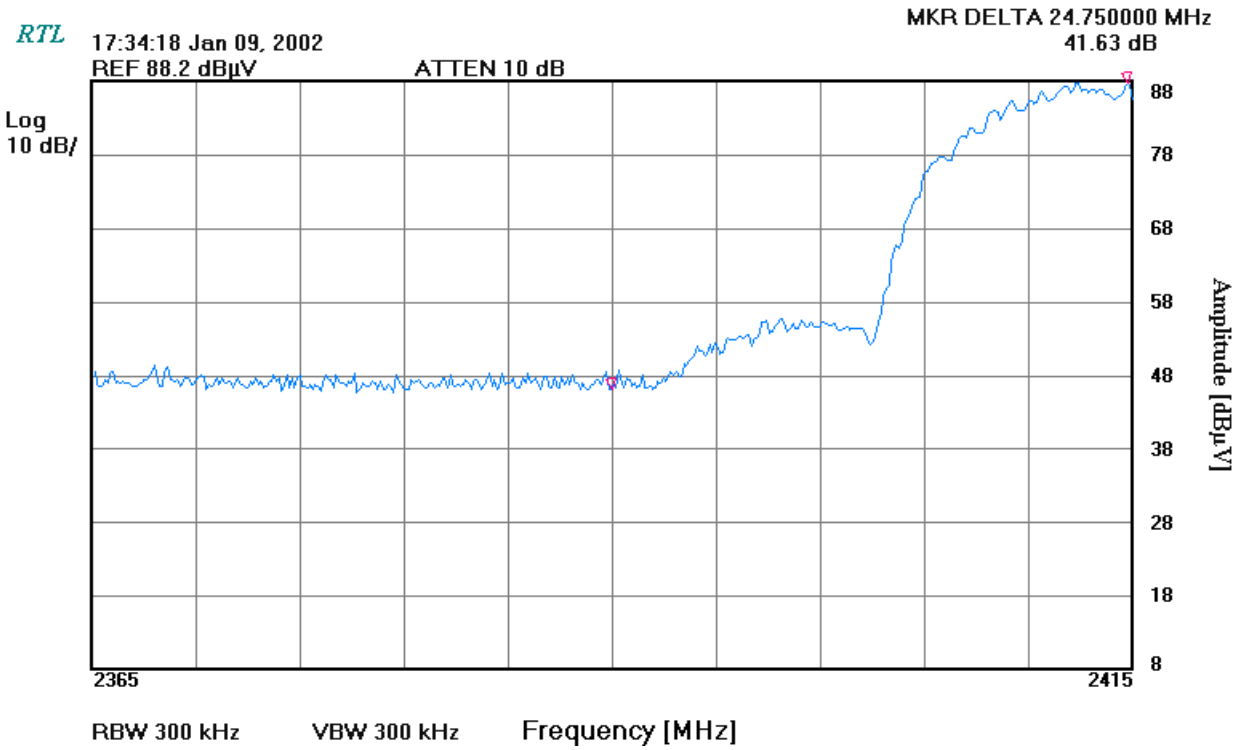
Channel Set to	Frequency tested MHz	Detector	Corrected Field Strength Level (dBµV/m)	Delta Marker (dB)	Level Corrected (dBµV/m)	FCC Limit (dBµV/m)	FCC Margin (dB)
1	2390.0	Pk	88.2	41.6	46.6	54.0	-7.4
11	2483.5	Pk	89.5	42.5	47.0	54.0	-7.0

* The field strength level, shown on plots 3-3 and 3-4, does not include the site correction factor

TEST PERSONNEL:

Jon Wilson		1-9-2002
Test Technician/Engineer	Signature	Date Of Test

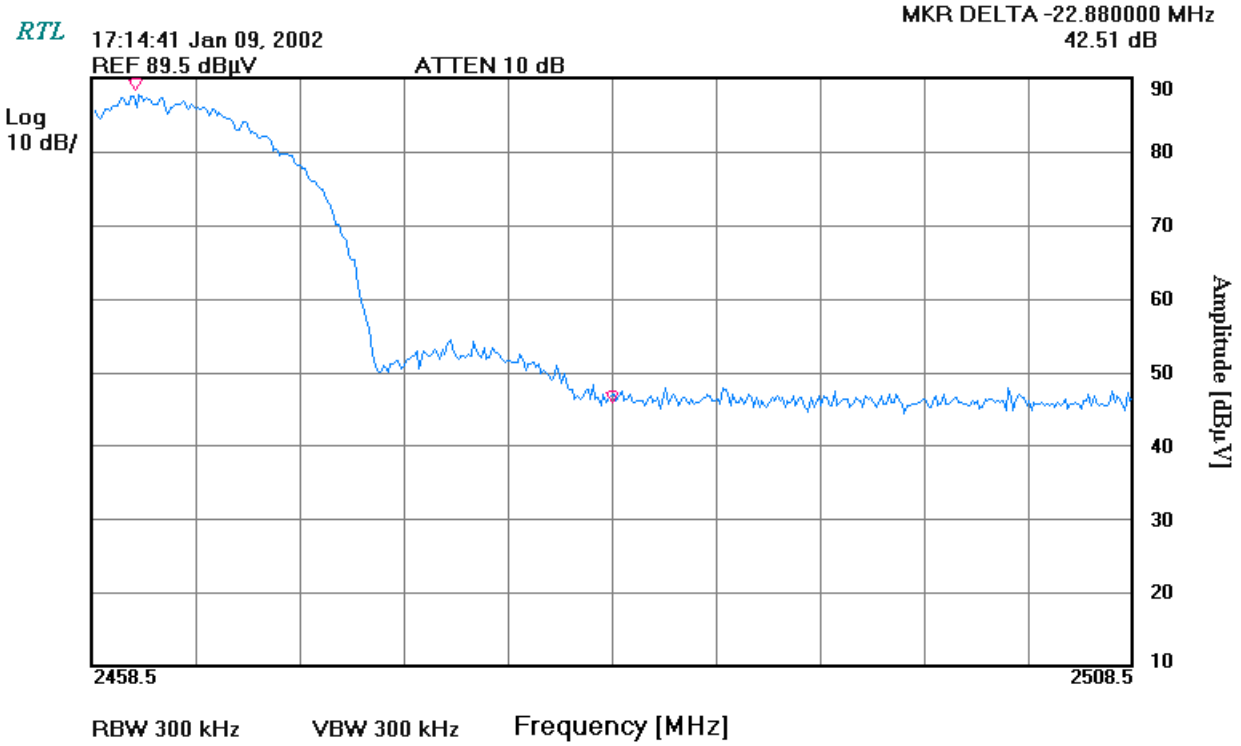
PLOT 3-1: BAND EDGE: DELTA MEASUREMENT FOR CHANNEL 1



TEST PERSONNEL:

Jon Wilson		1-9-2002
Test Technician/Engineer	Signature	Date Of Test

PLOT 3-2: BAND EDGE: DELTA MEASUREMENT FOR CHANNEL 11



TEST PERSONNEL:

Jon Wilson		1-9-2002
Test Technician/Engineer	Signature	Date Of Test

4 CONDUCTED LIMITS - §15.207

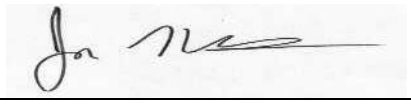
TABLE 4-1: CONDUCTED EMISSIONS (CHANNEL 1) PHASE LINE {TEMPERATURE: 72°F / HUMIDITY: 36%}

Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC B Limit (dBuV)	FCC B Margin (dB)
1.430	Pk	36.6	0.9	37.5	48.0	-10.5
2.730	Qp	40.1	1.3	41.4	48.0	-6.6
4.030	Pk	38.5	1.4	39.9	48.0	-8.1
8.550	Pk	25.0	2.1	27.1	48.0	-20.9
16.290	Pk	21.5	2.8	24.3	48.0	-23.7
24.470	Pk	32.5	3.3	35.8	48.0	-12.2
26.720	Pk	35.9	3.4	39.3	48.0	-8.7
27.280	Pk	35.5	3.5	39.0	48.0	-9.0

TABLE 4-2: CONDUCTED EMISSIONS (CHANNEL 1) NEUTRAL LINE {TEMPERATURE: 72°F / HUMIDITY: 36%}

Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC B Limit (dBuV)	FCC B Margin (dB)
1.840	Pk	38.1	1.1	39.2	48.0	-8.8
2.870	Pk	38.5	1.3	39.8	48.0	-8.2
4.590	Pk	35.1	1.6	36.7	48.0	-11.3
5.770	Pk	29.5	1.8	31.3	48.0	-16.7
23.230	Pk	25.6	3.3	28.9	48.0	-19.1
25.830	Pk	30.3	3.4	33.7	48.0	-14.3
27.280	Pk	32.3	3.5	35.8	48.0	-12.2

TEST PERSONNEL:



Jon Wilson		1-7-2002
Test Technician/Engineer	Signature	Date Of Test

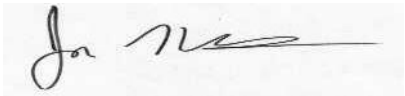
TABLE 4-3: CONDUCTED EMISSIONS (CHANNEL 6) NEUTRAL LINE {TEMPERATURE: 72°F / HUMIDITY: 36%}

Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC B Limit (dBuV)	FCC B Margin (dBuV)
0.540	Pk	31.4	0.7	32.1	48.0	-15.9
2.430	Qp	39.8	1.2	41.0	48.0	-7.0
3.880	Pk	40.9	1.4	42.3	48.0	-5.7
4.910	Pk	38.1	1.7	39.8	48.0	-8.2
9.290	Pk	23.8	1.9	25.7	48.0	-22.3
16.350	Pk	19.2	2.8	22.0	48.0	-26.0
23.230	Pk	27.5	3.3	30.8	48.0	-17.2
25.090	Pk	29.4	3.4	32.8	48.0	-15.2
27.310	Pk	31.9	3.5	35.4	48.0	-12.6

TABLE 4-4: CONDUCTED EMISSIONS (CHANNEL 6) PHASE LINE {TEMPERATURE: 72°F / HUMIDITY: 36%}

Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC B Limit (dBuV)	FCC B Margin (dBuV)
0.510	Pk	33.2	0.7	33.9	48.0	-14.1
1.450	Pk	35.7	0.9	36.6	48.0	-11.4
4.320	Pk	36.4	1.5	37.9	48.0	-10.1
17.770	Pk	22.8	2.9	25.7	48.0	-22.3
23.260	Pk	32.3	3.2	35.5	48.0	-12.5
26.630	Pk	33.0	3.4	36.4	48.0	-11.6
29.380	Pk	24.6	3.6	28.2	48.0	-19.8

TEST PERSONNEL:



Jon Wilson		1-7-2002
Test Technician/Engineer	Signature	Date Of Test

TABLE 4-5: CONDUCTED EMISSIONS (CHANNEL 11) PHASE LINE {TEMPERATURE: 72°F / HUMIDITY: 36%}

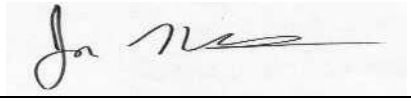
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC B Limit (dBuV)	FCC B Margin (dBuV)
1.220	Pk	36.8	0.8	37.6	48.0	-10.4
2.220	Pk	35.7	1.2	36.9	48.0	-11.1
8.780	Pk	21.2	2.1	23.3	48.0	-24.7
9.610	Pk	21.0	2.1	23.1	48.0	-24.9
17.770	Pk	21.1	2.9	24.0	48.0	-24.0
23.230	Pk	35.1	3.2	38.3	48.0	-9.7
25.830	Pk	32.6	3.4	36.0	48.0	-12.0
29.410	Pk	24.5	3.6	28.1	48.0	-19.9

TABLE 4-6: CONDUCTED EMISSIONS (CHANNEL 11) NEUTRAL LINE {TEMPERATURE: 72°F / HUMIDITY: 36%}

Neutral Line

Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	FCC B Limit (dBuV)	FCC B Margin (dBuV)
1.600	Pk	35.8	1.0	36.8	48.0	-11.2
2.900	Pk	38.0	1.3	39.3	48.0	-8.7
5.300	Pk	34.9	1.7	36.6	48.0	-11.4
24.680	Pk	29.3	3.4	32.7	48.0	-15.3
25.800	Pk	29.8	3.4	33.2	48.0	-14.8
27.280	Pk	31.6	3.5	35.1	48.0	-12.9
28.820	Pk	22.6	3.6	26.2	48.0	-21.8

TEST PERSONNEL:



Jon Wilson		1-7-2002
Test Technician/Engineer	Signature	Date Of Test

4.1 TEST EQUIPMENT USED FOR TESTING

TABLE 4-7: CONDUCTED EMISSIONS TEST EQUIPMENT

Barcode	Manufacturer	Model	Part Type	Serial Number	Calibration Due
900339	HEWLETT PACKARD	85650A	QUASI-PEAK ADAPTER (30 Hz - 1 GHz)	2521A00743	3/21/02
900896	HEWLETT PACKARD	85662A	Display Section	2816A16471	11/9/02
900897	HEWLETT PACKARD	8567A	HP Spectrum Analyzer (10KHz-1.5GHz)	2727A00535	11/9/02
900729	SOLAR	8130	FILTER	947306	
901084	AFJ International	LS16/110VAC	16A LISN	16010020082	9/5/02

5 RADIATED EMISSION LIMITS (GENERAL REQUIREMENTS) - §15.209

5.1 RADIATED EMISSION LIMITS TEST PROCEDURE

Radiated Spurious Emissions applies to harmonics and spurious emissions that fall in the restricted and non-restricted bands. The restricted bands are listed in Part 15.205. The maximum permitted average field strength for the restricted band is listed in Part 15.209. The EUT was tested in the three orthogonal planes.

5.2 TEST EQUIPMENT USED FOR TESTING

TABLE 5-1: RADIATED SPURIOUS EMISSIONS TEST EQUIPMENT

RTL ASSET #	MANUFACTURER	MODEL	PART TYPE	SERIAL NUMBER
900931	HP	8566B	Spectrum Analyzer (100Hz – 22 GHz)	3138A07771
900772	EMCO	3161-02	Horn Antenna (2-4 GHz)	900772
900321	EMCO	3161-03	Horn Antenna (4-8,2GHz)	9508-1020
900323	EMCO	3160-7	Horn Antenna (8,2-12,4 GHz)	9605-1054
900325	EMCO	3160-9	Horn Antenna (18 - 26.5 GHz)	9605-1051
900932	Hewlett Packard	8449B OPT H02	Preamplifier (1-26.5 Ghz)	3008A00505
900791	Schaffner - Chase	CBL6112	Antenna (25 MHz - 2 GHz)	2099
901020	Hewlett Packard	8564E	Spectrum Analyzer (9 kHz – 40 GHz)	3943A01719

5.3 RADIATED EMISSION LIMITS TEST DATA

TABLE 5-2: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 1) {TEMPERATURE: 50°F / HUMIDITY: 55%}

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2412.000	Pk	H	90	1.2	104.8	+5.5	110.3	Fundamental	N/A
2412.000	Av	H	90	1.2	96.7	+5.5	102.2	Fundamental	N/A
4824.000	Pk				*			54.0	
7236.000	Pk				*			54.0	
9648.000	Pk				*			54.0	
12060.000	Pk				*			54.0	
14472.000	Pk				*			54.0	
16884.000	Pk				*			54.0	
19296.000	Pk				*			54.0	
21708.000	Pk				*			54.0	
24120.000	Pk				*			54.0	

Note:
* Emission level is greater than 20dB under 15.209 limit

Peak: Res. =1 MHz, Vid.= 1 MHz; Average: Res. =1 MHz, VID= 10Hz; NF = noise floor

TEST PERSONNEL:

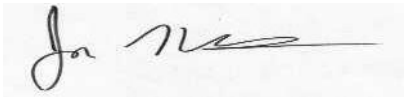
Jon Wilson		1-11-02
Test Technician/Engineer	Signature	Date Of Test

TABLE 5-3: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) {TEMPERATURE: 50°F / HUMIDITY: 55%}

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2437.000	Pk	H	91	1.1	104.8	+5.5	110.3	Fundamental	N/A
2437.000	Av	H	91	1.1	96.4	+5.5	101.9	Fundamental	N/A
4874.000	Pk				*			54.0	
7311.000	Pk				*			54.0	
9748.000	Pk				*			54.0	
12185.000	Pk				*			54.0	
14622.000	Pk				*			54.0	
17059.000	Pk				*			54.0	
19496.000	Pk				*			54.0	
21933.000	Pk				*			54.0	
24370.000	Pk				*			54.0	

Note:
* Emission level is greater than 20dB under 15.209 limit

Peak: Res. =1 MHz, Vid.= 1 MHz; Average: Res. =1 MHz, VID= 10Hz; NF = noise floor

TEST PERSONNEL:

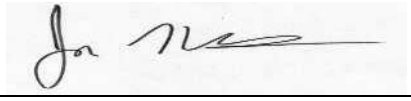
Jon Wilson		1-11-02
Test Technician/Engineer	Signature	Date Of Test

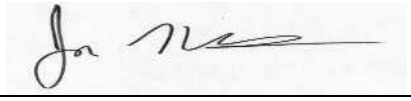
TABLE 5-4: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 11) {TEMPERATURE: 50°F / HUMIDITY: 55%}

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2462.000	Pk	H	90	1.1	103.5	+6.5	110.0	Fundamental	N/A
2462.000	Av	H	90	1.1	95.2	+6.5	101.7	Fundamental	N/A
4924.000	Pk				*			54.0	
7386.000	Pk				*			54.0	
9848.000	Pk				*			54.0	
12310.000	Pk				*			54.0	
14772.000	Pk				*			54.0	
17234.000	Pk				*			54.0	
19696.000	Pk				*			54.0	
22158.000	Pk				*			54.0	
24620.000	Pk				*			54.0	

Note:
* Emission level is greater than 20dB under 15.209 limit

Peak: Res. =1 MHz, Vid.= 1 MHz; Average: Res. =1 MHz, VID= 10Hz; NF = noise floor

TEST PERSONNEL:



Jon Wilson		1-11-02
Test Technician/Engineer	Signature	Date Of Test

6 MODULATED BANDWIDTH - §15.247(A)(2)

6.1 MODULATED BANDWIDTH TEST PROCEDURE

The minimum 6 dB bandwidth per FCC 15.247 (a)(2) was measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and video bandwidth set at 300 kHz. The minimum 6 dB modulated bandwidths are the following:

6.2 TEST EQUIPMENT USED FOR TESTING

TABLE 6-1: TEST EQUIPMENT USED FOR TESTING (MODULATED BANDWIDTH)

RTL Asset #	Manufacturer	Model	Part Type	Serial Number
900931	HP	8566B	Spectrum Analyzer (100Hz – 22 GHz)	3138A07771

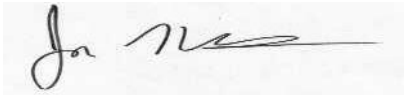
6.3 MODULATED BANDWIDTH TEST DATA

TABLE 6-2: MINIMUM 6 DB MODULATED BANDWIDTHS

CHANNEL	6 dB BANDWIDTH (MHz)
1	10.0
6	9.5
11	9.9

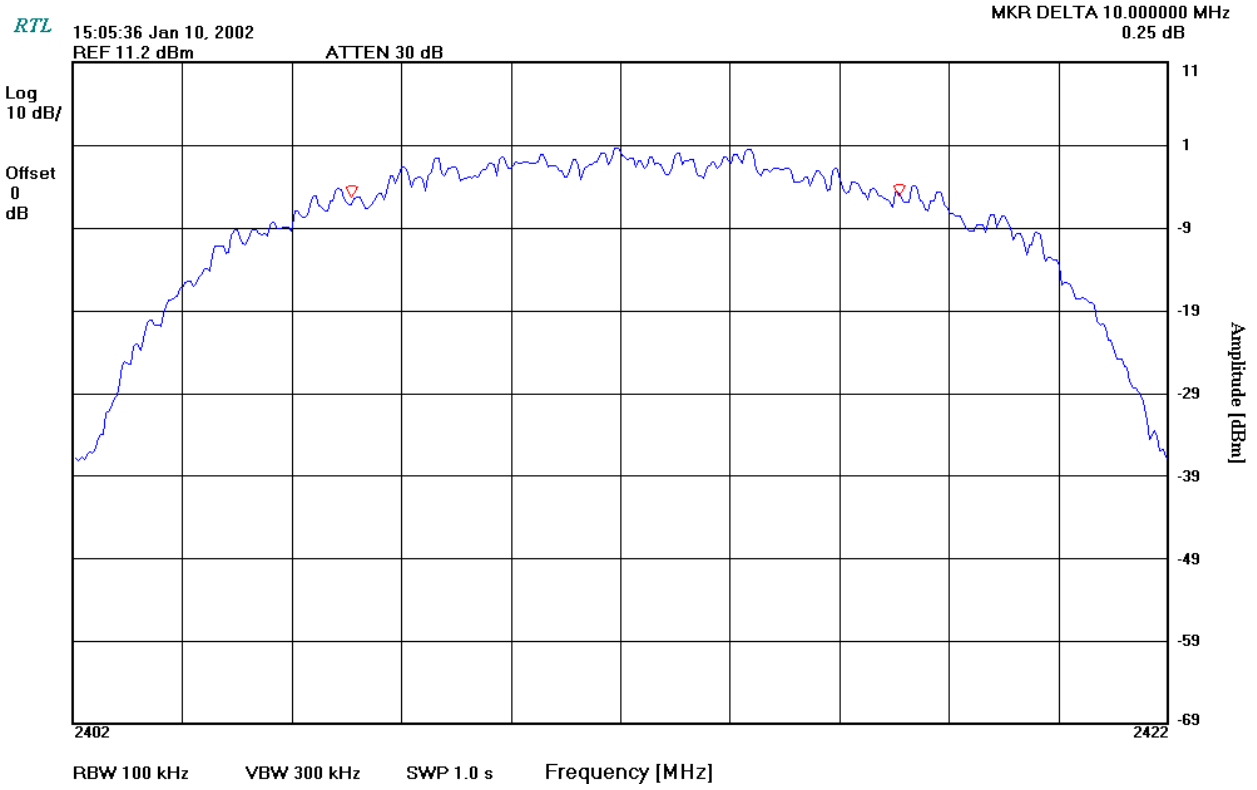
The 6 dB bandwidth is listed in following figures.

TEST PERSONNEL:

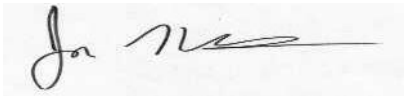
Jon Wilson		1-10-2002
Test Technician/Engineer	Signature	Date Of Test

6.4 MODULATED BANDWIDTH PLOTS

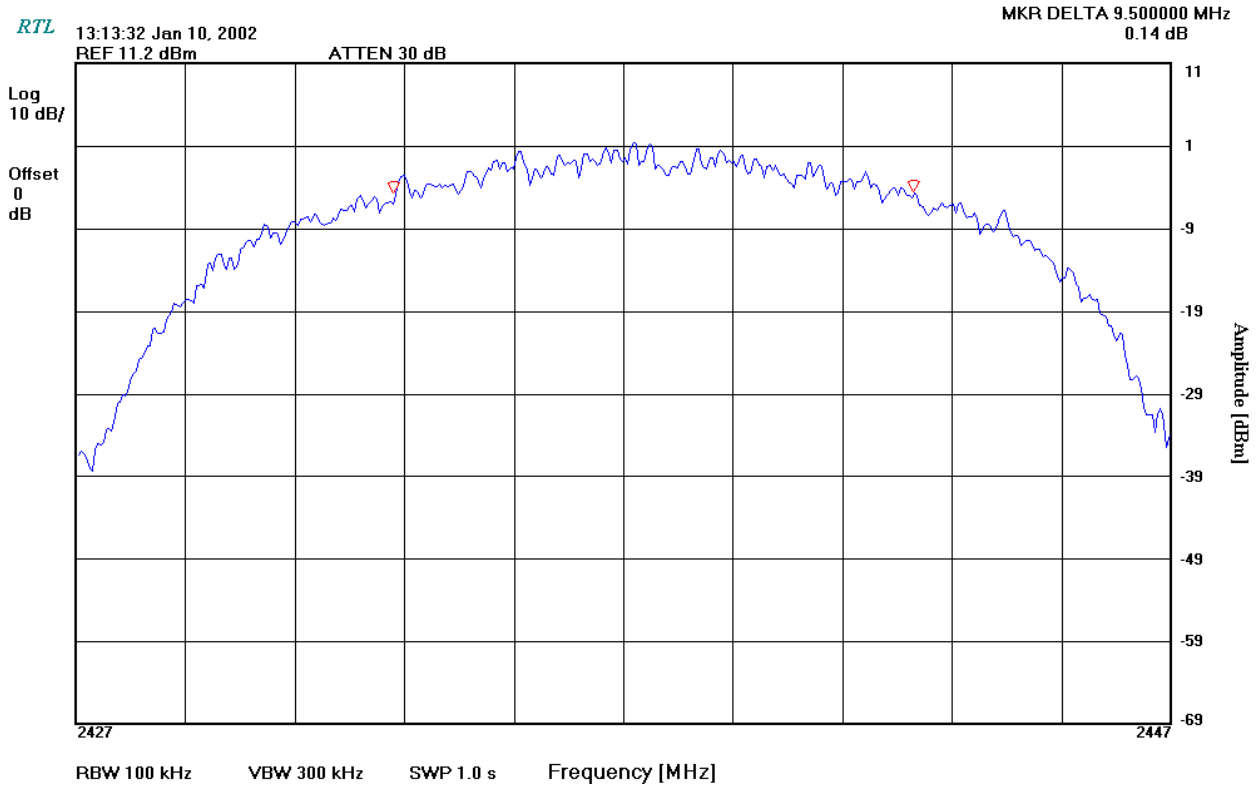
PLOT 6-1: MODULATED BANDWIDTH CHANNEL 1



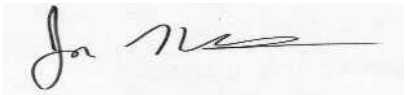
TEST PERSONNEL:

Jon Wilson		1-10-2002
Test Technician/Engineer	Signature	Date Of Test

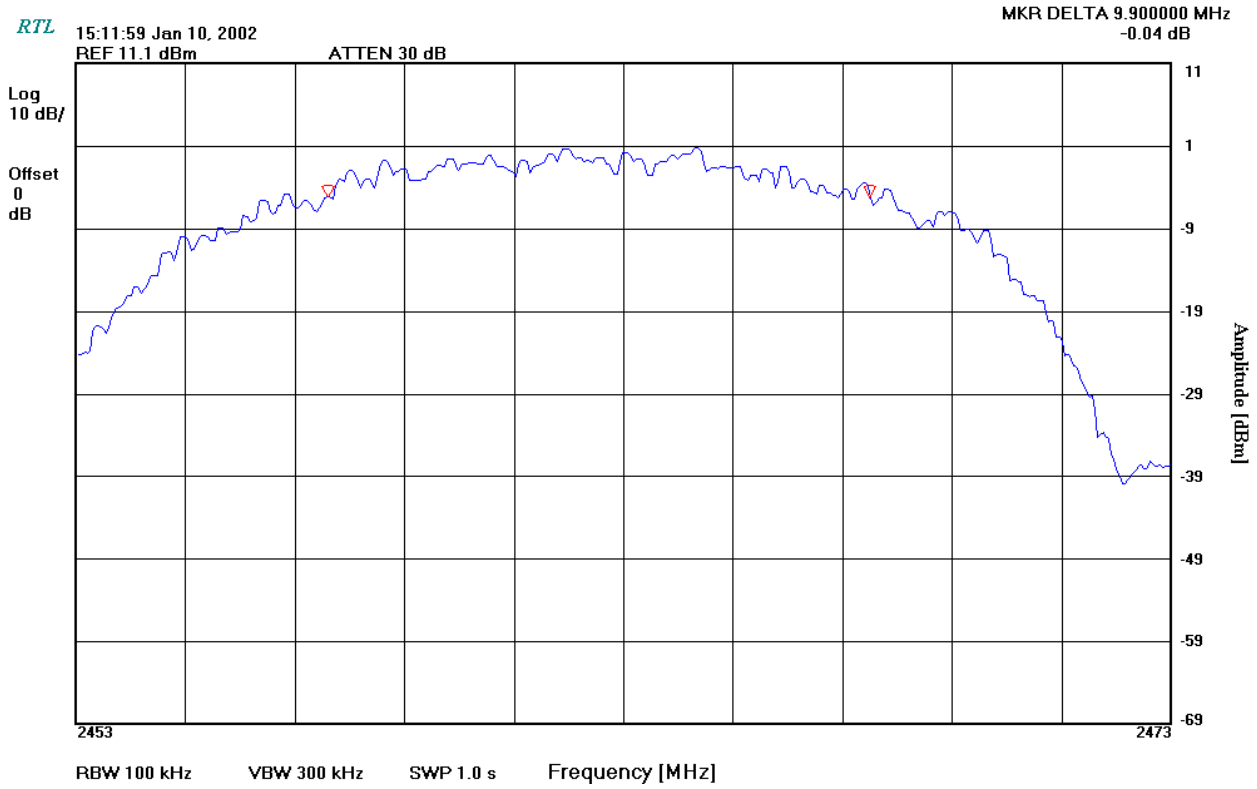
PLOT 6-2: MODULATED BANDWIDTH CHANNEL 6



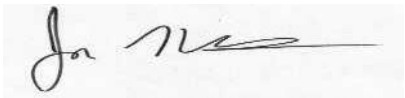
TEST PERSONNEL:

Jon Wilson		1-10-2002
Test Technician/Engineer	Signature	Date Of Test

PLOT 6-3: MODULATED BANDWIDTH CHANNEL 11



TEST PERSONNEL:

Jon Wilson		1-10-2002
Test Technician/Engineer	Signature	Date Of Test

7 POWER OUTPUT - §15.247(B)

7.1 POWER OUTPUT TEST PROCEDURE

The power output per FCC 15.247(b) was measured on the EUT using an HP peak power meter. EIRP measurement was performed as a radiated test using the substitution method.

7.2 TEST EQUIPMENT USED FOR TESTING

TABLE 7-1: TEST EQUIPMENT USED FOR TESTING (RADIATED RF OUTPUT – EIRP)

RTL Asset #	Manufacturer	Model	Part Type	Serial Number
900931	HP	8566B	Spectrum Analyzer (100Hz – 22 GHz)	3138A07771
901186	Agilent Technologies	E9323A (50MHz-6GHz)	Peak & Avg. Power Sensor	US40410380
901184	Agilent Technologies	E4416A	EPM-P Power Meter, single channel	GB41050573
900772	EMCO	3161-02	Horn ANTENNA (2-4 GHz)	900772
900814	Electro-Metrics	RGA-60	Double Ridges Guide Antenna (1-18 GHz)	2310
900932	Hewlett Packard	8449B OPT H02	Preamplifier (1-26.5 Ghz)	3008A00505
900917	Hewlett Packard	8648C	Signal Generator, (100 kHz - 3200 MHz)	3537A01741

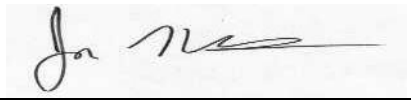
7.3 POWER OUTPUT TEST DATA

TABLE 7-2: POWER OUTPUT TEST DATA

CHANNEL	EIRP (dBm)*	POWER CONDUCTED OUTPUT (dBm)
1	17.0	11.7
6	17.3	11.2
11	17.0	11.1

*Measurement accuracy is +/- 0.5 dB

TEST PERSONNEL:



Jon Wilson		1-11-2002
Test Technician/Engineer	Signature	Date Of Test

8 ANTENNA CONDUCTED SPURIOUS EMISSIONS - §15.247(C)

8.1 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST PROCEDURES

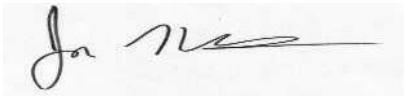
Antenna spurious emission per FCC 15.247(c) was measured from the EUT antenna port using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 300 kHz. The modulated carrier was identified at 2.410GHz for Channel 1, 2.437GHz for Channel 6 and 2.463GHz for Channel 11. No other harmonics or spurs were found within 20 dB of the carrier level, and from 9kHz to the carriers 10th harmonic. See antenna conducted spurious noise table.
Channels 1, 6, and 11 were investigated and tested.

8.2 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST DATA

TABLE 8-1: ANTENNA CONDUCTED SPURIOUS EMISSIONS: CHANNEL 1

Frequency (MHz)	Spurious level (dBm)	FCC Margin (dB)
2412.0	11.7	Fundamental
4824.0	-41.7	-30.0
7236.0	-40.3	-28.6
9648.0	-41.4	-29.7
12.60.0	-41.8	-30.1
14472.0	-42.4	-30.7
16884.0	-40.6	-28.9
19296.0	-41.2	-29.5
21708.0	-41.7	-30.0
24120.0	-42.1	-30.4

TEST PERSONNEL:

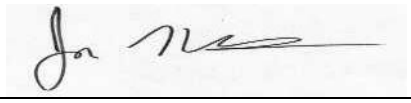


Jon Wilson		1-2-2002
Test Technician/Engineer	Signature	Date Of Test

TABLE 8-2: ANTENNA CONDUCTED SPURIOUS EMISSIONS: CHANNEL 6

Frequency (MHz)	Spurious level (dBm)	FCC Margin (dB)
2437.0	11.2	Fundamental
4874.0	-42.0	-30.8
7311.0	-40.0	-28.8
9748.0	-41.0	-29.8
12185.0	-42.0	-30.8
14622.0	-42.5	-31.3
17059.0	-41.7	-30.5
19496.0	-41.5	-30.3
21933.0	-41.8	-30.6
24370.0	-42.3	-31.1

TEST PERSONNEL:

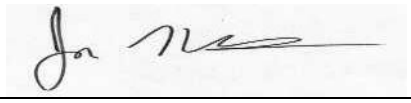


Jon Wilson		1-2-2002
Test Technician/Engineer	Signature	Date Of Test

TABLE 8-3: ANTENNA CONDUCTED SPURIOUS EMISSIONS: CHANNEL 11

Frequency (MHz)	Spurious level (dBm)	FCC Margin (dB)
2463.0	11.1	Fundamental
4926.0	-41.7	-30.6
7389.0	-40.2	-29.1
9852.5	-41.3	-30.1
12315.5	-41.7	-30.6
14778.0	-42.3	-31.1
17241.5	-41.6	-30.5
18704.5	-41.0	-29.9
22167.5	-40.9	-29.8
24630.5	-42.0	-30.9

TEST PERSONNEL:



Jon Wilson		1-2-2002
Test Technician/Engineer	Signature	Date Of Test

9 POWER SPECTRAL DENSITY - §15.247(D)

9.1 POWER SPECTRAL DENSITY TEST PROCEDURE

The Power spectral density per FCC 15.247(d) was measured from the antenna port of the EUT using a 50 ohm spectrum analyzer with the resolution bandwidth set at 3kHz, the video bandwidth set at 3kHz, and the sweep time set at 17 second. The spectral lines were resolved for the modulated carriers at 2.410GHz, 2.437GHz and 2.463GHz respectively. These levels are well below the +8 dBm limit. See power spectral density table and plots.

9.2 TEST EQUIPMENT USED FOR TESTING

TABLE 9-1: TEST EQUIPMENT USED FOR TESTING (POWER SPECTRAL DENSITY)

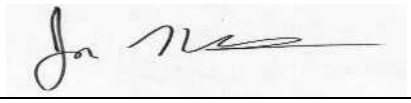
RTL ASSET #	MANUFACTURER	MODEL	PART TYPE	SERIAL NUMBER
900931	HP	8566B	Spectrum Analyzer (100Hz – 22 GHz)	3138A07771

9.3 POWER SPECTRAL DENSITY TEST DATA

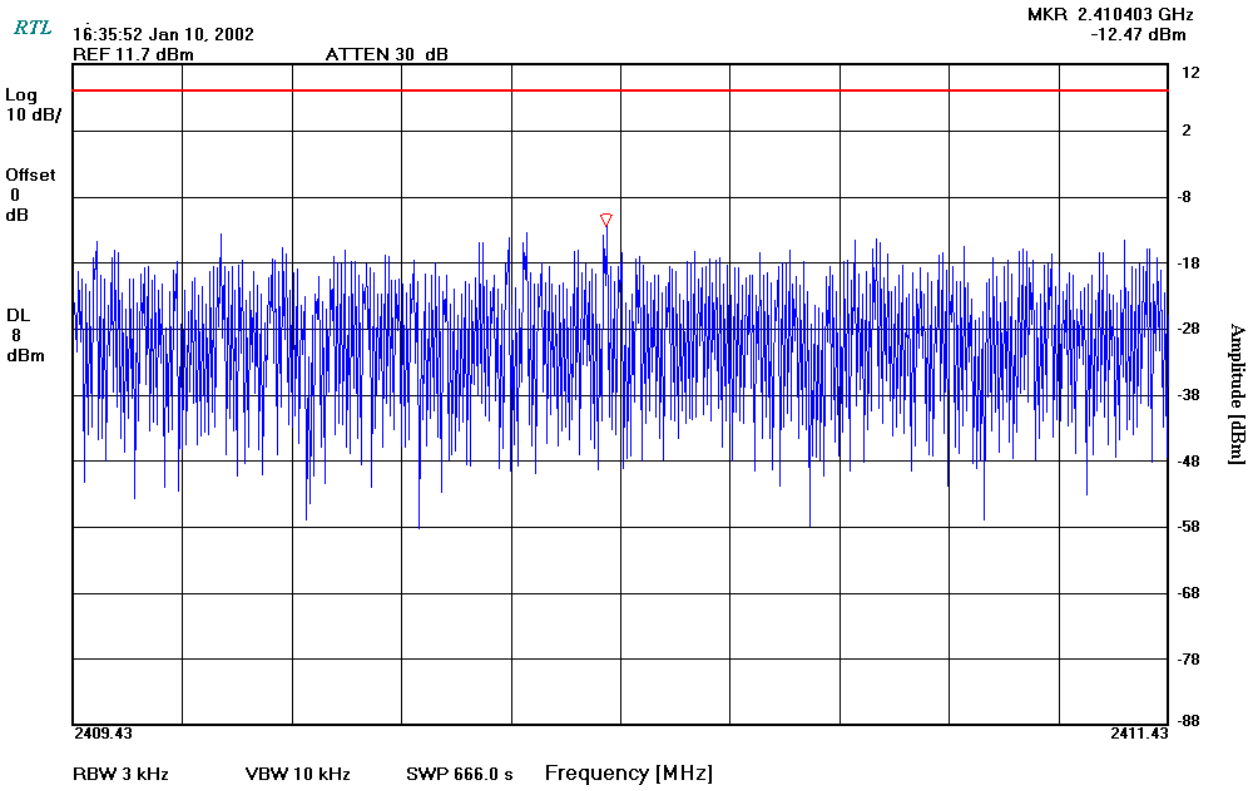
TABLE 9-2: POWER SPECTRAL DENSITY

Channel	Power Spectral Density Limit = +8dBm
1	-12.47
6	-12.13
11	-13.90

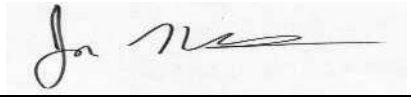
TEST PERSONNEL:

Jon Wilson		1-10-2002
Test Technician/Engineer	Signature	Date Of Test

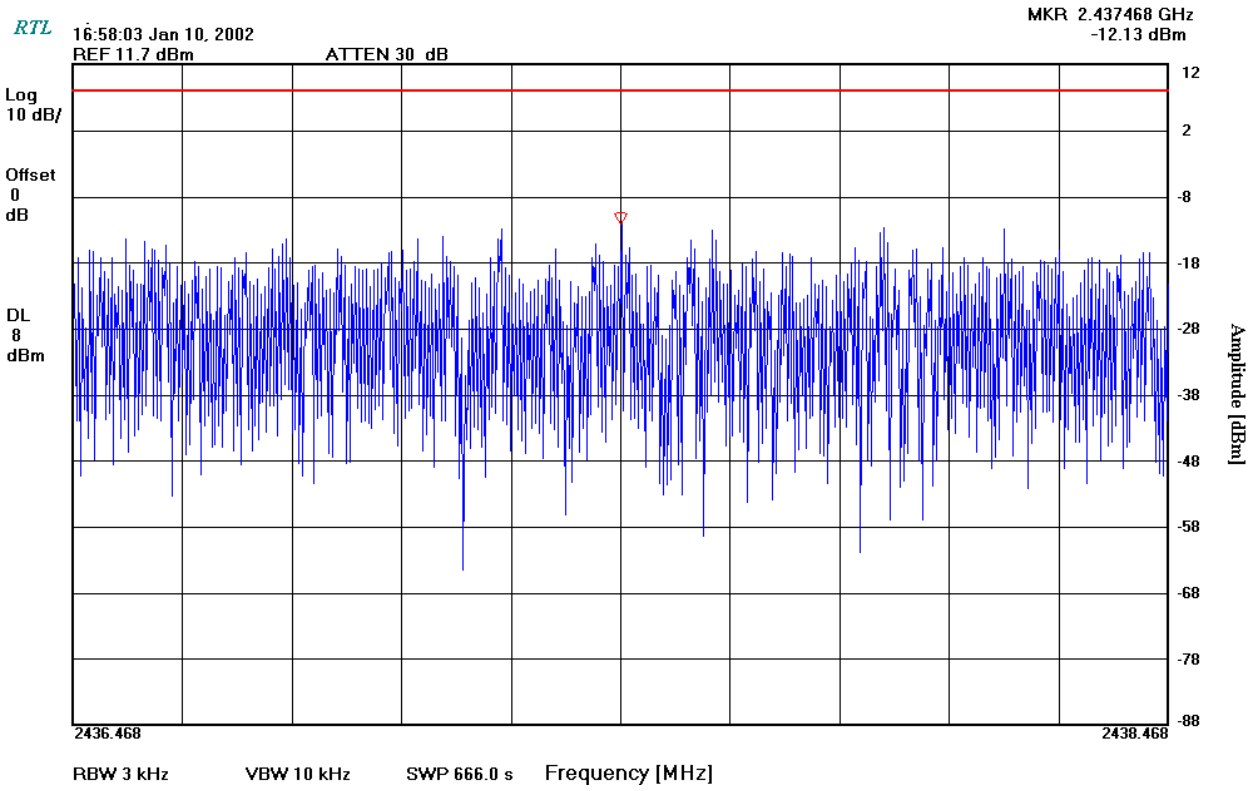
PLOT 9-1: POWER SPECTRAL DENSITY: CHANNEL 1



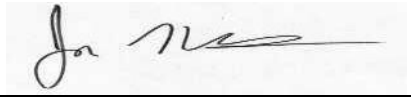
TEST PERSONNEL:

Jon Wilson		1-10-2002
Test Technician/Engineer	Signature	Date Of Test

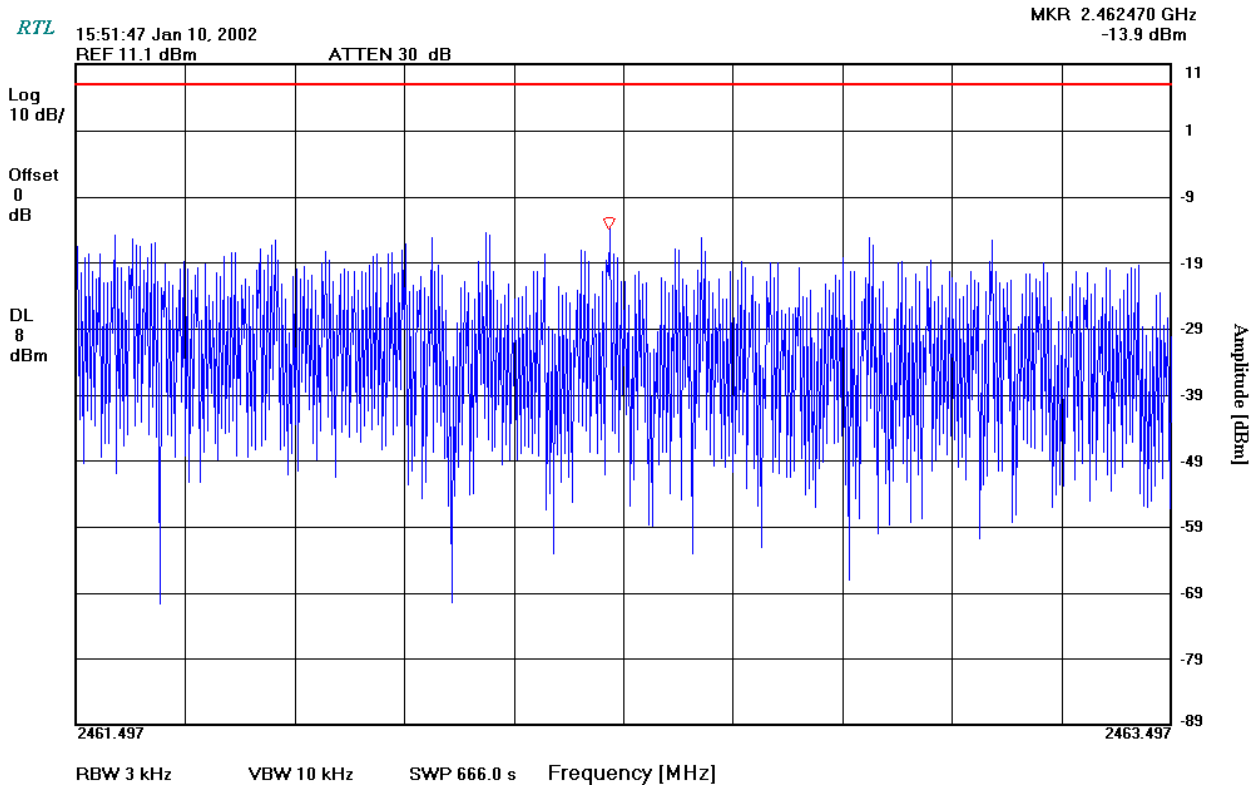
PLOT 9-2: POWER SPECTRAL DENSITY: CHANNEL 6



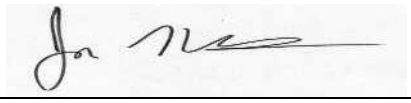
TEST PERSONNEL:

Jon Wilson		1-10-2002
Test Technician/Engineer	Signature	Date Of Test

PLOT 9-3: POWER SPECTRAL DENSITY: CHANNEL 11



TEST PERSONNEL:

Jon Wilson		1-10-2002
Test Technician/Engineer	Signature	Date Of Test

10 CONCLUSION

Test Lab:	Applicant Information:
Rhein Tech Laboratories, Inc. 360 Herndon Parkway Suite 1400 Herndon, VA 20170 Phone: 703-689-0368 Fax: 703-689-2056 Web Site: www.rheintech.com	ICOM Incorporated 1-6-19 Kamikurazukuri Hirano-ku Osaka, Japan 547 Contact: Masaaki Takahashi Phone: 425-454-8155 E-Mail: MasaakiTakahashi@IcomAmerica.com

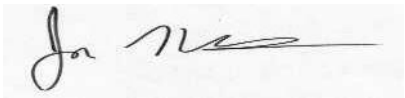
FCC ID:	AFJ SB-110	**FRN NUMBER:**	0005-8553-90
EQUIPMENT TYPE:	Access Point	**MODEL(S):**	SB-110
RTL WORK ORDER NUMBER:	2001336	**RTL QUOTE NUMBER:**	QRTL01-382H
DATE OF TEST REPORT:	1-11-2002		

FCC Classification:	☐ DSS – Spread Spectrum Transmitter ☒ DTS – Digital Transmission System
FCC Rule Part(s):	Part 15.247: Operation within the bands 920-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz ☐ Frequency Hopping System ☒ Direct Sequence System ☐ Hybrid System
Industry Canada Standard:	RSS-210: Low Power License-Exempt Radiocommunication Devices (All Frequency Bands) RSS-210 Section 6.2.2(o): 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz

Frequency Range (MHz)	Conducted Output Power (W)	Freq. Tolerance (ppm, %, or Hz)	Emission Designator
2410-2462	.015	N/A	N/A

The data in this measurement report shows that the EUT complies with all the requirements listed above.

TEST PERSONNEL:

Jon Wilson		1-7-2002 to 1-11-2002
Test Technician/Engineer	Signature	Date Of Test